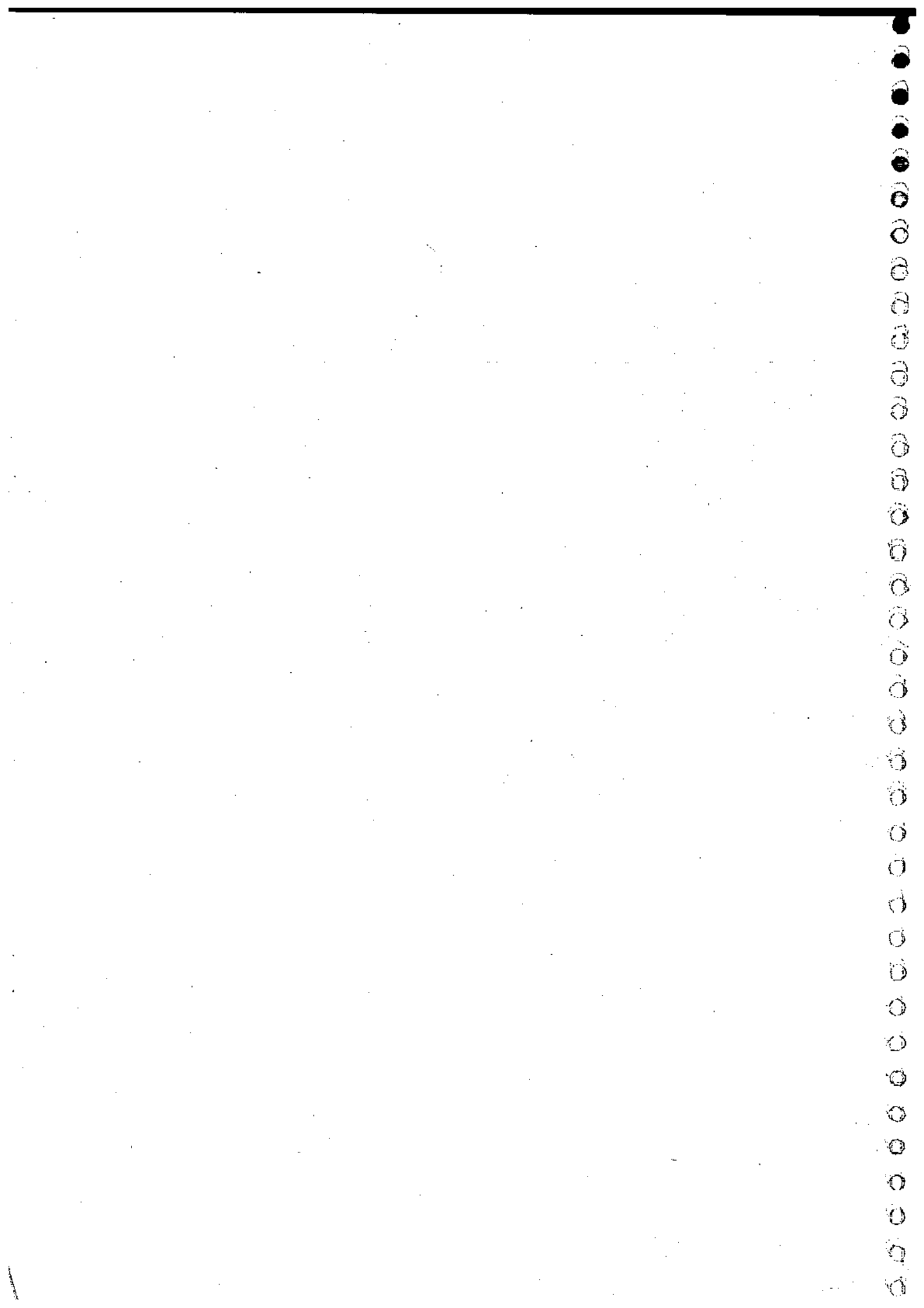


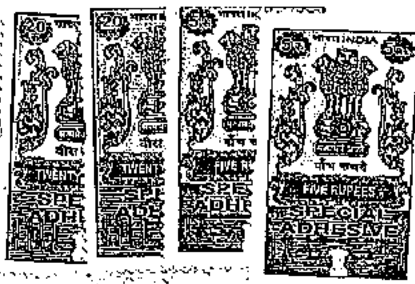
**CAPITAL INVESTMENT PLAN FOR
MYT CONTROL PERIOD FROM
FY 2017-18 TO FY 2019-20**

Submitted by



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**BEFORE THE PUNJAB STATE ELECTRICITY REGULATORY COMMISSION
CHANDIGARH**

FILING NO.....

IN PETITION NO.....

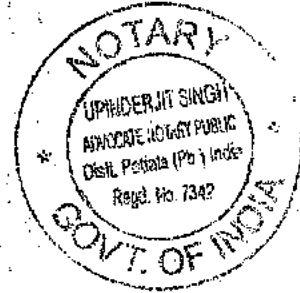
IN THE MATTER OF:

Approval of PSTCL's Capital Investment Plan for MYT Control Period (FY 2017-18 to FY 2019-20) under Section 62 and 64 of the Electricity Act, 2003 read with Regulation-9 of PSERC (Terms and Conditions of Determination of Generation, Transmission, Wheeling and Retail Supply Tariff) Regulations, 2014.

AND

IN THE MATTER OF:

Punjab State Transmission Corporation Limited.
Regd. Office: PSEB H.O. The Mall, Patiala.



AFFIDAVIT

I, Vinod Bansal, son of late Shri Kedar Nath Bansal aged 51 residing at Patiala do hereby solemnly affirms and state as under:

I am the Financial Advisor of Punjab State Transmission Corporation Limited, the petitioner in the above matter and am duly authorised by the Corporation to make this affidavit on its behalf.

The statement made in Sections 1 to 4 of the petition are true to my knowledge and are based on the information collected from the concerned offices of the PSTCL and believe them to be true.

The Contents of this Affidavit document have been read over to the deponent He/She has accepted found & Correct.

DEPONENT
CA. Vinod Bansal

VERIFICATION:

I, the deponent above named do hereby verify that the content of my above affidavit are true to my knowledge and belief and nothing material has been concealed there from.

Verified at Patiala on the date of 27th May, 2016.

Identify the Deponent/Person to whom I know personally

Attested As Identified

NOTARY PUBLIC
PATIALA (PUNJAB)

DEPONENT
CA. Vinod Bansal

27 MAY 2016

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(Avtar Singh)

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24/1/50

AVTAR SINGH
Lic No. 422 HRC
Dist. Courts, Patiala

BEFORE THE PUNJAB STATE ELECTRICITY REGULATORY COMMISSION,
CHANDIGARH

Case No. _____

IN THE MATTER OF: Filing of the Petition for the approval of PSTCL's Capital Investment Plan for MYT Control Period (FY 2017-18 to FY 2019-20) under Section 62 and 64 of the Electricity Act, 2003 read with Regulation 9 of PSERC (Terms and Conditions of Determination of Generation, Transmission, Wheeling and Retail Supply Tariff) Regulations, 2014

AND

IN THE MATTER OF Punjab State Transmission Corporation Limited
(hereinafter referred as "PSTCL" or "the Petitioner")

The Petitioner respectfully submits as under: -

1. The Petitioner is a transmission licensee for transmission of electricity in the areas as notified by the Government of Punjab vide Notification No. 1/9/08-EB(PR) 196 dated April 16, 2010. PSTCL is vested with the function of intra-State transmission of electricity in the State of Punjab and the operation of State Load Despatch Centre. Further, in terms of Section 39 of the Act, the Government of Punjab declared PSTCL as the State Transmission Utility (STU).
2. The Petitioner submits that the Hon'ble Commission has issued the PSERC (Terms and Conditions of Determination of Generation, Transmission, Wheeling and Retail Supply Tariff) Regulations, 2014 (hereinafter referred to

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as "PSERC MYT Regulations, 2014") in exercise of powers conferred on it by Section 61 read with Section 181(2) of the Electricity Act 2003 (No. 36 of 2003) and to enable determination of Capital Investment as per Regulation 9 of the said Regulations. The said Regulations shall be applicable to Generating Stations, Transmission system, SLDC and Distribution system where tariff for generation and transmission is not determined under Section 63 of the Electricity Act, 2003 through transparent process of competitive bidding in accordance with the guidelines issued by the Central Government.

3. The PSTCL has to file the Capital Investment Plan for the Hon'ble Commission's approval on or before 1st April of the year preceding the first year of the Control Period, i.e., on or before April 1, 2016, for a duration covering at least the entire Control Period.
4. However, PSTCL did not receive the data related to capital investment schemes from PSPCL in time. Hence, PSTCL filed a Petition before Hon'ble Commission to seek extension of timeline for filing the present Petition from March 31, 2016 to May 31, 2016. Hon'ble Commission vide Order dated April 1, 2016 granted the extension in timeline for filing of present Petition till May 31, 2016.
5. Accordingly, in line with the provisions of the PSERC MYT Regulations 2014, the Petitioner is hereby filing the Petition for Approval of Capital Investment Plan for the Control Period from FY 2017-18 to FY 2019-20.

PRAYER TO THE HON'BLE COMMISSION

The Petitioner respectfully prays to the Commission:

- a) to admit the Petition seeking approval of Capital Investment Plan for FY 2017-18 to FY 2019-20 in accordance with Regulation 9 of the PSERC MYT Regulations, 2014;

- b) to approve the Capital Investment Plan for Transmission and SLDC Business for FY 2017-18 to FY 2019-20 as proposed by the Petitioner in the above-said Petition;
- c) to pass any other order/s as the Hon'ble Commission may deem fit and appropriate under the circumstances of the case and in the interest of justice;
- d) to condone any error/ omission and to give opportunity to rectify the same;
- e) The filing is being done based on the best available information and in case of any change, the Petitioner may be permitted to make further submissions, addition and alteration to this Petition as may be necessary from time to time.

Date: 27-05-2016


27/5/16
Petitioner

PSTCL, Patiala.

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1. Background

1.1 Regulatory Requirement

The Electricity Act, 2003 ("the Act") was enacted by the Parliament of India on June 10, 2003 (No. 36 of 2003), which mandated the unbundling of the State Electricity Boards. In exercise of the powers conferred under sub-section 4 of Section 131 of the Act, the Government of Punjab vide Notification No. 1/9/08-EB(PR) 196 dated April 16, 2010, restructured and unbundled the erstwhile Punjab State Electricity Board, into two successor companies, viz.

- a) Punjab State Power Corporation Ltd. (PSPCL), to undertake generation and distribution business,
- b) Punjab State Transmission Corporation Ltd. (PSTCL), to undertake transmission of electricity along with operation of SLDC functions.

PSTCL was incorporated as a Company under the provisions of the Companies Act, 1956 having its registered office at The Mall, Patiala. PSTCL is vested with the function of intra-State transmission of electricity in the State of Punjab. Further, in terms of Section 39 of the Act, Government of Punjab declared PSTCL as the State Transmission Utility, which is responsible for undertaking, amongst others, the following main functions:

- a) To undertake transmission of electricity through intra-State transmission system.
- b) To discharge all functions of planning and co-ordination relating to intra-State transmission system.
- c) To ensure development of an efficient, co-ordinated and economical system of intra-State transmission lines.
- d) To provide open access.

Further, to increase private sector participation and to provide more certainty to the Utilities regarding tariff, most State Electricity Regulatory Commissions including the Hon'ble Punjab State Electricity Regulatory Commission (PSERC or the Hon'ble Commission) have moved from an annual tariff framework to a multi-year tariff (MYT) regime, with an aim to bring about clarity on regulatory principles, to reduce regulatory risks and to incentivize efficient operations by Utilities. The MYT framework provides greater regulatory certainty by providing Utilities a longer period to plan, forecast and implement their efficiency improvement plan.

The Hon'ble Commission notified the PSERC (Terms and Conditions for Determination of Generation, Transmission, Wheeling and Retail Supply Tariff) Regulations, 2014 (hereinafter referred as "PSERC MYT Regulations, 2014") on July 1, 2014. Further, as per the Hon'ble Commission's notification dated May 28, 2015, the effective date of enforcement of these Regulations shall be April 1, 2017 and the three year MYT Control Period is from FY 2017-18 to FY 2019-20.

The Regulation 9.1 of PSERC MYT Regulations, 2014 specifies as under:

"9.1. The Applicant shall file capital investment plan for approval by the Commission on or before 1st April of the year preceding the first year of the control period for a duration covering the control period. The capital investment plan shall include:

- a. Purpose of investment;*
- b. Broad Technical Specifications of the proposed investment and supporting details;*
- c. Capital Structure;*
- d. Capitalization Schedule;*
- e. Financing Plan, including identified sources of investment;*
- f. Physical targets;*
- g. Cost-benefit analysis;*
- h. Prioritization of proposed Investments;*

i. In case of generating company, the capital investment plan shall be commensurate with the capacity addition during the control period;

j. In case of transmission licensee, the purpose of investment shall include the following:

i. Nature of investment (evacuation project, system augmentation, system strengthening, IT related projects etc.)

ii. Details of physical parameters of the project such as circuit-kms, capacity in MVA, location of the project etc.

iii. Break-up of investment in capacitor banks, reduction in reactive power drawal and transmission losses.

k. Capital Investment in network expansion shall be based on Load Flow studies and in accordance with the requirements of the State Grid Code;

l. In addition to examination of above parameters, in case of transmission licensee and distribution licensee, the capital investment plan shall be linked to the improvement in quality of service, reliability, metering and reduction in transmission losses and distribution losses.

...

9.3. In case, the Commission approves lesser amount of capital expenditure than filed by the Applicant for approval, the Commission may allow the respective Applicant to determine the priority of schemes to be considered within the approved amount.

9.4. In case of generation and transmission business, the capital investment for Renovation and Modernization shall be made through an application with a Detailed Project Report elaborating the following elements: (i) Complete scope and justification; (ii) Estimated life extension of the generation or transmission asset; (iii) Improvement in performance parameters; (iv) Cost-benefit analysis; (v) Phasing of expenditure; (vi) Schedule of completion; (vii) Reference price level; (viii) Estimated completion cost; (ix) Other aspects.

...

9.6. The capital expenditure plan in case of generating station shall include cost of approved rehabilitation and resettlement (R&R) plan of the project in conformity with National R&R Policy and R&R package.

9.7. The Applicant shall submit all information/data as required by the Commission for necessary approval of the capital investment plan.

9.8. In the normal course, the Commission shall not revisit the approved capital investment plan during the control period. However, during the Annual Performance Review, the Commission shall monitor the year wise progress of the actual capital expenditure incurred by the Applicant vis-à-vis the approved capital expenditure.

In case, during the Annual Performance Review, the actual cumulative (up to the current year starting from first year of the control period) capital expenditure incurred is less by 15% of the approved cumulative capital expenditure, the Commission shall true-up the costs incidental to the actual capital expenditure in the current year and remaining years of the control period: Provided that the actual capital expenditure incurred shall be only for the schemes as per the approved capital investment plan.

9.9. In case the capital expenditure is required for emergency work which has not been approved in the capital investment plan, the respective Applicant shall submit an application (containing all relevant information along with reasons justifying emergency nature of the proposed work) seeking approval by the Commission. The Applicant shall take up the work prior to the approval of the Commission provided that the emergency nature of the scheme has been approved by its Board of Directors:

Provided that the Applicant shall submit the pending details required as per Regulation 9.1 within 10 days of the submission of the application for emergency work; Provided that for the purpose of Regulation 9.9, such approved capital expenditure shall be treated as a part of actual capital expenditure incurred by the Applicant as well as the approved capital expenditure by the Commission.

9.10. In case the capital expenditure incurred for approved schemes exceeds the amount as approved in the capital expenditure plan, the balance amount and the incidental cost shall be trued up by the Commission after prudence check at the end of control period:

Provided that any additional capital expenditure incurred on account of time over run and/or unapproved changes in scope of approved schemes except for reasons beyond the control of licensee and duly submitted in writing may not be allowed by the Commission; Provided that capital expenditure incurred on unapproved schemes and not covered under regulation 9.9 shall not be allowed by the Commission.

9.14. The Commission shall approve the capital investment plan within 90 days from the date of its filing or submission of complete information, whichever is earlier, after considering all suggestions and objections of all stakeholders.

9.15. For the purpose of first control period, the timeline for submission of the capital investment plan by the Applicant shall be as specified in regulation 63".

Regulation 63 of PSERC MYT Regulations, 2014 specifies as under:

"63. SUMMARY OF TIMELINES

S. No.	Description	Filing of the Document (on or before)	Obtaining additional information and acceptance by the Commission	Approval of the document
1	Capital Investment Plan (to be filed only at the beginning of control period)	1st April of the year preceding the first year of control period	Within 30 days of filing of document	Within 90 days of acceptance of the filing
2	Business Plan	1st April of the year preceding the first year of control period	Within 30 days of filing of document	Within 90 days of acceptance of the filing
3	Filing of MYT	30th November of	Within 30 days	Within 120

	<i>Petition (ARR and Tariff Proposal for the Control Period)</i>	<i>the year preceding the first year of control period</i>	<i>of filing of document</i>	<i>of days of acceptance of the filing</i>
4	<i>Annual Performance Review</i>	<i>30th November of each year of the control period</i>	<i>Within 30 days of filing of document</i>	<i>Within 120 days of acceptance of the filing</i>

..." (emphasis added)

In view of the above, PSTCL has to file the Capital Investment Plan on or before^{1st} April of the year preceding the first year of the Control Period, i.e., on or before March 31, 2016, for the Control Period from FY 2017-18 to FY 2019-20.

Accordingly, PSTCL is submitting the Capital Investment Plan for the MYT Control Period from FY 2017-18 to FY 2019-20 for the kind consideration and approval of the Hon'ble Commission.

Further, Regulation 4.4 (a) of PSERC MYT Regulations, 2014 specifies as under:

- "4.4. The implementation of Multi-Year Tariff framework shall be based on the following:
- a. *Separate Capital Investment Plan and Business Plan submitted by the Applicant for its generation, transmission, SLDC or distribution business, as the case may be, in accordance with regulation 9 and regulation 10;*
-"

In this regards, PSTCL submits that major schemes related to SLDC, e.g., implementation of SCADA, implementation of boundary metering, etc., have been already initiated prior to the Control Period. The capital investment during the Control Period would be limited to extension of such schemes viz. RTU requirements, metering requirements for addition of new transmission assets. Hence, PSTCL has not been submitting the separate Capital Investment Plan for SLDC business; however, the capital investment proposed for SLDC has been

separately indicated in the present Petition along with capital investment of transmission business.

It is further submitted that the operational and system constraints are analysed based on the loading during the paddy season. The some fine-tuning of the proposed works for the Control Period would be carried out after analyzing the loading during paddy seasons in 2016. Hence, it would be required to revise the proposed works during the control period keeping in view the actual maximum demand & system constraints witnessed during the current year, i.e, FY 2016-17. PSTCL humbly requests Hon'ble Commission to allow PSTCL to revision of any work(s) at a later stage on this account and to make an additional submission before Hon'ble Commission for approval of the revised works.

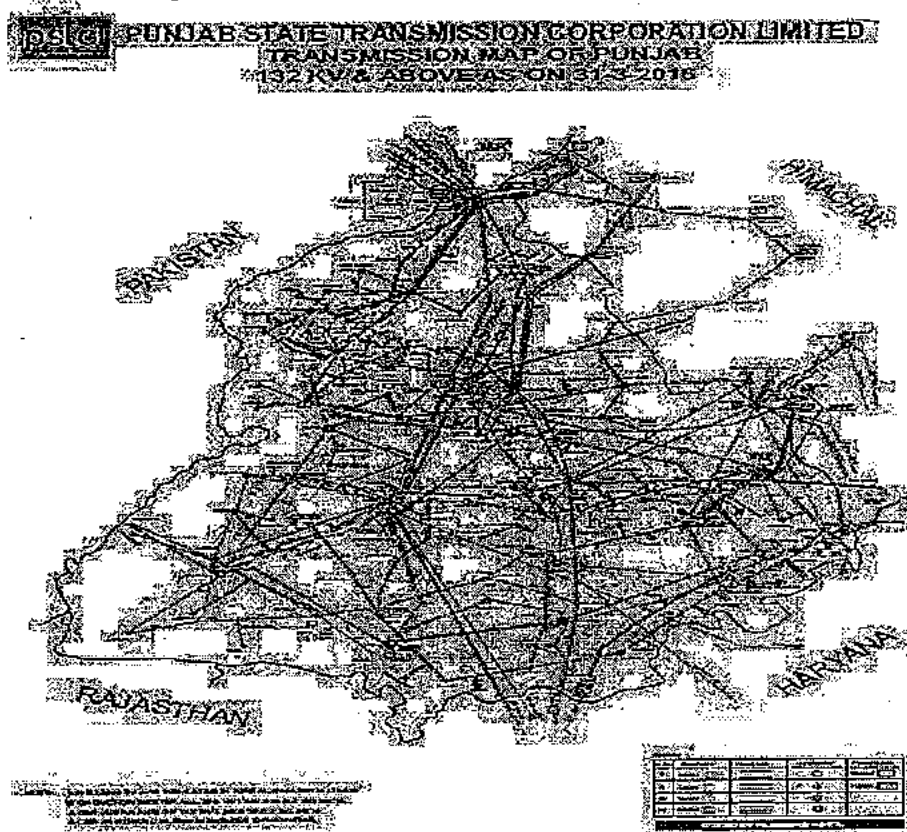
2. Operational Performance

2.1 Transmission Assets Details

PSTCL owns the transmission network over diverse topology and has a very old transmission system, which needs major up-gradation. The transmission network comprises transmission assets at voltage level of 400 kV, 220 kV, and 132 KV. Post unbundling, capital investments have been made to strengthen and enhance the capacity of the transmission network of the State, and further capital investment needs to be done, as discussed in detail in subsequent Sections of this Petition.

The power map for State of Punjab is shown as under:

Figure 1: Transmission Map for State of Punjab



Transmission Lines

PSTCL has an extensive network of 400 kV, 220 kV, and 132 kV transmission lines to transmit bulk power generated at various generating stations in the State of Punjab and the share of power generated by Central Sector Stations to load centres in the State. The total length of transmission lines was 11,105 ckt-km as on September 30, 2015. The details of the Transmission Lines are as under:

Table 1: Transmission Lines as on March 31, 2016

Voltage Level	Single/Double Circuit	Transmission Line Length (ckt-km)
400 kV	Single Circuit	329
	Double Circuit	1271
220 kV	Single Circuit	3712
	Double Circuit	2673
132 kV	Single Circuit	2512
	Double Circuit	608
Total		11,105

Sub-stations

PSTCL has a large number of sub-stations for transforming power into different voltage levels and to transmit the same to various load centres of the State through the transmission lines. PSTCL had a total of 166 nos. of sub-stations as on March 31, 2016, feeding the load centres through 732 nos. of outgoing bays at different voltage levels.

The table below summarises the number of sub-stations and number of incoming and outgoing bays at different voltage levels:

Table 2: Number of Sub-stations and bays as on March 31, 2016

Particulars	Voltage Level	Numbers
Sub-Stations	400 kV	4
	220 kV	89
	132 kV	73
	Total	166
Transmission Substation Bays (Incoming)	400 kV	20
	220 kV	275
	132 kV	203
	Total	498
Transmission Substation Bays (Outgoing)	220 kV	80
	132 kV	49
	66 kV	603
	Total	732

Transmission System Capacity

PSPTCL has been undertaking capital investment under various schemes to augment its transmission system capacity. The total transformation capacity of the system was 30,599 MVA as on March 31, 2016. The table below depicts the transformation capacity at various voltage levels:

Table 3: Transformation Capacity as on March 31, 2016

Voltage Level	Transformation Capacity (MVA)
400 kV Sub-Station	2,390
220 kV Sub-Station	23,438
132 kV Sub-Station	4,771
Total	30,599

2.2 Transmission System Availability

The Transmission System Availability is an indicator of safe, secure and efficient operation of the transmission system. It indicates system reliability and stability to ensure continuous and uninterrupted supply to the end consumers of the distribution company along with providing continuous transmission access to the State Generating Stations, Central Generating Stations and Open Access customers. PSTCL has strived for better performance for the benefit of the State by continuously improving the transmission system availability. PSTCL has also been undertaking repair and maintenance work as required for optimum system performance. The transmission system availability has consistently been on the higher side over the years. The details of Transmission System Availability are as shown below:

Table 4: System Availability over past five years

Voltage Level	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16*
400 kV	-	-	-	99.35%	99.70%	99.92%
220 kV	99.89%	99.85%	99.86%	99.87%	99.83%	99.91%
132 kV	99.82%	99.75%	99.89%	99.75%	99.82%	99.86%

*upto March 31, 2016

2.3 Capital Investment Plan prior to Control Period

PSTCL has been undertaking capital investment for developing its transmission network. PSTCL has undertaken capital investment towards 400 kV, 220 kV, and 132 kV transmission works, ERP/IT implementation and other Miscellaneous works. The capital investment has also been considered for SLDC for works related to SCADA, RTU installation, implementation of boundary metering, etc. The capital investment undertaken has been submitted before the Hon'ble Commission during the Annual Tariff Petitions filed for respective years. PSTCL in its Petition for

approval of Aggregate Revenue Requirement and Tariff for FY 2016-17 has submitted the following Capital Investments undertaken towards transmission works:

Table 5: Capital Investment for years prior to Control Period (Rs. Crore)

Voltage Level	FY 2012-13	FY 2013-14	FY 2014- 15	FY 2015- 16	FY 2016- 17
Opening CWIP	1,247.96	1,635.65	1,657.55	741.72	557.78
Capital Expenditure	965.07	771.77	578.93	464.00	529.28
Capitalisation	577.38	749.87	1,494.76	647.94	860.66
Closing CWIP	1,635.65	1,657.55	741.72	557.78	226.40

3. Capital Investment Plan for Control Period

3.1 Planning Philosophy

In the proposed Capital Investment Plan, PSTCL has considered capital expenditure for:

- a) Laying of transmission network for evacuation of power from the upcoming generation projects in the State;
- b) Strengthening of the existing transmission network to cope with the growing demand and connectivity to the new areas under development by construction of new EHV substations, Transmission lines, and system improvement works in the existing transmission system. This includes the works related to up-gradation of existing substations to higher voltage level, increasing the capacity of substation, replacement of old and obsolete equipments, etc.

PSTCL undertakes the planning of the intra-State Transmission System based on Planning Criteria and Planning philosophy specified in PSERC (State Grid Code) Regulations 2013 and Transmission Planning Criteria stipulated by Central Electricity Authority, 2013.

The proposed Capital Investment Plan has been planned on the basis of inputs received from SLDC, P&M Organisation & PSPCL related to system constraints , operational constraints and expected load growth & generation addition respectively. The plan aims to meet with the requirement of evacuation of power from the upcoming generation projects in the State as well as for evacuation of power share of Punjab from various Central Sector projects from the nearest touch points of 400KV higher voltage network of the Power Grid. The load flow studies

have been carried out for the projected loads and the available generation for the time frame covered in the control period for various system operating conditions.

The transmission networks have been planned to provide relief to existing overloaded transmission system and to cater to the new loads of consumers of PSPCL in the state. The transmission system is planned to feed the existing as well as upcoming loads within prescribed voltage parameters besides ensuring supply to Agriculture consumers as per Power Controller Schedule. The proposed transmission system also ensures enhanced reliability of supply by providing adequate redundancy.

The following are the key advantages/justification for the transmission system covered in the proposed capital investment plan:

- a) To cater to additional loads.
- b) To provide relief to existing overloaded /expected to be overloaded transmission lines and substations.
- c) To increase the reliability of the equipment and consequently of the transmission system so as to achieve enhanced availability factors.
- d) To disperse additional power availability.

Further, it may be noted that in the past years, PSTCL has initiated various improvement schemes and system studies for operational improvement. For example, PSTCL has appointed CPRI to carry out studies of PSTCL's system and suggest the optimal placement of reactive compensation by means of capacitors/reactors. Hence, assessment of additional requirements for capacitors and reactors would be possible only after the completion of such studies. Also, PSTCL is implementing inter-State boundary metering for transmission losses measurement and energy audit. The additional schemes for reduction of transmission losses would be proposed only after analyzing the energy audit data.

In view of the above, PSTCL humbly requests Hon'ble Commission to allow PSTCL, during the control period, to submit the additional schemes, arising out of such studies/improvement plans, for approval of the Hon'ble Commission as part of this Capital Investment Plan.

It may be noted that PSTCL transmission network caters to the demand of its transmission system users, which primarily includes demand of PSPCL and demand of Open Access consumers. The peak demand and energy requirement in the State of Punjab during FY 2014-15 were 10224 MW and 41438 MU, respectively. For preparation of transmission network planning, the demand estimation has been taken from PSPCL. The demand is likely to increase to 12730 MW by FY 2016-17, as estimated in the ARR Petition of PSTCL for FY 2016-17. As per estimation received by PSPCL, this requirement would increase significantly during the MYT Control Period on account of various factors such as increase in agriculture consumption, increase in commercial activities and envisaged industrialization in the State, etc. After taking into account all such factors, demand in the State is projected at 13399 MW with annual energy requirement of 66483 MU, by FY 2018-19. To meet this growing demand, a reliable, adequate and robust transmission network is required. In view of this, the existing transmission system is required to be strengthened with proper planning to cater to the future demand in a reliable manner. Further, PSTCL sought details regarding the planning of sub-transmission works and demand forecast from PSPCL. PSTCL received the various schemes planned by PSPCL for sub-transmission network considering the demand in the area of supply. PSTCL has taken into account the proposed schemes by PSPCL and detailed Capital Investment Plan was prepared. The transmission network planning has been considered for generation evacuation, inter-State transmission network connection, planning for meeting the demand through optimum outlets and strengthening and augmentation of intra-State Transmission network.

While preparing the capital investment plan, PSTCL has also considered the various generating stations, which are expected to be commissioned within the State during the Control Period including the NTPC/NHPC stations from which power share has been allocated to State of Punjab. The generating stations, as considered by PSTCL are as under:

Table 6: List of Generating Stations to be commissioned

Sr. No.	Name of the Plant	Plant Capacity (MW)	Share Gross (MW)
1	Talwandi Sabo TPS (Sterlite)	3x660 = 1980 MW	1980
2	Mukerian Hydel Project Stage-II	9x2 = 18 MW	18
3	GVK Goindwal Sahib TPS	2x270=540 MW	540
4	Shāhpurkhandi Hydel Project	206 MW	206

Further, it may be noted that Solar PV projects of 1000 MW capacity are estimated during the period of Control Period. Out of this projected capacity, only part of capacity would be directly injected into transmission system of PSTCL at 132 kV and 220 kV in accordance with PSPCL Circular No. 23/2015 dated June 8, 2015. As per this circular, only the projects having capacity more than 25 MW are intended to connect to transmission system of PSTCL, which as of now are very few. The location for only one or two such upcoming plants with connectivity at 132/220 kV level has been finalised so far locations for other plants are yet to be finalised for major portion of planned 1000 MW by PEDA. PSTCL humbly submits that it would be possible for planning transmission network for such additional capacity only after getting clarity of capacity and location of the rest of projects. PSTCL will carry out due planning exercise and required system studies once the locations of upcoming Solar PV are identified. PSTCL humbly requests Hon'ble Commission to allow the submission of such schemes for approval of the Hon'ble Commission once the capacity and location of such upcoming Solar projects are identified.

3.2 400 kV Transmission Works

At present there are four nos. of 400 kV EHV substations at Dhuri, Mukatsar, Makhu, and Nakodar. In order to improve the reliability in the transmission system, 400 kV Ring Main system has already been developed in the State having connectivity with central grid at Amritsar and Moga.

PSTCL has already considered the transmission works related to Rajpura Thermal Power Station, which is expected to be commissioned in FY 2016-17. Keeping in view the requirements of the Transmission Planning Criteria of CEA, PSTCL has proposed additional transformers at 400 kV substations at Makhu and Nakodar. The list of the schemes proposed is given in Annexure I of this document.

3.3 220 kV and 132 kV Transmission works

PSTCL has proposed the works related to construction of new substations, up-gradation of existing 66/132 kV substations, capacity addition, and addition of new transmission lines to improve reliability based on the system requirements. The list of the schemes proposed is given in Annexure I of this document.

3.4 ERP Implementation

PSTCL has also proposed capital investment towards ERP implementation. Capital investment of Rs. 28.25 Crore and Rs. 2.23 Crore has been proposed towards ERP implementation in FY 2017-18 and FY 2018-19, respectively.

3.5 Inter-State Connection Works

At present, for inter-State connections, about 2124 ckt-km of 400 kV EHV transmission line and six (6) numbers of Grid sub-stations at 400/220 kV level with total transformation capacity of 7030 MVA are existing in Punjab under the inter-State Transmission system of PGCIL. Further, five (5) numbers of Grid substations at

220/132/66kV level having total transformation capacity of 1740 MVA exist in Punjab under BBMB Hydro system. The new 400 kV Patran substation is proposed by PGCIL during the Control Period. In line with this, PSTCL has already proposed schemes for connectivity to this substation including LILO of 220 kV Patran to Kakrala and 220 kV Patran to Rajla lines at 400 kV Patran and 220 kV line from 400 kV S/Stn Patran to 220 kV S/Stn Bangan.

Certain transmission elements (Lines, transformers & sub-stations) are required to be added keeping in view the addition of ISTS in the state, which is planned by the CTU. As per the 20 years perspective plan floated by POSOCO, 2 nos. 765 kV Sub-Stations may come up in Punjab probably near Mohali and Gurdaspur with associated transmission lines during the control period. These additional ISTS works are yet to be taken up by the Standing Committee for discussion, finalisation and approval. In view of the above, PSTCL humbly requests Hon'ble Commission to allow PSTCL, during the control period, to submit the additional schemes for down the line connectivity, arising out of such ISTS addition, for approval of the Hon'ble Commission as part of this Capital Investment Plan.

3.6 Physical Status of Transmission Assets

The proposed Capital Investment Plan would lead to following addition in physical assets of the transmission system:

Table 7: Projected Addition to Transmission System

Sr. No.	Particulars	FY 2017-18	FY 2018-19	FY 2019-20
1	Transmission Line (Ckt-km)	98	66	278
2	Transformation Capacity (MVA)	707	2262	2320

As a result of addition in transmission lines and sub-stations as planned in the proposed Capital Investment Plan, the capacity of PSTCL's transmission system will increase to 36,587 MVA by end of FY 2019-20. Transmission capacity (in MVA)

enhancement is on account of the commissioning of new EHV substations as per proposed year-wise completion and considering additional 220 kV transformers in the existing/upcoming substations each year looking to the future load growth and future system requirement.

3.7 Capital Investment

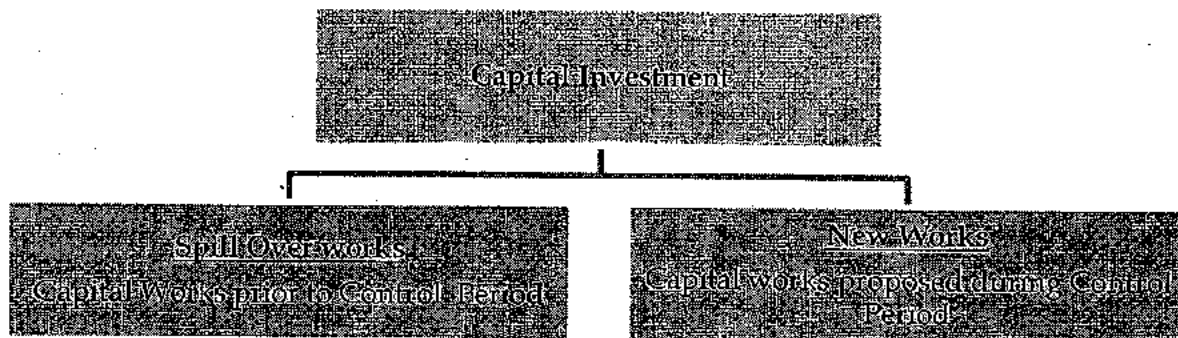
The capital investment is proposed for generation evacuation, system augmentation, system upgradation, etc. The break-up of the Capital Investment Plan as per the nature of investment is as under:

Table 8: Capital Investment proposed for Control Period (Rs. Crore)

Particulars	FY 2017-18	FY 2018-19	FY 2019-20
System Augmentation	169.60	246.08	220.78
System Up-gradation	50.30	46.48	13.47
ERP, IT Implementation	28.26	2.23	-
Miscellaneous	2.50	-	-
Total	250.67	294.79	234.25

Further, PSTCL has divided the proposal Capital Investment Plan into two major heads as under:

Figure 2: Structural Framework for Capital Works



The Capital Investment Plan is being submitted in accordance with Regulation 9 of the PSERC MYT Regulations, 2014 for the Control Period from FY 2017-18 to FY 2019-20. During this Control Period, PSTCL will be completing spill-over works as submitted in the ARR Petition for FY 2016-17 prior to the Control Period, balance spill over works and undertaking certain new development works for system strengthening schemes to augment its capacity and operational performance. Considering the various 400 kV, 220 kV, and 132 kV transmission works, the capital investment proposed for the Control Period is as under:

Table 9: Summary of Capital Investment proposed for Control Period (Rs. Crore)

Particulars	FY 2017-18	FY 2018-19	FY 2019-20
Spill Over schemes			
400 kV Transmission Works	-	-	-
220 kV Transmission Works	51.18	-	-
132 kV Transmission Works	0.06	-	-
Total	51.24	-	-
New Development Schemes			
400 kV Transmission Works	9.45	16.22	6.62
220 kV Transmission Works	125.00	245.28	197.43
132 kV Transmission Works	4.23	1.06	0.20
Miscellaneous Works	32.50	30.00	30.00
ERP Implementation	28.26	2.23	-
Total	199.42	294.78	234.25
Total Schemes			
400 kV Transmission Works	9.45	16.22	6.62
220 kV Transmission Works	176.18	245.28	197.43
132 kV Transmission Works	4.29	1.06	0.2
Miscellaneous Works	32.50	30.00	30.00
ERP Implementation	28.26	2.23	-
Total Works	250.68	294.79	234.25

3.8 Capitalisation schedule

As per the completion target for the various capital works, the capitalization schedule for each year of the Control Period is as under:

Table 10: Capitalisation Schedule for the Control Period (Rs. Crore)

Particulars	FY 2017-18	FY 2018-19	FY 2019-20
Spill Over schemes			
400 kV Transmission Works	-	-	-
220 kV Transmission Works	121.08	-	-
132 kV Transmission Works	0.30	-	-
Total	121.38	-	-
New Development Schemes			
400 kV Transmission Works	-	15.75	16.54
220 kV Transmission Works	-	216.57	304.35
132 kV Transmission Works	-	5.29	-
Miscellaneous Works	32.50	30.00	30.00
ERP Implementation	-	36.95	-
Total	32.50	304.56	350.89
Total Schemes			
400 kV Transmission Works	-	15.75	16.54
220 kV Transmission Works	121.08	216.57	304.35
132 kV Transmission Works	0.30	5.29	-
Miscellaneous Works	32.50	30.00	30.00
ERP Implementation	-	36.95	-
Total Works	153.88	304.56	350.89

3.9 Capital Investment Plan for SLDC

It may be noted that the major schemes related to SLDC, e.g., implementation of SCADA, implementation of boundary metering, etc., have been already initiated prior to the Control Period. The capital investment proposed during the Control Period is limited to extension of such schemes, viz. RTU requirements, metering requirements, for the transmission assets proposed to be added during the Control Period. Hence, PSTCL is not submitting the separate Capital Investment Plan for SLDC and included the same in the present Capital Investment Plan of transmission works. PSTCL humbly requests the Hon'ble Commission to approve the Capital Investment Plan for SLDC as submitted in the present Petition.

As regards the Capital Investment for SLDC, PSTCL has considered the schemes towards installation of RTU for the proposed substations to enable communication with SCADA and strengthening of the monitoring system.

Further, to meet the regulatory directives for computation of transmission losses, investment towards implementation of boundary metering-cum-transmission-level energy audit scheme is proposed. The proposed capital investment and capitalization schedule for SLDC works is as under:

Table 11: Proposed Capital Investment and Capitalisation for SLDC (Rs. Crore)

Particulars	FY 2017-18	FY 2018-19	FY 2019-20
Capital Investment			
Procurement of additional RTUs for remaining/upcoming substations of PSTCL	9.00	9.00	9.00
Implementation of Boundary Metering-cum- Transmission Level Energy Audit Scheme	1.00	1.00	1.00
Total	10.00	10.00	10.00

Particulars	FY 2017-18	FY 2018-19	FY 2019-20
Capitalisation			
Procurement of additional RTUs for remaining/upcoming substations of PSTCL	9.00	9.00	9.00
Implementation of Boundary Metering-cum-Transmission Level Energy Audit Scheme	1.00	1.00	1.00
Total	10.00	10.00	10.00

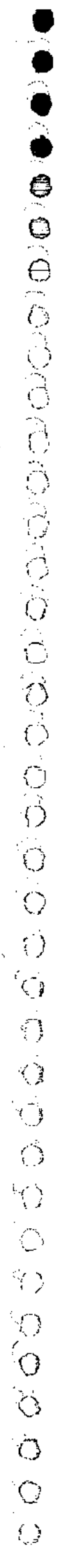
Based on the above proposed capital investment for transmission works and SLDC, PSTCL proposes the following Capital Investment Plan for spill over works and new development work during the Control Period.

Table 12: Capital Investment Plan proposed for Control Period (Rs. Crore)

Sr. No.	Particulars	FY 2017-18	FY 2018-19	FY 2019-20
1	Transmission			
1.1	Opening CWIP	226.40	323.19	313.42
1.2	Capital Expenditure	250.67	294.79	234.25
1.3	Capitalisation	153.88	304.56	350.89
1.4	Closing CWIP	323.19	313.42	196.79
2	SLDC			
2.1	Opening CWIP	-	-	-
2.2	Capital Expenditure	10.00	10.00	10.00
2.3	Capitalisation	10.00	10.00	10.00
2.4	Closing CWIP	-	-	-
3	Transmission + SLDC			
3.1	Opening CWIP	226.40	323.19	313.42
3.2	Capital Expenditure	260.67	304.79	244.25
3.3	Capitalisation	163.88	314.56	360.89
3.4	Closing CWIP	323.19	313.42	196.79

3.10 Funding of Capital works

Regulation 19 of the PSERC MYT Regulations, 2014 provides the normative debt: equity ratio as 70:30. However, PSTCL proposes to carry out capital works with debt financing. The above capital works shall be carried out by taking loan from banks and financial institutions. No equity shall be considered for above capital works.



4. Annexure I - List of Capital Works

Sl. No.	Voltage Category	Scheme Type	Name of Works	Year of S.M.	Cost of Scheme (Rs. Lakhs)	Network Addition CR. Km	Nature of Investment	Capital Expenditure (Rs. Lakhs)			
								FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21
1.	220 KV	Spill Over	220 KV S/S/5m Badhant Kalan (U/G from 132 KV)	FY 2016-17	1405.00	-	System Upgrade	561.00	-	-	1,405.00
2.	220 KV	Spill Over	LILO of 220 KV line between 400 KV S/S/5m Moga and 220 KV S/S/5m Himmatpura at 220 KV S/S/5m Badhant Kalan	FY 2016-17	240.06	6.00	System Augmentation	144.04	-	-	240.06
3.	220 KV	Spill Over	220 KV S/S/5m Ahwalpur (U/G from 132 KV)	FY 2016-17	1321.05	-	System Upgrade	528.42	-	-	1,321.05
4.	220 KV	Spill Over	LILO of one ckt. of 220 KV S/S/5m RBMB, Jalandhar - 220 KV S/S/5m Pong, DC line (ctls-3) at 220 KV S/S/5m Ahwalpur	FY 2016-17	480.12	12.00	System Augmentation	288.07	-	-	480.12
5.	220 KV	Spill Over	220 KV S/S/5m Talwandi Bhat (1x100MVA, 220/66 KV T/F)	FY 2016-17	984.00	-	System Augmentation	196.80	-	-	984.00
6.	220 KV	Spill Over	220 KV S/S/5m Ambah (Aug) (2x100MVA, 220/66 KV T/F)	FY 2016-17	881.00	-	System Augmentation	176.20	-	-	881.00
7.	220 KV	Spill Over	220 KV S/S/5m Mansa (Aug) (1x100MVA, 220/66 KV T/F)	FY 2016-17	881.00	-	System Augmentation	176.20	-	-	881.00
8.	220 KV	Spill Over	220 KV S/S/5m Kartarpur (Aug) (2x100MVA, 220/66 KV T/F)	FY 2016-17	881.00	-	System Augmentation	176.20	-	-	881.00
9.	220 KV	Spill Over	220 KV S/S/5m Dharamkot (Aug) (1x160MVA, 220/66 KV T/F)	FY 2016-17	511.00	-	System Augmentation	409.00	-	-	511.00
10.	220 KV	Spill Over	220 KV S/S/5m Dharamkot (Aug) (1x120 MVA, 132/71 KV T/F with 1x100 MVA, 220/66 KV T/F)	FY 2016-17	161.00	-	System Augmentation	81.00	-	-	161.00
11.	220 KV	Spill Over	220 KV S/S/5m Chahal (Aug) (1x120 MVA and 1x107/12.5 MVA) 132/71 KV	FY 2016-17	322.00	-	System Augmentation	64.00	-	-	322.00

Sr. No.	Scheme Category	Name of Works	Year of Start	Total Cost of Scheme (Rs. Lakhs)	Nature of Investment		Capital Expenditure (Rs. Lakhs)				Capitalization (Rs. Lakhs)	
					System Augmentation	System Augmentation	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
		T/Es with 2x20 MVA, 66/11 KV. T/Es										
12.	220 KV Spill Over	220 KV DC line between 220 KV S/5m Chouragach and 220 KV S/5m Lachowal (Zehra)	FY 2016-17	1440.36	36.00	System Augmentation	864.22				1440.36	
13.	220 KV Spill Over	220 KV SC line from 400 KV S/5m Patran (POCIL) to 220 KV S/5m Bangan (Zehra)	FY 2016-17	1361.40	20.00	System Augmentation	816.84				1361.40	
14.	220 KV Spill Over	Ins. 220 KV bay for connectivity with 440 KV S/5m Patran	FY 2016-17	130.00		System Augmentation						
15.	220 KV Spill Over	Stringing of 2nd ckt of 220 KV line from 220 KV S/5m P.P. Nabha to 220 KV S/5m Bhawanigarh.	FY 2016-17	214.74	18.00	System Augmentation	85.90				214.74	
16.	220 KV Spill Over	Stringing of 2nd ckt of 220 KV line from 220 KV S/5m P.P. Nabha to 220 KV S/5m Bhawanigarh.	FY 2016-17	17.90	1.50	System Augmentation						
17.	220 KV Spill Over	Stringing of 2nd ckt of 220 KV line from 220 KV S/5m P.P. Nabha to 220 KV S/5m Bhawanigarh.	FY 2016-17	360.00		System Augmentation						
18.	220 KV Spill Over	LILO of 220 KV line from 220 KV S/5m Himmatpura to 220 KV S/5m Jagraan at 220 KV S/5m Ajitwal.	FY 2016-17	223.20	6.00	System Augmentation	71.30				223.20	
19.	220 KV Spill Over	220 KV S/5m Ajitwal	FY 2016-17	260.00		System Augmentation						
20.	220 KV Spill Over	220 KV S/5m Sullapur	FY 2016-17	450.00		System Augmentation						
21.	220 KV Spill Over	220 KV S/5m Takwandi Sabo	FY 2016-17	125.00		System Augmentation						
22.	220 KV Spill Over	220 KV S/5m Manas	FY 2016-17	30.33		System Augmentation						
23.	220 KV Spill Over	Replacement of conductor of 220 KV line from 400 KV S/5m Ludhiana to 220 KV S/5m Lallian Kallan (2nd ckt) with HTLS conductor	FY 2016-17	80.00		System Augmentation	30.00				80.00	
24.	220 KV Spill Over	220 KV S/5m Dera Bassi/Saidpura 0x100MVA	FY 2016-17	721.00	100.00	System Augmentation	505.00				721.00	

Sl. No.	Work Category	Sub-Category	Name of Work	Year of Start	Total Cost of Works (Rs. Lakh)	Network Addition	Nature of Investment	Capital Expenditure (Rs. Lakh)						
								FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22		
25.	132 KV	Spill Over	220/66 KV T/JF Repl. of 12.5/16 MVA, 132/66 KV T/JF with 25 MVA, 132/66 KV T/JF	FY 2016-17	30.00	-	System Augmentation	6.00	-	-	-	30.00	-	-
26.	132 KV	Spill Over	132 KV S/5Sn Badal 132 KV line bay for M/s Azure Power Pvt. Ltd. for its 1325 MW Ground based Solar Power Plant	FY 2016-17	39.23	-	System Augmentation	-	-	-	-	-	-	-
27.	132 KV	Spill Over	132 KV S/5Sn Maur 132 KV O/G line bay for M/s Phoenix Suryodaya Power Pvt. Ltd. for its 1325 MW capacity Ground based Solar Power Plant	FY 2016-17	39.23	-	System Augmentation	-	-	-	-	-	-	-
28.	Misc Works	Spill Over	Aug/Strengthening of bus bars	FY 2016-17	1500.00	-	System Augmentation	-	-	-	-	-	-	-
29.	Misc Works	Spill Over	Provision for Reactive Compensation	FY 2016-17	500.00	-	System Augmentation	-	-	-	-	-	-	-
30.	Misc Works	Spill Over	Addition of bay/system strengthening required on account of EE generation	FY 2016-17	500.00	-	System Augmentation	-	-	-	-	-	-	-
31.	Misc Works	Spill Over	Extension in Switchyard buildings. Provision for AC etc.	FY 2016-17	500.00	-	System Augmentation	-	-	-	-	-	-	-
32.	400 KV	New	400 KV S/5Sn Mahbu	FY 2017-18	1575.00	-	System Augmentation	545.00	630.00	-	-	-	3,575.00	-
33.	220 KV	New	220 KV S/5Sn Mohali (GMADA)	FY 2017-18	1464.75	-	System Augmentation	878.85	585.90	-	-	-	1,464.75	-
34.	220 KV	New	LILO of 220 KV S/5Sn Mohali-220 KV S/5Sn Rajpura line at 220 KV S/5Sn Mohali (GMADA)	FY 2017-18	588.15	14.00	System Augmentation	295.26	352.89	-	-	-	588.15	-
35.	220 KV	New	220 KV S/5Sn Rurka Kalam (U/G from 66 KV)	FY 2017-18	1464.75	-	System Augmentation	878.85	585.90	-	-	-	1,464.75	-
36.	220 KV	New	LILO of one ckt of 400 KV S/5Sn Nakodar - 220 KV S/5Sn Ludhiana line at 220 KV S/5Sn Rurka Kalam	FY 2017-18	777.50	16.00	System Augmentation	466.50	311.00	-	-	-	777.50	-
37.	220 KV	New	220 KV S/5Sn Gill Road Ludhiana (U/G from 66 KV)	FY 2017-18	707.70	-	System Augmentation	424.62	283.08	-	-	-	707.70	-
38.	220 KV	New	220 KV S/5Sn Faz Road Ludhiana - 220 KV S/5Sn Gill Rd. Ludhiana	FY 2017-18	1120.77	15.00	System Augmentation	672.46	448.31	-	-	-	1,120.77	-
39.	220 KV	New	220 KV S/5Sn Dirba (U/G from 66 KV)	FY 2017-18	1464.75	-	System Augmentation	878.85	585.90	-	-	-	1,464.75	-
40.	220 KV	New	LILO of 400 KV S/5Sn Bhalwan - 220 KV S/5Sn Chhajli at 220 KV S/5Sn Dirba	FY 2017-18	420.11	10.00	System Augmentation	252.06	168.04	-	-	-	420.11	-

Sl. No.	Works Category	Subsidiary Type	Name of Works	Year of Start	Total Cost of Work (Rs. Lakhs)	Network addition	Nature of Investment	Capital Expenditure (Rs. Lakhs)			
								FY 2017-18	FY 2017-18	FY 2017-18	FY 2017-18
41.	220 KV	New	1x100MVA, 220/66 KV T/F	FY 2017-18	1464.75	-	System Upgrade	878.85	585.90	-	1,464.75
42.	220 KV	New	LLO of 220 KV S/Sin Mega - 220 KV S/Sin Mehdi Kalan line at 220 KV S/Sin Lakha	FY 2017-18	462.12	11.00	System Augmentation	184.85	277.27	-	462.12
43.	220 KV	New	Adcl. 2nd 160 MVA, 220/66 KV T/F	FY 2017-18	1033.20	-	System Augmentation	619.92	413.28	-	1,033.20
44.	220 KV	New	Adcl. 2nd 100 MVA, 220/132 KV T/F	FY 2017-18	859.50	-	System Augmentation	497.70	331.80	-	829.50
45.	220 KV	New	Repl. Of 100 MVA with 160 MVA, 220/66 KV T/F	FY 2017-18	925.05	-	System Augmentation	555.03	370.02	-	925.05
46.	220 KV	New	Repl. Of 100 MVA with 160 MVA, 220/66 KV T/F	FY 2017-18	925.05	-	System Augmentation	555.03	370.02	-	925.05
47.	220 KV	New	Repl. Of 100 MVA with 160 MVA, 220/66 KV T/F	FY 2017-18	925.05	-	System Augmentation	555.03	370.02	-	925.05
48.	220 KV	New	Repl. Of 100 MVA with 160 MVA, 220/66 KV T/F	FY 2017-18	925.05	-	System Augmentation	555.03	370.02	-	925.05
49.	220 KV	New	Adcl. 3rd 150 MVA, 220/66 KV T/F	FY 2017-18	1033.20	-	System Augmentation	619.92	413.28	-	1,033.20
50.	220 KV	New	Adcl. 2nd 100MVA, 220/66 KV T/F	FY 2017-18	757.05	-	System Augmentation	454.23	302.82	-	757.05
51.	220 KV	New	Adcl. 3rd 1x100 MVA, 220/66 KV T/F	FY 2017-18	757.05	-	System Augmentation	454.23	302.82	-	757.05
52.	220 KV	New	Repl. Of 100 MVA with 160 MVA, 220/66 KV T/F	FY 2017-18	925.05	-	System Augmentation	555.03	370.02	-	925.05
53.	220 KV	New	Adcl. 3rd 1x100 MVA, 220/66 KV T/F	FY 2017-18	757.05	-	System Augmentation	454.23	302.82	-	757.05
54.	220 KV	New	Repl. of (1x16/200/130/10/12 9 MVA), 132/66 KV with 2x20 MVA, 66/11 KV T/F	FY 2017-18	335.10	-	System Augmentation	202.86	135.24	-	338.10
55.	220 KV	New	Adcl. 2nd 100 MVA, 220/66 KV T/F	FY 2017-18	757.05	-	System Augmentation	454.23	302.82	-	757.05
56.	220 KV	New	Adcl. 2nd 1x100MVA, 220/66 KV	FY 2017-18	834.65	-	System Augmentation	216.00	618.65	-	834.65
57.	132 KV	New	Repl. of 1x20/75 MVA, 132/66 KV T/F with 1x50	FY 2017-18	496.65	-	System Augmentation	397.32	99.33	-	496.65

Sr. No.	Work Category	Scheme Name	Name of Works	Year of Start	Total Cost (in Lakhs)	Network Addition (Chk. Km)	Nature of Investment	Capital Expenditure (Rs. Lakh)				Capital Expenditure (Rs. Lakh)
								FY 2017-18	FY 2018-19	FY 2019-20	FY 2016-17	
			MVA, 132/66 KV T/F									
58.	132 KV	New	132 KV S/Sin Nakodar (Aug)	FY 2017-18	31.50	-	System Augmentation	25.20	6.30	-	-	31.50
			Repl. of 12.5/16 MVA, 132/66 KV T/F with 25 MVA, 132/66 KV T/F									
59.	Misc Works	New	Aug/Strengthening of bus bars	FY 2017-18	1500.00	-	System Augmentation	1500.00	-	-	-	1500.00
60.	Misc Works	New	200 Ton GCW Truck - Trailer	FY 2017-18	250.00	-	Miscellaneous	250.00	-	-	-	250.00
61.	Misc Works	New	Extension in Switchyard buildings, Provision for AC etc.	FY 2017-18	500.00	-	System Augmentation	500.00	-	-	-	500.00
62.	Misc Works	New	Provision for Reactive Compensation	FY 2017-18	500.00	-	System Augmentation	500.00	-	-	-	500.00
63.	Misc Works	New	Addition of bays/system strengthening required on account of RE generation	FY 2017-18	500.00	-	System Augmentation	500.00	-	-	-	500.00
64.	400 KV	New	400 KV S/Sin Nakodar	FY 2018-19	1653.75	-	System Augmentation	-	992.25	661.50	-	1653.75
65.	220 KV	New	220 KV S/Sin Sur Singh Wala (U/G from 66 KV)	FY 2018-19	1537.99	-	System Upgradation	-	922.79	615.20	-	1537.99
66.	220 KV	New	L.I.O of ans-ckt of 220 KV S/Sin Part - 220 KV S/Sin Alpan line at 220KV S/Sin Sur Singh Wala (Zebra)	FY 2018-19	1411.55	32.00	System Augmentation	-	564.62	846.93	-	1411.55
67.	220 KV	New	220 KV S/Sin Budhida (U/G from 66 KV)	FY 2018-19	1830.15	-	System Upgradation	-	1096.09	732.06	-	1830.15
68.	220 KV	New	220 KV S/Sin Mansa - 220 KV S/Sin Budhida DC Line	FY 2018-19	3387.52	80.00	System Augmentation	-	1555.01	2332.51	-	3387.52
69.	220 KV	New	220 KV S/Sin Laitru	FY 2018-19	971.30	-	System Augmentation	-	704.80	266.50	-	971.30
70.	220 KV	New	220 KV S/Sin Bamala (Aug)	FY 2018-19	971.30	-	System Augmentation	-	704.80	266.50	-	971.30
71.	220 KV	New	220 KV S/Sin Bhari	FY 2018-19	794.90	-	System Augmentation	-	476.94	317.96	-	794.90
72.	220 KV	New	220 KV S/Sin Alawalpur	FY 2018-19	794.90	-	System Augmentation	-	476.94	317.96	-	794.90
73.	220 KV	New	220 KV S/Sin Majitha	FY 2018-19	794.90	-	System Augmentation	-	476.94	317.96	-	794.90
74.	220 KV	New	220 KV S/Sin Hoshiarpur	FY 2018-19	1084.86	-	System Augmentation	-	650.92	433.94	-	1084.86

Sl. No.	Works Category	Scheme Type	Name of Work	Year of Start	Total Cost of Scheme (Rs. Lakhs)	Network Addition (km)	Nation of Investment (MVA)	Capital Expenditure (Rs. Lakh)					Capitalisation (Rs. Lakh)	
								FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2017-18	FY 2018-19
75.	220 KV	New	220 KV S/Sin Bhawaniguth	FY 2018-19	794.90	-	100.00	-	476.94	317.96	-	-	-	794.90
			Addl. 2nd 100 MVA, 220/66 KV T/F											
76.	220 KV	New	220 KV S/Sin Narasingh	FY 2018-19	794.90	-	100.00	-	476.94	317.96	-	-	-	794.90
			Addl. 2nd 100 MVA, 220/66 KV T/F											
77.	220 KV	New	220 KV S/Sin Aigon	FY 2018-19	1084.86	-	160.00	-	787.00	297.86	-	-	-	1,084.86
			1x160MVA, 220/66 KV											
78.	220 KV	New	220 KV S/Sin Jodla	FY 2018-19	794.90	-	100.00	-	216.30	578.60	-	-	-	794.90
			100MVA, 220/66 KV T/F											
79.	220 KV	New	220 KV S/Sin Part (Aug)	FY 2018-19	971.30	-	60.00	-	704.80	266.50	-	-	-	971.30
			Repl. Of 100 MVA with 160 MVA, 220/66 KV T/F											
80.	220 KV	New	220 KV S/Sin Ladowal	FY 2018-19	794.90	-	100.00	-	476.94	317.96	-	-	-	794.90
			100MVA, 220/66 KV T/F											
81.	220 KV	New	220 KV DC line from 400 KV S/Sin Patran to 220 KV S/Sin Minna	FY 2018-19	7143.32	140.00	-	-	4,857.33	4,285.99	-	-	-	7,143.32
			70 Kms/ 520mm ² ACSR (Moose)											
82.	220 KV	New	LJLC of 220 KV S/Sin Lallan Kalan - 220 KV S/Sin Dhandari Kalan line at 220 KV S/Sin Gill Rd. Ludhiana	FY 2018-19	1146.89	26.00	-	-	458.75	688.13	-	-	-	1,146.89
			13 Km/ 420mm ² ACSR (Zebra)											
83.	220 KV	New	220 KV S/Sin Mehal Kalan	FY 2018-19	876.38	-	100.00	-	350.35	525.93	-	-	-	876.38
			Addl. 2nd 100 MVA, 220/66 KV T/F											
84.	220 KV	New	220 KV S/Sin Uchoke	FY 2018-19	1196.06	-	160.00	-	476.42	717.63	-	-	-	1,196.06
			Addl. 2nd 160 MVA, 220/66 KV T/F											
85.	220 KV	New	220 KV S/Sin Tibber	FY 2018-19	757.05	-	100.00	-	454.23	302.82	-	-	-	757.05
			Addl. 2nd 100 MVA, 220/66 KV T/F											
86.	Misc Works	New	Aug/ Strengthening of bus bars	FY 2018-19	1500.00	-	-	-	1,500.00	-	-	-	-	-
87.	Misc Works	New	Extension in Switchyard buildings, Provision for AC etc	FY 2018-19	500.00	-	-	-	500.00	-	-	-	-	-
88.	Misc Works	New	Provision for Reactive Compensation	FY 2018-19	500.00	-	-	-	500.00	-	-	-	-	-
89.	Misc Works	New	Addition of bays/system strengthening required on account of EE generation	FY 2018-19	500.00	-	-	-	500.00	-	-	-	-	-
90.	220 KV	New	220 KV S/Sin Dhuri (Aug)	FY 2019-20	1019.87	-	60.00	-	-	704.80	-	-	-	-
			Repl. Of 100 MVA, 220/66 KV with 160 MVA, 220/66 KV T/F											
91.	220 KV	New	220 KV S/Sin Diba	FY 2019-20	834.65	-	100.00	-	-	500.79	-	-	-	-
			Addl. 2nd 100 MVA, 220/66 KV T/F											
92.	220 KV	New	220 KV S/Sin Badli Kalan	FY 2019-20	914.52	-	100.00	-	-	548.71	-	-	-	-
			Addl. 2nd 100 MVA, 220/132 KV											

Sl. No.	Works Category	Scheme Type	Name of Works	Year of Start	Total Cost of Scheme (Rs. Lakhs)	Network Addition (km)	Nature of Investment	Capital Expenditure (Rs. Lakh)				FY 2019-20
								FY 2017-18	FY 2018-19	FY 2019-20	FY 2019-20	
93.	220 KV	New	220 KV S/5m GMADA Mohali	FY 2019-20	834.65	-	System Augmentation	-	-	500.79	-	-
			Adlt. 2nd 100 MVA, 220/66 KV T/F									
94.	220 KV	New	220 KV S/5m Cabindgaoh IV	FY 2019-20	834.65	-	System Augmentation	-	-	216.00	-	-
			Adlt. 2nd 100 MVA, 220/66 KV T/F									
95.	220 KV	New	220 KV S/5m Cabindgaoh-I (Aug)	FY 2019-20	1079.87	-	System Augmentation	-	-	704.80	-	-
			Repl. O/L 1x100 MVA, 220/66 KV T/F with 1x160 MVA, 220/66 KV T/F									
96.	220 KV	New	220 KV S/5m Gill Rd. Ludhiana	FY 2019-20	834.65	-	System Augmentation	-	-	500.79	-	-
			Adlt. 2nd 1x100MVA, 220/66 KV									
97.	220 KV	New	220 KV S/5m Rurka kalan	FY 2019-20	834.65	-	System Augmentation	-	-	500.79	-	-
			Adlt. 2nd 100 MVA, 220/66 KV T/F									
98.	220 KV	New	220 KV S/5m Budhinda	FY 2019-20	834.65	-	System Augmentation	-	-	500.79	-	-
			Adlt. 2nd 100 MVA, 220/66 KV T/F									
99.	132 KV	New	132 KV S/5m Patbankol (Aug)	FY 2019-20	34.73	-	System Augmentation	-	-	20.84	-	-
			Repl. of 1x132.5/16 MVA, 132/66-33 KV T/F with 1x20/25 MVA, 132/66 KV T/F									
100.	Misc Works	New	Aug/Strengthening of bus bars	FY 2019-20	1500.00	-	System Augmentation	-	-	1,500.00	-	-
101.	Misc Works	New	Extension in Switchyard buildings, Provision for AC etc.	FY 2019-20	500.00	-	System Augmentation	-	-	500.00	-	-
102.	Misc Works	New	Provision for Reactive Compensation	FY 2019-20	500.00	-	System Augmentation	-	-	500.00	-	-
103.	Misc Works	New	Addition of bays/system strengthening required on account of BE generation	FY 2019-20	500.00	-	System Augmentation	-	-	500.00	-	-
104.	Training	Spill Over	Employees Training Institute	FY 2016-17	1098	-	ERP IT Implementation	-	-	-	-	-
105.	ERP	New	ERP IT Implementation	FY 2017-18	3695	-	ERP IT Implementation	-	-	2,825.52	233.22	3,095.00
106.	SLDC	Spill Over	Procurement of 47 nos. RTUs for SCADA Scheme	FY 2015-16	212	-	SLDC	-	-	-	-	-
107.	SLDC	Spill Over	Procurement of additional RTUs for remaining/ upcoming substations of PSTCL	FY 2016-17	5130	-	SLDC	-	-	900.00	900.00	900.00
108.	SLDC	New	Implementation of Boundary Metering cum Transmission Level Energy Audit Scheme in PSTCL	FY 2017-18	1500	-	SLDC	-	-	100.00	100.00	100.00
109.	SLDC	Spill Over	Islanding Scheme in Punjab	FY 2016-17	200	-	SLDC	-	-	-	-	-





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or
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PUNJAB STATE TRANSMISSION CORPORATION LIMITED

Regd. Office: PSEB Head Office, The Mall Patiala-147001, Punjab, India.
Corporate Identity Number: U40109PB2010SGC033814 (www.pstcl.org)
(O/o Financial Advisor(Commercial & Regulatory Cell, 3rd Floor, Shakti Sadan, Patiala)
Fax/Ph.No.0175-2206523 Email: fa@pstcl.org

To

The Registrar,
Punjab State Electricity Regulatory Commission,
SCO NO.220-221, Sector-34-A,
Chandigarh.

