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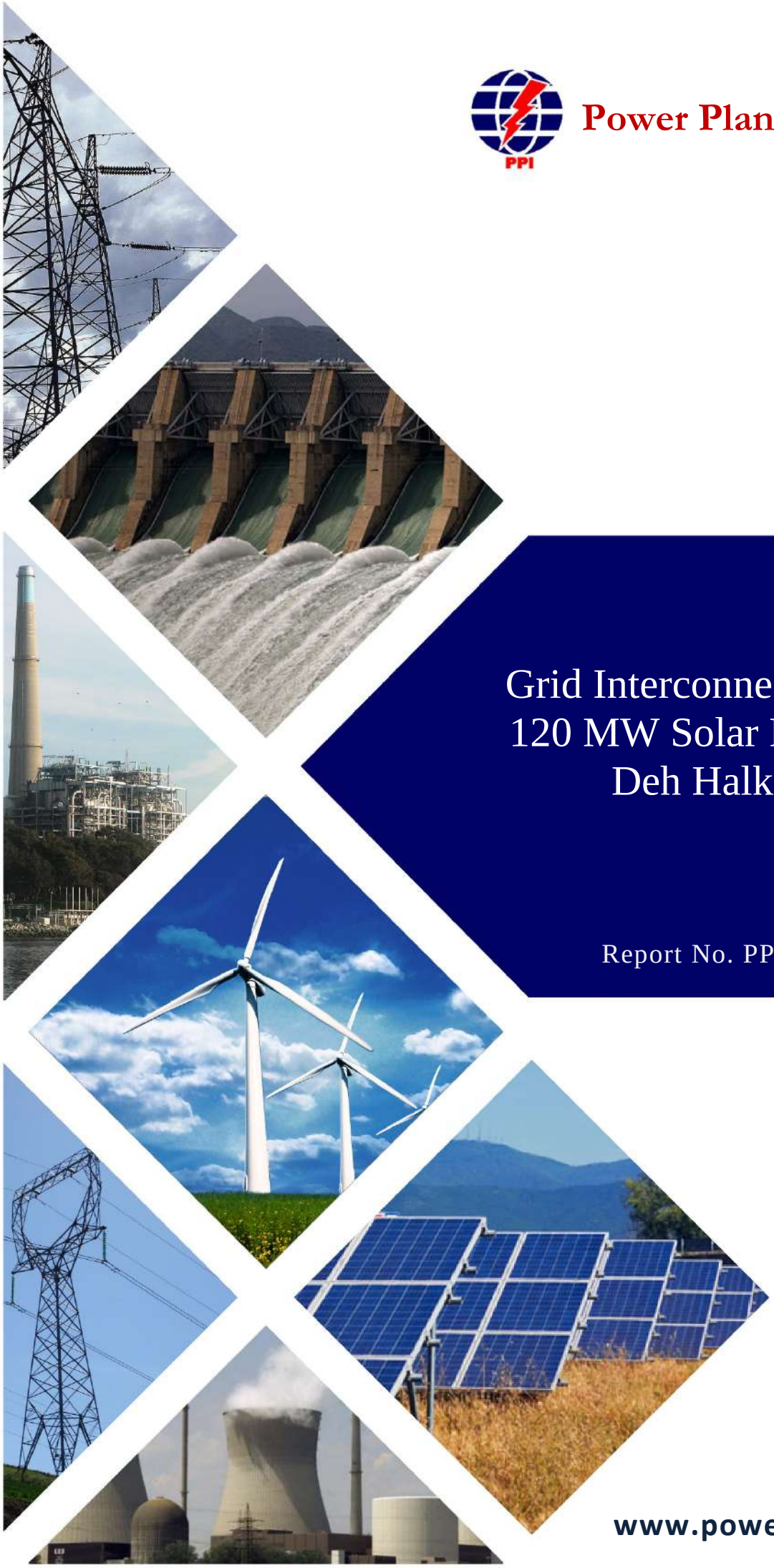

Grid Interconnection Studies for 120 MW Solar Power Project at Deh Halkani, Sindh

Report No. PPI-463.1-Draft/2023

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Grid Interconnection Studies for 120 MW Solar Power Project at Deh Halkani ,Sindh

under

Sindh Solar Energy Project

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Executive Summary

- The Draft Report of 120 MW Solar Power Projects at Deh Halkani, Sindh is submitted herewith.
- Two solar power plants are being installed in Sindh i.e., 120 MW Deh Halkani Solar Power Plant and 150 MW Mitha Garh Solar Power Plant. Their connectivity comprises of looping in-out of both the plants on 220kV single circuit between 220kV Baldia Substation and 220kV Surjani Substation. This report only focuses 120MW Deh Halkani Solar Power Plant.
- The installed DC capacity of the Deh Halkani Solar Power Project is 120MWp and the net AC output of the plant would comprise of six invertors groups of 16 MW each, with generation voltage of 0.4 kV from where it will be stepped-up through 22/0.4 kV transformers of 20 MVA each. The power will be supplied to K-Electric grid station through two 220/22 kV transformer of 120 MVA each.
- The installed DC capacity of the Deh Halkani solar power project is 120 MWp and maximum gross AC output is 96 MW.
- The study objectives, approach and methodology have been described and the plant's data received from the client has been validated.
- The nearest substations of K-Electric, based on the location of this solar plant, are 220 kV Baldia and 220kV Surjani grid stations. The interconnection scheme of Loop-In-Loop-Out (LILO) of 120MW Deh Halkani Solar Plant on 220kV single circuit between 220kV Baldia and Surjani Stations is adopted. The conductor used will be STACIR. After interconnection, the length of 220 kV Single circuit between 220 kV Surjnai and Deh Halkani Solar Plant would be 10.5 km and that of 220 kV single circuit between Mitha Garh and 120 MW Deh Halkani Solar Plant would be 17.5 km. And the length of 220 kV single circuit from Mitha Garh Solar Plant back to 220 kV Baldia Grid Station would be 38km.
- The anticipated Commercial Operation Date (COD) of the Deh Halkani solar projects is March 2025. The Kickoff meeting was held online on 30th November 2022 between K-Electric and PPI teams to discuss the study scenarios by keeping in view of the COD of the projects. The spot years of 2025 and 2027 have been finalized for the study. In this study

report load flow, short circuit and transient stability analysis have been performed on the agreed peak and off-peak load cases of summer 2025 and 2027.

- The KE Network data as provided by K-Electric has been utilized for performing the studies. The un-meshed network of KE has been used while performing the studies. The solar output in different dispatches was discussed in Kickoff meeting and the following variants shall be used:
  - Maximum Solar Dispatch = 96 MW (Max Gross AC Output)
- The reactive power required at the point of common coupling needs to be met to maintain the power factor of 0.95 to fulfill the requirement of Grid Code. In this regard it is recommended that the project sponsor must maintain this power factor either by using the inverter with the capability to supply VARs or by installing an additional reactive power compensation device.
- The detailed load flow studies have been carried out for the peak and off-peak load conditions of summer 2025 and summer 2027 for the proposed scheme under normal and N-1 contingency conditions to meet the reliability criteria.
- Over-loadings experienced in Load Flow Analysis are inherent part of KE Network and would be compromised due to deferment of 220kV reinforcements, therefore, possible measures have been discussed in the report to cater the risks.
- Steady state analysis by load flow for all the scenarios described above reveals that the proposed scheme is adequate to evacuate the maximum power of 96 MW under normal and contingency conditions.
- The short circuit analysis has been carried out to calculate maximum fault levels at the Deh Halkani solar power plant 220 kV bus bar, and the substations of 132 kV in its vicinity for the year 2025 and 2027. We find that the fault currents for the proposed scheme are much less than the rated short circuit capacities of switchgear to be installed at these substations. There are no violations of exceeding the rating of the equipment due to contribution of fault current from Deh Halkani solar power plant.
- The maximum short circuit level of 220 kV bus bar of Deh Halkani is 19.46 kA and 18.02 kA, in the year 2027 for 3-phase and 1-phase faults respectively. Therefore industry standard switchgear of the short circuit rating of 40 kA would be fine to be installed at 220 kV switchyard of Deh Halkani solar power plant as per NTDC requirement taking care of any future generation additions and system reinforcements in its electrical vicinity.

- The dynamic stability analysis has been carried out for all scenarios of peak and off-peak load conditions of summer 2025 and 2027. The stability check for the worst case of three phase fault right on the 220 kV bus bar of the Deh Halkani and Mitha Garh solar power plant substation followed by the trip of 220 kV circuits emanating from these substations, has been performed for fault clearing of 5 cycles (100 ms) as understood to be the normal fault clearing time of 220 kV protection system. Faults have also been applied in the vicinity of the proposed power plant to check the impact of disturbances in K-Electric network on the power plant. The system is found strong enough to stay stable and recovered with fast damping. The proposed scheme successfully passed the dynamic stability checks for near and far faults.
- The proposed scheme of interconnection has no technical constraints or problems, it fulfills all the criteria of reliability and stability under steady state load flow, contingency load flows, short circuit currents, dynamic/transient conditions and is therefore, recommended to be adopted.

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ACRONYMS

ACCC – Automatic Contingency Analysis Activity

BQPS – Bin Qasim Power Station

COD – Commercial Operation Date

KE – K – Electric

LILO – Loop In Loop Out

NTDC – National Transmission and Despatch Company

MCM – Million Circular Mils

PID – Project Implementation Department

PLC – Programmable Logic Controller

PPI – Power Planners International

PSSE – Power System Simulator for Engineers

PV – Photo Voltaic

ROW – Right Of Way

RPC – Reactive Power Compensation

SVC – Static VAR Compensator

THD – Total Harmonic Disorder

1. Introduction

1.1. Background

Sindh Solar Energy Project is developing a 120 MW Photovoltaic (PV) based solar power park located at Deh Halkani, Sindh. The site of proposed project is located in the jurisdiction of K-Electric.

The Project will be located at Deh Halkani. It will be developed in the near vicinity of respective existing KE grid stations. The electricity generated from these solar projects would be supplied to 220 kV grid system of K-Electric for further dispersal to the load centers through 220kV network. The best technically and economically feasible scheme of dispersal has been studied.

The project is expected to achieve Commercial Operation Date in 2025. A comprehensive Network Study is required to validate the viability of the proposal of power import from thissolar power project by K-Electric and to determine its impact on K-Electric network under both steady state and dynamic/transient conditions.

1.2. Objectives

The overall objective of the Study is to evolve an interconnection scheme between Deh Halkani solar power project and K-Electric network, for stable and reliable evacuation of the electrical power generated from this plant, fulfilling N-1 reliability criteria. The specific objectives are:

1. To develop scheme of interconnections at 220 kV for which right of way (ROW) and space at the terminal substations would be available.
2. To determine the performance of interconnection scheme for the evacuation of power from these Solar PV power project to the K-Electric grid/network during steady state conditions of system, normal and N-1 contingency, through load-flow analysis. This analysis should also reflect on the advantages of adding solar power plants to the K-Electric network in terms of voltage regulation, reduction of loses and impact of increasing generation mix in the system.
3. To check if the contribution of fault current from this new plant increases the fault levels at the adjoining substations at 220kV voltage levels to be within the rating of equipment of these substations, and also determine the short circuit ratings of the proposed equipment of the substation at Deh Halkani solar power plant.

4. To carry out the detailed dynamic stability analysis to assess the impact of disturbance in K-Electric network on all three solar power plants and impact of disturbance on solar power plant on K-Electric network. To check if the interconnection withstands dynamic stability criteria of post fault recovery with good damping after 3-phase faults on the system.

5. To propose reactive power compensation devices, like switched shunts or SVC, to maintain ±0.95 power factor at the point of common coupling. This ensures that there is no dearth of reactive power after the introduction of solar power plants.

1.3. Planning Criteria

The planning criteria as per Grid Code required to be fulfilled by the proposed interconnection is as follows:

Steady State:

Voltage	+8%, -5 %, Normal Operating Conditions
	± 10 %, Contingency Conditions
Frequency	50 Hz Nominal, continuous
	49.8 Hz to 50.2 Hz variation in steady state
	49.4 - 50.5 Hz, Min/Max Contingency Freq. Band
Power Factor	± 0.95

Short Circuit:

- 220 kV or 500 kV Substation Equipment Rating 50 kA

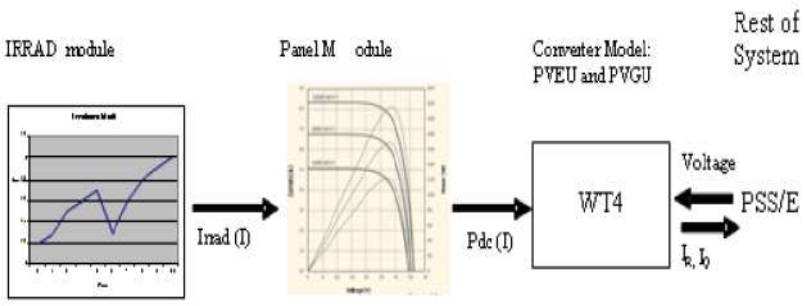
Dynamic/Transient:

The system should revert back to normal condition after dying out of transients without losing synchronism with good damping. For the systems of 132 kV and above the total normal fault clearing time from the instant of initiation of fault current to the complete interruption of current, including the relay time and breaker interruption time to isolate the faulted element, is equal to 100 ms (5 cycles).

2. Assumptions of Data

2.1. Solar Power Plant data

The Solar Power plant has been modeled according to the following block diagram



The way this works is that the irradiance profile from the sun is used as an input to the panel module which then calculates the DC power at that value of the irradiance. This value is then input to the electrical model of the solar power plant (inverter module) which then goes on to calculate the AC power supplied by the solar power plant.

Steady State data:

Gross AC Output of Solar PP to Grid = 96 MW

Dynamic Data:

Converter time constant for IQcmd seconds = 0.02 s

Converter time constant for IQcmd seconds = 0.02 s

Voltage sensor for LVACR time constants = 0.02 s

Voltage sensor time constant = 1.1 s

2.2. Network data

The 220 kV networks available for interconnection of Deh Halkani solar power plant are as shown in Appendix – A. The lengths of the circuits are also mentioned in the sketches.

The Solar Power Plant data as provided by the client has been used and it is attached in Appendix – A. The Network models for the year 2025 and 2027 are provided by PID, K-Electric. The import from NTDC to K-Electric shall be kept at 2050 MW for both the spot years of 2025 and 2027.

3. Study Approach and Methodology

3.1. Understanding of the Problem

The 96 MW (Gross AC Output) solar power plant is going to be a photovoltaic (PV) based solar project in Sindh embedded in the 220 kV distribution network of K-Electric. It would run almost all the months of the year though with some variation in its output due to variation in the strength of light in winter and in rainy season.

The nearest K-Electric 220kV grid stations are Baldia and Surjani. The addition of this solar power plant in its vicinity shall provide relief to the transformers at Baldia and Surjani 220kV grid stations and the sources feeding this area from further away. The adequacy of K-Electric network of 220 kV in and around the proposed site of Deh Halkani solar power plants would be investigated in this study for absorbing and transmitting this power fulfilling the reliability criteria.

3.2. Approach to the problem

The consultant has applied the following approaches to the problem:

- A base case network model has been prepared for the peak and off-peak load case of summer 2025 and summer 2027, after COD of the proposed solar power plants, comprising all 500 kV, 220 kV and 132 kV system, envisaging the load forecast, the generation additions and transmission expansions for that year particularly in K-Electric.
- The anticipated Commercial Operation Date (COD) of Deh Halkani Solar Power plant is March 2025. In view of planned COD, the above proposed interconnection scheme has also been tested for steady state conditions through detailed load flow studies for peak and off-peak load case of summer 2025 and future scenario of summer 2027.
- Performed technical system studies for peak and off-peak load conditions to confirm technical feasibility of the interconnections. The scheme has been subjected to standard analysis like load flow, short circuit and transient stability studies to check the strength of the plant and the proposed interconnection scheme under disturbed conditions.
- Determine the relevant equipment for the proposed technically feasible scheme.
- Recommend the technically most feasible scheme of interconnection.

4. Development of Scheme of Interconnection

4.1. The Existing Network around Deh Halkani Solar Power Plant

The peak and off-peak load cases of summer 2025 and summer 2027 has been modelled in this report to assess the maximum stress on the system. The installed DC capacity of the Deh Halkani solar power project is 120 MWp and maximum gross AC output is 96 MW. The nearest substations of K-Electric, based on the location of these solar plants, are 220 kV Baldia and Surjani grid stations.

4.2. The Scheme of Interconnection of Deh Halkani Solar Power Plant

The nearest substations of K-Electric, based on the location of this solar plant, are 220 kV Baldia and 220kV Surjani grid stations. The interconnection scheme of Loop-In-Loop-Out (LILO) of 120MW Deh Halkani Solar Plant on 220kV single circuit between 220kV Baldia and Surjani Stations is adopted. The conductor used will be STACIR. After interconnection, the length of 220 kV Single circuit between 220kV Surjani and Deh Halkani Solar Plant would be 10.5km and that of 220kV single circuit between Deh Halkani and 150MW Mitha Garh Solar Plant would be 17.5km. And the length of 220kV single circuit from Mitha Garh Solar Plant back to 220kV Baldia Grid Station would be 38km.

5. Detailed Load Flow Studies

5.1. Simulation Cases

The anticipated Commercial Operation Date (COD) of the Deh Halkani solar projects is March 2025. The Kickoff meeting was held online on 30th November 2022 between K-Electric and PPI teams to discuss the study scenarios by keeping in view of the COD of the projects. The spot years of 2025 and 2027 have been finalized for the study. The Study Scenarios have been agreed as shown in the Table below:

Table 5.1: Case Matrix for Study Scenarios according to spot years 2025 and 2027

Spot Years	Load Flow Cases				Short Circuit Cases	Stability Cases
2025	Peak Load Case (Summer Scenario)	Maximum Output of Solar Plants	With RPC	Average Wind Dispatch	With Maximum Solar Output	With Maximum Solar on Average Wind Dispatch
				Max. Wind Dispatch		
			Without RPC	Average Wind Dispatch		
				Max. Wind Dispatch		
	Off-Peak Load Case (Winter Scenario)	Maximum Output of Solar Plants	With RPC	Average Wind Dispatch	-	With Maximum Solar on Average Wind Dispatch
				Max. Wind Dispatch		
			Without RPC	Average Wind Dispatch		
				Max. Wind Dispatch		

Spot Years	Load Flow Cases				Short Circuit Cases	Stability Cases
2027	Peak Load Case (Summer Scenario)	Maximum Output of Solar Plants	With RPC	Average Wind Dispatch	With Maximum Solar Output	With Maximum Solar on Average Wind Dispatch
				Max. Wind Dispatch		
			Without RPC	Average Wind Dispatch		
				Max. Wind Dispatch		
	Off-Peak Load Case (Winter Scenario)	Maximum Output of Solar Plants	With RPC	Average Wind Dispatch	-	With Maximum Solar on Average Wind Dispatch
				Max. Wind Dispatch		
			Without RPC	Average Wind Dispatch		
				Max. Wind Dispatch		

5.2. Assumptions Regarding Model Setup

The KE Network data available with PPI for other studies as provided by PID, K-Electric shall be utilized for performing the studies. The un-meshed network of KE has been used while performing the studies. The load demand and generation dispatch as provided by PID shall be used as input for the development of cases. Peak load demand for the year 2025 is 4478 MW and for the year 2027 is 4720 MW. This load demand shall be met by the following:

- Local Generation of KE as per the dispatch policy.
- Import from NTDC to be kept at 2050 MW for both the spot years.

Off-Peak load cases shall be developed using the following assumptions:

- Load in terms of Percentage to that of Peak Load (37% of Peak Load)

5.3. Modeling of Solar Power Plant in the Load Flow

Representation of all the individual inverters in a large Solar Power Plant is inappropriate in most grid impact studies. There is a provision in the model structure of PSS/E to allow single equivalent inverter model to represent multiple invertors. For grid system impact studies, simulations are typically performed with the irradiance sufficient to produce the rated output on all the inverters. Though simulations of bulk system dynamics using a single inverter equivalent are adequate for most planning studies.

5.4. Reactive Power Requirements

The power factor of Deh Halkani solar power plant is used as provided by K-Electric. Part of this reactive power will be consumed by the step-up transformers and the rest may be consumed in collector cables of the solar plant. However some reactive power might reach the bus bar of solar plant substation. That means each inverter is self sufficient to meet VAR absorption requirement of its step-up transformer with some contribution of VARs to the Solar Plant MV network.

The latest Grid Code requires to meet the criteria of ± 0.95 power factor at the point of interconnection with the NTDC/K-Electric grid at 220 kV (point of common coupling).

In order to meet the Grid Code criteria, we need to install reactive power compensation equipment. For a 120 MW Solar Power Plant delivering 96 MW gross AC output, we need to have around SVC of 50 MVAR at 22 kV bus bar after farm losses.

The reactive power required at the point of common coupling needs to be met to maintain the power factor of 0.95 to fulfill the requirement of Grid Code Addendum – II. In this regard it is

recommended that the project sponsor must maintain this power factor either by using the inverter with the capability to supply VARs or by installing an additional reactive power compensation device.

5.5. Peak Load Case Summer 2025

A base case has been developed for the peak load case of summer 2025, using the network data of K-Electric and NTDC. The Network models for the year 2025 and 2027 are provided by PID, K-Electric. The import from NTDC to K-Electric shall be kept at 2050 MW for both the spot years of 2025 and 2027.

The load flow analysis have been performed for all the study scenarios of peak load case summer 2025 mutually agreed between K-Electric and PPI keeping in mind all the variables i.e summer and winter load in system, solar plants maximum dispatch, with and without reactive power compensation for proposed solar projects and maximum and average wind dispatch in Jhampir and Gharo corridors. The solar output in different dispatches was discussed and the Maximum Solar Dispatch 0f 96 MW (Max Gross AC Output) has been used.

Load flow analysis has been carried out and the plotted results for Normal cases (without any outages of circuits) are attached in Appendix – B as follows:

Scenarios for Peak load Case Summer 2025			**Exhibit Number**
Maximum Output of Solar Plants	With RPC	Average Wind Dispatch	1.1.0 & 1.1.1
		Maximum Wind Dispatch	1.2.0& 1.2.1
	Without RPC	Average Wind Dispatch	1.3.0 & 1.3.1
		Maximum Wind Dispatch	1.4.0 & 1.4.1

The system plotted in above Exhibits show 220kV and 132 kV network in the vicinity of Deh Halkani solar power plant including the substations of Surjani, NKI, Hub Chowki, Baldia and other substations. The power flows on the circuits under normal conditions are seen well within the rated capacities. Also the voltages on the bus bars are within the permissible operating range of ± 5 % off the nominal. We find no capacity constraints on the 220kV and 132 kV circuits under normal conditions (without any outages of circuits) for all above mentioned scenarios.

Contingency cases are run by using Automatic Contingency Analysis Activity (ACCC) of PSS/E software to identify the system overloads and voltage violations under N-1 contingency conditions.

Contingency analysis has also been performed for all the above mentioned scenarios to check the adequacy of the network under N – 1 condition. ACCC analysis in the KE network, confirmed that with the generation addition plans and transmission expansion plans of KE, even with the additional supply import from NTDC the power flows on most of the circuits are within the rated capacities and the voltages on the bus bars are within the permissible operating range of ± 10 % off the nominal under contingency conditions. Thus, we find that there are no capacity constraints in terms of MW or MVA flow in the 220kV and 132 kV network available in the vicinity of Deh Halkani solar power plant for their connectivity under normal conditions and the N-1 contingency conditions considered.

In all the above contingency cases, we find that in the event of outage of any circuit, the intact circuits remain within the rated capacity. Also the bus bar voltages are well within the rated limits in all the contingency events. Thus there are no constraints in this scheme in the contingency conditions mentioned above. The results of the Load Flow Analysis along with the ACCC analysis are attached in Appendix – B for peak load cases of summer 2025.

However, some over-loadings have been experienced in load flow analysis. These over-loadings are an inherent problem of KE Network and the commissioning of this solar power plant does not cause these over-loadings. Moreover, the solar power plant caters to load demand of KE network and improves the voltage profile of the system along with the decrement of system losses. KE is advised to look at these contingency related issues via some operational measures for the short term and planning the system reinforcements in long term.

5.6. Off-Peak Load Case Summer 2025

The load flow analysis have been performed for all the study scenarios of off-peak load case summer 2025 mutually agreed between K-Electric and PPI. The off-peak load cases have been developed using the following assumptions:

- Load in terms of Percentage to that of Peak Load (37% of Peak Load)
- Generation Dispatch of all units (As per merit order, dispatch to be given to Renewables (Oursun and Gharo), BQPS-III (442 MW), SNPC (100 MW), FPCL (52 MW) and the rest to NTDC respectively.

Load flow analysis has been carried out and the plotted results for Normal cases (without any outages of circuits) are attached in Appendix – B as follows:

Scenarios for Off-Peak load Case Summer 2025			**Exhibit Number**
Maximum Output of Solar Plants	With RPC	Average Wind Dispatch	2.1.0 & 2.1.1
		Maximum Wind Dispatch	2.2.0 & 2.2.1

	Without RPC	Average Wind Dispatch	2.3.0 & 2.3.1
		Maximum Wind Dispatch	2.4.0 & 2.4.1

The system plotted in above Exhibits show 220kV and 132 kV network in the vicinity of Deh Halkani solar power plant including the substations of Surjani, NKI, Hub Chowki, Baldia and other substations. The power flows on the circuits under normal conditions are seen well within the rated capacities. Also the voltages on the bus bars are within the permissible operating range of ± 5 % off the nominal. We find no capacity constraints on the 220 & 132 kV circuits under normal conditions (without any outages of circuits) for all above mentioned scenarios.

Contingency analysis has also been performed for all the above mentioned scenarios to check the adequacy of the network under N – 1 condition. ACCC analysis in the KE network, confirmed that with the generation addition plans and transmission expansion plans of KE, even with the additional supply import from NTDC the power flows on most of the circuits are within the rated capacities and the voltages on the bus bars are within the permissible operating range of ± 10 % off the nominal under contingency conditions. Thus, we find that there are no capacity constraints in terms of MW or MVA flow in the 220kV & 132 kV network available in the vicinity of Deh Halkani solar power plants for their connectivity under normal conditions and the N-1 contingency conditions considered.

However, some over-loadings have been experienced in load flow analysis. These over-loadings are an inherent problem of KE Network and the commissioning of this solar power plant does not cause these over-loadings. Moreover, the solar power plant caters to load demand of KE network and improves the voltage profile of the system along with the decrement of system losses. KE is advised to look at these contingency related issues via some operational measures for the short term and planning the system reinforcements in long term.

5.7. Extended Term Scenario: Peak Load Case Summer 2027

Load flow analysis has been carried out for the future scenario on peak load conditions of summer 2027 for the NTDC/K-Electric network. All the future reinforcements that were proposed till 2027 are modeled in the case. The future scenario of peak load case summer 2027 shows the impact of proposed power plants in the extended term of their operation as per NTDC criteria.

The results of load flow with Deh Halkani solar power plant interconnected as per proposed scheme under Normal case (without any outages of circuits) are attached in Appendix – B as follows:

Scenarios for Peak load Case Summer 2027			**Exhibit Number**
Maximum Output of Solar Plants	With RPC	Average Wind Dispatch	3.1.0 & 3.1.1
		Maximum Wind Dispatch	3.2.0 & 3.2.1
	Without RPC	Average Wind Dispatch	3.3.0 & 3.3.1
		Maximum Wind Dispatch	3.4.0 & 3.4.1

The power flows on the circuits under normal conditions are seen well within the rated capacities. Also the voltages on the bus bars are within the permissible operating range of ± 5 % off the nominal. We find no capacity constraints on the 220 and 132 kV circuits under normal conditions i.e. without any outages of circuits.

Contingency analysis has also been performed for all the above mentioned scenarios to check the adequacy of the network under N – 1 condition. ACCC analysis in the KE network, confirmed that with the generation addition plans and transmission expansion plans of KE, even with the additional supply import from NTDC the power flows on most of the circuits are within the rated capacities and the voltages on the bus bars are within the permissible operating range of ± 10 % off the nominal under contingency conditions. Thus, we find that there are no capacity constraints in terms of MW or MVA flow in the 220 and 132 kV network available in the vicinity of Deh Halkani solar power plant for their connectivity under normal conditions and the N-1 contingency conditions considered.

In all the above contingency cases, we find that in the event of outage of any circuit, the intact circuits remain within the rated capacity. Also the bus bar voltages are well within the rated limits in all the contingency events. Thus there are no constraints in this scheme in the contingency conditions mentioned above.

However, some over-loadings have been experienced in load flow analysis. These over-loadings are an inherent problem of KE Network and the commissioning of this solar power plant does not cause these over-loadings. Moreover, the solar power plant caters to load demand of KE network and improves the voltage profile of the system along with the decrement of system losses. KE is advised to look at these contingency related issues via some operational measures for the short term and planning the system reinforcements in long term.

The results of the Load Flow Analysis along with the ACCC analysis are attached in Appendix – B for peak load cases of summer 2027.

5.8. Extended Term Scenario: Off-Peak Load Case Summer 2027

Load flow analysis has been carried out for the future scenario on off-peak load conditions of summer 2027 for the NTDC/K-Electric network.

The results of load flow with Deh Halkani solar power plant interconnected as per proposed scheme under Normal case (without any outages of circuits) are attached in Appendix – B as follows:

Scenarios for Peak load Case Summer 2027			**Exhibit Number**
Maximum Output of Solar Plants	With RPC	Average Wind Dispatch	4.1.0 & 4.1.1
		Maximum Wind Dispatch	4.2.0 & 4.2.1
	Without RPC	Average Wind Dispatch	4.3.0 & 4.3.1
		Maximum Wind Dispatch	4.4.0 & 4.4.1

The power flows on the circuits under normal conditions are seen well within the rated capacities. Also the voltages on the bus bars are within the permissible operating range of ± 5 % off the nominal. We find no capacity constraints on the 220kV and 132 kV circuits under normal conditions i.e. without any outages of circuits.

Contingency analysis has also been performed for all the above mentioned scenarios to check the adequacy of the network under N – 1 condition. ACCC analysis in the KE network, confirmed that with the generation addition plans and transmission expansion plans of KE, even with the additional supply import from NTDC the power flows on most of the circuits are within the rated capacities and the voltages on the bus bars are within the permissible operating range of ± 10 % off the nominal under contingency conditions. Thus, we find that there are no capacity constraints in terms of MW or MVA flow in the 220kV and 132 kV network available in the vicinity of Deh Halkani solar power plant for their connectivity under normal conditions and the N-1 contingency conditions considered.

However, some over-loadings have been experienced in load flow analysis. These over-loadings are an inherent problem of KE Network and the commissioning of this solar power plant does not cause these over-loadings. Moreover, the solar power plant caters to load demand of KE network and improves the voltage profile of the system along with the decrement of system losses. KE is advised to look at these contingency related issues via some operational measures for the short term and planning the system reinforcements in long term.

The results of the Load Flow Analysis along with the ACCC analysis are attached in Appendix – B for off-peak load cases of summer 2027.

5.9. Conclusion of Load Flow Analysis

From the analysis discussed above, we conclude that the proposed interconnection scheme is adequate to evacuate the 96 MW gross AC output of power plant under normal and contingency conditions. The interconnection ensures reliability and availability under all events of contingencies, i.e. planned or forced outages studied in this report for the base year of 2025 as well as for the future scenario of 2027. The bus bar voltages remain well within the permissible limits in all the contingency events.

To fulfill the requirement of Grid Code Addendum 2, it is recommended that reactive power compensation in terms of switched shunt capacitor banks should be installed at the MV bus bar of all three solar power plants. As this reactive power compensation not only would help to regulate the voltages of KE system but also help in the stable operation of the solar power plants as the lower voltages may cause frequent tripping of the solar power plants. In this regard, SVC of 50 MVAR may be installed at 96 MW solar power plant.

The plant serves as an efficient energy source towards sustaining the voltage profile of the surrounding area. Load Flow analysis also indicates that line losses are reduced and voltage profile of the area is improved due to availability of local generation.

Some transmission line over-loadings have been experienced in load flow analysis. These over-loadings are an inherent part of KE Network and the commissioning of this solar power plant does not play any part in the occurrences of these over-loadings. Moreover, the solar power plant caters to load demand of KE network and improves the voltage profile of the system along with the decrement of system losses. Due to deferment of 220kV reinforcements in KE Network, these contingencies will be compromised. So, some measures are being proposed to mitigate possible risks such as limiting of overloading time by using Cross Trip and Load-Shedding schemes etc and also keeping spare equipment in KE inventory that can be used in time of need.

Hence, the proposed interconnection scheme of Deh Halkani solar power plants has no constraints according to the Load Flow Analysis.

6. Short Circuit Analysis

6.1. Methodology and Assumptions

The methodology of IEC 60909 has been applied in all short circuit analyses in this report for which provision is available in the PSS/E software used for these studies. For calculations of maximum fault levels the bus voltage has been assumed as 1.1 PU i.e. 10 % above the nominal as per IEC 60909. For calculations of minimum fault levels the bus voltage has been assumed as 0.9 PU i.e. 10 below the nominal. That covers the entire ± 10 % range of the ratings of the equipment.

6.1.1. Maximum Short Circuit

The maximum fault currents have been calculated with the following assumptions under IEC 60909:

- Set tap ratios to unity
- Set line charging to zero
- Set shunts to zero in positive sequence
- Desired voltage magnitude at bus bars set equal to 1.10 P.U. i.e. 10 % higher than nominal, which is the maximum permissible voltage under contingency condition.

For evaluation of maximum short circuit levels we have assumed contribution in the fault currents from all the installed generation capacity of hydel, thermal and nuclear plants in the system in the year 2025 and year 2027 i.e. all the generating units have been assumed on-bar in fault calculation's simulations.

6.2. Maximum Fault Current Calculations

6.2.1. With Deh Halkani Solar Power Plant – Year 2025

Fault currents have been calculated for the electrical interconnection of proposed scheme. Three phase and single-phase faults have been applied at the 220 kV bus bar of Deh Halkani solar power plant and other bus bars of the 220kv and 132 kV substations in the electrical vicinity.

The tabulated results of short circuit analysis showing all the fault current contributions with short circuit impedances on 220kV and 132 kV bars of the network in the electrical vicinity of Deh Halkani solar power plant are placed in Exhibit 5.1 in Appendix – C.

We find that with the interconnection of Deh Halkani solar power plant the fault levels are much below the rated short circuit values of the equipment installed on these substations. The maximum short circuit level of 220 kV bus bar of Deh Halkani is 19.82 kA and 12.93 kA in the year 2025 for 3-phase and 1-phase faults respectively.

6.2.2. With Deh Halkani Solar Power Plants – Year 2027

Fault currents have been calculated for the electrical interconnection of proposed scheme. Three phase and single-phase faults have been applied at the 220kV bus bars of Deh Halkani solar power plants and other bus bars of the 220kV and 132 kV substations in the electrical vicinity.

The tabulated results of short circuit analysis showing all the fault current contributions with short circuit impedances on 220kV and 132 kV bars of the network in the electrical vicinity of Deh Halkani Solar Power Plant are placed in Exhibit 5.2 in Appendix – C.

Comparison of Tables 6.2.1 and 6.2.2 show slight increase in short circuit levels for both three-phase and single–phase, on the 220 kV bus bars in the vicinity due to connection of Deh Halkani solar power plant. We find that even after some increase, these fault levels are below the rated short circuit values of the equipment installed on these substations. The maximum short circuit level of 220 kV bus bar of Deh Halkani is19.46 kA and 18.02 kA in the year 2027 for 3-phase and 1-phase faults respectively.

6.3. Conclusion of Short Circuit Analysis

The short circuit analysis results show that for the proposed scheme of interconnection of Deh Halkani solar power plants we don't find any problem of violations of short circuit ratings of the already installed equipment on the 220 kV equipment of substations in the vicinity of the Solar Power Plants due to fault current contributions from this plant due to three-phase faults as well as single phase faults.

The maximum short circuit level of 220 kV bus bar of Deh Halkani is 19.46 kA and 18.02 kA in the year 2027 for 3-phase and 1-phase faults respectively. Therefore industry standard switchgear of the short circuit rating of 50 kA would be fine to be installed at 220 kV switchyard of Deh Halkani solar power plants as per NTDC requirement taking care of any future generation additions and system reinforcements in its electrical vicinity.

7. Dynamic Stability Analysis

7.1. Assumptions & Methodology

7.1.1. Stability Models

The assumptions about the generator and its parameters are the same as mentioned in Ch.2 of this report.

The generic stability models available in the PSS/E model library for dynamic modelling of the PV-Solar power generator have been employed. Its electrical model and the panel as follows;

Generator	PVGU1
Electrical Model	PVEU1
Solar Irradiance Model	IRRADU1

7.1.2. System Conditions

We have used the system conditions of peak and off-peak load summer of 2025 and 2027 because this will allow the maximum impact of Deh Halkani solar power plant to be judged.

All the power plants of WAPDA/NTDC from Tarbela to HUBCO have been dynamically represented in the simulation model.

7.1.3. Presentation of Results

The plotted results of the simulations runs are placed in Appendix - D. Each simulation is run for its first one second for the steady state conditions of the system prior to fault or disturbance. This is to establish the pre fault/disturbance conditions of the network under study were smooth and steady. Post fault recovery has been monitored for nine seconds. Usually all the transients due to non-linearity die out within 2-3 seconds after disturbance is cleared in the system.

7.1.4. Worst Fault Cases

Three phase faults are considered as the worst disturbance in the system. 3-phase fault in the closest vicinity of the Solar Power Plant i.e. right at the 220 kV bus bar of the solar power plant substation, cleared in 5 cycles, i.e. 100 ms, followed by permanent trip of a 220 kV transmission line emanating from this substation, have been considered. 1-Phase fault, cleared in 9 cycles, i.e. 180 ms (Stuck Breaker Case) have also been performed.

7.2. Dynamic Stability Simulations' Results Summer 2025

The transient stability analysis is carried out for peak load case of summer 2025 with the interconnection of Deh Halkani solar power plant. Dynamic Data file for the year 2025 as provided by PID K-Electric has been used. All the plants in the system have been represented dynamically in the simulations. Loads have been represented via complex load composite model as provided by NTDC and KE for their respective networks.

The plotted results of the simulations runs are placed in Appendix – D. Each simulation is run for its first one second for the steady state conditions of the system prior to fault or disturbance. This is to establish the pre fault/disturbance conditions of the network under study were smooth and steady. Post fault recovery has been monitored for nineteen seconds. Usually all the transients due to non-linearity die out within a few seconds after disturbance is cleared in the system.

The following disturbances have been studied:

- 3-Phase to earth faults near power station bus bars cleared in 5 cycles (100ms), followed by the tripping/opening of the faulted circuit for 220 kV system and selected 132 kV locations.

For all the faults following quantities have been measured:

- Bus Bar Voltages
- System Frequency
- Line Flows in terms of MW and MVAR
- Solar Plant Output in term of MW and MVAR
- Rotor Angles

7.2.1. Peak Load Case Summer 2025

As per agreed scenarios of peak load case summer 2025, the plotted results of Dynamic stability analysis are shown in Appendix – D as follows:

Scenarios for Peak load Case Summer 2025			**Fault Number**
Maximum Output of Solar Plants	Without RPC	Average Wind Dispatch	1.1 to 1.8

Following faults have been simulated for above mentioned scenario for peak 2025:

Sr. No.	Fault Location	Line Tripping
1	Deh Halkani 22 kV	Deh Halkani One 220/22 kV Transformer
2		One Invertor group of 16 MW of Deh Halkani Solar
3	Mitha Garh 22 kV	Mitha Garh One 220/22 kV Transformer
4		One Invertor group of 16 MW of Mitha Garh Solar
5	Deh Halkani 220 kV	Deh Halkani to Surjani 220 kV Single Circuit
6	Mitha Garh 220 kV	Mitha Garh to Deh Halkani 220 kV Single Circuit
7	Baldia 220 kV	NKI to Baldia 220 kV Single Circuit
8	Surjani 220 kV	Deh Halkani to Surjani 220 kV Single Circuit

Following are the results of Stability Analysis:

- The outage of single Transmission line or Transformer shows Stable behavior in all faults applied.
- The outage of the one Invertor group of 16 MW of any proposed solar plant have been checked and the results shows the frequency of the system recovers within a few seconds to Normal Operating range.

The results of dynamic stability carried out for all above mentioned scenarios of peak load conditions of summer 2025, show that there are some post recovery oscillations due to long length of transmission line in the loop, however the system is strong and stable enough to damp the oscillations for the proposed scheme of interconnection.

7.2.2. Off-Peak Load Case Summer 2025

As per agreed scenarios of off-peak load case summer 2025, the plotted results of Dynamic stability analysis are shown in Appendix – D as follows:

Scenarios for Peak load Case Summer 2025			Fault Number
Maximum Output of Solar Plants	Without RPC	Average Wind Dispatch	2.1 to 2.8

Following faults have been simulated for above mentioned scenario for off-peak 2025:

Sr. No.	Fault Location	Line Tripping
1	Deh Halkani 22 kV	Deh Halkani One 220/22 kV Transformer
2		One Invertor group of 16 MW of Deh Halkani Solar

Sr. No.	Fault Location	Line Tripping
3	Mitha Garh 22 kV	Mitha Garh One 220/22 kV Transformer
4		One Invertor group of 16 MW of Mitha Garh Solar
5	Deh Halkani 220 kV	Deh Halkani to Surjani 220 kV Single Circuit
6	Mitha Garh 220 kV	Mitha Garh to Deh Halkani 220 kV Single Circuit
7	Baldia 220 kV	NKI to Baldia 220 kV Single Circuit
8	Surjani 220 kV	Deh Halkani to Surjani 220 kV Single Circuit

Following are the results of Stability Analysis:

- The outage of single Transmission line or Transformer shows Stable behavior in all faults applied.
- The outage of the one Invertor group of 16 MW of any proposed solar plant have been checked and the results shows the frequency of the system recovers within a few seconds to Normal Operating range.

7.3. Dynamic Stability Simulations' Results Summer 2027

7.3.1. Peak Load Case Summer 2027

The transient stability analysis is also carried out for the future scenario of peak load case of summer 2027 with the interconnection of Deh Halkani solar power plant. Dynamic Data file for the year 2027 as provided by PID K-Electric has been used.

As per agreed scenarios of peak load case summer 2027, the plotted results of Dynamic stability analysis are shown in Appendix – D as follows:

Scenarios for Peak load Case Summer 2027			Fault Number
Maximum Output of Solar Plants	Without RPC	Average Wind Dispatch	3.1 to 3.8

Following faults have been simulated for above mentioned scenario for and peak 2027:

Sr. No.	Fault Location	Line Tripping
1	Deh Halkani 22 kV	Deh Halkani One 220/22 kV Transformer
2		One Invertor group of 16 MW of Deh Halkani Solar
3	Mitha Garh 22 kV	Mitha Garh One 220/22 kV Transformer
4		One Invertor group of 16 MW of Mitha Garh Solar
5	Deh Halkani 220 kV	Deh Halkani to Surjani 220 kV Single Circuit

Sr. No.	Fault Location	Line Tripping
6	Mitha Garh 220 kV	Mitha Garh to Deh Halkani 220 kV Single Circuit
7	Baldia 220 kV	NKI to Baldia 220 kV Single Circuit
8	Surjani 220 kV	Deh Halkani to Surjani 220 kV Single Circuit

Following are the results of Stability Analysis:

- The outage of single Transmission line or Transformer shows Stable behavior in all faults applied.
- The outage of the one Invertor group of 16 MW of any proposed solar plant have been checked and the results shows the frequency of the system recovers within a few seconds to Normal Operating range.

The results of dynamic stability carried out for all above mentioned scenarios of peak load conditions of summer 2027, show that there are some post recovery oscillations due to long length of transmission line in the loop, however the system is strong and stable enough to damp the oscillations for the proposed scheme of interconnection.

7.3.2. Off-Peak Load Case Summer 2027

The transient stability analysis is also carried out for the future scenario of off-peak load case of summer 2027 with the interconnection of Deh Halkani solar power plant.

As per agreed scenarios of off-peak load case summer 2027, the plotted results of Dynamic stability analysis are shown in Appendix – D as follows:

Scenarios for Off-Peak load Case Summer 2027			Fault Number
Maximum Output of Solar Plants	Without RPC	Average Wind Dispatch	4.1 to 4.8

Following faults have been simulated for above mentioned scenario for off-peak 2025:

Sr. No.	Fault Location	Line Tripping
1	Deh Halkani 22 kV	Deh Halkani One 220/22 kV Transformer
2		One Invertor group of 16 MW of Deh Halkani Solar
3	Mitha Garh 22 kV	Mitha Garh One 220/22 kV Transformer
4		One Invertor group of 16 MW of Mitha Garh Solar
5	Deh Halkani 220 kV	Deh Halkani to Surjani 220 kV Single Circuit

Sr. No.	Fault Location	Line Tripping
6	Mitha Garh 220 kV	Mitha Garh to Deh Halkani 220 kV Single Circuit
7	Baldia 220 kV	NKI to Baldia 220 kV Single Circuit
8	Surjani 220 kV	Deh Halkani to Surjani 220 kV Single Circuit

Following are the results of Stability Analysis:

- The outage of single Transmission line or Transformer shows Stable behavior in all faults applied.
- The outage of the one Invertor group of 16 MW of any proposed solar plant have been checked and the results shows the frequency of the system recovers within a few seconds to Normal Operating range.

7.4. Conclusion of Dynamic Stability Analysis

The results of dynamic stability carried out for all scenarios of peak and off-peak load conditions of summer 2025 and 2027 show that the system is very strong and stable for the proposed scheme for the severest possible faults of 220 kV systems near to and far of the Deh Halkani solar power plant. Therefore, there is no problem of dynamic stability for interconnection of these Solar Power Plants; it fulfils all the criteria of transient stability. The reactive support from the inverter also helps the system stability.

8. Conclusions

- Steady state analysis by load flow for all the scenarios of peak and off-peak load case of summer 2025 and 2027, reveals that the proposed scheme is adequate to evacuate the maximum AC power of 96 MW of the plant under normal as well as contingency conditions.
- Over-loadings experienced in Load Flow Analysis are inherent part of KE Network and would be compromised due to deferment of 220kV reinforcements, therefore, possible measures have been discussed in the report to cater the risks.
- The reactive power required at the point of common coupling needs to be met to maintain the power factor of 0.95 to fulfill the requirement of Grid Code Addendum – II. In this regard it is recommended that the project sponsor must maintain this power factor either by using the inverter with the capability to supply VARs or by installing an additional reactive power compensation device.
- The maximum short circuit level of 220 kV bus bar of Deh Halkani is 19.46 kA and 18.02 kA, in the year 2027 for 3-phase and 1-phase faults respectively. Therefore industry standard switchgear of the short circuit rating of 50 kA would be fine to be installed at 220 kV switchyard of Deh Halkani solar power plants as per NTDC requirement taking care of any future generation additions and system reinforcements in its electrical vicinity.
- The dynamic stability analysis has been carried out for all scenarios of peak and off-peak load conditions of summer 2025 and 2027. The stability check for the worst case of three phase fault right on the 220 kV bus bar of the Deh Halkani and Mitha Garh solar power plant substation followed by the trip of 220 kV circuits emanating from this substation, has been performed for fault clearing of 5 cycles (100 ms) as understood to be the normal fault clearing time of 220 kV protection system. Faults have also been applied in the vicinity of the proposed power plant to check the impact of disturbances in K-Electric network on the power plant. The system is found strong enough to stay stable and recovered with fast damping. The proposed scheme successfully passed the dynamic stability checks for near and far faults.
- The proposed scheme of interconnection has no technical constraints or problems, it fulfills all the criteria of reliability and stability under steady state load flow, contingency load flows, short circuit currents, dynamic/transient conditions and is therefore, recommended to be adopted.

Appendices

Appendix - A

- **Plant Data Provided by Client**
- **Maps and Sketches**

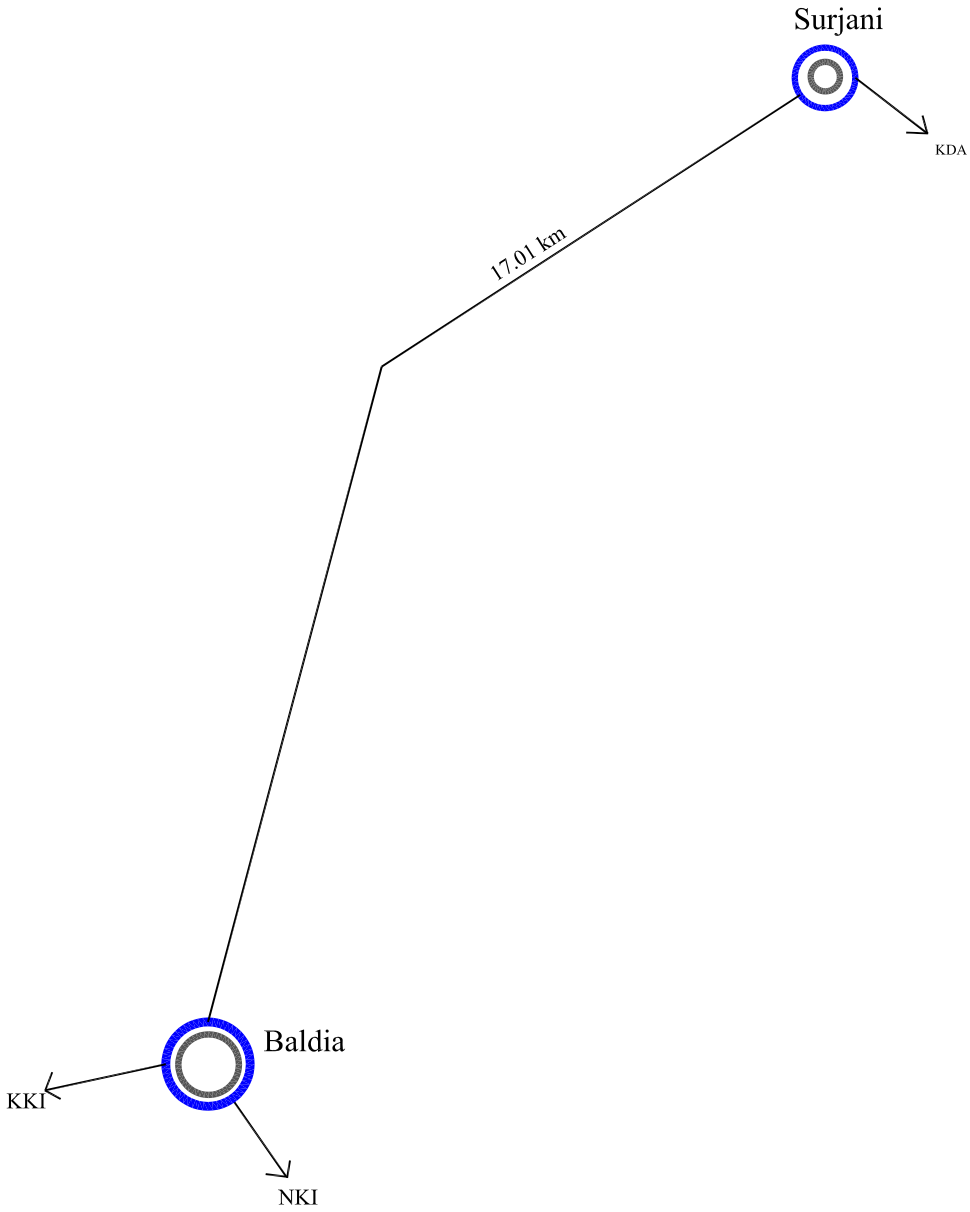
Data Required for 120MW Solar Power Plant at Deh Halkani, Sindh

We would require the following preliminary data for carrying out the Load Flow Study

-	**General**	
1	Expected COD (Commercial Operation Date)	March 2025
2	Location/Coordinates of the Project	
3	Information about the nearest Grid Station (Distance from this Grid)	220 kV Surjani
4	Any electrical SLDs, if any, prepared for the project	NA
-	**Generators**	-
5	Number of Inverter Units	48 Nos
6	No. of Inverter Groups	6 Nos
7	Power produced by each Inverter Unit, MW	2 MW
8	Rated Apparent Power of each Inverter Unit, MVA	2.5 MVA
9	HV Level	22 kV
10	Generation Voltage	0.4 kV
11	Nominal DC Power of the Plant, MW	120 MW
12	Net AC Output of the Plant, MW	96 MW
	GSU Transformer/s (Please specify if it is a 2-Winding or a 3-Winding Transformer)	
13	No. of GSU Units 220/22kV	2
14	Transformer Rated Power, MVA	120
15	Transformer Impedance, (R, X) in % at Rated MVA Base	12%
16	No. Step-down transformers 22kV/0.4kV	6
17	Step-down Transformer Rated Power, MVA	20

Interconnection Study of 120MW Deh Halkani Solar Power Plant

(Year 2025 Without Deh Halkani Solar Power Plant)



Legend

Existing 132 kV

Existing 220 kV

Sketch-1

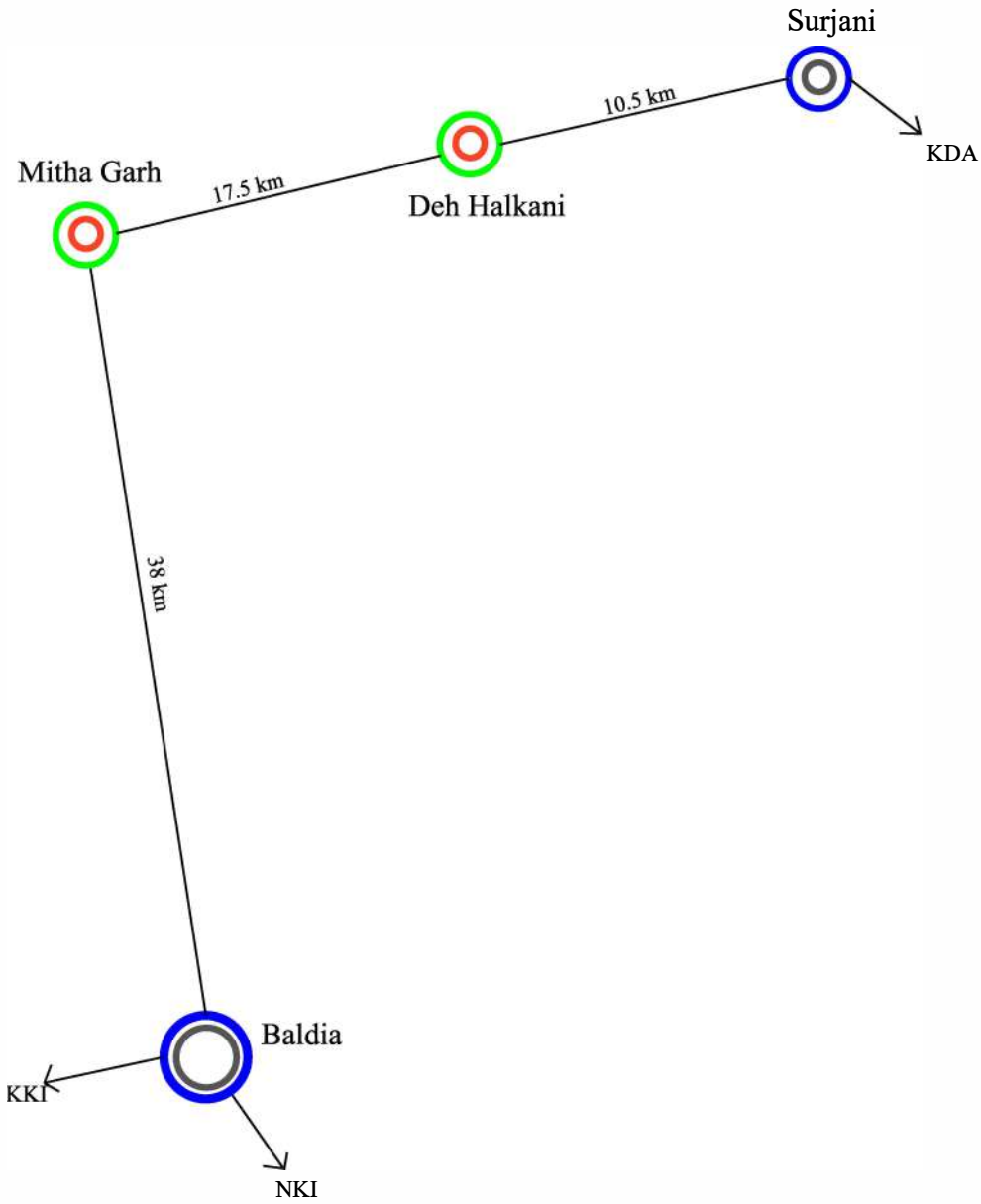
Interconnection Study of 120MW Deh Halkani Solar Power Plant

Power Planners International

2023 | 1 | 2025-Without 120 MW Deh Halkani

Interconnection Study of 120MW Deh Halkani Solar Power Plant

(Year 2025 With Deh Halkani Solar Power Plant)



Legend

Proposed 220 kV
Existing 132 kV
Existing 220 kV

Sketch-2

Interconnection Study of 120MW Deh Halkani Solar Power Plant

Power Planners International

2023

Appendix - B

Plotted Results of Load Flow Analysis for Chapter - 5

Appendix - B - 1

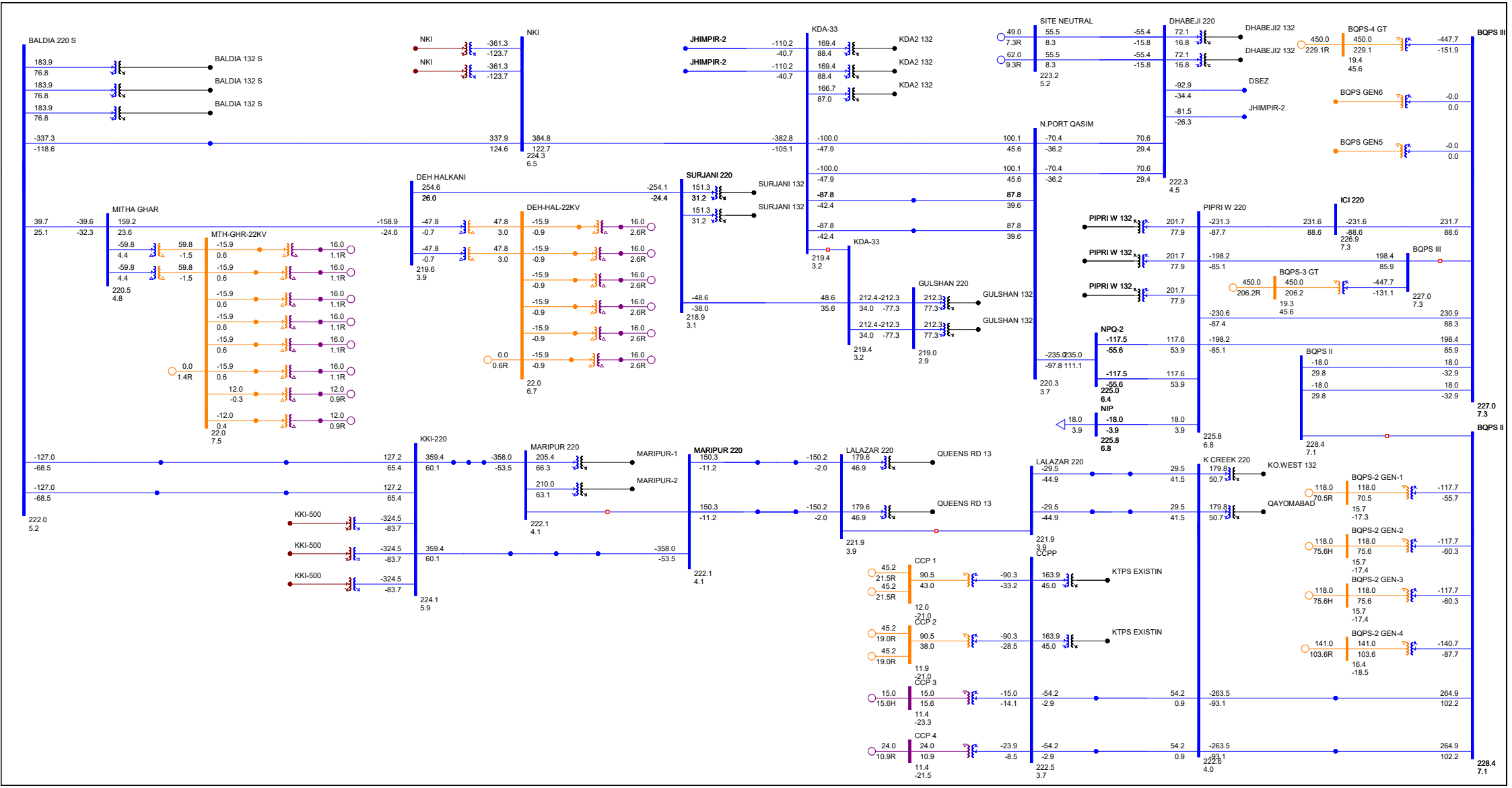
Plotted Results of Load Flow Analysis for Peak Load Case Summer 2025

Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Peak Load Case Year 2025 - (Maximum Solar - Average Wind - With RPC)

Normal Case

Exhibit 1.1.0

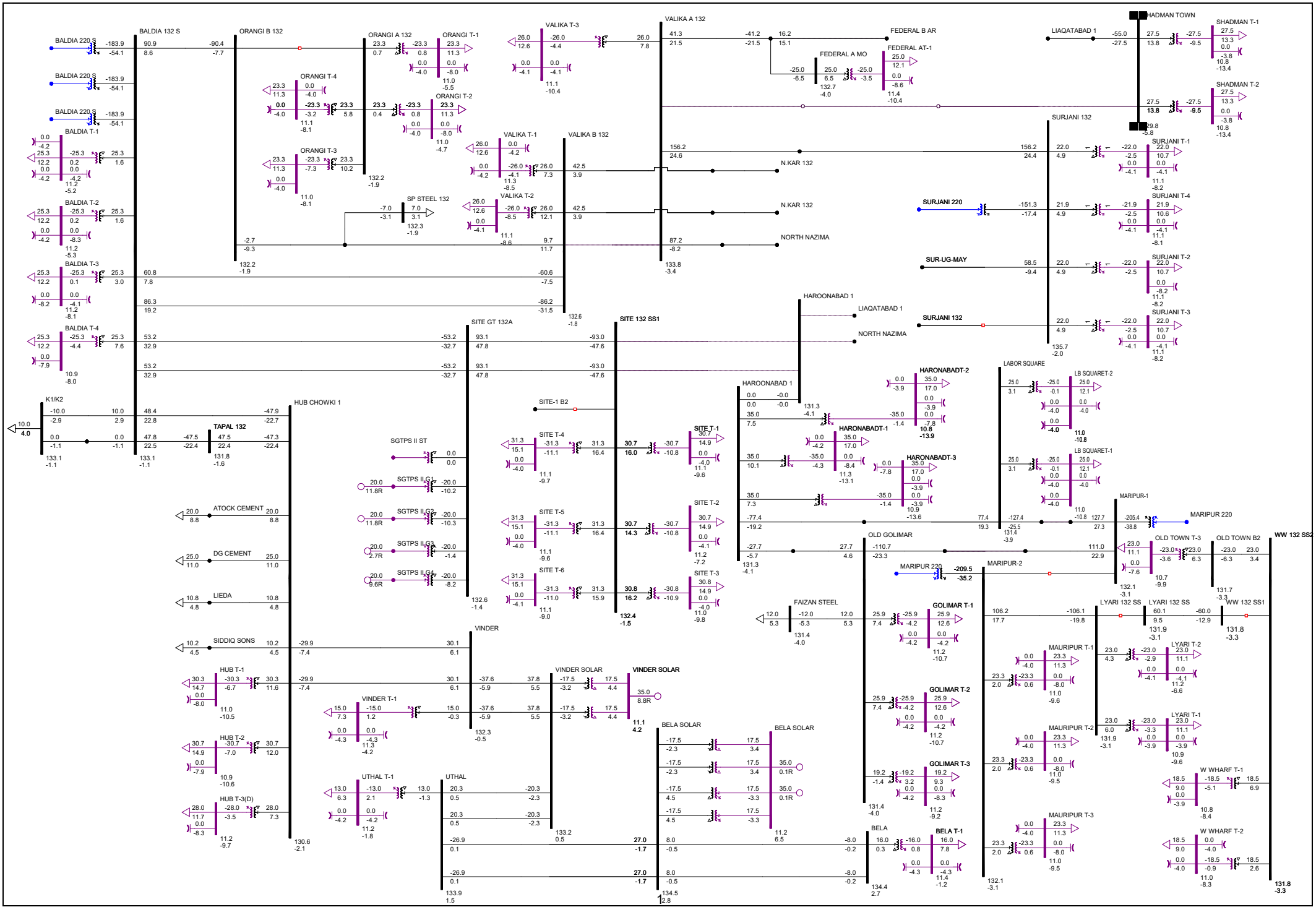


Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Peak Load Case Year 2025 - (Maximum Solar - Average Wind - With RPC)

Normal Case

Exhibit 1.1.1



Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
DADU 500.00	MORO 500.00	1	DADU 500.00	JAMSHORO 500.00	2	491.92	864.88	2000	43.24
DADU 500.00	JAMSHORO 500.00	2	DADU 500.00	MATIARI-CS 500.00	1	881.24	1197.22	1300	92.09
DADU 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	607.53	1069.82	1200	89.15
DADU 500.00	DADU 220.00	1	DADU 500.00	DADU 220.00	2	34.19	50.56	450	10.8
DADU 500.00	DADU 220.00	2	DADU 500.00	DADU 220.00	1	34.19	50.56	450	10.8
DADU 500.00	DADU 220.00	3	DADU 500.00	DADU 220.00	1	34.19	50.56	450	10.8
MORO 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	503.51	861.38	1300	66.26
JAMSHORO 500.00	K-2/K-3 500.00	1	K-2/K-3 500.00	NKI 500.00	1	413.35	759.47	1900	39.97
JAMSHORO 500.00	HUB 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	626.56	1227.67	1300	94.44
JAMSHORO 500.00	NKI 500.00	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	376.69	666.83	1300	51.29
JAMSHORO 500.00	HUBCO-CFPP 500.00	1	HUB 500.00	HUBCO-CFPP 500.00	2	602.88	1238	1300	95.23
JAMSHORO 500.00	MATIARI-CS 500.00	1	JAMSHORO 500.00	MATIARI-CS 500.00	3	604.49	1024.52	2000	51.23
JAMSHORO 500.00	MATIARI-CS 500.00	3	JAMSHORO 500.00	MATIARI-CS 500.00	1	606.94	1025.07	2793	36.7
JAMSHORO 500.00	JAMSHORO 220.00	1	JAMSHORO 500.00	JAMSHORO 220.00	2	167.99	226.73	450	48.91
JAMSHORO 500.00	JAMSHORO 220.00	2	JAMSHORO 500.00	JAMSHORO 220.00	1	167.99	226.73	450	48.91
JAMSHORO 500.00	JAMSHORO 220.00	3	JAMSHORO 500.00	JAMSHORO 220.00	1	167.99	226.73	450	48.91
ENGRO CFPP 500.00	THL NVA CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	310.05	929.63	2793	33.28
ENGRO CFPP 500.00	TEL CFPP 500.00	1	MATIARI-CS 500.00	THL NVA CFPP500.00	1	291.64	926.82	2793	33.18
SECL CFPP 500.00	MATIARI-CS 500.00	1	SECL CFPP 500.00	MATIARI-CS 500.00	2	612.62	838.25	1600	52.39
SECL CFPP 500.00	MATIARI-CS 500.00	2	SECL CFPP 500.00	MATIARI-CS 500.00	1	612.62	838.25	1600	52.39
SECL CFPP 500.00	MATIARI-CS 500.00	3	SECL CFPP 500.00	MATIARI-CS 500.00	1	610.48	835.46	1600	52.22
SECL CFPP 500.00	TEL CFPP 500.00	2	MATIARI-CS 500.00	THL NVA CFPP500.00	1	591.51	1226.41	2793	43.91
PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	PRT QSM CFPP500.00	KKI-500 500.00	1	449.32	1252.05	2793	44.83
PRT QSM CFPP500.00	KKI-500 500.00	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	834.83	1848.66	2700	68.47
K-2/K-3 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	1063.38	1282.45	2793	45.92
K-2/K-3 500.00	MATIARI-CS 500.00	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	491.3	781.44	1400	55.82
K-2/K-3 500.00	KKI-500 500.00	1	PRT QSM CFPP500.00	KKI-500 500.00	1	232.75	790.01	2793	28.29
HUB 500.00	HUBCO-CFPP 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	620.75	1246.64	2793	44.63
NKI 500.00	NKI 220.00	1	NKI 500.00	NKI 220.00	2	392.37	605.92	600	100.03
NKI 500.00	NKI 220.00	2	NKI 500.00	NKI 220.00	1	392.37	605.92	600	100.03
MATIARI-CS 500.00	THL NVA CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	610.78	1217.65	1820	66.9
MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	PRT QSM CFPP500.00	KKI-500 500.00	1	1026.59	1832.08	1900	96.43
DADU 220.0	DADU NEW 132.0	1	BQPS III 220.00	BQPS-4 GT 18.500	1	28.11	36.2	160	21.67
DADU 220.0	DADU NEW 132.0	2	BQPS III 220.00	BQPS-4 GT 18.500	1	28.11	36.2	160	21.67
DADU 220.0	DADU NEW 132.0	3	BQPS III 220.00	BQPS-4 GT 18.500	1	44.98	57.91	250	22.19
JAMSHORO 220.0	JHIMPIR-2 220.0	2	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	76.28	117.77	550	21.41
JAMSHORO 220.0	JHIMPIR-2 220.0	3	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	76.28	117.77	550	21.41
JAMSHORO 220.0	HALA RD. 220.0	1	JAMSHORO 220.00	HALA RD. 220.00	2	140.34	216.41	307	70.49
JAMSHORO 220.0	HALA RD. 220.0	2	JAMSHORO 220.00	HALA RD. 220.00	1	140.34	216.41	307	70.49
JAMSHORO 220.0	MIRPRKHS 220.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	94.16	142.43	674	21.13
JAMSHORO 220.0	TM.KH.RD 220.0	1	JAMSHORO 220.00	HALA RD. 220.00	1	50.02	83.8	600	13.97
JAMSHORO 220.0	JAMSHORO NEW132.0	1	JAMSHORO 220.00	JAMSHORO NEW132.00	2	76.71	90.75	160	55.96
JAMSHORO 220.0	JAMSHORO NEW132.0	2	JAMSHORO 220.00	JAMSHORO NEW132.00	1	76.71	90.75	160	55.96
JAMSHORO 220.0	JAMSHORO NEW132.0	3	JAMSHORO 220.00	JAMSHORO NEW132.00	1	76.71	90.75	160	55.96
JHIMPIR-2 220.0	KDA-33 220.0	1	KDA-33 220.00	NKI 220.00	E1	117.45	157.02	674	23.3
JHIMPIR-2 220.0	KDA-33 220.0	2	KDA-33 220.00	NKI 220.00	E1	117.45	157.02	674	23.3
JHIMPIR-2 220.0	JHIMPIR-2 132.0	1	N.PORT QASIM220.00	NPQ-2 220.00	1	98.37	98.74	250	39.31
JHIMPIR-2 220.0	JHIMPIR-2 132.0	2	N.PORT QASIM220.00	NPQ-2 220.00	1	98.37	98.74	250	39.31
JHIMPIR-2 220.0	JHIMPIR-2 132.0	3	N.PORT QASIM220.00	NPQ-2 220.00	1	98.37	98.74	250	39.31
JHIMPIR-2 220.0	JHIMPIR-2 132.0	4	N.PORT QASIM220.00	NPQ-2 220.00	1	98.37	98.74	250	39.31
JHIMPIR-2 220.0	JHIMPIR-1 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	72.39	128.31	674	19.04
JHIMPIR-2 220.0	DHABEJI 220 220.0	1	BQPS III 220.00	BQPS-4 GT 18.500	1	85.65	119.44	674	17.72
HALA RD. 220.0	MIRPRKHS 220.0	1	JAMSHORO 220.00	MIRPRKHS 220.00	1	87.95	146.52	674	21.74
HALA RD. 220.0	TM.KH.RD 220.0	2	JAMSHORO 220.00	HALA RD. 220.00	1	129.72	176.61	674	26.2
HALA RD. 220.0	HALA ROAD 132.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	113.22	120.97	250	48.15
HALA RD. 220.0	HALA ROAD-1 132.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	106.34	114.17	250	45.44
HALA RD. 220.0	HALA ROAD-1 132.0	2	HALA RD. 220.00	MIRPRKHS 220.00	1	106.34	114.17	250	45.44
MIRPRKHS 220.0	M.KHS.NW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	90.98	97.31	250	39.15
MIRPRKHS 220.0	M.KHS.NW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	90.98	97.31	250	39.15
TM.KH.RD 220.0	HYD-TMK-2 132.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	89.42	107.03	250	42.22
TM.KH.RD 220.0	HYD-TMRD 132.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	87.33	100.72	250	39.73
TM.KH.RD 220.0	JHIMPIR-1 220.0	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	126.97	153.38	674	22.76
TM.KH.RD 220.0	JHIMPIR-1 220.0	2	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	126.97	153.38	674	22.76
KDA-33 220.0	NKI 220.0	E1	BALDIA 220 S220.00	NKIBAL PLDP1220.00	E1	403.88	582.75	953	61.15
KDA-33 220.0	N.PORT QASIM220.0	E1	KDA-33 220.00	NKI 220.00	E1	110.91	152.28	921.8	16.52
KDA-33 220.0	N.PORT QASIM220.0	E2	KDA-33 220.00	NKI 220.00	E1	110.91	152.28	921.76	16.52
KDA-33 220.0	BTK-220 220.0	1	KDA-33 220.00	NKI 220.00	E1	97.49	133.51	1350	9.89
KDA-33 220.0	DHACK-220 220.0	N1	KDA-33 220.00	NKI 220.00	E1	97.49	133.51	1350	9.89

KDA-33 220.0	KDA2 132 132.0	1	KDA-33 220.00	KDA2 132 132.00	2	191.04	256.92	250	103.14
KDA-33 220.0	KDA2 132 132.0	2	KDA-33 220.00	KDA2 132 132.00	1	191.04	256.92	250	103.14
KDA-33 220.0	KDA2 132 132.0	3	KDA-33 220.00	KDA2 132 132.00	1	188	252.84	250	101.5
NKI 220.0	NKIBAL PLDP1220.0	E1	KDA-33 220.00	NKI 220.00	E1	360.06	617.19	952.6	64.79
JAMSHORO NEW132.	LAKHRA 132.	1	DADU 500.00	JAMSHORO 500.00	2	19.33	30.51	202	15.11
JAMSHORO NEW132.	LAKHRA 132.	2	DADU 500.00	JAMSHORO 500.00	2	19.33	30.51	202	15.11
JAMSHORO NEW132.	QASIMABAD 132.	1	JAMSHORO 220.00	MIRPRKHS 220.00	1	39.12	43.08	202	21.33
JAMSHORO NEW132.	RAJPUTANA 132.	1	JAMSHORO 220.00	MIRPRKHS 220.00	1	34.27	41.03	202	20.31
JAMSHORO NEW132.	JAMSRO OLD 132.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	43.52	45.64	202	22.6
JAMSHORO NEW132.	JAMSRO OLD 132.	2	BQPS III 220.00	BQPS-3 GT 18.500	1	43.52	45.64	202	22.6
JAMSHORO NEW132.	JAMSRO OLD 132.	3	BQPS III 220.00	BQPS-3 GT 18.500	1	43.52	45.64	202	22.6
BALDIA 220 S220	MITHA GHAR 220	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	51.19	221.92	967	22.95
BALDIA 220 S220	BALDIA 132 S132	1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	199.19	300.09	250	119.11
BALDIA 220 S220	BALDIA 132 S132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	1	199.19	300.09	250	119.11
BALDIA 220 S220	BALDIA 132 S132	3	BALDIA 220 S220.00	BALDIA 132 S132.00	1	199.19	300.09	250	119.11
BALDIA 220 S220	NKIBAL PLDP1220	E1	KDA-33 220.00	NKI 220.00	E1	357.46	603.26	1348.2	44.75
BALDIA 220 S220	BAL_KKI_UG3 220	E1	K-2/K-3 500.00	NKI 500.00	1	144.23	302.1	476.3	63.43
BALDIA 220 S220	BAL_KKI_UG4 220	E2	K-2/K-3 500.00	NKI 500.00	1	144.23	302.1	476.3	63.43
MARIPUR 220 220	MARIPUR-2 132	1	MARIPUR 220 220.00	MARIPUR-1 132.00	11	219.33	439.29	250	175.26
MARIPUR 220 220	MARIPUR-1 132	11	MARIPUR 220 220.00	MARIPUR-2 132.00	1	215.82	437.53	250	174.56
MARIPUR 220 220	MAR-BAL-KKI2220	E1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	E2	362.03	689.18	495.4	139.12
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	150.73	294.1	495.37	59.37
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	150.73	294.1	495.37	59.37
MARIPUR 220 220	MAR-BAL-KKI 220	E2	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	E1	362.03	689.18	495.4	139.12
LALAZAR 220 220	MAR-LALPLDP1220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	150.61	292.85	495.37	59.12
LALAZAR 220 220	MAR-LALPLDP2220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	150.61	292.85	495.37	59.12
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	185.62	256.16	250	101.79
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	185.63	256.16	250	101.79
LALAZAR 220 220	LALAZAR-UG1 220	E1	N.PORT QASIM220.00	NPQ-2 220.00	1	53.62	113.09	514.4	21.99
LALAZAR 220 220	LALAZAR-UG2 220	E2	N.PORT QASIM220.00	NPQ-2 220.00	1	53.62	113.09	514.4	21.99
LALAZAR-UG1 220	KCR_UG1 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	53.04	112.2	483.6	23.2
SURJANI 220 220	KDA-33 220	E1	SURJANI 220 220.00	DEH HALKANI 220.00	1	61.7	286.52	904	31.69
SURJANI 220 220	DEH HALKANI 220	1	KDA-33 220.00	NKI 220.00	E1	255.91	402.64	967	41.64
SURJANI 220 220	SURJANI 132 132	1	SURJANI 220 220.00	SURJANI 132 132.00	2	154.53	221.95	250	89.3
SURJANI 220 220	SURJANI 132 132	2	SURJANI 220 220.00	SURJANI 132 132.00	1	154.53	221.95	250	89.3
LALAZAR-UG2 220	KCR_UG2 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	53.04	112.2	483.6	23.2
K CREEK 220 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	279.43	465.07	419.16	110.95
K CREEK 220 220	CCP-KCR-2 220	1	CCPP 220.00	CCP-KCR-1 220.00	E1	54.21	102.39	270.6	37.84
K CREEK 220 220	CCP-KCR-1 220	1	CCPP 220.00	CCP-KCR-2 220.00	E2	54.21	102.39	270.5	37.85
K CREEK 220 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	279.43	465.07	419.2	110.94
K CREEK 220 220	QAYOMABAD 132	2	K CREEK 220 220.00	KO.WEST 132 132.00	2	186.79	237.37	250	94.04
K CREEK 220 220	KO.WEST 132 132	2	K CREEK 220 220.00	QAYOMABAD 132.00	2	186.79	237.37	250	94.04
K CREEK 220 220	KCR_UG1 220	E1	N.PORT QASIM220.00	NPQ-2 220.00	1	52.07	112.73	514.4	21.92
K CREEK 220 220	KCR_UG2 220	E2	N.PORT QASIM220.00	NPQ-2 220.00	1	52.07	112.73	514.4	21.92
BQPS II 220	KCR-BQ2-LDI 220	E1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E2	283.91	480.49	419.2	114.62
BQPS II 220	BQPS-2 GEN-415.	1	K CREEK 220 220.00	QAYOMABAD 132.00	2	174.95	176.11	250	67.51
BQPS II 220	BQPS-2 GEN-115.	1	NKI 220.00	NKIBAL PLDP1220.00	E1	137.44	139.8	170	78.81
BQPS II 220	BQPS-2 GEN-315.	1	JHIMPIR-2 220.00	KDA-33 220.00	1	140.15	140.1	170	78.75
BQPS II 220	BQPS-2 GEN-215.	1	JHIMPIR-2 220.00	KDA-33 220.00	1	140.15	140.1	170	78.75
BQPS II 220	KCR-BQ2-LDI 220	E2	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	283.91	480.49	419.2	114.62
PIPRI W 220 220	BQPS III 220	E1	PIPRI W 220 220.00	ICI 220 220.00	E4	216.23	297.23	457	65.04
PIPRI W 220 220	BQPS III 220	E3	PIPRI W 220 220.00	ICI 220 220.00	E4	247.24	339.86	457	74.37
PIPRI W 220 220	NPQ-2 220	E1	PIPRI W 220 220.00	NPQ-2 220.00	E2	129.99	250.76	921.8	27.2
PIPRI W 220 220	NPQ-2 220	E2	PIPRI W 220 220.00	NPQ-2 220.00	E1	129.99	250.76	921.8	27.2
PIPRI W 220 220	BQPS III 220	E2	PIPRI W 220 220.00	ICI 220 220.00	E4	216.22	297.22	457	65.04
PIPRI W 220 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	248	340.41	457	74.49
PIPRI W 220 220	PIPRI W 132 132	1	PIPRI W 220 220.00	PIPRI W 132 132.00	2	216.23	307.73	250	120.11
PIPRI W 220 220	PIPRI W 132 132	2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	216.23	307.73	250	120.11
PIPRI W 220 220	PIPRI W 132 132	3	PIPRI W 220 220.00	PIPRI W 132 132.00	1	216.23	307.73	250	120.11
BQPS III 220	BQPS GEN1 21.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	0	0	250	0
BQPS III 220	BQPS GEN6 18.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	0	0	250	0
BQPS III 220	BQPS GEN5 18.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	0	0	250	0
BQPS III 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	248.03	341.43	457.26	74.67
BQPS III 220	BQPS II 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	37.49	100.65	609.7	16.51
BQPS III 220	BQPS II 220	2	N.PORT QASIM220.00	NPQ-2 220.00	1	37.49	100.65	609.7	16.51
BQPS III 220	BQPS-4 GT 18.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	504.93	523.4	600	83.12
N.PORT QASIM220	BTK-220 220	1	KDA-33 220.00	NKI 220.00	E1	97.34	133.71	1530	8.74
N.PORT QASIM220	DHACK-220 220	N1	KDA-33 220.00	NKI 220.00	E1	97.34	133.71	1530	8.74
N.PORT QASIM220	DHABEJI 220 220	N1	N.PORT QASIM220.00	DHABEJI 220 220.00	N2	79.16	124.06	967	12.83
N.PORT QASIM220	DHABEJI 220 220	N2	N.PORT QASIM220.00	DHABEJI 220 220.00	N1	79.16	124.06	967	12.83

KDA-33 220	GULSHAN 220 220	E1	KDA-33 220.00	GULSHAN 220 220.00	E2	225.96	452.17	514	87.97
KDA-33 220	GULSHAN 220 220	E2	KDA-33 220.00	GULSHAN 220 220.00	E1	225.96	452.17	514	87.97
GULSHAN 220 220	GULSHAN 132 132	1	GULSHAN 220 220.00	GULSHAN 132 132.00	2	225.96	456.52	250	184.68
GULSHAN 220 220	GULSHAN 132 132	2	GULSHAN 220 220.00	GULSHAN 132 132.00	1	225.96	456.52	250	184.68
DEH HALKANI 220	MITHA GHAR 220	1	KDA-33 220.00	NKI 220.00	E1	160.97	310.28	967	32.09
DEH HALKANI 220	DEH-HAL-22KV22.	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	2	47.92	95.65	120	79.71
DEH HALKANI 220	DEH-HAL-22KV22.	2	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	47.92	95.65	120	79.71
MAR-LALPLDP1220	LZAR-MP-PLDP220	E2	MAR-LALPLDP2220.00	LZAR-MP-PLDP220.00	E1	150.66	295.57	476.3	62.05
MAR-LALPLDP2220	LZAR-MP-PLDP220	E1	MAR-LALPLDP1220.00	LZAR-MP-PLDP220.00	E2	150.66	295.57	476.4	62.04
CCPP 220	CCP-KCR-2 220	E2	CCPP 220.00	CCP 1 11.500	1	54.25	102.53	349	29.38
CCPP 220	CCP 3 11.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	21.67	21.59	35	60.2
CCPP 220	CCP 4 11.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	26.35	27.93	35	77.09
CCPP 220	CCP 1 11.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	100.17	105.69	115	88.37
CCPP 220	CCP 2 11.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	98.14	103.17	115	86.67
CCPP 220	CCP-KCR-1 220	E1	CCPP 220.00	CCP 1 11.500	1	54.25	102.53	349	29.38
CCPP 220	KTPS EXISTIN132	1	CCPP 220.00	KTPS EXISTIN132.00	2	170	225.25	250	89.19
CCPP 220	KTPS EXISTIN132	2	CCPP 220.00	KTPS EXISTIN132.00	1	170	225.25	250	89.19
BQPS III 220	BQPS-3 GT 18.	1	BQPS III 220.00	BQPS-4 GT 18.500	1	494.99	514.36	600	82.23
MITHA GHAR 220	MTH-GHR-22KV22.	3	MITHA GHAR 220.00	MTH-GHR-22KV22.000	4	59.96	119.9	150	79.74
MITHA GHAR 220	MTH-GHR-22KV22.	4	MITHA GHAR 220.00	MTH-GHR-22KV22.000	3	59.96	119.9	150	79.74
22	0.4	1	#VALUE!	#VALUE!	SE	16.21	16.21	20	79.85
22	0.4	1	#VALUE!	#VALUE!	SE	16.21	16.21	20	79.85
22	0.4	1	#VALUE!	#VALUE!	SE	16.21	16.21	20	79.85
22	0.4	1	#VALUE!	#VALUE!	SE	16.21	16.21	20	79.85
22	0.4	1	#VALUE!	#VALUE!	SE	16.21	16.21	20	79.85
22	0.4	1	#VALUE!	#VALUE!	SE	16.21	16.21	20	79.85
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.04	16.05	20	79.83
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.04	16.05	20	79.83
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.04	16.05	20	79.83
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.04	16.05	20	79.83
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.04	16.05	20	79.83
KKI-500 500	KKI-220 220	1	K-2/K-3 500.00	NKI 500.00	1	345	474.77	600	79.43
KKI-500 500	KKI-220 220	2	K-2/K-3 500.00	NKI 500.00	1	345	474.77	600	79.43
KKI-500 500	KKI-220 220	3	K-2/K-3 500.00	NKI 500.00	1	345	474.77	600	79.43
KKI-220 220	MAR-KKI_UG 220	1	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	E1	364.73	695.78	957.2	72.69
KKI-220 220	MAR-KKI-UG2 220	1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	E2	364.73	695.78	957.2	72.69
KKI-220 220	BAL-KKI-UG 220	1	K-2/K-3 500.00	NKI 500.00	1	143.9	305.69	957.2	31.94
KKI-220 220	BAL_KKI_UG2 220	1	K-2/K-3 500.00	NKI 500.00	1	143.9	305.69	957.2	31.94
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.04	16.05	20	79.83
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	12.03	12.04	15	79.87
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	12.03	12.04	15	79.87
KDA2 132 132	GADAP 132	N1	BALDIA 220 S220.00	NKIBAL PLDP1220.00	E1	31.98	32.04	202	15.86
KDA2 132 132	GULSHAN 132 132	E1	BALDIA 220 S220.00	NKIBAL PLDP1220.00	E1	115.2	115.38	130.1	88.68
KDA2 132 132	JOHAR 132 132	R1	BALDIA 220 S220.00	NKIBAL PLDP1220.00	E1	152.7	152.93	280	54.62
KDA2 132 132	MEMON GOTH 132	E1	BALDIA 220 S220.00	NKIBAL PLDP1220.00	E1	73.29	73.41	130.1	56.43
KDA2 132 132	SNPC 132	1	BALDIA 220 S220.00	NKIBAL PLDP1220.00	E1	47.81	47.85	202	23.69
KDA2 132 132	KDA T-1 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	27.82	27.7	40	67.72
KDA2 132 132	KDA T-2 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	27.82	27.7	40	67.72
KDA2 132 132	KDA T-3 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	23.44	23.33	40	57.03
KDA2 132 132	KDA T-4 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	23.44	23.33	40	57.03
MARIPUR-2 132	LYARI 132 SS132	E1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	107.92	108.05	171	63.19
MARIPUR-2 132	MAURIPUR T-111.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	23.43	23.27	40	58.87
MARIPUR-2 132	MAURIPUR T-211.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	23.43	23.27	40	58.87
MARIPUR-2 132	MAURIPUR T-311.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	23.43	23.27	40	58.87
QUEENS RD 13132	ELANDER 132 132	E1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	38.78	38.83	160	24.27
QUEENS RD 13132	ELANDER 132 132	E2	BALDIA 220 S220.00	MITHA GHAR 220.00	1	38.78	38.83	160	24.27
QUEENS RD 13132	QUEENSRD T-111.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	20.31	20.21	40	49.54
QUEENS RD 13132	QUEENSRD T-211.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	18.83	18.76	40	45.97
QUEENS RD 13132	QUEENSRD T-311.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	20.31	20.21	40	49.54
QUEENS RD 13132	QUEENSRD T-411.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	17.51	17.39	40	43.38
SURJANI 132 132	SUR-VALIKA 132	R1	KDA-33 220.00	KDA2 132 132.00	1	158.11	170.73	262	65.16
SURJANI 132 132	SUR-UG-MAY 132	E1	KDA-33 220.00	KDA2 132 132.00	1	59.22	116.31	160	72.69
SURJANI 132 132	SURJANI T-1 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	22.59	22.47	40	55.25
SURJANI 132 132	SURJANI T-2 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	22.59	22.47	40	55.25
SURJANI 132 132	SURJANI T-3 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	22.59	22.47	40	55.25
SURJANI 132 132	SURJANI T-4 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	22.47	22.35	40	54.95
PIPRI W 132 132	AISHA STEEL 132	1	SURJANI 220 220.00	KDA-33 220.00	E1	5.46	5.47	112	4.88
PIPRI W 132 132	PIPRI E 132 132	E1	N.PORT QASIM220.00	NPQ-2 220.00	1	22.84	22.95	230.2	9.97
PIPRI W 132 132	PIPRI W T-2 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	10.5	10.52	20	50.63
PIPRI W 132 132	PIPRI W T-3 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	10.5	10.52	40	25.31

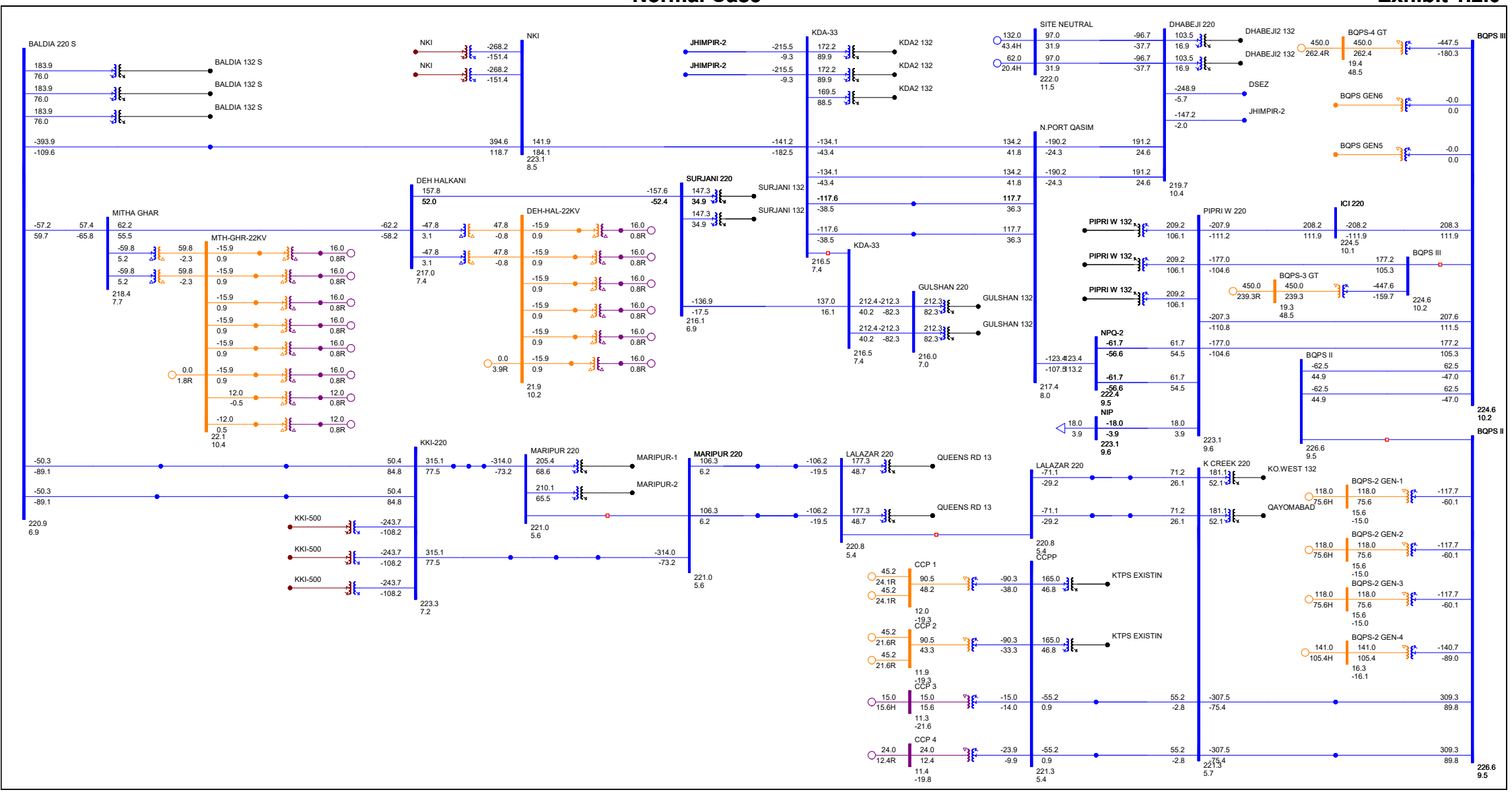
KTPS EXISTIN132	PRL-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	80.53	101.32	160	63.33
KTPS EXISTIN132	QAYMBD-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	44.19	72.96	137.2	53.18
QAYOMABAD 132	KO.WEST 132 132	2	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	0.36	0.37	280	0.13
QAYOMABAD 132	QAYMBD-K-EST132	E1	CCPP 220.00	KTPS EXISTIN132.00	1	32.4	48.92	251.5	19.45
QAYOMABAD 132	QY-KS-KCNUG2132	E2	K CREEK 220 220.00	QAYOMABAD 132.00	2	21.11	34.66	171.47	20.21
KO.WEST 132 132	PRL 132 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	12.77	34.58	130.09	26.58
KO.WEST 132 132	DEFNCE-K-WST132	E1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	95.77	132.11	160	82.57
QUEENS RD 13132	OLD TOWN 132132	E1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	47.28	47.35	114	41.54
QUEENS RD 13132	Q.RD-CLIFTON132	R1	K CREEK 220 220.00	QAYOMABAD 132.00	2	86.35	107.12	160	66.95
QUEENS RD 13132	Q.RD-GIZRI 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	83.08	123.04	251.49	48.92
GULSHAN 132 132	AZIZABAD 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	110.59	110.92	171.5	64.68
GULSHAN 132 132	JAIL ROAD SS132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	38	38.12	171	22.29
GULSHAN 132 132	AGHA KHAN 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	79.73	79.98	171	46.77
GULSHAN 132 132	CIVIC 132 A 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	119.55	119.92	160	74.95
GULSHAN 132 132	JAIL ROAD SS132	E2	SURJANI 220 220.00	KDA-33 220.00	E1	38	38.12	171	22.29
GULSHAN 132 132	GULSHAN T-1 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	27.94	27.76	40	70.58
GULSHAN 132 132	GULSHAN T-2 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	27.53	27.32	40	69.47
MARIPUR-1 132	MAR-LAB PL1 132	E1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	130.56	130.8	240.1	54.48
MARIPUR-1 132	MAR-GOL PL2 132	E1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	113.46	113.67	240.1	47.34
BALDIA 132 S132	HUB CHOWKI 1132	1	KDA-33 220.00	NKI 220.00	E1	53.52	54.37	183	29.71
BALDIA 132 S132	VALIKA B 132132	E1	KDA-33 220.00	NKI 220.00	E1	61.24	61.58	130.09	47.34
BALDIA 132 S132	VALIKA B 132132	E2	KDA-33 220.00	NKI 220.00	E1	91.79	92.28	262.2	35.19
BALDIA 132 S132	SITE GT 132A132	E1	KDA-33 220.00	NKI 220.00	E1	62.42	63.33	153.6	41.23
BALDIA 132 S132	SITE GT 132A132	E2	KDA-33 220.00	NKI 220.00	E1	62.42	63.33	182.9	34.63
BALDIA 132 S132	KANUPP 132 132	E1	KDA-33 220.00	NKI 220.00	E1	1.07	1.07	117.3	0.91
BALDIA 132 S132	ORANGI B 132132	R1	KDA-33 220.00	NKI 220.00	E1	91.27	91.73	280	32.76
BALDIA 132 S132	TAPAL 132 132	E1	KDA-33 220.00	NKI 220.00	E1	52.84	53.69	228.6	23.49
BALDIA 132 S132	BALDIA T-1 11.	1	KDA-33 220.00	NKI 220.00	E1	25.31	25.48	67	37.58
BALDIA 132 S132	BALDIA T-2 11.	1	KDA-33 220.00	NKI 220.00	E1	25.31	25.48	35	71.94
BALDIA 132 S132	BALDIA T-3 11.	1	KDA-33 220.00	NKI 220.00	E1	25.44	25.61	40	63.26
BALDIA 132 S132	BALDIA T-4 11.	1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	26.37	26.37	40	65.56
DHABEJI 220 220	DSEZ 220	1	BQPS III 220.00	BQPS-4 GT 18.500	1	99.11	137.78	674	20.44
DHABEJI 220 220	SITE NEUTRAL220	1	DHABEJI 220 220.00	SITE NEUTRAL220.00	2	57.62	112.42	967	11.63
DHABEJI 220 220	SITE NEUTRAL220	2	DHABEJI 220 220.00	SITE NEUTRAL220.00	1	57.62	112.42	967	11.63
DHABEJI 220 220	DHABEJI2 132132	1	DHABEJI 220 220.00	DHABEJI2 132132.00	2	73.99	123.43	250	48.84
DHABEJI 220 220	DHABEJI2 132132	2	DHABEJI 220 220.00	DHABEJI2 132132.00	1	73.99	123.43	250	48.84
DSEZ 220	GHARO-NEW 220	1	BQPS III 220.00	BQPS-4 GT 18.500	1	132.48	171.8	674	25.49
DSEZ 220	DSEZ 132 132	1	DHABEJI 220 220.00	DSEZ 220.00	1	16.83	17.45	160	10.55
DSEZ 220	DSEZ 132 132	2	DHABEJI 220 220.00	DSEZ 220.00	1	16.83	17.45	160	10.55
MAR-BAL-KKI222	MAR-KKI-UG3 22	1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	E2	363.51	682.69	476.3	143.33
MAR-BAL-KKI 22	MAR-KKI-UG4 22	1	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	E1	363.51	682.69	476.3	143.33
MAR-KKI_UG 22	MAR-KKI-UG4 22	E2	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	E1	364.73	696.45	967	72.02
MAR-KKI-UG2 22	MAR-KKI-UG3 22	E1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	E2	364.73	696.45	967	72.02
BAL-KKI-UG 22	BAL_KKI_UG4 22	1	K-2/K-3 500.00	NKI 500.00	1	144.12	304.67	967	31.51
BAL_KKI_UG2 22	BAL_KKI_UG3 22	1	K-2/K-3 500.00	NKI 500.00	1	144.12	304.67	967	31.51
DHABEJI2 13213	DHABEJI 132 13	N1	PIPRI W 220 220.00	PIPRI W 132 132.00	1	68.99	93.7	365	25.67
DHABEJI2 13213	DHABEJI 132 13	N2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	68.99	93.7	365	25.67
DHABEJI2 13213	DHABEJI T-3 11	1	JHIMPIR-2 220.00	KDA-33 220.00	1	9.24	9.24	40	22.19

Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Peak Load Case Year 2025 - (Maximum Solar - Maximum Wind - With RPC)

Normal Case

Exhibit 1.2.0

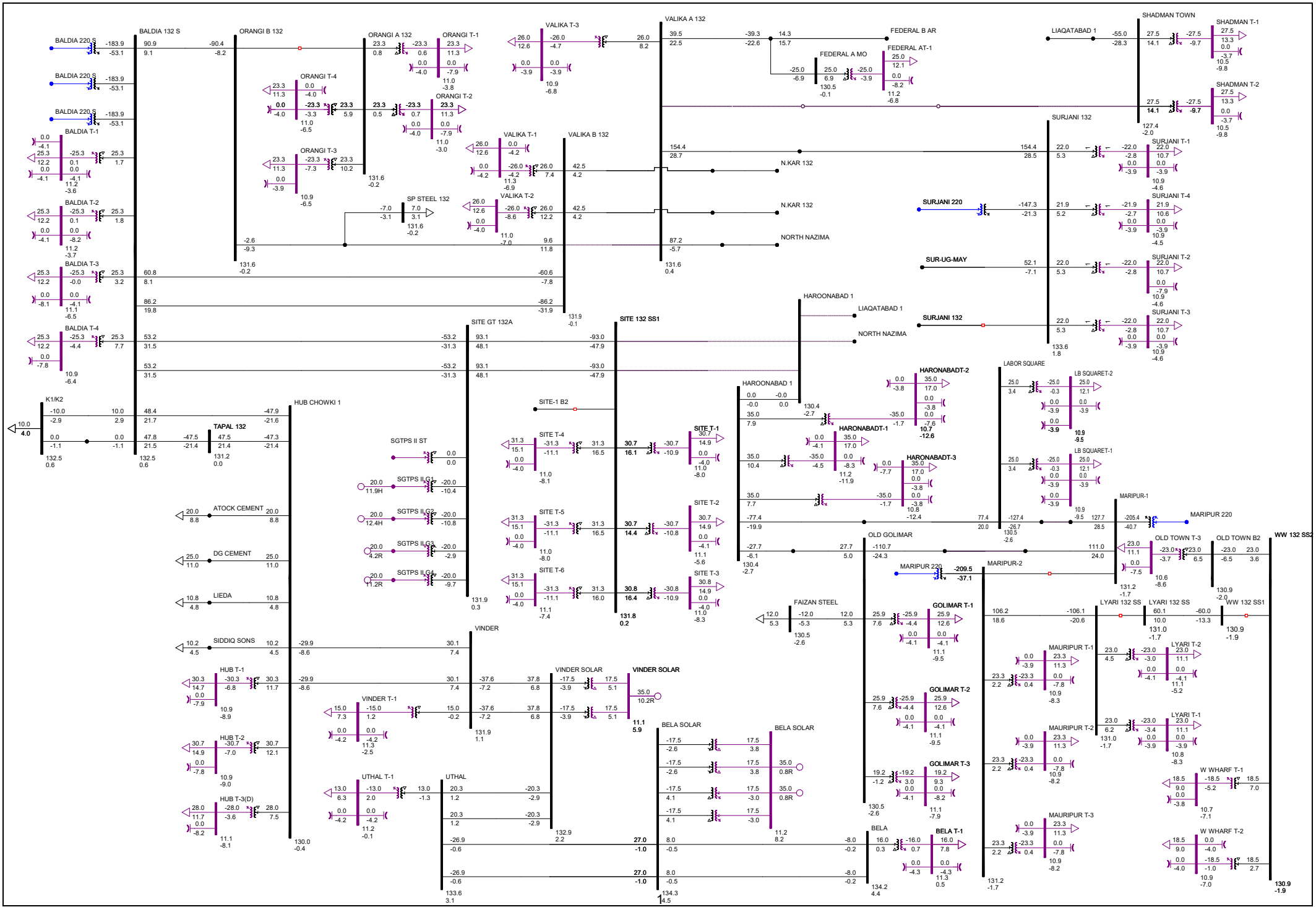


Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Peak Load Case Year 2025 - (Maximum Solar - Maximum Wind - With RPC)

Normal Case

Exhibit 1.2.1



Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
DADU 500.00	MORO 500.00	1	DADU 500.00	JAMSHORO 500.00	2	480.16	878.55	2000	43.93
DADU 500.00	JAMSHORO 500.00	2	DADU 500.00	MATIARI-CS 500.00	1	964.99	1271.5	1300	97.81
DADU 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	602.23	1101.3	1200	91.78
DADU 500.00	DADU 220.00	1	DADU 500.00	JAMSHORO 500.00	2	19.14	32.96	450	7.18
DADU 500.00	DADU 220.00	2	DADU 500.00	JAMSHORO 500.00	2	19.14	32.96	450	7.18
DADU 500.00	DADU 220.00	3	DADU 500.00	JAMSHORO 500.00	2	19.14	32.96	450	7.18
MORO 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	486.56	883.33	1300	67.95
JAMSHORO 500.00	K-2/K-3 500.00	1	K-2/K-3 500.00	NKI 500.00	1	394.05	679.12	1900	35.74
JAMSHORO 500.00	HUB 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	630.99	1223.96	1300	94.15
JAMSHORO 500.00	NKI 500.00	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	381.19	590.31	1300	45.41
JAMSHORO 500.00	HUBCO-CFPP 500.00	1	JAMSHORO 500.00	HUB 500.00	2	606.74	1238.59	1300	95.28
JAMSHORO 500.00	MATIARI-CS 500.00	1	JAMSHORO 500.00	MATIARI-CS 500.00	3	870.76	1481.11	2000	74.06
JAMSHORO 500.00	MATIARI-CS 500.00	3	JAMSHORO 500.00	MATIARI-CS 500.00	1	881.98	1486.23	2793	53.21
JAMSHORO 500.00	JAMSHORO 220.00	1	JAMSHORO 500.00	JAMSHORO 220.00	2	140.23	179.47	450	38.87
JAMSHORO 500.00	JAMSHORO 220.00	2	JAMSHORO 500.00	JAMSHORO 220.00	1	140.23	179.47	450	38.87
JAMSHORO 500.00	JAMSHORO 220.00	3	JAMSHORO 500.00	JAMSHORO 220.00	1	140.23	179.47	450	38.87
ENGRO CFPP 500.00	THL NVA CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	213.38	587.02	2793	21.02
ENGRO CFPP 500.00	TEL CFPP 500.00	1	MATIARI-CS 500.00	THL NVA CFPP500.00	1	70.23	592.3	2793	21.21
SECL CFPP 500.00	MATIARI-CS 500.00	1	SECL CFPP 500.00	MATIARI-CS 500.00	2	536.93	733.28	1600	45.83
SECL CFPP 500.00	MATIARI-CS 500.00	2	SECL CFPP 500.00	MATIARI-CS 500.00	1	536.93	733.28	1600	45.83
SECL CFPP 500.00	MATIARI-CS 500.00	3	SECL CFPP 500.00	MATIARI-CS 500.00	1	534.66	730.51	1600	45.66
SECL CFPP 500.00	TEL CFPP 500.00	2	MATIARI-CS 500.00	THL NVA CFPP500.00	1	362.08	892.03	2793	31.94
PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	204.91	634.44	2793	22.72
PRT QSM CFPP500.00	KKI-500 500.00	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	485.82	1194.83	2700	44.25
K-2/K-3 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	899.41	1138.86	2793	40.78
K-2/K-3 500.00	MATIARI-CS 500.00	1	K-2/K-3 500.00	NKI 500.00	1	534.62	760.93	1400	54.35
K-2/K-3 500.00	KKI-500 500.00	1	K-2/K-3 500.00	NKI 500.00	1	347.17	718.51	2793	25.73
HUB 500.00	HUBCO-CFPP 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	619.89	1248.85	2793	44.71
NKI 500.00	NKI 220.00	1	NKI 500.00	NKI 220.00	2	317.79	486.82	600	80.44
NKI 500.00	NKI 220.00	2	NKI 500.00	NKI 220.00	1	317.79	486.82	600	80.44
MATIARI-CS 500.00	THL NVA CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	515.43	882.15	1820	48.47
MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	PRT QSM CFPP500.00	KKI-500 500.00	1	754.3	1174.03	1900	61.79
DADU 220.0	DADU NEW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	15.65	26.01	160	16.1
DADU 220.0	DADU NEW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	15.65	26.01	160	16.1
DADU 220.0	DADU NEW 132.0	3	DADU 500.00	JAMSHORO 500.00	2	25.04	41.62	250	16.48
JAMSHORO 220.0	JHIMPIR-2 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	3	187.45	245.59	550	44.65
JAMSHORO 220.0	JHIMPIR-2 220.0	3	JAMSHORO 220.00	JHIMPIR-2 220.00	2	187.45	245.59	550	44.65
JAMSHORO 220.0	HALA RD. 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	85.78	159.53	307	51.96
JAMSHORO 220.0	HALA RD. 220.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	85.78	159.53	307	51.96
JAMSHORO 220.0	MIRPRKHS 220.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	82.66	133.01	674	19.73
JAMSHORO 220.0	TM.KH.RD 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	90.5	238.45	600	39.74
JAMSHORO 220.0	JAMSHORO NEW132.0	1	JAMSHORO 220.00	JAMSHORO NEW132.00	2	56.13	66.27	160	41.25
JAMSHORO 220.0	JAMSHORO NEW132.0	2	JAMSHORO 220.00	JAMSHORO NEW132.00	1	56.13	66.27	160	41.25
JAMSHORO 220.0	JAMSHORO NEW132.0	3	JAMSHORO 220.00	JAMSHORO NEW132.00	1	56.13	66.27	160	41.25
JHIMPIR-2 220.0	KDA-33 220.0	1	JHIMPIR-2 220.00	KDA-33 220.00	2	219.7	283.45	674	42.05
JHIMPIR-2 220.0	KDA-33 220.0	2	JHIMPIR-2 220.00	KDA-33 220.00	1	219.7	283.45	674	42.05
JHIMPIR-2 220.0	JHIMPIR-2 132.0	1	N.PORT QASIM220.00	NPQ-2 220.00	1	191.08	191.22	250	78.08
JHIMPIR-2 220.0	JHIMPIR-2 132.0	2	N.PORT QASIM220.00	NPQ-2 220.00	1	191.08	191.22	250	78.08
JHIMPIR-2 220.0	JHIMPIR-2 132.0	3	N.PORT QASIM220.00	NPQ-2 220.00	1	191.08	191.22	250	78.08
JHIMPIR-2 220.0	JHIMPIR-2 132.0	4	N.PORT QASIM220.00	NPQ-2 220.00	1	191.08	191.22	250	78.08
JHIMPIR-2 220.0	JHIMPIR-1 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	200.58	344.19	674	51.07
JHIMPIR-2 220.0	DHABEJI 220 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	148.49	232.92	674	34.56
HALA RD. 220.0	MIRPRKHS 220.0	1	JAMSHORO 220.00	MIRPRKHS 220.00	1	93.35	143.68	674	21.32
HALA RD. 220.0	TM.KH.RD 220.0	2	JAMSHORO 220.00	TM.KH.RD 220.00	1	279.23	327.48	674	48.59
HALA RD. 220.0	HALA ROAD 132.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	105.57	113.71	250	45.79
HALA RD. 220.0	HALA ROAD-1 132.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	97.17	105.43	250	42.46
HALA RD. 220.0	HALA ROAD-1 132.0	2	HALA RD. 220.00	MIRPRKHS 220.00	1	97.17	105.43	250	42.46
MIRPRKHS 220.0	M.KHS.NW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	87.53	94.19	250	38.5
MIRPRKHS 220.0	M.KHS.NW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	87.53	94.19	250	38.5
TM.KH.RD 220.0	HYD-TMK-2 132.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	75.67	113.01	250	45.26
TM.KH.RD 220.0	HYD-TMRD 132.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	63.33	91.24	250	36.54
TM.KH.RD 220.0	JHIMPIR-1 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	247.76	280.49	674	41.62
TM.KH.RD 220.0	JHIMPIR-1 220.0	2	DHABEJI 220 220.00	DSEZ 220.00	1	247.76	280.49	674	41.62
KDA-33 220.0	NKI 220.0	E1	BALDIA 220 S220.00	NKIBAL PLDP1220.00	E1	232.39	408.71	953	42.89
KDA-33 220.0	N.PORT QASIM220.0	E1	KDA-33 220.00	N.PORT QASIM220.00	E2	140.95	187.84	921.8	20.38
KDA-33 220.0	N.PORT QASIM220.0	E2	KDA-33 220.00	N.PORT QASIM220.00	E1	140.95	187.84	921.76	20.38
KDA-33 220.0	BTK-220 220.0	1	KDA-33 220.00	N.PORT QASIM220.00	E1	123.78	164.59	1350	12.19
KDA-33 220.0	DHACK-220 220.0	N1	KDA-33 220.00	N.PORT QASIM220.00	E1	123.78	164.59	1350	12.19

