CPPA-GSTANDARD OPERATING PROCEDURES*

(BILLING, SETTLEMENT AND PAYMENT)

***Based on Current Standard Operating Procedures of CPPA of NTDC**

I DISCLAIMER

The data and information contained herein is intended for use by persons possessing technical knowledge of the transactions involved in the procurement of power. The information is based on sources believed to be accurate and reliable, however no representation, expressed or implied, is made as to its accuracy, completeness or correctness. These sources include one-on-one interviews and meetings held with CPPA-G personnel and reference documents. Information contained herein is subject to change, and may not be considered absolute.

The Annexures referred to in this document are samples of the working papers currently being used by CPPA of NTDC in the clearing process and should be considered as it is.

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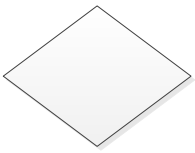
V ACRONYMS

ACRONYM	EXPANDED FORM
BoD	Board of Directors
CDP	Common Delivery Point
COD	Commercial Operation Date
CPP	Capacity Purchase Price
CPPA	Central Power Purchasing Agency
CPPA-G	Central Power Purchasing Agency Guarantee Limited
D.A.C	Declared Available Capacity
DISCO	Government-owned Power Distribution Company
EPP	Energy Purchase Price
FO	Furnace Oil
GENCO	Public (Power) Generation Company
GoP	Government of Pakistan
HSD	High Speed Diesel
IGC	Isolated Generation Company
IPP	Independent Power Producer
KE	Karachi Electric
KIBOR	Karachi Inter Bank Offer Rate
kVARh	Kilo VAR (Volt Ampere Reactive) h(Hour) (Reactive Energy)
kV	Kilovolt or 1,000 Volts
kW	Kilowatt or 1,000 Watts
kWh	Kilowatt hour
L.D	Liquidated Damages
LIBOR	London Inter-Bank Offer Rate

MDI	Maximum Demand Index
MW	Megawatt or 1,000,000 Watts
MVAR	Mega VARs or 1,000,000 VARs
MWh	Megawatt hour or 1,000 kWh
MF – T	Manager Finance – Treasury
N.E.O	Net Electrical Output
NEPRA	National Electric Power Regulatory Authority
NPCC	National Power Control Centre
NPP	Nuclear Power Plants
NTDC	National Transmission and Dispatch Company Limited
O&M	Operation and Maintenance of the Complex
PEPCO	Pakistan Electric Power Company
PPA	Power Purchase Agreement
R.D.A.C	Revised Declared Available Capacity
RE	Renewable Energy
RFO	Residual Fuel Oil
SOP	Standard Operating Procedures
SO	System Operator (NPCC)
SPP	Small Power Producer
WAPDA	Water and Power Development Authority
WPPO	WAPDA Power Privatization Organization
XW DISCOs	Ex-WAPDA Distribution Companies

VI LEGEND

SYMBOL	MEANING
	Start / End
	Process
	Decision
	Sub-Process
	Document
	Data flow between different process

VII DEFINITIONS

The words, terms and expressions used in these SOPS shall mean the following:

1. "Act" means the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (XL of 1997);

2. "Authority" means the National Electric Power Regulatory Authority (NEPRA);

3. "Actual Initial Dependable Capacity" means the dependable capacity of the complex at Commercial Operation Date (COD) as determined after test and established by company however, that such dependable capacity shall not be exceeded one hundred and five percent of the estimated dependable capacity;"Ambient Temperature" means temperature of air measured at the surroundings of the complex;

4. "Annual Capacity Test" means the test to be conducted each agreement year during the demonstration period for testing of dependable capacity of the complex after commercial operation date, pursuant to the Power Policy of 2002;

5. "Average Dependable Capacity" means an amount equal to:

    - Sum of:

        - each dependable capacity determined by an actual capacity test conducted, in effect during an agreement year,

        - Multiply bynumber of hours that each such dependable capacity was in effect during such agreement year,

        - Divided bythe number of hours in the agreement year; that period of force majeure shall be excluded from each determination of number of hours in this formula.