Memo No. 2693 /FA/Comml.-703

Dated: 26/9/16

Subject: Petition No. 44 of 2016:- For the approval of PSTCL's Capital Investment Plan for MYT Control Period (FY 2017-18 to FY 2019-20) under Section 62 and 64 of the Electricity Act,2003 read with Regulation-9 of PSERC (Terms and Conditions of Determination of Generation, Transmission, Wheeling and Retail Supply Tariff) Regulations,2014.

Please refer to Hon'ble Commission order dated 16.08.2016 conveyed vide memo no. PSERC/Reg/4462 dated 16.08.2016 and subsequently Minutes of the meeting held on 31.08.2016 conveyed vide memo no. PSERC/Tariff/T/198/5277 dated 9.09.2016, PSTCL hereby submits the replies/revised submissions on the observations/deficiencies pertaining to Capital Investment Plan for the Control Period from FY 2017-18 to FY 2019-20.

REPLY TO DEFECIENCIES

1. Capital Investment Plan: As per Regulation 9 of PSERC (Terms and Conditions for Determination of Generation, Transmission, Wheeling and Retail Supply Tariff) Regulations, 2014 (MYT Regulations), the Capital Investment Plan shall include the following:

- a) Purpose of investment;
- b) Broad Technical Specifications of the proposed investment and supporting details;
- c) Capital Structure;
- d) Capitalization Schedule;
- e) Financing Plan, including identified sources of investment;
- f) Physical targets;

- g) Cost-benefit analysis;
- h) Prioritization of proposed Investments;
- i) Capital Investment Plan shall commensurate with the capacity addition during the control period;
- j) The purpose of investment shall include the following:
 - i. Nature of investment (evacuation project, system augmentation, system strengthening, IT related projects etc.)
 - ii. Details of physical parameters of the project such as circuit-kms, capacity in MVA, location of the project etc.
 - iii. Break-up of investment in capacitor banks, reduction in reactive power drawal and transmission losses.
- k) Capital Investment in network expansion shall be based on Load Flow studies and in accordance with the requirements of the State Grid Code;
- l) The capital investment plan shall be linked to the improvement in quality of service, reliability, metering and reduction in transmission losses and distribution losses.

In view of the above, it has been observed that the Capital Investment Plan submitted by PSTCL is not in line with the provisions contained in the MYT Regulations. Details of each Capital Work of Transmission and SLDC as per Regulation 9 of MYT Regulations, needs to be provided.

The work wise details of the capital investment plan needs to be provided. Also, the amount on account of cost of insurance charges, interest during construction period, scrap/reliable vale of old assets, etc. considered/adjusted in each scheme needs to be intimated.

PSTCL's Reply:

PSTCL in its Capital Investment Plan Petition has submitted that the operational and system constraints are analysed based on the loading during the paddy season and some fine-tuning of the proposed works for the Control Period would be carried out after analysing the loading during paddy seasons in 2016. Hence, PSTCL would be required to revise the proposed works during the control period keeping in view the actual maximum demand & system constraints witnessed during the current year, i.e, FY 2016-17.

PSTCL has analysed the operational and system constraints based on loading during Paddy season for 2016. The Transmission plan is based on system studies with loading conditions as per 18th EPS report. The maximum demand recorded vis-à-vis the anticipated projections of 18th EPS report is shown in the following table:

Actual demand vis-à-vis anticipated demand in 18th EPS (MW)

Sr. No.	Particulars	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17
1	Anticipated demand in 18 th EPS	10292	10770	11271	11794	12342
2	Actual demand	11520	10141	11534	10858	10960

As per the above data, there is a negative growth of about 5.84% to 11.2% except in FY 2012-13 where there is growth of 11.93%. The overall average growth for the period from FY 2012-13 to FY 2016-17 is -2.62%. For preparation of transmission network planning, the projected demand has been revised for future period as shown in the following table:

Anticipated demand for future period (MW)

Sr. No.	Particulars	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22
1	Anticipated demand	12514	13399	13648	14089	14553

Further, PSTCL sought details regarding the planning of sub-transmission works and demand forecast from PSPCL. PSTCL received the various schemes planned by PSPCL for sub-transmission network considering the demand in the area of supply. PSTCL has taken into account the proposed schemes by PSPCL. Therefore, keeping in view the load growth on account of 1.90 lakh tube well connections, which are going to be increased very soon by PSPCL, on account of system strengthening, augmentation of existing 220/132 kV grids, replacement of existing overloaded 220/132 kV conductor with high ampacity conductor, the transmission planning has been carried out.

The summary of Capital Investment proposed for the Control period is shown in the following table:

Summary of Capital Investment proposed for Control Period (Rs. Crore)

Particulars	FY 2017-18	FY 2018-19	FY 2019-20
Spill Over schemes			
400 kV Transmission Works	0.00	0.00	0.00
220 kV Transmission Works	60.74	0.00	0.00
132 kV Transmission Works	0.13	0.00	0.00
Total	60.87	0.00	0.00
New Development Schemes			
400 kV Transmission Works	73.70	41.34	0.00
220 kV Transmission Works	176.17	169.04	114.94
132 kV Transmission Works	0.00	0.00	0.39

Particulars	FY 2017-18	FY 2018-19	FY 2019-20
Miscellaneous Works	32.50	30.00	30.00
ERP Implementation	28.26	2.23	0.00
Total	310.63	242.61	145.33
Total Schemes			
400 kV Transmission Works	73.70	41.34	0.00
220 kV Transmission Works	236.91	169.04	114.94
132 kV Transmission Works	0.13	0.00	0.39
Miscellaneous Works	32.50	30.00	30.00
ERP Implementation	28.26	2.23	0.00
Total Works	371.50	242.61	145.33

Further, PSTCL has projected the capitalisation of works in the proposed completion year. Accordingly, the PSTCL has summarized the Capitalisation schedule proposed during the Control period as shown in the following table:

Capitalisation Schedule for the Control Period (Rs. Crore)

Particulars	FY 2017-18	FY 2018-19	FY 2019-20
Spill Over schemes			
400 kV Transmission Works	0.00	0.00	0.00
220 kV Transmission Works	147.04	0.00	0.00
132 kV Transmission Works	0.65	0.00	0.00
Total	147.69	0.00	0.00
New Development Schemes			
400 kV Transmission Works	0.00	115.04	0.00
220 kV Transmission Works	0.00	287.77	99.01
132 kV Transmission Works	0.00	0.00	0.00
Miscellaneous Works	32.50	30.00	30.00
ERP Implementation	0.00	36.95	0.00
Total	32.50	469.76	129.01
Total Schemes			
400 kV Transmission Works	0.00	115.04	0.00
220 kV Transmission Works	147.04	287.77	99.01
132 kV Transmission Works	0.65	0.00	0.00
Miscellaneous Works	32.50	30.00	30.00
ERP Implementation	0.00	36.95	0.00
Total Works	180.19	469.76	129.01

It may be noted that PSTCL has not proposed any change in Capital Investment Plan proposed for SLDC.

The list of works along with work wise details of purpose and nature of investment, capital structure, year wise capitalisation schedule, financing plan, physical target (addition of capacity and line length), prioritization of investment, broad technical justification, etc. are submitted as **Annexure I** to this document.

The details of system load flow studies carried out are also attached as **Annexure II** to this document.

As regards the details of schemes required as per Regulation 9 of MYT Regulations, 2014, during the meeting held on August 31, 2016, PSTCL has expressed its difficulty in submission of technical specification and cost benefit analysis as such detailed information is not available at this stage. After recognizing the difficulties, the Hon'ble Commission desired justification for capital expenditure as such expenditure against various heads is to be allowed on the basis of capital expenditure approved. In view of the above, PSTCL submits the technical justification of the works attached as **Annexure III** to this document.

It may be noted that PSTCL has projected the cost of the works based on cost data available for FY 2015-16. However, no escalation has been considered while projecting the cost of the works. PSTCL has not projected any amount on account of cost of insurance charges, interest during construction period, scrap/reliable vale of old assets, etc. at this stage. The same shall be available on actual basis after execution of the project.

2. Funding of Capital Investment Plan: In the Capital Investment Plan for Transmission and SLDC, PSTCL has proposed to carry out the capital works with 100% debt financing from banks and financial institutions, whereas Regulation 19 of MYT Regulations provide normative debt:equity ratio of 70:30. PSTCL has not intimated the source of investment i.e., name of banks/financial institutions from where debt financing has been proposed. PSTCL is required to provide for each scheme as under:

- i. The name of banks and financial institutions which have agreed to provide 100% debt financing.
- ii. The details of repayment of loan and rate of interest on these loans.
- iii. Source of funding for repayment of loan in addition to allowable depreciation.

PSTCL's Reply:

Regulation 19 of the PSERC MYT Regulations, 2014 provides the normative debt: equity ratio as 70:30. PSTCL submits that it has proposed normative debt:equity ratio of 70:30 as per PSERC MYT Regulations, 2014. PSTCL will utilize Return on equity as equity infusion. The remaining funding of capital works shall be carried out by taking loan from banks and financial institutions. Since, these schemes are in the planning stage, it would be difficult to ascertain the source of debt financing

at this stage as it depends upon banks/financial institutions come forward and rate of interest offered by them for such projects.

3. **Capitalisation schedule of PSTCL:** In Table-10 of the Capital Investment Plan, PSTCL has submitted Rs. 121.08 Crore for FY 2017-18 as capitalisation of 220 kV works, whereas in Table 9, PSTCL has submitted Capital Investment Plan of Rs. 5.18 Crore. The bases for determining capitalisation are not clear. In this regard, PSTCL should clarify the complete details/basis regarding the assumption of scheme-wise capitalisation of assets for the Control period.

PSTCL's Reply:

PSTCL submits that Table 10 of the Capital Investment Plan indicates the summary of capitalisation for works which are going to be completed during the respective year. During FY 2017-18, PSTCL has also projected the capitalisation of spill over works which were initiated prior to the control period. Hence, the capitalisation proposed during FY 2017-18 is more than capital investment proposed during FY 2017-18.

PSTCL further submits that on account of revision in works, the Table 9 and Table 10 of the Petition have been revised and submitted in the reply at Sr. No. 1 of this document.

4. **Additional Capitalisation of Works:** As per proviso to Regulation 18.2 of MYT Regulations, expenditure on acquiring the minor items or the assets like tools and tackles, furniture, air conditioners, voltage stabilizers, refrigerators, coolers, fans, washing machine, heat converters, mattresses, carpets, etc. brought after cut-off date shall not be considered for additional capitalisation for determination of tariff with effect from the date of start of the first year of the control period. PSTCL should confirm that the additional capitalisation proposed for the control period does not include any such items as referred in Regulation 18.2 of MYT Regulations.

PSTCL's Reply:

PSTCL hereby confirms that the additional capitalisation proposed for the control period does not include minor items or the assets like tools and tackles, furniture, air conditioners, voltage stabilizers, refrigerators, coolers, fans, washing machine, heat converters, mattresses, carpets, etc.

DA/As above


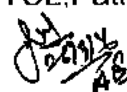

26/9/16
Financial Advisor,
PSTCL, Patiala


Table with columns: Sr. No., Works Category, Scheme Type, Name of Works, Capacity in MVA and Line Length in kms, Year of Start, Total Cost of Scheme (Rs. Lakh), Equity (Rs. Lakh), Debt (Rs. Lakh), Remarks, Work Code, Network Addition, Nature of Investment, Estimated Benefit in, Capital Expenditure (Rs. Lakh), Capitalisation (Rs. Lakh), Transmission Line Length (Ck4-km), Transformation Capacity (MVA).

FAULT STUDY

PUNJAB POWER SYSTEM PROPOSED 2017-22 PSS(R)E-33.2.0 IEC 60909 SHORT CIRCUIT CURRENTS WED, AUG 24 2016 6:51

OUTPUT FOR AREA 1 [PUNJAB]

OPTIONS USED:

- VOLTAGE FACTOR C=1.05 WHEN BUS BASE KV<=1.0 KV and C=1.1 WHEN BUS BASE KV>1.0 KV
- SET SYNCHRONOUS/ASYNCHRONOUS MACHINE POWER OUTPUTS TO P=0.0, Q=0.0
- SET GENERATOR POSITIVE SEQUENCE REACTANCES TO SUBTRANSIENT
- TRANSFORMER TAP RATIOS AND PHASE SHIFT ANGLES UNCHANGED
- SET LINE CHARGING=0.0 IN +/- SEQUENCES
- SET LINE/FIXED/SWITCHED SHUNTS=0.0 AND TRANSFORMER MAGNETIZING ADMITTANCE=0.0 IN +/- SEQUENCES
- LOAD REPRESENTED IN +/-0 SEQUENCES
- DC LINES AND FACTS DEVICES BLOCKED
- IMPEDANCE CORRECTIONS NOT APPLIED TO TRANSFORMER ZERO SEQUENCE IMPEDANCES

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I¹k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <ASym Ib>

X-----X	BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP
101001	[GNGL1] 3PH	2267.29	9916.8	-79.46	25493.5	23967.0	8747.8	9915.4	13222.6
	LG	1019.69	4460.0	-60.27	8679.8	9551.4	3925.8	4336.7	5849.7

Note - 1p(B) currents include safety factor multiplier (1.15).

THEVENIN IMPEDANCE, X/R (OHM) Z+:/8.453/79.456, 5.37245 Z-:/8.873/78.464, 4.89930 Z0:/40.360/52.363, 1.29681

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I¹k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <ASym Ib>

X-----X	BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP
101002	[KHR1] 3PH	2007.24	8779.4	-75.33	20942.3	19944.2	4590.5	8779.4	9907.1
	LG	1011.15	4422.7	-52.10	8018.6	7301.2	11.5	4422.7	4422.7

Note - 1p(B) currents include safety factor multiplier (1.15).

THEVENIN IMPEDANCE, X/R (OHM) Z+:/9.549/75.325, 3.81859 Z-:/9.666/74.788, 3.67744 Z0:/39.883/41.268, 0.87754

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I¹k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <ASym Ib>

X-----X	BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP
101003	[GLA11] 3PH	3132.73	13702.1	-66.81	28770.4	27070.8	36.8	13702.1	13702.2
	LG	2519.63	11020.5	-44.70	19128.6	15900.7	0.0	10885.3	10885.3

Note - 1p(B) currents include safety factor multiplier (1.15).

THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.118/66.809, 2.33423 Z-:/6.204/66.124, 2.25918 Z0:/12.261/22.813,

FAULT STUDY

0.42062

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----BUS -----X
 101004 [PGWR1 132.00] 3PH MVA 4480.61 19597.6 -68.88 42312.9 40493.3 109.6 19597.6 19597.9
 LG 2748.99 12023.7 -47.18 21134.6 18882.1 2.2 12023.7 12023.7
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/4.278/58.879, 2.58877 Z-:/4.344/67.846, 2.45610 Z0:/13.249/33.582,
 0.66394

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----BUS -----X
 101005 [TDBHL 132.00] 3PH MVA 2004.44 8767.2 -73.21 20194.2 19853.1 6790.8 8767.2 11089.6
 LG 856.25 3745.1 -50.16 6701.3 5828.1 1.6 3745.1 3745.1
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/9.562/73.206, 3.31349 Z-:/9.606/72.721, 3.21483 Z0:/50.036/41.628,
 0.88871

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----BUS -----X
 101006 [SADQ1 132.00] 3PH MVA 1854.44 8111.1 -70.26 17861.3 16802.0 13.8 8111.1 8111.1
 LG 746.70 3266.0 -26.54 5430.6 4987.3 18.6 3266.0 3266.0
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/10.335/70.262, 2.78711 Z-:/10.390/69.806, 2.71877 Z0:/63.590/13.575,
 0.24146

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----BUS -----X
 101007 [MKSRI 132.00] 3PH MVA 3538.57 15564.7 -74.10 36376.6 36848.9 5077.3 15564.7 16371.9
 LG 1835.06 8026.3 -22.36 13323.3 11755.4 1311.4 8026.3 8132.7
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.386/74.104, 3.51134 Z-:/5.446/73.139, 3.29952 Z0:/25.968/3.375,
 0.05898

10/10/10

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

X- 101008	BUS [MK21]	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP
		3578.32	15651.1	-74.33	36716.4	37223.1	5796.9	15651.1	16690.1
		1824.97	7982.2	-22.11	13249.3	11692.9	1314.3	7982.2	8089.7

Note - ip(B) currents include safety factor multiplier (1.15)
THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.356/74.332, 3.56521 Z-:/5.416/73.359, 3.34561 Z0:/26.237/3.301, 0.05767

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

X- 101009	BUS [KTKP1]	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP
		1716.26	7506.7	-68.63	16152.6	15015.3	3.5	7506.7	7506.7
		921.09	4028.7	-59.87	7808.8	6829.9	1.0	4028.7	4028.7

Note - ip(B) currents include safety factor multiplier (1.15)
THEVENIN IMPEDANCE, X/R (OHM) Z+:/11.168/68.634, 2.55619 Z-:/11.224/68.220, 2.50269 Z0:/40.420/55.142, 1.43569

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

X- 101010	BUS [KTKP1]	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP
		1702.55	7446.7	-68.59	16014.6	14875.1	3.3	7446.7	7446.7
		911.70	3987.6	-60.20	7755.3	6765.6	0.9	3987.6	3987.6

Note - ip(B) currents include safety factor multiplier (1.15)
THEVENIN IMPEDANCE, X/R (OHM) Z+:/11.257/68.594, 2.55087 Z-:/11.314/68.183, 2.49808 Z0:/40.853/55.688, 1.46530

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

X- 101011	BUS [SMDB1]	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP
		1144.10	5004.1	-67.17	10557.6	9757.0	1.5	5004.1	5004.1
		616.70	2697.3	-50.61	4840.6	4725.2	0.0	2697.3	2697.3

Note - ip(B) currents include safety factor multiplier (1.15)
THEVENIN IMPEDANCE, X/R (OHM) Z+:/16.752/67.175, 2.37596 Z-:/16.798/66.924, 2.34720 Z0:/61.792/41.769, 0.89313

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
<-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
<-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->

FAULT STUDY

Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.134/70.763, 2.86564 Z-:/5.205/69.850, 2.72525 Z0:/21.666/29.586,
 0.56776

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I¹k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <ASym Ib>

BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
101017 [SRN1]	2152.07	9412.9	-73.95	21943.8	21652.8	7364.3	9412.9	11951.4	11951.4
LG	2124.41	9291.9	-46.27	16254.0	13906.3	5727.1	9291.9	10915.1	10915.1

Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/8.906/73.950, 3.47598 Z-:/9.398/72.751, 3.22067 Z0:/13.611/8.550,
 0.15035

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I¹k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <ASym Ib>

BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
101018 [UBDCL]	2107.91	9219.7	-73.85	21459.1	21123.4	6563.0	9219.7	11317.1	11317.1
LG	2052.15	8975.8	-47.76	15828.4	13551.8	5746.1	8975.8	10657.5	10657.5

Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/9.093/73.852, 3.45371 Z-:/9.597/72.654, 3.20158 Z0:/13.744/11.964,
 0.21190

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I¹k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <ASym Ib>

BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
101019 [PTKT1]	1940.89	8489.2	-72.10	19217.2	18760.5	2176.6	8489.2	8763.8	8763.8
LG	2004.05	8765.5	-43.37	15124.2	12903.2	2485.7	8760.8	9106.6	9106.6

Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/9.875/72.101, 3.09627 Z-:/10.386/71.060, 2.91404 Z0:/14.459/1.908,
 0.03331

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I¹k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <ASym Ib>

BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
101020 [MMUN1]	1590.11	6954.9	-71.08	15501.9	14802.9	458.6	6954.9	6970.0	6970.0
LG	1514.67	6625.0	-46.56	11606.4	9832.2	627.2	6625.0	6654.6	6654.6

Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/12.054/71.082, 2.91773 Z-:/12.590/70.230, 2.78223 Z0:/18.447/13.527,
 0.24057

FAULT STUDY

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k /I/ AN(I) rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <ASym Ib->
 X-----BUS -----X
 101021 [KNGR1 132.00] 3PH MVA 1182.97 5174.2 -70.01 11352.3 10438.5 201.7 5174.2 5178.1
 LG 1128.90 4937.6 -2.50 8190.9 7138.6 37.3 4937.6 4937.8
 Note - ip(B) currents include safety multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/16.202/70.010, 2.74899 Z-:/17.193/68.919, 2.59408 Z0:/48.760/-36.566,
 0.74175

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k /I/ AN(I) rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <ASym Ib->
 X-----BUS -----X
 101022 [JOGN1 132.00] 3PH MVA 1185.27 5184.2 -72.08 11732.0 10808.1 2070.4 5184.2 5582.4
 LG 1066.86 4666.3 -54.65 8626.7 8139.9 1819.1 4666.3 5008.4
 Note - ip(B) currents include safety multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/16.170/72.081, 3.09253 Z-:/17.836/70.127, 2.76654 Z0:/23.344/30.369,
 0.58596

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k /I/ AN(I) rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <ASym Ib->
 X-----BUS -----X
 101023 [FPJLD1 132.00] 3PH MVA 5087.02 22249.9 -72.67 50815.9 49148.4 1956.2 22249.9 22335.8
 LG 2827.28 12366.2 -46.52 21659.6 20305.8 33.1 12366.2 12366.2
 Note - ip(B) currents include safety multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.768/72.670, 3.20463 Z-:/3.835/71.428, 2.97632 Z0:/13.870/32.858,
 0.64588

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k /I/ AN(I) rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <ASym Ib->
 X-----BUS -----X
 101026 [HSPRI 132.00] 3PH MVA 2772.22 12125.3 -70.32 26723.6 25026.8 64.3 12125.3 12125.5
 LG 1478.82 6468.2 -23.06 10738.8 10363.0 0.0 6468.2 6468.2
 Note - ip(B) currents include safety multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.914/70.320, 2.79601 Z-:/7.012/69.607, 2.68986 Z0:/31.077/3.965,
 0.06931

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

FAULT STUDY

SCMVA	Sym	I ¹ k	rms	ip(B)	ip(C)	DC Ib(C)	Sym Ib	Asym Ib
101027	[APH11]	3PH	MVA	DEG	DEG	DEG	AMP	AMP
		132.00]	1710.07	7479.6	-67.39	15825.0	14516.6	7479.6
			807.95	3533.9	-52.80	6440.0	5638.8	7479.7
							25.1	3533.9
							8.9	3533.9
								7479.6
								3533.9
								7479.6
								3533.9

SCMVA	Sym	I ¹ k	rms	ip(B)	ip(C)	DC Ib(C)	Sym Ib	Asym Ib
101028	[APH21]	3PH	MVA	DEG	DEG	DEG	AMP	AMP
		132.00]	2080.32	9099.0	-67.69	19329.5	17848.3	9099.1
			978.64	4280.5	-49.10	7608.3	6522.4	4280.5
								9099.0
								4280.5
								9099.0
								4280.5
								9099.0
								4280.5

SCMVA	Sym	I ¹ k	rms	ip(B)	ip(C)	DC Ib(C)	Sym Ib	Asym Ib
101029	[APSB1]	3PH	MVA	DEG	DEG	DEG	AMP	AMP
		132.00]	1723.93	7540.2	-67.31	15936.3	14634.9	7540.3
			812.34	3553.1	-52.60	6465.6	5655.5	3553.1
								7540.2
								3553.1
								7540.2
								3553.1
								7540.2
								3553.1

SCMVA	Sym	I ¹ k	rms	ip(B)	ip(C)	DC Ib(C)	Sym Ib	Asym Ib
101030	[KTLA1]	3PH	MVA	DEG	DEG	DEG	AMP	AMP
		132.00]	2637.25	11535.0	-74.22	27012.3	25097.1	11535.1
			1596.80	6984.2	-36.42	11776.7	12169.5	6984.2
								11535.0
								6984.2
								11535.0
								6984.2
								11535.0
								6984.2

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

101031 [RPRI 132.00] 3PH 3930.85 17193.0 17193.0 17193.0 17201.6
 LG 3146.37 13761.8 -73.15 542.7 17193.0 17201.6
 Note - ip(B) currents include safety factor multiplier (1.15) 38163.5 19851.4 6.1 12368.3 12368.3
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/4.876/73.150, 3.30174 Z-:/5.033/72.038, 3.08467 Z0:/19.039/-37.038,
 0.75460

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)--> <-ip(C)--> <DC Ib(C)> <Sym Ib--> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/
 X-----X
 [ASRNI 132.00] 3PH MVA AMP DEG AMP AMP AMP AMP
 3054.35 13359.3 -72.85 30597.1 28896.8 223.3 13359.3 13361.2
 LG 2420.64 10587.5 -19.13 17566.3 15387.3 3.0 9935.4 9935.4
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.275/72.849, 3.24019 Z-:/6.426/72.005, 3.07863 Z0:/19.101/-13.078,
 0.23231

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)--> <-ip(C)--> <DC Ib(C)> <Sym Ib--> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/
 X-----X
 [CMKS1 132.00] 3PH MVA AMP DEG AMP AMP AMP AMP
 2300.32 10061.3 -66.72 21100.6 19408.4 1.6 10061.3 10061.3
 LG 2242.27 9807.4 -38.85 16646.1 14299.8 0.0 9603.6 9603.6
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/8.332/66.718, 2.32397 Z-:/8.462/66.194, 2.26665 Z0:/13.281/2.974,
 0.05195

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)--> <-ip(C)--> <DC Ib(C)> <Sym Ib--> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/
 X-----X
 [JMP1 132.00] 3PH MVA AMP DEG AMP AMP AMP AMP
 4687.30 20501.6 -72.31 46560.4 45725.6 11214.5 20501.6 23368.4
 LG 2864.18 12527.5 -48.48 22184.2 18177.3 1.0 12465.7 12465.7
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/4.089/72.310, 3.13529 Z-:/4.151/71.206, 2.93854 Z0:/12.923/33.894,
 0.67182

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)--> <-ip(C)--> <DC Ib(C)> <Sym Ib--> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/
 X-----X
 [SMSPR1 132.00] 3PH MVA AMP DEG AMP AMP AMP AMP
 2236.22 9780.9 -66.57 20473.7 18919.0 6.1 9780.9 9780.9
 LG 1543.52 6751.2 -55.08 12524.8 10169.6 0.0 6751.2 6751.2
 Note - ip(B) currents include safety factor multiplier (1.15)

THEVENIN IMPEDANCE, X/R (OHM) Z+:/8.571/66.571, 2.30764 Z-:/8.656/66.082, 2.25470 Z0:/20.631/45.716, 1.02530

FAULT STUDY

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----BUS-----X
 101036 [DORAHAI] 132.00] 3PH MVA 1433.00 6267.7 -66.01 13025.5 11893.4 AMP AMP
 LG 737.20 3224.4 -57.28 6096.9 5183.2 AMP AMP
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/13.375/66.007, 2.24674 Z-:/13.457/65.696, 2.21432 Z0:/51.619/52.842, 1.31948

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----BUS-----X
 101038 [BLSPLR] 132.00] 3PH MVA 1157.19 5061.4 -65.76 10485.8 9541.8 AMP AMP
 LG 561.95 2457.9 -59.21 4732.7 4093.6 AMP AMP
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/16.563/65.760, 2.22091 Z-:/16.644/65.510, 2.19526 Z0:/69.423/56.136, 1.49019

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----BUS-----X
 101039 [STHORI] 132.00] 3PH MVA 914.03 3997.8 -65.60 8265.9 7494.2 AMP AMP
 LG 428.93 1876.1 -61.21 3687.2 3233.7 AMP AMP
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/20.969/65.601, 2.20455 Z-:/21.049/65.404, 2.18454 Z0:/92.207/59.255, 1.68118

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----BUS-----X
 101040 [JDLAI] 132.00] 3PH MVA 1772.59 7753.1 -67.32 16389.7 15009.0 AMP AMP
 LG 791.12 3460.2 -51.81 6260.7 5575.2 AMP AMP
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/10.813/67.325, 2.39350 Z-:/10.944/66.810, 2.33435 Z0:/52.008/45.484, 1.01702

FAULT STUDY

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k /I/ AN(I) rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----BUS -----X
 101041 [NWSR1 132.00] 3PH MVA AMP DEG AMP AMP AMP AMP AMP AMP AMP
 1418.39 3051.65 13347.5 -67.81 28399.9 26945.4 75.8 13347.5 13347.7
 6203.8 -44.22 10744.6 9520.2 0.0 6203.8 6203.8
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.281/67.811, 2.45181 Z-:/6.367/67.054, 2.36201 Z0:/29.340/34.442,
 0.68579

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k /I/ AN(I) rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----BUS -----X
 101042 [GRY1 132.00] 3PH MVA AMP DEG AMP AMP AMP AMP AMP AMP AMP
 2973.05 5246.15 22945.9 -71.53 51488.2 50604.8 5251.2 22946.0 23539.2
 13003.7 -47.58 22908.2 19561.1 5.5 12965.7 12965.7
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.653/71.526, 2.99328 Z-:/3.716/70.277, 2.78939 Z0:/12.907/34.522,
 0.68784

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k /I/ AN(I) rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----BUS -----X
 101043 [JLD1 132.00] 3PH MVA AMP DEG AMP AMP AMP AMP AMP AMP AMP
 3854.48 6795.19 29721.2 -74.27 69649.3 69630.7 10356.8 29721.2 31474.0
 16859.0 -34.55 28311.1 25853.3 392.1 16859.0 16863.5
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/2.821/74.267, 3.54975 Z-:/2.886/72.573, 3.18578 Z0:/11.069/15.674,
 0.28060

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k /I/ AN(I) rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----BUS -----X
 101044 [UEP2J1 132.00] 3PH MVA AMP DEG AMP AMP AMP AMP AMP AMP AMP
 914.20 1861.17 8140.5 -68.55 17495.9 15976.5 7.6 8140.5 8140.5
 3998.6 -61.73 7902.7 7457.2 0.0 3998.6 3998.6
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/10.298/68.549, 2.54507 Z-:/10.365/68.120, 2.49013 Z0:/42.436/58.518,
 1.63298

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

FAULT STUDY

BUS	X	MVA	/I/	AN(I)	DEG	/I/	/I/	/I/	/I/	/I/	/I/	/I/	/I/
101045	[NKDR1]	132.00]	3PH	2860.84	12513.0	-69.90	27410.5	25805.2	11117.2	10667.4	664.1	12513.0	12530.6
			LG	1338.51	5854.5	-57.75					0.0	5854.5	5854.5
Note - ip(B) currents include safety factor multiplier (1.15).													
THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.700/69.901, 2.73272 Z-:/6.762/69.234, 2.63728 Z0:/29.909/52.460, 1.30134													

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I¹k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

BUS	X	MVA	/I/	AN(I)	DEG	/I/	/I/	/I/	/I/	/I/	/I/	/I/	
101046	[SCTYL]	132.00]	3PH	2863.64	12525.2	-73.43	28952.6	27514.2	9381.9	9587.8	4812.7	12525.2	13418.0
			LG	1256.43	5495.4	-40.64					0.0	5495.4	5495.4
Note - ip(B) currents include safety factor multiplier (1.15).													
THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.693/73.427, 3.36018 Z-:/6.754/72.720, 3.21452 Z0:/35.163/28.804, 0.54984													

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I¹k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

BUS	X	MVA	/I/	AN(I)	DEG	/I/	/I/	/I/	/I/	/I/	/I/	/I/	
101047	[KMDR1]	132.00]	3PH	1921.86	8405.9	-71.83	18950.7	17896.9	4862.6	4870.0	398.9	8405.9	8415.4
			LG	670.17	2931.2	-15.45					0.0	2931.2	2931.2
Note - ip(B) currents include safety factor multiplier (1.15).													
THEVENIN IMPEDANCE, X/R (OHM) Z+:/9.973/71.834, 3.04765 Z-:/10.033/71.358, 2.96428 Z0:/76.481/2.899, 0.05064													

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I¹k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

BUS	X	MVA	/I/	AN(I)	DEG	/I/	/I/	/I/	/I/	/I/	/I/	/I/	
101048	[KPTL1]	132.00]	3PH	1943.73	8501.6	-70.70	18841.2	17625.1	5571.6	5667.0	127.5	8501.6	8502.6
			LG	766.84	3354.1	-24.63					0.0	3354.1	3354.1
Note - ip(B) currents include safety factor multiplier (1.15).													
THEVENIN IMPEDANCE, X/R (OHM) Z+:/9.861/70.697, 2.85506 Z-:/9.921/70.229, 2.78207 Z0:/62.822/11.578, 0.20486													

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I¹k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

BUS	X	MVA	/I/	AN(I)	DEG	/I/	/I/	/I/	/I/	/I/	/I/	/I/	
101049	[ALWPR1]	132.00]	3PH	2822.83	12346.7	-68.53	26528.4	24548.0			11.8	12346.7	12346.7

FAULT STUDY

LG 1767.52 7730.9 -39.87 13164.1 13601.7 0.0 7730.9 7730.9
 Note - ip(B) currents include safety multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.790/68.529, 2.54240 Z-:/6.907/67.770, 2.44675 Z0:/21.473/22.286,
 0.40984

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 BUS MVA AMP DEG AMP AMP AMP AMP
 101050 [TNDAL 132.00] 3PH 1921.24 8403.3 -67.77 17870.8 16318.3 12.0 8403.3 8403.3
 LG 1006.76 4403.4 -36.94 7434.7 8025.5 0.0 4403.4 4403.4
 Note - ip(B) currents include safety multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/9.976/67.774, 2.44721 Z-:/10.213/67.060, 2.36270 Z0:/41.011/22.488,
 0.41397

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 BUS MVA AMP DEG AMP AMP AMP AMP
 101051 [DHILWNI 132.00] 3PH 2912.56 12739.2 -68.57 27388.2 25279.5 19.0 12739.2 12739.2
 LG 1720.53 7525.4 -60.99 14755.8 12652.5 0.0 7525.4 7525.4
 Note - ip(B) currents include safety multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.581/68.573, 2.54811 Z-:/6.649/67.907, 2.46352 Z0:/20.364/56.287,
 1.49869

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 BUS MVA AMP DEG AMP AMP AMP AMP
 101052 [BEAS1 132.00] 3PH 2811.67 12297.9 -69.98 26971.2 24925.7 125.0 12297.9 12298.5
 LG 1506.92 6591.1 -62.86 13191.2 11389.1 0.0 6591.1 6591.1
 Note - ip(B) currents include safety multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.817/69.982, 2.74486 Z-:/6.883/69.329, 2.65049 Z0:/24.607/59.089,
 1.67016

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 BUS MVA AMP DEG AMP AMP AMP AMP
 101053 [TNGRI 132.00] 3PH 3165.85 13847.0 -68.85 29883.6 28096.6 305.7 13847.0 13850.4
 LG 1957.31 8561.0 -57.56 16228.1 13388.2 0.1 8561.0 8561.0
 Note - ip(B) currents include safety multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.054/68.847, 2.58447 Z-:/6.121/68.132, 2.49155 Z0:/17.575/50.009,

1.19211

FAULT STUDY

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

X-----X	BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
101054	[JGRU1	2690.51	11767.9	-67.82	25040.6	23359.4	22.6	11767.9	11768.0	11768.0
	LG	1687.24	7379.8	-56.93	13910.3	11511.8	0.0	7379.8	7379.8	7379.8

Note - ip(B) currents include safety factor multiplier (1.15)

THEVENIN IMPEDANCE, X/R (OHM) Z+:/7.124/67.816, 2.45239 Z-:/7.194/67.219, 2.38106 Z0:/20.177/49.447, 1.16864

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

X-----X	BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
101055	[VRKA	4210.12	18414.5	-70.51	40695.8	40288.2	1193.3	18414.5	18453.1	18453.1
	LG	2571.85	11248.9	-29.96	18758.9	16226.5	3.1	11248.9	11248.9	11248.9

Note - ip(B) currents include safety factor multiplier (1.15)

THEVENIN IMPEDANCE, X/R (OHM) Z+:/4.552/70.507, 2.82501 Z-:/4.627/69.539, 2.68014 Z0:/16.430/8.884, 0.15631

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

X-----X	BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
101056	[PCAL	3901.07	17062.8	-71.19	38093.9	37485.8	2204.5	17062.8	17204.6	17204.6
	LG	2273.14	9942.4	-34.85	16706.4	14348.2	0.5	9942.4	9942.4	9942.4

Note - ip(B) currents include safety factor multiplier (1.15)

THEVENIN IMPEDANCE, X/R (OHM) Z+:/4.913/71.192, 2.93605 Z-:/4.985/70.286, 2.79080 Z0:/18.224/16.289, 0.29220

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

X-----X	BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
101057	[KTNG	2513.91	10995.5	-66.36	22954.5	21551.3	6.4	10995.5	10995.5	10995.5
	LG	1749.95	7654.1	-38.68	12984.7	11248.1	0.0	7654.1	7654.1	7654.1

Note - ip(B) currents include safety factor multiplier (1.15)

THEVENIN IMPEDANCE, X/R (OHM) Z+:/7.624/66.362, 2.28480 Z-:/7.731/65.800, 2.22512 Z0:/20.483/18.496, 0.33451

FAULT STUDY

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I 'k rms--> <-ip(B)--> <-ip(C)--> <DC Ib(C)> <Sym Ib--> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 101058 [JTPT 132.00] 3PH LG MVA 2427.15 10616.0 22341.2 20819.5 6.5 10616.0 10616.0
 AMP 1740.05 7610.7 -37.11 12855.1 11196.0 0.0 7610.7 7610.7
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/7.897/66.983, 2.35394 Z-:/8.018/66.422, 2.29129 Z0:/20.752/14.849,
 0.26513

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I 'k rms--> <-ip(B)--> <-ip(C)--> <DC Ib(C)> <Sym Ib--> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 101059 [BTLA 132.00] 3PH LG MVA 3668.58 16045.9 -71.82 36164.9 35227.1 2433.5 16045.9 16229.3
 AMP 2379.78 10408.8 -7.17 17266.9 15014.9 0.0 10161.7 10161.7
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.224/71.817, 3.04453 Z-:/5.390/70.761, 2.86528 Z0:/21.737/-18.888,
 0.34215

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I 'k rms--> <-ip(B)--> <-ip(C)--> <DC Ib(C)> <Sym Ib--> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 101060 [SHGP1 132.00] 3PH LG MVA 2323.37 10162.1 -70.58 22482.7 21079.4 418.0 10162.1 10170.7
 AMP 1120.23 4899.7 -16.61 8128.4 8086.3 35.7 4871.1 4871.2
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/8.249/70.581, 2.83671 Z-:/8.620/69.470, 2.67039 Z0:/43.436/-1.552,
 0.02709

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I 'k rms--> <-ip(B)--> <-ip(C)--> <DC Ib(C)> <Sym Ib--> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 101061 [GTR1 132.00] 3PH LG MVA 3421.24 14964.1 -70.13 32886.7 31921.1 244.5 14964.1 14966.0
 AMP 1993.46 8719.1 -39.27 14818.2 12670.8 0.3 8719.1 8719.1
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.602/70.126, 2.76634 Z-:/5.672/69.345, 2.65265 Z0:/19.962/22.631,
 0.41689

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I 'k rms--> <-ip(B)--> <-ip(C)--> <DC Ib(C)> <Sym Ib--> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/

X-----X-----X
 101062 [MLM1] 132.00] 3PH MVA 3689.20 AMP 16136.1 DEG -70.47 AMP 35642.1 AMP 34849.5 AMP 409.5 AMP 16136.1 AMP 16141.3
 LG 2145.49 9384.1 -36.36 15821.3 13560.2 1.1 9384.1 9384.1
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.195/70.472, 2.81950 Z-:/5.265/69.625, 2.69256 Z0:/19.003/18.590,
 0.33635

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----X-----X
 101063 [HKMG] 132.00] 3PH MVA 2127.21 9304.1 DEG -70.52 AMP 20564.7 AMP 19208.2 AMP 63.4 AMP 9304.1 AMP 9304.4
 LG 1092.25 4777.4 -51.17 8605.5 7735.4 0.0 4777.4 4777.4
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/9.010/70.516, 2.82636 Z-:/9.073/70.025, 2.75124 Z0:/36.045/41.715,
 0.89144

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----X-----X
 101064 [GDSP] 132.00] 3PH MVA 2209.76 9665.2 DEG -68.83 AMP 20852.7 AMP 19895.2 AMP 72.5 AMP 9665.2 AMP 9665.5
 LG 1988.61 8697.9 -39.07 14773.2 12681.6 78.8 8695.7 8696.0
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/8.674/68.827, 2.58171 Z-:/8.967/68.105, 2.48816 Z0:/16.074/6.492,
 0.11379

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----X-----X
 101065 [DRWL] 132.00] 3PH MVA 2555.02 11175.3 DEG -68.43 AMP 23977.8 AMP 22937.5 AMP 52.8 AMP 11175.3 AMP 11175.5
 LG 2148.54 9397.4 -27.89 15640.8 13604.9 2.8 9331.0 9331.0
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/7.501/68.426, 2.52911 Z-:/7.722/67.699, 2.43815 Z0:/18.037/-5.098,
 0.08921

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----X-----X
 101066 [MPH1] 132.00] 3PH MVA 1944.88 8506.7 DEG -70.79 AMP 18877.9 AMP 17356.6 AMP 2230.9 AMP 8506.7 AMP 8794.3
 LG 949.04 4151.0 -35.02 6977.5 8308.4 1225.4 4120.8 4299.2

FAULT STUDY

Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/9.855/70.789, 2.86979 Z-:/10.697/68.878, 2.58857 Z0:/45.250/20.015, 0.36427

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 101069 [MPH41 132.00] 3PH MVA AMP DEG AMP AMP AMP AMP AMP AMP
 LG 1976.26 8643.9 -70.81 19189.3 17695.8 1636.3 8643.9 8797.4
 960.10 4199.3 -29.92 7002.6 8082.6 927.9 4170.5 4272.5
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/9.698/70.812, 2.87360 Z-:/10.445/69.085, 2.61666 Z0:/46.306/13.682, 0.24343

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 101070 [BKWD1 132.00] 3PH MVA AMP DEG AMP AMP AMP AMP AMP AMP
 LG 1257.34 5499.4 -67.88 11712.4 11114.8 79.9 5499.4 5500.0
 576.24 2520.4 -23.35 4184.8 4258.6 0.0 2520.4 2520.4
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/15.244/67.881, 2.46040 Z-:/15.297/67.598, 2.42591 Z0:/80.834/8.025, 0.14098

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 101071 [PTI1 132.00] 3PH MVA AMP DEG AMP AMP AMP AMP AMP AMP
 LG 2508.89 10973.6 -73.69 25472.5 24740.4 6260.5 10973.6 12633.8
 885.63 3873.6 2.49 6425.8 5929.7 1.0 3873.6 3873.6
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/7.639/73.686, 3.41670 Z-:/7.693/73.065, 3.28426 Z0:/62.962/-16.151, 0.28961

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 101072 [SLTP1 132.00] 3PH MVA AMP DEG AMP AMP AMP AMP AMP AMP
 LG 2164.02 9465.1 -75.07 22478.9 21638.8 5699.3 9465.1 11048.6
 645.56 2823.6 -7.85 4684.0 4629.1 0.0 2823.6 2823.6
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/8.857/75.066, 3.74930 Z-:/8.915/74.497, 3.60518 Z0:/83.717/-3.409, 0.05956

FAULT STUDY

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----X
 101073 [TRN1] BUS -----X
 MVA 3522.44 15406.7 34338.5 32939.8 190.2 15406.7 15407.9
 AMP /I/ /I/ /I/ /I/ /I/ /I/
 LG 2270.52 9931.0 -20.74 16479.9 14391.2 22.0 9931.0 9931.0
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.441/71.079, 2.91724 Z-:/5.501/70.259, 2.78657 Z0:/20.106/-3.867,
 0.06760

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----X
 101074 [MNSW1] BUS -----X
 MVA 1591.51 6961.1 14874.1 14019.4 9.4 6961.1 6961.1
 AMP /I/ /I/ /I/ /I/ /I/ /I/
 LG 588.95 2576.0 -39.74 4384.6 3941.3 1.0 2576.0 2576.0
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/12.043/68.124, 2.49063 Z-:/12.093/67.758, 2.44533 Z0:/77.205/31.250,
 0.60681

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----X
 101075 [FZR1] BUS -----X
 MVA 2266.00 9911.2 23149.5 22911.6 1701.3 9911.2 10056.1
 AMP /I/ /I/ /I/ /I/ /I/ /I/
 LG 641.25 2804.7 -74.07 4696.7 4289.2 14.5 2804.7 2804.8
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/8.458/74.066, 3.50274 Z-:/8.504/73.500, 3.37603 Z0:/77.621/24.782,
 0.46169

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----X
 101076 [FRZS1] BUS -----X
 MVA 1584.82 6931.8 -67.70 14727.9 14034.4 49.0 6931.8 6932.0
 AMP /I/ /I/ /I/ /I/ /I/ /I/
 LG 650.78 2846.4 -45.39 4957.1 4380.9 0.4 2846.4 2846.4
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/12.094/67.705, 2.43880 Z-:/12.142/67.347, 2.39608 Z0:/66.535/37.503,
 0.76742

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

FAULT STUDY

X-----BUS-----X
 101077 [MOGAA1 132.00] 3PH LG
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/7.673/70.064, 2.75707 Z-:/7.721/69.490, 2.67314 Z0:/20.716/11.068,
 0.19560

<-SCMVA->	<-Sym I'k rms-->	MVA	DEG	<-ip(B)->	<-ip(C)->	<DC Ib(C)>	<Sym Ib->	<Asym Ib>
/I/	/I/	AMP	AN(I)	/I/	/I/	AMP	/I/	/I/
		2497.77	-70.06	23988.4	22835.0	83.0	10924.9	10925.2
		1820.68	-35.68	13405.0	11920.4	42.7	7963.4	7963.5

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/

<-SCMVA->	<-Sym I'k rms-->	MVA	DEG	<-ip(B)->	<-ip(C)->	<DC Ib(C)>	<Sym Ib->	<Asym Ib>
/I/	/I/	AMP	AN(I)	/I/	/I/	AMP	/I/	/I/
		4055.42	-72.83	40615.0	40935.8	4539.2	17737.9	18309.5
		2389.56	-3.09	17337.9	15076.4	1261.5	10451.6	10527.5

Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/4.726/72.832, 3.23693 Z-:/4.771/71.874, 3.05480 Z0:/22.525/-20.133,
 0.36661

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/

<-SCMVA->	<-Sym I'k rms-->	MVA	DEG	<-ip(B)->	<-ip(C)->	<DC Ib(C)>	<Sym Ib->	<Asym Ib>
/I/	/I/	AMP	AN(I)	/I/	/I/	AMP	/I/	/I/
		4313.42	-75.15	44869.1	45666.4	17474.6	18866.3	25715.8
		2698.00	-8.75	19575.8	17022.5	1628.1	11800.7	11912.5

Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/4.443/75.149, 3.77131 Z-:/4.487/74.097, 3.50977 Z0:/19.451/-16.021,
 0.28715

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/

<-SCMVA->	<-Sym I'k rms-->	MVA	DEG	<-ip(B)->	<-ip(C)->	<DC Ib(C)>	<Sym Ib->	<Asym Ib>
/I/	/I/	AMP	AN(I)	/I/	/I/	AMP	/I/	/I/
		1673.65	-68.01	15616.6	14240.4	2.1	7320.3	7320.3
		738.90	-50.45	5793.6	5674.4	0.0	3231.9	3231.9

Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/11.452/68.006, 2.47580 Z-:/11.506/67.635, 2.43035 Z0:/56.325/43.455,
 0.94746

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/

<-SCMVA->	<-Sym I'k rms-->	MVA	DEG	<-ip(B)->	<-ip(C)->	<DC Ib(C)>	<Sym Ib->	<Asym Ib>
/I/	/I/	AMP	AN(I)	/I/	/I/	AMP	/I/	/I/

X-----BUS-----X

101081 [DRMKT1] 132.00] 3PH 921.82 4031.9 921.82 8580.0 7775.0 0.6 4031.9 4031.9
 LG 431.31 1886.5 -49.35 3358.2 3308.3 0.0 1886.5 1886.5
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/20.792/67.821, 2.45305 Z-:/20.841/67.615, 2.42800 Z0:/94.714/41.385,
 0.88116

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----X-----X
 101082 [PHLR1] 132.00] 3PH 3075.53 13452.0 -67.13 28362.6 26412.7 23.9 13452.0 13452.0
 LG 1882.04 8231.8 -56.20 15416.4 13003.2 0.0 8231.8 8231.8
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.232/67.127, 2.37040 Z-:/6.298/66.445, 2.29386 Z0:/18.379/49.007,
 1.15065

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----X-----X
 101083 [SUSN1] 132.00] 3PH 1921.16 8402.9 -68.65 18086.0 16985.0 40.1 8402.9 8403.0
 LG 1192.72 5216.8 -49.86 9316.4 7935.9 2.4 5216.8 5216.8
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/9.976/68.654, 2.55885 Z-:/10.026/68.216, 2.50219 Z0:/29.934/37.568,
 0.76920

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----X-----X
 101084 [BDKLI] 132.00] 3PH 1217.49 5325.1 -67.99 11358.4 10433.4 2.1 5325.1 5325.1
 LG 665.42 2910.5 -50.64 5224.1 5063.7 0.0 2910.5 2910.5
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/15.743/67.994, 2.47428 Z-:/15.790/67.722, 2.44089 Z0:/57.059/41.224,
 0.87617

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----X-----X
 101085 [PNJGRI] 132.00] 3PH 1675.05 7326.5 -66.17 15257.9 14009.7 0.6 7326.5 7326.5
 LG 1158.19 5065.8 -59.49 9781.4 8095.3 0.5 5065.8 5065.8
 Note - ip(B) currents include safety factor multiplier (1.15).

FAULT STUDY

THEVENIN IMPEDANCE, X/R (OHM) Z+:/11.442/66.173, 2.26441 Z-:/11.501/65.786, 2.22369 Z0:/26.974/53.968, 1.37477

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

	MVA	AMP	DEG	AMP	AMP	AMP	AMP
X-----BUS -----X							
101086 [SRNG1 132.00] 3PH LG	2198.32	9615.2	-69.57	20962.0	19930.5	38.4	9615.2
	1416.74	6196.7	-50.15	11087.2	9917.8	48.2	6196.7

Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/8.719/69.566, 2.68409 Z-:/8.780/69.013, 2.60691 Z0:/24.729/36.741, 0.74649

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

	MVA	AMP	DEG	AMP	AMP	AMP	AMP
X-----BUS -----X							
101087 [FRDKT1 132.00] 3PH LG	1110.60	4857.6	-68.45	10426.1	9564.3	0.8	4857.6
	486.22	2126.7	-39.96	3622.3	3563.3	0.0	2126.7

Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/17.258/68.451, 2.53231 Z-:/17.313/68.184, 2.49821 Z0:/89.357/29.368, 0.56274

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

	MVA	AMP	DEG	AMP	AMP	AMP	AMP
X-----BUS -----X							
101088 [JLLBD1 132.00] 3PH LG	1028.70	4499.4	-67.77	9567.7	8847.0	1.5	4499.4
	457.92	2002.9	-51.29	3610.7	3588.1	0.0	2002.9

Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/18.632/67.766, 2.44633 Z-:/18.695/67.510, 2.41546 Z0:/90.364/44.607, 0.98637

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

	MVA	AMP	DEG	AMP	AMP	AMP	AMP
X-----BUS -----X							
101089 [MLOT1 132.00] 3PH LG	1509.92	6604.2	-66.92	13886.5	13100.8	2.5	6604.2
	833.01	3643.5	-35.55	6131.4	5463.4	69.3	3643.5

Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/12.694/66.918, 2.34653 Z-:/12.768/66.533, 2.30346 Z0:/49.044/19.966, 0.36329

FAULT STUDY

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----X BUS -----X
 101090 [GDBH1 132.00] 3PH MVA 1332.69 5829.0 /I/ AN(IT) DEG 12337.8 11506.5 /I/ AMP 1.5 5829.0 /I/ LG 1068.62 4674.0 /I/ AN(IT) DEG 8031.7 6742.2 /I/ AMP 139.6 4674.0 /I/ Note - ip(B) currents include safety factor multiplier (1.15) THEVENIN IMPEDANCE, X/R (OHM) Z+:/14.382/67.419, 2.40463 Z-:/14.467/67.065, 2.36332 Z0:/30.177/18.680, 0.33810

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----X BUS -----X
 101091 [BADL1 132.00] 3PH MVA 926.42 4052.0 /I/ AN(IT) DEG 8541.2 7821.1 /I/ AMP 0.3 4052.0 /I/ LG 624.79 2732.7 /I/ AN(IT) DEG 5006.0 4108.4 /I/ AMP 3.6 2732.7 /I/ Note - ip(B) currents include safety factor multiplier (1.15) THEVENIN IMPEDANCE, X/R (OHM) Z+:/20.689/67.107, 2.36813 Z-:/20.774/66.862, 2.34013 Z0:/52.610/42.893, 0.92902

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----X BUS -----X
 101092 [BLNAL 132.00] 3PH MVA 1567.02 6853.9 /I/ AN(IT) DEG 15356.2 14334.7 /I/ AMP 22.7 6853.9 /I/ LG 2240.55 9799.9 /I/ AN(IT) DEG 16256.7 15310.8 /I/ AMP 808.2 9799.9 /I/ Note - ip(B) currents include safety factor multiplier (1.15) THEVENIN IMPEDANCE, X/R (OHM) Z+:/12.231/71.427, 2.97601 Z-:/12.340/70.950, 2.89598 Z0:/25.424/-47.071, 1.07505

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----X BUS -----X
 101093 [IGC1 132.00] 3PH MVA 2100.73 9188.3 /I/ AN(IT) DEG 23046.9 22449.9 /I/ AMP 2790.5 9188.3 /I/ LG 1533.63 6707.9 /I/ AN(IT) DEG 11127.9 11328.0 /I/ AMP 985.4 6707.9 /I/ Note - ip(B) currents include safety factor multiplier (1.15) THEVENIN IMPEDANCE, X/R (OHM) Z+:/9.124/78.152, 4.76682 Z-:/9.235/77.401, 4.47410 Z0:/42.867/-41.471, 0.88381

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

FAULT STUDY

X-----X
 101094 [CIV1 132.00] 3PH LG MVA 3750.68 16405.0 -72.17 37177.9 36506.3 4741.2 16405.0 17076.3
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.110/72.174, 3.10970 Z-:/5.179/71.292, 2.95300 Z0:/19.973/21.066, 0.38520

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 101095 [VRP1 132.00] 3PH LG MVA 4676.55 20454.6 -75.70 49104.2 49275.0 15211.6 20454.6 25490.9
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/4.098/75.697, 3.92236 Z-:/4.156/74.547, 3.61728 Z0:/20.851/11.222, 0.19841

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 101096 [WGT21 132.00] 3PH LG MVA 3666.67 16037.5 -73.65 37207.4 36873.1 7917.3 16037.5 17885.3
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.227/73.654, 3.40946 Z-:/5.401/72.526, 3.17670 Z0:/25.352/-15.896, 0.28477

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 101097 [NRNG1 132.00] 3PH LG MVA 3389.73 14826.2 -72.12 33570.1 32439.4 658.1 14826.2 14840.8
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.654/72.116, 3.09902 Z-:/5.718/71.319, 2.95763 Z0:/24.125/23.460, 0.43398

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 101099 [EKGD1 132.00] 3PH MVA 2891.22 12645.8 -69.82 27670.7 25888.2 47.7 12645.8 12645.9

Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.629/69.823, 2.72134 Z-:/6.691/69.160, 2.62700 Z0:/18.620/25.892, 0.48540

FAULT STUDY
 LG 1934.60 8461.7 -43.89 14633.5 122925.9 0.9 8461.7 8461.7
 NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----BUS-----X
 101100 [MHP1] 132.00] 3PH MVA 3275.07 14324.7 -75.29 34147.5 32743.2 5198.2 14324.7 15238.7
 LG 1383.31 6050.4 -30.39 10094.7 10207.8 0.0 6050.4 6050.4
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.852/75.287, 3.80812 Z-:/5.931/74.408, 3.58357 Z0:/34.167/16.415, 0.29461

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----BUS-----X
 101101 [GSTP1] 132.00] 3PH MVA 3167.08 13852.4 -77.66 34432.2 32960.2 9467.5 13852.4 16778.7
 LG 1912.07 8363.2 -31.97 13982.4 12492.1 12.9 8068.9 8068.9
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.052/77.659, 4.57072 Z-:/6.184/76.706, 4.23221 Z0:/23.142/9.936, 0.17517

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----BUS-----X
 101102 [BGP1] 132.00] 3PH MVA 2028.29 8871.5 -69.38 19289.5 18060.9 16.3 8871.5 8871.5
 LG 1258.97 5506.6 -56.45 10334.9 8922.0 4.0 5506.6 5506.6
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/9.450/69.380, 2.65760 Z-:/9.500/68.907, 2.59252 Z0:/27.503/47.738, 1.10045

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----BUS-----X
 101103 [MAUR1] 132.00] 3PH MVA 1350.04 5904.9 -77.98 14763.2 14198.9 2462.6 5904.9 6397.8
 LG 452.74 1980.2 -15.47 3285.0 2872.6 102.5 1980.2 1982.9
 Note - ip(B) currents include safety factor multiplier (1.15)
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/14.197/77.976, 4.69514 Z-:/14.290/77.546, 4.52785 Z0:/116.520/2.965,

FAULT STUDY

0.05179

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
<-SCMVA-> <-Sym I'k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
/I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/
X-----X
BUS 132.00] 3PH MVA AMP DEG
101104 [CHDPK1 4019.75 17581.8 -71.47 39416.5 37426.2 364.2 17581.8 17585.6
LG 2205.20 9645.2 -45.55 16810.2 16186.4 3.7 9645.2 9645.2
Note - ip(B) currents include safety factor multiplier (1.15).
THEVENIN IMPEDANCE, X/R (OHM) Z+:/4.768/71.468, 2.98307 Z-:/4.834/70.501, 2.82411 Z0:/17.885/32.216,
0.63012

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
<-SCMVA-> <-Sym I'k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
/I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/
X-----X
BUS 132.00] 3PH MVA AMP DEG
101106 [KHNPR1 2850.86 12469.3 -68.47 26769.5 24798.9 12.9 12469.3 12469.3
LG 1782.48 7796.3 -37.02 13165.8 13668.3 0.0 7796.3 7796.3
Note - ip(B) currents include safety factor multiplier (1.15).
THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.723/68.468, 2.53454 Z-:/6.845/67.689, 2.43689 Z0:/21.789/18.289,
0.33050

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
<-SCMVA-> <-Sym I'k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
/I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/
X-----X
BUS 132.00] 3PH MVA AMP DEG
101107 [GHOLKLN1 1779.79 7784.6 -68.57 16734.5 15728.9 16.4 7784.6 7784.6
LG 1025.75 4486.5 -39.01 7618.6 7279.4 0.3 4486.5 4486.5
Note - ip(B) currents include safety factor multiplier (1.15).
THEVENIN IMPEDANCE, X/R (OHM) Z+:/10.769/68.565, 2.54715 Z-:/10.816/68.166, 2.49594 Z0:/38.718/23.145,
0.42746

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
<-SCMVA-> <-Sym I'k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
/I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/
X-----X
BUS 132.00] 3PH MVA AMP DEG
101108 [KRT1 4337.47 18971.5 -73.26 43738.5 41880.1 6851.7 18971.5 20170.9
LG 2209.63 9664.6 -54.03 17778.0 16533.0 0.4 9664.6 9664.6
Note - ip(B) currents include safety factor multiplier (1.15).
THEVENIN IMPEDANCE, X/R (OHM) Z+:/4.419/73.263, 3.32541 Z-:/4.484/72.201, 3.11477 Z0:/17.820/44.810,
0.99339

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

BUS	MVA	AMP	DEG	AN(I)	AMP	DEG	AN(I)	AMP	DEG	AN(I)	AMP	DEG	AN(I)
101109 [PIMS1]	3160.97	13825.6	-71.79	31149.0	29343.4	778.4	13825.6	13847.5					
LG	1570.88	6870.8	-44.86	11934.9	11856.4	0.0	6870.8	6870.8					

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

BUS	MVA	AMP	DEG	AN(I)	AMP	DEG	AN(I)	AMP	DEG	AN(I)	AMP	DEG	AN(I)
101110 [SEH1]	1734.64	7587.1	-66.56	15878.5	14504.3	1.8	7587.1	7587.1					
LG	1105.06	4833.4	-59.98	9379.0	7733.0	0.0	4833.4	4833.4					

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

BUS	MVA	AMP	DEG	AN(I)	AMP	DEG	AN(I)	AMP	DEG	AN(I)	AMP	DEG	AN(I)
101111 [DUMMY1]	3931.38	17195.3	-71.34	38475.3	36868.7	3570.5	17195.3	17562.1					
LG	2365.58	10346.7	-56.41	19413.1	15985.0	2.6	10346.7	10346.7					

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

BUS	MVA	AMP	DEG	AN(I)	AMP	DEG	AN(I)	AMP	DEG	AN(I)	AMP	DEG	AN(I)
101112 [DUMMY2]	4202.45	18381.0	-71.62	41305.7	39477.1	1027.4	18381.0	18409.7					
LG	2123.91	9289.7	-49.69	16572.3	15967.1	1.4	9289.7	9289.7					

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

BUS	MVA	AMP	DEG	AN(I)	AMP	DEG	AN(I)	AMP	DEG	AN(I)	AMP	DEG	AN(I)
101112 [DUMMY2]	4202.45	18381.0	-71.62	41305.7	39477.1	1027.4	18381.0	18409.7					
LG	2123.91	9289.7	-49.69	16572.3	15967.1	1.4	9289.7	9289.7					