KDA-33 220.0	KDA2 132 132.0	1	KDA-33 220.00	KDA2 132 132.00	2	194.28	260.27	250	105.94
KDA-33 220.0	KDA2 132 132.0	2	KDA-33 220.00	KDA2 132 132.00	1	194.28	260.27	250	105.94
KDA-33 220.0	KDA2 132 132.0	3	KDA-33 220.00	KDA2 132 132.00	1	191.19	256.14	250	104.26
NKI 220.0	NKIBAL PLDP1220.0	E1	K-2/K-3 500.00	KKI-500 500.00	1	412.09	557.34	952.6	58.51
JAMSHORO NEW132.	LAKHRA 132.	1	DADU 500.00	JAMSHORO 500.00	2	33.36	45.5	202	22.53
JAMSHORO NEW132.	LAKHRA 132.	2	DADU 500.00	JAMSHORO 500.00	2	33.36	45.5	202	22.53
JAMSHORO NEW132.	QASIMABAD 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	47.28	53.04	202	26.25
JAMSHORO NEW132.	RAJPUTANA 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	48.56	58.91	202	29.16
JAMSHORO NEW132.	JAMSRO OLD 132.	1	DHABEJI 220 220.00	DSEZ 220.00	1	35.08	38.94	202	19.28
JAMSHORO NEW132.	JAMSRO OLD 132.	2	DHABEJI 220 220.00	DSEZ 220.00	1	35.08	38.94	202	19.28
JAMSHORO NEW132.	JAMSRO OLD 132.	3	DHABEJI 220 220.00	DSEZ 220.00	1	35.08	38.94	202	19.28
BALDIA 220 S220	MITHA GHAR 220	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	87.3	225.75	967	23.35
BALDIA 220 S220	BALDIA 132 S132	1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	198.97	299.44	250	119.49
BALDIA 220 S220	BALDIA 132 S132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	1	198.97	299.44	250	119.49
BALDIA 220 S220	BALDIA 132 S132	3	BALDIA 220 S220.00	BALDIA 132 S132.00	1	198.97	299.44	250	119.49
BALDIA 220 S220	NKIBAL PLDP1220	E1	K-2/K-3 500.00	KKI-500 500.00	1	408.84	549.31	1348.2	40.74
BALDIA 220 S220	BAL_KKI_UG3 220	E1	NKI 220.00	NKIBAL PLDP1220.00	E1	102.29	221.94	476.3	46.6
BALDIA 220 S220	BAL_KKI_UG4 220	E2	NKI 220.00	NKIBAL PLDP1220.00	E1	102.29	221.94	476.3	46.6
MARIPUR 220 220	MARIPUR-2 132	1	MARIPUR 220 220.00	MARIPUR-1 132.00	11	220.06	439.7	250	176.42
MARIPUR 220 220	MARIPUR-1 132	11	MARIPUR 220 220.00	MARIPUR-2 132.00	1	216.55	437.85	250	175.67
MARIPUR 220 220	MAR-BAL-KKI2220	E1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	E2	322.43	624.94	495.4	126.15
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	106.5	217.55	495.37	43.92
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	106.5	217.55	495.37	43.92
MARIPUR 220 220	MAR-BAL-KKI 220	E2	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	E1	322.43	624.94	495.4	126.15
LALAZAR 220 220	MAR-LALPLDP1220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	107.97	217.91	495.37	43.99
LALAZAR 220 220	MAR-LALPLDP2220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	107.97	217.91	495.37	43.99
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	183.85	253.33	250	101.21
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	183.86	253.34	250	101.22
LALAZAR 220 220	LALAZAR-UG1 220	E1	LALAZAR 220 220.00	LALAZAR-UG2 220.00	E2	76.86	140.03	514.4	27.22
LALAZAR 220 220	LALAZAR-UG2 220	E2	LALAZAR 220 220.00	LALAZAR-UG1 220.00	E1	76.86	140.03	514.4	27.22
LALAZAR-UG1 220	KCR_UG1 220	1	LALAZAR 220 220.00	LALAZAR-UG2 220.00	E2	76.6	142.72	483.6	29.51
SURJANI 220 220	KDA-33 220	E1	SURJANI 220 220.00	DEH HALKANI 220.00	1	138.05	286.55	904	31.7
SURJANI 220 220	DEH HALKANI 220	1	KDA-33 220.00	NKI 220.00	E1	166.17	249.28	967	25.78
SURJANI 220 220	SURJANI 132 132	1	SURJANI 220 220.00	SURJANI 132 132.00	2	151.37	216.63	250	88.29
SURJANI 220 220	SURJANI 132 132	2	SURJANI 220 220.00	SURJANI 132 132.00	1	151.37	216.63	250	88.29
LALAZAR-UG2 220	KCR_UG2 220	1	LALAZAR 220 220.00	LALAZAR-UG1 220.00	E1	76.6	142.72	483.6	29.51
K CREEK 220 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	316.6	536.28	419.16	127.94
K CREEK 220 220	CCP-KCR-2 220	1	CCPP 220.00	CCP-KCR-1 220.00	E1	55.31	103.83	270.6	38.37
K CREEK 220 220	CCP-KCR-1 220	1	CCPP 220.00	CCP-KCR-2 220.00	E2	55.31	103.83	270.5	38.38
K CREEK 220 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	316.6	536.28	419.2	127.93
K CREEK 220 220	QAYOMABAD 132	2	K CREEK 220 220.00	KO.WEST 132 132.00	2	188.44	239.03	250	95.27
K CREEK 220 220	KO.WEST 132 132	2	K CREEK 220 220.00	QAYOMABAD 132.00	2	188.44	239.03	250	95.27
K CREEK 220 220	KCR_UG1 220	E1	LALAZAR 220 220.00	LALAZAR-UG2 220.00	E2	76.3	140.64	514.4	27.34
K CREEK 220 220	KCR_UG2 220	E2	LALAZAR 220 220.00	LALAZAR-UG1 220.00	E1	76.3	140.64	514.4	27.34
BQPS II 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	322.1	556.21	419.2	132.68
BQPS II 220	BQPS-2 GEN-415.	1	BQPS III 220.00	BQPS II 220.00	1	176.01	176.71	250	67.95
BQPS II 220	BQPS-2 GEN-115.	1	BQPS III 220.00	BQPS II 220.00	1	140.15	140.76	170	79.36
BQPS II 220	BQPS-2 GEN-315.	1	BQPS III 220.00	BQPS II 220.00	1	140.15	140.76	170	79.36
BQPS II 220	BQPS-2 GEN-215.	1	BQPS III 220.00	BQPS II 220.00	1	140.15	140.76	170	79.36
BQPS II 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	322.1	556.21	419.2	132.68
PIPRI W 220 220	BQPS III 220	E1	PIPRI W 220 220.00	ICI 220 220.00	E4	206.1	283.08	457	61.94
PIPRI W 220 220	BQPS III 220	E3	PIPRI W 220 220.00	ICI 220 220.00	E4	235.67	323.67	457	70.83
PIPRI W 220 220	NPQ-2 220	E1	PIPRI W 220 220.00	NPQ-2 220.00	E2	83.75	159.83	921.8	17.34
PIPRI W 220 220	NPQ-2 220	E2	PIPRI W 220 220.00	NPQ-2 220.00	E1	83.75	159.83	921.8	17.34
PIPRI W 220 220	BQPS III 220	E2	PIPRI W 220 220.00	ICI 220 220.00	E4	206.1	283.07	457	61.94
PIPRI W 220 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	236.39	324.18	457	70.94
PIPRI W 220 220	PIPRI W 132 132	1	PIPRI W 220 220.00	PIPRI W 132 132.00	2	234.6	333.62	250	131.86
PIPRI W 220 220	PIPRI W 132 132	2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	234.6	333.62	250	131.86
PIPRI W 220 220	PIPRI W 132 132	3	PIPRI W 220 220.00	PIPRI W 132 132.00	1	234.6	333.62	250	131.86
BQPS III 220	BQPS GEN6 18.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	0	0	250	0
BQPS III 220	BQPS GEN5 18.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	0	0	250	0
BQPS III 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	236.42	325.22	457.26	71.12
BQPS III 220	BQPS II 220	1	BQPS III 220.00	BQPS II 220.00	2	78.19	132.45	609.7	21.72
BQPS III 220	BQPS II 220	2	BQPS III 220.00	BQPS II 220.00	1	78.19	132.45	609.7	21.72
BQPS III 220	BQPS-4 GT 18.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	520.91	549.07	600	87.19
N.PORT QASIM220	BTK-220 220	1	KDA-33 220.00	N.PORT QASIM220.00	E1	123.71	164.9	1530	10.78
N.PORT QASIM220	DHACK-220 220	N1	KDA-33 220.00	N.PORT QASIM220.00	E1	123.71	164.9	1530	10.78
N.PORT QASIM220	DHABEJI 220 220	N1	N.PORT QASIM220.00	DHABEJI 220 220.00	N2	192.79	311.1	967	32.17
N.PORT QASIM220	DHABEJI 220 220	N2	N.PORT QASIM220.00	DHABEJI 220 220.00	N1	192.79	311.1	967	32.17
KDA-33 220	GULSHAN 220 220	E1	KDA-33 220.00	GULSHAN 220 220.00	E2	227.73	452.8	514	88.09

KDA-33 220	GULSHAN 220 220	E2	KDA-33 220.00	GULSHAN 220 220.00	E1	227.73	452.8	514	88.09
GULSHAN 220 220	GULSHAN 132 132	1	GULSHAN 220 220.00	GULSHAN 132 132.00	2	227.73	456.89	250	187.67
GULSHAN 220 220	GULSHAN 132 132	2	GULSHAN 220 220.00	GULSHAN 132 132.00	1	227.73	456.89	250	187.67
DEH HALKANI 220	MITHA GHAR 220	1	KDA-33 220.00	NKI 220.00	E1	85.17	163.76	967	16.94
DEH HALKANI 220	DEH-HAL-22KV22.	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	2	47.93	95.7	120	80.85
DEH HALKANI 220	DEH-HAL-22KV22.	2	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	47.93	95.7	120	80.85
MAR-LALPLDP1220	LZAR-MP-PLDP220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	106.5	210.85	476.3	44.27
MAR-LALPLDP2220	LZAR-MP-PLDP220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	106.5	210.85	476.4	44.26
CCPP 220	CCP-KCR-2 220	E2	CCPP 220.00	CCP 1 11.500	1	55.25	103.81	349	29.75
CCPP 220	CCP 3 11.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	21.67	21.61	35	60.51
CCPP 220	CCP 4 11.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	27.02	28.23	35	78.06
CCPP 220	CCP 1 11.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	102.55	104.36	115	87.79
CCPP 220	CCP 2 11.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	100.3	105.25	115	88.42
CCPP 220	CCP-KCR-1 220	E1	CCPP 220.00	CCP 1 11.500	1	55.25	103.81	349	29.75
CCPP 220	KTPS EXISTIN132	1	CCPP 220.00	KTPS EXISTIN132.00	2	171.46	226.79	250	90.3
CCPP 220	KTPS EXISTIN132	2	CCPP 220.00	KTPS EXISTIN132.00	1	171.46	226.79	250	90.3
BQPS III 220	BQPS-3 GT 18.	1	BQPS III 220.00	BQPS-4 GT 18.500	1	509.69	539.18	600	86.2
MITHA GHAR 220	MTH-GHR-22KV22.	3	MITHA GHAR 220.00	MTH-GHR-22KV22.000	4	60.02	120.15	150	80.68
MITHA GHAR 220	MTH-GHR-22KV22.	4	MITHA GHAR 220.00	MTH-GHR-22KV22.000	3	60.02	120.15	150	80.68
22	0.4	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	16.03	16.14	20	80.34
22	0.4	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	16.03	16.14	20	80.34
22	0.4	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	16.03	16.14	20	80.34
22	0.4	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	16.03	16.14	20	80.34
22	0.4	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	16.03	16.14	20	80.34
22	0.4	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	16.03	16.14	20	80.34
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	16.02	17.32	20	83.63
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	16.02	17.32	20	83.63
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	16.02	17.32	20	83.63
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	16.02	17.32	20	83.63
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	16.02	17.32	20	83.63
KKI-500 500	KKI-220 220	1	K-2/K-3 500.00	NKI 500.00	1	275.95	382.1	600	63.84
KKI-500 500	KKI-220 220	2	K-2/K-3 500.00	NKI 500.00	1	275.95	382.1	600	63.84
KKI-500 500	KKI-220 220	3	K-2/K-3 500.00	NKI 500.00	1	275.95	382.1	600	63.84
KKI-220 220	MAR-KKI_UG 220	1	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	E1	324.95	621.07	957.2	64.88
KKI-220 220	MAR-KKI-UG2 220	1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	E2	324.95	621.07	957.2	64.88
KKI-220 220	BAL-KKI-UG 220	1	NKI 220.00	NKIBAL PLDP1220.00	E1	100.36	223.32	957.2	23.33
KKI-220 220	BAL_KKI_UG2 220	1	NKI 220.00	NKIBAL PLDP1220.00	E1	100.36	223.32	957.2	23.33
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	16.02	16.87	20	81.55
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	12.02	12.65	15	81.62
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	12.02	12.65	15	81.62
KDA2 132 132	GADAP 132	N1	BALDIA 220 S220.00	NKIBAL PLDP1220.00	E1	31.6	31.62	202	15.66
KDA2 132 132	GULSHAN 132 132	E1	N.PORT QASIM220.00	NPQ-2 220.00	1	115.83	116.25	130.1	89.35
KDA2 132 132	JOHAR 132 132	R1	N.PORT QASIM220.00	NPQ-2 220.00	1	153.51	154.08	280	55.03
KDA2 132 132	MEMON GOTH 132	E1	N.PORT QASIM220.00	NPQ-2 220.00	1	73.64	73.88	130.1	56.78
KDA2 132 132	SNPC 132	1	N.PORT QASIM220.00	NPQ-2 220.00	1	47.71	47.85	202	23.69
KDA2 132 132	KDA T-1 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	27.95	28.01	40	69.58
KDA2 132 132	KDA T-2 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	27.95	28.01	40	69.58
KDA2 132 132	KDA T-3 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	23.53	23.56	40	58.54
KDA2 132 132	KDA T-4 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	23.53	23.56	40	58.54
MARIPUR-2 132	LYARI 132 SS132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	108.07	108.45	171	63.42
MARIPUR-2 132	MAURIPUR T-111.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	23.45	23.34	40	59.35
MARIPUR-2 132	MAURIPUR T-211.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	23.45	23.33	40	59.35
MARIPUR-2 132	MAURIPUR T-311.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	23.45	23.33	40	59.35
QUEENS RD 13132	ELANDER 132 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	38.84	39.02	160	24.39
QUEENS RD 13132	ELANDER 132 132	E2	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	38.84	39.02	160	24.39
QUEENS RD 13132	QUEENSRD T-111.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	20.33	20.26	40	49.91
QUEENS RD 13132	QUEENSRD T-211.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	18.86	18.81	40	46.35
QUEENS RD 13132	QUEENSRD T-311.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	20.33	20.26	40	49.91
QUEENS RD 13132	QUEENSRD T-411.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	17.51	17.42	40	43.72
SURJANI 132 132	SUR-VALIKA 132	R1	KDA-33 220.00	KDA2 132 132.00	1	157	169.57	262	64.72
SURJANI 132 132	SUR-UG-MAY 132	E1	KDA-33 220.00	KDA2 132 132.00	1	52.63	110.46	160	69.04
SURJANI 132 132	SURJANI T-1 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	22.67	22.7	40	56.73
SURJANI 132 132	SURJANI T-2 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	22.67	22.7	40	56.73
SURJANI 132 132	SURJANI T-3 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	22.67	22.7	40	56.73
SURJANI 132 132	SURJANI T-4 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	22.55	22.58	40	56.42
PIPRI W 132 132	AISHA STEEL 132	1	PIPRI W 220 220.00	NPQ-2 220.00	E1	5.46	5.47	112	4.88
PIPRI W 132 132	PIPRI E 132 132	E1	N.PORT QASIM220.00	NPQ-2 220.00	1	22.53	22.84	230.2	9.92
PIPRI W 132 132	PIPRI W T-2 11.	1	PIPRI W 220 220.00	NPQ-2 220.00	E1	10.47	10.48	20	50.74
PIPRI W 132 132	PIPRI W T-3 11.	1	PIPRI W 220 220.00	NPQ-2 220.00	E1	10.47	10.48	40	25.37
KTPS EXISTIN132	PRL-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	81.23	101.95	160	63.72

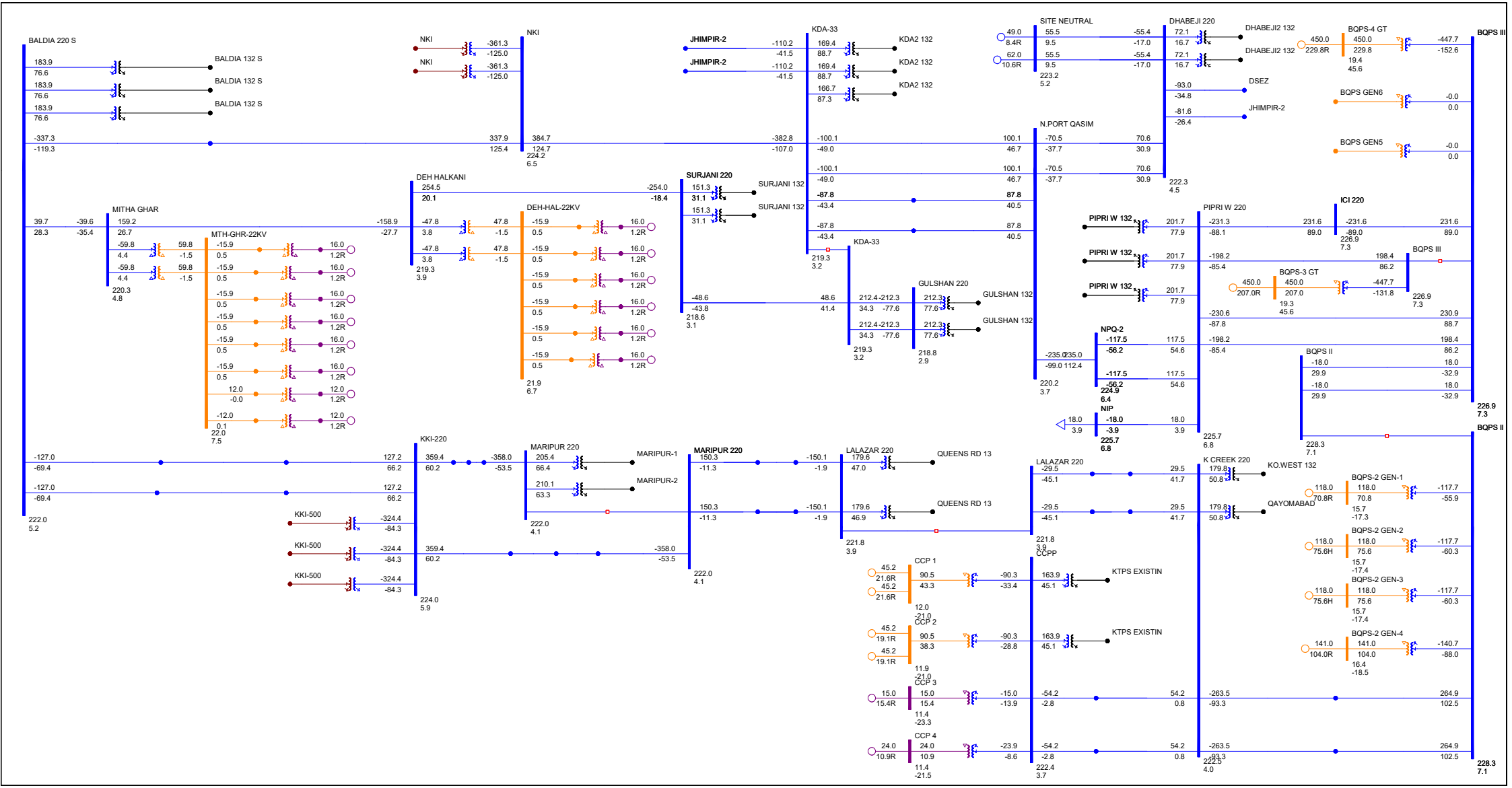
KTPS EXISTIN132	QAYMBD-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	45.01	73.75	137.2	53.75
QAYOMABAD 132	KO.WEST 132 132	2	N.PORT QASIM220.00	NPQ-2 220.00	1	0.36	0.36	280	0.13
QAYOMABAD 132	QAYMBD-K-EST132	E1	CCPP 220.00	KTPS EXISTIN132.00	1	32.18	48.68	251.5	19.36
QAYOMABAD 132	QY-KS-KCNUG2132	E2	K CREEK 220 220.00	QAYOMABAD 132.00	2	21.52	35.03	171.47	20.43
KO.WEST 132 132	PRL 132 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	13.35	35.16	130.09	27.03
KO.WEST 132 132	DEFNCE-K-WST132	E1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	97.28	132.79	160	82.99
QUEENS RD 13132	OLD TOWN 132132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	47.36	47.58	114	41.73
QUEENS RD 13132	Q.RD-CLIFTON132	R1	K CREEK 220 220.00	QAYOMABAD 132.00	2	84.96	105.73	160	66.08
QUEENS RD 13132	Q.RD-GIZRI 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	80.12	120.22	251.49	47.8
GULSHAN 132 132	AZIZABAD 132	E1	N.PORT QASIM220.00	NPQ-2 220.00	1	110.99	111.33	171.5	64.92
GULSHAN 132 132	JAIL ROAD SS132	E1	BALDIA 220 S220.00	NKIBAL PLDP1220.00	E1	38.12	38.21	171	22.35
GULSHAN 132 132	AGHA KHAN 132	E1	BALDIA 220 S220.00	NKIBAL PLDP1220.00	E1	80.07	80.27	171	46.94
GULSHAN 132 132	CIVIC 132 A 132	E1	BALDIA 220 S220.00	NKIBAL PLDP1220.00	E1	120.05	120.34	160	75.22
GULSHAN 132 132	JAIL ROAD SS132	E2	BALDIA 220 S220.00	NKIBAL PLDP1220.00	E1	38.12	38.21	171	22.35
GULSHAN 132 132	GULSHAN T-1 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	28.05	28.07	40	72.76
GULSHAN 132 132	GULSHAN T-2 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	27.67	27.7	40	71.81
MARIPUR-1 132	MAR-LAB PL1 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	130.83	131.55	240.1	54.79
MARIPUR-1 132	MAR-GOL PL2 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	113.69	114.32	240.1	47.61
BALDIA 132 S132	HUB CHOWKI 1132	1	KDA-33 220.00	NKI 220.00	E1	53.08	54.31	183	29.68
BALDIA 132 S132	VALIKA B 132132	E1	KDA-33 220.00	NKI 220.00	E1	61.31	61.8	130.09	47.51
BALDIA 132 S132	VALIKA B 132132	E2	KDA-33 220.00	NKI 220.00	E1	91.89	92.6	262.2	35.32
BALDIA 132 S132	SITE GT 132A132	E1	KDA-33 220.00	NKI 220.00	E1	61.81	63.11	153.6	41.09
BALDIA 132 S132	SITE GT 132A132	E2	KDA-33 220.00	NKI 220.00	E1	61.81	63.11	182.9	34.51
BALDIA 132 S132	KANUPP 132 132	E1	KDA-33 220.00	NKI 220.00	E1	1.05	1.06	117.3	0.91
BALDIA 132 S132	ORANGI B 132132	R1	KDA-33 220.00	NKI 220.00	E1	91.38	92.04	280	32.87
BALDIA 132 S132	TAPAL 132 132	E1	KDA-33 220.00	NKI 220.00	E1	52.41	53.63	228.6	23.46
BALDIA 132 S132	BALDIA T-1 11.	1	KDA-33 220.00	NKI 220.00	E1	25.32	25.57	67	37.84
BALDIA 132 S132	BALDIA T-2 11.	1	KDA-33 220.00	NKI 220.00	E1	25.32	25.57	35	72.45
BALDIA 132 S132	BALDIA T-3 11.	1	KDA-33 220.00	NKI 220.00	E1	25.46	25.71	40	63.74
BALDIA 132 S132	BALDIA T-4 11.	1	KDA-33 220.00	NKI 220.00	E1	26.41	26.64	40	66.05
DHABEJI 220 220	DSEZ 220	1	JHIMPIR-2 220.00	DHABEJI 220 220.00	1	249.36	290.22	674	43.06
DHABEJI 220 220	SITE NEUTRAL220	1	DHABEJI 220 220.00	SITE NEUTRAL220.00	2	103.78	201.83	967	20.87
DHABEJI 220 220	SITE NEUTRAL220	2	DHABEJI 220 220.00	SITE NEUTRAL220.00	1	103.78	201.83	967	20.87
DHABEJI 220 220	DHABEJI2 132132	1	DHABEJI 220 220.00	DHABEJI2 132132.00	2	104.91	174.29	250	69.79
DHABEJI 220 220	DHABEJI2 132132	2	DHABEJI 220 220.00	DHABEJI2 132132.00	1	104.91	174.29	250	69.79
DSEZ 220	GHARO-NEW 220	1	JHIMPIR-2 220.00	DHABEJI 220 220.00	1	283.27	324.49	674	48.14
DSEZ 220	DSEZ 132 132	1	DHABEJI 220 220.00	DSEZ 220.00	1	16.88	17.51	160	10.71
DSEZ 220	DSEZ 132 132	2	DHABEJI 220 220.00	DSEZ 220.00	1	16.88	17.51	160	10.71
MAR-BAL-KKI222	MAR-KKI-UG3 22	1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	E2	323.84	608.96	476.3	127.85
MAR-BAL-KKI 22	MAR-KKI-UG4 22	1	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	E1	323.84	608.96	476.3	127.85
MAR-KKI_UG 22	MAR-KKI-UG4 22	E2	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	E1	324.95	622.88	967	64.41
MAR-KKI-UG2 22	MAR-KKI-UG3 22	E1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	E2	324.95	622.88	967	64.41
BAL-KKI-UG 22	BAL_KKI_UG4 22	1	NKI 220.00	NKIBAL PLDP1220.00	E1	101.2	224.94	967	23.26
BAL_KKI_UG2 22	BAL_KKI_UG3 22	1	NKI 220.00	NKIBAL PLDP1220.00	E1	101.2	224.94	967	23.26
DHABEJI2 13213	DHABEJI 132 13	N1	PIPRI W 220 220.00	PIPRI W 132 132.00	1	99.54	125.42	365	34.36
DHABEJI2 13213	DHABEJI 132 13	N2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	99.54	125.42	365	34.36
DHABEJI2 13213	DHABEJI T-3 11	1	N.PORT QASIM220.00	NPQ-2 220.00	1	9.25	9.25	40	22.48

Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Peak Load Case Year 2025 - (Maximum Solar - Average Wind - Without RPC)

Normal Case

Exhibit 1.3.0

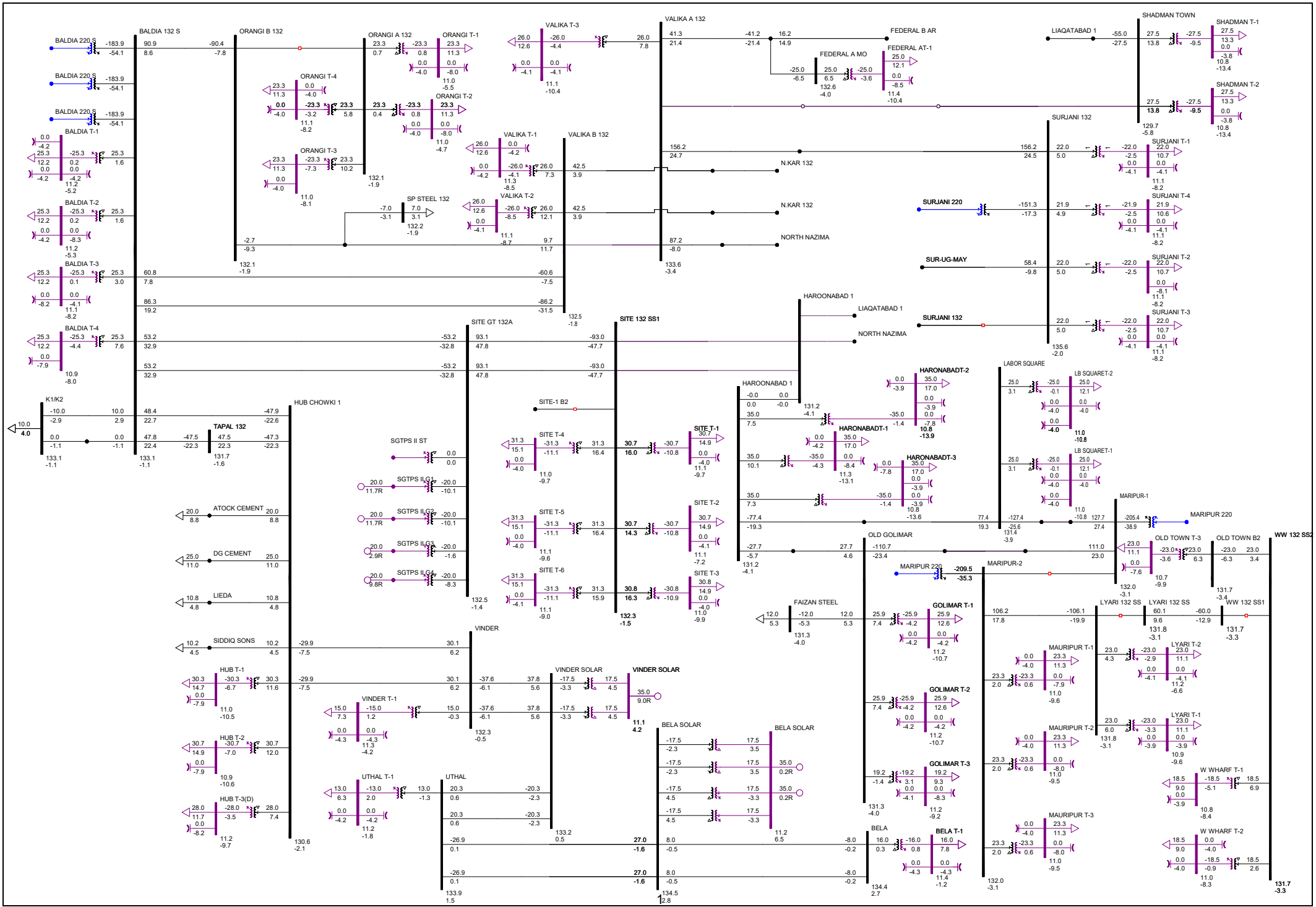


Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Peak Load Case Year 2025 - (Maximum Solar - Average Wind - Without RPC)

Normal Case

Exhibit 1.3.1



Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	o Bus Nam	CKT ID				
DADU 500.00	MORO 500.00	1	DADU 500.00	JAMSHORO	2	491.91	864.85	2000	43.24
DADU 500.00	JAMSHORO 500.00	2	DADU 500.00	MATIARI-C	1	881.2	1197.17	1300	92.09
DADU 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO	2	607.51	1069.78	1200	89.15
DADU 500.00	DADU 220.00	1	DADU 500.00	DADU 2	2	34.21	50.59	450	10.81
DADU 500.00	DADU 220.00	2	DADU 500.00	DADU 2	1	34.21	50.59	450	10.81
DADU 500.00	DADU 220.00	3	DADU 500.00	DADU 2	1	34.21	50.59	450	10.81
MORO 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO	2	503.5	861.35	1300	66.26
JAMSHORO 500.00	K-2/K-3 500.00	1	K-2/K-3 500.00	NKI 50	1	413.38	759.49	1900	39.97
JAMSHORO 500.00	HUB 500.00	2	JAMSHORO 500.00	HUBCO-CFI	1	626.56	1227.67	1300	94.44
JAMSHORO 500.00	NKI 500.00	1	MATIARI-CS 500.00	LUCKY-CFP	1	376.93	667.05	1300	51.31
JAMSHORO 500.00	HUBCO-CFPP 500.00	1	HUB 500.00	HUBCO-CFI	2	602.88	1238	1300	95.23
JAMSHORO 500.00	MATIARI-CS 500.00	1	JAMSHORO 500.00	MATIARI-C	3	604.45	1024.45	2000	51.22
JAMSHORO 500.00	MATIARI-CS 500.00	3	JAMSHORO 500.00	MATIARI-C	1	606.89	1024.99	2793	36.7
JAMSHORO 500.00	JAMSHORO 220.00	1	JAMSHORO 500.00	JAMSHORO	2	168.12	226.91	450	48.95
JAMSHORO 500.00	JAMSHORO 220.00	2	JAMSHORO 500.00	JAMSHORO	1	168.12	226.91	450	48.95
JAMSHORO 500.00	JAMSHORO 220.00	3	JAMSHORO 500.00	JAMSHORO	1	168.12	226.91	450	48.95
ENGRO CFPP 500.00	THL NVA CFPP500.00	1	SECL CFPP 500.00	TEL CFPP	2	310.05	929.64	2793	33.28
ENGRO CFPP 500.00	TEL CFPP 500.00	1	MATIARI-CS 500.00	THL NVA CI	1	291.64	926.82	2793	33.18
SECL CFPP 500.00	MATIARI-CS 500.00	1	SECL CFPP 500.00	MATIARI-C	2	612.62	838.25	1600	52.39
SECL CFPP 500.00	MATIARI-CS 500.00	2	SECL CFPP 500.00	MATIARI-C	1	612.62	838.25	1600	52.39
SECL CFPP 500.00	MATIARI-CS 500.00	3	SECL CFPP 500.00	MATIARI-C	1	610.48	835.46	1600	52.22
SECL CFPP 500.00	TEL CFPP 500.00	2	MATIARI-CS 500.00	THL NVA CI	1	591.51	1226.41	2793	43.91
PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	PRT QSM CFPP500.00	KKI-500 5	1	449.35	1252.05	2793	44.83
PRT QSM CFPP500.00	KKI-500 500.00	1	MATIARI-CS 500.00	LUCKY-CFP	1	835.06	1848.8	2700	68.47
K-2/K-3 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-C	1	1063.66	1282.7	2793	45.93
K-2/K-3 500.00	MATIARI-CS 500.00	1	MATIARI-CS 500.00	LUCKY-CFP	1	491.32	781.47	1400	55.82
K-2/K-3 500.00	KKI-500 500.00	1	PRT QSM CFPP500.00	KKI-500 5	1	233.49	791.15	2793	28.33
HUB 500.00	HUBCO-CFPP 500.00	2	JAMSHORO 500.00	HUBCO-CFI	1	620.75	1246.64	2793	44.63
NKI 500.00	NKI 220.00	1	NKI 500.00	NKI 22	2	392.94	607.54	600	100.31
NKI 500.00	NKI 220.00	2	NKI 500.00	NKI 22	1	392.94	607.54	600	100.31
MATIARI-CS 500.00	THL NVA CFPP500.00	1	SECL CFPP 500.00	TEL CFPP	2	610.78	1217.65	1820	66.9
MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	PRT QSM CFPP500.00	KKI-500 5	1	1026.62	1832.08	1900	96.43
DADU 220.0	DADU NEW 132.0	0 1	BQPS III 220.00	BQPS-4 GT	1	28.13	36.22	160	21.69
DADU 220.0	DADU NEW 132.0	0 2	BQPS III 220.00	BQPS-4 GT	1	28.13	36.22	160	21.69
DADU 220.0	DADU NEW 132.0	0 3	BQPS III 220.00	BQPS-4 GT	1	45	57.95	250	22.21
JAMSHORO 220.0	JHIMPIR-2 220.0	0 2	MATIARI-CS 500.00	LUCKY-CFP	1	76.13	117.63	550	21.39
JAMSHORO 220.0	JHIMPIR-2 220.0	0 3	MATIARI-CS 500.00	LUCKY-CFP	1	76.13	117.63	550	21.39
JAMSHORO 220.0	HALA RD. 220.0	0 1	JAMSHORO 220.00	HALA RD.	2	140.35	216.42	307	70.5
JAMSHORO 220.0	HALA RD. 220.0	0 2	JAMSHORO 220.00	HALA RD.	1	140.35	216.42	307	70.5
JAMSHORO 220.0	MIRPRKHS 220.0	0 1	HALA RD. 220.00	MIRPRKHS	1	94.15	142.42	674	21.13
JAMSHORO 220.0	TM.KH.RD 220.0	0 1	JAMSHORO 220.00	HALA RD.	1	50.06	83.83	600	13.97
JAMSHORO 220.0	JAMSHORO NEW132.0	0 1	JAMSHORO 220.00	JAMSHORO	2	76.7	90.75	160	55.96
JAMSHORO 220.0	JAMSHORO NEW132.0	0 2	JAMSHORO 220.00	JAMSHORO	1	76.7	90.75	160	55.96
JAMSHORO 220.0	JAMSHORO NEW132.0	0 3	JAMSHORO 220.00	JAMSHORO	1	76.7	90.75	160	55.96
JHIMPIR-2 220.0	KDA-33 220.0	0 1	KDA-33 220.00	NKI 22	E1	117.76	157.55	674	23.38
JHIMPIR-2 220.0	KDA-33 220.0	0 2	KDA-33 220.00	NKI 22	E1	117.76	157.55	674	23.38
JHIMPIR-2 220.0	JHIMPIR-2 132.0	0 1	N.PORT QASIM220.00	NPQ-2 2	1	98.4	98.81	250	39.36
JHIMPIR-2 220.0	JHIMPIR-2 132.0	0 2	N.PORT QASIM220.00	NPQ-2 2	1	98.4	98.81	250	39.36
JHIMPIR-2 220.0	JHIMPIR-2 132.0	0 3	N.PORT QASIM220.00	NPQ-2 2	1	98.4	98.81	250	39.36
JHIMPIR-2 220.0	JHIMPIR-2 132.0	0 4	N.PORT QASIM220.00	NPQ-2 2	1	98.4	98.81	250	39.36
JHIMPIR-2 220.0	JHIMPIR-1 220.0	0 1	DHABEJI 220 220.00	DSEZ 2	1	72.49	128.55	674	19.07
JHIMPIR-2 220.0	DHABEJI 220 220.0	0 1	BQPS III 220.00	BQPS-4 GT	1	85.72	119.69	674	17.76
HALA RD. 220.0	MIRPRKHS 220.0	0 1	JAMSHORO 220.00	MIRPRKHS	1	87.94	146.5	674	21.74
HALA RD. 220.0	TM.KH.RD 220.0	0 2	JAMSHORO 220.00	HALA RD.	1	129.65	176.54	674	26.19
HALA RD. 220.0	HALA ROAD 132.0	0 1	HALA RD. 220.00	MIRPRKHS	1	113.21	120.95	250	48.14
HALA RD. 220.0	HALA ROAD-1 132.0	0 1	HALA RD. 220.00	MIRPRKHS	1	106.33	114.15	250	45.44
HALA RD. 220.0	HALA ROAD-1 132.0	0 2	HALA RD. 220.00	MIRPRKHS	1	106.33	114.15	250	45.44
MIRPRKHS 220.0	M.KHS.NW 132.0	0 1	DADU 500.00	JAMSHORO	2	90.97	97.3	250	39.15
MIRPRKHS 220.0	M.KHS.NW 132.0	0 2	DADU 500.00	JAMSHORO	2	90.97	97.3	250	39.15
TM.KH.RD 220.0	HYD-TMK-2 132.0	0 2	HALA RD. 220.00	TM.KH.RD	2	89.41	107.01	250	42.21
TM.KH.RD 220.0	HYD-TMRD 132.0	0 1	HALA RD. 220.00	TM.KH.RD	2	87.32	100.71	250	39.73
TM.KH.RD 220.0	JHIMPIR-1 220.0	0 1	MATIARI-CS 500.00	LUCKY-CFP	1	126.91	153.29	674	22.74

TM.KH.RD 220.0	JHIMPIR-1 220.0	0 2	MATIARI-CS 500.00	LUCKY-CFP	1	126.91	153.29	674	22.74
KDA-33 220.0	NKI 220.0	0 E1	BALDIA 220 S220.00	NKIBAL PLD	E1	404.44	584	953	61.28
KDA-33 220.0	N.PORT QASIM220.0	0 E1	KDA-33 220.00	NKI 22	E1	111.4	154.87	921.8	16.8
KDA-33 220.0	N.PORT QASIM220.0	0 E2	KDA-33 220.00	NKI 22	E1	111.4	154.87	921.76	16.8
KDA-33 220.0	BTK-220 220.0	0 1	KDA-33 220.00	NKI 22	E1	97.92	135.77	1350	10.06
KDA-33 220.0	DHACK-220 220.0	0 N1	KDA-33 220.00	NKI 22	E1	97.92	135.77	1350	10.06
KDA-33 220.0	KDA2 132 132.0	0 1	KDA-33 220.00	KDA2 132	2	191.21	257.01	250	103.28
KDA-33 220.0	KDA2 132 132.0	0 2	KDA-33 220.00	KDA2 132	1	191.21	257.01	250	103.28
KDA-33 220.0	KDA2 132 132.0	0 3	KDA-33 220.00	KDA2 132	1	188.17	252.93	250	101.64
NKI 220.0	NKIBAL PLDP1220.0	0 E1	KDA-33 220.00	NKI 22	E1	360.36	618.18	952.6	64.89
JAMSHORO NEW132.	LAKHRA 132.	1	DADU 500.00	JAMSHORO	2	19.33	30.51	202	15.1
JAMSHORO NEW132.	LAKHRA 132.	2	DADU 500.00	JAMSHORO	2	19.33	30.51	202	15.1
JAMSHORO NEW132.	QASIMABAD 132.	1	JAMSHORO 220.00	MIRPRKHS	1	39.13	43.08	202	21.33
JAMSHORO NEW132.	RAJPUTANA 132.	1	JAMSHORO 220.00	MIRPRKHS	1	34.27	41.03	202	20.31
JAMSHORO NEW132.	JAMSRO OLD 132.	1	BQPS III 220.00	BQPS-3 GT	1	43.5	45.57	202	22.56
JAMSHORO NEW132.	JAMSRO OLD 132.	2	BQPS III 220.00	BQPS-3 GT	1	43.5	45.57	202	22.56
JAMSHORO NEW132.	JAMSRO OLD 132.	3	BQPS III 220.00	BQPS-3 GT	1	43.5	45.57	202	22.56
BALDIA 220 S220	MITHA GHAR 220	1	SURJANI 220 220.00	DEH HALKA	1	53.13	222.94	967	23.06
BALDIA 220 S220	BALDIA 132 S132	1	BALDIA 220 S220.00	BALDIA 132	2	199.17	299.97	250	119.13
BALDIA 220 S220	BALDIA 132 S132	2	BALDIA 220 S220.00	BALDIA 132	1	199.17	299.97	250	119.13
BALDIA 220 S220	BALDIA 132 S132	3	BALDIA 220 S220.00	BALDIA 132	1	199.17	299.97	250	119.13
BALDIA 220 S220	NKIBAL PLDP1220	E1	KDA-33 220.00	NKI 22	E1	357.75	604.06	1348.2	44.8
BALDIA 220 S220	BAL_KKI_UG3 220	E1	K-2/K-3 500.00	NKI 50	1	144.7	302.45	476.3	63.5
BALDIA 220 S220	BAL_KKI_UG4 220	E2	K-2/K-3 500.00	NKI 50	1	144.7	302.45	476.3	63.5
MARIPUR 220 220	MARIPUR-2 132	1	MARIPUR 220 220.00	MARIPUR-1	11	219.38	439.21	250	175.32
MARIPUR 220 220	MARIPUR-1 132	11	MARIPUR 220 220.00	MARIPUR-2	1	215.87	437.45	250	174.61
MARIPUR 220 220	MAR-BAL-KKI2220	E1	MARIPUR 220 220.00	MAR-BAL-K	E2	361.99	688.99	495.4	139.08
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPL	E2	150.72	293.86	495.37	59.32
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPL	E1	150.72	293.86	495.37	59.32
MARIPUR 220 220	MAR-BAL-KKI 220	E2	MARIPUR 220 220.00	MAR-BAL-K	E1	361.99	688.99	495.4	139.08
LALAZAR 220 220	MAR-LALPLDP1220	E2	LALAZAR 220 220.00	MAR-LALPL	E1	150.6	292.62	495.37	59.07
LALAZAR 220 220	MAR-LALPLDP2220	E1	LALAZAR 220 220.00	MAR-LALPL	E2	150.6	292.62	495.37	59.07
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD	1	185.64	256.13	250	101.82
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD	1	185.65	256.13	250	101.82
LALAZAR 220 220	LALAZAR-UG1 220	E1	N.PORT QASIM220.00	NPQ-2 2	1	53.89	113.87	514.4	22.14
LALAZAR 220 220	LALAZAR-UG2 220	E2	N.PORT QASIM220.00	NPQ-2 2	1	53.89	113.87	514.4	22.14
LALAZAR-UG1 220	KCR_UG1 220	1	N.PORT QASIM220.00	NPQ-2 2	1	53.3	113.11	483.6	23.39
SURJANI 220 220	KDA-33 220	E1	SURJANI 220 220.00	DEH HALKA	1	65.41	286.4	904	31.68
SURJANI 220 220	DEH HALKANI 220	1	KDA-33 220.00	NKI 22	E1	255.32	396.42	967	41
SURJANI 220 220	SURJANI 132 132	1	SURJANI 220 220.00	SURJANI 13	2	154.49	221.75	250	89.32
SURJANI 220 220	SURJANI 132 132	2	SURJANI 220 220.00	SURJANI 13	1	154.49	221.75	250	89.32
LALAZAR-UG2 220	KCR_UG2 220	1	N.PORT QASIM220.00	NPQ-2 2	1	53.3	113.11	483.6	23.39
K CREEK 220 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-L	E2	279.53	465.78	419.16	111.12
K CREEK 220 220	CCP-KCR-2 220	1	CCPP 220.00	CCP-KCR-1	E1	54.21	102.36	270.6	37.83
K CREEK 220 220	CCP-KCR-1 220	1	CCPP 220.00	CCP-KCR-2	E2	54.21	102.36	270.5	37.84
K CREEK 220 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-L	E1	279.53	465.78	419.2	111.11
K CREEK 220 220	QAYOMABAD 132	2	K CREEK 220 220.00	KO.WEST 1	2	186.82	237.35	250	94.07
K CREEK 220 220	KO.WEST 132 132	2	K CREEK 220 220.00	QAYOMAB	2	186.82	237.35	250	94.07
K CREEK 220 220	KCR_UG1 220	E1	N.PORT QASIM220.00	NPQ-2 2	1	52.34	113.51	514.4	22.07
K CREEK 220 220	KCR_UG2 220	E2	N.PORT QASIM220.00	NPQ-2 2	1	52.34	113.51	514.4	22.07
BQPS II 220	KCR-BQ2-LDI 220	E1	BQPS II 220.00	KCR-BQ2-L	E2	284.03	481.7	419.2	114.91
BQPS II 220	BQPS-2 GEN-415.	1	KDA-33 220.00	NKI 22	E1	175.2	177.25	250	67.94
BQPS II 220	BQPS-2 GEN-115.	1	NKI 220.00	NKIBAL PLD	E1	137.59	140.24	170	79.06
BQPS II 220	BQPS-2 GEN-315.	1	LALAZAR 220 220.00	LALAZAR-U	E1	140.15	140.26	170	78.74
BQPS II 220	BQPS-2 GEN-215.	1	LALAZAR 220 220.00	LALAZAR-U	E1	140.15	140.26	170	78.74
BQPS II 220	KCR-BQ2-LDI 220	E2	BQPS II 220.00	KCR-BQ2-L	E1	284.03	481.7	419.2	114.91
PIPRI W 220 220	BQPS III 220	E1	PIPRI W 220 220.00	ICI 220 2	E4	216.34	297.38	457	65.07
PIPRI W 220 220	BQPS III 220	E3	PIPRI W 220 220.00	ICI 220 2	E4	247.37	340.03	457	74.41
PIPRI W 220 220	NPQ-2 220	E1	PIPRI W 220 220.00	NPQ-2 2	E2	130.24	251.24	921.8	27.25
PIPRI W 220 220	NPQ-2 220	E2	PIPRI W 220 220.00	NPQ-2 2	E1	130.24	251.24	921.8	27.25
PIPRI W 220 220	BQPS III 220	E2	PIPRI W 220 220.00	ICI 220 2	E4	216.33	297.37	457	65.07
PIPRI W 220 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 2	E3	248.14	340.58	457	74.53
PIPRI W 220 220	PIPRI W 132 132	1	PIPRI W 220 220.00	PIPRI W 13	2	216.25	307.72	250	120.14
PIPRI W 220 220	PIPRI W 132 132	2	PIPRI W 220 220.00	PIPRI W 13	1	216.25	307.72	250	120.14

PIPRI W 220 220	PIPRI W 132 132	3	PIPRI W 220 220.00	PIPRI W 13	1	216.25	307.72	250	120.14
BQPS III 220	BQPS GEN1 21.	1	N.PORT QASIM220.00	NPQ-2 2	1	0	0	250	0
BQPS III 220	BQPS GEN6 18.	1	N.PORT QASIM220.00	NPQ-2 2	1	0	0	250	0
BQPS III 220	BQPS GEN5 18.	1	N.PORT QASIM220.00	NPQ-2 2	1	0	0	250	0
BQPS III 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 2	E3	248.17	341.6	457.26	74.71
BQPS III 220	BQPS II 220	1	N.PORT QASIM220.00	NPQ-2 2	1	37.56	100.69	609.7	16.51
BQPS III 220	BQPS II 220	2	N.PORT QASIM220.00	NPQ-2 2	1	37.56	100.69	609.7	16.51
BQPS III 220	BQPS-4 GT 18.	1	BQPS III 220.00	BQPS-3 GT	1	505.29	524.78	600	83.34
N.PORT QASIM220	BTK-220 220	1	KDA-33 220.00	NKI 22	E1	97.77	136	1530	8.89
N.PORT QASIM220	DHACK-220 220	N1	KDA-33 220.00	NKI 22	E1	97.77	136	1530	8.89
N.PORT QASIM220	DHABEJI 220 220	N1	N.PORT QASIM220.00	DHABEJI 22	N2	79.88	125.3	967	12.96
N.PORT QASIM220	DHABEJI 220 220	N2	N.PORT QASIM220.00	DHABEJI 22	N1	79.88	125.3	967	12.96
KDA-33 220	GULSHAN 220 220	E1	KDA-33 220.00	GULSHAN 2	E2	226.07	452.05	514	87.95
KDA-33 220	GULSHAN 220 220	E2	KDA-33 220.00	GULSHAN 2	E1	226.07	452.05	514	87.95
GULSHAN 220 220	GULSHAN 132 132	1	GULSHAN 220 220.00	GULSHAN 1	2	226.07	456.22	250	184.79
GULSHAN 220 220	GULSHAN 132 132	2	GULSHAN 220 220.00	GULSHAN 1	1	226.07	456.22	250	184.79
DEH HALKANI 220	MITHA GHAR 220	1	KDA-33 220.00	NKI 22	E1	161.41	308.03	967	31.85
DEH HALKANI 220	DEH-HAL-22KV22.	1	DEH HALKANI 220.00	DEH-HAL-2	2	47.98	95.6	120	79.94
DEH HALKANI 220	DEH-HAL-22KV22.	2	DEH HALKANI 220.00	DEH-HAL-2	1	47.98	95.6	120	79.94
MAR-LALPLDP1220	LZAR-MP-PLDP220	E2	MAR-LALPLDP2220.00	LZAR-MP-P	E1	150.65	295.47	476.3	62.03
MAR-LALPLDP2220	LZAR-MP-PLDP220	E1	MAR-LALPLDP1220.00	LZAR-MP-P	E2	150.65	295.47	476.4	62.02
CCPP 220	CCP-KCR-2 220	E2	CCPP 220.00	CCP 1 1	1	54.24	102.51	349	29.37
CCPP 220	CCP 3 11.	1	BQPS II 220.00	KCR-BQ2-L	E1	21.67	21.58	35	60.21
CCPP 220	CCP 4 11.	1	K CREEK 220 220.00	KCR-BQ2-L	E1	26.38	28.02	35	77.35
CCPP 220	CCP 1 11.	1	BQPS II 220.00	KCR-BQ2-L	E1	100.29	104.11	115	87.3
CCPP 220	CCP 2 11.	1	K CREEK 220 220.00	KCR-BQ2-L	E1	98.25	103.47	115	86.92
CCPP 220	CCP-KCR-1 220	E1	CCPP 220.00	CCP 1 1	1	54.24	102.51	349	29.37
CCPP 220	KTPS EXISTIN132	1	CCPP 220.00	KTPS EXIST	2	170.03	225.25	250	89.22
CCPP 220	KTPS EXISTIN132	2	CCPP 220.00	KTPS EXIST	1	170.03	225.25	250	89.22
BQPS III 220	BQPS-3 GT 18.	1	BQPS III 220.00	BQPS-4 GT	1	495.31	515.74	600	82.45
MITHA GHAR 220	MTH-GHR-22KV22.	3	MITHA GHAR 220.00	MTH-GHR-	4	59.96	119.63	150	79.72
MITHA GHAR 220	MTH-GHR-22KV22.	4	MITHA GHAR 220.00	MTH-GHR-	3	59.96	119.63	150	79.72
22	0.4	1	SURJANI 220 220.00	DEH HALKA	1	16.05	16.22	20	80.66
22	0.4	1	SURJANI 220 220.00	DEH HALKA	1	16.05	16.22	20	80.66
22	0.4	1	SURJANI 220 220.00	DEH HALKA	1	16.05	16.22	20	80.66
22	0.4	1	SURJANI 220 220.00	DEH HALKA	1	16.05	16.22	20	80.66
22	0.4	1	SURJANI 220 220.00	DEH HALKA	1	16.05	16.22	20	80.66
22	0.4	1	SURJANI 220 220.00	DEH HALKA	1	16.05	16.22	20	80.66
22	0.4	1	DEH HALKANI 220.00	MITHA GH	1	16.05	16.54	20	81.03
22	0.4	1	DEH HALKANI 220.00	MITHA GH	1	16.05	16.54	20	81.03
22	0.4	1	DEH HALKANI 220.00	MITHA GH	1	16.05	16.54	20	81.03
22	0.4	1	DEH HALKANI 220.00	MITHA GH	1	16.05	16.54	20	81.03
22	0.4	1	DEH HALKANI 220.00	MITHA GH	1	16.05	16.54	20	81.03
KKI-500 500	KKI-220 220	1	K-2/K-3 500.00	NKI 50	1	345.21	474.9	600	79.48
KKI-500 500	KKI-220 220	2	K-2/K-3 500.00	NKI 50	1	345.21	474.9	600	79.48
KKI-500 500	KKI-220 220	3	K-2/K-3 500.00	NKI 50	1	345.21	474.9	600	79.48
KKI-220 220	MAR-KKI_UG 220	1	MARIPUR 220 220.00	MAR-BAL-K	E1	364.7	695.58	957.2	72.67
KKI-220 220	MAR-KKI-UG2 220	1	MARIPUR 220 220.00	MAR-BAL-K	E2	364.7	695.58	957.2	72.67
KKI-220 220	BAL-KKI-UG 220	1	K-2/K-3 500.00	NKI 50	1	144.37	306.04	957.2	31.97
KKI-220 220	BAL_KKI_UG2 220	1	K-2/K-3 500.00	NKI 50	1	144.37	306.04	957.2	31.97
22	0.4	1	DEH HALKANI 220.00	MITHA GH	1	16.05	16.5	20	80.95
22	0.4	1	DEH HALKANI 220.00	MITHA GH	1	12.06	12.41	15	81.03
22	0.4	1	DEH HALKANI 220.00	MITHA GH	1	12.06	12.41	15	81.03
KDA2 132 132	GADAP 132	N1	JAMSHORO 220.00	JHIMPIR-2	2	31.95	31.95	202	15.82
KDA2 132 132	GULSHAN 132 132	E1	JAMSHORO 220.00	JHIMPIR-2	2	115.23	115.27	130.1	88.6
KDA2 132 132	JOHAR 132 132	R1	JAMSHORO 220.00	JHIMPIR-2	2	152.74	152.78	280	54.57
KDA2 132 132	MEMON GOTH 132	E1	JAMSHORO 220.00	JHIMPIR-2	2	73.31	73.33	130.1	56.37
KDA2 132 132	SNPC 132	1	JAMSHORO 220.00	JHIMPIR-2	2	47.8	47.8	202	23.66
KDA2 132 132	KDA T-1 11.	1	N.PORT QASIM220.00	NPQ-2 2	1	27.83	27.67	40	67.83
KDA2 132 132	KDA T-2 11.	1	N.PORT QASIM220.00	NPQ-2 2	1	27.83	27.67	40	67.83
KDA2 132 132	KDA T-3 11.	1	N.PORT QASIM220.00	NPQ-2 2	1	23.45	23.31	40	57.13
KDA2 132 132	KDA T-4 11.	1	N.PORT QASIM220.00	NPQ-2 2	1	23.45	23.31	40	57.13
MARIPUR-2 132	LYARI 132 SS132	E1	DEH HALKANI 220.00	MITHA GH	1	107.93	108.06	171	63.19
MARIPUR-2 132	MAURIPUR T-111.	1	BQPS II 220.00	KCR-BQ2-L	E1	23.43	23.27	40	58.9

MARIPUR-2 132	MAURIPUR T-211.	1	BQPS II 220.00	KCR-BQ2-L	E1	23.43	23.26	40	58.89
MARIPUR-2 132	MAURIPUR T-311.	1	BQPS II 220.00	KCR-BQ2-L	E1	23.43	23.26	40	58.89
QUEENS RD 13132	ELANDER 132 132	E1	DEH HALKANI 220.00	MITHA GH	1	38.78	38.83	160	24.27
QUEENS RD 13132	ELANDER 132 132	E2	DEH HALKANI 220.00	MITHA GH	1	38.78	38.83	160	24.27
QUEENS RD 13132	QUEENSRD T-111.	1	BQPS II 220.00	KCR-BQ2-L	E1	20.31	20.21	40	49.56
QUEENS RD 13132	QUEENSRD T-211.	1	BQPS II 220.00	KCR-BQ2-L	E1	18.83	18.75	40	45.99
QUEENS RD 13132	QUEENSRD T-311.	1	BQPS II 220.00	KCR-BQ2-L	E1	20.31	20.21	40	49.56
QUEENS RD 13132	QUEENSRD T-411.	1	BQPS II 220.00	KCR-BQ2-L	E1	17.51	17.38	40	43.4
SURJANI 132 132	SUR-VALIKA 132	R1	KDA-33 220.00	KDA2 132	1	158.09	170.54	262	65.09
SURJANI 132 132	SUR-UG-MAY 132	E1	KDA-33 220.00	KDA2 132	1	59.25	115.99	160	72.49
SURJANI 132 132	SURJANI T-1 11.	1	N.PORT QASIM220.00	NPQ-2 2	1	22.59	22.45	40	55.36
SURJANI 132 132	SURJANI T-2 11.	1	N.PORT QASIM220.00	NPQ-2 2	1	22.59	22.45	40	55.36
SURJANI 132 132	SURJANI T-3 11.	1	N.PORT QASIM220.00	NPQ-2 2	1	22.59	22.45	40	55.36
SURJANI 132 132	SURJANI T-4 11.	1	N.PORT QASIM220.00	NPQ-2 2	1	22.47	22.33	40	55.06
PIPRI W 132 132	AISHA STEEL 132	1	PIPRI W 220 220.00	NPQ-2 2	E1	5.46	5.47	112	4.88
PIPRI W 132 132	PIPRI E 132 132	E1	N.PORT QASIM220.00	NPQ-2 2	1	22.84	22.95	230.2	9.97
PIPRI W 132 132	PIPRI W T-2 11.	1	PIPRI W 220 220.00	NPQ-2 2	E1	10.5	10.51	20	50.63
PIPRI W 132 132	PIPRI W T-3 11.	1	PIPRI W 220 220.00	NPQ-2 2	E1	10.5	10.51	40	25.32
KTPS EXISTIN132	PRL-KTPS 132	E1	K CREEK 220 220.00	QAYOMAB	2	80.54	101.31	160	63.32
KTPS EXISTIN132	QAYMBD-KTPS 132	E1	K CREEK 220 220.00	QAYOMAB	2	44.19	72.95	137.2	53.17
QAYOMABAD 132	KO.WEST 132 132	2	BALDIA 220 S220.00	BAL_KKI_U	E1	0.36	0.36	280	0.13
QAYOMABAD 132	QAYMBD-K-EST132	E1	CCPP 220.00	KTPS EXIST	1	32.4	48.91	251.5	19.45
QAYOMABAD 132	QY-KS-KCNUG2132	E2	K CREEK 220 220.00	QAYOMAB	2	21.12	34.65	171.47	20.21
KO.WEST 132 132	PRL 132 132	E1	K CREEK 220 220.00	QAYOMAB	2	12.77	34.57	130.09	26.58
KO.WEST 132 132	DEFNCE-K-WST132	E1	LALAZAR 220 220.00	QUEENS R	1	95.77	132.09	160	82.55
QUEENS RD 13132	OLD TOWN 132132	E1	DEH HALKANI 220.00	MITHA GH	1	47.29	47.35	114	41.54
QUEENS RD 13132	Q.RD-CLIFTON132	R1	K CREEK 220 220.00	QAYOMAB	2	86.35	107.09	160	66.93
QUEENS RD 13132	Q.RD-GIZRI 132	E1	K CREEK 220 220.00	QAYOMAB	2	83.08	123	251.49	48.91
GULSHAN 132 132	AZIZABAD 132	E1	SURJANI 220 220.00	KDA-33	E1	110.63	110.92	171.5	64.67
GULSHAN 132 132	JAIL ROAD SS132	E1	SURJANI 220 220.00	KDA-33	E1	38.01	38.12	171	22.29
GULSHAN 132 132	AGHA KHAN 132	E1	SURJANI 220 220.00	KDA-33	E1	79.75	79.97	171	46.77
GULSHAN 132 132	CIVIC 132 A 132	E1	SURJANI 220 220.00	KDA-33	E1	119.57	119.91	160	74.94
GULSHAN 132 132	JAIL ROAD SS132	E2	SURJANI 220 220.00	KDA-33	E1	38.01	38.12	171	22.29
GULSHAN 132 132	GULSHAN T-1 11.	1	N.PORT QASIM220.00	NPQ-2 2	1	27.95	27.72	40	70.68
GULSHAN 132 132	GULSHAN T-2 11.	1	N.PORT QASIM220.00	NPQ-2 2	1	27.54	27.29	40	69.58
MARIPUR-1 132	MAR-LAB PL1 132	E1	DEH HALKANI 220.00	MITHA GH	1	130.58	130.83	240.1	54.49
MARIPUR-1 132	MAR-GOL PL2 132	E1	DEH HALKANI 220.00	MITHA GH	1	113.47	113.69	240.1	47.35
BALDIA 132 S132	HUB CHOWKI 1132	1	KDA-33 220.00	NKI 22	E1	53.48	54.27	183	29.65
BALDIA 132 S132	VALIKA B 132132	E1	KDA-33 220.00	NKI 22	E1	61.25	61.56	130.09	47.32
BALDIA 132 S132	VALIKA B 132132	E2	KDA-33 220.00	NKI 22	E1	91.8	92.26	262.2	35.19
BALDIA 132 S132	SITE GT 132A132	E1	KDA-33 220.00	NKI 22	E1	62.37	63.21	153.6	41.15
BALDIA 132 S132	SITE GT 132A132	E2	KDA-33 220.00	NKI 22	E1	62.37	63.21	182.9	34.56
BALDIA 132 S132	KANUPP 132 132	E1	KDA-33 220.00	NKI 22	E1	1.06	1.07	117.3	0.91
BALDIA 132 S132	ORANGI B 132132	R1	KDA-33 220.00	NKI 22	E1	91.28	91.71	280	32.75
BALDIA 132 S132	TAPAL 132 132	E1	KDA-33 220.00	NKI 22	E1	52.8	53.59	228.6	23.44
BALDIA 132 S132	BALDIA T-1 11.	1	KDA-33 220.00	NKI 22	E1	25.31	25.46	67	37.58
BALDIA 132 S132	BALDIA T-2 11.	1	KDA-33 220.00	NKI 22	E1	25.31	25.46	35	71.95
BALDIA 132 S132	BALDIA T-3 11.	1	KDA-33 220.00	NKI 22	E1	25.44	25.59	40	63.27
BALDIA 132 S132	BALDIA T-4 11.	1	BALDIA 220 S220.00	BAL_KKI_U	E1	26.37	26.37	40	65.62
DHABEJI 220 220	DSEZ 220	1	BQPS III 220.00	BQPS-4 GT	1	99.3	138.33	674	20.52
DHABEJI 220 220	SITE NEUTRAL220	1	DHABEJI 220 220.00	SITE NEUT	2	57.96	112.73	967	11.66
DHABEJI 220 220	SITE NEUTRAL220	2	DHABEJI 220 220.00	SITE NEUT	1	57.96	112.73	967	11.66
DHABEJI 220 220	DHABEJI2 132132	1	DHABEJI 220 220.00	DHABEJI2 1	2	73.98	123.4	250	48.84
DHABEJI 220 220	DHABEJI2 132132	2	DHABEJI 220 220.00	DHABEJI2 1	1	73.98	123.4	250	48.84
DSEZ 220	GHARO-NEW 220	1	BQPS III 220.00	BQPS-4 GT	1	132.67	172.35	674	25.57
DSEZ 220	DSEZ 132 132	1	DHABEJI 220 220.00	DSEZ 2	1	16.83	17.45	160	10.55
DSEZ 220	DSEZ 132 132	2	DHABEJI 220 220.00	DSEZ 2	1	16.83	17.45	160	10.55
MAR-BAL-KKI222	MAR-KKI-UG3 22	0 1	MARIPUR 220 220.00	MAR-BAL-K	E2	363.48	682.48	476.3	143.29
MAR-BAL-KKI 22	MAR-KKI-UG4 22	0 1	MARIPUR 220 220.00	MAR-BAL-K	E1	363.48	682.48	476.3	143.29
MAR-KKI_UG 22	MAR-KKI-UG4 22	0 E2	MARIPUR 220 220.00	MAR-BAL-K	E1	364.7	696.25	967	72
MAR-KKI-UG2 22	MAR-KKI-UG3 22	0 E1	MARIPUR 220 220.00	MAR-BAL-K	E2	364.7	696.25	967	72
BAL-KKI-UG 22	BAL_KKI_UG4 22	0 1	K-2/K-3 500.00	NKI 50	1	144.6	305.18	967	31.56
BAL_KKI_UG2 22	BAL_KKI_UG3 22	0 1	K-2/K-3 500.00	NKI 50	1	144.6	305.18	967	31.56
DHABEJI2 13213	DHABEJI 132 13	0 N1	PIPRI W 220 220.00	PIPRI W 13	1	68.98	93.68	365	25.66

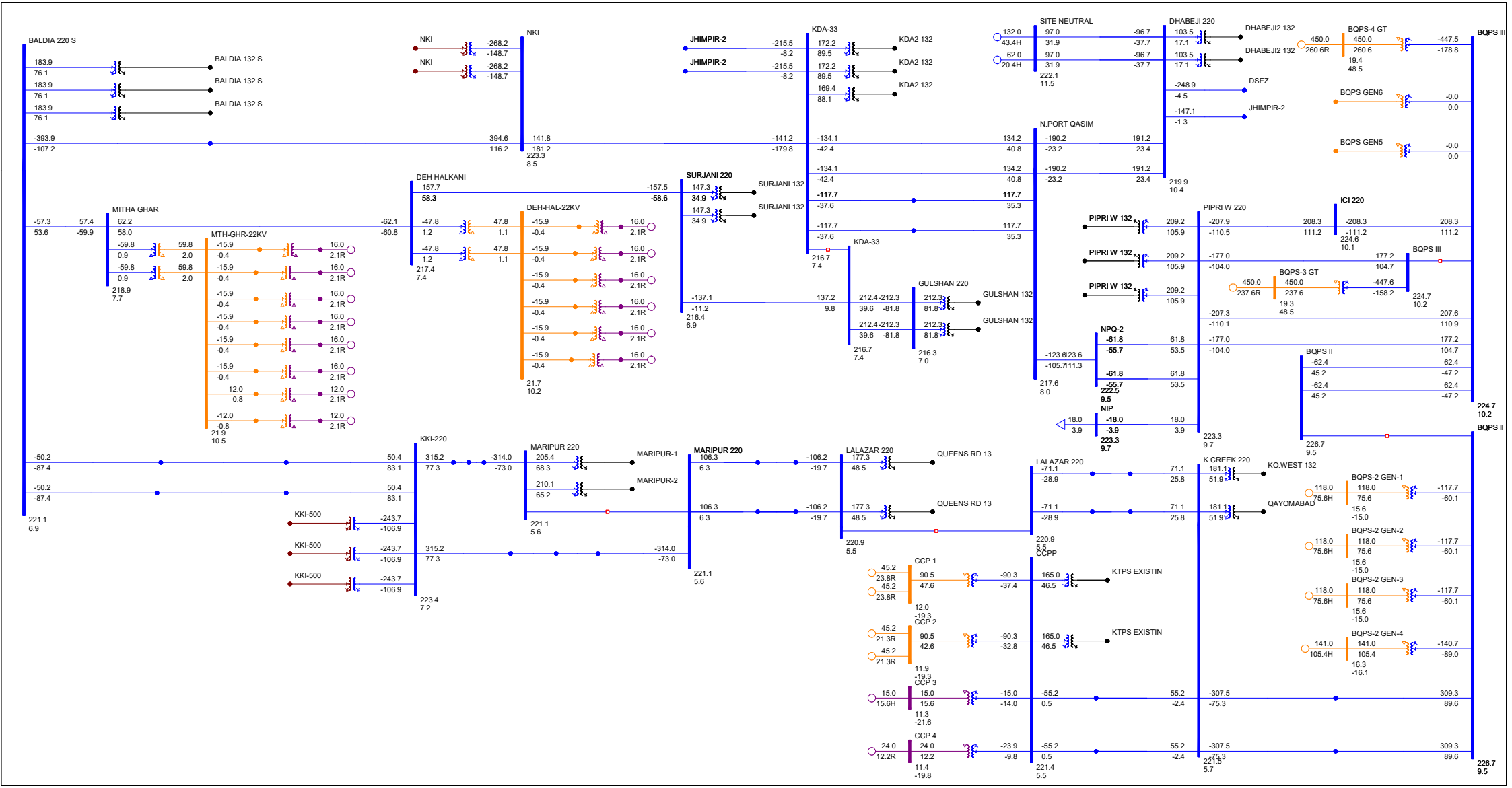
DHABEJI2 13213	DHABEJI 132 13	0 N2	PIPRI W 220 220.00	PIPRI W 13	1	68.98	93.68	365	25.66
DHABEJI2 13213	DHABEJI T-3 11	0 1	N.PORT QASIM220.00	DHABEJI 22	N1	9.24	9.25	40	22.2

Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Peak Load Case Year 2025 - (Maximum Solar - Maximum Wind - Without RPC)

Normal Case

Exhibit 1.4.0

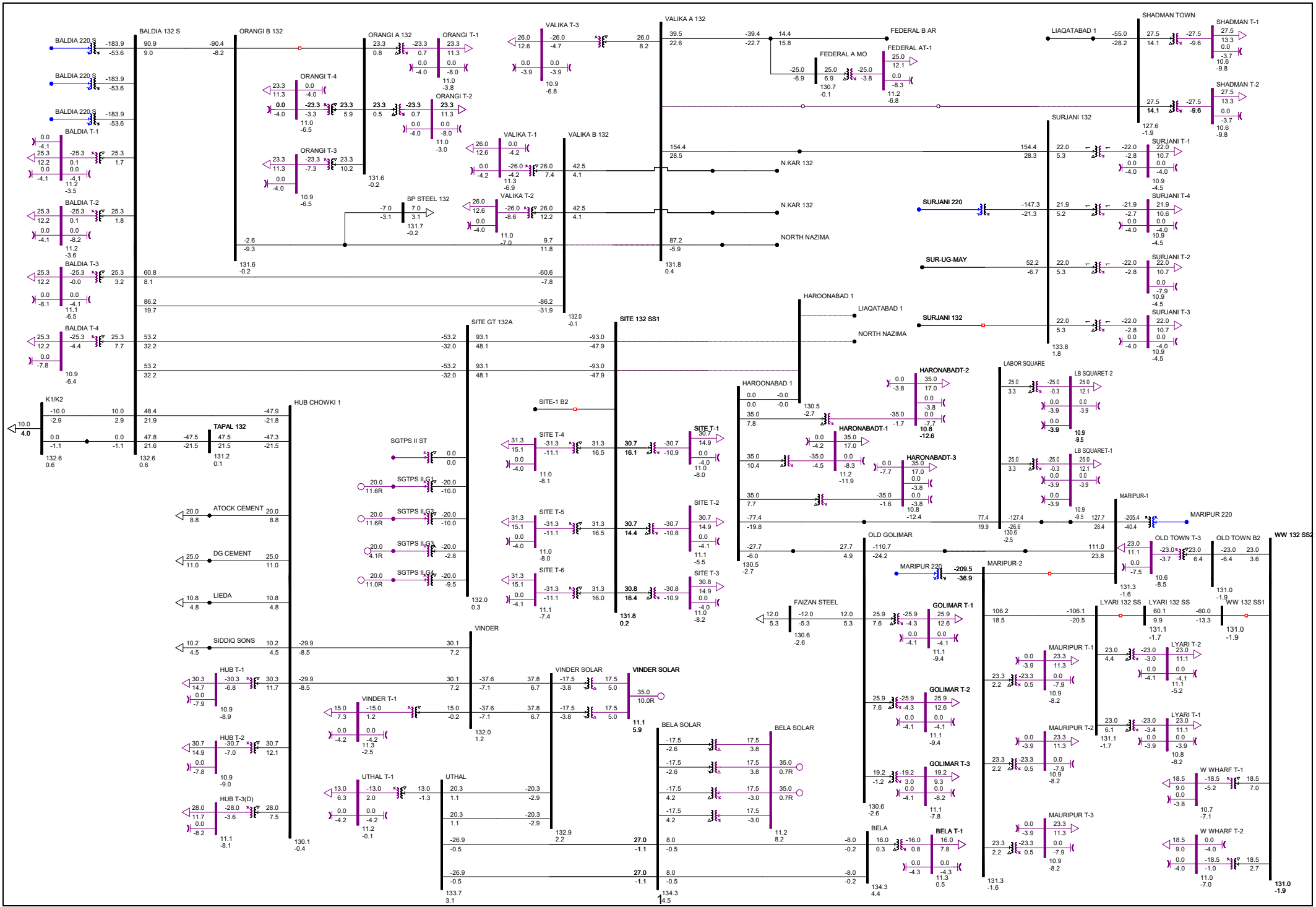


Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Peak Load Case Year 2025 - (Maximum Solar - Maximum Wind - Without RPC)

Normal Case

Exhibit 1.4.1



Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
DADU 500.00	MORO 500.00	1	DADU 500.00	JAMSHORO 500.00	2	480.2	878.63	2000	43.93
DADU 500.00	JAMSHORO 500.00	2	DADU 500.00	MATIARI-CS 500.00	1	965.06	1271.5	1300	97.81
DADU 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	602.29	1101.45	1200	91.79
DADU 500.00	DADU 220.00	1	DADU 500.00	JAMSHORO 500.00	2	19.08	32.92	450	7.17
DADU 500.00	DADU 220.00	2	DADU 500.00	JAMSHORO 500.00	2	19.08	32.92	450	7.17
DADU 500.00	DADU 220.00	3	DADU 500.00	JAMSHORO 500.00	2	19.08	32.92	450	7.17
MORO 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	486.6	883.44	1300	67.96
JAMSHORO 500.00	K-2/K-3 500.00	1	K-2/K-3 500.00	NKI 500.00	1	394.06	679.11	1900	35.74
JAMSHORO 500.00	HUB 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	630.99	1223.99	1300	94.15
JAMSHORO 500.00	NKI 500.00	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	380.89	590.3	1300	45.41
JAMSHORO 500.00	HUBCO-CFPP 500.00	1	JAMSHORO 500.00	HUB 500.00	2	606.74	1238.58	1300	95.28
JAMSHORO 500.00	MATIARI-CS 500.00	1	JAMSHORO 500.00	MATIARI-CS 500.00	3	870.78	1481.25	2000	74.06
JAMSHORO 500.00	MATIARI-CS 500.00	3	JAMSHORO 500.00	MATIARI-CS 500.00	1	882	1486.33	2793	53.22
JAMSHORO 500.00	JAMSHORO 220.00	1	JAMSHORO 500.00	JAMSHORO 220.00	2	139.66	178.84	450	38.73
JAMSHORO 500.00	JAMSHORO 220.00	2	JAMSHORO 500.00	JAMSHORO 220.00	1	139.66	178.84	450	38.73
JAMSHORO 500.00	JAMSHORO 220.00	3	JAMSHORO 500.00	JAMSHORO 220.00	1	139.66	178.84	450	38.73
ENGRO CFPP 500.00	THL NVA CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	213.38	587.03	2793	21.02
ENGRO CFPP 500.00	TEL CFPP 500.00	1	MATIARI-CS 500.00	THL NVA CFPP500.00	1	70.23	592.3	2793	21.21
SECL CFPP 500.00	MATIARI-CS 500.00	1	SECL CFPP 500.00	MATIARI-CS 500.00	2	536.93	733.27	1600	45.83
SECL CFPP 500.00	MATIARI-CS 500.00	2	SECL CFPP 500.00	MATIARI-CS 500.00	1	536.93	733.27	1600	45.83
SECL CFPP 500.00	MATIARI-CS 500.00	3	SECL CFPP 500.00	MATIARI-CS 500.00	1	534.66	730.5	1600	45.66
SECL CFPP 500.00	TEL CFPP 500.00	2	MATIARI-CS 500.00	THL NVA CFPP500.00	1	362.08	892.03	2793	31.94
PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	204.95	634.44	2793	22.72
PRT QSM CFPP500.00	KKI-500 500.00	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	484.92	1194.63	2700	44.25
K-2/K-3 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	898.5	1138.06	2793	40.75
K-2/K-3 500.00	MATIARI-CS 500.00	1	K-2/K-3 500.00	NKI 500.00	1	534.63	760.95	1400	54.35
K-2/K-3 500.00	KKI-500 500.00	1	K-2/K-3 500.00	NKI 500.00	1	346.23	718.5	2793	25.72
HUB 500.00	HUBCO-CFPP 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	619.89	1248.81	2793	44.71
NKI 500.00	NKI 220.00	1	NKI 500.00	NKI 220.00	2	316.24	486.53	600	80.39
NKI 500.00	NKI 220.00	2	NKI 500.00	NKI 220.00	1	316.24	486.53	600	80.39
MATIARI-CS 500.00	THL NVA CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	515.43	882.15	1820	48.47
MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	PRT QSM CFPP500.00	KKI-500 500.00	1	754.34	1174.03	1900	61.79
DADU 220.0	DADU NEW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	15.6	25.99	160	16.08
DADU 220.0	DADU NEW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	15.6	25.99	160	16.08
DADU 220.0	DADU NEW 132.0	3	DADU 500.00	JAMSHORO 500.00	2	24.96	41.58	250	16.47
JAMSHORO 220.0	JHIMPIR-2 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	3	187.43	245.62	550	44.66
JAMSHORO 220.0	JHIMPIR-2 220.0	3	JAMSHORO 220.00	JHIMPIR-2 220.00	2	187.43	245.62	550	44.66
JAMSHORO 220.0	HALA RD. 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	85.68	159.58	307	51.98
JAMSHORO 220.0	HALA RD. 220.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	85.68	159.58	307	51.98
JAMSHORO 220.0	MIRPRKHS 220.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	82.67	133.03	674	19.74
JAMSHORO 220.0	TM.KH.RD 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	90.38	238.43	600	39.74
JAMSHORO 220.0	JAMSHORO NEW132.0	1	JAMSHORO 220.00	JAMSHORO NEW132.00	2	56.15	66.29	160	41.25
JAMSHORO 220.0	JAMSHORO NEW132.0	2	JAMSHORO 220.00	JAMSHORO NEW132.00	1	56.15	66.29	160	41.25
JAMSHORO 220.0	JAMSHORO NEW132.0	3	JAMSHORO 220.00	JAMSHORO NEW132.00	1	56.15	66.29	160	41.25
JHIMPIR-2 220.0	KDA-33 220.0	1	JHIMPIR-2 220.00	KDA-33 220.00	2	219.59	283.26	674	42.03
JHIMPIR-2 220.0	KDA-33 220.0	2	JHIMPIR-2 220.00	KDA-33 220.00	1	219.59	283.26	674	42.03
JHIMPIR-2 220.0	JHIMPIR-2 132.0	1	N.PORT QASIM220.00	NPQ-2 220.00	1	191.06	190.96	250	77.96
JHIMPIR-2 220.0	JHIMPIR-2 132.0	2	N.PORT QASIM220.00	NPQ-2 220.00	1	191.06	190.96	250	77.96
JHIMPIR-2 220.0	JHIMPIR-2 132.0	3	N.PORT QASIM220.00	NPQ-2 220.00	1	191.06	190.96	250	77.96
JHIMPIR-2 220.0	JHIMPIR-2 132.0	4	N.PORT QASIM220.00	NPQ-2 220.00	1	191.06	190.96	250	77.96
JHIMPIR-2 220.0	JHIMPIR-1 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	200.59	344.11	674	51.05
JHIMPIR-2 220.0	DHABEJI 220 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	148.49	232.88	674	34.55
HALA RD. 220.0	MIRPRKHS 220.0	1	JAMSHORO 220.00	MIRPRKHS 220.00	1	93.36	143.71	674	21.32
HALA RD. 220.0	TM.KH.RD 220.0	2	JAMSHORO 220.00	TM.KH.RD 220.00	1	279.26	327.48	674	48.59
HALA RD. 220.0	HALA ROAD 132.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	105.6	113.74	250	45.8
HALA RD. 220.0	HALA ROAD-1 132.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	97.2	105.45	250	42.46
HALA RD. 220.0	HALA ROAD-1 132.0	2	HALA RD. 220.00	MIRPRKHS 220.00	1	97.2	105.45	250	42.46
MIRPRKHS 220.0	M.KHS.NW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	87.54	94.21	250	38.5
MIRPRKHS 220.0	M.KHS.NW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	87.54	94.21	250	38.5
TM.KH.RD 220.0	HYD-TMK-2 132.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	75.69	113.05	250	45.27
TM.KH.RD 220.0	HYD-TMRD 132.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	63.35	91.27	250	36.55
TM.KH.RD 220.0	JHIMPIR-1 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	247.78	280.41	674	41.6
TM.KH.RD 220.0	JHIMPIR-1 220.0	2	DHABEJI 220 220.00	DSEZ 220.00	1	247.78	280.41	674	41.6
KDA-33 220.0	NKI 220.0	E1	BALDIA 220 S220.00	NKIBAL PLDP1220.00	E1	230.07	408.45	953	42.86
KDA-33 220.0	N.PORT QASIM220.0	E1	KDA-33 220.00	N.PORT QASIM220.00	E2	140.65	187.5	921.8	20.34
KDA-33 220.0	N.PORT QASIM220.0	E2	KDA-33 220.00	N.PORT QASIM220.00	E1	140.65	187.5	921.76	20.34
KDA-33 220.0	BTK-220 220.0	1	KDA-33 220.00	N.PORT QASIM220.00	E1	123.52	164.29	1350	12.17
KDA-33 220.0	DHACK-220 220.0	N1	KDA-33 220.00	N.PORT QASIM220.00	E1	123.52	164.29	1350	12.17

KDA-33 220.0	KDA2 132 132.0	1	KDA-33 220.00	KDA2 132 132.00	2	194.06	259.9	250	105.71
KDA-33 220.0	KDA2 132 132.0	2	KDA-33 220.00	KDA2 132 132.00	1	194.06	259.9	250	105.71
KDA-33 220.0	KDA2 132 132.0	3	KDA-33 220.00	KDA2 132 132.00	1	190.98	255.78	250	104.03
NKI 220.0	NKIBAL PLDP1220.0	E1	K-2/K-3 500.00	KKI-500 500.00	1	411.39	556.86	952.6	58.46
JAMSHORO NEW132.	LAKHRA 132.	1	DADU 500.00	JAMSHORO 500.00	2	33.36	45.52	202	22.53
JAMSHORO NEW132.	LAKHRA 132.	2	DADU 500.00	JAMSHORO 500.00	2	33.36	45.52	202	22.53
JAMSHORO NEW132.	QASIMABAD 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	47.27	53.03	202	26.25
JAMSHORO NEW132.	RAJPUTANA 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	48.56	58.91	202	29.16
JAMSHORO NEW132.	JAMSRO OLD 132.	1	DHABEJI 220 220.00	DSEZ 220.00	1	35.13	38.96	202	19.29
JAMSHORO NEW132.	JAMSRO OLD 132.	2	DHABEJI 220 220.00	DSEZ 220.00	1	35.13	38.96	202	19.29
JAMSHORO NEW132.	JAMSRO OLD 132.	3	DHABEJI 220 220.00	DSEZ 220.00	1	35.13	38.96	202	19.29
BALDIA 220 S220	MITHA GHAR 220	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	82.96	226.12	967	23.38
BALDIA 220 S220	BALDIA 132 S132	1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	199.01	299.45	250	119.4
BALDIA 220 S220	BALDIA 132 S132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	1	199.01	299.45	250	119.4
BALDIA 220 S220	BALDIA 132 S132	3	BALDIA 220 S220.00	BALDIA 132 S132.00	1	199.01	299.45	250	119.4
BALDIA 220 S220	NKIBAL PLDP1220	E1	K-2/K-3 500.00	KKI-500 500.00	1	408.21	548.86	1348.2	40.71
BALDIA 220 S220	BAL_KKI_UG3 220	E1	NKI 220.00	NKIBAL PLDP1220.00	E1	100.79	222.47	476.3	46.71
BALDIA 220 S220	BAL_KKI_UG4 220	E2	NKI 220.00	NKIBAL PLDP1220.00	E1	100.79	222.47	476.3	46.71
MARIPUR 220 220	MARIPUR-2 132	1	MARIPUR 220 220.00	MARIPUR-1 132.00	11	219.96	439.53	250	176.24
MARIPUR 220 220	MARIPUR-1 132	11	MARIPUR 220 220.00	MARIPUR-2 132.00	1	216.44	437.69	250	175.5
MARIPUR 220 220	MAR-BAL-KKI2220	E1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	E2	322.42	624.79	495.4	126.12
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	106.54	217.75	495.37	43.96
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	106.54	217.75	495.37	43.96
MARIPUR 220 220	MAR-BAL-KKI 220	E2	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	E1	322.42	624.79	495.4	126.12
LALAZAR 220 220	MAR-LALPLDP1220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	108.02	218.13	495.37	44.03
LALAZAR 220 220	MAR-LALPLDP2220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	108.02	218.13	495.37	44.03
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	183.81	253.29	250	101.13
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	183.81	253.29	250	101.13
LALAZAR 220 220	LALAZAR-UG1 220	E1	LALAZAR 220 220.00	LALAZAR-UG2 220.00	E2	76.71	139.8	514.4	27.18
LALAZAR 220 220	LALAZAR-UG2 220	E2	LALAZAR 220 220.00	LALAZAR-UG1 220.00	E1	76.71	139.8	514.4	27.18
LALAZAR-UG1 220	KCR_UG1 220	1	LALAZAR 220 220.00	LALAZAR-UG2 220.00	E2	76.45	142.47	483.6	29.46
SURJANI 220 220	KDA-33 220	E1	SURJANI 220 220.00	DEH HALKANI 220.00	1	137.53	286.88	904	31.73
SURJANI 220 220	DEH HALKANI 220	1	KDA-33 220.00	NKI 220.00	E1	168.15	244.41	967	25.28
SURJANI 220 220	SURJANI 132 132	1	SURJANI 220 220.00	SURJANI 132 132.00	2	151.38	216.66	250	88.18
SURJANI 220 220	SURJANI 132 132	2	SURJANI 220 220.00	SURJANI 132 132.00	1	151.38	216.66	250	88.18
LALAZAR-UG2 220	KCR_UG2 220	1	LALAZAR 220 220.00	LALAZAR-UG1 220.00	E1	76.45	142.47	483.6	29.46
K CREEK 220 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	316.54	536.09	419.16	127.9
K CREEK 220 220	CCP-KCR-2 220	1	CCPP 220.00	CCP-KCR-1 220.00	E1	55.29	103.86	270.6	38.38
K CREEK 220 220	CCP-KCR-1 220	1	CCPP 220.00	CCP-KCR-2 220.00	E2	55.29	103.86	270.5	38.39
K CREEK 220 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	316.54	536.09	419.2	127.88
K CREEK 220 220	QAYOMABAD 132	2	K CREEK 220 220.00	KO.WEST 132 132.00	2	188.39	238.97	250	95.18
K CREEK 220 220	KO.WEST 132 132	2	K CREEK 220 220.00	QAYOMABAD 132.00	2	188.39	238.97	250	95.18
K CREEK 220 220	KCR_UG1 220	E1	LALAZAR 220 220.00	LALAZAR-UG2 220.00	E2	76.15	140.41	514.4	27.3
K CREEK 220 220	KCR_UG2 220	E2	LALAZAR 220 220.00	LALAZAR-UG1 220.00	E1	76.15	140.41	514.4	27.3
BQPS II 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	322.02	555.87	419.2	132.6
BQPS II 220	BQPS-2 GEN-415.	1	BAL-KKI-UG 220.00	BAL_KKI_UG4 220.00	1	176.02	176.26	250	67.87
BQPS II 220	BQPS-2 GEN-115.	1	BAL-KKI-UG 220.00	BAL_KKI_UG4 220.00	1	140.15	140.36	170	79.25
BQPS II 220	BQPS-2 GEN-315.	1	BAL-KKI-UG 220.00	BAL_KKI_UG4 220.00	1	140.15	140.36	170	79.25
BQPS II 220	BQPS-2 GEN-215.	1	BAL-KKI-UG 220.00	BAL_KKI_UG4 220.00	1	140.15	140.36	170	79.25
BQPS II 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	322.02	555.87	419.2	132.6
PIPRI W 220 220	BQPS III 220	E1	PIPRI W 220 220.00	ICI 220 220.00	E4	205.83	282.75	457	61.87
PIPRI W 220 220	BQPS III 220	E3	PIPRI W 220 220.00	ICI 220 220.00	E4	235.36	323.29	457	70.74
PIPRI W 220 220	NPQ-2 220	E1	PIPRI W 220 220.00	NPQ-2 220.00	E2	83.15	158.84	921.8	17.23
PIPRI W 220 220	NPQ-2 220	E2	PIPRI W 220 220.00	NPQ-2 220.00	E1	83.15	158.84	921.8	17.23
PIPRI W 220 220	BQPS III 220	E2	PIPRI W 220 220.00	ICI 220 220.00	E4	205.83	282.74	457	61.87
PIPRI W 220 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	236.08	323.8	457	70.85
PIPRI W 220 220	PIPRI W 132 132	1	PIPRI W 220 220.00	PIPRI W 132 132.00	2	234.51	333.44	250	131.71
PIPRI W 220 220	PIPRI W 132 132	2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	234.51	333.44	250	131.71
PIPRI W 220 220	PIPRI W 132 132	3	PIPRI W 220 220.00	PIPRI W 132 132.00	1	234.51	333.44	250	131.71
BQPS III 220	BQPS GEN6 18.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	0	0	250	0
BQPS III 220	BQPS GEN5 18.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	0	0	250	0
BQPS III 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	236.11	324.83	457.26	71.04
BQPS III 220	BQPS II 220	1	BQPS III 220.00	BQPS II 220.00	2	78.3	133.48	609.7	21.89
BQPS III 220	BQPS II 220	2	BQPS III 220.00	BQPS II 220.00	1	78.3	133.48	609.7	21.89
BQPS III 220	BQPS-4 GT 18.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	520.02	548.77	600	87.15
N.PORT QASIM220	BTK-220 220	1	KDA-33 220.00	N.PORT QASIM220.00	E1	123.45	164.6	1530	10.76
N.PORT QASIM220	DHACK-220 220	N1	KDA-33 220.00	N.PORT QASIM220.00	E1	123.45	164.6	1530	10.76
N.PORT QASIM220	DHABEJI 220 220	N1	N.PORT QASIM220.00	DHABEJI 220 220.00	N2	192.64	310.86	967	32.15
N.PORT QASIM220	DHABEJI 220 220	N2	N.PORT QASIM220.00	DHABEJI 220 220.00	N1	192.64	310.86	967	32.15
KDA-33 220	GULSHAN 220 220	E1	KDA-33 220.00	GULSHAN 220 220.00	E2	227.53	452.31	514	88

KDA-33 220	GULSHAN 220 220	E2	KDA-33 220.00	GULSHAN 220 220.00	E1	227.53	452.31	514	88
GULSHAN 220 220	GULSHAN 132 132	1	GULSHAN 220 220.00	GULSHAN 132 132.00	2	227.53	456.09	250	187.26
GULSHAN 220 220	GULSHAN 132 132	2	GULSHAN 220 220.00	GULSHAN 132 132.00	1	227.53	456.09	250	187.26
DEH HALKANI 220	MITHA GHAR 220	1	KDA-33 220.00	NKI 220.00	E1	86.87	166.78	967	17.25
DEH HALKANI 220	DEH-HAL-22KV22.	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	2	47.84	94.96	120	80.09
DEH HALKANI 220	DEH-HAL-22KV22.	2	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	47.84	94.96	120	80.09
MAR-LALPLDP1220	LZAR-MP-PLDP220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	106.54	211.01	476.3	44.3
MAR-LALPLDP2220	LZAR-MP-PLDP220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	106.54	211.01	476.4	44.29
CCPP 220	CCP-KCR-2 220	E2	CCPP 220.00	CCP 1 11.500	1	55.23	103.68	349	29.71
CCPP 220	CCP 3 11.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	21.67	21.61	35	60.48
CCPP 220	CCP 4 11.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	26.94	28.51	35	78.7
CCPP 220	CCP 1 11.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	102.26	104.35	115	87.75
CCPP 220	CCP 2 11.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	100.03	105.06	115	88.26
CCPP 220	CCP-KCR-1 220	E1	CCPP 220.00	CCP 1 11.500	1	55.23	103.68	349	29.71
CCPP 220	KTPS EXISTIN132	1	CCPP 220.00	KTPS EXISTIN132.00	2	171.39	226.71	250	90.22
CCPP 220	KTPS EXISTIN132	2	CCPP 220.00	KTPS EXISTIN132.00	1	171.39	226.71	250	90.22
BQPS III 220	BQPS-3 GT 18.	1	BQPS III 220.00	BQPS-4 GT 18.500	1	508.87	539.03	600	86.18
MITHA GHAR 220	MTH-GHR-22KV22.	3	MITHA GHAR 220.00	MTH-GHR-22KV22.000	4	59.83	118.94	150	79.77
MITHA GHAR 220	MTH-GHR-22KV22.	4	MITHA GHAR 220.00	MTH-GHR-22KV22.000	3	59.83	118.94	150	79.77
22	0.4	1	N.PORT QASIM220.00	NPQ-2 220.00	1	16.14	16.26	20	81.31
22	0.4	1	N.PORT QASIM220.00	NPQ-2 220.00	1	16.14	16.26	20	81.31
22	0.4	1	N.PORT QASIM220.00	NPQ-2 220.00	1	16.14	16.26	20	81.31
22	0.4	1	N.PORT QASIM220.00	NPQ-2 220.00	1	16.14	16.26	20	81.31
22	0.4	1	N.PORT QASIM220.00	NPQ-2 220.00	1	16.14	16.26	20	81.31
22	0.4	1	N.PORT QASIM220.00	NPQ-2 220.00	1	16.14	16.26	20	81.31
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.14	16.9	20	82.05
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.14	16.9	20	82.05
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.14	16.9	20	82.05
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.14	16.9	20	82.05
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.14	16.9	20	82.05
KKI-500 500	KKI-220 220	1	K-2/K-3 500.00	NKI 500.00	1	275.27	381.92	600	63.81
KKI-500 500	KKI-220 220	2	K-2/K-3 500.00	NKI 500.00	1	275.27	381.92	600	63.81
KKI-500 500	KKI-220 220	3	K-2/K-3 500.00	NKI 500.00	1	275.27	381.92	600	63.81
KKI-220 220	MAR-KKI_UG 220	1	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	E1	324.92	621.07	957.2	64.88
KKI-220 220	MAR-KKI-UG2 220	1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	E2	324.92	621.07	957.2	64.88
KKI-220 220	BAL-KKI-UG 220	1	NKI 220.00	NKIBAL PLDP1220.00	E1	98.83	223.75	957.2	23.38
KKI-220 220	BAL_KKI_UG2 220	1	NKI 220.00	NKIBAL PLDP1220.00	E1	98.83	223.75	957.2	23.38
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.14	16.83	20	81.84
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	12.18	12.73	15	82.19
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	12.18	12.73	15	82.19
KDA2 132 132	GADAP 132	N1	JAMSHORO 500.00	K-2/K-3 500.00	1	31.62	31.63	202	15.66
KDA2 132 132	GULSHAN 132 132	E1	N.PORT QASIM220.00	NPQ-2 220.00	1	115.77	115.9	130.1	89.08
KDA2 132 132	JOHAR 132 132	R1	N.PORT QASIM220.00	NPQ-2 220.00	1	153.43	153.7	280	54.89
KDA2 132 132	MEMON GOTH 132	E1	N.PORT QASIM220.00	NPQ-2 220.00	1	73.61	73.67	130.1	56.63
KDA2 132 132	SNPC 132	1	N.PORT QASIM220.00	NPQ-2 220.00	1	47.7	47.81	202	23.67
KDA2 132 132	KDA T-1 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	27.94	27.88	40	69.24
KDA2 132 132	KDA T-2 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	27.94	27.88	40	69.24
KDA2 132 132	KDA T-3 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	23.52	23.46	40	58.26
KDA2 132 132	KDA T-4 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	23.52	23.46	40	58.26
MARIPUR-2 132	LYARI 132 SS132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	108.05	108.4	171	63.39
MARIPUR-2 132	MAURIPUR T-111.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	23.45	23.33	40	59.29
MARIPUR-2 132	MAURIPUR T-211.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	23.45	23.33	40	59.29
MARIPUR-2 132	MAURIPUR T-311.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	23.45	23.33	40	59.29
QUEENS RD 13132	ELANDER 132 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	38.83	39	160	24.37
QUEENS RD 13132	ELANDER 132 132	E2	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	38.83	39	160	24.37
QUEENS RD 13132	QUEENSRD T-111.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	20.33	20.26	40	49.88
QUEENS RD 13132	QUEENSRD T-211.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	18.85	18.81	40	46.31
QUEENS RD 13132	QUEENSRD T-311.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	20.33	20.26	40	49.88
QUEENS RD 13132	QUEENSRD T-411.	1	BQPS II 220.00	KCR-BQ2-LDI 220.00	E1	17.51	17.42	40	43.69
SURJANI 132 132	SUR-VALIKA 132	R1	KDA-33 220.00	KDA2 132 132.00	1	156.99	169.39	262	64.65
SURJANI 132 132	SUR-UG-MAY 132	E1	KDA-33 220.00	KDA2 132 132.00	1	52.6	110.24	160	68.9
SURJANI 132 132	SURJANI T-1 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	22.66	22.6	40	56.45
SURJANI 132 132	SURJANI T-2 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	22.66	22.6	40	56.45
SURJANI 132 132	SURJANI T-3 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	22.66	22.6	40	56.45
SURJANI 132 132	SURJANI T-4 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	22.54	22.48	40	56.14
PIPRI W 132 132	AISHA STEEL 132	1	N.PORT QASIM220.00	NPQ-2 220.00	1	5.46	5.47	112	4.89
PIPRI W 132 132	PIPRI E 132 132	E1	N.PORT QASIM220.00	NPQ-2 220.00	1	22.55	22.85	230.2	9.93
PIPRI W 132 132	PIPRI W T-2 11.	1	NIP 220.00	PIPRI W 220 220.00	1	10.47	10.48	20	50.73
PIPRI W 132 132	PIPRI W T-3 11.	1	NIP 220.00	PIPRI W 220 220.00	1	10.47	10.48	40	25.36
KTPS EXISTIN132	PRL-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	81.2	101.93	160	63.71

KTPS EXISTIN132	QAYMBD-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	45	73.75	137.2	53.75
QAYOMABAD 132	KO.WEST 132 132	2	N.PORT QASIM220.00	NPQ-2 220.00	1	0.36	0.36	280	0.13
QAYOMABAD 132	QAYMBD-K-EST132	E1	CCPP 220.00	KTPS EXISTIN132.00	1	32.18	48.68	251.5	19.36
QAYOMABAD 132	QY-KS-KCNUG2132	E2	K CREEK 220 220.00	QAYOMABAD 132.00	2	21.51	35.03	171.47	20.43
KO.WEST 132 132	PRL 132 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	13.35	35.17	130.09	27.03
KO.WEST 132 132	DEFNCE-K-WST132	E1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	97.27	132.8	160	83
QUEENS RD 13132	OLD TOWN 132132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	47.35	47.55	114	41.71
QUEENS RD 13132	Q.RD-CLIFTON132	R1	K CREEK 220 220.00	QAYOMABAD 132.00	2	84.95	105.73	160	66.08
QUEENS RD 13132	Q.RD-GIZRI 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	80.12	120.23	251.49	47.81
GULSHAN 132 132	AZIZABAD 132	E1	JAMSHORO 500.00	K-2/K-3 500.00	1	110.93	111.01	171.5	64.73
GULSHAN 132 132	JAIL ROAD SS132	E1	JAMSHORO 500.00	K-2/K-3 500.00	1	38.1	38.13	171	22.3
GULSHAN 132 132	AGHA KHAN 132	E1	JAMSHORO 500.00	K-2/K-3 500.00	1	80.03	80.09	171	46.84
GULSHAN 132 132	CIVIC 132 A 132	E1	JAMSHORO 500.00	K-2/K-3 500.00	1	119.99	120.08	160	75.05
GULSHAN 132 132	JAIL ROAD SS132	E2	JAMSHORO 500.00	K-2/K-3 500.00	1	38.1	38.13	171	22.3
GULSHAN 132 132	GULSHAN T-1 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	28.04	27.91	40	72.29
GULSHAN 132 132	GULSHAN T-2 11.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	27.66	27.52	40	71.26
MARIPUR-1 132	MAR-LAB PL1 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	130.79	131.46	240.1	54.75
MARIPUR-1 132	MAR-GOL PL2 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	113.66	114.24	240.1	47.58
BALDIA 132 S132	HUB CHOWKI 1132	1	KDA-33 220.00	NKI 220.00	E1	53.15	54.16	183	29.59
BALDIA 132 S132	VALIKA B 132132	E1	KDA-33 220.00	NKI 220.00	E1	61.3	61.7	130.09	47.43
BALDIA 132 S132	VALIKA B 132132	E2	KDA-33 220.00	NKI 220.00	E1	91.87	92.46	262.2	35.26
BALDIA 132 S132	SITE GT 132A132	E1	KDA-33 220.00	NKI 220.00	E1	61.91	62.98	153.6	41
BALDIA 132 S132	SITE GT 132A132	E2	KDA-33 220.00	NKI 220.00	E1	61.91	62.98	182.9	34.43
BALDIA 132 S132	KANUPP 132 132	E1	KDA-33 220.00	NKI 220.00	E1	1.06	1.06	117.3	0.91
BALDIA 132 S132	ORANGI B 132132	R1	KDA-33 220.00	NKI 220.00	E1	91.36	91.9	280	32.82
BALDIA 132 S132	TAPAL 132 132	E1	KDA-33 220.00	NKI 220.00	E1	52.48	53.48	228.6	23.4
BALDIA 132 S132	BALDIA T-1 11.	1	KDA-33 220.00	NKI 220.00	E1	25.32	25.52	67	37.77
BALDIA 132 S132	BALDIA T-2 11.	1	KDA-33 220.00	NKI 220.00	E1	25.32	25.52	35	72.31
BALDIA 132 S132	BALDIA T-3 11.	1	KDA-33 220.00	NKI 220.00	E1	25.46	25.66	40	63.61
BALDIA 132 S132	BALDIA T-4 11.	1	KDA-33 220.00	NKI 220.00	E1	26.4	26.59	40	65.93
DHABEJI 220 220	DSEZ 220	1	JHIMPIR-2 220.00	DHABEJI 220 220.00	1	249.32	290.21	674	43.06
DHABEJI 220 220	SITE NEUTRAL220	1	DHABEJI 220 220.00	SITE NEUTRAL220.00	2	103.79	200.76	967	20.76
DHABEJI 220 220	SITE NEUTRAL220	2	DHABEJI 220 220.00	SITE NEUTRAL220.00	1	103.79	200.76	967	20.76
DHABEJI 220 220	DHABEJI2 132132	1	DHABEJI 220 220.00	DHABEJI2 132132.00	2	104.94	174.39	250	69.77
DHABEJI 220 220	DHABEJI2 132132	2	DHABEJI 220 220.00	DHABEJI2 132132.00	1	104.94	174.39	250	69.77
DSEZ 220	GHARO-NEW 220	1	JHIMPIR-2 220.00	DHABEJI 220 220.00	1	283.16	324.4	674	48.13
DSEZ 220	DSEZ 132 132	1	DHABEJI 220 220.00	DSEZ 220.00	1	16.88	17.49	160	10.69
DSEZ 220	DSEZ 132 132	2	DHABEJI 220 220.00	DSEZ 220.00	1	16.88	17.49	160	10.69
MAR-BAL-KKI222	MAR-KKI-UG3 22	1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	E2	323.82	609.01	476.3	127.86
MAR-BAL-KKI 22	MAR-KKI-UG4 22	1	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	E1	323.82	609.01	476.3	127.86
MAR-KKI_UG 22	MAR-KKI-UG4 22	E2	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	E1	324.92	622.86	967	64.41
MAR-KKI-UG2 22	MAR-KKI-UG3 22	E1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	E2	324.92	622.86	967	64.41
BAL-KKI-UG 22	BAL_KKI_UG4 22	1	NKI 220.00	NKIBAL PLDP1220.00	E1	99.68	225.53	967	23.32
BAL_KKI_UG2 22	BAL_KKI_UG3 22	1	NKI 220.00	NKIBAL PLDP1220.00	E1	99.68	225.53	967	23.32
DHABEJI2 13213	DHABEJI 132 13	N1	PIPRI W 220 220.00	PIPRI W 132 132.00	1	99.56	125.09	365	34.27
DHABEJI2 13213	DHABEJI 132 13	N2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	99.56	125.09	365	34.27
DHABEJI2 13213	DHABEJI T-3 11	1	N.PORT QASIM220.00	NPQ-2 220.00	1	9.25	9.25	40	22.48

Appendix - B - 2

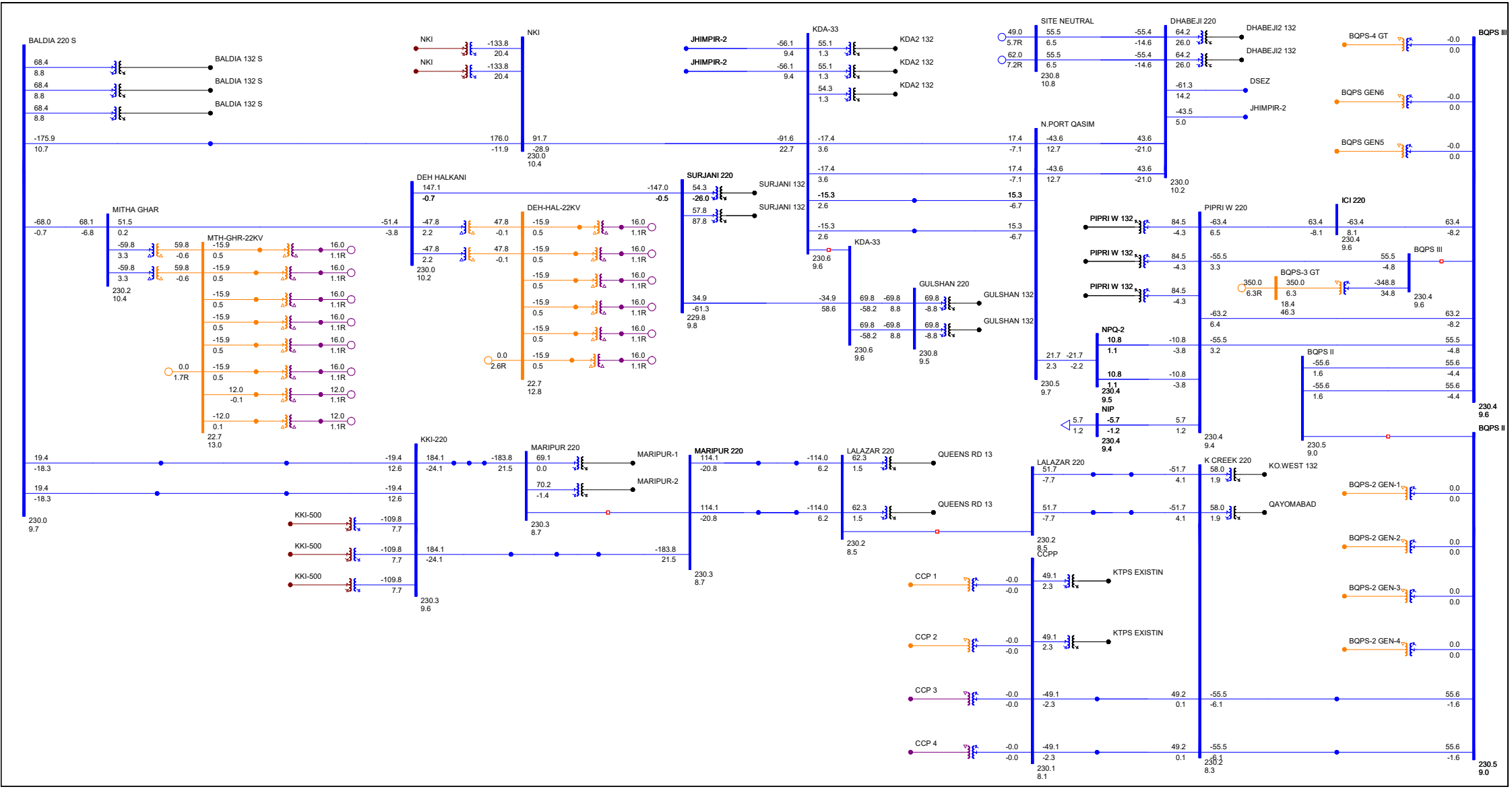
Plotted Results of Load Flow Analysis for Off-Peak Load Case Summer 2025

Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Off-Peak Load Case Year 2025 - (Maximum Solar - Average Wind - With RPC)

Normal Case

Exhibit 2.1.0

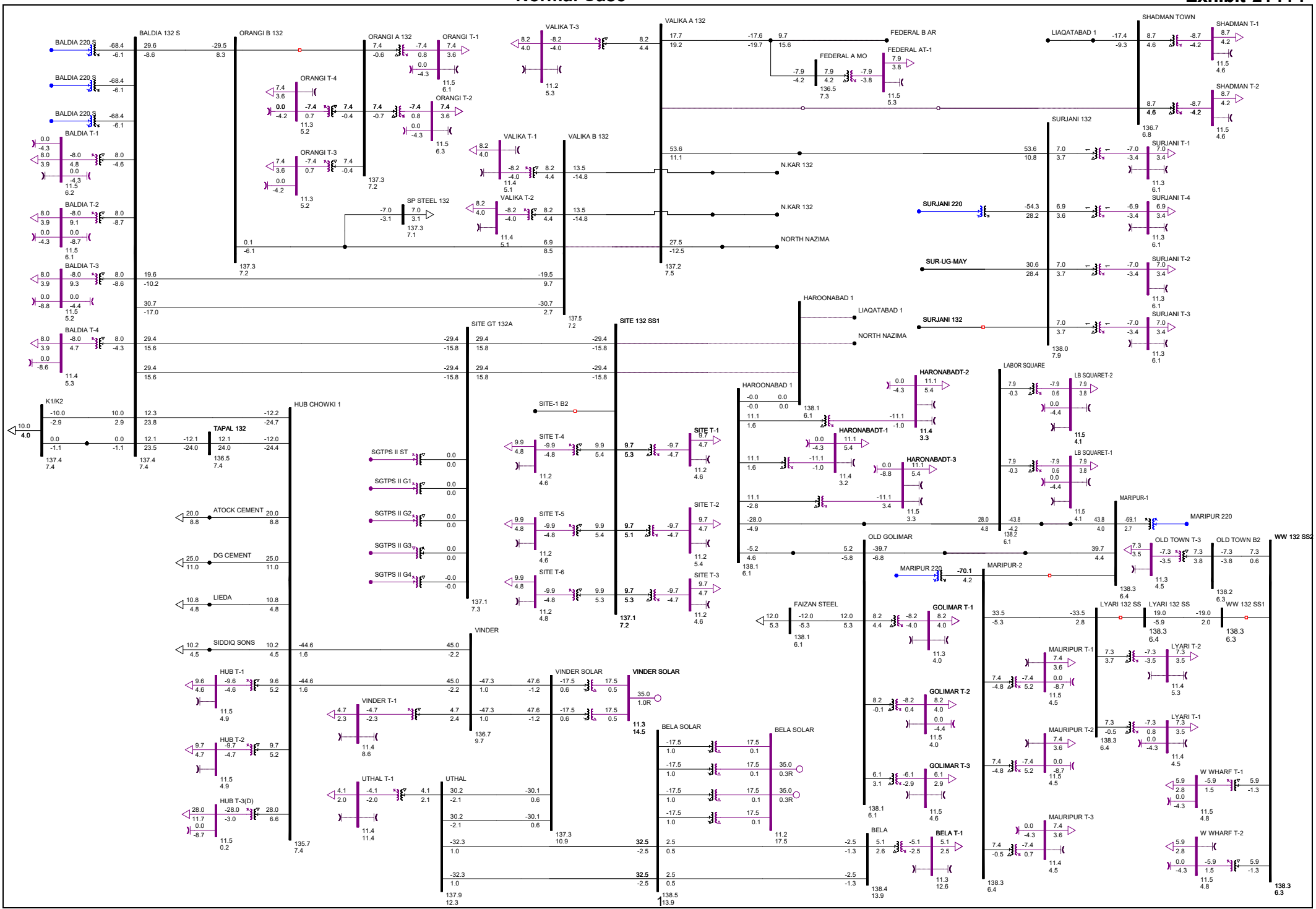


Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Off-Peak Load Case Year 2025 - (Maximum Solar - Average Wind - With RPC)

Normal Case

Exhibit 2.1.1



Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
DADU 500.00	MORO 500.00	1	DADU 500.00	JAMSHORO 500.00	2	443.31	820.19	2000	41.01
DADU 500.00	JAMSHORO 500.00	2	DADU 500.00	MATIARI-CS 500.00	1	929.75	1216.63	1300	93.59
DADU 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	556.01	1035.08	1200	86.26
DADU 500.00	DADU 220.00	1	DADU 500.00	JAMSHORO 500.00	2	14.38	34.49	450	7.51
DADU 500.00	DADU 220.00	2	DADU 500.00	JAMSHORO 500.00	2	14.38	34.49	450	7.51
DADU 500.00	DADU 220.00	3	DADU 500.00	JAMSHORO 500.00	2	14.38	34.49	450	7.51
MORO 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	445.29	828.9	1300	63.76
JAMSHORO 500.00	K-2/K-3 500.00	1	K-2/K-3 500.00	NKI 500.00	1	449.3	693.91	1900	36.52
JAMSHORO 500.00	HUB 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	625.9	1231.55	1300	94.73
JAMSHORO 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	469.55	696.33	1300	53.56
JAMSHORO 500.00	HUBCO-CFPP 500.00	1	HUB 500.00	HUBCO-CFPP 500.00	2	596.55	1235.79	1300	95.06
JAMSHORO 500.00	MATIARI-CS 500.00	1	JAMSHORO 500.00	MATIARI-CS 500.00	3	906.75	1555.45	2000	77.77
JAMSHORO 500.00	MATIARI-CS 500.00	3	JAMSHORO 500.00	MATIARI-CS 500.00	1	921.27	1562.77	2793	55.95
JAMSHORO 500.00	JAMSHORO 220.00	1	PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	12.5	35.77	450	7.9
JAMSHORO 500.00	JAMSHORO 220.00	2	PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	12.5	35.77	450	7.9
JAMSHORO 500.00	JAMSHORO 220.00	3	PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	12.5	35.77	450	7.9
ENGRO CFPP 500.00	THL NVA CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	219.6	591.06	2793	21.16
ENGRO CFPP 500.00	TEL CFPP 500.00	1	MATIARI-CS 500.00	THL NVA CFPP500.00	1	63.4	592.25	2793	21.2
SECL CFPP 500.00	MATIARI-CS 500.00	1	SECL CFPP 500.00	MATIARI-CS 500.00	2	533.28	730.49	1600	45.66
SECL CFPP 500.00	MATIARI-CS 500.00	2	SECL CFPP 500.00	MATIARI-CS 500.00	1	533.28	730.49	1600	45.66
SECL CFPP 500.00	MATIARI-CS 500.00	3	SECL CFPP 500.00	MATIARI-CS 500.00	1	531.58	728.19	1600	45.51
SECL CFPP 500.00	TEL CFPP 500.00	2	MATIARI-CS 500.00	THL NVA CFPP500.00	1	374.24	892.62	2793	31.96
PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	553.81	671.3	2793	24.04
PRT QSM CFPP500.00	KKI-500 500.00	1	PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	43.51	578.95	2700	21.44
K-2/K-3 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	740.65	1023.35	2793	36.64
K-2/K-3 500.00	MATIARI-CS 500.00	1	K-2/K-3 500.00	NKI 500.00	1	602.26	797.23	1400	56.94
K-2/K-3 500.00	KKI-500 500.00	1	K-2/K-3 500.00	NKI 500.00	1	331.94	655.82	2793	23.48
HUB 500.00	HUBCO-CFPP 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	626.17	1244.56	2793	44.56
NKI 500.00	NKI 220.00	1	K-2/K-3 500.00	KKI-500 500.00	1	135.39	222.3	600	35.46
NKI 500.00	NKI 220.00	2	K-2/K-3 500.00	KKI-500 500.00	1	135.39	222.3	600	35.46
MATIARI-CS 500.00	THL NVA CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	514.41	882.39	1820	48.48
MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	500.56	615.67	1900	32.4
DADU 220.0	DADU NEW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	11.81	27.3	160	16.79
DADU 220.0	DADU NEW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	11.81	27.3	160	16.79
DADU 220.0	DADU NEW 132.0	3	DADU 500.00	JAMSHORO 500.00	2	18.89	43.68	250	17.19
JAMSHORO 220.0	JHIMPIR-2 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	3	148.87	196.94	550	35.81
JAMSHORO 220.0	JHIMPIR-2 220.0	3	JAMSHORO 220.00	JHIMPIR-2 220.00	2	148.87	196.94	550	35.81
JAMSHORO 220.0	HALA RD. 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	56.22	133.66	307	43.54
JAMSHORO 220.0	HALA RD. 220.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	56.22	133.66	307	43.54
JAMSHORO 220.0	MIRPRKHS 220.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	63.61	101.63	674	15.08
JAMSHORO 220.0	TM.KH.RD 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	30.35	145.81	600	24.3
JAMSHORO 220.0	JAMSHORO NEW132.0	1	JAMSHORO 220.00	JAMSHORO NEW132.00	2	51.11	59.75	160	37.04
JAMSHORO 220.0	JAMSHORO NEW132.0	2	JAMSHORO 220.00	JAMSHORO NEW132.00	1	51.11	59.75	160	37.04
JAMSHORO 220.0	JAMSHORO NEW132.0	3	JAMSHORO 220.00	JAMSHORO NEW132.00	1	51.11	59.75	160	37.04
JHIMPIR-2 220.0	KDA-33 220.0	1	BQPS III 220.00	BQPS-3 GT 18.500	1	62.57	85.44	674	12.68
JHIMPIR-2 220.0	KDA-33 220.0	2	BQPS III 220.00	BQPS-3 GT 18.500	1	62.57	85.44	674	12.68
JHIMPIR-2 220.0	JHIMPIR-2 132.0	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96.32	96.67	250	37.87
JHIMPIR-2 220.0	JHIMPIR-2 132.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96.32	96.67	250	37.87
JHIMPIR-2 220.0	JHIMPIR-2 132.0	3	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96.32	96.67	250	37.87
JHIMPIR-2 220.0	JHIMPIR-2 132.0	4	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96.32	96.67	250	37.87
JHIMPIR-2 220.0	JHIMPIR-1 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	56.89	92.35	674	13.7
JHIMPIR-2 220.0	DHABEJI 220 220.0	1	BQPS III 220.00	BQPS-3 GT 18.500	1	48.21	75.8	674	11.25
HALA RD. 220.0	MIRPRKHS 220.0	1	JAMSHORO 220.00	MIRPRKHS 220.00	1	68.54	108.4	674	16.08
HALA RD. 220.0	TM.KH.RD 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	196.91	219.71	674	32.6
HALA RD. 220.0	HALA ROAD 132.0	1	DADU 500.00	JAMSHORO 500.00	2	89.16	96.06	250	38.34
HALA RD. 220.0	HALA ROAD-1 132.0	1	DADU 500.00	JAMSHORO 500.00	2	79.81	87.25	250	34.82
HALA RD. 220.0	HALA ROAD-1 132.0	2	DADU 500.00	JAMSHORO 500.00	2	79.81	87.25	250	34.82
MIRPRKHS 220.0	M.KHS.NW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	65.99	72.56	250	29.28
MIRPRKHS 220.0	M.KHS.NW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	65.99	72.56	250	29.28
TM.KH.RD 220.0	HYD-TMK-2 132.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	59.63	80.16	250	31.43
TM.KH.RD 220.0	HYD-TMRD 132.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	56.19	76.91	250	30.21
TM.KH.RD 220.0	JHIMPIR-1 220.0	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	164.62	187.59	674	27.83
TM.KH.RD 220.0	JHIMPIR-1 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	164.62	187.59	674	27.83
KDA-33 220.0	NKI 220.0	E1	SURJANI 220 220.00	DEH HALKANI 220.00	1	96.12	184.87	953	19.4
KDA-33 220.0	N.PORT QASIM220.0	E1	K-2/K-3 500.00	NKI 500.00	1	18.84	33.12	921.8	3.59
KDA-33 220.0	N.PORT QASIM220.0	E2	K-2/K-3 500.00	NKI 500.00	1	18.84	33.12	921.76	3.59
KDA-33 220.0	BTK-220 220.0	1	K-2/K-3 500.00	NKI 500.00	1	15.62	28.49	1350	2.11