6. "Back-Feed Invoice" means a billing document with data of back-feed energy or NTDC Export-energy and related amount to be paid by concerned generation company;

7. "Back-up Metering System" means any meter and metering devices installed, owned and maintained by the Company engaged in generation or distribution of electric power, for backup purpose;

8. "Capacity Log" means a document containing hourly / half hourly Declared Available Capacity (DAC) values of a complex;

9. "Capacity Payment" means the meaning ascribed thereto in section 9.1 of PPA under power policy of 2002 and 1994;

10. "Capacity Purchase Price" means for each agreement year, the amount expressed in Rs. Per kW per month and such amount in adjusted from time to time in accordance with schedule 6 of PPA under power policy of 1994 and in Schedule 1 of PPA under power policy of 2002;

11. "Commercial Operation Date (COD)" means the day following the date on which the complex is commissioned after testing;

12. "Commercial Operation Test" means the tests to be performed to establish the commercial operation date;

13. "Commissioning Tests" means the tests to be carried out pursuant to schedule 7 of PPA established under power policy of 2002;

14. "Commissioning" means engaging in testing the complex in accordance with test after synchronization of complex and commercial operation test;

15. "Common Delivery Points (CDPs) / Connection Point" means metering locations on the NTDC Grid Network, which are between NTDC transmission system and Distribution Companies, or between NTDC or distribution companies system and power plants of generation companies. Energy transaction takes place at this point, energy transaction means electrical energy can be exported or imported from one party to another party, or injected to or extracted from the grid;

16. "Company" means a limited company incorporated under the laws of Pakistan;

17. "Complex" means the power station to be owned and constructed by company;

18. "Consumer" means person or his successor-in-interest who purchases or receives electric power for consumption and not for delivery or re-sale to others, including a person who owns or occupies premises where electric power is supplied;

19. "Control Center" means NTDC's National Power Control Center "Dependable Capacity" means the amount of capacity (adjusted to reference conditions) expressed in kilo Watts at

the outgoing bus bars of 500 kV substation of the complex as determined by testing from time to time;

20. "Dispatch and Delivered NEO" means the NEO during the relevant period in response to a dispatch instruction or revised dispatch instructions including NEO delivered during start-up and shut-down periods and ramp-up and ramp-down periods, which will not exceed 101.5% of the dispatched NEO for the relevant hour (2002 power policy);

21. "Dispatch" means the exercise by the System Operator of its right to commence, increase, decrease or cease the net electrical energy generated by the complex by issuing dispatch instructions;

22. "Dispute" means any dispute or disagreement or difference arising undertheMarket Rules and Commercial Code, in connection with or relating to a PPA or PPAA, including any dispute or difference concerning the existence, legality, validity or enforceability of these agreements or any provision hereof, or the obligations or performance of a Market Participant under any provision hereof;

23. "Distribution Code" means a set of rules and regulations designed to govern the functioning of the power distribution networks. It is applicable on all entities connected with 132/11/0.4kV system;

24. "Distribution Company (DISCO)" means the ten government-owned distribution companies licensed by NEPRA to engage in the distribution of electric power;

25. "Distribution System" means distribution facilities situated within the service territory owned or operated by the licensee for distribution of electric power including, without limitation, electric lines or circuits, electric plant, meters, interconnection facilities or other facilities operating at the distribution voltage, and shall also include any other electric lines, circuits, transformers, sub-stations, electric plant, interconnection facilities or other facilities determined by the Authority as forming part of the distribution system, whether or not operating at the distribution voltage;

26. "Electric power" means Electrical energy or the capacity for the production of electrical power;

27. "Electricity Generation" means the amount of electricity (in MWh or GWh) a generator produces over a specific period of time;

28. “Energy Purchase Price” means the amount nominated by the company pursuant to section 9.2(c) of PPA under power policy 1994 / section 9.2(c) of PPA under power policy of 2002;

29. “Export/Back-Feed Energy” means measure of electrical energy transferred from grid to a power plant or complex of a generation company;

30. “Feeder” means a medium-voltage power line transferring power from a distribution substation to the distribution transformers at 11kV;

31. “Force Majeure event” means an event beyond the control of parties involved in a contract;

32. “Forced Outage or Partial Forced Outage” means a total or partial interruption of the complex's generating capability (from and after the COD) including any total or partial interruption that is not the result of a) request by power purchaser or b) a scheduled outage or maintenance outage or c) a Force majeure event d) Condition caused by the power purchaser or grid system e) condition caused by GOP;

33. “Fuel Cost Component” means the fuel cost component or weighted average fuel cost component, as applicable, and such other information and calculations, in reasonable detail, so as to permit the power purchaser to confirm that the calculation of the amounts shown in the invoice comply with the provisions of schedule 6 of PPA under power policy of 1994 / schedule 1 of PPA under power policy of 2002;

34. “Generation Company” means a company licensed by NEPRA to generate electrical power.