FAULT STUDY

X-----X
 101113 [DUMMY3 132.00] 3PH LG MVA AMP DEG
 1745.66 7635.3 -66.26 15919.4 14596.8 1.9 7635.3 7635.3
 982.81 4298.7 -55.51 8003.3 6678.9 0.0 4298.7 4298.7
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/10.979/66.263, 2.27411 Z-:/11.063/65.883, 2.23378 Z0:/37.057/49.251,
 1.16061

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²/I/ AN(I) DEG <-ip(B)-> <-ip(C)-> <DC Ib(C)-> <Sym Ib-> <Asym Ib->
 X-----X
 101114 [DUMMY4 132.00] 3PH LG MVA AMP DEG
 1217.12 5323.5 -65.75 11027.9 10049.8 0.4 5323.5 5323.5
 590.35 2582.1 -58.55 4940.2 4259.6 0.0 2582.1 2582.1
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/15.747/65.753, 2.22022 Z-:/15.829/65.490, 2.19329 Z0:/66.178/55.178,
 1.43766

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²/I/ AN(I) DEG <-ip(B)-> <-ip(C)-> <DC Ib(C)-> <Sym Ib-> <Asym Ib->
 X-----X
 101115 [DUMMY5 132.00] 3PH LG MVA AMP DEG
 2977.98 13025.3 -70.76 28892.0 27946.1 271.5 13025.3 13028.1
 2215.12 9688.6 -25.79 16103.2 14029.1 235.8 9688.6 9691.5
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.436/70.757, 2.86463 Z-:/6.483/70.067, 2.75746 Z0:/19.061/-2.639,
 0.04609

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²/I/ AN(I) DEG <-ip(B)-> <-ip(C)-> <DC Ib(C)-> <Sym Ib-> <Asym Ib->
 X-----X
 101116 [NKOR21 132.00] 3PH LG MVA AMP DEG
 3520.36 15397.6 -72.45 35045.6 33542.0 6909.1 15397.6 16876.6
 1604.39 7017.4 -55.62 13076.5 12732.4 0.0 7017.4 7017.4
 Note - ip(B) currents include safety factor multiplier (1.15).
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.444/72.451, 3.16211 Z-:/5.506/71.599, 3.00596 Z0:/25.523/48.655,
 1.13646

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²/I/ AN(I) DEG <-ip(B)-> <-ip(C)-> <DC Ib(C)-> <Sym Ib-> <Asym Ib->
 X-----X
 102001 [RSD2 220.00] 3PH LG MVA AMP DEG
 7999.69 20993.7 -78.03 45690.4 49986.3 4063.0 20993.7 21383.3
 5116.18 13426.5 -80.26 30483.7 32472.0 4985.2 13426.5 14322.1

THEVENIN IMPEDANCE, X/R (OHM) FAULT STUDY
 8.45408 Z+:/6.655/78.035, 4.71867 Z-:/7.375/75.243, 3.79633 Z0:/17.245/83.254,

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I²k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <ASym Ib>

BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
102002 [SRN2]	220.001	3PH	10785.75	28305.2	-75.78	59167.9	67369.2	3815.1	28305.2
		LG	5824.79	15286.1	-79.27	34050.6	36610.0	1384.7	15286.1
THEVENIN IMPEDANCE, X/R (OHM)			Z+:/4.936/75.776, 3.94498			Z-:/5.413/72.486, 3.16889		Z0:/17.145/82.417,	

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I²k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <ASym Ib>

BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
102003 [TIB2]	220.001	3PH	4093.81	10743.5	-64.88	22017.3	22827.3	124.6	10743.5
		LG	2455.55	6444.1	-74.58	15180.0	14438.9	100.5	6444.1
THEVENIN IMPEDANCE, X/R (OHM)			Z+:/13.005/64.882, 2.13301			Z-:/13.429/63.773, 2.02985		Z0:/39.318/81.459,	

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I²k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <ASym Ib>

BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
102004 [WGT2]	220.001	3PH	9987.34	26210.0	-75.42	62625.9	61979.3	1567.3	26210.0
		LG	4184.22	10980.7	-79.63	28323.5	25961.5	434.0	10980.7
THEVENIN IMPEDANCE, X/R (OHM)			Z+:/5.331/75.423, 3.84549			Z-:/5.602/72.835, 3.23741		Z0:/27.313/81.842,	

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I²k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <ASym Ib>

BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
102005 [KSM2]	220.001	3PH	5109.00	13407.7	-78.54	29454.1	31893.7	888.8	13407.7
		LG	1881.10	4936.6	-80.29	11216.5	11521.8	114.5	4936.6
THEVENIN IMPEDANCE, X/R (OHM)			Z+:/10.421/78.537, 4.93166			Z-:/10.587/77.256, 4.42148		Z0:/63.926/81.082,	

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

FAULT STUDY

X-----	BUS	-----X	<-SCMVA->	<-Sym I ¹ k rms-->	<-ip(B)->	<-ip(C)->	<DC Ib(C)->	<Sym Ib-->	<Asym Ib>
102006	[FGCR2	220.00] 3PH	MVA	AMP	DEG	AMP	AMP	AMP	AMP
	LG		6546.26	17179.5	-77.41	36962.1	40953.1	1169.5	17179.5
			2349.41	6165.6	-80.06	13944.5	14426.2	160.1	6165.6
	THEVENIN IMPEDANCE, X/R (OHM)		Z+:/8.133/77.406, 4.47604	Z-:/8.294/75.794, 3.95020		Z0:/51.597/81.161,			
			6.43069						

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

X-----	BUS	-----X	<-SCMVA->	<-Sym I ¹ k rms-->	<-ip(B)->	<-ip(C)->	<DC Ib(C)->	<Sym Ib-->	<Asym Ib>
102008	[MJTH2	220.00] 3PH	MVA	AMP	DEG	AMP	AMP	AMP	AMP
	LG		5301.70	13913.4	-77.29	29872.6	32630.0	548.8	13913.4
			2090.72	5486.7	-79.92	12376.8	12773.2	119.1	5486.7
	THEVENIN IMPEDANCE, X/R (OHM)		Z+:/10.042/77.291, 4.43416	Z-:/10.198/75.982, 4.00537		Z0:/56.201/81.110,			
			6.39314						

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

X-----	BUS	-----X	<-SCMVA->	<-Sym I ¹ k rms-->	<-ip(B)->	<-ip(C)->	<DC Ib(C)->	<Sym Ib-->	<Asym Ib>
102009	[CIV2	220.00] 3PH	MVA	AMP	DEG	AMP	AMP	AMP	AMP
	LG		7108.85	18655.9	-76.80	39706.8	44345.3	1404.9	18655.9
			2607.45	6842.8	-79.90	15427.8	16017.1	200.9	6842.8
	THEVENIN IMPEDANCE, X/R (OHM)		Z+:/7.489/76.804, 4.26483	Z-:/7.648/75.065, 3.74903		Z0:/46.168/81.200,			
			6.45926						

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

X-----	BUS	-----X	<-SCMVA->	<-Sym I ¹ k rms-->	<-ip(B)->	<-ip(C)->	<DC Ib(C)->	<Sym Ib-->	<Asym Ib>
102010	[KHS2	220.00] 3PH	MVA	AMP	DEG	AMP	AMP	AMP	AMP
	LG		13598.52	35686.9	-76.89	76065.3	88864.2	11217.2	35686.9
			4237.70	11121.1	-80.14	25193.8	26453.5	667.7	11121.1
	THEVENIN IMPEDANCE, X/R (OHM)		Z+:/3.915/76.885, 4.29226	Z-:/4.089/73.613, 3.40057		Z0:/29.727/81.468,			
			6.66548						

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

X-----	BUS	-----X	<-SCMVA->	<-Sym I ¹ k rms-->	<-ip(B)->	<-ip(C)->	<DC Ib(C)->	<Sym Ib-->	<Asym Ib>
102011	[VRP2	220.00] 3PH	MVA	AMP	DEG	AMP	AMP	AMP	AMP
	LG		15130.74	39707.9	-76.56	84154.2	99677.3	15670.2	39707.9
			4551.90	11945.7	-80.43	27214.6	28665.0	926.4	11945.7
	THEVENIN IMPEDANCE, X/R (OHM)		Z+:/3.519/76.564, 4.18586	Z-:/3.696/72.949, 3.26046		Z0:/27.923/81.903,			
			7.02910						

FAULT STUDY

```

VOLTAGE FACTOR C= 1.10,  NOMINAL FREQUENCY=50.0 HZ,  BREAKING CURRENT at TIME= 0.100 seconds
<-SCMVA-> <-Sym I1k rms--> <-Ip(B)-> <-Ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
X-----BUS-----X
102012 [RASHIANA2  220.00] 3PH  9705.78  25471.1  -76.51  53932.5  60580.6  1825.3  25471.1  25536.4
      LG      3994.13  10481.9  -80.23  23788.0  24938.2  688.9  10481.9  10504.5
THEVENIN IMPEDANCE, X/R (OHM)  Z+:/5.485/76.512, 4.16926  Z-:/5.660/74.130, 3.51757  Z0:/28.903/82.132,
7.23650
  
```

```

VOLTAGE FACTOR C= 1.10,  NOMINAL FREQUENCY=50.0 HZ,  BREAKING CURRENT at TIME= 0.100 seconds
<-SCMVA-> <-Sym I1k rms--> <-Ip(B)-> <-Ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
X-----BUS-----X
102013 [BUT2  220.00] 3PH  5606.42  14713.0  -77.55  31738.3  34347.2  673.4  14713.0  14728.4
      LG      2475.43  6496.3  -79.88  14641.0  15142.3  175.4  6496.3  6498.7
THEVENIN IMPEDANCE, X/R (OHM)  Z+:/9.496/77.550, 4.52950  Z-:/9.654/76.145, 4.05436  Z0:/45.412/81.158,
6.42863
  
```

```

VOLTAGE FACTOR C= 1.10,  NOMINAL FREQUENCY=50.0 HZ,  BREAKING CURRENT at TIME= 0.100 seconds
<-SCMVA-> <-Sym I1k rms--> <-Ip(B)-> <-Ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
X-----BUS-----X
102014 [PTT2  220.00] 3PH  10655.77  27964.2  -75.70  58375.3  66670.1  2299.6  27964.2  28058.5
      LG      4451.63  11682.5  -80.17  26481.1  27973.2  1124.9  11682.5  11736.5
THEVENIN IMPEDANCE, X/R (OHM)  Z+:/4.996/75.697, 3.92225  Z-:/5.194/73.067, 3.28467  Z0:/25.764/82.469,
7.56409
  
```

```

VOLTAGE FACTOR C= 1.10,  NOMINAL FREQUENCY=50.0 HZ,  BREAKING CURRENT at TIME= 0.100 seconds
<-SCMVA-> <-Sym I1k rms--> <-Ip(B)-> <-Ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
X-----BUS-----X
102015 [SLT2  220.00] 3PH  9900.40  25981.8  -75.86  54392.0  61340.1  1823.9  25981.8  26045.8
      LG      4709.31  12358.7  -80.20  28027.5  29696.0  1767.5  12358.7  12484.5
THEVENIN IMPEDANCE, X/R (OHM)  Z+:/5.378/75.862, 3.96999  Z-:/5.645/73.294, 3.33188  Z0:/22.975/82.904,
8.03295
  
```

```

VOLTAGE FACTOR C= 1.10,  NOMINAL FREQUENCY=50.0 HZ,  BREAKING CURRENT at TIME= 0.100 seconds
<-SCMVA-> <-Sym I1k rms--> <-Ip(B)-> <-Ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
X-----BUS-----X
102016 [KANJLIT2  220.00] 3PH  7942.57  20843.8  -78.61  45854.4  49791.4  1877.6  20843.8  20928.2
      NVA      MVA      AMP      DEG      AN(I)      /I/      /I/      /I/      /I/
  
```

FAULT STUDY

THEVENIN IMPEDANCE, X/R (OHM) LG 3132.71 8221.2 -79.86 18522.4 19233.2 289.8 8221.2 8226.3
 Z+:/6.703/78.612, 4.96498 Z-:/6.882/76.619, 4.20381 Z0:/37.416/80.681,
 6.09389

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 BUS -----X
 102017 [KRTP2 220.00] 3PH MVA AMP DEG AMP AMP AMP AMP
 14576.25 38252.7 -77.26 82090.0 94574.2 8324.7 38252.7 39148.1
 LG 5196.61 13637.6 -79.21 30340.6 32265.1 897.2 13637.6 13667.1
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.653/77.264, 4.42431 Z-:/3.832/73.759, 3.43288 Z0:/23.275/80.407,
 5.91700

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 BUS -----X
 102018 [JMSR2 220.00] 3PH MVA AMP DEG AMP AMP AMP AMP
 15867.74 41642.0 -74.35 84975.0 99872.4 3010.2 41642.0 41750.7
 LG 6683.79 17540.4 -78.61 38588.3 41745.0 1176.1 17540.4 17579.8
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.355/74.351, 3.56992 Z-:/3.548/70.626, 2.84382 Z0:/17.053/81.109,
 6.39274

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 BUS -----X
 102019 [JL12 220.00] 3PH MVA AMP DEG AMP AMP AMP AMP
 13613.15 35725.3 -75.01 73702.5 84804.1 2540.2 35725.3 35815.5
 LG 6246.48 16392.8 -77.40 35265.3 38325.1 888.6 16392.8 16416.8
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.911/75.006, 3.73349 Z-:/4.103/71.750, 3.03257 Z0:/17.588/79.248,
 5.26637

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----X
 BUS -----X
 102020 [DSU2 220.00] 3PH MVA AMP DEG AMP AMP AMP AMP
 9327.50 24478.3 -77.02 52304.1 57424.3 1275.5 24478.3 24511.6
 LG 4699.07 12331.9 -79.22 27442.8 29042.3 712.2 12331.9 12352.4
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.708/77.024, 4.33971 Z-:/6.011/74.485, 3.60231 Z0:/22.307/81.057,
 6.35473

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I''k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

X-----BUS-----X
 102021 [PONG2 220.00] 3PH
 MVA 6916.31 18150.6
 LG 4386.23 11510.9
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/7.698/77.364, 4.46069 Z-:/8.132/75.310, 3.81458 Z0:/20.596/73.705, 3.42082

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-SYM I²k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <SYM Ib-> <ASYM Ib>
 X-----BUS-----X
 102023 [MHL P2 220.00] 3PH
 MVA 7790.76 20445.5
 LG 3844.58 10089.4
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.834/76.996, 4.33020 Z-:/7.095/74.975, 3.72550 Z0:/27.666/81.817, 6.95396

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-SYM I²k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <SYM Ib-> <ASYM Ib>
 X-----BUS-----X
 102024 [BHKRR2 220.00] 3PH
 MVA 9738.84 25557.8
 LG 6104.90 16021.2
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.467/78.755, 5.02949 Z-:/6.047/75.901, 3.98143 Z0:/14.718/85.390, 12.40201

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-SYM I²k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <SYM Ib-> <ASYM Ib>
 X-----BUS-----X
 102025 [BHKRL2 220.00] 3PH
 MVA 6959.42 18263.7
 LG 4729.46 12411.6
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/7.650/80.007, 5.67546 Z-:/8.461/77.720, 4.59417 Z0:/17.691/83.482, 8.75299

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-SYM I²k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <SYM Ib-> <ASYM Ib>
 X-----BUS-----X
 102026 [GNG2 220.00] 3PH
 MVA 14023.29 36801.6
 LG 7126.20 18701.4
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.797/77.710, 4.59026 Z-:/4.165/74.132, 3.51802 Z0:/14.497/83.148, 8.32202

FAULT STUDY

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k /I/ AN(I) rms--> <-ip(B)-> /I/ <DC Ib(C)> /I/ <Sym Ib-> /I/ <Asym Ib> /I/

X-----BUS	-----X	MVA	DEG	AMP	AMP	AMP	AMP	AMP
102027 [GST2	220.00] 3PH	13247.16	-77.35	74721.3	83597.8	6056.9	34764.8	35288.5
	LG	6779.27	-80.96	40965.2	43999.7	7390.4	17791.0	19264.9

THEVENIN IMPEDANCE, X/R (OHM) Z+:/4.019/77.350, 4.45553 Z-:/4.455/73.756, 3.43222 Z0:/15.151/84.037, 9.57428

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k /I/ AN(I) rms--> <-ip(B)-> /I/ <DC Ib(C)> /I/ <Sym Ib-> /I/ <Asym Ib> /I/

X-----BUS	-----X	MVA	DEG	AMP	AMP	AMP	AMP	AMP
102028 [KHR2	220.00] 3PH	7243.14	-76.78	40437.0	44086.9	453.1	19008.3	19013.7
	LG	3240.16	-80.11	19251.0	20034.4	346.7	8503.2	8510.3

THEVENIN IMPEDANCE, X/R (OHM) Z+:/7.350/76.776, 4.25561 Z-:/7.599/74.891, 3.70380 Z0:/34.407/81.974, 7.09177

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k /I/ AN(I) rms--> <-ip(B)-> /I/ <DC Ib(C)> /I/ <Sym Ib-> /I/ <Asym Ib> /I/

X-----BUS	-----X	MVA	DEG	AMP	AMP	AMP	AMP	AMP
102029 [MOH2	220.00] 3PH	13446.57	-76.15	74240.3	84695.1	2264.4	35288.1	35360.7
	LG	4816.35	-80.39	28773.1	30317.8	861.9	12639.6	12669.0

THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.959/76.146, 4.05480 Z-:/4.179/72.910, 3.25264 Z0:/25.084/82.301, 7.39736

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k /I/ AN(I) rms--> <-ip(B)-> /I/ <DC Ib(C)> /I/ <Sym Ib-> /I/ <Asym Ib> /I/

X-----BUS	-----X	MVA	DEG	AMP	AMP	AMP	AMP	AMP
102030 [MOHL2	220.00] 3PH	10282.35	-77.95	58632.3	64835.5	1742.9	26984.2	27040.4
	LG	3384.34	-80.60	20302.5	21066.6	388.5	8881.6	8890.1

THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.178/77.946, 4.68302 Z-:/5.395/75.405, 3.84045 Z0:/36.656/81.738, 6.88649

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k /I/ AN(I) rms--> <-ip(B)-> /I/ <DC Ib(C)> /I/ <Sym Ib-> /I/ <Asym Ib> /I/

X-----BUS	-----X	MVA	DEG	AMP	AMP	AMP	AMP	AMP
102031 [DRB2	220.00] 3PH	6084.96	-78.14	34824.9	37476.5	690.5	15968.9	15983.8
	LG	1987.31	-80.64	11931.3	12253.1	293.4	5215.3	5223.6

THEVENIN IMPEDANCE, X/R (OHM) FAULT STUDY Z+:/8.749/78.144, 4.76363 Z-:/8.929/76.651, 4.21409 Z0:/62.730/81.555, 6.73557

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----X BUS -----X
 102032 [LLR2 220.00] 3PH MVA AMP /I/ AN(I) DEG AMP /I/ AN(I) DEG AMP /I/ AN(I) DEG AMP /I/ AN(I) DEG
 LG 9041.54 23727.9 -77.81 51424.9 56316.2 1305.5 23727.9 23763.8
 3283.40 8616.7 -80.50 19656.6 20391.0 384.1 8616.7 8625.3
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.888/77.807, 4.62780 Z-:/6.074/75.600, 3.89467 Z0:/36.719/81.736, 6.88528

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----X BUS -----X
 102033 [RJP2 220.00] 3PH MVA AMP /I/ AN(I) DEG AMP /I/ AN(I) DEG AMP /I/ AN(I) DEG AMP /I/ AN(I) DEG
 LG 10831.60 28425.6 -76.77 60467.3 67695.7 1562.0 28425.6 28468.5
 3914.67 10273.3 -80.34 23363.8 24416.1 467.0 10273.3 10283.9
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/4.915/76.773, 4.25458 Z-:/5.092/74.180, 3.52914 Z0:/30.844/81.924, 7.04731

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----X BUS -----X
 102034 [BDG2 220.00] 3PH MVA AMP /I/ AN(I) DEG AMP /I/ AN(I) DEG AMP /I/ AN(I) DEG AMP /I/ AN(I) DEG
 LG 12116.90 31798.6 -76.95 67856.4 76618.0 2779.9 31798.6 31919.9
 4119.07 10809.8 -80.46 24643.1 25787.2 572.3 10809.8 10824.9
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/4.394/76.950, 4.31442 Z-:/4.570/74.063, 3.50204 Z0:/29.859/81.956, 7.07624

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----X BUS -----X
 102035 [PTA2 220.00] 3PH MVA AMP /I/ AN(I) DEG AMP /I/ AN(I) DEG AMP /I/ AN(I) DEG AMP /I/ AN(I) DEG
 LG 13765.75 36125.7 -77.33 77624.9 88388.9 5247.8 36125.7 36504.9
 4227.90 11095.3 -80.59 25358.0 26536.0 635.5 11095.3 11113.5
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.868/77.335, 4.44996 Z-:/4.033/74.093, 3.50880 Z0:/29.917/81.884, 7.01273

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->

FAULT STUDY

X-----X
 102036 [DEVIGARH2 220.00] 3PH LG
 THEVENIN IMPEDANCE, X/R (OHM) 7.10303

MVA	AMP	DEG	AMP	AMP	AMP	AMP
11374.94	29851.5	-77.23	64023.9	71487.0	2163.1	29851.5
4060.27	10655.4	-80.50	24307.5	25389.1	548.1	10669.5
Z+:/4.680/77.232,	4.41282	Z-:/4.864/74.485,	3.60211	Z0:/29.837/81.986,		

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

X-----X
 102037 [ALRD2 220.00] 3PH LG
 THEVENIN IMPEDANCE, X/R (OHM) 7.67900

MVA	AMP	DEG	AMP	AMP	AMP	AMP
12917.69	33900.1	-76.16	71342.6	80728.7	2032.4	33900.1
5192.86	13627.7	-80.38	31015.7	32744.6	973.4	13662.4
Z+:/4.121/76.164,	4.06026	Z-:/4.341/73.018,	3.27454	Z0:/22.358/82.580,		

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

X-----X
 102038 [GB12 220.00] 3PH LG
 THEVENIN IMPEDANCE, X/R (OHM) 7.97738

MVA	AMP	DEG	AMP	AMP	AMP	AMP
16298.59	42772.7	-75.67	89243.0	103653.8	4600.2	42772.7
6024.15	15809.3	-80.52	36084.0	38394.3	1687.9	15809.3
Z+:/3.267/75.667,	3.91387	Z-:/3.491/71.791,	3.03986	Z0:/19.824/82.855,		

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

X-----X
 102039 [G822 220.00] 3PH LG
 THEVENIN IMPEDANCE, X/R (OHM) 7.64943

MVA	AMP	DEG	AMP	AMP	AMP	AMP
12573.35	32996.5	-76.15	69419.7	78361.7	1781.4	32996.5
5150.33	13516.1	-80.32	30728.7	32428.2	895.7	13516.1
Z+:/4.234/76.147,	4.05494	Z-:/4.455/73.079,	3.28698	Z0:/22.386/82.552,		

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

X-----X
 102041 [KOH2 220.00] 3PH LG
 THEVENIN IMPEDANCE, X/R (OHM) 5.18559

MVA	AMP	DEG	AMP	AMP	AMP	AMP
12331.59	32362.0	-77.66	69943.4	78216.4	3387.8	32362.0
4353.47	11424.9	-78.38	25024.0	26635.3	519.0	11424.9
Z+:/4.317/77.655,	4.56922	Z-:/4.488/74.680,	3.65046	Z0:/27.895/79.085,		

FAULT STUDY

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----X
 102042 [GHULAL2 220.00] 3PH MVA 4285.90 11247.6 -78.70 24784.1 26221.9 250.6 11247.6 11250.4
 LG 2645.68 6943.1 -71.67 13576.4 14048.1 2.8 6943.1 6943.1
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/12.422/78.700, 5.00436 Z-:/12.672/77.523, 4.51917 Z0:/35.547/67.126,
 2.37037

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----X
 102043 [SNWL2 220.00] 3PH MVA 8282.31 21735.4 -77.77 47074.2 51839.2 1325.0 21735.4 21775.8
 LG 4135.66 10853.3 -74.23 22101.4 23176.9 28.2 10853.3 10853.3
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.428/77.769, 4.61307 Z-:/6.575/75.765, 3.94173 Z0:/25.638/72.943,
 3.25931

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----X
 102044 [DDK2 220.00] 3PH MVA 15589.67 40912.3 -74.63 83879.3 97906.9 2962.2 40912.3 41019.4
 LG 6455.82 16942.1 -78.82 37416.4 40176.9 848.0 16942.1 16963.3
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.415/74.634, 3.63899 Z-:/3.594/71.048, 2.91210 Z0:/17.789/81.188,
 6.45046

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----X
 102045 [LLK2 220.00] 3PH MVA 18908.00 49620.6 -75.80 103765.5 123314.1 13663.6 49620.6 51467.5
 LG 6667.14 17496.7 -78.87 38677.6 41603.5 1260.3 17496.7 17542.0
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/2.816/75.799, 3.95159 Z-:/2.983/71.465, 2.98263 Z0:/18.194/80.555,
 6.01130

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----X
 102046 [JMP2 220.00] 3PH MVA 15618.01 40986.7 -74.56 83925.8 97788.2 2661.1 40986.7 41072.9
 LG 6603.66 17330.1 -78.79 38252.2 41101.9 863.0 17330.1 17351.6
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.409/74.559, 3.62027 Z-:/3.594/70.963, 2.89809 Z0:/17.243/81.253,

102051 [GUNS2 220.00] 3PH 9799.76 25717.7 -77.48 55404.2 60943.6 1011.0 25717.7 25737.6
 LG 4064.36 10666.2 -75.95 22362.1 23890.8 286.6 10666.2 10670.0
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.433/77.478, 4.50250 Z-:/5.601/75.083, 3.75370 Z0:/28.266/75.824,
 3.95882

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-Ip(B)-> <-Ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----BUS -----X
 102052 [GRY2 220.00] 3PH 8263.86 21687.0 -76.68 46057.5 50612.6 758.4 21687.0 21700.3
 LG 3777.22 9912.6 -79.48 22169.0 23207.4 307.1 9912.6 9917.4
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.443/76.681, 4.22408 Z-:/6.621/74.617, 3.63475 Z0:/29.266/81.195,
 6.45565

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-Ip(B)-> <-Ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----BUS -----X
 102054 [NKD2 220.00] 3PH 13630.60 35771.0 -76.08 75172.4 86367.4 3414.7 35771.0 35933.6
 LG 5337.30 14006.8 -79.14 31124.4 33134.1 749.8 14006.8 14026.8
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.906/76.082, 4.03540 Z-:/4.087/72.818, 3.23405 Z0:/21.972/80.862,
 6.21672

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-Ip(B)-> <-Ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----BUS -----X
 102055 [MOG2 220.00] 3PH 17307.52 45420.5 -77.10 97177.9 114859.0 26645.5 45420.5 52659.3
 LG 5777.62 15162.3 -80.98 34921.0 37083.7 2539.6 15162.3 15373.5
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.076/77.096, 4.36482 Z-:/3.244/73.017, 3.27436 Z0:/21.373/82.738,
 7.84769

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-Ip(B)-> <-Ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----BUS -----X
 102056 [BWT2 220.00] 3PH 11284.58 29614.3 -76.26 62432.4 71433.4 4884.4 29614.3 30014.4
 LG 4624.88 12137.1 -80.48 27676.3 29245.4 1593.3 12137.2 12241.3
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/4.718/76.264, 4.09102 Z-:/4.915/73.481, 3.37187 Z0:/24.969/82.645,
 7.74665

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

FAULT STUDY

<-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/
 MVA DEG AMP AMP AMP AMP AMP
 X-----BUS -----X
 102057 [MASTWL2 220.00] 3PH 13304.34 34914.8 -76.44 73838.9 86121.3 12767.7 34914.8 37176.1
 LG 4951.18 12993.5 -80.62 29712.3 31483.4 2066.3 12993.5 13156.8
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/4.002/76.443, 4.14723 Z-:/4.184/73.221, 3.31659 Z0:/24.133/82.588,
 7.68641

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/
 MVA DEG AMP AMP AMP AMP AMP
 X-----BUS -----X
 102058 [TDBH2 220.00] 3PH 11602.05 30447.5 -76.25 64173.8 73041.4 3071.0 30447.5 30602.0
 LG 4671.81 12260.3 -80.37 27897.1 29410.5 1013.0 12260.3 12302.1
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/4.589/76.251, 4.08691 Z-:/4.754/73.462, 3.36768 Z0:/24.907/82.439,
 7.53422

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/
 MVA DEG AMP AMP AMP AMP AMP
 X-----BUS -----X
 102059 [FZR2 220.00] 3PH 4030.17 10576.5 -76.97 22576.4 24071.7 136.6 10576.5 10577.3
 LG 1837.74 4822.8 -79.89 10871.9 11166.9 92.6 4822.8 4823.7
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/13.210/76.967, 4.32020 Z-:/13.362/75.955, 3.99733 Z0:/60.409/81.399,
 6.61138

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/
 MVA DEG AMP AMP AMP AMP AMP
 X-----BUS -----X
 102060 [SADQ2 220.00] 3PH 6260.40 16429.3 -76.51 34783.3 38027.8 370.1 16429.3 16433.5
 LG 2883.07 7566.1 -79.98 17085.4 17761.2 244.5 7566.1 7570.0
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/8.504/76.506, 4.16710 Z-:/8.666/74.951, 3.71921 Z0:/38.299/81.886,
 7.01412

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/
 MVA DEG AMP AMP AMP AMP AMP
 X-----BUS -----X
 102061 [MKS2 220.00] 3PH 7818.70 20518.8 -76.28 43268.2 48441.1 1075.1 20518.8 20546.9
 LG 3214.91 8436.9 -80.59 19283.3 20173.7 685.3 8436.9 8464.7
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.809/76.279, 4.09550 Z-:/7.066/74.190, 3.53165 Z0:/35.892/82.668,
 7.77200

FAULT STUDY

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----X
 102062 [GBY2 220.00] 3PH MVA 4198.76 11018.9 -76.94 23510.9 25626.3 273.2 11018.9 11022.3
 LG 1802.83 4731.2 -80.18 10726.5 11088.0 153.3 4731.2 4733.7
 Z+:/12.680/76.944, 4.31219 Z-:/12.891/75.831, 3.96097 Z0:/63.104/81.722,
 6.87299
 THEVENIN IMPEDANCE, X/R (OHM)

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----X
 102063 [BGRN2 220.00] 3PH MVA 10195.66 26756.7 -77.19 57345.0 63997.1 2594.4 26756.7 26882.1
 LG 4272.04 11211.2 -80.64 25650.5 26885.2 896.1 11211.2 11247.0
 Z+:/5.222/77.192, 4.39861 Z-:/5.406/74.668, 3.64737 Z0:/26.812/82.519,
 7.61555
 THEVENIN IMPEDANCE, X/R (OHM)

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----X
 102064 [KOTKPR2 220.00] 3PH MVA 7470.10 19603.9 -78.01 42643.5 46764.0 1190.1 19603.9 19640.0
 LG 2937.06 7707.8 -80.88 17716.7 18379.4 486.7 7707.8 7723.1
 Z+:/7.127/78.007, 4.70726 Z-:/7.349/76.042, 4.02338 Z0:/39.952/82.276,
 7.37302
 THEVENIN IMPEDANCE, X/R (OHM)

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----X
 102066 [BKZH2 220.00] 3PH MVA 10424.72 27357.8 -76.38 57787.8 65157.4 2059.8 27357.8 27435.2
 LG 4642.53 12183.5 -80.72 27919.7 29463.6 1365.4 12183.5 12259.8
 Z+:/5.107/76.375, 4.12571 Z-:/5.355/73.683, 3.41588 Z0:/24.020/83.215,
 8.40522
 THEVENIN IMPEDANCE, X/R (OHM)

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----X
 102067 [GNDTP2 220.00] 3PH MVA 8010.61 21022.4 -76.42 44443.4 49705.4 2499.6 21022.4 21170.5

FAULT STUDY

LG 4147.35 10884.0 -81.31 25234.1 26684.2 3029.5 10884.0 11297.7
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.646/76.424, 4.14099 Z-:/7.141/73.955, 3.47718 Z0:/24.851/84.717,
 10.81526

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----BUS -----X MVA DEG AMP AMP AMP AMP AMP AMP
 102068 [ABOHR2 220.00] 3PH 4995.28 13109.2 -78.40 28725.9 31109.3 694.3 13109.2 13127.6
 LG 1929.56 5063.8 -80.68 11592.8 11941.9 210.1 5063.8 5068.1
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/10.658/78.402, 4.87261 Z-:/10.867/77.080, 4.35910 Z0:/61.290/81.708,
 6.86140

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----BUS -----X MVA DEG AMP AMP AMP AMP AMP AMP
 102070 [GHPT2 220.00] 3PH 12731.99 33412.8 -75.50 69509.2 80440.2 5834.8 33412.8 33918.5
 LG 6409.32 16820.1 -81.30 38990.1 41977.7 6352.9 16820.1 17979.9
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/4.182/75.496, 3.86561 Z-:/4.572/72.034, 3.08391 Z0:/16.288/85.375,
 12.36196

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----BUS -----X MVA DEG AMP AMP AMP AMP AMP AMP
 102071 [HMTP2 220.00] 3PH 9159.23 24036.7 -76.34 50744.9 56553.5 1196.9 24036.7 24066.5
 LG 4293.48 11267.5 -80.34 25623.8 26951.5 842.3 11267.5 11298.9
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.813/76.344, 4.11592 Z-:/6.044/73.983, 3.48358 Z0:/25.418/82.760,
 7.87156

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/ /I/ /I/
 X-----BUS -----X MVA DEG AMP AMP AMP AMP AMP AMP
 102072 [MNS2 220.00] 3PH 6817.12 17890.3 -75.38 37143.3 41656.8 419.6 17890.3 17895.2
 LG 2724.79 7150.7 -79.62 16035.4 16756.1 185.3 7150.7 7153.1
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/7.810/75.379, 3.83341 Z-:/7.953/73.752, 3.43136 Z0:/42.940/81.475,
 6.67156

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

X-----BUS-----X
 102073 [BRNL2] 220.00] 3PH MVA NVA /I/ FAULT STUDY /I/ /I/ /I/ /I/ /I/ /I/
 LG 7094.05 18617.1 AMP DEG AN(I) /I/ AMP /I/ AMP /I/ AMP /I/ AMP /I/
 3583.01 9403.0 -76.25 39238.2 43024.4 455.3 18617.1 18622.6
 THEVENIN IMPEDANCE, X/R (OHM) LG 9403.0 -79.92 21208.5 22186.1 414.0 9403.0 9412.1
 Z+:/7.505/76.250, 4.08655 Z-:/7.744/74.369, 3.57412 Z0:/29.405/82.314,
 7.40991

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-Ip(B)-> <-Ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----BUS-----X
 102074 [BRNB2] 220.00] 3PH MVA NVA /I/ /I/ /I/ /I/ /I/ /I/
 LG 7249.77 19025.7 AMP DEG AN(I) /I/ AMP /I/ AMP /I/ AMP /I/ AMP /I/
 3652.62 9585.6 -76.28 40120.6 43995.8 473.2 19025.7 19031.6
 THEVENIN IMPEDANCE, X/R (OHM) LG 9585.6 -79.93 21626.2 22627.8 428.3 9585.6 9595.2
 Z+:/7.344/76.280, 4.09587 Z-:/7.581/74.363, 3.57271 Z0:/28.879/82.321,
 7.41618

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-Ip(B)-> <-Ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----BUS-----X
 102075 [PKWL2] 220.00] 3PH MVA NVA /I/ /I/ /I/ /I/ /I/ /I/
 LG 8005.09 21007.9 AMP DEG AN(I) /I/ AMP /I/ AMP /I/ AMP /I/ AMP /I/
 3612.14 9479.4 -76.51 44482.3 48791.8 423.0 21007.9 21012.2
 THEVENIN IMPEDANCE, X/R (OHM) LG 9479.4 -79.64 21263.8 22200.1 245.3 9479.4 9482.6
 Z+:/6.651/76.512, 4.16927 Z-:/6.795/74.607, 3.63222 Z0:/30.823/81.416,
 6.62485

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-Ip(B)-> <-Ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----BUS-----X
 102076 [MHLKLN2] 220.00] 3PH MVA NVA /I/ /I/ /I/ /I/ /I/ /I/
 LG 7237.14 18992.6 AMP DEG AN(I) /I/ AMP /I/ AMP /I/ AMP /I/ AMP /I/
 3304.37 8671.7 -76.94 40525.1 44087.6 431.9 18992.6 18997.5
 THEVENIN IMPEDANCE, X/R (OHM) LG 8671.7 -79.87 19540.7 20319.1 238.3 8671.7 8675.0
 Z+:/7.356/76.945, 4.31255 Z-:/7.500/75.207, 3.78666 Z0:/33.528/81.554,
 6.73444

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-Ip(B)-> <-Ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----BUS-----X
 102077 [AJTW2] 220.00] 3PH MVA NVA /I/ /I/ /I/ /I/ /I/ /I/
 LG 10160.89 26665.4 AMP DEG AN(I) /I/ AMP /I/ AMP /I/ AMP /I/ AMP /I/
 4477.65 11750.8 -76.63 56575.1 63059.7 1396.5 26665.4 26702.0
 THEVENIN IMPEDANCE, X/R (OHM) LG 11750.8 -80.21 26657.0 28006.8 696.5 11750.8 11771.4
 Z+:/5.240/76.626, 4.20605 Z-:/5.419/74.130, 3.51759 Z0:/25.069/82.275,
 7.37199

FAULT STUDY

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k /I/ AN(I) DEG rms--> <-ip(B)-> /I/ <DC Ib(C)> /I/ <Sym Ib-> /I/ <Asym Ib> /I/

X-----	BUS	-----X	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
102078	[MLK2	220.00]	17343.00	45513.6	-77.75	98533.1	114213.0	18576.9	45513.6	49158.8	
			5202.72	13653.6	-80.37	31067.1	32805.9	1117.2	13653.6	13699.2	
			Z+:/3.070/77.747,	4.60461	Z-:/3.234/73.680,	3.41537	Z0:/24.426/81.579,				

THEVENIN IMPEDANCE, X/R (OHM)
6.75445

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k /I/ AN(I) DEG rms--> <-ip(B)-> /I/ <DC Ib(C)> /I/ <Sym Ib-> /I/ <Asym Ib> /I/

X-----	BUS	-----X	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
102079	[DUR2	220.00]	10823.83	28405.2	-77.45	61162.2	67728.1	1648.8	28405.2	28453.0	
			3850.85	10105.9	-80.22	22927.2	23910.8	381.9	10105.9	10113.1	
			Z+:/4.919/77.449,	4.49193	Z-:/5.080/74.859,	3.69575	Z0:/31.513/81.511,				

THEVENIN IMPEDANCE, X/R (OHM)
6.70022

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k /I/ AN(I) DEG rms--> <-ip(B)-> /I/ <DC Ib(C)> /I/ <Sym Ib-> /I/ <Asym Ib> /I/

X-----	BUS	-----X	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
102080	[SNG2	220.00]	5664.60	14865.7	-77.17	31849.8	34061.2	200.3	14865.7	14867.1	
			2826.36	7417.3	-79.51	16596.6	17176.8	129.6	7417.3	7418.4	
			Z+:/9.399/77.173,	4.39210	Z-:/9.543/75.771,	3.94358	Z0:/37.611/81.036,				

THEVENIN IMPEDANCE, X/R (OHM)
6.33931

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k /I/ AN(I) DEG rms--> <-ip(B)-> /I/ <DC Ib(C)> /I/ <Sym Ib-> /I/ <Asym Ib> /I/

X-----	BUS	-----X	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
102081	[SUN2	220.00]	10915.02	28644.5	-76.73	60890.3	69429.3	2745.0	28644.5	28775.7	
			3319.38	8711.1	-80.19	19752.8	20625.6	325.4	8711.1	8717.2	
			Z+:/4.878/76.734,	4.24148	Z-:/5.019/74.185,	3.53048	Z0:/38.266/81.417,				

THEVENIN IMPEDANCE, X/R (OHM)
6.62585

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k /I/ AN(I) DEG rms--> <-ip(B)-> /I/ <DC Ib(C)> /I/ <Sym Ib-> /I/ <Asym Ib> /I/

X-----	BUS	-----X	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
102083	[PTRN2	220.00]	10298.91	27027.6	-76.94	57662.9	65449.9	2902.7	27027.6	27183.1	
			3179.98	8345.3	-80.22	18933.2	19743.4	314.8	8345.3	8351.2	

FAULT STUDY
THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.169/76.938, 4.31028 Z-:/5.302/74.540, 3.61578 Z0:/39.798/81.398,
6.61077

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

	<-SCMVA->		<-Sym I ¹ 'k rms->		<-ip(B)->		<-ip(C)->		<DC Ib(C)>		<Sym Ib->		<Asym Ib>	
	MVA	/I/	AN(I)	/I/	AMP	/I/	AMP	/I/	AMP	/I/	AMP	/I/	AMP	/I/
102084	BHWNIGRH2	220.00	3PH	4701.47	12338.2	-77.94	26806.9	28444.3	223.5	12338.2	12340.2	2030.47	5328.6	5329.5
	LG			2030.47	5328.6	-80.14	12070.9	12387.7	100.1	5328.6	5329.5			
				Z+:/11.324/77.942,		4.68139	Z-:/11.476/76.796,		4.26223	Z0:/55.900/81.272,				

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

	<-SCMVA->		<-Sym I ¹ 'k rms->		<-ip(B)->		<-ip(C)->		<DC Ib(C)>		<Sym Ib->		<Asym Ib>	
	MVA	/I/	AN(I)	/I/	AMP	/I/	AMP	/I/	AMP	/I/	AMP	/I/	AMP	/I/
102085	INBHZ	220.00	3PH	7195.40	18883.0	-77.55	40732.9	44264.1	670.8	18883.0	18894.9	2775.96	7285.0	7287.8
	LG			2775.96	7285.0	-80.22	16529.7	17095.7	201.4	7285.0	7287.8			
				Z+:/7.399/77.549,		4.52915	Z-:/7.555/75.816,		3.95661	Z0:/42.623/81.468,				

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

	<-SCMVA->		<-Sym I ¹ 'k rms->		<-ip(B)->		<-ip(C)->		<DC Ib(C)>		<Sym Ib->		<Asym Ib>	
	MVA	/I/	AN(I)	/I/	AMP	/I/	AMP	/I/	AMP	/I/	AMP	/I/	AMP	/I/
102086	RAJL2	220.00	3PH	8166.76	21432.2	-77.30	46026.6	50788.1	1017.1	21432.2	21456.3	2871.74	7536.4	7539.6
	LG			2871.74	7536.4	-80.21	17094.0	17729.2	220.8	7536.4	7539.6			
				Z+:/6.519/77.304,		4.43876	Z-:/6.653/75.382,		3.83409	Z0:/42.487/81.405,				

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

	<-SCMVA->		<-Sym I ¹ 'k rms->		<-ip(B)->		<-ip(C)->		<DC Ib(C)>		<Sym Ib->		<Asym Ib>	
	MVA	/I/	AN(I)	/I/	AMP	/I/	AMP	/I/	AMP	/I/	AMP	/I/	AMP	/I/
102087	AML2	220.00	3PH	8180.33	21467.8	-76.92	45784.1	49948.2	508.1	21467.8	21473.8	3561.61	9346.8	9351.6
	LG			3561.61	9346.8	-80.14	21174.1	22028.6	300.5	9346.8	9351.6			
				Z+:/6.508/76.917,		4.30317	Z-:/6.693/74.904,		3.70731	Z0:/31.697/81.909,				

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
<-SCMVA-> <-Sym I¹'k rms-> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
/I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/ /I/

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

X-	BUS																		
102093	[NKDR42]	220.00]	3PH	12928.86	MVA	33929.5	AMP	-79.11	DEG	75344.5	AMP	85118.0	AMP	16157.3	AMP	33929.5	AMP	37580.1	AMP
			LG	4796.32		12587.1		-78.03		27389.9		29302.4		1286.5		12587.1		12652.6	
				Z+:/4.118/79.109, 5.19716 Z-:/4.276/75.957, 3.99812 Z0:/24.910/78.202,															
				THEVENIN IMPEDANCE, X/R (OHM)															
				4.78756															

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

X-	BUS																		
102094	[RAJPR42]	220.00]	3PH	17744.57	MVA	46567.4	AMP	-77.34	DEG	100064.3	AMP	116480.6	AMP	16514.2	AMP	46567.4	AMP	49408.9	AMP
			LG	5387.21		14137.8		-80.89		32504.7		34308.5		1585.8		14137.8		14226.4	
				Z+:/3.000/77.336, 4.45054 Z-:/3.206/73.106, 3.29270 Z0:/23.485/82.402,															
				THEVENIN IMPEDANCE, X/R (OHM)															
				7.49670															

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

X-	BUS																		
102095	[DHUR142]	220.00]	3PH	15314.63	MVA	40190.5	AMP	-78.01	DEG	87428.2	AMP	100840.3	AMP	12305.2	AMP	40190.5	AMP	42032.0	AMP
			LG	4079.45		10705.8		-80.60		24474.5		25606.6		616.0		10705.8		10723.5	
				Z+:/3.476/78.009, 4.70819 Z-:/3.652/74.339, 3.56682 Z0:/32.054/81.598,															
				THEVENIN IMPEDANCE, X/R (OHM)															
				6.77006															

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

X-	BUS																		
102096	[PTA42]	220.00]	3PH	16084.63	MVA	42211.2	AMP	-78.36	DEG	92424.3	AMP	106837.1	AMP	21688.0	AMP	42211.2	AMP	47456.9	AMP
			LG	4380.08		11494.7		-80.88		26425.6		27665.9		937.1		11494.7		11532.9	
				Z+:/3.310/78.360, 4.85461 Z-:/3.478/74.557, 3.61977 Z0:/29.706/81.905,															
				THEVENIN IMPEDANCE, X/R (OHM)															
				7.03103															

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

X-	BUS																		
102097	[MLK42]	220.00]	3PH	17164.35	MVA	45044.7	AMP	-77.94	DEG	97860.6	AMP	113216.6	AMP	19707.5	AMP	45044.7	AMP	49167.2	AMP
			LG	5148.46		13511.2		-80.27		30686.3		32398.9		1094.5		13511.2		13555.5	
				Z+:/3.102/77.938, 4.67981 Z-:/3.266/73.904, 3.46538 Z0:/24.683/81.406,															
				THEVENIN IMPEDANCE, X/R (OHM)															

FAULT STUDY

6.61714

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

```

<-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
/I/ /I/ /I/ /I/ /I/ /I/
X-----BUS -----X
102098 [JLND42 220.00] 3PH MVA AMP DEG AN(I) AMP AMP /I/ AMP AMP /I/
15662.40 41103.2 -78.51 90247.9 104166.6 21860.5 41103.2 46554.8
5004.47 13133.3 -79.86 29586.6 31284.4 1067.3 13133.3 13176.6
THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.399/78.509, 4.91911 Z-:/3.588/74.690, 3.65296 Z0:/24.947/80.782,
6.16196

```

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

```

<-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
/I/ /I/ /I/ /I/ /I/ /I/
X-----BUS -----X
102099 [LDHN42 220.00] 3PH MVA AMP DEG AN(I) AMP AMP /I/ AMP AMP /I/
20284.49 53233.0 -76.03 111763.7 133866.0 21392.7 53233.0 57370.7
6809.82 17871.1 -79.04 39629.8 42645.7 1475.7 17871.1 17932.0
THEVENIN IMPEDANCE, X/R (OHM) Z+:/2.625/76.028, 4.01925 Z-:/2.793/71.392, 2.97014 Z0:/18.072/80.650,
6.07340

```

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

```

<-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
/I/ /I/ /I/ /I/ /I/ /I/
X-----BUS -----X
102100 [MOG42 220.00] 3PH MVA AMP DEG AN(I) AMP AMP /I/ AMP AMP /I/
17341.77 45510.3 -77.12 97405.9 115130.6 26953.9 45510.3 52893.3
5777.87 15163.0 -80.98 34926.2 37086.7 2543.2 15163.0 15374.8
THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.070/77.116, 4.37199 Z-:/3.237/73.030, 3.27695 Z0:/21.384/82.736,
7.84522

```

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

```

<-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
/I/ /I/ /I/ /I/ /I/ /I/
X-----BUS -----X
102101 [ASR42 220.00] 3PH MVA AMP DEG AN(I) AMP AMP /I/ AMP AMP /I/
15139.54 39731.0 -76.90 84700.6 100257.2 18332.9 39731.0 43756.7
4499.54 11808.2 -80.19 26777.7 28178.9 817.4 11808.2 11836.5
THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.517/76.896, 4.29571 Z-:/3.693/73.270, 3.32682 Z0:/28.328/81.505,
6.69474

```

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

```

<-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
/I/ /I/ /I/ /I/ /I/ /I/
X-----BUS -----X

```


102102 [DORH2] 220.00] 3PH 13499.95 35428.2 -77.33 76119.9 85830.4 3969.1 35428.2 35649.8
 LG 4933.20 12946.3 -78.80 28579.6 30358.0 587.3 12946.3 12959.6
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.944/77.330, 4.44832 Z-:/4.115/74.104, 3.51145 Z0:/24.337/79.827,
 5.57296

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----BUS-----X
 102103 [ML0T2] 220.00] 3PH 5977.16 15686.0 -77.93 34072.9 37395.1 979.6 15686.0 15716.5
 LG 2278.68 5980.0 -80.70 13698.3 14177.9 317.1 5980.0 5988.4
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/8.907/77.930, 4.67653 Z-:/9.129/76.341, 4.11495 Z0:/52.106/81.943,
 7.06413

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----BUS-----X
 102104 [GOINDWL2] 220.00] 3PH 9130.93 23962.5 -76.77 50970.3 56824.4 2928.0 23962.5 24140.7
 LG 4642.26 12182.8 -81.02 28081.4 29694.3 3693.3 12182.8 12730.3
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.831/76.770, 4.25347 Z-:/6.214/74.221, 3.53895 Z0:/22.451/83.996,
 9.50765

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----BUS-----X
 102105 [ALGON2] 220.00] 3PH 9496.07 24920.7 -76.33 52599.9 59334.6 2355.4 24920.7 25031.8
 LG 3996.98 10489.3 -80.25 23811.1 25020.7 882.0 10489.3 10526.4
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.607/76.332, 4.11212 Z-:/5.790/73.985, 3.48385 Z0:/28.630/82.277,
 7.37349

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----BUS-----X
 102106 [BADL2] 220.00] 3PH 3186.01 8361.1 -77.42 17992.2 19147.6 150.1 8361.1 8362.5
 LG 1611.37 4228.8 -80.26 9601.0 9876.4 146.0 4228.8 4231.3
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/16.711/77.416, 4.47953 Z-:/17.060/76.442, 4.14666 Z0:/65.438/81.974,
 7.09162

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

FAULT STUDY

<-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/
 MVA DEG AMP AMP AMP AMP AMP
 6204.69 16283.1 -79.18 36210.9 38673.8 1087.0 16283.1 16319.3
 2702.70 7092.8 -78.08 15450.8 15952.9 82.7 7092.8 7093.2
 Z+:/8.581/79.185, 5.23454 Z-:/8.755/77.606, 4.55066 Z0:/41.763/77.959,
 4.68804

NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 VOLTAGE FACTOR C= 1.10, <-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/
 MVA DEG AMP AMP AMP AMP AMP
 6092.26 15988.0 -76.15 33639.9 37032.5 300.5 15988.0 15990.9
 2550.82 6694.2 -79.75 15050.5 15647.4 156.4 6694.2 6696.0
 Z+:/8.739/76.152, 4.05673 Z-:/8.891/74.669, 3.64758 Z0:/45.058/81.454,
 6.65490

NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 VOLTAGE FACTOR C= 1.10, <-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/
 MVA DEG AMP AMP AMP AMP AMP
 4051.91 10633.5 -77.08 22743.7 24497.3 185.0 10633.5 10635.1
 1735.49 4554.5 -79.82 10252.9 10561.6 77.5 4554.5 4555.1
 Z+:/13.139/77.079, 4.35897 Z-:/13.259/76.117, 4.04592 Z0:/65.693/81.114,
 6.39641

NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 VOLTAGE FACTOR C= 1.10, <-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/
 MVA DEG AMP AMP AMP AMP AMP
 6126.62 16078.2 -77.03 34361.6 37539.5 412.2 16078.2 16083.5
 2327.50 6108.1 -79.93 13781.2 14259.9 130.7 6108.1 6109.5
 Z+:/8.690/77.034, 4.34335 Z-:/8.823/75.583, 3.88994 Z0:/51.159/81.177,
 6.44236

NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 VOLTAGE FACTOR C= 1.10, <-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 /I/ /I/ /I/ /I/ /I/
 MVA DEG AMP AMP AMP AMP AMP
 8183.00 21474.8 -76.73 45646.9 50112.5 672.5 21474.8 21485.3
 3819.92 10024.7 -79.57 22456.6 23602.7 511.2 10024.7 10037.7
 Z+:/6.506/76.731, 4.24043 Z-:/6.687/74.708, 3.65741 Z0:/28.665/81.341,
 6.56623

FAULT STUDY

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
102112 [BADSHPUR2]	220.00]	3PH							
		LG							
	6871.29	18032.5	-76.70	38305.9	41645.5	369.8	18032.5	18036.2	
	3416.59	8966.2	-79.64	20112.7	20989.1	325.8	8966.2	8972.1	
	Z+:/7.748/76.695,	4.22879	Z-:/7.950/74.928,	3.71341	Z0:/31.105/81.570,				
THEVENIN IMPEDANCE, X/R (OHM)									
6.74725									

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
102113 [TLWNSABO2]	220.00]	3PH							
		LG							
	3594.41	9432.9	-77.18	20210.8	21480.7	108.7	9432.9	9433.5	
	1780.32	4672.1	-79.92	10539.3	10833.5	89.4	4672.1	4673.0	
	Z+:/14.812/77.176,	4.39297	Z-:/15.022/76.205,	4.07275	Z0:/59.952/81.535,				
THEVENIN IMPEDANCE, X/R (OHM)									
6.71957									

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
102114 [PASSN2]	220.00]	3PH							
		LG							
	5570.35	14618.4	-77.46	31481.4	33845.4	259.6	14618.4	14620.7	
	2285.58	5998.1	-80.07	13567.6	13981.6	138.3	5998.1	5999.3	
	Z+:/9.558/77.458,	4.49523	Z-:/9.695/76.129,	4.04951	Z0:/50.674/81.310,				
THEVENIN IMPEDANCE, X/R (OHM)									
6.54254									

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
102115 [BANUR2]	220.00]	3PH							
		LG							
	5999.16	15743.7	-77.32	33822.2	36320.6	240.9	15743.7	15745.6	
	2646.09	6944.2	-80.11	15721.0	16231.8	163.9	6944.2	6946.1	
	Z+:/8.875/77.323,	4.44582	Z-:/9.059/75.831,	3.96083	Z0:/42.477/81.602,				
THEVENIN IMPEDANCE, X/R (OHM)									
6.77392									

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I²k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

BUS	MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP	AMP
102116 [KKRL2]	220.00]	3PH							
		LG							
	8393.69	22027.7	-77.58	47547.0	52646.2	1588.8	22027.7	22085.0	

FAULT STUDY

BUS	NOMINAL FREQUENCY=50.0 HZ	BREAKING CURRENT at TIME= 0.100 seconds	<DC Ib(C)>	<Sym Ib->	<Asym Ib>				
102121 [UDOKE2]	220.00] 3PH LG	MVA 6436.09 2826.60	AMP 16890.4 7417.9	DEG -77.21 -79.99	AMP 36210.4 16754.7	AMP 39334.3 17343.0	AMP 472.2 182.6	AMP 16890.4 7417.9	AMP 16897.0 7420.1
THEVENIN IMPEDANCE, X/R (OHM) Z+:/8.272/77.209, 4.40455 Z-:/8.475/75.546, 3.87964 Z0:/39.808/81.514,									

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

BUS	NOMINAL FREQUENCY=50.0 HZ	BREAKING CURRENT at TIME= 0.100 seconds	<DC Ib(C)>	<Sym Ib->	<Asym Ib>				
102122 [GBG42]	220.00] 3PH LG	MVA 14504.76 5569.18	AMP 38065.1 14615.3	DEG -76.05 -80.49	AMP 79943.7 33337.1	AMP 91465.7 35309.1	AMP 3124.6 1298.7	AMP 38065.1 14615.3	AMP 38193.1 14672.9
THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.671/76.047, 4.02469 Z-:/3.892/72.549, 3.18102 Z0:/21.181/82.715,									

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

BUS	NOMINAL FREQUENCY=50.0 HZ	BREAKING CURRENT at TIME= 0.100 seconds	<DC Ib(C)>	<Sym Ib->	<Asym Ib>				
102123 [SANDHOUR2]	220.00] 3PH LG	MVA 8649.55 3697.54	AMP 22699.2 9703.5	DEG -77.57 -80.05	AMP 48983.4 21943.5	AMP 53098.3 22812.7	AMP 685.1 295.6	AMP 22699.2 9703.5	AMP 22709.5 9708.0
THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.155/77.570, 4.53698 Z-:/6.309/75.478, 3.86058 Z0:/30.767/81.486,									

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

BUS	NOMINAL FREQUENCY=50.0 HZ	BREAKING CURRENT at TIME= 0.100 seconds	<DC Ib(C)>	<Sym Ib->	<Asym Ib>				
102125 [CHAJLIT2]	220.00] 3PH LG	MVA 5463.07 2166.87	AMP 14336.8 5686.6	DEG -77.40 -79.97	AMP 30840.4 12837.8	AMP 33312.0 13245.4	AMP 307.0 111.2	AMP 14336.8 5686.6	AMP 14340.1 5687.7
THEVENIN IMPEDANCE, X/R (OHM) Z+:/9.745/77.396, 4.47238 Z-:/9.890/76.078, 4.03406 Z0:/54.118/81.138,									

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

<-SCMVA-> <-Sym I'k rms--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

BUS	NOMINAL FREQUENCY=50.0 HZ	BREAKING CURRENT at TIME= 0.100 seconds	<DC Ib(C)>	<Sym Ib->	<Asym Ib>				
102126 [FAZILKA2]	220.00] 3PH LG	MVA 4942.48 1843.00	AMP 12970.6 4836.6	DEG -79.27 -80.88	AMP 28891.5 11117.8	AMP 30986.9 11408.9	AMP 882.5 197.7	AMP 12970.6 4836.6	AMP 13000.6 4840.7
THEVENIN IMPEDANCE, X/R (OHM) Z+:/10.772/79.270, 5.27702 Z-:/10.975/77.965, 4.69060 Z0:/64.940/81.638,									

FAULT STUDY

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²/I/ /I/ AN(I) RMS--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----BUS -----X
 102129 [DORH42 220.00] 3PH MVA AMP DEG AMP AMP AMP AMP
 16131.58 42334.4 -77.85 91826.8 105305.3 12801.2 42334.4 44227.5
 LG 5130.10 13463.0 -79.23 29962.9 31886.1 912.4 13463.0 13493.9
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.300/77.852, 4.64561 Z-:/3.474/74.008, 3.48926 Z0:/24.378/80.154,
 5.76185

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²/I/ /I/ AN(I) RMS--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----BUS -----X
 102135 [BHARI2 220.00] 3PH MVA AMP DEG AMP AMP AMP AMP
 5839.34 15324.3 -77.75 33180.5 35167.6 223.1 15324.3 15325.9
 LG 2882.01 7563.3 -80.15 17138.0 17657.2 165.3 7563.3 7565.1
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/9.117/77.755, 4.60762 Z-:/9.343/76.244, 4.08466 Z0:/37.003/81.733,
 6.88236

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²/I/ /I/ AN(I) RMS--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----BUS -----X
 102136 [HSRPR2 220.00] 3PH MVA AMP DEG AMP AMP AMP AMP
 3723.39 9771.4 -77.47 21046.9 22385.7 158.1 9771.4 9772.6
 LG 1847.94 4849.6 -79.03 10752.7 11104.3 69.2 4849.6 4850.1
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/14.299/77.468, 4.49881 Z-:/14.452/76.545, 4.17960 Z0:/57.708/80.037,
 5.69267

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²/I/ /I/ AN(I) RMS--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----BUS -----X
 102138 [PTRNPG42 220.00] 3PH MVA AMP DEG AMP AMP AMP AMP
 13420.27 35219.1 -78.10 76740.8 88917.4 15961.3 35219.1 38667.1
 LG 3480.77 9134.6 -80.58 20871.6 21787.2 513.1 9134.6 9149.0
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/3.967/78.099, 4.74479 Z-:/4.099/74.962, 3.72216 Z0:/37.848/81.444,
 6.64659

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²/I/ /I/ AN(I) RMS--> <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----BUS -----X
 102140 [MAJRA2 220.00] 3PH MVA AMP DEG AMP AMP AMP AMP
 5015.34 13161.9 -77.36 28292.2 30107.1 157.8 13161.9 13162.8
 LG 2447.40 6422.8 -79.95 14495.1 14933.3 119.6 6422.8 6423.9

FAULT STUDY

X-----BUS-----X
 102151 [BDNIKLN2 220.00] 3PH LG
 THEVENIN IMPEDANCE, X/R (OHM)
 7.05857

MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP
6023.95	15808.8	-77.94	34345.7	36708.2	470.8	15808.8	15815.8
2866.50	7522.6	-80.41	17130.8	17683.7	269.8	7522.6	7527.4
Z+:/8.838/77.940, 4.68037	Z-:/9.022/76.400, 4.13336	Z0:/37.903/81.937,					

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²/I/ > <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

X-----BUS-----X
 102156 [MAUR2 220.00] 3PH LG
 THEVENIN IMPEDANCE, X/R (OHM)
 7.03806

MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP
4303.13	11292.8	-77.33	24264.1	25835.3	193.7	11292.8	11294.4
2138.16	5611.2	-80.17	12719.5	13096.6	159.3	5611.2	5613.5
Z+:/12.372/77.332, 4.44895	Z-:/12.642/76.107, 4.04291	Z0:/49.755/81.913,					

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²/I/ > <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

X-----BUS-----X
 102158 [ALWLP2 220.00] 3PH LG
 THEVENIN IMPEDANCE, X/R (OHM)
 5.39553

MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP
4290.91	11260.7	-78.01	24498.3	25691.3	214.2	11260.7	11262.8
2402.58	6305.1	-78.69	13891.8	14451.8	176.3	6305.1	6307.6
Z+:/12.408/78.014, 4.71031	Z-:/12.759/76.742, 4.24412	Z0:/41.324/79.500,					

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²/I/ > <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

X-----BUS-----X
 102159 [ITMOHALI2 220.00] 3PH LG
 THEVENIN IMPEDANCE, X/R (OHM)
 7.05909

MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP
10578.77	27762.1	-77.71	60063.4	66277.0	1934.7	27762.1	27829.4
3834.90	10064.0	-80.57	22993.9	23940.0	525.5	10064.0	10077.7
Z+:/5.033/77.711, 4.59082	Z-:/5.225/75.125, 3.76498	Z0:/31.430/81.937,					

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I²/I/ > <-ip(B)-> <-ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>

X-----BUS-----X
 102170 [BANGA2 220.00] 3PH LG
 THEVENIN IMPEDANCE, X/R (OHM)
 6.51976

MVA	AMP	DEG	AMP	AMP	AMP	AMP	AMP
4596.39	12062.4	-78.63	26546.1	27890.9	426.2	12062.4	12069.9
2222.90	5833.6	-80.22	13235.6	13566.2	143.2	5833.6	5835.4
Z+:/11.583/78.633, 4.97402	Z-:/11.781/77.416, 4.47973	Z0:/48.515/81.280,					