KDA-33 220.0	DHACK-220 220.0	N1	K-2/K-3 500.00	NKI 500.00	1	15.62	28.49	1350	2.11
KDA-33 220.0	KDA2 132 132.0	1	KDA-33 220.00	KDA2 132 132.00	2	55.15	73.63	250	28.35
KDA-33 220.0	KDA2 132 132.0	2	KDA-33 220.00	KDA2 132 132.00	1	55.15	73.63	250	28.35
KDA-33 220.0	KDA2 132 132.0	3	KDA-33 220.00	KDA2 132 132.00	1	54.27	72.46	250	27.9
NKI 220.0	NKIBAL PLDP1220.0	E1	K-2/K-3 500.00	KKI-500 500.00	1	176.4	331.78	952.6	34.83
JAMSHORO NEW132.	LAKHRA 132.	1	DADU 500.00	JAMSHORO 500.00	2	26.06	37.94	202	18.78
JAMSHORO NEW132.	LAKHRA 132.	2	DADU 500.00	JAMSHORO 500.00	2	26.06	37.94	202	18.78
JAMSHORO NEW132.	QASIMABAD 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	28.16	32.65	202	16.16
JAMSHORO NEW132.	RAJPUTANA 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	26.83	34.39	202	17.03
JAMSHORO NEW132.	JAMSRO OLD 132.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	29.15	29.92	202	14.81
JAMSHORO NEW132.	JAMSRO OLD 132.	2	BQPS III 220.00	BQPS-3 GT 18.500	1	29.15	29.92	202	14.81
JAMSHORO NEW132.	JAMSRO OLD 132.	3	BQPS III 220.00	BQPS-3 GT 18.500	1	29.15	29.92	202	14.81
BALDIA 220 S220	MITHA GHAR 220	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	68.48	221.5	967	22.91
BALDIA 220 S220	BALDIA 132 S132	1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	68.94	104.81	250	40.12
BALDIA 220 S220	BALDIA 132 S132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	1	68.94	104.81	250	40.12
BALDIA 220 S220	BALDIA 132 S132	3	BALDIA 220 S220.00	BALDIA 132 S132.00	1	68.94	104.81	250	40.12
BALDIA 220 S220	NKIBAL PLDP1220	E1	K-2/K-3 500.00	KKI-500 500.00	1	176.22	331.85	1348.2	24.61
BALDIA 220 S220	BAL_KKI_UG3 220	E1	K-2/K-3 500.00	KKI-500 500.00	1	26.64	109.88	476.3	23.07
BALDIA 220 S220	BAL_KKI_UG4 220	E2	K-2/K-3 500.00	KKI-500 500.00	1	26.64	109.88	476.3	23.07
MARIPUR 220 220	MARIPUR-2 132	1	MARIPUR 220 220.00	MARIPUR-1 132.00	11	70.24	142.2	250	54.36
MARIPUR 220 220	MARIPUR-1 132	11	MARIPUR 220 220.00	MARIPUR-2 132.00	1	69.16	142.35	250	54.39
MARIPUR 220 220	MAR-BAL-KKI2220	E1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	E2	185.05	341.78	495.4	68.99
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	115.96	224.94	495.37	45.41
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	115.96	224.94	495.37	45.41
MARIPUR 220 220	MAR-BAL-KKI 220	E2	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	E1	185.05	341.78	495.4	68.99
LALAZAR 220 220	MAR-LALPLDP1220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	115.71	224.3	495.37	45.28
LALAZAR 220 220	MAR-LALPLDP2220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	115.71	224.3	495.37	45.28
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	62.33	86.06	250	32.9
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	62.33	86.06	250	32.9
LALAZAR 220 220	LALAZAR-UG1 220	E1	BQPS III 220.00	BQPS-3 GT 18.500	1	52.26	129.43	514.4	25.16
LALAZAR 220 220	LALAZAR-UG2 220	E2	BQPS III 220.00	BQPS-3 GT 18.500	1	52.26	129.43	514.4	25.16
LALAZAR-UG1 220	KCR_UG1 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	52.15	128.12	483.6	26.49
SURJANI 220 220	KDA-33 220	E1	SURJANI 220 220.00	DEH HALKANI 220.00	1	70.54	122.64	904	13.57
SURJANI 220 220	DEH HALKANI 220	1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	147.13	217.37	967	22.48
SURJANI 220 220	SURJANI 132 132	1	SURJANI 220 220.00	SURJANI 132 132.00	2	61.15	78.18	250	30.52
SURJANI 220 220	SURJANI 132 132	2	SURJANI 220 220.00	SURJANI 132 132.00	1	105.1	114.18	250	43.75
LALAZAR-UG2 220	KCR_UG2 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	52.15	128.12	483.6	26.49
K CREEK 220 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	55.85	97.43	419.16	23.24
K CREEK 220 220	CCP-KCR-2 220	1	CCPP 220.00	CCP-KCR-1 220.00	E1	49.16	94.46	270.6	34.91
K CREEK 220 220	CCP-KCR-1 220	1	CCPP 220.00	CCP-KCR-2 220.00	E2	49.16	94.46	270.5	34.92
K CREEK 220 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	55.85	97.43	419.2	23.24
K CREEK 220 220	QAYOMABAD 132	2	K CREEK 220 220.00	KO.WEST 132 132.00	2	58.04	73.76	250	28.2
K CREEK 220 220	KO.WEST 132 132	2	K CREEK 220 220.00	QAYOMABAD 132.00	2	58.04	73.76	250	28.2
K CREEK 220 220	KCR_UG1 220	E1	BQPS III 220.00	BQPS-3 GT 18.500	1	51.97	129.11	514.4	25.1
K CREEK 220 220	KCR_UG2 220	E2	BQPS III 220.00	BQPS-3 GT 18.500	1	51.97	129.11	514.4	25.1
BQPS II 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	55.7	97.52	419.2	23.26
BQPS II 220	BQPS-2 GEN-415.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	0	0	250	0
BQPS II 220	BQPS-2 GEN-115.	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	0	0	170	0
BQPS II 220	BQPS-2 GEN-315.	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	0	0	170	0
BQPS II 220	BQPS-2 GEN-215.	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	0	0	170	0
BQPS II 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	55.7	97.52	419.2	23.26
PIPRI W 220 220	BQPS III 220	E1	BQPS III 220.00	ICI 220 220.00	E4	55.71	76.18	457	16.67
PIPRI W 220 220	BQPS III 220	E3	BQPS III 220.00	ICI 220 220.00	E4	63.73	87.14	457	19.07
PIPRI W 220 220	NPQ-2 220	E1	BQPS III 220.00	BQPS-3 GT 18.500	1	11.48	93.99	921.8	10.2
PIPRI W 220 220	NPQ-2 220	E2	BQPS III 220.00	BQPS-3 GT 18.500	1	11.48	93.99	921.8	10.2
PIPRI W 220 220	BQPS III 220	E2	BQPS III 220.00	ICI 220 220.00	E4	55.71	76.18	457	16.67
PIPRI W 220 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	63.93	87.27	457	19.1
PIPRI W 220 220	PIPRI W 132 132	1	PIPRI W 220 220.00	PIPRI W 132 132.00	2	84.93	119.75	250	45.94
PIPRI W 220 220	PIPRI W 132 132	2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	84.93	119.75	250	45.94
PIPRI W 220 220	PIPRI W 132 132	3	PIPRI W 220 220.00	PIPRI W 132 132.00	1	84.93	119.75	250	45.94
BQPS III 220	BQPS GEN1 21.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	0	0	250	0
BQPS III 220	BQPS GEN6 18.	1	SURJANI 220 220.00	KDA-33 220.00	E1	0	0	250	0
BQPS III 220	BQPS GEN5 18.	1	SURJANI 220 220.00	KDA-33 220.00	E1	0	0	250	0
BQPS III 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	63.94	87.28	457.26	19.09
BQPS III 220	BQPS II 220	1	BQPS III 220.00	BQPS II 220.00	2	55.75	98.35	609.7	16.13
BQPS III 220	BQPS II 220	2	BQPS III 220.00	BQPS II 220.00	1	55.75	98.35	609.7	16.13
BQPS III 220	BQPS-4 GT 18.	1	SURJANI 220 220.00	KDA-33 220.00	E1	0	0	600	0
N.PORT QASIM220	BTK-220 220	1	K-2/K-3 500.00	NKI 500.00	1	16.72	29.17	1530	1.91
N.PORT QASIM220	DHACK-220 220	N1	K-2/K-3 500.00	NKI 500.00	1	16.72	29.17	1530	1.91

N.PORT QASIM220	DHABEJI 220 220	N1	N.PORT QASIM220.00	DHABEJI 220 220.00	N2	48.44	75.98	967	7.86
N.PORT QASIM220	DHABEJI 220 220	N2	N.PORT QASIM220.00	DHABEJI 220 220.00	N1	48.44	75.98	967	7.86
KDA-33 220	GULSHAN 220 220	E1	KDA-33 220.00	GULSHAN 220 220.00	E2	90.92	156.25	514	30.4
KDA-33 220	GULSHAN 220 220	E2	KDA-33 220.00	GULSHAN 220 220.00	E1	90.92	156.25	514	30.4
GULSHAN 220 220	GULSHAN 132 132	1	GULSHAN 220 220.00	GULSHAN 132 132.00	2	70.8	144.3	250	55.33
GULSHAN 220 220	GULSHAN 132 132	2	GULSHAN 220 220.00	GULSHAN 132 132.00	1	70.8	144.3	250	55.33
DEH HALKANI 220	MITHA GHAR 220	1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	51.59	122.02	967	12.62
DEH HALKANI 220	DEH-HAL-22KV22.	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	2	47.84	97.18	120	78.5
DEH HALKANI 220	DEH-HAL-22KV22.	2	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	47.84	97.18	120	78.5
MAR-LALPLDP1220	LZAR-MP-PLDP220	E2	MARIPUR 220 220.00	LZAR-MP-PLDP220.00	1	115.79	229.99	476.3	48.29
MAR-LALPLDP2220	LZAR-MP-PLDP220	E1	MARIPUR 220 220.00	LZAR-MP-PLDP220.00	1	115.79	229.99	476.4	48.28
CCPP 220	CCP-KCR-2 220	E2	CCPP 220.00	CCP-KCR-1 220.00	E1	49.19	94.94	349	27.2
CCPP 220	CCP 3 11.	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	0	0	35	0
CCPP 220	CCP 4 11.	1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	0	0	35	0
CCPP 220	CCP 1 11.	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	0	0	115	0
CCPP 220	CCP 2 11.	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	0	0	115	0
CCPP 220	CCP-KCR-1 220	E1	CCPP 220.00	CCP-KCR-2 220.00	E2	49.19	94.94	349	27.2
CCPP 220	KTPS EXISTIN132	1	CCPP 220.00	KTPS EXISTIN132.00	2	49.19	65.01	250	24.86
CCPP 220	KTPS EXISTIN132	2	CCPP 220.00	KTPS EXISTIN132.00	1	49.19	65.01	250	24.86
BQPS III 220	BQPS-3 GT 18.	1	SURJANI 220 220.00	KDA-33 220.00	E1	350.06	350.23	600	58.61
MITHA GHAR 220	MTH-GHR-22KV22.	3	MITHA GHAR 220.00	MTH-GHR-22KV22.000	4	59.81	121.52	150	78.5
MITHA GHAR 220	MTH-GHR-22KV22.	4	MITHA GHAR 220.00	MTH-GHR-22KV22.000	3	59.81	121.52	150	78.5
22	0.4	1	#VALUE!	#VALUE!	SE	16.04	16.04	20	77.33
22	0.4	1	#VALUE!	#VALUE!	SE	16.04	16.04	20	77.33
22	0.4	1	#VALUE!	#VALUE!	SE	16.04	16.04	20	77.33
22	0.4	1	#VALUE!	#VALUE!	SE	16.04	16.04	20	77.33
22	0.4	1	#VALUE!	#VALUE!	SE	16.04	16.04	20	77.33
22	0.4	1	#VALUE!	#VALUE!	SE	16.04	16.04	20	77.33
22	0.4	1	#VALUE!	#VALUE!	SE	16.04	16.04	20	77.3
22	0.4	1	#VALUE!	#VALUE!	SE	16.04	16.04	20	77.3
22	0.4	1	#VALUE!	#VALUE!	SE	16.04	16.04	20	77.3
22	0.4	1	#VALUE!	#VALUE!	SE	16.04	16.04	20	77.3
22	0.4	1	#VALUE!	#VALUE!	SE	16.04	16.04	20	77.3
KKI-500 500	KKI-220 220	1	K-2/K-3 500.00	NKI 500.00	1	110.07	204.07	600	32.5
KKI-500 500	KKI-220 220	2	K-2/K-3 500.00	NKI 500.00	1	110.07	204.07	600	32.5
KKI-500 500	KKI-220 220	3	K-2/K-3 500.00	NKI 500.00	1	110.07	204.07	600	32.5
KKI-220 220	MAR-KKI_UG 220	1	KKI-220 220.00	MAR-KKI-UG2 220.00	1	185.67	353.48	957.2	36.93
KKI-220 220	MAR-KKI-UG2 220	1	KKI-220 220.00	MAR-KKI_UG 220.00	1	185.67	353.48	957.2	36.93
KKI-220 220	BAL-KKI-UG 220	1	K-2/K-3 500.00	KKI-500 500.00	1	24.3	109.87	957.2	11.48
KKI-220 220	BAL_KKI_UG2 220	1	K-2/K-3 500.00	KKI-500 500.00	1	24.3	109.87	957.2	11.48
22	0.4	1	#VALUE!	#VALUE!	SE	16.04	16.04	20	77.3
22	0.4	1	#VALUE!	#VALUE!	SE	12.05	12.05	15	77.33
22	0.4	1	#VALUE!	#VALUE!	SE	12.05	12.05	15	77.33
KDA2 132 132	GADAP 132	N1	SURJANI 220 220.00	SURJANI 132 132.00	1	5.82	5.86	202	2.9
KDA2 132 132	GULSHAN 132 132	E1	SURJANI 220 220.00	SURJANI 132 132.00	1	29.53	29.69	130.1	22.82
KDA2 132 132	JOHAR 132 132	R1	SURJANI 220 220.00	SURJANI 132 132.00	1	44.17	44.42	280	15.86
KDA2 132 132	MEMON GOTH 132	E1	SURJANI 220 220.00	SURJANI 132 132.00	1	22.59	22.74	130.1	17.48
KDA2 132 132	SNPC 132	1	SURJANI 220 220.00	SURJANI 132 132.00	1	4.67	4.7	202	2.33
KDA2 132 132	KDA T-1 11.	1	SURJANI 220 220.00	SURJANI 132 132.00	1	9.54	9.59	40	22.99
KDA2 132 132	KDA T-2 11.	1	SURJANI 220 220.00	SURJANI 132 132.00	1	9.54	9.59	40	22.99
KDA2 132 132	KDA T-3 11.	1	SURJANI 220 220.00	SURJANI 132 132.00	1	8.18	8.22	40	19.71
KDA2 132 132	KDA T-4 11.	1	SURJANI 220 220.00	SURJANI 132 132.00	1	8.18	8.22	40	19.71
MARIPUR-2 132	LYARI 132 SS132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	33.96	33.98	171	19.87
MARIPUR-2 132	MAURIPUR T-111.	1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	9.01	9.02	40	21.56
MARIPUR-2 132	MAURIPUR T-211.	1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	9.01	9.02	40	21.56
MARIPUR-2 132	MAURIPUR T-311.	1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	7.42	7.42	40	17.88
QUEENS RD 13132	ELANDER 132 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	13.39	13.4	160	8.37
QUEENS RD 13132	ELANDER 132 132	E2	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	13.39	13.4	160	8.37
QUEENS RD 13132	QUEENSRD T-111.	1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	6.23	6.23	40	14.88
QUEENS RD 13132	QUEENSRD T-211.	1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	6.23	6.23	40	14.88
QUEENS RD 13132	QUEENSRD T-311.	1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	6.23	6.23	40	14.88
QUEENS RD 13132	QUEENSRD T-411.	1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	6.15	6.16	40	15.08
SURJANI 132 132	SUR-VALIKA 132	R1	KDA-33 220.00	KDA2 132 132.00	1	54.75	59.49	262	22.71
SURJANI 132 132	SUR-UG-MAY 132	E1	KDA-33 220.00	KDA2 132 132.00	1	41.92	53.92	160	33.7
SURJANI 132 132	SURJANI T-1 11.	1	SURJANI 220 220.00	SURJANI 132 132.00	1	7.87	7.94	40	18.91
SURJANI 132 132	SURJANI T-2 11.	1	SURJANI 220 220.00	SURJANI 132 132.00	1	7.87	7.94	40	18.91
SURJANI 132 132	SURJANI T-3 11.	1	SURJANI 220 220.00	SURJANI 132 132.00	1	7.87	7.94	40	18.91
SURJANI 132 132	SURJANI T-4 11.	1	SURJANI 220 220.00	SURJANI 132 132.00	1	7.83	7.91	40	18.81
PIPRI W 132 132	AISHA STEEL 132	1	SURJANI 220 220.00	KDA-33 220.00	E1	5.46	5.47	112	4.88

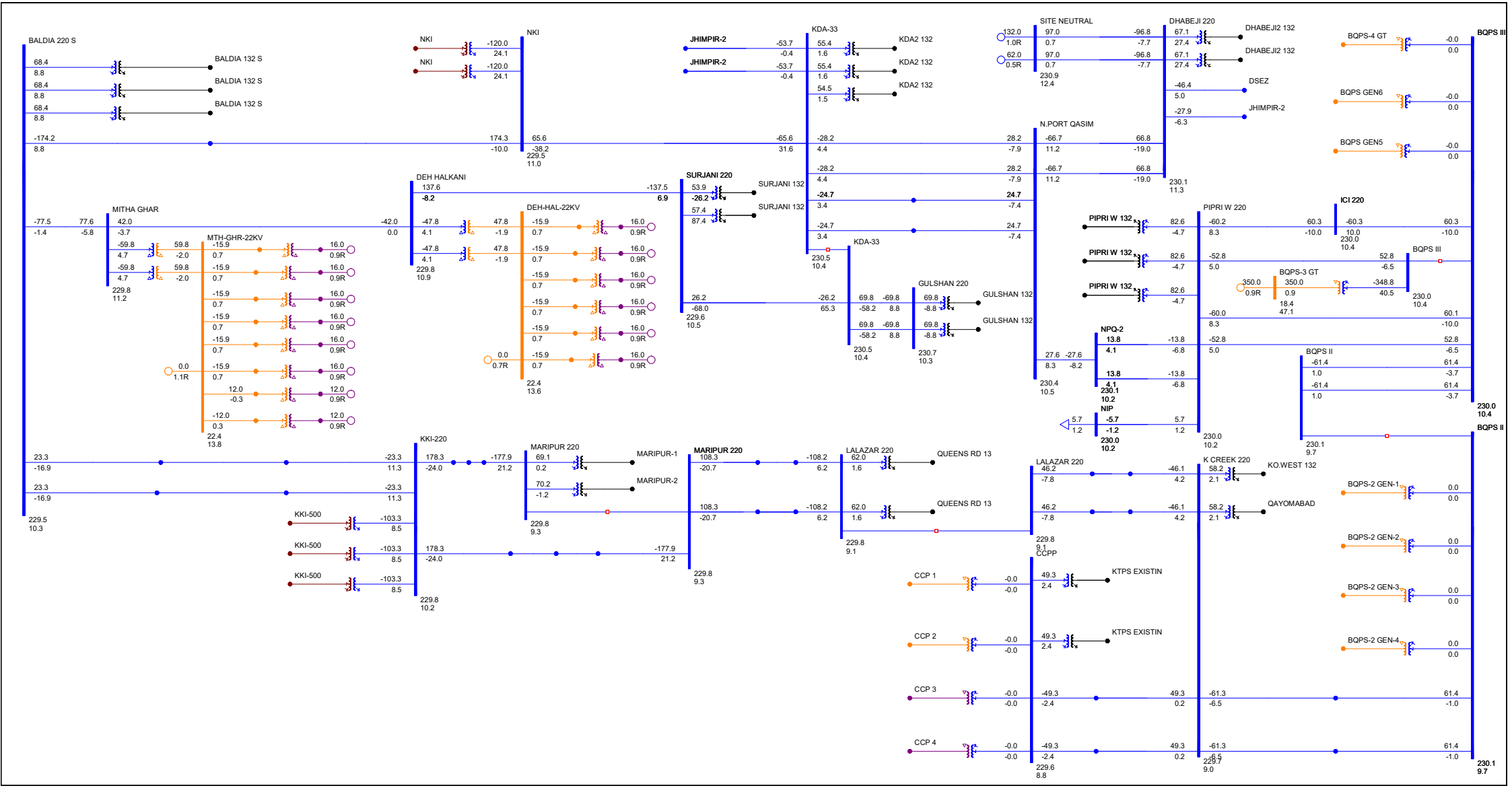
PIPRI W 132 132	PIPRI E 132 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	19.67	19.71	230.2	8.56
PIPRI W 132 132	PIPRI W T-2 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.76	7.78	20	37.45
PIPRI W 132 132	PIPRI W T-3 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.76	7.78	40	18.72
KTPS EXISTIN132	PRL-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	23.57	30.55	160	19.09
KTPS EXISTIN132	QAYMBD-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	16.82	24.34	137.2	17.74
QAYOMABAD 132	KO.WEST 132 132	2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	0.37	0.37	280	0.13
QAYOMABAD 132	QAYMBD-K-EST132	E1	CCPP 220.00	KTPS EXISTIN132.00	1	15.39	19.21	251.5	7.64
QAYOMABAD 132	QY-KS-KCNUG2132	E2	K CREEK 220 220.00	QAYOMABAD 132.00	2	7.13	11.11	171.47	6.48
KO.WEST 132 132	PRL 132 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	10.7	14.16	130.09	10.88
KO.WEST 132 132	DEFNCE-K-WST132	E1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	33.48	45.57	160	28.48
QUEENS RD 13132	OLD TOWN 132132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	16.44	16.45	114	14.43
QUEENS RD 13132	Q.RD-CLIFTON132	R1	K CREEK 220 220.00	QAYOMABAD 132.00	2	31.02	37.97	160	23.73
QUEENS RD 13132	Q.RD-GIZRI 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	33.95	47.03	251.49	18.7
GULSHAN 132 132	AZIZABAD 132	E1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	33.54	33.79	171.5	19.7
GULSHAN 132 132	JAIL ROAD SS132	E1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	13.03	13.12	171	7.67
GULSHAN 132 132	AGHA KHAN 132	E1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	28.35	28.59	171	16.72
GULSHAN 132 132	CIVIC 132 A 132	E1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	41.19	41.54	160	25.96
GULSHAN 132 132	JAIL ROAD SS132	E2	GULSHAN 220 220.00	GULSHAN 132 132.00	1	13.03	13.12	171	7.67
GULSHAN 132 132	GULSHAN T-1 11.	1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	9.6	9.67	40	23.16
GULSHAN 132 132	GULSHAN T-2 11.	1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	9.62	9.7	40	23.36
MARIPUR-1 132	MAR-LAB PL1 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	44.04	44.07	240.1	18.36
MARIPUR-1 132	MAR-GOL PL2 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	40.1	40.13	240.1	16.71
BALDIA 132 S132	HUB CHOWKI 1132	1	NKI 500.00	NKI 220.00	1	27.55	27.69	183	15.13
BALDIA 132 S132	VALIKA B 132132	E1	NKI 500.00	NKI 220.00	1	22.05	22.07	130.09	16.96
BALDIA 132 S132	VALIKA B 132132	E2	NKI 500.00	NKI 220.00	1	35.1	35.13	262.2	13.4
BALDIA 132 S132	SITE GT 132A132	E1	NKI 500.00	NKI 220.00	1	33.39	33.41	153.6	21.75
BALDIA 132 S132	SITE GT 132A132	E2	NKI 500.00	NKI 220.00	1	33.39	33.41	182.9	18.27
BALDIA 132 S132	KANUPP 132 132	E1	NKI 500.00	NKI 220.00	1	1.13	1.14	117.3	0.97
BALDIA 132 S132	ORANGI B 132132	R1	NKI 500.00	NKI 220.00	1	30.79	30.81	280	11
BALDIA 132 S132	TAPAL 132 132	E1	NKI 500.00	NKI 220.00	1	26.86	27	228.6	11.81
BALDIA 132 S132	BALDIA T-1 11.	1	NKI 500.00	NKI 220.00	1	9.32	9.33	67	13.37
BALDIA 132 S132	BALDIA T-2 11.	1	NKI 500.00	NKI 220.00	1	12.15	12.16	35	33.34
BALDIA 132 S132	BALDIA T-3 11.	1	NKI 500.00	NKI 220.00	1	12.25	12.26	40	29.26
BALDIA 132 S132	BALDIA T-4 11.	1	NKI 500.00	NKI 220.00	1	9.28	9.29	40	22.4
DHABEJI 220 220	DSEZ 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	63.22	96.38	674	14.3
DHABEJI 220 220	SITE NEUTRAL220	1	DHABEJI 220 220.00	SITE NEUTRAL220.00	2	57.31	114.13	967	11.8
DHABEJI 220 220	SITE NEUTRAL220	2	DHABEJI 220 220.00	SITE NEUTRAL220.00	1	57.31	114.13	967	11.8
DHABEJI 220 220	DHABEJI2 132132	1	DHABEJI 220 220.00	DHABEJI2 132132.00	2	69.27	115.11	250	44.03
DHABEJI 220 220	DHABEJI2 132132	2	DHABEJI 220 220.00	DHABEJI2 132132.00	1	69.27	115.11	250	44.03
DSEZ 220	GHARO-NEW 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	93.82	127.17	674	18.87
DSEZ 220	DSEZ 132 132	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.71	16.74	160	10
DSEZ 220	DSEZ 132 132	2	SURJANI 220 220.00	KDA-33 220.00	E1	16.71	16.74	160	10
MAR-BAL-KKI222	MAR-KKI-UG3 22	1	KKI-220 220.00	MAR-KKI_UG 220.00	1	185.21	352.11	476.3	73.93
MAR-BAL-KKI 22	MAR-KKI-UG4 22	1	KKI-220 220.00	MAR-KKI-UG2 220.00	1	185.21	352.11	476.3	73.93
MAR-KKI_UG 22	MAR-KKI-UG4 22	E2	KKI-220 220.00	MAR-KKI-UG2 220.00	1	185.41	352.01	967	36.4
MAR-KKI-UG2 22	MAR-KKI-UG3 22	E1	KKI-220 220.00	MAR-KKI_UG 220.00	1	185.41	352.01	967	36.4
BAL-KKI-UG 22	BAL_KKI_UG4 22	1	K-2/K-3 500.00	KKI-500 500.00	1	25.18	109.42	967	11.32
BAL_KKI_UG2 22	BAL_KKI_UG3 22	1	K-2/K-3 500.00	KKI-500 500.00	1	25.18	109.42	967	11.32
DHABEJI2 13213	DHABEJI 132 13	N1	BQPS III 220.00	BQPS-3 GT 18.500	1	67.08	82.53	365	22.61
DHABEJI2 13213	DHABEJI 132 13	N2	BQPS III 220.00	BQPS-3 GT 18.500	1	67.08	82.53	365	22.61
DHABEJI2 13213	DHABEJI T-3 11	1	SURJANI 220 220.00	KDA-33 220.00	E1	3.26	3.27	40	7.79

Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Off-Peak Load Case Year 2025 - (Maximum Solar - Maximum Wind - With RPC)

Normal Case

Exhibit 2.2.0

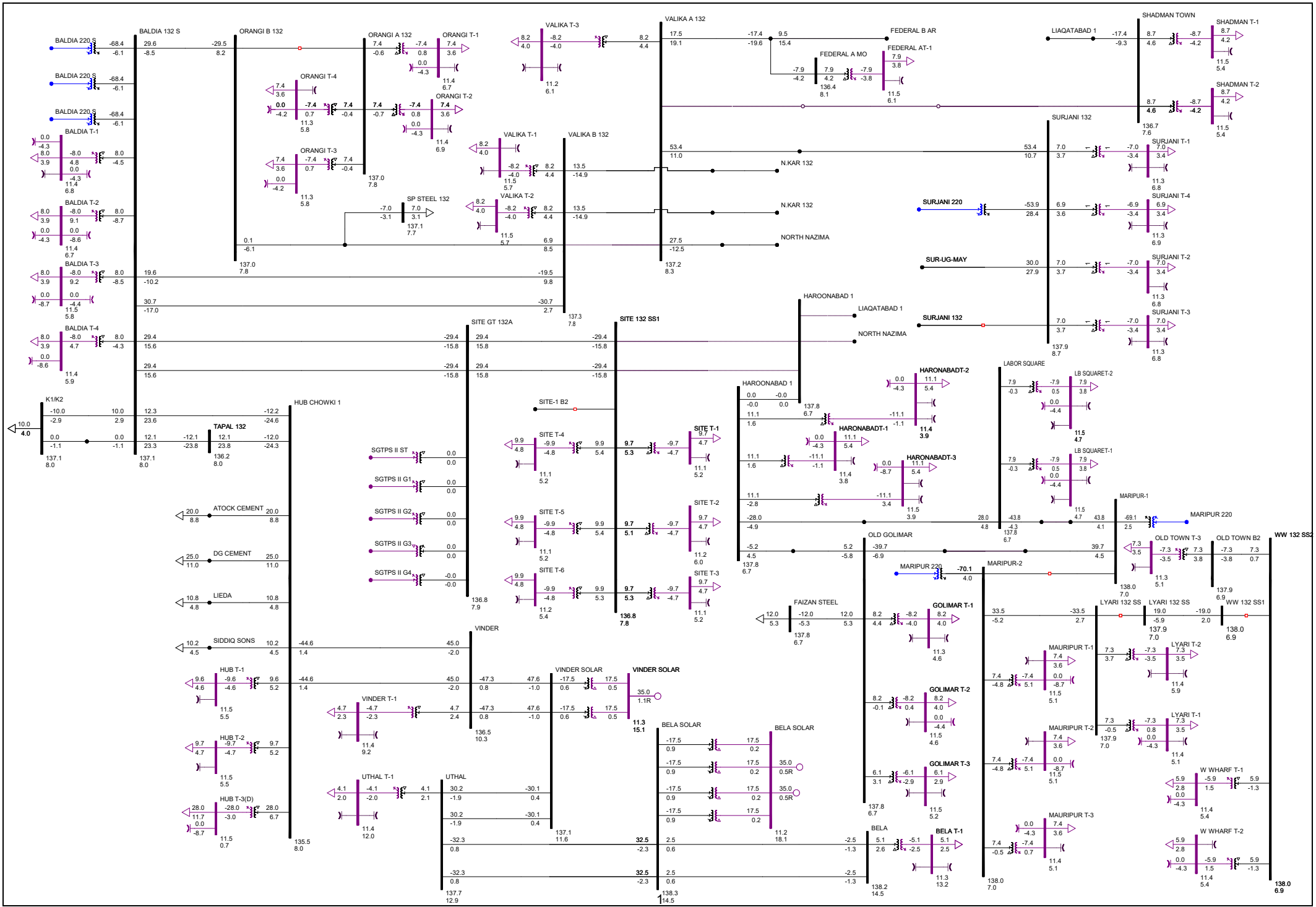


Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Off-Peak Load Case Year 2025 - (Maximum Solar - Maximum Wind - With RPC)

Normal Case

Exhibit 2.2.1



Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
DADU 500.00	MORO 500.00	1	DADU 500.00	JAMSHORO 500.00	2	461.63	851.33	2000	42.57
DADU 500.00	JAMSHORO 500.00	2	DADU 500.00	MATIARI-CS 500.00	1	958.8	1257.03	1300	96.69
DADU 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	579.92	1073.82	1200	89.48
DADU 500.00	DADU 220.00	1	DADU 500.00	JAMSHORO 500.00	2	13.9	36.9	450	8.05
DADU 500.00	DADU 220.00	2	DADU 500.00	JAMSHORO 500.00	2	13.9	36.9	450	8.05
DADU 500.00	DADU 220.00	3	DADU 500.00	JAMSHORO 500.00	2	13.9	36.9	450	8.05
MORO 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	464.66	859.79	1300	66.14
JAMSHORO 500.00	K-2/K-3 500.00	1	K-2/K-3 500.00	NKI 500.00	1	459.32	691.07	1900	36.37
JAMSHORO 500.00	HUB 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	624.95	1228.93	1300	94.53
JAMSHORO 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	485.07	715.43	1300	55.03
JAMSHORO 500.00	HUBCO-CFPP 500.00	1	HUB 500.00	HUBCO-CFPP 500.00	2	597.03	1233.87	1300	94.91
JAMSHORO 500.00	MATIARI-CS 500.00	1	JAMSHORO 500.00	MATIARI-CS 500.00	3	920.83	1560.92	2000	78.05
JAMSHORO 500.00	MATIARI-CS 500.00	3	JAMSHORO 500.00	MATIARI-CS 500.00	1	934.01	1566.57	2793	56.09
JAMSHORO 500.00	JAMSHORO 220.00	1	JAMSHORO 500.00	NKI 500.00	1	41.44	60.77	450	13.09
JAMSHORO 500.00	JAMSHORO 220.00	2	JAMSHORO 500.00	NKI 500.00	1	41.44	60.77	450	13.09
JAMSHORO 500.00	JAMSHORO 220.00	3	JAMSHORO 500.00	NKI 500.00	1	41.44	60.77	450	13.09
ENGRO CFPP 500.00	THL NVA CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	215.36	585.94	2793	20.98
ENGRO CFPP 500.00	TEL CFPP 500.00	1	MATIARI-CS 500.00	THL NVA CFPP500.00	1	75.58	599.3	2793	21.46
SECL CFPP 500.00	MATIARI-CS 500.00	1	SECL CFPP 500.00	MATIARI-CS 500.00	2	534.79	731.72	1600	45.73
SECL CFPP 500.00	MATIARI-CS 500.00	2	SECL CFPP 500.00	MATIARI-CS 500.00	1	534.79	731.72	1600	45.73
SECL CFPP 500.00	MATIARI-CS 500.00	3	SECL CFPP 500.00	MATIARI-CS 500.00	1	532.81	729.2	1600	45.57
SECL CFPP 500.00	TEL CFPP 500.00	2	MATIARI-CS 500.00	THL NVA CFPP500.00	1	364.77	892.02	2793	31.94
PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	563.86	683.34	2793	24.47
PRT QSM CFPP500.00	KKI-500 500.00	1	PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	44.92	577.96	2700	21.41
K-2/K-3 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	728.59	1016.07	2793	36.38
K-2/K-3 500.00	MATIARI-CS 500.00	1	K-2/K-3 500.00	NKI 500.00	1	614.18	799.03	1400	57.07
K-2/K-3 500.00	KKI-500 500.00	1	K-2/K-3 500.00	NKI 500.00	1	323.01	630.3	2793	22.57
HUB 500.00	HUBCO-CFPP 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	625.2	1242.7	2793	44.49
NKI 500.00	NKI 220.00	1	K-2/K-3 500.00	KKI-500 500.00	1	122.38	204.17	600	32.62
NKI 500.00	NKI 220.00	2	K-2/K-3 500.00	KKI-500 500.00	1	122.38	204.17	600	32.62
MATIARI-CS 500.00	THL NVA CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	514.39	882.14	1820	48.47
MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	510.61	627.67	1900	33.04
DADU 220.0	DADU NEW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	11.43	29.22	160	18
DADU 220.0	DADU NEW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	11.43	29.22	160	18
DADU 220.0	DADU NEW 132.0	3	DADU 500.00	JAMSHORO 500.00	2	18.29	46.75	250	18.43
JAMSHORO 220.0	JHIMPIR-2 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	3	151.69	201.98	550	36.72
JAMSHORO 220.0	JHIMPIR-2 220.0	3	JAMSHORO 220.00	JHIMPIR-2 220.00	2	151.69	201.98	550	36.72
JAMSHORO 220.0	HALA RD. 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	58.04	122.7	307	39.97
JAMSHORO 220.0	HALA RD. 220.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	58.04	122.7	307	39.97
JAMSHORO 220.0	MIRPRKHS 220.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	57.58	92.23	674	13.68
JAMSHORO 220.0	TM.KH.RD 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	33.92	132.55	600	22.09
JAMSHORO 220.0	JAMSHORO NEW132.0	1	JAMSHORO 220.00	JAMSHORO NEW132.00	2	56.79	66.7	160	40.82
JAMSHORO 220.0	JAMSHORO NEW132.0	2	JAMSHORO 220.00	JAMSHORO NEW132.00	1	56.79	66.7	160	40.82
JAMSHORO 220.0	JAMSHORO NEW132.0	3	JAMSHORO 220.00	JAMSHORO NEW132.00	1	56.79	66.7	160	40.82
JHIMPIR-2 220.0	KDA-33 220.0	1	BQPS III 220.00	BQPS-3 GT 18.500	1	56.75	79.93	674	11.86
JHIMPIR-2 220.0	KDA-33 220.0	2	BQPS III 220.00	BQPS-3 GT 18.500	1	56.75	79.93	674	11.86
JHIMPIR-2 220.0	JHIMPIR-2 132.0	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96	96.24	250	37.63
JHIMPIR-2 220.0	JHIMPIR-2 132.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96	96.24	250	37.63
JHIMPIR-2 220.0	JHIMPIR-2 132.0	3	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96	96.24	250	37.63
JHIMPIR-2 220.0	JHIMPIR-2 132.0	4	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96	96.24	250	37.63
JHIMPIR-2 220.0	JHIMPIR-1 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	53.5	80.51	674	11.94
JHIMPIR-2 220.0	DHABEJI 220 220.0	1	BQPS III 220.00	BQPS-3 GT 18.500	1	29.62	57.29	674	8.5
HALA RD. 220.0	MIRPRKHS 220.0	1	JAMSHORO 220.00	MIRPRKHS 220.00	1	62.99	98.79	674	14.66
HALA RD. 220.0	TM.KH.RD 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	184.5	209.75	674	31.12
HALA RD. 220.0	HALA ROAD 132.0	1	DADU 500.00	JAMSHORO 500.00	2	69.26	77.72	250	30.65
HALA RD. 220.0	HALA ROAD-1 132.0	1	DADU 500.00	JAMSHORO 500.00	2	89.58	96.94	250	38.22
HALA RD. 220.0	HALA ROAD-1 132.0	2	DADU 500.00	JAMSHORO 500.00	2	89.58	96.94	250	38.22
MIRPRKHS 220.0	M.KHS.NW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	59.78	66.69	250	26.4
MIRPRKHS 220.0	M.KHS.NW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	59.78	66.69	250	26.4
TM.KH.RD 220.0	HYD-TMK-2 132.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	65.66	90.68	250	35.43
TM.KH.RD 220.0	HYD-TMRD 132.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	59.21	77.85	250	30.42
TM.KH.RD 220.0	JHIMPIR-1 220.0	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	168.67	192.45	674	28.55
TM.KH.RD 220.0	JHIMPIR-1 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	168.67	192.45	674	28.55
KDA-33 220.0	NKI 220.0	E1	NKI 220.00	NKIBAL PLDP1220.00	E1	75.94	155.45	953	16.31
KDA-33 220.0	N.PORT QASIM220.0	E1	K-2/K-3 500.00	NKI 500.00	1	29.28	43	921.8	4.66
KDA-33 220.0	N.PORT QASIM220.0	E2	K-2/K-3 500.00	NKI 500.00	1	29.28	43	921.76	4.67
KDA-33 220.0	BTK-220 220.0	1	K-2/K-3 500.00	NKI 500.00	1	25.03	37.23	1350	2.76

KDA-33 220.0	DHACK-220 220.0	N1	K-2/K-3 500.00	NKI 500.00	1	25.03	37.23	1350	2.76
KDA-33 220.0	KDA2 132 132.0	1	KDA-33 220.00	KDA2 132 132.00	2	55.41	73.96	250	28.49
KDA-33 220.0	KDA2 132 132.0	2	KDA-33 220.00	KDA2 132 132.00	1	55.41	73.96	250	28.49
KDA-33 220.0	KDA2 132 132.0	3	KDA-33 220.00	KDA2 132 132.00	1	54.53	72.79	250	28.04
NKI 220.0	NKIBAL PLDP1220.0	E1	K-2/K-3 500.00	KKI-500 500.00	1	174.62	320.9	952.6	33.69
JAMSHORO NEW132.	LAKHRA 132.	1	DADU 500.00	JAMSHORO 500.00	2	27.4	39.92	202	19.76
JAMSHORO NEW132.	LAKHRA 132.	2	DADU 500.00	JAMSHORO 500.00	2	27.4	39.92	202	19.76
JAMSHORO NEW132.	QASIMABAD 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	29.33	33.23	202	16.45
JAMSHORO NEW132.	RAJPUTANA 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	28.3	35.2	202	17.43
JAMSHORO NEW132.	JAMSRO OLD 132.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	33.66	34.86	202	17.26
JAMSHORO NEW132.	JAMSRO OLD 132.	2	BQPS III 220.00	BQPS-3 GT 18.500	1	33.66	34.86	202	17.26
JAMSHORO NEW132.	JAMSRO OLD 132.	3	BQPS III 220.00	BQPS-3 GT 18.500	1	33.66	34.86	202	17.26
BALDIA 220 S220	MITHA GHAR 220	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	77.85	215.58	967	22.29
BALDIA 220 S220	BALDIA 132 S132	1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	68.93	104.75	250	40.17
BALDIA 220 S220	BALDIA 132 S132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	1	68.93	104.75	250	40.17
BALDIA 220 S220	BALDIA 132 S132	3	BALDIA 220 S220.00	BALDIA 132 S132.00	1	68.93	104.75	250	40.17
BALDIA 220 S220	NKIBAL PLDP1220	E1	K-2/K-3 500.00	KKI-500 500.00	1	174.45	320.74	1348.2	23.79
BALDIA 220 S220	BAL_KKI_UG3 220	E1	K-2/K-3 500.00	KKI-500 500.00	1	28.79	108.53	476.3	22.79
BALDIA 220 S220	BAL_KKI_UG4 220	E2	K-2/K-3 500.00	KKI-500 500.00	1	28.79	108.53	476.3	22.79
MARIPUR 220 220	MARIPUR-2 132	1	MARIPUR 220 220.00	MARIPUR-1 132.00	11	70.24	142.03	250	54.42
MARIPUR 220 220	MARIPUR-1 132	11	MARIPUR 220 220.00	MARIPUR-2 132.00	1	69.15	142.14	250	54.44
MARIPUR 220 220	MAR-BAL-KKI2220	E1	KKI-220 220.00	MAR-KKI_UG 220.00	1	179.24	336.33	495.4	67.89
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	110.23	213.2	495.37	43.04
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	110.23	213.2	495.37	43.04
MARIPUR 220 220	MAR-BAL-KKI 220	E2	KKI-220 220.00	MAR-KKI-UG2 220.00	1	179.24	336.33	495.4	67.89
LALAZAR 220 220	MAR-LALPLDP1220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	109.97	212.58	495.37	42.91
LALAZAR 220 220	MAR-LALPLDP2220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	109.97	212.58	495.37	42.91
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	62.05	85.62	250	32.8
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	62.05	85.62	250	32.8
LALAZAR 220 220	LALAZAR-UG1 220	E1	BQPS III 220.00	BQPS-3 GT 18.500	1	46.81	121.13	514.4	23.55
LALAZAR 220 220	LALAZAR-UG2 220	E2	BQPS III 220.00	BQPS-3 GT 18.500	1	46.81	121.13	514.4	23.55
LALAZAR-UG1 220	KCR_UG1 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	46.69	121.08	483.6	25.04
SURJANI 220 220	KDA-33 220	E1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	72.9	125.58	904	13.89
SURJANI 220 220	DEH HALKANI 220	1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	137.88	218.15	967	22.56
SURJANI 220 220	SURJANI 132 132	1	SURJANI 220 220.00	SURJANI 132 132.00	2	60.92	77.6	250	30.32
SURJANI 220 220	SURJANI 132 132	2	SURJANI 220 220.00	SURJANI 132 132.00	1	104.52	113.28	250	43.43
LALAZAR-UG2 220	KCR_UG2 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	46.69	121.08	483.6	25.04
K CREEK 220 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	61.66	107.47	419.16	25.64
K CREEK 220 220	CCP-KCR-2 220	1	CCPP 220.00	CCP-KCR-1 220.00	E1	49.29	94.63	270.6	34.97
K CREEK 220 220	CCP-KCR-1 220	1	CCPP 220.00	CCP-KCR-2 220.00	E2	49.29	94.63	270.5	34.99
K CREEK 220 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	61.66	107.47	419.2	25.64
K CREEK 220 220	QAYOMABAD 132	2	K CREEK 220 220.00	KO.WEST 132 132.00	2	58.2	73.94	250	28.33
K CREEK 220 220	KO.WEST 132 132	2	K CREEK 220 220.00	QAYOMABAD 132.00	2	58.2	73.94	250	28.33
K CREEK 220 220	KCR_UG1 220	E1	BQPS III 220.00	BQPS-3 GT 18.500	1	46.49	120.78	514.4	23.48
K CREEK 220 220	KCR_UG2 220	E2	BQPS III 220.00	BQPS-3 GT 18.500	1	46.49	120.78	514.4	23.48
BQPS II 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	61.52	107.62	419.2	25.67
BQPS II 220	BQPS-2 GEN-415.	1	SURJANI 220 220.00	KDA-33 220.00	E1	0	0	250	0
BQPS II 220	BQPS-2 GEN-115.	1	SURJANI 220 220.00	KDA-33 220.00	E1	0	0	170	0
BQPS II 220	BQPS-2 GEN-315.	1	SURJANI 220 220.00	KDA-33 220.00	E1	0	0	170	0
BQPS II 220	BQPS-2 GEN-215.	1	SURJANI 220 220.00	KDA-33 220.00	E1	0	0	170	0
BQPS II 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	61.52	107.62	419.2	25.67
PIPRI W 220 220	BQPS III 220	E1	BQPS III 220.00	ICI 220 220.00	E4	53.22	72.68	457	15.9
PIPRI W 220 220	BQPS III 220	E3	BQPS III 220.00	ICI 220 220.00	E4	60.89	83.14	457	18.19
PIPRI W 220 220	NPQ-2 220	E1	BQPS III 220.00	BQPS-3 GT 18.500	1	15.39	93.84	921.8	10.18
PIPRI W 220 220	NPQ-2 220	E2	BQPS III 220.00	BQPS-3 GT 18.500	1	15.39	93.84	921.8	10.18
PIPRI W 220 220	BQPS III 220	E2	BQPS III 220.00	ICI 220 220.00	E4	53.22	72.68	457	15.9
PIPRI W 220 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	61.07	83.24	457	18.21
PIPRI W 220 220	PIPRI W 132 132	1	PIPRI W 220 220.00	PIPRI W 132 132.00	2	83.07	117.08	250	44.98
PIPRI W 220 220	PIPRI W 132 132	2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	83.07	117.08	250	44.98
PIPRI W 220 220	PIPRI W 132 132	3	PIPRI W 220 220.00	PIPRI W 132 132.00	1	83.07	117.08	250	44.98
BQPS III 220	BQPS GEN1 21.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	0	0	250	0
BQPS III 220	BQPS GEN6 18.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	0	0	250	0
BQPS III 220	BQPS GEN5 18.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	0	0	250	0
BQPS III 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	61.09	83.25	457.26	18.21
BQPS III 220	BQPS II 220	1	BQPS III 220.00	BQPS II 220.00	2	61.5	108.48	609.7	17.79
BQPS III 220	BQPS II 220	2	BQPS III 220.00	BQPS II 220.00	1	61.5	108.48	609.7	17.79
BQPS III 220	BQPS-4 GT 18.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	0	0	600	0
N.PORT QASIM220	BTK-220 220	1	K-2/K-3 500.00	NKI 500.00	1	25.82	37.82	1530	2.47
N.PORT QASIM220	DHACK-220 220	N1	K-2/K-3 500.00	NKI 500.00	1	25.82	37.82	1530	2.47

N.PORT QASIM220	DHABEJI 220 220	N1	N.PORT QASIM220.00	DHABEJI 220 220.00	N2	69.5	111.46	967	11.53
N.PORT QASIM220	DHABEJI 220 220	N2	N.PORT QASIM220.00	DHABEJI 220 220.00	N1	69.5	111.46	967	11.53
KDA-33 220	GULSHAN 220 220	E1	KDA-33 220.00	GULSHAN 220 220.00	E2	90.88	156.19	514	30.39
KDA-33 220	GULSHAN 220 220	E2	KDA-33 220.00	GULSHAN 220 220.00	E1	90.88	156.19	514	30.39
GULSHAN 220 220	GULSHAN 132 132	1	GULSHAN 220 220.00	GULSHAN 132 132.00	2	70.79	144.34	250	55.35
GULSHAN 220 220	GULSHAN 132 132	2	GULSHAN 220 220.00	GULSHAN 132 132.00	1	70.79	144.34	250	55.35
DEH HALKANI 220	MITHA GHAR 220	1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	42.14	122.65	967	12.68
DEH HALKANI 220	DEH-HAL-22KV22.	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	2	47.87	96.47	120	79.13
DEH HALKANI 220	DEH-HAL-22KV22.	2	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	47.87	96.47	120	79.13
MAR-LALPLDP1220	LZAR-MP-PLDP220	E2	MARIPUR 220 220.00	LZAR-MP-PLDP220.00	1	110.05	218.25	476.3	45.82
MAR-LALPLDP2220	LZAR-MP-PLDP220	E1	MARIPUR 220 220.00	LZAR-MP-PLDP220.00	1	110.05	218.25	476.4	45.81
CCPP 220	CCP-KCR-2 220	E2	CCPP 220.00	CCP-KCR-1 220.00	E1	49.33	95.17	349	27.27
CCPP 220	CCP 3 11.	1	NKI 500.00	NKI 220.00	1	0	0	35	0
CCPP 220	CCP 4 11.	1	NKI 500.00	NKI 220.00	1	0	0	35	0
CCPP 220	CCP 1 11.	1	NKI 500.00	NKI 220.00	1	0	0	115	0
CCPP 220	CCP 2 11.	1	NKI 500.00	NKI 220.00	1	0	0	115	0
CCPP 220	CCP-KCR-1 220	E1	CCPP 220.00	CCP-KCR-2 220.00	E2	49.33	95.17	349	27.27
CCPP 220	KTPS EXISTIN132	1	CCPP 220.00	KTPS EXISTIN132.00	2	49.33	65.16	250	24.97
CCPP 220	KTPS EXISTIN132	2	CCPP 220.00	KTPS EXISTIN132.00	1	49.33	65.16	250	24.97
BQPS III 220	BQPS-3 GT 18.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	350	350.08	600	58.79
MITHA GHAR 220	MTH-GHR-22KV22.	3	MITHA GHAR 220.00	MTH-GHR-22KV22.000	4	59.84	120.64	150	79.11
MITHA GHAR 220	MTH-GHR-22KV22.	4	MITHA GHAR 220.00	MTH-GHR-22KV22.000	3	59.84	120.64	150	79.11
22	0.4	1	#VALUE!	#VALUE!	SE	16.03	16.03	20	78.55
22	0.4	1	#VALUE!	#VALUE!	SE	16.03	16.03	20	78.55
22	0.4	1	#VALUE!	#VALUE!	SE	16.03	16.03	20	78.55
22	0.4	1	#VALUE!	#VALUE!	SE	16.03	16.03	20	78.55
22	0.4	1	#VALUE!	#VALUE!	SE	16.03	16.03	20	78.55
22	0.4	1	#VALUE!	#VALUE!	SE	16.03	16.03	20	78.55
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	16.03	16.02	20	78.53
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	16.03	16.02	20	78.53
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	16.03	16.02	20	78.53
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	16.03	16.02	20	78.53
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	16.03	16.02	20	78.53
KKI-500 500	KKI-220 220	1	K-2/K-3 500.00	NKI 500.00	1	103.66	192.98	600	30.8
KKI-500 500	KKI-220 220	2	K-2/K-3 500.00	NKI 500.00	1	103.66	192.98	600	30.8
KKI-500 500	KKI-220 220	3	K-2/K-3 500.00	NKI 500.00	1	103.66	192.98	600	30.8
KKI-220 220	MAR-KKI_UG 220	1	KKI-220 220.00	MAR-KKI-UG2 220.00	1	179.86	336.28	957.2	35.13
KKI-220 220	MAR-KKI-UG2 220	1	KKI-220 220.00	MAR-KKI_UG 220.00	1	179.86	336.28	957.2	35.13
KKI-220 220	BAL-KKI-UG 220	1	K-2/K-3 500.00	KKI-500 500.00	1	26.83	107.8	957.2	11.26
KKI-220 220	BAL_KKI_UG2 220	1	K-2/K-3 500.00	KKI-500 500.00	1	26.83	107.8	957.2	11.26
22	0.4	1	#VALUE!	#VALUE!	SE	16.03	16.03	20	78.51
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	12.03	12.02	15	78.57
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	12.03	12.02	15	78.57
KDA2 132 132	GADAP 132	N1	SURJANI 220 220.00	SURJANI 132 132.00	1	5.82	5.86	202	2.9
KDA2 132 132	GULSHAN 132 132	E1	SURJANI 220 220.00	SURJANI 132 132.00	1	29.53	29.69	130.1	22.82
KDA2 132 132	JOHAR 132 132	R1	SURJANI 220 220.00	SURJANI 132 132.00	1	44.17	44.42	280	15.86
KDA2 132 132	MEMON GOTH 132	E1	SURJANI 220 220.00	SURJANI 132 132.00	1	22.58	22.74	130.1	17.48
KDA2 132 132	SNPC 132	1	SURJANI 220 220.00	SURJANI 132 132.00	1	4.66	4.7	202	2.32
KDA2 132 132	KDA T-1 11.	1	SURJANI 220 220.00	SURJANI 132 132.00	1	9.54	9.59	40	22.99
KDA2 132 132	KDA T-2 11.	1	SURJANI 220 220.00	SURJANI 132 132.00	1	9.54	9.59	40	22.99
KDA2 132 132	KDA T-3 11.	1	SURJANI 220 220.00	SURJANI 132 132.00	1	8.18	8.22	40	19.71
KDA2 132 132	KDA T-4 11.	1	SURJANI 220 220.00	SURJANI 132 132.00	1	8.18	8.22	40	19.71
MARIPUR-2 132	LYARI 132 SS132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	33.94	33.96	171	19.86
MARIPUR-2 132	MAURIPUR T-111.	1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	8.99	9	40	21.55
MARIPUR-2 132	MAURIPUR T-211.	1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	8.99	9	40	21.55
MARIPUR-2 132	MAURIPUR T-311.	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	7.42	7.41	40	17.92
QUEENS RD 13132	ELANDER 132 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	13.39	13.4	160	8.37
QUEENS RD 13132	ELANDER 132 132	E2	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	13.39	13.4	160	8.37
QUEENS RD 13132	QUEENSRD T-111.	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	6.23	6.23	40	14.92
QUEENS RD 13132	QUEENSRD T-211.	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	6.23	6.23	40	14.92
QUEENS RD 13132	QUEENSRD T-311.	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	6.23	6.23	40	14.92
QUEENS RD 13132	QUEENSRD T-411.	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	6.15	6.15	40	15.12
SURJANI 132 132	SUR-VALIKA 132	R1	KDA-33 220.00	KDA2 132 132.00	1	54.53	59.31	262	22.64
SURJANI 132 132	SUR-UG-MAY 132	E1	KDA-33 220.00	KDA2 132 132.00	1	41.17	53.31	160	33.32
SURJANI 132 132	SURJANI T-1 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.87	7.88	40	18.93
SURJANI 132 132	SURJANI T-2 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.87	7.88	40	18.93
SURJANI 132 132	SURJANI T-3 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.87	7.88	40	18.93
SURJANI 132 132	SURJANI T-4 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.83	7.84	40	18.84
PIPRI W 132 132	AISHA STEEL 132	1	JAMSHORO 500.00	NKI 500.00	1	5.46	5.46	112	4.88

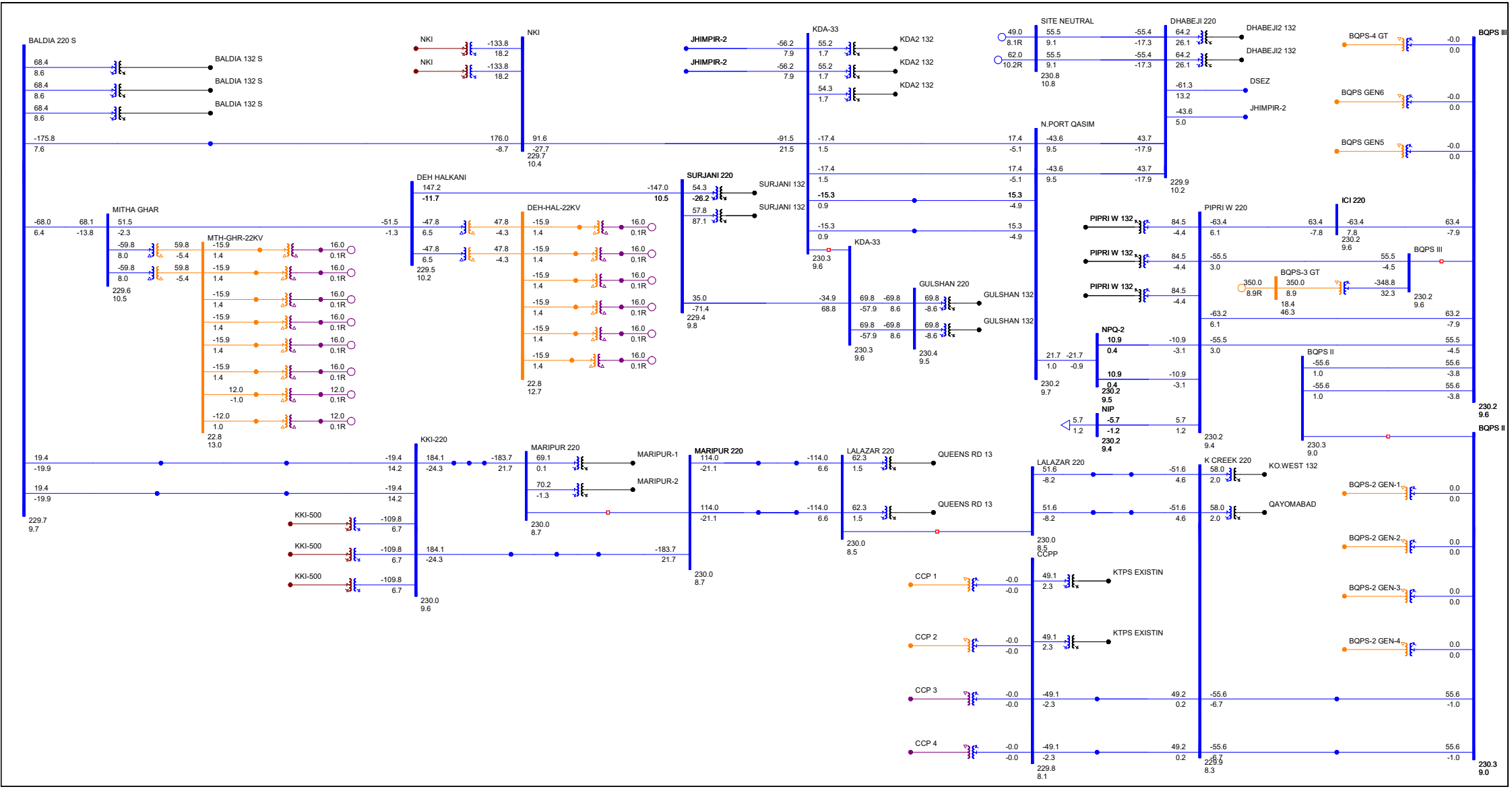
PIPRI W 132 132	PIPRI E 132 132	E1	BQPS III 220.00	BQPS-3 GT 18.500	1	19.61	19.66	230.2	8.54
PIPRI W 132 132	PIPRI W T-2 11.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	7.74	7.76	20	37.39
PIPRI W 132 132	PIPRI W T-3 11.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	7.74	7.76	40	18.7
KTPS EXISTIN132	PRL-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	23.62	30.61	160	19.13
KTPS EXISTIN132	QAYMBD-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	16.82	24.37	137.2	17.77
QAYOMABAD 132	KO.WEST 132 132	2	NKI 500.00	NKI 220.00	1	0.37	0.37	280	0.13
QAYOMABAD 132	QAYMBD-K-EST132	E1	CCPP 220.00	KTPS EXISTIN132.00	1	15.35	19.18	251.5	7.63
QAYOMABAD 132	QY-KS-KCNUG2132	E2	K CREEK 220 220.00	QAYOMABAD 132.00	2	7.15	11.14	171.47	6.49
KO.WEST 132 132	PRL 132 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	10.66	14.15	130.09	10.88
KO.WEST 132 132	DEFNCE-K-WST132	E1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	33.56	45.58	160	28.49
QUEENS RD 13132	OLD TOWN 132132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	16.44	16.45	114	14.43
QUEENS RD 13132	Q.RD-CLIFTON132	R1	K CREEK 220 220.00	QAYOMABAD 132.00	2	30.81	37.77	160	23.6
QUEENS RD 13132	Q.RD-GIZRI 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	33.57	46.66	251.49	18.55
GULSHAN 132 132	AZIZABAD 132	E1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	33.55	33.79	171.5	19.7
GULSHAN 132 132	JAIL ROAD SS132	E1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	13.03	13.11	171	7.67
GULSHAN 132 132	AGHA KHAN 132	E1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	28.35	28.6	171	16.73
GULSHAN 132 132	CIVIC 132 A 132	E1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	41.18	41.56	160	25.97
GULSHAN 132 132	JAIL ROAD SS132	E2	GULSHAN 220 220.00	GULSHAN 132 132.00	1	13.03	13.11	171	7.67
GULSHAN 132 132	GULSHAN T-1 11.	1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	9.6	9.66	40	23.16
GULSHAN 132 132	GULSHAN T-2 11.	1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	9.61	9.71	40	23.39
MARIPUR-1 132	MAR-LAB PL1 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	44.05	44.08	240.1	18.36
MARIPUR-1 132	MAR-GOL PL2 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	40.11	40.13	240.1	16.72
BALDIA 132 S132	HUB CHOWKI 1132	1	NKI 500.00	NKI 220.00	1	27.4	27.57	183	15.06
BALDIA 132 S132	VALIKA B 132132	E1	JAMSHORO 500.00	NKI 500.00	1	22.06	22.08	130.09	16.97
BALDIA 132 S132	VALIKA B 132132	E2	JAMSHORO 500.00	NKI 500.00	1	35.11	35.15	262.2	13.4
BALDIA 132 S132	SITE GT 132A132	E1	JAMSHORO 500.00	NKI 500.00	1	33.39	33.41	153.6	21.75
BALDIA 132 S132	SITE GT 132A132	E2	JAMSHORO 500.00	NKI 500.00	1	33.39	33.41	182.9	18.27
BALDIA 132 S132	KANUPP 132 132	E1	NKI 500.00	NKI 220.00	1	1.13	1.13	117.3	0.96
BALDIA 132 S132	ORANGI B 132132	R1	JAMSHORO 500.00	NKI 500.00	1	30.78	30.81	280	11
BALDIA 132 S132	TAPAL 132 132	E1	NKI 500.00	NKI 220.00	1	26.71	26.87	228.6	11.76
BALDIA 132 S132	BALDIA T-1 11.	1	JAMSHORO 500.00	NKI 500.00	1	9.3	9.31	67	13.37
BALDIA 132 S132	BALDIA T-2 11.	1	JAMSHORO 500.00	NKI 500.00	1	12.11	12.12	35	33.3
BALDIA 132 S132	BALDIA T-3 11.	1	JAMSHORO 500.00	NKI 500.00	1	12.21	12.22	40	29.23
BALDIA 132 S132	BALDIA T-4 11.	1	JAMSHORO 500.00	NKI 500.00	1	9.27	9.28	40	22.4
DHABEJI 220 220	DSEZ 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	46.81	79.11	674	11.74
DHABEJI 220 220	SITE NEUTRAL220	1	DHABEJI 220 220.00	SITE NEUTRAL220.00	2	97.07	197.89	967	20.46
DHABEJI 220 220	SITE NEUTRAL220	2	DHABEJI 220 220.00	SITE NEUTRAL220.00	1	97.07	197.89	967	20.46
DHABEJI 220 220	DHABEJI2 132132	1	DHABEJI 220 220.00	DHABEJI2 132132.00	2	72.42	120.41	250	46.03
DHABEJI 220 220	DHABEJI2 132132	2	DHABEJI 220 220.00	DHABEJI2 132132.00	1	72.42	120.41	250	46.03
DSEZ 220	GHARO-NEW 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	78.45	110.64	674	16.42
DSEZ 220	DSEZ 132 132	1	BQPS III 220.00	BQPS-3 GT 18.500	1	16.71	16.71	160	9.99
DSEZ 220	DSEZ 132 132	2	BQPS III 220.00	BQPS-3 GT 18.500	1	16.71	16.71	160	9.99
MAR-BAL-KKI222	MAR-KKI-UG3 22	1	KKI-220 220.00	MAR-KKI_UG 220.00	1	179.4	335.88	476.3	70.52
MAR-BAL-KKI 22	MAR-KKI-UG4 22	1	KKI-220 220.00	MAR-KKI-UG2 220.00	1	179.4	335.88	476.3	70.52
MAR-KKI_UG 22	MAR-KKI-UG4 22	E2	KKI-220 220.00	MAR-KKI-UG2 220.00	1	179.6	336.1	967	34.76
MAR-KKI-UG2 22	MAR-KKI-UG3 22	E1	KKI-220 220.00	MAR-KKI_UG 220.00	1	179.6	336.1	967	34.76
BAL-KKI-UG 22	BAL_KKI_UG4 22	1	K-2/K-3 500.00	KKI-500 500.00	1	27.56	108.12	967	11.18
BAL_KKI_UG2 22	BAL_KKI_UG3 22	1	K-2/K-3 500.00	KKI-500 500.00	1	27.56	108.12	967	11.18
DHABEJI2 13213	DHABEJI 132 13	N1	BQPS III 220.00	BQPS-3 GT 18.500	1	70.14	85.77	365	23.5
DHABEJI2 13213	DHABEJI 132 13	N2	BQPS III 220.00	BQPS-3 GT 18.500	1	70.14	85.77	365	23.5
DHABEJI2 13213	DHABEJI T-3 11	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	3.26	3.26	40	7.79

Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Off-Peak Load Case Year 2025 - (Maximum Solar - Average Wind - Without RPC)

Normal Case

Exhibit 2.3.0

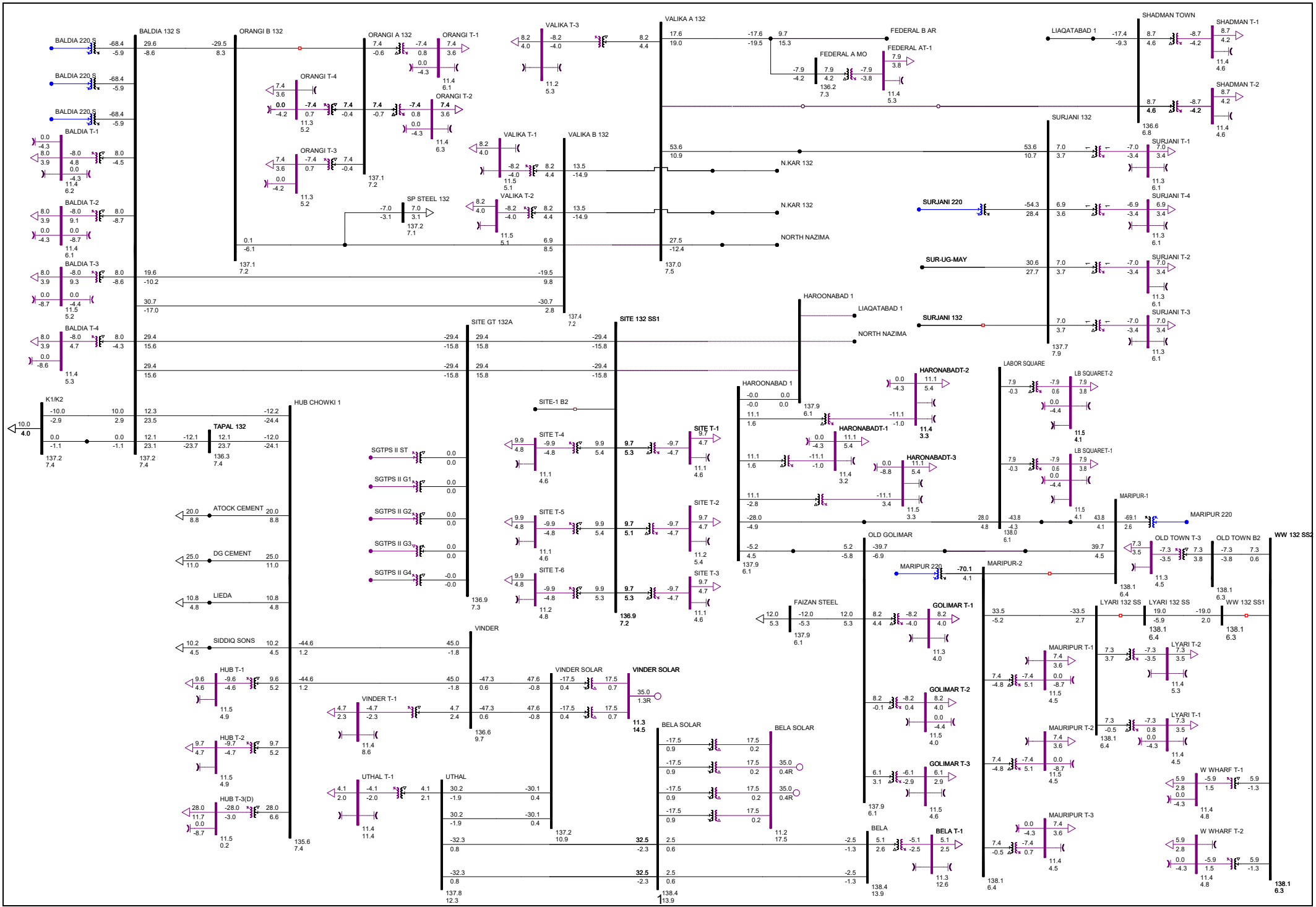


Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Off-Peak Load Case Year 2025 - (Maximum Solar - Average Wind - Without RPC)

Normal Case

Exhibit 2.3.1



Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
DADU 500.00	MORO 500.00	1	DADU 500.00	JAMSHORO 500.00	2	443.12	820.4	2000	41.02
DADU 500.00	JAMSHORO 500.00	2	DADU 500.00	MATIARI-CS 500.00	1	929.64	1216.48	1300	93.58
DADU 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	555.83	1034.99	1200	86.25
DADU 500.00	DADU 220.00	1	DADU 500.00	JAMSHORO 500.00	2	14.45	34.59	450	7.53
DADU 500.00	DADU 220.00	2	DADU 500.00	JAMSHORO 500.00	2	14.45	34.59	450	7.53
DADU 500.00	DADU 220.00	3	DADU 500.00	JAMSHORO 500.00	2	14.45	34.59	450	7.53
MORO 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	445.39	828.94	1300	63.76
JAMSHORO 500.00	K-2/K-3 500.00	1	K-2/K-3 500.00	NKI 500.00	1	449.29	693.82	1900	36.52
JAMSHORO 500.00	HUB 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	625.9	1231.35	1300	94.72
JAMSHORO 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	469.65	696.36	1300	53.57
JAMSHORO 500.00	HUBCO-CFPP 500.00	1	HUB 500.00	HUBCO-CFPP 500.00	2	596.55	1235.59	1300	95.05
JAMSHORO 500.00	MATIARI-CS 500.00	1	JAMSHORO 500.00	MATIARI-CS 500.00	3	906.84	1555.34	2000	77.77
JAMSHORO 500.00	MATIARI-CS 500.00	3	JAMSHORO 500.00	MATIARI-CS 500.00	1	921.3	1562.61	2793	55.95
JAMSHORO 500.00	JAMSHORO 220.00	1	PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	12.47	35.75	450	7.9
JAMSHORO 500.00	JAMSHORO 220.00	2	PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	12.47	35.75	450	7.9
JAMSHORO 500.00	JAMSHORO 220.00	3	PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	12.47	35.75	450	7.9
ENGRO CFPP 500.00	THL NVA CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	215.61	588.44	2793	21.07
ENGRO CFPP 500.00	TEL CFPP 500.00	1	MATIARI-CS 500.00	THL NVA CFPP500.00	1	78.08	592.18	2793	21.2
SECL CFPP 500.00	MATIARI-CS 500.00	1	SECL CFPP 500.00	MATIARI-CS 500.00	2	533.32	730.48	1600	45.66
SECL CFPP 500.00	MATIARI-CS 500.00	2	SECL CFPP 500.00	MATIARI-CS 500.00	1	533.32	730.48	1600	45.66
SECL CFPP 500.00	MATIARI-CS 500.00	3	SECL CFPP 500.00	MATIARI-CS 500.00	1	531.6	728.17	1600	45.51
SECL CFPP 500.00	TEL CFPP 500.00	2	MATIARI-CS 500.00	THL NVA CFPP500.00	1	375.18	892.77	2793	31.96
PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	553.72	671.04	2793	24.03
PRT QSM CFPP500.00	KKI-500 500.00	1	PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	42.95	578.35	2700	21.42
K-2/K-3 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	740.5	1023.06	2793	36.63
K-2/K-3 500.00	MATIARI-CS 500.00	1	K-2/K-3 500.00	NKI 500.00	1	602.24	797.12	1400	56.94
K-2/K-3 500.00	KKI-500 500.00	1	K-2/K-3 500.00	NKI 500.00	1	331.53	655.22	2793	23.46
HUB 500.00	HUBCO-CFPP 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	626.17	1244.37	2793	44.55
NKI 500.00	NKI 220.00	1	K-2/K-3 500.00	KKI-500 500.00	1	135.03	221.85	600	35.43
NKI 500.00	NKI 220.00	2	K-2/K-3 500.00	KKI-500 500.00	1	135.03	221.85	600	35.43
MATIARI-CS 500.00	THL NVA CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	514.48	882.36	1820	48.48
MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	500.54	615.55	1900	32.4
DADU 220.0	DADU NEW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	11.87	27.38	160	16.84
DADU 220.0	DADU NEW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	11.87	27.38	160	16.84
DADU 220.0	DADU NEW 132.0	3	DADU 500.00	JAMSHORO 500.00	2	18.99	43.8	250	17.24
JAMSHORO 220.0	JHIMPIR-2 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	3	148.64	194.34	550	35.33
JAMSHORO 220.0	JHIMPIR-2 220.0	3	JAMSHORO 220.00	JHIMPIR-2 220.00	2	148.64	194.34	550	35.33
JAMSHORO 220.0	HALA RD. 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	56.1	127.95	307	41.68
JAMSHORO 220.0	HALA RD. 220.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	56.1	127.95	307	41.68
JAMSHORO 220.0	MIRPRKHS 220.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	63.56	101.63	674	15.08
JAMSHORO 220.0	TM.KH.RD 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	30.39	138.56	600	23.09
JAMSHORO 220.0	JAMSHORO NEW132.0	1	JAMSHORO 220.00	JAMSHORO NEW132.00	2	51.03	59.66	160	37.01
JAMSHORO 220.0	JAMSHORO NEW132.0	2	JAMSHORO 220.00	JAMSHORO NEW132.00	1	51.03	59.66	160	37.01
JAMSHORO 220.0	JAMSHORO NEW132.0	3	JAMSHORO 220.00	JAMSHORO NEW132.00	1	51.03	59.66	160	37.01
JHIMPIR-2 220.0	KDA-33 220.0	1	BQPS III 220.00	BQPS-3 GT 18.500	1	61.92	84.86	674	12.59
JHIMPIR-2 220.0	KDA-33 220.0	2	BQPS III 220.00	BQPS-3 GT 18.500	1	61.92	84.86	674	12.59
JHIMPIR-2 220.0	JHIMPIR-2 132.0	1	JAMSHORO 500.00	MATIARI-CS 500.00	3	96.36	96.37	250	37.87
JHIMPIR-2 220.0	JHIMPIR-2 132.0	2	JAMSHORO 500.00	MATIARI-CS 500.00	3	96.36	96.37	250	37.87
JHIMPIR-2 220.0	JHIMPIR-2 132.0	3	JAMSHORO 500.00	MATIARI-CS 500.00	3	96.36	96.37	250	37.87
JHIMPIR-2 220.0	JHIMPIR-2 132.0	4	JAMSHORO 500.00	MATIARI-CS 500.00	3	96.36	96.37	250	37.87
JHIMPIR-2 220.0	JHIMPIR-1 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	56.5	92	674	13.65
JHIMPIR-2 220.0	DHABEJI 220 220.0	1	BQPS III 220.00	BQPS-3 GT 18.500	1	48.21	75.78	674	11.24
HALA RD. 220.0	MIRPRKHS 220.0	1	JAMSHORO 220.00	MIRPRKHS 220.00	1	68.51	108.39	674	16.08
HALA RD. 220.0	TM.KH.RD 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	196.87	220.07	674	32.65
HALA RD. 220.0	HALA ROAD 132.0	1	DADU 500.00	JAMSHORO 500.00	2	89.07	96.03	250	38.34
HALA RD. 220.0	HALA ROAD-1 132.0	1	DADU 500.00	JAMSHORO 500.00	2	79.74	87.22	250	34.82
HALA RD. 220.0	HALA ROAD-1 132.0	2	DADU 500.00	JAMSHORO 500.00	2	79.74	87.22	250	34.82
MIRPRKHS 220.0	M.KHS.NW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	65.95	72.54	250	29.28
MIRPRKHS 220.0	M.KHS.NW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	65.95	72.54	250	29.28
TM.KH.RD 220.0	HYD-TMK-2 132.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	59.66	78.92	250	30.95
TM.KH.RD 220.0	HYD-TMRD 132.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	56.12	76.39	250	30.02
TM.KH.RD 220.0	JHIMPIR-1 220.0	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	164.57	186.68	674	27.7
TM.KH.RD 220.0	JHIMPIR-1 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	164.57	186.68	674	27.7
KDA-33 220.0	NKI 220.0	E1	SURJANI 220 220.00	DEH HALKANI 220.00	1	95.73	185.14	953	19.43
KDA-33 220.0	N.PORT QASIM220.0	E1	K-2/K-3 500.00	NKI 500.00	1	18.16	32.63	921.8	3.54
KDA-33 220.0	N.PORT QASIM220.0	E2	K-2/K-3 500.00	NKI 500.00	1	18.16	32.63	921.76	3.54
KDA-33 220.0	BTK-220 220.0	1	K-2/K-3 500.00	NKI 500.00	1	15.36	28.28	1350	2.09

KDA-33 220.0	DHACK-220 220.0	N1	K-2/K-3 500.00	NKI 500.00	1	15.36	28.28	1350	2.09
KDA-33 220.0	KDA2 132 132.0	1	KDA-33 220.00	KDA2 132 132.00	2	55.15	73.61	250	28.39
KDA-33 220.0	KDA2 132 132.0	2	KDA-33 220.00	KDA2 132 132.00	1	55.15	73.61	250	28.39
KDA-33 220.0	KDA2 132 132.0	3	KDA-33 220.00	KDA2 132 132.00	1	54.28	72.44	250	27.94
NKI 220.0	NKIBAL PLDP1220.0	E1	K-2/K-3 500.00	KKI-500 500.00	1	176.18	331.2	952.6	34.77
JAMSHORO NEW132.	LAKHRA 132.	1	DADU 500.00	JAMSHORO 500.00	2	26.06	37.94	202	18.78
JAMSHORO NEW132.	LAKHRA 132.	2	DADU 500.00	JAMSHORO 500.00	2	26.06	37.94	202	18.78
JAMSHORO NEW132.	QASIMABAD 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	28.18	32.35	202	16.02
JAMSHORO NEW132.	RAJPUTANA 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	26.84	33.75	202	16.71
JAMSHORO NEW132.	JAMSRO OLD 132.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	29	29.78	202	14.74
JAMSHORO NEW132.	JAMSRO OLD 132.	2	BQPS III 220.00	BQPS-3 GT 18.500	1	29	29.78	202	14.74
JAMSHORO NEW132.	JAMSRO OLD 132.	3	BQPS III 220.00	BQPS-3 GT 18.500	1	29	29.78	202	14.74
BALDIA 220 S220	MITHA GHAR 220	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	69.5	221.42	967	22.9
BALDIA 220 S220	BALDIA 132 S132	1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	68.91	104.73	250	40.14
BALDIA 220 S220	BALDIA 132 S132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	1	68.91	104.73	250	40.14
BALDIA 220 S220	BALDIA 132 S132	3	BALDIA 220 S220.00	BALDIA 132 S132.00	1	68.91	104.73	250	40.14
BALDIA 220 S220	NKIBAL PLDP1220	E1	K-2/K-3 500.00	KKI-500 500.00	1	176.01	331.16	1348.2	24.56
BALDIA 220 S220	BAL_KKI_UG3 220	E1	K-2/K-3 500.00	KKI-500 500.00	1	27.77	110.02	476.3	23.1
BALDIA 220 S220	BAL_KKI_UG4 220	E2	K-2/K-3 500.00	KKI-500 500.00	1	27.77	110.02	476.3	23.1
MARIPUR 220 220	MARIPUR-2 132	1	MARIPUR 220 220.00	MARIPUR-1 132.00	11	70.24	142.1	250	54.39
MARIPUR 220 220	MARIPUR-1 132	11	MARIPUR 220 220.00	MARIPUR-2 132.00	1	69.15	142.23	250	54.42
MARIPUR 220 220	MAR-BAL-KKI2220	E1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	E2	185.04	341.43	495.4	68.92
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	115.99	224.62	495.37	45.34
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	115.99	224.62	495.37	45.34
MARIPUR 220 220	MAR-BAL-KKI 220	E2	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	E1	185.04	341.43	495.4	68.92
LALAZAR 220 220	MAR-LALPLDP1220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	115.74	223.95	495.37	45.21
LALAZAR 220 220	MAR-LALPLDP2220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	115.74	223.95	495.37	45.21
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	62.34	86.03	250	32.93
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	62.34	86.03	250	32.93
LALAZAR 220 220	LALAZAR-UG1 220	E1	BQPS III 220.00	BQPS-3 GT 18.500	1	52.29	129.21	514.4	25.12
LALAZAR 220 220	LALAZAR-UG2 220	E2	BQPS III 220.00	BQPS-3 GT 18.500	1	52.29	129.21	514.4	25.12
LALAZAR-UG1 220	KCR_UG1 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	52.18	127.98	483.6	26.46
SURJANI 220 220	KDA-33 220	E1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	79.5	130.68	904	14.46
SURJANI 220 220	DEH HALKANI 220	1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	147.62	217.3	967	22.47
SURJANI 220 220	SURJANI 132 132	1	SURJANI 220 220.00	SURJANI 132 132.00	2	61.25	78.12	250	30.55
SURJANI 220 220	SURJANI 132 132	2	SURJANI 220 220.00	SURJANI 132 132.00	1	104.52	113.47	250	43.56
LALAZAR-UG2 220	KCR_UG2 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	52.18	127.98	483.6	26.46
K CREEK 220 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	55.96	97.57	419.16	23.28
K CREEK 220 220	CCP-KCR-2 220	1	CCPP 220.00	CCP-KCR-1 220.00	E1	49.16	94.42	270.6	34.89
K CREEK 220 220	CCP-KCR-1 220	1	CCPP 220.00	CCP-KCR-2 220.00	E2	49.16	94.42	270.5	34.91
K CREEK 220 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	55.96	97.57	419.2	23.28
K CREEK 220 220	QAYOMABAD 132	2	K CREEK 220 220.00	KO.WEST 132 132.00	2	58.04	73.75	250	28.23
K CREEK 220 220	KO.WEST 132 132	2	K CREEK 220 220.00	QAYOMABAD 132.00	2	58.04	73.75	250	28.23
K CREEK 220 220	KCR_UG1 220	E1	BQPS III 220.00	BQPS-3 GT 18.500	1	51.98	128.9	514.4	25.06
K CREEK 220 220	KCR_UG2 220	E2	BQPS III 220.00	BQPS-3 GT 18.500	1	51.98	128.9	514.4	25.06
BQPS II 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	55.8	97.68	419.2	23.3
BQPS II 220	BQPS-2 GEN-415.	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	0	0	250	0
BQPS II 220	BQPS-2 GEN-115.	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	0	0	170	0
BQPS II 220	BQPS-2 GEN-315.	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	0	0	170	0
BQPS II 220	BQPS-2 GEN-215.	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	0	0	170	0
BQPS II 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	55.8	97.68	419.2	23.3
PIPRI W 220 220	BQPS III 220	E1	BQPS III 220.00	ICI 220 220.00	E4	55.66	76.11	457	16.65
PIPRI W 220 220	BQPS III 220	E3	BQPS III 220.00	ICI 220 220.00	E4	63.68	87.06	457	19.05
PIPRI W 220 220	NPQ-2 220	E1	BQPS III 220.00	BQPS-3 GT 18.500	1	11.31	93.89	921.8	10.19
PIPRI W 220 220	NPQ-2 220	E2	BQPS III 220.00	BQPS-3 GT 18.500	1	11.31	93.89	921.8	10.19
PIPRI W 220 220	BQPS III 220	E2	BQPS III 220.00	ICI 220 220.00	E4	55.66	76.11	457	16.65
PIPRI W 220 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	63.87	87.19	457	19.08
PIPRI W 220 220	PIPRI W 132 132	1	PIPRI W 220 220.00	PIPRI W 132 132.00	2	84.93	119.72	250	45.97
PIPRI W 220 220	PIPRI W 132 132	2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	84.93	119.72	250	45.97
PIPRI W 220 220	PIPRI W 132 132	3	PIPRI W 220 220.00	PIPRI W 132 132.00	1	84.93	119.72	250	45.97
BQPS III 220	BQPS GEN1 21.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	0	0	250	0
BQPS III 220	BQPS GEN6 18.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	0	0	250	0
BQPS III 220	BQPS GEN5 18.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	0	0	250	0
BQPS III 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	63.88	87.2	457.26	19.07
BQPS III 220	BQPS II 220	1	BQPS III 220.00	BQPS II 220.00	2	55.74	98.33	609.7	16.13
BQPS III 220	BQPS II 220	2	BQPS III 220.00	BQPS II 220.00	1	55.74	98.33	609.7	16.13
BQPS III 220	BQPS-4 GT 18.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	0	0	600	0
N.PORT QASIM220	BTK-220 220	1	K-2/K-3 500.00	NKI 500.00	1	16.07	28.71	1530	1.88
N.PORT QASIM220	DHACK-220 220	N1	K-2/K-3 500.00	NKI 500.00	1	16.07	28.71	1530	1.88

N.PORT QASIM220	DHABEJI 220 220	N1	N.PORT QASIM220.00	DHABEJI 220 220.00	N2	47.17	74.56	967	7.71
N.PORT QASIM220	DHABEJI 220 220	N2	N.PORT QASIM220.00	DHABEJI 220 220.00	N1	47.17	74.56	967	7.71
KDA-33 220	GULSHAN 220 220	E1	KDA-33 220.00	GULSHAN 220 220.00	E2	90.74	155.88	514	30.33
KDA-33 220	GULSHAN 220 220	E2	KDA-33 220.00	GULSHAN 220 220.00	E1	90.74	155.88	514	30.33
GULSHAN 220 220	GULSHAN 132 132	1	GULSHAN 220 220.00	GULSHAN 132 132.00	2	70.78	144.21	250	55.36
GULSHAN 220 220	GULSHAN 132 132	2	GULSHAN 220 220.00	GULSHAN 132 132.00	1	70.78	144.21	250	55.36
DEH HALKANI 220	MITHA GHAR 220	1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	51.55	121.46	967	12.56
DEH HALKANI 220	DEH-HAL-22KV22.	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	2	48.28	98.26	120	78.5
DEH HALKANI 220	DEH-HAL-22KV22.	2	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	48.28	98.26	120	78.5
MAR-LALPLDP1220	LZAR-MP-PLDP220	E2	MARIPUR 220 220.00	LZAR-MP-PLDP220.00	1	115.82	229.86	476.3	48.26
MAR-LALPLDP2220	LZAR-MP-PLDP220	E1	MARIPUR 220 220.00	LZAR-MP-PLDP220.00	1	115.82	229.86	476.4	48.25
CCPP 220	CCP-KCR-2 220	E2	CCPP 220.00	CCP-KCR-1 220.00	E1	49.2	94.93	349	27.2
CCPP 220	CCP 3 11.	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	0	0	35	0
CCPP 220	CCP 4 11.	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	0	0	35	0
CCPP 220	CCP 1 11.	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	0	0	115	0
CCPP 220	CCP 2 11.	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	0	0	115	0
CCPP 220	CCP-KCR-1 220	E1	CCPP 220.00	CCP-KCR-2 220.00	E2	49.2	94.93	349	27.2
CCPP 220	KTPS EXISTIN132	1	CCPP 220.00	KTPS EXISTIN132.00	2	49.2	65	250	24.89
CCPP 220	KTPS EXISTIN132	2	CCPP 220.00	KTPS EXISTIN132.00	1	49.2	65	250	24.89
BQPS III 220	BQPS-3 GT 18.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	350.11	350.17	600	58.6
MITHA GHAR 220	MTH-GHR-22KV22.	3	MITHA GHAR 220.00	MTH-GHR-22KV22.000	4	60.35	122.95	150	78.6
MITHA GHAR 220	MTH-GHR-22KV22.	4	MITHA GHAR 220.00	MTH-GHR-22KV22.000	3	60.35	122.95	150	78.6
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.06	16.07	20	77.46
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.06	16.07	20	77.46
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.06	16.07	20	77.46
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.06	16.07	20	77.46
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.06	16.07	20	77.46
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.06	16.07	20	77.46
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.06	16.17	20	78.11
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.06	16.17	20	78.11
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.06	16.17	20	78.11
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.06	16.17	20	78.11
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.06	16.17	20	78.11
KKI-500 500	KKI-220 220	1	K-2/K-3 500.00	NKI 500.00	1	110	203.83	600	32.51
KKI-500 500	KKI-220 220	2	K-2/K-3 500.00	NKI 500.00	1	110	203.83	600	32.51
KKI-500 500	KKI-220 220	3	K-2/K-3 500.00	NKI 500.00	1	110	203.83	600	32.51
KKI-220 220	MAR-KKI_UG 220	1	KKI-220 220.00	MAR-KKI-UG2 220.00	1	185.66	353.22	957.2	36.9
KKI-220 220	MAR-KKI-UG2 220	1	KKI-220 220.00	MAR-KKI_UG 220.00	1	185.66	353.22	957.2	36.9
KKI-220 220	BAL-KKI-UG 220	1	K-2/K-3 500.00	KKI-500 500.00	1	25.3	109.98	957.2	11.49
KKI-220 220	BAL_KKI_UG2 220	1	K-2/K-3 500.00	KKI-500 500.00	1	25.3	109.98	957.2	11.49
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.06	16.15	20	78.04
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	12.04	12.12	15	78.11
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	12.04	12.12	15	78.11
KDA2 132 132	GADAP 132	N1	SURJANI 220 220.00	SURJANI 132 132.00	1	5.82	5.86	202	2.9
KDA2 132 132	GULSHAN 132 132	E1	SURJANI 220 220.00	SURJANI 132 132.00	1	29.53	29.69	130.1	22.82
KDA2 132 132	JOHAR 132 132	R1	SURJANI 220 220.00	SURJANI 132 132.00	1	44.16	44.41	280	15.86
KDA2 132 132	MEMON GOTH 132	E1	SURJANI 220 220.00	SURJANI 132 132.00	1	22.57	22.73	130.1	17.47
KDA2 132 132	SNPC 132	1	SURJANI 220 220.00	SURJANI 132 132.00	1	4.65	4.68	202	2.32
KDA2 132 132	KDA T-1 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	9.54	9.54	40	23.04
KDA2 132 132	KDA T-2 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	9.54	9.54	40	23.04
KDA2 132 132	KDA T-3 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	8.18	8.18	40	19.75
KDA2 132 132	KDA T-4 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	8.18	8.18	40	19.75
MARIPUR-2 132	LYARI 132 SS132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	33.95	33.97	171	19.87
MARIPUR-2 132	MAURIPUR T-111.	1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	9	9.01	40	21.56
MARIPUR-2 132	MAURIPUR T-211.	1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	9	9.01	40	21.56
MARIPUR-2 132	MAURIPUR T-311.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.42	7.42	40	17.91
QUEENS RD 13132	ELANDER 132 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	13.39	13.4	160	8.37
QUEENS RD 13132	ELANDER 132 132	E2	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	13.39	13.4	160	8.37
QUEENS RD 13132	QUEENSRD T-111.	1	SURJANI 220 220.00	KDA-33 220.00	E1	6.23	6.23	40	14.91
QUEENS RD 13132	QUEENSRD T-211.	1	SURJANI 220 220.00	KDA-33 220.00	E1	6.23	6.23	40	14.91
QUEENS RD 13132	QUEENSRD T-311.	1	SURJANI 220 220.00	KDA-33 220.00	E1	6.23	6.23	40	14.91
QUEENS RD 13132	QUEENSRD T-411.	1	SURJANI 220 220.00	KDA-33 220.00	E1	6.15	6.15	40	15.11
SURJANI 132 132	SUR-VALIKA 132	R1	KDA-33 220.00	KDA2 132 132.00	1	54.69	59.44	262	22.69
SURJANI 132 132	SUR-UG-MAY 132	E1	KDA-33 220.00	KDA2 132 132.00	1	41.42	53.64	160	33.53
SURJANI 132 132	SURJANI T-1 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.87	7.88	40	19.01
SURJANI 132 132	SURJANI T-2 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.87	7.88	40	19.01
SURJANI 132 132	SURJANI T-3 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.87	7.88	40	19.01
SURJANI 132 132	SURJANI T-4 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.83	7.84	40	18.92
PIPRI W 132 132	AISHA STEEL 132	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	5.46	5.46	112	4.88

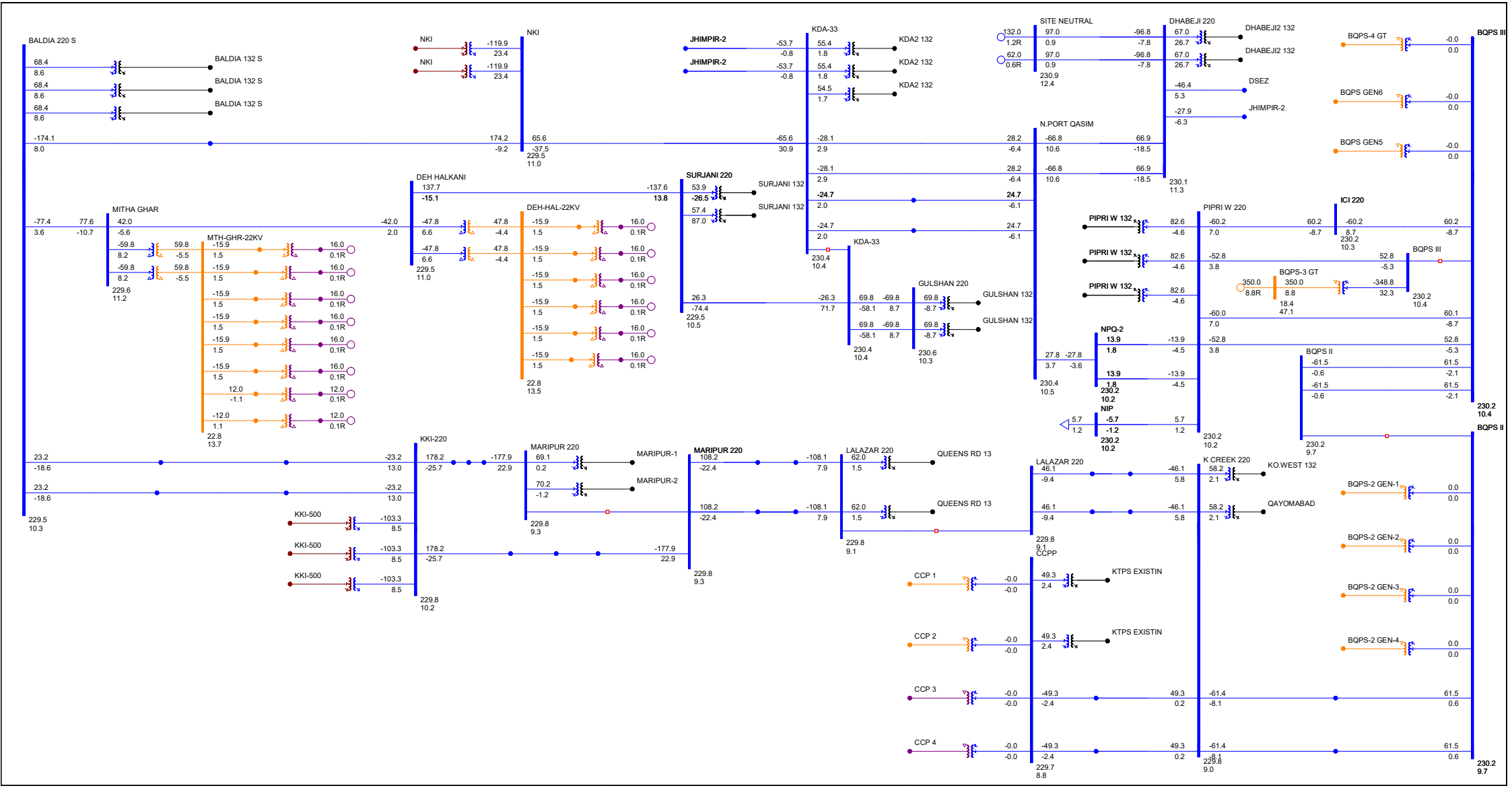
PIPRI W 132 132	PIPRI E 132 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	19.64	19.66	230.2	8.54
PIPRI W 132 132	PIPRI W T-2 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.75	7.76	20	37.39
PIPRI W 132 132	PIPRI W T-3 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.75	7.76	40	18.7
KTPS EXISTIN132	PRL-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	23.56	30.53	160	19.08
KTPS EXISTIN132	QAYMBD-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	16.78	24.3	137.2	17.71
QAYOMABAD 132	KO.WEST 132 132	2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	0.37	0.37	280	0.13
QAYOMABAD 132	QAYMBD-K-EST132	E1	CCPP 220.00	KTPS EXISTIN132.00	1	15.38	19.21	251.5	7.64
QAYOMABAD 132	QY-KS-KCNUG2132	E2	K CREEK 220 220.00	QAYOMABAD 132.00	2	7.12	11.09	171.47	6.47
KO.WEST 132 132	PRL 132 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	10.66	14.12	130.09	10.85
KO.WEST 132 132	DEFNCE-K-WST132	E1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	33.43	45.51	160	28.44
QUEENS RD 13132	OLD TOWN 132132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	16.44	16.45	114	14.43
QUEENS RD 13132	Q.RD-CLIFTON132	R1	K CREEK 220 220.00	QAYOMABAD 132.00	2	31.01	37.95	160	23.72
QUEENS RD 13132	Q.RD-GIZRI 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	33.94	47.01	251.49	18.69
GULSHAN 132 132	AZIZABAD 132	E1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	33.55	33.79	171.5	19.7
GULSHAN 132 132	JAIL ROAD SS132	E1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	13.03	13.11	171	7.67
GULSHAN 132 132	AGHA KHAN 132	E1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	28.33	28.58	171	16.72
GULSHAN 132 132	CIVIC 132 A 132	E1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	41.16	41.52	160	25.95
GULSHAN 132 132	JAIL ROAD SS132	E2	GULSHAN 220 220.00	GULSHAN 132 132.00	1	13.03	13.11	171	7.67
GULSHAN 132 132	GULSHAN T-1 11.	1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	9.6	9.66	40	23.18
GULSHAN 132 132	GULSHAN T-2 11.	1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	9.6	9.7	40	23.39
MARIPUR-1 132	MAR-LAB PL1 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	44.05	44.08	240.1	18.36
MARIPUR-1 132	MAR-GOL PL2 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	40.1	40.13	240.1	16.72
BALDIA 132 S132	HUB CHOWKI 1132	1	JAMSHORO 500.00	NKI 500.00	1	27.26	27.37	183	14.96
BALDIA 132 S132	VALIKA B 132132	E1	JAMSHORO 500.00	NKI 500.00	1	22.07	22.09	130.09	16.98
BALDIA 132 S132	VALIKA B 132132	E2	JAMSHORO 500.00	NKI 500.00	1	35.14	35.17	262.2	13.41
BALDIA 132 S132	SITE GT 132A132	E1	JAMSHORO 500.00	NKI 500.00	1	33.39	33.41	153.6	21.75
BALDIA 132 S132	SITE GT 132A132	E2	JAMSHORO 500.00	NKI 500.00	1	33.39	33.41	182.9	18.27
BALDIA 132 S132	KANUPP 132 132	E1	NKI 500.00	NKI 220.00	1	1.13	1.13	117.3	0.97
BALDIA 132 S132	ORANGI B 132132	R1	JAMSHORO 500.00	NKI 500.00	1	30.78	30.81	280	11
BALDIA 132 S132	TAPAL 132 132	E1	JAMSHORO 500.00	NKI 500.00	1	26.57	26.68	228.6	11.67
BALDIA 132 S132	BALDIA T-1 11.	1	JAMSHORO 500.00	NKI 500.00	1	9.31	9.32	67	13.37
BALDIA 132 S132	BALDIA T-2 11.	1	JAMSHORO 500.00	NKI 500.00	1	12.12	12.13	35	33.31
BALDIA 132 S132	BALDIA T-3 11.	1	JAMSHORO 500.00	NKI 500.00	1	12.22	12.24	40	29.24
BALDIA 132 S132	BALDIA T-4 11.	1	JAMSHORO 500.00	NKI 500.00	1	9.27	9.28	40	22.4
DHABEJI 220 220	DSEZ 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	63	96.16	674	14.27
DHABEJI 220 220	SITE NEUTRAL220	1	DHABEJI 220 220.00	SITE NEUTRAL220.00	2	58.05	114.76	967	11.87
DHABEJI 220 220	SITE NEUTRAL220	2	DHABEJI 220 220.00	SITE NEUTRAL220.00	1	58.05	114.76	967	11.87
DHABEJI 220 220	DHABEJI2 132132	1	DHABEJI 220 220.00	DHABEJI2 132132.00	2	69.28	115.11	250	44.05
DHABEJI 220 220	DHABEJI2 132132	2	DHABEJI 220 220.00	DHABEJI2 132132.00	1	69.28	115.11	250	44.05
DSEZ 220	GHARO-NEW 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	93.74	127.08	674	18.85
DSEZ 220	DSEZ 132 132	1	DHABEJI 220 220.00	DHABEJI2 132132.00	1	16.71	16.73	160	10
DSEZ 220	DSEZ 132 132	2	DHABEJI 220 220.00	DHABEJI2 132132.00	1	16.71	16.73	160	10
MAR-BAL-KKI222	MAR-KKI-UG3 22	1	KKI-220 220.00	MAR-KKI_UG 220.00	1	185.2	351.86	476.3	73.87
MAR-BAL-KKI 22	MAR-KKI-UG4 22	1	KKI-220 220.00	MAR-KKI-UG2 220.00	1	185.2	351.86	476.3	73.87
MAR-KKI_UG 22	MAR-KKI-UG4 22	E2	KKI-220 220.00	MAR-KKI-UG2 220.00	1	185.4	351.74	967	36.37
MAR-KKI-UG2 22	MAR-KKI-UG3 22	E1	KKI-220 220.00	MAR-KKI_UG 220.00	1	185.4	351.74	967	36.37
BAL-KKI-UG 22	BAL_KKI_UG4 22	1	K-2/K-3 500.00	KKI-500 500.00	1	26.24	109.56	967	11.33
BAL_KKI_UG2 22	BAL_KKI_UG3 22	1	K-2/K-3 500.00	KKI-500 500.00	1	26.24	109.56	967	11.33
DHABEJI2 13213	DHABEJI 132 13	N1	BQPS III 220.00	BQPS-3 GT 18.500	1	67.09	82.62	365	22.64
DHABEJI2 13213	DHABEJI 132 13	N2	BQPS III 220.00	BQPS-3 GT 18.500	1	67.09	82.62	365	22.64
DHABEJI2 13213	DHABEJI T-3 11	1	DHABEJI 220 220.00	DSEZ 220.00	1	3.26	3.26	40	7.79

Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Off-Peak Load Case Year 2025 - (Maximum Solar - Maximum Wind - Without RPC)

Normal Case

Exhibit 2.4.0

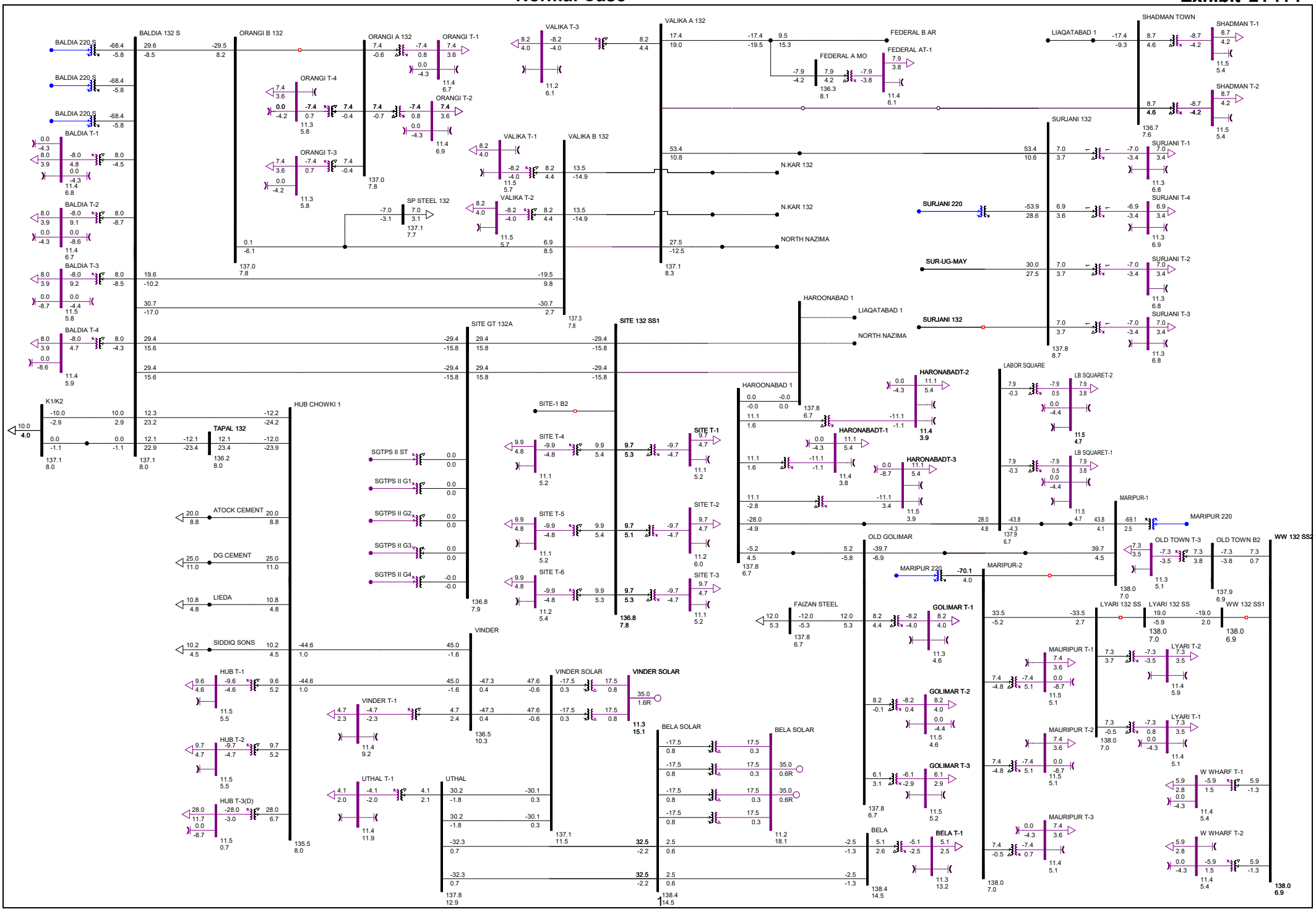


Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Off-Peak Load Case Year 2025 - (Maximum Solar - Maximum Wind - Without RPC)

Normal Case

Exhibit 2.4.1



Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
DADU 500.00	MORO 500.00	1	DADU 500.00	JAMSHORO 500.00	2	461.71	851.31	2000	42.57
DADU 500.00	JAMSHORO 500.00	2	DADU 500.00	MATIARI-CS 500.00	1	958.8	1257.05	1300	96.7
DADU 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	580.01	1073.91	1200	89.49
DADU 500.00	DADU 220.00	1	DADU 500.00	JAMSHORO 500.00	2	13.9	36.89	450	8.05
DADU 500.00	DADU 220.00	2	DADU 500.00	JAMSHORO 500.00	2	13.9	36.89	450	8.05
DADU 500.00	DADU 220.00	3	DADU 500.00	JAMSHORO 500.00	2	13.9	36.89	450	8.05
MORO 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	464.64	859.83	1300	66.14
JAMSHORO 500.00	K-2/K-3 500.00	1	K-2/K-3 500.00	NKI 500.00	1	459.32	691.08	1900	36.37
JAMSHORO 500.00	HUB 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	624.98	1228.97	1300	94.54
JAMSHORO 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	485.09	715.48	1300	55.04
JAMSHORO 500.00	HUBCO-CFPP 500.00	1	HUB 500.00	HUBCO-CFPP 500.00	2	597.01	1233.87	1300	94.91
JAMSHORO 500.00	MATIARI-CS 500.00	1	JAMSHORO 500.00	MATIARI-CS 500.00	3	920.97	1561.09	2000	78.05
JAMSHORO 500.00	MATIARI-CS 500.00	3	JAMSHORO 500.00	MATIARI-CS 500.00	1	934.14	1566.67	2793	56.09
JAMSHORO 500.00	JAMSHORO 220.00	1	JAMSHORO 500.00	NKI 500.00	1	41.58	60.87	450	13.11
JAMSHORO 500.00	JAMSHORO 220.00	2	JAMSHORO 500.00	NKI 500.00	1	41.58	60.87	450	13.11
JAMSHORO 500.00	JAMSHORO 220.00	3	JAMSHORO 500.00	NKI 500.00	1	41.58	60.87	450	13.11
ENGRO CFPP 500.00	THL NVA CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	215.21	585.94	2793	20.98
ENGRO CFPP 500.00	TEL CFPP 500.00	1	MATIARI-CS 500.00	THL NVA CFPP500.00	1	75.71	599.29	2793	21.46
SECL CFPP 500.00	MATIARI-CS 500.00	1	SECL CFPP 500.00	MATIARI-CS 500.00	2	534.98	731.95	1600	45.75
SECL CFPP 500.00	MATIARI-CS 500.00	2	SECL CFPP 500.00	MATIARI-CS 500.00	1	534.98	731.95	1600	45.75
SECL CFPP 500.00	MATIARI-CS 500.00	3	SECL CFPP 500.00	MATIARI-CS 500.00	1	532.98	729.42	1600	45.59
SECL CFPP 500.00	TEL CFPP 500.00	2	MATIARI-CS 500.00	THL NVA CFPP500.00	1	362.06	892.13	2793	31.94
PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	563.85	683.31	2793	24.47
PRT QSM CFPP500.00	KKI-500 500.00	1	PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	45.1	577.93	2700	21.4
K-2/K-3 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	728.47	1015.98	2793	36.38
K-2/K-3 500.00	MATIARI-CS 500.00	1	K-2/K-3 500.00	NKI 500.00	1	614.2	799.07	1400	57.08
K-2/K-3 500.00	KKI-500 500.00	1	K-2/K-3 500.00	NKI 500.00	1	322.97	630.18	2793	22.56
HUB 500.00	HUBCO-CFPP 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	625.24	1242.71	2793	44.49
NKI 500.00	NKI 220.00	1	K-2/K-3 500.00	KKI-500 500.00	1	122.2	204.01	600	32.6
NKI 500.00	NKI 220.00	2	K-2/K-3 500.00	KKI-500 500.00	1	122.2	204.01	600	32.6
MATIARI-CS 500.00	THL NVA CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	514.21	882.15	1820	48.47
MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	510.63	627.68	1900	33.04
DADU 220.0	DADU NEW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	11.43	29.21	160	17.99
DADU 220.0	DADU NEW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	11.43	29.21	160	17.99
DADU 220.0	DADU NEW 132.0	3	DADU 500.00	JAMSHORO 500.00	2	18.28	46.74	250	18.43
JAMSHORO 220.0	JHIMPIR-2 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	3	151.65	201.93	550	36.71
JAMSHORO 220.0	JHIMPIR-2 220.0	3	JAMSHORO 220.00	JHIMPIR-2 220.00	2	151.65	201.93	550	36.71
JAMSHORO 220.0	HALA RD. 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	58.07	122.7	307	39.97
JAMSHORO 220.0	HALA RD. 220.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	58.07	122.7	307	39.97
JAMSHORO 220.0	MIRPRKHS 220.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	57.58	92.23	674	13.68
JAMSHORO 220.0	TM.KH.RD 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	33.94	132.54	600	22.09
JAMSHORO 220.0	JAMSHORO NEW132.0	1	JAMSHORO 220.00	JAMSHORO NEW132.00	2	56.8	66.71	160	40.83
JAMSHORO 220.0	JAMSHORO NEW132.0	2	JAMSHORO 220.00	JAMSHORO NEW132.00	1	56.8	66.71	160	40.83
JAMSHORO 220.0	JAMSHORO NEW132.0	3	JAMSHORO 220.00	JAMSHORO NEW132.00	1	56.8	66.71	160	40.83
JHIMPIR-2 220.0	KDA-33 220.0	1	BQPS III 220.00	BQPS-3 GT 18.500	1	56.64	79.74	674	11.83
JHIMPIR-2 220.0	KDA-33 220.0	2	BQPS III 220.00	BQPS-3 GT 18.500	1	56.64	79.74	674	11.83
JHIMPIR-2 220.0	JHIMPIR-2 132.0	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96	96.25	250	37.63
JHIMPIR-2 220.0	JHIMPIR-2 132.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96	96.25	250	37.63
JHIMPIR-2 220.0	JHIMPIR-2 132.0	3	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96	96.25	250	37.63
JHIMPIR-2 220.0	JHIMPIR-2 132.0	4	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96	96.25	250	37.63
JHIMPIR-2 220.0	JHIMPIR-1 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	53.44	80.48	674	11.94
JHIMPIR-2 220.0	DHABEJI 220 220.0	1	BQPS III 220.00	BQPS-3 GT 18.500	1	29.63	57.29	674	8.5
HALA RD. 220.0	MIRPRKHS 220.0	1	JAMSHORO 220.00	MIRPRKHS 220.00	1	63	98.79	674	14.66
HALA RD. 220.0	TM.KH.RD 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	184.47	209.73	674	31.12
HALA RD. 220.0	HALA ROAD 132.0	1	DADU 500.00	JAMSHORO 500.00	2	69.26	77.72	250	30.65
HALA RD. 220.0	HALA ROAD-1 132.0	1	DADU 500.00	JAMSHORO 500.00	2	89.58	96.94	250	38.22
HALA RD. 220.0	HALA ROAD-1 132.0	2	DADU 500.00	JAMSHORO 500.00	2	89.58	96.94	250	38.22
MIRPRKHS 220.0	M.KHS.NW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	59.78	66.69	250	26.4
MIRPRKHS 220.0	M.KHS.NW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	59.78	66.69	250	26.4
TM.KH.RD 220.0	HYD-TMK-2 132.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	65.66	90.67	250	35.43
TM.KH.RD 220.0	HYD-TMRD 132.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	59.21	77.85	250	30.42
TM.KH.RD 220.0	JHIMPIR-1 220.0	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	168.65	192.43	674	28.55
TM.KH.RD 220.0	JHIMPIR-1 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	168.65	192.43	674	28.55
KDA-33 220.0	NKI 220.0	E1	NKI 220.00	NKIBAL PLDP1220.00	E1	75.61	155.1	953	16.27
KDA-33 220.0	N.PORT QASIM220.0	E1	K-2/K-3 500.00	NKI 500.00	1	28.87	42.67	921.8	4.63
KDA-33 220.0	N.PORT QASIM220.0	E2	K-2/K-3 500.00	NKI 500.00	1	28.87	42.67	921.76	4.63
KDA-33 220.0	BTK-220 220.0	1	K-2/K-3 500.00	NKI 500.00	1	24.83	37.06	1350	2.75