35. “Grid Code” means the regulations and procedures for the access, use and operation of NTDC transmission grids, as defined in NTDC Transmission License and approved by NEPRA;

36. “Grid Station/Electrical Substation” means a set of equipment used for transforming voltages level, applying power system protection along with other functions;

37. “Heat Rate” means the amount of energy used by an electrical generator or power plant to generate one kilowatt-hour (kWh) of electricity. It is expressed in British Thermal Units (Btu). It is also a measure of thermal power plants’ efficiency;

38. “Independent Power Producer (IPP)” means separately, those IPPs established under the 1994 Power Policy, those IPPs established under the 2002 Power Policy, and those Wind and Solar, IPPs established under the 2006 Renewable Energy Policy;

39. “Interconnection point” means the geographical location where two electrical networks interconnect and exchange energy;

40. “International Interconnection Agreement” means an international trading agreement that allows Pakistan to import electricity from other countries;

41. “K-Electric” means K-Electric Ltd (formerly called Karachi Electric Supply Company);“License” means distribution, transmission or a generation license;

42. “Licensee” means the entity to whom a distribution, generation or transmission license is granted by NEPRA;

43. “Line losses” means loss of energy, across power lines, during the transmission of electricity;

44. “Liquidated Damages” means damages whose amount the parties designate during the formation of a contract for the injured party to collect as compensation upon a specific breach (e.g., late performance);

45. “Maintenance Outage” means an interruption or reduction of the complex's and/or the complex's generating capability that a) is not a scheduled outage b) has been scheduled and allowed by the power purchaser c) is for the purpose of maintenance on components;

46. “Maximum Demand Indicator (MDI)” means an instrument which measures the maximum amount of electrical energy required by a specific consumer during a given period of time;

47. “Market Participant” means an entity licensed by NEPRA in providing generation or distribution and retail services that has an agreement signed with, novated to or administered by CPPA-G, and NTDC;

48. “Meter Reading Performa” means a document on which meter readings are noted;

49. “Metering System” means devices that measure and record Active Energy (kWh), Reactive Energy (kVARh) and MDI (kW). These systems may include any remote terminal units and an electronic data recording system;

50. “Multiplying factor” means the number by which a meter reading data is multiplied to obtain actual data usage, usually it is to convert GWh into kWh;

51. “National Transmission and Dispatch Company Limited (NTDC)” means the national grid company licensed by NEPRA;

52. "NEPRA" means the National Electric Power Regulatory Authority established under the NEPRA Act;

53. "Net Electrical Output (NEO)" means the net electrical energy expressed in kWh;

54. "Net-Generation" means the amount of gross generation a generation company produces, less the electricity used to operate the power plant;

55. "Party" means an entity which may be a generation company, NTDC or a distribution company;

    "Pass-Through Items" means certain costs or charges identified as Pass-Through Items in section 9.3 and Schedule 1 of power policy of 2002;

56. "Plant factor/Capacity Factor" means the net capacity factor/plant factor of a power plant. It is the ratio of its actual output over a period of time, to its potential output if it were possible for it to operate at full nameplate capacity continuously over the same period of time. Capacity factor can apply to an individual generating unit or any collection of generating units. Plant factor refers to the capacity factor of an entire generating facility including all available generating units;

57. "Power Capacity" means the maximum electric output a generator can produce under specific conditions;

58. "Power Plant Efficiency" means measure of effective energy conversion from renewable/non-renewable sources into electricity. Efficiency of a thermal power plant, expressed as percentage, is ratio of the equivalent Btu content of a kWh of electricity to the heat rate. 1 kWh is equivalent to 3412 Btu;

59. "Power Purchase Agreement (PPA)" means the agreement signed by WAPDA with an IPP under 1994 Policy and administered by CPPA G, and any Power Purchase Agreements signed by CPPA G or by NTDC to procure power on behalf of Distribution Companies;

60. "Power Purchaser" means an entity to purchase power from Generation company;

61. "Reactive Power" means the watt-less component of the product of voltage and current, which the complex shall provide to or absorb from the grid system within the technical limits and which is measured in MVAR;

62. “Scheduled Outage” means a planned interruption of the complex's generating capability that a) has been scheduled by the company and agreed to by PP b) is for inspection, testing, preventive maintenance, corrective maintenance, repairs, replacement or improvement of the complex;

63. “Standard Operating Procedure” means a specific procedure or set of procedures established for carrying out commercial operations, processes and functions required under the Market Rules and Commercial Code;