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

BUS	NOMINAL FREQUENCY=50.0 HZ	BREAKING CURRENT at TIME= 0.100 seconds	<-SCMVA->	<-Sym I'k RMS-->	<-1p(B)->	<-1p(C)->	<DC Ib(C)>	<Sym Ib->	<Asym Ib>
102172 [SHERPUR2]	220.00] 3PH LG	11222.11 5048.70	29450.4 13249.4	-75.67 -79.04	61451.5 29381.7	69111.7 31107.4	1050.0 430.5	29450.4 13249.4	29469.1 13256.4
THEVENIN IMPEDANCE, X/R (OHM)		Z+:/4.744/75.672,	3.91516	Z-:/4.918/73.008,	3.27239	Z0:/22.023/81.105,			

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

BUS	NOMINAL FREQUENCY=50.0 HZ	BREAKING CURRENT at TIME= 0.100 seconds	<-SCMVA->	<-Sym I'k RMS-->	<-1p(B)->	<-1p(C)->	<DC Ib(C)>	<Sym Ib->	<Asym Ib>
102173 [LITKLN2]	220.00] 3PH LG	11316.77 4678.80	29698.8 12278.7	-76.98 -79.02	63406.7 27219.1	70826.0 28706.8	2121.6 438.7	29698.8 12278.7	29774.5 12286.5
THEVENIN IMPEDANCE, X/R (OHM)		Z+:/4.705/76.978,	4.32383	Z-:/4.862/74.283,	3.55351	Z0:/24.597/80.342,			

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

BUS	NOMINAL FREQUENCY=50.0 HZ	BREAKING CURRENT at TIME= 0.100 seconds	<-SCMVA->	<-Sym I'k RMS-->	<-1p(B)->	<-1p(C)->	<DC Ib(C)>	<Sym Ib->	<Asym Ib>
102174 [SNMLB2]	220.00] 3PH LG	8922.68 3888.26	23416.0 10204.0	-78.17 -76.64	51087.9 21655.8	55431.2 23018.7	1093.1 226.1	23416.0 10204.0	23441.5 10206.5
THEVENIN IMPEDANCE, X/R (OHM)		Z+:/5.967/78.168,	4.77342	Z-:/6.140/75.961,	3.99923	Z0:/28.974/76.473,			

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

BUS	NOMINAL FREQUENCY=50.0 HZ	BREAKING CURRENT at TIME= 0.100 seconds	<-SCMVA->	<-Sym I'k RMS-->	<-1p(B)->	<-1p(C)->	<DC Ib(C)>	<Sym Ib->	<Asym Ib>
104001 [MLKT4]	400.00] 3PH LG	27089.07 8946.77	39099.7 12913.5	-78.88 -73.05	86442.7 25800.3	101104.9 30991.0	10324.0 925.9	39099.7 12913.5	40439.7 12946.7
THEVENIN IMPEDANCE, X/R (OHM)		Z+:/6.497/78.876,	5.08556	Z-:/7.097/72.904,	3.25137	Z0:/45.460/72.240,			

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

BUS	NOMINAL FREQUENCY=50.0 HZ	BREAKING CURRENT at TIME= 0.100 seconds	<-SCMVA->	<-Sym I'k RMS-->	<-1p(B)->	<-1p(C)->	<DC Ib(C)>	<Sym Ib->	<Asym Ib>
104002 [PTLA4]	400.00] 3PH LG	29904.33 9022.68	43163.2 13023.1	-78.68 -71.64	95080.5 25455.3	112011.4 31104.7	12918.1 939.1	43163.2 13023.1	45054.8 13056.9
THEVENIN IMPEDANCE, X/R (OHM)		Z+:/5.885/78.683,	4.99674	Z-:/6.551/72.274,	3.12859	Z0:/46.134/70.656,			

104007 [MAKHU4 400.00] 3PH 22437.82 32386.2 -79.30 72184.4 83409.6 8211.8 32386.2 33411.1
 LG 8874.62 12809.4 -78.15 27939.3 31367.6 1394.7 12809.4 12885.1
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/7.844/79.303, 5.29376 Z-:/8.451/74.152, 3.52261 Z0:/43.225/78.726,
 5.01649

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----BUS-----X
 104008 [NAKODAR4 400.00] 3PH 29393.15 42425.4 -78.53 93188.2 110467.4 13517.5 42425.4 44526.8
 LG 10229.46 14764.9 -76.72 31379.8 36041.0 1561.5 14765.0 14847.3
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/5.988/78.530, 4.92852 Z-:/6.583/72.065, 3.08959 Z0:/39.071/77.229,
 4.41186

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----BUS-----X
 104009 [RAJPUR4 400.00] 3PH 20117.23 29036.7 -81.26 67263.3 75444.9 9993.7 29036.7 30708.4
 LG 8040.30 11605.2 -82.60 27633.9 29599.7 4681.6 11605.2 12513.9
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/8.749/81.263, 6.50682 Z-:/9.725/76.559, 4.18418 Z0:/47.268/84.088,
 9.65615

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----BUS-----X
 104010 [RAJPURTH4 400.00] 3PH 18875.24 27244.1 -81.64 63591.6 70693.3 9233.9 27244.1 28766.4
 LG 9078.02 13103.0 -82.66 31241.0 33847.4 7792.6 13103.0 15245.1
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/9.324/81.636, 6.80190 Z-:/10.410/77.183, 4.39531 Z0:/38.495/84.389,
 10.17887

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-1p(B)-> <-1p(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib->
 X-----BUS-----X
 104011 [DHUR14 400.00] 3PH 16958.79 24477.9 -81.05 56461.9 62950.8 5951.9 24477.9 25191.1
 LG 6944.59 10023.7 -82.19 23665.7 25165.4 1941.1 10023.7 10209.9
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/10.378/81.052, 6.35081 Z-:/11.188/76.995, 4.32962 Z0:/54.526/83.474,
 8.74092

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

FAULT STUDY

X-----BUS-----X
 104012 [MUKTSAR4 400.00] 3PH LG
 THEVENIN IMPEDANCE, X/R (OHM)
 6.77625

<-SCMVA->	<-Sym I ¹ 'k /I/ /I/	MVA	AN(I)	DEG	<-ip(B)->	<-ip(C)->	<DC Ib(C)->	<Sym Ib->	<Asym Ib->
					AMP	AMP	AMP	AMP	AMP
		14361.39	-80.78	47558.1	52664.6	3789.9	20728.9	21072.5	
		6246.19	-80.82	20699.4	22229.8	1026.5	9015.6	9073.8	
		Z+:/12.255/80.784,	6.16293	Z-:/12.995/77.266,	4.42513	Z0:/59.312/81.605,			

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

X-----BUS-----X
 104013 [TALWANDIA 400.00] 3PH LG
 THEVENIN IMPEDANCE, X/R (OHM)
 11.38823

<-SCMVA->	<-Sym I ¹ 'k /I/ /I/	MVA	AN(I)	DEG	<-ip(B)->	<-ip(C)->	<DC Ib(C)->	<Sym Ib->	<Asym Ib->
					AMP	AMP	AMP	AMP	AMP
		18425.67	-81.82	62311.8	68754.1	8876.9	26595.2	28037.5	
		10395.46	-82.80	35876.9	38886.2	8496.2	15004.6	17243.0	
		Z+:/9.552/81.821,	6.95734	Z-:/10.823/77.497,	4.50943	Z0:/30.487/84.982,			

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

X-----BUS-----X
 104017 [DORAH4 400.00] 3PH LG
 THEVENIN IMPEDANCE, X/R (OHM)
 5.97241

<-SCMVA->	<-Sym I ¹ 'k /I/ /I/	MVA	AN(I)	DEG	<-ip(B)->	<-ip(C)->	<DC Ib(C)->	<Sym Ib->	<Asym Ib->
					AMP	AMP	AMP	AMP	AMP
		17665.84	-81.16	58942.0	65784.2	6452.9	25498.4	26302.3	
		8662.65	-79.98	28236.8	30624.0	1181.4	12503.5	12559.1	
		Z+:/9.963/81.158,	6.42847	Z-:/10.635/76.935,	4.30918	Z0:/40.372/80.495,			

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

X-----BUS-----X
 104022 [PATRANPG4 400.00] 3PH LG
 THEVENIN IMPEDANCE, X/R (OHM)
 3.43229

<-SCMVA->	<-Sym I ¹ 'k /I/ /I/	MVA	AN(I)	DEG	<-ip(B)->	<-ip(C)->	<DC Ib(C)->	<Sym Ib->	<Asym Ib->
					AMP	AMP	AMP	AMP	AMP
		23650.66	-79.37	76189.5	87695.3	7153.5	34136.8	34878.3	
		8300.83	-74.45	24487.4	28848.7	798.7	11981.2	12007.8	
		Z+:/7.442/79.374,	5.32987	Z-:/7.933/74.026,	3.49335	Z0:/48.264/73.757,			

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds

X-----BUS-----X
 104024 [GRDSP74 400.00] 3PH LG
 THEVENIN IMPEDANCE, X/R (OHM)
 5.12706

<-SCMVA->	<-Sym I ¹ 'k /I/ /I/	MVA	AN(I)	DEG	<-ip(B)->	<-ip(C)->	<DC Ib(C)->	<Sym Ib->	<Asym Ib->
					AMP	AMP	AMP	AMP	AMP
		19957.53	-80.64	65906.7	74823.8	12041.1	28806.2	31221.6	
		7137.51	-78.78	22735.2	25134.0	1056.0	10302.1	10356.1	
		Z+:/8.819/80.644,	6.06951	Z-:/9.456/75.961,	3.99919	Z0:/55.717/78.963,			

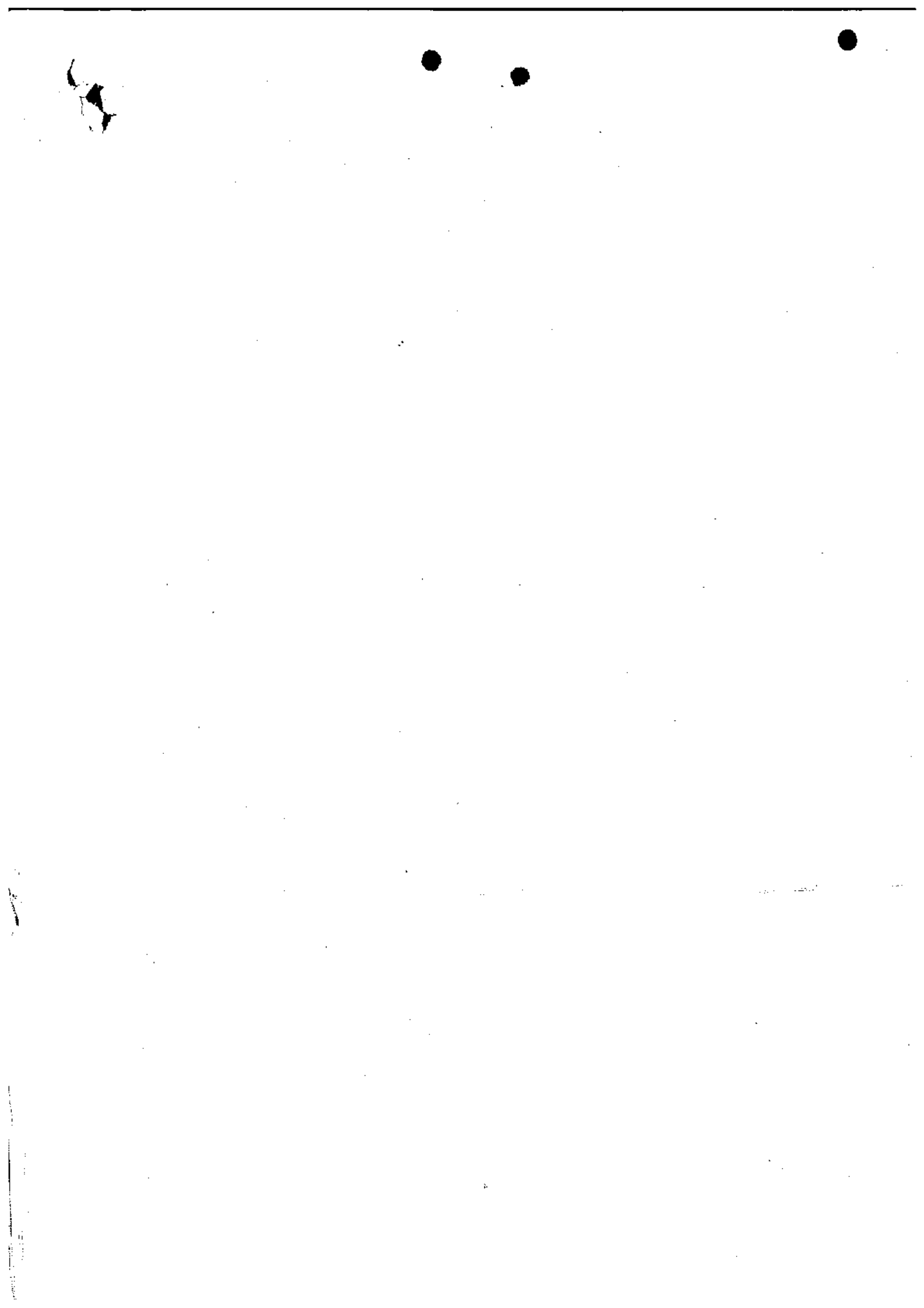
FAULT STUDY

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-Ip(B)-> <-Ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----X
 BUS -----X
 104025 [MOHALI74 400.00] 3PH 25072.38 36188.9 -80.50 82560.0 94404.8 13951.4 36188.9 38785.0
 LG 7375.47 10645.6 -73.19 21316.7 25444.0 766.2 10645.6 10673.1
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/7.020/80.499, 5.97520 Z-:/7.675/74.919, 3.71117 Z0:/56.966/72.058,
 3.08830

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-Ip(B)-> <-Ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----X
 BUS -----X
 107001 [MOGAPG7 765.00] 3PH 28438.64 221462.8 -81.74 50201.8 57776.0 12456.7 21462.8 24815.8
 LG 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/22.636/81.738, 6.88682 Z-:/24.337/75.256, 3.79996 Z0:/0.6E+10/90.000,
 9999.999

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-Ip(B)-> <-Ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----X
 BUS -----X
 107002 [GURDSPUR7 765.00] 3PH 21023.89 15866.9 -83.19 38255.6 42668.6 9192.8 15866.9 18337.5
 LG 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/30.620/83.189, 8.37206 Z-:/33.052/78.142, 4.76260 Z0:/0.6E+10/90.000,
 9999.999

VOLTAGE FACTOR C= 1.10, NOMINAL FREQUENCY=50.0 HZ, BREAKING CURRENT at TIME= 0.100 seconds
 <-SCMVA-> <-Sym I'k rms--> <-Ip(B)-> <-Ip(C)-> <DC Ib(C)> <Sym Ib-> <Asym Ib>
 X-----X
 BUS -----X
 107003 [MOHALI7 765.00] 3PH 16880.17 12739.6 -84.50 31602.3 34473.4 7955.6 12739.6 15019.6
 LG 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 THEVENIN IMPEDANCE, X/R (OHM) Z+:/38.136/84.499, 10.38291 Z-:/39.604/80.406, 5.91614 Z0:/0.6E+10/90.000,
 9999.999



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E WED, AUG 24 2016

6:44 RATING %MVA FOR TRANSFORMERS
 SET A % I FOR NON-TRANSFORMER

PUNJAB POWER SYTEM PROPOSED 2017-22 BRANCHES

OUTPUT FOR AREA 1 [PUNJAB]

BRANCHES	OUTPUT FOR AREA 1 [PUNJAB]	MW	MVAR	MVA	%	LOSSSES	AREA
BUS 101001 GNGL1	132.00 CKT	MW	MVAR	MVA	% 1.0268PU	-0.82	X---X X----- AREA
FROM GENERATION	-----X X----- ZONE	58.5	27.5H	64.6	99 135.53KV		
13 NORTH ZONE	-----X 101001						
TO 101030 KTLA1	132.00 1	45.7	1.9	45.8	51	0.65	MVAR 1.54 1 PUNJAB
12 SOUTH ZONE	132.00 2	45.7	1.9	45.8	51	0.65	1.54 1 PUNJAB
TO 101030 KTLA1	132.00 1	-36.3	13.3	38.7	39 1.0000LK	0.00	1.77 1 PUNJAB
12 SOUTH ZONE	220.00 2	-10.9	4.0	11.6	23 1.0000LK	0.00	0.53 1 PUNJAB
TO 102026 GNG2	220.00 1	4.8	2.1	5.2	33 1.0000UN	0.00	0.17 1 PUNJAB
13 NORTH ZONE	33.000 2	4.8	2.1	5.2	33 1.0000UN	0.00	0.17 1 PUNJAB
TO 103003 GNGL13	33.000 3	4.8	2.1	5.2	33 1.0000UN	0.00	0.17 1 PUNJAB
13 NORTH ZONE							
BUS 101002 KHRL	132.00 CKT	MW	MVAR	MVA	% 0.9816PU	-4.52	X---X X----- AREA
-----X X----- ZONE	-----X 101002						
12 SOUTH ZONE							
TO SHUNT		0.0	-5.1	5.1	14	0.03	0.07 1 PUNJAB
TO 101031 RPR1	132.00 1	8.7	-8.4	12.1		0.00	2.57 1 PUNJAB
12 SOUTH ZONE	220.00 1	-44.2	-5.1	44.5	45 1.0000LK	0.00	1.51 1 PUNJAB
TO 102028 KHR2	11.000 1	13.5	7.1	15.3	76 1.0000UN	0.00	1.51 1 PUNJAB
12 SOUTH ZONE	11.000 2	13.5	7.1	15.3	76 1.0000UN	0.00	1.51 1 PUNJAB
TO 105045 KHR11	11.000 3	8.5	4.4	9.5	76 1.0000UN	0.00	0.95 1 PUNJAB
12 SOUTH ZONE							
TO 105045 KHR11							
12 SOUTH ZONE							
BUS 101003 GLA11	132.00 CKT	MW	MVAR	MVA	% 0.9489PU	-8.04	X---X X----- AREA
-----X X----- ZONE	-----X 101003						
12 SOUTH ZONE							
TO SHUNT		0.0	-25.7	25.7	125.25KV		

OUTPUT 1722

TO	132.00	1	-51.9	-4.4	52.1	75	1.60	3.10	1	PUNJAB
TO 101031 RPR1	132.00	1	-51.9	-4.4	52.1	75	1.60	3.10	1	PUNJAB
12 SOUTH ZONE										
TO 101033 CMKS1	132.00	1	-43.8	-1.1	43.9	63	0.69	1.33	1	PUNJAB
12 SOUTH ZONE										
TO 101034 JMP1	132.00	1	-3.8	-8.5	9.3	13	0.02	0.05	1	PUNJAB
11 CENTRAL ZONE										
TO 101034 JMP1	132.00	2	-3.8	-8.5	9.3	13	0.02	0.05	1	PUNJAB
11 CENTRAL ZONE										
TO 101035 SMSPR1	132.00	1	36.1	16.1	39.5	48	0.10	0.23	1	PUNJAB
11 CENTRAL ZONE										
TO 101113 DUMMY3	132.00	1	43.0	19.0	46.9	57	0.27	0.65	1	PUNJAB
13 NORTH ZONE										
TO 105043 GLAL11	11.000	1	14.9	8.1	17.0	85	0.00	2.00	1	PUNJAB
11 CENTRAL ZONE										
TO 105043 GLAL11	11.000	2	9.3	5.1	10.6	85	0.00	1.25	1	PUNJAB
11 CENTRAL ZONE										
TO 106120 GLAL16	66.000	1	-0.0	0.0	0.0	0	0.00	0.00	1	PUNJAB
11 CENTRAL ZONE										
TO 106120 GLAL16	66.000	2	-0.0	0.0	0.0	0	0.00	0.00	1	PUNJAB
11 CENTRAL ZONE										

BUS	132.00	CKT	MW	MVAR	MVA	%	0.9406PU	-8.88	X	---	LOSSES	---	X	---	AREA
BUS 101004 PGWR1	132.00	CKT	MW	MVAR	MVA	%	0.9406PU	-8.88	X	---	LOSSES	---	X	---	AREA
-----X X----- ZONE	-----X	101004													
13 NORTH ZONE															
TO SHUNT			0.0	-4.8	4.8										
TO 101016 BNGAL	132.00	1	-10.4	-4.1	11.2	14									
13 NORTH ZONE															
TO 101042 GRY1	132.00	1	-19.3	-8.5	21.1	31									
11 CENTRAL ZONE															
TO 101042 GRY1	132.00	2	-19.3	-8.5	21.1	31									
11 CENTRAL ZONE															
TO 101043 JLD1	132.00	1	-29.6	-16.3	33.8	41									
13 NORTH ZONE															
TO 103002 PGWR13	33.000	1	16.8	9.0	19.0	95	1.00000UN								
13 NORTH ZONE															
TO 103002 PGWR13	33.000	2	16.8	9.0	19.0	95	1.00000UN								
13 NORTH ZONE															
TO 103002 PGWR13	33.000	3	16.8	9.0	19.0	95	1.00000UN								
13 NORTH ZONE															
TO 105028 PGWR11	11.000	1	14.1	7.6	16.1	80	1.00000UN								
13 NORTH ZONE															
TO 105028 PGWR11	11.000	2	14.1	7.6	16.1	80	1.00000UN								
13 NORTH ZONE															

BUS	132.00	CKT	MW	MVAR	MVA	%	0.9557PU	-10.95	X	---	LOSSES	---	X	---	AREA
BUS 101005 TDBH1	132.00	CKT	MW	MVAR	MVA	%	0.9557PU	-10.95	X	---	LOSSES	---	X	---	AREA
-----X X----- ZONE	-----X	101005													
13 NORTH ZONE															

OUTPUT 1722

15 WEST ZONE		126.16KV		MW	MVAR	1	PUNJAB
TO SHUNT	FRZS1	132.00	1	0.0	-14.9	14.9	
TO 101076	FRZS1	132.00	1	51.5	6.0	51.8	74
TO 101083	SUSN1	132.00	1	8.8	13.9	16.4	24
TO 102058	TDBH2	220.00	1	-79.2	-14.7	80.5	81 1.0000LK
TO 105057	TDBH11	11.000	1	11.7	6.0	13.1	65 1.0000UN
TO 105057	TDBH11	11.000	1	7.3	3.7	8.2	65 1.0000UN
TO 106124	TDBH16	66.000	1	0.0	0.0	0.0	0 1.0000UN
TO 106124	TDBH16	66.000	2	0.0	0.0	0.0	0 1.0000UN
TO 101006	SADQ1	132.00	CKT	MW	MVAR	MVA	% 0.9504PU
TO 101008	MK21	132.00	1	-13.3	11.8	17.8	22
TO 101075	FZRI	132.00	1	-8.4	-17.9	19.8	24
TO 101087	FRDKT1	132.00	1	21.8	6.1	22.6	27
TO 105064	SADQ11	11.000	1	0.0	-0.0	0.0	0 1.0000UN
TO 105064	SADQ11	11.000	2	0.0	-0.0	0.0	0 1.0000UN
TO 106129	SADQ16	66.000	1	0.0	-0.0	0.0	0 1.0000UN
BUS 101007	MKSRI	132.00	CKT	MW	MVAR	MVA	% 0.9446PU
TO SHUNT	MK21	132.00	1	0.0	-15.8	15.8	
TO 101008	MK21	132.00	2	-45.9	-17.7	49.2	60
TO 101008	MK21	132.00	3	-45.9	-17.7	49.2	60
TO 101008	MK21	132.00	4	-45.9	-17.7	49.2	60
TO 101006	SADQ1	132.00	CKT	MW	MVAR	MVA	% 0.9446PU
TO 101008	MK21	132.00	1	0.11	0.25	0.11	0.25
TO 101075	FZRI	132.00	1	0.09	0.22	0.09	0.22
TO 101087	FRDKT1	132.00	1	0.09	0.21	0.09	0.21
TO 105064	SADQ11	11.000	1	0.00	0.00	0.00	0.00
TO 105064	SADQ11	11.000	2	0.00	0.00	0.00	0.00
TO 106129	SADQ16	66.000	1	0.00	0.00	0.00	0.00
BUS 101007	MKSRI	132.00	CKT	MW	MVAR	MVA	% 0.9446PU
TO SHUNT	MK21	132.00	1	0.03	0.06	0.03	0.06
TO 101008	MK21	132.00	2	0.03	0.06	0.03	0.06
TO 101008	MK21	132.00	3	0.03	0.06	0.03	0.06
TO 101008	MK21	132.00	4	0.03	0.06	0.03	0.06

OUTPUT 1722

15 WEST ZONE	132.00	1	22.0	10.1	24.2	29	0.18	0.42	1	PUNJAB
TO 101009 KTKP1	132.00	1	22.0	10.1	24.2	29	0.18	0.42	1	PUNJAB
15 WEST ZONE										
TO 101086 SRNG1	132.00	1	22.1	9.1	23.9	29	0.08	0.18	1	PUNJAB
15 WEST ZONE										
TO 101089 MLOT1	132.00	1	45.7	17.9	49.1	60	0.83	1.97	1	PUNJAB
15 WEST ZONE										
TO 105066 MKS11	11.000	1	15.9	8.8	18.2	91	0.00	2.31	1	PUNJAB
15 WEST ZONE										
TO 105066 MKS11	11.000	2	9.9	5.5	11.3	91	0.00	1.44	1	PUNJAB
15 WEST ZONE										
TO 106130 MKS16	66.000	1	34.0	17.5	38.3	77	0.00	3.56	1	PUNJAB
15 WEST ZONE										
TO 106130 MKS16	66.000	2	34.0	17.5	38.3	77	0.00	3.56	1	PUNJAB
15 WEST ZONE										

BUS 101008 MK21 132.00 CKT -10.88 X--- LOSSES ---X X--- AREA
 -----X X----- ZONE -----X 101008

15 WEST ZONE	132.00	1	8.7	3.6	9.4	23	0.11	0.25	1	PUNJAB
TO LOAD-PQ	132.00	1	8.7	3.6	9.4	23	0.11	0.25	1	PUNJAB
15 WEST ZONE										
TO 101006 SADQ1	132.00	1	13.4	-13.0	18.7	23	0.03	0.06	1	PUNJAB
15 WEST ZONE										
TO 101007 MKSR1	132.00	1	45.9	17.7	49.2	60	0.03	0.06	1	PUNJAB
15 WEST ZONE										
TO 101007 MKSR1	132.00	2	45.9	17.7	49.2	60	0.03	0.06	1	PUNJAB
15 WEST ZONE										
TO 101007 MKSR1	132.00	3	45.9	17.7	49.2	60	0.03	0.06	1	PUNJAB
15 WEST ZONE										
TO 101007 MKSR1	132.00	4	45.9	17.7	49.2	60	0.03	0.06	1	PUNJAB
15 WEST ZONE										
TO 101088 JLLBD1	132.00	1	35.4	3.1	35.5	43	0.44	1.04	1	PUNJAB
15 WEST ZONE										
TO 102061 MKSR2	220.00	1	-80.4	-21.5	83.3	83	0.00	9.70	1	PUNJAB
15 WEST ZONE										
TO 102061 MKSR2	220.00	2	-80.4	-21.5	83.3	83	0.00	9.70	1	PUNJAB
15 WEST ZONE										
TO 102061 MKSR2	220.00	3	-80.4	-21.5	83.3	83	0.00	9.70	1	PUNJAB
15 WEST ZONE										

BUS 101009 KTKP1 132.00 CKT -11.65 X--- LOSSES ---X X--- AREA
 -----X X----- ZONE -----X 101009

15 WEST ZONE	132.00	1	0.0	-4.7	4.7	30	0.18	0.42	1	PUNJAB
TO SHUNT	132.00	1	0.0	-4.7	4.7	30	0.18	0.42	1	PUNJAB
15 WEST ZONE										
TO 101007 MKSR1	132.00	1	-21.9	-10.9	24.4	30	0.00	9.70	1	PUNJAB
15 WEST ZONE										

OUTPUT 1722

TO 101010	KTKPR1	132.00	1	2.0	4.5	11.4	91	1.0000UN	0.00	0.00	1	PUNJAB
15 WEST ZONE												
TO 105069	KTKP11	11.000	1	9.9	5.6	11.4	91	1.0000UN	0.00	1.50	1	PUNJAB
15 WEST ZONE												
TO 105069	KTKP11	11.000	2	9.9	5.6	11.4	91	1.0000UN	0.00	1.50	1	PUNJAB
15 WEST ZONE												
TO 106131	KTKP16	66.000	1	0.0	0.0	0.0	0	1.0000UN	0.00	0.00	1	PUNJAB
15 WEST ZONE												
TO 106131	KTKP16	66.000	2	0.0	0.0	0.0	0	1.0000UN	0.00	0.00	1	PUNJAB
15 WEST ZONE												

BUS 101010	KTKPR1	132.00	CKT	MW	MVAR	MVA	% 0.9313PU	-11.65	X----	LOSSES	---	X-----	AREA
15 WEST ZONE													
-----X X-----	ZONE	101010					122.93KV						

TO SHUNT	KTKP1	132.00	1	0.0	-2.4	2.4	6	0.00	0.00	0.00	1	PUNJAB
15 WEST ZONE												
TO 101009	KTKP1	132.00	1	-2.0	-4.5	4.9	6	0.00	0.00	0.00	1	PUNJAB
15 WEST ZONE												
TO 101102	BGPN1	132.00	1	-10.8	0.1	10.8	13	0.04	0.10	0.10	1	PUNJAB
15 WEST ZONE												
TO 105070	KTKPR11	11.000	1	12.7	6.7	14.4	72	1.0000UN	0.00	1.50	1	PUNJAB
15 WEST ZONE												

BUS 101011	SMDB1	132.00	CKT	MW	MVAR	MVA	% 0.9163PU	-12.27	X----	LOSSES	---	X-----	AREA
15 WEST ZONE													
-----X X-----	ZONE	101011					120.95KV						

TO SHUNT	GHOLKLN1	132.00	1	0.0	-3.4	3.4	52	0.29	0.69	0.69	1	PUNJAB
15 WEST ZONE												
TO 101107	GHOLKLN1	132.00	1	-38.1	-16.9	41.7	52	0.29	0.69	0.69	1	PUNJAB
15 WEST ZONE												
TO 105062	SMDB11	11.000	1	15.7	8.9	18.1	90	1.0000UN	0.00	2.44	1	PUNJAB
15 WEST ZONE												
TO 105062	SMDB11	11.000	2	9.8	5.6	11.3	90	1.0000UN	0.00	1.52	1	PUNJAB
15 WEST ZONE												
TO 106127	SMDB16	66.000	1	12.6	5.9	13.9	35	1.0000UN	0.00	0.71	1	PUNJAB
15 WEST ZONE												

BUS 101012	BTD1	132.00	CKT	MW	MVAR	MVA	% 0.9682PU	-8.01	X----	LOSSES	---	X-----	AREA
15 WEST ZONE													
-----X X-----	ZONE	101012					127.80KV						

TO 101092	BLNA1	132.00	1	66.1	15.1	67.8	80	0.91	1.77	1.77	1	PUNJAB
15 WEST ZONE												
TO 101093	IGC1	132.00	1	74.7	27.7	79.7	45	0.13	0.30	0.30	1	PUNJAB
15 WEST ZONE												
TO 102067	GNDTP2	220.00	1	-70.4	-21.4	73.6	74	1.0000LK	0.00	7.21	1	PUNJAB
15 WEST ZONE												

TO 102067 GNDTP2 15 WEST ZONE	220.00 2	-70.4	-21.4	OUTPUT 1722 73.6 74 1.0000LK	0.00	7.21	1 PUNJAB
BUS 101013 ABHR1 -----X X----- ZONE -----X 101013	132.00 CKT	MW	MVAR	MVA	% 0.9164PU	-13.55	X----- X----- X----- AREA
15 WEST ZONE				120.96KV			
TO SHUNT							
TO 101089 MLOT1	132.00 1	0.0	-13.7	13.7			1 PUNJAB
15 WEST ZONE		-15.3	6.1	16.4			
TO 105072 ABHR11	11.000 1	9.4	4.7	10.5	53 1.0000UN	0.22	1 PUNJAB
15 WEST ZONE							
TO 105072 ABHR11	11.000 2	5.9	2.9	6.6	53 1.0000UN	0.82	1 PUNJAB
15 WEST ZONE							
TO 106132 ABHR16	66.000 1	-0.0	-0.0	0.0	0 1.0000UN	0.51	1 PUNJAB
15 WEST ZONE							
TO 106132 ABHR16	66.000 2	-0.0	-0.0	0.0	0 1.0000UN	0.00	1 PUNJAB
15 WEST ZONE							
BUS 101014 NRML1 -----X X----- ZONE -----X 101014	132.00 CKT	MW	MVAR	MVA	% 0.9444PU	-9.09	X----- X----- X----- AREA
13 NORTH ZONE					124.66KV		
TO SHUNT							
TO 101042 GRY1	132.00 1	0.0	-9.7	9.7			1 PUNJAB
11 CENTRAL ZONE		-17.6	0.8	17.6	21		
TO 101045 NKDR1	132.00 1	0.6	0.4	0.7	1	0.17	1 PUNJAB
13 NORTH ZONE							
TO 105027 NRML11	11.000 1	10.5	5.3	11.7	59 1.0000UN	0.00	1 PUNJAB
13 NORTH ZONE							
TO 105027 NRML11	11.000 2	6.5	3.3	7.3	59 1.0000UN	0.96	1 PUNJAB
13 NORTH ZONE							
TO 106110 NRML16	66.000 2	-0.0	0.0	0.0	0 1.0000UN	0.60	1 PUNJAB
13 NORTH ZONE							
BUS 101015 BGPR1 -----X X----- ZONE -----X 101015	132.00 CKT	MW	MVAR	MVA	% 0.9462PU	-8.78	X----- X----- X----- AREA
13 NORTH ZONE					124.90KV		
TO SHUNT							
TO 101026 HSPR1	132.00 1	0.0	-4.9	4.9			1 PUNJAB
13 NORTH ZONE		-32.3	-4.0	32.6	40	0.30	1 PUNJAB
TO 101049 ALWPRI	132.00 1	-2.1	-1.7	2.7	3	0.00	1 PUNJAB
13 NORTH ZONE							
TO 101050 TNDAI	132.00 1	-14.7	-14.8	20.9	25	0.07	1 PUNJAB
13 NORTH ZONE							
TO 101066 MPH1	132.00 1	-33.7	-19.7	39.0	47	1.07	1 PUNJAB

OUTPUT 1722

13 NORTH ZONE	132.00	1	-3.0	0.9	3.1	4	0.00	0.00	1	PUNJAB		
TO 101106 KHNPR1												
13 NORTH ZONE	11.000	1	14.8	8.0	16.8	84	1.0000UN	0.00	1.97	1		
TO 105033 BGPRI1												
13 NORTH ZONE	11.000	2	9.2	5.0	10.5	84	1.0000UN	0.00	1.23	1		
TO 105033 BGPRI1												
13 NORTH ZONE	66.000	1	30.9	15.6	34.6	69	1.0000UN	0.00	2.90	1		
TO 106113 BGPRI6												
13 NORTH ZONE	66.000	2	30.9	15.6	34.6	69	1.0000UN	0.00	2.90	1		
TO 106113 BGPRI6												
13 NORTH ZONE	132.00	CKT	MW	MVAR	MVA	% 0.9444PU	-8.62	X----	LOSSES	---	X----	AREA
BUS 101016 BNGA1												
-----X X-----	ZONE	-----X	101016				124.65KV					

13 NORTH ZONE	132.00	1	0.0	-14.5	14.5	13	0.03	0.06	1	PUNJAB		
TO SHUNT												
TO 101004 PGWR1			10.4	3.3	10.9							
13 NORTH ZONE	132.00	1	33.5	12.6	35.8	44	0.19	0.45	1	PUNJAB		
TO 101041 NWSRI												
12 SOUTH ZONE	132.00	1	-54.8	-15.3	56.8	69	0.93	2.22	1	PUNJAB		
TO 101100 MHLPI												
13 NORTH ZONE	220.00	1	-67.0	-26.4	72.1	72	1.0000LK	0.00	7.28	1		
TO 102170 BANGA2												
12 SOUTH ZONE	11.000	1	15.6	8.6	17.8	89	1.0000UN	0.00	2.22	1		
TO 105041 BNGA11												
12 SOUTH ZONE	11.000	2	15.6	8.6	17.8	89	1.0000UN	0.00	2.22	1		
TO 105041 BNGA11												
12 SOUTH ZONE	66.000	1	27.6	13.7	30.8	62	1.0000UN	0.00	2.30	1		
TO 106119 BNGA16												
12 SOUTH ZONE	66.000	2	19.1	9.5	21.3	53	1.0000UN	0.00	1.59	1		
TO 106119 BNGA16												
12 SOUTH ZONE	132.00	CKT	MW	MVAR	MVA	% 0.9990PU	-5.58	X----	LOSSES	---	X----	AREA
BUS 101017 SRN1												
-----X X-----	ZONE	-----X	101017				131.87KV					

14 BORDERZONE	132.00	1	0.0	-21.7	21.7	39	0.01	0.03	1	PUNJAB
TO SHUNT										
TO 101018 UBDCL1			-30.4	-15.3	34.0					
14 BORDERZONE	132.00	2	-30.4	-15.3	34.0	39	0.01	0.03	1	PUNJAB
TO 101018 UBDCL1										
14 BORDERZONE	132.00	1	9.4	12.2	15.5	21	0.02	0.04	1	PUNJAB
TO 101019 PTKT1										
14 BORDERZONE	132.00	2	9.4	12.2	15.5	21	0.02	0.04	1	PUNJAB
TO 101019 PTKT1										
14 BORDERZONE	132.00	2	9.4	12.2	15.5	21	0.02	0.04	1	PUNJAB
TO 101019 PTKT1										

TO	101064	GDSP	132.00	1	50.5	8.0	51.1	71	0.98	1.89	1	PUNJAB
14 BORDERZONE												
TO 101064 GDSP			132.00	2	50.5	8.0	51.1	71	0.98	1.89	1	PUNJAB
14 BORDERZONE												
TO 102002 SRN2			220.00	1	-59.0	11.7	60.1	60	0.00	4.53	1	PUNJAB
14 BORDERZONE												
TO 105083 SRN11			11.000	1	-0.0	0.0	0.0	0	0.00	0.00	1	PUNJAB
14 BORDERZONE												
TO 106138 SRN16			66.000	1	-0.0	0.0	0.0	0	0.00	0.00	1	PUNJAB
14 BORDERZONE												
TO 106138 SRN16			66.000	2	-0.0	0.0	0.0	0	0.00	0.00	1	PUNJAB
14 BORDERZONE												

BUS	101018	UBDCL	132.00	CKT	MW	MVAR	MVA	%	0.9996PU	-5.55	X	LOSSES	---	X	---	AREA
FROM GENERATION																
14 BORDERZONE					60.9	30.4H	68.1	101	131.95KV							
TO 101017 SRN1			132.00	1	30.4	15.2	34.0	39								
14 BORDERZONE																
TO 101017 SRN1			132.00	2	30.4	15.2	34.0	39								
14 BORDERZONE																

BUS	101019	PTKT1	132.00	CKT	MW	MVAR	MVA	%	0.9961PU	-5.61	X	LOSSES	---	X	---	AREA
14 BORDERZONE																
TO SHUNT																
TO 101017 SRN1			132.00	1	0.0	-10.8	10.8									
14 BORDERZONE					-9.4	-12.4	15.5	21								
TO 101017 SRN1			132.00	2	-9.4	-12.4	15.5	21								
14 BORDERZONE																
TO 101020 MMUN1			132.00	1	-17.1	2.9	17.3	20								
14 BORDERZONE																
TO 101021 KNGR1			132.00	1	-25.8	0.7	25.8	30								
14 BORDERZONE																
TO 105034 PTKT11			11.000	1	13.8	7.2	15.5	78	1.0000UN							
14 BORDERZONE																
TO 105034 PTKT11			11.000	2	13.8	7.2	15.5	78	1.0000UN							
14 BORDERZONE																
TO 105034 PTKT11			11.000	3	8.6	4.5	9.7	78	1.0000UN							
14 BORDERZONE																
TO 106114 PTKT16			66.000	1	12.8	6.6	14.4	90	1.0000UN							
14 BORDERZONE																
TO 106114 PTKT16			66.000	2	12.8	6.6	14.4	90	1.0000UN							
14 BORDERZONE																

BUS	101020	MMUN1	132.00	CKT	MW	MVAR	MVA	%	0.9968PU	-5.45	X	LOSSES	---	X	---	AREA
14 BORDERZONE																

OUTPUT 1722

-----X X----- ZONE -----X 101020

14 BORDERZONE TO 101019 PTKT1	132.00	1	17.1	-3.2	17.4	20	131.57KV	MW	0.02	MVAR	0.05	1	PUNJAB
14 BORDERZONE TO 101021 KNGR1	132.00	1	-29.0	-2.6	29.2	34		MW	0.51	MVAR	1.22	1	PUNJAB
14 BORDERZONE TO 105035 MMUN11	11.000	1	6.0	2.9	6.6	53	1.0000UN	MW	0.00	MVAR	0.44	1	PUNJAB
14 BORDERZONE TO 105035 MMUN11	11.000	2	6.0	2.9	6.6	53	1.0000UN	MW	0.00	MVAR	0.44	1	PUNJAB

BUS 101021 KNGR1	132.00	CKT	MW	MVAR	MVA	% 1.0167PU	-3.12	X----	LOSSES	---	X X-----	AREA
-----X X----- ZONE -----X 101021						134.20KV						

14 BORDERZONE TO 101019 PTKT1	132.00	1	26.4	-1.3	26.4	30		MW	0.58	MVAR	1.12	1	PUNJAB
14 BORDERZONE TO 101020 MMUN1	132.00	1	29.5	0.5	29.6	33		MW	0.51	MVAR	1.22	1	PUNJAB
14 BORDERZONE TO 101022 JOGN1	132.00	1	-28.7	0.1	28.7	32		MW	0.41	MVAR	0.98	1	PUNJAB
14 BORDERZONE TO 101022 JOGN1	132.00	2	-28.7	0.1	28.7	32		MW	0.41	MVAR	0.98	1	PUNJAB
14 BORDERZONE TO 105036 KNGR1	11.000	1	1.4	0.6	1.6	13	1.0000UN	MW	0.00	MVAR	0.02	1	PUNJAB

BUS 101022 JOGN1	132.00	CKT	MW	MVAR	MVA	% 1.0300PU	-1.14	X----	LOSSES	---	X X-----	AREA	
-----X X----- ZONE -----X 101022						60.2	90	135.96KV					
FROM GENERATION			60.0	-5.2R	60.2	90	135.96KV	MW		MVAR		1	PUNJAB
14 BORDERZONE TO 101021 KNGR1	132.00	1	29.1	-2.1	29.2	33		MW	0.41	MVAR	0.98	1	PUNJAB
14 BORDERZONE TO 101021 KNGR1	132.00	2	29.1	-2.1	29.2	33		MW	0.41	MVAR	0.98	1	PUNJAB
14 BORDERZONE TO 501003 BASI1	132.00	1	0.9	-0.5	1.0	1		MW	0.00	MVAR	0.00	5	HIMACHAL
51 HIMACHALSTU TO 501003 BASI1	132.00	2	0.9	-0.5	1.0	1		MW	0.00	MVAR	0.00	5	HIMACHAL

BUS 101023 FPJLD1	132.00	CKT	MW	MVAR	MVA	% 0.9537PU	-8.23	X----	LOSSES	---	X X-----	AREA	
-----X X----- ZONE -----X 101023						125.88KV							
13 NORTH ZONE TO 101043 JLD1	132.00	1	-2.6	-3.7	4.5	5		MW	0.00	MVAR	0.00	1	PUNJAB
13 NORTH ZONE TO 101108 KRT1	132.00	1	-28.4	-11.8	30.7	37		MW	0.07	MVAR	0.16	1	PUNJAB

OUTPUT 1722

FROM	TO	13 NORTH ZONE	11.000	1	10.3	5.2	11.6	58	1.00000UN	0.00	0.92	1	PUNJAB	
13 NORTH ZONE	TO 105082 FPJLD11		11.000	1	10.3	5.2	11.6	58	1.00000UN	0.00	0.92	1	PUNJAB	
13 NORTH ZONE	TO 105082 FPJLD11		11.000	2	10.3	5.2	11.6	58	1.00000UN	0.00	0.92	1	PUNJAB	
13 NORTH ZONE	TO 105082 FPJLD11		11.000	3	10.3	5.2	11.6	58	1.00000UN	0.00	0.92	1	PUNJAB	
BUS 101026 HSPR1	TO 101026 HSPR1	132.00 CKT	132.00		MW	MVAR	MVA	%	0.9571PU	-7.61	X----	LOSSES	---X X----	AREA
13 NORTH ZONE	TO SHUNT		132.00	1	0.0	-3.7	3.7		126.34KV		MVAR	1	PUNJAB	
13 NORTH ZONE	TO 101015 BGPRI		132.00	1	32.6	3.5	32.8	39		0.30	0.71	1	PUNJAB	
13 NORTH ZONE	TO 101100 MHLPI		132.00	1	-28.4	-9.3	29.9	36		0.23	0.54	1	PUNJAB	
13 NORTH ZONE	TO 101100 MHLPI		132.00	2	-28.4	-9.3	29.9	36		0.23	0.54	1	PUNJAB	
13 NORTH ZONE	TO 105037 HSP11		11.000	1	14.1	7.6	16.0	80	1.00000UN	0.00	1.75	1	PUNJAB	
13 NORTH ZONE	TO 105037 HSP11		11.000	2	8.8	4.7	10.0	80	1.00000UN	0.00	1.09	1	PUNJAB	
13 NORTH ZONE	TO 106115 HSP16		66.000	1	-0.0	-0.0	0.0	0	1.00000UN	0.00	0.00	1	PUNJAB	
13 NORTH ZONE	TO 106115 HSP16		66.000	2	-0.0	-0.0	0.0	0	1.00000UN	0.00	0.00	1	PUNJAB	
13 NORTH ZONE	TO 501002 CHOLI		132.00	1	1.2	6.6	6.7	8		0.01	0.01	5	HIMACHAL	
BUS 101027 APH11	TO 101027 APH11	132.00 CKT	132.00		MW	MVAR	MVA	%	0.9633PU	-7.32	X----	LOSSES	---X X----	AREA
12 SOUTH ZONE	FROM GENERATION		132.00	1	33.5	16.8H	37.5	101	127.16KV		MVAR	1	PUNJAB	
12 SOUTH ZONE	TO 101028 APH21		132.00	1	-0.2	1.4	1.5	2		0.00	0.00	1	PUNJAB	
12 SOUTH ZONE	TO 101029 APSB1		132.00	1	33.7	15.3	37.0	44		0.03	0.07	1	PUNJAB	
BUS 101028 APH21	TO 101028 APH21	132.00 CKT	132.00		MW	MVAR	MVA	%	0.9630PU	-7.31	X----	LOSSES	---X X----	AREA
12 SOUTH ZONE	FROM GENERATION		132.00	1	33.5	16.8H	37.5	100	127.11KV		MVAR	1	PUNJAB	
12 SOUTH ZONE	TO 101027 APH11		132.00	1	0.2	-1.9	1.9	2		0.00	0.00	1	PUNJAB	
12 SOUTH ZONE	TO 101029 APSB1		132.00	1	8.6	1.6	8.8	10		0.01	0.01	1	PUNJAB	

A-

OUTPUT 1722

TO 101031 RPRL	132.00	1	-53.6	-3.4	53.7	64	1.00	2.37	1	PUNJAB
12 SOUTH ZONE										
TO 101040 JDAL1	132.00	1	43.4	9.3	44.4	53	0.40	0.95	1	PUNJAB
12 SOUTH ZONE										
TO 101041 NMSR1	132.00	1	34.8	11.3	36.6	44	0.62	1.47	1	PUNJAB
12 SOUTH ZONE										

BUS 101029 APSB1	132.00	CKT	MW	MVAR	MVA	% 0.9620PU	-7.40	X----	LOSSES	---X	AREA
X X-----	ZONE					126.98KV					

12 SOUTH ZONE											
TO SHUNT			0.0	-3.8	3.8						
TO 101027 APH11	132.00	1	-33.7	-15.3	37.0	44	0.03	0.07	1	PUNJAB	
12 SOUTH ZONE											
TO 101028 APH21	132.00	1	-8.6	-1.9	8.8	11	0.01	0.01	1	PUNJAB	
12 SOUTH ZONE											
TO 105038 APSB11	11.000	1	6.9	3.5	7.7	62 1.0000UN	0.00	0.65	1	PUNJAB	
12 SOUTH ZONE											
TO 105038 APSB11	11.000	2	6.9	3.5	7.7	62 1.0000UN	0.00	0.65	1	PUNJAB	
12 SOUTH ZONE											
TO 106116 APSB16	66.000	1	28.5	14.1	31.8	64 1.0000UN	0.00	2.36	1	PUNJAB	
12 SOUTH ZONE											

BUS 101030 KTLA1	132.00	CKT	MW	MVAR	MVA	% 1.0106PU	-2.73	X----	LOSSES	---X	AREA
X X-----	ZONE					133.39KV					
FROM GENERATION			58.5	29.0H	65.3	100					
12 SOUTH ZONE											
TO 101001 GNG11	132.00	1	-45.1	-2.2	45.1	51	0.65	1.54	1	PUNJAB	
13 NORTH ZONE											
TO 101001 GNG11	132.00	2	-45.1	-2.2	45.1	51	0.65	1.54	1	PUNJAB	
13 NORTH ZONE											
TO 101031 RPRL	132.00	1	49.5	11.1	50.8	58	0.90	2.15	1	PUNJAB	
12 SOUTH ZONE											
TO 101031 RPRL	132.00	2	49.5	11.1	50.8	58	0.90	2.15	1	PUNJAB	
12 SOUTH ZONE											
TO 101031 RPRL	132.00	3	49.5	11.1	50.8	58	0.90	2.15	1	PUNJAB	
12 SOUTH ZONE											

BUS 101031 RPRL	132.00	CKT	MW	MVAR	MVA	% 0.9838PU	-4.88	X----	LOSSES	---X	AREA
X X-----	ZONE					129.86KV					
12 SOUTH ZONE											
TO SHUNT			0.0	-7.9	7.9						
TO 101002 KHRI	132.00	1	-8.7	7.3	11.4	13	0.03	0.07	1	PUNJAB	
12 SOUTH ZONE											
TO 101003 GLAL1	132.00	1	53.5	6.6	53.9	75	1.60	3.10	1	PUNJAB	
12 SOUTH ZONE											

TO	101028	APH21	132.00	1	54.6	4.2	OUTPUT 1722	1.00	2.37	1	PUNJAB
	12	SOUTH ZONE					54.7 64				
TO	101030	KTLA1	132.00	1	-48.6	-10.9	49.9 58	0.90	2.15	1	PUNJAB
	12	SOUTH ZONE									
TO	101030	KTLA1	132.00	2	-48.6	-10.9	49.9 58	0.90	2.15	1	PUNJAB
	12	SOUTH ZONE									
TO	101030	KTLA1	132.00	3	-48.6	-10.9	49.9 58	0.90	2.15	1	PUNJAB
	12	SOUTH ZONE									
TO	101032	ASRN1	132.00	1	-51.1	-16.0	53.5 63	0.17	0.39	1	PUNJAB
	12	SOUTH ZONE									
TO	101033	CMKS1	132.00	1	74.7	14.2	76.0 42	1.11	2.15	1	PUNJAB
	12	SOUTH ZONE									
TO	101101	GSTP1	132.00	1	-63.1	-18.7	65.8 77	0.87	2.07	1	PUNJAB
	12	SOUTH ZONE									
TO	105046	RPR11	11.000	1	12.1	6.2	13.6 68 1.00000UN	0.00	1.19	1	PUNJAB
	12	SOUTH ZONE									
TO	105046	RPR11	11.000	2	12.1	6.2	13.6 68 1.00000UN	0.00	1.19	1	PUNJAB
	12	SOUTH ZONE									
TO	106121	RPR16	66.000	1	30.9	15.4	34.5 69 1.00000UN	0.00	2.66	1	PUNJAB
	12	SOUTH ZONE									
TO	106121	RPR16	66.000	2	30.9	15.4	34.5 69 1.00000UN	0.00	2.66	1	PUNJAB
	12	SOUTH ZONE									

BUS 101032 ASRN1 132.00 CKT MW MVAR MVA % 0.9889PU -4.54 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 101032

TO	12	SOUTH ZONE	132.00	1	0.0	-4.0	MVA	4.0	MW	MVAR	MVA	%	130.53KV
TO	SHUNT												
TO	101031	RPR1	132.00	1	51.2	16.1	53.7 62	0.17	0.39	1	PUNJAB		
	12	SOUTH ZONE											
TO	101101	GSTP1	132.00	1	-65.1	-19.1	67.8 79	0.69	1.63	1	PUNJAB		
	12	SOUTH ZONE											
TO	105042	ASRN11	11.000	1	6.9	3.5	7.8 62 1.00000UN	0.00	0.62	1	PUNJAB		
	12	SOUTH ZONE											
TO	105042	ASRN11	11.000	2	6.9	3.5	7.8 62 1.00000UN	0.00	0.62	1	PUNJAB		
	12	SOUTH ZONE											

BUS 101033 CMKS1 132.00 CKT MW MVAR MVA % 0.9647PU -6.34 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 101033

TO	12	SOUTH ZONE	132.00	1	0.0	-5.1	MVA	5.1	MW	MVAR	MVA	%	127.34KV
TO	SHUNT												
TO	101003	GLA11	132.00	1	44.5	1.9	44.6 63	0.69	1.33	1	PUNJAB		
	12	SOUTH ZONE											
TO	101031	RPR1	132.00	1	-73.6	-12.4	74.6 42	1.11	2.15	1	PUNJAB		
	12	SOUTH ZONE											
TO	105044	CMKS11	11.000	1	14.5	7.8	16.5 82 1.00000UN	0.00	1.83	1	PUNJAB		
	12	SOUTH ZONE											

OUTPUT 1722

12 SOUTH ZONE 11.000 2 14.5 7.8 16.5 82 1.0000UN 0.00 1.83 1 PUNJAB
 TO 105044 CMKS11
 12 SOUTH ZONE

BUS 101034 JMP1 132.00 CKT MW MVAR MVA % 0.9543PU -8.06 X---- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 101034 125.97KV 1 PUNJAB

11 CENTRAL ZONE
 TO LOAD-PQ 132.00 1 8.7 3.6 9.4 13 0.02 0.05 1 PUNJAB
 TO 101003 GLAL1 132.00 1 3.8 8.1 9.0 13 0.02 0.05 1 PUNJAB
 12 SOUTH ZONE 132.00 2 3.8 8.1 9.0 13
 TO 101003 GLAL1
 12 SOUTH ZONE 132.00 1 11.8 2.5 12.1 17 0.06 0.12 1 PUNJAB
 TO 101042 GRY1
 11 CENTRAL ZONE 132.00 1 23.6 -5.4 24.3 45 0.51 0.98 1 PUNJAB
 TO 101078 MOG1
 15 WEST ZONE 132.00 1 34.6 3.8 34.8 42 0.49 1.16 1 PUNJAB
 TO 101080 SMDK11
 15 WEST ZONE 132.00 1 25.0 7.3 26.1 37 0.16 0.31 1 PUNJAB
 TO 101082 PHLR1
 11 CENTRAL ZONE 220.00 1 -55.7 -14.0 57.4 57 1.0000LK 0.00 4.53 1 PUNJAB
 TO 102046 JMP2
 11 CENTRAL ZONE 220.00 2 -55.7 -14.0 57.4 57 1.0000LK 0.00 4.53 1 PUNJAB
 TO 102046 JMP2
 11 CENTRAL ZONE

BUS 101035 SMSPR1 132.00 CKT MW MVAR MVA % 0.9445PU -8.29 X---- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 101035 124.67KV 1 PUNJAB

11 CENTRAL ZONE
 TO SHUNT 132.00 1 0.0 -2.4 2.4 48 0.10 0.23 1 PUNJAB
 TO 101003 GLAL1 132.00 1 -36.0 -16.2 39.5 21 0.02 0.05 1 PUNJAB
 12 SOUTH ZONE 132.00 1 15.5 7.8 17.4 21 0.00 1.43 1 PUNJAB
 TO 101110 SEH1
 11 CENTRAL ZONE 11.000 1 12.6 6.6 14.3 71 1.0000UN 0.00 0.89 1 PUNJAB
 TO 105050 SMSPL1
 11 CENTRAL ZONE 11.000 2 7.9 4.1 8.9 71 1.0000UN
 TO 105050 SMSPL1
 11 CENTRAL ZONE

BUS 101036 DORAH1 132.00 CKT MW MVAR MVA % 0.9332PU -8.94 X---- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 101036 123.19KV 1 PUNJAB

11 CENTRAL ZONE 132.00 1 -42.5 -18.8 46.5 57 0.14 0.33 1 PUNJAB
 TO 101113 DUMMY3
 13 NORTH ZONE 132.00 1 42.5 18.8 46.5 57 0.14 0.33 1 PUNJAB
 TO 101114 DUMMY4

OUTPUT 1722

13 NORTH ZONE TO 105047 DORH11	11.000	1	0.0	-0.0	0.0	0	1.00000UN	0.00	0.00	1	PUNJAB
11 CENTRAL ZONE TO 105047 DORH11	11.000	2	0.0	-0.0	0.0	0	1.00000UN	0.00	0.00	1	PUNJAB
BUS 101038 BLSPR1 -----X X----- ZONE -----X X----- AREA	132.00	CKT	MW	MVAR	MVA	%	0.9272PU	-9.28	X	LOSSES	---
11 CENTRAL ZONE TO 101114 DUMMY4	132.00	1	-17.9	-9.8	20.4	25	122.39KV	MW	MVAR	1	PUNJAB
13 NORTH ZONE TO 105048 BLSPR11	11.000	1	8.9	4.9	10.2	81	1.00000UN	0.01	0.02	1	PUNJAB
11 CENTRAL ZONE TO 105048 BLSPR11	11.000	2	8.9	4.9	10.2	81	1.00000UN	0.00	1.20	1	PUNJAB
BUS 101039 SIHOR1 -----X X----- ZONE -----X X----- AREA	132.00	CKT	MW	MVAR	MVA	%	0.9219PU	-9.64	X	LOSSES	---
11 CENTRAL ZONE TO SHUNT	132.00	1	0.0	-3.5	3.5		121.70KV	MW	MVAR	1	PUNJAB
13 NORTH ZONE TO 105049 SIHR11	11.000	1	12.2	6.4	13.8	69	1.00000UN	0.10	0.23	1	PUNJAB
11 CENTRAL ZONE TO 105049 SIHR11	11.000	2	12.2	6.4	13.8	69	1.00000UN	0.00	1.40	1	PUNJAB
BUS 101040 JDLA1 -----X X----- ZONE -----X X----- AREA	132.00	CKT	MW	MVAR	MVA	%	0.9503PU	-8.40	X	LOSSES	---
12 SOUTH ZONE TO SHUNT	132.00	1	0.0	-12.3	12.3		125.43KV	MW	MVAR	1	PUNJAB
12 SOUTH ZONE TO 101041 NWSR1	132.00	1	27.8	13.2	30.8	37		0.40	0.95	1	PUNJAB
12 SOUTH ZONE TO 105039 JDLA11	11.000	1	15.2	8.3	17.4	87	1.00000UN	0.25	0.59	1	PUNJAB
12 SOUTH ZONE TO 106117 JDLA16	66.000	1	0.0	-0.0	0.0	0	1.00000UN	0.00	2.09	1	PUNJAB
BUS 101041 NWSR1 -----X X----- ZONE -----X X----- AREA	132.00	CKT	MW	MVAR	MVA	%	0.9355PU	-9.19	X	LOSSES	---
12 SOUTH ZONE							123.49KV	MW	MVAR	1	PUNJAB

TO	132.00	1	2.6	3.5	OUTPUT 1722	0.00	0.00	1
					4.4 5			PUNJAB
TO 101023 FPJLD1	132.00	1	2.6	3.5	4.4 5	0.00	0.00	1 PUNJAB
13 NORTH ZONE								
TO 101049 ALWPR1	132.00	1	19.1	5.2	19.8 24	0.09	0.22	1 PUNJAB
13 NORTH ZONE								
TO 101051 DHILWN1	132.00	1	27.5	0.2	27.5 33	0.15	0.37	1 PUNJAB
13 NORTH ZONE								
TO 101104 CHDPK1	132.00	1	21.1	3.2	21.4 26	0.03	0.08	1 PUNJAB
13 NORTH ZONE								
TO 101106 KHNPR1	132.00	1	17.4	5.6	18.3 22	0.09	0.21	1 PUNJAB
13 NORTH ZONE								
TO 101108 KRT1	132.00	1	-7.6	-3.4	8.3 10	0.02	0.04	1 PUNJAB
13 NORTH ZONE								
TO 101112 DUMMY2	132.00	1	30.6	3.8	30.9 37	0.07	0.16	1 PUNJAB
13 NORTH ZONE								
TO 102019 JLI2	220.00	1	-47.4	-11.6	48.8 54 1.0000LK	0.00	3.27	1 PUNJAB
13 NORTH ZONE								
TO 102019 JLI2	220.00	2	-47.4	-11.6	48.8 49 1.0000LK	0.00	3.27	1 PUNJAB
13 NORTH ZONE								
TO 102019 JLI2	220.00	3	-47.4	-11.6	48.8 54 1.0000LK	0.00	3.27	1 PUNJAB
13 NORTH ZONE								

BUS	132.00	CKT	MW	MVAR	MVA	%	LOSSES	AREA
							---	X X----
BUS 101044 UEP2J1	132.00	CKT				0.9453PU	-9.06	X X----
-----X X----- ZONE								
13 NORTH ZONE								
TO SHUNT								
TO 101112 DUMMY2	132.00	1	0.0	-9.7	9.7	124.78KV		MVAR 1 PUNJAB
13 NORTH ZONE								
TO 105025 UEP2J11	11.000	1	-30.2	-5.8	30.8 37			
13 NORTH ZONE								
TO 105025 UEP2J11	11.000	1	11.5	5.9	12.9 65 1.0000UN			MVAR 0.33 1 PUNJAB
13 NORTH ZONE								
TO 105025 UEP2J11	11.000	2	11.5	5.9	12.9 65 1.0000UN			MVAR 1.17 1 PUNJAB
13 NORTH ZONE								
TO 105025 UEP2J11	11.000	3	7.2	3.7	8.1 65 1.0000UN			MVAR 1.17 1 PUNJAB
13 NORTH ZONE								

BUS	132.00	CKT	MW	MVAR	MVA	%	LOSSES	AREA
							---	X X----
BUS 101045 NKDR1	132.00	CKT				0.9442PU	-9.10	X X----
-----X X----- ZONE								
13 NORTH ZONE								
TO SHUNT								
TO 101014 NRM11	132.00	1	0.0	-15.7	15.7	124.63KV		MVAR 1 PUNJAB
13 NORTH ZONE								
TO 101116 NKDR21	132.00	1	-0.6	-0.9	1.1 1			
13 NORTH ZONE								
TO 105026 NKDR11	11.000	1	-61.8	-15.7	63.8 78			MVAR 0.00 1 PUNJAB
13 NORTH ZONE								
TO 105026 NKDR11	11.000	2	15.1	8.3	17.2 86 1.0000UN			MVAR 0.76 1 PUNJAB
13 NORTH ZONE								
TO 105026 NKDR11	11.000	2	15.1	8.3	17.2 86 1.0000UN			MVAR 2.08 1 PUNJAB
13 NORTH ZONE								

OUTPUT 1722

13 NORTH ZONE
 TO 106109 NKDR16 66.000 1 25.3 12.3 28.1 56 1.0000UN 0.00 1.92 1 PUNJAB
 13 NORTH ZONE
 TO 106109 NKDR16 66.000 2 7.0 3.4 7.8 49 1.0000UN 0.00 0.53 1 PUNJAB
 13 NORTH ZONE

BUS 101046 SCTY1 132.00 CKT MW MVAR MVA % 0.9562PU -8.17 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 101046