KDA-33 220.0	DHACK-220 220.0	N1	K-2/K-3 500.00	NKI 500.00	1	24.83	37.06	1350	2.75
KDA-33 220.0	KDA2 132 132.0	1	KDA-33 220.00	KDA2 132 132.00	2	55.41	73.96	250	28.51
KDA-33 220.0	KDA2 132 132.0	2	KDA-33 220.00	KDA2 132 132.00	1	55.41	73.96	250	28.51
KDA-33 220.0	KDA2 132 132.0	3	KDA-33 220.00	KDA2 132 132.00	1	54.53	72.79	250	28.05
NKI 220.0	NKIBAL PLDP1220.0	E1	K-2/K-3 500.00	KKI-500 500.00	1	174.49	320.74	952.6	33.67
JAMSHORO NEW132.	LAKHRA 132.	1	DADU 500.00	JAMSHORO 500.00	2	27.4	39.92	202	19.76
JAMSHORO NEW132.	LAKHRA 132.	2	DADU 500.00	JAMSHORO 500.00	2	27.4	39.92	202	19.76
JAMSHORO NEW132.	QASIMABAD 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	29.33	33.23	202	16.45
JAMSHORO NEW132.	RAJPUTANA 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	28.3	35.19	202	17.42
JAMSHORO NEW132.	JAMSRO OLD 132.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	33.66	34.82	202	17.24
JAMSHORO NEW132.	JAMSRO OLD 132.	2	BQPS III 220.00	BQPS-3 GT 18.500	1	33.66	34.82	202	17.24
JAMSHORO NEW132.	JAMSRO OLD 132.	3	BQPS III 220.00	BQPS-3 GT 18.500	1	33.66	34.82	202	17.24
BALDIA 220 S220	MITHA GHAR 220	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	78.31	216.62	967	22.4
BALDIA 220 S220	BALDIA 132 S132	1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	68.9	104.68	250	40.16
BALDIA 220 S220	BALDIA 132 S132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	1	68.9	104.68	250	40.16
BALDIA 220 S220	BALDIA 132 S132	3	BALDIA 220 S220.00	BALDIA 132 S132.00	1	68.9	104.68	250	40.16
BALDIA 220 S220	NKIBAL PLDP1220	E1	K-2/K-3 500.00	KKI-500 500.00	1	174.32	320.56	1348.2	23.78
BALDIA 220 S220	BAL_KKI_UG3 220	E1	K-2/K-3 500.00	KKI-500 500.00	1	29.78	108.85	476.3	22.85
BALDIA 220 S220	BAL_KKI_UG4 220	E2	K-2/K-3 500.00	KKI-500 500.00	1	29.78	108.85	476.3	22.85
MARIPUR 220 220	MARIPUR-2 132	1	MARIPUR 220 220.00	MARIPUR-1 132.00	11	70.24	142.03	250	54.42
MARIPUR 220 220	MARIPUR-1 132	11	MARIPUR 220 220.00	MARIPUR-2 132.00	1	69.15	142.15	250	54.44
MARIPUR 220 220	MAR-BAL-KKI2220	E1	KKI-220 220.00	MAR-KKI_UG 220.00	1	179.37	336.64	495.4	67.95
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	110.48	212.58	495.37	42.91
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	110.48	212.58	495.37	42.91
MARIPUR 220 220	MAR-BAL-KKI 220	E2	KKI-220 220.00	MAR-KKI-UG2 220.00	1	179.37	336.64	495.4	67.95
LALAZAR 220 220	MAR-LALPLDP1220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	110.21	211.97	495.37	42.79
LALAZAR 220 220	MAR-LALPLDP2220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	110.21	211.97	495.37	42.79
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	62.05	85.62	250	32.8
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	62.05	85.62	250	32.8
LALAZAR 220 220	LALAZAR-UG1 220	E1	BQPS III 220.00	BQPS-3 GT 18.500	1	47.02	121.09	514.4	23.54
LALAZAR 220 220	LALAZAR-UG2 220	E2	BQPS III 220.00	BQPS-3 GT 18.500	1	47.02	121.09	514.4	23.54
LALAZAR-UG1 220	KCR_UG1 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	46.88	121.04	483.6	25.03
SURJANI 220 220	KDA-33 220	E1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	78.88	131.84	904	14.58
SURJANI 220 220	DEH HALKANI 220	1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	138.54	218.37	967	22.58
SURJANI 220 220	SURJANI 132 132	1	SURJANI 220 220.00	SURJANI 132 132.00	2	61.01	77.59	250	30.33
SURJANI 220 220	SURJANI 132 132	2	SURJANI 220 220.00	SURJANI 132 132.00	1	104.21	112.91	250	43.32
LALAZAR-UG2 220	KCR_UG2 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	46.88	121.04	483.6	25.03
K CREEK 220 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	61.93	107.93	419.16	25.75
K CREEK 220 220	CCP-KCR-2 220	1	CCPP 220.00	CCP-KCR-1 220.00	E1	49.29	94.65	270.6	34.98
K CREEK 220 220	CCP-KCR-1 220	1	CCPP 220.00	CCP-KCR-2 220.00	E2	49.29	94.65	270.5	34.99
K CREEK 220 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	61.93	107.93	419.2	25.75
K CREEK 220 220	QAYOMABAD 132	2	K CREEK 220 220.00	KO.WEST 132 132.00	2	58.2	73.94	250	28.32
K CREEK 220 220	KO.WEST 132 132	2	K CREEK 220 220.00	QAYOMABAD 132.00	2	58.2	73.94	250	28.32
K CREEK 220 220	KCR_UG1 220	E1	BQPS III 220.00	BQPS-3 GT 18.500	1	46.63	120.75	514.4	23.47
K CREEK 220 220	KCR_UG2 220	E2	BQPS III 220.00	BQPS-3 GT 18.500	1	46.63	120.75	514.4	23.47
BQPS II 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	61.75	108.1	419.2	25.79
BQPS II 220	BQPS-2 GEN-415.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	0	0	250	0
BQPS II 220	BQPS-2 GEN-115.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	0	0	170	0
BQPS II 220	BQPS-2 GEN-315.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	0	0	170	0
BQPS II 220	BQPS-2 GEN-215.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	0	0	170	0
BQPS II 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	61.75	108.1	419.2	25.79
PIPRI W 220 220	BQPS III 220	E1	BQPS III 220.00	ICI 220 220.00	E4	53.04	72.48	457	15.86
PIPRI W 220 220	BQPS III 220	E3	BQPS III 220.00	ICI 220 220.00	E4	60.68	82.91	457	18.14
PIPRI W 220 220	NPQ-2 220	E1	BQPS III 220.00	BQPS-3 GT 18.500	1	14.62	93.85	921.8	10.18
PIPRI W 220 220	NPQ-2 220	E2	BQPS III 220.00	BQPS-3 GT 18.500	1	14.62	93.85	921.8	10.18
PIPRI W 220 220	BQPS III 220	E2	BQPS III 220.00	ICI 220 220.00	E4	53.04	72.48	457	15.86
PIPRI W 220 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	60.86	83.02	457	18.17
PIPRI W 220 220	PIPRI W 132 132	1	PIPRI W 220 220.00	PIPRI W 132 132.00	2	83.08	117.11	250	44.96
PIPRI W 220 220	PIPRI W 132 132	2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	83.08	117.11	250	44.96
PIPRI W 220 220	PIPRI W 132 132	3	PIPRI W 220 220.00	PIPRI W 132 132.00	1	83.08	117.11	250	44.96
BQPS III 220	BQPS GEN1 21.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	0	0	250	0
BQPS III 220	BQPS GEN6 18.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	0	0	250	0
BQPS III 220	BQPS GEN5 18.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	0	0	250	0
BQPS III 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	60.87	83.04	457.26	18.16
BQPS III 220	BQPS II 220	1	BQPS III 220.00	BQPS II 220.00	2	61.5	108.6	609.7	17.81
BQPS III 220	BQPS II 220	2	BQPS III 220.00	BQPS II 220.00	1	61.5	108.6	609.7	17.81
BQPS III 220	BQPS-4 GT 18.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	0	0	600	0
N.PORT QASIM220	BTK-220 220	1	K-2/K-3 500.00	NKI 500.00	1	25.44	37.52	1530	2.45
N.PORT QASIM220	DHACK-220 220	N1	K-2/K-3 500.00	NKI 500.00	1	25.44	37.52	1530	2.45

N.PORT QASIM220	DHABEJI 220 220	N1	N.PORT QASIM220.00	DHABEJI 220 220.00	N2	69.39	111.36	967	11.52
N.PORT QASIM220	DHABEJI 220 220	N2	N.PORT QASIM220.00	DHABEJI 220 220.00	N1	69.39	111.36	967	11.52
KDA-33 220	GULSHAN 220 220	E1	KDA-33 220.00	GULSHAN 220 220.00	E2	90.84	156.03	514	30.36
KDA-33 220	GULSHAN 220 220	E2	KDA-33 220.00	GULSHAN 220 220.00	E1	90.84	156.03	514	30.36
GULSHAN 220 220	GULSHAN 132 132	1	GULSHAN 220 220.00	GULSHAN 132 132.00	2	70.79	144.3	250	55.35
GULSHAN 220 220	GULSHAN 132 132	2	GULSHAN 220 220.00	GULSHAN 132 132.00	1	70.79	144.3	250	55.35
DEH HALKANI 220	MITHA GHAR 220	1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	42.42	122.46	967	12.66
DEH HALKANI 220	DEH-HAL-22KV22.	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	2	48.29	98.3	120	78.5
DEH HALKANI 220	DEH-HAL-22KV22.	2	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	48.29	98.3	120	78.5
MAR-LALPLDP1220	LZAR-MP-PLDP220	E2	MARIPUR 220 220.00	LZAR-MP-PLDP220.00	1	110.29	218.56	476.3	45.89
MAR-LALPLDP2220	LZAR-MP-PLDP220	E1	MARIPUR 220 220.00	LZAR-MP-PLDP220.00	1	110.29	218.56	476.4	45.88
CCPP 220	CCP-KCR-2 220	E2	CCPP 220.00	CCP-KCR-1 220.00	E1	49.33	95.19	349	27.27
CCPP 220	CCP 3 11.	1	NKI 500.00	NKI 220.00	1	0	0	35	0
CCPP 220	CCP 4 11.	1	NKI 500.00	NKI 220.00	1	0	0	35	0
CCPP 220	CCP 1 11.	1	NKI 500.00	NKI 220.00	1	0	0	115	0
CCPP 220	CCP 2 11.	1	NKI 500.00	NKI 220.00	1	0	0	115	0
CCPP 220	CCP-KCR-1 220	E1	CCPP 220.00	CCP-KCR-2 220.00	E2	49.33	95.19	349	27.27
CCPP 220	KTPS EXISTIN132	1	CCPP 220.00	KTPS EXISTIN132.00	2	49.33	65.16	250	24.97
CCPP 220	KTPS EXISTIN132	2	CCPP 220.00	KTPS EXISTIN132.00	1	49.33	65.16	250	24.97
BQPS III 220	BQPS-3 GT 18.	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	350.11	350.18	600	58.6
MITHA GHAR 220	MTH-GHR-22KV22.	3	MITHA GHAR 220.00	MTH-GHR-22KV22.000	4	60.37	122.98	150	78.63
MITHA GHAR 220	MTH-GHR-22KV22.	4	MITHA GHAR 220.00	MTH-GHR-22KV22.000	3	60.37	122.98	150	78.63
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.07	16.07	20	77.48
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.07	16.07	20	77.48
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.07	16.07	20	77.48
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.07	16.07	20	77.48
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.07	16.07	20	77.48
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.07	16.07	20	77.48
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.07	16.28	20	78.4
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.07	16.28	20	78.4
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.07	16.28	20	78.4
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.07	16.28	20	78.4
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.07	16.28	20	78.4
KKI-500 500	KKI-220 220	1	K-2/K-3 500.00	NKI 500.00	1	103.66	192.94	600	30.8
KKI-500 500	KKI-220 220	2	K-2/K-3 500.00	NKI 500.00	1	103.66	192.94	600	30.8
KKI-500 500	KKI-220 220	3	K-2/K-3 500.00	NKI 500.00	1	103.66	192.94	600	30.8
KKI-220 220	MAR-KKI_UG 220	1	KKI-220 220.00	MAR-KKI-UG2 220.00	1	180.02	336.52	957.2	35.16
KKI-220 220	MAR-KKI-UG2 220	1	KKI-220 220.00	MAR-KKI_UG 220.00	1	180.02	336.52	957.2	35.16
KKI-220 220	BAL-KKI-UG 220	1	K-2/K-3 500.00	KKI-500 500.00	1	27.66	108.08	957.2	11.29
KKI-220 220	BAL_KKI_UG2 220	1	K-2/K-3 500.00	KKI-500 500.00	1	27.66	108.08	957.2	11.29
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	16.07	16.22	20	78.27
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	12.05	12.18	15	78.38
22	0.4	1	SURJANI 220 220.00	KDA-33 220.00	E1	12.05	12.18	15	78.38
KDA2 132 132	GADAP 132	N1	SURJANI 220 220.00	SURJANI 132 132.00	1	5.82	5.86	202	2.9
KDA2 132 132	GULSHAN 132 132	E1	SURJANI 220 220.00	SURJANI 132 132.00	1	29.53	29.69	130.1	22.82
KDA2 132 132	JOHAR 132 132	R1	SURJANI 220 220.00	SURJANI 132 132.00	1	44.16	44.42	280	15.86
KDA2 132 132	MEMON GOTH 132	E1	SURJANI 220 220.00	SURJANI 132 132.00	1	22.58	22.73	130.1	17.47
KDA2 132 132	SNPC 132	1	SURJANI 220 220.00	SURJANI 132 132.00	1	4.66	4.69	202	2.32
KDA2 132 132	KDA T-1 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	9.54	9.54	40	23.03
KDA2 132 132	KDA T-2 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	9.54	9.54	40	23.03
KDA2 132 132	KDA T-3 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	8.18	8.18	40	19.74
KDA2 132 132	KDA T-4 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	8.18	8.18	40	19.74
MARIPUR-2 132	LYARI 132 SS132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	33.95	33.96	171	19.86
MARIPUR-2 132	MAURIPUR T-111.	1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	8.99	9	40	21.56
MARIPUR-2 132	MAURIPUR T-211.	1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	8.99	9	40	21.56
MARIPUR-2 132	MAURIPUR T-311.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.42	7.42	40	17.93
QUEENS RD 13132	ELANDER 132 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	13.39	13.4	160	8.37
QUEENS RD 13132	ELANDER 132 132	E2	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	13.39	13.4	160	8.37
QUEENS RD 13132	QUEENSRD T-111.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	6.23	6.23	40	14.93
QUEENS RD 13132	QUEENSRD T-211.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	6.23	6.23	40	14.93
QUEENS RD 13132	QUEENSRD T-311.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	6.23	6.23	40	14.93
QUEENS RD 13132	QUEENSRD T-411.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	6.15	6.15	40	15.12
SURJANI 132 132	SUR-VALIKA 132	R1	KDA-33 220.00	KDA2 132 132.00	1	54.49	59.27	262	22.62
SURJANI 132 132	SUR-UG-MAY 132	E1	KDA-33 220.00	KDA2 132 132.00	1	40.87	53.13	160	33.2
SURJANI 132 132	SURJANI T-1 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.87	7.89	40	19.01
SURJANI 132 132	SURJANI T-2 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.87	7.89	40	19.01
SURJANI 132 132	SURJANI T-3 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.87	7.89	40	19.01
SURJANI 132 132	SURJANI T-4 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.83	7.85	40	18.92
PIPRI W 132 132	AISHA STEEL 132	1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	5.46	5.47	112	4.88

PIPRI W 132 132	PIPRI E 132 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	19.64	19.67	230.2	8.55
PIPRI W 132 132	PIPRI W T-2 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.75	7.76	20	37.4
PIPRI W 132 132	PIPRI W T-3 11.	1	SURJANI 220 220.00	KDA-33 220.00	E1	7.75	7.76	40	18.7
KTPS EXISTIN132	PRL-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	23.62	30.61	160	19.13
KTPS EXISTIN132	QAYMBD-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	16.81	24.36	137.2	17.76
QAYOMABAD 132	KO.WEST 132 132	2	NKI 500.00	NKI 220.00	1	0.37	0.37	280	0.13
QAYOMABAD 132	QAYMBD-K-EST132	E1	CCPP 220.00	KTPS EXISTIN132.00	1	15.34	19.18	251.5	7.63
QAYOMABAD 132	QY-KS-KCNUG2132	E2	K CREEK 220 220.00	QAYOMABAD 132.00	2	7.14	11.13	171.47	6.49
KO.WEST 132 132	PRL 132 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	10.64	14.14	130.09	10.87
KO.WEST 132 132	DEFNCE-K-WST132	E1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	33.53	45.57	160	28.48
QUEENS RD 13132	OLD TOWN 132132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	16.44	16.45	114	14.43
QUEENS RD 13132	Q.RD-CLIFTON132	R1	K CREEK 220 220.00	QAYOMABAD 132.00	2	30.83	37.78	160	23.61
QUEENS RD 13132	Q.RD-GIZRI 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	33.6	46.68	251.49	18.56
GULSHAN 132 132	AZIZABAD 132	E1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	33.55	33.79	171.5	19.7
GULSHAN 132 132	JAIL ROAD SS132	E1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	13.03	13.11	171	7.67
GULSHAN 132 132	AGHA KHAN 132	E1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	28.35	28.6	171	16.72
GULSHAN 132 132	CIVIC 132 A 132	E1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	41.18	41.55	160	25.97
GULSHAN 132 132	JAIL ROAD SS132	E2	GULSHAN 220 220.00	GULSHAN 132 132.00	1	13.03	13.11	171	7.67
GULSHAN 132 132	GULSHAN T-1 11.	1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	9.6	9.66	40	23.16
GULSHAN 132 132	GULSHAN T-2 11.	1	GULSHAN 220 220.00	GULSHAN 132 132.00	1	9.61	9.71	40	23.39
MARIPUR-1 132	MAR-LAB PL1 132	E1	JAMSHORO 500.00	NKI 500.00	1	44.05	44.08	240.1	18.36
MARIPUR-1 132	MAR-GOL PL2 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	40.11	40.14	240.1	16.72
BALDIA 132 S132	HUB CHOWKI 1132	1	NKI 500.00	NKI 220.00	1	27.06	27.23	183	14.88
BALDIA 132 S132	VALIKA B 132132	E1	JAMSHORO 500.00	NKI 500.00	1	22.05	22.08	130.09	16.97
BALDIA 132 S132	VALIKA B 132132	E2	JAMSHORO 500.00	NKI 500.00	1	35.1	35.15	262.2	13.4
BALDIA 132 S132	SITE GT 132A132	E1	JAMSHORO 500.00	NKI 500.00	1	33.39	33.42	153.6	21.76
BALDIA 132 S132	SITE GT 132A132	E2	JAMSHORO 500.00	NKI 500.00	1	33.39	33.42	182.9	18.27
BALDIA 132 S132	KANUPP 132 132	E1	NKI 500.00	NKI 220.00	1	1.13	1.13	117.3	0.96
BALDIA 132 S132	ORANGI B 132132	R1	JAMSHORO 500.00	NKI 500.00	1	30.78	30.81	280	11
BALDIA 132 S132	TAPAL 132 132	E1	NKI 500.00	NKI 220.00	1	26.37	26.54	228.6	11.61
BALDIA 132 S132	BALDIA T-1 11.	1	JAMSHORO 500.00	NKI 500.00	1	9.3	9.32	67	13.37
BALDIA 132 S132	BALDIA T-2 11.	1	JAMSHORO 500.00	NKI 500.00	1	12.1	12.12	35	33.3
BALDIA 132 S132	BALDIA T-3 11.	1	JAMSHORO 500.00	NKI 500.00	1	12.21	12.22	40	29.23
BALDIA 132 S132	BALDIA T-4 11.	1	JAMSHORO 500.00	NKI 500.00	1	9.26	9.28	40	22.41
DHABEJI 220 220	DSEZ 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	46.88	79.15	674	11.74
DHABEJI 220 220	SITE NEUTRAL220	1	DHABEJI 220 220.00	SITE NEUTRAL220.00	2	97.08	197.91	967	20.47
DHABEJI 220 220	SITE NEUTRAL220	2	DHABEJI 220 220.00	SITE NEUTRAL220.00	1	97.08	197.91	967	20.47
DHABEJI 220 220	DHABEJI2 132132	1	DHABEJI 220 220.00	DHABEJI2 132132.00	2	72.16	120.03	250	45.88
DHABEJI 220 220	DHABEJI2 132132	2	DHABEJI 220 220.00	DHABEJI2 132132.00	1	72.16	120.03	250	45.88
DSEZ 220	GHARO-NEW 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	78.48	110.7	674	16.42
DSEZ 220	DSEZ 132 132	1	BQPS III 220.00	BQPS-3 GT 18.500	1	16.71	16.71	160	9.99
DSEZ 220	DSEZ 132 132	2	BQPS III 220.00	BQPS-3 GT 18.500	1	16.71	16.71	160	9.99
MAR-BAL-KKI222	MAR-KKI-UG3 22	1	KKI-220 220.00	MAR-KKI_UG 220.00	1	179.54	336.12	476.3	70.57
MAR-BAL-KKI 22	MAR-KKI-UG4 22	1	KKI-220 220.00	MAR-KKI-UG2 220.00	1	179.54	336.12	476.3	70.57
MAR-KKI_UG 22	MAR-KKI-UG4 22	E2	KKI-220 220.00	MAR-KKI-UG2 220.00	1	179.74	336.32	967	34.78
MAR-KKI-UG2 22	MAR-KKI-UG3 22	E1	KKI-220 220.00	MAR-KKI_UG 220.00	1	179.74	336.32	967	34.78
BAL-KKI-UG 22	BAL_KKI_UG4 22	1	K-2/K-3 500.00	KKI-500 500.00	1	28.46	108.42	967	11.21
BAL_KKI_UG2 22	BAL_KKI_UG3 22	1	K-2/K-3 500.00	KKI-500 500.00	1	28.46	108.42	967	11.21
DHABEJI2 13213	DHABEJI 132 13	N1	BQPS III 220.00	BQPS-3 GT 18.500	1	69.9	85.74	365	23.49
DHABEJI2 13213	DHABEJI 132 13	N2	BQPS III 220.00	BQPS-3 GT 18.500	1	69.9	85.74	365	23.49
DHABEJI2 13213	DHABEJI T-3 11	1	K-2/K-3 500.00	NKI 500.00	1	3.26	3.26	40	7.79

Appendix - B - 3

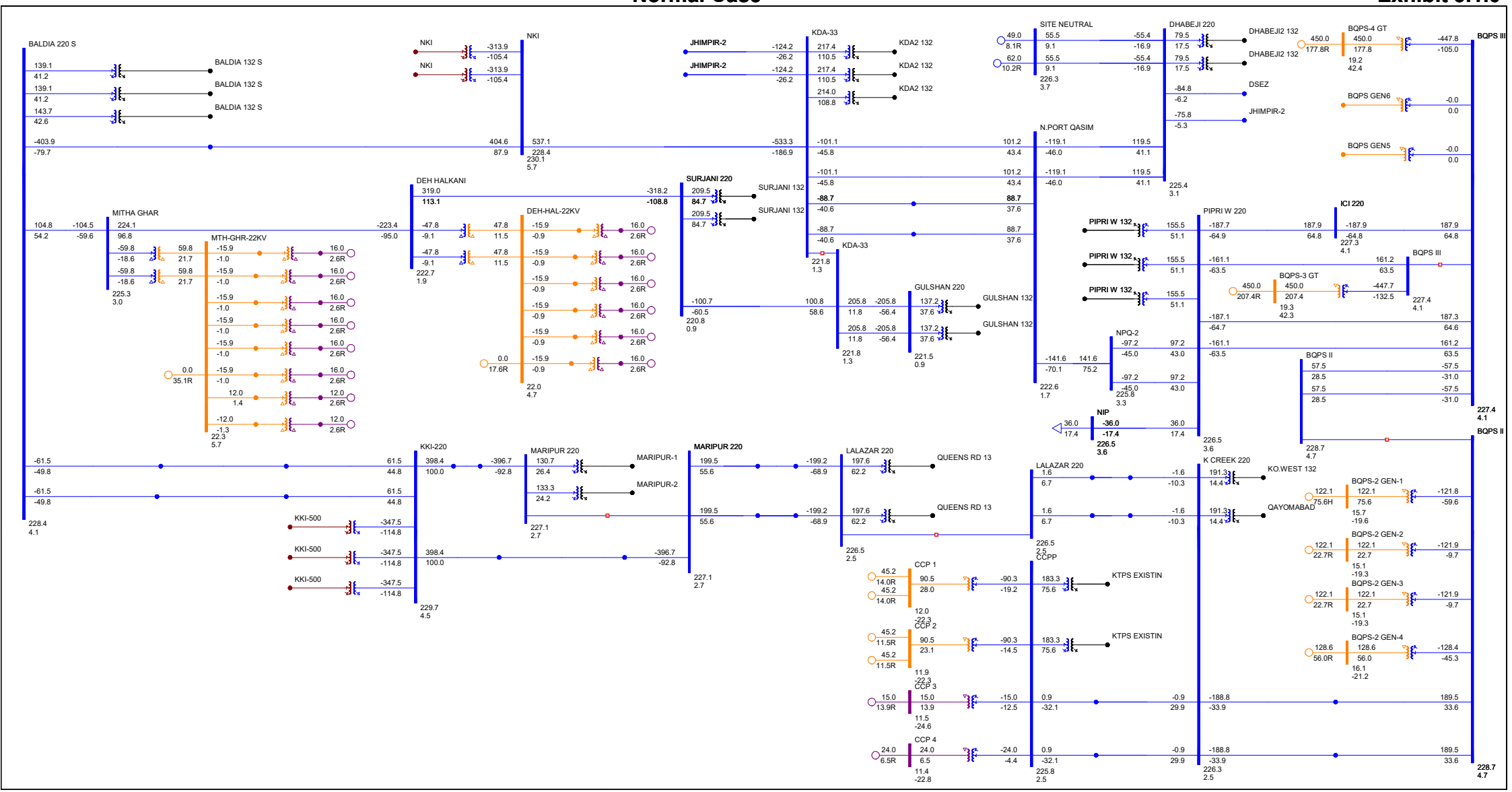
Plotted Results of Load Flow Analysis for Peak Load Case Summer 2027

Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Peak Load Case Year 2027 - (Maximum Solar - Average Wind - With RPC)

Normal Case

Exhibit 3.1.0

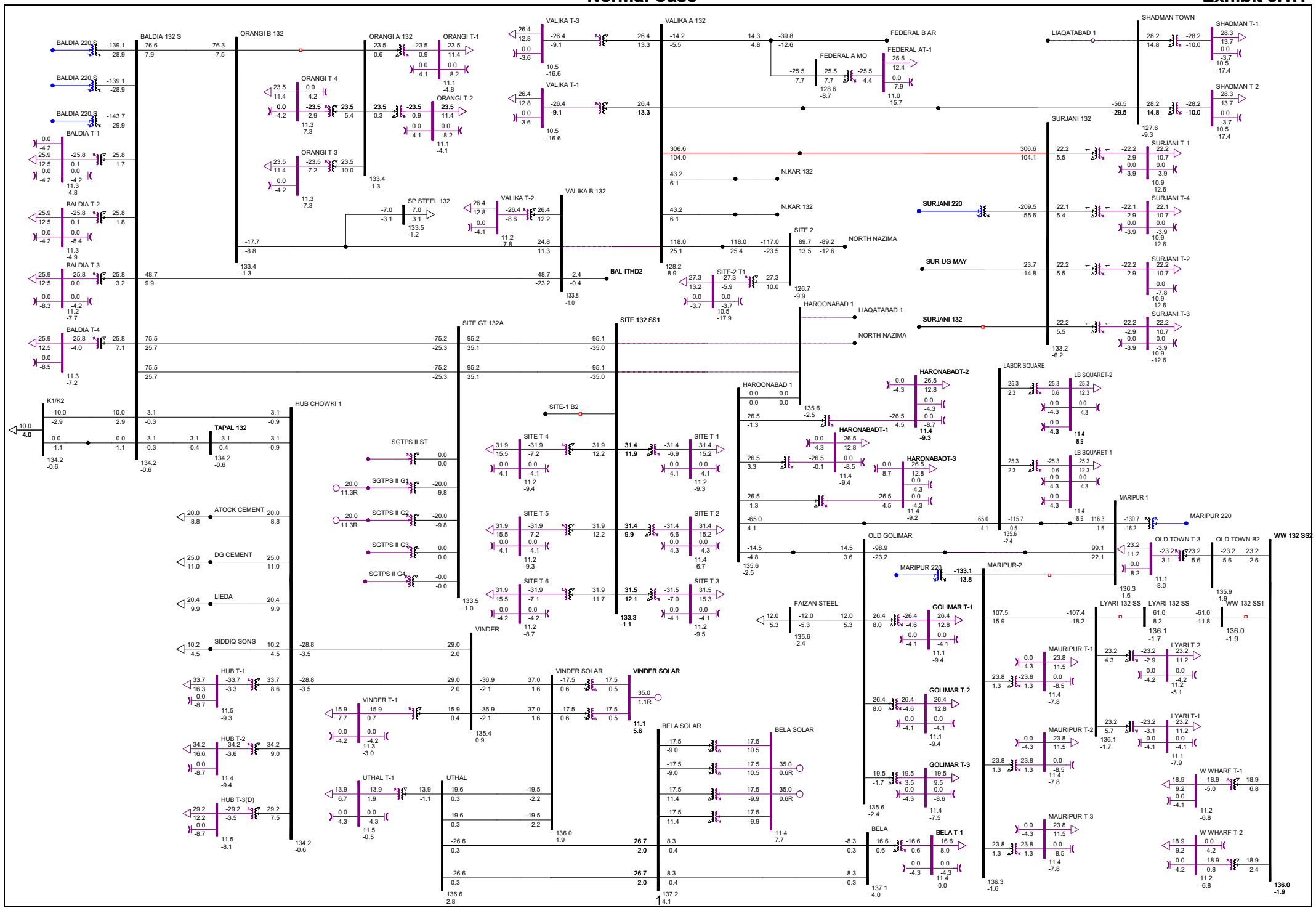


Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Peak Load CaseYear 2027 - (Maximum Solar - Average Wind - With RPC)

Normal Case

Exhibit 3.1.1



Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
DADU 500.00	MORO 500.00	1	DADU 500.00	JAMSHORO 500.00	2	471.92	817.65	2000	40.88
DADU 500.00	JAMSHORO 500.00	2	DADU 500.00	MATIARI-CS 500.00	1	816.06	1119.72	1300	86.13
DADU 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	583.37	1011.42	1200	84.28
DADU 500.00	DADU 220.00	1	DADU 500.00	DADU 220.00	2	50.93	75.16	450	16.06
DADU 500.00	DADU 220.00	2	DADU 500.00	DADU 220.00	1	50.93	75.16	450	16.06
DADU 500.00	DADU 220.00	3	DADU 500.00	DADU 220.00	1	50.93	75.16	450	16.06
MORO 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	483.86	816.51	1300	62.81
JAMSHORO 500.00	K-2/K-3 500.00	1	K-2/K-3 500.00	NKI 500.00	1	338.11	714.17	1900	37.59
JAMSHORO 500.00	HUB 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	623.24	1228.75	1300	94.52
JAMSHORO 500.00	NKI 500.00	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	258.27	541.29	1300	41.64
JAMSHORO 500.00	HUBCO-CFPP 500.00	1	HUB 500.00	HUBCO-CFPP 500.00	2	600.24	1237.05	1300	95.16
JAMSHORO 500.00	MATIARI-CS 500.00	1	JAMSHORO 500.00	MATIARI-CS 500.00	3	500.02	845.47	2000	42.27
JAMSHORO 500.00	MATIARI-CS 500.00	3	DADU 500.00	JAMSHORO 500.00	2	499.19	849.51	2793	30.42
JAMSHORO 500.00	JAMSHORO 220.00	1	JAMSHORO 500.00	JAMSHORO 220.00	2	210.09	282.64	450	60.86
JAMSHORO 500.00	JAMSHORO 220.00	2	JAMSHORO 500.00	JAMSHORO 220.00	1	210.09	282.64	450	60.86
JAMSHORO 500.00	JAMSHORO 220.00	3	JAMSHORO 500.00	JAMSHORO 220.00	1	210.09	282.64	450	60.86
ENGRO CFPP 500.00	THL NVA CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	92.4	936.93	2793	33.55
ENGRO CFPP 500.00	TEL CFPP 500.00	1	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	508.69	1234.83	2793	44.21
SECL CFPP 500.00	MATIARI-CS 500.00	1	SECL CFPP 500.00	MATIARI-CS 500.00	2	684.67	937.9	1600	58.62
SECL CFPP 500.00	MATIARI-CS 500.00	2	SECL CFPP 500.00	MATIARI-CS 500.00	1	684.67	937.9	1600	58.62
SECL CFPP 500.00	MATIARI-CS 500.00	3	SECL CFPP 500.00	MATIARI-CS 500.00	1	682.45	934.89	1600	58.43
SECL CFPP 500.00	TEL CFPP 500.00	2	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	808.96	1534.09	2793	54.93
PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	PRT QSM CFPP500.00	KKI-500 500.00	1	407.78	1251.83	2793	44.82
PRT QSM CFPP500.00	KKI-500 500.00	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	880.08	1839.93	2700	68.15
K-2/K-3 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	1206.65	1393.47	2793	49.89
K-2/K-3 500.00	MATIARI-CS 500.00	1	K-2/K-3 500.00	NKI 500.00	1	409.6	708.83	1400	50.63
K-2/K-3 500.00	KKI-500 500.00	1	PRT QSM CFPP500.00	KKI-500 500.00	1	356.49	880.51	2793	31.53
HUB 500.00	HUBCO-CFPP 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	622.04	1245.74	2793	44.6
NKI 500.00	NKI 220.00	1	NKI 500.00	NKI 220.00	2	338.44	461.86	600	75.42
NKI 500.00	NKI 220.00	2	NKI 500.00	NKI 220.00	1	338.44	461.86	600	75.42
NKI 500.00	NKI 220.00	3	NKI 500.00	NKI 220.00	1	338.44	461.86	600	75.42
MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	PRT QSM CFPP500.00	KKI-500 500.00	1	967.58	1831.45	1900	96.39
MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	696.35	1524.29	1600	95.27
THL NVA CFPP500.00	SIDQSNS-CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	394.24	1242.92	2793	44.5
DADU 220.0	DADU NEW 132.0	1	BQPS III 220.00	BQPS-3 GT 18.500	1	42.15	50.1	160	29.37
DADU 220.0	DADU NEW 132.0	2	BQPS III 220.00	BQPS-3 GT 18.500	1	42.15	50.1	160	29.37
DADU 220.0	DADU NEW 132.0	3	BQPS III 220.00	BQPS-3 GT 18.500	1	67.44	80.16	250	30.08
JAMSHORO 220.0	JHIMPIR-2 220.0	2	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	72.2	109.84	550	19.97
JAMSHORO 220.0	JHIMPIR-2 220.0	3	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	72.2	109.84	550	19.97
JAMSHORO 220.0	HALA RD. 220.0	1	JAMSHORO 220.00	HALA RD. 220.00	2	165.94	256.07	307	83.41
JAMSHORO 220.0	HALA RD. 220.0	2	JAMSHORO 220.00	HALA RD. 220.00	1	165.94	256.07	307	83.41
JAMSHORO 220.0	MIRPRKHS 220.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	105.19	158.2	674	23.47
JAMSHORO 220.0	TM.KH.RD 220.0	1	JAMSHORO 220.00	HALA RD. 220.00	1	68.27	108.21	600	18.03
JAMSHORO 220.0	JAMSHORO NEW132.0	1	JAMSHORO 220.00	JAMSHORO NEW132.00	2	87.06	103.01	160	63.66
JAMSHORO 220.0	JAMSHORO NEW132.0	2	JAMSHORO 220.00	JAMSHORO NEW132.00	1	87.06	103.01	160	63.66
JAMSHORO 220.0	JAMSHORO NEW132.0	3	JAMSHORO 220.00	JAMSHORO NEW132.00	1	87.06	103.01	160	63.66
JHIMPIR-2 220.0	KDA-33 220.0	1	KDA-33 220.00	NKI 220.00	E1	126.93	184.27	674	27.34
JHIMPIR-2 220.0	KDA-33 220.0	2	KDA-33 220.00	NKI 220.00	E1	126.93	184.27	674	27.34
JHIMPIR-2 220.0	JHIMPIR-2 132.0	1	KDA-33 220.00	NKI 220.00	E1	97.9	97.77	250	38.96
JHIMPIR-2 220.0	JHIMPIR-2 132.0	2	KDA-33 220.00	NKI 220.00	E1	97.9	97.77	250	38.96
JHIMPIR-2 220.0	JHIMPIR-2 132.0	3	KDA-33 220.00	NKI 220.00	E1	97.9	97.77	250	38.96
JHIMPIR-2 220.0	JHIMPIR-2 132.0	4	KDA-33 220.00	NKI 220.00	E1	97.9	97.77	250	38.96
JHIMPIR-2 220.0	JHIMPIR-1 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	75	123	674	18.25
JHIMPIR-2 220.0	DHABEJI 220 220.0	1	BQPS III 220.00	BQPS-4 GT 18.500	1	76.52	123.26	674	18.29
HALA RD. 220.0	MIRPRKHS 220.0	1	JAMSHORO 220.00	MIRPRKHS 220.00	1	95.9	161.38	674	23.94
HALA RD. 220.0	TM.KH.RD 220.0	2	JAMSHORO 220.00	HALA RD. 220.00	1	126.11	181.16	674	26.88
HALA RD. 220.0	HALA ROAD 132.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	126	134.68	250	53.83
HALA RD. 220.0	HALA ROAD-1 132.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	118.59	127.24	250	50.85
HALA RD. 220.0	HALA ROAD-1 132.0	2	HALA RD. 220.00	MIRPRKHS 220.00	1	118.59	127.24	250	50.85
MIRPRKHS 220.0	M.KHS.NW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	100.5	106.11	250	43.06
MIRPRKHS 220.0	M.KHS.NW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	100.5	106.11	250	43.06
TM.KH.RD 220.0	HYD-TMK-2 132.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	100.2	117.36	250	46.42
TM.KH.RD 220.0	HYD-TMRD 132.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	99.58	112.61	250	44.54
TM.KH.RD 220.0	JHIMPIR-1 220.0	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	126.82	152.35	674	22.6
TM.KH.RD 220.0	JHIMPIR-1 220.0	2	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	126.82	152.35	674	22.6
KDA-33 220.0	NKI 220.0	E1	BALDIA 220 S220.00	NKIBAL PLDP1220.00	E1	583.67	775.66	953	81.39
KDA-33 220.0	N.PORT QASIM220.0	E1	KDA-33 220.00	NKI 220.00	E1	111	177.43	921.8	19.25
KDA-33 220.0	N.PORT QASIM220.0	E2	KDA-33 220.00	NKI 220.00	E1	111	177.43	921.76	19.25

Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
KDA-33 220.0	BTK-220 220.0	1	KDA-33 220.00	NKI 220.00	E1	97.56	155.37	1350	11.51
KDA-33 220.0	DHACK-220 220.0	N1	KDA-33 220.00	NKI 220.00	E1	97.56	155.37	1350	11.51
KDA-33 220.0	KDA2 132 132.0	1	KDA-33 220.00	KDA2 132 132.00	2	243.92	327.53	250	130.24
KDA-33 220.0	KDA2 132 132.0	2	KDA-33 220.00	KDA2 132 132.00	1	243.92	327.53	250	130.24
KDA-33 220.0	KDA2 132 132.0	3	KDA-33 220.00	KDA2 132 132.00	1	240.05	322.33	250	128.18
NKI 220.0	NKIBAL PLDP1220.0	E1	KDA-33 220.00	NKI 220.00	E1	414.05	781.79	952.6	82.07
JAMSHORO NEW132.	LAKHRA 132.	1	DADU 500.00	JAMSHORO 500.00	2	16.79	26.81	202	13.27
JAMSHORO NEW132.	LAKHRA 132.	2	DADU 500.00	JAMSHORO 500.00	2	16.79	26.81	202	13.27
JAMSHORO NEW132.	QASIMABAD 132.	1	JAMSHORO 220.00	HALA RD. 220.00	1	44.03	48.7	202	24.11
JAMSHORO NEW132.	RAJPUTANA 132.	1	JAMSHORO 220.00	HALA RD. 220.00	1	37.19	45.35	202	22.45
JAMSHORO NEW132.	JAMSRO OLD 132.	1	BQPS III 220.00	BQPS-4 GT 18.500	1	51.52	53.78	202	26.62
JAMSHORO NEW132.	JAMSRO OLD 132.	2	BQPS III 220.00	BQPS-4 GT 18.500	1	51.52	53.78	202	26.62
JAMSHORO NEW132.	JAMSRO OLD 132.	3	BQPS III 220.00	BQPS-4 GT 18.500	1	51.52	53.78	202	26.62
BALDIA 220 S220	MITHA GHAR 220	1	KDA-33 220.00	NKI 220.00	E1	120.26	312.85	967	32.35
BALDIA 220 S220	BALDIA 132 S132	1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	145.13	205.06	250	79.07
BALDIA 220 S220	BALDIA 132 S132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	1	149.89	209.07	250	80.61
BALDIA 220 S220	BALDIA 132 S132	3	BALDIA 220 S220.00	BALDIA 132 S132.00	2	145.13	205.06	250	79.07
BALDIA 220 S220	NKIBAL PLDP1220	E1	KDA-33 220.00	NKI 220.00	E1	411.68	762.22	1348.2	56.54
BALDIA 220 S220	BAL_KKI_UG3 220	E1	K-2/K-3 500.00	NKI 500.00	1	79.12	262.22	476.3	55.05
BALDIA 220 S220	BAL_KKI_UG4 220	E2	K-2/K-3 500.00	NKI 500.00	1	79.12	262.22	476.3	55.05
MARIPUR 220 220	MARIPUR-2 132	1	MARIPUR 220 220.00	MARIPUR-1 132.00	11	135.53	205.3	250	79.64
MARIPUR 220 220	MARIPUR-1 132	11	MARIPUR 220 220.00	MARIPUR-2 132.00	1	133.35	203.56	250	78.96
MARIPUR 220 220	MARIPUR-1 132	12	MARIPUR 220 220.00	MARIPUR-2 132.00	1	132.62	202.6	250	78.59
MARIPUR 220 220	MAR-BAL-KKI2220	R1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	R2	407.44	742.38	952	77.98
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	207.31	438.1	495.37	88.44
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	207.31	438.1	495.37	88.44
MARIPUR 220 220	MAR-BAL-KKI 220	R2	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	R1	407.44	742.38	952	77.98
LALAZAR 220 220	MAR-LALPLDP1220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	210.75	436.11	495.37	88.04
LALAZAR 220 220	MAR-LALPLDP2220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	210.75	436.11	495.37	88.04
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	207.12	287.6	250	111.81
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	207.12	287.6	250	111.81
LALAZAR 220 220	LALAZAR-UG1 220	E1	BQPS III 220.00	BQPS-4 GT 18.500	1	7.58	99.08	514.4	19.26
LALAZAR 220 220	LALAZAR-UG2 220	E2	BQPS III 220.00	BQPS-4 GT 18.500	1	7.58	99.08	514.4	19.26
LALAZAR-UG1 220	KCR_UG1 220	1	BQPS III 220.00	BQPS-4 GT 18.500	1	8.96	96.69	483.6	19.99
SURJANI 220 220	KDA-33 220	E1	SURJANI 220 220.00	DEH HALKANI 220.00	1	117.54	424.54	904	46.96
SURJANI 220 220	DEH HALKANI 220	1	KDA-33 220.00	NKI 220.00	E1	338.5	521.49	967	53.93
SURJANI 220 220	SURJANI 132 132	1	SURJANI 220 220.00	SURJANI 132 132.00	2	225.96	326.58	250	130.3
SURJANI 220 220	SURJANI 132 132	2	SURJANI 220 220.00	SURJANI 132 132.00	1	225.96	326.58	250	130.3
LALAZAR-UG2 220	KCR_UG2 220	1	BQPS III 220.00	BQPS-4 GT 18.500	1	8.96	96.69	483.6	19.99
K CREEK 220 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	191.85	282.59	419.16	67.42
K CREEK 220 220	CCP-KCR-2 220	1	KDA-33 220.00	NKI 220.00	E1	31.03	65.5	270.6	24.21
K CREEK 220 220	CCP-KCR-1 220	1	KDA-33 220.00	NKI 220.00	E1	31.03	65.5	270.5	24.21
K CREEK 220 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	191.85	282.59	419.2	67.41
K CREEK 220 220	QAYOMABAD 132	2	K CREEK 220 220.00	KO.WEST 132 132.00	2	191.83	243.2	250	94.65
K CREEK 220 220	KO.WEST 132 132	2	K CREEK 220 220.00	QAYOMABAD 132.00	2	191.83	243.2	250	94.65
K CREEK 220 220	KCR_UG1 220	E1	BQPS III 220.00	BQPS-4 GT 18.500	1	10.44	98.8	514.4	19.21
K CREEK 220 220	KCR_UG2 220	E2	BQPS III 220.00	BQPS-4 GT 18.500	1	10.44	98.8	514.4	19.21
BQPS II 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	192.43	287.3	419.2	68.53
BQPS II 220	BQPS-2 GEN-415.	1	BASE CASE		SE	140.24	140.24	250	54.99
BQPS II 220	BQPS-2 GEN-115.	1	BASE CASE		SE	143.65	143.65	170	80.58
BQPS II 220	BQPS-2 GEN-315.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	124.23	149.47	170	83.83
BQPS II 220	BQPS-2 GEN-215.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	124.23	149.47	170	83.83
BQPS II 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	192.43	287.3	419.2	68.53
PIPRI W 220 220	BQPS III 220	E1	PIPRI W 220 220.00	ICI 220 220.00	E4	173.28	236.31	457	51.71
PIPRI W 220 220	BQPS III 220	E3	PIPRI W 220 220.00	ICI 220 220.00	E4	198.15	270.21	457	59.13
PIPRI W 220 220	NPQ-2 220	E1	KDA-33 220.00	NKI 220.00	E1	107.09	209.91	921.8	22.77
PIPRI W 220 220	NPQ-2 220	E2	KDA-33 220.00	NKI 220.00	E1	107.09	209.91	921.8	22.77
PIPRI W 220 220	BQPS III 220	E2	PIPRI W 220 220.00	ICI 220 220.00	E4	173.28	236.3	457	51.71
PIPRI W 220 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	198.78	270.69	457	59.23
PIPRI W 220 220	PIPRI W 132 132	1	PIPRI W 220 220.00	PIPRI W 132 132.00	2	163.7	215.31	250	83.67
PIPRI W 220 220	PIPRI W 132 132	2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	163.7	215.31	250	83.67
PIPRI W 220 220	PIPRI W 132 132	3	PIPRI W 220 220.00	PIPRI W 132 132.00	1	163.7	215.31	250	83.67
BQPS III 220	BQPS GEN6 18.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	0	0	250	0
BQPS III 220	BQPS GEN5 18.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	0	0	250	0
BQPS III 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	198.78	271.28	457.26	59.33
BQPS III 220	BQPS II 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	65.34	118.9	609.7	19.5
BQPS III 220	BQPS II 220	2	BQPS III 220.00	BQPS-3 GT 18.500	1	65.34	118.9	609.7	19.5
BQPS III 220	BQPS-4 GT 18.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	483.84	489.68	600	78.82

Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
BQPS III 220	LANDHI220 220	N1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	157.9	192.69	967	19.93
BQPS III 220	LANDHI220 220	N2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	157.9	192.69	967	19.93
N.PORT QASIM220	BTK-220 220	1	KDA-33 220.00	NKI 220.00	E1	97.42	155.84	1530	10.19
N.PORT QASIM220	DHACK-220 220	N1	KDA-33 220.00	NKI 220.00	E1	97.42	155.84	1530	10.19
N.PORT QASIM220	DHABEJI 220 220	N1	KDA-33 220.00	NKI 220.00	E1	127.67	205.1	967	21.21
N.PORT QASIM220	DHABEJI 220 220	N2	KDA-33 220.00	NKI 220.00	E1	127.67	205.1	967	21.21
KDA-33 220	GULSHAN 220 220	E1	KDA-33 220.00	GULSHAN 220 220.00	E2	213.34	428.36	514	83.34
KDA-33 220	GULSHAN 220 220	E2	KDA-33 220.00	GULSHAN 220 220.00	E1	213.34	428.36	514	83.34
GULSHAN 220 220	GULSHAN 132 132	1	GULSHAN 220 220.00	GULSHAN 132 132.00	2	142.23	216.87	250	86.32
GULSHAN 220 220	GULSHAN 132 132	2	GULSHAN 220 220.00	GULSHAN 132 132.00	1	142.23	216.87	250	86.32
GULSHAN 220 220	GULSHAN 132 132	3	GULSHAN 220 220.00	GULSHAN 132 132.00	1	142.23	216.87	250	86.32
DEH HALKANI 220	MITHA GHAR 220	1	KDA-33 220.00	NKI 220.00	E1	244.09	429.55	967	44.42
DEH HALKANI 220	DEH-HAL-22KV22.	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	2	49.19	96.19	120	80.31
DEH HALKANI 220	DEH-HAL-22KV22.	2	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	49.19	96.19	120	80.31
MAR-LALPLDP1220	LZAR-MP-PLDP220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	207.31	413.35	476.3	86.78
MAR-LALPLDP2220	LZAR-MP-PLDP220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	207.31	413.35	476.4	86.77
NPQ-2 220	DHAB-NPQ2 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	30.3	82.84	1524.2	5.43
NPQ-2 220	DHAB-NPQ 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	30.3	82.84	1524.2	5.43
CCPP 220	CCPP/LAN UG1220	N1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	76.56	112.96	957	11.8
CCPP 220	CCPP/LAN UG2220	N2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	76.56	112.96	957	11.8
CCPP 220	CCP-KCR-2 220	E2	CCPP 220.00	KTPS EXISTIN132.00	1	32.13	68.55	349	19.64
CCPP 220	CCP-KCR-1 220	E1	CCPP 220.00	KTPS EXISTIN132.00	1	32.13	68.55	349	19.64
CCPP 220	KTPS EXISTIN132	1	CCPP 220.00	KTPS EXISTIN132.00	2	198.27	265.67	250	103.52
CCPP 220	KTPS EXISTIN132	2	CCPP 220.00	KTPS EXISTIN132.00	1	198.27	265.67	250	103.52
BQPS III 220	BQPS-3 GT 18.	1	BQPS III 220.00	BQPS-4 GT 18.500	1	495.5	501.29	600	79.99
MITHA GHAR 220	MTH-GHR-22KV22.	3	MITHA GHAR 220.00	MTH-GHR-22KV22.000	4	63.64	122.61	150	80.53
MITHA GHAR 220	MTH-GHR-22KV22.	4	MITHA GHAR 220.00	MTH-GHR-22KV22.000	3	63.64	122.61	150	80.53
22	0.4	1	BASE CASE		SE	16.21	16.21	20	80
22	0.4	1	BASE CASE		SE	16.21	16.21	20	80
22	0.4	1	BASE CASE		SE	16.21	16.21	20	80
22	0.4	1	BASE CASE		SE	16.21	16.21	20	80
22	0.4	1	BASE CASE		SE	16.21	16.21	20	80
22	0.4	1	BASE CASE		SE	16.21	16.21	20	80
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.21	16.25	20	78.79
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.21	16.25	20	78.79
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.21	16.25	20	78.79
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.21	16.25	20	78.79
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.21	16.25	20	78.79
KKI-500 500	KKI-220 220	1	K-2/K-3 500.00	NKI 500.00	1	379.55	538.22	600	90.06
KKI-500 500	KKI-220 220	2	K-2/K-3 500.00	NKI 500.00	1	379.55	538.22	600	90.06
KKI-500 500	KKI-220 220	3	K-2/K-3 500.00	NKI 500.00	1	379.55	538.22	600	90.06
KKI-220 220	KKI-132 132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	2	134.22	169.5	250	64.98
KKI-220 220	MAR-KKI_UG 220	1	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	R1	411.2	774.68	957.2	80.93
KKI-220 220	MAR-KKI-UG2 220	1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	R2	411.2	774.68	957.2	80.93
KKI-220 220	BAL-KKI-UG 220	1	K-2/K-3 500.00	NKI 500.00	1	77.31	264.62	957.2	27.65
KKI-220 220	BAL_KKI_UG2 220	1	K-2/K-3 500.00	NKI 500.00	1	77.31	264.62	957.2	27.65
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.21	16.25	20	78.79
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	12.28	12.31	15	79.21
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	12.28	12.31	15	79.21
KDA2 132 132	GADAP 132	N1	KDA-33 220.00	KDA2 132 132.00	1	29.4	29.47	202	14.59
KDA2 132 132	GULSHAN 132 132	R1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96.03	96.07	280	34.31
KDA2 132 132	JOHAR 132 132	R1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	172.9	172.99	280	61.78
KDA2 132 132	MEMON GOTH 132	R1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	89.08	89.13	280	31.83
KDA2 132 132	SNPC 132	1	KDA-33 220.00	KDA2 132 132.00	1	47.35	47.71	202	23.62
MARIPUR-2 132	LYARI 132 SS132	E1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	108.92	109.11	171	63.8
QUEENS RD 13132	ELANDER 132 132	E1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	39.11	39.17	160	24.48
QUEENS RD 13132	ELANDER 132 132	E2	BALDIA 220 S220.00	MITHA GHAR 220.00	1	39.11	39.17	160	24.48
SURJANI 132 132	SUR-VALIKA 132	R1	KDA-33 220.00	KDA2 132 132.00	1	323.82	335.56	262	128.08
SURJANI 132 132	SUR-UG-MAY 132	E1	KDA-33 220.00	KDA2 132 132.00	1	27.97	81.68	160	51.05
PIPRI W 132 132	AISHA STEEL 132	1	N.PORT QASIM220.00	NPQ-2 220.00	1	5.46	5.48	112	4.89
PIPRI W 132 132	PIPRI E 132 132	E1	N.PORT QASIM220.00	NPQ-2 220.00	1	24.51	24.61	230.2	10.69
KTPS EXISTIN132	PRL-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	121.92	148.37	160	92.73
KTPS EXISTIN132	QAYMBD-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	97.95	133.43	137.2	97.25
QAYOMABAD 132	KO.WEST 132 132	2	BALDIA 220 S220.00	MITHA GHAR 220.00	1	0.37	0.37	280	0.13
QAYOMABAD 132	QY-KE-KCNUG1132	E1	CCPP 220.00	KTPS EXISTIN132.00	1	58.7	67.77	251.5	26.95
QAYOMABAD 132	QY-KS-KCNUG2132	E2	CCPP 220.00	KTPS EXISTIN132.00	1	58.2	67.2	171.47	39.19
KO.WEST 132 132	PRL 132 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	53.27	79.32	130.09	60.98
KO.WEST 132 132	DEFNCE-K-WST132	E1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	101.41	141.96	160	88.73

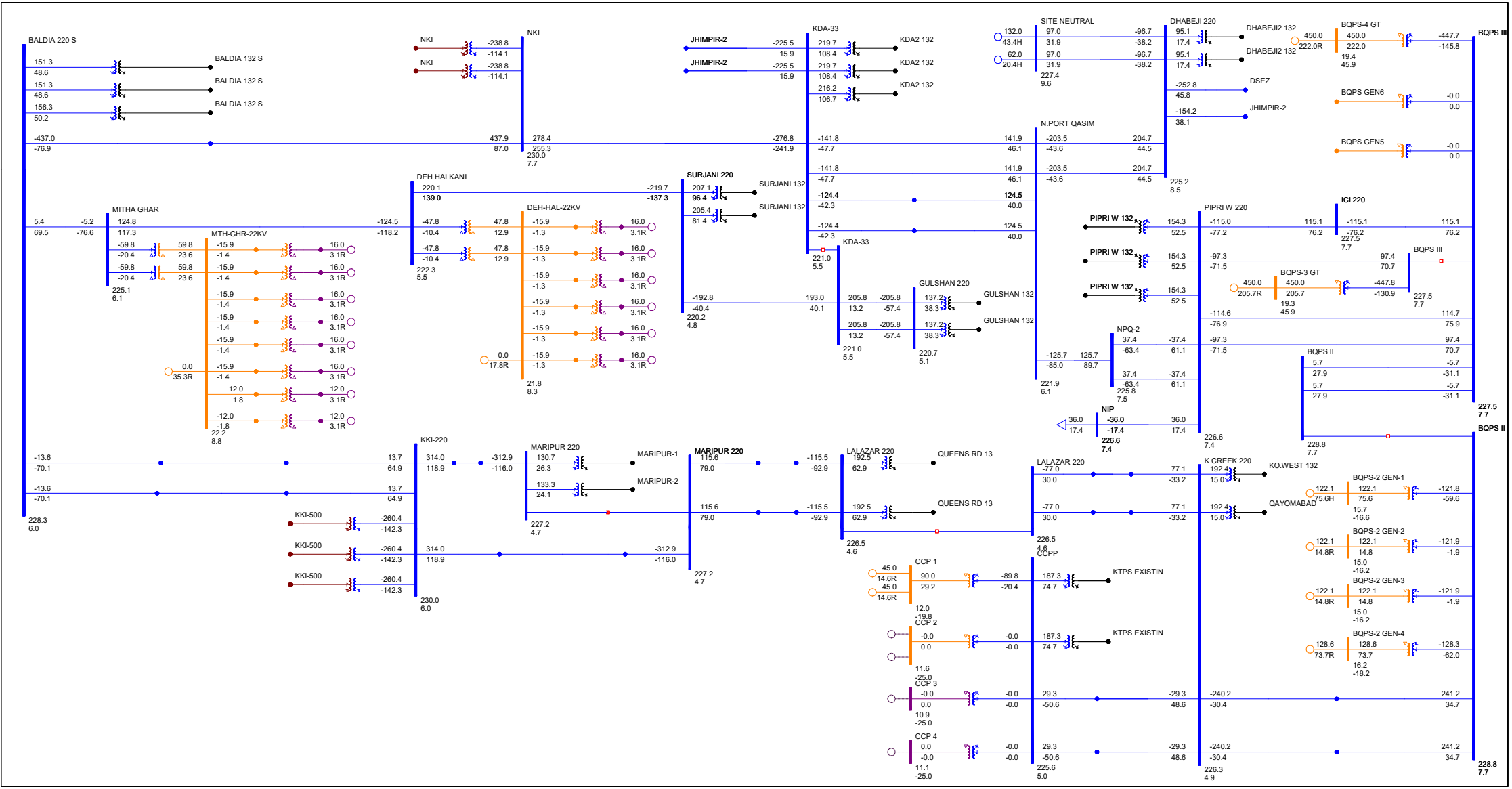
Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
QUEENS RD 13132	OLD TOWN 132132	E1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	47.57	47.65	114	41.8
QUEENS RD 13132	Q.RD-CLIFTON132	R1	K CREEK 220 220.00	QAYOMABAD 132.00	2	99.85	121.68	160	76.05
QUEENS RD 13132	Q.RD-GIZRI 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	106.35	148.48	251.49	59.04
GULSHAN 132 132	AZIZABAD 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	88.16	88.55	171.5	51.63
GULSHAN 132 132	JAIL ROAD SS132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	43.12	43.31	171	25.33
GULSHAN 132 132	AGHA KHAN 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	67.65	67.97	171	39.75
GULSHAN 132 132	CIVIC 132 A 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	97.8	98.26	160	61.42
GULSHAN 132 132	JAIL ROAD SS132	E2	SURJANI 220 220.00	KDA-33 220.00	E1	43.12	43.31	171	25.33
MARIPUR-1 132	MAR-LAB PL1 132	E1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	116.3	116.64	240.1	48.58
MARIPUR-1 132	MAR-GOL PL2 132	E1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	101.76	102.02	240.1	42.49
BALDIA 132 S132	HUB CHOWKI 1132	1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	3.24	20.77	183	11.35
BALDIA 132 S132	VALIKA B 132132	E2	KDA-33 220.00	NKI 220.00	E1	53.93	54.25	262.2	20.69
BALDIA 132 S132	SITE GT 132A132	R1	KDA-33 220.00	NKI 220.00	E1	79.71	80.78	280	28.85
BALDIA 132 S132	SITE GT 132A132	R2	KDA-33 220.00	NKI 220.00	E1	79.71	80.78	280	28.85
BALDIA 132 S132	KANUPP 132 132	E1	KDA-33 220.00	NKI 220.00	E1	1.08	1.09	117.3	0.93
BALDIA 132 S132	ORANGI B 132132	R1	KDA-33 220.00	NKI 220.00	E1	77.04	77.49	280	27.67
BALDIA 132 S132	TAPAL 132 132	E1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	3.09	20.47	228.6	8.96
BALDIA 132 S132	BAL-ITHD 132	1	KDA-33 220.00	NKI 220.00	E1	38.67	38.93	130.1	29.92
DHABEJI 220 220	THERMAL-PP 220	1	N.PORT QASIM220.00	DHABEJI 220 220.00	N1	4.41	4.41	1524.2	0.29
DHABEJI 220 220	THERMAL-PP 220	2	N.PORT QASIM220.00	DHABEJI 220 220.00	N1	4.41	4.41	1524.2	0.29
DHABEJI 220 220	DSEZ 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	85	133.65	674	19.83
DHABEJI 220 220	DHAB-NPQ2 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	31.51	83.46	957.2	8.72
DHABEJI 220 220	DHAB-NPQ 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	31.51	83.46	957.2	8.72
DHABEJI 220 220	SITE NEUTRAL220	1	DHABEJI 220 220.00	SITE NEUTRAL220.00	2	57.93	112.9	967	11.68
DHABEJI 220 220	SITE NEUTRAL220	2	DHABEJI 220 220.00	SITE NEUTRAL220.00	1	57.93	112.9	967	11.68
DHABEJI 220 220	WIND PROJ 220	1	DHABEJI 220 220.00	WIND PROJ 220.00	2	39.62	80.79	967	8.35
DHABEJI 220 220	WIND PROJ 220	2	DHABEJI 220 220.00	WIND PROJ 220.00	1	39.62	80.79	967	8.35
DHABEJI 220 220	DHABEJI2 132132	1	DHABEJI 220 220.00	DHABEJI2 132132.00	2	81.4	131.64	250	51.39
DHABEJI 220 220	DHABEJI2 132132	2	DHABEJI 220 220.00	DHABEJI2 132132.00	1	81.4	131.64	250	51.39
DSEZ 220	GHARO-NEW 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	117.8	166.56	674	24.71
DSEZ 220	DSEZ 132 132	1	DHABEJI 220 220.00	DSEZ 220.00	1	16.78	17.02	160	10.29
DSEZ 220	DSEZ 132 132	2	DHABEJI 220 220.00	DSEZ 220.00	1	16.78	17.02	160	10.29
MAR-BAL-KKI222	MAR-KKI-UG2 22	R1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	R2	411.2	770.22	967	79.65
MAR-BAL-KKI 22	MAR-KKI_UG 22	R2	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	R1	411.2	770.22	967	79.65
BAL-KKI-UG 22	BAL_KKI_UG4 22	1	K-2/K-3 500.00	NKI 500.00	1	78.05	264.81	967	27.38
BAL_KKI_UG2 22	BAL_KKI_UG3 22	1	K-2/K-3 500.00	NKI 500.00	1	78.05	264.81	967	27.38
DHABEJI2 13213	DHABEJI 132 13	N1	PIPRI W 220 220.00	PIPRI W 132 132.00	1	76.09	91.37	365	25.03
DHABEJI2 13213	DHABEJI 132 13	N2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	76.09	91.37	365	25.03

Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Peak Load Case Year 2027 - (Maximum Solar - Maximum Wind - With RPC)

Normal Case

Exhibit 3.2.0

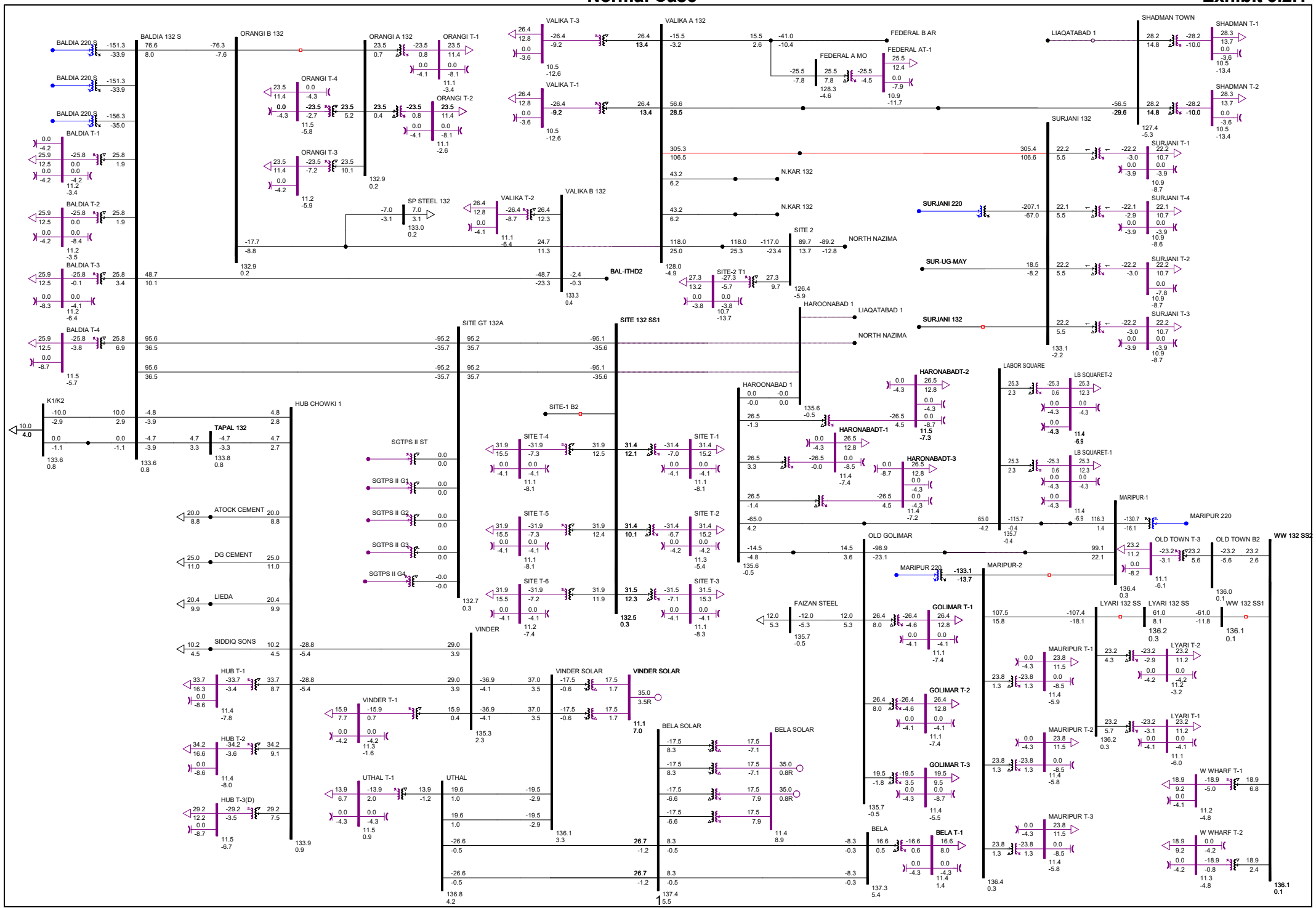


Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Peak Load CaseYear 2027 - (Maximum Solar - Maximum Wind - With RPC)

Normal Case

Exhibit 3.2.1



Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
DADU 500.00	MORO 500.00	1	DADU 500.00	JAMSHORO 500.00	2	482.71	876.77	2000	43.84
DADU 500.00	JAMSHORO 500.00	2	DADU 500.00	MATIARI-CS 500.00	1	928.65	1240.07	1300	95.39
DADU 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	597.69	1085.42	1200	90.45
DADU 500.00	DADU 220.00	1	DADU 500.00	DADU 220.00	2	41.31	60.4	450	12.91
DADU 500.00	DADU 220.00	2	DADU 500.00	DADU 220.00	1	41.31	60.4	450	12.91
DADU 500.00	DADU 220.00	3	DADU 500.00	DADU 220.00	1	41.31	60.4	450	12.91
MORO 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	493.82	874.36	1300	67.26
JAMSHORO 500.00	K-2/K-3 500.00	1	K-2/K-3 500.00	NKI 500.00	1	337.81	652.65	1900	34.35
JAMSHORO 500.00	HUB 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	624.71	1228.75	1300	94.52
JAMSHORO 500.00	NKI 500.00	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	289.59	495.31	1300	38.1
JAMSHORO 500.00	HUBCO-CFPP 500.00	1	HUB 500.00	HUBCO-CFPP 500.00	2	601.35	1237.96	1300	95.23
JAMSHORO 500.00	MATIARI-CS 500.00	1	JAMSHORO 500.00	MATIARI-CS 500.00	3	773	1313.02	2000	65.65
JAMSHORO 500.00	MATIARI-CS 500.00	3	JAMSHORO 500.00	MATIARI-CS 500.00	1	780.18	1317.97	2793	47.19
JAMSHORO 500.00	JAMSHORO 220.00	1	JAMSHORO 500.00	JAMSHORO 220.00	2	111.99	141.77	450	30.53
JAMSHORO 500.00	JAMSHORO 220.00	2	JAMSHORO 500.00	JAMSHORO 220.00	1	111.99	141.77	450	30.53
JAMSHORO 500.00	JAMSHORO 220.00	3	JAMSHORO 500.00	JAMSHORO 220.00	1	111.99	141.77	450	30.53
ENGRO CFPP 500.00	THL NVA CFPP500.00	1	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	7.66	630.54	2793	22.58
ENGRO CFPP 500.00	TEL CFPP 500.00	1	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	275.07	899.99	2793	32.22
SECL CFPP 500.00	MATIARI-CS 500.00	1	SECL CFPP 500.00	MATIARI-CS 500.00	2	606.07	830.84	1600	51.93
SECL CFPP 500.00	MATIARI-CS 500.00	2	SECL CFPP 500.00	MATIARI-CS 500.00	1	606.07	830.84	1600	51.93
SECL CFPP 500.00	MATIARI-CS 500.00	3	SECL CFPP 500.00	MATIARI-CS 500.00	1	604.12	828.19	1600	51.76
SECL CFPP 500.00	TEL CFPP 500.00	2	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	574.96	1199.6	2793	42.95
PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	101.85	643.63	2793	23.04
PRT QSM CFPP500.00	KKI-500 500.00	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	527.27	1197.26	2700	44.34
K-2/K-3 500.00	NKI 500.00	1	K-2/K-3 500.00	KKI-500 500.00	1	1019.23	1248.45	2793	44.7
K-2/K-3 500.00	MATIARI-CS 500.00	1	K-2/K-3 500.00	NKI 500.00	1	469.88	720.39	1400	51.46
K-2/K-3 500.00	KKI-500 500.00	1	K-2/K-3 500.00	NKI 500.00	1	401.31	818.93	2793	29.32
HUB 500.00	HUBCO-CFPP 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	621.42	1246.6	2793	44.63
NKI 500.00	NKI 220.00	1	NKI 500.00	NKI 220.00	2	270.62	368.18	600	60.09
NKI 500.00	NKI 220.00	2	NKI 500.00	NKI 220.00	1	270.62	368.18	600	60.09
NKI 500.00	NKI 220.00	3	NKI 500.00	NKI 220.00	1	270.62	368.18	600	60.09
MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	PRT QSM CFPP500.00	KKI-500 500.00	1	708.04	1164.78	1900	61.3
MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	600.52	1191.52	1600	74.47
THL NVA CFPP500.00	SIDQSNS-CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	296.78	895.89	2793	32.08
DADU 220.0	DADU NEW 132.0	1	BQPS III 220.00	BQPS-4 GT 18.500	1	34.09	38.07	160	22.38
DADU 220.0	DADU NEW 132.0	2	BQPS III 220.00	BQPS-4 GT 18.500	1	34.09	38.07	160	22.38
DADU 220.0	DADU NEW 132.0	3	BQPS III 220.00	BQPS-4 GT 18.500	1	54.54	60.9	250	22.91
JAMSHORO 220.0	JHIMPIR-2 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	3	173.95	228.12	550	41.48
JAMSHORO 220.0	JHIMPIR-2 220.0	3	JAMSHORO 220.00	JHIMPIR-2 220.00	2	173.95	228.12	550	41.48
JAMSHORO 220.0	HALA RD. 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	98.82	181.56	307	59.14
JAMSHORO 220.0	HALA RD. 220.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	98.82	181.56	307	59.14
JAMSHORO 220.0	MIRPRKHS 220.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	92.83	146.71	674	21.77
JAMSHORO 220.0	TM.KH.RD 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	71.66	209.07	600	34.84
JAMSHORO 220.0	JAMSHORO NEW132.0	1	JAMSHORO 220.00	JAMSHORO NEW132.00	2	64.63	76.29	160	47.73
JAMSHORO 220.0	JAMSHORO NEW132.0	2	JAMSHORO 220.00	JAMSHORO NEW132.00	1	64.63	76.29	160	47.73
JAMSHORO 220.0	JAMSHORO NEW132.0	3	JAMSHORO 220.00	JAMSHORO NEW132.00	1	64.63	76.29	160	47.73
JHIMPIR-2 220.0	KDA-33 220.0	1	JHIMPIR-2 220.00	KDA-33 220.00	2	229.26	293.94	674	43.61
JHIMPIR-2 220.0	KDA-33 220.0	2	JHIMPIR-2 220.00	KDA-33 220.00	1	229.26	293.94	674	43.61
JHIMPIR-2 220.0	JHIMPIR-2 132.0	1	PRT QSM CFPP500.00	KKI-500 500.00	1	190.75	190.76	250	77.33
JHIMPIR-2 220.0	JHIMPIR-2 132.0	2	PRT QSM CFPP500.00	KKI-500 500.00	1	190.75	190.76	250	77.33
JHIMPIR-2 220.0	JHIMPIR-2 132.0	3	PRT QSM CFPP500.00	KKI-500 500.00	1	190.75	190.76	250	77.33
JHIMPIR-2 220.0	JHIMPIR-2 132.0	4	PRT QSM CFPP500.00	KKI-500 500.00	1	190.75	190.76	250	77.33
JHIMPIR-2 220.0	JHIMPIR-1 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	202.88	340.28	674	50.49
JHIMPIR-2 220.0	DHABEJI 220 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	161.31	236.1	674	35.03
HALA RD. 220.0	MIRPRKHS 220.0	1	JAMSHORO 220.00	MIRPRKHS 220.00	1	100.54	157.48	674	23.36
HALA RD. 220.0	TM.KH.RD 220.0	2	DHABEJI 220 220.00	DSEZ 220.00	1	267.59	305.26	674	45.29
HALA RD. 220.0	HALA ROAD 132.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	116.43	125.4	250	50.79
HALA RD. 220.0	HALA ROAD-1 132.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	108.07	117.08	250	47.42
HALA RD. 220.0	HALA ROAD-1 132.0	2	HALA RD. 220.00	MIRPRKHS 220.00	1	108.07	117.08	250	47.42
MIRPRKHS 220.0	M.KHS.NW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	96.35	102.51	250	42.28
MIRPRKHS 220.0	M.KHS.NW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	96.35	102.51	250	42.28
TM.KH.RD 220.0	HYD-TMK-2 132.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	86.48	122.74	250	49.31
TM.KH.RD 220.0	HYD-TMRD 132.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	75.7	102.69	250	41.25
TM.KH.RD 220.0	JHIMPIR-1 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	242.34	274.65	674	40.75
TM.KH.RD 220.0	JHIMPIR-1 220.0	2	DHABEJI 220 220.00	DSEZ 220.00	1	242.34	274.65	674	40.75
KDA-33 220.0	NKI 220.0	E1	BALDIA 220 S220.00	NKIBAL PLDP1220.00	E1	377.75	562.94	953	59.07
KDA-33 220.0	N.PORT QASIM220.0	E1	KDA-33 220.00	N.PORT QASIM220.00	E2	149.59	199.88	921.8	21.68
KDA-33 220.0	N.PORT QASIM220.0	E2	KDA-33 220.00	N.PORT QASIM220.00	E1	149.59	199.88	921.76	21.68

Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
KDA-33 220.0	BTK-220 220.0	1	KDA-33 220.00	N.PORT QASIM220.00	E1	131.38	175.09	1350	12.97
KDA-33 220.0	DHACK-220 220.0	N1	KDA-33 220.00	N.PORT QASIM220.00	E1	131.38	175.09	1350	12.97
KDA-33 220.0	KDA2 132 132.0	1	KDA-33 220.00	KDA2 132 132.00	2	244.96	328.37	250	131.08
KDA-33 220.0	KDA2 132 132.0	2	KDA-33 220.00	KDA2 132 132.00	1	244.96	328.37	250	131.08
KDA-33 220.0	KDA2 132 132.0	3	KDA-33 220.00	KDA2 132 132.00	1	241.07	323.16	250	129
NKI 220.0	NKIBAL PLDP1220.0	E1	KDA-33 220.00	NKI 220.00	E1	446.44	660.42	952.6	69.33
JAMSHORO NEW132.	LAKHRA 132.	1	DADU 500.00	JAMSHORO 500.00	2	31.52	42.51	202	21.05
JAMSHORO NEW132.	LAKHRA 132.	2	DADU 500.00	JAMSHORO 500.00	2	31.52	42.51	202	21.05
JAMSHORO NEW132.	QASIMABAD 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	52.01	57.62	202	28.53
JAMSHORO NEW132.	RAJPUTANA 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	51.43	61.51	202	30.45
JAMSHORO NEW132.	JAMSRO OLD 132.	1	DHABEJI 220 220.00	DSEZ 220.00	1	35.78	38.42	202	19.02
JAMSHORO NEW132.	JAMSRO OLD 132.	2	DHABEJI 220 220.00	DSEZ 220.00	1	35.78	38.42	202	19.02
JAMSHORO NEW132.	JAMSRO OLD 132.	3	DHABEJI 220 220.00	DSEZ 220.00	1	35.78	38.42	202	19.02
BALDIA 220 S220	MITHA GHAR 220	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	76.74	238.73	967	24.69
BALDIA 220 S220	BALDIA 132 S132	1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	158.95	224.6	250	86.65
BALDIA 220 S220	BALDIA 132 S132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	1	164.16	228.98	250	88.34
BALDIA 220 S220	BALDIA 132 S132	3	BALDIA 220 S220.00	BALDIA 132 S132.00	2	158.95	224.6	250	86.65
BALDIA 220 S220	NKIBAL PLDP1220	E1	KDA-33 220.00	NKI 220.00	E1	443.76	644.88	1348.2	47.83
BALDIA 220 S220	BAL_KKI_UG3 220	E1	K-2/K-3 500.00	NKI 500.00	1	71.4	197.35	476.3	41.43
BALDIA 220 S220	BAL_KKI_UG4 220	E2	K-2/K-3 500.00	NKI 500.00	1	71.4	197.35	476.3	41.43
MARIPUR 220 220	MARIPUR-2 132	1	MARIPUR 220 220.00	MARIPUR-1 132.00	11	135.51	205.28	250	79.6
MARIPUR 220 220	MARIPUR-1 132	11	MARIPUR 220 220.00	MARIPUR-2 132.00	1	133.33	203.54	250	78.93
MARIPUR 220 220	MARIPUR-1 132	12	MARIPUR 220 220.00	MARIPUR-2 132.00	1	132.6	202.58	250	78.55
MARIPUR 220 220	MAR-BAL-KKI2220	R1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	R2	333.68	605.53	952	63.61
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	140.52	312.58	495.37	63.1
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	140.52	312.58	495.37	63.1
MARIPUR 220 220	MAR-BAL-KKI 220	R2	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	R1	333.68	605.53	952	63.61
LALAZAR 220 220	MAR-LALPLDP1220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	148.17	316.36	495.37	63.86
LALAZAR 220 220	MAR-LALPLDP2220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	148.17	316.36	495.37	63.86
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	202.49	281.33	250	109.34
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	202.49	281.33	250	109.34
LALAZAR 220 220	LALAZAR-UG1 220	E1	K CREEK 220 220.00	KCR_UG2 220.00	E2	82.91	150.28	514.4	29.21
LALAZAR 220 220	LALAZAR-UG2 220	E2	K CREEK 220 220.00	KCR_UG1 220.00	E1	82.91	150.28	514.4	29.21
LALAZAR-UG1 220	KCR_UG1 220	1	K CREEK 220 220.00	KCR_UG2 220.00	E2	83.36	147.3	483.6	30.46
SURJANI 220 220	KDA-33 220	E1	SURJANI 220 220.00	DEH HALKANI 220.00	1	197.11	427.9	904	47.33
SURJANI 220 220	DEH HALKANI 220	1	KDA-33 220.00	NKI 220.00	E1	260.36	387.6	967	40.08
SURJANI 220 220	SURJANI 132 132	1	SURJANI 220 220.00	SURJANI 132 132.00	2	228.39	328.1	250	131.32
SURJANI 220 220	SURJANI 132 132	2	SURJANI 220 220.00	SURJANI 132 132.00	1	220.92	321.77	250	128.75
LALAZAR-UG2 220	KCR_UG2 220	1	K CREEK 220 220.00	KCR_UG1 220.00	E1	83.36	147.3	483.6	30.46
K CREEK 220 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	242.11	356.99	419.16	85.17
K CREEK 220 220	CCP-KCR-2 220	1	CCPP 220.00	CCP-KCR-1 220.00	E1	57.54	94.59	270.6	34.95
K CREEK 220 220	CCP-KCR-1 220	1	CCPP 220.00	CCP-KCR-2 220.00	E2	57.54	94.59	270.5	34.97
K CREEK 220 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	242.11	356.99	419.2	85.16
K CREEK 220 220	QAYOMABAD 132	2	K CREEK 220 220.00	KO.WEST 132 132.00	2	192.96	244.56	250	95.21
K CREEK 220 220	KO.WEST 132 132	2	K CREEK 220 220.00	QAYOMABAD 132.00	2	192.96	244.56	250	95.21
K CREEK 220 220	KCR_UG1 220	E1	K CREEK 220 220.00	KCR_UG2 220.00	E2	83.94	150.65	514.4	29.29
K CREEK 220 220	KCR_UG2 220	E2	K CREEK 220 220.00	KCR_UG1 220.00	E1	83.94	150.65	514.4	29.29
BQPS II 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	243.72	364.22	419.2	86.89
BQPS II 220	BQPS-2 GEN-415.	1	BASE CASE		SE	148.22	148.22	250	57.56
BQPS II 220	BQPS-2 GEN-115.	1	BASE CASE		SE	143.65	143.65	170	80.55
BQPS II 220	BQPS-2 GEN-315.	1	BQPS III 220.00	BQPS-4 GT 18.500	1	123.03	150.48	170	84.35
BQPS II 220	BQPS-2 GEN-215.	1	BQPS III 220.00	BQPS-4 GT 18.500	1	123.03	150.48	170	84.35
BQPS II 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	243.72	364.22	419.2	86.89
PIPRI W 220 220	BQPS III 220	E1	PIPRI W 220 220.00	ICI 220 220.00	E4	120.76	164.43	457	35.98
PIPRI W 220 220	BQPS III 220	E3	PIPRI W 220 220.00	ICI 220 220.00	E4	138.04	187.99	457	41.14
PIPRI W 220 220	NPQ-2 220	E1	BQPS III 220.00	BQPS-3 GT 18.500	1	73.67	162.79	921.8	17.66
PIPRI W 220 220	NPQ-2 220	E2	BQPS III 220.00	BQPS-3 GT 18.500	1	73.67	162.79	921.8	17.66
PIPRI W 220 220	BQPS III 220	E2	PIPRI W 220 220.00	ICI 220 220.00	E4	120.76	164.43	457	35.98
PIPRI W 220 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	138.48	188.36	457	41.22
PIPRI W 220 220	PIPRI W 132 132	1	PIPRI W 220 220.00	PIPRI W 132 132.00	2	163.03	214.42	250	83.3
PIPRI W 220 220	PIPRI W 132 132	2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	163.03	214.42	250	83.3
PIPRI W 220 220	PIPRI W 132 132	3	PIPRI W 220 220.00	PIPRI W 132 132.00	1	163.03	214.42	250	83.3
BQPS III 220	BQPS GEN6 18.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	0	0	250	0
BQPS III 220	BQPS GEN5 18.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	0	0	250	0
BQPS III 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	138.03	188.67	457.26	41.26
BQPS III 220	BQPS II 220	1	BQPS III 220.00	BQPS-4 GT 18.500	1	31.63	86.18	609.7	14.13
BQPS III 220	BQPS II 220	2	BQPS III 220.00	BQPS-4 GT 18.500	1	31.63	86.18	609.7	14.13
BQPS III 220	BQPS-4 GT 18.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	501.76	509.97	600	80.99

Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
BQPS III 220	LANDHI220 220	N1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	242.26	286.15	967	29.59
BQPS III 220	LANDHI220 220	N2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	242.26	286.15	967	29.59
N.PORT QASIM220	BTK-220 220	1	KDA-33 220.00	N.PORT QASIM220.00	E1	131.3	175.45	1530	11.47
N.PORT QASIM220	DHACK-220 220	N1	KDA-33 220.00	N.PORT QASIM220.00	E1	131.3	175.45	1530	11.47
N.PORT QASIM220	DHABEJI 220 220	N1	N.PORT QASIM220.00	DHABEJI 220 220.00	N2	209.48	296.87	967	30.7
N.PORT QASIM220	DHABEJI 220 220	N2	N.PORT QASIM220.00	DHABEJI 220 220.00	N1	209.48	296.87	967	30.7
KDA-33 220	GULSHAN 220 220	E1	KDA-33 220.00	GULSHAN 220 220.00	E2	213.62	427.99	514	83.27
KDA-33 220	GULSHAN 220 220	E2	KDA-33 220.00	GULSHAN 220 220.00	E1	213.62	427.99	514	83.27
GULSHAN 220 220	GULSHAN 132 132	1	GULSHAN 220 220.00	GULSHAN 132 132.00	2	142.41	216.83	250	86.62
GULSHAN 220 220	GULSHAN 132 132	2	GULSHAN 220 220.00	GULSHAN 132 132.00	1	142.41	216.83	250	86.62
GULSHAN 220 220	GULSHAN 132 132	3	GULSHAN 220 220.00	GULSHAN 132 132.00	1	142.41	216.83	250	86.62
DEH HALKANI 220	MITHA GHAR 220	1	KDA-33 220.00	NKI 220.00	E1	171.66	289.29	967	29.92
DEH HALKANI 220	DEH-HAL-22KV22.	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	2	49.54	96.09	120	80.72
DEH HALKANI 220	DEH-HAL-22KV22.	2	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	49.54	96.09	120	80.72
MAR-LALPLDP1220	LZAR-MP-PLDP220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	140.59	282.01	476.3	59.21
MAR-LALPLDP2220	LZAR-MP-PLDP220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	140.59	282.01	476.4	59.2
NPQ-2 220	DHAB-NPQ2 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	103.32	170.28	1524.2	11.17
NPQ-2 220	DHAB-NPQ 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	103.32	170.28	1524.2	11.17
CCPP 220	CCPP/LAN UG1220	N1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	172.26	217.65	957	22.74
CCPP 220	CCPP/LAN UG2220	N2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	172.26	217.65	957	22.74
CCPP 220	CCP-KCR-2 220	E2	CCPP 220.00	KTPS EXISTIN132.00	1	58.48	101.65	349	29.13
CCPP 220	CCP-KCR-1 220	E1	CCPP 220.00	KTPS EXISTIN132.00	1	58.48	101.65	349	29.13
CCPP 220	KTPS EXISTIN132	1	CCPP 220.00	KTPS EXISTIN132.00	2	201.66	270	250	105.34
CCPP 220	KTPS EXISTIN132	2	CCPP 220.00	KTPS EXISTIN132.00	1	201.66	270	250	105.34
BQPS III 220	BQPS-3 GT 18.	1	BQPS III 220.00	BQPS-4 GT 18.500	1	494.77	503	600	80.26
MITHA GHAR 220	MTH-GHR-22KV22.	3	MITHA GHAR 220.00	MTH-GHR-22KV22.000	4	64.29	122.72	150	81.01
MITHA GHAR 220	MTH-GHR-22KV22.	4	MITHA GHAR 220.00	MTH-GHR-22KV22.000	3	64.29	122.72	150	81.01
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.29	16.31	20	80.72
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.29	16.31	20	80.72
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.29	16.31	20	80.72
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.29	16.31	20	80.72
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.29	16.31	20	80.72
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.29	16.31	20	80.72
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.29	16.39	20	79.48
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.29	16.39	20	79.48
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.29	16.39	20	79.48
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.29	16.39	20	79.48
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.29	16.39	20	79.48
KKI-500 500	KKI-220 220	1	K-2/K-3 500.00	NKI 500.00	1	309.39	438.72	600	72.9
KKI-500 500	KKI-220 220	2	K-2/K-3 500.00	NKI 500.00	1	309.39	438.72	600	72.9
KKI-500 500	KKI-220 220	3	K-2/K-3 500.00	NKI 500.00	1	309.39	438.72	600	72.9
KKI-220 220	KKI-132 132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	2	139.31	178.12	250	68.22
KKI-220 220	MAR-KKI_UG 220	1	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	R1	336.43	633.24	957.2	66.15
KKI-220 220	MAR-KKI-UG2 220	1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	R2	336.43	633.24	957.2	66.15
KKI-220 220	BAL-KKI-UG 220	1	K-2/K-3 500.00	NKI 500.00	1	68.31	198.75	957.2	20.76
KKI-220 220	BAL_KKI_UG2 220	1	K-2/K-3 500.00	NKI 500.00	1	68.31	198.75	957.2	20.76
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.29	16.39	20	79.48
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	12.38	12.46	15	80.12
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	12.38	12.46	15	80.12
KDA2 132 132	GADAP 132	N1	KDA-33 220.00	NKI 220.00	E1	29.37	29.57	202	14.64
KDA2 132 132	GULSHAN 132 132	R1	PRT QSM CFPP500.00	KKI-500 500.00	1	96.11	96.22	280	34.37
KDA2 132 132	JOHAR 132 132	R1	PRT QSM CFPP500.00	KKI-500 500.00	1	173.04	173.22	280	61.86
KDA2 132 132	MEMON GOTH 132	R1	PRT QSM CFPP500.00	KKI-500 500.00	1	89.14	89.21	280	31.86
KDA2 132 132	SNPC 132	1	KDA-33 220.00	NKI 220.00	E1	47.38	47.84	202	23.68
MARIPUR-2 132	LYARI 132 SS132	E1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	108.91	109.13	171	63.82
QUEENS RD 13132	ELANDER 132 132	E1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	39.11	39.19	160	24.49
QUEENS RD 13132	ELANDER 132 132	E2	BALDIA 220 S220.00	MITHA GHAR 220.00	1	39.11	39.19	160	24.49
SURJANI 132 132	SUR-VALIKA 132	R1	KDA-33 220.00	KDA2 132 132.00	1	323.43	335.28	262	127.97
SURJANI 132 132	SUR-UG-MAY 132	E1	SURJANI 220 220.00	SURJANI 132 132.00	1	20.26	80.52	160	50.32
PIPRI W 132 132	AISHA STEEL 132	1	N.PORT QASIM220.00	NPQ-2 220.00	1	5.46	5.48	112	4.89
PIPRI W 132 132	PIPRI E 132 132	E1	N.PORT QASIM220.00	NPQ-2 220.00	1	24.51	24.62	230.2	10.69
KTPS EXISTIN132	PRL-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	124.26	150.87	160	94.29
KTPS EXISTIN132	QAYMBD-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	101	136.84	137.2	99.74
QAYOMABAD 132	KO.WEST 132 132	2	BALDIA 220 S220.00	MITHA GHAR 220.00	1	0.37	0.37	280	0.13
QAYOMABAD 132	QY-KE-KCNUG1132	E1	CCPP 220.00	KTPS EXISTIN132.00	1	58.26	67.54	251.5	26.86
QAYOMABAD 132	QY-KS-KCNUG2132	E2	CCPP 220.00	KTPS EXISTIN132.00	1	57.78	66.97	171.47	39.06
KO.WEST 132 132	PRL 132 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	55.39	81.84	130.09	62.91
KO.WEST 132 132	DEFNCE-K-WST132	E1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	104.89	144.19	160	90.12

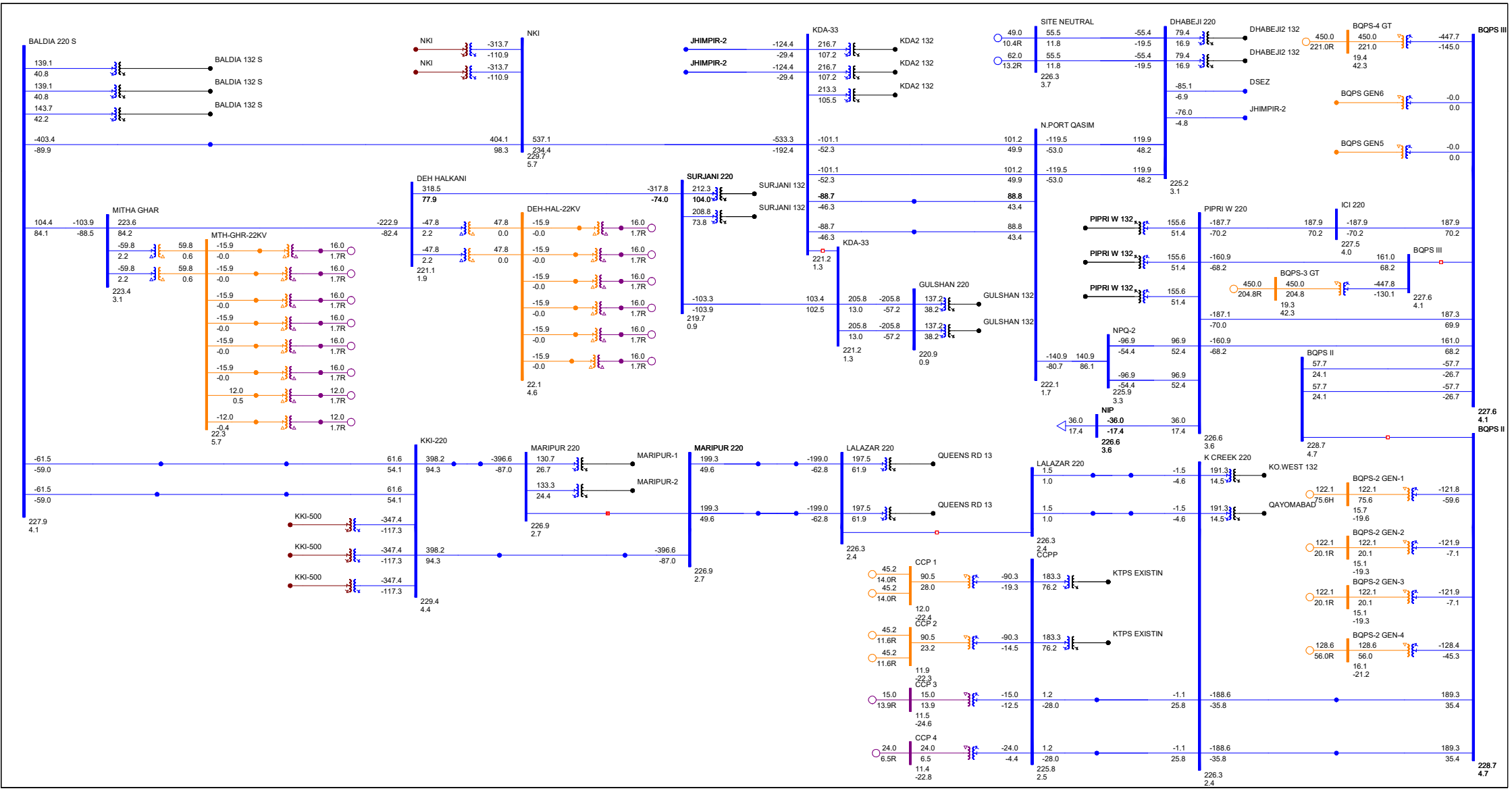
Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
QUEENS RD 13132	OLD TOWN 132132	E1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	47.57	47.67	114	41.82
QUEENS RD 13132	Q.RD-CLIFTON132	R1	K CREEK 220 220.00	QAYOMABAD 132.00	2	96.71	118.6	160	74.12
QUEENS RD 13132	Q.RD-GIZRI 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	100.23	142.46	251.49	56.65
GULSHAN 132 132	AZIZABAD 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	88.26	88.54	171.5	51.62
GULSHAN 132 132	JAIL ROAD SS132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	43.16	43.3	171	25.32
GULSHAN 132 132	AGHA KHAN 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	67.71	67.93	171	39.73
GULSHAN 132 132	CIVIC 132 A 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	97.89	98.21	160	61.38
GULSHAN 132 132	JAIL ROAD SS132	E2	SURJANI 220 220.00	KDA-33 220.00	E1	43.16	43.3	171	25.32
MARIPUR-1 132	MAR-LAB PL1 132	E1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	116.29	116.69	240.1	48.6
MARIPUR-1 132	MAR-GOL PL2 132	E1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	101.75	102.05	240.1	42.5
BALDIA 132 S132	HUB CHOWKI 1132	1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	6.19	25.16	183	13.75
BALDIA 132 S132	VALIKA B 132132	E2	KDA-33 220.00	NKI 220.00	E1	53.95	54.39	262.2	20.74
BALDIA 132 S132	SITE GT 132A132	R1	KDA-33 220.00	NKI 220.00	E1	102.31	102.98	280	36.78
BALDIA 132 S132	SITE GT 132A132	R2	KDA-33 220.00	NKI 220.00	E1	102.31	102.98	280	36.78
BALDIA 132 S132	KANUPP 132 132	E1	KDA-33 220.00	NKI 220.00	E1	1.07	1.08	117.3	0.92
BALDIA 132 S132	ORANGI B 132132	R1	KDA-33 220.00	NKI 220.00	E1	77.06	77.68	280	27.74
BALDIA 132 S132	TAPAL 132 132	E1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	6.12	24.79	228.6	10.84
BALDIA 132 S132	BAL-ITHD 132	1	KDA-33 220.00	NKI 220.00	E1	38.7	39.05	130.1	30.01
DHABEJI 220 220	THERMAL-PP 220	1	N.PORT QASIM220.00	DHABEJI 220 220.00	N1	4.4	4.41	1524.2	0.29
DHABEJI 220 220	THERMAL-PP 220	2	N.PORT QASIM220.00	DHABEJI 220 220.00	N1	4.4	4.41	1524.2	0.29
DHABEJI 220 220	DSEZ 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	257.01	302.86	674	44.93
DHABEJI 220 220	DHAB-NPQ2 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	103.89	170.55	957.2	17.82
DHABEJI 220 220	DHAB-NPQ 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	103.89	170.55	957.2	17.82
DHABEJI 220 220	SITE NEUTRAL220	1	DHABEJI 220 220.00	SITE NEUTRAL220.00	2	103.98	194.07	967	20.07
DHABEJI 220 220	SITE NEUTRAL220	2	DHABEJI 220 220.00	SITE NEUTRAL220.00	1	103.98	194.07	967	20.07
DHABEJI 220 220	WIND PROJ 220	1	DHABEJI 220 220.00	WIND PROJ 220.00	2	105.68	217.11	967	22.45
DHABEJI 220 220	WIND PROJ 220	2	DHABEJI 220 220.00	WIND PROJ 220.00	1	105.68	217.11	967	22.45
DHABEJI 220 220	DHABEJI2 132132	1	DHABEJI 220 220.00	DHABEJI2 132132.00	2	96.65	156.27	250	61.05
DHABEJI 220 220	DHABEJI2 132132	2	DHABEJI 220 220.00	DHABEJI2 132132.00	1	96.65	156.27	250	61.05
DSEZ 220	GHARO-NEW 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	287.74	334.08	674	49.57
DSEZ 220	DSEZ 132 132	1	PRT QSM CFPP500.00	KKI-500 500.00	1	16.79	16.8	160	10.29
DSEZ 220	DSEZ 132 132	2	PRT QSM CFPP500.00	KKI-500 500.00	1	16.79	16.8	160	10.29
MAR-BAL-KKI222	MAR-KKI-UG2 22	R1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	R2	336.43	631.4	967	65.29
MAR-BAL-KKI 22	MAR-KKI_UG 22	R2	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	R1	336.43	631.4	967	65.29
BAL-KKI-UG 22	BAL_KKI_UG4 22	1	K-2/K-3 500.00	NKI 500.00	1	69.57	199.4	967	20.62
BAL_KKI_UG2 22	BAL_KKI_UG3 22	1	K-2/K-3 500.00	NKI 500.00	1	69.57	199.4	967	20.62
DHABEJI2 13213	DHABEJI 132 13	N1	PIPRI W 220 220.00	PIPRI W 132 132.00	1	91.18	106.24	365	29.11
DHABEJI2 13213	DHABEJI 132 13	N2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	91.18	106.24	365	29.11

Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Peak Load Case Year 2027 - (Maximum Solar - Average Wind - Without RPC)

Normal Case

Exhibit 3.3.0

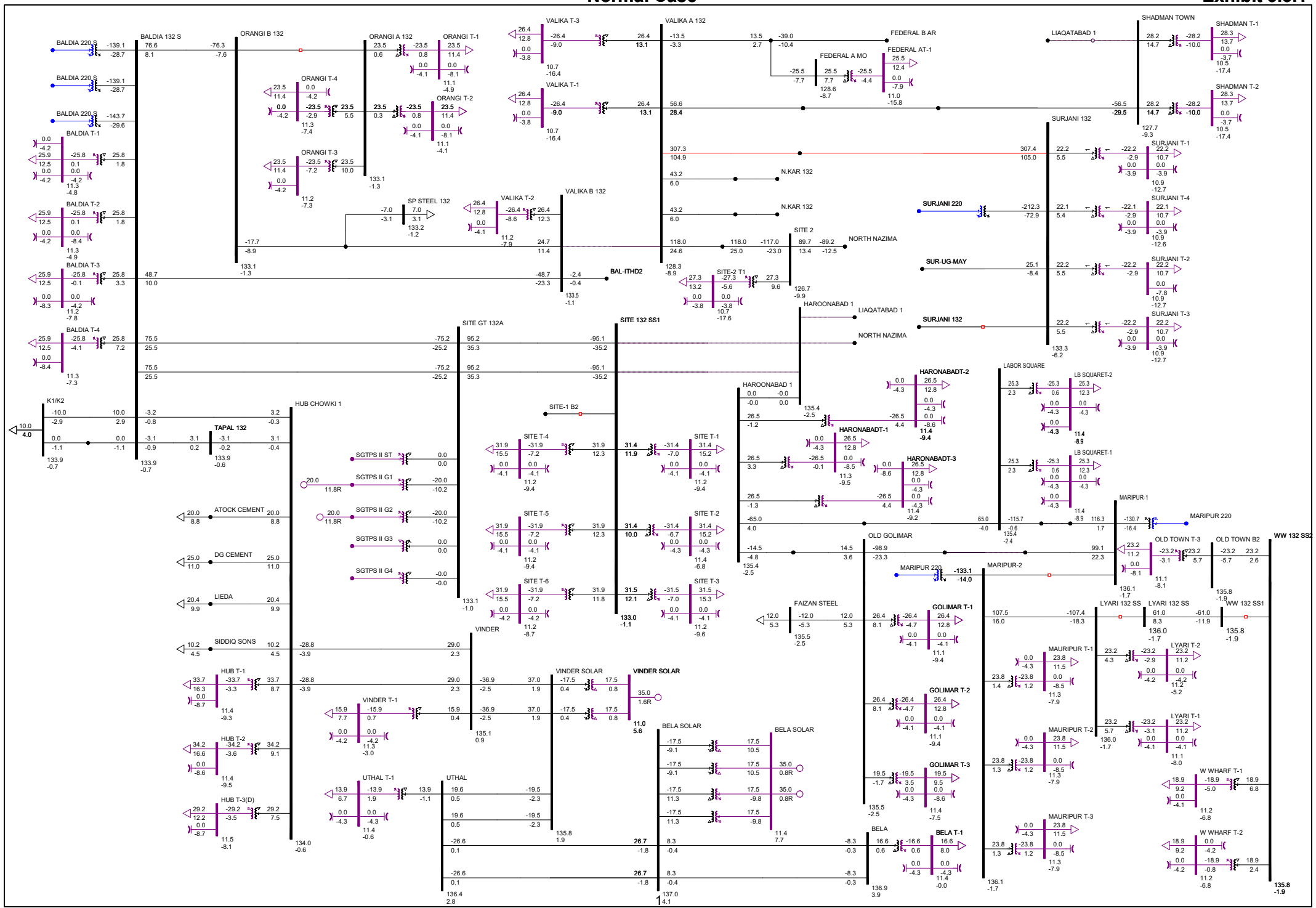


Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Peak Load CaseYear 2027 - (Maximum Solar - Average Wind - Without RPC)

Normal Case

Exhibit 3.3.1



Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
DADU 500.00	MORO 500.00	1	DADU 500.00	JAMSHORO 500.00	2	471.9	817.6	2000	40.88
DADU 500.00	JAMSHORO 500.00	2	DADU 500.00	MATIARI-CS 500.00	1	815.98	1119.62	1300	86.12
DADU 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	583.35	1011.35	1200	84.28
DADU 500.00	DADU 220.00	1	DADU 500.00	DADU 220.00	2	50.76	74.91	450	16
DADU 500.00	DADU 220.00	2	DADU 500.00	DADU 220.00	1	50.76	74.91	450	16
DADU 500.00	DADU 220.00	3	DADU 500.00	DADU 220.00	1	50.76	74.91	450	16
MORO 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	483.84	816.46	1300	62.8
JAMSHORO 500.00	K-2/K-3 500.00	1	K-2/K-3 500.00	NKI 500.00	1	338.31	714.23	1900	37.59
JAMSHORO 500.00	HUB 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	623.24	1228.75	1300	94.52
JAMSHORO 500.00	NKI 500.00	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	259.63	542.03	1300	41.69
JAMSHORO 500.00	HUBCO-CFPP 500.00	1	HUB 500.00	HUBCO-CFPP 500.00	2	600.24	1237.05	1300	95.16
JAMSHORO 500.00	MATIARI-CS 500.00	1	JAMSHORO 500.00	MATIARI-CS 500.00	3	499.85	845.19	2000	42.26
JAMSHORO 500.00	MATIARI-CS 500.00	3	DADU 500.00	JAMSHORO 500.00	2	499.02	849.3	2793	30.41
JAMSHORO 500.00	JAMSHORO 220.00	1	JAMSHORO 500.00	JAMSHORO 220.00	2	210.56	283.27	450	61
JAMSHORO 500.00	JAMSHORO 220.00	2	JAMSHORO 500.00	JAMSHORO 220.00	1	210.56	283.27	450	61
JAMSHORO 500.00	JAMSHORO 220.00	3	JAMSHORO 500.00	JAMSHORO 220.00	1	210.56	283.27	450	61
ENGRO CFPP 500.00	THL NVA CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	92.4	936.93	2793	33.55
ENGRO CFPP 500.00	TEL CFPP 500.00	1	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	508.69	1234.83	2793	44.21
SECL CFPP 500.00	MATIARI-CS 500.00	1	SECL CFPP 500.00	MATIARI-CS 500.00	2	684.67	937.9	1600	58.62
SECL CFPP 500.00	MATIARI-CS 500.00	2	SECL CFPP 500.00	MATIARI-CS 500.00	1	684.67	937.9	1600	58.62
SECL CFPP 500.00	MATIARI-CS 500.00	3	SECL CFPP 500.00	MATIARI-CS 500.00	1	682.45	934.89	1600	58.43
SECL CFPP 500.00	TEL CFPP 500.00	2	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	808.96	1534.09	2793	54.93
PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	PRT QSM CFPP500.00	KKI-500 500.00	1	407.91	1251.83	2793	44.82
PRT QSM CFPP500.00	KKI-500 500.00	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	880.79	1840.25	2700	68.16
K-2/K-3 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	1209.7	1396.14	2793	49.99
K-2/K-3 500.00	MATIARI-CS 500.00	1	K-2/K-3 500.00	NKI 500.00	1	409.75	708.84	1400	50.63
K-2/K-3 500.00	KKI-500 500.00	1	PRT QSM CFPP500.00	KKI-500 500.00	1	360.87	884.43	2793	31.67
HUB 500.00	HUBCO-CFPP 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	622.04	1245.74	2793	44.6
NKI 500.00	NKI 220.00	1	NKI 500.00	NKI 220.00	2	340.44	464.61	600	75.9
NKI 500.00	NKI 220.00	2	NKI 500.00	NKI 220.00	1	340.44	464.61	600	75.9
NKI 500.00	NKI 220.00	3	NKI 500.00	NKI 220.00	1	340.44	464.61	600	75.9
MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	PRT QSM CFPP500.00	KKI-500 500.00	1	967.72	1831.44	1900	96.39
MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	696.35	1524.29	1600	95.27
THL NVA CFPP500.00	SIDQSNS-CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	394.24	1242.92	2793	44.5
DADU 220.0	DADU NEW 132.0	1	BQPS III 220.00	BQPS-4 GT 18.500	1	42.02	50.02	160	29.32
DADU 220.0	DADU NEW 132.0	2	BQPS III 220.00	BQPS-4 GT 18.500	1	42.02	50.02	160	29.32
DADU 220.0	DADU NEW 132.0	3	BQPS III 220.00	BQPS-4 GT 18.500	1	67.23	80.03	250	30.03
JAMSHORO 220.0	JHIMPIR-2 220.0	2	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	71.39	109.15	550	19.85
JAMSHORO 220.0	JHIMPIR-2 220.0	3	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	71.39	109.15	550	19.85
JAMSHORO 220.0	HALA RD. 220.0	1	JAMSHORO 220.00	HALA RD. 220.00	2	165.95	256.07	307	83.41
JAMSHORO 220.0	HALA RD. 220.0	2	JAMSHORO 220.00	HALA RD. 220.00	1	165.95	256.07	307	83.41
JAMSHORO 220.0	MIRPRKHS 220.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	105.15	158.12	674	23.46
JAMSHORO 220.0	TM.KH.RD 220.0	1	JAMSHORO 220.00	HALA RD. 220.00	1	68.37	108.31	600	18.05
JAMSHORO 220.0	JAMSHORO NEW132.0	1	JAMSHORO 220.00	JAMSHORO NEW132.00	2	87.01	102.94	160	63.63
JAMSHORO 220.0	JAMSHORO NEW132.0	2	JAMSHORO 220.00	JAMSHORO NEW132.00	1	87.01	102.94	160	63.63
JAMSHORO 220.0	JAMSHORO NEW132.0	3	JAMSHORO 220.00	JAMSHORO NEW132.00	1	87.01	102.94	160	63.63
JHIMPIR-2 220.0	KDA-33 220.0	1	KDA-33 220.00	NKI 220.00	E1	127.87	187.72	674	27.85
JHIMPIR-2 220.0	KDA-33 220.0	2	KDA-33 220.00	NKI 220.00	E1	127.87	187.72	674	27.85
JHIMPIR-2 220.0	JHIMPIR-2 132.0	1	KDA-33 220.00	NKI 220.00	E1	98	99.06	250	39.57
JHIMPIR-2 220.0	JHIMPIR-2 132.0	2	KDA-33 220.00	NKI 220.00	E1	98	99.06	250	39.57
JHIMPIR-2 220.0	JHIMPIR-2 132.0	3	KDA-33 220.00	NKI 220.00	E1	98	99.06	250	39.57
JHIMPIR-2 220.0	JHIMPIR-2 132.0	4	KDA-33 220.00	NKI 220.00	E1	98	99.06	250	39.57
JHIMPIR-2 220.0	JHIMPIR-1 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	74.88	123.13	674	18.27
JHIMPIR-2 220.0	DHABEJI 220 220.0	1	BQPS III 220.00	BQPS-3 GT 18.500	1	76.78	123.29	674	18.29
HALA RD. 220.0	MIRPRKHS 220.0	1	JAMSHORO 220.00	MIRPRKHS 220.00	1	95.85	161.28	674	23.93
HALA RD. 220.0	TM.KH.RD 220.0	2	JAMSHORO 220.00	HALA RD. 220.00	1	125.78	180.83	674	26.83
HALA RD. 220.0	HALA ROAD 132.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	125.91	134.58	250	53.8
HALA RD. 220.0	HALA ROAD-1 132.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	118.51	127.16	250	50.83
HALA RD. 220.0	HALA ROAD-1 132.0	2	HALA RD. 220.00	MIRPRKHS 220.00	1	118.51	127.16	250	50.83
MIRPRKHS 220.0	M.KHS.NW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	100.45	106.06	250	43.04
MIRPRKHS 220.0	M.KHS.NW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	100.45	106.06	250	43.04
TM.KH.RD 220.0	HYD-TMK-2 132.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	100.15	117.25	250	46.39
TM.KH.RD 220.0	HYD-TMRD 132.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	99.53	112.52	250	44.51
TM.KH.RD 220.0	JHIMPIR-1 220.0	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	126.56	152.07	674	22.56
TM.KH.RD 220.0	JHIMPIR-1 220.0	2	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	126.56	152.07	674	22.56
KDA-33 220.0	NKI 220.0	E1	BALDIA 220 S220.00	NKIBAL PLDP1220.00	E1	586.06	779.86	953	81.83
KDA-33 220.0	N.PORT QASIM220.0	E1	KDA-33 220.00	NKI 220.00	E1	113.83	187.27	921.8	20.32
KDA-33 220.0	N.PORT QASIM220.0	E2	KDA-33 220.00	NKI 220.00	E1	113.83	187.27	921.76	20.32

Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
KDA-33 220.0	BTK-220 220.0	1	KDA-33 220.00	NKI 220.00	E1	100.07	164.4	1350	12.18
KDA-33 220.0	DHACK-220 220.0	N1	KDA-33 220.00	NKI 220.00	E1	100.07	164.4	1350	12.18
KDA-33 220.0	KDA2 132 132.0	1	KDA-33 220.00	KDA2 132 132.00	2	241.79	324.29	250	129.35
KDA-33 220.0	KDA2 132 132.0	2	KDA-33 220.00	KDA2 132 132.00	1	241.79	324.29	250	129.35
KDA-33 220.0	KDA2 132 132.0	3	KDA-33 220.00	KDA2 132 132.00	1	237.95	319.15	250	127.3
NKI 220.0	NKIBAL PLDP1220.0	E1	KDA-33 220.00	NKI 220.00	E1	415.86	759.36	952.6	79.71
JAMSHORO NEW132.	LAKHRA 132.	1	DADU 500.00	JAMSHORO 500.00	2	16.89	26.88	202	13.3
JAMSHORO NEW132.	LAKHRA 132.	2	DADU 500.00	JAMSHORO 500.00	2	16.89	26.88	202	13.3
JAMSHORO NEW132.	QASIMABAD 132.	1	JAMSHORO 220.00	HALA RD. 220.00	1	44.05	48.72	202	24.12
JAMSHORO NEW132.	RAJPUTANA 132.	1	JAMSHORO 220.00	HALA RD. 220.00	1	37.2	45.37	202	22.46
JAMSHORO NEW132.	JAMSRO OLD 132.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	51.55	53.78	202	26.62
JAMSHORO NEW132.	JAMSRO OLD 132.	2	BQPS III 220.00	BQPS-3 GT 18.500	1	51.55	53.78	202	26.62
JAMSHORO NEW132.	JAMSRO OLD 132.	3	BQPS III 220.00	BQPS-3 GT 18.500	1	51.55	53.78	202	26.62
BALDIA 220 S220	MITHA GHAR 220	1	KDA-33 220.00	NKI 220.00	E1	136.54	326.47	967	33.76
BALDIA 220 S220	BALDIA 132 S132	1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	144.98	204.79	250	79.16
BALDIA 220 S220	BALDIA 132 S132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	1	149.73	208.8	250	80.7
BALDIA 220 S220	BALDIA 132 S132	3	BALDIA 220 S220.00	BALDIA 132 S132.00	2	144.98	204.79	250	79.16
BALDIA 220 S220	NKIBAL PLDP1220	E1	KDA-33 220.00	NKI 220.00	E1	413.24	747.91	1348.2	55.47
BALDIA 220 S220	BAL_KKI_UG3 220	E1	K-2/K-3 500.00	NKI 500.00	1	85.22	265.19	476.3	55.68
BALDIA 220 S220	BAL_KKI_UG4 220	E2	K-2/K-3 500.00	NKI 500.00	1	85.22	265.19	476.3	55.68
MARIPUR 220 220	MARIPUR-2 132	1	MARIPUR 220 220.00	MARIPUR-1 132.00	11	135.57	205.29	250	79.71
MARIPUR 220 220	MARIPUR-1 132	11	MARIPUR 220 220.00	MARIPUR-2 132.00	1	133.39	203.55	250	79.03
MARIPUR 220 220	MARIPUR-1 132	12	MARIPUR 220 220.00	MARIPUR-2 132.00	1	132.66	202.59	250	78.66
MARIPUR 220 220	MAR-BAL-KKI2220	R1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	R2	406.03	737.26	952	77.44
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	205.59	399.52	495.37	80.65
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	205.59	399.52	495.37	80.65
MARIPUR 220 220	MAR-BAL-KKI 220	R2	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	R1	406.03	737.26	952	77.44
LALAZAR 220 220	MAR-LALPLDP1220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	208.71	401.04	495.37	80.96
LALAZAR 220 220	MAR-LALPLDP2220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	208.71	401.04	495.37	80.96
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	207	287.35	250	111.8
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	207	287.35	250	111.8
LALAZAR 220 220	LALAZAR-UG1 220	E1	BQPS III 220.00	BQPS-3 GT 18.500	1	2.25	99.41	514.4	19.33
LALAZAR 220 220	LALAZAR-UG2 220	E2	BQPS III 220.00	BQPS-3 GT 18.500	1	2.25	99.41	514.4	19.33
LALAZAR-UG1 220	KCR_UG1 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	3.43	97.05	483.6	20.07
SURJANI 220 220	KDA-33 220	E1	SURJANI 220 220.00	DEH HALKANI 220.00	1	146.5	432.95	904	47.89
SURJANI 220 220	DEH HALKANI 220	1	KDA-33 220.00	NKI 220.00	E1	327.95	514.14	967	53.17
SURJANI 220 220	SURJANI 132 132	1	SURJANI 220 220.00	SURJANI 132 132.00	2	236.38	337.03	250	135.26
SURJANI 220 220	SURJANI 132 132	2	SURJANI 220 220.00	SURJANI 132 132.00	1	221.5	324.37	250	130.08
LALAZAR-UG2 220	KCR_UG2 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	3.43	97.05	483.6	20.07
K CREEK 220 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	191.99	282.6	419.16	67.42
K CREEK 220 220	CCP-KCR-2 220	1	KDA-33 220.00	NKI 220.00	E1	26.97	64.09	270.6	23.68
K CREEK 220 220	CCP-KCR-1 220	1	KDA-33 220.00	NKI 220.00	E1	26.97	64.09	270.5	23.69
K CREEK 220 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	191.99	282.6	419.2	67.41
K CREEK 220 220	QAYOMABAD 132	2	K CREEK 220 220.00	KO.WEST 132 132.00	2	191.83	243.18	250	94.68
K CREEK 220 220	KO.WEST 132 132	2	K CREEK 220 220.00	QAYOMABAD 132.00	2	191.83	243.18	250	94.68
K CREEK 220 220	KCR_UG1 220	E1	BQPS III 220.00	BQPS-3 GT 18.500	1	4.83	99.13	514.4	19.27
K CREEK 220 220	KCR_UG2 220	E2	BQPS III 220.00	BQPS-3 GT 18.500	1	4.83	99.13	514.4	19.27
BQPS II 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	192.58	287.47	419.2	68.58
BQPS II 220	BQPS-2 GEN-415.	1	BASE CASE		SE	140.24	140.24	250	54.99
BQPS II 220	BQPS-2 GEN-115.	1	DADU 500.00	MORO 500.00	1	143.65	143.65	170	80.58
BQPS II 220	BQPS-2 GEN-315.	1	BQPS III 220.00	BQPS-4 GT 18.500	1	123.78	150.92	170	84.52
BQPS II 220	BQPS-2 GEN-215.	1	BQPS III 220.00	BQPS-4 GT 18.500	1	123.78	150.92	170	84.52
BQPS II 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	192.58	287.47	419.2	68.58
PIPRI W 220 220	BQPS III 220	E1	PIPRI W 220 220.00	ICI 220 220.00	E4	174.88	238.57	457	52.2
PIPRI W 220 220	BQPS III 220	E3	PIPRI W 220 220.00	ICI 220 220.00	E4	199.97	272.79	457	59.69
PIPRI W 220 220	NPQ-2 220	E1	KDA-33 220.00	NKI 220.00	E1	111.12	220.73	921.8	23.95
PIPRI W 220 220	NPQ-2 220	E2	KDA-33 220.00	NKI 220.00	E1	111.12	220.73	921.8	23.95
PIPRI W 220 220	BQPS III 220	E2	PIPRI W 220 220.00	ICI 220 220.00	E4	174.87	238.56	457	52.2
PIPRI W 220 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	200.6	273.27	457	59.8
PIPRI W 220 220	PIPRI W 132 132	1	PIPRI W 220 220.00	PIPRI W 132 132.00	2	163.87	215.57	250	83.72
PIPRI W 220 220	PIPRI W 132 132	2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	163.87	215.57	250	83.72
PIPRI W 220 220	PIPRI W 132 132	3	PIPRI W 220 220.00	PIPRI W 132 132.00	1	163.87	215.57	250	83.72
BQPS III 220	BQPS GEN6 18.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	0	0	250	0
BQPS III 220	BQPS GEN5 18.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	0	0	250	0
BQPS III 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	200.61	273.89	457.26	59.9
BQPS III 220	BQPS II 220	1	BQPS III 220.00	BQPS-4 GT 18.500	1	63.55	118.82	609.7	19.49
BQPS III 220	BQPS II 220	2	BQPS III 220.00	BQPS-4 GT 18.500	1	63.55	118.82	609.7	19.49
BQPS III 220	BQPS-4 GT 18.	1	KDA-33 220.00	NKI 220.00	E1	501.36	510.26	600	81.03

Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
BQPS III 220	LANDHI220 220	N1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	158.89	193.78	967	20.04
BQPS III 220	LANDHI220 220	N2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	158.89	193.78	967	20.04
N.PORT QASIM220	BTK-220 220	1	KDA-33 220.00	NKI 220.00	E1	99.91	164.45	1530	10.75
N.PORT QASIM220	DHACK-220 220	N1	KDA-33 220.00	NKI 220.00	E1	99.91	164.45	1530	10.75
N.PORT QASIM220	DHABEJI 220 220	N1	KDA-33 220.00	NKI 220.00	E1	130.66	212.58	967	21.98
N.PORT QASIM220	DHABEJI 220 220	N2	KDA-33 220.00	NKI 220.00	E1	130.66	212.58	967	21.98
KDA-33 220	GULSHAN 220 220	E1	KDA-33 220.00	GULSHAN 220 220.00	E2	213.57	428.18	514	83.3
KDA-33 220	GULSHAN 220 220	E2	KDA-33 220.00	GULSHAN 220 220.00	E1	213.57	428.18	514	83.3
GULSHAN 220 220	GULSHAN 132 132	1	GULSHAN 220 220.00	GULSHAN 132 132.00	2	142.38	216.88	250	86.56
GULSHAN 220 220	GULSHAN 132 132	2	GULSHAN 220 220.00	GULSHAN 132 132.00	1	142.38	216.88	250	86.56
GULSHAN 220 220	GULSHAN 132 132	3	GULSHAN 220 220.00	GULSHAN 132 132.00	1	142.38	216.88	250	86.56
DEH HALKANI 220	MITHA GHAR 220	1	KDA-33 220.00	NKI 220.00	E1	238.87	430.32	967	44.5
DEH HALKANI 220	DEH-HAL-22KV22.	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	2	47.89	95.85	120	79.49
DEH HALKANI 220	DEH-HAL-22KV22.	2	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	47.89	95.85	120	79.49
MAR-LALPLDP1220	LZAR-MP-PLDP220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	205.59	399.53	476.3	83.88
MAR-LALPLDP2220	LZAR-MP-PLDP220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	205.59	399.53	476.4	83.86
NPQ-2 220	DHAB-NPQ2 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	32.45	85.9	1524.2	5.64
NPQ-2 220	DHAB-NPQ 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	32.45	85.9	1524.2	5.64
CCPP 220	CCPP/LAN UG1220	N1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	78.1	114.35	957	11.95
CCPP 220	CCPP/LAN UG2220	N2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	78.1	114.35	957	11.95
CCPP 220	CCP-KCR-2 220	E2	CCPP 220.00	KTPS EXISTIN132.00	1	28.07	68.39	349	19.59
CCPP 220	CCP-KCR-1 220	E1	CCPP 220.00	KTPS EXISTIN132.00	1	28.07	68.39	349	19.59
CCPP 220	KTPS EXISTIN132	1	CCPP 220.00	KTPS EXISTIN132.00	2	198.54	266.02	250	103.66
CCPP 220	KTPS EXISTIN132	2	CCPP 220.00	KTPS EXISTIN132.00	1	198.54	266.02	250	103.66
BQPS III 220	BQPS-3 GT 18.	1	KDA-33 220.00	NKI 220.00	E1	494.39	502.68	600	80.21
MITHA GHAR 220	MTH-GHR-22KV22.	3	MITHA GHAR 220.00	MTH-GHR-22KV22.000	4	59.85	120.29	150	79.02
MITHA GHAR 220	MTH-GHR-22KV22.	4	MITHA GHAR 220.00	MTH-GHR-22KV22.000	3	59.85	120.29	150	79.02
22	0.4	1	KDA-33 220.00	NKI 220.00	E1	16.09	16.45	20	81.19
22	0.4	1	KDA-33 220.00	NKI 220.00	E1	16.09	16.45	20	81.19
22	0.4	1	KDA-33 220.00	NKI 220.00	E1	16.09	16.45	20	81.19
22	0.4	1	KDA-33 220.00	NKI 220.00	E1	16.09	16.45	20	81.19
22	0.4	1	KDA-33 220.00	NKI 220.00	E1	16.09	16.45	20	81.19
22	0.4	1	KDA-33 220.00	NKI 220.00	E1	16.09	16.45	20	81.19
22	0.4	1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	16.09	16.5	20	81.58
22	0.4	1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	16.09	16.5	20	81.58
22	0.4	1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	16.09	16.5	20	81.58
22	0.4	1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	16.09	16.5	20	81.58
22	0.4	1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	16.09	16.5	20	81.58
KKI-500 500	KKI-220 220	1	K-2/K-3 500.00	NKI 500.00	1	380.65	538.88	600	90.26
KKI-500 500	KKI-220 220	2	K-2/K-3 500.00	NKI 500.00	1	380.65	538.88	600	90.26
KKI-500 500	KKI-220 220	3	K-2/K-3 500.00	NKI 500.00	1	380.65	538.88	600	90.26
KKI-220 220	KKI-132 132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	2	134.6	169.88	250	65.22
KKI-220 220	MAR-KKI_UG 220	1	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	R1	409.65	749.76	957.2	78.33
KKI-220 220	MAR-KKI-UG2 220	1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	R2	409.65	749.76	957.2	78.33
KKI-220 220	BAL-KKI-UG 220	1	K-2/K-3 500.00	NKI 500.00	1	83.3	267.73	957.2	27.97
KKI-220 220	BAL_KKI_UG2 220	1	K-2/K-3 500.00	NKI 500.00	1	83.3	267.73	957.2	27.97
22	0.4	1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	16.09	16.36	20	81.16
22	0.4	1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	12.12	12.39	15	81.6
22	0.4	1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	12.12	12.39	15	81.6
KDA2 132 132	GADAP 132	N1	KDA-33 220.00	NKI 220.00	E1	29.39	29.96	202	14.83
KDA2 132 132	GULSHAN 132 132	R1	BALDIA 220 S220.00	MITHA GHAR 220.00	1	96.06	96.15	280	34.34
KDA2 132 132	JOHAR 132 132	R1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	172.96	173.05	280	61.8
KDA2 132 132	MEMON GOTH 132	R1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	89.1	89.16	280	31.84
KDA2 132 132	SNPC 132	1	KDA-33 220.00	NKI 220.00	E1	47.37	48.5	202	24.01
MARIPUR-2 132	LYARI 132 SS132	E1	MAR-BAL-KKI2220.00	MAR-KKI-UG2 220.00	R1	108.94	109.23	171	63.88
QUEENS RD 13132	ELANDER 132 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	39.11	39.17	160	24.48
QUEENS RD 13132	ELANDER 132 132	E2	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	39.11	39.17	160	24.48
SURJANI 132 132	SUR-VALIKA 132	R1	KDA-33 220.00	KDA2 132 132.00	1	324.83	336.22	262	128.33
SURJANI 132 132	SUR-UG-MAY 132	E1	KDA-33 220.00	KDA2 132 132.00	1	26.49	83.13	160	51.96
PIPRI W 132 132	AISHA STEEL 132	1	N.PORT QASIM220.00	NPQ-2 220.00	1	5.46	5.48	112	4.89
PIPRI W 132 132	PIPRI E 132 132	E1	N.PORT QASIM220.00	NPQ-2 220.00	1	24.52	24.63	230.2	10.7
KTPS EXISTIN132	PRL-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	122.08	148.49	160	92.8
KTPS EXISTIN132	QAYMBD-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	98.15	133.58	137.2	97.36
QAYOMABAD 132	KO.WEST 132 132	2	DEH HALKANI 220.00	MITHA GHAR 220.00	1	0.37	0.37	280	0.13
QAYOMABAD 132	QY-KE-KCNUG1132	E1	CCPP 220.00	KTPS EXISTIN132.00	1	58.67	67.74	251.5	26.94
QAYOMABAD 132	QY-KS-KCNUG2132	E2	CCPP 220.00	KTPS EXISTIN132.00	1	58.18	67.17	171.47	39.17
KO.WEST 132 132	PRL 132 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	53.44	79.44	130.09	61.07
KO.WEST 132 132	DEFNCE-K-WST132	E1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	101.37	141.94	160	88.71

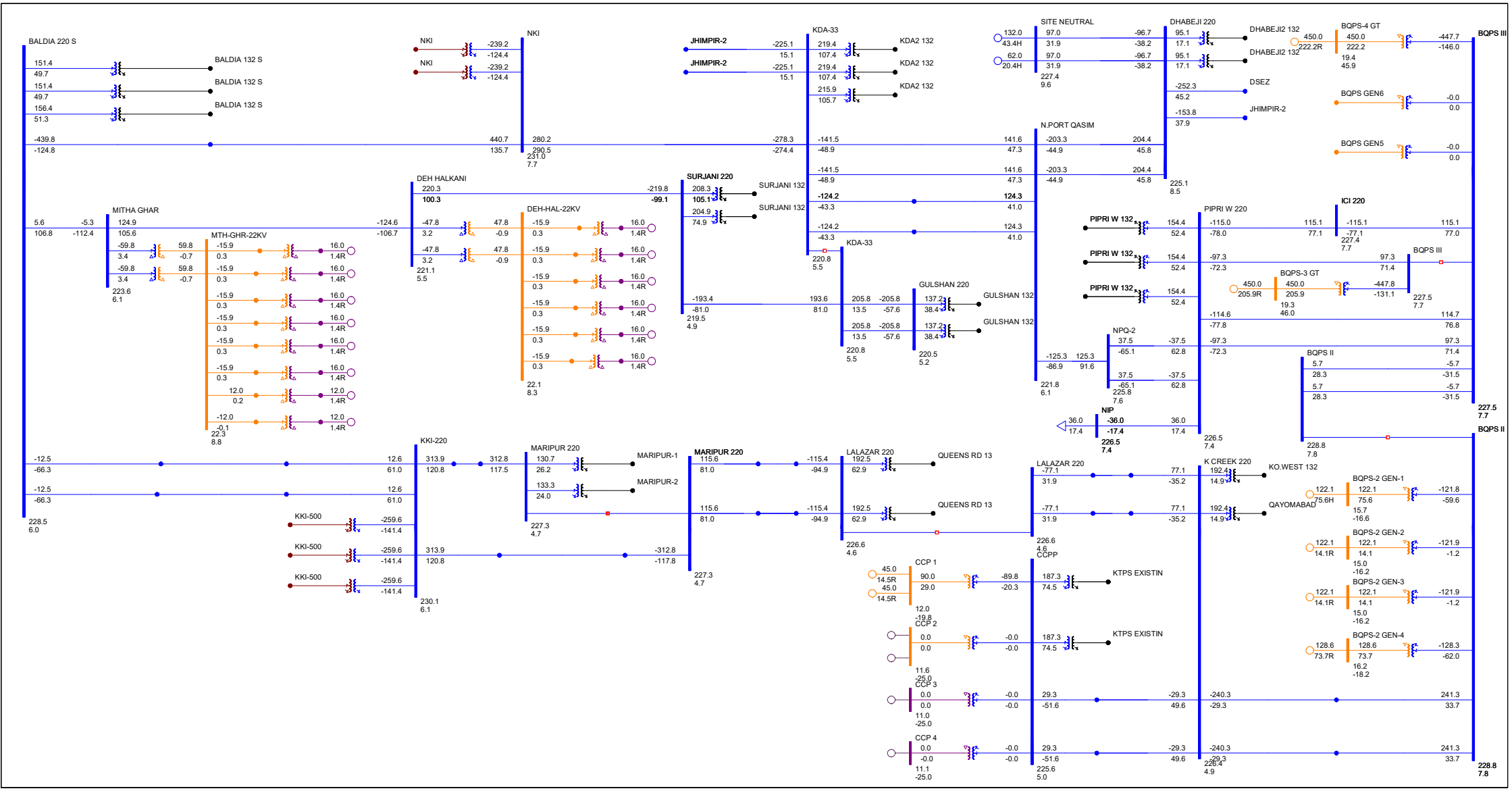
Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
QUEENS RD 13132	OLD TOWN 132132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	47.58	47.65	114	41.8
QUEENS RD 13132	Q.RD-CLIFTON132	R1	K CREEK 220 220.00	QAYOMABAD 132.00	2	99.78	121.59	160	76
QUEENS RD 13132	Q.RD-GIZRI 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	106.22	148.34	251.49	58.98
GULSHAN 132 132	AZIZABAD 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	88.23	88.78	171.5	51.77
GULSHAN 132 132	JAIL ROAD SS132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	43.15	43.42	171	25.39
GULSHAN 132 132	AGHA KHAN 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	67.69	68.13	171	39.84
GULSHAN 132 132	CIVIC 132 A 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	97.87	98.5	160	61.56
GULSHAN 132 132	JAIL ROAD SS132	E2	SURJANI 220 220.00	KDA-33 220.00	E1	43.15	43.42	171	25.39
MARIPUR-1 132	MAR-LAB PL1 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	116.32	116.59	240.1	48.56
MARIPUR-1 132	MAR-GOL PL2 132	E1	BALDIA 220 S220.00	BAL_KKI_UG3 220.00	E1	101.78	101.99	240.1	42.48
BALDIA 132 S132	HUB CHOWKI 1132	1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	3.24	20.96	183	11.45
BALDIA 132 S132	VALIKA B 132132	E2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	53.95	53.97	262.2	20.58
BALDIA 132 S132	SITE GT 132A132	R1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	79.52	80.18	280	28.63
BALDIA 132 S132	SITE GT 132A132	R2	DEH HALKANI 220.00	MITHA GHAR 220.00	1	79.52	80.18	280	28.63
BALDIA 132 S132	KANUPP 132 132	E1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	1.08	1.09	117.3	0.93
BALDIA 132 S132	ORANGI B 132132	R1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	77.07	77.09	280	27.53
BALDIA 132 S132	TAPAL 132 132	E1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	3.2	20.66	228.6	9.04
BALDIA 132 S132	BAL-ITHD 132	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	38.69	38.7	130.1	29.75
DHABEJI 220 220	THERMAL-PP 220	1	SURJANI 220 220.00	KDA-33 220.00	E1	4.4	4.41	1524.2	0.29
DHABEJI 220 220	THERMAL-PP 220	2	SURJANI 220 220.00	KDA-33 220.00	E1	4.4	4.41	1524.2	0.29
DHABEJI 220 220	DSEZ 220	1	BQPS III 220.00	BQPS-4 GT 18.500	1	85.34	133.91	674	19.87
DHABEJI 220 220	DHAB-NPQ2 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	33.84	86.62	957.2	9.05
DHABEJI 220 220	DHAB-NPQ 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	33.84	86.62	957.2	9.05
DHABEJI 220 220	SITE NEUTRAL220	1	DHABEJI 220 220.00	SITE NEUTRAL220.00	2	58.75	113.46	967	11.73
DHABEJI 220 220	SITE NEUTRAL220	2	DHABEJI 220 220.00	SITE NEUTRAL220.00	1	58.75	113.46	967	11.73
DHABEJI 220 220	WIND PROJ 220	1	DHABEJI 220 220.00	WIND PROJ 220.00	2	39.62	80.77	967	8.35
DHABEJI 220 220	WIND PROJ 220	2	DHABEJI 220 220.00	WIND PROJ 220.00	1	39.62	80.77	967	8.35
DHABEJI 220 220	DHABEJI2 132132	1	DHABEJI 220 220.00	DHABEJI2 132132.00	2	81.21	131.33	250	51.3
DHABEJI 220 220	DHABEJI2 132132	2	DHABEJI 220 220.00	DHABEJI2 132132.00	1	81.21	131.33	250	51.3
DSEZ 220	GHARO-NEW 220	1	BQPS III 220.00	BQPS-4 GT 18.500	1	118.17	166.92	674	24.77
DSEZ 220	DSEZ 132 132	1	DHABEJI 220 220.00	DSEZ 220.00	1	16.79	17.03	160	10.3
DSEZ 220	DSEZ 132 132	2	DHABEJI 220 220.00	DSEZ 220.00	1	16.79	17.03	160	10.3
MAR-BAL-KKI222	MAR-KKI-UG2 22	R1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	R2	409.65	750.38	967	77.6
MAR-BAL-KKI 22	MAR-KKI_UG 22	R2	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	R1	409.65	750.38	967	77.6
BAL-KKI-UG 22	BAL_KKI_UG4 22	1	K-2/K-3 500.00	NKI 500.00	1	84.09	268.27	967	27.74
BAL_KKI_UG2 22	BAL_KKI_UG3 22	1	K-2/K-3 500.00	NKI 500.00	1	84.09	268.27	967	27.74
DHABEJI2 13213	DHABEJI 132 13	N1	PIPRI W 220 220.00	PIPRI W 132 132.00	1	75.92	91.21	365	24.99
DHABEJI2 13213	DHABEJI 132 13	N2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	75.92	91.21	365	24.99

Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Peak Load Case Year 2027 - (Maximum Solar - Maximum Wind - Without RPC)

Normal Case

Exhibit 3.4.0

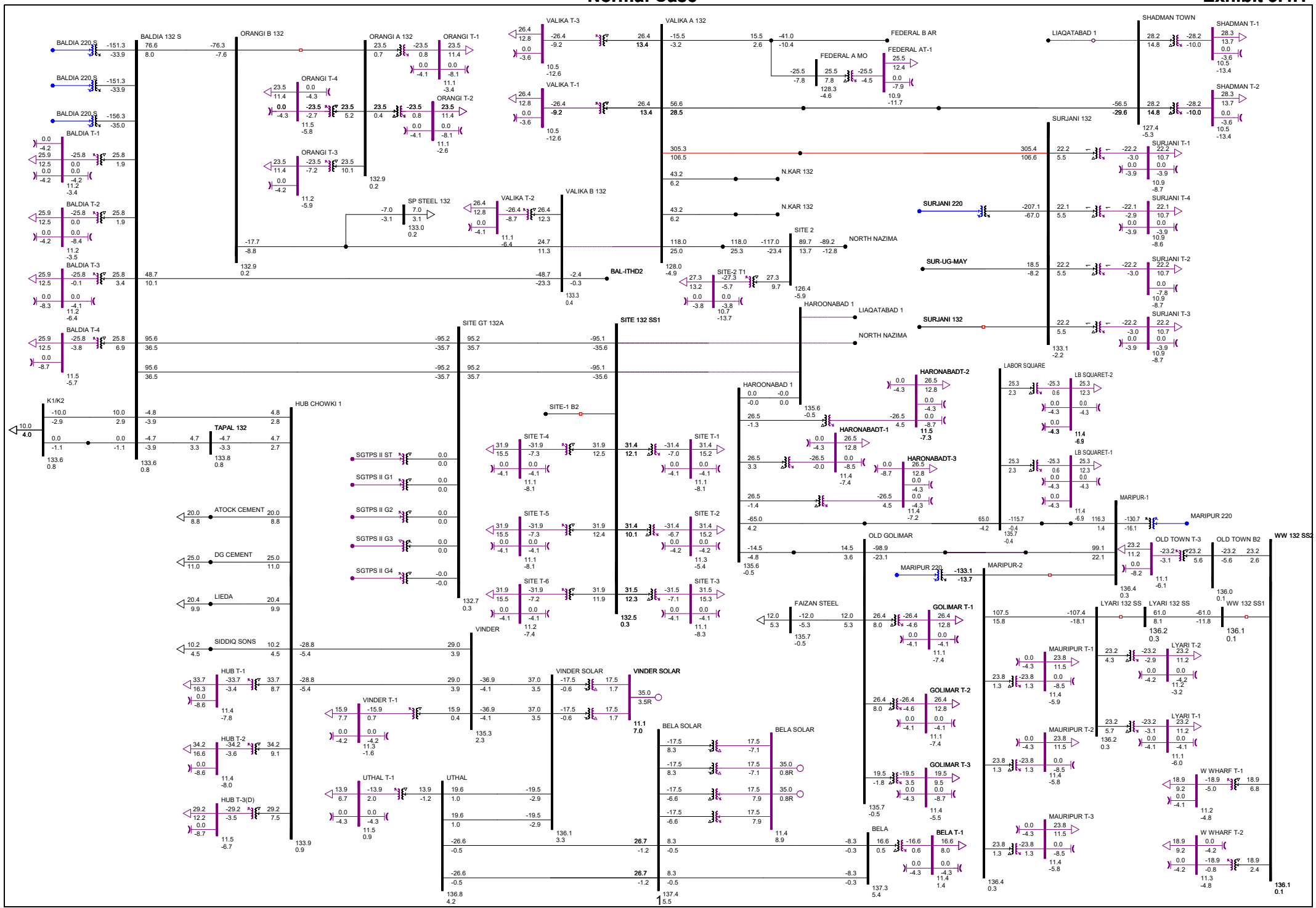


Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Peak Load CaseYear 2027 - (Maximum Solar - Maximum Wind - Without RPC)

Normal Case

Exhibit 3.4.1



Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
DADU 500.00	MORO 500.00	1	DADU 500.00	JAMSHORO 500.00	2	482.55	876.48	2000	43.82
DADU 500.00	JAMSHORO 500.00	2	DADU 500.00	MATIARI-CS 500.00	1	928.36	1239.67	1300	95.36
DADU 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	597.49	1085.07	1200	90.42
DADU 500.00	DADU 220.00	1	DADU 500.00	DADU 220.00	2	41.35	60.46	450	12.92
DADU 500.00	DADU 220.00	2	DADU 500.00	DADU 220.00	1	41.35	60.46	450	12.92
DADU 500.00	DADU 220.00	3	DADU 500.00	DADU 220.00	1	41.35	60.46	450	12.92
MORO 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	493.67	874.09	1300	67.24
JAMSHORO 500.00	K-2/K-3 500.00	1	K-2/K-3 500.00	NKI 500.00	1	337.5	653.16	1900	34.38
JAMSHORO 500.00	HUB 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	624.71	1228.75	1300	94.52
JAMSHORO 500.00	NKI 500.00	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	293.58	496.67	1300	38.21
JAMSHORO 500.00	HUBCO-CFPP 500.00	1	HUB 500.00	HUBCO-CFPP 500.00	2	601.35	1237.96	1300	95.23
JAMSHORO 500.00	MATIARI-CS 500.00	1	JAMSHORO 500.00	MATIARI-CS 500.00	3	772.79	1312.66	2000	65.63
JAMSHORO 500.00	MATIARI-CS 500.00	3	JAMSHORO 500.00	MATIARI-CS 500.00	1	779.96	1317.6	2793	47.18
JAMSHORO 500.00	JAMSHORO 220.00	1	JAMSHORO 500.00	JAMSHORO 220.00	2	112.49	142.46	450	30.68
JAMSHORO 500.00	JAMSHORO 220.00	2	JAMSHORO 500.00	JAMSHORO 220.00	1	112.49	142.46	450	30.68
JAMSHORO 500.00	JAMSHORO 220.00	3	JAMSHORO 500.00	JAMSHORO 220.00	1	112.49	142.46	450	30.68
ENGRO CFPP 500.00	THL NVA CFPP500.00	1	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	7.66	630.53	2793	22.58
ENGRO CFPP 500.00	TEL CFPP 500.00	1	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	275.07	899.99	2793	32.22
SECL CFPP 500.00	MATIARI-CS 500.00	1	SECL CFPP 500.00	MATIARI-CS 500.00	2	606.07	830.83	1600	51.93
SECL CFPP 500.00	MATIARI-CS 500.00	2	SECL CFPP 500.00	MATIARI-CS 500.00	1	606.07	830.83	1600	51.93
SECL CFPP 500.00	MATIARI-CS 500.00	3	SECL CFPP 500.00	MATIARI-CS 500.00	1	604.12	828.19	1600	51.76
SECL CFPP 500.00	TEL CFPP 500.00	2	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	574.96	1199.6	2793	42.95
PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	102.51	643.59	2793	23.04
PRT QSM CFPP500.00	KKI-500 500.00	1	MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	526.33	1197.11	2700	44.34
K-2/K-3 500.00	NKI 500.00	1	K-2/K-3 500.00	KKI-500 500.00	1	1044.31	1271.67	2793	45.53
K-2/K-3 500.00	MATIARI-CS 500.00	1	K-2/K-3 500.00	NKI 500.00	1	469.56	720.63	1400	51.47
K-2/K-3 500.00	KKI-500 500.00	1	K-2/K-3 500.00	NKI 500.00	1	398.22	820.7	2793	29.38
HUB 500.00	HUBCO-CFPP 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	621.42	1246.6	2793	44.63
NKI 500.00	NKI 220.00	1	NKI 500.00	NKI 220.00	3	276.2	385.63	600	63.04
NKI 500.00	NKI 220.00	2	NKI 500.00	NKI 220.00	3	276.2	385.63	600	63.04
NKI 500.00	NKI 220.00	3	NKI 500.00	NKI 220.00	1	310.57	410.4	600	67.13
MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	PRT QSM CFPP500.00	KKI-500 500.00	1	708.44	1164.78	1900	61.3
MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	600.52	1191.52	1600	74.47
THL NVA CFPP500.00	SIDQSNS-CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	296.78	895.89	2793	32.08
DADU 220.0	DADU NEW 132.0	1	BQPS III 220.00	BQPS-4 GT 18.500	1	34.12	38.1	160	22.4
DADU 220.0	DADU NEW 132.0	2	BQPS III 220.00	BQPS-4 GT 18.500	1	34.12	38.1	160	22.4
DADU 220.0	DADU NEW 132.0	3	BQPS III 220.00	BQPS-4 GT 18.500	1	54.6	60.96	250	22.94
JAMSHORO 220.0	JHIMPIR-2 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	3	174.39	228.26	550	41.5
JAMSHORO 220.0	JHIMPIR-2 220.0	3	JAMSHORO 220.00	JHIMPIR-2 220.00	2	174.39	228.26	550	41.5
JAMSHORO 220.0	HALA RD. 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	98.8	181.5	307	59.12
JAMSHORO 220.0	HALA RD. 220.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	98.8	181.5	307	59.12
JAMSHORO 220.0	MIRPRKHS 220.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	92.82	146.69	674	21.76
JAMSHORO 220.0	TM.KH.RD 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	71.92	209.47	600	34.91
JAMSHORO 220.0	JAMSHORO NEW132.0	1	JAMSHORO 220.00	JAMSHORO NEW132.00	2	64.61	75.82	160	47.44
JAMSHORO 220.0	JAMSHORO NEW132.0	2	JAMSHORO 220.00	JAMSHORO NEW132.00	1	64.61	75.82	160	47.44
JAMSHORO 220.0	JAMSHORO NEW132.0	3	JAMSHORO 220.00	JAMSHORO NEW132.00	1	64.61	75.82	160	47.44
JHIMPIR-2 220.0	KDA-33 220.0	1	JHIMPIR-2 220.00	KDA-33 220.00	2	228.78	293.31	674	43.52
JHIMPIR-2 220.0	KDA-33 220.0	2	JHIMPIR-2 220.00	KDA-33 220.00	1	228.78	293.31	674	43.52
JHIMPIR-2 220.0	JHIMPIR-2 132.0	1	PRT QSM CFPP500.00	KKI-500 500.00	1	190.76	190.78	250	77.37
JHIMPIR-2 220.0	JHIMPIR-2 132.0	2	PRT QSM CFPP500.00	KKI-500 500.00	1	190.76	190.78	250	77.37
JHIMPIR-2 220.0	JHIMPIR-2 132.0	3	PRT QSM CFPP500.00	KKI-500 500.00	1	190.76	190.78	250	77.37
JHIMPIR-2 220.0	JHIMPIR-2 132.0	4	PRT QSM CFPP500.00	KKI-500 500.00	1	190.76	190.78	250	77.37
JHIMPIR-2 220.0	JHIMPIR-1 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	202.49	339.65	674	50.39
JHIMPIR-2 220.0	DHABEJI 220 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	160.92	235.53	674	34.95
HALA RD. 220.0	MIRPRKHS 220.0	1	JAMSHORO 220.00	MIRPRKHS 220.00	1	100.55	157.47	674	23.36
HALA RD. 220.0	TM.KH.RD 220.0	2	DHABEJI 220 220.00	DSEZ 220.00	1	267.89	305.5	674	45.33
HALA RD. 220.0	HALA ROAD 132.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	116.42	125.39	250	50.8
HALA RD. 220.0	HALA ROAD-1 132.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	108.07	117.07	250	47.43
HALA RD. 220.0	HALA ROAD-1 132.0	2	HALA RD. 220.00	MIRPRKHS 220.00	1	108.07	117.07	250	47.43
MIRPRKHS 220.0	M.KHS.NW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	96.35	102.5	250	42.28
MIRPRKHS 220.0	M.KHS.NW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	96.35	102.5	250	42.28
TM.KH.RD 220.0	HYD-TMK-2 132.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	86.48	122.77	250	49.32
TM.KH.RD 220.0	HYD-TMRD 132.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	75.69	102.7	250	41.26
TM.KH.RD 220.0	JHIMPIR-1 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	242.62	274.87	674	40.78
TM.KH.RD 220.0	JHIMPIR-1 220.0	2	DHABEJI 220 220.00	DSEZ 220.00	1	242.62	274.87	674	40.78
KDA-33 220.0	NKI 220.0	E1	BALDIA 220 S220.00	NKIBAL PLDP1220.00	E1	403.57	599.5	953	62.91
KDA-33 220.0	N.PORT QASIM220.0	E1	KDA-33 220.00	N.PORT QASIM220.00	E2	149.75	200.1	921.8	21.71

Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
KDA-33 220.0	N.PORT QASIM220.0	E2	KDA-33 220.00	N.PORT QASIM220.00	E1	149.75	200.1	921.76	21.71
KDA-33 220.0	BTK-220 220.0	1	KDA-33 220.00	N.PORT QASIM220.00	E1	131.52	175.28	1350	12.98
KDA-33 220.0	DHACK-220 220.0	N1	KDA-33 220.00	N.PORT QASIM220.00	E1	131.52	175.28	1350	12.98
KDA-33 220.0	KDA2 132 132.0	1	KDA-33 220.00	KDA2 132 132.00	2	244.28	327.17	250	130.76
KDA-33 220.0	KDA2 132 132.0	2	KDA-33 220.00	KDA2 132 132.00	1	244.28	327.17	250	130.76
KDA-33 220.0	KDA2 132 132.0	3	KDA-33 220.00	KDA2 132 132.00	1	240.4	321.98	250	128.68
NKI 220.0	NKIBAL PLDP1220.0	E1	KDA-33 220.00	NKI 220.00	E1	461.12	691.66	952.6	72.61
JAMSHORO NEW132.	LAKHRA 132.	1	DADU 500.00	JAMSHORO 500.00	2	31.54	42.52	202	21.05
JAMSHORO NEW132.	LAKHRA 132.	2	DADU 500.00	JAMSHORO 500.00	2	31.54	42.52	202	21.05
JAMSHORO NEW132.	QASIMABAD 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	52.01	57.63	202	28.53
JAMSHORO NEW132.	RAJPUTANA 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	51.43	61.52	202	30.45
JAMSHORO NEW132.	JAMSRO OLD 132.	1	DHABEJI 220 220.00	DSEZ 220.00	1	35.77	38.41	202	19.01
JAMSHORO NEW132.	JAMSRO OLD 132.	2	DHABEJI 220 220.00	DSEZ 220.00	1	35.77	38.41	202	19.01
JAMSHORO NEW132.	JAMSRO OLD 132.	3	DHABEJI 220 220.00	DSEZ 220.00	1	35.77	38.41	202	19.01
BALDIA 220 S220	MITHA GHAR 220	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	112.59	244.7	967	25.31
BALDIA 220 S220	BALDIA 132 S132	1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	159.37	225.23	250	86.82
BALDIA 220 S220	BALDIA 132 S132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	1	164.59	229.63	250	88.51
BALDIA 220 S220	BALDIA 132 S132	3	BALDIA 220 S220.00	BALDIA 132 S132.00	2	159.37	225.23	250	86.82
BALDIA 220 S220	NKIBAL PLDP1220	E1	KDA-33 220.00	NKI 220.00	E1	457.19	671.57	1348.2	49.81
BALDIA 220 S220	BAL_KKI_UG3 220	E1	NKI 220.00	NKIBAL PLDP1220.00	E1	67.5	204.42	476.3	42.92
BALDIA 220 S220	BAL_KKI_UG4 220	E2	NKI 220.00	NKIBAL PLDP1220.00	E1	67.5	204.42	476.3	42.92
MARIPUR 220 220	MARIPUR-2 132	1	MARIPUR 220 220.00	MARIPUR-1 132.00	11	135.49	205.27	250	79.57
MARIPUR 220 220	MARIPUR-1 132	11	MARIPUR 220 220.00	MARIPUR-2 132.00	1	133.31	203.53	250	78.89
MARIPUR 220 220	MARIPUR-1 132	12	MARIPUR 220 220.00	MARIPUR-2 132.00	1	132.59	202.58	250	78.52
MARIPUR 220 220	MAR-BAL-KKI2220	R1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	R2	334.29	606.61	952	63.72
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	141.63	315.37	495.37	63.66
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	141.63	315.37	495.37	63.66
MARIPUR 220 220	MAR-BAL-KKI 220	R2	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	R1	334.29	606.61	952	63.72
LALAZAR 220 220	MAR-LALPLDP1220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	149.39	319.19	495.37	64.44
LALAZAR 220 220	MAR-LALPLDP2220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	149.39	319.19	495.37	64.44
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	202.5	281.38	250	109.32
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	202.5	281.38	250	109.32
LALAZAR 220 220	LALAZAR-UG1 220	E1	K CREEK 220 220.00	KCR_UG2 220.00	E2	83.7	151.63	514.4	29.48
LALAZAR 220 220	LALAZAR-UG2 220	E2	K CREEK 220 220.00	KCR_UG1 220.00	E1	83.7	151.63	514.4	29.48
LALAZAR-UG1 220	KCR_UG1 220	1	K CREEK 220 220.00	KCR_UG2 220.00	E2	84.16	148.5	483.6	30.71
SURJANI 220 220	KDA-33 220	E1	SURJANI 220 220.00	DEH HALKANI 220.00	1	209.89	431.53	904	47.74
SURJANI 220 220	DEH HALKANI 220	1	SURJANI 220 220.00	KDA-33 220.00	E1	242.02	365.43	967	37.79
SURJANI 220 220	SURJANI 132 132	1	SURJANI 220 220.00	SURJANI 132 132.00	2	233.33	332.47	250	133.57
SURJANI 220 220	SURJANI 132 132	2	SURJANI 220 220.00	SURJANI 132 132.00	1	218.21	319.74	250	128.36
LALAZAR-UG2 220	KCR_UG2 220	1	K CREEK 220 220.00	KCR_UG1 220.00	E1	84.16	148.5	483.6	30.71
K CREEK 220 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	242.04	357.01	419.16	85.17
K CREEK 220 220	CCP-KCR-2 220	1	CCPP 220.00	CCP-KCR-1 220.00	E1	58.41	96.01	270.6	35.48
K CREEK 220 220	CCP-KCR-1 220	1	CCPP 220.00	CCP-KCR-2 220.00	E2	58.41	96.01	270.5	35.49
K CREEK 220 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	242.04	357.01	419.2	85.17
K CREEK 220 220	QAYOMABAD 132	2	K CREEK 220 220.00	KO.WEST 132 132.00	2	192.95	244.55	250	95.18
K CREEK 220 220	KO.WEST 132 132	2	K CREEK 220 220.00	QAYOMABAD 132.00	2	192.95	244.55	250	95.18
K CREEK 220 220	KCR_UG1 220	E1	K CREEK 220 220.00	KCR_UG2 220.00	E2	84.77	151.99	514.4	29.55
K CREEK 220 220	KCR_UG2 220	E2	K CREEK 220 220.00	KCR_UG1 220.00	E1	84.77	151.99	514.4	29.55
BQPS II 220	KCR-BQ2-LDI 220	E1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E2	243.63	364.15	419.2	86.87
BQPS II 220	BQPS-2 GEN-415.	1	#VALUE!	#VALUE!	SE	148.22	148.22	250	57.56
BQPS II 220	BQPS-2 GEN-115.	1	DADU 500.00	DADU 220.00	1	143.65	143.65	170	80.55
BQPS II 220	BQPS-2 GEN-315.	1	BQPS III 220.00	BQPS-4 GT 18.500	1	122.95	151.13	170	84.65
BQPS II 220	BQPS-2 GEN-215.	1	BQPS III 220.00	BQPS-4 GT 18.500	1	122.95	151.13	170	84.65
BQPS II 220	KCR-BQ2-LDI 220	E2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	243.63	364.15	419.2	86.87
PIPRI W 220 220	BQPS III 220	E1	PIPRI W 220 220.00	ICI 220 220.00	E4	121.17	165.01	457	36.11
PIPRI W 220 220	BQPS III 220	E3	PIPRI W 220 220.00	ICI 220 220.00	E4	138.51	188.65	457	41.28
PIPRI W 220 220	NPQ-2 220	E1	BQPS III 220.00	BQPS-3 GT 18.500	1	75.17	163.65	921.8	17.75
PIPRI W 220 220	NPQ-2 220	E2	BQPS III 220.00	BQPS-3 GT 18.500	1	75.17	163.65	921.8	17.75
PIPRI W 220 220	BQPS III 220	E2	PIPRI W 220 220.00	ICI 220 220.00	E4	121.17	165	457	36.11
PIPRI W 220 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	138.95	189.02	457	41.36
PIPRI W 220 220	PIPRI W 132 132	1	PIPRI W 220 220.00	PIPRI W 132 132.00	2	163.02	214.39	250	83.29
PIPRI W 220 220	PIPRI W 132 132	2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	163.02	214.39	250	83.29
PIPRI W 220 220	PIPRI W 132 132	3	PIPRI W 220 220.00	PIPRI W 132 132.00	1	163.02	214.39	250	83.29
BQPS III 220	BQPS GEN6 18.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	0	0	250	0
BQPS III 220	BQPS GEN5 18.	1	N.PORT QASIM220.00	NPQ-2 220.00	1	0	0	250	0
BQPS III 220	ICI 220 220	E4	PIPRI W 220 220.00	BQPS III 220.00	E3	138.5	189.33	457.26	41.41
BQPS III 220	BQPS II 220	1	BQPS III 220.00	BQPS-4 GT 18.500	1	32	87.08	609.7	14.28

Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
BQPS III 220	BQPS II 220	2	BQPS III 220.00	BQPS-4 GT 18.500	1	32	87.08	609.7	14.28
BQPS III 220	BQPS-4 GT 18.	1	BQPS III 220.00	BQPS-3 GT 18.500	1	501.86	510.25	600	81.03
BQPS III 220	LANDHI220 220	N1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	242.16	286	967	29.58
BQPS III 220	LANDHI220 220	N2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	242.16	286	967	29.58
N.PORT QASIM220	BTK-220 220	1	KDA-33 220.00	N.PORT QASIM220.00	E1	131.44	175.64	1530	11.48
N.PORT QASIM220	DHACK-220 220	N1	KDA-33 220.00	N.PORT QASIM220.00	E1	131.44	175.64	1530	11.48
N.PORT QASIM220	DHABEJI 220 220	N1	N.PORT QASIM220.00	DHABEJI 220 220.00	N2	209.5	297.35	967	30.75
N.PORT QASIM220	DHABEJI 220 220	N2	N.PORT QASIM220.00	DHABEJI 220 220.00	N1	209.5	297.35	967	30.75
KDA-33 220	GULSHAN 220 220	E1	KDA-33 220.00	GULSHAN 220 220.00	E2	213.68	427.77	514	83.22
KDA-33 220	GULSHAN 220 220	E2	KDA-33 220.00	GULSHAN 220 220.00	E1	213.68	427.77	514	83.22
GULSHAN 220 220	GULSHAN 132 132	1	GULSHAN 220 220.00	GULSHAN 132 132.00	2	142.45	216.79	250	86.68
GULSHAN 220 220	GULSHAN 132 132	2	GULSHAN 220 220.00	GULSHAN 132 132.00	1	142.45	216.79	250	86.68
GULSHAN 220 220	GULSHAN 132 132	3	GULSHAN 220 220.00	GULSHAN 132 132.00	1	142.45	216.79	250	86.68
DEH HALKANI 220	MITHA GHAR 220	1	KDA-33 220.00	NKI 220.00	E1	164.01	288.35	967	29.82
DEH HALKANI 220	DEH-HAL-22KV22.	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	2	47.94	95.93	120	79.56
DEH HALKANI 220	DEH-HAL-22KV22.	2	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	47.94	95.93	120	79.56
MAR-LALPLDP1220	LZAR-MP-PLDP220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	141.7	284.25	476.3	59.68
MAR-LALPLDP2220	LZAR-MP-PLDP220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	141.7	284.25	476.4	59.67
NPQ-2 220	DHAB-NPQ2 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	103.39	170.19	1524.2	11.17
NPQ-2 220	DHAB-NPQ 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	103.39	170.19	1524.2	11.17
CCPP 220	CCPP/LAN UG1220	N1	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	172.22	217.55	957	22.73
CCPP 220	CCPP/LAN UG2220	N2	K CREEK 220 220.00	KCR-BQ2-LDI 220.00	E1	172.22	217.55	957	22.73
CCPP 220	CCP-KCR-2 220	E2	CCPP 220.00	KTPS EXISTIN132.00	1	59.36	101.94	349	29.21
CCPP 220	CCP-KCR-1 220	E1	CCPP 220.00	KTPS EXISTIN132.00	1	59.36	101.94	349	29.21
CCPP 220	KTPS EXISTIN132	1	CCPP 220.00	KTPS EXISTIN132.00	2	201.58	269.9	250	105.29
CCPP 220	KTPS EXISTIN132	2	CCPP 220.00	KTPS EXISTIN132.00	1	201.58	269.9	250	105.29
BQPS III 220	BQPS-3 GT 18.	1	BQPS III 220.00	BQPS-4 GT 18.500	1	494.87	503.27	600	80.31
MITHA GHAR 220	MTH-GHR-22KV22.	3	MITHA GHAR 220.00	MTH-GHR-22KV22.000	4	59.91	120.45	150	79.06
MITHA GHAR 220	MTH-GHR-22KV22.	4	MITHA GHAR 220.00	MTH-GHR-22KV22.000	3	59.91	120.45	150	79.06
22	0.4	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	16.06	16.74	20	81.44
22	0.4	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	16.06	16.74	20	81.44
22	0.4	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	16.06	16.74	20	81.44
22	0.4	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	16.06	16.74	20	81.44
22	0.4	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	16.06	16.74	20	81.44
22	0.4	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	16.06	16.74	20	81.44
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.06	17.39	20	81.78
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.06	17.39	20	81.78
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.06	17.39	20	81.78
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.06	17.39	20	81.78
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.06	17.39	20	81.78
KKI-500 500	KKI-220 220	1	K-2/K-3 500.00	NKI 500.00	1	308.05	439.09	600	73.01
KKI-500 500	KKI-220 220	2	K-2/K-3 500.00	NKI 500.00	1	308.05	439.09	600	73.01
KKI-500 500	KKI-220 220	3	K-2/K-3 500.00	NKI 500.00	1	308.05	439.09	600	73.01
KKI-220 220	KKI-132 132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	2	139.54	178.4	250	68.3
KKI-220 220	MAR-KKI_UG 220	1	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	R1	337.07	634.67	957.2	66.3
KKI-220 220	MAR-KKI-UG2 220	1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	R2	337.07	634.67	957.2	66.3
KKI-220 220	BAL-KKI-UG 220	1	NKI 220.00	NKIBAL PLDP1220.00	E1	64.35	204.77	957.2	21.39
KKI-220 220	BAL_KKI_UG2 220	1	NKI 220.00	NKIBAL PLDP1220.00	E1	64.35	204.77	957.2	21.39
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	16.06	17.27	20	81.48
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	12.08	13.03	15	81.7
22	0.4	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	12.08	13.03	15	81.7
KDA2 132 132	GADAP 132	N1	KDA-33 220.00	NKI 220.00	E1	29.37	29.8	202	14.75
KDA2 132 132	GULSHAN 132 132	R1	SURJANI 220 220.00	KDA-33 220.00	E1	96.12	96.32	280	34.4
KDA2 132 132	JOHAR 132 132	R1	SURJANI 220 220.00	KDA-33 220.00	E1	173.06	173.37	280	61.92
KDA2 132 132	MEMON GOTH 132	R1	SURJANI 220 220.00	KDA-33 220.00	E1	89.15	89.27	280	31.88
KDA2 132 132	SNPC 132	1	KDA-33 220.00	NKI 220.00	E1	47.39	48.08	202	23.8
MARIPUR-2 132	LYARI 132 SS132	E1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	108.9	109.21	171	63.86
QUEENS RD 13132	ELANDER 132 132	E1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	39.1	39.21	160	24.5
QUEENS RD 13132	ELANDER 132 132	E2	DEH HALKANI 220.00	MITHA GHAR 220.00	1	39.1	39.21	160	24.5
SURJANI 132 132	SUR-VALIKA 132	R1	KDA-33 220.00	KDA2 132 132.00	1	323.69	335.11	262	127.9
SURJANI 132 132	SUR-UG-MAY 132	E1	SURJANI 220 220.00	SURJANI 132 132.00	1	20.07	81.43	160	50.89
PIPRI W 132 132	AISHA STEEL 132	1	N.PORT QASIM220.00	NPQ-2 220.00	1	5.46	5.48	112	4.89
PIPRI W 132 132	PIPRI E 132 132	E1	N.PORT QASIM220.00	NPQ-2 220.00	1	24.5	24.61	230.2	10.69
KTPS EXISTIN132	PRL-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	124.22	150.83	160	94.27
KTPS EXISTIN132	QAYMBD-KTPS 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	100.95	136.81	137.2	99.71
QAYOMABAD 132	KO.WEST 132 132	2	DEH HALKANI 220.00	MITHA GHAR 220.00	1	0.37	0.37	280	0.13
QAYOMABAD 132	QY-KE-KCNUG1132	E1	CCPP 220.00	KTPS EXISTIN132.00	1	58.27	67.55	251.5	26.86

Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
QAYOMABAD 132	QY-KS-KCNUG2132	E2	CCPP 220.00	KTPS EXISTIN132.00	1	57.78	66.98	171.47	39.06
KO.WEST 132 132	PRL 132 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	55.35	81.82	130.09	62.89
KO.WEST 132 132	DEFNCE-K-WST132	E1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	104.91	144.2	160	90.12
QUEENS RD 13132	OLD TOWN 132132	E1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	47.57	47.7	114	41.84
QUEENS RD 13132	Q.RD-CLIFTON132	R1	K CREEK 220 220.00	QAYOMABAD 132.00	2	96.73	118.62	160	74.13
QUEENS RD 13132	Q.RD-GIZRI 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	100.26	142.48	251.49	56.66
GULSHAN 132 132	AZIZABAD 132	E1	PRT QSM CFPP500.00	KKI-500 500.00	1	88.28	88.35	171.5	51.52
GULSHAN 132 132	JAIL ROAD SS132	E1	PRT QSM CFPP500.00	KKI-500 500.00	1	43.17	43.21	171	25.27
GULSHAN 132 132	AGHA KHAN 132	E1	PRT QSM CFPP500.00	KKI-500 500.00	1	67.72	67.75	171	39.62
GULSHAN 132 132	CIVIC 132 A 132	E1	PRT QSM CFPP500.00	KKI-500 500.00	1	97.91	97.96	160	61.22
GULSHAN 132 132	JAIL ROAD SS132	E2	PRT QSM CFPP500.00	KKI-500 500.00	1	43.17	43.21	171	25.27
MARIPUR-1 132	MAR-LAB PL1 132	E1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	116.28	116.85	240.1	48.67
MARIPUR-1 132	MAR-GOL PL2 132	E1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	101.74	102.18	240.1	42.56
BALDIA 132 S132	HUB CHOWKI 1132	1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	5.18	24.67	183	13.48
BALDIA 132 S132	VALIKA B 132132	E2	DEH HALKANI 220.00	MITHA GHAR 220.00	1	53.95	54.44	262.2	20.76
BALDIA 132 S132	SITE GT 132A132	R1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	102.29	103.06	280	36.81
BALDIA 132 S132	SITE GT 132A132	R2	DEH HALKANI 220.00	MITHA GHAR 220.00	1	102.29	103.06	280	36.81
BALDIA 132 S132	KANUPP 132 132	E1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	1.07	1.09	117.3	0.93
BALDIA 132 S132	ORANGI B 132132	R1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	77.06	77.75	280	27.77
BALDIA 132 S132	TAPAL 132 132	E1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	5.12	24.3	228.6	10.63
BALDIA 132 S132	BAL-ITHD 132	1	DEH HALKANI 220.00	MITHA GHAR 220.00	1	38.69	39.09	130.1	30.04
DHABEJI 220 220	THERMAL-PP 220	1	N.PORT QASIM220.00	DHABEJI 220 220.00	N1	4.4	4.41	1524.2	0.29
DHABEJI 220 220	THERMAL-PP 220	2	N.PORT QASIM220.00	DHABEJI 220 220.00	N1	4.4	4.41	1524.2	0.29
DHABEJI 220 220	DSEZ 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	256.49	302.17	674	44.83
DHABEJI 220 220	DHAB-NPQ2 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	103.98	170.45	957.2	17.81
DHABEJI 220 220	DHAB-NPQ 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	103.98	170.45	957.2	17.81
DHABEJI 220 220	SITE NEUTRAL220	1	DHABEJI 220 220.00	SITE NEUTRAL220.00	2	103.98	194.63	967	20.13
DHABEJI 220 220	SITE NEUTRAL220	2	DHABEJI 220 220.00	SITE NEUTRAL220.00	1	103.98	194.63	967	20.13
DHABEJI 220 220	WIND PROJ 220	1	DHABEJI 220 220.00	WIND PROJ 220.00	2	105.68	217.07	967	22.45
DHABEJI 220 220	WIND PROJ 220	2	DHABEJI 220 220.00	WIND PROJ 220.00	1	105.68	217.07	967	22.45
DHABEJI 220 220	DHABEJI2 132132	1	DHABEJI 220 220.00	DHABEJI2 132132.00	2	96.59	156.17	250	61.03
DHABEJI 220 220	DHABEJI2 132132	2	DHABEJI 220 220.00	DHABEJI2 132132.00	1	96.59	156.17	250	61.03
DSEZ 220	GHARO-NEW 220	1	BQPS III 220.00	BQPS-3 GT 18.500	1	287.25	333.46	674	49.47
DSEZ 220	DSEZ 132 132	1	PRT QSM CFPP500.00	KKI-500 500.00	1	16.79	16.8	160	10.29
DSEZ 220	DSEZ 132 132	2	PRT QSM CFPP500.00	KKI-500 500.00	1	16.79	16.8	160	10.29
MAR-BAL-KKI222	MAR-KKI-UG2 22	R1	MARIPUR 220 220.00	MAR-BAL-KKI 220.00	R2	337.07	632.85	967	65.44
MAR-BAL-KKI 22	MAR-KKI_UG 22	R2	MARIPUR 220 220.00	MAR-BAL-KKI2220.00	R1	337.07	632.85	967	65.44
BAL-KKI-UG 22	BAL_KKI_UG4 22	1	NKI 220.00	NKIBAL PLDP1220.00	E1	65.62	207.12	967	21.42
BAL_KKI_UG2 22	BAL_KKI_UG3 22	1	NKI 220.00	NKIBAL PLDP1220.00	E1	65.62	207.12	967	21.42
DHABEJI2 13213	DHABEJI 132 13	N1	PIPRI W 220 220.00	PIPRI W 132 132.00	1	91.13	106.18	365	29.09
DHABEJI2 13213	DHABEJI 132 13	N2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	91.13	106.18	365	29.09

Appendix - B - 4

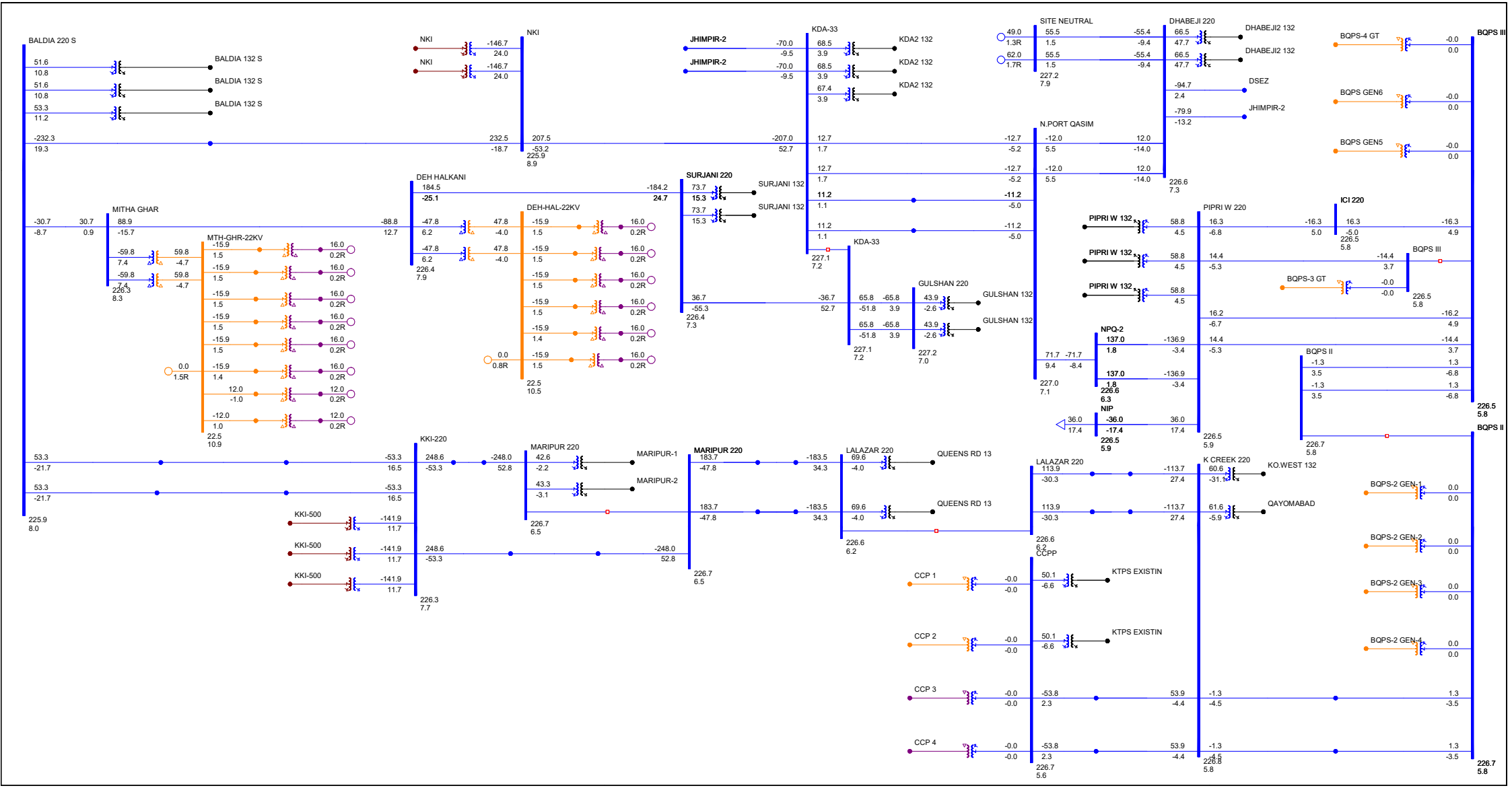
Plotted Results of Load Flow Analysis for Off-Peak Load Case Summer 2027

Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plants

Off-Peak Load Case Year 2025 - (Maximum Solar - Average Wind - With RPC)

Normal Case

Exhibit 4.1.0

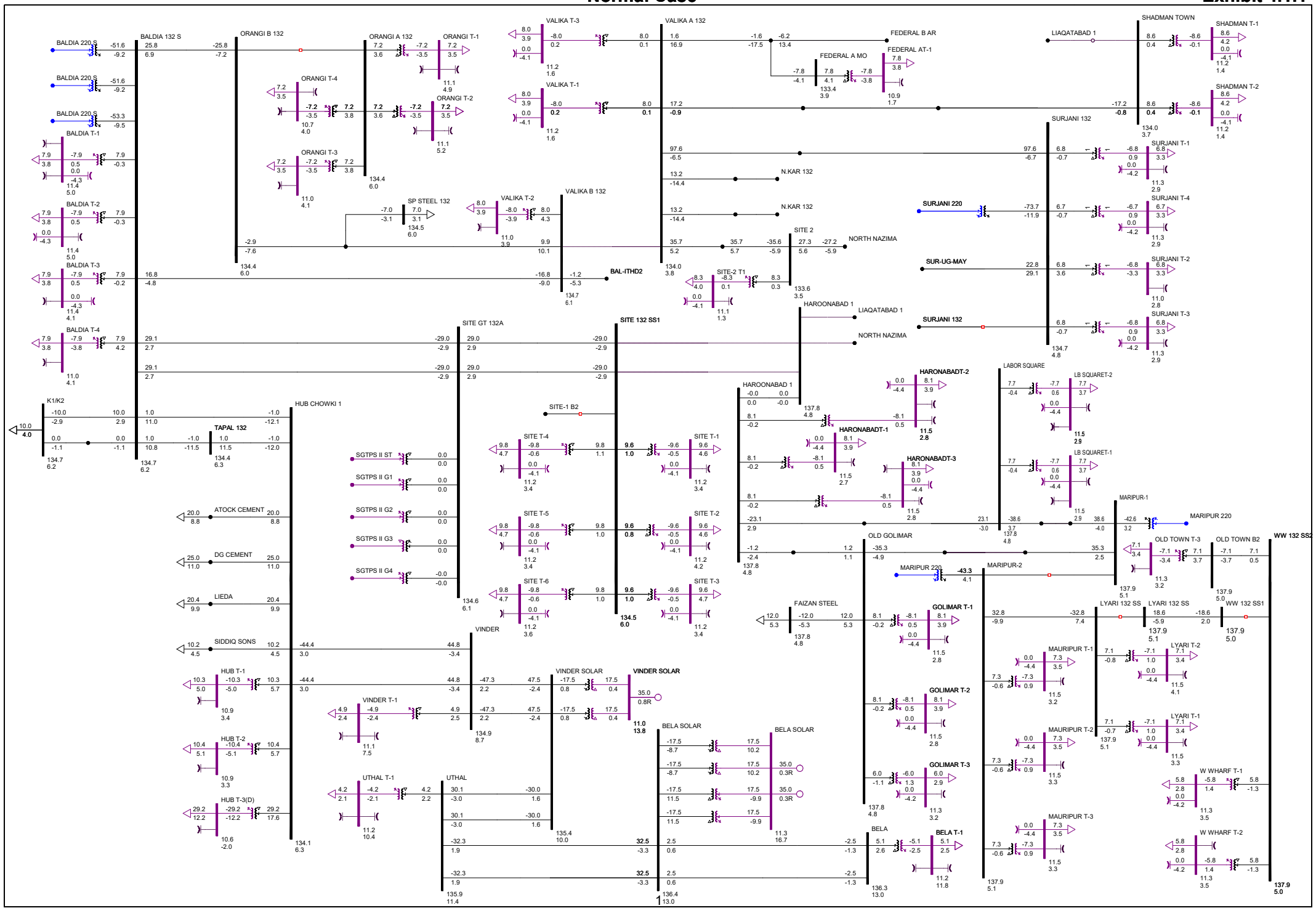


Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Off-Peak Load CaseYear 2027 - (Maximum Solar - Average Wind - With RPC)

Normal Case

Exhibit 4.1.1



Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
DADU 500.00	MORO 500.00	1	DADU 500.00	JAMSHORO 500.00	2	423.32	759.08	2000	37.95
DADU 500.00	JAMSHORO 500.00	2	DADU 500.00	MATIARI-CS 500.00	1	857.5	1125.77	1300	86.6
DADU 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	529.32	959.58	1200	79.97
DADU 500.00	DADU 220.00	1	DADU 500.00	DADU 220.00	2	18.56	27.01	450	5.94
DADU 500.00	DADU 220.00	2	DADU 500.00	DADU 220.00	1	18.56	27.01	450	5.94
DADU 500.00	DADU 220.00	3	DADU 500.00	DADU 220.00	1	18.56	27.01	450	5.94
MORO 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	419.73	765.76	1300	58.9
JAMSHORO 500.00	K-2/K-3 500.00	1	K-2/K-3 500.00	NKI 500.00	1	397.36	653.53	1900	34.4
JAMSHORO 500.00	HUB 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	625.73	1227.02	1300	94.39
JAMSHORO 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	383.25	573.3	1300	44.1
JAMSHORO 500.00	HUBCO-CFPP 500.00	1	HUB 500.00	HUBCO-CFPP 500.00	2	596.5	1231.17	1300	94.71
JAMSHORO 500.00	MATIARI-CS 500.00	1	JAMSHORO 500.00	MATIARI-CS 500.00	3	796.33	1359.88	2000	67.99
JAMSHORO 500.00	MATIARI-CS 500.00	3	JAMSHORO 500.00	MATIARI-CS 500.00	1	807.19	1364.78	2793	48.86
JAMSHORO 500.00	JAMSHORO 220.00	1	DADU 500.00	JAMSHORO 500.00	2	60.74	79.57	450	17.2
JAMSHORO 500.00	JAMSHORO 220.00	2	DADU 500.00	JAMSHORO 500.00	2	60.74	79.57	450	17.2
JAMSHORO 500.00	JAMSHORO 220.00	3	DADU 500.00	JAMSHORO 500.00	2	60.74	79.57	450	17.2
ENGRO CFPP 500.00	THL NVA CFPP500.00	1	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	32.31	627.97	2793	22.48
ENGRO CFPP 500.00	TEL CFPP 500.00	1	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	276.32	898.27	2793	32.16
SECL CFPP 500.00	MATIARI-CS 500.00	1	SECL CFPP 500.00	MATIARI-CS 500.00	2	606.43	829.55	1600	51.85
SECL CFPP 500.00	MATIARI-CS 500.00	2	SECL CFPP 500.00	MATIARI-CS 500.00	1	606.43	829.55	1600	51.85
SECL CFPP 500.00	MATIARI-CS 500.00	3	SECL CFPP 500.00	MATIARI-CS 500.00	1	604.35	826.82	1600	51.68
SECL CFPP 500.00	TEL CFPP 500.00	2	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	589.31	1199.31	2793	42.94
PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	498.53	597.71	2793	21.4
PRT QSM CFPP500.00	KKI-500 500.00	1	PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	72.73	555.79	2700	20.58
K-2/K-3 500.00	NKI 500.00	1	K-2/K-3 500.00	KKI-500 500.00	1	825.2	1075.66	2793	38.51
K-2/K-3 500.00	MATIARI-CS 500.00	1	K-2/K-3 500.00	NKI 500.00	1	532.7	735.96	1400	52.57
K-2/K-3 500.00	KKI-500 500.00	1	K-2/K-3 500.00	NKI 500.00	1	372.14	731.9	2793	26.2
HUB 500.00	HUBCO-CFPP 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	625.99	1240.11	2793	44.4
NKI 500.00	NKI 220.00	1	K-2/K-3 500.00	KKI-500 500.00	1	148.64	215.64	600	35.03
NKI 500.00	NKI 220.00	2	K-2/K-3 500.00	KKI-500 500.00	1	148.64	215.64	600	35.03
NKI 500.00	NKI 220.00	3	K-2/K-3 500.00	KKI-500 500.00	1	148.64	215.64	600	35.03
MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	445.55	543.64	1900	28.61
MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	602.64	1189.19	1600	74.32
THL NVA CFPP500.00	SIDQSNS-CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	297.54	896.59	2793	32.1
DADU 220.0	DADU NEW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	15.39	20.95	160	12.64
DADU 220.0	DADU NEW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	15.39	20.95	160	12.64
DADU 220.0	DADU NEW 132.0	3	DADU 500.00	JAMSHORO 500.00	2	24.63	33.51	250	12.94
JAMSHORO 220.0	JHIMPIR-2 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	3	115.07	149.95	550	27.26
JAMSHORO 220.0	JHIMPIR-2 220.0	3	JAMSHORO 220.00	JHIMPIR-2 220.00	2	115.07	149.95	550	27.26
JAMSHORO 220.0	HALA RD. 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	83.44	145.53	307	47.4
JAMSHORO 220.0	HALA RD. 220.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	83.44	145.53	307	47.4
JAMSHORO 220.0	MIRPRKHS 220.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	70.95	108.31	674	16.07
JAMSHORO 220.0	TM.KH.RD 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	13.57	94.3	600	15.72
JAMSHORO 220.0	JAMSHORO NEW132.0	1	JAMSHORO 220.00	JAMSHORO NEW132.00	2	57.64	67.97	160	41.78
JAMSHORO 220.0	JAMSHORO NEW132.0	2	JAMSHORO 220.00	JAMSHORO NEW132.00	1	57.64	67.97	160	41.78
JAMSHORO 220.0	JAMSHORO NEW132.0	3	JAMSHORO 220.00	JAMSHORO NEW132.00	1	57.64	67.97	160	41.78
JHIMPIR-2 220.0	KDA-33 220.0	1	KDA-33 220.00	NKI 220.00	E1	70.73	92.78	674	13.77
JHIMPIR-2 220.0	KDA-33 220.0	2	KDA-33 220.00	NKI 220.00	E1	70.73	92.78	674	13.77
JHIMPIR-2 220.0	JHIMPIR-2 132.0	1	JAMSHORO 500.00	JAMSHORO 220.00	1	96.55	96.66	250	38.12
JHIMPIR-2 220.0	JHIMPIR-2 132.0	2	JAMSHORO 500.00	JAMSHORO 220.00	1	96.55	96.66	250	38.12
JHIMPIR-2 220.0	JHIMPIR-2 132.0	3	JAMSHORO 500.00	JAMSHORO 220.00	1	96.55	96.66	250	38.12
JHIMPIR-2 220.0	JHIMPIR-2 132.0	4	JAMSHORO 500.00	JAMSHORO 220.00	1	96.55	96.66	250	38.12
JHIMPIR-2 220.0	JHIMPIR-1 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	63.19	115.78	674	17.18
JHIMPIR-2 220.0	DHABEJI 220 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	80.95	108.67	674	16.12
HALA RD. 220.0	MIRPRKHS 220.0	1	JAMSHORO 220.00	MIRPRKHS 220.00	1	71.55	113.27	674	16.81
HALA RD. 220.0	TM.KH.RD 220.0	2	JAMSHORO 220.00	HALA RD. 220.00	1	158.73	187.41	674	27.81
HALA RD. 220.0	HALA ROAD 132.0	1	DADU 500.00	JAMSHORO 500.00	2	92.56	99.18	250	39.31
HALA RD. 220.0	HALA ROAD-1 132.0	1	DADU 500.00	JAMSHORO 500.00	2	84.12	91.17	250	36.13
HALA RD. 220.0	HALA ROAD-1 132.0	2	DADU 500.00	JAMSHORO 500.00	2	84.12	91.17	250	36.13
MIRPRKHS 220.0	M.KHS.NW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	71.13	77.26	250	30.92
MIRPRKHS 220.0	M.KHS.NW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	71.13	77.26	250	30.92
TM.KH.RD 220.0	HYD-TMK-2 132.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	66.76	88.78	250	34.82
TM.KH.RD 220.0	HYD-TMRD 132.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	62.13	78.82	250	30.92
TM.KH.RD 220.0	JHIMPIR-1 220.0	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	143.04	160.19	674	23.77
TM.KH.RD 220.0	JHIMPIR-1 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	143.04	160.19	674	23.77
KDA-33 220.0	NKI 220.0	E1	NKI 220.00	NKIBAL PLDP1220.00	E1	214.25	318.58	953	33.43
KDA-33 220.0	N.PORT QASIM220.0	E1	DHABEJI 220 220.00	DSEZ 220.00	1	13.74	25.37	921.8	2.75
KDA-33 220.0	N.PORT QASIM220.0	E2	DHABEJI 220 220.00	DSEZ 220.00	1	13.74	25.37	921.76	2.75

Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
KDA-33 220.0	BTK-220 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	11.26	22.01	1350	1.63
KDA-33 220.0	DHACK-220 220.0	N1	DHABEJI 220 220.00	DSEZ 220.00	1	11.26	22.01	1350	1.63
KDA-33 220.0	KDA2 132 132.0	1	KDA-33 220.00	KDA2 132 132.00	2	68.53	90.98	250	35.92
KDA-33 220.0	KDA2 132 132.0	2	KDA-33 220.00	KDA2 132 132.00	1	68.53	90.98	250	35.92
KDA-33 220.0	KDA2 132 132.0	3	KDA-33 220.00	KDA2 132 132.00	1	67.44	89.53	250	35.35
NKI 220.0	NKIBAL PLDP1220.0	E1	K-2/K-3 500.00	KKI-500 500.00	1	233.3	400.25	952.6	42.02
JAMSHORO NEW132.	LAKHRA 132.	1	DADU 500.00	JAMSHORO 500.00	2	23.41	34.42	202	17.04
JAMSHORO NEW132.	LAKHRA 132.	2	DADU 500.00	JAMSHORO 500.00	2	23.41	34.42	202	17.04
JAMSHORO NEW132.	QASIMABAD 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	29.72	33.22	202	16.45
JAMSHORO NEW132.	RAJPUTANA 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	28.69	34.28	202	16.97
JAMSHORO NEW132.	JAMSRO OLD 132.	1	KDA-33 220.00	NKI 220.00	E1	37.29	37.89	202	18.76
JAMSHORO NEW132.	JAMSRO OLD 132.	2	KDA-33 220.00	NKI 220.00	E1	37.29	37.89	202	18.76
JAMSHORO NEW132.	JAMSRO OLD 132.	3	KDA-33 220.00	NKI 220.00	E1	37.29	37.89	202	18.76
BALDIA 220 S220	MITHA GHAR 220	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	31.93	217.85	967	22.53
BALDIA 220 S220	BALDIA 132 S132	1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	52.7	74.41	250	28.98
BALDIA 220 S220	BALDIA 132 S132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	1	54.43	75.86	250	29.55
BALDIA 220 S220	BALDIA 132 S132	3	BALDIA 220 S220.00	BALDIA 132 S132.00	2	52.7	74.41	250	28.98
BALDIA 220 S220	NKIBAL PLDP1220	E1	K-2/K-3 500.00	KKI-500 500.00	1	233.14	400.6	1348.2	29.71
BALDIA 220 S220	BAL_KKI_UG3 220	E1	K-2/K-3 500.00	KKI-500 500.00	1	57.55	143.58	476.3	30.15
BALDIA 220 S220	BAL_KKI_UG4 220	E2	K-2/K-3 500.00	KKI-500 500.00	1	57.55	143.58	476.3	30.15
MARIPUR 220 220	MARIPUR-2 132	1	MARIPUR 220 220.00	MARIPUR-1 132.00	12	43.42	65.9	250	25.59
MARIPUR 220 220	MARIPUR-1 132	11	MARIPUR 220 220.00	MARIPUR-2 132.00	1	42.7	65.3	250	25.36
MARIPUR 220 220	MARIPUR-1 132	12	MARIPUR 220 220.00	MARIPUR-2 132.00	1	42.86	65.37	250	25.39
MARIPUR 220 220	MAR-BAL-KKI2220	R1	KKI-220 220.00	MAR-KKI_UG 220.00	1	253.61	470.58	952	49.43
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	189.8	349.81	495.37	70.62
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	189.8	349.81	495.37	70.62
MARIPUR 220 220	MAR-BAL-KKI 220	R2	KKI-220 220.00	MAR-KKI-UG2 220.00	1	253.61	470.58	952	49.43
LALAZAR 220 220	MAR-LALPLDP1220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	189.52	349.02	495.37	70.46
LALAZAR 220 220	MAR-LALPLDP2220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	189.52	349.02	495.37	70.46
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	69.93	95.89	250	37.13
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	69.93	95.89	250	37.13
LALAZAR 220 220	LALAZAR-UG1 220	E1	LALAZAR 220 220.00	LALAZAR-UG2 220.00	E2	117.81	213.3	514.4	41.47
LALAZAR 220 220	LALAZAR-UG2 220	E2	LALAZAR 220 220.00	LALAZAR-UG1 220.00	E1	117.81	213.3	514.4	41.47
LALAZAR-UG1 220	KCR_UG1 220	1	LALAZAR 220 220.00	LALAZAR-UG2 220.00	E2	117.63	210.21	483.6	43.47
SURJANI 220 220	KDA-33 220	E1	SURJANI 220 220.00	DEH HALKANI 220.00	1	66.41	140.11	904	15.5
SURJANI 220 220	DEH HALKANI 220	1	KDA-33 220.00	NKI 220.00	E1	186.16	256.28	967	26.5
SURJANI 220 220	SURJANI 132 132	1	SURJANI 220 220.00	SURJANI 132 132.00	2	75.31	108.34	250	42.11
SURJANI 220 220	SURJANI 132 132	2	SURJANI 220 220.00	SURJANI 132 132.00	1	75.31	108.34	250	42.11
LALAZAR-UG2 220	KCR_UG2 220	1	LALAZAR 220 220.00	LALAZAR-UG1 220.00	E1	117.63	210.21	483.6	43.47
K CREEK 220 220	KCR-BQ2-LDI 220	E1	KDA-33 220.00	NKI 220.00	E1	4.71	14.75	419.16	3.52
K CREEK 220 220	CCP-KCR-2 220	1	CCPP 220.00	CCP-KCR-1 220.00	E1	54.05	92	270.6	34
K CREEK 220 220	CCP-KCR-1 220	1	CCPP 220.00	CCP-KCR-2 220.00	E2	54.05	92	270.5	34.01
K CREEK 220 220	KCR-BQ2-LDI 220	E2	KDA-33 220.00	NKI 220.00	E1	4.71	14.75	419.2	3.52
K CREEK 220 220	QAYOMABAD 132	2	K CREEK 220 220.00	KO.WEST 132 132.00	2	62.12	80.1	250	30.82
K CREEK 220 220	KO.WEST 132 132	2	K CREEK 220 220.00	QAYOMABAD 132.00	2	69.52	84.85	250	32.78
K CREEK 220 220	KCR_UG1 220	E1	LALAZAR 220 220.00	LALAZAR-UG2 220.00	E2	117.34	213.52	514.4	41.51
K CREEK 220 220	KCR_UG2 220	E2	LALAZAR 220 220.00	LALAZAR-UG1 220.00	E1	117.34	213.52	514.4	41.51
BQPS II 220	KCR-BQ2-LDI 220	E1	KDA-33 220.00	NKI 220.00	E1	3.75	14.14	419.2	3.37
BQPS II 220	KCR-BQ2-LDI 220	E2	KDA-33 220.00	NKI 220.00	E1	3.75	14.14	419.2	3.37
PIPRI W 220 220	BQPS III 220	E1	K-2/K-3 500.00	KKI-500 500.00	1	15.33	27.38	457	5.99
PIPRI W 220 220	BQPS III 220	E3	K-2/K-3 500.00	KKI-500 500.00	1	17.57	31.34	457	6.86
PIPRI W 220 220	NPQ-2 220	E1	PIPRI W 220 220.00	NPQ-2 220.00	E2	136.98	257.23	921.8	27.9
PIPRI W 220 220	NPQ-2 220	E2	PIPRI W 220 220.00	NPQ-2 220.00	E1	136.98	257.23	921.8	27.9
PIPRI W 220 220	BQPS III 220	E2	K-2/K-3 500.00	KKI-500 500.00	1	15.33	27.38	457	5.99
PIPRI W 220 220	ICI 220 220	E4	K-2/K-3 500.00	KKI-500 500.00	1	17.62	31.44	457	6.88
PIPRI W 220 220	PIPRI W 132 132	1	PIPRI W 220 220.00	PIPRI W 132 132.00	2	59.02	76.96	250	29.91
PIPRI W 220 220	PIPRI W 132 132	2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	59.02	76.96	250	29.91
PIPRI W 220 220	PIPRI W 132 132	3	PIPRI W 220 220.00	PIPRI W 132 132.00	1	59.02	76.96	250	29.91
BQPS III 220	ICI 220 220	E4	K-2/K-3 500.00	KKI-500 500.00	1	17.02	31.01	457.26	6.78
BQPS III 220	BQPS II 220	1	K-2/K-3 500.00	KKI-500 500.00	1	6.93	14.51	609.7	2.38
BQPS III 220	BQPS II 220	2	K-2/K-3 500.00	KKI-500 500.00	1	6.93	14.51	609.7	2.38
BQPS III 220	LANDHI220 220	N1	K-2/K-3 500.00	KKI-500 500.00	1	29.69	44.67	967	4.62
BQPS III 220	LANDHI220 220	N2	K-2/K-3 500.00	KKI-500 500.00	1	29.69	44.67	967	4.62
N.PORT QASIM220	BTK-220 220	1	DHABEJI 220 220.00	DSEZ 220.00	1	12.23	22.33	1530	1.46
N.PORT QASIM220	DHACK-220 220	N1	DHABEJI 220 220.00	DSEZ 220.00	1	12.23	22.33	1530	1.46
N.PORT QASIM220	DHABEJI 220 220	N1	KDA-33 220.00	NKI 220.00	E1	18.42	45.11	967	4.66
N.PORT QASIM220	DHABEJI 220 220	N2	KDA-33 220.00	NKI 220.00	E1	18.42	45.11	967	4.66
KDA-33 220	GULSHAN 220 220	E1	KDA-33 220.00	GULSHAN 220 220.00	E2	83.76	142.47	514	27.72

Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
KDA-33 220	GULSHAN 220 220	E2	KDA-33 220.00	GULSHAN 220 220.00	E1	83.76	142.47	514	27.72
GULSHAN 220 220	GULSHAN 132 132	1	GULSHAN 220 220.00	GULSHAN 132 132.00	2	44.02	66.78	250	25.8
GULSHAN 220 220	GULSHAN 132 132	2	GULSHAN 220 220.00	GULSHAN 132 132.00	1	44.02	66.78	250	25.8
GULSHAN 220 220	GULSHAN 132 132	3	GULSHAN 220 220.00	GULSHAN 132 132.00	1	44.02	66.78	250	25.8
DEH HALKANI 220	MITHA GHAR 220	1	KDA-33 220.00	NKI 220.00	E1	90.25	160.28	967	16.57
DEH HALKANI 220	DEH-HAL-22KV22.	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	2	48.24	97.47	120	78.92
DEH HALKANI 220	DEH-HAL-22KV22.	2	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	48.24	97.47	120	78.92
MAR-LALPLDP1220	LZAR-MP-PLDP220	E2	MARIPUR 220 220.00	LZAR-MP-PLDP220.00	1	189.57	368.51	476.3	77.37
MAR-LALPLDP2220	LZAR-MP-PLDP220	E1	MARIPUR 220 220.00	LZAR-MP-PLDP220.00	1	189.57	368.51	476.4	77.35
NPQ-2 220	DHAB-NPQ2 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	101.59	125.9	1524.2	8.26
NPQ-2 220	DHAB-NPQ 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	101.59	125.9	1524.2	8.26
CCPP 220	CCPP/LAN UG1220	N1	KDA-33 220.00	NKI 220.00	E1	31.23	36.87	957	3.85
CCPP 220	CCPP/LAN UG2220	N2	KDA-33 220.00	NKI 220.00	E1	31.23	36.87	957	3.85
CCPP 220	CCP-KCR-2 220	E2	CCPP 220.00	CCP-KCR-1 220.00	E1	53.95	90.65	349	25.97
CCPP 220	CCP-KCR-1 220	E1	CCPP 220.00	CCP-KCR-2 220.00	E2	53.95	90.65	349	25.97
CCPP 220	KTPS EXISTIN132	1	CCPP 220.00	KTPS EXISTIN132.00	2	50.8	67.02	250	25.89
CCPP 220	KTPS EXISTIN132	2	CCPP 220.00	KTPS EXISTIN132.00	1	50.8	67.02	250	25.89
BQPS III 220	BQPS-3 GT 18.	1	NIP 220.00	PIPRI W 220 220.00	1	0	0	600	0
MITHA GHAR 220	MTH-GHR-22KV22.	3	MITHA GHAR 220.00	MTH-GHR-22KV22.000	4	60.26	121.82	150	78.92
MITHA GHAR 220	MTH-GHR-22KV22.	4	MITHA GHAR 220.00	MTH-GHR-22KV22.000	3	60.26	121.82	150	78.92
22	0.4	1	MORO 500.00	MATIARI-CS 500.00	1	16.06	16.06	20	78.19
22	0.4	1	MORO 500.00	MATIARI-CS 500.00	1	16.06	16.06	20	78.19
22	0.4	1	MORO 500.00	MATIARI-CS 500.00	1	16.06	16.06	20	78.19
22	0.4	1	MORO 500.00	MATIARI-CS 500.00	1	16.06	16.06	20	78.19
22	0.4	1	MORO 500.00	MATIARI-CS 500.00	1	16.06	16.06	20	78.19
22	0.4	1	JAMSHORO 500.00	HUB 500.00	2	16.06	16.06	20	78.18
22	0.4	1	BASE CASE		SE	16.06	16.06	20	78.19
22	0.4	1	BASE CASE		SE	16.06	16.06	20	78.19
22	0.4	1	BASE CASE		SE	16.06	16.06	20	78.19
22	0.4	1	BASE CASE		SE	16.06	16.06	20	78.19
22	0.4	1	BASE CASE		SE	16.06	16.06	20	78.19
KKI-500 500	KKI-220 220	1	K-2/K-3 500.00	NKI 500.00	1	142.38	249.26	600	40.42
KKI-500 500	KKI-220 220	2	K-2/K-3 500.00	NKI 500.00	1	142.38	249.26	600	40.42
KKI-500 500	KKI-220 220	3	K-2/K-3 500.00	NKI 500.00	1	142.38	249.26	600	40.42
KKI-220 220	KKI-132 132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	2	51.99	62.01	250	24.12
KKI-220 220	MAR-KKI_UG 220	1	KKI-220 220.00	MAR-KKI-UG2 220.00	1	254.26	466.68	957.2	48.75
KKI-220 220	MAR-KKI-UG2 220	1	KKI-220 220.00	MAR-KKI_UG 220.00	1	254.26	466.68	957.2	48.75
KKI-220 220	BAL-KKI-UG 220	1	K-2/K-3 500.00	KKI-500 500.00	1	56.38	143.84	957.2	15.03
KKI-220 220	BAL_KKI_UG2 220	1	K-2/K-3 500.00	KKI-500 500.00	1	56.38	143.84	957.2	15.03
22	0.4	1	MORO 500.00	MATIARI-CS 500.00	1	16.06	16.06	20	78.18
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	12.04	12.05	15	78.23
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	12.04	12.05	15	78.23
KDA2 132 132	GADAP 132	N1	N.PORT QASIM220.00	NPQ-2 220.00	1	6.1	6.11	202	3.03
KDA2 132 132	GULSHAN 132 132	R1	N.PORT QASIM220.00	NPQ-2 220.00	1	28.05	28.08	280	10.03
KDA2 132 132	JOHAR 132 132	R1	N.PORT QASIM220.00	NPQ-2 220.00	1	51.3	51.36	280	18.34
KDA2 132 132	MEMON GOTH 132	R1	N.PORT QASIM220.00	NPQ-2 220.00	1	26.36	26.39	280	9.43
KDA2 132 132	SNPC 132	1	KDA-33 220.00	NKI 220.00	E1	4.4	4.41	202	2.19
MARIPUR-2 132	LYARI 132 SS132	E1	MARIPUR 220 220.00	MARIPUR-1 132.00	12	34.24	34.3	171	20.06
QUEENS RD 13132	ELANDER 132 132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	13.03	13.1	160	8.19
QUEENS RD 13132	ELANDER 132 132	E2	K CREEK 220 220.00	KO.WEST 132 132.00	2	13.03	13.1	160	8.19
SURJANI 132 132	SUR-VALIKA 132	R1	KDA-33 220.00	KDA2 132 132.00	1	97.88	103.93	262	39.67
SURJANI 132 132	SUR-UG-MAY 132	E1	KDA-33 220.00	KDA2 132 132.00	1	37.16	50.54	160	31.58
PIPRI W 132 132	AISHA STEEL 132	1	NIP 220.00	PIPRI W 220 220.00	1	5.46	5.47	112	4.89
PIPRI W 132 132	PIPRI E 132 132	E1	NIP 220.00	PIPRI W 220 220.00	1	7.46	7.47	230.2	3.25
PIPRI W 132 132	PIPRI W T-2 11.	1	NIP 220.00	PIPRI W 220 220.00	1	3.76	3.77	20	18.71
PIPRI W 132 132	PIPRI W T-3 11.	1	NIP 220.00	PIPRI W 220 220.00	1	3.76	3.77	40	9.35
KTPS EXISTIN132	PRL-KTPS 132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	32.44	42.32	160	26.45
KTPS EXISTIN132	QAYMBD-KTPS 132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	23.41	36.23	137.2	26.4
QAYOMABAD 132	KO.WEST 132 132	2	K CREEK 220 220.00	KO.WEST 132 132.00	2	0.36	0.37	280	0.13
QAYOMABAD 132	QY-KE-KCNUG1132	E1	CCPP 220.00	KTPS EXISTIN132.00	1	18.43	21.27	251.5	8.46
QAYOMABAD 132	QY-KS-KCNUG2132	E2	CCPP 220.00	KTPS EXISTIN132.00	1	18.28	21.09	171.47	12.3
KO.WEST 132 132	PRL 132 132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	10.9	20.32	130.09	15.62
KO.WEST 132 132	DEFNCE-K-WST132	E1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	31.08	44.77	160	27.98
QUEENS RD 13132	OLD TOWN 132132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	15.97	16.05	114	14.08
QUEENS RD 13132	Q.RD-CLIFTON132	R1	K CREEK 220 220.00	KO.WEST 132 132.00	2	36.17	43.59	160	27.24
QUEENS RD 13132	Q.RD-GIZRI 132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	47.13	62.25	251.49	24.75
GULSHAN 132 132	AZIZABAD 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	26.25	26.34	171.5	15.36
GULSHAN 132 132	JAIL ROAD SS132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	13.41	13.47	171	7.88

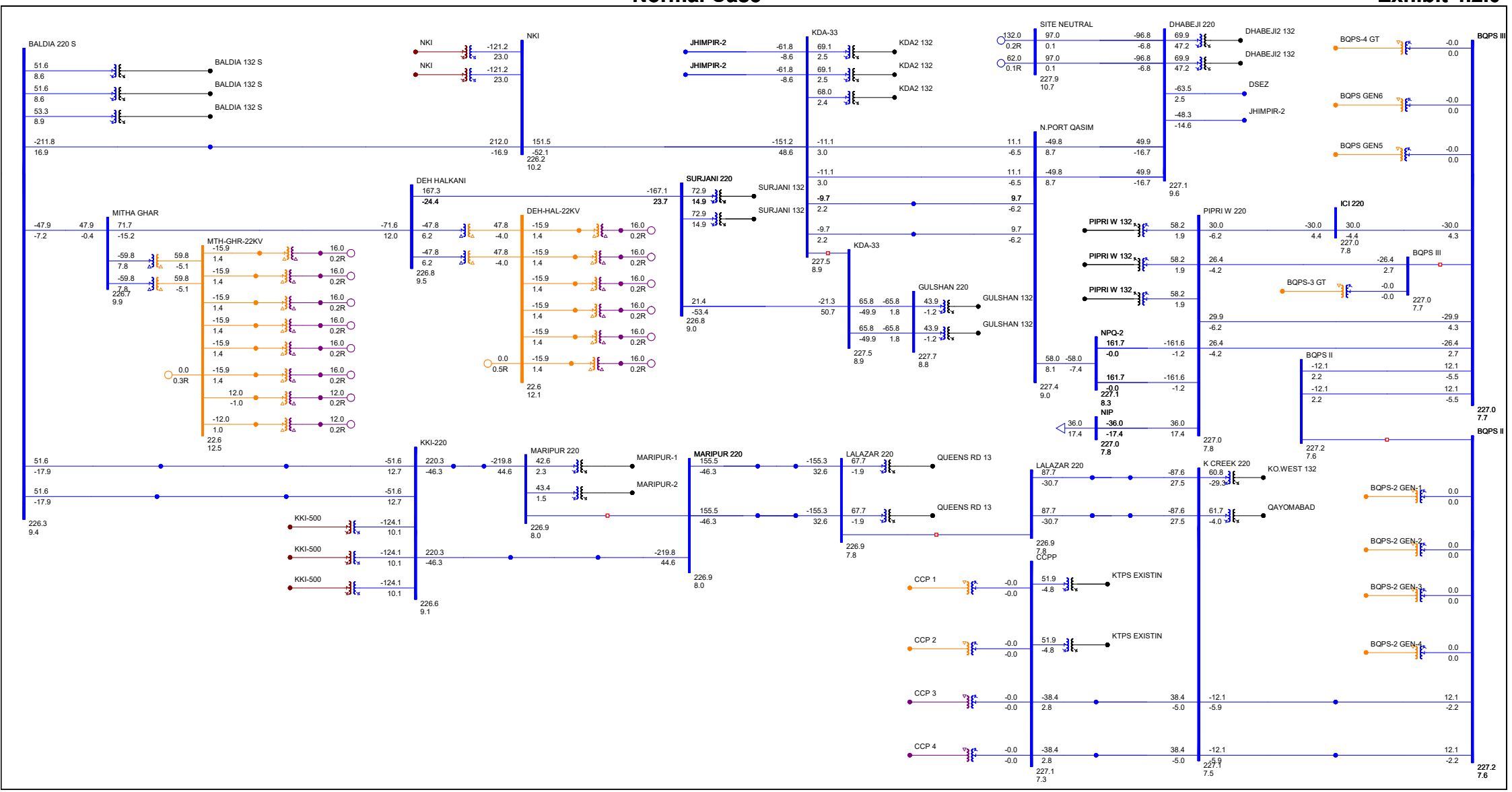
Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
GULSHAN 132 132	AGHA KHAN 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	23.33	23.42	171	13.7
GULSHAN 132 132	CIVIC 132 A 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	32.72	32.85	160	20.53
GULSHAN 132 132	JAIL ROAD SS132	E2	SURJANI 220 220.00	KDA-33 220.00	E1	13.41	13.47	171	7.88
MARIPUR-1 132	MAR-LAB PL1 132	E1	MARIPUR 220 220.00	MARIPUR-1 132.00	12	38.85	38.93	240.1	16.21
MARIPUR-1 132	MAR-GOL PL2 132	E1	MARIPUR 220 220.00	MARIPUR-1 132.00	12	35.47	35.54	240.1	14.8
BALDIA 132 S132	HUB CHOWKI 1132	1	K-2/K-3 500.00	NKI 500.00	1	12.18	13.84	183	7.56
BALDIA 132 S132	VALIKA B 132132	E2	NIP 220.00	PIPRI W 220 220.00	1	19.03	19.04	262.2	7.26
BALDIA 132 S132	SITE GT 132A132	R1	NIP 220.00	PIPRI W 220 220.00	1	29.19	29.21	280	10.43
BALDIA 132 S132	SITE GT 132A132	R2	NIP 220.00	PIPRI W 220 220.00	1	29.19	29.21	280	10.43
BALDIA 132 S132	KANUPP 132 132	E1	JAMSHORO 500.00	NKI 500.00	1	1.09	1.09	117.3	0.93
BALDIA 132 S132	ORANGI B 132132	R1	NIP 220.00	PIPRI W 220 220.00	1	26.76	26.77	280	9.56
BALDIA 132 S132	TAPAL 132 132	E1	K-2/K-3 500.00	NKI 500.00	1	11.51	13.19	228.6	5.77
BALDIA 132 S132	BAL-ITHD 132	1	NIP 220.00	PIPRI W 220 220.00	1	13.98	13.99	130.1	10.75
DHABEJI 220 220	THERMAL-PP 220	1	SURJANI 220 220.00	KDA-33 220.00	E1	4.45	4.46	1524.2	0.29
DHABEJI 220 220	THERMAL-PP 220	2	SURJANI 220 220.00	KDA-33 220.00	E1	4.45	4.46	1524.2	0.29
DHABEJI 220 220	DSEZ 220	1	JHIMPIR-2 220.00	DHABEJI 220 220.00	1	94.82	115.35	674	17.11
DHABEJI 220 220	DHAB-NPQ2 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	101.81	126.11	957.2	13.17
DHABEJI 220 220	DHAB-NPQ 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	101.81	126.11	957.2	13.17
DHABEJI 220 220	SITE NEUTRAL220	1	DHABEJI 220 220.00	SITE NEUTRAL220.00	2	56.21	112.08	967	11.59
DHABEJI 220 220	SITE NEUTRAL220	2	DHABEJI 220 220.00	SITE NEUTRAL220.00	1	56.21	112.08	967	11.59
DHABEJI 220 220	WIND PROJ 220	1	DHABEJI 220 220.00	WIND PROJ 220.00	2	37.18	75.07	967	7.76
DHABEJI 220 220	WIND PROJ 220	2	DHABEJI 220 220.00	WIND PROJ 220.00	1	37.18	75.07	967	7.76
DHABEJI 220 220	DHABEJI2 132132	1	DHABEJI 220 220.00	DHABEJI2 132132.00	2	81.82	130.5	250	50.67
DHABEJI 220 220	DHABEJI2 132132	2	DHABEJI 220 220.00	DHABEJI2 132132.00	1	81.82	130.5	250	50.67
DSEZ 220	GHARO-NEW 220	1	JHIMPIR-2 220.00	DHABEJI 220 220.00	1	127.7	147.95	674	21.95
DSEZ 220	DSEZ 132 132	1	KDA-33 220.00	GULSHAN 220 220.00	E1	18.61	18.61	160	11.29
DSEZ 220	DSEZ 132 132	2	KDA-33 220.00	GULSHAN 220 220.00	E1	18.61	18.61	160	11.29
MAR-BAL-KKI222	MAR-KKI-UG2 22	R1	KKI-220 220.00	MAR-KKI_UG 220.00	1	253.86	465.2	967	48.11
MAR-BAL-KKI 22	MAR-KKI_UG 22	R2	KKI-220 220.00	MAR-KKI-UG2 220.00	1	253.86	465.2	967	48.11
BAL-KKI-UG 22	BAL_KKI_UG4 22	1	K-2/K-3 500.00	KKI-500 500.00	1	56.83	143.24	967	14.81
BAL_KKI_UG2 22	BAL_KKI_UG3 22	1	K-2/K-3 500.00	KKI-500 500.00	1	56.83	143.24	967	14.81
DHABEJI2 13213	DHABEJI 132 13	N1	PIPRI W 220 220.00	PIPRI W 132 132.00	1	78.75	83.3	365	22.82
DHABEJI2 13213	DHABEJI 132 13	N2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	78.75	83.3	365	22.82

Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plants

Off-Peak Load Case Year 2025 - (Maximum Solar - Maximum Wind - With RPC)

Normal Case

Exhibit 4.2.0

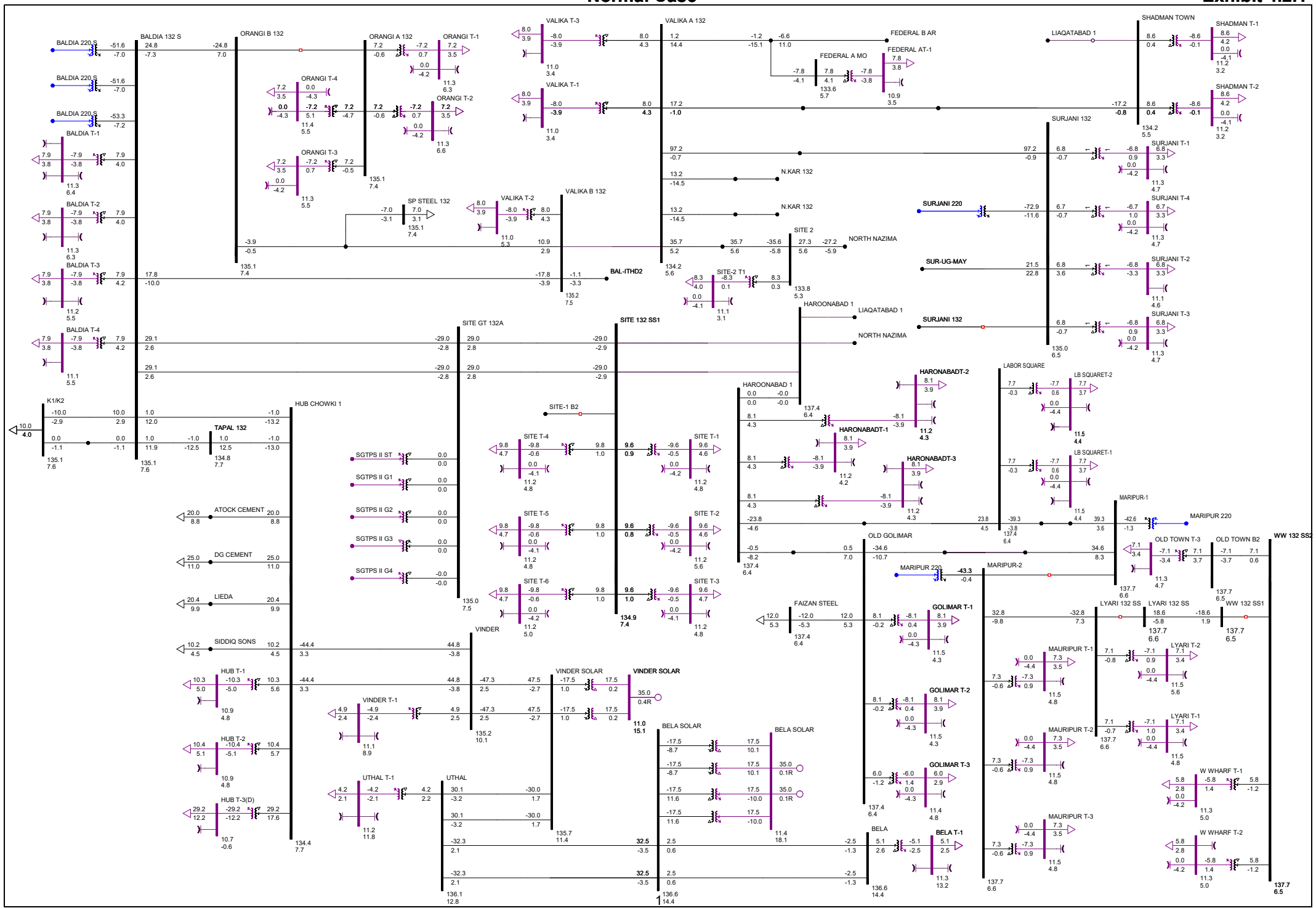


Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Off-Peak Load CaseYear 2027 - (Maximum Solar - Maximum Wind - With RPC)

Normal Case

Exhibit 4.2.1



Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
DADU 500.00	MORO 500.00	1	DADU 500.00	JAMSHORO 500.00	2	468.06	845.92	2000	42.3
DADU 500.00	JAMSHORO 500.00	2	DADU 500.00	MATIARI-CS 500.00	1	934.73	1236.45	1300	95.11
DADU 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	588.29	1067.73	1200	88.98
DADU 500.00	DADU 220.00	1	DADU 500.00	JAMSHORO 500.00	2	19.69	33.41	450	7.31
DADU 500.00	DADU 220.00	2	DADU 500.00	JAMSHORO 500.00	2	19.69	33.41	450	7.31
DADU 500.00	DADU 220.00	3	DADU 500.00	JAMSHORO 500.00	2	19.69	33.41	450	7.31
MORO 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	470.89	854.67	1300	65.74
JAMSHORO 500.00	K-2/K-3 500.00	1	K-2/K-3 500.00	NKI 500.00	1	425.58	677.89	1900	35.68
JAMSHORO 500.00	HUB 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	625.56	1227.78	1300	94.44
JAMSHORO 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	426.46	633.56	1300	48.74
JAMSHORO 500.00	HUBCO-CFPP 500.00	1	HUB 500.00	HUBCO-CFPP 500.00	2	596.62	1232.11	1300	94.78
JAMSHORO 500.00	MATIARI-CS 500.00	1	JAMSHORO 500.00	MATIARI-CS 500.00	3	823.66	1407.51	2000	70.38
JAMSHORO 500.00	MATIARI-CS 500.00	3	JAMSHORO 500.00	MATIARI-CS 500.00	1	835.19	1412.82	2793	50.58
JAMSHORO 500.00	JAMSHORO 220.00	1	DADU 500.00	JAMSHORO 500.00	2	51.55	67.42	450	14.55
JAMSHORO 500.00	JAMSHORO 220.00	2	DADU 500.00	JAMSHORO 500.00	2	51.55	67.42	450	14.55
JAMSHORO 500.00	JAMSHORO 220.00	3	DADU 500.00	JAMSHORO 500.00	2	51.55	67.42	450	14.55
ENGRO CFPP 500.00	THL NVA CFPP500.00	1	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	32.2	627.35	2793	22.46
ENGRO CFPP 500.00	TEL CFPP 500.00	1	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	276.5	897.65	2793	32.14
SECL CFPP 500.00	MATIARI-CS 500.00	1	SECL CFPP 500.00	MATIARI-CS 500.00	2	605.98	829.33	1600	51.83
SECL CFPP 500.00	MATIARI-CS 500.00	2	SECL CFPP 500.00	MATIARI-CS 500.00	1	605.98	829.33	1600	51.83
SECL CFPP 500.00	MATIARI-CS 500.00	3	SECL CFPP 500.00	MATIARI-CS 500.00	1	603.99	826.66	1600	51.67
SECL CFPP 500.00	TEL CFPP 500.00	2	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	584.2	1197.64	2793	42.88
PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	524.86	633.74	2793	22.69
PRT QSM CFPP500.00	KKI-500 500.00	1	PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	57.05	577.25	2700	21.38
K-2/K-3 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	792.69	1058.83	2793	37.91
K-2/K-3 500.00	MATIARI-CS 500.00	1	K-2/K-3 500.00	NKI 500.00	1	562.34	764.64	1400	54.62
K-2/K-3 500.00	KKI-500 500.00	1	K-2/K-3 500.00	NKI 500.00	1	345.27	705.23	2793	25.25
HUB 500.00	HUBCO-CFPP 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	625.82	1241.01	2793	44.43
NKI 500.00	NKI 220.00	1	K-2/K-3 500.00	KKI-500 500.00	1	123.35	185.52	600	30.08
NKI 500.00	NKI 220.00	2	K-2/K-3 500.00	KKI-500 500.00	1	123.35	185.52	600	30.08
NKI 500.00	NKI 220.00	3	K-2/K-3 500.00	KKI-500 500.00	1	123.35	185.52	600	30.08
MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	471.15	577.54	1900	30.4
MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	601.9	1189	1600	74.31
THL NVA CFPP500.00	SIDQSNS-CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	297.77	896.76	2793	32.11
DADU 220.0	DADU NEW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	16.32	27.73	160	16.66
DADU 220.0	DADU NEW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	16.32	27.73	160	16.66
DADU 220.0	DADU NEW 132.0	3	DADU 500.00	JAMSHORO 500.00	2	26.11	44.37	250	17.06
JAMSHORO 220.0	JHIMPIR-2 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	3	133.87	176.36	550	32.06
JAMSHORO 220.0	JHIMPIR-2 220.0	3	JAMSHORO 220.00	JHIMPIR-2 220.00	2	133.87	176.36	550	32.06
JAMSHORO 220.0	HALA RD. 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	79.47	145.49	307	47.39
JAMSHORO 220.0	HALA RD. 220.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	79.47	145.49	307	47.39
JAMSHORO 220.0	MIRPRKHS 220.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	70.9	111.4	674	16.53
JAMSHORO 220.0	TM.KH.RD 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	21.55	112.73	600	18.79
JAMSHORO 220.0	JAMSHORO NEW132.0	1	JAMSHORO 220.00	JAMSHORO NEW132.00	2	58.15	68.42	160	42.06
JAMSHORO 220.0	JAMSHORO NEW132.0	2	JAMSHORO 220.00	JAMSHORO NEW132.00	1	58.15	68.42	160	42.06
JAMSHORO 220.0	JAMSHORO NEW132.0	3	JAMSHORO 220.00	JAMSHORO NEW132.00	1	58.15	68.42	160	42.06
JHIMPIR-2 220.0	KDA-33 220.0	1	K-2/K-3 500.00	NKI 500.00	1	62.67	83.03	674	12.32
JHIMPIR-2 220.0	KDA-33 220.0	2	K-2/K-3 500.00	NKI 500.00	1	62.67	83.03	674	12.32
JHIMPIR-2 220.0	JHIMPIR-2 132.0	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96.63	96.79	250	38.06
JHIMPIR-2 220.0	JHIMPIR-2 132.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96.63	96.79	250	38.06
JHIMPIR-2 220.0	JHIMPIR-2 132.0	3	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96.63	96.79	250	38.06
JHIMPIR-2 220.0	JHIMPIR-2 132.0	4	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96.63	96.79	250	38.06
JHIMPIR-2 220.0	JHIMPIR-1 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	56.9	92.44	674	13.71
JHIMPIR-2 220.0	DHABEJI 220 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	50.42	68.54	674	10.17
HALA RD. 220.0	MIRPRKHS 220.0	1	JAMSHORO 220.00	MIRPRKHS 220.00	1	72.98	117.49	674	17.43
HALA RD. 220.0	TM.KH.RD 220.0	2	JAMSHORO 220.00	HALA RD. 220.00	1	173.44	200.21	674	29.7
HALA RD. 220.0	HALA ROAD 132.0	1	DADU 500.00	JAMSHORO 500.00	2	93.52	100.98	250	40.04
HALA RD. 220.0	HALA ROAD-1 132.0	1	DADU 500.00	JAMSHORO 500.00	2	85.14	93.05	250	36.9
HALA RD. 220.0	HALA ROAD-1 132.0	2	DADU 500.00	JAMSHORO 500.00	2	85.14	93.05	250	36.9
MIRPRKHS 220.0	M.KHS.NW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	71.78	78.64	250	31.48
MIRPRKHS 220.0	M.KHS.NW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	71.78	78.64	250	31.48
TM.KH.RD 220.0	HYD-TMK-2 132.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	68.08	92.23	250	36.22
TM.KH.RD 220.0	HYD-TMRD 132.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	63.48	81.7	250	32.08
TM.KH.RD 220.0	JHIMPIR-1 220.0	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	157.13	177.27	674	26.3
TM.KH.RD 220.0	JHIMPIR-1 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	157.13	177.27	674	26.3
KDA-33 220.0	NKI 220.0	E1	NKI 220.00	NKIBAL PLDP1220.00	E1	160.25	254.37	953	26.69
KDA-33 220.0	N.PORT QASIM220.0	E1	KDA-33 220.00	NKI 220.00	E1	12.84	32.61	921.8	3.54
KDA-33 220.0	N.PORT QASIM220.0	E2	KDA-33 220.00	NKI 220.00	E1	12.84	32.61	921.76	3.54

Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
KDA-33 220.0	BTK-220 220.0	1	KDA-33 220.00	NKI 220.00	E1	10.07	27.58	1350	2.04
KDA-33 220.0	DHACK-220 220.0	N1	KDA-33 220.00	NKI 220.00	E1	10.07	27.58	1350	2.04
KDA-33 220.0	KDA2 132 132.0	1	KDA-33 220.00	KDA2 132 132.00	2	69.08	91.76	250	36.11
KDA-33 220.0	KDA2 132 132.0	2	KDA-33 220.00	KDA2 132 132.00	1	69.08	91.76	250	36.11
KDA-33 220.0	KDA2 132 132.0	3	KDA-33 220.00	KDA2 132 132.00	1	67.99	90.3	250	35.54
NKI 220.0	NKIBAL PLDP1220.0	E1	K-2/K-3 500.00	KKI-500 500.00	1	212.7	367.83	952.6	38.61
JAMSHORO NEW132.	LAKHRA 132.	1	DADU 500.00	JAMSHORO 500.00	2	25.99	37.94	202	18.78
JAMSHORO NEW132.	LAKHRA 132.	2	DADU 500.00	JAMSHORO 500.00	2	25.99	37.94	202	18.78
JAMSHORO NEW132.	QASIMABAD 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	29.26	33.04	202	16.36
JAMSHORO NEW132.	RAJPUTANA 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	28.37	34.34	202	17
JAMSHORO NEW132.	JAMSRO OLD 132.	1	K-2/K-3 500.00	NKI 500.00	1	39.05	39.86	202	19.73
JAMSHORO NEW132.	JAMSRO OLD 132.	2	K-2/K-3 500.00	NKI 500.00	1	39.05	39.86	202	19.73
JAMSHORO NEW132.	JAMSRO OLD 132.	3	K-2/K-3 500.00	NKI 500.00	1	39.05	39.86	202	19.73
BALDIA 220 S220	MITHA GHAR 220	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	48.4	217.85	967	22.53
BALDIA 220 S220	BALDIA 132 S132	1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	52.32	73.88	250	28.73
BALDIA 220 S220	BALDIA 132 S132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	1	54.03	75.32	250	29.29
BALDIA 220 S220	BALDIA 132 S132	3	BALDIA 220 S220.00	BALDIA 132 S132.00	2	52.32	73.88	250	28.73
BALDIA 220 S220	NKIBAL PLDP1220	E1	K-2/K-3 500.00	KKI-500 500.00	1	212.53	368.04	1348.2	27.3
BALDIA 220 S220	BAL_KKI_UG3 220	E1	K-2/K-3 500.00	KKI-500 500.00	1	54.62	134.87	476.3	28.32
BALDIA 220 S220	BAL_KKI_UG4 220	E2	K-2/K-3 500.00	KKI-500 500.00	1	54.62	134.87	476.3	28.32
MARIPUR 220 220	MARIPUR-2 132	1	MARIPUR 220 220.00	MARIPUR-1 132.00	11	43.4	65.83	250	25.54
MARIPUR 220 220	MARIPUR-1 132	11	MARIPUR 220 220.00	MARIPUR-2 132.00	1	42.68	65.29	250	25.33
MARIPUR 220 220	MARIPUR-1 132	12	MARIPUR 220 220.00	MARIPUR-2 132.00	1	42.55	65.08	250	25.25
MARIPUR 220 220	MAR-BAL-KKI2220	R1	KKI-220 220.00	MAR-KKI_UG 220.00	1	224.35	416.24	952	43.72
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	162.27	296.51	495.37	59.86
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	162.27	296.51	495.37	59.86
MARIPUR 220 220	MAR-BAL-KKI 220	R2	KKI-220 220.00	MAR-KKI-UG2 220.00	1	224.35	416.24	952	43.72
LALAZAR 220 220	MAR-LALPLDP1220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	161.94	295.94	495.37	59.74
LALAZAR 220 220	MAR-LALPLDP2220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	161.94	295.94	495.37	59.74
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	67.81	93.01	250	36.03
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	67.81	93.01	250	36.03
LALAZAR 220 220	LALAZAR-UG1 220	E1	LALAZAR 220 220.00	LALAZAR-UG2 220.00	E2	92.9	167.88	514.4	32.64
LALAZAR 220 220	LALAZAR-UG2 220	E2	LALAZAR 220 220.00	LALAZAR-UG1 220.00	E1	92.9	167.88	514.4	32.64
LALAZAR-UG1 220	KCR_UG1 220	1	LALAZAR 220 220.00	LALAZAR-UG2 220.00	E2	92.66	164.82	483.6	34.08
SURJANI 220 220	KDA-33 220	E1	SURJANI 220 220.00	DEH HALKANI 220.00	1	57.54	139.51	904	15.43
SURJANI 220 220	DEH HALKANI 220	1	KDA-33 220.00	NKI 220.00	E1	169.08	221.16	967	22.87
SURJANI 220 220	SURJANI 132 132	1	SURJANI 220 220.00	SURJANI 132 132.00	2	74.39	107.08	250	41.54
SURJANI 220 220	SURJANI 132 132	2	SURJANI 220 220.00	SURJANI 132 132.00	1	74.39	107.08	250	41.54
LALAZAR-UG2 220	KCR_UG2 220	1	LALAZAR 220 220.00	LALAZAR-UG1 220.00	E1	92.66	164.82	483.6	34.08
K CREEK 220 220	KCR-BQ2-LDI 220	E1	K-2/K-3 500.00	KKI-500 500.00	1	13.4	22.93	419.16	5.47
K CREEK 220 220	CCP-KCR-2 220	1	K CREEK 220 220.00	CCP-KCR-1 220.00	1	38.71	65.74	270.6	24.29
K CREEK 220 220	CCP-KCR-1 220	1	K CREEK 220 220.00	CCP-KCR-2 220.00	1	38.71	65.74	270.5	24.3
K CREEK 220 220	KCR-BQ2-LDI 220	E2	K-2/K-3 500.00	KKI-500 500.00	1	13.4	22.93	419.2	5.47
K CREEK 220 220	QAYOMABAD 132	2	K CREEK 220 220.00	KO.WEST 132 132.00	2	62.06	79.8	250	30.71
K CREEK 220 220	KO.WEST 132 132	2	K CREEK 220 220.00	QAYOMABAD 132.00	2	68.76	84.04	250	32.47
K CREEK 220 220	KCR_UG1 220	E1	LALAZAR 220 220.00	LALAZAR-UG2 220.00	E2	92.28	167.92	514.4	32.64
K CREEK 220 220	KCR_UG2 220	E2	LALAZAR 220 220.00	LALAZAR-UG1 220.00	E1	92.28	167.92	514.4	32.64
BQPS II 220	KCR-BQ2-LDI 220	E1	K-2/K-3 500.00	KKI-500 500.00	1	12.81	22.63	419.2	5.4
BQPS II 220	KCR-BQ2-LDI 220	E2	K-2/K-3 500.00	KKI-500 500.00	1	12.81	22.63	419.2	5.4
PIPRI W 220 220	BQPS III 220	E1	K-2/K-3 500.00	KKI-500 500.00	1	26.7	38.09	457	8.34
PIPRI W 220 220	BQPS III 220	E3	K-2/K-3 500.00	KKI-500 500.00	1	30.57	43.59	457	9.54
PIPRI W 220 220	NPQ-2 220	E1	PIPRI W 220 220.00	NPQ-2 220.00	E2	161.72	303.79	921.8	32.96
PIPRI W 220 220	NPQ-2 220	E2	PIPRI W 220 220.00	NPQ-2 220.00	E1	161.72	303.79	921.8	32.96
PIPRI W 220 220	BQPS III 220	E2	K-2/K-3 500.00	KKI-500 500.00	1	26.7	38.09	457	8.33
PIPRI W 220 220	ICI 220 220	E4	K-2/K-3 500.00	KKI-500 500.00	1	30.66	43.73	457	9.57
PIPRI W 220 220	PIPRI W 132 132	1	PIPRI W 220 220.00	PIPRI W 132 132.00	2	58.23	75.96	250	29.45
PIPRI W 220 220	PIPRI W 132 132	2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	58.23	75.96	250	29.45
PIPRI W 220 220	PIPRI W 132 132	3	PIPRI W 220 220.00	PIPRI W 132 132.00	1	58.23	75.96	250	29.45
BQPS III 220	ICI 220 220	E4	K-2/K-3 500.00	KKI-500 500.00	1	30.36	43.45	457.26	9.5
BQPS III 220	BQPS II 220	1	K-2/K-3 500.00	KKI-500 500.00	1	13.24	23.19	609.7	3.8
BQPS III 220	BQPS II 220	2	K-2/K-3 500.00	KKI-500 500.00	1	13.24	23.19	609.7	3.8
BQPS III 220	LANDHI220 220	N1	K-2/K-3 500.00	KKI-500 500.00	1	44.48	58.45	967	6.04
BQPS III 220	LANDHI220 220	N2	K-2/K-3 500.00	KKI-500 500.00	1	44.48	58.45	967	6.04
N.PORT QASIM220	BTK-220 220	1	KDA-33 220.00	NKI 220.00	E1	11.5	28.79	1530	1.88
N.PORT QASIM220	DHACK-220 220	N1	KDA-33 220.00	NKI 220.00	E1	11.5	28.79	1530	1.88
N.PORT QASIM220	DHABEJI 220 220	N1	KDA-33 220.00	NKI 220.00	E1	52.56	73.8	967	7.63
N.PORT QASIM220	DHABEJI 220 220	N2	KDA-33 220.00	NKI 220.00	E1	52.56	73.8	967	7.63
KDA-33 220	GULSHAN 220 220	E1	KDA-33 220.00	GULSHAN 220 220.00	E2	82.6	142.43	514	27.71

Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
KDA-33 220	GULSHAN 220 220	E2	KDA-33 220.00	GULSHAN 220 220.00	E1	82.6	142.43	514	27.71
GULSHAN 220 220	GULSHAN 132 132	1	GULSHAN 220 220.00	GULSHAN 132 132.00	2	43.93	66.64	250	25.73
GULSHAN 220 220	GULSHAN 132 132	2	GULSHAN 220 220.00	GULSHAN 132 132.00	1	43.93	66.64	250	25.73
GULSHAN 220 220	GULSHAN 132 132	3	GULSHAN 220 220.00	GULSHAN 132 132.00	1	43.93	66.64	250	25.73
DEH HALKANI 220	MITHA GHAR 220	1	KDA-33 220.00	NKI 220.00	E1	73.3	125.12	967	12.94
DEH HALKANI 220	DEH-HAL-22KV22.	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	2	48.24	97.56	120	78.84
DEH HALKANI 220	DEH-HAL-22KV22.	2	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	48.24	97.56	120	78.84
MAR-LALPLDP1220	LZAR-MP-PLDP220	E2	MARIPUR 220 220.00	LZAR-MP-PLDP220.00	1	162	314.49	476.3	66.03
MAR-LALPLDP2220	LZAR-MP-PLDP220	E1	MARIPUR 220 220.00	LZAR-MP-PLDP220.00	1	162	314.49	476.4	66.01
NPQ-2 220	DHAB-NPQ2 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	133.15	152.9	1524.2	10.03
NPQ-2 220	DHAB-NPQ 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	133.15	152.9	1524.2	10.03
CCPP 220	CCPP/LAN UG1220	N1	K-2/K-3 500.00	KKI-500 500.00	1	31.75	42.98	957	4.49
CCPP 220	CCPP/LAN UG2220	N2	K-2/K-3 500.00	KKI-500 500.00	1	31.75	42.98	957	4.49
CCPP 220	CCP-KCR-2 220	E2	CCPP 220.00	CCP-KCR-1 220.00	E1	38.57	64.35	349	18.44
CCPP 220	CCP-KCR-1 220	E1	CCPP 220.00	CCP-KCR-2 220.00	E2	38.57	64.35	349	18.44
CCPP 220	KTPS EXISTIN132	1	CCPP 220.00	KTPS EXISTIN132.00	2	52.32	69.06	250	26.67
CCPP 220	KTPS EXISTIN132	2	CCPP 220.00	KTPS EXISTIN132.00	1	52.32	69.06	250	26.67
MITHA GHAR 220	MTH-GHR-22KV22.	3	MITHA GHAR 220.00	MTH-GHR-22KV22.000	4	60.32	121.99	150	78.89
MITHA GHAR 220	MTH-GHR-22KV22.	4	MITHA GHAR 220.00	MTH-GHR-22KV22.000	3	60.32	121.99	150	78.89
22	0.4	1	BASE CASE		SE	16.06	16.06	20	78.02
22	0.4	1	BASE CASE		SE	16.06	16.06	20	78.02
22	0.4	1	BASE CASE		SE	16.06	16.06	20	78.02
22	0.4	1	BASE CASE		SE	16.06	16.06	20	78.02
22	0.4	1	BASE CASE		SE	16.06	16.06	20	78.02
22	0.4	1	BASE CASE		SE	16.06	16.06	20	78.01
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	16.06	16.06	20	78.06
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	16.06	16.06	20	78.06
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	16.06	16.06	20	78.06
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	16.06	16.06	20	78.06
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	16.06	16.06	20	78.06
KKI-500 500	KKI-220 220	1	K-2/K-3 500.00	NKI 500.00	1	124.54	228.66	600	37.03
KKI-500 500	KKI-220 220	2	K-2/K-3 500.00	NKI 500.00	1	124.54	228.66	600	37.03
KKI-500 500	KKI-220 220	3	K-2/K-3 500.00	NKI 500.00	1	124.54	228.66	600	37.03
KKI-220 220	KKI-132 132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	2	50.75	60.67	250	23.57
KKI-220 220	MAR-KKI_UG 220	1	KKI-220 220.00	MAR-KKI-UG2 220.00	1	225.1	413.56	957.2	43.2
KKI-220 220	MAR-KKI-UG2 220	1	KKI-220 220.00	MAR-KKI_UG 220.00	1	225.1	413.56	957.2	43.2
KKI-220 220	BAL-KKI-UG 220	1	K-2/K-3 500.00	KKI-500 500.00	1	53.6	134.99	957.2	14.1
KKI-220 220	BAL_KKI_UG2 220	1	K-2/K-3 500.00	KKI-500 500.00	1	53.6	134.99	957.2	14.1
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	16.06	16.06	20	78.06
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	12.04	12.04	15	78.1
22	0.4	1	DEH-HAL-22KV22.000	22.000	1	12.04	12.04	15	78.1
KDA2 132 132	GADAP 132	N1	KDA-33 220.00	NKI 220.00	E1	6.11	6.13	202	3.03
KDA2 132 132	GULSHAN 132 132	R1	KDA-33 220.00	NKI 220.00	E1	28.16	28.23	280	10.08
KDA2 132 132	JOHAR 132 132	R1	KDA-33 220.00	NKI 220.00	E1	50.91	51.04	280	18.23
KDA2 132 132	MEMON GOTH 132	R1	KDA-33 220.00	NKI 220.00	E1	26.46	26.54	280	9.48
KDA2 132 132	SNPC 132	1	KDA-33 220.00	NKI 220.00	E1	4.43	4.44	202	2.2
MARIPUR-2 132	LYARI 132 SS132	E1	NIP 220.00	PIPRI W 220 220.00	1	34.21	34.26	171	20.03
QUEENS RD 13132	ELANDER 132 132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	13.03	13.09	160	8.18
QUEENS RD 13132	ELANDER 132 132	E2	K CREEK 220 220.00	KO.WEST 132 132.00	2	13.03	13.09	160	8.18
SURJANI 132 132	SUR-VALIKA 132	R1	KDA-33 220.00	KDA2 132 132.00	1	97.25	103.37	262	39.46
SURJANI 132 132	SUR-UG-MAY 132	E1	KDA-33 220.00	KDA2 132 132.00	1	31.48	45.99	160	28.75
PIPRI W 132 132	AISHA STEEL 132	1	NIP 220.00	PIPRI W 220 220.00	1	5.46	5.47	112	4.89
PIPRI W 132 132	PIPRI E 132 132	E1	NIP 220.00	PIPRI W 220 220.00	1	7.46	7.47	230.2	3.25
KTPS EXISTIN132	PRL-KTPS 132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	33.36	43.1	160	26.94
KTPS EXISTIN132	QAYMBD-KTPS 132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	24.66	37.22	137.2	27.13
QAYOMABAD 132	KO.WEST 132 132	2	K CREEK 220 220.00	KO.WEST 132 132.00	2	0.36	0.37	280	0.13
QAYOMABAD 132	QY-KE-KCNUG1132	E1	CCPP 220.00	KTPS EXISTIN132.00	1	18.1	21.05	251.5	8.37
QAYOMABAD 132	QY-KS-KCNUG2132	E2	CCPP 220.00	KTPS EXISTIN132.00	1	17.95	20.87	171.47	12.17
KO.WEST 132 132	PRL 132 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	12	21.14	130.09	16.25
KO.WEST 132 132	DEFNCE-K-WST132	E1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	31.1	44.65	160	27.91
QUEENS RD 13132	OLD TOWN 132132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	15.97	16.04	114	14.07
QUEENS RD 13132	Q.RD-CLIFTON132	R1	K CREEK 220 220.00	QAYOMABAD 132.00	2	34.81	42.19	160	26.37
QUEENS RD 13132	Q.RD-GIZRI 132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	44.44	59.44	251.49	23.63
GULSHAN 132 132	AZIZABAD 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	26.25	26.34	171.5	15.36
GULSHAN 132 132	JAIL ROAD SS132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	13.42	13.48	171	7.88
GULSHAN 132 132	AGHA KHAN 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	23.34	23.43	171	13.7
GULSHAN 132 132	CIVIC 132 A 132	E1	SURJANI 220 220.00	KDA-33 220.00	E1	32.73	32.86	160	20.54
GULSHAN 132 132	JAIL ROAD SS132	E2	SURJANI 220 220.00	KDA-33 220.00	E1	13.42	13.48	171	7.88

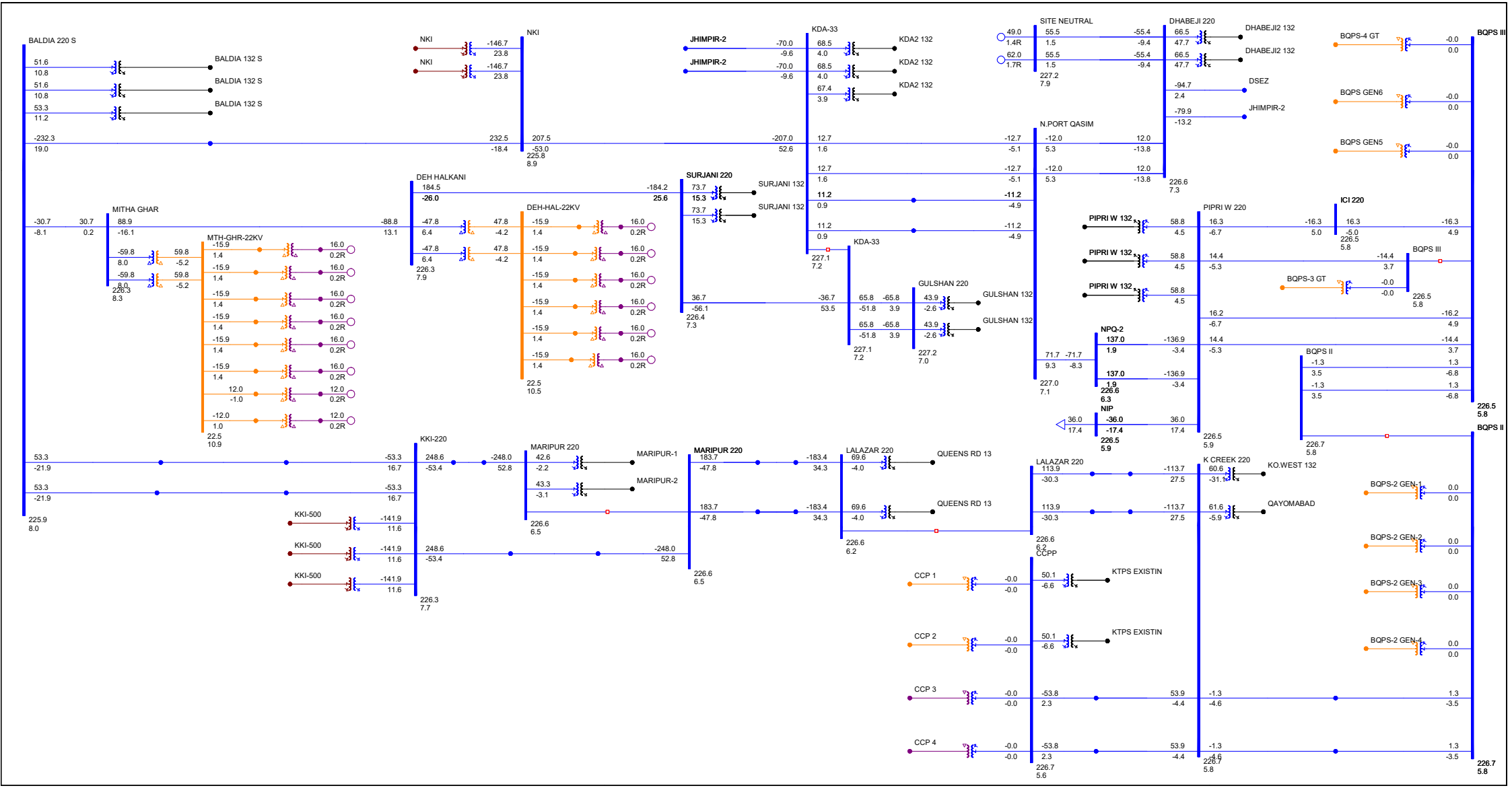
Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
MARIPUR-1 132	MAR-LAB PL1 132	E1	NIP 220.00	PIPRI W 220 220.00	1	39.49	39.55	240.1	16.47
MARIPUR-1 132	MAR-GOL PL2 132	E1	NIP 220.00	PIPRI W 220 220.00	1	35.88	35.93	240.1	14.96
BALDIA 132 S132	HUB CHOWKI 1132	1	K-2/K-3 500.00	NKI 500.00	1	13.22	14.57	183	7.96
BALDIA 132 S132	VALIKA B 132132	E2	JAMSHORO 500.00	NKI 500.00	1	20.42	20.45	262.2	7.8
BALDIA 132 S132	SITE GT 132A132	R1	JAMSHORO 500.00	NKI 500.00	1	29.18	29.21	280	10.43
BALDIA 132 S132	SITE GT 132A132	R2	JAMSHORO 500.00	NKI 500.00	1	29.18	29.21	280	10.43
BALDIA 132 S132	KANUPP 132 132	E1	JAMSHORO 500.00	NKI 500.00	1	1.1	1.1	117.3	0.94
BALDIA 132 S132	ORANGI B 132132	R1	JAMSHORO 500.00	NKI 500.00	1	25.86	25.89	280	9.25
BALDIA 132 S132	TAPAL 132 132	E1	K-2/K-3 500.00	NKI 500.00	1	12.54	13.9	228.6	6.08
BALDIA 132 S132	BAL-ITHD 132	1	JAMSHORO 500.00	NKI 500.00	1	15.09	15.11	130.1	11.61
DHABEJI 220 220	THERMAL-PP 220	1	SURJANI 220 220.00	KDA-33 220.00	E1	4.48	4.48	1524.2	0.29
DHABEJI 220 220	THERMAL-PP 220	2	SURJANI 220 220.00	KDA-33 220.00	E1	4.48	4.48	1524.2	0.29
DHABEJI 220 220	DSEZ 220	1	K-2/K-3 500.00	NKI 500.00	1	63.67	79.06	674	11.73
DHABEJI 220 220	DHAB-NPQ2 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	133.33	153.11	957.2	16
DHABEJI 220 220	DHAB-NPQ 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	133.33	153.11	957.2	16
DHABEJI 220 220	SITE NEUTRAL220	1	DHABEJI 220 220.00	SITE NEUTRAL220.00	2	97	196.2	967	20.29
DHABEJI 220 220	SITE NEUTRAL220	2	DHABEJI 220 220.00	SITE NEUTRAL220.00	1	97	196.2	967	20.29
DHABEJI 220 220	WIND PROJ 220	1	DHABEJI 220 220.00	WIND PROJ 220.00	2	100	202.65	967	20.96
DHABEJI 220 220	WIND PROJ 220	2	DHABEJI 220 220.00	WIND PROJ 220.00	1	100	202.65	967	20.96
DHABEJI 220 220	DHABEJI2 132132	1	DHABEJI 220 220.00	DHABEJI2 132132.00	2	84.3	134.78	250	52.21
DHABEJI 220 220	DHABEJI2 132132	2	DHABEJI 220 220.00	DHABEJI2 132132.00	1	84.3	134.78	250	52.21
DSEZ 220	GHARO-NEW 220	1	K-2/K-3 500.00	NKI 500.00	1	96.75	111.65	674	16.57
DSEZ 220	DSEZ 132 132	1	DHABEJI 220 220.00	DSEZ 220.00	1	18.6	18.67	160	11.27
DSEZ 220	DSEZ 132 132	2	DHABEJI 220 220.00	DSEZ 220.00	1	18.6	18.67	160	11.27
MAR-BAL-KKI222	MAR-KKI-UG2 22	R1	KKI-220 220.00	MAR-KKI_UG 220.00	1	224.7	411.81	967	42.59
MAR-BAL-KKI 22	MAR-KKI_UG 22	R2	KKI-220 220.00	MAR-KKI-UG2 220.00	1	224.7	411.81	967	42.59
BAL-KKI-UG 22	BAL_KKI_UG4 22	1	K-2/K-3 500.00	KKI-500 500.00	1	53.98	134.5	967	13.91
BAL_KKI_UG2 22	BAL_KKI_UG3 22	1	K-2/K-3 500.00	KKI-500 500.00	1	53.98	134.5	967	13.91
DHABEJI2 13213	DHABEJI 132 13	N1	PIPRI W 220 220.00	PIPRI W 132 132.00	1	81.17	85.59	365	23.45
DHABEJI2 13213	DHABEJI 132 13	N2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	81.17	85.59	365	23.45

Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plants

Off-Peak Load Case Year 2025 - (Maximum Solar - Average Wind - Without RPC)

Normal Case

Exhibit 4.3.0

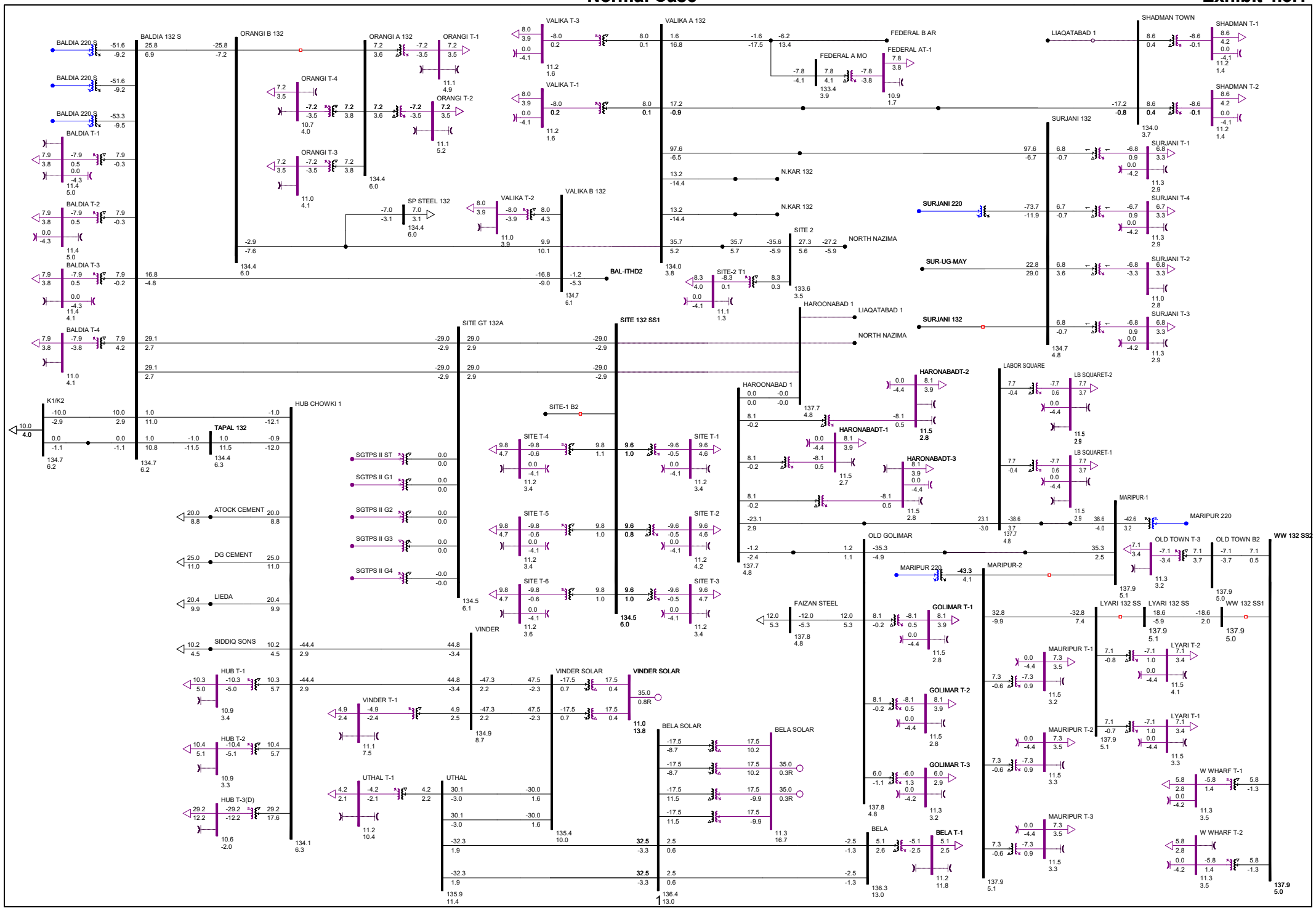


Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Off-Peak Load CaseYear 2027 - (Maximum Solar - Average Wind - Without RPC)

Normal Case

Exhibit 4.3.1



Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
DADU 500.00	MORO 500.00	1	DADU 500.00	JAMSHORO 500.00	2	423.33	759.09	2000	37.95
DADU 500.00	JAMSHORO 500.00	2	DADU 500.00	MATIARI-CS 500.00	1	857.51	1125.79	1300	86.6
DADU 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	529.33	959.59	1200	79.97
DADU 500.00	DADU 220.00	1	DADU 500.00	DADU 220.00	2	18.53	26.96	450	5.93
DADU 500.00	DADU 220.00	2	DADU 500.00	DADU 220.00	1	18.53	26.96	450	5.93
DADU 500.00	DADU 220.00	3	DADU 500.00	DADU 220.00	1	18.53	26.96	450	5.93
MORO 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	419.74	765.77	1300	58.91
JAMSHORO 500.00	K-2/K-3 500.00	1	K-2/K-3 500.00	NKI 500.00	1	397.37	659.67	1900	34.72
JAMSHORO 500.00	HUB 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	625.73	1227.02	1300	94.39
JAMSHORO 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	383.25	573.31	1300	44.1
JAMSHORO 500.00	HUBCO-CFPP 500.00	1	HUB 500.00	HUBCO-CFPP 500.00	2	596.5	1231.17	1300	94.71
JAMSHORO 500.00	MATIARI-CS 500.00	1	JAMSHORO 500.00	MATIARI-CS 500.00	3	796.33	1359.89	2000	67.99
JAMSHORO 500.00	MATIARI-CS 500.00	3	JAMSHORO 500.00	MATIARI-CS 500.00	1	807.19	1364.78	2793	48.86
JAMSHORO 500.00	JAMSHORO 220.00	1	DADU 500.00	JAMSHORO 500.00	2	60.71	79.55	450	17.19
JAMSHORO 500.00	JAMSHORO 220.00	2	DADU 500.00	JAMSHORO 500.00	2	60.71	79.55	450	17.19
JAMSHORO 500.00	JAMSHORO 220.00	3	DADU 500.00	JAMSHORO 500.00	2	60.71	79.55	450	17.19
ENGRO CFPP 500.00	THL NVA CFPP500.00	1	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	32.31	627.97	2793	22.48
ENGRO CFPP 500.00	TEL CFPP 500.00	1	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	276.32	898.27	2793	32.16
SECL CFPP 500.00	MATIARI-CS 500.00	1	SECL CFPP 500.00	MATIARI-CS 500.00	2	606.43	829.55	1600	51.85
SECL CFPP 500.00	MATIARI-CS 500.00	2	SECL CFPP 500.00	MATIARI-CS 500.00	1	606.43	829.55	1600	51.85
SECL CFPP 500.00	MATIARI-CS 500.00	3	SECL CFPP 500.00	MATIARI-CS 500.00	1	604.35	826.82	1600	51.68
SECL CFPP 500.00	TEL CFPP 500.00	2	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	589.31	1199.31	2793	42.94
PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	498.53	597.72	2793	21.4
PRT QSM CFPP500.00	KKI-500 500.00	1	PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	72.66	555.77	2700	20.58
K-2/K-3 500.00	NKI 500.00	1	K-2/K-3 500.00	KKI-500 500.00	1	825.16	1075.63	2793	38.51
K-2/K-3 500.00	MATIARI-CS 500.00	1	K-2/K-3 500.00	NKI 500.00	1	532.71	741.27	1400	52.95
K-2/K-3 500.00	KKI-500 500.00	1	K-2/K-3 500.00	NKI 500.00	1	372.11	746.28	2793	26.72
HUB 500.00	HUBCO-CFPP 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	625.99	1240.11	2793	44.4
NKI 500.00	NKI 220.00	1	K-2/K-3 500.00	KKI-500 500.00	1	148.61	215.6	600	35.02
NKI 500.00	NKI 220.00	2	K-2/K-3 500.00	KKI-500 500.00	1	148.61	215.6	600	35.02
NKI 500.00	NKI 220.00	3	K-2/K-3 500.00	KKI-500 500.00	1	148.61	215.6	600	35.02
MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	445.55	543.65	1900	28.61
MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	602.64	1189.19	1600	74.32
THL NVA CFPP500.00	SIDQSNS-CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	297.54	896.6	2793	32.1
DADU 220.0	DADU NEW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	15.37	20.93	160	12.63
DADU 220.0	DADU NEW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	15.37	20.93	160	12.63
DADU 220.0	DADU NEW 132.0	3	DADU 500.00	JAMSHORO 500.00	2	24.59	33.48	250	12.93
JAMSHORO 220.0	JHIMPIR-2 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	3	115.05	149.93	550	27.26
JAMSHORO 220.0	JHIMPIR-2 220.0	3	JAMSHORO 220.00	JHIMPIR-2 220.00	2	115.05	149.93	550	27.26
JAMSHORO 220.0	HALA RD. 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	83.36	145.43	307	47.37
JAMSHORO 220.0	HALA RD. 220.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	83.36	145.43	307	47.37
JAMSHORO 220.0	MIRPRKHS 220.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	70.88	108.25	674	16.06
JAMSHORO 220.0	TM.KH.RD 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	13.52	94.27	600	15.71
JAMSHORO 220.0	JAMSHORO NEW132.0	1	JAMSHORO 220.00	JAMSHORO NEW132.00	2	57.72	68.05	160	41.83
JAMSHORO 220.0	JAMSHORO NEW132.0	2	JAMSHORO 220.00	JAMSHORO NEW132.00	1	57.72	68.05	160	41.83
JAMSHORO 220.0	JAMSHORO NEW132.0	3	JAMSHORO 220.00	JAMSHORO NEW132.00	1	57.72	68.05	160	41.83
JHIMPIR-2 220.0	KDA-33 220.0	1	KDA-33 220.00	NKI 220.00	E1	70.72	92.81	674	13.77
JHIMPIR-2 220.0	KDA-33 220.0	2	KDA-33 220.00	NKI 220.00	E1	70.72	92.81	674	13.77
JHIMPIR-2 220.0	JHIMPIR-2 132.0	1	JAMSHORO 500.00	JAMSHORO 220.00	1	96.55	96.66	250	38.13
JHIMPIR-2 220.0	JHIMPIR-2 132.0	2	JAMSHORO 500.00	JAMSHORO 220.00	1	96.55	96.66	250	38.13
JHIMPIR-2 220.0	JHIMPIR-2 132.0	3	JAMSHORO 500.00	JAMSHORO 220.00	1	96.55	96.66	250	38.13
JHIMPIR-2 220.0	JHIMPIR-2 132.0	4	JAMSHORO 500.00	JAMSHORO 220.00	1	96.55	96.66	250	38.13
JHIMPIR-2 220.0	JHIMPIR-1 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	63.17	115.77	674	17.18
JHIMPIR-2 220.0	DHABEJI 220 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	80.95	108.68	674	16.12
HALA RD. 220.0	MIRPRKHS 220.0	1	JAMSHORO 220.00	MIRPRKHS 220.00	1	71.53	113.22	674	16.8
HALA RD. 220.0	TM.KH.RD 220.0	2	JAMSHORO 220.00	HALA RD. 220.00	1	158.68	187.33	674	27.79
HALA RD. 220.0	HALA ROAD 132.0	1	DADU 500.00	JAMSHORO 500.00	2	92.51	99.14	250	39.29
HALA RD. 220.0	HALA ROAD-1 132.0	1	DADU 500.00	JAMSHORO 500.00	2	84.08	91.14	250	36.12
HALA RD. 220.0	HALA ROAD-1 132.0	2	DADU 500.00	JAMSHORO 500.00	2	84.08	91.14	250	36.12
MIRPRKHS 220.0	M.KHS.NW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	71.09	77.23	250	30.9
MIRPRKHS 220.0	M.KHS.NW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	71.09	77.23	250	30.9
TM.KH.RD 220.0	HYD-TMK-2 132.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	66.75	88.76	250	34.82
TM.KH.RD 220.0	HYD-TMRD 132.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	62.15	78.84	250	30.92
TM.KH.RD 220.0	JHIMPIR-1 220.0	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	143.03	160.18	674	23.77
TM.KH.RD 220.0	JHIMPIR-1 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	143.03	160.18	674	23.77
KDA-33 220.0	NKI 220.0	E1	NKI 220.00	NKIBAL PLDP1220.00	E1	214.2	318.49	953	33.42
KDA-33 220.0	N.PORT QASIM220.0	E1	DHABEJI 220 220.00	DSEZ 220.00	1	13.68	25.34	921.8	2.75
KDA-33 220.0	N.PORT QASIM220.0	E2	DHABEJI 220 220.00	DSEZ 220.00	1	13.68	25.34	921.76	2.75

Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
KDA-33 220.0	BTK-220 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	11.24	22.01	1350	1.63
KDA-33 220.0	DHACK-220 220.0	N1	DHABEJI 220 220.00	DSEZ 220.00	1	11.24	22.01	1350	1.63
KDA-33 220.0	KDA2 132 132.0	1	KDA-33 220.00	KDA2 132 132.00	2	68.53	90.97	250	35.92
KDA-33 220.0	KDA2 132 132.0	2	KDA-33 220.00	KDA2 132 132.00	1	68.53	90.97	250	35.92
KDA-33 220.0	KDA2 132 132.0	3	KDA-33 220.00	KDA2 132 132.00	1	67.45	89.53	250	35.35
NKI 220.0	NKIBAL PLDP1220.0	E1	K-2/K-3 500.00	KKI-500 500.00	1	233.26	400.18	952.6	42.01
JAMSHORO NEW132.	LAKHRA 132.	1	DADU 500.00	JAMSHORO 500.00	2	23.42	34.42	202	17.04
JAMSHORO NEW132.	LAKHRA 132.	2	DADU 500.00	JAMSHORO 500.00	2	23.42	34.42	202	17.04
JAMSHORO NEW132.	QASIMABAD 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	29.66	33.15	202	16.41
JAMSHORO NEW132.	RAJPUTANA 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	28.8	34.3	202	16.98
JAMSHORO NEW132.	JAMSRO OLD 132.	1	KDA-33 220.00	NKI 220.00	E1	37.86	38.46	202	19.04
JAMSHORO NEW132.	JAMSRO OLD 132.	2	KDA-33 220.00	NKI 220.00	E1	37.86	38.46	202	19.04
JAMSHORO NEW132.	JAMSRO OLD 132.	3	KDA-33 220.00	NKI 220.00	E1	37.86	38.46	202	19.04
BALDIA 220 S220	MITHA GHAR 220	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	31.76	217.48	967	22.49
BALDIA 220 S220	BALDIA 132 S132	1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	52.7	74.4	250	28.98
BALDIA 220 S220	BALDIA 132 S132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	1	54.43	75.86	250	29.55
BALDIA 220 S220	BALDIA 132 S132	3	BALDIA 220 S220.00	BALDIA 132 S132.00	2	52.7	74.4	250	28.98
BALDIA 220 S220	NKIBAL PLDP1220	E1	K-2/K-3 500.00	KKI-500 500.00	1	233.11	400.51	1348.2	29.71
BALDIA 220 S220	BAL_KKI_UG3 220	E1	K-2/K-3 500.00	KKI-500 500.00	1	57.62	143.6	476.3	30.15
BALDIA 220 S220	BAL_KKI_UG4 220	E2	K-2/K-3 500.00	KKI-500 500.00	1	57.62	143.6	476.3	30.15
MARIPUR 220 220	MARIPUR-2 132	1	MARIPUR 220 220.00	MARIPUR-1 132.00	12	43.42	65.9	250	25.59
MARIPUR 220 220	MARIPUR-1 132	11	MARIPUR 220 220.00	MARIPUR-2 132.00	1	42.7	65.3	250	25.36
MARIPUR 220 220	MARIPUR-1 132	12	MARIPUR 220 220.00	MARIPUR-2 132.00	1	42.86	65.37	250	25.39
MARIPUR 220 220	MAR-BAL-KKI2220	R1	KKI-220 220.00	MAR-KKI_UG 220.00	1	253.61	470.55	952	49.43
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	189.8	349.76	495.37	70.61
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	189.8	349.76	495.37	70.61
MARIPUR 220 220	MAR-BAL-KKI 220	R2	KKI-220 220.00	MAR-KKI-UG2 220.00	1	253.61	470.55	952	49.43
LALAZAR 220 220	MAR-LALPLDP1220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	189.53	348.98	495.37	70.45
LALAZAR 220 220	MAR-LALPLDP2220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	189.53	348.98	495.37	70.45
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	69.93	95.89	250	37.13
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	69.93	95.89	250	37.13
LALAZAR 220 220	LALAZAR-UG1 220	E1	LALAZAR 220 220.00	LALAZAR-UG2 220.00	E2	117.82	213.3	514.4	41.47
LALAZAR 220 220	LALAZAR-UG2 220	E2	LALAZAR 220 220.00	LALAZAR-UG1 220.00	E1	117.82	213.3	514.4	41.47
LALAZAR-UG1 220	KCR_UG1 220	1	LALAZAR 220 220.00	LALAZAR-UG2 220.00	E2	117.63	210.2	483.6	43.47
SURJANI 220 220	KDA-33 220	E1	SURJANI 220 220.00	DEH HALKANI 220.00	1	67.07	140.04	904	15.49
SURJANI 220 220	DEH HALKANI 220	1	KDA-33 220.00	NKI 220.00	E1	186.27	256.99	967	26.58
SURJANI 220 220	SURJANI 132 132	1	SURJANI 220 220.00	SURJANI 132 132.00	2	75.3	108.33	250	42.11
SURJANI 220 220	SURJANI 132 132	2	SURJANI 220 220.00	SURJANI 132 132.00	1	75.3	108.33	250	42.11
LALAZAR-UG2 220	KCR_UG2 220	1	LALAZAR 220 220.00	LALAZAR-UG1 220.00	E1	117.63	210.2	483.6	43.47
K CREEK 220 220	KCR-BQ2-LDI 220	E1	KDA-33 220.00	NKI 220.00	E1	4.73	14.85	419.16	3.54
K CREEK 220 220	CCP-KCR-2 220	1	CCPP 220.00	CCP-KCR-1 220.00	E1	54.04	91.99	270.6	33.99
K CREEK 220 220	CCP-KCR-1 220	1	CCPP 220.00	CCP-KCR-2 220.00	E2	54.04	91.99	270.5	34.01
K CREEK 220 220	KCR-BQ2-LDI 220	E2	KDA-33 220.00	NKI 220.00	E1	4.73	14.85	419.2	3.54
K CREEK 220 220	QAYOMABAD 132	2	K CREEK 220 220.00	KO.WEST 132 132.00	2	62.12	80.1	250	30.82
K CREEK 220 220	KO.WEST 132 132	2	K CREEK 220 220.00	QAYOMABAD 132.00	2	69.52	84.84	250	32.78
K CREEK 220 220	KCR_UG1 220	E1	LALAZAR 220 220.00	LALAZAR-UG2 220.00	E2	117.34	213.52	514.4	41.51
K CREEK 220 220	KCR_UG2 220	E2	LALAZAR 220 220.00	LALAZAR-UG1 220.00	E1	117.34	213.52	514.4	41.51
BQPS II 220	KCR-BQ2-LDI 220	E1	KDA-33 220.00	NKI 220.00	E1	3.73	14.22	419.2	3.39
BQPS II 220	KCR-BQ2-LDI 220	E2	KDA-33 220.00	NKI 220.00	E1	3.73	14.22	419.2	3.39
PIPRI W 220 220	BQPS III 220	E1	K-2/K-3 500.00	KKI-500 500.00	1	15.33	27.37	457	5.99
PIPRI W 220 220	BQPS III 220	E3	K-2/K-3 500.00	KKI-500 500.00	1	17.56	31.33	457	6.86
PIPRI W 220 220	NPQ-2 220	E1	PIPRI W 220 220.00	NPQ-2 220.00	E2	136.99	257.23	921.8	27.91
PIPRI W 220 220	NPQ-2 220	E2	PIPRI W 220 220.00	NPQ-2 220.00	E1	136.99	257.23	921.8	27.91
PIPRI W 220 220	BQPS III 220	E2	K-2/K-3 500.00	KKI-500 500.00	1	15.33	27.37	457	5.99
PIPRI W 220 220	ICI 220 220	E4	K-2/K-3 500.00	KKI-500 500.00	1	17.62	31.43	457	6.88
PIPRI W 220 220	PIPRI W 132 132	1	PIPRI W 220 220.00	PIPRI W 132 132.00	2	59.01	76.96	250	29.91
PIPRI W 220 220	PIPRI W 132 132	2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	59.01	76.96	250	29.91
PIPRI W 220 220	PIPRI W 132 132	3	PIPRI W 220 220.00	PIPRI W 132 132.00	1	59.01	76.96	250	29.91
BQPS III 220	ICI 220 220	E4	K-2/K-3 500.00	KKI-500 500.00	1	17.02	31	457.26	6.78
BQPS III 220	BQPS II 220	1	K-2/K-3 500.00	KKI-500 500.00	1	6.91	14.49	609.7	2.38
BQPS III 220	BQPS II 220	2	K-2/K-3 500.00	KKI-500 500.00	1	6.91	14.49	609.7	2.38
BQPS III 220	LANDHI220 220	N1	K-2/K-3 500.00	KKI-500 500.00	1	29.7	44.67	967	4.62
BQPS III 220	LANDHI220 220	N2	K-2/K-3 500.00	KKI-500 500.00	1	29.7	44.67	967	4.62
N.PORT QASIM220	BTK-220 220	1	DHABEJI 220 220.00	DSEZ 220.00	1	12.18	22.31	1530	1.46
N.PORT QASIM220	DHACK-220 220	N1	DHABEJI 220 220.00	DSEZ 220.00	1	12.18	22.31	1530	1.46
N.PORT QASIM220	DHABEJI 220 220	N1	KDA-33 220.00	NKI 220.00	E1	18.27	44.94	967	4.65
N.PORT QASIM220	DHABEJI 220 220	N2	KDA-33 220.00	NKI 220.00	E1	18.27	44.94	967	4.65
KDA-33 220	GULSHAN 220 220	E1	KDA-33 220.00	GULSHAN 220 220.00	E2	83.76	142.46	514	27.72

Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
KDA-33 220	GULSHAN 220 220	E2	KDA-33 220.00	GULSHAN 220 220.00	E1	83.76	142.46	514	27.72
GULSHAN 220 220	GULSHAN 132 132	1	GULSHAN 220 220.00	GULSHAN 132 132.00	2	44.02	66.77	250	25.8
GULSHAN 220 220	GULSHAN 132 132	2	GULSHAN 220 220.00	GULSHAN 132 132.00	1	44.02	66.77	250	25.8
GULSHAN 220 220	GULSHAN 132 132	3	GULSHAN 220 220.00	GULSHAN 132 132.00	1	44.02	66.77	250	25.8
DEH HALKANI 220	MITHA GHAR 220	1	KDA-33 220.00	NKI 220.00	E1	90.32	160.75	967	16.62
DEH HALKANI 220	DEH-HAL-22KV22.	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	2	48.27	97.56	120	79.02
DEH HALKANI 220	DEH-HAL-22KV22.	2	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	48.27	97.56	120	79.02
MAR-LALPLDP1220	LZAR-MP-PLDP220	E2	MARIPUR 220 220.00	LZAR-MP-PLDP220.00	1	189.57	368.5	476.3	77.37
MAR-LALPLDP2220	LZAR-MP-PLDP220	E1	MARIPUR 220 220.00	LZAR-MP-PLDP220.00	1	189.57	368.5	476.4	77.35
NPQ-2 220	DHAB-NPQ2 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	101.58	125.9	1524.2	8.26
NPQ-2 220	DHAB-NPQ 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	101.58	125.9	1524.2	8.26
CCPP 220	CCPP/LAN UG1220	N1	KDA-33 220.00	NKI 220.00	E1	31.2	37.32	957	3.9
CCPP 220	CCPP/LAN UG2220	N2	KDA-33 220.00	NKI 220.00	E1	31.2	37.32	957	3.9
CCPP 220	CCP-KCR-2 220	E2	CCPP 220.00	CCP-KCR-1 220.00	E1	53.95	90.63	349	25.97
CCPP 220	CCP-KCR-1 220	E1	CCPP 220.00	CCP-KCR-2 220.00	E2	53.95	90.63	349	25.97
CCPP 220	KTPS EXISTIN132	1	CCPP 220.00	KTPS EXISTIN132.00	2	50.79	67.02	250	25.89
CCPP 220	KTPS EXISTIN132	2	CCPP 220.00	KTPS EXISTIN132.00	1	50.79	67.02	250	25.89
MITHA GHAR 220	MTH-GHR-22KV22.	3	MITHA GHAR 220.00	MTH-GHR-22KV22.000	4	60.33	122.02	150	79.15
MITHA GHAR 220	MTH-GHR-22KV22.	4	MITHA GHAR 220.00	MTH-GHR-22KV22.000	3	60.33	122.02	150	79.15
22	0.4	1	22.000	0.4000	1	16.06	16.08	20	78.24
22	0.4	1	22.000	0.4000	1	16.06	16.08	20	78.24
22	0.4	1	22.000	0.4000	1	16.06	16.08	20	78.24
22	0.4	1	22.000	0.4000	1	16.06	16.08	20	78.24
22	0.4	1	22.000	0.4000	1	16.06	16.08	20	78.24
22	0.4	1	22.000	0.4000	1	16.06	16.08	20	78.24
22	0.4	1	KDA-33 220.00	GULSHAN 220 220.00	E1	16.06	16.08	20	78.43
22	0.4	1	KDA-33 220.00	GULSHAN 220 220.00	E1	16.06	16.08	20	78.43
22	0.4	1	KDA-33 220.00	GULSHAN 220 220.00	E1	16.06	16.08	20	78.43
22	0.4	1	KDA-33 220.00	GULSHAN 220 220.00	E1	16.06	16.08	20	78.43
22	0.4	1	KDA-33 220.00	GULSHAN 220 220.00	E1	16.06	16.08	20	78.43
KKI-500 500	KKI-220 220	1	K-2/K-3 500.00	NKI 500.00	1	142.37	250.52	600	40.63
KKI-500 500	KKI-220 220	2	K-2/K-3 500.00	NKI 500.00	1	142.37	250.52	600	40.63
KKI-500 500	KKI-220 220	3	K-2/K-3 500.00	NKI 500.00	1	142.37	250.52	600	40.63
KKI-220 220	KKI-132 132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	2	51.99	62.02	250	24.12
KKI-220 220	MAR-KKI_UG 220	1	KKI-220 220.00	MAR-KKI-UG2 220.00	1	254.26	466.64	957.2	48.75
KKI-220 220	MAR-KKI-UG2 220	1	KKI-220 220.00	MAR-KKI_UG 220.00	1	254.26	466.64	957.2	48.75
KKI-220 220	BAL-KKI-UG 220	1	K-2/K-3 500.00	KKI-500 500.00	1	56.43	143.86	957.2	15.03
KKI-220 220	BAL_KKI_UG2 220	1	K-2/K-3 500.00	KKI-500 500.00	1	56.43	143.86	957.2	15.03
22	0.4	1	KDA-33 220.00	GULSHAN 220 220.00	E1	16.06	16.08	20	78.41
22	0.4	1	KDA-33 220.00	GULSHAN 220 220.00	E1	12.04	12.06	15	78.45
22	0.4	1	KDA-33 220.00	GULSHAN 220 220.00	E1	12.04	12.06	15	78.45
KDA2 132 132	GADAP 132	N1	KDA-33 220.00	NKI 220.00	E1	6.1	6.12	202	3.03
KDA2 132 132	GULSHAN 132 132	R1	KDA-33 220.00	NKI 220.00	E1	28.05	28.1	280	10.04
KDA2 132 132	JOHAR 132 132	R1	KDA-33 220.00	NKI 220.00	E1	51.3	51.41	280	18.36
KDA2 132 132	MEMON GOTH 132	R1	KDA-33 220.00	NKI 220.00	E1	26.36	26.42	280	9.43
KDA2 132 132	SNPC 132	1	KDA-33 220.00	NKI 220.00	E1	4.4	4.41	202	2.19
MARIPUR-2 132	LYARI 132 SS132	E1	MARIPUR 220 220.00	MARIPUR-1 132.00	12	34.24	34.3	171	20.06
QUEENS RD 13132	ELANDER 132 132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	13.03	13.1	160	8.19
QUEENS RD 13132	ELANDER 132 132	E2	K CREEK 220 220.00	KO.WEST 132 132.00	2	13.03	13.1	160	8.19
SURJANI 132 132	SUR-VALIKA 132	R1	KDA-33 220.00	KDA2 132 132.00	1	97.88	103.92	262	39.66
SURJANI 132 132	SUR-UG-MAY 132	E1	KDA-33 220.00	KDA2 132 132.00	1	37.12	50.49	160	31.55
PIPRI W 132 132	AISHA STEEL 132	1	NIP 220.00	PIPRI W 220 220.00	1	5.46	5.47	112	4.89
PIPRI W 132 132	PIPRI E 132 132	E1	NIP 220.00	PIPRI W 220 220.00	1	7.46	7.48	230.2	3.25
KTPS EXISTIN132	PRL-KTPS 132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	32.44	42.32	160	26.45
KTPS EXISTIN132	QAYMBD-KTPS 132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	23.41	36.22	137.2	26.4
QAYOMABAD 132	KO.WEST 132 132	2	K CREEK 220 220.00	KO.WEST 132 132.00	2	0.36	0.37	280	0.13
QAYOMABAD 132	QY-KE-KCNUG1132	E1	CCPP 220.00	KTPS EXISTIN132.00	1	18.43	21.27	251.5	8.46
QAYOMABAD 132	QY-KS-KCNUG2132	E2	CCPP 220.00	KTPS EXISTIN132.00	1	18.28	21.09	171.47	12.3
KO.WEST 132 132	PRL 132 132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	10.9	20.32	130.09	15.62
KO.WEST 132 132	DEFNCE-K-WST132	E1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	31.08	44.77	160	27.98
QUEENS RD 13132	OLD TOWN 132132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	15.97	16.05	114	14.08
QUEENS RD 13132	Q.RD-CLIFTON132	R1	K CREEK 220 220.00	KO.WEST 132 132.00	2	36.17	43.58	160	27.24
QUEENS RD 13132	Q.RD-GIZRI 132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	47.13	62.25	251.49	24.75
GULSHAN 132 132	AZIZABAD 132	E1	KDA-33 220.00	NKI 220.00	E1	26.25	26.33	171.5	15.35
GULSHAN 132 132	JAIL ROAD SS132	E1	KDA-33 220.00	NKI 220.00	E1	13.41	13.46	171	7.87
GULSHAN 132 132	AGHA KHAN 132	E1	KDA-33 220.00	NKI 220.00	E1	23.33	23.41	171	13.69
GULSHAN 132 132	CIVIC 132 A 132	E1	KDA-33 220.00	NKI 220.00	E1	32.72	32.83	160	20.52
GULSHAN 132 132	JAIL ROAD SS132	E2	KDA-33 220.00	NKI 220.00	E1	13.41	13.46	171	7.87

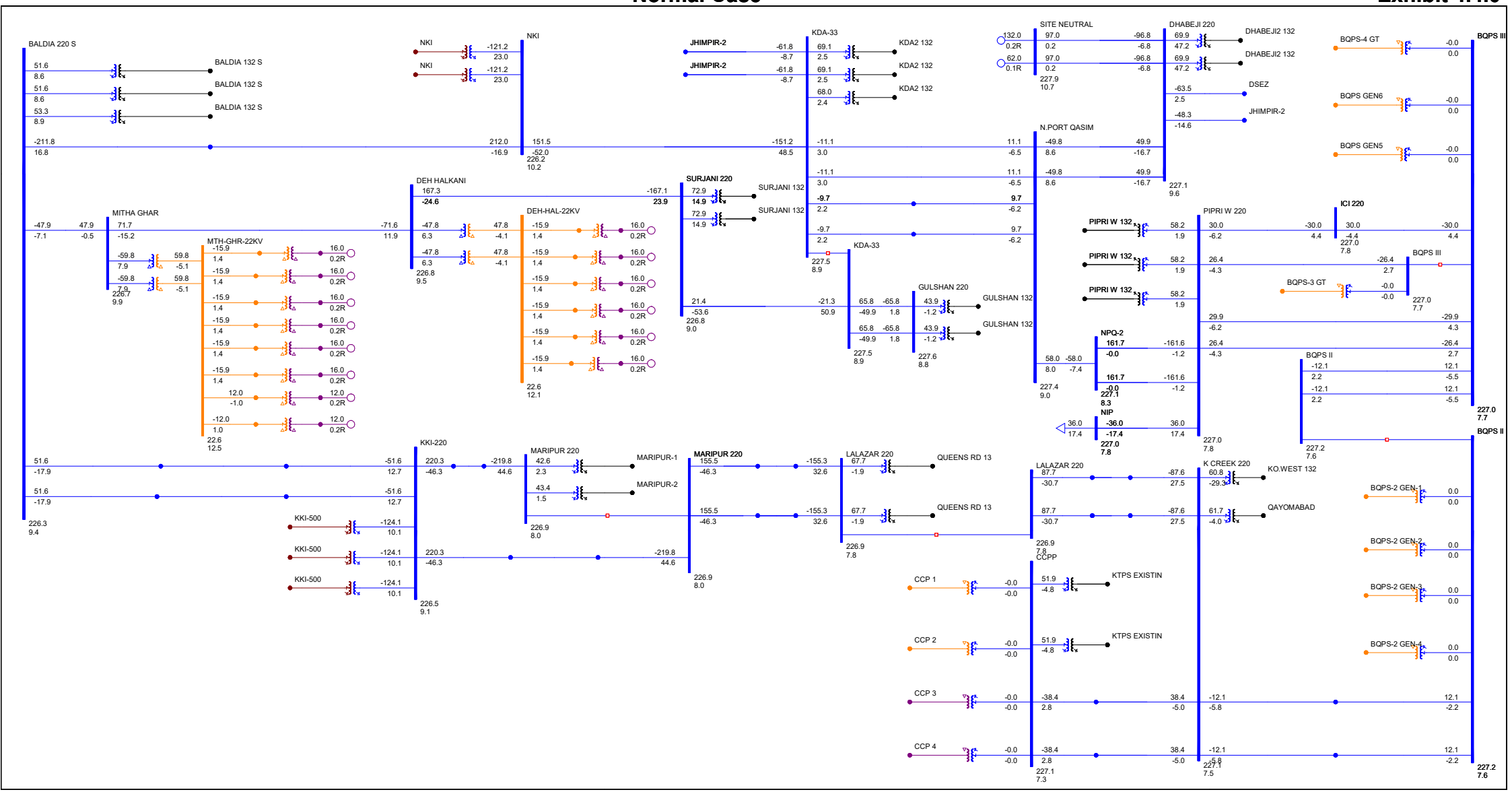
Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
MARIPUR-1 132	MAR-LAB PL1 132	E1	MARIPUR 220 220.00	MARIPUR-1 132.00	12	38.85	38.93	240.1	16.21
MARIPUR-1 132	MAR-GOL PL2 132	E1	MARIPUR 220 220.00	MARIPUR-1 132.00	12	35.47	35.54	240.1	14.8
BALDIA 132 S132	HUB CHOWKI 1132	1	K-2/K-3 500.00	NKI 500.00	1	12.16	13.67	183	7.47
BALDIA 132 S132	VALIKA B 132132	E2	NIP 220.00	PIPRI W 220 220.00	1	19.03	19.04	262.2	7.26
BALDIA 132 S132	SITE GT 132A132	R1	NIP 220.00	PIPRI W 220 220.00	1	29.19	29.21	280	10.43
BALDIA 132 S132	SITE GT 132A132	R2	NIP 220.00	PIPRI W 220 220.00	1	29.19	29.21	280	10.43
BALDIA 132 S132	KANUPP 132 132	E1	JAMSHORO 500.00	NKI 500.00	1	1.09	1.09	117.3	0.93
BALDIA 132 S132	ORANGI B 132132	R1	NIP 220.00	PIPRI W 220 220.00	1	26.76	26.77	280	9.56
BALDIA 132 S132	TAPAL 132 132	E1	K-2/K-3 500.00	NKI 500.00	1	11.5	13.02	228.6	5.7
BALDIA 132 S132	BAL-ITHD 132	1	NIP 220.00	PIPRI W 220 220.00	1	13.98	13.99	130.1	10.75
DHABEJI 220 220	THERMAL-PP 220	1	NIP 220.00	PIPRI W 220 220.00	1	4.45	4.46	1524.2	0.29
DHABEJI 220 220	THERMAL-PP 220	2	NIP 220.00	PIPRI W 220 220.00	1	4.45	4.46	1524.2	0.29
DHABEJI 220 220	DSEZ 220	1	JHIMPIR-2 220.00	DHABEJI 220 220.00	1	94.83	115.36	674	17.12
DHABEJI 220 220	DHAB-NPQ2 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	101.8	126.11	957.2	13.17
DHABEJI 220 220	DHAB-NPQ 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	101.8	126.11	957.2	13.17
DHABEJI 220 220	SITE NEUTRAL220	1	DHABEJI 220 220.00	SITE NEUTRAL220.00	2	56.22	112.08	967	11.59
DHABEJI 220 220	SITE NEUTRAL220	2	DHABEJI 220 220.00	SITE NEUTRAL220.00	1	56.22	112.08	967	11.59
DHABEJI 220 220	WIND PROJ 220	1	DHABEJI 220 220.00	WIND PROJ 220.00	2	37.2	75.11	967	7.77
DHABEJI 220 220	WIND PROJ 220	2	DHABEJI 220 220.00	WIND PROJ 220.00	1	37.2	75.11	967	7.77
DHABEJI 220 220	DHABEJI2 132132	1	DHABEJI 220 220.00	DHABEJI2 132132.00	2	81.83	130.51	250	50.67
DHABEJI 220 220	DHABEJI2 132132	2	DHABEJI 220 220.00	DHABEJI2 132132.00	1	81.83	130.51	250	50.67
DSEZ 220	GHARO-NEW 220	1	JHIMPIR-2 220.00	DHABEJI 220 220.00	1	127.72	147.97	674	21.95
DSEZ 220	DSEZ 132 132	1	KDA-33 220.00	GULSHAN 220 220.00	E1	18.61	18.61	160	11.29
DSEZ 220	DSEZ 132 132	2	KDA-33 220.00	GULSHAN 220 220.00	E1	18.61	18.61	160	11.29
MAR-BAL-KKI222	MAR-KKI-UG2 22	R1	KKI-220 220.00	MAR-KKI_UG 220.00	1	253.86	465.16	967	48.1
MAR-BAL-KKI 22	MAR-KKI_UG 22	R2	KKI-220 220.00	MAR-KKI-UG2 220.00	1	253.86	465.16	967	48.1
BAL-KKI-UG 22	BAL_KKI_UG4 22	1	K-2/K-3 500.00	KKI-500 500.00	1	56.88	143.26	967	14.81
BAL_KKI_UG2 22	BAL_KKI_UG3 22	1	K-2/K-3 500.00	KKI-500 500.00	1	56.88	143.26	967	14.81
DHABEJI2 13213	DHABEJI 132 13	N1	PIPRI W 220 220.00	PIPRI W 132 132.00	1	78.75	83.3	365	22.82
DHABEJI2 13213	DHABEJI 132 13	N2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	78.75	83.3	365	22.82

Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plants

Off-Peak Load Case Year 2025 - (Maximum Solar - Maximum Wind - Without RPC)

Normal Case

Exhibit 4.4.0

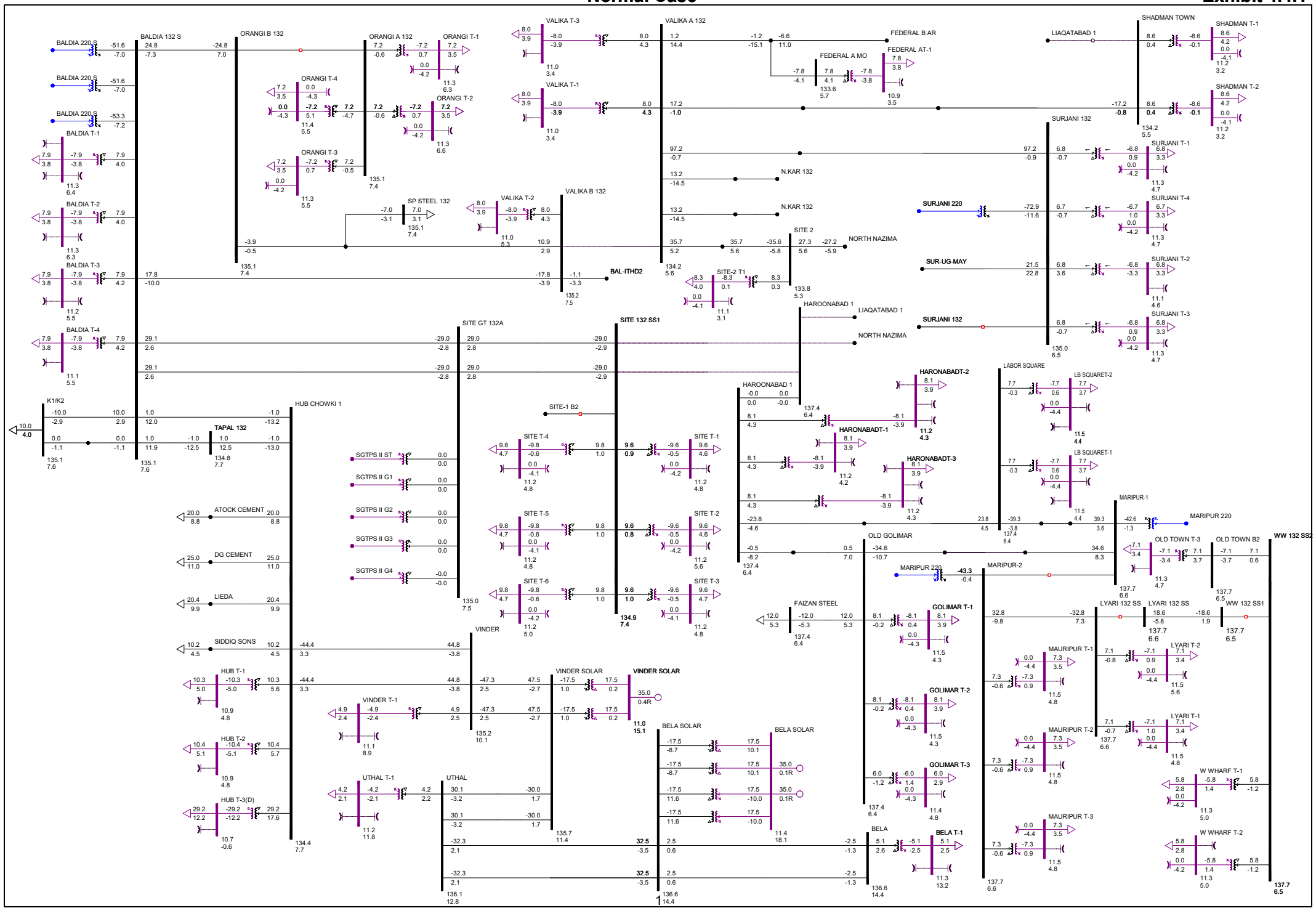


Grid Interconnection Studies of 120MW Deh Halkani Solar Power Plant

Off-Peak Load CaseYear 2027 - (Maximum Solar - Maximum Wind - Without RPC)

Normal Case

Exhibit 4.4.1



Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
DADU 500.00	MORO 500.00	1	DADU 500.00	JAMSHORO 500.00	2	468.05	845.9	2000	42.3
DADU 500.00	JAMSHORO 500.00	2	DADU 500.00	MATIARI-CS 500.00	1	934.72	1236.42	1300	95.11
DADU 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	588.28	1067.71	1200	88.98
DADU 500.00	DADU 220.00	1	DADU 500.00	JAMSHORO 500.00	2	19.64	33.38	450	7.3
DADU 500.00	DADU 220.00	2	DADU 500.00	JAMSHORO 500.00	2	19.64	33.38	450	7.3
DADU 500.00	DADU 220.00	3	DADU 500.00	JAMSHORO 500.00	2	19.64	33.38	450	7.3
MORO 500.00	MATIARI-CS 500.00	1	DADU 500.00	JAMSHORO 500.00	2	470.88	854.65	1300	65.74
JAMSHORO 500.00	K-2/K-3 500.00	1	K-2/K-3 500.00	NKI 500.00	1	425.58	677.89	1900	35.68
JAMSHORO 500.00	HUB 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	625.56	1227.78	1300	94.44
JAMSHORO 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	426.46	633.56	1300	48.74
JAMSHORO 500.00	HUBCO-CFPP 500.00	1	HUB 500.00	HUBCO-CFPP 500.00	2	596.62	1232.11	1300	94.78
JAMSHORO 500.00	MATIARI-CS 500.00	1	JAMSHORO 500.00	MATIARI-CS 500.00	3	823.65	1407.49	2000	70.37
JAMSHORO 500.00	MATIARI-CS 500.00	3	JAMSHORO 500.00	MATIARI-CS 500.00	1	835.18	1412.8	2793	50.58
JAMSHORO 500.00	JAMSHORO 220.00	1	DADU 500.00	JAMSHORO 500.00	2	51.44	67.34	450	14.54
JAMSHORO 500.00	JAMSHORO 220.00	2	DADU 500.00	JAMSHORO 500.00	2	51.44	67.34	450	14.54
JAMSHORO 500.00	JAMSHORO 220.00	3	DADU 500.00	JAMSHORO 500.00	2	51.44	67.34	450	14.54
ENGRO CFPP 500.00	THL NVA CFPP500.00	1	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	32.2	627.35	2793	22.46
ENGRO CFPP 500.00	TEL CFPP 500.00	1	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	276.5	897.65	2793	32.14
SECL CFPP 500.00	MATIARI-CS 500.00	1	SECL CFPP 500.00	MATIARI-CS 500.00	2	605.98	829.33	1600	51.83
SECL CFPP 500.00	MATIARI-CS 500.00	2	SECL CFPP 500.00	MATIARI-CS 500.00	1	605.98	829.33	1600	51.83
SECL CFPP 500.00	MATIARI-CS 500.00	3	SECL CFPP 500.00	MATIARI-CS 500.00	1	603.99	826.66	1600	51.67
SECL CFPP 500.00	TEL CFPP 500.00	2	MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	584.2	1197.64	2793	42.88
PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	524.86	633.74	2793	22.69
PRT QSM CFPP500.00	KKI-500 500.00	1	PRT QSM CFPP500.00	LUCKY-CFPP 500.00	1	57.02	577.24	2700	21.38
K-2/K-3 500.00	NKI 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	792.68	1058.82	2793	37.91
K-2/K-3 500.00	MATIARI-CS 500.00	1	K-2/K-3 500.00	NKI 500.00	1	562.34	764.64	1400	54.62
K-2/K-3 500.00	KKI-500 500.00	1	K-2/K-3 500.00	NKI 500.00	1	345.26	705.2	2793	25.25
HUB 500.00	HUBCO-CFPP 500.00	2	JAMSHORO 500.00	HUBCO-CFPP 500.00	1	625.82	1241.01	2793	44.43
NKI 500.00	NKI 220.00	1	K-2/K-3 500.00	KKI-500 500.00	1	123.34	185.49	600	30.08
NKI 500.00	NKI 220.00	2	K-2/K-3 500.00	KKI-500 500.00	1	123.34	185.49	600	30.08
NKI 500.00	NKI 220.00	3	K-2/K-3 500.00	KKI-500 500.00	1	123.34	185.49	600	30.08
MATIARI-CS 500.00	LUCKY-CFPP 500.00	1	K-2/K-3 500.00	MATIARI-CS 500.00	1	471.15	577.54	1900	30.4
MATIARI-CS 500.00	SIDQSNS-CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	601.9	1189	1600	74.31
THL NVA CFPP500.00	SIDQSNS-CFPP500.00	1	SECL CFPP 500.00	TEL CFPP 500.00	2	297.77	896.76	2793	32.11
DADU 220.0	DADU NEW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	16.28	27.71	160	16.65
DADU 220.0	DADU NEW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	16.28	27.71	160	16.65
DADU 220.0	DADU NEW 132.0	3	DADU 500.00	JAMSHORO 500.00	2	26.04	44.33	250	17.05
JAMSHORO 220.0	JHIMPIR-2 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	3	133.85	176.35	550	32.06
JAMSHORO 220.0	JHIMPIR-2 220.0	3	JAMSHORO 220.00	JHIMPIR-2 220.00	2	133.85	176.35	550	32.06
JAMSHORO 220.0	HALA RD. 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	79.41	145.42	307	47.37
JAMSHORO 220.0	HALA RD. 220.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	79.41	145.42	307	47.37
JAMSHORO 220.0	MIRPRKHS 220.0	1	HALA RD. 220.00	MIRPRKHS 220.00	1	70.86	111.36	674	16.52
JAMSHORO 220.0	TM.KH.RD 220.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	21.54	112.73	600	18.79
JAMSHORO 220.0	JAMSHORO NEW132.0	1	JAMSHORO 220.00	JAMSHORO NEW132.00	2	58.14	68.41	160	42.06
JAMSHORO 220.0	JAMSHORO NEW132.0	2	JAMSHORO 220.00	JAMSHORO NEW132.00	1	58.14	68.41	160	42.06
JAMSHORO 220.0	JAMSHORO NEW132.0	3	JAMSHORO 220.00	JAMSHORO NEW132.00	1	58.14	68.41	160	42.06
JHIMPIR-2 220.0	KDA-33 220.0	1	K-2/K-3 500.00	NKI 500.00	1	62.66	83.02	674	12.32
JHIMPIR-2 220.0	KDA-33 220.0	2	K-2/K-3 500.00	NKI 500.00	1	62.66	83.02	674	12.32
JHIMPIR-2 220.0	JHIMPIR-2 132.0	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96.63	96.79	250	38.06
JHIMPIR-2 220.0	JHIMPIR-2 132.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96.63	96.79	250	38.06
JHIMPIR-2 220.0	JHIMPIR-2 132.0	3	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96.63	96.79	250	38.06
JHIMPIR-2 220.0	JHIMPIR-2 132.0	4	JAMSHORO 220.00	JHIMPIR-2 220.00	2	96.63	96.79	250	38.06
JHIMPIR-2 220.0	JHIMPIR-1 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	56.89	92.44	674	13.71
JHIMPIR-2 220.0	DHABEJI 220 220.0	1	DHABEJI 220 220.00	DSEZ 220.00	1	50.44	68.55	674	10.17
HALA RD. 220.0	MIRPRKHS 220.0	1	JAMSHORO 220.00	MIRPRKHS 220.00	1	72.97	117.46	674	17.43
HALA RD. 220.0	TM.KH.RD 220.0	2	JAMSHORO 220.00	HALA RD. 220.00	1	173.42	200.17	674	29.7
HALA RD. 220.0	HALA ROAD 132.0	1	DADU 500.00	JAMSHORO 500.00	2	93.48	100.95	250	40.03
HALA RD. 220.0	HALA ROAD-1 132.0	1	DADU 500.00	JAMSHORO 500.00	2	85.11	93.03	250	36.89
HALA RD. 220.0	HALA ROAD-1 132.0	2	DADU 500.00	JAMSHORO 500.00	2	85.11	93.03	250	36.89
MIRPRKHS 220.0	M.KHS.NW 132.0	1	DADU 500.00	JAMSHORO 500.00	2	71.76	78.63	250	31.47
MIRPRKHS 220.0	M.KHS.NW 132.0	2	DADU 500.00	JAMSHORO 500.00	2	71.76	78.63	250	31.47
TM.KH.RD 220.0	HYD-TMK-2 132.0	2	HALA RD. 220.00	TM.KH.RD 220.00	2	68.07	92.22	250	36.21
TM.KH.RD 220.0	HYD-TMRD 132.0	1	HALA RD. 220.00	TM.KH.RD 220.00	2	63.49	81.7	250	32.08
TM.KH.RD 220.0	JHIMPIR-1 220.0	1	JAMSHORO 220.00	JHIMPIR-2 220.00	2	157.12	177.27	674	26.3
TM.KH.RD 220.0	JHIMPIR-1 220.0	2	JAMSHORO 220.00	JHIMPIR-2 220.00	2	157.12	177.27	674	26.3
KDA-33 220.0	NKI 220.0	E1	NKI 220.00	NKIBAL PLDP1220.00	E1	160.21	254.32	953	26.69
KDA-33 220.0	N.PORT QASIM220.0	E1	KDA-33 220.00	NKI 220.00	E1	12.84	32.64	921.8	3.54
KDA-33 220.0	N.PORT QASIM220.0	E2	KDA-33 220.00	NKI 220.00	E1	12.84	32.64	921.76	3.54

Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
KDA-33 220.0	BTK-220 220.0	1	KDA-33 220.00	NKI 220.00	E1	10.07	27.6	1350	2.04
KDA-33 220.0	DHACK-220 220.0	N1	KDA-33 220.00	NKI 220.00	E1	10.07	27.6	1350	2.04
KDA-33 220.0	KDA2 132 132.0	1	KDA-33 220.00	KDA2 132 132.00	2	69.08	91.75	250	36.11
KDA-33 220.0	KDA2 132 132.0	2	KDA-33 220.00	KDA2 132 132.00	1	69.08	91.75	250	36.11
KDA-33 220.0	KDA2 132 132.0	3	KDA-33 220.00	KDA2 132 132.00	1	67.99	90.3	250	35.54
NKI 220.0	NKIBAL PLDP1220.0	E1	K-2/K-3 500.00	KKI-500 500.00	1	212.69	367.81	952.6	38.61
JAMSHORO NEW132.	LAKHRA 132.	1	DADU 500.00	JAMSHORO 500.00	2	25.99	37.95	202	18.79
JAMSHORO NEW132.	LAKHRA 132.	2	DADU 500.00	JAMSHORO 500.00	2	25.99	37.95	202	18.79
JAMSHORO NEW132.	QASIMABAD 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	29.25	33.03	202	16.35
JAMSHORO NEW132.	RAJPUTANA 132.	1	HALA RD. 220.00	TM.KH.RD 220.00	2	28.39	34.34	202	17
JAMSHORO NEW132.	JAMSRO OLD 132.	1	K-2/K-3 500.00	NKI 500.00	1	39.12	39.92	202	19.76
JAMSHORO NEW132.	JAMSRO OLD 132.	2	K-2/K-3 500.00	NKI 500.00	1	39.12	39.92	202	19.76
JAMSHORO NEW132.	JAMSRO OLD 132.	3	K-2/K-3 500.00	NKI 500.00	1	39.12	39.92	202	19.76
BALDIA 220 S220	MITHA GHAR 220	1	SURJANI 220 220.00	DEH HALKANI 220.00	1	48.38	217.45	967	22.49
BALDIA 220 S220	BALDIA 132 S132	1	BALDIA 220 S220.00	BALDIA 132 S132.00	2	52.31	73.88	250	28.73
BALDIA 220 S220	BALDIA 132 S132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	1	54.03	75.32	250	29.29
BALDIA 220 S220	BALDIA 132 S132	3	BALDIA 220 S220.00	BALDIA 132 S132.00	2	52.31	73.88	250	28.73
BALDIA 220 S220	NKIBAL PLDP1220	E1	K-2/K-3 500.00	KKI-500 500.00	1	212.52	367.99	1348.2	27.3
BALDIA 220 S220	BAL_KKI_UG3 220	E1	K-2/K-3 500.00	KKI-500 500.00	1	54.62	134.87	476.3	28.32
BALDIA 220 S220	BAL_KKI_UG4 220	E2	K-2/K-3 500.00	KKI-500 500.00	1	54.62	134.87	476.3	28.32
MARIPUR 220 220	MARIPUR-2 132	1	MARIPUR 220 220.00	MARIPUR-1 132.00	11	43.4	65.83	250	25.54
MARIPUR 220 220	MARIPUR-1 132	11	MARIPUR 220 220.00	MARIPUR-2 132.00	1	42.68	65.29	250	25.33
MARIPUR 220 220	MARIPUR-1 132	12	MARIPUR 220 220.00	MARIPUR-2 132.00	1	42.55	65.08	250	25.25
MARIPUR 220 220	MAR-BAL-KKI2220	R1	KKI-220 220.00	MAR-KKI_UG 220.00	1	224.35	416.21	952	43.72
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	162.26	296.48	495.37	59.85
MARIPUR 220 220	LZAR-MP-PLDP220	1	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	162.26	296.48	495.37	59.85
MARIPUR 220 220	MAR-BAL-KKI 220	R2	KKI-220 220.00	MAR-KKI-UG2 220.00	1	224.35	416.21	952	43.72
LALAZAR 220 220	MAR-LALPLDP1220	E2	LALAZAR 220 220.00	MAR-LALPLDP2220.00	E1	161.93	295.91	495.37	59.74
LALAZAR 220 220	MAR-LALPLDP2220	E1	LALAZAR 220 220.00	MAR-LALPLDP1220.00	E2	161.93	295.91	495.37	59.74
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	67.81	93	250	36.03
LALAZAR 220 220	QUEENS RD 13132	1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	67.81	93	250	36.03
LALAZAR 220 220	LALAZAR-UG1 220	E1	LALAZAR 220 220.00	LALAZAR-UG2 220.00	E2	92.89	167.87	514.4	32.63
LALAZAR 220 220	LALAZAR-UG2 220	E2	LALAZAR 220 220.00	LALAZAR-UG1 220.00	E1	92.89	167.87	514.4	32.63
LALAZAR-UG1 220	KCR_UG1 220	1	LALAZAR 220 220.00	LALAZAR-UG2 220.00	E2	92.65	164.8	483.6	34.08
SURJANI 220 220	KDA-33 220	E1	SURJANI 220 220.00	DEH HALKANI 220.00	1	57.72	139.48	904	15.43
SURJANI 220 220	DEH HALKANI 220	1	KDA-33 220.00	NKI 220.00	E1	169.11	221.2	967	22.88
SURJANI 220 220	SURJANI 132 132	1	SURJANI 220 220.00	SURJANI 132 132.00	2	74.38	107.08	250	41.54
SURJANI 220 220	SURJANI 132 132	2	SURJANI 220 220.00	SURJANI 132 132.00	1	74.38	107.08	250	41.54
LALAZAR-UG2 220	KCR_UG2 220	1	LALAZAR 220 220.00	LALAZAR-UG1 220.00	E1	92.65	164.8	483.6	34.08
K CREEK 220 220	KCR-BQ2-LDI 220	E1	K-2/K-3 500.00	KKI-500 500.00	1	13.4	22.93	419.16	5.47
K CREEK 220 220	CCP-KCR-2 220	1	K CREEK 220 220.00	CCP-KCR-1 220.00	1	38.7	65.74	270.6	24.29
K CREEK 220 220	CCP-KCR-1 220	1	K CREEK 220 220.00	CCP-KCR-2 220.00	1	38.7	65.74	270.5	24.3
K CREEK 220 220	KCR-BQ2-LDI 220	E2	K-2/K-3 500.00	KKI-500 500.00	1	13.4	22.93	419.2	5.47
K CREEK 220 220	QAYOMABAD 132	2	K CREEK 220 220.00	KO.WEST 132 132.00	2	62.06	79.8	250	30.71
K CREEK 220 220	KO.WEST 132 132	2	K CREEK 220 220.00	QAYOMABAD 132.00	2	68.76	84.03	250	32.47
K CREEK 220 220	KCR_UG1 220	E1	LALAZAR 220 220.00	LALAZAR-UG2 220.00	E2	92.28	167.9	514.4	32.64
K CREEK 220 220	KCR_UG2 220	E2	LALAZAR 220 220.00	LALAZAR-UG1 220.00	E1	92.28	167.9	514.4	32.64
BQPS II 220	KCR-BQ2-LDI 220	E1	K-2/K-3 500.00	KKI-500 500.00	1	12.81	22.63	419.2	5.4
BQPS II 220	KCR-BQ2-LDI 220	E2	K-2/K-3 500.00	KKI-500 500.00	1	12.81	22.63	419.2	5.4
PIPRI W 220 220	BQPS III 220	E1	K-2/K-3 500.00	KKI-500 500.00	1	26.7	38.09	457	8.33
PIPRI W 220 220	BQPS III 220	E3	K-2/K-3 500.00	KKI-500 500.00	1	30.57	43.59	457	9.54
PIPRI W 220 220	NPQ-2 220	E1	PIPRI W 220 220.00	NPQ-2 220.00	E2	161.72	303.79	921.8	32.96
PIPRI W 220 220	NPQ-2 220	E2	PIPRI W 220 220.00	NPQ-2 220.00	E1	161.72	303.79	921.8	32.96
PIPRI W 220 220	BQPS III 220	E2	K-2/K-3 500.00	KKI-500 500.00	1	26.7	38.09	457	8.33
PIPRI W 220 220	ICI 220 220	E4	K-2/K-3 500.00	KKI-500 500.00	1	30.67	43.73	457	9.57
PIPRI W 220 220	PIPRI W 132 132	1	PIPRI W 220 220.00	PIPRI W 132 132.00	2	58.23	75.96	250	29.45
PIPRI W 220 220	PIPRI W 132 132	2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	58.23	75.96	250	29.45
PIPRI W 220 220	PIPRI W 132 132	3	PIPRI W 220 220.00	PIPRI W 132 132.00	1	58.23	75.96	250	29.45
BQPS III 220	ICI 220 220	E4	K-2/K-3 500.00	KKI-500 500.00	1	30.36	43.45	457.26	9.5
BQPS III 220	BQPS II 220	1	K-2/K-3 500.00	KKI-500 500.00	1	13.25	23.19	609.7	3.8
BQPS III 220	BQPS II 220	2	K-2/K-3 500.00	KKI-500 500.00	1	13.25	23.19	609.7	3.8
BQPS III 220	LANDHI220 220	N1	K-2/K-3 500.00	KKI-500 500.00	1	44.48	58.45	967	6.04
BQPS III 220	LANDHI220 220	N2	K-2/K-3 500.00	KKI-500 500.00	1	44.48	58.45	967	6.04
N.PORT QASIM220	BTK-220 220	1	KDA-33 220.00	NKI 220.00	E1	11.5	28.82	1530	1.88
N.PORT QASIM220	DHACK-220 220	N1	KDA-33 220.00	NKI 220.00	E1	11.5	28.82	1530	1.88
N.PORT QASIM220	DHABEJI 220 220	N1	KDA-33 220.00	NKI 220.00	E1	52.56	73.83	967	7.64
N.PORT QASIM220	DHABEJI 220 220	N2	KDA-33 220.00	NKI 220.00	E1	52.56	73.83	967	7.64
KDA-33 220	GULSHAN 220 220	E1	KDA-33 220.00	GULSHAN 220 220.00	E2	82.59	142.36	514	27.7

Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
KDA-33 220	GULSHAN 220 220	E2	KDA-33 220.00	GULSHAN 220 220.00	E1	82.59	142.36	514	27.7
GULSHAN 220 220	GULSHAN 132 132	1	GULSHAN 220 220.00	GULSHAN 132 132.00	2	43.93	66.64	250	25.73
GULSHAN 220 220	GULSHAN 132 132	2	GULSHAN 220 220.00	GULSHAN 132 132.00	1	43.93	66.64	250	25.73
GULSHAN 220 220	GULSHAN 132 132	3	GULSHAN 220 220.00	GULSHAN 132 132.00	1	43.93	66.64	250	25.73
DEH HALKANI 220	MITHA GHAR 220	1	KDA-33 220.00	NKI 220.00	E1	73.28	125.15	967	12.94
DEH HALKANI 220	DEH-HAL-22KV22.	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	2	48.26	97.65	120	78.93
DEH HALKANI 220	DEH-HAL-22KV22.	2	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	48.26	97.65	120	78.93
MAR-LALPLDP1220	LZAR-MP-PLDP220	E2	MARIPUR 220 220.00	LZAR-MP-PLDP220.00	1	162	314.47	476.3	66.02
MAR-LALPLDP2220	LZAR-MP-PLDP220	E1	MARIPUR 220 220.00	LZAR-MP-PLDP220.00	1	162	314.47	476.4	66.01
NPQ-2 220	DHAB-NPQ2 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	133.15	152.9	1524.2	10.03
NPQ-2 220	DHAB-NPQ 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	133.15	152.9	1524.2	10.03
CCPP 220	CCPP/LAN UG1220	N1	K-2/K-3 500.00	KKI-500 500.00	1	31.76	42.97	957	4.49
CCPP 220	CCPP/LAN UG2220	N2	K-2/K-3 500.00	KKI-500 500.00	1	31.76	42.97	957	4.49
CCPP 220	CCP-KCR-2 220	E2	CCPP 220.00	CCP-KCR-1 220.00	E1	38.56	64.35	349	18.44
CCPP 220	CCP-KCR-1 220	E1	CCPP 220.00	CCP-KCR-2 220.00	E2	38.56	64.35	349	18.44
CCPP 220	KTPS EXISTIN132	1	CCPP 220.00	KTPS EXISTIN132.00	2	52.32	69.06	250	26.67
CCPP 220	KTPS EXISTIN132	2	CCPP 220.00	KTPS EXISTIN132.00	1	52.32	69.06	250	26.67
BQPS III 220	BQPS-3 GT 18.	1	NIP 220.00	PIPRI W 220 220.00	1	0	0	600	0
MITHA GHAR 220	MTH-GHR-22KV22.	3	MITHA GHAR 220.00	MTH-GHR-22KV22.000	4	60.32	122.12	150	79.06
MITHA GHAR 220	MTH-GHR-22KV22.	4	MITHA GHAR 220.00	MTH-GHR-22KV22.000	3	60.32	122.12	150	79.06
22	0.4	1	22.000	0.4000	1	16.06	16.08	20	78.07
22	0.4	1	22.000	0.4000	1	16.06	16.08	20	78.07
22	0.4	1	22.000	0.4000	1	16.06	16.08	20	78.07
22	0.4	1	22.000	0.4000	1	16.06	16.08	20	78.07
22	0.4	1	22.000	0.4000	1	16.06	16.08	20	78.07
22	0.4	1	22.000	0.4000	1	16.06	16.08	20	78.06
22	0.4	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	16.06	16.1	20	78.16
22	0.4	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	16.06	16.1	20	78.16
22	0.4	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	16.06	16.1	20	78.16
22	0.4	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	16.06	16.1	20	78.16
22	0.4	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	16.06	16.1	20	78.16
KKI-500 500	KKI-220 220	1	K-2/K-3 500.00	NKI 500.00	1	124.54	228.63	600	37.03
KKI-500 500	KKI-220 220	2	K-2/K-3 500.00	NKI 500.00	1	124.54	228.63	600	37.03
KKI-500 500	KKI-220 220	3	K-2/K-3 500.00	NKI 500.00	1	124.54	228.63	600	37.03
KKI-220 220	KKI-132 132	2	BALDIA 220 S220.00	BALDIA 132 S132.00	2	50.75	60.67	250	23.57
KKI-220 220	MAR-KKI_UG 220	1	KKI-220 220.00	MAR-KKI-UG2 220.00	1	225.09	413.53	957.2	43.2
KKI-220 220	MAR-KKI-UG2 220	1	KKI-220 220.00	MAR-KKI_UG 220.00	1	225.09	413.53	957.2	43.2
KKI-220 220	BAL-KKI-UG 220	1	K-2/K-3 500.00	KKI-500 500.00	1	53.61	134.99	957.2	14.1
KKI-220 220	BAL_KKI_UG2 220	1	K-2/K-3 500.00	KKI-500 500.00	1	53.61	134.99	957.2	14.1
22	0.4	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	16.06	16.09	20	78.13
22	0.4	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	12.04	12.06	15	78.17
22	0.4	1	DEH HALKANI 220.00	DEH-HAL-22KV22.000	1	12.04	12.06	15	78.17
KDA2 132 132	GADAP 132	N1	KDA-33 220.00	NKI 220.00	E1	6.11	6.13	202	3.04
KDA2 132 132	GULSHAN 132 132	R1	KDA-33 220.00	NKI 220.00	E1	28.16	28.23	280	10.08
KDA2 132 132	JOHAR 132 132	R1	KDA-33 220.00	NKI 220.00	E1	50.91	51.04	280	18.23
KDA2 132 132	MEMON GOTH 132	R1	KDA-33 220.00	NKI 220.00	E1	26.46	26.54	280	9.48
KDA2 132 132	SNPC 132	1	KDA-33 220.00	NKI 220.00	E1	4.43	4.44	202	2.2
MARIPUR-2 132	LYARI 132 SS132	E1	NIP 220.00	PIPRI W 220 220.00	1	34.21	34.26	171	20.03
QUEENS RD 13132	ELANDER 132 132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	13.03	13.09	160	8.18
QUEENS RD 13132	ELANDER 132 132	E2	K CREEK 220 220.00	KO.WEST 132 132.00	2	13.03	13.09	160	8.18
SURJANI 132 132	SUR-VALIKA 132	R1	KDA-33 220.00	KDA2 132 132.00	1	97.25	103.36	262	39.45
SURJANI 132 132	SUR-UG-MAY 132	E1	KDA-33 220.00	KDA2 132 132.00	1	31.47	45.97	160	28.73
PIPRI W 132 132	AISHA STEEL 132	1	NIP 220.00	PIPRI W 220 220.00	1	5.46	5.47	112	4.89
PIPRI W 132 132	PIPRI E 132 132	E1	NIP 220.00	PIPRI W 220 220.00	1	7.46	7.47	230.2	3.25
KTPS EXISTIN132	PRL-KTPS 132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	33.36	43.1	160	26.94
KTPS EXISTIN132	QAYMBD-KTPS 132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	24.66	37.22	137.2	27.13
QAYOMABAD 132	KO.WEST 132 132	2	K CREEK 220 220.00	KO.WEST 132 132.00	2	0.36	0.37	280	0.13
QAYOMABAD 132	QY-KE-KCNUG1132	E1	CCPP 220.00	KTPS EXISTIN132.00	1	18.1	21.05	251.5	8.37
QAYOMABAD 132	QY-KS-KCNUG2132	E2	CCPP 220.00	KTPS EXISTIN132.00	1	17.95	20.87	171.47	12.17
KO.WEST 132 132	PRL 132 132	E1	K CREEK 220 220.00	QAYOMABAD 132.00	2	12	21.14	130.09	16.25
KO.WEST 132 132	DEFNCE-K-WST132	E1	LALAZAR 220 220.00	QUEENS RD 13132.00	1	31.1	44.65	160	27.91
QUEENS RD 13132	OLD TOWN 132132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	15.97	16.04	114	14.07
QUEENS RD 13132	Q.RD-CLIFTON132	R1	K CREEK 220 220.00	QAYOMABAD 132.00	2	34.81	42.18	160	26.37
QUEENS RD 13132	Q.RD-GIZRI 132	E1	K CREEK 220 220.00	KO.WEST 132 132.00	2	44.44	59.43	251.49	23.63
GULSHAN 132 132	AZIZABAD 132	E1	KDA-33 220.00	NKI 220.00	E1	26.25	26.33	171.5	15.36
GULSHAN 132 132	JAIL ROAD SS132	E1	KDA-33 220.00	NKI 220.00	E1	13.42	13.48	171	7.88
GULSHAN 132 132	AGHA KHAN 132	E1	KDA-33 220.00	NKI 220.00	E1	23.34	23.42	171	13.7
GULSHAN 132 132	CIVIC 132 A 132	E1	KDA-33 220.00	NKI 220.00	E1	32.73	32.86	160	20.54

Monitored Elements			Contingency			Base Flow	Maximum Flow	Rate	%
From Bus Name	To Bus Name	CKT ID	From Bus Name	To Bus Name	CKT ID				
GULSHAN 132 132	JAIL ROAD SS132	E2	KDA-33 220.00	NKI 220.00	E1	13.42	13.48	171	7.88
MARIPUR-1 132	MAR-LAB PL1 132	E1	NIP 220.00	PIPRI W 220 220.00	1	39.49	39.55	240.1	16.47
MARIPUR-1 132	MAR-GOL PL2 132	E1	NIP 220.00	PIPRI W 220 220.00	1	35.88	35.93	240.1	14.96
BALDIA 132 S132	HUB CHOWKI 1132	1	K-2/K-3 500.00	NKI 500.00	1	13.22	14.55	183	7.95
BALDIA 132 S132	VALIKA B 132132	E2	JAMSHORO 500.00	NKI 500.00	1	20.42	20.45	262.2	7.8
BALDIA 132 S132	SITE GT 132A132	R1	JAMSHORO 500.00	NKI 500.00	1	29.18	29.21	280	10.43
BALDIA 132 S132	SITE GT 132A132	R2	JAMSHORO 500.00	NKI 500.00	1	29.18	29.21	280	10.43
BALDIA 132 S132	KANUPP 132 132	E1	JAMSHORO 500.00	NKI 500.00	1	1.1	1.1	117.3	0.94
BALDIA 132 S132	ORANGI B 132132	R1	JAMSHORO 500.00	NKI 500.00	1	25.86	25.89	280	9.25
BALDIA 132 S132	TAPAL 132 132	E1	K-2/K-3 500.00	NKI 500.00	1	12.54	13.88	228.6	6.07
BALDIA 132 S132	BAL-ITHD 132	1	JAMSHORO 500.00	NKI 500.00	1	15.09	15.11	130.1	11.61
DHABEJI 220 220	THERMAL-PP 220	1	NIP 220.00	PIPRI W 220 220.00	1	4.48	4.48	1524.2	0.29
DHABEJI 220 220	THERMAL-PP 220	2	NIP 220.00	PIPRI W 220 220.00	1	4.48	4.48	1524.2	0.29
DHABEJI 220 220	DSEZ 220	1	K-2/K-3 500.00	NKI 500.00	1	63.67	79.06	674	11.73
DHABEJI 220 220	DHAB-NPQ2 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	133.33	153.11	957.2	16
DHABEJI 220 220	DHAB-NPQ 220	1	N.PORT QASIM220.00	NPQ-2 220.00	1	133.33	153.11	957.2	16
DHABEJI 220 220	SITE NEUTRAL220	1	DHABEJI 220 220.00	SITE NEUTRAL220.00	2	97	196.2	967	20.29
DHABEJI 220 220	SITE NEUTRAL220	2	DHABEJI 220 220.00	SITE NEUTRAL220.00	1	97	196.2	967	20.29
DHABEJI 220 220	WIND PROJ 220	1	DHABEJI 220 220.00	WIND PROJ 220.00	2	100	202.66	967	20.96
DHABEJI 220 220	WIND PROJ 220	2	DHABEJI 220 220.00	WIND PROJ 220.00	1	100	202.66	967	20.96
DHABEJI 220 220	DHABEJI2 132132	1	DHABEJI 220 220.00	DHABEJI2 132132.00	2	84.29	134.77	250	52.2
DHABEJI 220 220	DHABEJI2 132132	2	DHABEJI 220 220.00	DHABEJI2 132132.00	1	84.29	134.77	250	52.2
DSEZ 220	GHARO-NEW 220	1	K-2/K-3 500.00	NKI 500.00	1	96.77	111.67	674	16.57
DSEZ 220	DSEZ 132 132	1	DHABEJI 220 220.00	DSEZ 220.00	1	18.6	18.68	160	11.27
DSEZ 220	DSEZ 132 132	2	DHABEJI 220 220.00	DSEZ 220.00	1	18.6	18.68	160	11.27
MAR-BAL-KKI222	MAR-KKI-UG2 22	R1	KKI-220 220.00	MAR-KKI_UG 220.00	1	224.69	411.78	967	42.58
MAR-BAL-KKI 22	MAR-KKI_UG 22	R2	KKI-220 220.00	MAR-KKI-UG2 220.00	1	224.69	411.78	967	42.58
BAL-KKI-UG 22	BAL_KKI_UG4 22	1	K-2/K-3 500.00	KKI-500 500.00	1	53.99	134.5	967	13.91
BAL_KKI_UG2 22	BAL_KKI_UG3 22	1	K-2/K-3 500.00	KKI-500 500.00	1	53.99	134.5	967	13.91
DHABEJI2 13213	DHABEJI 132 13	N1	PIPRI W 220 220.00	PIPRI W 132 132.00	1	81.17	85.59	365	23.45
DHABEJI2 13213	DHABEJI 132 13	N2	PIPRI W 220 220.00	PIPRI W 132 132.00	1	81.17	85.59	365	23.45

Appendix - C

Plotted Results of Short Circuit Analysis for Chapter - 6

Appendix - C - 1

Plotted Results of Maximum Short Circuit Analysis for Year 2025

Exhibit 5.1

Bus Name	Three Phase Short Circuit Levels	Single Phase Short Circuit Levels
	kA	kA
[DADU 500.00]	19.83	13.04
[MORO 500.00]	14.10	8.66
[JAMSHORO 500.00]	30.61	26.22
[ENGRO CFPP 500.00]	17.44	17.63
[SECL CFPP 500.00]	19.81	20.41
[PRT QSM CFPP500.00]	13.87	13.67
[K-2/K-3 500.00]	24.33	25.72
[HUB 500.00]	14.17	14.39
[NKI 500.00]	20.90	17.36
[HUBCO-CFPP 500.00]	14.31	14.79
[MATIARI-CS 500.00]	29.39	23.13
[THL NVA CFPP500.00]	17.25	17.29
[TEL CFPP 500.00]	17.57	17.79
[DADU 220.00]	18.24	14.80
[JAMSHORO 220.00]	33.23	28.90
[JHIMPIR-2 220.00]	24.41	17.86
[HALA RD. 220.00]	26.38	20.35
[MIRPRKHS 220.00]	11.09	7.12
[TM.KH.RD 220.00]	24.59	18.13
[KDA-33 220.00]	32.53	21.33
[NKI 220.00]	33.99	27.25
[LUCKY-CFPP 500.00]	13.80	13.48
[JAMSHORO NEW132.00]	26.11	22.04
[BALDIA 220 S220.00]	33.03	25.76
[MARIPUR 220 220.00]	29.65	25.48
[MARIPUR 220 220.00]	29.65	25.48
[LALAZAR 220 220.00]	28.93	25.05
[LALAZAR 220 220.00]	28.93	25.05
[LALAZAR-UG1 220.00]	28.85	24.99
[SURJANI 220 220.00]	23.70	15.57
[LALAZAR-UG2 220.00]	28.85	24.99
[K CREEK 220 220.00]	27.91	25.43
[BQPS II 220.00]	26.35	31.08
[NIP 220.00]	26.32	28.91
[PIPRI W 220 220.00]	26.32	28.91
[BQPS III 220.00]	27.03	31.81
[N.PORT QASIM220.00]	30.69	19.44
[KDA-33 220.00]	32.53	21.33
[GULSHAN 220 220.00]	28.14	19.32
[BTK-220 220.00]	29.83	19.10
[DEH HALKANI 220.00]	19.82	12.93
[KCR-BQ2-LDI 220.00]	27.58	25.03
[MAR-LALPLDP1220.00]	28.19	24.47
[MAR-LALPLDP2220.00]	28.19	24.47
[LZAR-MP-PLDP220.00]	29.54	25.41
[LZAR-MP-PLDP220.00]	29.54	25.41
[NPQ-2 220.00]	23.88	20.09

Exhibit 5.1

Bus Name	Three Phase Short Circuit Levels	Single Phase Short Circuit Levels
	kA	kA
[CCPP 220.00]	22.42	20.12
[CCP-KCR-2 220.00]	22.39	20.07
[BQPS III 220.00]	27.03	31.81
[ICI 220 220.00]	26.61	30.92
[BQPS II 220.00]	26.35	31.08
[MITHA GHAR 220.00]	17.83	11.75
[DHACK-220 220.00]	29.83	19.10
[KKI-500 500.00]	16.67	16.63
[KKI-220 220.00]	34.22	30.51
[KCR-BQ2-LDI 220.00]	27.58	25.03
[KDA2 132 132.00]	22.59	17.30
[MARIPUR-2 132.00]	12.84	11.89
[QUEENS RD 13132.00]	20.13	17.92
[SURJANI 132 132.00]	18.78	13.84
[PIPRI W 132 132.00]	20.18	21.89
[KTPS EXISTIN132.00]	21.38	18.60
[QAYOMABAD 132.00]	22.95	20.60
[KO.WEST 132 132.00]	22.95	20.60
[QUEENS RD 13132.00]	20.13	17.92
[GULSHAN 132 132.00]	12.56	10.70
[MARIPUR-1 132.00]	12.84	11.89
[BALDIA 132 S132.00]	20.11	17.87
[SURJANI 132 132.00]	18.78	13.84
[DHABEJI 220 220.00]	22.09	16.17
[DSEZ 220.00]	18.69	13.11
[SITE NEUTRAL220.00]	12.36	8.96
[KCR_UG1 220.00]	27.78	25.31
[KCR_UG2 220.00]	27.78	25.31
[MAR-BAL-KKI 220.00]	29.62	25.46
[NKIBAL PLDP1220.00]	33.01	25.75
[MAR-KKI_UG 220.00]	33.87	30.26
[MAR-KKI-UG2 220.00]	33.87	30.26
[BAL-KKI-UG 220.00]	33.91	30.27
[BAL_KKI_UG2 220.00]	33.91	30.27
[BAL_KKI_UG3 220.00]	28.72	23.25
[BAL_KKI_UG4 220.00]	28.72	23.25
[MAR-KKI-UG3 220.00]	28.05	23.44
[MAR-KKI-UG4 220.00]	28.05	23.44
[DHABEJI2 132132.00]	15.54	14.20

Appendix - C - 2

Plotted Results of Maximum Short Circuit Analysis for Year 2027

Exhibit 5.2

Bus Name	Three Phase Short Circuit Levels	Single Phase Short Circuit Levels
	kA	kA
[DADU 500.00]	21.57	17.6
[MORO 500.00]	28.81	9.01
[JAMSHORO 500.00]	41.75	26.07
[ENGRO CFPP 500.00]	20.24	20.21
[SECL CFPP 500.00]	22.85	22.08
[PRT QSM CFPP500.00]	14.41	13.84
[K-2/K-3 500.00]	26.59	26.97
[HUB 500.00]	15.09	14.31
[NKI 500.00]	23.00	17.87
[HUBCO-CFPP 500.00]	15.23	14.76
[MATIARI-CS 500.00]	42.43	21.12
[THL NVA CFPP500.00]	20.04	19.90
[TEL CFPP 500.00]	20.37	20.29
[DADU 220.00]	29.09	20.44
[JAMSHORO 220.00]	36.49	28.95
[JHIMPIR-2 220.00]	25.82	19.14
[HALA RD. 220.00]	28.31	20.22
[MIRPRKHS 220.00]	11.44	7.08
[TM.KH.RD 220.00]	26.18	18.12
[KDA-33 220.00]	33.68	25.06
[NKI 220.00]	37.03	30.11
[LUCKY-CFPP 500.00]	14.37	13.55
[SIDQSNS-CFPP500.00]	19.72	19.24
[JAMSHORO NEW132.00]	27.32	22.22
[BALDIA 220 S220.00]	33.13	26.89
[MARIPUR 220 220.00]	31.96	26.27
[MARIPUR 220 220.00]	31.96	26.27
[LALAZAR 220 220.00]	31.63	26.21
[LALAZAR 220 220.00]	31.63	26.21
[LALAZAR-UG1 220.00]	31.54	25.93
[SURJANI 220 220.00]	23.92	19.18
[LALAZAR-UG2 220.00]	31.54	25.93
[K CREEK 220 220.00]	31.64	27.46
[BQPS II 220.00]	27.10	32.45
[NIP 220.00]	33.49	35.13
[PIPRI W 220 220.00]	33.49	35.13
[BQPS III 220.00]	34.43	39.44
[N.PORT QASIM220.00]	31.89	23.05
[KDA-33 220.00]	33.68	25.06
[GULSHAN 220 220.00]	28.99	14.96
[BTK-220 220.00]	30.82	22.72
[DEH HALKANI 220.00]	19.46	18.02
[KCR-BQ2-LDI 220.00]	31.15	26.66
[MAR-LALPLDP1220.00]	30.58	24.45
[MAR-LALPLDP2220.00]	30.58	24.45
[LZAR-MP-PLDP220.00]	31.84	26.01

Exhibit 5.2

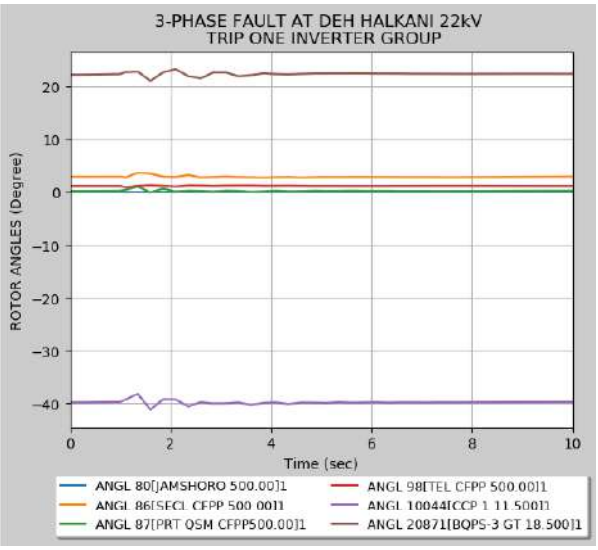
Bus Name	Three Phase Short Circuit Levels	Single Phase Short Circuit Levels
	kA	kA
[LZAR-MP-PLDP220.00]	31.84	26.01
[NPQ-2 220.00]	31.53	27.01
[CCPP 220.00]	29.09	26.35
[CCP-KCR-2 220.00]	28.98	25.85
[CCP-KCR-1 220.00]	28.98	25.85
[BQPS III 220.00]	34.43	39.44
[ICI 220 220.00]	33.75	37.78
[BQPS II 220.00]	27.10	32.45
[MITHA GHAR 220.00]	17.31	16.73
[DHACK-220 220.00]	30.82	22.72
[KKI-500 500.00]	17.64	17.28
[KKI-220 220.00]	35.31	31.21
[KCR-BQ2-LDI 220.00]	31.15	26.66
[KDA2 132 132.00]	23.47	19.64
[MARIPUR-2 132.00]	17.04	15.59
[QUEENS RD 13132.00]	21.51	18.39
[SURJANI 132 132.00]	19.37	16.12
[PIPRI W 132 132.00]	24.33	26.23
[KTPS EXISTIN132.00]	22.90	20.02
[QAYOMABAD 132.00]	25.11	22.09
[KO.WEST 132 132.00]	25.11	22.09
[QUEENS RD 13132.00]	21.51	18.39
[GULSHAN 132 132.00]	16.16	11.78
[MARIPUR-1 132.00]	17.04	15.59
[BALDIA 132 S132.00]	20.65	18.66
[SURJANI 132 132.00]	19.37	16.12
[DHABEJI 220 220.00]	29.24	23.95
[DSEZ 220.00]	22.89	16.75
[SITE NEUTRAL220.00]	13.85	9.77
[WIND PROJ 220.00]	22.88	17.58
[KCR_UG1 220.00]	31.46	26.67
[KCR_UG2 220.00]	31.46	26.67
[MAR-BAL-KKI2220.00]	31.92	26.19
[MAR-BAL-KKI 220.00]	31.92	26.19
[NKIBAL PLDP1220.00]	33.12	26.85
[MAR-KKI_UG 220.00]	34.96	30.30
[MAR-KKI-UG2 220.00]	34.96	30.30
[BAL-KKI-UG 220.00]	34.96	30.27
[BAL_KKI_UG2 220.00]	34.96	30.27
[BAL_KKI_UG3 220.00]	29.12	23.30
[BAL_KKI_UG4 220.00]	29.12	23.30
[DHABEJI2 132132.00]	16.52	15.72

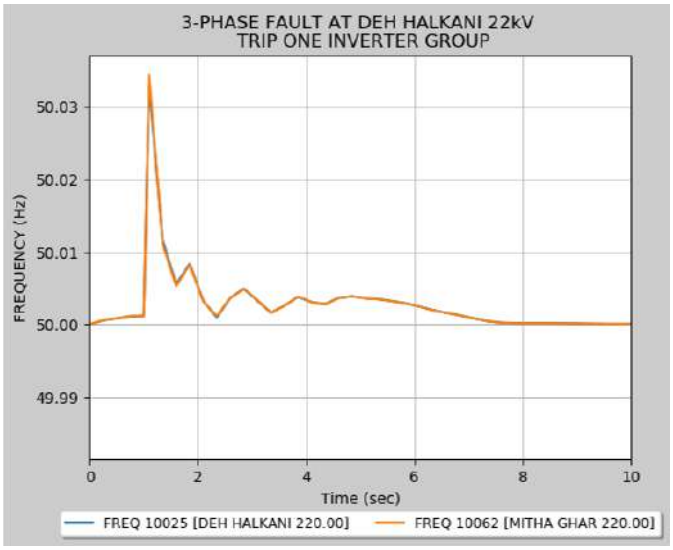
Appendix - D

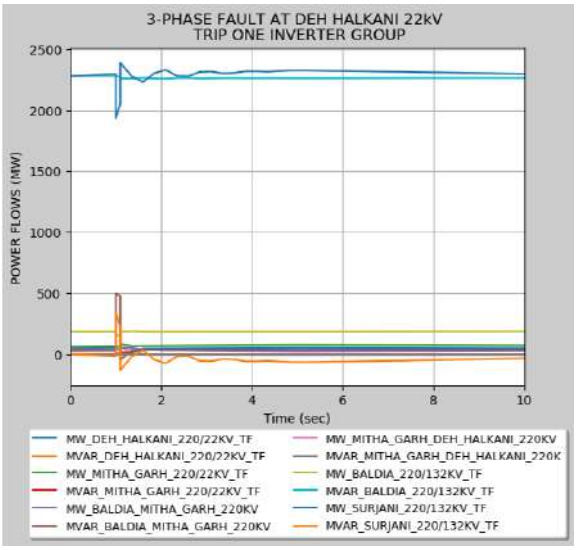
Plotted Results of Stability Analysis for Chapter - 7

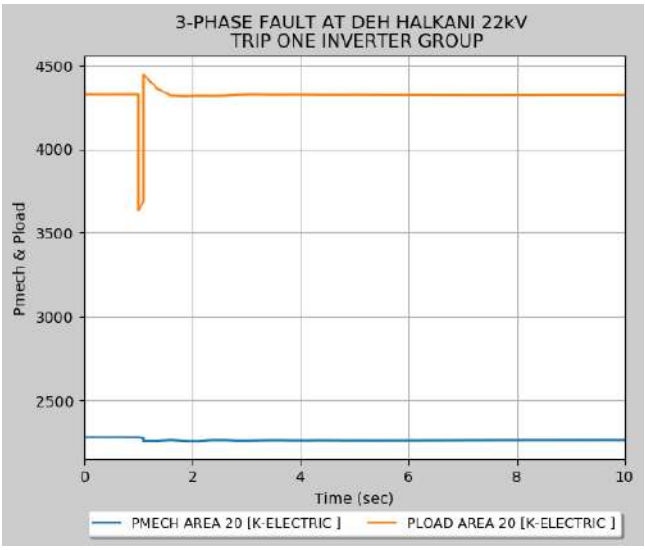
Appendix - D - 1

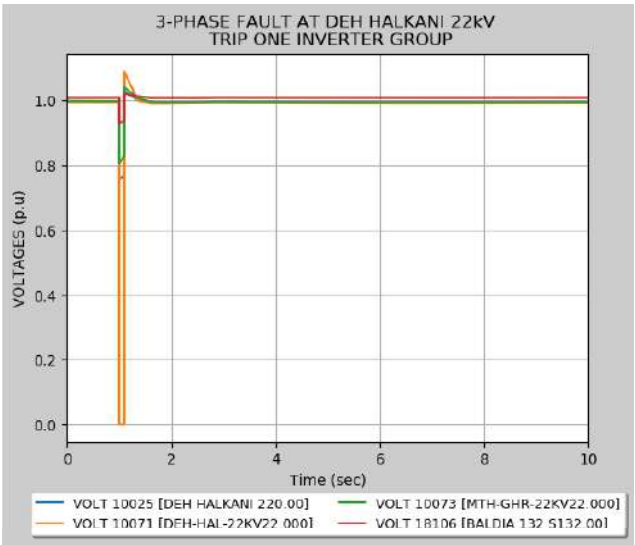
Plotted Results of Stability Analysis for
Peak Summer 2025
Maximum Solar-Average Wind
Without RPC