13 NORTH ZONE
 TO SHUNT
 TO 101048 KPTL1 132.00 1 0.0 -2.5 2.5
 13 NORTH ZONE 42.2 5.4 42.5 51
 TO 101109 PIMS1 132.00 1 20.4 9.0 22.3 27
 13 NORTH ZONE
 TO 102107 SCTY2 220.00 1 -71.8 -16.4 73.7 74 1.0000LK 0.00 7.43 1 PUNJAB
 13 NORTH ZONE
 TO 105022 SCTY1 11.000 1 9.3 4.5 10.3 52 1.0000UN 0.00 0.73 1 PUNJAB
 13 NORTH ZONE

BUS 101047 KMDR1 132.00 CKT MW MVAR MVA % 0.9432PU -9.50 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 101047

13 NORTH ZONE
 TO 101048 KPTL1 132.00 1 -9.0 -2.1 9.2 11
 13 NORTH ZONE
 TO 101072 SLTP1 132.00 1 -19.0 -12.9 22.9 28 0.07 0.16 1 PUNJAB
 13 NORTH ZONE
 TO 105020 KMDR1 11.000 1 14.0 7.5 15.8 79 1.0000UN 0.00 1.76 1 PUNJAB
 13 NORTH ZONE
 TO 105020 KMDR1 11.000 2 14.0 7.5 15.8 79 1.0000UN 0.00 1.76 1 PUNJAB
 13 NORTH ZONE

BUS 101048 KPTL1 132.00 CKT MW MVAR MVA % 0.9449PU -9.34 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 101048

13 NORTH ZONE
 TO SHUNT
 TO 101046 SCTY1 132.00 1 0.0 -14.6 14.6
 13 NORTH ZONE -41.8 -5.4 42.1 51
 TO 101047 KMDR1 132.00 1 9.0 1.5 9.1 11
 13 NORTH ZONE
 TO 103001 KPTL1 33.000 1 0.0 0.0 0.0 0 1.0000UN 0.00 0.00 1 PUNJAB
 13 NORTH ZONE
 TO 103001 KPTL1 33.000 2 0.0 0.0 0.0 0 1.0000UN 0.00 0.00 1 PUNJAB
 13 NORTH ZONE
 TO 105021 KPTL1 11.000 1 16.4 9.2 18.8 94 1.0000UN 0.00 2.48 1 PUNJAB

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OUTPUT 1722

13 NORTH ZONE TO 105021 KPTL11 13 NORTH ZONE	11.000	2	16.4	9.2	18.8	94	1.00000UN	0.00	2.48	1	PUNJAB
BUS 101049 ALWP11 -----X X----- ZONE -----X 101049	132.00	1	MW	MVAR	MVA	%	0.9468PU	LOSSES	MVAR	1	PUNJAB
13 NORTH ZONE							124.97KV				
TO SHUNT			0.0	-4.9	4.9						
TO 101015 BGPR1	132.00	1	2.1	1.3	2.4	3		0.00	0.00	1	PUNJAB
13 NORTH ZONE											
TO 101043 JLD1	132.00	1	-19.0	-6.0	19.9	24		0.09	0.22	1	PUNJAB
13 NORTH ZONE											
TO 105032 ALWP11	11.000	1	17.0	9.6	19.5	97	1.00000UN	0.00	2.65	1	PUNJAB
13 NORTH ZONE											
TO 106112 ALWP16	66.000	1	-0.0	0.0	0.0	0	1.00000UN	0.00	0.00	1	PUNJAB
13 NORTH ZONE											
BUS 101050 TNDAL1 -----X X----- ZONE -----X 101050	132.00	CKT	MW	MVAR	MVA <td>%</td> <td>0.9534PU</td> <td>LOSSES</td> <td>MVAR</td> <td>1</td> <td>PUNJAB</td>	%	0.9534PU	LOSSES	MVAR	1	PUNJAB
13 NORTH ZONE							125.85KV				
TO SHUNT			0.0	-6.2	6.2						
TO 101015 BGPR1	132.00	1	14.8	14.3	20.5	25		0.07	0.16	1	PUNJAB
13 NORTH ZONE											
TO 101066 MPH1	132.00	1	-39.1	-20.6	44.2	53		1.07	2.55	1	PUNJAB
13 NORTH ZONE											
TO 105030 TNDAL1	11.000	1	12.2	6.3	13.7	68	1.00000UN	0.00	1.29	1	PUNJAB
13 NORTH ZONE											
TO 105030 TNDAL1	11.000	2	12.2	6.3	13.7	68	1.00000UN	0.00	1.29	1	PUNJAB
13 NORTH ZONE											
BUS 101051 DHILWN1 -----X X----- ZONE -----X 101051	132.00	CKT	MW	MVAR	MVA <td>%</td> <td>0.9485PU</td> <td>LOSSES</td> <td>MVAR</td> <td>1</td> <td>PUNJAB</td>	%	0.9485PU	LOSSES	MVAR	1	PUNJAB
13 NORTH ZONE							125.20KV				
TO SHUNT			0.0	-6.1	6.1						
TO 101043 JLD1	132.00	1	-27.4	-0.8	27.4	33		0.15	0.37	1	PUNJAB
13 NORTH ZONE											
TO 101111 DUMMY1	132.00	1	10.9	-1.3	11.0	16		0.02	0.05	1	PUNJAB
13 NORTH ZONE											
TO 105019 DHILWN11	11.000	1	10.1	5.0	11.3	56	1.00000UN	0.00	0.89	1	PUNJAB
13 NORTH ZONE											
TO 105019 DHILWN11	11.000	2	6.3	3.1	7.1	56	1.00000UN	0.00	0.55	1	PUNJAB
13 NORTH ZONE											
BUS 101052 BEAS1	132.00	CKT	MW	MVAR	MVA <td>%</td> <td>0.9503PU</td> <td>LOSSES</td> <td>MVAR</td> <td>1</td> <td>PUNJAB</td>	%	0.9503PU	LOSSES	MVAR	1	PUNJAB
13 NORTH ZONE											

OUTPUT 1722

TO	FROM	ZONE	101052	125.44KV	MW	MVAR	1 PUNJAB
14 BORDERZONE							
TO SHUNT							
TO 101108 KR1L			132.00 1	0.0	-2.5	2.5	37
13 NORTH ZONE							
TO 101111 DUMMY1			132.00 1	22.3	1.4	22.4	27
13 NORTH ZONE							
TO 105018 BEAS11			11.000 1	8.2	3.9	9.1	46
14 BORDERZONE							
BUS 101053 TNGR1			132.00 CKT				
-----X X----- ZONE			-----X 101053				
14 BORDERZONE							
TO SHUNT							
TO 101054 JGRU1			132.00 1	0.0	-4.8	4.8	45
14 BORDERZONE							
TO 101111 DUMMY1			132.00 1	-54.8	-12.2	56.2	82
13 NORTH ZONE							
TO 105016 TNGR11			11.000 1	12.2	6.3	13.7	69
14 BORDERZONE							
TO 105016 TNGR11			11.000 2	12.2	6.3	13.7	69
14 BORDERZONE							
BUS 101054 JGRU1			132.00 CKT				
-----X X----- ZONE			-----X 101054				
14 BORDERZONE							
TO SHUNT							
TO 101053 TNGR1			132.00 1	0.0	-7.2	7.2	45
14 BORDERZONE							
TO 101055 VRKA			132.00 1	5.4	-2.3	5.9	7
14 BORDERZONE							
TO 105017 JGRU11			11.000 1	15.3	8.5	17.5	88
14 BORDERZONE							
TO 105017 JGRU11			11.000 2	9.6	5.3	11.0	88
14 BORDERZONE							
BUS 101055 VRKA			132.00 CKT				
-----X X----- ZONE			-----X 101055				
14 BORDERZONE							
TO SHUNT							
TO 101054 JGRU1			132.00 1	0.0	-19.0	19.0	7
14 BORDERZONE							
TO 101056 PCAL			132.00 1	-43.3	-19.9	47.7	28

OUTPUT 1722

14 BORDERZONE	132.00	1	-3.5	-0.5	3.5	5	0.00	0.00	1	PUNJAB
TO 101057 KTING										
14 BORDERZONE	132.00	1	-30.8	-9.3	32.2	48	0.29	0.57	1	PUNJAB
TO 101058 JTPR										
14 BORDERZONE	132.00	1	13.2	9.3	16.2	20	0.01	0.03	1	PUNJAB
TO 101062 MLM1										
14 BORDERZONE	11.000	1	13.1	7.0	14.9	74	0.00	1.58	1	PUNJAB
TO 105007 VRKA11										
14 BORDERZONE	11.000	2	13.1	7.0	14.9	74	0.00	1.58	1	PUNJAB
TO 105007 VRKA11										
14 BORDERZONE	11.000	3	8.2	4.4	9.3	74	0.00	0.99	1	PUNJAB
TO 105007 VRKA11										
14 BORDERZONE	66.000	1	35.3	19.6	40.4	81	0.00	5.04	1	PUNJAB
TO 106104 VRKA16										
14 BORDERZONE										

BUS 101056 PCA1 132.00 CKT -10.15 X-----X X----- AREA
 -----X X----- ZONE -----X X-----

14 BORDERZONE	132.00	1	0.0	-7.2	7.2	123.81KV	MW	MVAR	1	PUNJAB
TO SHUNT										
14 BORDERZONE	132.00	1	43.4	19.9	47.7	28	0.06	0.14	1	PUNJAB
TO 101055 VRKA										
14 BORDERZONE	132.00	1	-73.0	-29.0	78.6	46	0.16	0.39	1	PUNJAB
TO 101094 CIV1										
14 BORDERZONE	11.000	1	14.8	8.1	16.9	85	0.00	2.03	1	PUNJAB
TO 105008 PCA11										
14 BORDERZONE	11.000	2	14.8	8.1	16.9	85	0.00	2.03	1	PUNJAB
TO 105008 PCA11										
14 BORDERZONE	66.000	1	-0.0	-0.0	0.0	0	0.00	0.00	1	PUNJAB
TO 106173 PCA16										
14 BORDERZONE										

BUS 101057 KTING 132.00 CKT -10.20 X-----X X----- AREA
 -----X X----- ZONE -----X X-----

14 BORDERZONE	132.00	1	0.0	-11.9	11.9	123.63KV	MW	MVAR	1	PUNJAB
TO SHUNT										
14 BORDERZONE	132.00	1	3.5	0.2	3.5	5	0.00	0.00	1	PUNJAB
TO 101055 VRKA										
14 BORDERZONE	132.00	1	-59.6	-18.1	62.3	92	1.21	2.33	1	PUNJAB
TO 101059 BTLA										
14 BORDERZONE	11.000	1	12.1	6.3	13.6	68	0.00	1.32	1	PUNJAB
TO 105006 KTING11										
14 BORDERZONE	11.000	2	12.1	6.3	13.6	68	0.00	1.32	1	PUNJAB
TO 105006 KTING11										
14 BORDERZONE	66.000	1	32.0	17.3	36.4	73	0.00	4.08	1	PUNJAB
TO 106103 KTING16										
14 BORDERZONE										

OUTPUT 1722

LINE	FROM	TO	TYPE	STATUS	PKT	MW	MVAR	MVA	%	KV	LOSSES	LOSSES	AREA
BUS 101058	JTPR				132.00				0.9486	PUNJAB			
X X	X				X 101058								
14 BORDERZONE									125.22	KV			
TO SHUNT													
TO 101055	VRKA				1	0.0	-2.4	2.4	48		0.29	0.57	1 PUNJAB
14 BORDERZONE						31.1	9.4	32.5					
TO 101059	BTLA				1	-44.3	-13.6	46.4	68		0.50	0.97	1 PUNJAB
14 BORDERZONE													
TO 105005	JTPR11				1	6.6	3.3	7.4	59	1.0000	0.00	0.61	1 PUNJAB
14 BORDERZONE													
TO 105005	JTPR11				2	6.6	3.3	7.4	59	1.0000	0.00	0.61	1 PUNJAB
14 BORDERZONE													
BUS 101059	BTLA				132.00				0.9644	PUNJAB			
X X	X				X 101059								
14 BORDERZONE									127.30	KV			
TO SHUNT													
TO 101057	KING				1	0.0	-15.2	15.2	92		1.21	2.33	1 PUNJAB
14 BORDERZONE						60.8	19.9	64.0					
TO 101058	JTPR				1	44.8	14.2	47.0	68		0.50	0.97	1 PUNJAB
14 BORDERZONE													
TO 101065	DRWL				1	-7.0	3.6	7.9	11		0.02	0.03	1 PUNJAB
14 BORDERZONE													
TO 101065	DRWL				2	-7.0	3.6	7.9	11		0.02	0.03	1 PUNJAB
14 BORDERZONE													
TO 101096	WGT21				1	-48.3	-17.3	51.3	61		0.21	0.50	1 PUNJAB
14 BORDERZONE													
TO 101096	WGT21				2	-48.3	-17.3	51.3	61		0.21	0.50	1 PUNJAB
14 BORDERZONE													
TO 101096	WGT21				3	-48.3	-17.3	51.3	61		0.21	0.50	1 PUNJAB
14 BORDERZONE													
TO 105004	BTLA11				1	6.6	3.1	7.3	36	1.0000	0.00	0.36	1 PUNJAB
14 BORDERZONE													
TO 105004	BTLA11				2	6.6	3.1	7.3	36	1.0000	0.00	0.36	1 PUNJAB
14 BORDERZONE													
TO 106102	BTLA16				1	21.4	10.5	23.9	48	1.0000	0.00	1.65	1 PUNJAB
14 BORDERZONE													
TO 106102	BTLA16				2	18.6	9.1	20.6	52	1.0000	0.00	1.43	1 PUNJAB
14 BORDERZONE													
BUS 101060	SHGP1				132.00				0.9842	PUNJAB			
X X	X				X 101060								
14 BORDERZONE									129.91	KV			
TO SHUNT													
TO 101060	SHGP1				1	-7.63							
14 BORDERZONE													

OUTPUT 1722

TO SHUNT	132.00	1	0.0	-19.7	19.7	0.32	0.75	1	PUNJAB
TO 101069 MPH41			-31.2	-10.1	32.8	0.32	0.75	1	PUNJAB
13 NORTH ZONE									
TO 101069 MPH41	132.00	2	-31.2	-10.1	32.8	0.32	0.75	1	PUNJAB
13 NORTH ZONE									
TO 101096 WGT21	132.00	1	17.7	12.9	21.9	0.13	0.31	1	PUNJAB
14 BORDERZONE									
TO 101096 WGT21	132.00	2	17.7	12.9	21.9	0.13	0.31	1	PUNJAB
14 BORDERZONE									
TO 105029 SHGP11	11.000	1	13.5	7.1	15.3	0.00	1.50	1	PUNJAB
14 BORDERZONE									
TO 105029 SHGP11	11.000	2	13.5	7.1	15.3	0.00	1.50	1	PUNJAB
14 BORDERZONE									
TO 106111 SHGP16	66.000	1	0.0	0.0	0.0	0.00	0.00	1	PUNJAB
14 BORDERZONE									
TO 106111 SHGP16	66.000	2	0.0	0.0	0.0	0.00	0.00	1	PUNJAB
14 BORDERZONE									

BUS 101061 GTRAI1 132.00 CKT MW MVA % 0.9329PU -10.42 X---- LOSSES ---X X---- AREA
 -----X X----- ZONE -----X 101061

14 BORDERZONE						MW	MVAR	1	PUNJAB
TO SHUNT	132.00	1	0.0	-9.5	9.5	0.04	0.09	1	PUNJAB
TO 101062 MLM1			-55.3	-19.3	58.6	0.00	2.67	1	PUNJAB
14 BORDERZONE									
TO 105012 GTRAI1	11.000	1	16.8	9.6	19.3	0.00	2.67	1	PUNJAB
14 BORDERZONE									
TO 105012 GTRAI1	11.000	2	16.8	9.6	19.3	0.00	2.67	1	PUNJAB
14 BORDERZONE									
TO 106106 GTRAI6	66.000	1	10.9	4.8	11.9	0.00	0.35	1	PUNJAB
14 BORDERZONE									
TO 106106 GTRAI6	66.000	2	10.9	4.8	11.9	0.00	0.35	1	PUNJAB
14 BORDERZONE									

BUS 101062 MLM1 132.00 CKT MW MVA % 0.9340PU -10.35 X---- LOSSES ---X X---- AREA
 -----X X----- ZONE -----X 101062

14 BORDERZONE						MW	MVAR	1	PUNJAB
TO 101055 VRKA	132.00	1	-13.2	-9.5	16.3	0.01	0.03	1	PUNJAB
14 BORDERZONE									
TO 101061 GTRAI1	132.00	1	55.3	19.3	58.6	0.04	0.09	1	PUNJAB
14 BORDERZONE									
TO 101095 VRP1	132.00	1	-74.6	-28.2	79.8	0.81	1.94	1	PUNJAB
14 BORDERZONE									
TO 105011 MLM11	11.000	1	16.2	9.2	18.7	0.00	2.49	1	PUNJAB
14 BORDERZONE									
TO 105011 MLM11	11.000	2	16.2	9.2	18.7	0.00	2.49	1	PUNJAB
14 BORDERZONE									

OUTPUT 1722

14 BORDERZONE

BUS 101063 HKMG 132.00 CKT MW MVAR MVA % 0.9455PU -9.73 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 101063 124.81KV MW MVAR 1 PUNJAB

14 BORDERZONE

TO SHUNT 0.0 -9.7 9.7
 TO 101095 VRP1 132.00 1 -30.3 -6.9 31.1 38 0.12 0.29 1 PUNJAB

14 BORDERZONE

TO 105010 HKMG11 11.000 1 15.2 8.3 17.3 86 1.0000UN 0.00 2.09 1 PUNJAB

14 BORDERZONE

TO 105010 HKMG11 11.000 2 15.2 8.3 17.3 86 1.0000UN 0.00 2.09 1 PUNJAB

BUS 101064 GDSP 132.00 CKT MW MVAR MVA % 0.9748PU -7.54 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 101064 128.67KV MW MVAR 1 PUNJAB

14 BORDERZONE

TO SHUNT 0.0 -18.1 18.1
 TO 101017 SRN1 132.00 1 -49.5 -6.8 50.0 71 0.98 1.89 1 PUNJAB

14 BORDERZONE

TO 101017 SRN1 132.00 2 -49.5 -6.8 50.0 71 0.98 1.89 1 PUNJAB

14 BORDERZONE

TO 101065 DRWL 132.00 1 35.3 8.3 36.2 52 0.27 0.53 1 PUNJAB

14 BORDERZONE

TO 101065 DRWL 132.00 2 35.3 8.3 36.2 52 0.27 0.53 1 PUNJAB

14 BORDERZONE

TO 105002 GDSP11 11.000 1 14.3 7.6 16.2 81 1.0000UN 0.00 1.72 1 PUNJAB

14 BORDERZONE

TO 105002 GDSP11 11.000 3 14.3 7.6 16.2 81 1.0000UN 0.00 1.72 1 PUNJAB

14 BORDERZONE

TO 106100 GDSP16 66.000 1 -0.0 -0.0 0.0 0 1.0000UN 0.00 0.00 1 PUNJAB

14 BORDERZONE

TO 106100 GDSP16 66.000 2 -0.0 -0.0 0.0 0 1.0000UN 0.00 0.00 1 PUNJAB

BUS 101065 DRWL 132.00 CKT MW MVAR MVA % 0.9643PU -8.26 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 101065 127.29KV MW MVAR 1 PUNJAB

14 BORDERZONE

TO SHUNT 0.0 -5.1 5.1
 TO 101059 BTLA 132.00 1 7.0 -4.0 8.1 12 0.02 0.03 1 PUNJAB

14 BORDERZONE

TO 101059 BTLA 132.00 2 7.0 -4.0 8.1 12 0.02 0.03 1 PUNJAB

14 BORDERZONE

TO 101064 GDSP 132.00 1 -35.0 -8.1 35.9 52 0.27 0.53 1 PUNJAB

OUTPUT 1722

TO 101064 GDSP	132.00	2	-35.0	-8.1	35.9	52	0.27	0.53	1	PUNJAB
14 BORDERZONE										
TO 105003 DRWL11	11.000	1	12.0	6.1	13.5	67	0.00	1.22	1	PUNJAB
14 BORDERZONE										
TO 105003 DRWL11	11.000	2	12.0	6.1	13.5	67	0.00	1.22	1	PUNJAB
14 BORDERZONE										
TO 106101 DRWL16	66.000	1	32.0	16.9	36.2	72	0.00	3.81	1	PUNJAB
14 BORDERZONE										

BUS 101066 MPH1	132.00	CKT	MW	MVAR	MVA	%	1.00000PU	-6.33	X---	LOSSES	---	X	---	AREA
-----X X----- ZONE														
FROM GENERATION														
13 NORTH ZONE			88.5	32.6R	94.3	96	132.00KV			MW	MVAR			1 PUNJAB
TO 101015 BGPR1	132.00	1	34.8	18.9	39.5	45				1.07	2.54			1 PUNJAB
13 NORTH ZONE														
TO 101050 TNDAL	132.00	1	40.2	20.5	45.1	52				1.07	2.55			1 PUNJAB
13 NORTH ZONE														
TO 101069 MPH41	132.00	1	6.8	-3.4	7.6	9				0.01	0.03			1 PUNJAB
13 NORTH ZONE														
TO 101069 MPH41	132.00	2	6.8	-3.4	7.6	9				0.01	0.03			1 PUNJAB
13 NORTH ZONE														

BUS 101069 MPH41	132.00	CKT	MW	MVAR	MVA	%	1.00000PU	-6.54	X---	LOSSES	---	X	---	AREA
-----X X----- ZONE														
FROM GENERATION														
13 NORTH ZONE			49.5	23.2R	54.7	99	132.00KV			MW	MVAR			1 PUNJAB
TO 101060 SHGPI	132.00	1	31.5	9.3	32.8	38				0.32	0.75			1 PUNJAB
14 BORDERZONE														
TO 101060 SHGPI	132.00	2	31.5	9.3	32.8	38				0.32	0.75			1 PUNJAB
14 BORDERZONE														
TO 101066 MPH1	132.00	1	-6.8	2.3	7.1	8				0.01	0.03			1 PUNJAB
13 NORTH ZONE														
TO 101066 MPH1	132.00	2	-6.8	2.3	7.1	8				0.01	0.03			1 PUNJAB
13 NORTH ZONE														

BUS 101070 BKWD1	132.00	CKT	MW	MVAR	MVA	%	0.9002PU	-12.43	X---	LOSSES	---	X	---	AREA
-----X X----- ZONE														
14 BORDERZONE							118.82KV			MW	MVAR			1 PUNJAB
TO SHUNT			0.0	-11.0	11.0					2.02	4.80			1 PUNJAB
TO 101071 PTL1	132.00	1	-87.1	-34.9	93.8	57				0.00	1.07			1 PUNJAB
14 BORDERZONE														
TO 105013 BKWD11	11.000	1	8.2	4.4	9.3	75	1.00000UN			0.00	1.71			1 PUNJAB
14 BORDERZONE														
TO 105013 BKWD11	11.000	2	13.1	7.1	14.9	75	1.00000UN			0.00	1.71			1 PUNJAB
14 BORDERZONE														
TO 106107 BKWD16	66.000	1	32.9	17.2	37.1	74	1.00000UN			0.00	3.68			1 PUNJAB
14 BORDERZONE														

OUTPUT 1722

14 BORDERZONE	TO 106107 BKWD16	66.000	2	32.9	17.2	37.1	74	1.0000UN	0.00	3.68	1	PUNJAB	
14 BORDERZONE													
BUS 101071 PT11		132.00	CKT	MW	MVAR	MVA	% 0.9359PU	-10.24	X----	LOSSES	---	X-----	AREA
14 BORDERZONE	TO LOAD-PQ												
14 BORDERZONE	TO 101070 BKWD1	132.00	1	89.1	38.9	97.2	57			2.02	4.80	1	PUNJAB
14 BORDERZONE	TO 101072 SLTP1	132.00	1	-19.9	-6.5	20.9	26			0.18	0.42	1	PUNJAB
13 NORTH ZONE	TO 101073 TRN1	132.00	1	-8.4	-5.1	9.8	12			0.02	0.06	1	PUNJAB
14 BORDERZONE	TO 102014 PT12	220.00	1	-62.3	-27.8	68.2	68	1.0000LK		0.00	6.64	1	PUNJAB
14 BORDERZONE													
BUS 101072 SLTP1		132.00	CKT	MW	MVAR	MVA	% 0.9490PU	-9.26	X----	LOSSES	---	X-----	AREA
13 NORTH ZONE	TO LOAD-PQ												
13 NORTH ZONE	TO 101047 KMDR1	132.00	1	19.7	8.1	21.3	28			0.07	0.16	1	PUNJAB
13 NORTH ZONE	TO 101071 PT11	132.00	1	20.1	5.2	20.7	25			0.18	0.42	1	PUNJAB
14 BORDERZONE	TO 102015 SLT2	220.00	1	-58.7	-25.8	64.2	64	1.0000LK		0.00	5.71	1	PUNJAB
13 NORTH ZONE													
BUS 101073 TRN1		132.00	CKT	MW	MVAR	MVA	% 0.9407PU	-10.01	X----	LOSSES	---	X-----	AREA
14 BORDERZONE	TO SHUNT												
14 BORDERZONE	TO 101071 PT11	132.00	1	8.4	4.1	9.3	11			0.02	0.06	1	PUNJAB
14 BORDERZONE	TO 101095 VRP1	132.00	1	-52.2	-16.1	54.6	67			0.36	0.86	1	PUNJAB
14 BORDERZONE	TO 101099 EKGD1	132.00	1	-9.9	1.4	10.0	12			0.01	0.03	1	PUNJAB
14 BORDERZONE	TO 105014 TRN11	11.000	1	13.0	6.9	14.7	74	1.0000UN		0.00	1.54	1	PUNJAB
14 BORDERZONE	TO 105014 TRN11	11.000	2	13.0	6.9	14.7	74	1.0000UN		0.00	1.54	1	PUNJAB
14 BORDERZONE	TO 106108 TRN16	66.000	1	27.6	13.7	30.8	62	1.0000UN		0.00	2.32	1	PUNJAB
14 BORDERZONE													

OUTPUT 1722

BUS 101074 MNSW1 -----X X----- ZONE	132.00 CKT -----X 101074	MW	MVAR	MVA	% 0.9488PU	-12.13	X----	LOSSES	---X X----	AREA
15 WEST ZONE					125.24KV					
TO SHUNT										
TO 101075 FZR1	132.00 1	0.0	-2.5	2.5						
15 WEST ZONE		-23.3	-14.3	27.3	39			0.20	0.39	1 PUNJAB
TO 101076 FRZS1	132.00 1	9.8	9.9	13.9	20			0.05	0.11	1 PUNJAB
15 WEST ZONE										
TO 105059 MNSW11	11.000 1	6.8	3.4	7.6	61			0.00	0.64	1 PUNJAB
15 WEST ZONE										
TO 105059 MNSW11	11.000 2	6.8	3.4	7.6	61			0.00	0.64	1 PUNJAB
15 WEST ZONE										

BUS 101075 FZR1 -----X X----- ZONE	132.00 CKT -----X 101075	MW	MVAR	MVA	% 0.9621PU	-11.65	X----	LOSSES	---X X----	AREA
15 WEST ZONE					126.99KV					
TO LOAD-PQ										
TO SHUNT										
TO 101006 SADQ1	132.00 1	87.9	36.1	95.0						
15 WEST ZONE		0.0	-40.2	40.2	23			0.09	0.22	1 PUNJAB
TO 101074 MNSW1	132.00 1	8.5	17.0	19.0	39			0.20	0.39	1 PUNJAB
15 WEST ZONE										
TO 102059 FZR2	220.00 1	23.5	14.2	27.5	61			0.00	5.10	1 PUNJAB
15 WEST ZONE		-59.9	-13.6	61.5	61			0.00	5.10	1 PUNJAB
TO 102059 FZR2	220.00 2	-59.9	-13.6	61.5	61			0.00	5.10	1 PUNJAB
15 WEST ZONE										

BUS 101076 FRZS1 -----X X----- ZONE	132.00 CKT -----X 101076	MW	MVAR	MVA	% 0.9412PU	-12.27	X----	LOSSES	---X X----	AREA
15 WEST ZONE					124.23KV					
TO SHUNT										
TO 101005 TDBH1	132.00 1	0.0	-15.6	15.6	74					
15 WEST ZONE		-50.8	-5.1	51.1	21			0.66	1.27	1 PUNJAB
TO 101074 MNSW1	132.00 1	-9.7	-10.2	14.1	80			0.05	0.11	1 PUNJAB
15 WEST ZONE										
TO 105058 FZR511	11.000 1	14.0	7.5	15.9	80			0.00	1.78	1 PUNJAB
15 WEST ZONE										
TO 105058 FZR511	11.000 2	8.7	4.7	9.9	80			0.00	1.11	1 PUNJAB
15 WEST ZONE										
TO 106125 FZR516	66.000 1	28.1	13.9	31.3	63			0.00	2.40	1 PUNJAB
15 WEST ZONE										
TO 106125 FZR516	66.000 2	9.7	4.8	10.8	54			0.00	0.83	1 PUNJAB
15 WEST ZONE										

OUTPUT 1722

BUS	TO	ZONE	CKT	MW	MVAR	MVA	%	LOSSSES	AREA
BUS 101077	MOGA1	132.00	CKT	MW	MVAR	MVA	% 0.9409PU	-10.88	X----- AREA
-----X X----- ZONE -----X 101077									
15 WEST ZONE									
TO SHUNT				0.0	-2.4	2.4			
TO 101115	DUMMY5	132.00	1	-21.3	-8.9	23.1	28	0.02	0.04 1 PUNJAB
TO 105055	MOGA11	11.000	1	13.1	7.0	14.9	74 1.0000UN	0.00	1.56 1 PUNJAB
TO 105055	MOGA11	11.000	2	8.2	4.3	9.3	74 1.0000UN	0.00	0.97 1 PUNJAB
-----X X----- ZONE -----X 101078									
BUS 101078	MOG1	132.00	CKT	MW	MVAR	MVA	% 0.9432PU	-10.61	X----- AREA
-----X X----- ZONE -----X 101078									
15 WEST ZONE									
TO SHUNT				0.0	-15.7	15.7			
TO 101034	JMP1	132.00	1	-23.1	5.0	23.7	44	0.51	0.98 1 PUNJAB
TO 101079	MOG21	132.00	1	-54.3	-14.1	56.1	68	0.23	0.55 1 PUNJAB
TO 101079	MOG21	132.00	2	-54.3	-14.1	56.1	68	0.23	0.55 1 PUNJAB
TO 101079	MOG21	132.00	3	-54.3	-14.1	56.1	68	0.23	0.55 1 PUNJAB
TO 101080	SWDK11	132.00	1	-7.6	7.7	10.9	13	0.06	0.15 1 PUNJAB
TO 101081	DRMKT1	132.00	1	13.7	-13.5	19.2	23	0.14	0.34 1 PUNJAB
TO 101084	BDK11	132.00	1	26.7	-1.3	26.7	33	0.20	0.48 1 PUNJAB
TO 101107	GHO1K1N1	132.00	1	52.9	20.4	56.7	69	0.51	1.21 1 PUNJAB
TO 101115	DUMMY5	132.00	1	22.4	-1.8	22.5	27	0.03	0.08 1 PUNJAB
TO 105053	MOG11	11.000	1	13.2	7.0	15.0	75 1.0000UN	0.00	1.58 1 PUNJAB
TO 105053	MOG11	11.000	2	13.2	7.0	15.0	75 1.0000UN	0.00	1.58 1 PUNJAB
TO 106123	MOG16	66.000	1	38.4	20.4	43.4	87 1.0000UN	0.00	4.59 1 PUNJAB
TO 106123	MOG16	66.000	2	13.3	7.0	15.0	60 1.0000UN	0.00	1.59 1 PUNJAB
BUS 101079	MOG21	132.00	CKT	MW	MVAR	MVA	% 0.9493PU	-10.13	X----- AREA
-----X X----- ZONE -----X 101079									

OUTPUT 1722

11 CENTRAL ZONE

TO SHUNT	132.00 CKT	MW	MVAR	MVA	% 0.9456PU	-8.61	X---	LOSSES	---X	AREA
BUS 101082 PHLR1	132.00 CKT				124.83KV					
11 CENTRAL ZONE										
TO SHUNT										
TO 101034 JMP1	132.00 1	0.0	-4.9	4.9	38			0.16	0.31	1 PUNJAB
11 CENTRAL ZONE										
TO 101042 GRY1	132.00 1	-5.5	-3.3	6.4	9			0.01	0.01	1 PUNJAB
11 CENTRAL ZONE										
TO 105081 PHLR11	11.000 1	12.7	6.6	14.3	71 1.0000UN			0.00	1.43	1 PUNJAB
11 CENTRAL ZONE										
TO 105081 PHLR11	11.000 2	7.9	4.1	8.9	71 1.0000UN			0.00	0.89	1 PUNJAB
11 CENTRAL ZONE										
TO 106137 PHLR16	66.000 1	9.8	4.7	10.9	44 1.0000UN			0.00	0.64	1 PUNJAB
13 NORTH ZONE										

BUS 101083 SUSN1
-----X X----- ZONE -----X 101083

15 WEST ZONE	132.00 CKT	MW	MVAR	MVA	% 0.9468PU	-10.99	X---	LOSSES	---X	AREA
BUS 101083 SUSN1	132.00 CKT				124.98KV					
15 WEST ZONE										
TO SHUNT										
TO 101005 TDBH1	132.00 1	0.0	-1.2	1.2	24			0.07	0.14	1 PUNJAB
15 WEST ZONE										
TO 101115 DUMMY5	132.00 1	-1.0	10.1	10.1	15			0.03	0.05	1 PUNJAB
13 NORTH ZONE										
TO 105056 SUSN11	11.000 1	9.7	5.3	11.0	88 1.0000UN			0.00	1.36	1 PUNJAB
15 WEST ZONE										

BUS 101084 BDKL1
-----X X----- ZONE -----X 101084

11 CENTRAL ZONE	132.00 CKT	MW	MVAR	MVA	% 0.9367PU	-11.65	X---	LOSSES	---X	AREA
BUS 101084 BDKL1	132.00 CKT				123.65KV					
11 CENTRAL ZONE										
TO SHUNT										
TO 101078 MOG1	132.00 1	0.0	-15.5	15.5	32			0.20	0.48	1 PUNJAB
15 WEST ZONE										
TO 105060 BDKL11	11.000 1	16.3	9.2	18.7	93 1.0000UN			0.00	2.49	1 PUNJAB
11 CENTRAL ZONE										
TO 105060 BDKL11	11.000 2	10.2	5.7	11.7	93 1.0000UN			0.00	1.56	1 PUNJAB
11 CENTRAL ZONE										
TO 106126 BDKL16	66.000 1	-0.0	-0.0	0.0	0 1.0000UN			0.00	0.00	1 PUNJAB
11 CENTRAL ZONE										

BUS 101085 PNJGR1
-----X X----- ZONE -----X 101085

132.00 CKT	MW	MVAR	MVA	% 0.9378PU	-11.10	X---	LOSSES	---X	AREA	
BUS 101085 PNJGR1	132.00 CKT				123.79KV					
132.00 CKT										
MW										
MVAR										
MVA										
% 0.9378PU										
-11.10										
X---										
LOSSES										
---X										
AREA										
1 PUNJAB										

OUTPUT 1722

15 WEST ZONE	132.00	1	0.0	-2.4	132.00	1	0.0	-2.4	132.00	1	0.19	0.36	1	PUNJAB
TO SHUNT														
TO 101079 MOG21														
15 WEST ZONE	132.00	1	-19.3	-3.1	132.00	1	-19.3	-3.1	132.00	1	0.01	0.01	1	PUNJAB
TO 101086 SRNG1														
15 WEST ZONE	132.00	1	2.5	-3.5	132.00	1	2.5	-3.5	132.00	1	0.00	1.03	1	PUNJAB
TO 105068 PNJGR11														
15 WEST ZONE	11.000	1	8.4	4.5	11.000	1	8.4	4.5	11.000	1	0.00	1.03	1	PUNJAB
TO 105068 PNJGR11														
15 WEST ZONE	11.000	2	8.4	4.5	11.000	2	8.4	4.5	11.000	2	0.00	1.03	1	PUNJAB
BUS 101086 SRNG1	132.00	CKT	MW	MVAR	MVA	%	0.9390PU	-11.26	X----	LOSSES	---	X----	AREA	
-----X X----- ZONE -----X 101086														
15 WEST ZONE														
TO SHUNT														
TO 101007 MKSR1														
15 WEST ZONE	132.00	1	0.0	-4.8	132.00	1	0.0	-4.8	132.00	1	0.08	0.18	1	PUNJAB
TO 101085 PNJGR1														
15 WEST ZONE	132.00	1	-22.0	-9.5	132.00	1	-22.0	-9.5	132.00	1	0.01	0.01	1	PUNJAB
TO 105067 SRNG11														
15 WEST ZONE	132.00	1	-2.5	3.0	132.00	1	-2.5	3.0	132.00	1	0.00	0.23	1	PUNJAB
TO 105067 SRNG11														
15 WEST ZONE	11.000	1	4.1	1.9	11.000	1	4.1	1.9	11.000	1	0.00	0.23	1	PUNJAB
TO 105067 SRNG11														
15 WEST ZONE	11.000	2	4.1	1.9	11.000	2	4.1	1.9	11.000	2	0.00	0.23	1	PUNJAB
TO 106172 SRNAGA16														
15 WEST ZONE	66.000	1	16.4	7.5	66.000	1	16.4	7.5	66.000	1	0.00	0.80	1	PUNJAB
BUS 101087 FRDKT1	132.00	CKT	MW	MVAR	MVA	%	0.9442PU	-12.15	X----	LOSSES	---	X----	AREA	
-----X X----- ZONE -----X 101087														
15 WEST ZONE														
TO SHUNT														
TO 101006 SADQ1														
15 WEST ZONE	132.00	1	0.0	-4.9	132.00	1	0.0	-4.9	132.00	1	0.09	0.21	1	PUNJAB
TO 105065 FRDK11														
15 WEST ZONE	11.000	1	-21.7	-6.7	11.000	1	-21.7	-6.7	11.000	1	0.00	1.60	1	PUNJAB
TO 105065 FRDK11														
15 WEST ZONE	11.000	2	13.3	7.1	11.000	2	13.3	7.1	11.000	2	0.00	1.00	1	PUNJAB
TO 105065 FRDK11														
15 WEST ZONE	11.000	2	8.3	4.4	11.000	2	8.3	4.4	11.000	2	0.00	1.00	1	PUNJAB
BUS 101088 JLLBD1	132.00	CKT	MW	MVAR	MVA	%	0.9313PU	-12.48	X----	LOSSES	---	X----	AREA	
-----X X----- ZONE -----X 101088														
15 WEST ZONE														
TO SHUNT														
TO 101008 MK21														
15 WEST ZONE	132.00	1	0.0	-14.2	132.00	1	0.0	-14.2	132.00	1	0.44	1.04	1	PUNJAB
TO 105063 JLLB11														
15 WEST ZONE	11.000	1	-35.0	-3.6	11.000	1	-35.0	-3.6	11.000	1	0.00	1.57	1	PUNJAB
TO 105063 JLLB11														

OUTPUT 1722

15 WEST ZONE
 TO 105063 JLB11 11.000 2 13.0 6.9 14.8 74 1.0000UN 0.00 1.57 1 PUNJAB
 15 WEST ZONE
 TO 106128 JLB16 66.000 1 8.9 3.9 9.7 19 1.0000UN 0.00 0.23 1 PUNJAB
 15 WEST ZONE

BUS 101089 MLOT1 132.00 CKT MW MVAR MVA % 0.9162PU -12.74 X---- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 101089 120.94KV

15 WEST ZONE
 TO SHUNT MKSRI 132.00 1 0.0 -6.9 6.9 0.83 1.97 1 PUNJAB
 TO 101007 132.00 1 -44.9 -17.3 48.1 60 0.09 0.22 1 PUNJAB
 15 WEST ZONE
 TO 101013 ABHRI 132.00 1 15.4 -7.1 16.9 21 0.15 0.36 1 PUNJAB
 15 WEST ZONE
 TO 101090 GDBH1 132.00 1 -26.2 0.8 26.2 33 0.00 1.41 1 PUNJAB
 15 WEST ZONE
 TO 105073 MLOT11 11.000 1 12.2 6.4 13.8 69 1.0000UN 0.00 1.41 1 PUNJAB
 15 WEST ZONE
 TO 105073 MLOT11 11.000 2 12.2 6.4 13.8 69 1.0000UN 0.00 1.41 1 PUNJAB
 15 WEST ZONE
 TO 106133 MLOT16 66.000 1 31.4 17.7 36.0 90 1.0000UN 0.00 4.84 1 PUNJAB
 15 WEST ZONE

BUS 101090 GDBH1 132.00 CKT MW MVAR MVA % 0.9210PU -11.95 X---- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 101090 121.57KV

15 WEST ZONE
 TO SHUNT MLOT1 132.00 1 0.0 -2.3 2.3 0.15 0.36 1 PUNJAB
 TO 101089 132.00 1 26.3 -1.3 26.4 33 0.02 0.04 1 PUNJAB
 15 WEST ZONE
 TO 101091 BADL1 132.00 1 9.9 2.0 10.1 13 1.32 3.13 1 PUNJAB
 15 WEST ZONE
 TO 101092 BENA1 132.00 1 -59.4 -11.1 60.4 75 0.00 1.95 1 PUNJAB
 15 WEST ZONE
 TO 105074 GDBH11 11.000 1 14.3 7.8 16.3 81 1.0000UN 0.00 1.22 1 PUNJAB
 15 WEST ZONE
 TO 105074 GDBH11 11.000 2 8.9 4.9 10.2 81 1.0000UN 0.00 1.22 1 PUNJAB
 15 WEST ZONE

BUS 101091 BADL1 132.00 CKT MW MVAR MVA % 0.9186PU -12.15 X---- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 101091 121.25KV

15 WEST ZONE
 TO SHUNT GDBH1 132.00 1 0.0 -2.3 2.3 0.02 0.04 1 PUNJAB
 TO 101090 132.00 1 -9.8 -2.7 10.2 13 0.02 0.04 1 PUNJAB
 15 WEST ZONE

BUS 101095 VRP1 132.00 CKT MW MVAR MVA % 0.9510PU -9.27 X--- LOSSES ---X X--- AREA
 -----X X----- ZONE -----X 101095 125.53KV

14 BORDERZONE
 TO LOAD-PQ 132.00 1 1.4 0.6 1.6 47 0.81 1.94 1 PUNJAB
 TO 101062 MLML 75.5 29.6 81.0 47
 14 BORDERZONE
 TO 101063 HKMG 132.00 1 30.4 6.6 31.2 38 0.12 0.29 1 PUNJAB
 14 BORDERZONE
 TO 101073 TRN1 132.00 1 52.5 16.5 55.1 67 0.36 0.86 1 PUNJAB
 14 BORDERZONE
 TO 101097 NRNG1 132.00 1 21.6 3.0 21.8 26 0.08 0.19 1 PUNJAB
 14 BORDERZONE
 TO 101097 NRNG1 132.00 2 21.6 3.0 21.8 26 0.08 0.19 1 PUNJAB
 14 BORDERZONE
 TO 102011 VRP2 220.00 1 -67.7 -19.8 70.5 71 1.0000LK 0.00 6.88 1 PUNJAB
 14 BORDERZONE
 TO 102011 VRP2 220.00 2 -67.7 -19.8 70.5 71 1.0000LK 0.00 6.88 1 PUNJAB
 14 BORDERZONE
 TO 102011 VRP2 220.00 3 -67.7 -19.8 70.5 71 1.0000LK 0.00 6.88 1 PUNJAB

BUS 101096 WGT21 132.00 CKT MW MVAR MVA % 0.9713PU -8.07 X--- LOSSES ---X X--- AREA
 -----X X----- ZONE -----X 101096 128.21KV

14 BORDERZONE
 TO LOAD-PQ 132.00 1 11.6 4.8 12.5 61 0.21 0.50 1 PUNJAB
 TO SHUNT 0.0 -23.1 23.1
 TO 101059 BTLA 48.5 17.4 51.5 61 0.21 0.50 1 PUNJAB
 14 BORDERZONE
 TO 101059 BTLA 132.00 2 48.5 17.4 51.5 61 0.21 0.50 1 PUNJAB
 14 BORDERZONE
 TO 101059 BTLA 132.00 3 48.5 17.4 51.5 61 0.21 0.50 1 PUNJAB
 14 BORDERZONE
 TO 101060 SHGP1 132.00 1 -17.5 -13.9 22.4 26 0.13 0.31 1 PUNJAB
 14 BORDERZONE
 TO 101060 SHGP1 132.00 2 -17.5 -13.9 22.4 26 0.13 0.31 1 PUNJAB
 14 BORDERZONE
 TO 102004 WGT2 220.00 1 -61.0 -3.0 61.1 61 1.0000LK 0.00 4.94 1 PUNJAB
 14 BORDERZONE
 TO 102004 WGT2 220.00 2 -61.0 -3.0 61.1 61 1.0000LK 0.00 4.94 1 PUNJAB

BUS 101097 NRNG1 132.00 CKT MW MVAR MVA % 0.9464PU -9.72 X--- LOSSES ---X X--- AREA
 -----X X----- ZONE -----X 101097 124.92KV 1 PUNJAB

TO SHUNT	132.00	1	0.0	-17.0	17.0	0.05	0.11	1	PUNJAB
TO 101094 CIVL	132.00	1	16.6	10.1	19.5	0.08	0.19	1	PUNJAB
14 BORDERZONE					24				
TO 101095 VRP1	132.00	1	-21.6	-3.5	21.8	0.08	0.19	1	PUNJAB
14 BORDERZONE					27				
TO 101095 VRP1	132.00	2	-21.6	-3.5	21.8	0.08	0.19	1	PUNJAB
14 BORDERZONE					27				
TO 105009 NRNG11	11.000	1	13.2	7.0	15.0	0.00	1.57	1	PUNJAB
14 BORDERZONE					75				
TO 105009 NRNG11	11.000	3	13.2	7.0	15.0	0.00	1.57	1	PUNJAB
14 BORDERZONE					75				
TO 106105 NRNG16	66.000	1	-0.0	0.0	0.0	0.00	0.00	1	PUNJAB
14 BORDERZONE					0				
TO 106105 NRNG16	66.000	2	-0.0	0.0	0.0	0.00	0.00	1	PUNJAB
14 BORDERZONE					0				

BUS 101099 EKGDI	132.00	CKT	MW	MVAR	MVA	%	0.9413PU	-9.86	X	LOSSSES	---	X	---	AREA
-----X X----- ZONE														
14 BORDERZONE							124.25KV							
TO SHUNT			0.0	-2.4	2.4									
TO 101073 TRN1	132.00	1	9.9	-1.9	10.1	12				0.01	0.03	1	PUNJAB	
14 BORDERZONE														
TO 101111 DUMMY1	132.00	1	-24.7	-2.8	24.9	30				0.12	0.28	1	PUNJAB	
13 NORTH ZONE														
TO 105015 EKGDI1	11.000	1	4.9	2.4	5.5	44	1.0000UN			0.00	0.34	1	PUNJAB	
14 BORDERZONE														
TO 105015 EKGDI1	11.000	2	4.9	2.4	5.5	44	1.0000UN			0.00	0.34	1	PUNJAB	
14 BORDERZONE														
TO 105015 EKGDI1	11.000	3	4.9	2.4	5.5	44	1.0000UN			0.00	0.34	1	PUNJAB	
14 BORDERZONE														

BUS 101100 MHLP1	132.00	CKT	MW	MVAR	MVA	%	0.9694PU	-6.75	X	LOSSSES	---	X	---	AREA
-----X X----- ZONE														
13 NORTH ZONE							127.96KV							
TO SHUNT			0.0	-5.1	5.1									
TO 101016 BNGA1	132.00	1	55.7	16.2	58.0	69				0.93	2.22	1	PUNJAB	
13 NORTH ZONE														
TO 101026 HSPR1	132.00	1	28.6	8.6	29.9	35				0.23	0.54	1	PUNJAB	
13 NORTH ZONE														
TO 101026 HSPR1	132.00	2	28.6	8.6	29.9	35				0.23	0.54	1	PUNJAB	
13 NORTH ZONE														
TO 102023 MHLP2	220.00	1	-56.5	-14.2	58.2	58	1.0000LK			0.00	4.51	1	PUNJAB	
13 NORTH ZONE														
TO 102023 MHLP2	220.00	2	-56.5	-14.2	58.2	58	1.0000LK			0.00	4.51	1	PUNJAB	
13 NORTH ZONE														

OUTPUT 1722

LINE	FROM	TO	ZONE	CT	MW	MVAR	MVA	%	LOSS	AREA
BUS 101101	GSTP1			132.00				1.0053	-3.39	PUNJAB
X X	ZONE			X 101101				132.70KV		
12 SOUTH ZONE				132.00	1	64.0	19.7	66.9	77	0.87
TO 101031	RPR1									1 PUNJAB
12 SOUTH ZONE				132.00	1	65.8	19.9	68.7	79	0.69
TO 101032	ASRN1									1 PUNJAB
12 SOUTH ZONE				220.00	1	-64.9	-19.8	67.8	68	0.00
TO 102027	GST2									1 PUNJAB
12 SOUTH ZONE				220.00	2	-64.9	-19.8	67.8	68	0.00
TO 102027	GST2									1 PUNJAB
12 SOUTH ZONE				132.00						
BUS 101102	BGNP1			132.00				0.9344	-11.09	PUNJAB
X X	ZONE			X 101102				123.34KV		
15 WEST ZONE				132.00	1	10.8	-1.5	10.9	13	0.04
TO 101010	KTKPR1									1 PUNJAB
15 WEST ZONE				132.00	1	-41.7	-15.6	44.5	55	0.40
TO 101079	M0G21									1 PUNJAB
15 WEST ZONE				11.000	1	15.4	8.6	17.7	88	0.00
TO 105071	BGNP11									1 PUNJAB
15 WEST ZONE				11.000	2	15.4	8.6	17.7	88	0.00
TO 105071	BGNP11									1 PUNJAB
15 WEST ZONE				132.00						
BUS 101103	MAUR1			132.00				0.9581	-8.21	PUNJAB
X X	ZONE			X 101103				126.48KV		
15 WEST ZONE				132.00	1	0.0	-5.0	7.3	9	0.02
TO SHUNT	IGC1									1 PUNJAB
15 WEST ZONE				220.00	1	-46.6	-13.6	48.5	49	0.00
TO 102156	MAUR2									1 PUNJAB
15 WEST ZONE				11.000	1	13.4	7.1	15.1	76	0.00
TO 105079	MAUR11									1 PUNJAB
15 WEST ZONE				11.000	2	13.4	7.1	15.1	76	0.00
TO 105079	MAUR11									1 PUNJAB
15 WEST ZONE				11.000	3	8.4	4.4	9.5	76	0.00
TO 105079	MAUR11									1 PUNJAB
15 WEST ZONE				66.000	1	14.3	6.7	15.8	39	0.00
TO 106136	MAUR16									1 PUNJAB
15 WEST ZONE				132.00						
BUS 101104	CHDPK1			132.00				0.9521	-8.41	PUNJAB
X X	ZONE			X 101104						

OUTPUT 1722 125.67KV

13 NORTH ZONE TO SHUNT	132.00	1	0.0	-9.9	9.9	0.03	MVAR	1	PUNJAB
TO 101043 JLD1			-21.1	-3.5	21.4		0.08		1 PUNJAB
13 NORTH ZONE TO 101109 PIMS1	132.00	1	-9.7	-3.6	10.3	0.01	0.02		1 PUNJAB
13 NORTH ZONE TO 105024 CHDPK11	11.000	1	15.4	8.5	17.6	0.00	2.13		1 PUNJAB
13 NORTH ZONE TO 105024 CHDPK11	11.000	2	15.4	8.5	17.6	0.00	2.13		1 PUNJAB
BUS 101106 KHNPR1 -----X X----- ZONE -----X X----- AREA	132.00	CKT 101106				-8.74	LOSSES		

13 NORTH ZONE TO 101015 BGPRI	132.00	1	3.0	-1.2	3.2	0.00	MVAR	1	PUNJAB
13 NORTH ZONE TO 101043 JLD1	132.00	1	-17.3	-6.6	18.6	0.09	0.21		1 PUNJAB
13 NORTH ZONE TO 105031 KHNPR1	11.000	1	14.4	7.8	16.4	0.00	1.87		1 PUNJAB
BUS 101107 GHOLKLN1 -----X X----- ZONE -----X X----- AREA	132.00	CKT 101107				-11.57	LOSSES		

15 WEST ZONE TO SHUNT	132.00	1	0.0	-4.7	4.7	0.29	MVAR	1	PUNJAB
TO 101011 SMDB1			38.4	17.0	42.0		0.69		1 PUNJAB
15 WEST ZONE TO 101078 MOG1	132.00	1	-52.4	-19.9	56.1	0.51	1.21		1 PUNJAB
15 WEST ZONE TO 105061 GHLK11	11.000	1	14.0	7.6	15.9	0.00	1.84		1 PUNJAB
BUS 101108 KRT1 -----X X----- ZONE -----X X----- AREA	132.00	CKT 101108				-8.00	LOSSES		

13 NORTH ZONE TO 101023 FPJLD1	132.00	1	28.4	11.7	30.7	0.07	MVAR	1	PUNJAB
13 NORTH ZONE TO 101043 JLD1	132.00	1	7.6	2.2	7.9	0.02	0.16		1 PUNJAB
13 NORTH ZONE TO 101052 BEAS1	132.00	1	30.7	2.4	30.8	0.19	0.46		1 PUNJAB
14 BORDER ZONE TO 102017 KRTP2	220.00	1	-66.7	-16.3	68.7	0.00	6.43		1 PUNJAB
13 NORTH ZONE									

OUTPUT 1722

BUS 101109 PIMS1 132.00 CKT MW MVAR MVA % 0.9533PU -8.33 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 101109 125.83KV MW MVAR MVA % 0.9533PU -8.33 X--- LOSSES ---X X----- AREA

13 NORTH ZONE 132.00 1 -20.3 -9.3 22.4 27 0.04 0.08 1 PUNJAB
 TO 101046 SCTY1 132.00 1 9.7 3.3 10.3 12 0.01 0.02 1 PUNJAB
 13 NORTH ZONE 11.000 1 10.6 6.0 12.2 98 1.0000UN 0.00 1.64 1 PUNJAB
 TO 101104 CHDPK1
 13 NORTH ZONE
 TO 105023 PIMS11
 13 NORTH ZONE

BUS 101110 SEH1 132.00 CKT MW MVAR MVA % 0.9424PU -8.39 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 101110 124.40KV MW MVAR MVA % 0.9424PU -8.39 X--- LOSSES ---X X----- AREA

11 CENTRAL ZONE 132.00 1 -15.5 -8.1 17.4 21 0.02 0.05 1 PUNJAB
 TO 101035 SMSPR1 11.000 1 7.7 4.0 8.7 70 1.0000UN 0.00 0.86 1 PUNJAB
 11 CENTRAL ZONE 11.000 2 7.7 4.0 8.7 70 1.0000UN 0.00 0.86 1 PUNJAB
 TO 105051 SEH1
 11 CENTRAL ZONE
 TO 105051 SEH1
 11 CENTRAL ZONE

BUS 101111 DUMMY1 132.00 CKT MW MVAR MVA % 0.9467PU -9.25 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 101111 124.97KV MW MVAR MVA % 0.9467PU -9.25 X--- LOSSES ---X X----- AREA

13 NORTH ZONE 132.00 1 -10.9 1.0 11.0 16 0.02 0.05 1 PUNJAB
 TO 101051 DHILWN1 132.00 1 -22.3 -1.8 22.3 27 0.07 0.17 1 PUNJAB
 13 NORTH ZONE 132.00 1 55.0 12.5 56.5 82 0.22 0.43 1 PUNJAB
 TO 101052 BEAS1
 14 BORDERZONE 132.00 1 24.8 2.3 24.9 30 0.12 0.28 1 PUNJAB
 TO 101053 TNGR1
 14 BORDERZONE 220.00 1 -46.7 -14.0 48.8 49 1.0000LK 0.00 3.32 1 PUNJAB
 TO 101099 EKGDI
 14 BORDERZONE
 TO 102013 BUT2
 14 BORDERZONE

BUS 101112 DUMMY2 132.00 CKT MW MVAR MVA % 0.9513PU -8.51 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 101112 125.57KV MW MVAR MVA % 0.9513PU -8.51 X--- LOSSES ---X X----- AREA

13 NORTH ZONE 132.00 1 -30.6 -4.0 30.8 37 0.07 0.16 1 PUNJAB
 TO 101043 JLD1 132.00 1 30.4 5.5 30.8 37 0.14 0.33 1 PUNJAB
 13 NORTH ZONE 132.00 1 0.2 -1.5 1.5 2 0.00 0.00 1 PUNJAB
 TO 101044 UEP2J1
 13 NORTH ZONE
 TO 101116 NKDR21

OUTPUT 1722

14 BORDERZONE	TO 102002 SRN2	220.00	1	106.0	35.7	111.9	48	0.50	3.07	1	PUNJAB
14 BORDERZONE	TO 102002 SRN2	220.00	2	106.0	35.7	111.9	48	0.50	3.07	1	PUNJAB
14 BORDERZONE	TO 102002 SRN2	220.00	3	106.0	35.7	111.9	48	0.50	3.07	1	PUNJAB
14 BORDERZONE	TO 102002 SRN2	220.00	4	106.0	35.7	111.9	48	0.50	3.07	1	PUNJAB
14 BORDERZONE	TO 502002 JSSR2	220.00	1	25.9	-25.3	36.3	17	0.05	0.25	5	HIMACHAL
51	HIMACHALSTU										

BUS 102002 SRN2		220.00	CKT	MW	MVAR	MVA	%	0.9872PU	-1.30	X----	LOSSES	----	X----	AREA
-----X X----- ZONE		-----X	102002					217.17KV			MW	MVAR		
14	BORDERZONE	TO 101017 SRN1	132.00	1	59.0	-7.2	59.4	59	1.0000UN	0.00	4.53	1	PUNJAB	
14	BORDERZONE	TO 102001 RSD2	220.00	1	-105.5	-34.7	111.1	48		0.50	3.07	1	PUNJAB	
14	BORDERZONE	TO 102001 RSD2	220.00	2	-105.5	-34.7	111.1	48		0.50	3.07	1	PUNJAB	
14	BORDERZONE	TO 102001 RSD2	220.00	3	-105.5	-34.7	111.1	48		0.50	3.07	1	PUNJAB	
14	BORDERZONE	TO 102001 RSD2	220.00	4	-105.5	-34.7	111.1	48		0.50	3.07	1	PUNJAB	
14	BORDERZONE	TO 102003 TIB2	220.00	1	107.5	5.2	107.7	51		0.57	3.05	1	PUNJAB	
14	BORDERZONE	TO 102004 WGT2	220.00	1	77.4	1.0	77.4	36		0.55	2.95	1	PUNJAB	
14	BORDERZONE	TO 102004 WGT2	220.00	2	77.4	1.0	77.4	36		0.55	2.95	1	PUNJAB	
14	BORDERZONE	TO 102004 WGT2	220.00	3	77.4	1.0	77.4	36		0.55	2.95	1	PUNJAB	
14	BORDERZONE	TO 102020 DSU2	220.00	1	29.4	-16.0	33.5	16		0.09	0.50	1	PUNJAB	
14	BORDERZONE	TO 102020 DSU2	220.00	2	29.4	-16.0	33.5	16		0.09	0.50	1	PUNJAB	
14	BORDERZONE	TO 106140 SRN26	66.000	1	23.2	10.5	25.5	25	1.0000UN	0.00	1.00	1	PUNJAB	
14	BORDERZONE	TO 106140 SRN26	66.000	2	23.2	10.5	25.5	25	1.0000UN	0.00	1.00	1	PUNJAB	
14	BORDERZONE	TO 106140 SRN26	66.000	3	23.2	10.5	25.5	25	1.0000UN	0.00	1.00	1	PUNJAB	
14	BORDERZONE	TO 402003 KSHNP42	220.00	1	-30.8	25.2	39.8	19		0.35	1.89	4	J&K	
41	J&KSTU													
TO	402003 KSHNP42	220.00	2	-30.8	25.2	39.8	19			0.35	1.89	4	J&K	

OUTPUT 1722

41 J&KSTU	220.00	1	-16.0	54.8	57.1	27	0.29	1.54	4	J&K				
TO 402007 UDMPR2	220.00	1	-27.4	32.9	42.9	20	0.18	0.98	4	J&K				
41 J&KSTU	220.00	1												
TO 402008 HIRNGR2	220.00	1												
41 J&KSTU	220.00	1												
BUS 102003 TIB2	220.00	CKT	MW	MVAR	MVA	%	0.9804PU	-2.90	X----	LOSSES	---	X	X----	AREA
-----X X-----	ZONE	102003					215.69KV							
14 BORDERZONE														
TO SHUNT														
TO 102002 SRN2	220.00	1	0.0	-26.1	26.1									
14 BORDERZONE														
TO 102004 WGT2	220.00	1	-107.0	-6.4	107.2	51								
14 BORDERZONE														
TO 106038 TIB26	220.00	1	11.5	-15.7	19.4	9								
14 BORDERZONE														
TO 106038 TIB26	66.000	1	47.7	24.1	53.5	53	1.00000UN							
14 BORDERZONE														
TO 106038 TIB26	66.000	2	47.7	24.1	53.5	53	1.00000UN							
14 BORDERZONE														
BUS 102004 WGT2	220.00	CKT	MW	MVAR	MVA	%	0.9784PU	-3.47	X---	LOSSES	---	X	X---	AREA
-----X X-----	ZONE	102004					215.24KV							
14 BORDERZONE														
TO SHUNT														
TO 101096 WGT21	132.00	1	0.0	-52.0	52.0									
14 BORDERZONE														
TO 101096 WGT21	132.00	2	61.0	8.0	61.5	62	1.00000UN							
14 BORDERZONE														
TO 102002 SRN2	220.00	1	-76.9	-6.0	77.1	37								
14 BORDERZONE														
TO 102002 SRN2	220.00	2	-76.9	-6.0	77.1	37								
14 BORDERZONE														
TO 102002 SRN2	220.00	3	-76.9	-6.0	77.1	37								
14 BORDERZONE														
TO 102003 TIB2	220.00	1	-11.3	11.5	16.2	8								
14 BORDERZONE														
TO 102011 VRP2	220.00	1	22.5	-13.7	26.3	13								
14 BORDERZONE														
TO 102121 UDOKE2	220.00	1	49.4	0.9	49.5	24								
14 BORDERZONE														
TO 102148 GURDSPR42	220.00	1	-96.7	-25.6	100.1	48								
14 BORDERZONE														
TO 106039 WGT26	66.000	1	72.4	40.5	82.9	83	1.00000UN							
14 BORDERZONE														
TO 106039 WGT26	66.000	2	72.4	40.5	82.9	83	1.00000UN							
14 BORDERZONE														

OUTPUT 1722

BUS	102005	KSM2	220.00	CKT	MW	MVAR	MVA	%	0.9809	PU	-3.64	X	LOSSSES	X	AREA
	X	X	X	102005											
	14	BORDERZONE						215.80	KV						
	TO SHUNT				0.0	-41.8	41.8								
	TO 102006	FGCR2	1		60.9	10.1	61.7	29					0.22	1.18	1 PUNJAB
	14	BORDERZONE													
	TO 102148	GURDSPR42	1		-161.9	-19.9	163.1	77					0.89	4.72	1 PUNJAB
	14	BORDERZONE													
	TO 106045	KSM26	1		50.5	25.8	56.7	57	1.0000	UN			0.00	5.01	1 PUNJAB
	14	BORDERZONE													
	TO 106045	KSM26	2		50.5	25.8	56.7	57	1.0000	UN			0.00	5.01	1 PUNJAB
	14	BORDERZONE													
	BUS 102006	FGCR2	220.00	CKT	MW	MVAR	MVA	%	0.9739	PU	-4.66	X	LOSSSES	X	AREA
	X	X	X	102006											
	14	BORDERZONE						214.26	KV						
	TO SHUNT				0.0	-30.9	30.9								
	TO 102005	KSM2	1		-60.6	-13.8	62.2	30					0.22	1.18	1 PUNJAB
	14	BORDERZONE													
	TO 102008	MJTH2	1		74.4	5.5	74.6	36					0.15	0.81	1 PUNJAB
	14	BORDERZONE													
	TO 102009	CIV2	1		62.5	5.8	62.7	30					0.15	0.81	1 PUNJAB
	14	BORDERZONE													
	TO 102148	GURDSPR42	1		-191.1	-27.2	193.0	92					1.74	9.29	1 PUNJAB
	14	BORDERZONE													
	TO 106041	FGCR26	1		57.5	30.3	64.9	65	1.0000	UN			0.00	6.67	1 PUNJAB
	14	BORDERZONE													
	TO 106041	FGCR26	2		57.5	30.3	64.9	65	1.0000	UN			0.00	6.67	1 PUNJAB
	14	BORDERZONE													
	BUS 102008	MJTH2	220.00	CKT	MW	MVAR	MVA	%	0.9711	PU	-5.27	X	LOSSSES	X	AREA
	X	X	X	102008											
	14	BORDERZONE						213.63	KV						
	TO SHUNT				0.0	-28.2	28.2								
	TO 102006	FGCR2	1		-74.2	-7.0	74.6	36					0.15	0.81	1 PUNJAB
	14	BORDERZONE													
	TO 102009	CIV2	1		13.2	2.4	13.4	6					0.01	0.03	1 PUNJAB
	14	BORDERZONE													
	TO 106042	MJTH26	1		61.1	32.7	69.3	69	1.0000	UN			0.00	7.64	1 PUNJAB
	14	BORDERZONE													
	BUS 102009	CIV2	220.00	CKT	MW	MVAR	MVA	%	0.9702	PU	-5.38	X	LOSSSES	X	AREA
	X	X	X	102009											

OUTPUT 1722 213.45KV

14 BORDERZONE	132.00	1	0.0	-55.0	55.0	0.00	MVAR	1	PUNJAB
TO SHUNT									
TO 101094 CIV1	132.00	1	58.0	24.6	63.0	0.00	5.28	1	PUNJAB
14 BORDERZONE									
TO 102006 FGCR2	220.00	1	-62.3	-8.1	62.8	0.15	0.81	1	PUNJAB
14 BORDERZONE									
TO 102008 MJTH2	220.00	1	-13.1	-4.6	13.9	0.01	0.03	1	PUNJAB
14 BORDERZONE									
TO 102010 KHS2	220.00	1	-88.9	-24.6	92.3	0.43	2.32	1	PUNJAB
14 BORDERZONE									
TO 102117 CHUGWAN2	220.00	1	-21.9	-2.0	22.0	0.02	0.11	1	PUNJAB
14 BORDERZONE									
TO 106044 CIV26	66.000	1	64.1	34.9	73.0	0.00	8.49	1	PUNJAB
14 BORDERZONE									
TO 106044 CIV26	66.000	2	64.1	34.9	73.0	0.00	8.49	1	PUNJAB
14 BORDERZONE									

BUS 102010 KHS2 220.00 CKT MW MVA % 0.9809PU -4.06 X--- LOSSES ---X X---- AREA
 -----X X---- ZONE -----X 102010 215.81KV

14 BORDERZONE	220.00	1	0.0	-47.0	47.0	0.43	MVAR	1	PUNJAB
TO SHUNT									
TO 102009 CIV2	220.00	1	89.4	22.7	92.2	0.07	2.32	1	PUNJAB
14 BORDERZONE									
TO 102101 ASR42	220.00	1	-130.3	-22.5	132.3	0.07	0.37	1	PUNJAB
14 BORDERZONE									
TO 102101 ASR42	220.00	3	-130.3	-22.5	132.3	0.07	0.37	1	PUNJAB
14 BORDERZONE									
TO 102117 CHUGWAN2	220.00	1	87.1	27.8	91.4	0.35	1.86	1	PUNJAB
14 BORDERZONE									
TO 106043 KHS26	66.000	1	42.1	20.8	47.0	0.00	3.44	1	PUNJAB
14 BORDERZONE									
TO 106043 KHS26	66.000	2	42.1	20.8	47.0	0.00	3.44	1	PUNJAB
14 BORDERZONE									

BUS 102011 VRP2 220.00 CKT MW MVA % 0.9810PU -4.06 X--- LOSSES ---X X---- AREA
 -----X X---- ZONE -----X 102011 215.82KV

14 BORDERZONE	132.00	1	0.0	-83.6	83.6	0.00	MVAR	1	PUNJAB
TO SHUNT									
TO 101095 VRP1	132.00	1	67.7	26.6	72.8	0.00	6.88	1	PUNJAB
14 BORDERZONE									
TO 101095 VRP1	132.00	2	67.7	26.6	72.8	0.00	6.88	1	PUNJAB
14 BORDERZONE									
TO 101095 VRP1	132.00	3	67.7	26.6	72.8	0.00	6.88	1	PUNJAB
14 BORDERZONE									

TO	14 BORDERZONE	220.00	1	-22.4	7.2	23.6	11	OUTPUT 1722	0.05	0.26	1	PUNJAB
TO 102004 WGT2	14 BORDERZONE	220.00	1	-22.4	7.2	23.6	11		0.05	0.26	1	PUNJAB
TO 102012 RASHIANA2	14 BORDERZONE	220.00	1	78.9	-8.4	79.4	38		0.24	1.28	1	PUNJAB
TO 102013 BUT2	14 BORDERZONE	220.00	1	107.9	32.9	112.8	53		0.63	3.35	1	PUNJAB
TO 102014 PTI2	14 BORDERZONE	220.00	1	70.1	-0.8	70.1	33		0.30	1.59	1	PUNJAB
TO 102101 ASR42	14 BORDERZONE	220.00	1	-133.0	-22.8	134.9	59		0.06	0.39	1	PUNJAB
TO 102101 ASR42	14 BORDERZONE	220.00	2	-133.0	-22.8	134.9	59		0.06	0.39	1	PUNJAB
TO 102101 ASR42	14 BORDERZONE	220.00	3	-133.0	-22.8	134.9	59		0.06	0.39	1	PUNJAB
TO 102101 ASR42	14 BORDERZONE	220.00	4	-133.0	-22.8	134.9	59		0.06	0.39	1	PUNJAB
TO 102121 UDOK2	14 BORDERZONE	220.00	1	5.2	21.4	22.0	10		0.02	0.12	1	PUNJAB
TO 106040 VRP26	14 BORDERZONE	66.000	1	34.3	16.3	38.0	38	1.0000UN	0.00	2.25	1	PUNJAB
TO 106040 VRP26	14 BORDERZONE	66.000	2	54.8	26.1	60.7	38	1.0000UN	0.00	3.59	1	PUNJAB

BUS 102012 RASHIANA2	220.00	CKT	MW	MVAR	MVA	% 0.9795PU	-5.00	X----	LOSSES	---	X----	AREA
TO SHUNT	220.00	1	0.0	-46.9	46.9	37			0.24	1.28	1	PUNJAB
TO 102011 VRP2	220.00	1	-78.7	6.4	79.0	37			0.04	0.23	1	PUNJAB
TO 102014 PTI2	220.00	1	32.0	7.4	32.8	16			0.03	0.16	1	PUNJAB
TO 102092 MKHU42	220.00	1	-24.5	-7.7	25.7	12			0.03	0.16	1	PUNJAB
TO 102092 MKHU42	220.00	2	-24.5	-7.7	25.7	12			0.03	0.16	1	PUNJAB
TO 106047 RSHN26	66.000	1	47.9	24.2	53.7	54	1.0000UN		0.00	4.50	1	PUNJAB
TO 106047 RSHN26	66.000	2	47.9	24.2	53.7	54	1.0000UN		0.00	4.50	1	PUNJAB

BUS 102013 BUT2	220.00	CKT	MW	MVAR	MVA	% 0.9672PU	-5.60	X----	LOSSES	---	X----	AREA
TO SHUNT	220.00	1	0.0	-28.0	28.0	50	1.0000UN		0.00	3.32	1	PUNJAB
TO 101111 DUMWY1	132.00	1	46.7	17.3	49.8	50	1.0000UN		0.00	3.32	1	PUNJAB

OUTPUT 1722

13 NORTH ZONE	220.00	1	-107.3	-33.7	112.4	54	0.63	3.35	1	PUNJAB	
TO 102011 VRP2	220.00	1	-36.1	-4.9	36.5	18	0.12	0.66	1	PUNJAB	
14 BORDERZONE	66.000	1	48.4	24.6	54.3	54	0.00	4.72	1	PUNJAB	
13 NORTH ZONE	66.000	2	48.4	24.6	54.3	54	0.00	4.72	1	PUNJAB	
TO 106046 BUT26	220.00	1	0.0	0.0	0.0	0.0	0.00	0.00	1	PUNJAB	
14 BORDERZONE	220.00	1	0.0	0.0	0.0	0.0	0.00	0.00	1	PUNJAB	
14 BORDERZONE	220.00	1	0.0	0.0	0.0	0.0	0.00	0.00	1	PUNJAB	
BUS 102014 PTI2	220.00	CKT	MVA	MVAR	MVA	% 0.9765PU	-5.36	X----	LOSSES	---X X----	AREA
-----X X----- ZONE	-----X	102014				214.84KV			MW	MVAR	1 PUNJAB
14 BORDERZONE	132.00	1	0.0	-44.0	44.0				0.00	6.64	1 PUNJAB
TO SHUNT	132.00	1	62.3	34.4	71.2	71	1.0000UN		0.30	1.59	1 PUNJAB
14 BORDERZONE	220.00	1	-69.8	-2.7	69.9	33			0.04	0.23	1 PUNJAB
TO 102011 VRP2	220.00	1	-31.9	-10.5	33.6	16			0.11	0.58	1 PUNJAB
14 BORDERZONE	220.00	1	-35.0	-24.6	42.8	20			0.00	0.01	1 PUNJAB
TO 102012 RASHIANA2	220.00	1	-5.2	5.4	7.5	4			0.00	0.01	1 PUNJAB
14 BORDERZONE	220.00	2	-5.2	5.4	7.5	4			0.09	0.48	1 PUNJAB
13 NORTH ZONE	220.00	1	-41.0	-31.1	51.4	24			0.00	0.01	1 PUNJAB
TO 102105 ALGON2	220.00	1	62.9	33.9	71.5	71	1.0000UN		0.00	8.03	1 PUNJAB
14 BORDERZONE	66.000	2	62.9	33.9	71.5	71	1.0000UN		0.00	8.03	1 PUNJAB
14 BORDERZONE	220.00	1	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	1 PUNJAB
BUS 102015 SLT2	220.00	CKT	MVA	MVAR	MVA	% 0.9860PU	-4.76	X----	LOSSES	---X X----	AREA
-----X X----- ZONE	-----X	102015				216.92KV			MW	MVAR	1 PUNJAB
13 NORTH ZONE	132.00	1	0.0	-68.8	68.8				0.00	5.71	1 PUNJAB
TO SHUNT	132.00	1	58.7	31.5	66.7	67	1.0000UN		0.11	0.58	1 PUNJAB
14 BORDERZONE	220.00	1	35.1	19.8	40.3	19			0.09	0.48	1 PUNJAB
TO 102014 PTI2	220.00	1	-13.2	32.0	34.6	16			0.54	2.90	1 PUNJAB
14 BORDERZONE	220.00	1	-115.5	-62.5	131.3	62					
TO 102018 JMSR2	220.00	1	-115.5	-62.5	131.3	62					
13 NORTH ZONE	220.00	1	-115.5	-62.5	131.3	62					
TO 102104 GOINDWL2	220.00	1	-115.5	-62.5	131.3	62					
14 BORDERZONE	220.00	1	-115.5	-62.5	131.3	62					

TO	102104	GOINDWL2	220.00	2	-115.5	-62.5	OUTPUT 1722	0.54	2.90	1	PUNJAB
14	BORDERZONE					131.3	62				
TO	102112	BADSHPUR2	220.00	1	23.5	44.9	50.6	0.10	0.52	1	PUNJAB
13	NORTH ZONE						24				
TO	102118	CHOLSHB2	220.00	1	22.6	9.1	24.4	0.02	0.11	1	PUNJAB
14	BORDERZONE						11				
TO	106050	SLT26	66.000	1	104.3	56.4	118.6	0.00	13.56	1	PUNJAB
13	NORTH ZONE						74				

BUS 102016 KANJLI2		220.00	CKT	MW	MVAR	MVA	% 0.9838PU	-2.50	X---	LOSSES	---	X---	AREA
-----X X----- ZONE -----X 102016							216.43KV						
13	NORTH ZONE												
TO	102098	JLNDRA42	220.00	1	-67.6	-25.8	72.4	0.15	0.79	1	PUNJAB		
13	NORTH ZONE												
TO	102098	JLNDRA42	220.00	2	-67.6	-25.8	72.4	0.15	0.79	1	PUNJAB		
13	NORTH ZONE												
TO	102107	SCTY2	220.00	1	35.9	11.3	37.7	0.02	0.13	1	PUNJAB		
13	NORTH ZONE												
TO	102107	SCTY2	220.00	2	35.9	11.3	37.7	0.02	0.13	1	PUNJAB		
13	NORTH ZONE												
TO	106059	KNJLI26	66.000	1	24.4	11.1	26.8	0.00	1.11	1	PUNJAB		
13	NORTH ZONE												
TO	106059	KNJLI26	66.000	2	39.0	17.8	42.9	0.00	1.78	1	PUNJAB		
13	NORTH ZONE												

BUS 102017 KRTP2		220.00	CKT	MW	MVAR	MVA	% 0.9826PU	-2.91	X---	LOSSES	---	X---	AREA
-----X X----- ZONE -----X 102017							216.18KV						
13	NORTH ZONE												
TO	SHUNT				0.0	-47.2	47.2	0.00	6.43	1	PUNJAB		
13	NORTH ZONE												
TO	101108	KRTL	132.00	1	66.7	22.7	70.5	0.00	6.43	1	PUNJAB		
13	NORTH ZONE												
TO	102054	NKD2	220.00	1	114.0	18.4	115.5	0.33	1.74	1	PUNJAB		
13	NORTH ZONE												
TO	102054	NKD2	220.00	2	114.0	18.4	115.5	0.33	1.74	1	PUNJAB		
13	NORTH ZONE												
TO	102093	NKDR42	220.00	1	-21.1	-7.0	22.3	0.02	0.13	1	PUNJAB		
13	NORTH ZONE												
TO	102093	NKDR42	220.00	2	-21.1	-7.0	22.3	0.02	0.13	1	PUNJAB		
13	NORTH ZONE												
TO	102098	JLNDRA42	220.00	1	-205.4	-41.2	209.5	0.70	3.74	1	PUNJAB		
13	NORTH ZONE												
TO	102098	JLNDRA42	220.00	2	-205.4	-41.2	209.5	0.70	3.74	1	PUNJAB		
13	NORTH ZONE												
TO	106004	KRT25	66.000	1	60.8	32.4	68.9	0.00	7.38	1	PUNJAB		
13	NORTH ZONE												

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TO	106004 KRT26	66.000	2	97.3	51.8	110.3	69	1.00000UN	0.00	11.81	1	PUNJAB		
13 NORTH ZONE														
BUS	102018 JMSR2	220.00	CKT	MW	MVAR	MVA	%	0.9750PU	-4.37	X----	LOSSES	---X	X----	AREA
-----X	X-----	ZONE	-----X	102018				214.51KV		MVAR	1	PUNJAB		
13 NORTH ZONE														
TO SHUNT		0.0		-36.1	36.1									
TO 102015 SLT2		13.3	1	-37.1	39.4	19			0.09	0.48	1	PUNJAB		
TO 102019 JLD1		31.7	1	25.3	40.6	19			0.04	0.21	1	PUNJAB		
TO 102019 JLD1		31.7	2	25.3	40.6	19			0.04	0.21	1	PUNJAB		
TO 102023 MHL P2		-83.2	1	-24.6	86.8	41			0.57	3.04	1	PUNJAB		
TO 102052 GRV2		58.1	1	8.0	58.6	28			0.07	0.36	1	PUNJAB		
TO 102054 NKD2		-84.4	1	-4.2	84.5	40			0.18	0.94	1	PUNJAB		
TO 102054 NKD2		-84.4	2	-4.2	84.5	40			0.18	0.94	1	PUNJAB		
TO 102111 RHJTT2		-34.2	1	-3.2	34.4	16			0.06	0.30	1	PUNJAB		
TO 102112 BADSHIPUR2		46.5	1	-16.6	49.4	24			0.09	0.47	1	PUNJAB		
TO 102170 BANGAZ		-42.4	1	-15.8	45.2	22			0.15	0.80	1	PUNJAB		
TO 106006 JMSR26		73.7	1	41.6	84.6	85	1.00000UN		0.00	11.30	1	PUNJAB		
TO 106006 JMSR26		73.7	2	41.6	84.6	85	1.00000UN		0.00	11.30	1	PUNJAB		
13 NORTH ZONE														
BUS	102019 JLD1	220.00	CKT	MW	MVAR	MVA <td>%</td> <td>0.9712PU</td> <td>-4.56</td> <td>X----</td> <td>LOSSES</td> <td>---X</td> <td>X----</td> <td>AREA</td>	%	0.9712PU	-4.56	X----	LOSSES	---X	X----	AREA
-----X	X-----	ZONE	-----X	102019				213.67KV		MVAR	1	PUNJAB		
13 NORTH ZONE														
TO 101043 JLD1		47.4	1	14.9	49.7	55	1.00000UN		0.00	3.27	1	PUNJAB		
TO 101043 JLD1		47.4	2	14.9	49.7	50	1.00000UN		0.00	3.27	1	PUNJAB		
TO 101043 JLD1		47.4	3	14.9	49.7	55	1.00000UN		0.00	3.27	1	PUNJAB		
TO 102013 BUT2		36.3	1	-2.1	36.3	17			0.12	0.66	1	PUNJAB		
TO 102018 JMSR2		-31.7	1	-27.0	41.6	20			0.04	0.21	1	PUNJAB		

TO	102018	JMSR2	220.00	2	-31.7	-27.0	OUTPUT	1722	0.04	0.21	1	PUNJAB
13	NORTH	ZONE					41.6	20				
TO	102020	DSU2	220.00	1	-90.3	-25.4	93.8	45	0.79	4.22	1	PUNJAB
14	BORDER	ZONE										
TO	102021	PONG2	220.00	1	-60.7	-16.5	62.9	34	0.88	3.53	1	PUNJAB
14	BORDER	ZONE										
TO	102021	PONG2	220.00	2	-60.7	-16.5	62.9	34	0.88	3.53	1	PUNJAB
14	BORDER	ZONE										
TO	102046	JMP2	220.00	1	-25.7	-7.0	26.6	13	0.07	0.37	1	PUNJAB
11	CENTRAL	ZONE										
TO	102046	JMP2	220.00	2	-25.7	-7.0	26.6	13	0.07	0.37	1	PUNJAB
11	CENTRAL	ZONE										
TO	106019	JLD26	66.000	1	74.0	41.9	85.0	85	0.00	11.49	1	PUNJAB
13	NORTH	ZONE										
TO	106019	JLD26	66.000	2	74.0	41.9	85.0	85	0.00	11.49	1	PUNJAB
13	NORTH	ZONE										

BUS 102020 DSU2 220.00 CKT MW MVAR MVA % 0.9904PU -2.18 X--- LOSSES ---X X----- AREA
 X X----- ZONE -----X 102020 217.89KV

14	BORDER	ZONE										
TO	102002	SRN2	220.00	1	0.0	-21.3	21.3	14	0.09	0.50	1	PUNJAB
14	BORDER	ZONE										
TO	102002	SRN2	220.00	2	-29.3	8.5	30.5	14	0.09	0.50	1	PUNJAB
14	BORDER	ZONE										
TO	102019	JL12	220.00	1	91.1	21.9	93.7	44	0.79	4.22	1	PUNJAB
13	NORTH	ZONE										
TO	102021	PONG2	220.00	1	-30.3	-18.6	35.5	17	0.08	0.41	1	PUNJAB
14	BORDER	ZONE										
TO	102021	PONG2	220.00	2	-30.3	-18.6	35.5	17	0.08	0.41	1	PUNJAB
14	BORDER	ZONE										
TO	102098	JLND42	220.00	1	-8.9	0.6	9.0	4	0.01	0.04	1	PUNJAB
13	NORTH	ZONE										
TO	102098	JLND42	220.00	2	-8.9	0.6	9.0	4	0.01	0.04	1	PUNJAB
13	NORTH	ZONE										
TO	102158	ALWLP2	220.00	1	-7.8	-9.5	12.3	6	0.01	0.03	1	PUNJAB
13	NORTH	ZONE										
TO	106073	DSU26	66.000	1	53.9	27.8	60.6	61	0.00	5.61	1	PUNJAB
14	BORDER	ZONE										

BUS 102021 PONG2 220.00 CKT MW MVAR MVA % 0.9979PU -1.63 X--- LOSSES ---X X----- AREA
 X X----- ZONE -----X 102021

FROM	GENERATION		60.0	30.0H	67.1	100	219.54KV					
14	BORDER	ZONE										
TO	102019	JL12	220.00	1	61.5	13.7	63.1	34	0.88	3.53	1	PUNJAB
13	NORTH	ZONE										

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TO 102019 JLI2	220.00	2	61.5	13.7	63.1	34	0.88	3.53	1	PUNJAB
13 NORTH ZONE										
TO 102020 DSU2	220.00	1	30.4	13.1	33.1	15	0.08	0.41	1	PUNJAB
14 BORDERZONE										
TO 102020 DSU2	220.00	2	30.4	13.1	33.1	15	0.08	0.41	1	PUNJAB
14 BORDERZONE										
TO 102158 ALWLP2	220.00	2	29.7	10.2	31.4	15	0.05	0.29	1	PUNJAB
13 NORTH ZONE										
TO 502002 JSSR2	220.00	1	-66.4	-5.9	66.6	31	0.31	1.65	5	HIMACHAL
51 HIMACHALSTU										
TO 502006 SIUL2	220.00	1	-87.1	-27.8	91.5	43	1.21	6.45	5	HIMACHAL
51 HIMACHALSTU										

BUS 102023 MHLP2 220.00 CKT MW MVAR MVA % 0.9904PU -2.53 X---- LOSSES ---X X---- AREA
 -----X X----- ZONE -----X 102023 217.88KV MW MVAR 1 PUNJAB

13 NORTH ZONE										
TO SHUNT	132.00	1	0.0	-42.6	42.6		0.00	4.51	1	PUNJAB
TO 101100 MHLPI			56.5	18.7	59.5	59	1.0000UN			
13 NORTH ZONE										
TO 101100 MHLPI	132.00	2	56.5	18.7	59.5	59	1.0000UN	4.51	1	PUNJAB
13 NORTH ZONE										
TO 102018 JMSR2	220.00	1	83.8	21.1	86.4	41	0.57	3.04	1	PUNJAB
13 NORTH ZONE										
TO 102024 BHKRR2	220.00	1	-191.7	-46.9	197.3	93	3.35	17.85	1	PUNJAB
13 NORTH ZONE										
TO 102024 BHKRR2	220.00	2	-191.7	-46.9	197.3	93	3.35	17.85	1	PUNJAB
13 NORTH ZONE										
TO 102111 RHNJT2	220.00	1	99.0	34.6	104.9	49	0.52	2.79	1	PUNJAB
13 NORTH ZONE										
TO 106147 MHLPR26	66.000	1	43.8	21.6	48.8	49	1.0000UN	3.65	1	PUNJAB
13 NORTH ZONE										
TO 106147 MHLPR26	66.000	2	43.8	21.6	48.8	49	1.0000UN	3.65	1	PUNJAB
13 NORTH ZONE										

BUS 102024 BHKRR2 220.00 CKT MW MVAR MVA % 1.0300PU 2.15 X---- LOSSES ---X X---- AREA
 -----X X----- ZONE -----X 102024 217.88KV MW MVAR 1 PUNJAB

FROM GENERATION										
13 NORTH ZONE										
TO 102023 MHLP2	220.00	1	195.0	56.7	203.1	92	3.35	17.85	1	PUNJAB
13 NORTH ZONE										
TO 102023 MHLP2	220.00	2	195.0	56.7	203.1	92	3.35	17.85	1	PUNJAB
13 NORTH ZONE										
TO 102026 GNG2	220.00	1	41.4	57.7	71.0	32	0.27	1.41	1	PUNJAB
13 NORTH ZONE										
TO 102026 GNG2	220.00	2	41.4	57.7	71.0	32	0.27	1.41	1	PUNJAB
13 NORTH ZONE										

TO 102046 JMP2	220.00	1	156.1	50.7	164.1	74	3.48	18.56	1	PUNJAB
11 CENTRAL ZONE										
TO 102046 JMP2	220.00	2	156.1	50.7	164.1	74	3.48	18.56	1	PUNJAB
11 CENTRAL ZONE										

BUS 102025 BHKRL2	220.00	CKT	MW	MVAR	MVA	% 1.0300PU	4.93	X---	LOSSES	---	X	---	AREA
FROM GENERATION			630.0	96.0R	637.3	91	226.60KV						
13 NORTH ZONE													
TO 102026 GNG2	220.00	1	209.9	29.7	212.0	96	2.30	12.28	1	PUNJAB			
13 NORTH ZONE													
TO 102026 GNG2	220.00	2	210.2	36.6	213.3	89	2.00	12.40	1	PUNJAB			
13 NORTH ZONE													
TO 102026 GNG2	220.00	3	209.9	29.7	212.0	96	2.30	12.28	1	PUNJAB			
13 NORTH ZONE													

BUS 102026 GNG2	220.00	CKT	MW	MVAR	MVA	% 1.0115PU	1.69	X---	LOSSES	---	X	---	AREA
-----X X----- ZONE													
-----X 102026													

13 NORTH ZONE													
TO 101001 GNG1	132.00	1	36.3	-11.6	38.1	38	1.0000UN	0.00	1.77	1	PUNJAB		
13 NORTH ZONE													
TO 101001 GNG1	132.00	2	10.9	-3.5	11.5	23	1.0000UN	0.00	0.53	1	PUNJAB		
13 NORTH ZONE													
TO 102024 BHKRR2	220.00	1	-41.1	-61.3	73.8	34	0.27	1.41	1	PUNJAB			
13 NORTH ZONE													
TO 102024 BHKRR2	220.00	2	-41.1	-61.3	73.8	34	0.27	1.41	1	PUNJAB			
13 NORTH ZONE													
TO 102025 BHKRL2	220.00	1	-207.6	-22.6	208.8	96	2.30	12.28	1	PUNJAB			
13 NORTH ZONE													
TO 102025 BHKRL2	220.00	2	-208.2	-26.7	209.9	89	2.00	12.40	1	PUNJAB			
13 NORTH ZONE													
TO 102025 BHKRL2	220.00	3	-207.6	-22.6	208.8	96	2.30	12.28	1	PUNJAB			
13 NORTH ZONE													
TO 102029 MOH2	220.00	1	74.7	18.4	76.9	35	0.67	3.58	1	PUNJAB			
12 SOUTH ZONE													
TO 102039 GB22	220.00	1	81.9	14.7	83.2	38	0.81	4.30	1	PUNJAB			
11 CENTRAL ZONE													
TO 102046 JMP2	220.00	1	142.6	21.5	144.2	76	3.51	14.04	1	PUNJAB			
11 CENTRAL ZONE													
TO 102046 JMP2	220.00	2	142.6	21.5	144.2	76	3.51	14.04	1	PUNJAB			
11 CENTRAL ZONE													
TO 102135 BHAR12	220.00	1	82.7	16.6	84.4	39	0.71	3.76	1	PUNJAB			
12 SOUTH ZONE													
TO 102140 MAJRA2	220.00	1	89.9	29.6	94.7	44	0.90	4.80	1	PUNJAB			
12 SOUTH ZONE													
TO 202001 DHULK12	220.00	1	82.0	0.2	82.0	39	1.15	6.13	2	HARYANA			

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12 SOUTH ZONE	66.000	2	38.4	10.1	39.7	40	1.00000UN	0.00	2.40	1	PUNJAB		
TO 106012 MOHL26													
12 SOUTH ZONE	220.00	1	-139.6	30.3	142.9	67		1.62	8.66	5	HIMACHAL		
TO 502003 NLGR42													
51 HIMACHALSTU	220.00	2	-139.6	30.3	142.9	67		1.62	8.66	5	HIMACHAL		
TO 502003 NLGR42													
51 HIMACHALSTU													
BUS 102031 DRB2	220.00	CKT	MW	MVAR	MVA	%	0.9857PU	-0.69	X----	LOSSES	---X X----	AREA	
-----X X----- ZONE -----X 102031							216.85KV			MW	MVAR	1	PUNJAB
12 SOUTH ZONE													
TO SHUNT													
TO 102032 LLR2	220.00	1	0.0	-51.5	51.5	2		0.00	0.01	1	PUNJAB		
12 SOUTH ZONE													
TO 102146 MOHALI42	220.00	1	-129.7	-14.9	130.5	62		0.57	3.03	1	PUNJAB		
12 SOUTH ZONE													
TO 106011 DRB26	66.000	1	44.7	22.2	50.0	50	1.00000UN	0.00	3.85	1	PUNJAB		
12 SOUTH ZONE													
TO 106011 DRB26	66.000	2	44.7	22.2	50.0	50	1.00000UN	0.00	3.85	1	PUNJAB		
12 SOUTH ZONE													
TO 106011 DRB26	66.000	3	44.7	22.2	50.0	50	1.00000UN	0.00	3.85	1	PUNJAB		
12 SOUTH ZONE													
BUS 102032 LLR2	220.00	CKT	MW	MVAR	MVA	%	0.9854PU	-0.61	X----	LOSSES	---X X----	AREA	
-----X X----- ZONE -----X 102032							216.79KV			MW	MVAR	1	PUNJAB
12 SOUTH ZONE													
TO SHUNT													
TO 102031 DRB2	220.00	1	0.0	-21.1	21.1	3		0.00	0.01	1	PUNJAB		
12 SOUTH ZONE													
TO 102146 MOHALI42	220.00	1	-98.6	-15.1	99.8	47		0.41	2.20	1	PUNJAB		
12 SOUTH ZONE													
TO 102159 ITMOHALI2	220.00	1	-10.7	-10.2	14.8	7		0.01	0.03	1	PUNJAB		
12 SOUTH ZONE													
TO 102159 ITMOHALI2	220.00	2	-10.7	-10.2	14.8	7		0.01	0.03	1	PUNJAB		
12 SOUTH ZONE													
TO 106010 LLR26	66.000	1	57.8	30.3	65.2	65	1.00000UN	0.00	6.57	1	PUNJAB		
12 SOUTH ZONE													
TO 106010 LLR26	66.000	2	57.8	30.3	65.2	65	1.00000UN	0.00	6.57	1	PUNJAB		
12 SOUTH ZONE													
BUS 102033 RJP2	220.00	CKT	MW	MVAR	MVA	%	0.9756PU	-1.82	X----	LOSSES	---X X----	AREA	
-----X X----- ZONE -----X 102033							214.63KV			MW	MVAR	1	PUNJAB
12 SOUTH ZONE													
TO 102029 MOH2	220.00	1	-71.1	-37.7	80.4	38		0.36	1.91	1	PUNJAB		

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TO	ZONE	BDG2	220.00	CKT	MW	MVAR	MVA	%	0.9758PU	-1.72	X	LOSSES	MVAR	AREA
TO 102034	12 SOUTH ZONE	BDG2	220.00	1	-33.7	-2.2	33.7	16				0.02	0.10	1 PUNJAB
TO 102096	12 SOUTH ZONE	PTA42	220.00	1	-64.7	-12.1	65.8	31				0.16	0.84	1 PUNJAB
TO 102115	12 SOUTH ZONE	BANUR2	220.00	1	-2.2	-5.0	5.5	3				0.00	0.00	1 PUNJAB
TO 106014	12 SOUTH ZONE	RJP26	66.000	1	57.2	19.0	60.3	60	1.00000UN			0.00	5.73	1 PUNJAB
TO 106014	12 SOUTH ZONE	RJP26	66.000	2	57.2	19.0	60.3	60	1.00000UN			0.00	5.73	1 PUNJAB
TO 106014	12 SOUTH ZONE	RJP26	66.000	3	57.2	19.0	60.3	60	1.00000UN			0.00	5.73	1 PUNJAB
BUS 102034	BDG2		220.00	CKT	MW	MVAR	MVA	%	0.9763PU	-1.64	X	LOSSES	MVAR	AREA
	X X	ZONE	X	102034					214.78KV					
TO 102033	12 SOUTH ZONE	RJP2	220.00	1	33.7	0.9	33.7	16				0.02	0.10	1 PUNJAB
TO 102036	12 SOUTH ZONE	DEVIGARH2	220.00	1	-56.2	-17.7	58.9	28				0.08	0.45	1 PUNJAB
TO 102036	12 SOUTH ZONE	DEVIGARH2	220.00	2	-56.2	-17.7	58.9	28				0.08	0.45	1 PUNJAB
TO 102096	12 SOUTH ZONE	PTA42	220.00	1	-89.5	-19.2	91.6	44				0.17	0.89	1 PUNJAB
TO 106013	12 SOUTH ZONE	BDG26	66.000	1	64.7	20.7	67.9	68	1.00000UN			0.00	7.26	1 PUNJAB
TO 106013	12 SOUTH ZONE	BDG26	66.000	2	103.5	33.1	108.7	68	1.00000UN			0.00	11.61	1 PUNJAB
BUS 102035	PTA2		220.00	CKT	MW	MVAR	MVA	%	0.9758PU	-1.72	X	LOSSES	MVAR	AREA
	X X	ZONE	X	102035					214.67KV					
TO 102086	12 SOUTH ZONE	RAJL2	220.00	1	139.2	39.7	144.7	69				1.03	5.49	1 PUNJAB
TO 102094	12 SOUTH ZONE	RAJPR42	220.00	1	-74.2	-27.1	79.0	38				0.41	2.20	1 PUNJAB
TO 102094	12 SOUTH ZONE	RAJPR42	220.00	2	-74.2	-27.1	79.0	38				0.41	2.20	1 PUNJAB
TO 102096	12 SOUTH ZONE	PTA42	220.00	1	-123.4	-25.2	126.0	60				0.26	1.41	1 PUNJAB
TO 102096	12 SOUTH ZONE	PTA42	220.00	2	-123.4	-25.2	126.0	60				0.26	1.41	1 PUNJAB
TO 102114	12 SOUTH ZONE	PASSN2	220.00	1	124.3	44.5	132.1	63				0.92	4.89	1 PUNJAB

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TO 106029 PTA26	66.000	1	43.9	6.8	44.5	44	1.00000UN	0.00	3.11	1	PUNJAB
12 SOUTH ZONE											
TO 106029 PTA26	66.000	2	43.9	6.8	44.5	44	1.00000UN	0.00	3.11	1	PUNJAB
12 SOUTH ZONE											
TO 106029 PTA26	66.000	3	43.9	6.8	44.5	44	1.00000UN	0.00	3.11	1	PUNJAB
12 SOUTH ZONE											

BUS 102036 DEVIGARH2	220.00	CKT	MVA	%	0.9798PU	-1.25	X----	LOSSES	---	X	----	AREA
-----X X-----												
12 SOUTH ZONE					215.55KV			MW	MVAR	1	PUNJAB	
TO 102034 BDG2	220.00	1	56.3	16.1	58.5	28		0.08	0.45	1	PUNJAB	
12 SOUTH ZONE												
TO 102034 BDG2	220.00	2	56.3	16.1	58.5	28		0.08	0.45	1	PUNJAB	
12 SOUTH ZONE												
TO 102094 RAJPR42	220.00	1	-103.9	-39.0	111.0	53		0.39	2.10	1	PUNJAB	
12 SOUTH ZONE												
TO 102094 RAJPR42	220.00	2	-103.9	-39.0	111.0	53		0.39	2.10	1	PUNJAB	
12 SOUTH ZONE												
TO 106083 DEVGR26	66.000	1	36.6	17.6	40.6	41	1.00000UN	0.00	2.58	1	PUNJAB	
12 SOUTH ZONE												
TO 106083 DEVGR26	66.000	2	58.6	28.2	65.0	41	1.00000UN	0.00	4.13	1	PUNJAB	
12 SOUTH ZONE												

BUS 102037 ALRD2	220.00	CKT	MVA	%	0.9910PU	-1.08	X----	LOSSES	---	X	----	AREA
-----X X-----												
11 CENTRAL ZONE					218.02KV			MW	MVAR	1	PUNJAB	
TO 102038 GB12	220.00	1	-73.4	-39.5	83.4	39		0.04	0.20	1	PUNJAB	
11 CENTRAL ZONE												
TO 102039 GB22	220.00	1	-4.2	2.5	4.9	2		0.00	0.00	1	PUNJAB	
11 CENTRAL ZONE												
TO 106003 ALRD26	66.000	1	38.8	18.5	43.0	43	1.00000UN	0.00	2.82	1	PUNJAB	
11 CENTRAL ZONE												
TO 106003 ALRD26	66.000	2	38.8	18.5	43.0	43	1.00000UN	0.00	2.82	1	PUNJAB	
11 CENTRAL ZONE												

BUS 102038 GB12	220.00	CKT	MVA	%	0.9925PU	-0.97	X----	LOSSES	---	X	----	AREA
-----X X-----												
11 CENTRAL ZONE					218.36KV			MW	MVAR	1	PUNJAB	
TO SHUNT			0.0	-49.5	49.5							
TO 102027 GST2	220.00	1	-83.8	-65.9	106.6	50		1.05	5.61	1	PUNJAB	
12 SOUTH ZONE												
TO 102027 GST2	220.00	2	-83.8	-65.9	106.6	50		1.05	5.61	1	PUNJAB	
12 SOUTH ZONE												
TO 102027 GST2	220.00	3	-83.8	-65.9	106.6	50		1.05	5.61	1	PUNJAB	
12 SOUTH ZONE												

OUTPUT 1722

12 SOUTH ZONE	TO 102037 ALRD2	220.00	1	73.5	39.2	83.3	39	0.04	0.20	1	PUNJAB
11 CENTRAL ZONE	TO 102039 GB22	220.00	1	34.6	20.6	40.3	19	0.02	0.10	1	PUNJAB
11 CENTRAL ZONE	TO 102087 AML2	220.00	1	136.9	28.1	139.8	66	0.49	2.63	1	PUNJAB
11 CENTRAL ZONE	TO 102088 IKL2	220.00	1	27.0	3.7	27.3	13	0.06	0.31	1	PUNJAB
11 CENTRAL ZONE	TO 102094 RAJPR42	220.00	1	-103.4	48.8	114.3	54	0.25	1.36	1	PUNJAB
12 SOUTH ZONE	TO 102094 RAJPR42	220.00	2	-103.4	48.8	114.3	54	0.25	1.36	1	PUNJAB
12 SOUTH ZONE	TO 102120 BSIPTHN2	220.00	1	-46.5	-46.3	65.6	31	0.18	0.93	1	PUNJAB
11 CENTRAL ZONE	TO 102122 GBG42	220.00	1	40.5	1.0	40.5	19	0.00	0.01	1	PUNJAB
11 CENTRAL ZONE	TO 106002 GB126	66.000	1	64.1	34.4	72.7	73	0.00	8.05	1	PUNJAB
11 CENTRAL ZONE	TO 106002 GB126	66.000	2	64.1	34.4	72.7	73	0.00	8.05	1	PUNJAB
11 CENTRAL ZONE	TO 106002 GB126	66.000	3	64.1	34.4	72.7	73	0.00	8.05	1	PUNJAB

BUS 102039 GB22 220.00 CKT MW MVAR MVA % 0.9909PU -1.08 X-----X----- AREA
 -----X X----- ZONE -----X 102039 218.01KV

11 CENTRAL ZONE	TO SHUNT	220.00	1	0.0	-26.8	26.8	39	0.81	4.30	1	PUNJAB
13 NORTH ZONE	TO 102026 GNG2	220.00	1	-81.1	-21.1	83.8	39	0.00	0.00	1	PUNJAB
11 CENTRAL ZONE	TO 102037 ALRD2	220.00	1	4.2	-3.0	5.2	2	0.00	0.00	1	PUNJAB
11 CENTRAL ZONE	TO 102038 GB12	220.00	1	-34.6	-21.5	40.7	19	0.02	0.10	1	PUNJAB
11 CENTRAL ZONE	TO 102135 BHAR12	220.00	1	-44.1	-7.1	44.7	21	0.06	0.32	1	PUNJAB
12 SOUTH ZONE	TO 106001 GB226	66.000	1	51.8	26.5	58.2	58	0.00	5.18	1	PUNJAB
11 CENTRAL ZONE	TO 106001 GB226	66.000	2	51.8	26.5	58.2	58	0.00	5.18	1	PUNJAB
11 CENTRAL ZONE	TO 106001 GB226	66.000	3	51.8	26.5	58.2	58	0.00	5.18	1	PUNJAB

BUS 102041 KOH2 220.00 CKT MW MVAR MVA % 0.9864PU -1.86 X-----X----- AREA
 -----X X----- ZONE -----X 102041 217.02KV

OUTPUT 1722

11 CENTRAL ZONE TO SHUNT	220.00	1	0.0	-20.2	20.2	0.19	1.16	1	PUNJAB
TO 102051 GUN52			84.7	0.3	84.7	0.15	0.80	1	PUNJAB
11 CENTRAL ZONE TO 102129 DORH42	220.00	1	-96.1	-15.7	97.4	0.15	0.80	1	PUNJAB
11 CENTRAL ZONE TO 102129 DORH42	220.00	2	-96.1	-15.7	97.4	0.00	0.03	1	PUNJAB
11 CENTRAL ZONE TO 102174 SNWL82	220.00	1	-7.4	-9.0	11.7	0.00	0.03	1	PUNJAB
11 CENTRAL ZONE TO 106021 KOH26	66.000	1	57.5	30.1	64.9	0.00	6.49	1	PUNJAB
11 CENTRAL ZONE TO 106021 KOH26	66.000	2	57.5	30.1	64.9	0.00	6.49	1	PUNJAB

BUS 102042 GHULAL2 -----X X----- ZONE -----X 102042	220.00	CKT	MW	MVAR	MVA	%	1.0002PU	-1.18	X----	LOSSES	---X	X----	AREA
12 SOUTH ZONE TO 102027 GST2	220.00	1	-117.3	-66.2	134.7	58	220.04KV			MW	MVAR	1	PUNJAB
12 SOUTH ZONE TO 102174 SNWL82	220.00	1	30.6	23.5	38.6	16			1.11	6.88	1	PUNJAB	
11 CENTRAL ZONE TO 106088 GLAL26	66.000	1	43.4	21.3	48.3	48	1.00000UN		0.10	0.60	1	PUNJAB	
12 SOUTH ZONE TO 106088 GLAL26	66.000	2	43.4	21.3	48.3	48	1.00000UN		0.00	3.50	1	PUNJAB	

BUS 102043 SNWL2 -----X X----- ZONE -----X 102043	220.00	CKT	MW	MVAR	MVA	%	0.9765PU	-3.72	X----	LOSSES	---X	X----	AREA
11 CENTRAL ZONE TO SHUNT	220.00	1	0.0	-68.4	68.4	35	214.84KV			MW	MVAR	1	PUNJAB
11 CENTRAL ZONE TO 102099 LDHN42	220.00	1	-81.8	-17.0	83.5	48			0.19	1.16	1	PUNJAB	
11 CENTRAL ZONE TO 106020 SNW26	66.000	1	64.7	35.1	73.6	74	1.00000UN		0.35	2.18	1	PUNJAB	
11 CENTRAL ZONE TO 106020 SNW26	66.000	2	64.7	35.1	73.6	74	1.00000UN		0.00	8.52	1	PUNJAB	
11 CENTRAL ZONE TO 106020 SNW26	66.000	3	64.7	35.1	73.6	74	1.00000UN		0.00	8.52	1	PUNJAB	

BUS 102044 DDK2 -----X X----- ZONE -----X 102044	220.00	CKT	MW	MVAR	MVA	%	0.9746PU	-3.83	X----	LOSSES	---X	X----	AREA
11 CENTRAL ZONE TO SHUNT	220.00	1	0.0	-68.4	68.4	35	214.42KV			MW	MVAR	1	PUNJAB
11 CENTRAL ZONE TO 102099 LDHN42	220.00	1	-81.8	-17.0	83.5	48			0.19	1.16	1	PUNJAB	
11 CENTRAL ZONE TO 106020 SNW26	66.000	1	64.7	35.1	73.6	74	1.00000UN		0.35	2.18	1	PUNJAB	
11 CENTRAL ZONE TO 106020 SNW26	66.000	2	64.7	35.1	73.6	74	1.00000UN		0.00	8.52	1	PUNJAB	
11 CENTRAL ZONE TO 106020 SNW26	66.000	3	64.7	35.1	73.6	74	1.00000UN		0.00	8.52	1	PUNJAB	

OUTPUT 1722

TO SHUNT	11 CENTRAL ZONE	220.00	CKT	MW	MVAR	MVA	% 0.9814PU	-2.97	X---	LOSSES	---	X X---	AREA
TO SHUNT	11 CENTRAL ZONE	220.00	1	0.0	-98.7	98.7	50.5			0.19	1.16		1 PUNJAB
TO 102045 LK2	11 CENTRAL ZONE	220.00	1	82.0	-23.4	93.5	83.7	35		0.19	1.16		1 PUNJAB
TO 102045 LK2	11 CENTRAL ZONE	220.00	2	-90.5	-23.4	93.5	45			0.29	1.52		1 PUNJAB
TO 102046 JMP2	11 CENTRAL ZONE	220.00	1	-42.0	-16.9	45.3	22			0.01	0.06		1 PUNJAB
TO 102046 JMP2	11 CENTRAL ZONE	220.00	2	-42.0	-16.9	45.3	22			0.01	0.06		1 PUNJAB
TO 102099 LDHN42	11 CENTRAL ZONE	220.00	1	-108.6	-23.4	111.1	53			0.45	2.38		1 PUNJAB
TO 102172 SHERPUR2	11 CENTRAL ZONE	220.00	1	21.7	4.6	22.2	11			0.01	0.06		1 PUNJAB
TO 102172 SHERPUR2	11 CENTRAL ZONE	220.00	2	21.7	4.6	22.2	11			0.01	0.06		1 PUNJAB
TO 106016 DDK26	11 CENTRAL ZONE	66.000	1	82.6	48.4	95.7	96	1.0000UN		0.00	14.46		1 PUNJAB
TO 106016 DDK26	11 CENTRAL ZONE	66.000	2	82.6	48.4	95.7	96	1.0000UN		0.00	14.46		1 PUNJAB
TO 106016 DDK26	11 CENTRAL ZONE	66.000	3	82.6	48.4	95.7	96	1.0000UN		0.00	14.46		1 PUNJAB
TO 106016 DDK26	11 CENTRAL ZONE	66.000	4	82.6	48.4	95.7	96	1.0000UN		0.00	14.46		1 PUNJAB
BUS 102045 LK2	220.00	CKT	MW	MVAR	MVA	% 0.9814PU	-2.97	X---	LOSSES	---	X X---	AREA	
TO SHUNT	11 CENTRAL ZONE	220.00	1	0.0	-50.5	50.5	215.92KV			0.19	1.16		1 PUNJAB
TO 102043 SNWL2	11 CENTRAL ZONE	220.00	1	82.0	16.8	83.7	35			0.19	1.16		1 PUNJAB
TO 102044 DDK2	11 CENTRAL ZONE	220.00	1	90.8	22.2	93.5	44			0.29	1.52		1 PUNJAB
TO 102044 DDK2	11 CENTRAL ZONE	220.00	2	90.8	22.2	93.5	44			0.29	1.52		1 PUNJAB
TO 102047 JGR2	11 CENTRAL ZONE	220.00	1	47.8	-17.8	51.0	24			0.13	0.71		1 PUNJAB
TO 102048 HUM2	11 CENTRAL ZONE	220.00	1	86.7	17.1	88.4	42			0.20	1.08		1 PUNJAB
TO 102099 LDHN42	11 CENTRAL ZONE	220.00	2	-281.5	-24.5	282.6	63			0.27	1.46		1 PUNJAB
TO 102099 LDHN42	11 CENTRAL ZONE	220.00	3	-216.6	-24.4	217.9	49			0.18	1.13		1 PUNJAB
TO 106015 LK26	11 CENTRAL ZONE	66.000	1	50.0	19.5	53.7	54	1.0000UN		0.00	4.48		1 PUNJAB
TO 106015 LK26	11 CENTRAL ZONE	66.000	2	50.0	19.5	53.7	54	1.0000UN		0.00	4.48		1 PUNJAB

OUTPUT 1722

11 CENTRAL ZONE	220.00 CKT	MW	MVAR	MVA	% 0.9754PU	-3.77	X----	LOSSES	---X	X----	AREA
BUS 102046 JMP2	220.00 CKT	MW	MVAR	MVA	% 0.9754PU	-3.77	X----	LOSSES	---X	X----	AREA
-----X X----- ZONE -----X 102046	-----X X----- ZONE -----X 102046				214.58KV			MW	MVAR		1 PUNJAB
11 CENTRAL ZONE											
TO SHUNT		0.0	-72.3	72.3				0.00	4.53		1 PUNJAB
TO 101034 JMP1	132.00 1	55.7	18.5	58.7	59 1.00000UN			0.00	4.53		1 PUNJAB
11 CENTRAL ZONE											
TO 101034 JMP1	132.00 2	55.7	18.5	58.7	59 1.00000UN			0.00	4.53		1 PUNJAB
11 CENTRAL ZONE											
TO 102019 J1L12	220.00 1	25.7	-1.1	25.8	12			0.07	0.37		1 PUNJAB
13 NORTH ZONE											
TO 102019 J1L12	220.00 2	25.7	-1.1	25.8	12			0.07	0.37		1 PUNJAB
13 NORTH ZONE											
TO 102024 BHKRR2	220.00 1	-152.6	-44.4	158.9	76			3.48	18.56		1 PUNJAB
13 NORTH ZONE											
TO 102024 BHKRR2	220.00 2	-152.6	-44.4	158.9	76			3.48	18.56		1 PUNJAB
13 NORTH ZONE											
TO 102026 GNG2	220.00 1	-139.1	-12.5	139.7	76			3.51	14.04		1 PUNJAB
13 NORTH ZONE											
TO 102026 GNG2	220.00 2	-139.1	-12.5	139.7	76			3.51	14.04		1 PUNJAB
13 NORTH ZONE											
TO 102044 DDK2	220.00 1	42.0	16.5	45.2	22			0.01	0.06		1 PUNJAB
11 CENTRAL ZONE											
TO 102044 DDK2	220.00 2	42.0	16.5	45.2	22			0.01	0.06		1 PUNJAB
11 CENTRAL ZONE											
TO 102080 SNG2	220.00 1	21.5	-15.0	26.3	13			0.09	0.45		1 PUNJAB
12 SOUTH ZONE											
TO 102080 SNG2	220.00 2	21.5	-15.0	26.3	13			0.09	0.45		1 PUNJAB
12 SOUTH ZONE											
TO 102172 SHERPUR2	220.00 1	31.7	8.6	32.8	16			0.03	0.14		1 PUNJAB
11 CENTRAL ZONE											
TO 102172 SHERPUR2	220.00 2	31.7	8.6	32.8	16			0.03	0.14		1 PUNJAB
11 CENTRAL ZONE											
TO 106017 JMP26	66.000 1	76.7	43.8	88.3	88 1.00000UN			0.00	12.29		1 PUNJAB
11 CENTRAL ZONE											
TO 106017 JMP26	66.000 2	76.7	43.8	88.3	88 1.00000UN			0.00	12.29		1 PUNJAB
11 CENTRAL ZONE											
TO 106017 JMP26	66.000 3	76.7	43.8	88.3	88 1.00000UN			0.00	12.29		1 PUNJAB
11 CENTRAL ZONE											
BUS 102047 JGR2	220.00 CKT	MW	MVAR	MVA	% 0.9834PU	-3.79	X----	LOSSES	---X	X----	AREA
-----X X----- ZONE -----X 102047	-----X X----- ZONE -----X 102047				216.34KV			MW	MVAR		1 PUNJAB
11 CENTRAL ZONE											
TO SHUNT		0.0	-49.9	49.9							

TO 102045 LLK2	220.00	1	-47.7	14.0	49.7	24	OUTPUT 1722	0.13	0.71	1	PUNJAB
11 CENTRAL ZONE											
TO 102077 AJTW2	220.00	1	17.3	-28.6	33.4	16		0.03	0.16	1	PUNJAB
11 CENTRAL ZONE											
TO 102099 LDHM42	220.00	1	-72.6	14.4	74.0	35		0.27	1.42	1	PUNJAB
11 CENTRAL ZONE											
TO 106052 JGR26	66.000	1	39.6	19.3	44.0	44	1.0000UN	0.00	3.01	1	PUNJAB
11 CENTRAL ZONE											
TO 106052 JGR26	66.000	3	63.3	30.8	70.4	44	1.0000UN	0.00	4.81	1	PUNJAB
11 CENTRAL ZONE											

BUS 102048 HUM2	220.00	CKT	MW	MVAR	MVA	% 0.9769PU	-3.63	X----	LOSSES	---X	AREA
11 CENTRAL ZONE											
TO SHUNT											
TO 102045 LLK2	220.00	1	0.0	-45.6	45.6	42		0.20	1.08	1	PUNJAB
11 CENTRAL ZONE											
TO 102050 LADUWAL2	220.00	1	-86.5	-18.2	88.4	24		0.06	0.34	1	PUNJAB
11 CENTRAL ZONE											
TO 106053 HUM26	66.000	1	-48.7	-10.5	49.8	77	1.0000UN	0.00	9.35	1	PUNJAB
11 CENTRAL ZONE											
TO 106053 HUM26	66.000	2	67.6	37.1	77.1	77	1.0000UN	0.00	9.35	1	PUNJAB
11 CENTRAL ZONE											

BUS 102049 FZRL2	220.00	CKT	MW	MVAR	MVA	% 0.9761PU	-3.76	X----	LOSSES	---X	AREA
11 CENTRAL ZONE											
TO SHUNT											
TO 102050 LADUWAL2	220.00	1	0.0	-51.7	51.7	42		0.15	0.81	1	PUNJAB
11 CENTRAL ZONE											
TO 102173 LLTKLB2	220.00	1	-87.0	-16.6	88.6	28		0.13	0.69	1	PUNJAB
11 CENTRAL ZONE											
TO 106054 FZRL26	66.000	1	-58.2	-7.6	58.7	63	1.0000UN	0.00	6.25	1	PUNJAB
11 CENTRAL ZONE											
TO 106054 FZRL26	66.000	2	55.8	29.2	63.0	63	1.0000UN	0.00	10.01	1	PUNJAB
11 CENTRAL ZONE											

BUS 102050 LADUWAL2	220.00	CKT	MW	MVAR	MVA	% 0.9794PU	-3.26	X----	LOSSES	---X	AREA
11 CENTRAL ZONE											
TO 102048 HUM2	220.00	1	0.0	8.6	49.5	24		0.06	0.34	1	PUNJAB
11 CENTRAL ZONE											
TO 102049 FZRL2	220.00	1	48.7	15.8	88.6	42		0.15	0.81	1	PUNJAB
11 CENTRAL ZONE											

OUTPUT 1722

TO 102051 GUN52	220.00	1	-73.4	-18.8	75.8	36	0.17	0.88	1	PUNJAB
11 CENTRAL ZONE										
TO 102051 GUN52	220.00	2	-73.4	-18.8	75.8	36	0.17	0.88	1	PUNJAB
11 CENTRAL ZONE										
TO 102093 NKDR42	220.00	1	-28.4	-10.1	30.1	13	0.06	0.38	1	PUNJAB
13 NORTH ZONE										
TO 102093 NKDR42	220.00	2	-28.4	-10.1	30.1	13	0.06	0.38	1	PUNJAB
13 NORTH ZONE										
TO 106144 LDWL26	66.000	1	67.6	33.3	75.4	47	0.00	5.55	1	PUNJAB
11 CENTRAL ZONE										

BUS 102051 GUN52	220.00	CKT	MW	MVAR	MVA	%	0.9842PU	-2.64	X	---	LOSSES	---	X	---	AREA
-----X X----- ZONE															
							216.52KV								

11 CENTRAL ZONE															
TO 102027 GST2	220.00	1	-117.6	-58.8	131.5	57	1.73	10.70	1	PUNJAB					
12 SOUTH ZONE															
TO 102041 KOH2	220.00	1	-84.5	-0.4	84.5	37	0.19	1.16	1	PUNJAB					
11 CENTRAL ZONE															
TO 102050 LADUWAL2	220.00	1	73.6	17.2	75.5	36	0.17	0.88	1	PUNJAB					
11 CENTRAL ZONE															
TO 102050 LADUWAL2	220.00	2	73.6	17.2	75.5	36	0.17	0.88	1	PUNJAB					
11 CENTRAL ZONE															
TO 106064 GUN526	66.000	1	21.2	9.5	23.2	23	1.0000UN	0.00	0.83	1	PUNJAB				
11 CENTRAL ZONE															
TO 106064 GUN526	66.000	2	33.9	15.3	37.1	23	1.0000UN	0.00	1.34	1	PUNJAB				
11 CENTRAL ZONE															

BUS 102052 GRY2	220.00	CKT	MW	MVAR	MVA	%	0.9731PU	-4.71	X	---	LOSSES	---	X	---	AREA
-----X X----- ZONE															
							214.07KV								

11 CENTRAL ZONE															
TO SHUNT															
TO 101042 GRY1	132.00	1	0.0	-36.6	36.6		0.00	3.80	1	PUNJAB					
11 CENTRAL ZONE															
TO 101042 GRY1	132.00	2	49.2	21.5	53.6	54	1.0000UN	0.00	3.80	1	PUNJAB				
11 CENTRAL ZONE															
TO 102018 JMSR2	220.00	1	-58.0	-9.2	58.7	28	0.07	0.36	1	PUNJAB					
13 NORTH ZONE															
TO 102142 JADLA2	220.00	1	-117.6	-41.5	124.7	60	1.65	8.80	1	PUNJAB					
12 SOUTH ZONE															
TO 106007 GRY26	66.000	1	77.3	44.4	89.2	89	1.0000UN	0.00	12.60	1	PUNJAB				
11 CENTRAL ZONE															

BUS 102054 NKD2	220.00	CKT	MW	MVAR	MVA	%	0.9775PU	-3.74	X	---	LOSSES	---	X	---	AREA
-----X X----- ZONE															
							215.06KV								

OUTPUT 1722

13 NORTH ZONE																				
TO SHUNT																				
TO 101116 NKDR21	132.00	1	0.0	-41.5	41.5															
13 NORTH ZONE			62.0	22.9	66.1	66	1.0000UN													
TO 102017 KRTP2	220.00	1	-113.7	-18.7	115.2	55														
13 NORTH ZONE																				
TO 102017 KRTP2	220.00	2	-113.7	-18.7	115.2	55														
13 NORTH ZONE																				
TO 102018 JMSR2	220.00	1	84.6	3.1	84.7	40														
13 NORTH ZONE																				
TO 102018 JMSR2	220.00	2	84.6	3.1	84.7	40														
13 NORTH ZONE																				
TO 102098 JINDR42	220.00	1	-151.1	-27.4	153.6	73														
13 NORTH ZONE																				
TO 106005 NKD26	66.000	1	56.7	29.7	64.0	64	1.0000UN													
13 NORTH ZONE																				
TO 106005 NKD26	66.000	2	90.7	47.6	102.4	64	1.0000UN													
13 NORTH ZONE																				

BUS 102055 M0G2 220.00 CKT MW MVAR MVA % 0.9888PU -3.53 X---- LOSSES ---X X----- AREA
 X X----- ZONE -----X 102055 217.53KV

15 WEST ZONE																				
TO SHUNT																				
TO 101079 M0G21	132.00	1	0.0	-71.7	71.7															
15 WEST ZONE			86.2	36.2	93.5	94	1.0000UN													
TO 101079 M0G21	132.00	2	86.2	36.2	93.5	94	1.0000UN													
15 WEST ZONE																				
TO 101079 M0G21	132.00	3	86.2	36.2	93.5	94	1.0000UN													
15 WEST ZONE																				
TO 102058 TDBH2	220.00	1	95.5	14.3	96.5	45														
15 WEST ZONE																				
TO 102058 TDBH2	220.00	2	95.5	14.3	96.5	45														
15 WEST ZONE																				
TO 102060 SADO2	220.00	1	81.1	3.4	81.2	38														
15 WEST ZONE																				
TO 102063 BGPRN2	220.00	1	25.2	-12.0	27.9	13														
15 WEST ZONE																				
TO 102063 BGPRN2	220.00	2	25.2	-12.0	27.9	13														
15 WEST ZONE																				
TO 102066 BZKH2	220.00	1	0.4	-13.4	13.4	6														
15 WEST ZONE																				
TO 102100 M0G42	220.00	1	-145.4	-7.9	145.6	63														
15 WEST ZONE																				
TO 102100 M0G42	220.00	2	-145.4	-7.9	145.6	63														
15 WEST ZONE																				
TO 102100 M0G42	220.00	3	-145.4	-7.9	145.6	63														
15 WEST ZONE																				

OUTPUT 1722

15 WEST ZONE	220.00	4	-145.4	-7.9	145.6	63	0.00	0.04	1	PUNJAB
TO 102100 M0G42										
15 WEST ZONE										
BUS 102056 BTW2	220.00	CTK	MW	MVAR	MVA	% 0.9838PU	X----	LOSSES	X	AREA
-----X X----- ZONE	-----X	102056				216.43KV			MVAR	1 PUNJAB
15 WEST ZONE										
TO SHUNT			0.0	-45.8	46.8					
TO 102057 MASTWL2	220.00	1	-37.0	26.6	45.6	22	0.03	0.18	1	PUNJAB
15 WEST ZONE										
TO 102057 MASTWL2	220.00	2	-37.0	26.6	45.6	22	0.03	0.18	1	PUNJAB
15 WEST ZONE										
TO 102058 TDBH2	220.00	1	1.1	9.0	9.1	4	0.01	0.04	1	PUNJAB
15 WEST ZONE										
TO 102059 FZR2	220.00	1	67.6	-14.0	69.0	33	0.48	2.58	1	PUNJAB
15 WEST ZONE										
TO 102104 GOINDWL2	220.00	1	-65.7	-38.2	76.1	36	0.36	1.90	1	PUNJAB
14 BORDERZONE										
TO 102104 GOINDWL2	220.00	2	-65.7	-38.2	76.1	36	0.36	1.90	1	PUNJAB
14 BORDERZONE										
TO 106036 BTW26	66.000	1	68.4	37.6	78.0	78	0.00	9.44	1	PUNJAB
15 WEST ZONE										
TO 106036 BTW26	66.000	2	68.4	37.6	78.0	78	0.00	9.44	1	PUNJAB
15 WEST ZONE										
BUS 102057 MASTWL2	220.00	CTK	MW	MVAR	MVA	% 0.9821PU	X----	LOSSES	X	AREA
-----X X----- ZONE	-----X	102057				216.05KV			MVAR	1 PUNJAB
15 WEST ZONE										
TO 102056 BTW2	220.00	1	37.0	-27.8	46.3	22	0.03	0.18	1	PUNJAB
15 WEST ZONE										
TO 102056 BTW2	220.00	2	37.0	-27.8	46.3	22	0.03	0.18	1	PUNJAB
15 WEST ZONE										
TO 102058 TDBH2	220.00	1	13.5	1.8	13.6	6	0.01	0.05	1	PUNJAB
15 WEST ZONE										
TO 102092 MKHU42	220.00	1	-83.7	7.4	84.0	40	0.01	0.06	1	PUNJAB
14 BORDERZONE										
TO 102092 MKHU42	220.00	2	-83.7	7.4	84.0	40	0.01	0.06	1	PUNJAB
14 BORDERZONE										
TO 106074 MSTWL26	66.000	1	39.9	19.5	44.4	44	0.00	3.06	1	PUNJAB
15 WEST ZONE										
TO 106074 MSTWL26	66.000	2	39.9	19.5	44.4	44	0.00	3.06	1	PUNJAB
15 WEST ZONE										
BUS 102058 TDBH2	220.00	CTK	MW	MVAR	MVA	% 0.9805PU	X----	LOSSES	X	AREA
-----X X----- ZONE	-----X	102058							MVAR	1 PUNJAB
15 WEST ZONE										
TO SHUNT										
TO 102057 MASTWL2	220.00	1	-37.0	26.6	45.6	22	0.03	0.18	1	PUNJAB
15 WEST ZONE										
TO 102057 MASTWL2	220.00	2	-37.0	26.6	45.6	22	0.03	0.18	1	PUNJAB
15 WEST ZONE										
TO 102058 TDBH2	220.00	1	1.1	9.0	9.1	4	0.01	0.04	1	PUNJAB
15 WEST ZONE										
TO 102059 FZR2	220.00	1	67.6	-14.0	69.0	33	0.48	2.58	1	PUNJAB
15 WEST ZONE										
TO 102104 GOINDWL2	220.00	1	-65.7	-38.2	76.1	36	0.36	1.90	1	PUNJAB
14 BORDERZONE										
TO 102104 GOINDWL2	220.00	2	-65.7	-38.2	76.1	36	0.36	1.90	1	PUNJAB
14 BORDERZONE										
TO 106036 BTW26	66.000	1	68.4	37.6	78.0	78	0.00	9.44	1	PUNJAB
15 WEST ZONE										
TO 106036 BTW26	66.000	2	68.4	37.6	78.0	78	0.00	9.44	1	PUNJAB
15 WEST ZONE										