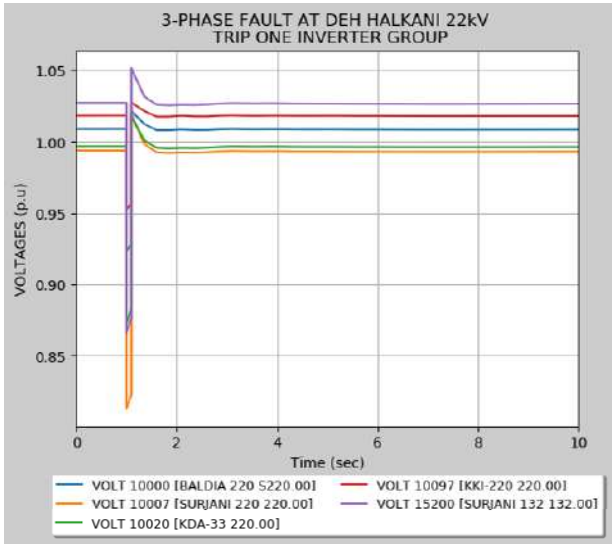

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 98[TEL CFPP 500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 10044[CCP 1 11.50]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 20871[BQPS-3 GT 18.500]1

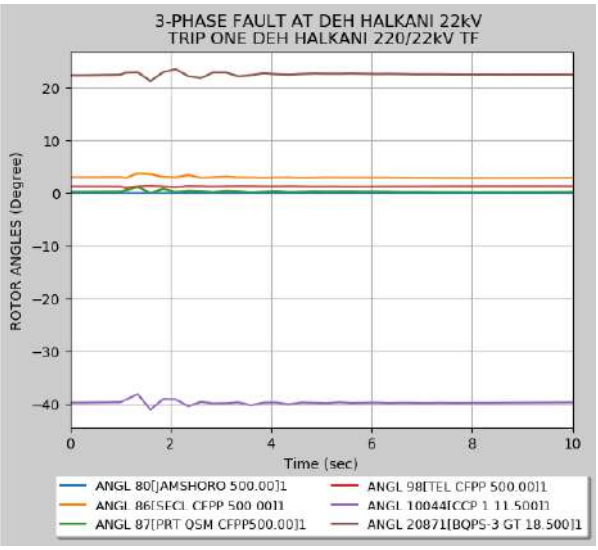

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

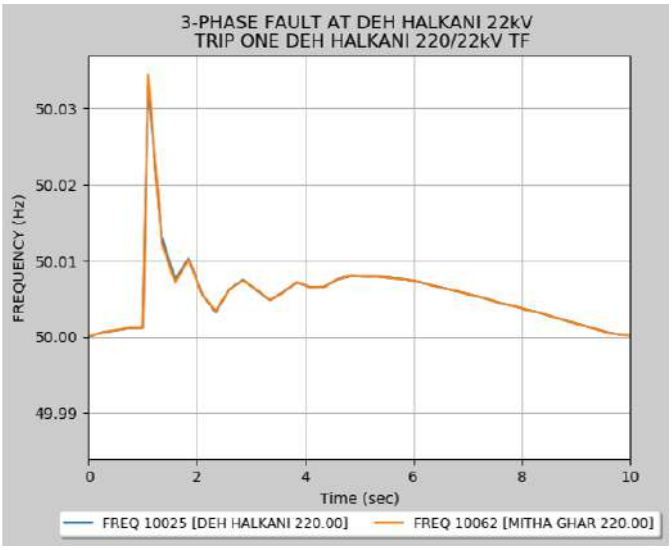

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
POWER FLOWS (MW)
Time (sec)
MW_DEH_HALKANI_220/22KV_TF
MW_MITHA_GARH_DEH_HALKANI_220KV
MVAR_DEH_HALKANI_220/22KV_TF
MVAR_MITHA_GARH_DEH_HALKANI_220K
MW_MITHA_GARH_220/22KV_TF
MW_BALDIA_220/132KV_TF
MVAR_MITHA_GARH_220/22KV_TF
MVAR_BALDIA_220/132KV_TF
MW_BALDIA_MITHA_GARH_220KV
MW_SURJANI_220/132KV_TF
MVAR_BALDIA_MITHA_GARH_220KV
MVAR_SURJANI_220/132KV_TF

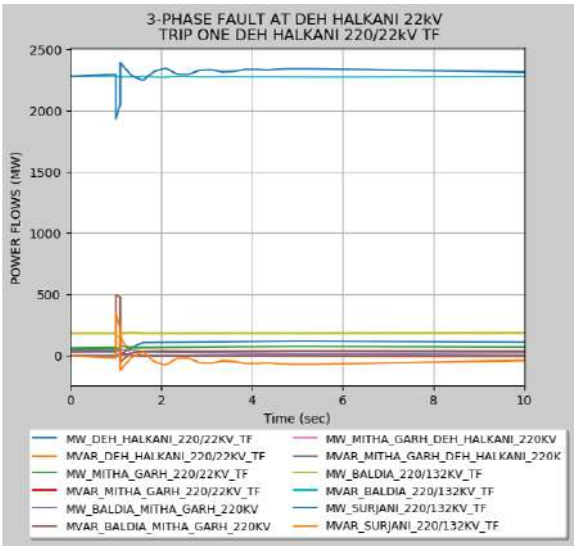

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

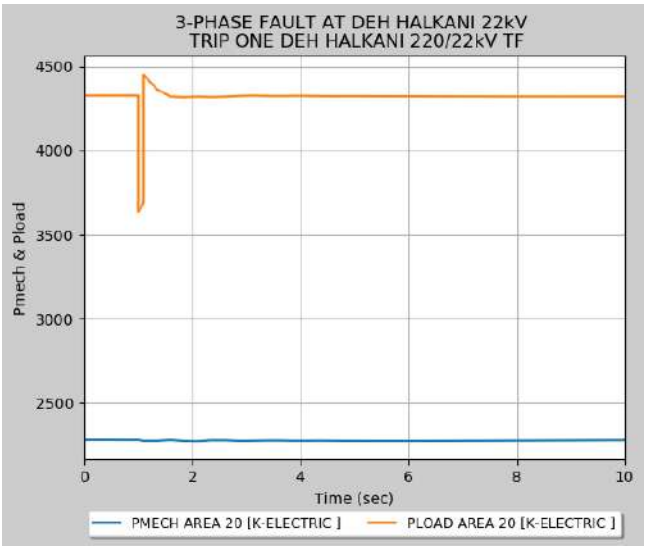

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

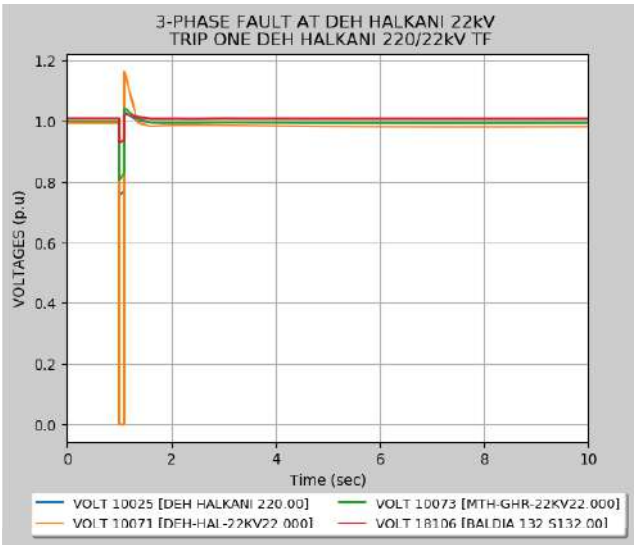

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 15200 [SURJANI 132 132.00]
VOLT 10020 [KDA-33 220.00]

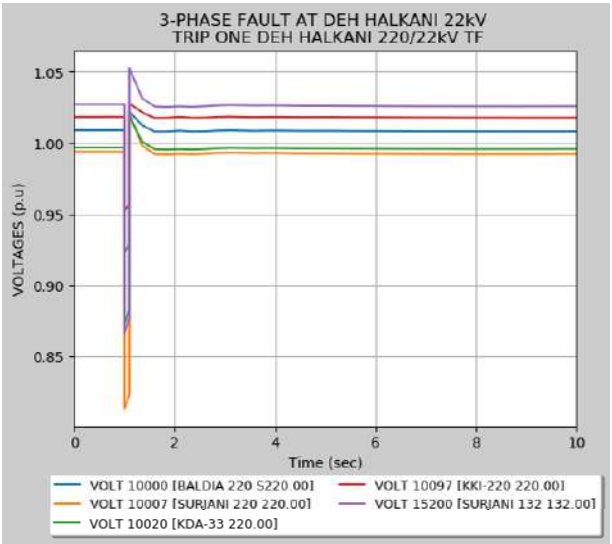

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 86[SECL CFPP 500.0011
ANGL 87[PRT QSM CFPP500.00]1
ANGL 98[TEL CFPP 500.0011
ANGL 10044[CCP 1 11.5001]
ANGL 20871[BQPS-3 GT 18.500]1

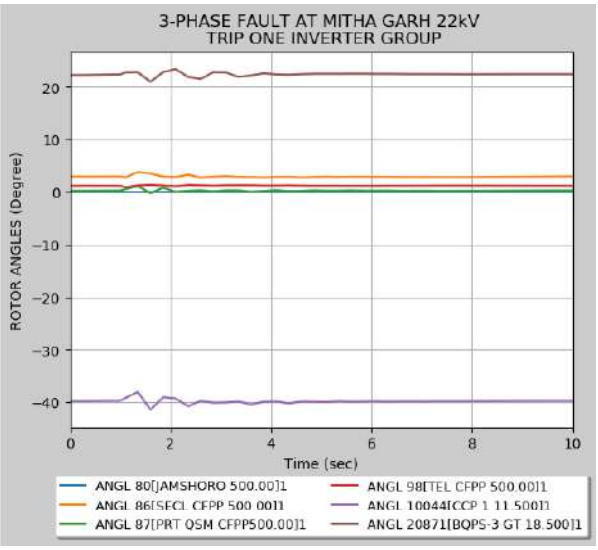

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

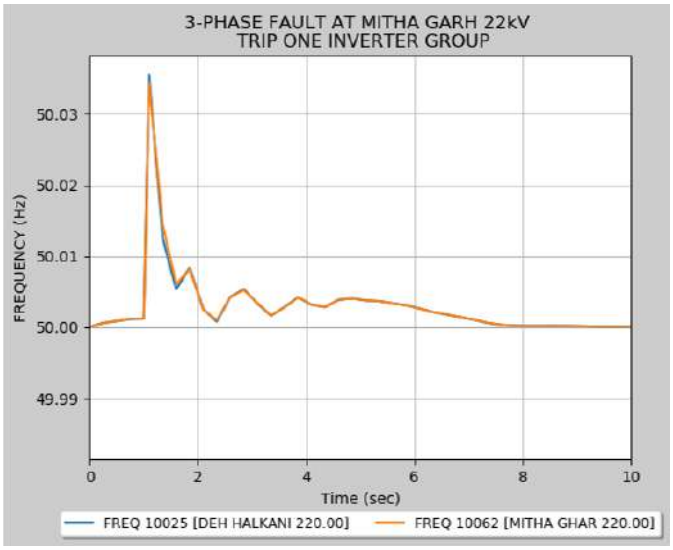

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
POWER FLOWS (MW)
Time (sec)
MW_DEH_HALKANI_220/22KV_TF
MVAR_DEH_HALKANI_220/22KV_TF
MW_MITHA_GARH_220/22KV_TF
MVAR_MITHA_GARH_220/22KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_MITHA_GARH_220KV
MW_MITHA_GARH_DEH_HALKANI_220KV
MVAR_MITHA_GARH_DEH_HALKANI_220K
MW_BALDIA_220/132KV_TF
MVAR_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF
MVAR_SURJANI_220/132KV_TF

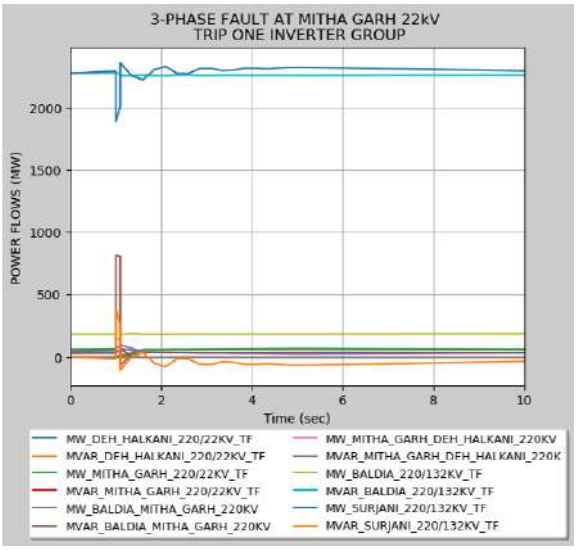

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

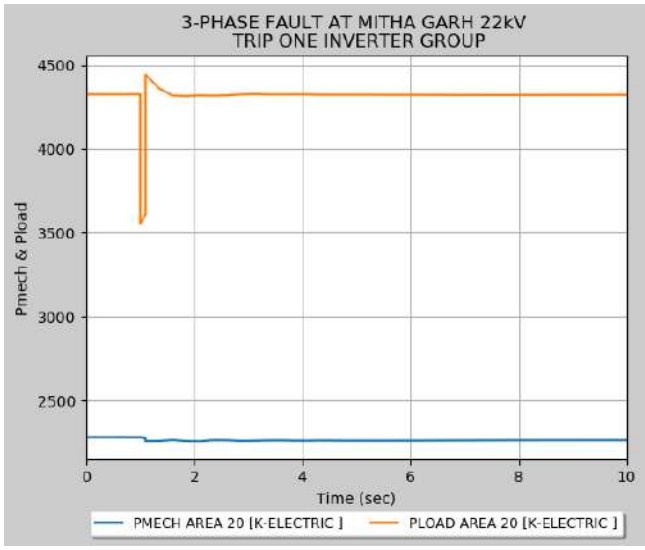

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

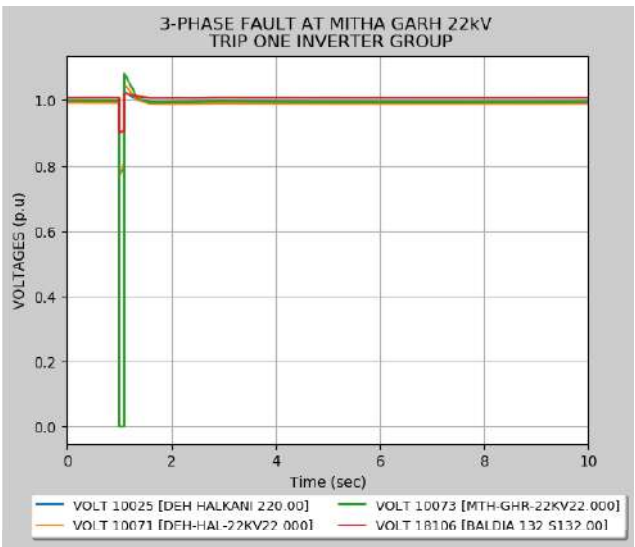

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 10020 [KDA-33 220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 15200 [SURJANI 132 132.00]

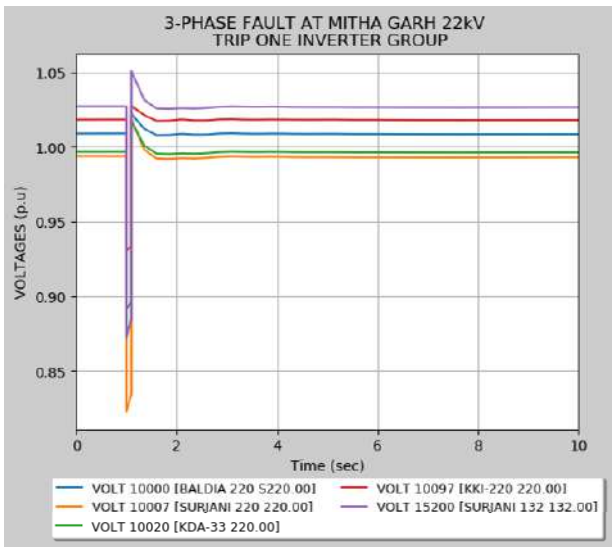

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 98[TEL CFPP 500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 10044[CCP 1 11.50]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 20871[BQPS-3 GT 18.500]1

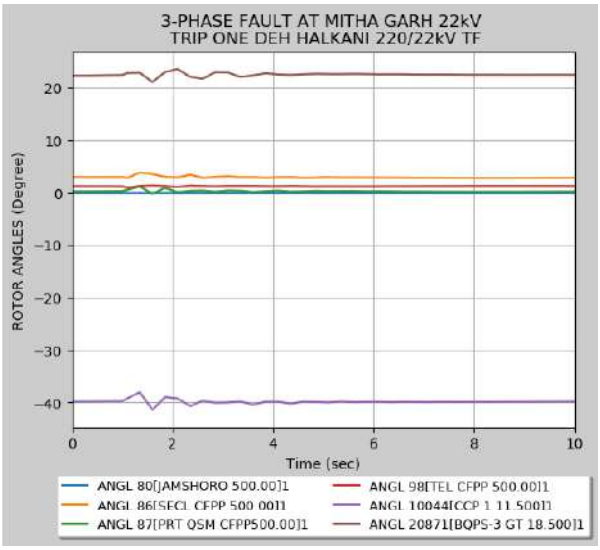

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

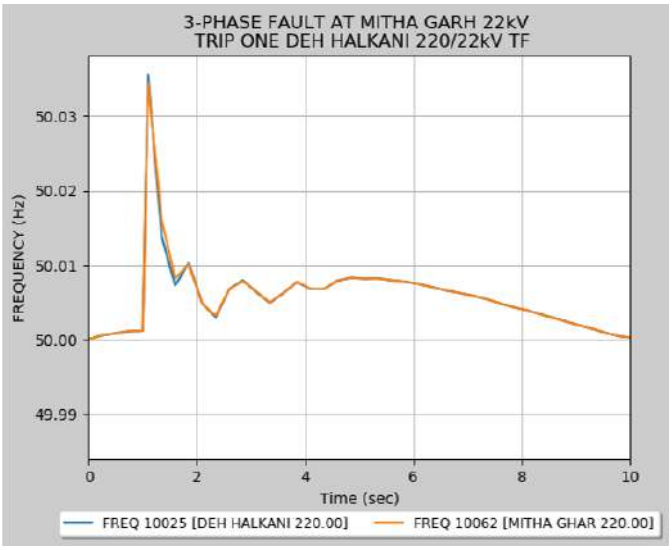

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
POWER FLOWS (MW)
Time (sec)
MW_DEH_HALKANI_220/22KV_TF
MW_MITHA_GARH_DEH_HALKANI_220KV
MVAR_DEH_HALKANI_220/22KV_TF
MVAR_MITHA_GARH_DEH_HALKANI_220K
MW_MITHA_GARH_220/22KV_TF
MW_BALDIA_220/132KV_TF
MVAR_MITHA_GARH_220/22KV_TF
MVAR_BALDIA_220/132KV_TF
MW_BALDIA_MITHA_GARH_220KV
MW_SURJANI_220/132KV_TF
MVAR_BALDIA_MITHA_GARH_220KV
MVAR_SURJANI_220/132KV_TF

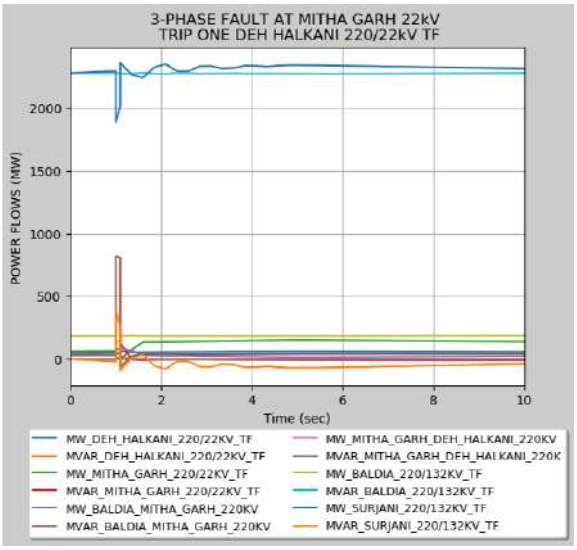

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

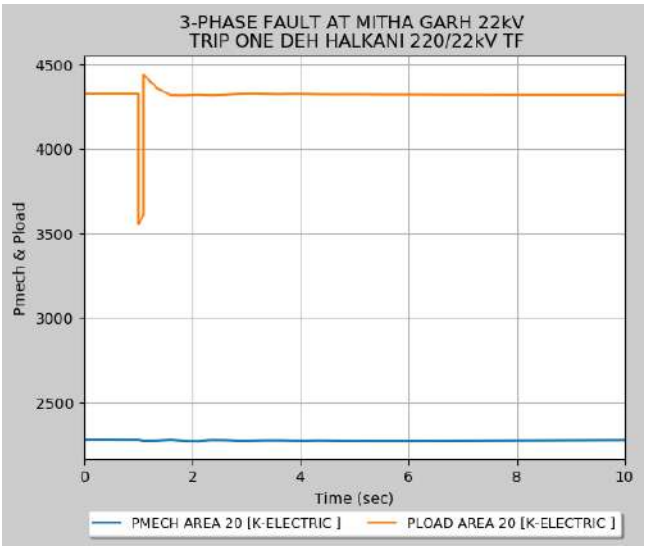

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

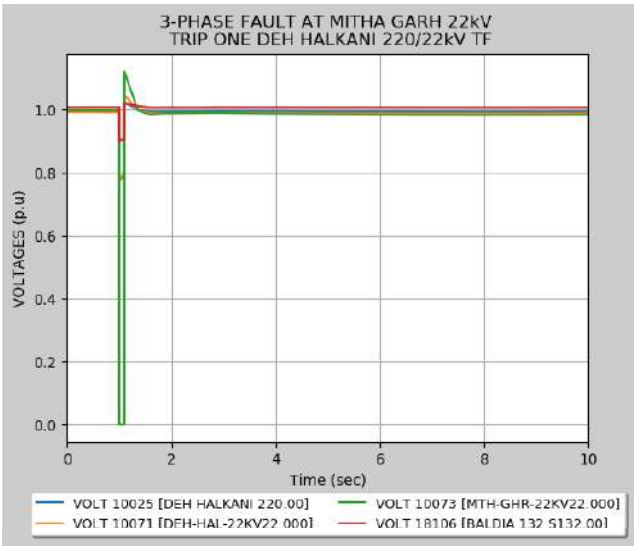

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 15200 [SURJANI 132 132.00]
VOLT 10020 [KDA-33 220.00]

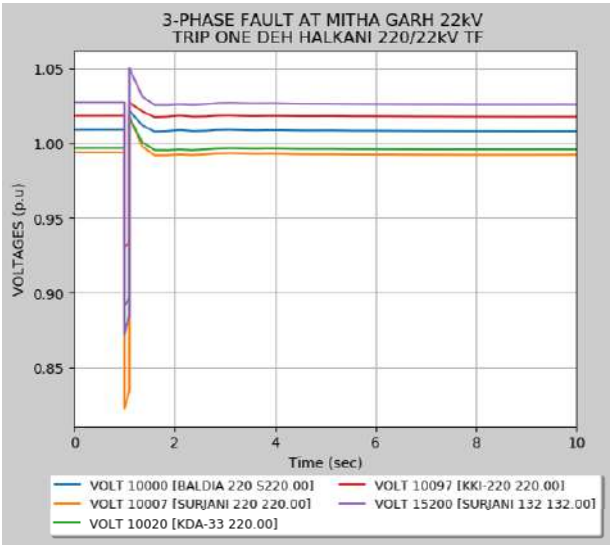

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 98[TEL CFPP 500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 10044[CCP 1 11.500]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 20871[BQPS-3 GT 18.500]1

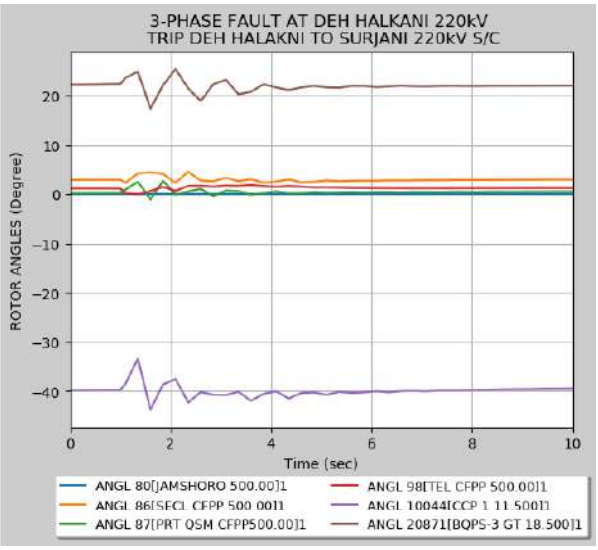

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

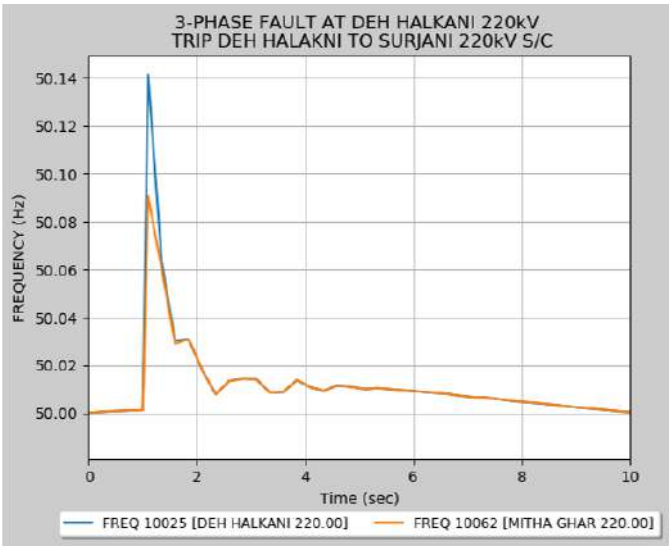

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
POWER FLOWS (MW)
Time (sec)
MW_DEH_HALKANI_220/22KV_TF
MW_MITHA_GARH_DEH_HALKANI_220KV
MVAR_DEH_HALKANI_220/22KV_TF
MVAR_MITHA_GARH_DEH_HALKANI_220K
MW_MITHA_GARH_220/22KV_TF
MW_BALDIA_220/132KV_TF
MVAR_MITHA_GARH_220/22KV_TF
MVAR_BALDIA_220/132KV_TF
MW_BALDIA_MITHA_GARH_220KV
MW_SURJANI_220/132KV_TF
MVAR_BALDIA_MITHA_GARH_220KV
MVAR_SURJANI_220/132KV_TF

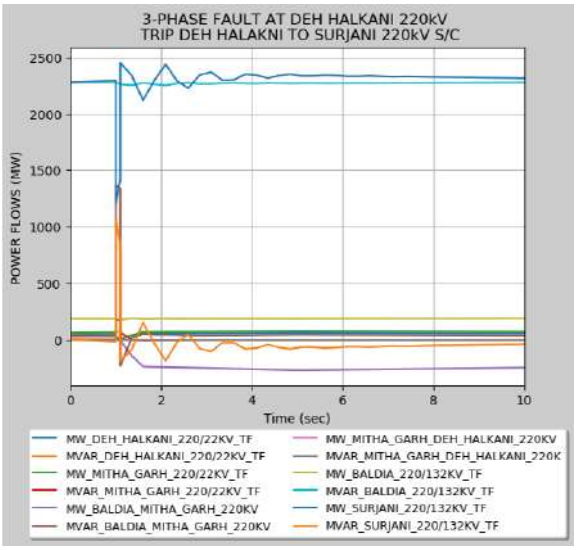

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

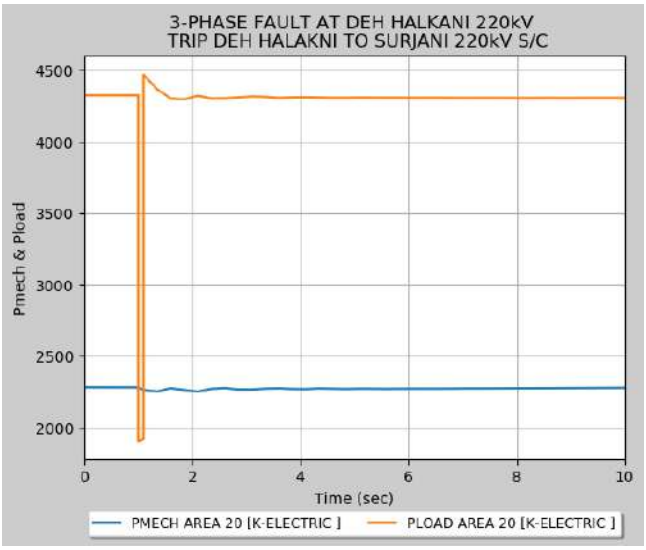

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

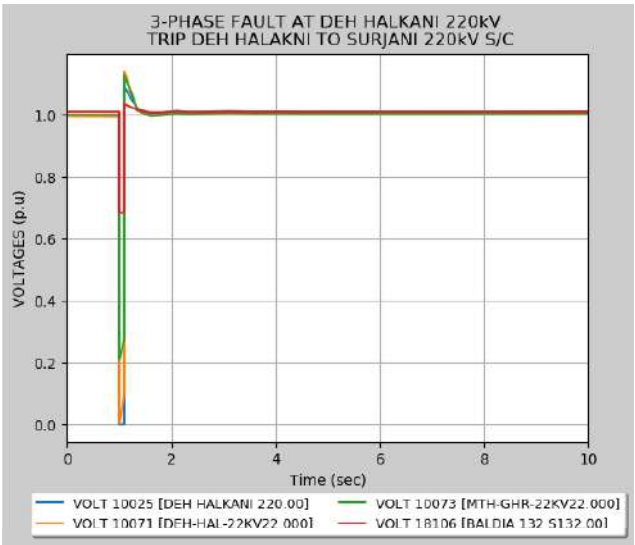

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 15200 [SURJANI 132 132.00]
VOLT 10020 [KDA-33 220.00]

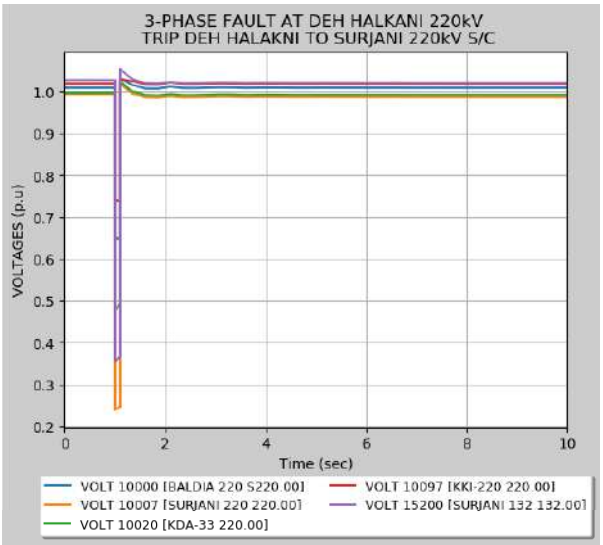

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 86[SECL CFPP 500.0011
ANGL 87[PRT QSM CFPP500.00]1
ANGL 98[TEL CFPP 500.0011
ANGL 10044[CCP 1 11.5001]
ANGL 20871[BQPS-3 GT 18.500]1

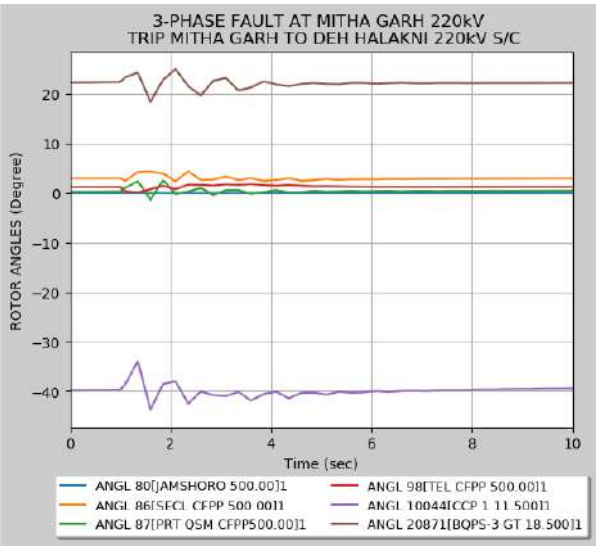

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

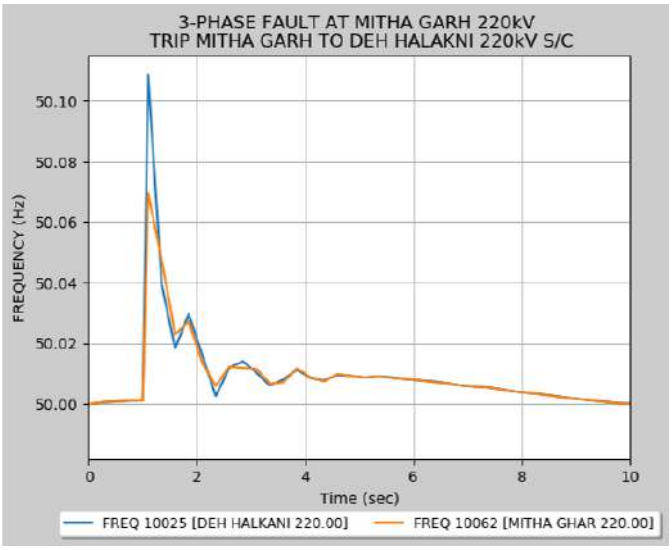

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
POWER FLOWS (MW)
Time (sec)
MW_DEH_HALKANI_220/22KV_TF
MVAR_DEH_HALKANI_220/22KV_TF
MW_MITHA_GARH_220/22KV_TF
MVAR_MITHA_GARH_220/22KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_MITHA_GARH_220KV
MW_MITHA_GARH_DEH_HALKANI_220KV
MVAR_MITHA_GARH_DEH_HALKANI_220K
MW_BALDIA_220/132KV_TF
MVAR_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF
MVAR_SURJANI_220/132KV_TF

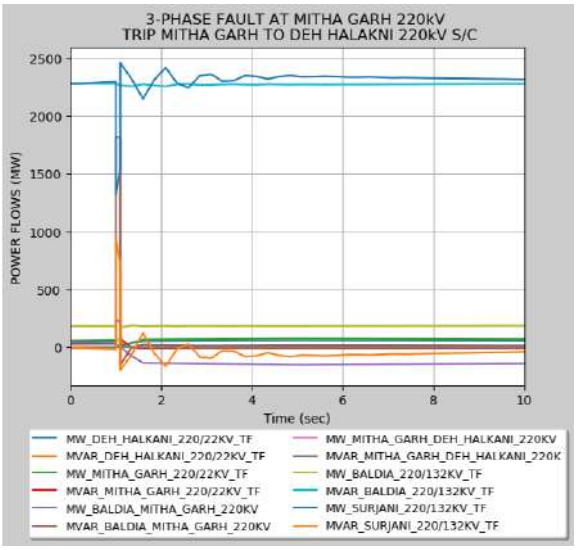

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

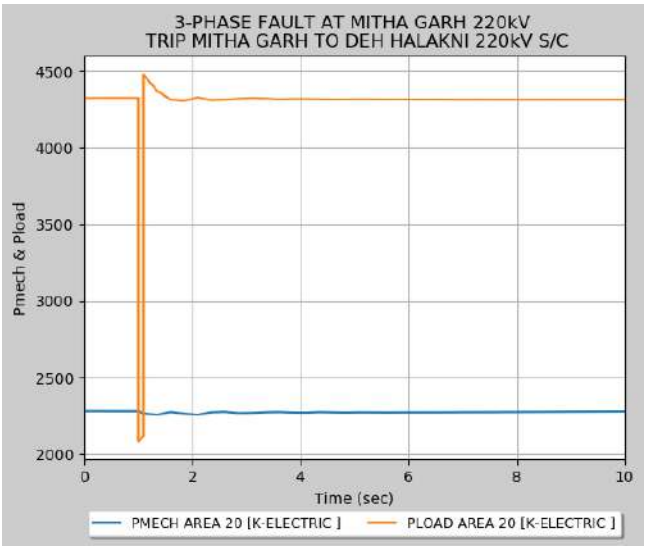

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

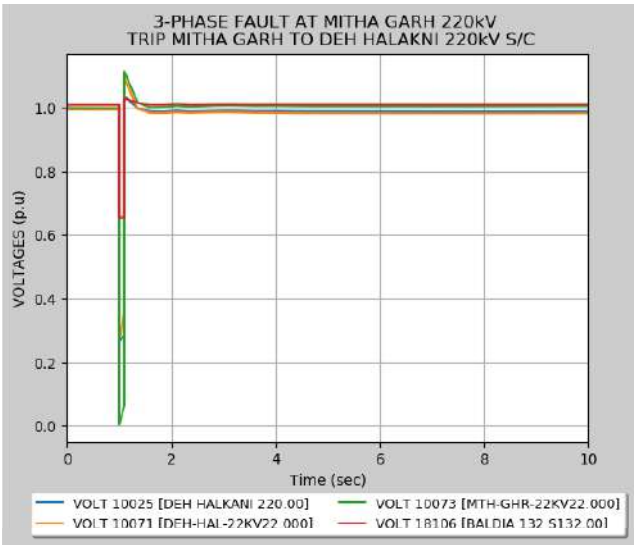

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 10020 [KDA-33 220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 15200 [SURJANI 132 132.00]

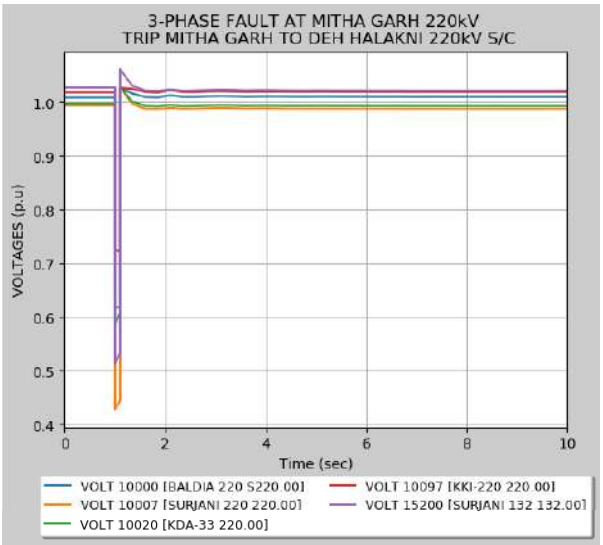

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 98[TEL CFPP 500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 10044[CCP 1 11.50]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 20871[BQPS-3 GT 18.500]1

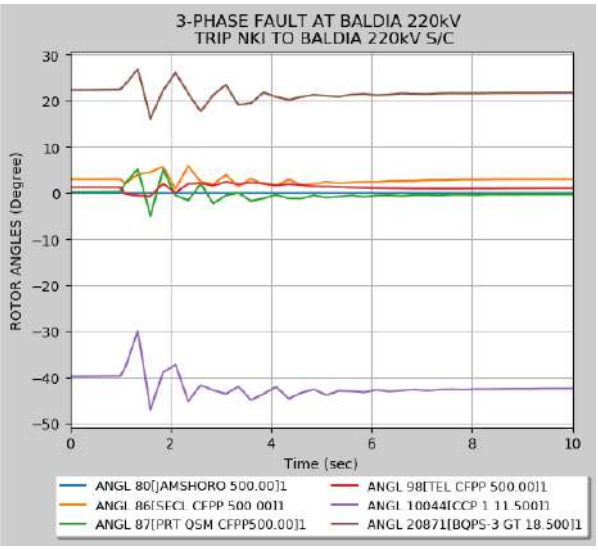

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

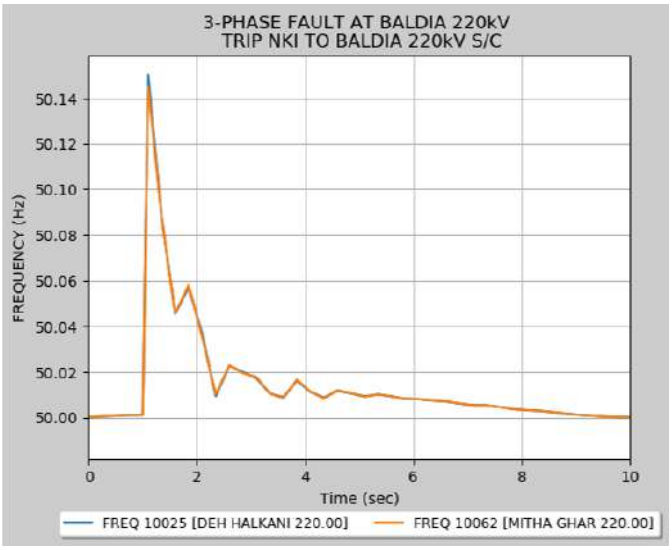

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
POWER FLOWS (MW)
Time (sec)
MW_DEH_HALKANI_220/22KV_TF
MW_MITHA_GARH_DEH_HALKANI_220KV
MVAR_DEH_HALKANI_220/22KV_TF
MVAR_MITHA_GARH_DEH_HALKANI_220K
MW_MITHA_GARH_220/22KV_TF
MW_BALDIA_220/132KV_TF
MVAR_MITHA_GARH_220/22KV_TF
MVAR_BALDIA_220/132KV_TF
MW_BALDIA_MITHA_GARH_220KV
MW_SURJANI_220/132KV_TF
MVAR_BALDIA_MITHA_GARH_220KV
MVAR_SURJANI_220/132KV_TF

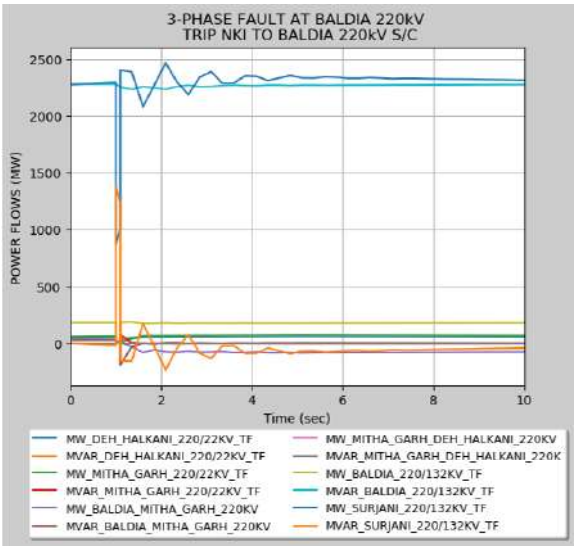

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

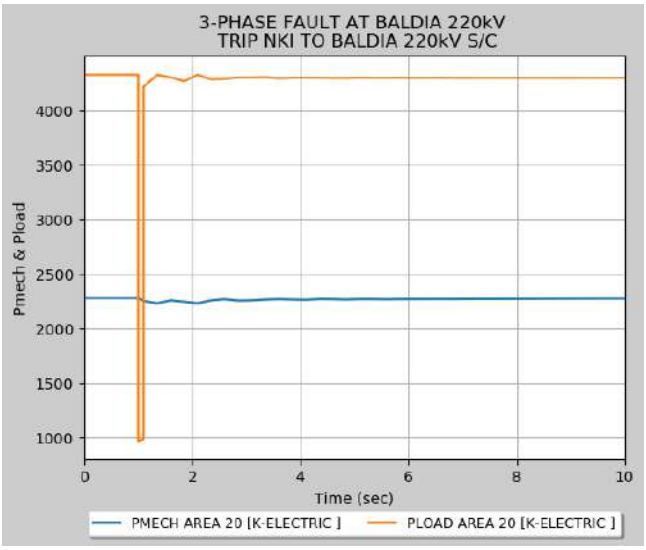

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

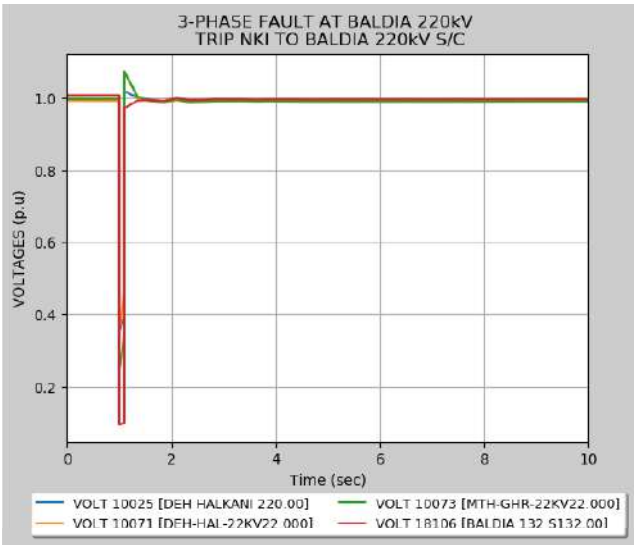

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 15200 [SURJANI 132 132.00]
VOLT 10020 [KDA-33 220.00]

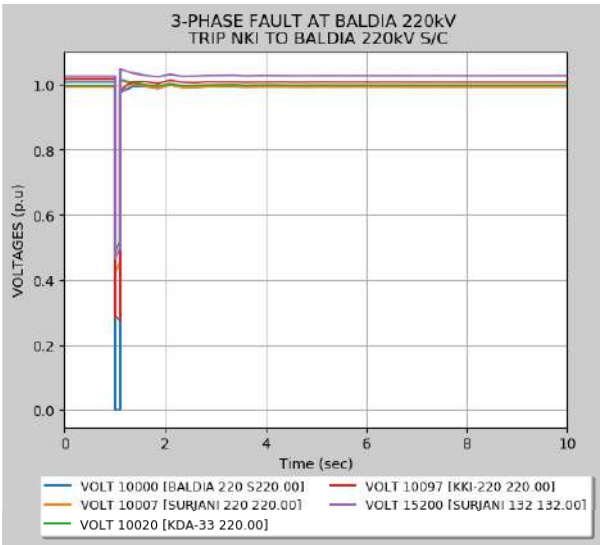

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 98[TEL CFPP 500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 10044[CCP 1 11.50]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 20871[BQPS-3 GT 18.500]1

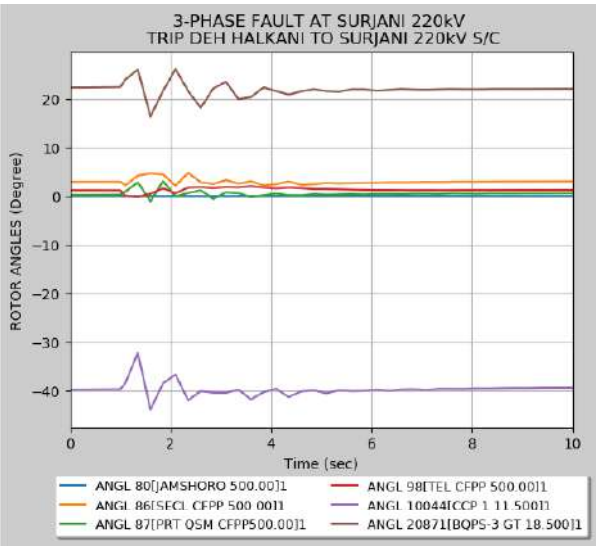

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

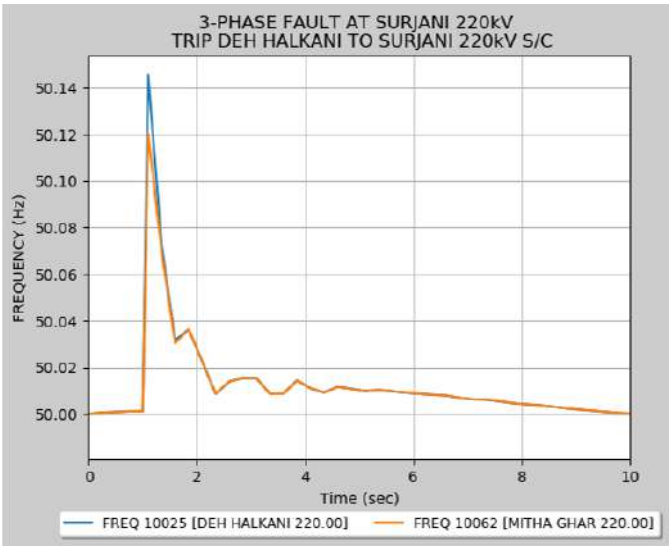

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
POWER FLOWS (MW)
Time (sec)
MW_DEH_HALKANI_220/22KV_TF
MW_MITHA_GARH_DEH_HALKANI_220KV
MVAR_DEH_HALKANI_220/22KV_TF
MVAR_MITHA_GARH_DEH_HALKANI_220K
MW_MITHA_GARH_220/22KV_TF
MW_BALDIA_220/132KV_TF
MVAR_MITHA_GARH_220/22KV_TF
MVAR_BALDIA_220/132KV_TF
MW_BALDIA_MITHA_GARH_220KV
MW_SURJANI_220/132KV_TF
MVAR_BALDIA_MITHA_GARH_220KV
MVAR_SURJANI_220/132KV_TF

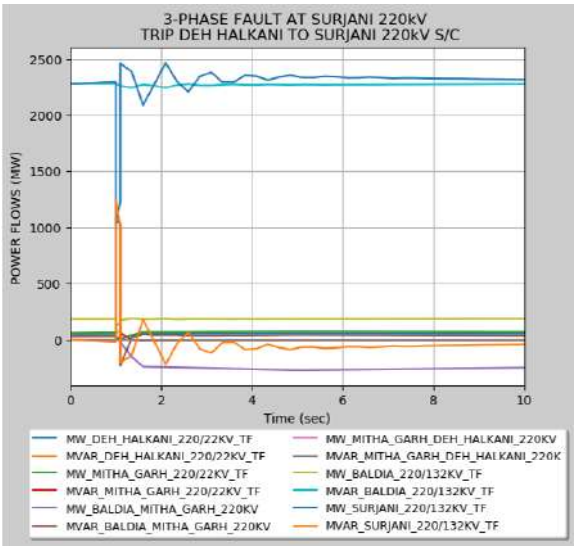

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

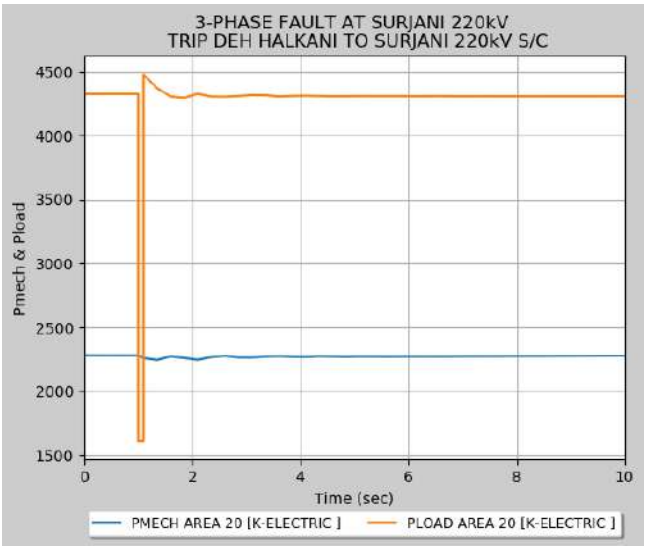

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

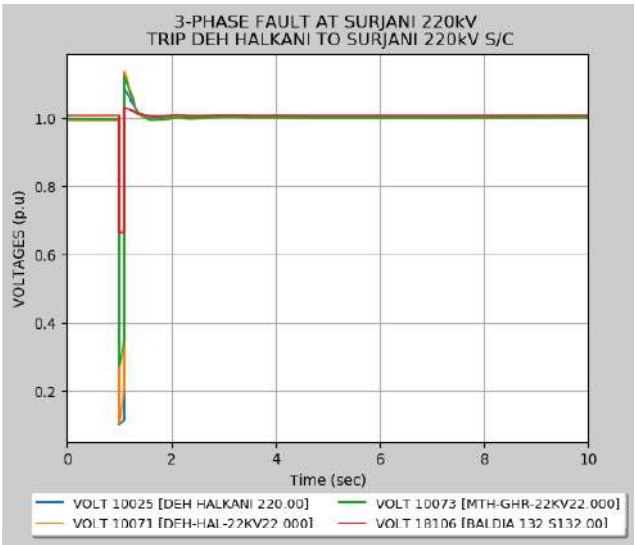

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 15200 [SURJANI 132 132.00]
VOLT 10020 [KDA-33 220.00]

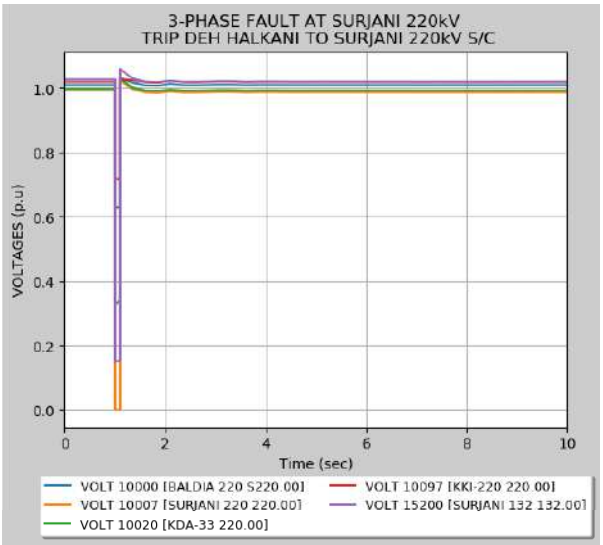

3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 86[SECL CFPP 500.0011
ANGL 87[PRT QSM CFPP500.00]1
ANGL 98[TEL CFPP 500.0011
ANGL 10044[CCP 1 11.5001]
ANGL 20871[BQPS-3 GT 18.500]1


3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]


3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
POWER FLOWS (MW)
Time (sec)
MW_DEH_HALKANI_220/22KV_TF
MVAR_DEH_HALKANI_220/22KV_TF
MW_MITHA_GARH_220/22KV_TF
MVAR_MITHA_GARH_220/22KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_MITHA_GARH_220KV
MW_MITHA_GARH_DEH_HALKANI_220KV
MVAR_MITHA_GARH_DEH_HALKANI_220K
MW_BALDIA_220/132KV_TF
MVAR_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF
MVAR_SURJANI_220/132KV_TF

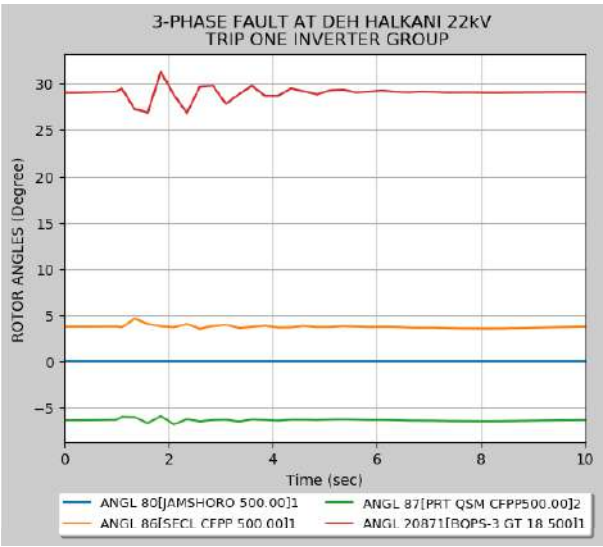

3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

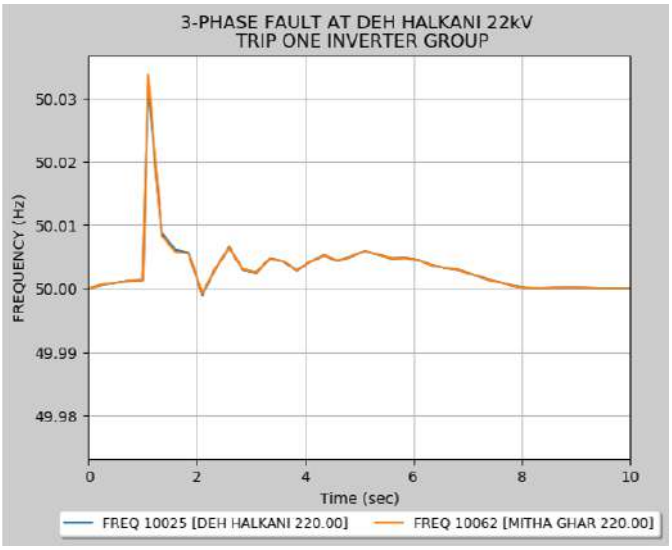

3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

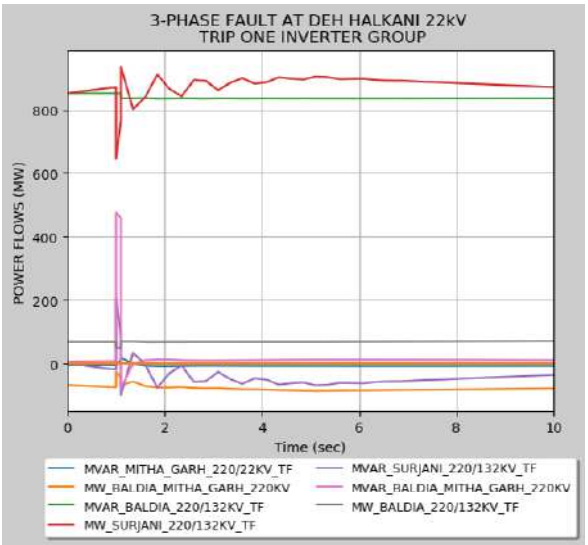

3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 10020 [KDA-33 220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 15200 [SURJANI 132 132.00]

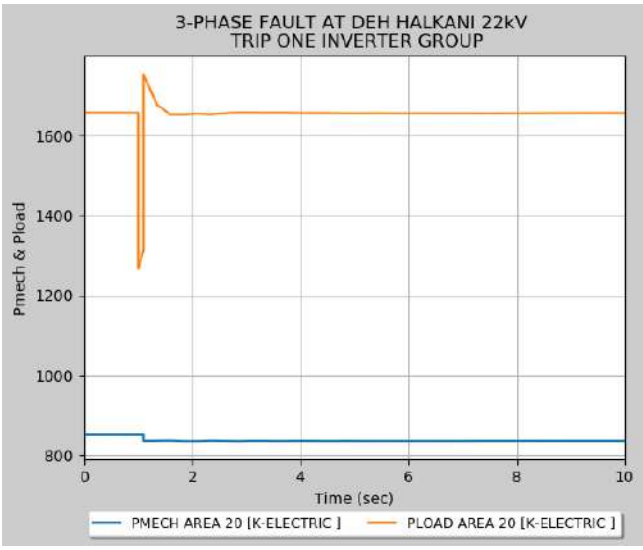
Appendix - D - 2

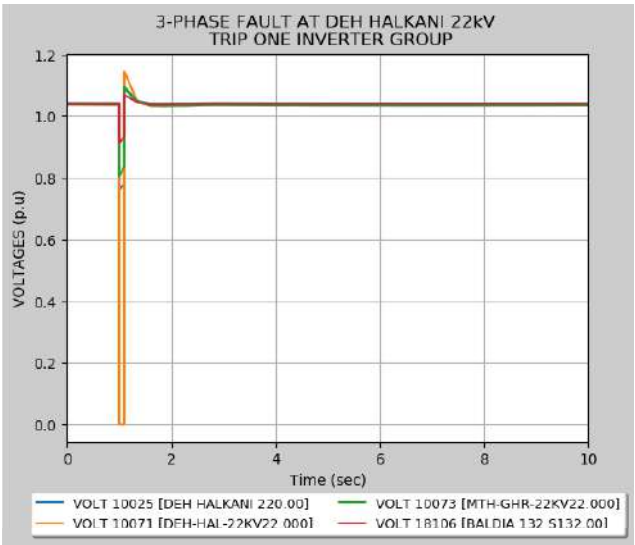
Plotted Results of Stability Analysis for Off-Peak Summer 2025 Maximum Solar-Average Wind Without RPC

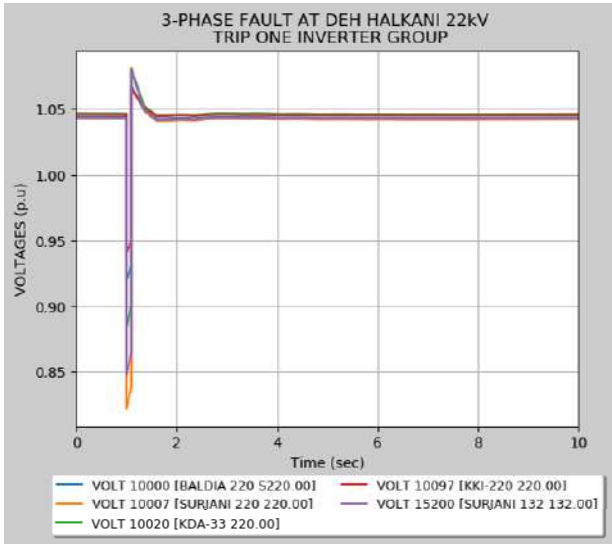

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 87[PRT QSM CFPP500.00]2
ANGL 86[SECL CFPP 500.00]1
ANGL 20871[BOPS-3 GT 18 500]1

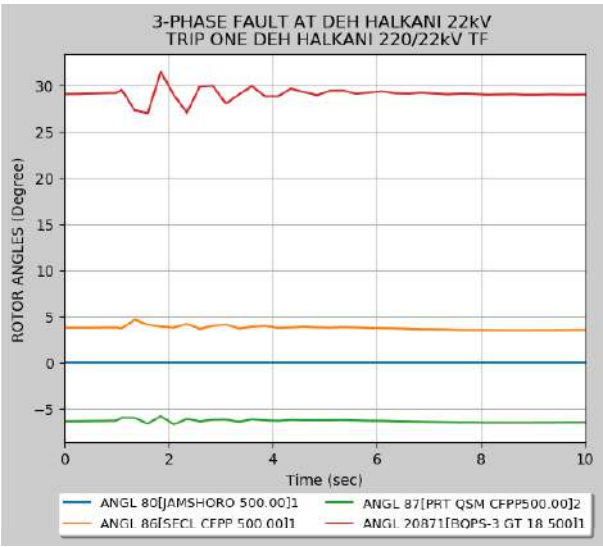

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

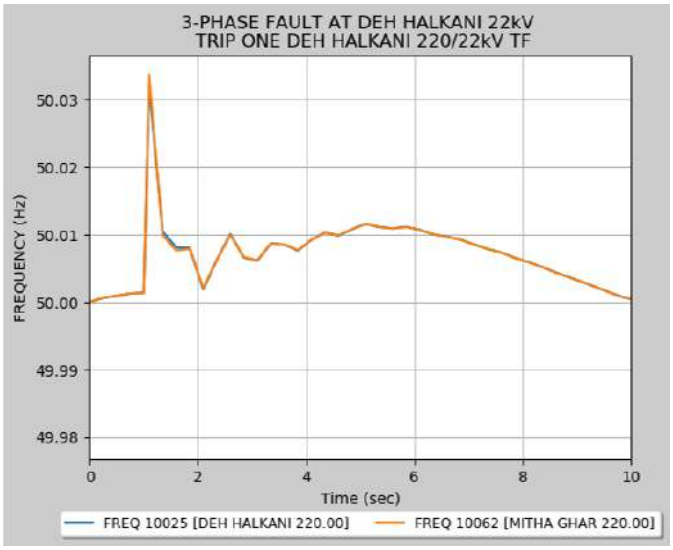

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
POWER FLOWS (MW)
Time (sec)
MVAR_MITHA_GARH_220/22KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF
MVAR_SURJANI_220/132KV_TF
MVAR_BALDIA_MITHA_GARH_220KV
MW_BALDIA_220/132KV_TF

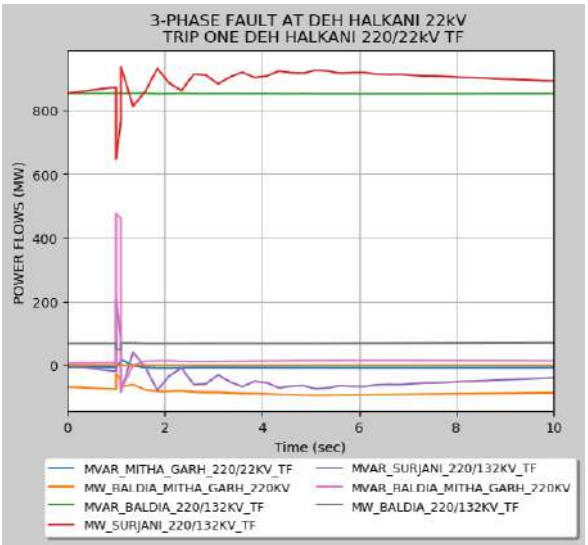

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

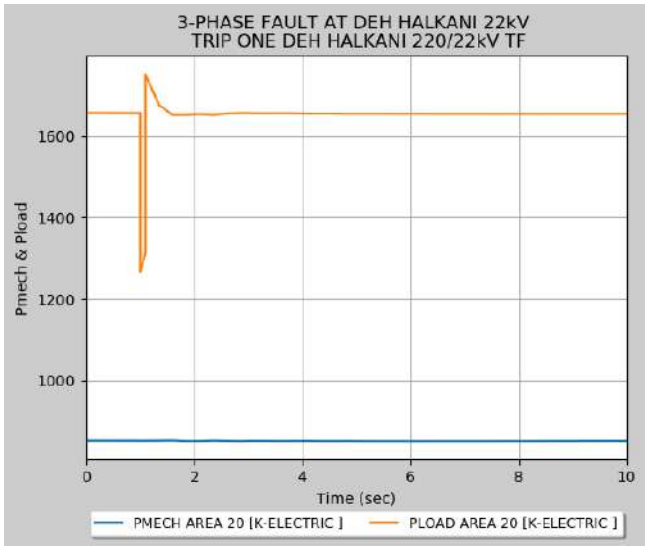

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

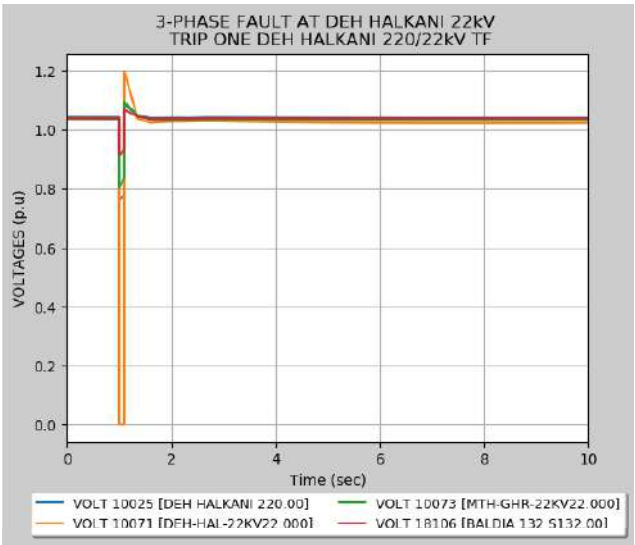

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 10020 [KDA-33 220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 15200 [SURJANI 132 132.00]

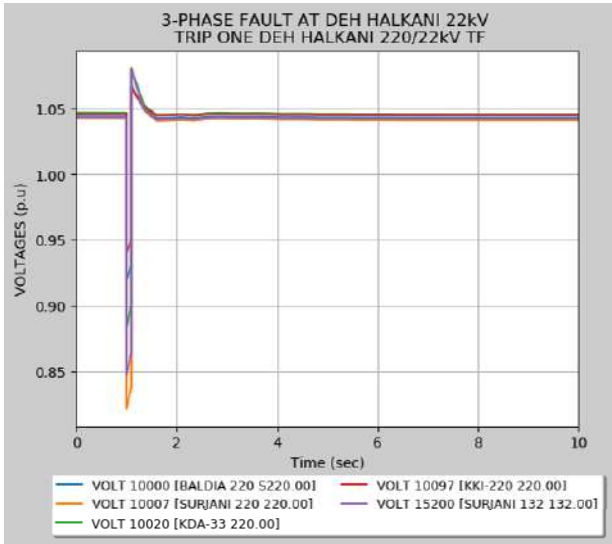

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 87[PRT QSM CFPP500.00]2
ANGL 86[SECL CFPP 500.00]1
ANGL 20871[BOPS-3 GT 18 500]1

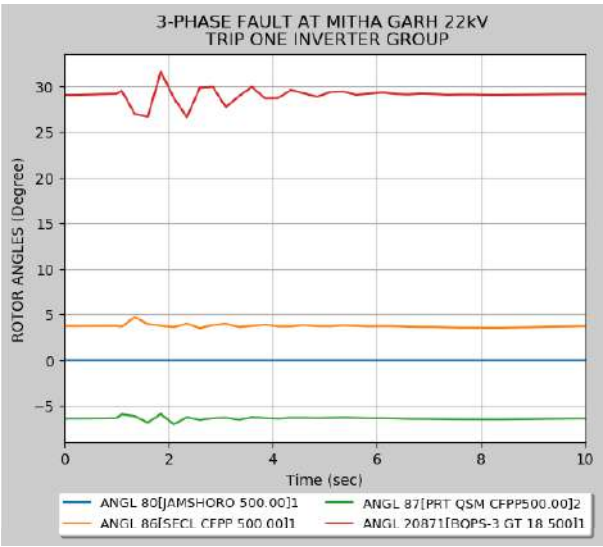

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

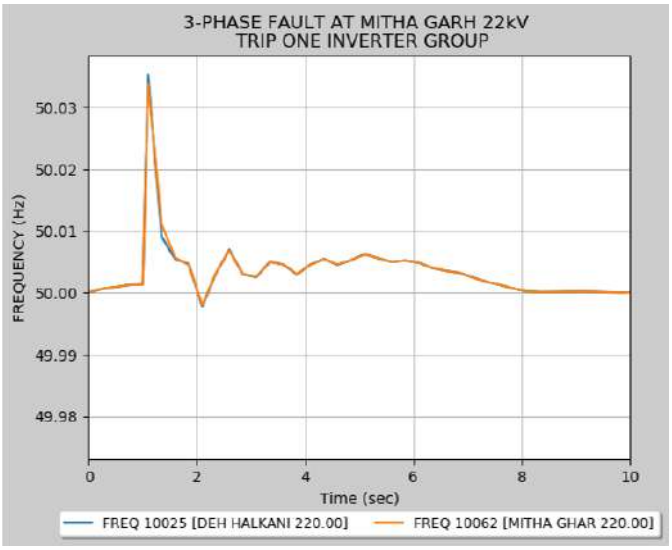

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
POWER FLOWS (MW)
Time (sec)
MVAR_MITHA_GARH_220/22KV_TF
MVAR_SURJANI_220/132KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_220/132KV_TF
MW_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF

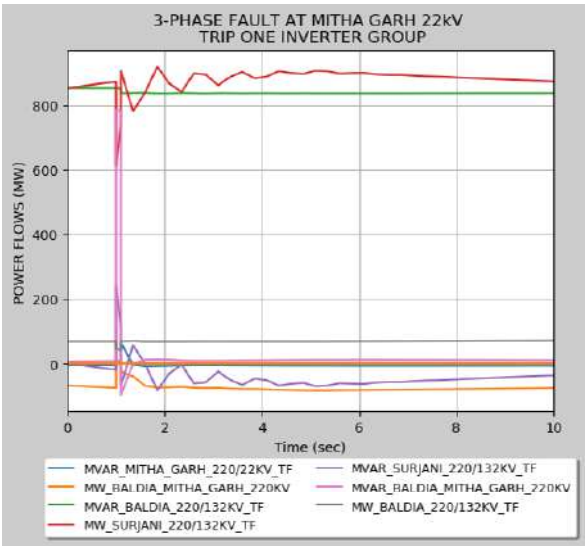

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

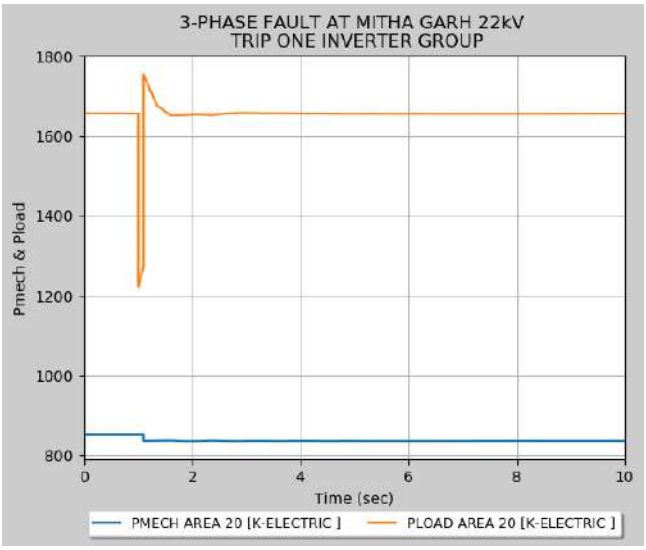

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

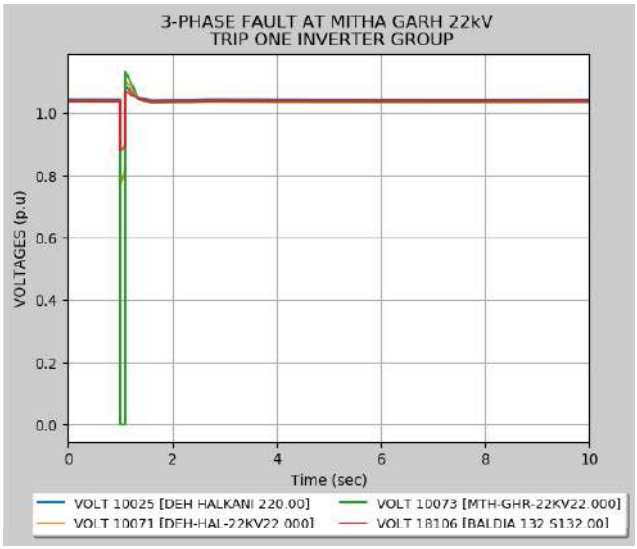

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 15200 [SURJANI 132 132.00]
VOLT 10020 [KDA-33 220.00]

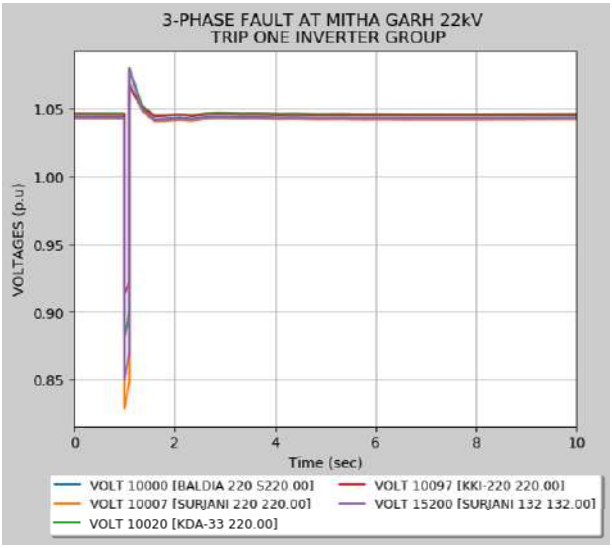

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 87[PRT QSM CFPP500.00]2
ANGL 86[SECL CFPP 500.00]1
ANGL 20871[BOPS-3 GT 18 500]1

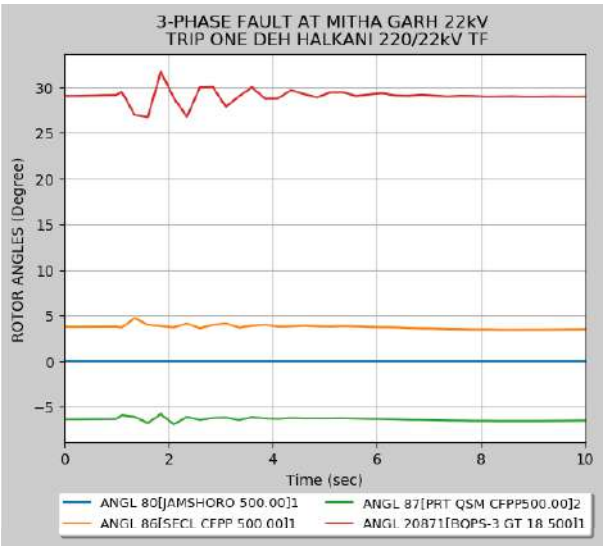

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

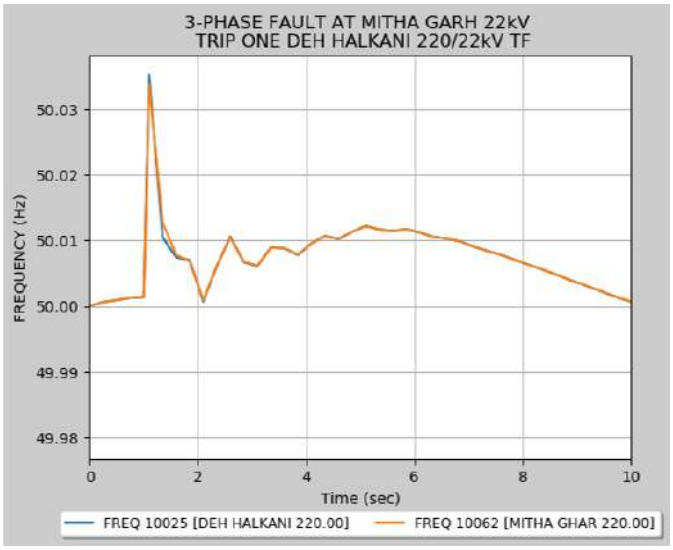

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
POWER FLOWS (MW)
Time (sec)
MVAR_MITHA_GARH_220/22KV_TF
MVAR_SURJANI_220/132KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_220/132KV_TF
MW_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF

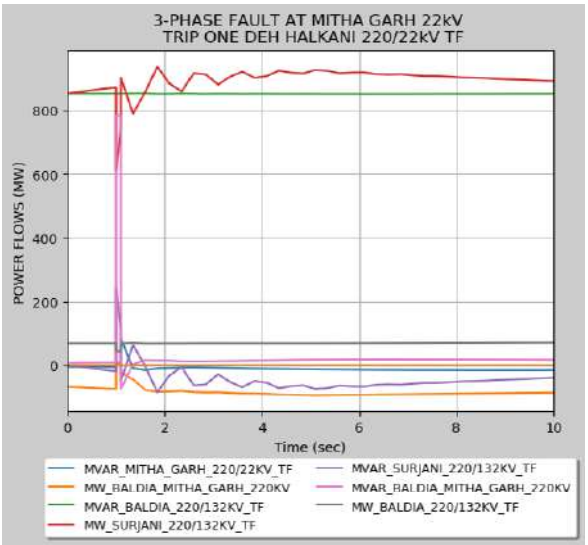

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

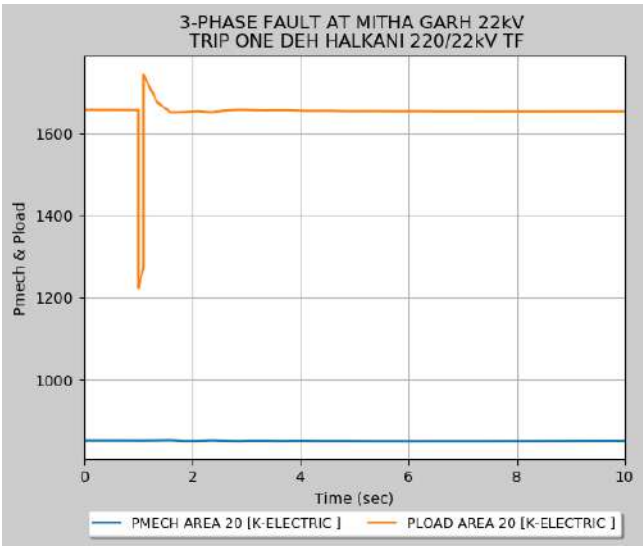

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

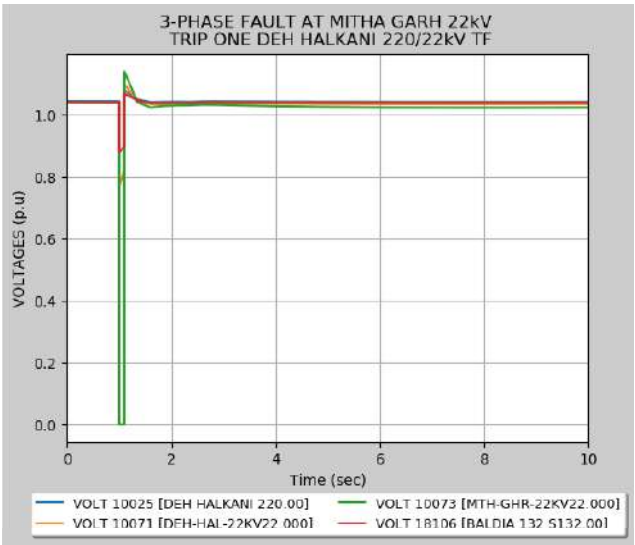

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 15200 [SURJANI 132 132.00]
VOLT 10020 [KDA-33 220.00]

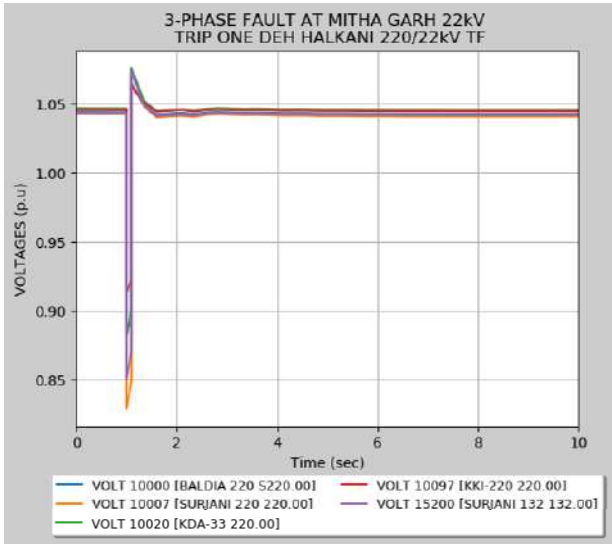

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 87[PRT QSM CFPP500.00]2
ANGL 86[SECL CFPP 500.00]1
ANGL 20871[BOPS-3 GT 18 500]1

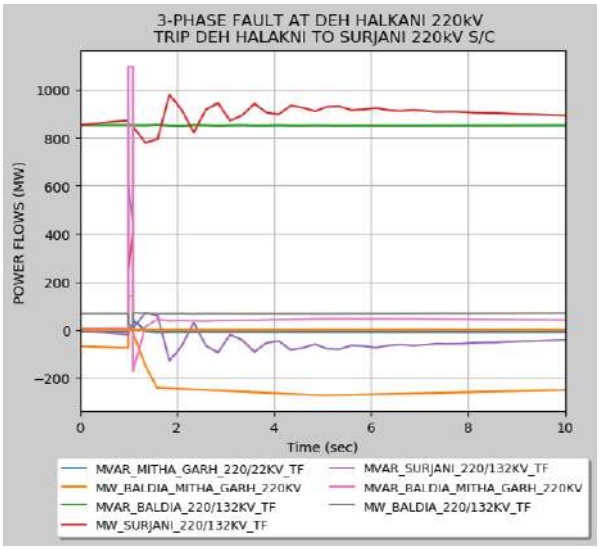

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

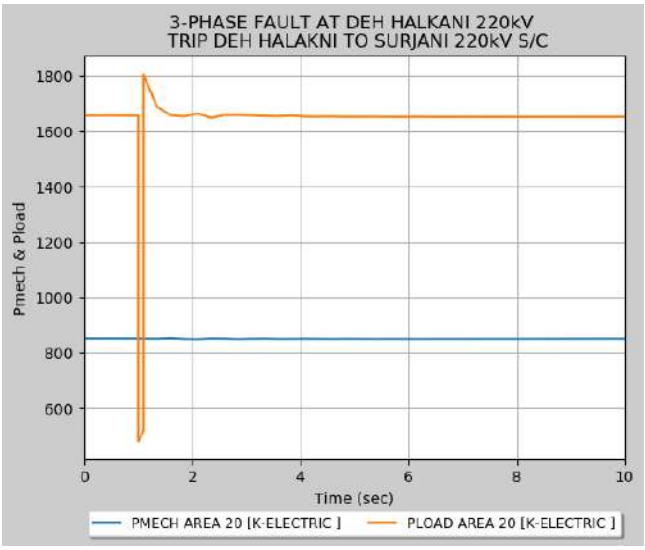

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
POWER FLOWS (MW)
Time (sec)
MVAR_MITHA_GARH_220/22KV_TF
MVAR_SURJANI_220/132KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_220/132KV_TF
MW_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF

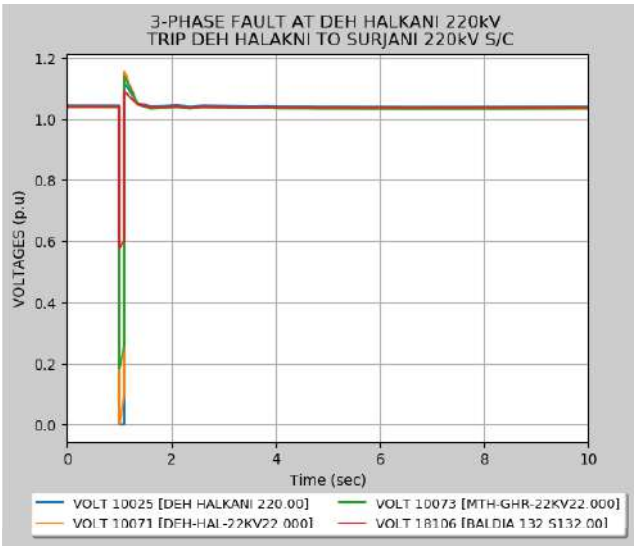

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

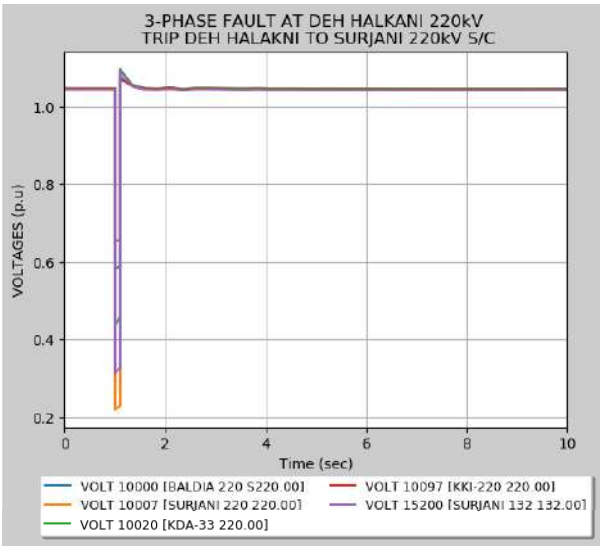

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

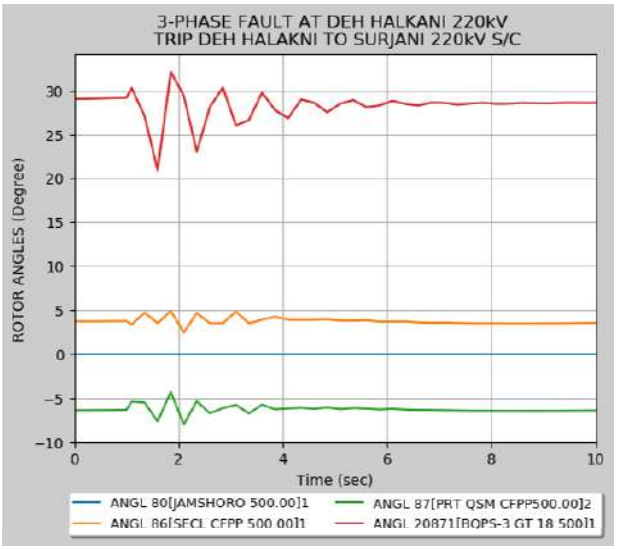

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 15200 [SURJANI 132 132.00]
VOLT 10020 [KDA-33 220.00]

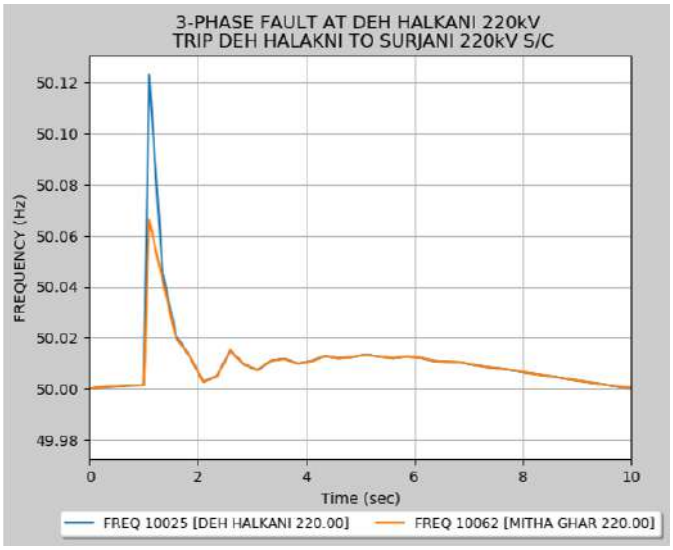

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
POWER FLOWS (MW)
Time (sec)
MVAR_MITHA_GARH_220/22KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF
MVAR_SURJANI_220/132KV_TF
MVAR_BALDIA_MITHA_GARH_220KV
MW_BALDIA_220/132KV_TF

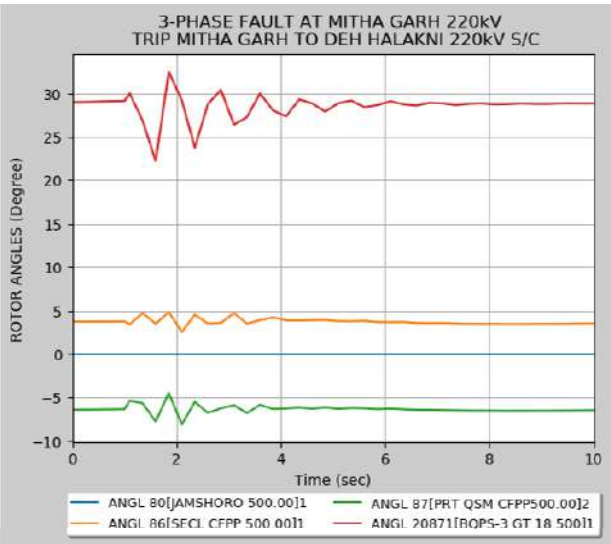

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

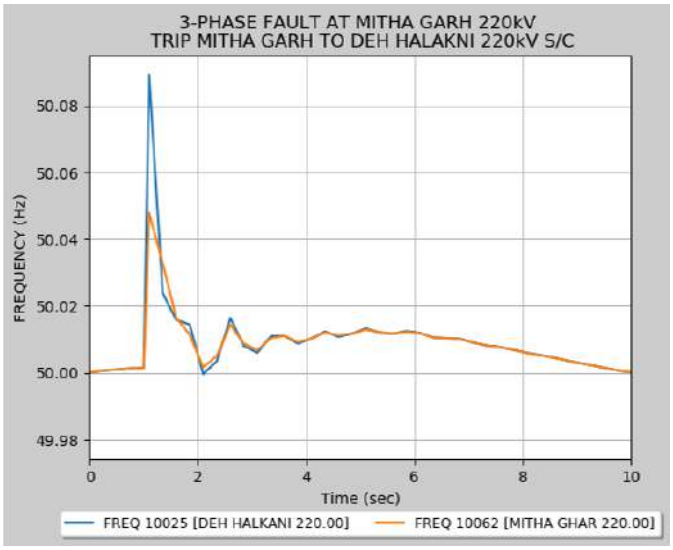

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

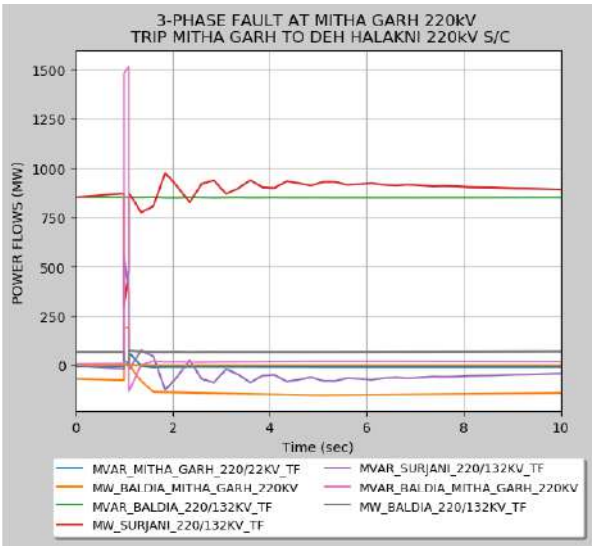

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 10020 [KDA-33 220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 15200 [SURJANI 132 132.00]

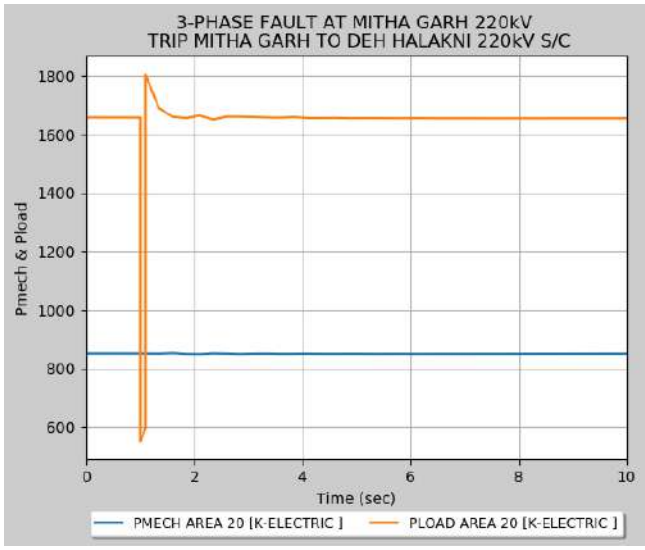

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 87[PRT QSM CFPP500.00]2
ANGL 20871[BOPS-3 GT 18.500]1

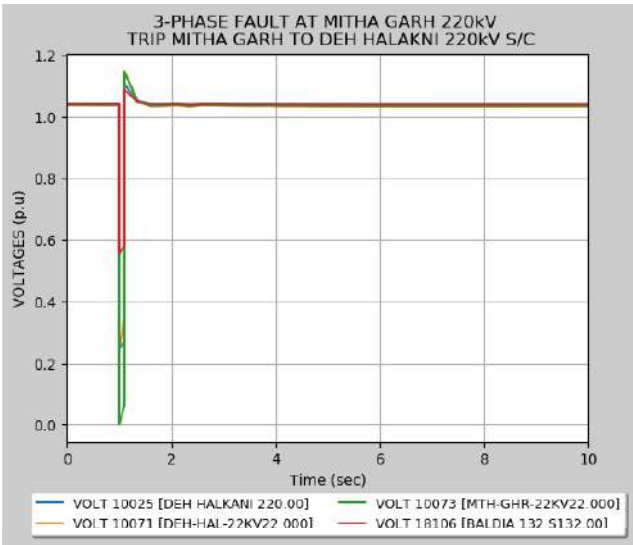

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

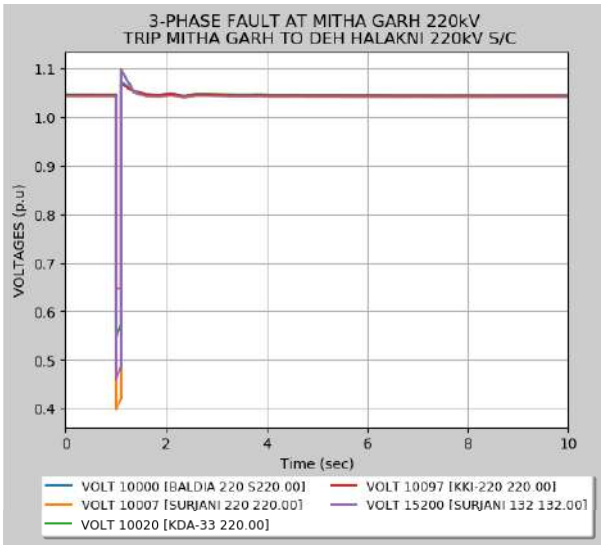

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 87[PRT QSM CFPP500.00]2
ANGL 86[SECL CFPP 500.00]1
ANGL 20871[BQPS-3 GT 18.500]1

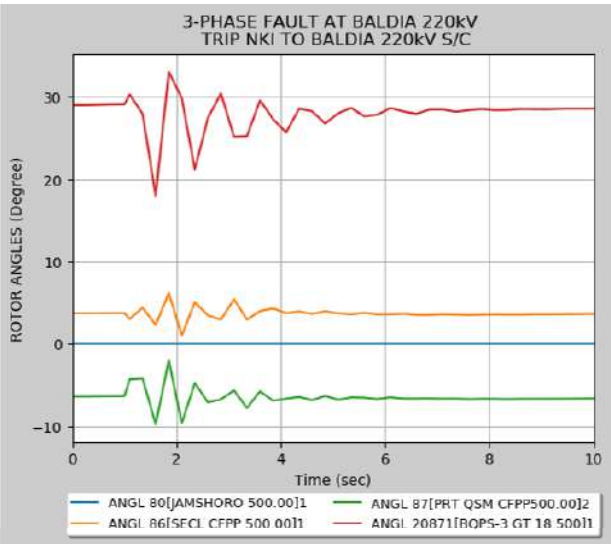

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

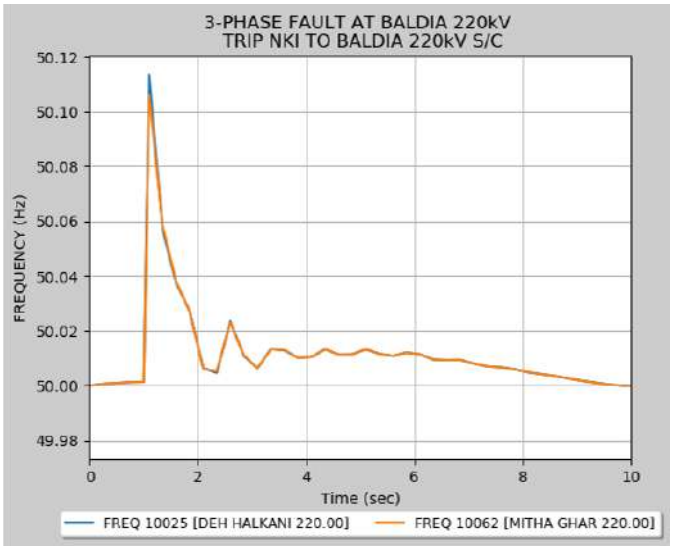

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
POWER FLOWS (MW)
Time (sec)
MVAR_MITHA_GARH_220/22KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF
MVAR_SURJANI_220/132KV_TF
MVAR_BALDIA_MITHA_GARH_220KV
MW_BALDIA_220/132KV_TF

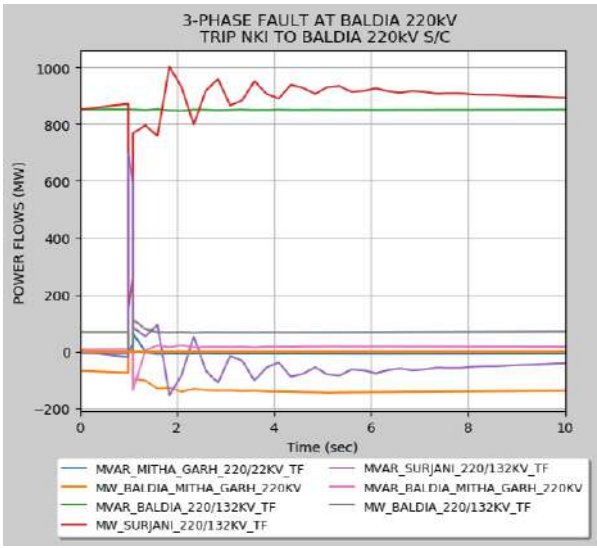

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

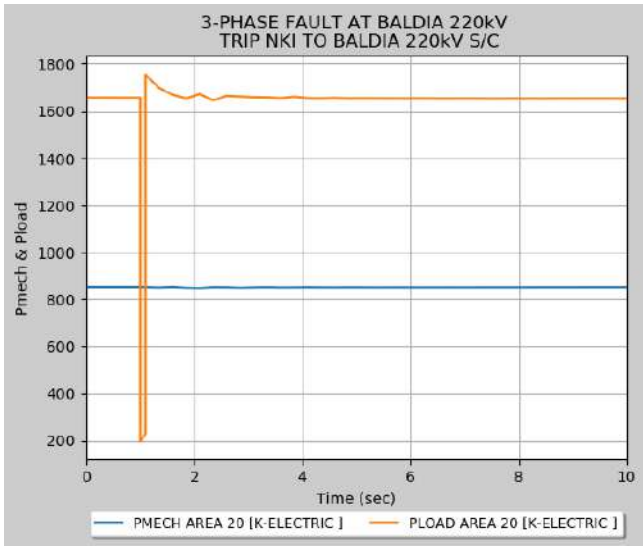

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

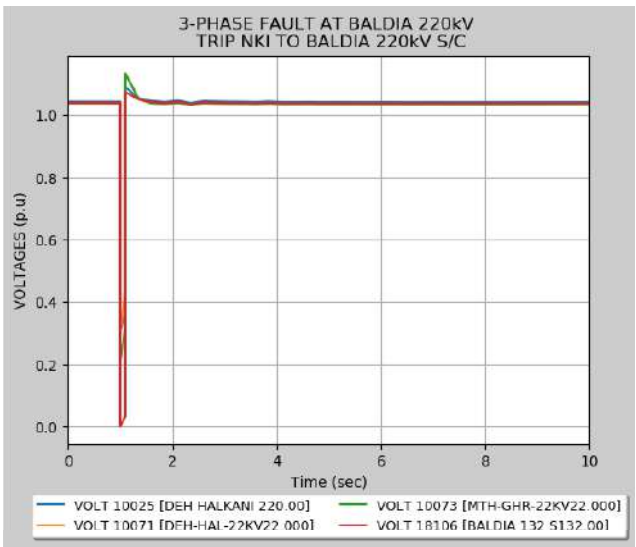

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 10020 [KDA-33 220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 15200 [SURJANI 132 132.00]

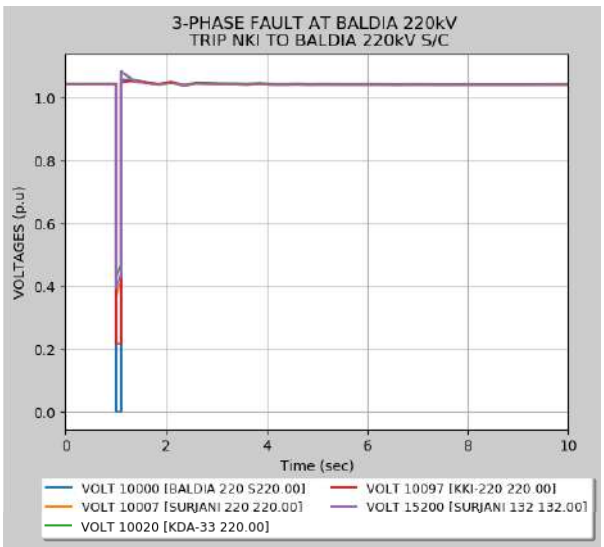

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 87[PRT QSM CFPP500.00]2
ANGL 86[SECL CFPP 500.00]1
ANGL 20871[BQPS-3 GT 18 500]1

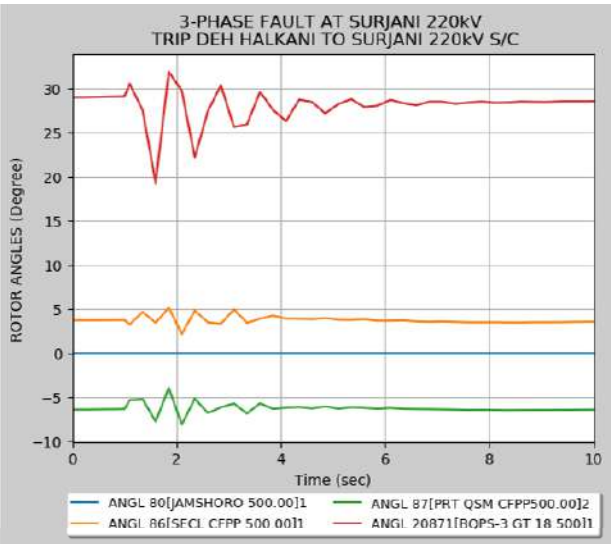

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

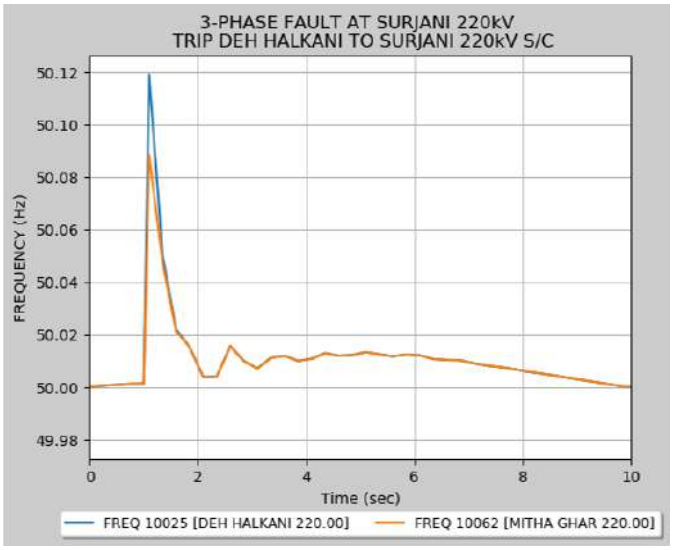

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
POWER FLOWS (MW)
Time (sec)
MVAR_MITHA_GARH_220/22KV_TF
MVAR_SURJANI_220/132KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_220/132KV_TF
MW_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF

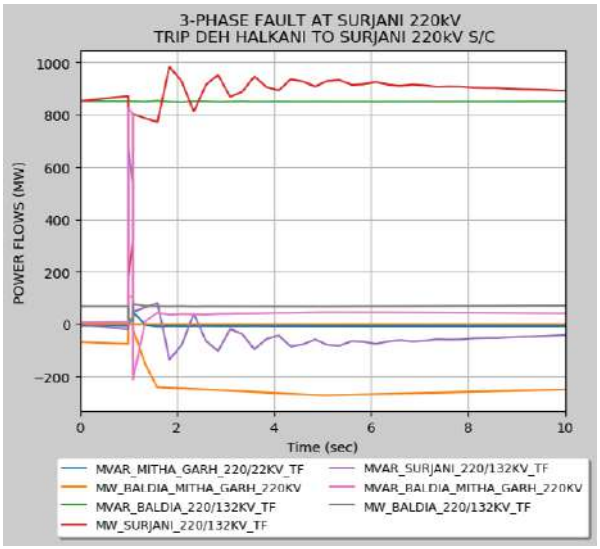

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

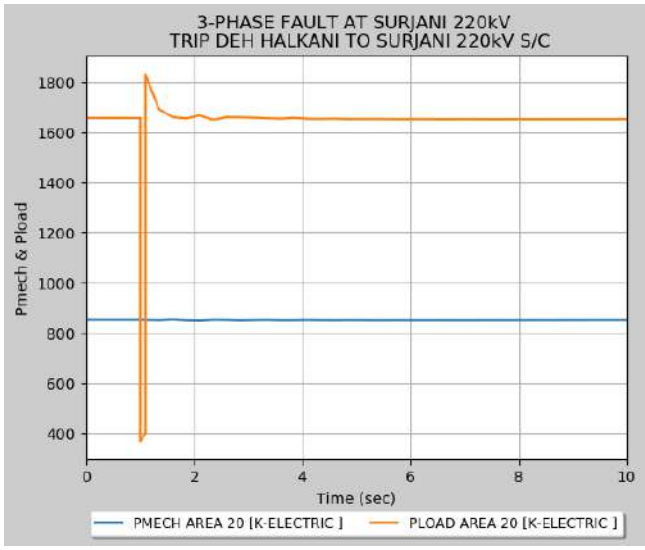

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

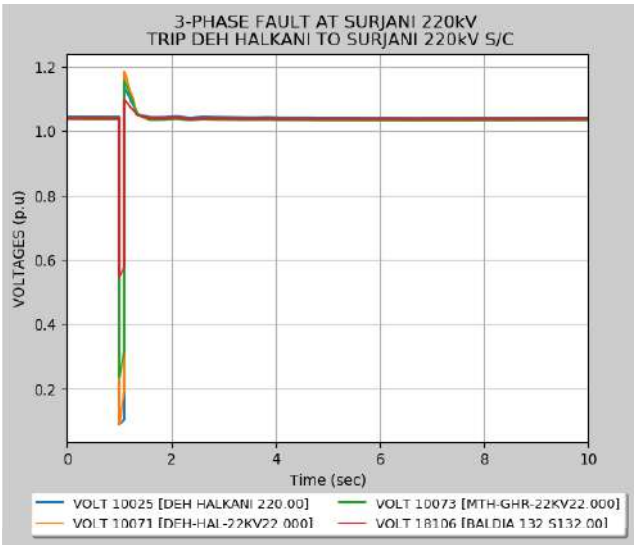

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 15200 [SURJANI 132 132.00]
VOLT 10020 [KDA-33 220.00]

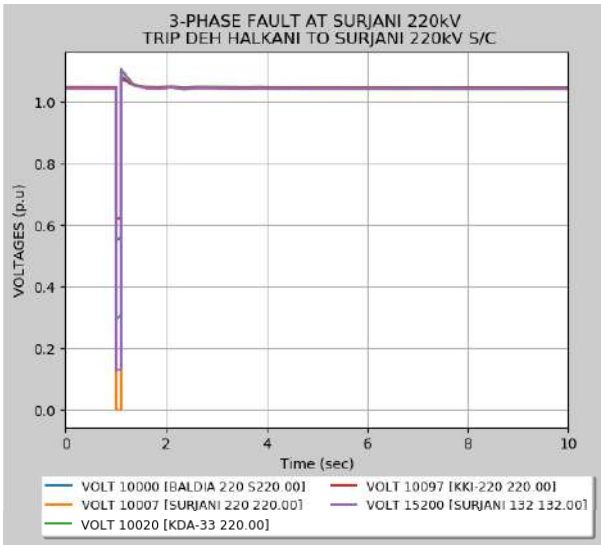

3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 87[PRT QSM CFPP500.00]2
ANGL 86[SECL CFPP 500.00]1
ANGL 20871[BQPS-3 GT 18 500]1


3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]


3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
POWER FLOWS (MW)
Time (sec)
MVAR_MITHA_GARH_220/22KV_TF
MVAR_SURJANI_220/132KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_220/132KV_TF
MW_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF

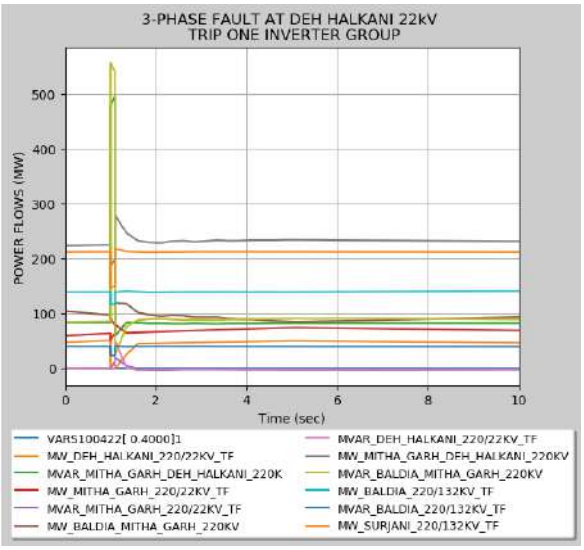

3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

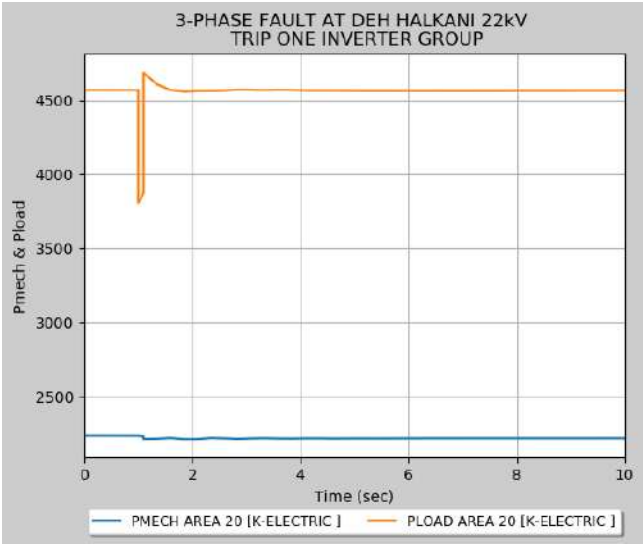

3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

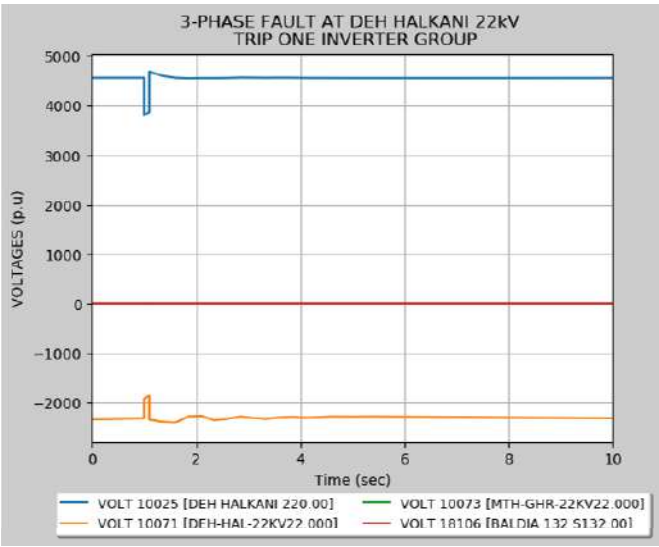

3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 15200 [SURJANI 132 132.00]
VOLT 10020 [KDA-33 220.00]

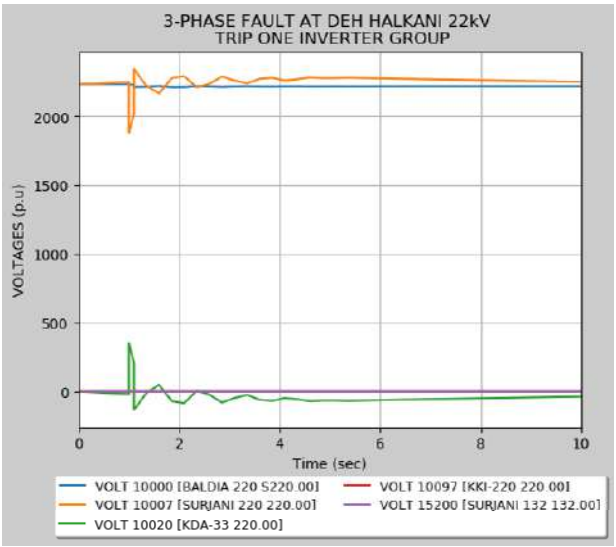
Appendix - D - 3

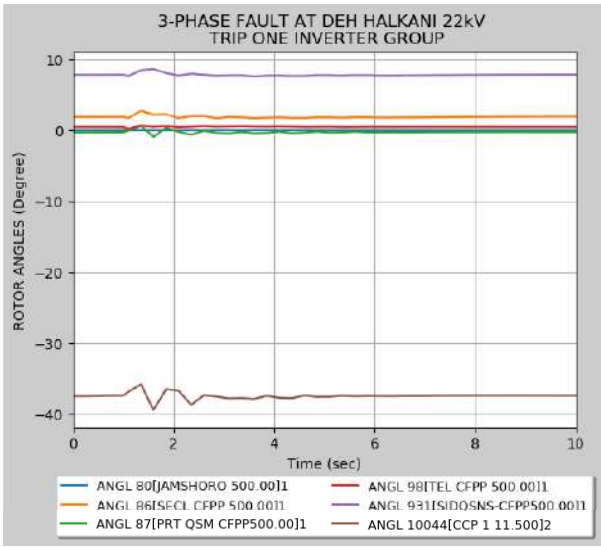
Plotted Results of Stability Analysis for Peak Summer 2027 Maximum Solar-Average Wind Without RPC