OUTPUT 1722

215.70KV

TO	ZONE	15 WEST ZONE	132.00	1	79.2	23.6	82.6	83	1.0000UN	MW	MVAR	1	PUNJAB
TO 101005	TDBH1	15 WEST ZONE	132.00	1	79.2	23.6	82.6	83	1.0000UN	0.00	8.87	1	PUNJAB
TO 102055	M0G2	15 WEST ZONE	220.00	1	-95.0	-16.0	96.4	46		0.45	2.38	1	PUNJAB
TO 102055	M0G2	15 WEST ZONE	220.00	2	-95.0	-16.0	96.4	46		0.45	2.38	1	PUNJAB
TO 102056	BTW2	15 WEST ZONE	220.00	1	-1.1	-13.6	13.7	6		0.01	0.04	1	PUNJAB
TO 102057	MASTWL2	15 WEST ZONE	220.00	1	-13.5	-5.8	14.7	7		0.01	0.05	1	PUNJAB
TO 102060	SADQ2	15 WEST ZONE	220.00	1	49.7	-4.5	49.9	24		0.17	0.89	1	PUNJAB
TO 102141	DHRMKOT2	15 WEST ZONE	220.00	1	4.4	0.8	4.5	2		0.00	0.01	1	PUNJAB
TO 102141	DHRMKOT2	15 WEST ZONE	220.00	2	4.4	0.8	4.5	2		0.00	0.01	1	PUNJAB
TO 106069	TDB26	15 WEST ZONE	66.000	1	25.7	11.8	28.3	28	1.0000UN	0.00	1.25	1	PUNJAB
TO 106069	TDB26	15 WEST ZONE	66.000	2	41.1	18.9	45.3	28	1.0000UN	0.00	2.00	1	PUNJAB

BUS 102059 FZR2 220.00 CKT MW MVAR MVA % 0.9828PU -7.11 X----- LOSSES ---X X----- AREA
 X X----- ZONE -----X 102059 216.21KV

TO	ZONE	15 WEST ZONE	132.00	1	59.9	18.7	62.8	63	1.0000UN	MW	MVAR	1	PUNJAB
TO SHUNT	FZR1	15 WEST ZONE	132.00	1	0.0	-66.5	66.5	63	1.0000UN	0.00	5.10	1	PUNJAB
TO 101075	FZR1	15 WEST ZONE	132.00	2	59.9	18.7	62.8	63	1.0000UN	0.00	5.10	1	PUNJAB
TO 102056	BTW2	15 WEST ZONE	220.00	1	-67.1	7.7	67.5	32		0.48	2.58	1	PUNJAB
TO 102060	SADQ2	15 WEST ZONE	220.00	1	-52.8	21.5	57.0	27		0.23	1.21	1	PUNJAB

BUS 102060 SADQ2 220.00 CKT MW MVAR MVA % 0.9779PU -5.92 X----- LOSSES ---X X----- AREA
 X X----- ZONE -----X 102060 215.14KV

TO	ZONE	15 WEST ZONE	220.00	1	0.0	-28.6	28.6	38		MW	MVAR	1	PUNJAB
TO SHUNT	M0G2	15 WEST ZONE	220.00	1	-80.5	-8.4	80.9	38		0.64	3.43	1	PUNJAB
TO 102058	TDBH2	15 WEST ZONE	220.00	1	-49.6	-0.3	49.6	24		0.17	0.89	1	PUNJAB
TO 102059	FZR2	15 WEST ZONE	220.00	1	53.0	-26.0	59.1	28		0.23	1.21	1	PUNJAB

OUTPUT 1722

15 WEST ZONE	220.00	1	-41.3	0.6	41.3	20	0.17	0.92	1	PUNJAB
TO 102061 MKSR2										
15 WEST ZONE	66.000	1	59.2	31.4	67.0	67	0.00	7.04	1	PUNJAB
TO 106033 SDQ26										
15 WEST ZONE	66.000	2	59.2	31.4	67.0	67	0.00	7.04	1	PUNJAB
TO 106033 SDQ26										

BUS 102061 MKSR2 220.00 CKT MVA % 0.9797PU -4.64 X--- LOSSES ---X X---- AREA
 -----X X-----X 102061 MW MVAR 215.54KV MVAR 1 PUNJAB

15 WEST ZONE	132.00	1	0.0	-22.2	22.2		0.00	9.70	1	PUNJAB
TO SHUNT										
TO 101008 MK21										
15 WEST ZONE	132.00	2	80.4	31.2	86.3	86	0.00	9.70	1	PUNJAB
TO 101008 MK21										
15 WEST ZONE	132.00	3	80.4	31.2	86.3	86	0.00	9.70	1	PUNJAB
TO 101008 MK21										
15 WEST ZONE	220.00	1	41.5	-8.0	42.3	20	0.17	0.92	1	PUNJAB
TO 102060 SADQ2										
15 WEST ZONE	220.00	1	11.9	21.5	24.6	12	0.05	0.25	1	PUNJAB
TO 102062 GBY2										
15 WEST ZONE	220.00	1	-83.2	-13.9	84.4	40	0.43	2.30	1	PUNJAB
TO 102064 KOTKPR2										
15 WEST ZONE	220.00	1	-81.9	-34.7	89.0	42	0.62	3.33	1	PUNJAB
TO 102067 GNDTP2										
15 WEST ZONE	220.00	2	-81.9	-34.7	89.0	42	0.62	3.33	1	PUNJAB
TO 102067 GNDTP2										
15 WEST ZONE	220.00	1	-47.6	-1.7	47.7	23	0.19	1.02	1	PUNJAB
TO 102103 MLOT2										

BUS 102062 GBY2 220.00 CKT MVA % 0.9707PU -4.79 X--- LOSSES ---X X---- AREA
 -----X X-----X 102062 MW MVAR 213.56KV MVAR 1 PUNJAB

15 WEST ZONE	220.00	1	0.0	-24.3	24.3		0.05	0.25	1	PUNJAB
TO SHUNT										
TO 102061 MKSR2										
15 WEST ZONE	220.00	1	-11.9	-26.7	29.2	14	1.39	7.41	1	PUNJAB
TO 102091 MUKSR42										
15 WEST ZONE	66.000	1	-142.6	-28.6	145.5	70	0.00	5.34	1	PUNJAB
TO 106037 GBY26										
15 WEST ZONE	66.000	2	51.5	26.5	57.9	58	0.00	5.34	1	PUNJAB
TO 106037 GBY26										
15 WEST ZONE	66.000	3	51.5	26.5	57.9	58	0.00	5.34	1	PUNJAB
TO 106037 GBY26										

OUTPUT 1722

BUS 102063 BGPRN2 220.00 CKT MW MVAR MVA % 0.9897PU -3.77 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 102063

15 WEST ZONE																				
TO SHUNT																				
TO 102055 MOG2	220.00	1	0.0	-29.3	29.3															
15 WEST ZONE			-25.1	9.6	26.9	13														
TO 102055 MOG2	220.00	2	-25.1	9.6	26.9	13														
15 WEST ZONE																				
TO 102066 BZKH2	220.00	1	-13.5	-13.6	19.2	9														
15 WEST ZONE																				
TO 102066 BZKH2	220.00	2	-13.5	-13.6	19.2	9														
15 WEST ZONE																				
TO 106055 BGNP26	66.000	1	38.6	18.7	42.9	43	1.0000UN													
15 WEST ZONE																				
TO 106055 BGNP26	66.000	2	38.6	18.7	42.9	43	1.0000UN													
15 WEST ZONE																				

BUS 102064 KOTKPR2 220.00 CKT MW MVAR MVA % 0.9887PU -3.14 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 102064

15 WEST ZONE																				
TO 102061 MKSR2	220.00	1	83.7	10.9	84.4	40														
15 WEST ZONE																				
TO 102066 BZKH2	220.00	1	29.0	-27.5	40.0	19														
15 WEST ZONE																				
TO 102091 MUKSR42	220.00	1	-62.4	5.7	62.6	29														
15 WEST ZONE																				
TO 102091 MUKSR42	220.00	2	-62.4	5.7	62.6	29														
15 WEST ZONE																				
TO 106078 KTKPR26	66.000	1	12.1	5.2	13.2	13	1.0000UN													
15 WEST ZONE																				
TO 106078 KTKPR26	66.000	1	12.1	5.2	13.2	13	1.0000UN													
15 WEST ZONE																				

BUS 102066 BZKH2 220.00 CKT MW MVAR MVA % 0.9934PU -3.59 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 102066

15 WEST ZONE																				
TO SHUNT																				
TO 102055 MOG2	220.00	1	0.0	-33.0	33.0															
15 WEST ZONE			-0.4	4.9	4.9	2														
TO 102063 BGPRN2	220.00	1	13.5	9.2	16.3	8														
15 WEST ZONE																				
TO 102063 BGPRN2	220.00	2	13.5	9.2	16.3	8														
15 WEST ZONE																				
TO 102064 KOTKPR2	220.00	1	-28.9	24.0	37.6	18														
15 WEST ZONE																				
TO 102064 KOTKPR2	220.00	1	-28.9	24.0	37.6	18														
15 WEST ZONE																				

OUTPUT 1722

TO	220.00	1	-68.8	-45.6	82.5	39	0.29	1.55	1	PUNJAB
TO 102070 GHTP2	220.00	1	-68.8	-45.6	82.5	39	0.29	1.55	1	PUNJAB
15 WEST ZONE										
TO 102070 GHTP2	220.00	2	-68.8	-45.6	82.5	39	0.29	1.55	1	PUNJAB
15 WEST ZONE										
TO 106032 BZK26	66.000	1	70.0	38.5	79.8	80	0.00	9.69	1	PUNJAB
15 WEST ZONE										
TO 106032 BZK26	66.000	2	70.0	38.5	79.8	80	0.00	9.69	1	PUNJAB
15 WEST ZONE										
BUS 102067 GNDTP2	220.00	CKT								
-----X X----- ZONE -----X X----- AREA										
FROM GENERATION										
15 WEST ZONE										
TO 101012 BTD1	132.00	1	70.4	28.6	76.0	76	0.00	7.21	1	PUNJAB
15 WEST ZONE										
TO 101012 BTD1	132.00	2	70.4	28.6	76.0	76	0.00	7.21	1	PUNJAB
15 WEST ZONE										
TO 102061 MKSR2	220.00	1	82.6	31.0	88.2	41	0.62	3.33	1	PUNJAB
15 WEST ZONE										
TO 102061 MKSR2	220.00	2	82.6	31.0	88.2	41	0.62	3.33	1	PUNJAB
15 WEST ZONE										
TO 102070 GHTP2	220.00	1	-4.7	-26.5	26.9	13	0.03	0.16	1	PUNJAB
15 WEST ZONE										
TO 102070 GHTP2	220.00	2	-4.7	-26.5	26.9	13	0.03	0.16	1	PUNJAB
15 WEST ZONE										
TO 102106 BADL2	220.00	1	55.1	29.3	62.4	29	0.29	1.54	1	PUNJAB
15 WEST ZONE										
TO 106061 BTD26	66.000	1	44.2	21.8	49.3	49	0.00	3.65	1	PUNJAB
15 WEST ZONE										
TO 106061 BTD26	66.000	2	44.2	21.8	49.3	49	0.00	3.65	1	PUNJAB
15 WEST ZONE										
BUS 102068 ABOHR2	220.00	CKT								
-----X X----- ZONE -----X X----- AREA										
15 WEST ZONE										
TO 102091 MUKSR42	220.00	1	-49.0	-12.5	50.5	24	0.18	0.98	1	PUNJAB
15 WEST ZONE										
TO 102091 MUKSR42	220.00	2	-49.0	-12.5	50.5	24	0.18	0.98	1	PUNJAB
15 WEST ZONE										
TO 102103 MLOT2	220.00	1	26.4	-9.3	28.0	13	0.03	0.14	1	PUNJAB
15 WEST ZONE										
TO 106077 ABHR26	66.000	1	35.7	17.1	39.6	40	0.00	2.44	1	PUNJAB
15 WEST ZONE										
TO 106077 ABHR26	66.000	2	35.7	17.1	39.6	40	0.00	2.44	1	PUNJAB
15 WEST ZONE										

BUS 102070 GHTP2		220.00	CKT	MW	MVAR	OUTPUT 1722	MVA	%	1.0066PU	-2.79	X----	LOSSES	---	X----	AREA
FROM GENERATION		X 102070													
15 WEST ZONE															
TO SHUNT				920.0											
TO 102066 BZKH2		220.00	1	0.0	-22.0	22.0	81.5	38				0.29	1.55	1	PUNJAB
15 WEST ZONE				69.1	43.2	81.5									
TO 102066 BZKH2		220.00	2	69.1	43.2	81.5	38					0.29	1.55	1	PUNJAB
15 WEST ZONE															
TO 102067 GNDTP2		220.00	1	4.7	22.1	22.6	10					0.03	0.16	1	PUNJAB
15 WEST ZONE															
TO 102067 GNDTP2		220.00	2	4.7	22.1	22.6	10					0.03	0.16	1	PUNJAB
15 WEST ZONE															
TO 102071 HMTTP2		220.00	1	80.0	37.9	88.5	41					0.43	2.29	1	PUNJAB
15 WEST ZONE															
TO 102071 HMTTP2		220.00	2	80.0	37.9	88.5	41					0.43	2.29	1	PUNJAB
15 WEST ZONE															
TO 102073 BRNL2		220.00	1	94.0	36.5	100.8	47					0.60	3.21	1	PUNJAB
12 SOUTH ZONE															
TO 102074 BRNB2		220.00	1	91.6	36.5	98.5	46					0.58	3.07	1	PUNJAB
12 SOUTH ZONE															
TO 102119 DHNAULA2		220.00	1	74.5	94.0	119.9	55					1.24	6.60	1	PUNJAB
12 SOUTH ZONE															
TO 102156 MAUR2		220.00	1	125.4	76.4	146.8	32					1.17	6.25	1	PUNJAB
15 WEST ZONE															
TO 106141 GHTP26		66.000	1	113.5	62.2	129.4	81	1.0000UN				0.00	15.49	1	PUNJAB
15 WEST ZONE															
TO 106141 GHTP26		66.000	3	113.5	62.2	129.4	81	1.0000UN				0.00	15.49	1	PUNJAB
15 WEST ZONE															
BUS 102071 HMTTP2		220.00	CKT	MW	MVAR	MVA	%	0.9909PU		-3.99	X----	LOSSES	---	X----	AREA
X X-----	ZONE	X 102071													
15 WEST ZONE															
TO SHUNT				0.0	-42.7	42.7									
TO 102070 GHTP2		220.00	1	-79.6	-40.6	89.3	42					0.43	2.29	1	PUNJAB
15 WEST ZONE															
TO 102070 GHTP2		220.00	2	-79.6	-40.6	89.3	42					0.43	2.29	1	PUNJAB
15 WEST ZONE															
TO 102077 AJTW2		220.00	1	2.8	14.7	15.0	7					0.01	0.07	1	PUNJAB
11 CENTRAL ZONE															
TO 102077 AJTW2		220.00	2	2.8	14.7	15.0	7					0.01	0.07	1	PUNJAB
11 CENTRAL ZONE															
TO 102151 BDNIKLN2		220.00	1	-10.6	6.6	12.5	6					0.01	0.04	1	PUNJAB
15 WEST ZONE															
TO 106070 HMT26		66.000	1	63.1	33.8	71.6	72	1.0000UN				0.00	7.83	1	PUNJAB
15 WEST ZONE															

OUTPUT 1722

TO	66.000	2	101.0	54.1	114.6	72	1.00000UN	0.00	12.53	1	PUNJAB	
15 WEST ZONE												
BUS 102072 MNS2	220.00	CKT	MW	MVAR	MVA	%	0.9428PU	-6.04	X----	LOSSES	---X X----	AREA
-----X X----- ZONE	-----X	102072					207.42KV			MW	MVAR	1 PUNJAB
15 WEST ZONE												
TO SHUNT			0.0	-43.0	43.0					0.09	0.47	1 PUNJAB
TO 102108 BUDLADAZ	220.00	1	-34.9	-8.6	35.9	18				0.09	0.47	1 PUNJAB
15 WEST ZONE												
TO 102108 BUDLADAZ	220.00	2	-34.9	-8.6	35.9	18				0.01	0.06	1 PUNJAB
15 WEST ZONE												
TO 102109 JHUNIRZ	220.00	1	-10.8	-5.2	12.0	6				0.19	1.00	1 PUNJAB
15 WEST ZONE												
TO 102113 TLWNSAB02	220.00	1	-26.7	-39.5	47.6	24				0.44	2.37	1 PUNJAB
15 WEST ZONE												
TO 102119 DHNAULA2	220.00	1	-66.5	-21.8	70.0	16				1.01	5.37	1 PUNJAB
12 SOUTH ZONE												
TO 102138 PTRNPG42	220.00	1	-104.9	-27.2	108.3	53				0.00	13.18	1 PUNJAB
12 SOUTH ZONE												
TO 106035 MNS26	66.000	1	77.4	42.7	88.4	88	1.00000UN			0.00	13.18	1 PUNJAB
15 WEST ZONE												
TO 106035 MNS26	66.000	2	77.4	42.7	88.4	88	1.00000UN			0.00	21.09	1 PUNJAB
15 WEST ZONE												
TO 106035 MNS26	66.000	3	123.8	68.3	141.4	88	1.00000UN					
15 WEST ZONE												
BUS 102073 BRNL2	220.00	CKT	MW	MVAR	MVA	%	0.9893PU	-4.35	X---- <th>LOSSES</th> <th>---X X----</th> <th>AREA</th>	LOSSES	---X X----	AREA
-----X X----- ZONE	-----X	102073					217.64KV			MW	MVAR	1 PUNJAB
12 SOUTH ZONE												
TO SHUNT			0.0	-60.0	60.0					0.60	3.21	1 PUNJAB
TO 102070 GHTP2	220.00	1	-93.4	-38.7	101.1	48				0.01	0.07	1 PUNJAB
15 WEST ZONE												
TO 102074 BRNB2	220.00	1	-90.1	1.1	90.1	42				0.00	7.35	1 PUNJAB
12 SOUTH ZONE												
TO 106030 BRNL26	66.000	1	61.2	32.5	69.2	69	1.00000UN			0.00	7.35	1 PUNJAB
12 SOUTH ZONE												
TO 106030 BRNL26	66.000	2	61.2	32.5	69.2	69	1.00000UN			0.00	7.35	1 PUNJAB
12 SOUTH ZONE												
TO 106030 BRNL26	66.000	3	61.2	32.5	69.2	69	1.00000UN			0.00	7.35	1 PUNJAB
12 SOUTH ZONE												
BUS 102074 BRNB2	220.00	CKT	MW	MVAR	MVA	%	0.9894PU	-4.31	X---- <th>LOSSES</th> <th>---X X----</th> <th>AREA</th>	LOSSES	---X X----	AREA
-----X X----- ZONE	-----X	102074					217.67KV			MW	MVAR	1 PUNJAB
12 SOUTH ZONE												

TO 102070	GHTP2	220.00	1	-91.0	-38.8	98.9	46	0.58	3.07	1	PUNJAB
TO 102073	BRNL2	220.00	1	90.1	-1.2	90.1	42	0.01	0.07	1	PUNJAB
TO 102080	SNG2	220.00	1	39.0	25.4	46.6	22	0.13	0.68	1	PUNJAB
TO 102123	SANDHOUR2	220.00	1	-38.2	14.5	40.9	19	0.21	1.10	1	PUNJAB

OUTPUT 1722

BUS 102075 PKWL2 220.00 CKT MW MVAR MVA % 0.97222PU -4.27 X-----X----- AREA
 -----X X----- ZONE -----X 102075

TO SHUNT				0.0	-28.3	28.3		0.01	0.04	1	PUNJAB
TO 102076	MHLKLN2	220.00	1	6.4	-13.4	14.9	7	0.01	0.04	1	PUNJAB
TO 102076	MHLKLN2	220.00	2	6.4	-13.4	14.9	7	0.01	0.04	1	PUNJAB
TO 102099	LDHN42	220.00	1	-97.4	-19.4	99.4	48	0.54	2.90	1	PUNJAB
TO 102123	SANDHOUR2	220.00	1	-89.2	-20.9	91.6	44	0.45	2.39	1	PUNJAB
TO 106022	PKWL26	66.000	1	66.8	36.7	76.3	76	1.00000UN	9.23	1	PUNJAB
TO 106022	PKWL26	66.000	2	107.0	58.7	122.0	76	1.00000UN	14.77	1	PUNJAB

BUS 102076 MHLKLN2 220.00 CKT MW MVAR MVA % 0.9745PU -4.37 X-----X----- AREA
 -----X X----- ZONE -----X 102076

TO SHUNT				0.0	-7.8	7.8		0.01	0.04	1	PUNJAB
TO 102075	PKWL2	220.00	1	-6.4	10.1	11.9	6	0.01	0.04	1	PUNJAB
TO 102075	PKWL2	220.00	2	-6.4	10.1	11.9	6	0.01	0.04	1	PUNJAB
TO 102100	MOG42	220.00	1	-39.9	-29.5	49.6	24	0.19	0.99	1	PUNJAB
TO 102100	MOG42	220.00	2	-39.9	-29.5	49.6	24	0.19	0.99	1	PUNJAB
TO 106068	MHLK26	66.000	1	46.3	23.3	51.9	52	1.00000UN	4.25	1	PUNJAB
TO 106068	MHLK26	66.000	2	46.3	23.3	51.9	52	1.00000UN	4.25	1	PUNJAB

BUS 102077 AJTW2 220.00 CKT MW MVAR MVA % 0.9870PU -3.99 X-----X----- AREA
 -----X X----- ZONE -----X 102077

OUTPUT 1722

BUS	ZONE	220.00 CKT	MW	MVAR	MVA	%	0.9805PU	-2.03	LOSSSES	MVAR	AREA
BUS 102079	DUR2	X 102079						X			
	12 SOUTH ZONE				215.71KV						
	TO SHUNT		0.0	-65.3	65.3						
	TO 102078 MLK2	1	-36.6	-29.2	46.8	22			0.08	0.43	1 PUNJAB
	TO 102078 MLK2	2	-36.6	-29.2	46.8	22			0.08	0.43	1 PUNJAB
	TO 102095 DHUR42	1	-34.2	26.2	43.1	20			0.10	0.51	1 PUNJAB
	TO 102095 DHUR42	2	-34.2	26.2	43.1	20			0.10	0.51	1 PUNJAB
	TO 106025 DUR26	1	47.2	23.8	52.8	53	1.0000UN		0.00	4.35	1 PUNJAB
	TO 106025 DUR26	2	47.2	23.8	52.8	53	1.0000UN		0.00	4.35	1 PUNJAB
	TO 106025 DUR26	3	47.2	23.8	52.8	53	1.0000UN		0.00	4.35	1 PUNJAB
BUS 102080	SNG2	X 102080						X			
	12 SOUTH ZONE				215.42KV						
	TO 102046 JMP2	1	-21.5	2.2	21.6	10			0.09	0.45	1 PUNJAB
	TO 102046 JMP2	2	-21.5	2.2	21.6	10			0.09	0.45	1 PUNJAB
	11 CENTRAL ZONE										
	TO 102074 BRNB2	1	-38.9	-29.6	48.9	23			0.13	0.68	1 PUNJAB
	TO 106056 SNG26	1	18.3	8.2	20.1	20	1.0000UN		0.00	0.63	1 PUNJAB
	TO 106056 SNG26	2	13.2	5.9	14.5	24	1.0000UN		0.00	0.45	1 PUNJAB
	TO 106056 SNG26	3	13.2	5.9	14.5	24	1.0000UN		0.00	0.45	1 PUNJAB
	TO 106056 SNG26	4	13.2	5.9	14.5	24	1.0000UN		0.00	0.45	1 PUNJAB
	TO 202033 HISARB2	1	11.9	-0.3	12.0	6			0.03	0.18	2 HARYANA
	TO 202033 HISARB2	2	11.9	-0.3	12.0	6			0.03	0.18	2 HARYANA
BUS 102081	SUN2	X 102081						X			
	220.00 CKT										
	MW										
	MVAR										
	MVA										
	% 0.9558PU										
	-3.70										
	LOSSSES										
	MW										
	MVAR										
	AREA										
	1 PUNJAB										

OUTPUT 1722

12 SOUTH ZONE	220.00	1	0.0	-44.7	44.7	0.03	0.14	1	PUNJAB
TO SHUNT			19.7	-8.0	21.3				
TO 102083 PTRN2	220.00	1				1.33	7.07	1	PUNJAB
12 SOUTH ZONE			-155.9	-44.0	162.0	1.33	7.07	1	PUNJAB
TO 102095 DHURI42	220.00	2	-155.9	-44.0	162.0	0.12	0.61	1	PUNJAB
12 SOUTH ZONE			39.3	16.0	42.5	0.06	0.34	1	PUNJAB
TO 102110 BANGAN2	220.00	1	39.3	16.0	42.5	0.06	0.34	1	PUNJAB
12 SOUTH ZONE			-26.5	-29.6	39.8	0.06	0.34	1	PUNJAB
TO 102138 PTRNPG42	220.00	1	-26.5	-29.6	39.8	0.00	25.82	1	PUNJAB
12 SOUTH ZONE			-26.5	-29.6	39.8	0.00	16.14	1	PUNJAB
TO 102138 PTRNPG42	220.00	2	-26.5	-29.6	39.8	0.00	16.14	1	PUNJAB
12 SOUTH ZONE			136.0	81.7	158.6	0.00	25.82	1	PUNJAB
TO 106026 SUN26	66.000	1	136.0	81.7	158.6	0.00	25.82	1	PUNJAB
12 SOUTH ZONE			85.0	51.1	99.1	0.00	16.14	1	PUNJAB
TO 106026 SUN26	66.000	2	85.0	51.1	99.1	0.00	16.14	1	PUNJAB
12 SOUTH ZONE			85.0	51.1	99.1	0.00	16.14	1	PUNJAB
TO 106026 SUN26	66.000	3	85.0	51.1	99.1	0.00	16.14	1	PUNJAB
12 SOUTH ZONE									

BUS 102083 PTRN2 220.00 CKT MW MVAR MVA % 0.9565PU -4.08 X---- LOSSES ---X X---- AREA
 -----X X----- ZONE -----X 102083

12 SOUTH ZONE	220.00	1	0.0	-69.6	69.6	0.03	0.14	1	PUNJAB
TO SHUNT			-19.7	3.6	20.0				
TO 102081 SUN2	220.00	1	-19.7	3.6	20.0	0.06	0.31	1	PUNJAB
12 SOUTH ZONE			19.9	21.6	29.4	0.05	0.25	1	PUNJAB
TO 102110 BANGAN2	220.00	1	19.9	21.6	29.4	0.01	0.07	1	PUNJAB
12 SOUTH ZONE			-29.1	0.2	29.1	0.17	0.91	1	PUNJAB
TO 102114 PASSN2	220.00	1	-29.1	0.2	29.1	0.17	0.91	1	PUNJAB
12 SOUTH ZONE			-25.2	-6.8	26.1	0.00	8.05	1	PUNJAB
TO 102116 KKRL2	220.00	1	-25.2	-6.8	26.1	0.00	8.05	1	PUNJAB
12 SOUTH ZONE			-65.3	-24.6	69.8	0.00	8.05	1	PUNJAB
TO 102138 PTRNPG42	220.00	1	-65.3	-24.6	69.8	0.00	8.05	1	PUNJAB
12 SOUTH ZONE			61.6	33.4	70.1	0.00	8.05	1	PUNJAB
TO 106028 PTRN26	66.000	1	61.6	33.4	70.1	0.00	8.05	1	PUNJAB
12 SOUTH ZONE			61.6	33.4	70.1	0.00	8.05	1	PUNJAB
TO 106028 PTRN26	66.000	2	61.6	33.4	70.1	0.00	8.05	1	PUNJAB
12 SOUTH ZONE			61.6	33.4	70.1	0.00	8.05	1	PUNJAB
TO 106028 PTRN26	66.000	3	61.6	33.4	70.1	0.00	8.05	1	PUNJAB
12 SOUTH ZONE									

BUS 102084 BHWNIGRH2 220.00 CKT MW MVAR MVA % 0.9687PU -2.31 X---- LOSSES ---X X---- AREA
 -----X X----- ZONE -----X 102084

OUTPUT 1722

12 SOUTH ZONE		220.00 CKT		MMW	MVAR	MVA	% 0.9704PU	-2.14 X---	LOSSSES	---X X---	AREA
TO 102085 NBH2	12 SOUTH ZONE	220.00	1	-18.2	-8.3	20.0	10	0.01	0.06	1	PUNJAB
TO 102085 NBH2	12 SOUTH ZONE	220.00	2	-18.2	-8.3	20.0	10	0.01	0.06	1	PUNJAB
TO 106149 BWNCR26	12 SOUTH ZONE	66.000	1	36.3	16.5	39.9	25	1.0000UN	1.59	1	PUNJAB
BUS 102085 NBH2 220.00 CKT MMW MVAR MVA % 0.9704PU -2.14 X--- LOSSSES ---X X--- AREA											
-----X X----- ZONE -----X 102085											
12 SOUTH ZONE		220.00 CKT		MMW	MVAR	MVA	% 0.9592PU	-3.71 X---	LOSSSES	---X X---	AREA
-----X X----- ZONE -----X 102086											
12 SOUTH ZONE		220.00 CKT		MMW	MVAR	MVA	% 0.9854PU	-1.99 X---	LOSSSES	---X X---	AREA
-----X X----- ZONE -----X 102087											
TO SHUNT	12 SOUTH ZONE	220.00	1	0.0	-33.7	33.7	70	1.03	5.49	1	PUNJAB
TO 102035 PTA2	12 SOUTH ZONE	220.00	1	-138.1	-38.2	143.3	70	1.03	5.49	1	PUNJAB
TO 102116 KKRL2	12 SOUTH ZONE	220.00	1	17.2	2.1	17.3	8	0.01	0.07	1	PUNJAB
TO 102138 PTRNPG42	12 SOUTH ZONE	220.00	1	-29.7	-16.7	34.1	17	0.04	0.21	1	PUNJAB
TO 106027 RJL26	12 SOUTH ZONE	66.000	1	75.3	43.3	86.9	87	1.0000UN	12.30	1	PUNJAB
TO 106027 RJL26	12 SOUTH ZONE	66.000	2	75.3	43.3	86.9	87	1.0000UN	12.30	1	PUNJAB
BUS 102087 AML2 220.00 CKT MMW MVAR MVA % 0.9854PU -1.99 X--- LOSSSES ---X X--- AREA											
-----X X----- ZONE -----X 102087											

OUTPUT 1722 216.79KV

11 CENTRAL ZONE							MVA	MVAR	MW	LOSSSES	AREA
TO SHUNT							51.1				
TO 102038 GB12	220.00	1	0.0	-51.1			139.2	2.63	0.49	X----	1 PUNJAB
11 CENTRAL ZONE											
TO 102078 MLK2	220.00	1	-22.1	-5.6			22.8	0.13	0.02	X----	1 PUNJAB
12 SOUTH ZONE											
TO 106024 AML26	66.000	1	61.0	32.4			69.1	7.37	0.00	X----	1 PUNJAB
11 CENTRAL ZONE											
TO 106024 AML26	66.000	2	97.6	51.9			110.5	11.79	0.00	X----	1 PUNJAB
11 CENTRAL ZONE											

BUS 102088 IKL2							MVA	MVAR	MW	LOSSSES	AREA
-----X X----- ZONE	220.00	CKT					% 0.9879PU			X----	AREA
11 CENTRAL ZONE											
TO 102038 GB12	220.00	1	-26.9	-9.9			28.7	0.31	0.06	X----	1 PUNJAB
11 CENTRAL ZONE											
TO 102078 MLK2	220.00	1	30.2	1.6			30.2	0.06	0.01	X----	1 PUNJAB
12 SOUTH ZONE											
TO 102129 DORH42	220.00	1	-27.3	-9.0			28.7	0.08	0.02	X----	1 PUNJAB
11 CENTRAL ZONE											
TO 102129 DORH42	220.00	2	-27.3	-9.0			28.7	0.08	0.02	X----	1 PUNJAB
11 CENTRAL ZONE											
TO 106065 IKL26	66.000	1	51.4	26.2			57.7	5.11	0.00	X----	1 PUNJAB
11 CENTRAL ZONE											

BUS 102089 NURMHL2							MVA	MVAR	MW	LOSSSES	AREA
-----X X----- ZONE	220.00	CKT					% 0.9830PU			X----	AREA
13 NORTH ZONE											
TO 102093 NKDR42	220.00	1	-32.7	-14.7			35.9	0.12	0.02	X----	1 PUNJAB
13 NORTH ZONE											
TO 102093 NKDR42	220.00	2	-32.7	-14.7			35.9	0.12	0.02	X----	1 PUNJAB
13 NORTH ZONE											
TO 106079 NRML26	66.000	1	32.7	14.7			35.9	1.25	0.00	X----	1 PUNJAB
13 NORTH ZONE											
TO 106079 NRML26	66.000	2	32.7	14.7			35.9	1.25	0.00	X----	1 PUNJAB
13 NORTH ZONE											

BUS 102090 NRNGRH2							MVA	MVAR	MW	LOSSSES	AREA
-----X X----- ZONE	220.00	CKT					% 0.9735PU			X----	AREA
14 BORDERZONE											
TO 102101 ASR42	220.00	1	-75.0	-37.8			84.0	1.18	0.22	X----	1 PUNJAB
14 BORDERZONE											
TO 106093 NRNG26	66.000	1	75.0	37.8			84.0	6.99	0.00	X----	1 PUNJAB
14 BORDERZONE											

14 BORDERZONE

OUTPUT 1722

BUS 102091 MUKSR42 220.00 CKT MW MVAR MVA % 0.9899PU -2.06 X---- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 102091

TO	ZONE	220.00	CKT	MW	MVAR	MVA	%	0.9899PU	-2.06	X----	LOSSES	---X	X-----	AREA
15 WEST ZONE							217.77KV							
TO 102062	GBY2	220.00	1	144.0	30.5	147.2	69				MW	MVAR	1	PUNJAB
15 WEST ZONE											1.39	7.41	1	PUNJAB
TO 102064	KOTKPR2	220.00	1	62.6	-9.4	63.3	30				0.22	1.17	1	PUNJAB
15 WEST ZONE											0.22	1.17	1	PUNJAB
TO 102064	KOTKPR2	220.00	2	62.6	-9.4	63.3	30				0.22	1.17	1	PUNJAB
15 WEST ZONE											0.18	0.98	1	PUNJAB
TO 102068	ABOHR2	220.00	1	49.2	7.1	49.7	23				0.18	0.98	1	PUNJAB
15 WEST ZONE											0.18	0.98	1	PUNJAB
TO 102068	ABOHR2	220.00	2	49.2	7.1	49.7	23				0.18	0.98	1	PUNJAB
15 WEST ZONE											0.55	2.96	1	PUNJAB
TO 102103	MLOT2	220.00	1	121.3	11.7	121.9	57				0.55	2.96	1	PUNJAB
15 WEST ZONE											0.03	0.14	1	PUNJAB
TO 102126	FAZILKA2	220.00	1	23.9	8.7	25.4	12				0.03	0.14	1	PUNJAB
15 WEST ZONE											0.03	0.14	1	PUNJAB
TO 102126	FAZILKA2	220.00	2	23.9	8.7	25.4	12				0.03	0.14	1	PUNJAB
15 WEST ZONE											0.00	9.15	1	PUNJAB
TO 104012	MUKTSAR4	400.00	1	-149.7	-15.3	150.5	48	1.0000LK			0.00	9.15	1	PUNJAB
15 WEST ZONE											0.00	9.15	1	PUNJAB
TO 104012	MUKTSAR4	400.00	2	-149.7	-15.3	150.5	48	1.0000LK			0.00	9.15	1	PUNJAB
15 WEST ZONE											0.00	14.50	1	PUNJAB
TO 104012	MUKTSAR4	400.00	3	-237.1	-24.3	238.4	48	1.0000LK			0.00	14.50	1	PUNJAB
15 WEST ZONE											0.00	14.50	1	PUNJAB

BUS 102092 MKHU42 220.00 CKT MW MVAR MVA % 0.9821PU -4.65 X---- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 102092

TO	ZONE	220.00	CKT	MW	MVAR	MVA	%	0.9821PU	-4.65	X----	LOSSES	---X	X-----	AREA
14 BORDERZONE							216.07KV							
TO 102012	RASHIANA2	220.00	1	24.6	3.8	24.8	12				MW	MVAR	1	PUNJAB
14 BORDERZONE											0.03	0.16	1	PUNJAB
TO 102012	RASHIANA2	220.00	2	24.6	3.8	24.8	12				0.03	0.16	1	PUNJAB
14 BORDERZONE											0.01	0.06	1	PUNJAB
TO 102057	MASTWL2	220.00	1	83.7	-7.5	84.0	40				0.01	0.06	1	PUNJAB
15 WEST ZONE											0.01	0.06	1	PUNJAB
TO 102057	MASTWL2	220.00	2	83.7	-7.5	84.0	40				0.01	0.06	1	PUNJAB
15 WEST ZONE											0.18	0.95	1	PUNJAB
TO 102105	ALGON2	220.00	1	69.8	25.1	74.2	35				0.18	0.95	1	PUNJAB
14 BORDERZONE											0.18	0.95	1	PUNJAB
TO 102105	ALGON2	220.00	2	69.8	25.1	74.2	35				0.18	0.95	1	PUNJAB
14 BORDERZONE											0.05	0.29	1	PUNJAB
TO 102141	DHRMKOT2	220.00	1	44.5	15.6	47.1	22				0.05	0.29	1	PUNJAB
15 WEST ZONE											0.05	0.29	1	PUNJAB

		OUTPUT 1722									
		220.00	1	123.7	25.2	126.2	60	0.26	1.41	1	PUNJAB
TO 102035	PTA2	220.00	2	123.7	25.2	126.2	60	0.26	1.41	1	PUNJAB
12 SOUTH ZONE		220.00	1	67.7	20.7	70.8	34	0.27	1.42	1	PUNJAB
TO 102085	NBH2	220.00	2	67.7	20.7	70.8	34	0.27	1.42	1	PUNJAB
12 SOUTH ZONE		400.00	1	-149.9	-33.5	153.6	49	0.00	9.73	1	PUNJAB
TO 104002	PTLA4	400.00	2	-149.9	-33.5	153.6	49	0.00	9.73	1	PUNJAB
12 SOUTH ZONE		400.00	3	-237.5	-53.1	243.3	49	0.00	15.41	1	PUNJAB
TO 104002	PTLA4	400.00	2	-237.5	-53.1	243.3	49	0.00	15.41	1	PUNJAB
12 SOUTH ZONE											

BUS 102097 MLK42		220.00	CKT	MW	MVAR	MVA	%	0.9877PU	-1.62	X---	LOSSES	---X	X----	AREA
-----X X----- ZONE		-----X X----- ZONE												
12 SOUTH ZONE		220.00	1	110.0	24.2	112.7	53	217.30KV						
TO 102078	MLK2	220.00	2	110.0	24.2	112.7	53							
12 SOUTH ZONE		220.00	3	110.0	27.2	113.3	49							
TO 102078	MLK2	220.00	4	110.0	27.2	113.3	49							
12 SOUTH ZONE		400.00	1	-122.8	-28.7	126.1	40	1.0000LK						
TO 104001	MLKT4	400.00	2	-122.8	-28.7	126.1	40	1.0000LK						
12 SOUTH ZONE		400.00	3	-194.5	-45.4	199.7	40	1.0000LK						
TO 104001	MLKT4	400.00	3	-194.5	-45.4	199.7	40	1.0000LK						
12 SOUTH ZONE														

BUS 102098 JLNDR42		220.00	CKT	MW	MVAR	MVA	%	0.9894PU	-1.95	X---	LOSSES	---X	X----	AREA
-----X X----- ZONE		-----X X----- ZONE												
13 NORTH ZONE		220.00	1	67.8	24.1	71.9	34	217.67KV						
TO 102016	KANJLI2	220.00	2	67.8	24.1	71.9	34							
13 NORTH ZONE		220.00	1	206.1	43.6	210.6	47							
TO 102017	KRTP2	220.00	2	206.1	43.6	210.6	47							
13 NORTH ZONE		220.00	1	9.0	-7.5	11.7	5							
TO 102020	DSU2	220.00	1	9.0	-7.5	11.7	5							
13 NORTH ZONE														

OUTPUT 1722

14 BORDERZONE	220.00	2	9.0	-7.5	11.7	5	0.01	0.04	1	PUNJAB	
TO 102020 DSU2											
14 BORDERZONE	220.00	1	152.1	29.0	154.8	73	0.95	5.07	1	PUNJAB	
TO 102054 NKD2											
13 NORTH ZONE	400.00	1	-309.8	-71.6	317.9	64	1.0000LK	0.00	25.81	1	PUNJAB
TO 104004 JALNDHR4											
13 NORTH ZONE	400.00	2	-309.8	-71.6	317.9	64	1.0000LK	0.00	25.81	1	PUNJAB
TO 104004 JALNDHR4											
13 NORTH ZONE	220.00	1	-49.1	-3.1	49.2	23	0.46	2.46	5	HIMACHAL	
TO 502005 HMPR2											
51 HIMACHALSTU	220.00	2	-49.1	-3.1	49.2	23	0.46	2.46	5	HIMACHAL	
TO 502005 HMPR2											
51 HIMACHALSTU											

BUS 102099 LDHN42	220.00	CKT	MW	MVAR	MVA	% 0.9828PU	-2.68	X----	LOSSES	----	X-----	AREA
-----X X----- ZONE	-----X 102099					216.22KV						
11 CENTRAL ZONE	220.00	1	112.7	20.8	114.6	48	0.35	2.18	1	PUNJAB		
TO 102043 SNWL2												
11 CENTRAL ZONE	220.00	1	109.1	22.7	111.4	53	0.45	2.38	1	PUNJAB		
TO 102044 DDK2												
11 CENTRAL ZONE	220.00	2	281.8	25.7	283.0	63	0.27	1.46	1	PUNJAB		
TO 102045 LK2												
11 CENTRAL ZONE	220.00	3	216.8	25.4	218.2	49	0.18	1.13	1	PUNJAB		
TO 102045 LK2												
11 CENTRAL ZONE	220.00	1	72.8	-17.1	74.8	35	0.27	1.42	1	PUNJAB		
TO 102047 JGR2												
11 CENTRAL ZONE	220.00	1	98.0	17.7	99.6	47	0.54	2.90	1	PUNJAB		
TO 102075 PKWL2												
11 CENTRAL ZONE	220.00	1	-94.2	-8.2	94.6	45	0.26	1.37	1	PUNJAB		
TO 102102 DORH2												
11 CENTRAL ZONE	220.00	2	133.2	34.0	137.5	65	0.20	1.09	1	PUNJAB		
TO 102173 LITKLN2												
11 CENTRAL ZONE	400.00	1	-202.9	-26.4	204.6	65	1.0000LK	0.00	17.16	1	PUNJAB	
TO 104003 LUDHN4												
11 CENTRAL ZONE	400.00	2	-202.9	-26.4	204.6	65	1.0000LK	0.00	17.16	1	PUNJAB	
TO 104003 LUDHN4												
11 CENTRAL ZONE	400.00	3	-202.9	-26.4	204.6	65	1.0000LK	0.00	17.16	1	PUNJAB	
TO 104003 LUDHN4												
11 CENTRAL ZONE	400.00	4	-321.4	-41.8	324.1	65	1.0000LK	0.00	27.18	1	PUNJAB	
TO 104003 LUDHN4												

BUS 102100 MOG42	220.00	CKT	MW	MVAR	MVA	% 0.9888PU	-3.51	X----	LOSSES	----	X-----	AREA
-----X X----- ZONE	-----X 102100					217.54KV						
15 WEST ZONE												

OUTPUT 1722

TO	220.00	1	145.4	7.4	145.6	63	0.00	0.04	1	PUNJAB
TO 102055 MOG2	220.00	1	145.4	7.4	145.6	63	0.00	0.04	1	PUNJAB
15 WEST ZONE										
TO 102055 MOG2	220.00	2	145.4	7.4	145.6	63	0.00	0.04	1	PUNJAB
15 WEST ZONE										
TO 102055 MOG2	220.00	3	145.4	7.4	145.6	63	0.00	0.04	1	PUNJAB
15 WEST ZONE										
TO 102055 MOG2	220.00	4	145.4	7.4	145.6	63	0.00	0.04	1	PUNJAB
15 WEST ZONE										
TO 102076 MHLKLN2	220.00	1	40.1	23.6	46.6	22	0.19	0.99	1	PUNJAB
12 SOUTH ZONE										
TO 102076 MHLKLN2	220.00	2	40.1	23.6	46.6	22	0.19	0.99	1	PUNJAB
12 SOUTH ZONE										
TO 102077 AJTW2	220.00	1	54.7	0.7	54.7	26	0.09	0.45	1	PUNJAB
11 CENTRAL ZONE										
TO 102151 BDNIKLN2	220.00	1	22.5	-8.9	24.2	11	0.02	0.13	1	PUNJAB
15 WEST ZONE										
TO 104005 MOGAPG4	400.00	1	-218.9	-20.3	219.8	70	0.00	19.57	1	PUNJAB
15 WEST ZONE										
TO 104005 MOGAPG4	400.00	2	-173.3	-16.1	174.1	70	0.00	15.50	1	PUNJAB
15 WEST ZONE										
TO 104005 MOGAPG4	400.00	3	-173.3	-16.1	174.1	70	0.00	15.50	1	PUNJAB
15 WEST ZONE										
TO 104005 MOGAPG4	400.00	4	-173.3	-16.1	174.1	70	0.00	15.50	1	PUNJAB
15 WEST ZONE										

BUS	220.00	CKT	MW	MVAR	MVA	%	0.9819PU	-3.90	X	---	LOSSES	---	X	---	AREA
102101 ASR42	220.00	102101													
-----X															
14 BORDERZONE															
TO 102010 KHS2	220.00	1	130.4	22.5	132.3	63	0.07	0.37	1	PUNJAB					
14 BORDERZONE															
TO 102010 KHS2	220.00	3	130.4	22.5	132.3	63	0.07	0.37	1	PUNJAB					
14 BORDERZONE															
TO 102011 VRP2	220.00	1	133.1	23.0	135.0	59	0.06	0.39	1	PUNJAB					
14 BORDERZONE															
TO 102011 VRP2	220.00	2	133.1	23.0	135.0	59	0.06	0.39	1	PUNJAB					
14 BORDERZONE															
TO 102011 VRP2	220.00	3	133.1	23.0	135.0	59	0.06	0.39	1	PUNJAB					
14 BORDERZONE															
TO 102011 VRP2	220.00	4	133.1	23.0	135.0	59	0.06	0.39	1	PUNJAB					
14 BORDERZONE															
TO 102090 NRNGRH2	220.00	1	75.3	36.4	83.6	40	0.22	1.18	1	PUNJAB					
14 BORDERZONE															
TO 104006 AMRTSR4	400.00	1	-208.3	-41.6	212.5	67	0.00	18.54	1	PUNJAB					
14 BORDERZONE															
TO 104006 AMRTSR4	400.00	2	-330.0	-65.9	336.5	67	0.00	29.36	1	PUNJAB					
14 BORDERZONE															

TO 104006 AMRTSR4 400.00 3 -330.0 -65.9 OUTPUT 1722 336.5 67 1.0000LK 0.00 29.36 1 PUNJAB
 14 BORDERZONE

BUS 102102 DORH2 220.00 CKT MW MVAR MVA % 0.9867PU -1.87 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 102102 217.07KV

11 CENTRAL ZONE
 TO SHUNT 0.0 -23.4 23.4
 TO 102099 LDHN42 220.00 1 94.5 7.1 94.7 45
 11 CENTRAL ZONE
 TO 102129 DORH42 220.00 1 -97.4 -12.7 98.2 46
 11 CENTRAL ZONE
 TO 102129 DORH42 220.00 2 -97.4 -12.7 98.2 46
 11 CENTRAL ZONE
 TO 102174 SNWL82 220.00 1 -23.1 -20.4 30.8 15
 11 CENTRAL ZONE
 TO 106060 DOR26 66.000 1 47.5 23.9 53.1 53 1.0000UN
 11 CENTRAL ZONE
 TO 106060 DOR26 66.000 2 76.0 38.2 85.0 53 1.0000UN
 11 CENTRAL ZONE

BUS 102103 MLOT2 220.00 CKT MW MVAR MVA % 0.9831PU -3.42 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 102103 216.27KV

15 WEST ZONE
 TO SHUNT 0.0 -24.9 24.9
 TO 102061 MKSR2 220.00 1 47.8 -4.3 48.0 23
 15 WEST ZONE
 TO 102068 ABOHR2 220.00 1 -26.4 6.4 27.2 13
 15 WEST ZONE
 TO 102091 MUKSR42 220.00 1 -120.8 -12.0 121.4 57
 15 WEST ZONE
 TO 102106 BADL2 220.00 1 11.1 -8.9 14.2 7
 15 WEST ZONE
 TO 106031 MLT26 66.000 1 44.1 21.9 49.3 49 1.0000UN
 15 WEST ZONE
 TO 106031 MLT26 66.000 2 44.1 21.9 49.3 49 1.0000UN
 15 WEST ZONE

BUS 102104 GOINDWL2 220.00 CKT MW MVAR MVA % 1.0000PU -3.77 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 102104
 FROM GENERATION 540.0 284.6R 610.4 96 220.00KV
 14 BORDERZONE
 TO 102015 SLT2 220.00 1 116.1 62.6 131.8 61
 13 NORTH ZONE
 TO 102015 SLT2 220.00 2 116.1 62.6 131.8 61
 13 NORTH ZONE

OUTPUT 1722

TO 102056 BTW2	220.00	1	66.1	34.6	74.6	35	0.36	1.90	1	PUNJAB
15 WEST ZONE										
TO 102056 BTW2	220.00	2	66.1	34.6	74.6	35	0.36	1.90	1	PUNJAB
15 WEST ZONE										
TO 102118 CHOLSHB2	220.00	1	87.8	45.2	98.8	46	0.49	2.63	1	PUNJAB
14 BORDERZONE										
TO 102118 CHOLSHB2	220.00	2	87.8	45.2	98.8	46	0.49	2.63	1	PUNJAB
14 BORDERZONE										

BUS 102105 ALGN2	220.00	CKT	MW	MVAR	MVA	% 0.9756PU	-5.29	X----	LOSSES	---X	X----	AREA
-----X X----- ZONE												
						214.62KV			MW	MVAR	1	PUNJAB
14 BORDERZONE												
TO 102014 PTI2	220.00	1	5.2	-8.0	9.6	5	0.00	0.01	1	PUNJAB		
14 BORDERZONE												
TO 102014 PTI2	220.00	2	5.2	-8.0	9.6	5	0.00	0.01	1	PUNJAB		
14 BORDERZONE												
TO 102092 MKHU42	220.00	1	-69.6	-26.9	74.6	36	0.18	0.95	1	PUNJAB		
14 BORDERZONE												
TO 102092 MKHU42	220.00	2	-69.6	-26.9	74.6	36	0.18	0.95	1	PUNJAB		
14 BORDERZONE												
TO 106072 ALGN26	66.000	1	64.4	34.9	73.2	73	1.0000UN	8.45	1	PUNJAB		
14 BORDERZONE												
TO 106072 ALGN26	66.000	2	64.4	34.9	73.2	73	1.0000UN	8.45	1	PUNJAB		
14 BORDERZONE												

BUS 102106 BADL2	220.00	CKT	MW	MVAR	MVA	% 0.9841PU	-3.87	X----	LOSSES	---X	X----	AREA
-----X X----- ZONE												
						216.49KV			MW	MVAR	1	PUNJAB
15 WEST ZONE												
TO 102067 GNDTP2	220.00	1	-54.8	-34.1	64.5	30	0.29	1.54	1	PUNJAB		
15 WEST ZONE												
TO 102103 MLOT2	220.00	1	-11.1	-1.7	11.2	5	0.02	0.09	1	PUNJAB		
15 WEST ZONE												
TO 106087 BADL26	66.000	1	65.9	35.8	74.9	75	1.0000UN	8.70	1	PUNJAB		
15 WEST ZONE												

BUS 102107 SCTY2	220.00	CKT	MW	MVAR	MVA	% 0.9821PU	-2.69	X----	LOSSES	---X	X----	AREA
-----X X----- ZONE												
						216.07KV			MW	MVAR	1	PUNJAB
13 NORTH ZONE												
TO 101046 SCTY1	132.00	1	71.8	23.9	75.7	76	1.0000UN	7.43	1	PUNJAB		
13 NORTH ZONE												
TO 102016 KANJLI2	220.00	1	-35.9	-11.9	37.9	17	0.02	0.13	1	PUNJAB		
13 NORTH ZONE												
TO 102016 KANJLI2	220.00	2	-35.9	-11.9	37.9	17	0.02	0.13	1	PUNJAB		
13 NORTH ZONE												

OUTPUT 1722

BUS 102108 BUDLADAZ												
X	X	ZONE	220.00	CKT	MW	MVAR	MVA	% 0.9473PU	-5.33	X	LOSSES	AREA
X	X	102108						208.41KV		X		
15	WEST	ZONE										
TO	102072	MNS2	220.00	1	35.0	3.9	35.2	17			MW	MVAR
												1 PUNJAB
15	WEST	ZONE										
TO	102072	MNS2	220.00	2	35.0	3.9	35.2	17			0.09	0.47
												1 PUNJAB
15	WEST	ZONE										
TO	102119	DHNAULA2	220.00	1	-86.9	-32.7	92.9	46			0.09	0.47
												1 PUNJAB
12	SOUTH	ZONE										
TO	102119	DHNAULA2	220.00	2	-86.9	-32.7	92.9	46			0.37	1.96
												1 PUNJAB
12	SOUTH	ZONE										
TO	106085	BLD26	66.000	1	103.9	57.5	118.8	74			0.37	1.96
												1 PUNJAB
15	WEST	ZONE										
TO	106085	BLD26	66.000	1	103.9	57.5	118.8	74			0.00	14.74
												1 PUNJAB
15	WEST	ZONE										
BUS 102109 JHUNIR2												
X	X	ZONE	220.00	CKT	MW	MVAR	MVA	% 0.9446PU	-5.73	X	LOSSES	AREA
X	X	102109						207.82KV		X		
15	WEST	ZONE										
TO	SHUNT											
TO	102072	MNS2	220.00	1	0.0	-19.4	19.4	5			0.01	0.06
												1 PUNJAB
15	WEST	ZONE										
TO	102138	PTRNPG42	220.00	1	-116.0	-31.0	120.1	59			0.99	5.28
												1 PUNJAB
12	SOUTH	ZONE										
TO	106034	JUNR26	66.000	1	40.5	20.1	45.2	45			0.00	3.43
												1 PUNJAB
15	WEST	ZONE										
TO	106034	JUNR26	66.000	2	64.8	32.1	72.3	45			0.00	5.49
												1 PUNJAB
15	WEST	ZONE										
BUS 102110 BANGAN2												
X	X	ZONE	220.00	CKT	MW	MVAR	MVA	% 0.9479PU	-4.37	X	LOSSES	AREA
X	X	102110						208.54KV		X		
12	SOUTH	ZONE										
TO	102081	SUN2	220.00	1	-39.2	-20.0	44.0	22				
												1 PUNJAB
12	SOUTH	ZONE										
TO	102083	PTRN2	220.00	1	-19.8	-25.9	32.6	16			0.12	0.61
												1 PUNJAB
12	SOUTH	ZONE										
TO	102125	CHAJLI2	220.00	1	-29.0	-10.6	30.9	15			0.06	0.31
												1 PUNJAB
12	SOUTH	ZONE										
TO	102125	CHAJLI2	220.00	2	-29.0	-10.6	30.9	15			0.08	0.45
												1 PUNJAB
12	SOUTH	ZONE										
TO	106092	BNGN26	66.000	1	117.0	67.1	134.9	84			0.08	0.45
												1 PUNJAB
12	SOUTH	ZONE										
TO	106092	BNGN26	66.000	1	117.0	67.1	134.9	84			0.00	18.99
												1 PUNJAB
12	SOUTH	ZONE										
BUS 102111 RHNJT2												
X	X	ZONE	220.00	CKT	MW	MVAR	MVA	% 0.9770PU	-3.87	X	LOSSES	AREA
X	X	102111								X		

OUTPUT 1722 214.94KV

13 NORTH ZONE	220.00	1	0.0	-27.2	27.2	MVA	% 0.9763PU	-4.93	X---	LOSSES	---X	X----	AREA
TO SHUNT													
TO 102018 JMSR2	220.00	1	34.3	-0.5	34.3	16				0.06	0.30	1	PUNJAB
13 NORTH ZONE													
TO 102023 MHLF2	220.00	1	-98.5	-35.9	104.8	50				0.52	2.79	1	PUNJAB
13 NORTH ZONE													
TO 102093 NKDR42	220.00	1	-76.2	-14.1	77.5	37				0.34	1.80	1	PUNJAB
13 NORTH ZONE													
TO 102136 HSHRPR2	220.00	1	24.6	16.6	29.7	14				0.09	0.46	1	PUNJAB
13 NORTH ZONE													
TO 106018 RHNJT26	66.000	1	57.9	30.5	65.5	65	1.00000UN			0.00	6.74	1	PUNJAB
13 NORTH ZONE													
TO 106018 RHNJT26	66.000	2	57.9	30.5	65.5	65	1.00000UN			0.00	6.74	1	PUNJAB
13 NORTH ZONE													

BUS 102112 BADSHPUR2	220.00	CTK	MW	MVAR	MVA	% 0.9763PU	-4.93	X---	LOSSES	---X	X----	AREA	
-----X X----- ZONE													
13 NORTH ZONE													
TO 102015 SLT2	220.00	1	-23.4	-47.4	52.9	25	214.79KV			0.10	0.52	1	PUNJAB
13 NORTH ZONE													
TO 102018 JMSR2	220.00	1	-46.4	14.0	48.5	23				0.09	0.47	1	PUNJAB
13 NORTH ZONE													
TO 106091 BDSR26	66.000	1	34.9	16.7	38.7	39	1.00000UN			0.00	2.36	1	PUNJAB
13 NORTH ZONE													
TO 106091 BDSR26	66.000	2	34.9	16.7	38.7	39	1.00000UN			0.00	2.36	1	PUNJAB
13 NORTH ZONE													

BUS 102113 TLWDSABO2	220.00	CTK	MW	MVAR	MVA	% 0.9622PU	-5.48	X---	LOSSES	---X	X----	AREA	
-----X X----- ZONE													
15 WEST ZONE													
TO 102072 MNS2	220.00	1	26.8	33.6	43.0	21	211.68KV			0.19	1.00	1	PUNJAB
15 WEST ZONE													
TO 102156 MAUR2	220.00	1	-77.2	-59.5	97.5	47				0.39	2.07	1	PUNJAB
15 WEST ZONE													
TO 106086 TLWDSB26	66.000	1	50.4	25.9	56.7	57	1.00000UN			0.00	5.20	1	PUNJAB
15 WEST ZONE													

BUS 102114 PASSN2	220.00	CTK	MW	MVAR	MVA	% 0.9574PU	-3.60	X---	LOSSES	---X	X----	AREA	
-----X X----- ZONE													
12 SOUTH ZONE													
TO 102035 PTA2	220.00	1	-123.4	-43.8	131.0	64	210.62KV			0.92	4.89	1	PUNJAB
12 SOUTH ZONE													
TO 102083 PTRN2	220.00	1	29.1	-4.1	29.4	14				0.05	0.25	1	PUNJAB

OUTPUT 1722

BUS 102115 BANUR2 -----X 102115													
12 SOUTH ZONE		220.00	CKT	MW	MVAR	MVA	% 0.9764PU	-1.79	X----	LOSSES	----	X	AREA
TO 106067 PASN26	12 SOUTH ZONE	66.000	1	47.2	24.0	52.9	53 1.0000UN	0.00		4.58	1	PUNJAB	
TO 106067 PASN26	12 SOUTH ZONE	66.000	2	47.2	24.0	52.9	53 1.0000UN	0.00		4.58	1	PUNJAB	
BUS 102116 KKRL2 -----X 102116													
12 SOUTH ZONE		220.00	CKT	MW	MVAR	MVA	% 0.9576PU	-3.94	X----	LOSSES	----	X	AREA
TO 102083 PTRN2	12 SOUTH ZONE	220.00	1	25.2	5.3	25.8	13	0.01		0.07	1	PUNJAB	
TO 102086 RAJL2	12 SOUTH ZONE	220.00	1	-17.2	-5.5	18.0	9	0.01		0.07	1	PUNJAB	
TO 102138 PTRNPG42	12 SOUTH ZONE	220.00	1	-50.9	-21.3	55.2	27	0.11		0.56	1	PUNJAB	
TO 106066 KKRL26	12 SOUTH ZONE	66.000	1	42.9	21.4	47.9	48 1.0000UN	0.00		3.75	1	PUNJAB	
BUS 102117 CHUGWAN2 -----X 102117													
14 BORDERZONE		220.00	CKT	MW	MVAR	MVA	% 0.9712PU	-5.10	X----	LOSSES	----	X	AREA
TO 102009 CIV2	14 BORDERZONE	220.00	1	21.9	-1.3	22.0	11	0.02		0.11	1	PUNJAB	
TO 102010 KHS2	14 BORDERZONE	220.00	1	-86.7	-29.4	91.6	44	0.35		1.86	1	PUNJAB	
TO 106094 CHUGWN26	14 BORDERZONE	66.000	1	32.4	15.4	35.9	36 1.0000UN	0.00		2.04	1	PUNJAB	
TO 106094 CHUGWN26	14 BORDERZONE	66.000	2	32.4	15.4	35.9	36 1.0000UN	0.00		2.04	1	PUNJAB	
BUS 102118 CHOLSHB2 -----X 102118													
14 BORDERZONE		220.00	CKT	MW	MVAR	MVA	% 0.9833PU	-4.98	X----	LOSSES	----	X	AREA
TO 102009 CIV2	14 BORDERZONE	220.00	1	21.9	-1.3	22.0	11	0.02		0.11	1	PUNJAB	
TO 102010 KHS2	14 BORDERZONE	220.00	1	-86.7	-29.4	91.6	44	0.35		1.86	1	PUNJAB	
TO 106094 CHUGWN26	14 BORDERZONE	66.000	1	32.4	15.4	35.9	36 1.0000UN	0.00		2.04	1	PUNJAB	
TO 106094 CHUGWN26	14 BORDERZONE	66.000	2	32.4	15.4	35.9	36 1.0000UN	0.00		2.04	1	PUNJAB	

OUTPUT 1722 216.34KV

14 BORDERZONE TO 102014 PTL2	220.00	1	41.1	28.6	50.1	24	0.09	MVAR	1	PUNJAB
14 BORDERZONE TO 102015 SLT2	220.00	1	-22.6	-11.9	25.6	12	0.02	0.11	1	PUNJAB
13 NORTH ZONE TO 102104 GOINDWL2	220.00	1	-87.4	-47.0	99.2	47	0.49	2.63	1	PUNJAB
14 BORDERZONE TO 102104 GOINDWL2	220.00	2	-87.4	-47.0	99.2	47	0.49	2.63	1	PUNJAB
14 BORDERZONE TO 106049 CHLSB26	66.000	1	43.4	21.5	48.4	48	0.00	3.64	1	PUNJAB
14 BORDERZONE TO 106049 CHLSB26	66.000	2	43.4	21.5	48.4	48	0.00	3.64	1	PUNJAB
14 BORDERZONE TO 106049 CHLSB26	66.000	3	69.4	34.4	77.5	48	0.00	5.82	1	PUNJAB

BUS 102119 DHNAUL2 220.00 CKT -4.27 X---- LOSSES ---X X---- AREA
 -----X X----- ZONE -----X 102119

12 SOUTH ZONE TO 102070 GHTP2	220.00	1	-73.2	-94.7	119.7	58	1.24	MVAR	1	PUNJAB
15 WEST ZONE TO 102072 MNS2	220.00	1	67.0	17.3	69.2	16	0.44	2.37	1	PUNJAB
15 WEST ZONE TO 102095 DHURI42	220.00	1	-143.1	-22.4	144.8	70	1.41	7.50	1	PUNJAB
12 SOUTH ZONE TO 102095 DHURI42	220.00	2	-143.1	-22.4	144.8	70	1.41	7.50	1	PUNJAB
12 SOUTH ZONE TO 102108 BUDLADA2	220.00	1	87.3	31.4	92.8	45	0.37	1.96	1	PUNJAB
15 WEST ZONE TO 102108 BUDLADA2	220.00	2	87.3	31.4	92.8	45	0.37	1.96	1	PUNJAB
15 WEST ZONE TO 106082 DHNL26	66.000	1	72.5	36.5	81.2	51	0.00	6.74	1	PUNJAB
12 SOUTH ZONE TO 106082 DHNL26	66.000	2	45.3	22.8	50.7	51	0.00	4.21	1	PUNJAB

BUS 102120 BSIPTHN2 220.00 CKT -0.48 X---- LOSSES ---X X---- AREA
 -----X X----- ZONE -----X 102120

11 CENTRAL ZONE TO 102027 GST2	220.00	1	-101.6	-71.6	124.3	58	0.90	MVAR	1	PUNJAB
12 SOUTH ZONE TO 102038 GB12	220.00	1	46.7	43.4	63.8	30	0.18	0.93	1	PUNJAB
11 CENTRAL ZONE TO 106062 BSPTHN26	66.000	1	54.9	28.2	61.8	62	0.00	5.67	1	PUNJAB

11 CENTRAL ZONE

OUTPUT 1722

BUS 102121 UDOK2 220.00 CKT MW MVAR MVA % 0.9759PU -4.07 X--- LOSSES ---X X----- AREA
 X X----- ZONE -----X 102121

14 BORDERZONE 214.71KV
 TO 102004 WGT2 220.00 1 -49.3 -3.7 49.5 24
 14 BORDERZONE 0.10 0.53 1 PUNJAB
 TO 102011 VRP2 220.00 1 -5.2 -24.7 25.2 12 0.02 0.12 1 PUNJAB
 14 BORDERZONE
 TO 106071 UDOK26 66.000 1 54.5 28.4 61.5 61 1.0000UN 0.00 5.95 1 PUNJAB
 14 BORDERZONE

BUS 102122 GBG42 220.00 CKT MW MVAR MVA % 0.9925PU -0.99 X--- LOSSES ---X X----- AREA
 X X----- ZONE -----X 102122

11 CENTRAL ZONE 218.34KV
 TO SHUNT
 TO 102038 GB12 220.00 1 0.0 -18.6 18.6 19 0.00 0.01 1 PUNJAB
 11 CENTRAL ZONE -40.5 -1.1 40.5 19.7 45.0 45 1.0000UN 0.00 3.09 1 PUNJAB
 TO 106063 GBGR426
 11 CENTRAL ZONE

BUS 102123 SANDHOUR2 220.00 CKT MW MVAR MVA % 0.9825PU -2.87 X--- LOSSES ---X X----- AREA
 X X----- ZONE -----X 102123

12 SOUTH ZONE 216.14KV
 TO 102074 BRNB2 220.00 1 38.4 -23.2 44.9 21 0.21 1.10 1 PUNJAB
 12 SOUTH ZONE
 TO 102075 PKWL2 220.00 1 89.7 18.8 91.6 43 0.45 2.39 1 PUNJAB
 11 CENTRAL ZONE
 TO 102078 MLK2 220.00 1 -79.8 -5.2 79.9 38 0.32 1.69 1 PUNJAB
 12 SOUTH ZONE
 TO 102078 MLK2 220.00 2 -79.8 -5.2 79.9 38 0.32 1.69 1 PUNJAB
 12 SOUTH ZONE
 TO 106090 SANDHR26 66.000 1 31.5 14.8 34.8 35 1.0000UN 0.00 1.88 1 PUNJAB
 12 SOUTH ZONE

BUS 102125 CHAJLT2 220.00 CKT MW MVAR MVA % 0.9540PU -3.58 X--- LOSSES ---X X----- AREA
 X X----- ZONE -----X 102125

12 SOUTH ZONE 209.88KV
 TO 102095 DHUR142 220.00 1 -81.3 -31.1 87.1 42 0.69 3.68 1 PUNJAB
 12 SOUTH ZONE
 TO 102095 DHUR142 220.00 2 -81.3 -31.1 87.1 42 0.69 3.68 1 PUNJAB
 12 SOUTH ZONE
 TO 102110 BANGAN2 220.00 1 29.1 3.9 29.3 14 0.08 0.45 1 PUNJAB

OUTPUT 1722

11 CENTRAL ZONE
 TO 106095 BHR126 66.000 1 37.9 17.2 41.6 26 1.0000UN 0.00 1.64 1 PUNJAB
 12 SOUTH ZONE

BUS 102136 HSHRPR2 220.00 CKT MM MVAR MVA % 0.9660PU -4.42 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 102136 212.53KV

13 NORTH ZONE
 TO 102093 NKDR42 220.00 1 -74.8 -30.4 80.8 39 0.55 2.93 1 PUNJAB
 13 NORTH ZONE
 TO 102111 RHNJT2 220.00 1 -24.5 -23.2 33.7 16 0.09 0.46 1 PUNJAB
 TO 106080 HSPR26 66.000 1 99.3 53.6 112.9 71 1.0000UN 0.00 12.80 1 PUNJAB
 13 NORTH ZONE

BUS 102138 PTRNPG42 220.00 CKT MM MVAR MVA % 0.9630PU -3.43 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 102138 211.85KV

12 SOUTH ZONE
 TO 102072 MNS2 220.00 1 105.9 26.1 109.0 53 1.01 5.37 1 PUNJAB
 15 WEST ZONE
 TO 102081 SUN2 220.00 1 26.6 26.7 37.7 18 0.06 0.34 1 PUNJAB
 12 SOUTH ZONE
 TO 102081 SUN2 220.00 2 26.6 26.7 37.7 18 0.06 0.34 1 PUNJAB
 12 SOUTH ZONE
 TO 102083 PTRN2 220.00 1 65.5 22.7 69.3 33 0.17 0.91 1 PUNJAB
 12 SOUTH ZONE
 TO 102083 PTRN2 220.00 2 65.5 22.7 69.3 33 0.17 0.91 1 PUNJAB
 12 SOUTH ZONE
 TO 102086 RAJ12 220.00 1 29.7 14.2 32.9 16 0.04 0.21 1 PUNJAB
 12 SOUTH ZONE
 TO 102109 JHUNTR2 220.00 1 117.0 31.1 121.1 58 0.09 5.28 1 PUNJAB
 15 WEST ZONE
 TO 102116 KKR12 220.00 1 51.0 19.1 54.5 26 0.11 0.56 1 PUNJAB
 12 SOUTH ZONE
 TO 104022 PATRANPG4 400.00 1 -243.9 -94.7 261.7 52 1.0000LK 0.00 18.46 1 PUNJAB
 12 SOUTH ZONE
 TO 104022 PATRANPG4 400.00 2 -243.9 -94.7 261.7 52 1.0000LK 0.00 18.46 1 PUNJAB

BUS 102140 MAJRA2 220.00 CKT MM MVAR MVA % 0.9856PU -0.86 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 102140 216.84KV

12 SOUTH ZONE
 TO 102026 GNG2 220.00 1 -89.0 -33.9 95.3 45 0.90 4.80 1 PUNJAB
 13 NORTH ZONE
 TO 102029 MOH2 220.00 1 -13.7 -18.6 23.1 11 0.02 0.11 1 PUNJAB

OUTPUT 1722

12 SOUTH ZONE TO 106084 MAJR26	66.000	1	51.4	26.3	57.7	58	1.00000LK	0.00	5.14	1	PUNJAB
12 SOUTH ZONE TO 106084 MAJR26	66.000	2	51.4	26.3	57.7	58	1.00000LK	0.00	5.14	1	PUNJAB
BUS 102141 DHRMKOTZ -----X X----- ZONE -----X 102141	220.00	220.00	CTK	MW	MVAR	MVA	% 0.9790PU	-4.96	X----	LOSSES	---X X----- AREA
15 WEST ZONE TO 102058 TDBH2	220.00	1	-4.4	-6.2	7.7	4	215.38KV	0.00	0.01	1	PUNJAB
15 WEST ZONE TO 102058 TDBH2	220.00	2	-4.4	-6.2	7.7	4		0.00	0.01	1	PUNJAB
15 WEST ZONE TO 102092 MKHU42	220.00	1	-44.4	-17.4	47.7	23		0.05	0.29	1	PUNJAB
14 BORDERZONE TO 102092 MKHU42	220.00	2	-44.4	-17.4	47.7	23		0.05	0.29	1	PUNJAB
14 BORDERZONE TO 106075 DRMKT26	66.000	1	60.1	29.1	66.8	42	1.00000UN	0.00	4.36	1	PUNJAB
15 WEST ZONE TO 106075 DRMKT26	66.000	2	37.6	18.2	41.7	42	1.00000UN	0.00	2.73	1	PUNJAB
BUS 102142 JADLA2 -----X X----- ZONE -----X 102142	220.00	220.00	CTK	MW	MVAR	MVA	% 1.0083PU	-1.17	X----	LOSSES	---X X----- AREA
12 SOUTH ZONE TO 102027 GST2	220.00	1	-138.6	-52.9	148.3	68	221.82KV	1.27	6.78	1	PUNJAB
12 SOUTH ZONE TO 102027 GST2	220.00	2	-138.6	-52.9	148.3	68		1.27	6.78	1	PUNJAB
12 SOUTH ZONE TO 102052 GRY2	220.00	1	119.3	41.1	126.1	58		1.65	8.80	1	PUNJAB
11 CENTRAL ZONE TO 102170 BANGAZ	220.00	1	110.6	42.8	118.6	55		1.03	5.47	1	PUNJAB
TO 106089 JDLA26	66.000	1	47.2	21.9	52.1	33	1.00000UN	0.00	2.50	1	PUNJAB
12 SOUTH ZONE BUS 102146 MOHALI42 -----X X----- ZONE -----X 102146	220.00	220.00	CTK	MW	MVAR	MVA	% 0.9926PU	0.60	X----	LOSSES	---X X----- AREA
12 SOUTH ZONE TO 102029 MOH2	220.00	1	103.1	-8.9	103.5	49	218.37KV	0.44	2.34	1	PUNJAB
12 SOUTH ZONE TO 102030 MOHL2	220.00	1	1.6	6.8	7.0	3		0.00	0.01	1	PUNJAB
12 SOUTH ZONE TO 102031 DRB2	220.00	1	130.2	15.0	131.1	61		0.57	3.03	1	PUNJAB

TO 106188 SHRR26 66.000 1 106.8 33.8 OUTPUT 1722 112.0 70 1.0000UN 0.00 12.41 1 PUNJAB

BUS 102173 LTTKLN2 220.00 CKT MW MVAR MVA % 0.9795PU -3.10 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 102173

11 CENTRAL ZONE 215.49KV
 TO 102049 FZRL2 220.00 1 58.3 5.2 58.6 28 MW MVAR MVA
 11 CENTRAL ZONE 220.00 2 -133.0 -33.8 137.2 65 0.13 0.69 1 PUNJAB
 TO 102099 LDHN42
 11 CENTRAL ZONE 66.000 1 74.7 28.7 80.0 50 1.0000UN 0.20 1.09 1 PUNJAB
 TO 106189 LKLB26
 11 CENTRAL ZONE 0.00 6.25 1 PUNJAB

BUS 102174 SNWLB2 220.00 CKT MW MVAR MVA % 0.9887PU -1.77 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 102174

11 CENTRAL ZONE 217.51KV
 TO 102041 KOH2 220.00 1 7.4 7.1 10.2 4 MW MVAR MVA
 11 CENTRAL ZONE 220.00 1 -30.5 -26.2 40.2 17 0.00 0.03 1 PUNJAB
 TO 102042 GHULAL2
 12 SOUTH ZONE 220.00 1 23.1 19.1 30.0 14 0.10 0.60 1 PUNJAB
 TO 102102 DORH2
 11 CENTRAL ZONE 0.01 0.08 1 PUNJAB

BUS 104001 MLKT4 400.00 CKT MW MVAR MVA % 1.0005PU 1.20 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 104001

12 SOUTH ZONE 400.18KV
 TO 102097 MLK42 220.00 1 122.8 35.1 127.7 41 1.0000UN 0.00 6.45 1 PUNJAB
 12 SOUTH ZONE 220.00 2 122.8 35.1 127.7 41 1.0000UN 0.00 6.45 1 PUNJAB
 TO 102097 MLK42
 12 SOUTH ZONE 220.00 3 194.5 55.6 202.3 40 1.0000UN 0.00 10.22 1 PUNJAB
 TO 102097 MLK42
 12 SOUTH ZONE 400.00 1 -145.9 34.3 149.9 19 0.29 3.24 1 PUNJAB
 TO 104002 PTLA4
 12 SOUTH ZONE 400.00 2 -145.9 34.3 149.9 19 0.29 3.24 1 PUNJAB
 TO 104002 PTLA4
 12 SOUTH ZONE 400.00 2 -145.9 34.3 149.9 19 0.29 3.24 1 PUNJAB
 TO 104003 LUDHN4
 11 CENTRAL ZONE 400.00 1 -133.6 34.0 137.8 17 0.19 2.09 1 PUNJAB
 TO 104003 LUDHN4
 11 CENTRAL ZONE 400.00 2 -133.6 34.0 137.8 17 0.19 2.09 1 PUNJAB
 TO 104006 AMRTSR4
 14 BORDERZONE 400.00 1 8.9 -78.9 79.4 10 0.00 0.05 1 PUNJAB
 TO 104006 AMRTSR4
 14 BORDERZONE 400.00 2 8.9 -78.9 79.4 10 0.00 0.05 1 PUNJAB

OUTPUT 1722

TO	204009	KATHL4	400.00	1	92.4	-36.7	99.4	12	0.26	2.95	2	HARYANA				
	21	HARYANASTU														
TO	204036	KRUKSHTRA4	400.00	1	4.4	-34.0	34.3	4	0.01	0.07	2	HARYANA				
	21	HARYANASTU														
TO	204036	KRUKSHTRA4	400.00	2	4.4	-34.0	34.3	4	0.01	0.07	2	HARYANA				
	21	HARYANASTU														
BUS	104002	PTLA4	400.00	CKT	MW	MVAR	MVA	%	0.9954PU	2.37	X----	LOSSES	---X	X----	AREA	
		ZONE							398.15KV			MW	MVAR		1	PUNJAB
		12 SOUTH ZONE														
TO	102096	PTA42	220.00	1	149.9	43.2	156.0	50	1.00000UN	0.00	9.73	1	PUNJAB			
	12	SOUTH ZONE														
TO	102096	PTA42	220.00	2	149.9	43.2	156.0	50	1.00000UN	0.00	9.73	1	PUNJAB			
	12	SOUTH ZONE														
TO	102096	PTA42	220.00	3	237.5	68.5	247.2	49	1.00000UN	0.00	15.41	1	PUNJAB			
	12	SOUTH ZONE														
TO	104001	MLKT4	400.00	1	146.2	-67.0	160.8	20		0.29	3.24	1	PUNJAB			
	12	SOUTH ZONE														
TO	104001	MLKT4	400.00	2	146.2	-67.0	160.8	20		0.29	3.24	1	PUNJAB			
	12	SOUTH ZONE														
TO	104022	PATRAPNG4	400.00	1	394.7	21.4	395.3	49		1.33	14.79	1	PUNJAB			
	12	SOUTH ZONE														
TO	104022	PATRAPNG4	400.00	2	394.7	21.4	395.3	49		1.33	14.79	1	PUNJAB			
	12	SOUTH ZONE														
TO	104025	MOHALI74	400.00	1	-83.3	-20.5	85.8	11		0.08	0.95	1	PUNJAB			
	12	SOUTH ZONE														
TO	204010	PNCHKL4	400.00	1	-313.8	-22.7	314.6	39		1.41	15.47	2	HARYANA			
	21	HARYANASTU														
TO	204010	PNCHKL4	400.00	2	-313.8	-22.7	314.6	39		1.41	15.47	2	HARYANA			
	21	HARYANASTU														
TO	504003	NLGRH4	400.00	1	-454.1	1.0	454.1	57		4.41	58.94	5	HIMACHAL			
	51	HIMACHALSTU														
TO	504003	NLGRH4	400.00	2	-454.1	1.0	454.1	57		4.41	58.94	5	HIMACHAL			
	51	HIMACHALSTU														
BUS	104003	LUDHN4	400.00	CKT	MW	MVAR	MVA	%	0.9968PU	2.02	X----	LOSSES	---X	X----	AREA	
		ZONE							398.73KV			MW	MVAR		1	PUNJAB
		11 CENTRAL ZONE														
TO	102099	LDHN42	220.00	1	202.9	43.6	207.5	66	1.00000UN	0.00	17.16	1	PUNJAB			
	11	CENTRAL ZONE														
TO	102099	LDHN42	220.00	2	202.9	43.6	207.5	66	1.00000UN	0.00	17.16	1	PUNJAB			
	11	CENTRAL ZONE														
TO	102099	LDHN42	220.00	3	202.9	43.6	207.5	66	1.00000UN	0.00	17.16	1	PUNJAB			
	11	CENTRAL ZONE														
TO	102099	LDHN42	220.00	4	321.4	69.0	328.7	66	1.00000UN	0.00	27.18	1	PUNJAB			
	11	CENTRAL ZONE														

OUTPUT 1722

TO 104001 MLKT4	400.00	1	133.7	-59.6	146.4	18	0.19	2.09	1	PUNJAB
12 SOUTH ZONE										
TO 104001 MLKT4	400.00	2	133.7	-59.6	146.4	18	0.19	2.09	1	PUNJAB
12 SOUTH ZONE										
TO 104004 JALNDHR4	400.00	1	-69.5	-112.8	132.5	16	0.17	1.88	1	PUNJAB
13 NORTH ZONE										
TO 104025 MOHALI74	400.00	1	-126.7	-5.2	126.8	16	0.20	2.20	1	PUNJAB
12 SOUTH ZONE										
TO 504012 KOLDAMA4	400.00	1	-500.6	18.8	501.0	45	5.49	73.32	5	HIMACHAL
51 HIMACHALSTU										
TO 504012 KOLDAMA4	400.00	2	-500.6	18.8	501.0	45	5.49	73.32	5	HIMACHAL
51 HIMACHALSTU										

BUS 104004 JALNDHR4 400.00 CKT MW MVAR MVA % 1.0106PU 2.49 X---- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 104004

13 NORTH ZONE											
TO 102098 JLNDR42	220.00	1	309.8	97.4	324.7	65	1.0000UN	0.00	25.81	1	PUNJAB
13 NORTH ZONE											
TO 102098 JLNDR42	220.00	2	309.8	97.4	324.7	65	1.0000UN	0.00	25.81	1	PUNJAB
13 NORTH ZONE											
TO 104003 LUDHN4	400.00	1	69.7	78.3	104.9	13	0.17	1.88	1	PUNJAB	
11 CENTRAL ZONE											
TO 104005 MOGAPG4	400.00	1	106.3	26.0	109.4	13	0.21	2.29	1	PUNJAB	
15 WEST ZONE											
TO 104005 MOGAPG4	400.00	2	106.3	26.0	109.4	13	0.21	2.29	1	PUNJAB	
15 WEST ZONE											
TO 104006 AMRTSR4	400.00	1	161.9	11.2	162.3	20	0.43	4.75	1	PUNJAB	
14 BORDERZONE											
TO 104008 NAKODAR4	400.00	1	113.2	-27.1	116.4	7	0.20	3.00	1	PUNJAB	
13 NORTH ZONE											
TO 104008 NAKODAR4	400.00	2	113.2	-27.1	116.4	7	0.20	3.00	1	PUNJAB	
13 NORTH ZONE											
TO 104024 GRDSP74	400.00	1	124.8	16.1	125.8	15	0.28	3.08	1	PUNJAB	
14 BORDERZONE											
TO 104024 GRDSP74	400.00	2	124.8	16.1	125.8	15	0.28	3.08	1	PUNJAB	
14 BORDERZONE											
TO 404009 SAMBA4	400.00	1	-155.1	-34.2	158.8	19	0.90	9.98	4	J&K	
41 J&KSTU											
TO 404009 SAMBA4	400.00	2	-155.1	-34.2	158.8	19	0.90	9.98	4	J&K	
41 J&KSTU											
TO 504004 CHMERA14	400.00	1	-332.6	-58.6	337.7	41	3.09	34.47	5	HIMACHAL	
51 HIMACHALSTU											
TO 504004 CHMERA14	400.00	2	-332.6	-58.6	337.7	41	3.09	34.47	5	HIMACHAL	
51 HIMACHALSTU											
TO 504018 CHAMERAPP4	400.00	1	-282.1	-64.5	289.4	35	2.62	29.18	5	HIMACHAL	

OUTPUT 1722

51 HIMACHALSTU TO 504018 CHAMERAPP4 51 HIMACHALSTU	400.00	2	-282.1	-64.5	289.4	35	2.62	29.18	5	HIMACHAL	
BUS 104005 MOGAPG4 -----X X-----X 104005	400.00	400.00	CKT	MW	MVAR	MVA	% 1.0008PU 400.32KV	1.51	X---	LOSSES ---X X-----	AREA
15 WEST ZONE											
TO 102100 MOG42	220.00	1	218.9	39.9	222.5	71	1.0000UN		MVAR	19.57	1 PUNJAB
15 WEST ZONE											
TO 102100 MOG42	220.00	2	173.3	31.6	176.2	70	1.0000UN		MVAR	15.50	1 PUNJAB
15 WEST ZONE											
TO 102100 MOG42	220.00	3	173.3	31.6	176.2	70	1.0000UN		MVAR	15.50	1 PUNJAB
15 WEST ZONE											
TO 102100 MOG42	220.00	4	173.3	31.6	176.2	70	1.0000UN		MVAR	15.50	1 PUNJAB
15 WEST ZONE											
TO 104004 JALNDR4	400.00	1	-106.1	-69.8	127.0	16			MVAR	2.29	1 PUNJAB
13 NORTH ZONE											
TO 104004 JALNDR4	400.00	2	-106.1	-69.8	127.0	16			MVAR	2.29	1 PUNJAB
13 NORTH ZONE											
TO 104008 NAKODAR4	400.00	1	55.8	-47.1	73.1	9			MVAR	0.55	1 PUNJAB
13 NORTH ZONE											
TO 104008 NAKODAR4	400.00	2	55.8	-47.1	73.1	9			MVAR	0.55	1 PUNJAB
13 NORTH ZONE											
TO 104013 TALWANDI4	400.00	1	-346.7	19.3	347.2	43			MVAR	26.27	1 PUNJAB
15 WEST ZONE											
TO 104013 TALWANDI4	400.00	2	-346.7	19.3	347.2	43			MVAR	26.27	1 PUNJAB
15 WEST ZONE											
TO 107001 MOGAPG7	765.00	1	-73.0	118.6	139.3	9	1.0000LK		MVAR	1.61	1 PUNJAB
15 WEST ZONE											
TO 107001 MOGAPG7	765.00	2	-73.0	118.6	139.3	9	1.0000LK		MVAR	1.61	1 PUNJAB
15 WEST ZONE											
TO 204008 HISAR4	400.00	1	58.4	-54.5	79.8	10			MVAR	1.50	2 HARYANA
21 HARYANASTU											
TO 204018 FTEHBD4	400.00	1	-191.5	19.1	192.5	24			MVAR	9.01	2 HARYANA
21 HARYANASTU											
TO 304002 BHWADI4	400.00	1	167.1	-70.7	181.4	22			MVAR	15.04	3 RAJSTHAN
31 RAJSTHANSTU											
TO 304002 BHWADI4	400.00	2	167.1	-70.7	181.4	22			MVAR	15.04	3 RAJSTHAN
31 RAJSTHANSTU											
BUS 104006 AMRTSR4 -----X X-----X 104006	400.00	400.00	CKT	MW	MVAR	MVA <td>% 1.0022PU 400.90KV</td> <td>0.91</td> <td>X--- <td>LOSSES ---X X-----</td> <td>AREA</td> </td>	% 1.0022PU 400.90KV	0.91	X--- <td>LOSSES ---X X-----</td> <td>AREA</td>	LOSSES ---X X-----	AREA
14 BORDERZONE											
TO 102101 ASR42	220.00	1	208.3	60.1	216.8	69	1.0000UN		MVAR	18.54	1 PUNJAB
14 BORDERZONE											

TO	FROM	ZONE	400.00 CKT	MW	MVAR	MVA	% 1.0011PU	0.49 X	LOSSES	MW	MVAR	AREA
TO 102101	ASR42	14 BORDERZONE	220.00	2	330.0	95.3	343.5	69	1.0000UN	0.00	29.36	1 PUNJAB
TO 102101	ASR42	14 BORDERZONE	220.00	3	330.0	95.3	343.5	69	1.0000UN	0.00	29.36	1 PUNJAB
TO 104001	MLKT4	12 SOUTH ZONE	400.00	1	-8.9	-71.3	71.8	9		0.00	0.05	1 PUNJAB
TO 104001	MLKT4	12 SOUTH ZONE	400.00	2	-8.9	-71.3	71.8	9		0.00	0.05	1 PUNJAB
TO 104004	JALNDHR4	13 NORTH ZONE	400.00	1	-161.5	-54.2	170.4	21		0.43	4.75	1 PUNJAB
TO 104007	MAKHU4	14 BORDERZONE	400.00	1	55.7	-13.8	57.3	7		0.04	0.41	1 PUNJAB
TO 104007	MAKHU4	14 BORDERZONE	400.00	2	55.7	-13.8	57.3	7		0.04	0.41	1 PUNJAB
TO 104024	GRDSP74	14 BORDERZONE	400.00	1	-36.1	-12.2	38.1	5		0.02	0.22	1 PUNJAB
TO 104024	GRDSP74	14 BORDERZONE	400.00	2	-36.1	-12.2	38.1	5		0.02	0.22	1 PUNJAB
TO 504013	HMRPR4	51 HIMACHALSTU	400.00	1	-364.1	-1.0	364.1	45		3.29	36.63	5 HIMACHAL
TO 504013	HMRPR4	51 HIMACHALSTU	400.00	2	-364.1	-1.0	364.1	45		3.29	36.63	5 HIMACHAL
BUS 104007 MAKHU4 400.00 CKT MW MVAR MVA % 1.0011PU 0.49 X												
-----X X----- ZONE -----X 104007												
TO 102092	MKHU42	14 BORDERZONE	220.00	1	222.5	57.8	229.9	73	1.0000UN	0.00	20.88	1 PUNJAB
TO 102092	MKHU42	14 BORDERZONE	220.00	2	222.5	57.8	229.9	73	1.0000UN	0.00	20.88	1 PUNJAB
TO 104006	AMRTSR4	14 BORDERZONE	400.00	1	-55.6	-21.4	59.6	7		0.04	0.41	1 PUNJAB
TO 104006	AMRTSR4	14 BORDERZONE	400.00	2	-55.6	-21.4	59.6	7		0.04	0.41	1 PUNJAB
TO 104008	NAKODAR4	13 NORTH ZONE	400.00	1	-89.8	-34.1	96.1	12		0.08	0.92	1 PUNJAB
TO 104008	NAKODAR4	13 NORTH ZONE	400.00	2	-89.8	-34.1	96.1	12		0.08	0.92	1 PUNJAB
TO 104012	MUKTSAR4	15 WEST ZONE	400.00	1	-77.0	-2.4	77.0	10		0.11	1.28	1 PUNJAB
TO 104012	MUKTSAR4	15 WEST ZONE	400.00	2	-77.0	-2.4	77.0	10		0.11	1.28	1 PUNJAB
BUS 104008 NAKODAR4 400.00 CKT MW MVAR MVA % 1.0041PU 1.04 X												
-----X X----- ZONE -----X 104008												

OUTPUT 1722

13 NORTH ZONE	220.00	1	158.3	53.7	167.1	53	1.00000UN	0.00	10.97	1	PUNJAB
TO 102093 NKDR42	220.00	2	158.3	53.7	167.1	53	1.00000UN	0.00	10.97	1	PUNJAB
13 NORTH ZONE	400.00	1	-113.0	-67.8	131.8	8		0.20	3.00	1	PUNJAB
TO 104004 JALNDHR4	400.00	2	-113.0	-67.8	131.8	8		0.20	3.00	1	PUNJAB
13 NORTH ZONE	400.00	1	-55.8	9.5	56.6	7		0.05	0.55	1	PUNJAB
TO 104005 MOGAPG4	400.00	2	-55.8	9.5	56.6	7		0.05	0.55	1	PUNJAB
15 WEST ZONE	400.00	1	89.9	5.6	90.1	11		0.08	0.92	1	PUNJAB
TO 104007 MAKHU4	400.00	2	89.9	5.6	90.1	11		0.08	0.92	1	PUNJAB
14 BORDERZONE	400.00	1	-74.2	10.4	74.9	9		0.10	1.14	1	PUNJAB
TO 104017 DORAH4	400.00	2	-74.2	10.4	74.9	9		0.10	1.14	1	PUNJAB
11 CENTRAL ZONE	400.00	1	-5.2	-11.4	12.5	1		0.02	0.32	2	HARYANA
TO 204036 KRUKSHTRA4	400.00	2	-5.2	-11.4	12.5	1		0.02	0.32	2	HARYANA

BUS 104009 RAJPURA4 400.00 CKT 4.24 X---- LOSSES ---X X---- AREA
 -----X X---- ZONE -----X 104009 MMW MVAR 1 PUNJAB

12 SOUTH ZONE	220.00	1	313.2	48.9	317.0	63	1.00000UN	0.00	25.20	1	PUNJAB
TO 102094 RAJPR42	220.00	2	313.2	48.9	317.0	63	1.00000UN	0.00	25.20	1	PUNJAB
12 SOUTH ZONE	400.00	1	-402.8	-24.4	403.5	50		0.33	3.72	1	PUNJAB
TO 104010 RAJPURTH4	400.00	2	-402.8	-24.4	403.5	50		0.33	3.72	1	PUNJAB
12 SOUTH ZONE	400.00	1	141.0	15.4	141.9	18		0.34	3.78	1	PUNJAB
TO 104011 DHURI4	400.00	2	141.0	15.4	141.9	18		0.34	3.78	1	PUNJAB
12 SOUTH ZONE	400.00	1	169.3	-38.2	173.5	22		0.86	9.61	2	HARYANA
TO 204007 BHIWN4	400.00	2	169.3	-38.2	173.5	22		0.86	9.61	2	HARYANA
21 HARYANASTU	400.00	1	-272.2	-41.7	275.4	34		2.23	24.83	5	HIMACHAL
TO 504006 DEHAR4											
51 HIMACHALSTU											



BUS 104010 RAJPURTH4 400.00 CKT MW OUTPUT 1722
 FROM GENERATION 1400.0 MVAR -34.8R 1400.4 85 400.00KV 4.76 X----- LOSSES ---X X----- AREA
 X X----- ZONE -----X 104010

12 SOUTH ZONE	400.00	1	403.1	22.0	403.7	50	0.33	3.72	1	PUNJAB
TO 104009 RAJPURA4	400.00	1	403.1	22.0	403.7	50	0.33	3.72	1	PUNJAB
12 SOUTH ZONE	400.00	2	403.1	22.0	403.7	50	0.33	3.72	1	PUNJAB
TO 104009 RAJPURA4	400.00	2	403.1	22.0	403.7	50	0.33	3.72	1	PUNJAB
12 SOUTH ZONE	400.00	1	296.9	-39.4	299.5	37	1.37	15.32	1	PUNJAB
TO 104017 DORAH44	400.00	1	296.9	-39.4	299.5	37	1.37	15.32	1	PUNJAB
11 CENTRAL ZONE	400.00	2	296.9	-39.4	299.5	37	1.37	15.32	1	PUNJAB
TO 104017 DORAH44	400.00	2	296.9	-39.4	299.5	37	1.37	15.32	1	PUNJAB
11 CENTRAL ZONE	400.00	2	296.9	-39.4	299.5	37	1.37	15.32	1	PUNJAB
TO 104017 DORAH44	400.00	2	296.9	-39.4	299.5	37	1.37	15.32	1	PUNJAB

BUS 104011 DHURIA4 400.00 CKT MW 395.94KV
 X X----- ZONE -----X 104011 2.84 X----- LOSSES ---X X----- AREA

12 SOUTH ZONE	220.00	1	288.3	69.4	296.5	59 1.0000UN	0.00	22.44	1	PUNJAB
TO 102095 DHURIA42	220.00	1	288.3	69.4	296.5	59 1.0000UN	0.00	22.44	1	PUNJAB
12 SOUTH ZONE	220.00	2	288.3	69.4	296.5	59 1.0000UN	0.00	22.44	1	PUNJAB
TO 102095 DHURIA42	220.00	2	288.3	69.4	296.5	59 1.0000UN	0.00	22.44	1	PUNJAB
12 SOUTH ZONE	220.00	3	288.3	69.4	296.5	59 1.0000UN	0.00	22.44	1	PUNJAB
TO 102095 DHURIA42	220.00	3	288.3	69.4	296.5	59 1.0000UN	0.00	22.44	1	PUNJAB
12 SOUTH ZONE	400.00	1	-140.7	-58.2	152.2	19	0.34	3.78	1	PUNJAB
TO 104009 RAJPURA4	400.00	1	-140.7	-58.2	152.2	19	0.34	3.78	1	PUNJAB
12 SOUTH ZONE	400.00	2	-140.7	-58.2	152.2	19	0.34	3.78	1	PUNJAB
TO 104009 RAJPURA4	400.00	2	-140.7	-58.2	152.2	19	0.34	3.78	1	PUNJAB
12 SOUTH ZONE	400.00	1	-291.8	-46.0	295.4	37	1.40	15.59	1	PUNJAB
TO 104013 TALWANDIA4	400.00	1	-291.8	-46.0	295.4	37	1.40	15.59	1	PUNJAB
15 WEST ZONE	400.00	2	-291.8	-46.0	295.4	37	1.40	15.59	1	PUNJAB
TO 104013 TALWANDIA4	400.00	2	-291.8	-46.0	295.4	37	1.40	15.59	1	PUNJAB

BUS 104012 MUKTSARA4 400.00 CKT MW 399.12KV
 X X----- ZONE -----X 104012 1.38 X----- LOSSES ---X X----- AREA

15 WEST ZONE	220.00	1	149.7	24.5	151.7	48 1.0000UN	0.00	9.15	1	PUNJAB
TO 102091 MUKSR42	220.00	1	149.7	24.5	151.7	48 1.0000UN	0.00	9.15	1	PUNJAB
15 WEST ZONE	220.00	2	149.7	24.5	151.7	48 1.0000UN	0.00	9.15	1	PUNJAB
TO 102091 MUKSR42	220.00	2	149.7	24.5	151.7	48 1.0000UN	0.00	9.15	1	PUNJAB
15 WEST ZONE	220.00	3	237.1	38.8	240.3	48 1.0000UN	0.00	14.50	1	PUNJAB
TO 102091 MUKSR42	220.00	3	237.1	38.8	240.3	48 1.0000UN	0.00	14.50	1	PUNJAB
15 WEST ZONE	400.00	1	77.1	-49.0	91.4	11	0.11	1.28	1	PUNJAB
TO 104007 MAKHU4	400.00	1	77.1	-49.0	91.4	11	0.11	1.28	1	PUNJAB
14 BORDERZONE	400.00	2	77.1	-49.0	91.4	11	0.11	1.28	1	PUNJAB
TO 104007 MAKHU4	400.00	2	77.1	-49.0	91.4	11	0.11	1.28	1	PUNJAB
14 BORDERZONE	400.00	1	-345.4	5.1	345.4	43	2.41	26.87	1	PUNJAB
TO 104013 TALWANDIA4	400.00	1	-345.4	5.1	345.4	43	2.41	26.87	1	PUNJAB

OUTPUT 1722

15 WEST ZONE TO 104013 TALWANDIA4 15 WEST ZONE	400.00	2	-345.4	5.1	345.4	43	2.41	26.87	1	PUNJAB
BUS 104013 TALWANDIA4 FROM GENERATION	400.00	1	1980.0	-147.5R	1985.5	85	5.83	X---	X---	AREA
15 WEST ZONE TO 104005 MOGAPG4 15 WEST ZONE TO 104005 MOGAPG4 15 WEST ZONE TO 104011 DHURIA4 12 SOUTH ZONE TO 104011 DHURIA4 12 SOUTH ZONE TO 104012 MUKTSAR4 15 WEST ZONE TO 104012 MUKTSAR4 15 WEST ZONE	400.00	2	349.0	-50.5	352.7	44	2.36	26.27	1	PUNJAB
15 WEST ZONE TO 104005 MOGAPG4 15 WEST ZONE TO 104011 DHURIA4 12 SOUTH ZONE TO 104011 DHURIA4 12 SOUTH ZONE TO 104012 MUKTSAR4 15 WEST ZONE TO 104012 MUKTSAR4 15 WEST ZONE	400.00	2	349.0	-50.5	352.7	44	2.36	26.27	1	PUNJAB
12 SOUTH ZONE TO 104011 DHURIA4 12 SOUTH ZONE TO 104012 MUKTSAR4 15 WEST ZONE TO 104012 MUKTSAR4 15 WEST ZONE	400.00	1	293.2	14.3	293.5	36	1.40	15.59	1	PUNJAB
12 SOUTH ZONE TO 104011 DHURIA4 12 SOUTH ZONE TO 104012 MUKTSAR4 15 WEST ZONE TO 104012 MUKTSAR4 15 WEST ZONE	400.00	2	293.2	14.3	293.5	36	1.40	15.59	1	PUNJAB
15 WEST ZONE TO 104012 MUKTSAR4 15 WEST ZONE	400.00	1	347.8	-37.5	349.8	43	2.41	26.87	1	PUNJAB
15 WEST ZONE TO 104012 MUKTSAR4 15 WEST ZONE	400.00	2	347.8	-37.5	349.8	43	2.41	26.87	1	PUNJAB
BUS 104017 DORAHA4 11 CENTRAL ZONE TO 102129 DORH42 11 CENTRAL ZONE TO 102129 DORH42 11 CENTRAL ZONE TO 104008 NAKODAR4 13 NORTH ZONE TO 104008 NAKODAR4 13 NORTH ZONE TO 104010 RAJPURTH4 12 SOUTH ZONE TO 104010 RAJPURTH4 12 SOUTH ZONE	400.00	1	221.2	47.4	226.2	45	1.80	X---	X---	AREA
11 CENTRAL ZONE TO 102129 DORH42 11 CENTRAL ZONE TO 102129 DORH42 11 CENTRAL ZONE TO 104008 NAKODAR4 13 NORTH ZONE TO 104008 NAKODAR4 13 NORTH ZONE TO 104010 RAJPURTH4 12 SOUTH ZONE TO 104010 RAJPURTH4 12 SOUTH ZONE	400.00	2	221.2	47.4	226.2	45	1.80	X---	X---	AREA
11 CENTRAL ZONE TO 104008 NAKODAR4 13 NORTH ZONE TO 104008 NAKODAR4 13 NORTH ZONE TO 104010 RAJPURTH4 12 SOUTH ZONE TO 104010 RAJPURTH4 12 SOUTH ZONE	400.00	1	74.3	-55.8	92.9	12	0.00	12.80	1	PUNJAB
11 CENTRAL ZONE TO 104008 NAKODAR4 13 NORTH ZONE TO 104008 NAKODAR4 13 NORTH ZONE TO 104010 RAJPURTH4 12 SOUTH ZONE TO 104010 RAJPURTH4 12 SOUTH ZONE	400.00	2	74.3	-55.8	92.9	12	0.00	12.80	1	PUNJAB
13 NORTH ZONE TO 104010 RAJPURTH4 12 SOUTH ZONE TO 104010 RAJPURTH4 12 SOUTH ZONE	400.00	1	295.5	8.4	295.6	37	0.10	1.14	1	PUNJAB
13 NORTH ZONE TO 104010 RAJPURTH4 12 SOUTH ZONE TO 104010 RAJPURTH4 12 SOUTH ZONE	400.00	2	295.5	8.4	295.6	37	0.10	1.14	1	PUNJAB
BUS 104022 PATRANPG4 12 SOUTH ZONE TO 102138 PTRNPG42 12 SOUTH ZONE TO 102138 PTRNPG42 12 SOUTH ZONE TO 104002 PTLA4	400.00	1	243.9	113.1	268.9	54	0.24	X---	X---	AREA
12 SOUTH ZONE TO 102138 PTRNPG42 12 SOUTH ZONE TO 102138 PTRNPG42 12 SOUTH ZONE TO 104002 PTLA4	400.00	2	243.9	113.1	268.9	54	0.24	X---	X---	AREA
12 SOUTH ZONE TO 104002 PTLA4	400.00	1	-393.4	-31.3	394.6	49	0.00	18.46	1	PUNJAB
12 SOUTH ZONE TO 104002 PTLA4	400.00	2	-393.4	-31.3	394.6	49	0.00	18.46	1	PUNJAB

OUTPUT 1722

12 SOUTH ZONE																				
104002 PTLA4	400.00	2	-393.4	-31.3	394.6	49														
12 SOUTH ZONE																				
204009 KATHL4	400.00	1	149.4	-81.9	170.4	21														
21 HARYANASTU																				
204009 KATHL4	400.00	2	149.4	-81.9	170.4	21														
21 HARYANASTU																				

BUS 104024 GRDSP74 400.00 CKT MW MVAR MVA % 1.0014PU 1.24 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 104024

14 BORDERZONE																				
102148 GURDSPR42	220.00	1	226.4	52.6	232.5	46	1.0000UN													
14 BORDERZONE																				
102148 GURDSPR42	220.00	2	226.4	52.6	232.5	46	1.0000UN													
14 BORDERZONE																				
104004 JALNDHR4	400.00	1	-124.5	-62.4	139.3	17														
13 NORTH ZONE																				
104004 JALNDHR4	400.00	2	-124.5	-62.4	139.3	17														
13 NORTH ZONE																				
104006 AMRTSR4	400.00	1	36.2	-29.9	46.9	6														
14 BORDERZONE																				
104006 AMRTSR4	400.00	2	36.2	-29.9	46.9	6														
14 BORDERZONE																				
107002 GURDSPUR7	765.00	1	-276.2	79.5	287.4	29	1.0000LK													
14 BORDERZONE																				
107002 GURDSPUR7	765.00	1	-276.2	79.5	287.4	29	1.0000LK													
14 BORDERZONE																				

BUS 104025 MOHALI74 400.00 CKT MW MVAR MVA % 0.9968PU 3.02 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 104025

12 SOUTH ZONE																				
102146 MOHALI42	220.00	1	167.0	20.4	168.3	34	1.0000UN													
12 SOUTH ZONE																				
102146 MOHALI42	220.00	2	167.0	20.4	168.3	34	1.0000UN													
12 SOUTH ZONE																				
104002 PTLA4	400.00	1	83.4	-14.3	84.6	11														
12 SOUTH ZONE																				
104003 LUDHN4	400.00	1	126.9	-28.4	130.1	16														
11 CENTRAL ZONE																				
107003 MOHALI7	765.00	1	181.5	17.4	182.3	18	1.0000LK													
14 BORDERZONE																				
204010 PNCHKL4	400.00	1	-725.8	-15.5	726.0	90														
21 HARYANASTU																				
21 HARYANASTU	400.00	1	-725.8	-15.5	726.0	90														
21 HARYANASTU																				

BUS 107001 MOGAPG7 765.00 CKT MW MVAR MVA % 0.9909PU 1.86 X--- LOSSES ---X X----- AREA
 -----X X----- ZONE -----X 107001

398.72KV
 400.54KV
 758.07KV

Transmission Work 2017-18 - Justification

Sr. No.	Name of the Works	Capacity in MVA and Line Length in kms	Est. Cost (in Lakh)	Remarks	Justification
1	400 kV S/Stn Doraha (New at Village Dhanansu)	2x500 MVA, 400/220 kV T/F	6,500.00	New Work 2017-18	Ludhiana being an industrial area is one of the major load center in the State of Punjab. It contributes about 21% share of the total State load. This load is mainly catered through adjoining 220 kV grids like Dhandari Kalan I & II, Lalton Kalan, Jamalpur, Sahnawal, Humbran, Firozpur Road, Ludhiana. The load is also catered through 400 kV PGCIL Ludhiana having an installed capacity of 1445 MVA (3 x 315 MVA + 1x500 MVA) 400/220 kV ICT. Because of industrial nature of load, the load growth in this area is comparatively higher than the other parts of the State. Due to highly congested area, neither any additional 220 kV and 66 kV line can be erected nor any new 220 kV and 66 kV grid can be constructed because of space constraints. The maximum demand recorded at 220 kV substation Jamalpur is 269 MVA against the installed capacity of 300 MVA, whereas on nearby grid 220 kV Dhandari Kalan I & II has Substation been recorded as 181.4 MVA against the installed capacity of 200 MVA and 170.7 MVA against the installed capacity 200 MVA respectively. It is further added that 220 kV Jamalpur Substation is already touched the saturation, having total installed capacity of 612.5 MVA against the limiting value of 500 MVA.
2	LLO of both ckt. of 400 kV line from 400 kV S/Stn Raipura Thermal to 400 kV S/Stn Nakodar at 400 kV S/Stn Doraha (New at village Dhanansu)	11.1 Km. 2xDC/Twin Moose	2,664.00	New Work 2017-18	
3	(i) 400 kV Bays (ii) 220 kV Bays	(i) 4 Nos. (ii) 10 Nos.	2,340.00	New Work 2017-18	
4	220 kV S/Stn Sherpur (Focal Point) (U/G from 66 kV grid with 220 kV side GIS and 66 kV side Conventional)	1x160 MVA, 220/66 kV T/F	1,990.00	New Work 2017-18	
5	LLO of both ckt. of 220 kV S/Stn Jamalpur - 220 kV S/Stn Dhandari Kalan-I line at 220 kV S/Stn Sherpur (Focal Point)	13 Km/ 420mm ² ACSR (Zebra)	1,040.26	New Work 2017-18	
6	220 kV DC line from 400 kV Grid near Doraha to 220 kV Ikolaha	12 Km. (approx.) / 420 sq mm DC ACSR Zebra	960.24	New Work 2017-18	
7	220 kV DC line from 400 kV Grid near Doraha to 220 kV Doraha	10 Km. (approx.) / 420 sq mm DC ACSR Zebra	800.20	New Work 2017-18	
8	220 kV DC line from 400 kV Grid near Doraha to 220 kV Kohara	10 Km. (approx.) / 420 sq mm DC ACSR Zebra	800.20	New Work 2017-18	
9	220 kV Bays	12 Nos. (2Nos. at 220 kV Ikolaha, 2Nos. at Doraha, 2Nos. at Kohara and 6 Nos. at	1,560.00	New Work 2017-18	

Sr. No.	Name of the Works	Capacity in MVA and Line Length in kms	Est. Cost (in Lakh)	Remarks	Justification
		400 kV Grid new Doraha(220 kV bus))			<p>Further, no load shifting is possible because of limited capacity of adjoining 220 kV Dhandari Kalan I & II Substation. Under such situation, in order to provide some relief to 220 kV Jamalpur Substation and to have an additional 400 kV source nearby Ludhiana area, PSTCL has proposed the following:</p> <p>I. 1 No. 400 kV grid nearby Doraha (village Dhanansu) having 2 x 500 MVA, 400/220 kV ICT has been identified. The 400 kV connectivity as well as 220 kV connectivity has been proposed as under:</p> <p>a. 400 kV Connectivity- LILO of both circuits of 400 kV Rajpura (Thermal) – 400 kV Nakodar D/C line at proposed 400 kV Grid nearby Doraha (village Dhanansu). LILO length= 11.1 km / 2 x D/C with twin moose conductor.</p> <p>b. 220 kV Connectivity –</p> <p>i. 220 kV D/C line from 400 kV grid nearby Doraha (220 kV Bus) to 220 kV Ikolha Substation having conductor size 0.4 sq. inch with line length =12 km (approx.)</p> <p>ii. 220 kV D/C line from 400 kV nearby Doraha (220 kV bus) to 220 kV Kohara Substation having conductor size 0.4 sq. inch with line length of 10 km (approx.)</p> <p>iii. 220 kV D/C line from 400 kV grid nearby</p>

Sr. No.	Name of the Works	Capacity in MVA and Line Length in kms	Est. Cost (in Lakh)	Remarks	Justification
					<p>Doraha (220 KV bus) to 220 KV Doraha Substation having conductor size 0.4 sq. inch with line length of 10 km (approx.)</p> <p>c. Line Bays</p> <p>i. 400 KV bays = 4 Nos. at proposed 400 KV grid near by Doraha</p> <p>ii. 220 KV bays = 12 Nos. (6 Nos. at 220 KV grid near Doraha, 2 Nos. at 220 KV Ikolaha Substation, 2 Nos. at 220 KV Kohara Substation and 2 Nos. at 220 KV Doraha Substation</p> <p>II. For providing relief to 220 KV Jamalpur Substation</p> <p>a. Creation of new 220 KV grid in the premises of 66 KV Sherpur Substation (Focal Point-I), with its 220 KV side as GIS and 66 KV side as conventional type, having installed capacity of 1x160 MVA, 220/66 KV Transformer has been proposed.</p> <p>b. 220 KV connectivity of proposed grid Sherpur shall be through LILCO of existing 220 KV Jamalpur-Dhandari Kalan D/C line at Sherpur (both circuits). LILCO length = 13 km (approx.) with conductor size of 0.4 sq. inch</p> <p>This will provide relief to 220 KV as well as 66 KV side of Ludhiana area.</p>

Sr. No.	Name of the Works	Capacity in MVA and Line Length in kms	Est. Cost (in Lakh)	Remarks	Justification
10	220 kV S/Stn Mohali (GMADA)	1x100MVA, 220/66 kV T/F	1,395.00	New Work 2017-18	This Grid Station is being developed /erected on the specific demand of GMADA in Mohali near Airport area to cater the additional load of I.T. Park, Airport Authority of India, and other miscellaneous loads coming nearby Mohali area. This grid shall have the initial installed capacity of 100 MVA, 220/66 kV which shall be enhanced to about 300 MVA in phases, later on as per the requirement of GMADA. Accordingly, connectivity at 220 kV level has been amended and now proposed through LILO of 400 kV Rajpura - 220 kV Lalru (both circuits) at 220 kV Grid GMADA.
11	LILO of both 220 kV lines from 400 kV Rajpura to 220 kV S/Stn Lalru at 220 kV S/Stn Mohali (GMADA)	7 Km/ 420mm ² ACSR (Zebra)	560.14	New Work 2017-18	
12	220 kV Bays 66 kV Bays	4 Nos. 6 Nos.	755.38	New Work 2017-18	
13	220 kV S/Stn Ghubaya (Aug)(3x100 MVA, 220/66 kV T/F)	Repl. Of 100 MVA with 160 MVA, 220/66 kV T/F	1,395.00	New Work 2017-18	The MD recorded at this s/stn during the current Paddy 2016 is 226.5 MVA against installed capacity of 300 MVA, which is about 8.166% higher than the previous Paddy 2015. Therefore the anticipated load with this load growth, at this grid in 2017-18 shall be about 245 MVA (more than 80%). Therefore replacement of 100 MVA with 160 MVA, 220/66 kV has been proposed.
14	220 kV S/Stn Rajla (Aug)(2x100 MVA, 220/66 kV T/F)	Repl. Of 100 MVA with 160 MVA, 220/66 kV T/F	881.00	New Work 2017-18	The MD recorded at this s/stn during the current Paddy 2016 is 166.76 MVA against installed capacity of 200 MVA, which is about 6.89% higher than the previous Paddy 2015. Therefore the anticipated load with this load growth, at this grid in 2017-18 shall be about 178.3 MVA (more than 80%). Therefore, replacement of 100 MVA with 160 MVA, 220/66 kV has been proposed.
15	220 kV S/Stn Sadiq (Aug)(2x100 MVA, 220/66 kV T/F)	Repl. Of 100 MVA with 160 MVA, 220/66 kV T/F	881.00	New Work 2017-18	The MD recorded at this s/stn during the current Paddy 2016 is 146.28 MVA against installed capacity of 200 MVA, which is about 18.16% higher

Sr. No.	Name of the Works	Capacity in MVA and Line Length in kms	Est. Cost (in Lakh)	Remarks	Justification
16	220 kV S/Stn Bajakhana (Aug) (2x100 MVA, 220/66 KV T/F)	Repl. Of 100 MVA with 160 MVA, 220/66 KV T/F	881.00	New Work 2017-18	than the previous Paddy 2015. Therefore the anticipated load with this load growth, at this grid in 2017-18 shall be about 172.84 MVA (more than 80%). Therefore, replacement of 100 MVA with 160 MVA, 220/66 KV has been proposed.
17	220 kV S/Stn Jamsheer (Aug) (2x100 MVA, 220/66 KV T/F)	Repl. Of 100 MVA with 160 MVA, 220/66 KV T/F	881.00	New Work 2017-18	The MD recorded at this s/stn during the current Paddy 2016 is 160.3 MVA against installed capacity of 200 MVA, which is more than 80%. Therefore, replacement of 100 MVA with 160 MVA, 220/66 KV has been proposed.
18	220 kV S/Stn Bangan (1x160 MVA, 220/66 KV T/F)	Addl 2nd 100 MVA, 220/66 KV T/F	721.00	New Work 2017-18	The MD recorded at this s/stn during the current Paddy 2016 is 120.40 MVA against installed capacity of 160 MVA. Although this MD recorded is slightly lesser than the previous MD recorded during Paddy 2015 (122.5 MVA). However from reliability point of view as well as contingency conditions, addl. 1x100 MVA, 220/66 KV T/F has been proposed.
19	220 kV S/Stn Talwandi Bhai (Aug)	Repl. of (1x16/20+1x10/12.5 MVA), 132/11 KV with 2x20 MVA, 66/11 KV T/Fs	322.00	New Work 2017-18	220 kV S/Stn Talwandi Bhai has an installed capacity of 1x100 MVA, 220/66 KV, 1x100 MVA, 220/132 KV along with 1x10/12.5 MVA and 1x16/20 MVA, 132/11 KV. The MD recorded at 220/132 KV is 82.59 MVA whereas on 220/66 KV T/F it was 63.56 MVA during the current Paddy 2016. In order

Sr. No.	Name of the Works	Capacity in MVA and Line Length in kms	Est. Cost (in Lakh)	Remarks	Justification
20	Replacement of conductor of 220 kV line from 400 kV S/Stn Ludhiana to 220 kV S/Stn Lalton Kalan (1st ckt) with HTLS conductor	1.932 Km with suitable HTLS conductor	70.00	New Work 2017-18	to provide relief to existing Auto-T/F, replacement of both (1x10/12.5 and 1x16/20) MVA, 132/11 T/Fs with 2x20 MVA, 66/11 kV T/Fs has been planned. It is further added that 2nd 160 MVA, 220/66 kV T/F is going to be installed at this s/stn very soon. During the current paddy season, the loading on 220 kV lalton kalan - 400 kV Ludhiana (1st ckt) has been recorded as 600 Amp, which is about 7% higher than the previous recorded value during paddy 2015. keeping in view the right of way constraint of the area, no addl. line can be erected in this area. Therefore, replacement of existing conductor with HTLS conductor has been proposed in line with the transmission planning criteria.
21	LILO of 220 kV S/Stn Mansa - Sunam (SC) and 220 kV S/Stn Jhunir - Sunam (SC) at 400 kV S/Stn Patran (220 kV bus).	40 Km (approx.)/ 2xDC with 420 mm ² ACSR (Zebra)	6401.60	New Work 2017-18 in place of already planned work at Sr. No. 45 of 2016-17	400 kV Patran having an installed capacity of 2x500 MVA, 400/220 kV ICTs is being erected by PGCIL as GIS grid. This work has been included as a replacement of 2 nos earlear planned transmission work i.e. 400 kV Patran - 220 kV Mansa DC 70 Kms line and 400 kV Patran - 220 kV Bangan SC 20 Kms line, as a better option of evacuation of power from 400 kV Patran on the basis of system study.
22	220 kV Bays	4 Nos. (at 220 kV Bus of 400 kV S/Stn Patran)	520.00	(Spill Over Works) & 11 (a)&(b) of 2016-17 (New Works)	

Transmission Work 2018-19 - Justification

Sr. No.	Name of the Works	Capacity in MVA and Line Length in kms	Est. Cost (in Lakh)	Remarks	Justification
1	220 kV S/Stn Alawalpur (1x100 MVA, 220/66 kV T/F)	Addl. 2nd 100 MVA, 220/66 kV T/F	721.00	New Work 2018-19	As per planning of PSPCL, some addl 66 kV links such as 66 kV Tanda road - 220 kV Alawalpur (proposed) and 66 kV Nasrala - 66 kV Adampur have been planned. Therefore, considerable load shifting will be there on 220 kV Alawalpur (proposed). In view of this, addl. 1x100 MVA, 220/66 kV T/F has been planned.
2	220 kV S/Stn Maur (1x100 MVA, 220/132kV T/F)	1x100MVA, 220/66 kV T/F to replace 2x20 MVA, 132/66 kV T/Fs	721.00	New Work 2018-19	Since the existing 2nos 132/66 kV T/Fs at proposed 220 kV Maur (U/G from 132 kV) are very old (more than 40 years) and often remain under faulty condition and keeping in view PSPCL's recommendation forwarded vide memo no. 1486 dated 06.4.2016, provision of 1x100 MVA, 220/66 kV T/F at 220 kV Maur (proposed) for feeding 66 kV load has been made.
3	220 kV Sahnawal (Aug) (3x100 MVA, 220/66 kV T/F)	Repl. Of 100 MVA with 160 MVA, 220/66 kV T/F	881.00	New Work 2018-19	The MD recorded at this s/stn during the current Paddy 2016 is 217.53 MVA against installed capacity of 300 MVA. The average load growth during the 3 years has been recorded as 7.499%. Therefore the anticipated load at this grid in 2017-18 with this avg load growth shall be about 251.4 MVA (more than 80%). Therefore replacement of 100 MVA with 160 MVA, 220/66 kV has been proposed.
4	220 kV S/Sin Kharar (Aug)	Repl. Of (16/20+20) MVA, 132/11 kV with 2x20 MVA, 66/11 kV T/F	406.64	New Work 2018-19	In order to shift load of 40 MVA, 132/11 kV T/Fs on 220/66 kV T/Fs, 2x20 MVA, 66/11 kV T/Fs have been planned, so as to achieve to optimum loading on 220/66 kV T/Fs. This will also give relief to 132 kV system of 132 kV Ropar as well as auto-T/F of 220 kV Ropar.

5	220 kV DC line from 400 kV Jalandhar (PGCIL) to 220 kV Kartarpur	Augmentation of existing conductor of both circuits with HTLS conductor of min 1200 A capacity	3600.90	New Work 2018-19	The loading on 400 kV Jalandhar - 220 kV Kartarpur section has been recorded as 580 Amps during Paddy 2015 and 551 Amp during current Paddy 2016. There is an approx. capacity of 700 MVA (220 kV Nakodar = 300 MVA, 220 kV Kartarpur = 340+60 MVA), which is being mainly fed from 400 kV Jalandhar having an installed capacity of 630 MVA, 400/220 kv ICTs. It is further added that PGCIL has planned another 500 MVA, 400/220 kv ICT at 400 kV Jalandhar. In order to make proper evacuation from 400 kV Jalandhar, no addl. 220 kv ckt can be erected towards this side because of ROW constraints. Therefore, keeping in view the addl. evacuation as well as current carrying capacity of existing conductor, replacement of existing conductor with HTLS of min 1200 Amp capacity has been planned in line with TPC.
6	220 kV S/Stn Mehal Kalan	Addl. 3rd 100 MVA, 220/66 kv T/F	721.00	To Replace work at 2/14-15 in amnd no. 31/2015-16	Keeping in view the current paddy loading a well as last year loading and installed capacity, this work may be deleted for the time being.

Transmission Work 2019-20 - Justification

Sr. No.	Name of the Works	Capacity in MVA and Line Length in kms	Est. Cost (in Lakh)	Remarks	Justification
1	220 KV S/S/Strn GMADA Mohali (1x100 MVA, 220/66 KV T/F)	Addl. 2nd 100 MVA, 220/66 KV T/F	721.00	Deposit Work	This work is being planned as a deposit work on specific requirement of GMADA, Mohali.
2	220 KV S/S/Strn Bhawanigarh (1x160 MVA, 220/66 KV T/F)	Addl. 2nd 100 MVA, 220/66 KV T/F	721.00	New Work 2019-20	This work has been identified for the time being and will be reviewed after watching the loading on 1st T/F (under progress) at this grid.
3	220 KV S/S/Strn Jadia (1x160 MVA, 220/66 KV T/F)	Addl. 2nd 100 MVA, 220/66 KV T/F	721.00	New Work 2019-20	This work has been identified for the time being and will be reviewed after watching the loading on 1st T/F (under progress) at this grid.
4	220 KV S/S/Strn Botianwala (Thatha Sahib)(2x100 MVA, 220/66 KV T/F)	Addl. 3rd 100 MVA, 220/66 KV T/F	721.00	New Work 2019-20	The MD recorded at this s/stn during the current Paddy 2016 is 154.66 MVA against installed capacity of 200 MVA, which is 2.42% higher than the previous recorded MD during Paddy 2015. Therefore the anticipated load on this grid during 2019-20 shall be 166.1 MVA which is more than 80%. Therefore, addl. 100 MVA, 220/66 KV T/F shall be installed.
5	220 KV S/S/Strn Majitha (1x100 MVA, 220/66 KV T/F)	Addl. 2nd 100 MVA, 220/66 KV T/F	721.00	New Work 2019-20	MD recorded during current paddy 2016, 1st quarter is 61.72 MVA. For reliability point of view, addl. 100 MVA, 220/66 KV T/F has been planned.

6	Replacement of Existing conductor of 220 kV Mohali-I - Mohali-II line, Line length = 13 Km, 420 sq mm conductor.	13 Km/with suitable HTLS conductor (with min 1200 A rating)	4493.00	New Work 2019-20	<p>The loading on the 220 kV Mohali I - 220 kV Mohali II (Sec-80) section has been recorded as 642 Amps. during the current paddy season 2016-17, whereas 575 Amps. during the previous paddy i.e. 2015-16. Since the power drawl is from GGSSTP, Ropar - 220 kV Mohali-I and 400 kV Nalagarh - 220 kV Mohali-I and 220 kV Bhakhra - Mohali-I via 220 kV Ganguwal. Because of ROW constraint, no addl. circuit can be erected from 220 kV Mohali-I. Therefore, replacement of existing conductor of 220 kV Mohali-I - Mohali-II with HTLS conductor of min. 1200 Amp capacity has been proposed.</p>
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