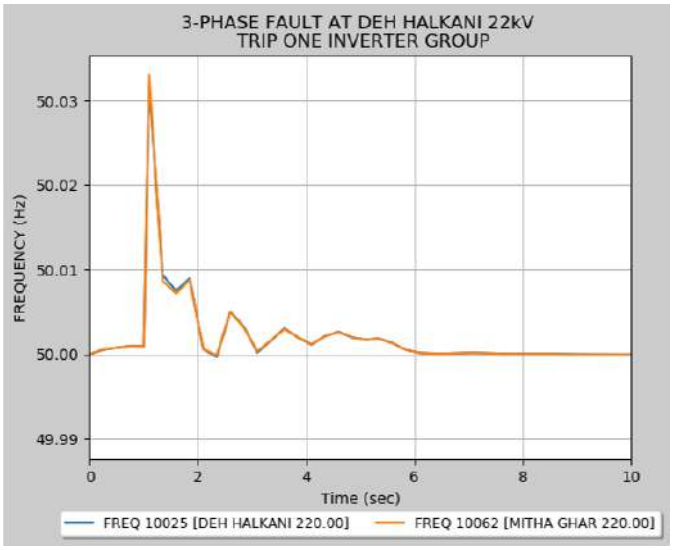

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
POWER FLOWS (MW)
Time (sec)
VARS100422[0.4000]1
MW_DEH_HALKANI_220/22KV_TF
MVAR_MITHA_GARH_DEH_HALKANI_220K
MW_MITHA_GARH_220/22KV_TF
MVAR_MITHA_GARH_220/22KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_DEH_HALKANI_220/22KV_TF
MW_MITHA_GARH_DEH_HALKANI_220KV
MVAR_BALDIA_MITHA_GARH_220KV
MW_BALDIA_220/132KV_TF
MVAR_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF

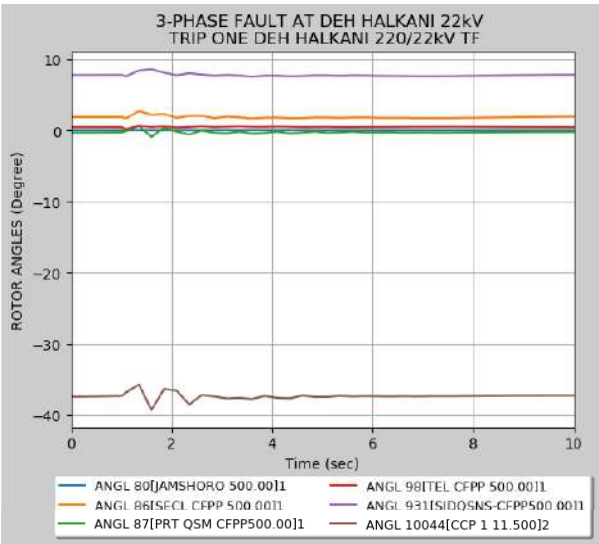

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

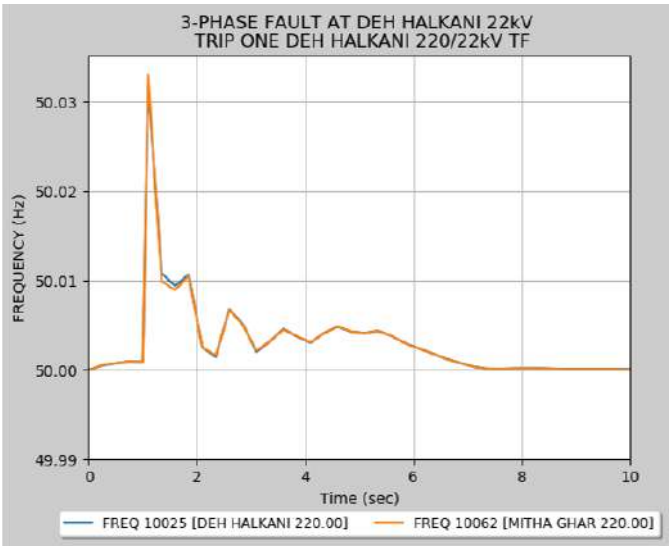

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

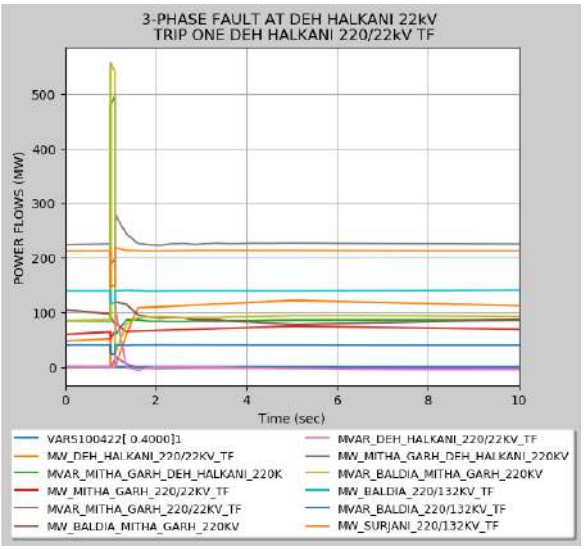

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 10020 [KDA-33 220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 15200 [SURJANI 132 132.00]

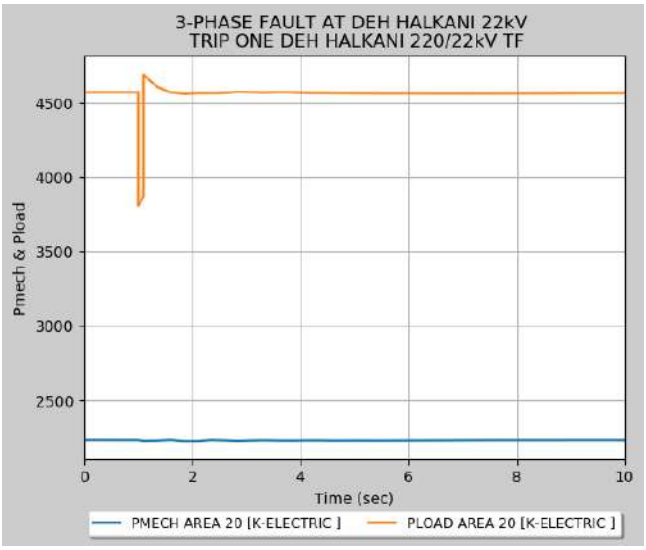

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 98[TEL CFPP 500.00]1
ANGL 931[SIDOSNS-CFPP500.00]1
ANGL 10044[CCP 1 11.500]2

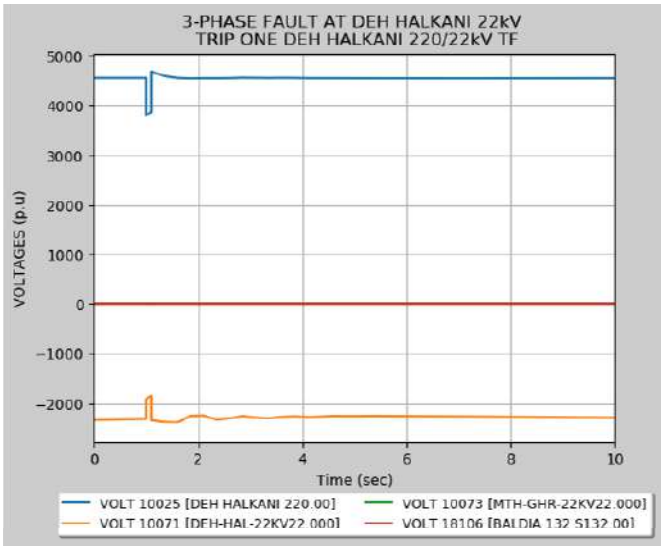

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

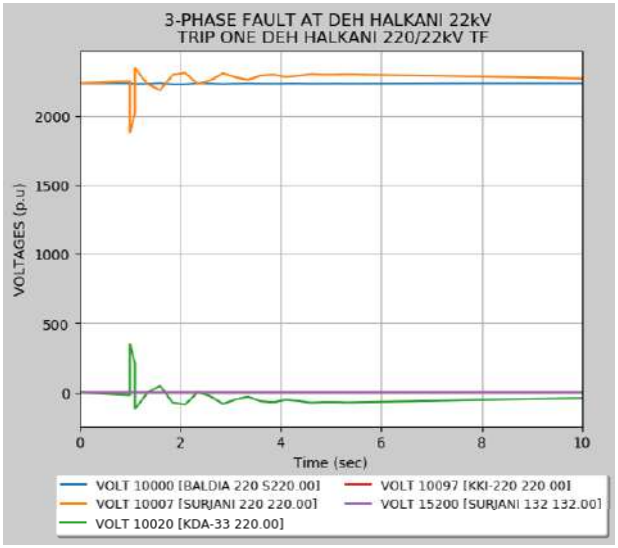

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 98[TEL CFPP 500.00]1
ANGL 931[SIDOSNS-CFPP500.00]1
ANGL 10044[CCP 1 11.500]2

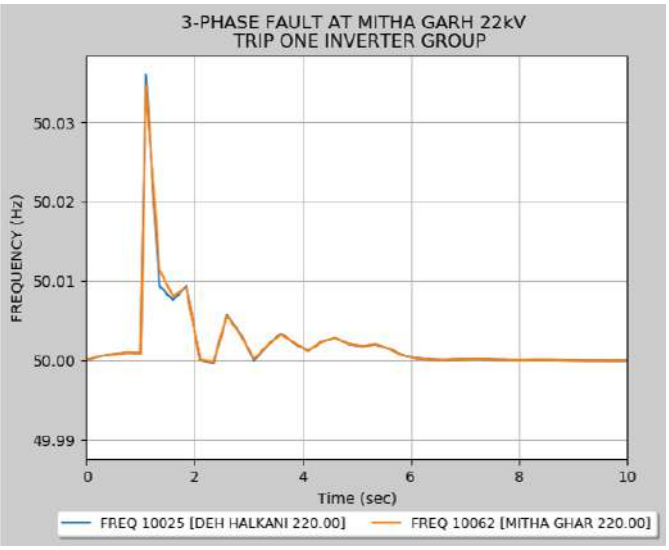

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

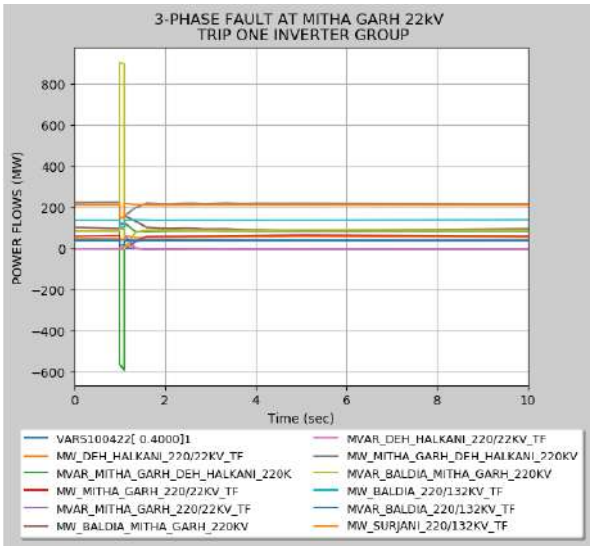

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
POWER FLOWS (MW)
Time (sec)
VARS100422[0.4000]1
MW_DEH_HALKANI_220/22KV_TF
MVAR_MITHA_GARH_DEH_HALKANI_220K
MW_MITHA_GARH_220/22KV_TF
MVAR_MITHA_GARH_220/22KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_DEH_HALKANI_220/22KV_TF
MW_MITHA_GARH_DEH_HALKANI_220KV
MVAR_BALDIA_MITHA_GARH_220KV
MW_BALDIA_220/132KV_TF
MVAR_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF

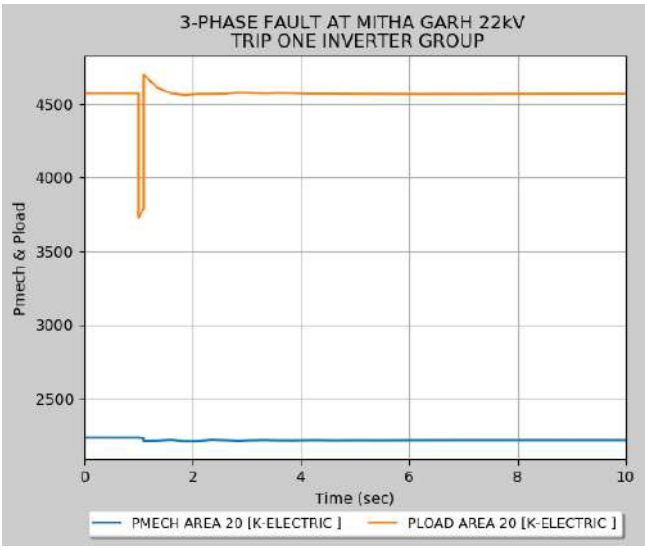

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

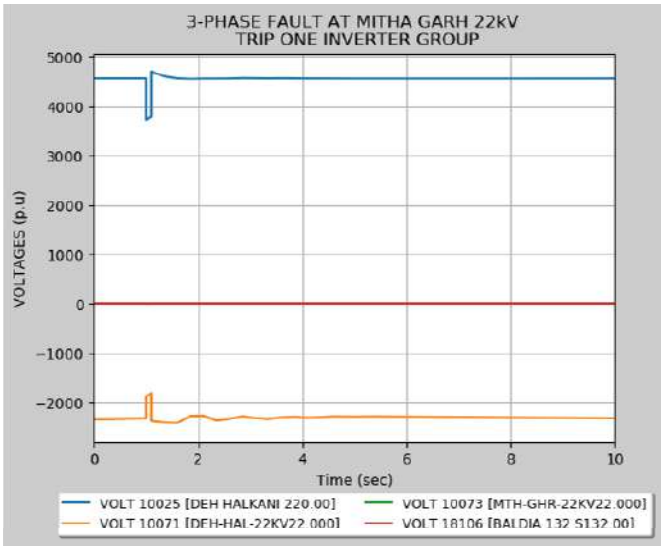

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

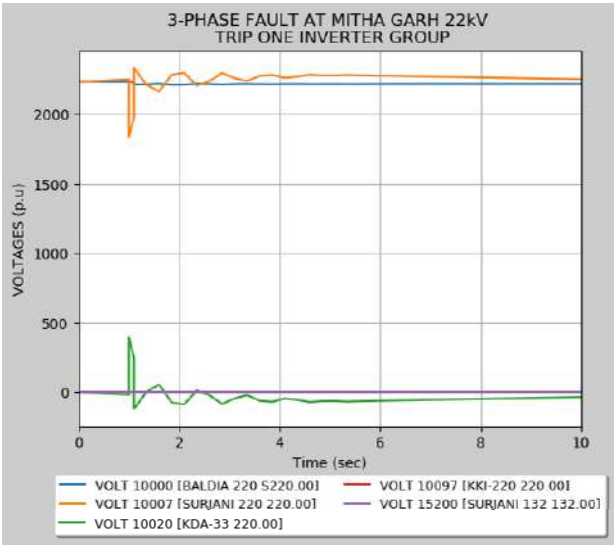

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 10020 [KDA-33 220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 15200 [SURJANI 132 132.00]

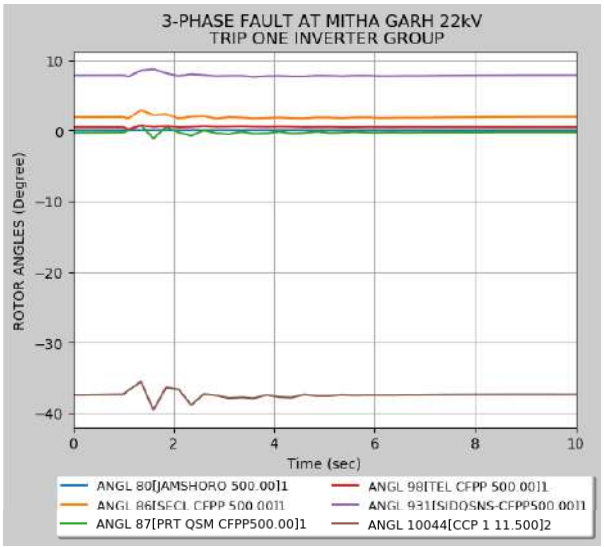

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

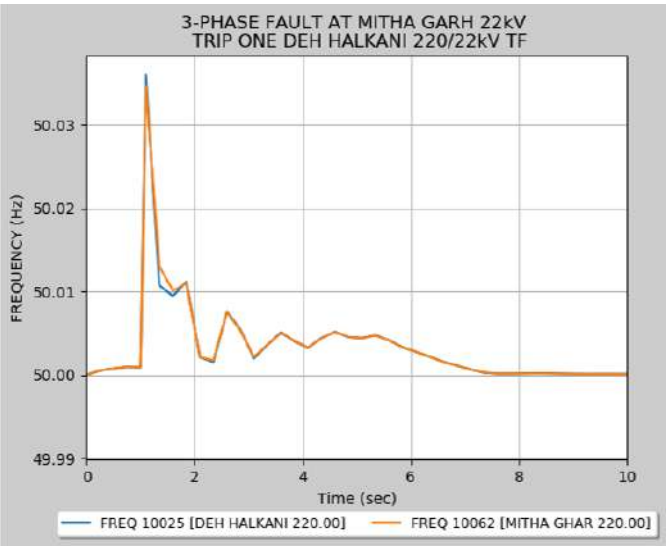

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
POWER FLOWS (MW)
Time (sec)
VARS100422[0.4000]1
MW_DEH_HALKANI_220/22KV_TF
MVAR_MITHA_GARH_DEH_HALKANI_220K
MW_MITHA_GARH_220/22KV_TF
MVAR_MITHA_GARH_220/22KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_DEH_HALKANI_220/22KV_TF
MW_MITHA_GARH_DEH_HALKANI_220KV
MVAR_BALDIA_MITHA_GARH_220KV
MW_BALDIA_220/132KV_TF
MVAR_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF

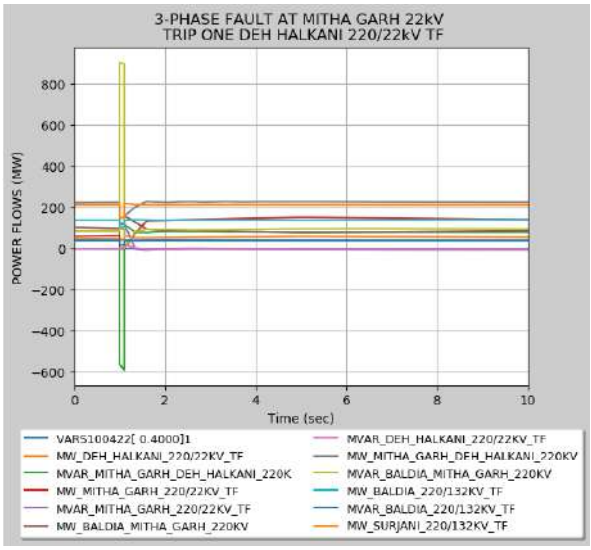

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

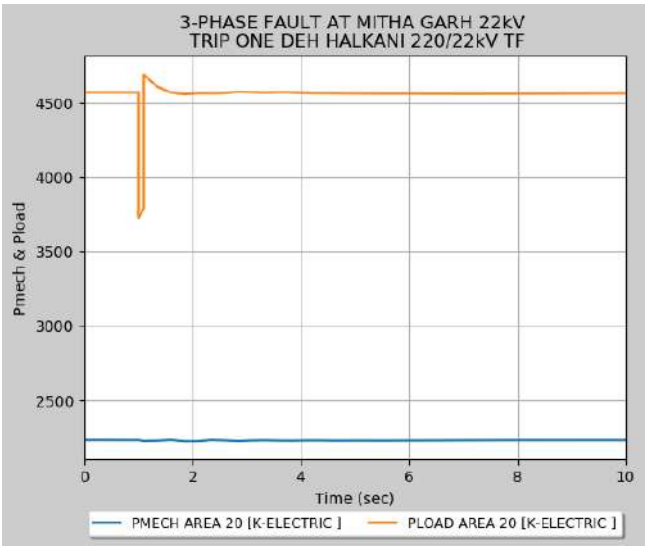

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

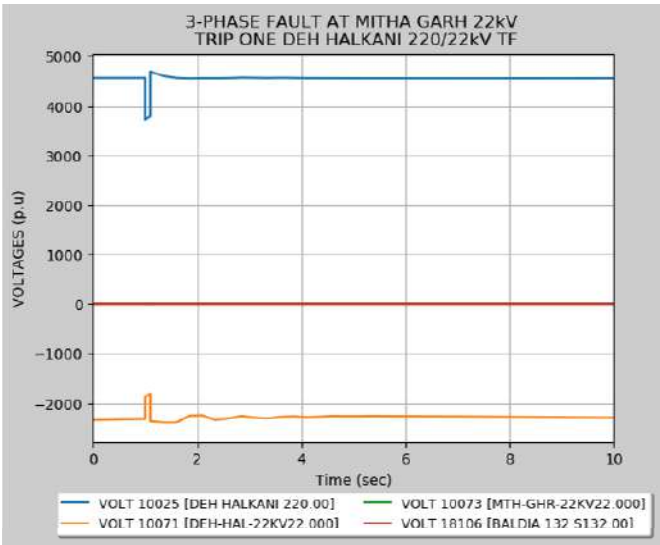

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 10020 [KDA-33 220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 15200 [SURJANI 132 132.00]

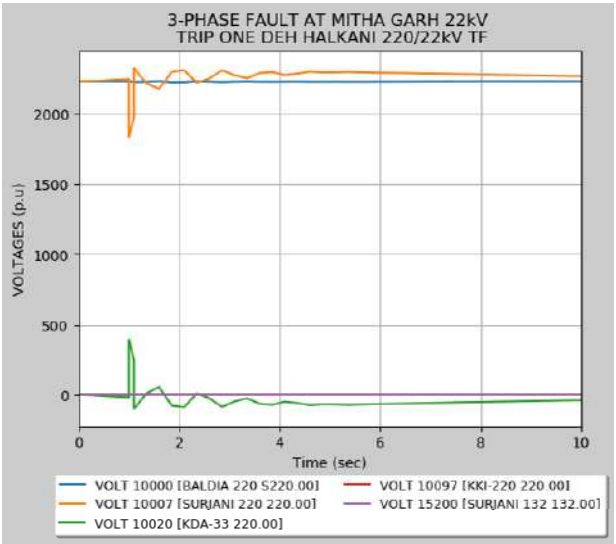

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 98[TEL CFPP 500.00]1
ANGL 93[SIDOSNS-CFPP500.00]1
ANGL 10044[CCP 1 11.500]2

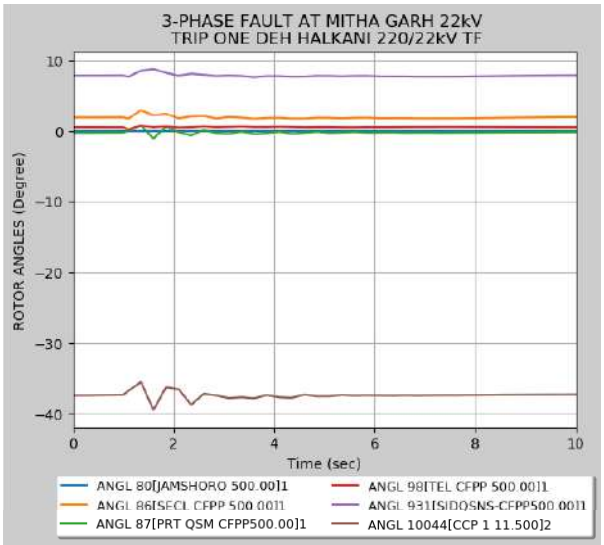

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

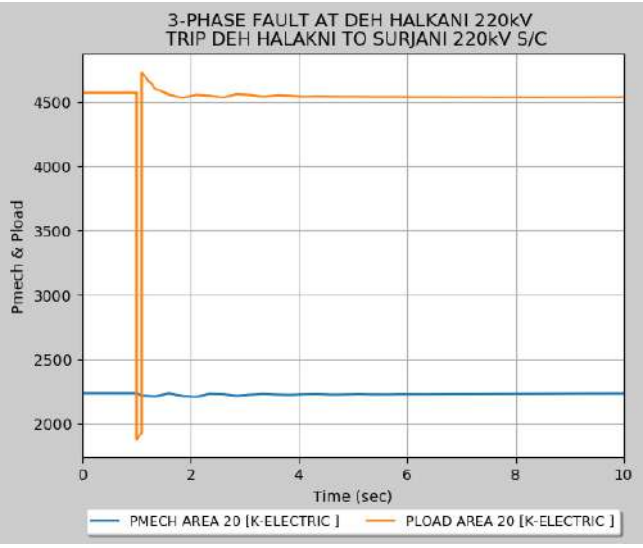

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
POWER FLOWS (MW)
Time (sec)
VARS100422[0.4000]1
MW_DEH_HALKANI_220/22KV_TF
MVAR_MITHA_GARH_DEH_HALKANI_220K
MW_MITHA_GARH_220/22KV_TF
MVAR_MITHA_GARH_220/22KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_DEH_HALKANI_220/22KV_TF
MW_MITHA_GARH_DEH_HALKANI_220KV
MVAR_BALDIA_MITHA_GARH_220KV
MW_BALDIA_220/132KV_TF
MVAR_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF

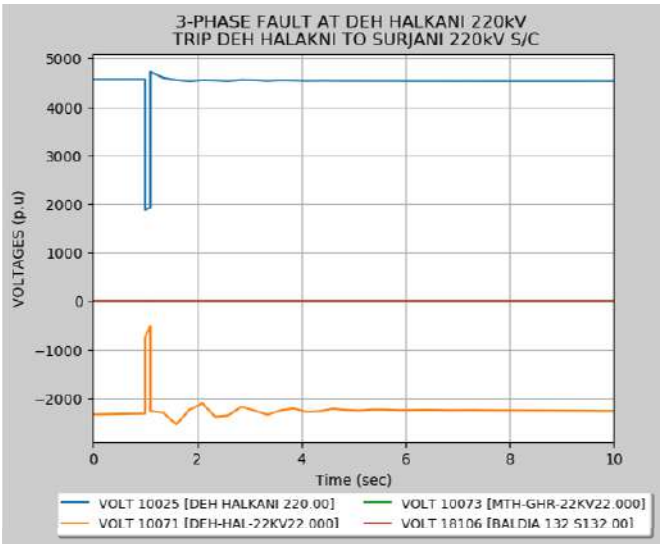

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

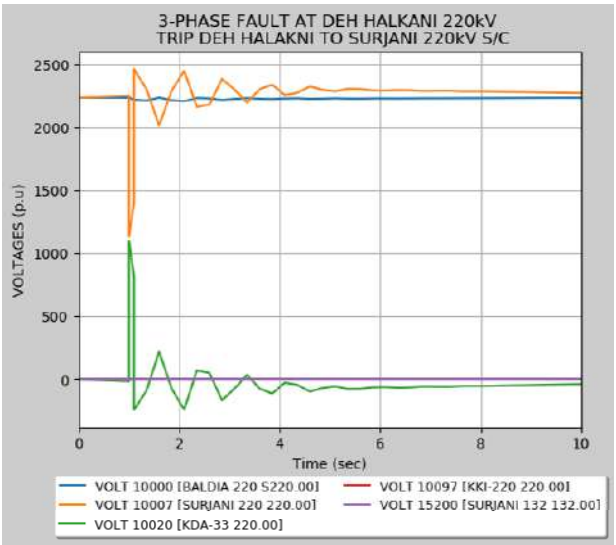

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

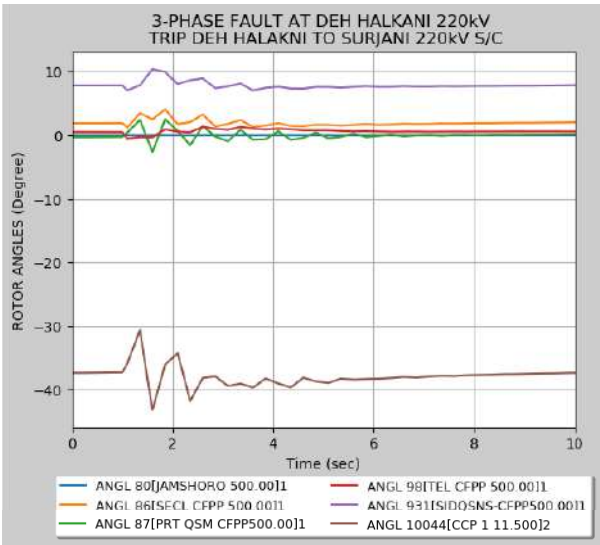

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 10020 [KDA-33 220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 15200 [SURJANI 132 132.00]

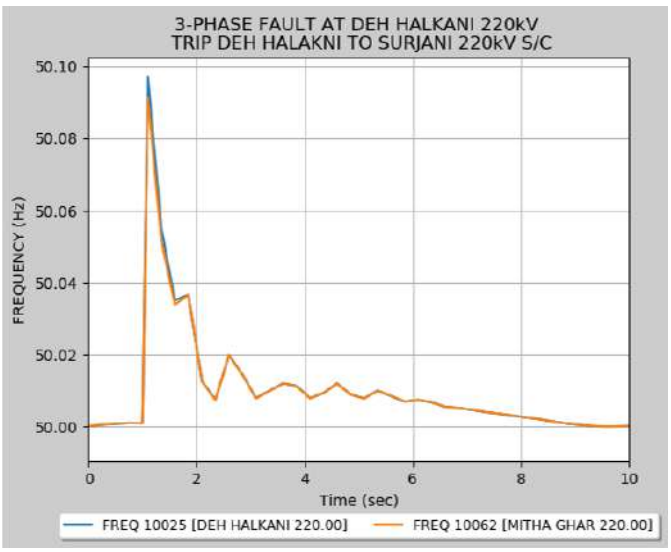

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 98[TEL CFPP 500.00]1
ANGL 93[SIDOSNS-CFPP500.00]1
ANGL 10044[CCP 1 11.500]2

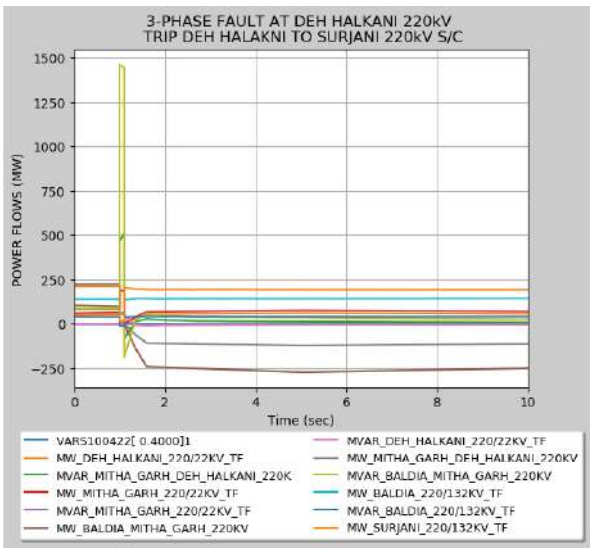

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

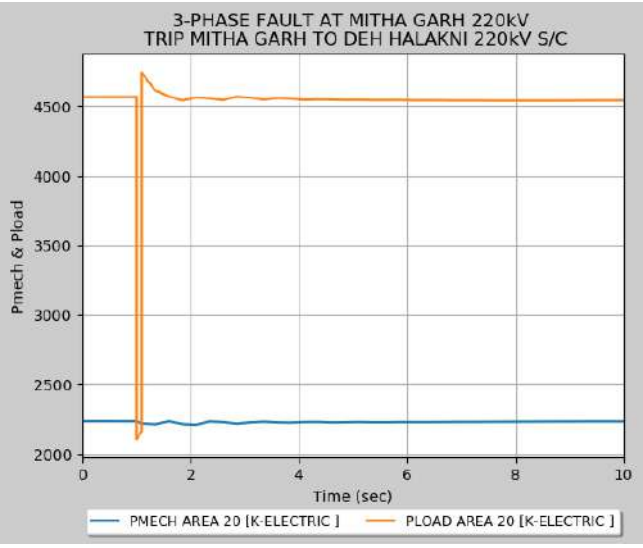

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

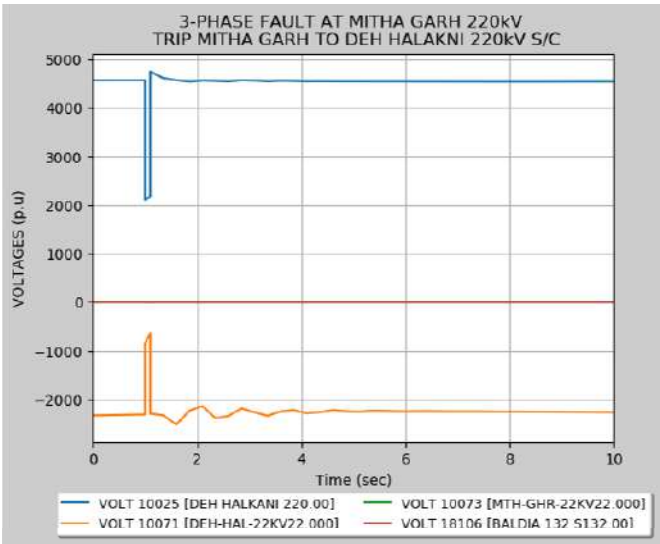

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 15200 [SURJANI 132 132.00]
VOLT 10020 [KDA-33 220.00]

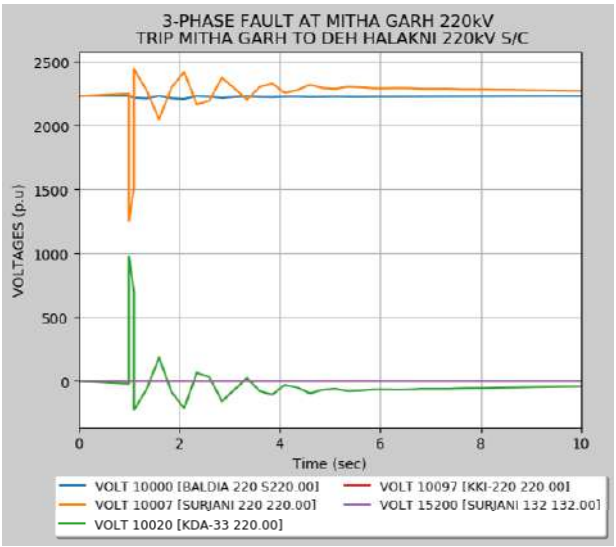

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 98[TEL CFPP 500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 93[SIDQSNS-CFPP500.00]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 10044[CCP 1 11.500]2

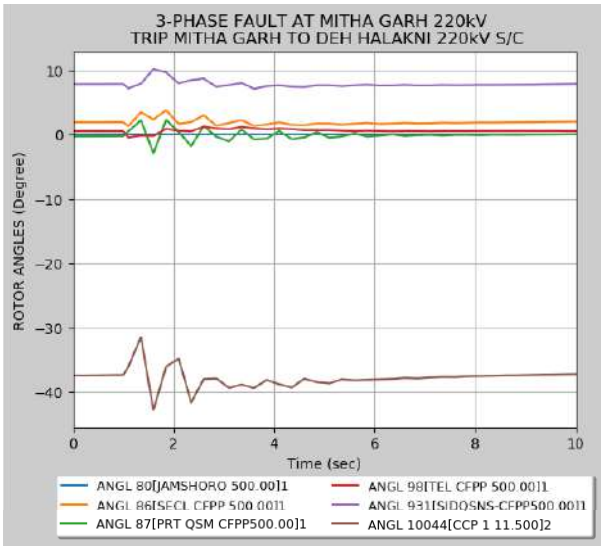

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

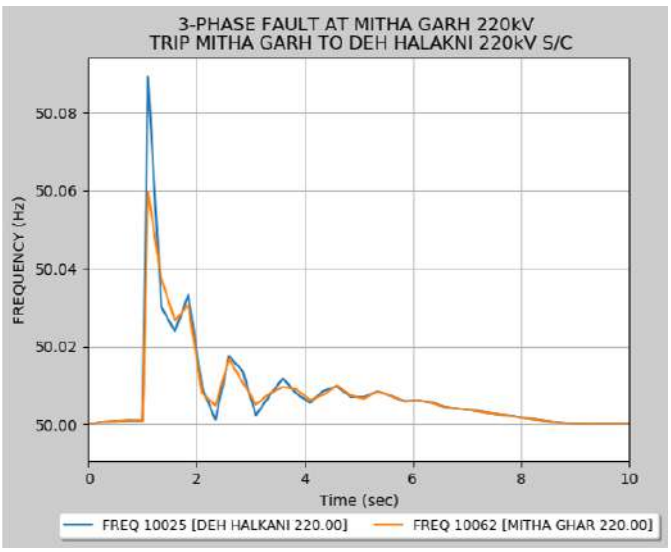

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
POWER FLOWS (MW)
Time (sec)
VARS100422[0.4000]1
MVAR_DEH_HALKANI_220/22KV_TF
MW_DEH_HALKANI_220/22KV_TF
MW_MITHA_GARH_DEH_HALKANI_220KV
MVAR_MITHA_GARH_DEH_HALKANI_220K
MVAR_BALDIA_MITHA_GARH_220KV
MW_MITHA_GARH_220/22KV_TF
MW_BALDIA_220/132KV_TF
MVAR_MITHA_GARH_220/22KV_TF
MVAR_BALDIA_220/132KV_TF
MW_BALDIA_MITHA_GARH_220KV
MW_SURJANI_220/132KV_TF

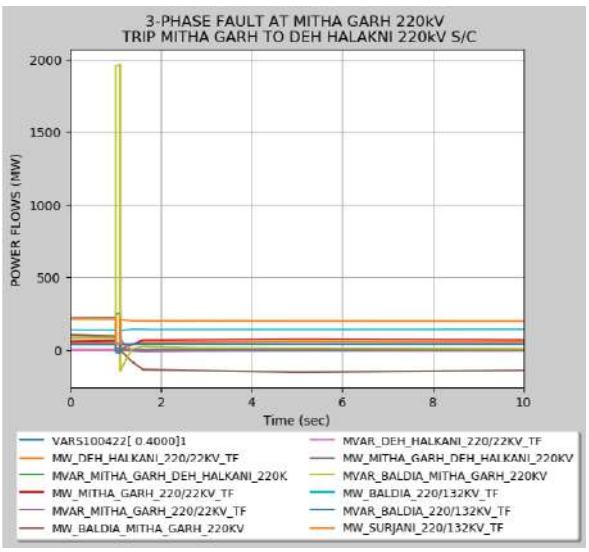

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

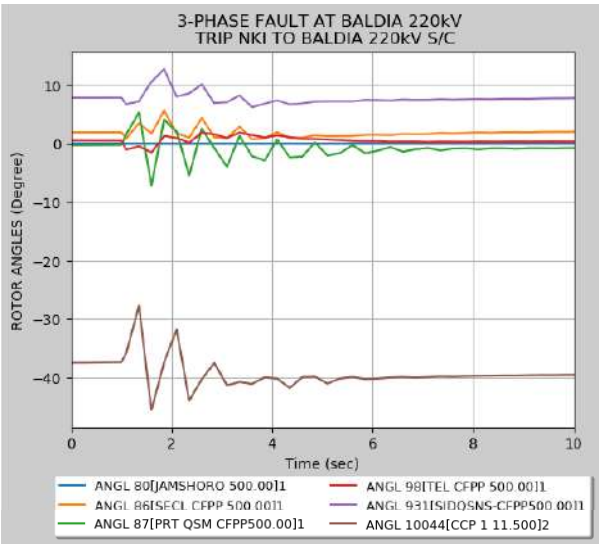

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

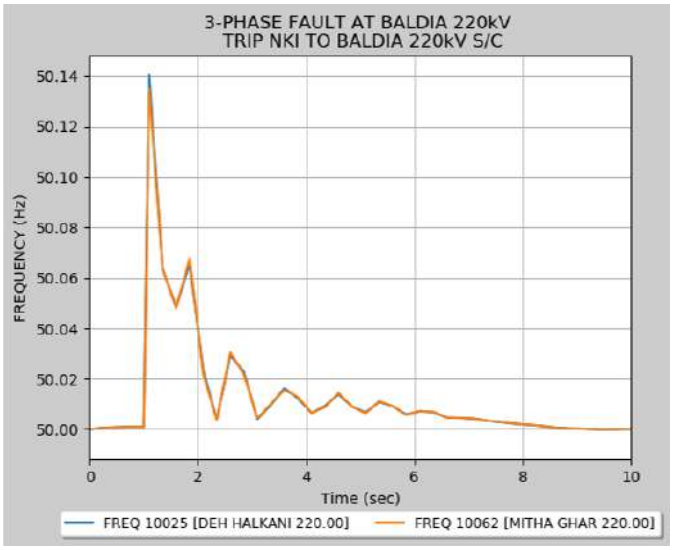

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 15200 [SURJANI 132 132.00]
VOLT 10020 [KDA-33 220.00]

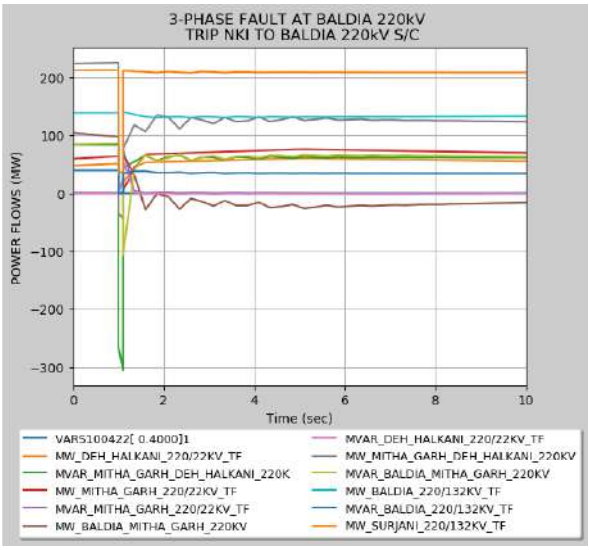

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 98[TEL CFPP 500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 93[SIDOSNS-CFPP500.00]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 10044[CCP 1 11.500]2

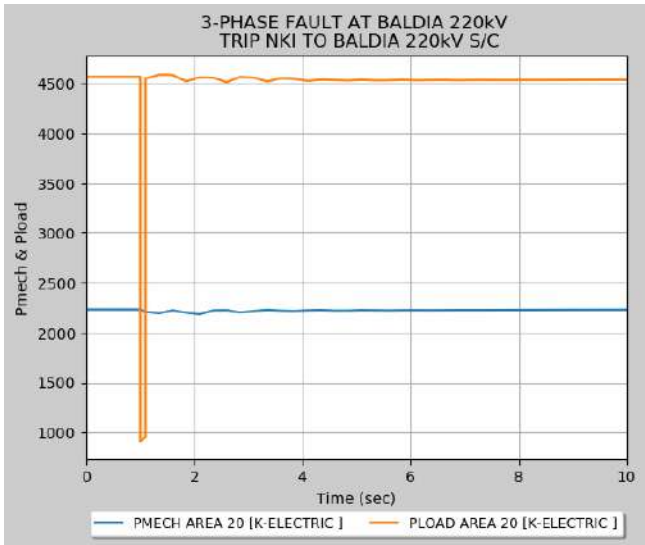

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

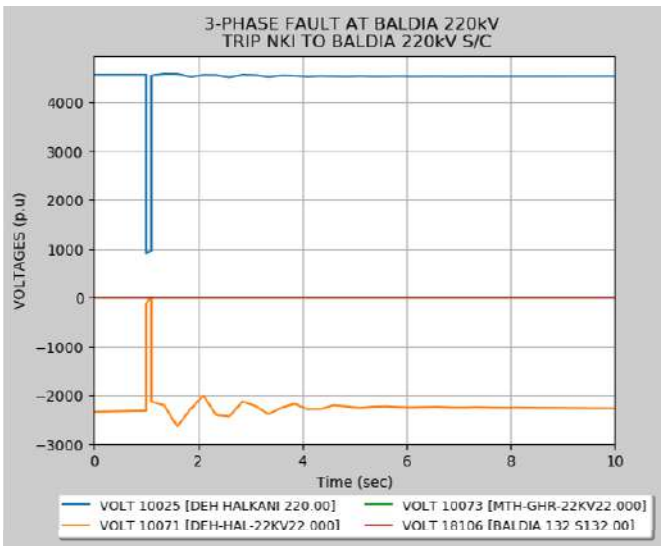

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
POWER FLOWS (MW)
Time (sec)
VARS100422[0.4000]1
MVAR_DEH_HALKANI_220/22KV_TF
MW_DEH_HALKANI_220/22KV_TF
MW_MITHA_GARH_DEH_HALKANI_220KV
MVAR_MITHA_GARH_DEH_HALKANI_220K
MVAR_BALDIA_MITHA_GARH_220KV
MW_MITHA_GARH_220/22KV_TF
MW_BALDIA_220/132KV_TF
MVAR_MITHA_GARH_220/22KV_TF
MVAR_BALDIA_220/132KV_TF
MW_BALDIA_MITHA_GARH_220KV
MW_SURJANI_220/132KV_TF

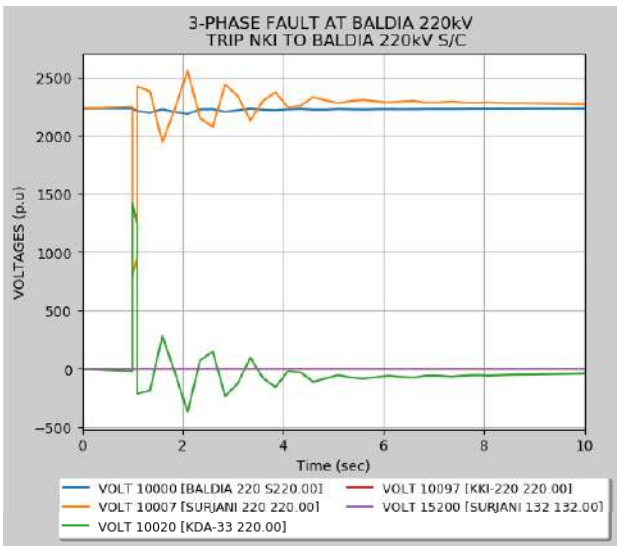

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 98[TEL CFPP 500.00]1
ANGL 931[SIDOSNS-CFPP500.00]1
ANGL 10044[CCP 1 11.500]2

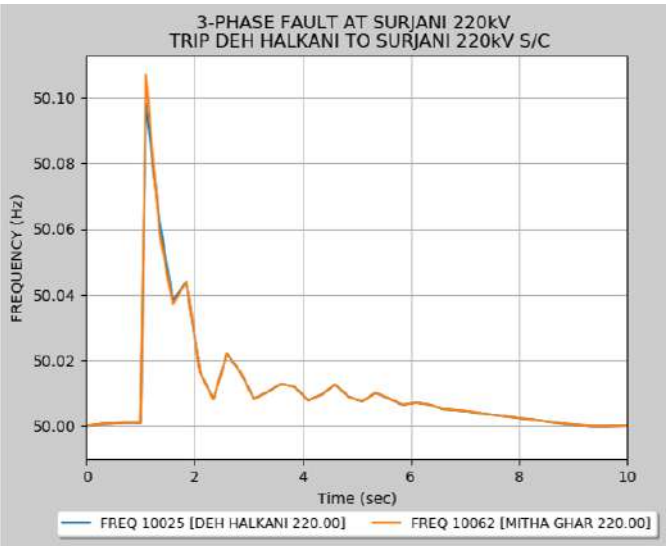

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

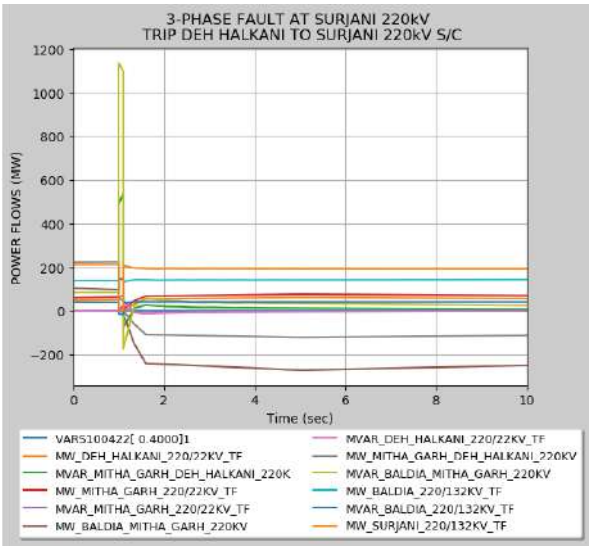

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
POWER FLOWS (MW)
Time (sec)
VAR5100422[0.4000]1
MW_DEH_HALKANI_220/22KV_TF
MVAR_MITHA_GARH_DEH_HALKANI_220K
MW_MITHA_GARH_220/22KV_TF
MVAR_MITHA_GARH_220/22KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_DEH_HALKANI_220/22KV_TF
MW_MITHA_GARH_DEH_HALKANI_220KV
MVAR_BALDIA_MITHA_GARH_220KV
MW_BALDIA_220/132KV_TF
MVAR_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF

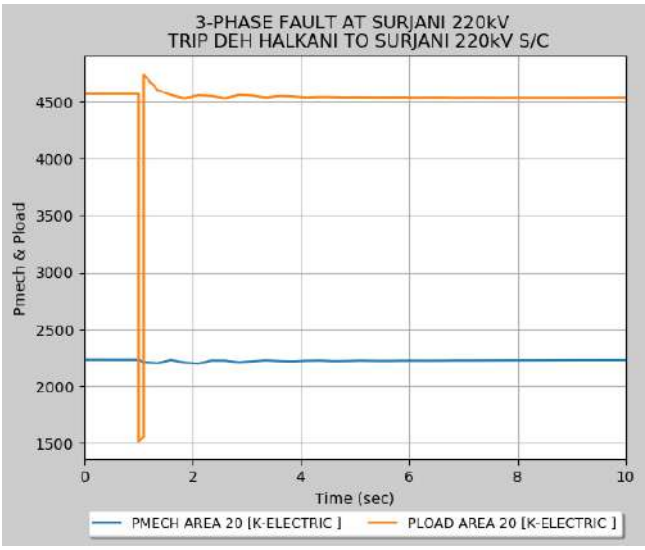

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

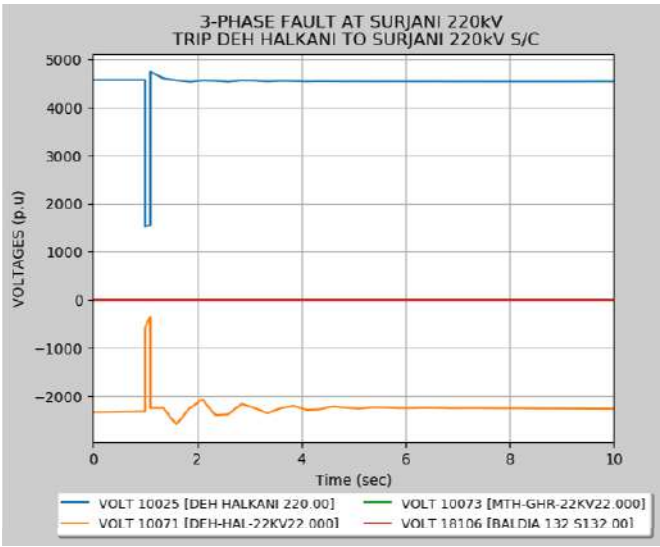

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

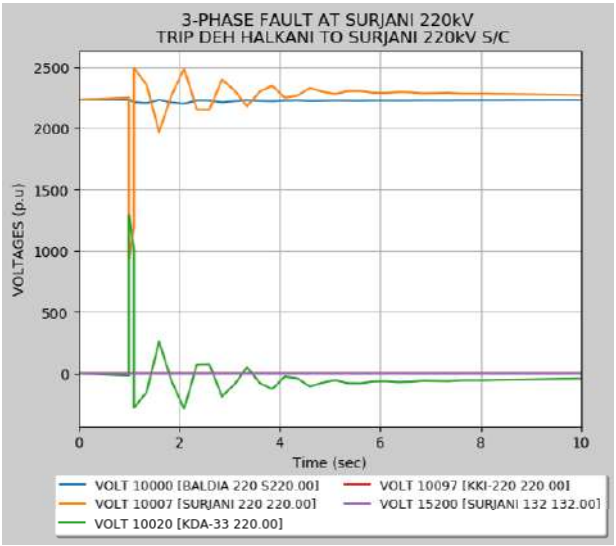

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 10020 [KDA-33 220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 15200 [SURJANI 132 132.00]

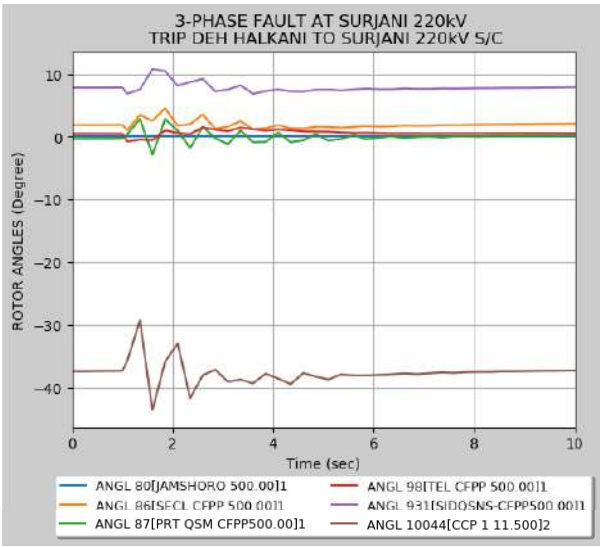

3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]


3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
POWER FLOWS (MW)
Time (sec)
VARS100422[0.4000]1
MW_DEH_HALKANI_220/22KV_TF
MVAR_MITHA_GARH_DEH_HALKANI_220K
MW_MITHA_GARH_220/22KV_TF
MVAR_MITHA_GARH_220/22KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_DEH_HALKANI_220/22KV_TF
MW_MITHA_GARH_DEH_HALKANI_220KV
MVAR_BALDIA_MITHA_GARH_220KV
MW_BALDIA_220/132KV_TF
MVAR_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF


3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

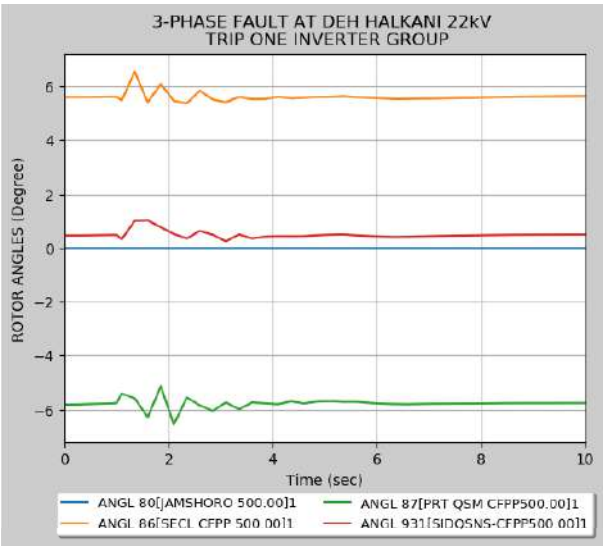

3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

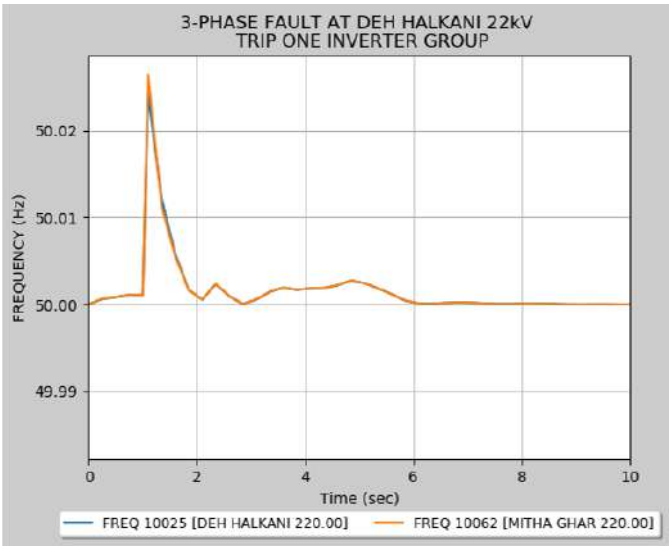

3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 15200 [SURJANI 132 132.00]
VOLT 10020 [KDA-33 220.00]

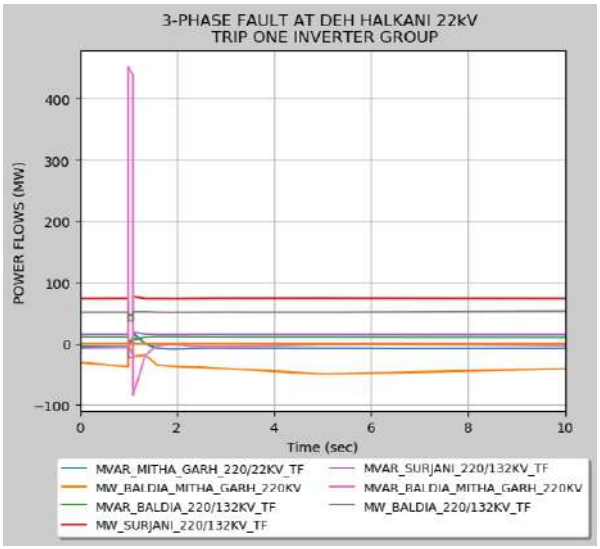

3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 98[TEL CFPP 500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 93[SIDDSNS-CFPP500.00]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 10044[CCP 1 11.500]2

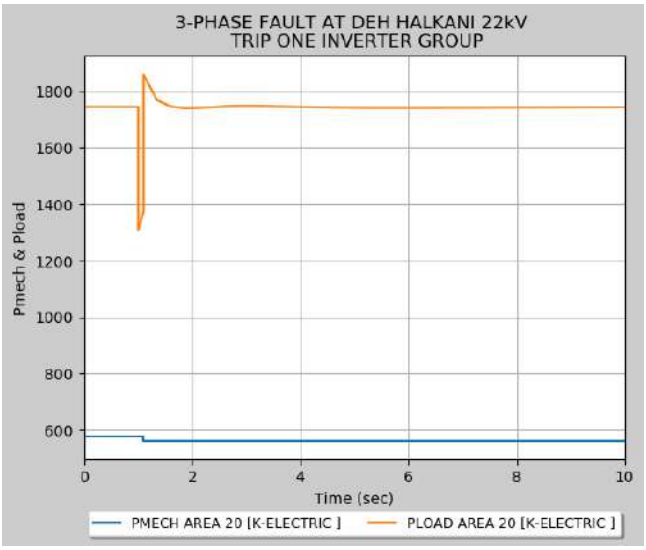
Appendix - D - 4

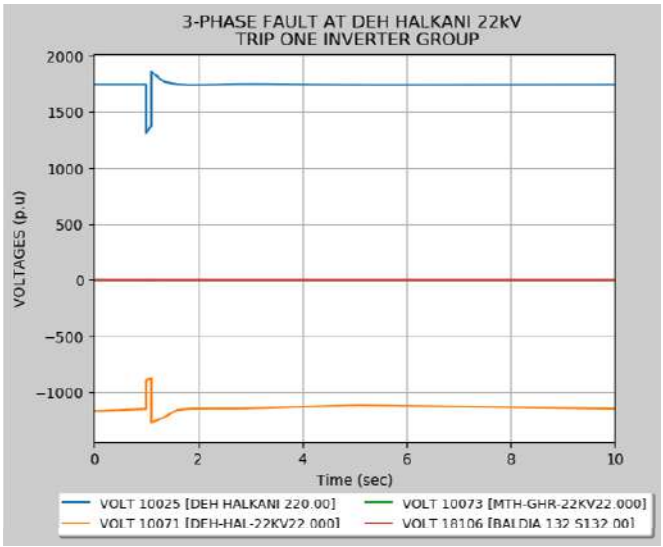
Plotted Results of Stability Analysis for
Off-Peak Summer 2027
Maximum Solar-Average Wind Without RPC

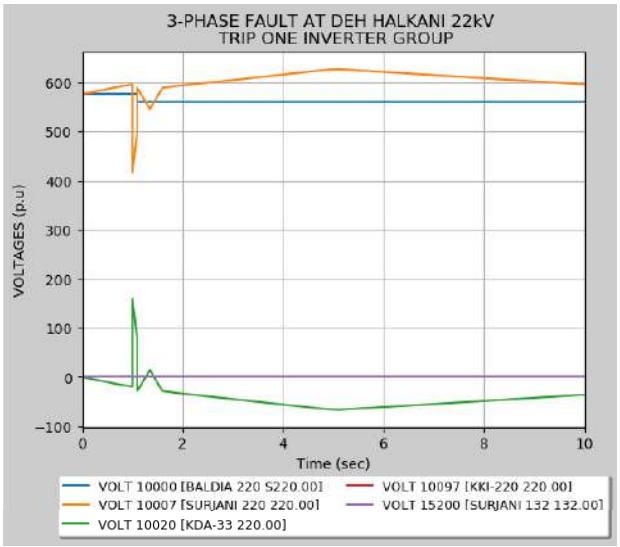

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 931[SIDQSNS-CFPP500.00]1

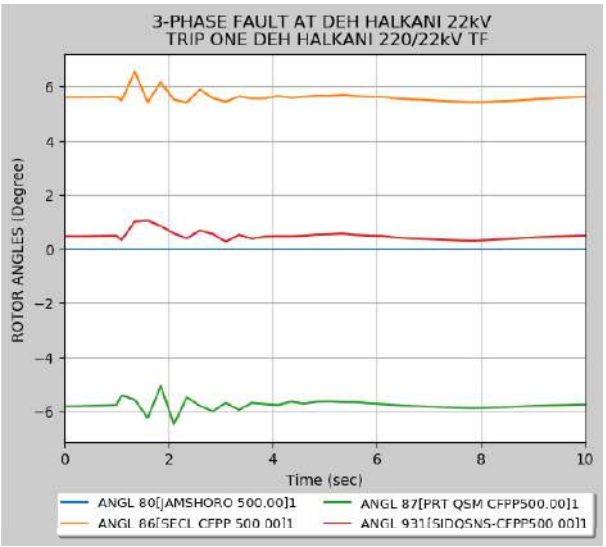

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

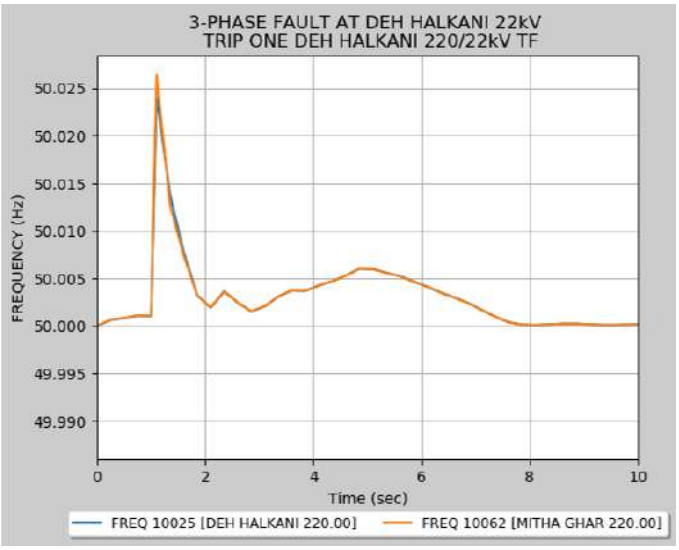

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
POWER FLOWS (MW)
Time (sec)
MVAR_MITHA_GARH_220/22KV_TF
MVAR_SURJANI_220/132KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_220/132KV_TF
MW_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF

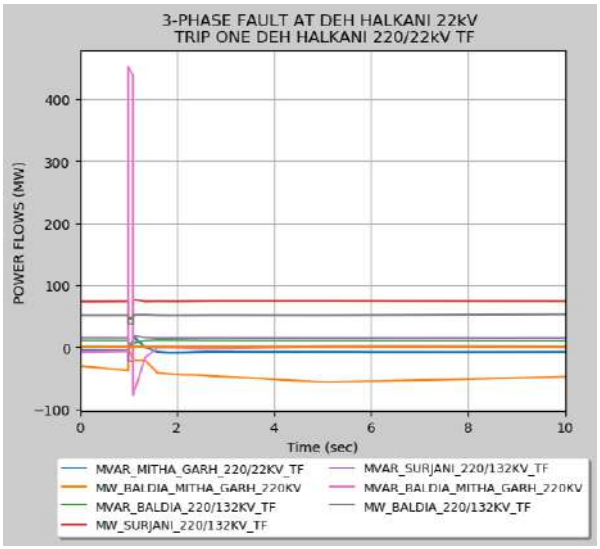

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

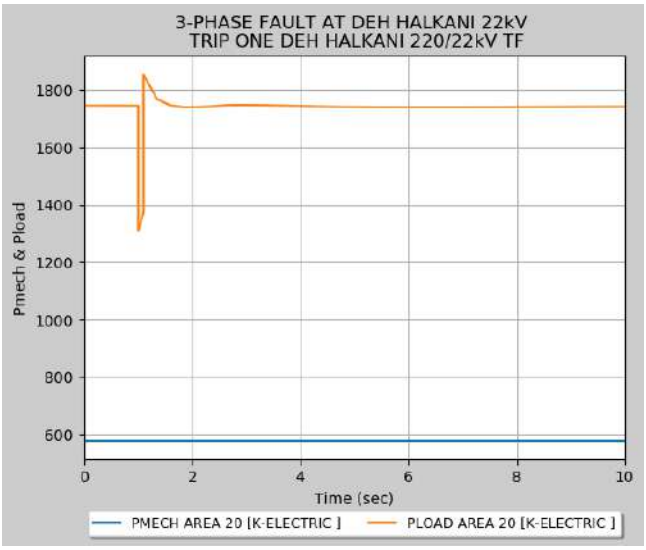

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

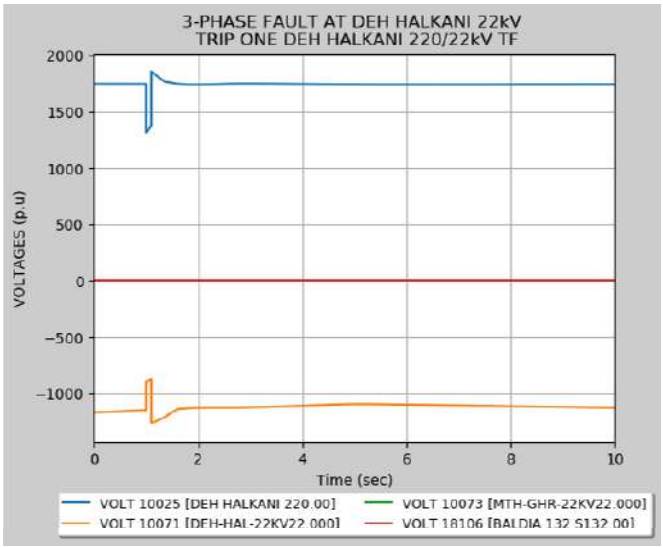

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE INVERTER GROUP
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 15200 [SURJANI 132 132.00]
VOLT 10020 [KDA-33 220.00]

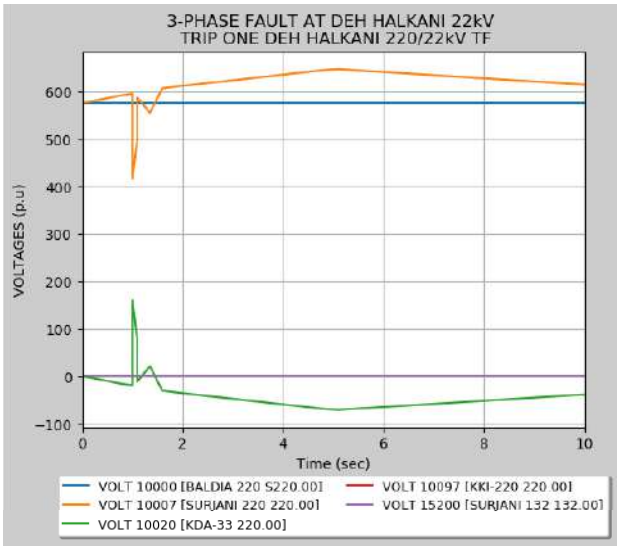

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 931[SIDQSNS-CFPP500.00]1

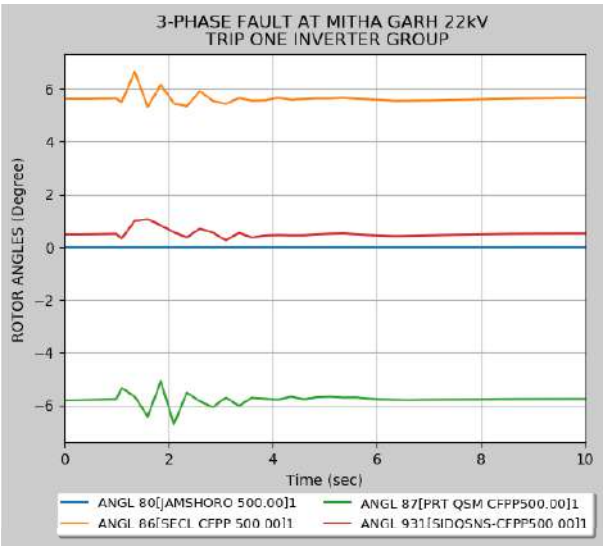

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

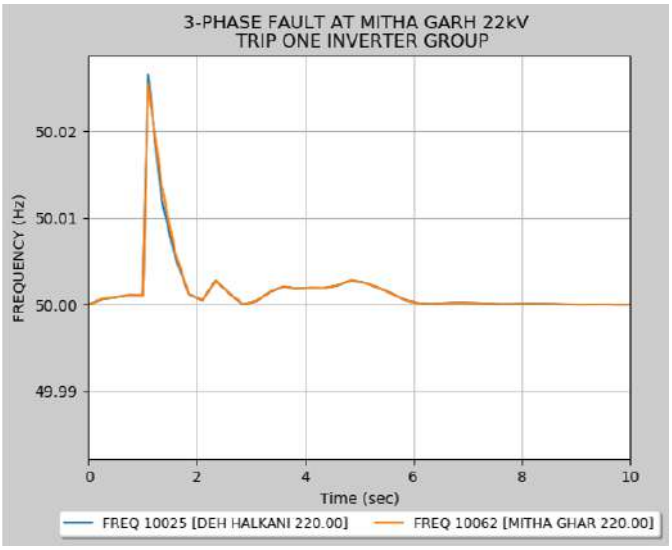

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
POWER FLOWS (MW)
Time (sec)
MVAR_MITHA_GARH_220/22KV_TF
MVAR_SURJANI_220/132KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_220/132KV_TF
MW_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF

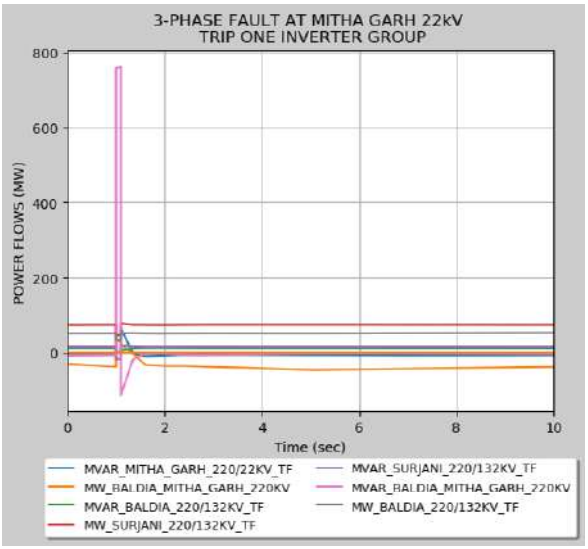

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

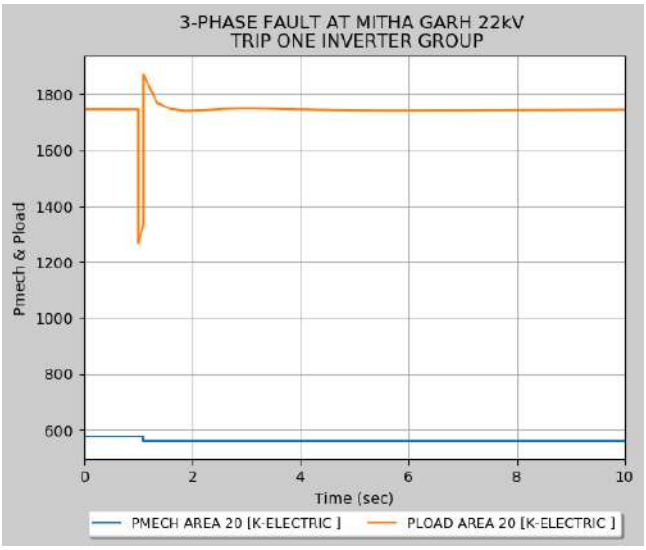

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

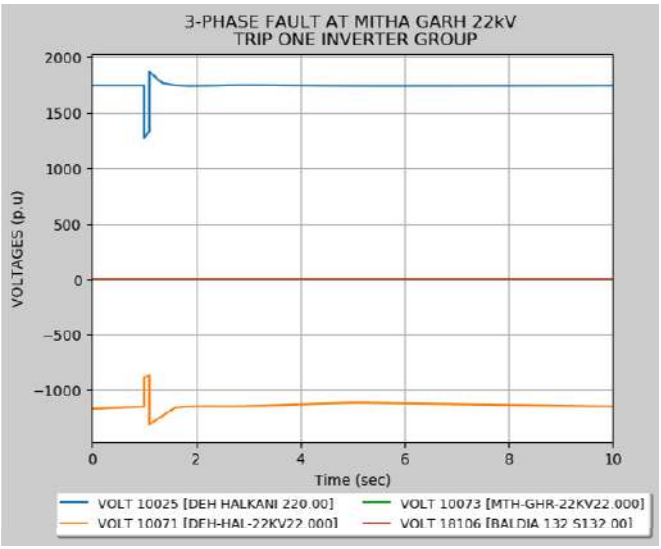

3-PHASE FAULT AT DEH HALKANI 22kV
TRIP ONE DEH HALKANI 220/22kV TF
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 15200 [SURJANI 132 132.00]
VOLT 10020 [KDA-33 220.00]

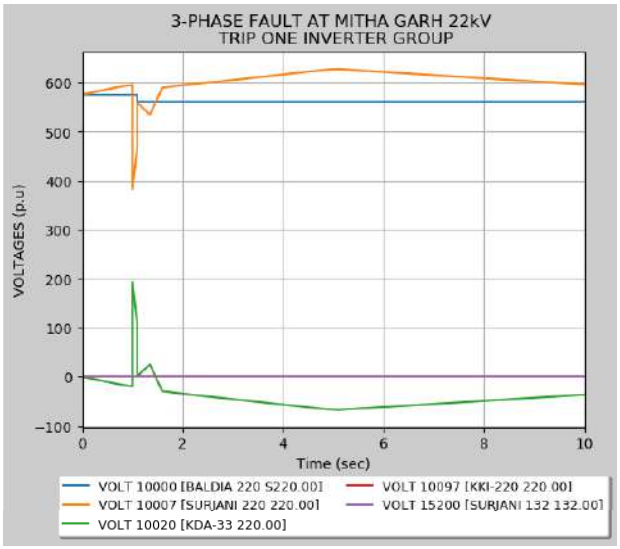

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 931[SIDQSNS-CFPP500.00]1

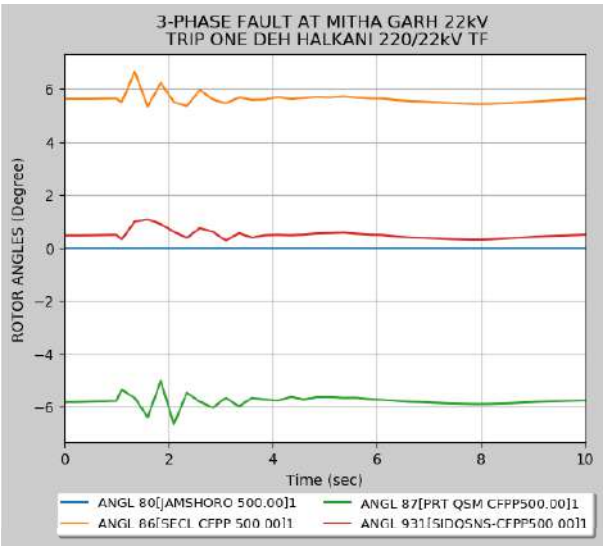

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

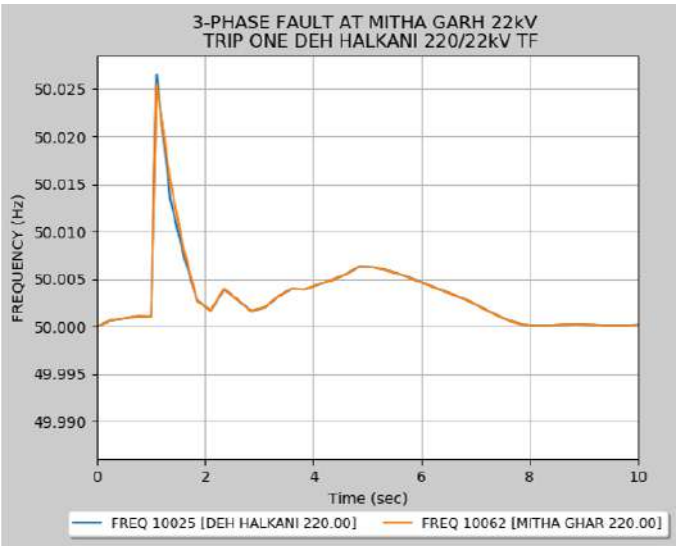

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
POWER FLOWS (MW)
Time (sec)
MVAR_MITHA_GARH_220/22KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF
MVAR_SURJANI_220/132KV_TF
MVAR_BALDIA_MITHA_GARH_220KV
MW_BALDIA_220/132KV_TF

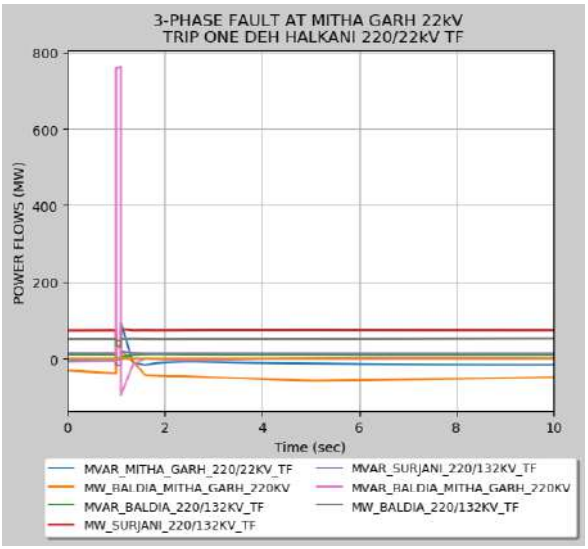

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

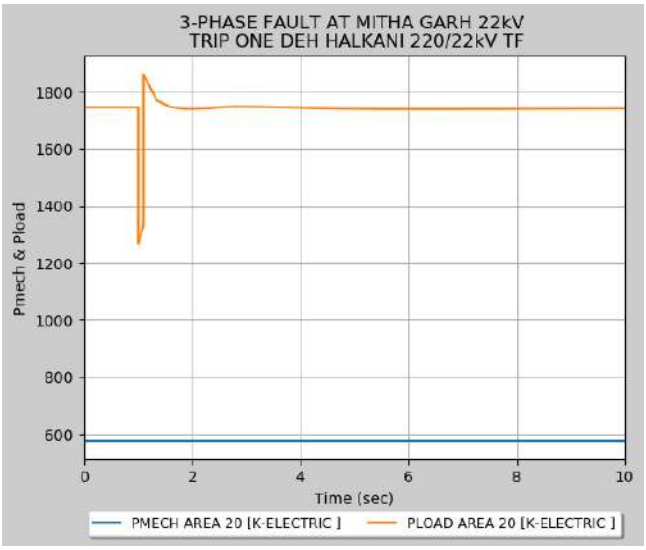

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

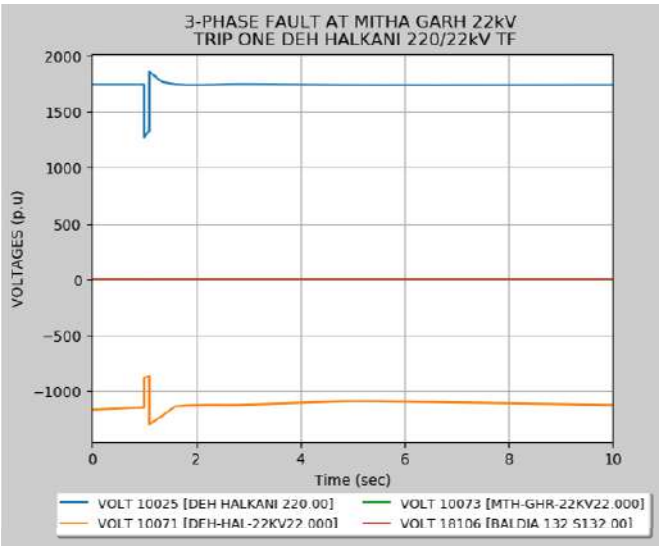

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE INVERTER GROUP
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 10020 [KDA-33 220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 15200 [SURJANI 132 132.00]

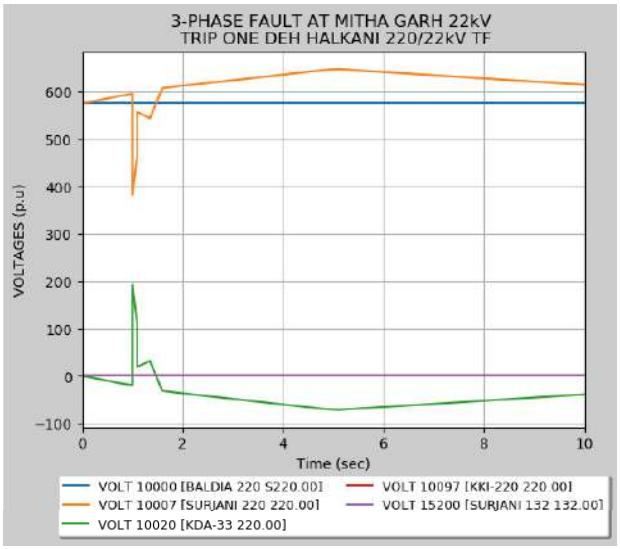

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 931[SIDQSNS-CFPP500.00]1

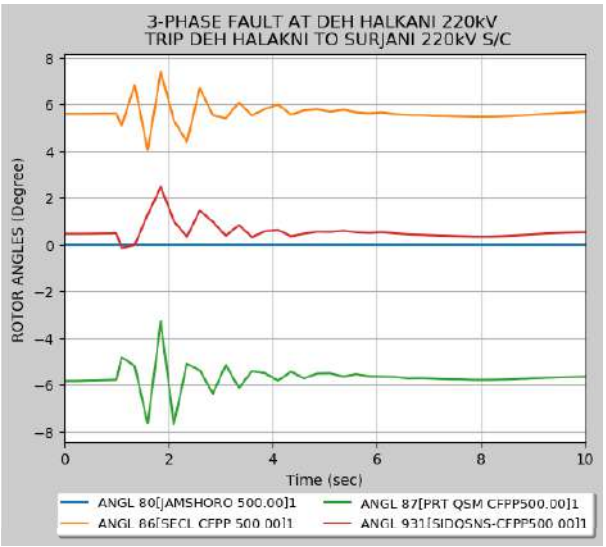

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

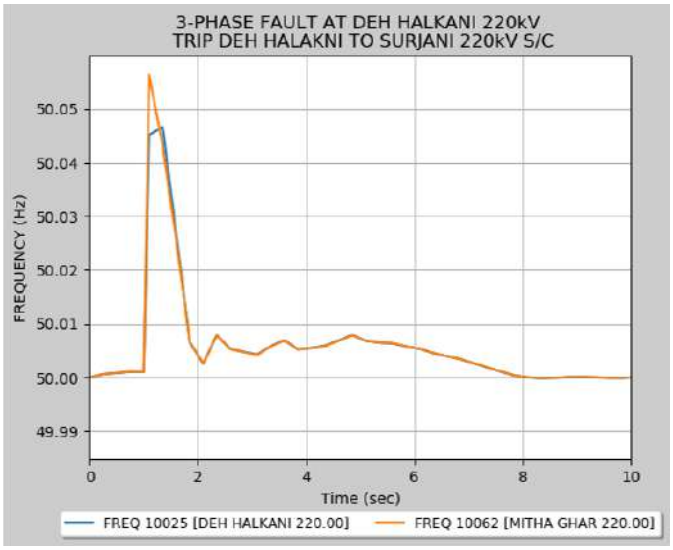

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
POWER FLOWS (MW)
Time (sec)
MVAR_MITHA_GARH_220/22KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF
MVAR_SURJANI_220/132KV_TF
MVAR_BALDIA_MITHA_GARH_220KV
MW_BALDIA_220/132KV_TF

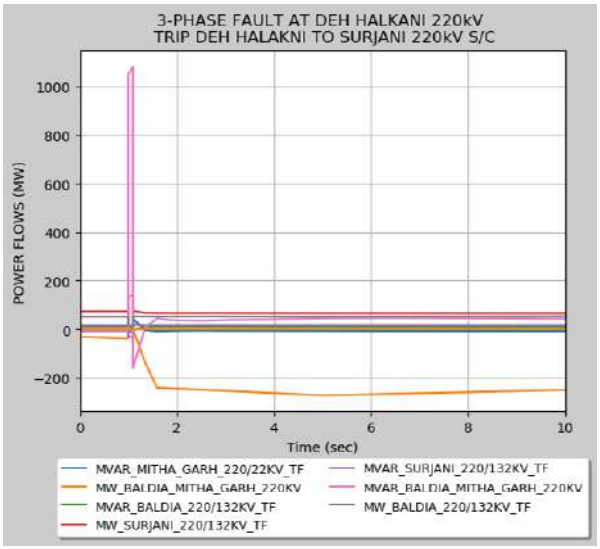

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

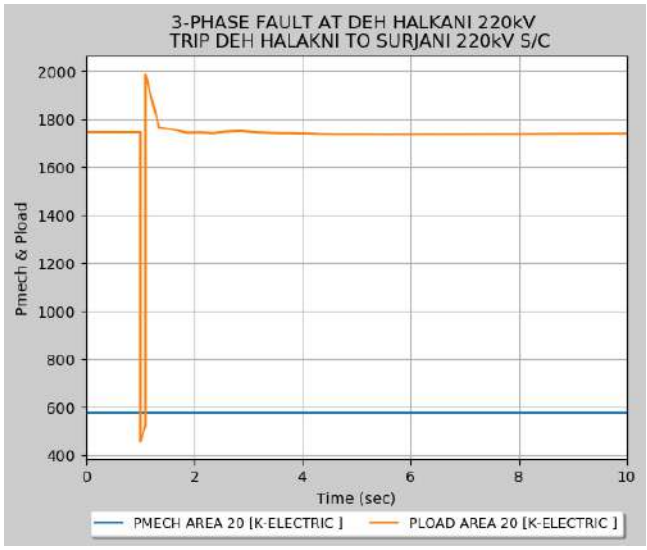

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

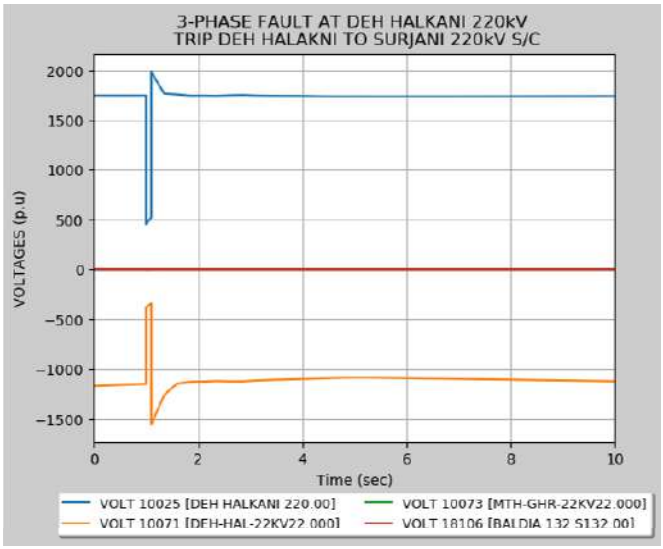

3-PHASE FAULT AT MITHA GARH 22kV
TRIP ONE DEH HALKANI 220/22kV TF
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 10020 [KDA-33 220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 15200 [SURJANI 132 132.00]

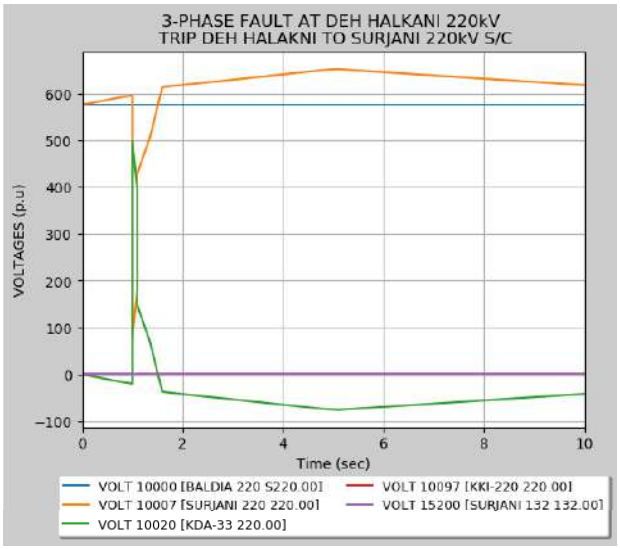

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 931[SIDQSNS-CFPP500.00]1

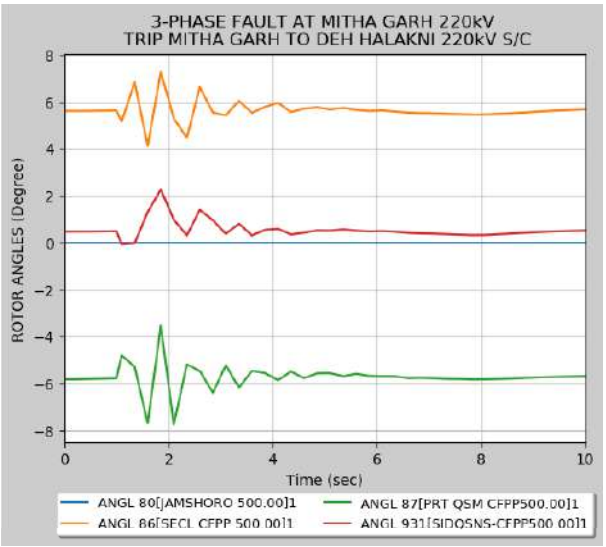

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

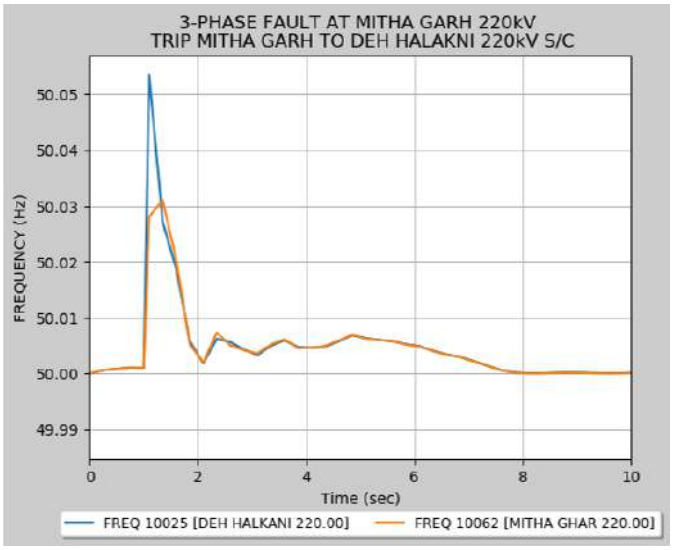

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
POWER FLOWS (MW)
Time (sec)
MVAR_MITHA_GARH_220/22KV_TF
MVAR_SURJANI_220/132KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_220/132KV_TF
MW_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF

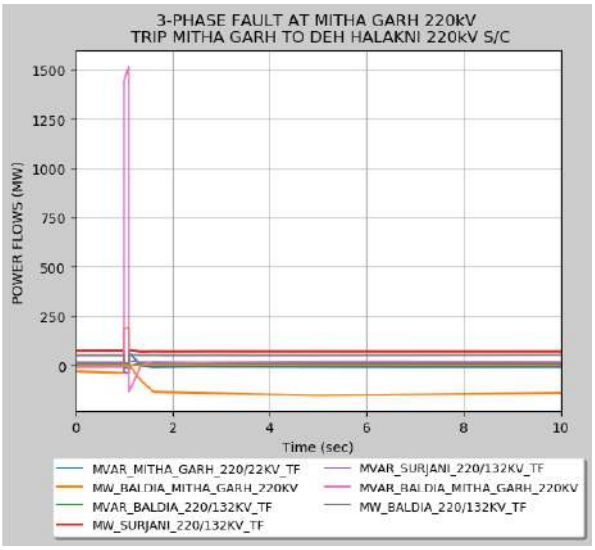

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

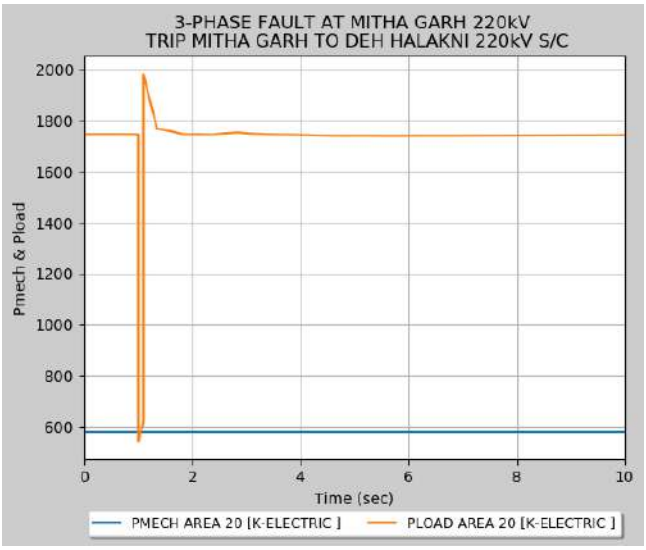

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

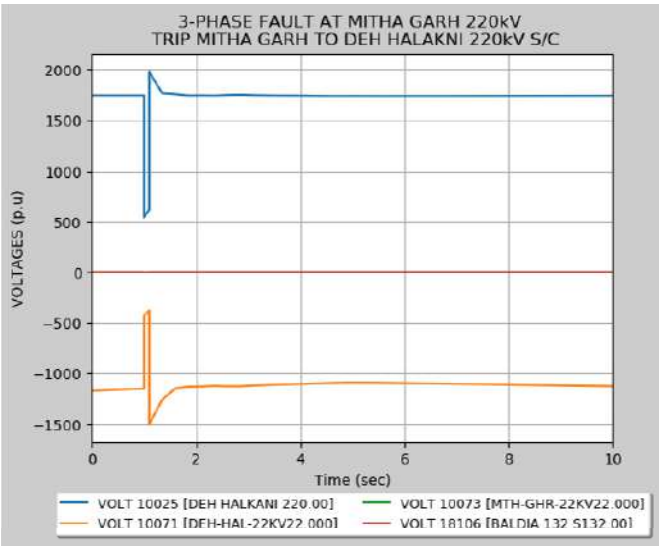

3-PHASE FAULT AT DEH HALKANI 220kV
TRIP DEH HALAKNI TO SURJANI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 15200 [SURJANI 132 132.00]
VOLT 10020 [KDA-33 220.00]

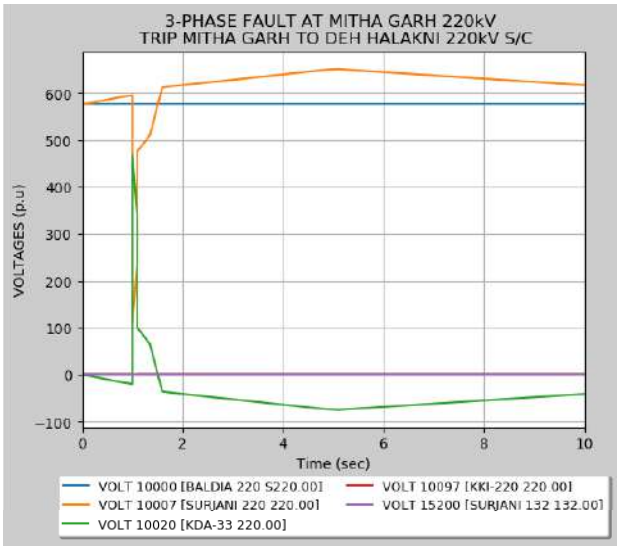

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 931[SIDQSNS-CFPP500.00]1

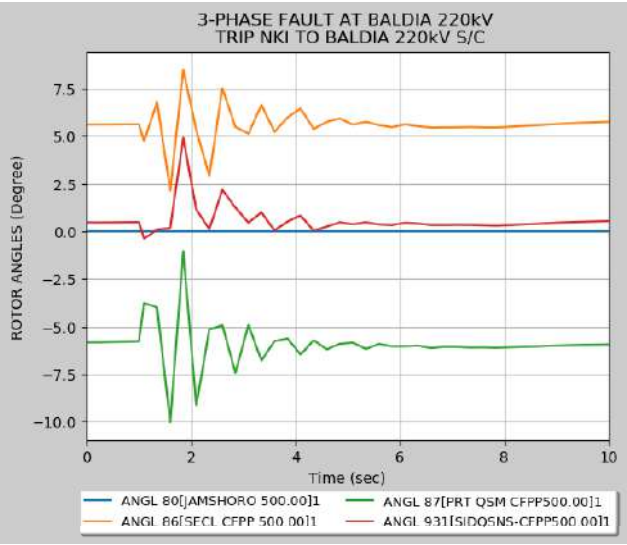

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

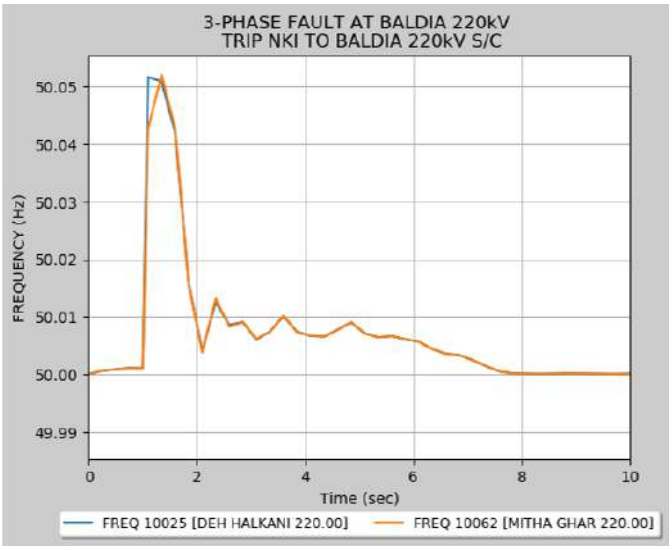

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
POWER FLOWS (MW)
Time (sec)
MVAR_MITHA_GARH_220/22KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF
MVAR_SURJANI_220/132KV_TF
MVAR_BALDIA_MITHA_GARH_220KV
MW_BALDIA_220/132KV_TF

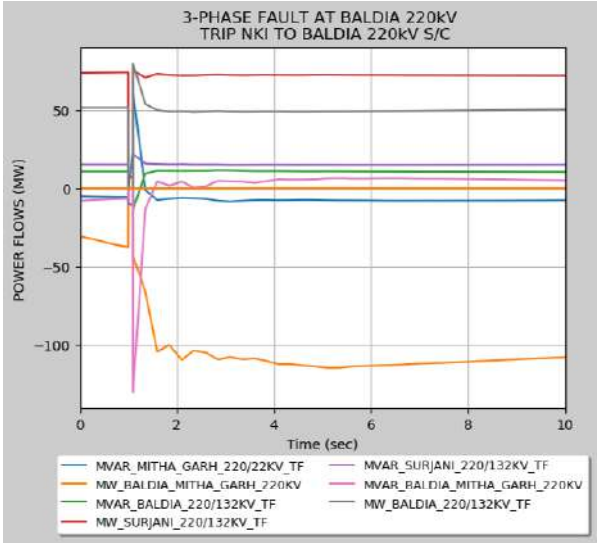

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

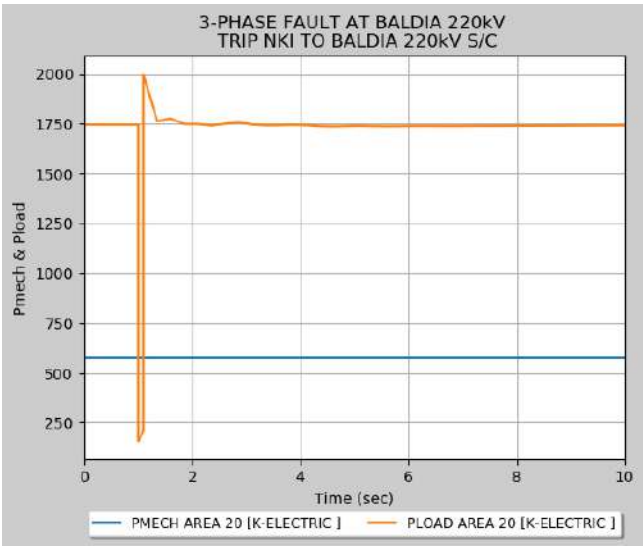

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

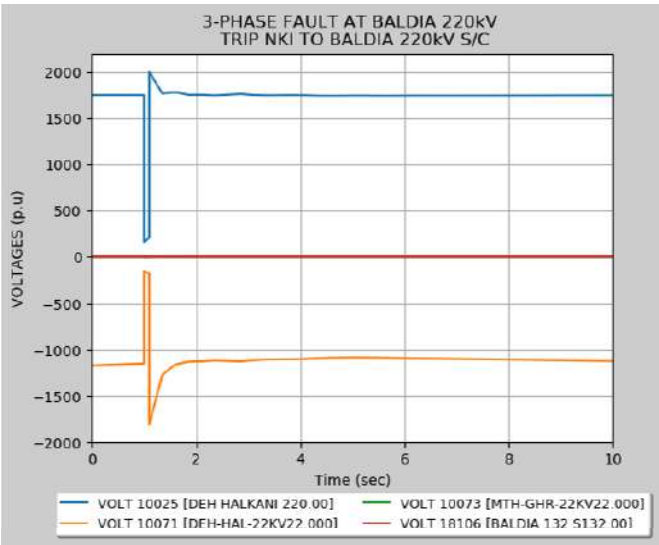

3-PHASE FAULT AT MITHA GARH 220kV
TRIP MITHA GARH TO DEH HALAKNI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 15200 [SURJANI 132 132.00]
VOLT 10020 [KDA-33 220.00]

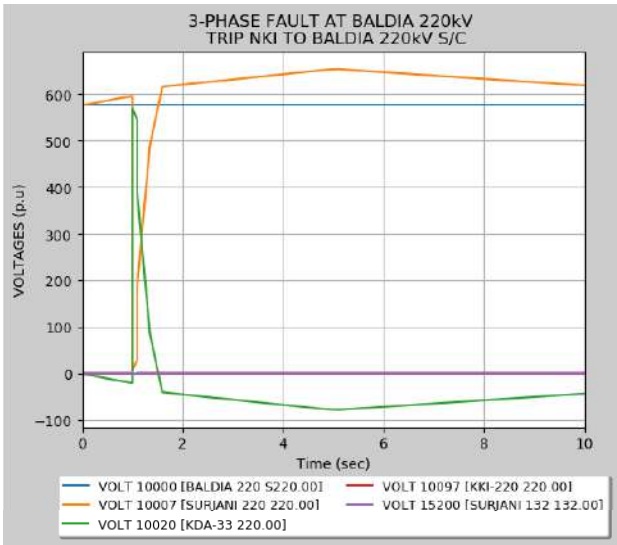

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 931[SIDQSNS-CFPP500.00]1

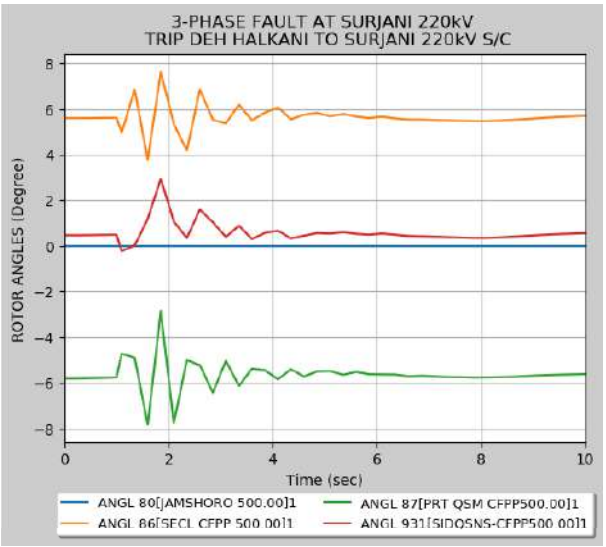

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]

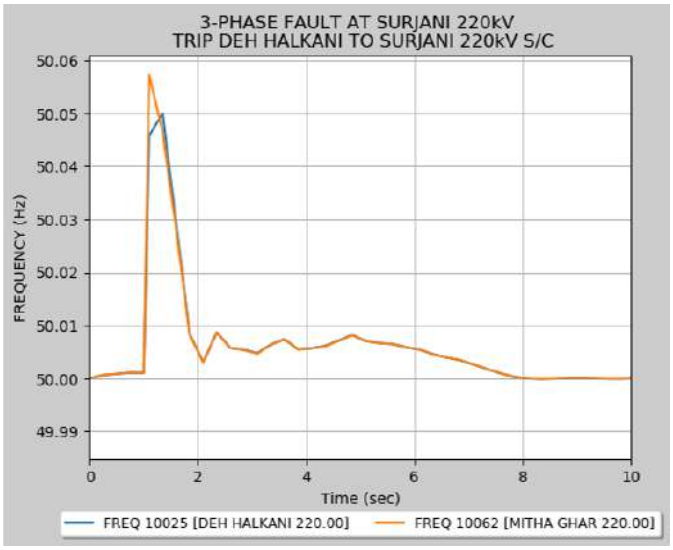

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
POWER FLOWS (MW)
Time (sec)
MVAR_MITHA_GARH_220/22KV_TF
MVAR_SURJANI_220/132KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_220/132KV_TF
MW_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF

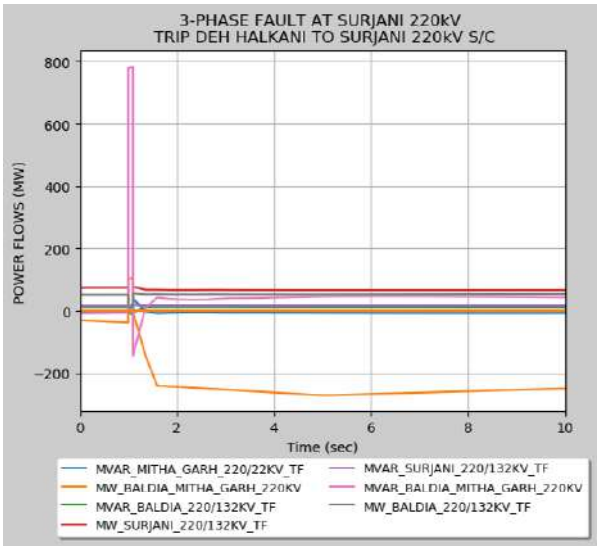

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]

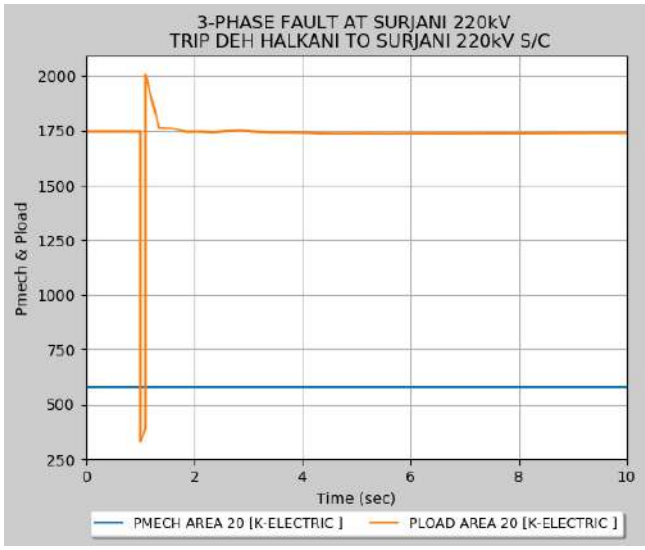

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]

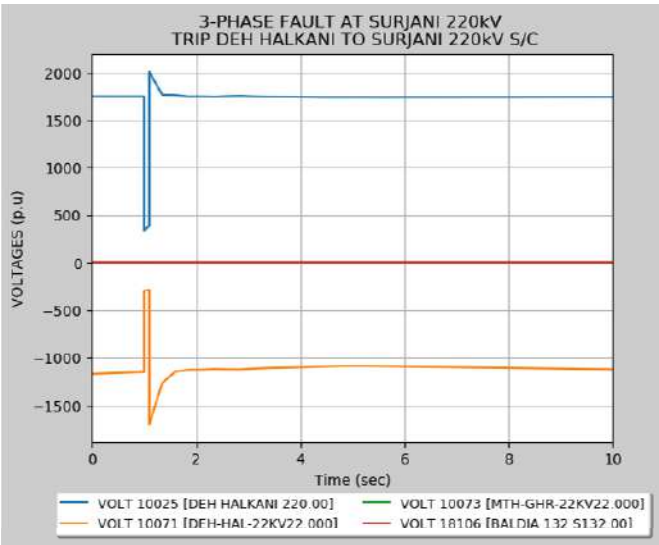

3-PHASE FAULT AT BALDIA 220kV
TRIP NKI TO BALDIA 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 15200 [SURJANI 132 132.00]
VOLT 10020 [KDA-33 220.00]

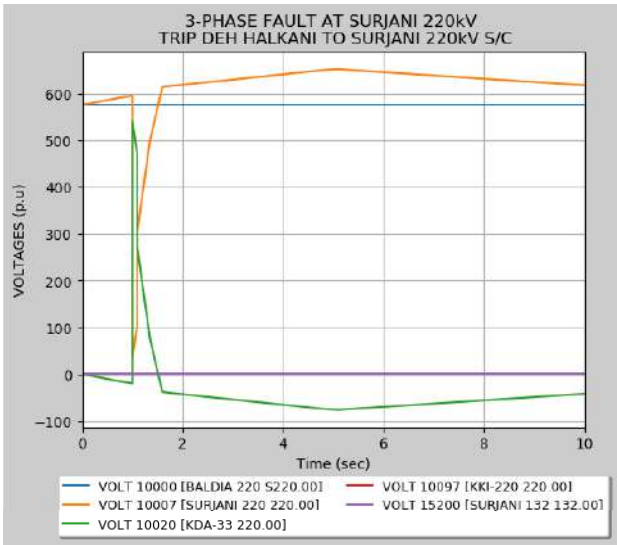

3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
ROTOR ANGLES (Degree)
Time (sec)
ANGL 80[JAMSHORO 500.00]1
ANGL 86[SECL CFPP 500.00]1
ANGL 87[PRT QSM CFPP500.00]1
ANGL 931[SIDQSNS-CFPP500.00]1


3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
FREQUENCY (Hz)
Time (sec)
FREQ 10025 [DEH HALKANI 220.00]
FREQ 10062 [MITHA GHAR 220.00]


3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
POWER FLOWS (MW)
Time (sec)
MVAR_MITHA_GARH_220/22KV_TF
MW_BALDIA_MITHA_GARH_220KV
MVAR_BALDIA_220/132KV_TF
MW_SURJANI_220/132KV_TF
MVAR_SURJANI_220/132KV_TF
MVAR_BALDIA_MITHA_GARH_220KV
MW_BALDIA_220/132KV_TF


3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
Pmech & Pload
Time (sec)
PMECH AREA 20 [K-ELECTRIC]
PLOAD AREA 20 [K-ELECTRIC]


3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10025 [DEH HALKANI 220.00]
VOLT 10071 [DEH-HAL-22KV22.000]
VOLT 10073 [MTH-GHR-22KV22.000]
VOLT 18106 [BALDIA 132 S132.00]


3-PHASE FAULT AT SURJANI 220kV
TRIP DEH HALKANI TO SURJANI 220kV S/C
VOLTAGES (p.u)
Time (sec)
VOLT 10000 [BALDIA 220 S220.00]
VOLT 10007 [SURJANI 220 220.00]
VOLT 10020 [KDA-33 220.00]
VOLT 10097 [KKI-220 220.00]
VOLT 15200 [SURJANI 132 132.00]

Appendix - E

Dynamic Data of Stability Analysis

Chapter - 7

120 MW Deh Halkani Solar Power Plant

PVGU1

Description	CONs Value
TIQCmd, Converter time constant for IQcmd, second	0.0200
TIpCmd, Converter time constant for IPcmd, second	0.0200
VLVPL1 - Low Voltage power Logic (LVPL), voltage 1 (pu)	0.4000
VLVPL2 - LVPL voltage 2 (pu)	0.9000
GLVPL - LVPL gain	1.1100
High Voltage reactive Current (HVRC) logic,voltage (pu)	1.2000
CURHVRCR - HVRC logic, current (pu)	2.0000
RIp_LVPL, Rate of active current change	2.0000
T_LVPL, Voltage sensor for LVPL, second	0.0200

PANELU1

Description	CONs Value
P200, PDCmax at 200 W/m2, pu	0.1600
P400, PDCmax at 400 W/m2, pu	0.3800
P600, PDCmax at 600 W/m2, pu	0.5900
P800, PDCmax at 800 W/m2, pu	0.8500
P1000, PDCmax at 1000 W/m2, pu	1.0000

PVEU1

Description	CONs Value
Tfv - V-regulator filter	0.1500
Kpv - V-regulator proportional gain	18.0000
Kiv - V-regulator integrator gain	5.0000
Kpp - T-regulator proportional gain	0.0500
Kip - T-regulator integrator gain	0.1000
Kf - Rate feedback gain	0.0000
Tf - Rate feedback time constant	0.0800
QMX - V-regulator max limit	0.4700
QMN - V-regulator min limit	-0.4700
IPMAX - Max active current limit	1.1000
TRV - V-sensor	0.0000
dPMX - Max limit in power PI controller (pu)	0.5000
dPMN - Min limit in power PI controller (pu)	-0.5000
T_POWER - Power filter time constant	0.0500
KQi - MVAR/Volt gain	0.1000
VMINCL	0.9000
VMAXCL	1.1000
KVi - Volt/MVAR gain	50.0000
Tv - Lag time constant in WindVar controller	0.0500
Tp - Pelec filter in fast PF controller	0.0500
ImaxTD - Converter current limit	1.7000
Iphl - Hard active current limit	1.1100
Iqhl - Hard reactive current limit	1.1100
PMAX of PV plant	20

IRRADU1

Description	CONs Value
T1, Time of the first data point, second	5.0000
I1, Irradiance at first data point, W/m2	181.6000
T2, Time of the second data point, second	10.0000
I2, Irradiance at second data point, W/m2	163.5000
T3, Time of the third data point, second	15.0000
I3, Irradiance at third data point, W/m2	154.4000
T4, Time of the fourth data point, second	20.0000
I4, Irradiance at fourth data point, W/m2	145.3000
T5, Time of the fifth data point, second	25.0000
I5, Irradiance at fifth data point, W/m2	127.1000
T6, Time of the sixth data point, second	30.0000
I6, Irradiance at sixth data point, W/m2	109.0000
T7, Time of the seventh data point, second	35.0000
I7, Irradiance at seventh data point, W/m2	127.1000
T8, Time of the eigth data point, second	0.0000
I8, Irradiance at eigth data point, W/m2	0.0000
T9, Time of the ninth data point, second	0.0000
I9, Irradiance at ninth data point, W/m2	0.0000
T10, Time of the tenth data point, second	0.0000
I10, Irradiance at tenth data point, W/m2	0.0000