64. “Settlement Committee” means the committee constituted by the Board of Directors of CPPA-G, comprising of the members as established in SOP-2.6.1 and shall be responsible for assisting the treasury department of CPPA-G in the settlement process pursuant to these Standard Operating Procedures, Market Rules and the Commercial Code,as approved by NEPRA

65. “Supplemental Tariff” means any supplemental tariff due in respect of the previous month (or part month);

66. “System Operator”means the division of NTDC responsible for system operation and dispatch as established in NTDC License and the Grid Code;

67. “Tested Capacity” means initially the Net Generation Capacity demonstrated by the commissioning tests for the complex;

68. “Transmission capacity” means the amount of power (in multiples of watts [W]) which can be sent over a transmission line within acceptable line losses limit;

69. “Variable O&M Component” – The meaning ascribed there to in Schedule 1 of PPA under power policy of 2002;

70. “WAPDA” means the Pakistan Water and Power Development Authority established under the Pakistan Water and Power Development Authority Act, 1958 (W.P. Act XXXI of 1958).

71. “XW DISCOs” means the power companies engaged in distribution of electric power to consumers connected to 132/11/0.4kV network. These companies were formed after the un-bundling of WAPDA.

CPPA-G– CURRENT STANDARD OPERATING PROCEDURES

1 INTRODUCTION

The Central Power Purchasing Agency, Guarantee Limited (CPPA-G) is an independent company that shall act as the financial clearing house for transactions between Generation Companies and Distribution Companies for the sale and purchase of electric power, a function that is currently being carried out by CPPA as part of the National Transmission and Dispatch Company (NTDC).

The standard operating procedures (SOPs) currently in practice by CPPA of NTDC for the billing and settlement process have been laid down in this document. These procedures shall be followed by CPPA-G, in accordance with the Market Rules and the Commercial Code until such time as new procedures are put into place.

The procedures prescribed herein refer to the Verification, Billing, Settlement and Payment processes at CPPA-G. The document includes details of work flow within the organization as well as key responsibilities of each department and its personnel in carrying out the aforementioned processes in the best possible and mutually agreed manner. The SOPs have been divided as follows:

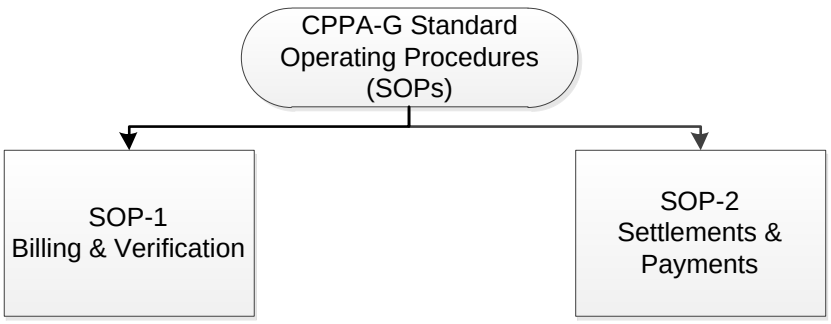


Chart 1: Breakdown of CPPA-G Standard Operating Procedures

- **SOP-1** describes the SOPs associated with CPPA-G's Verification Process and subsequent bill generation. The data required for this process comprises of the Meter Reading Performa and claimed invoices received at the relevant CPPA-G department for a particular billing month.The verification of this data iscarried out invarious departments and results in the issuance of electricity sales bill and payment invoices.
- **SOP-2** lists down key practices followed by CPPA-G for Settlements and Payments. It also provides information on the roles of technical, financial and treasury departments of CPPA-G, in this process.

Note:

- *The term 'Generation Companies' is used in the same context as 'Generation Company', which issubject to the NEPRA-approved transfer pricing mechanism.*
- *The terms, 'Distribution Companies' and 'DISCOs'have been used interchangeably throughout the document.*

2 PURPOSE AND SCOPE

The Standard Operating Procedures related to the Clearing Function at CPPA-G. It is divided into two major heads (see chart below) and describes each process under following sub heads;

- Descriptive overview of the process,
- Flow Chart of all the process activities

The Standard Operating Procedures at CPPA-G are covered under following two major processes:

PROCESS ID	PROCESS NAME
SOP-1	Billing and Verification
SOP-2	Settlements and Payments

Table 1: Purpose and Scope of CPPA-G SOPs

The report is aimed at laying down the relationship between Generators to CPPA-G and CPPA-G to DISCOs separately, in order to give a more concrete view of both sides i.e. Generation and Distribution.

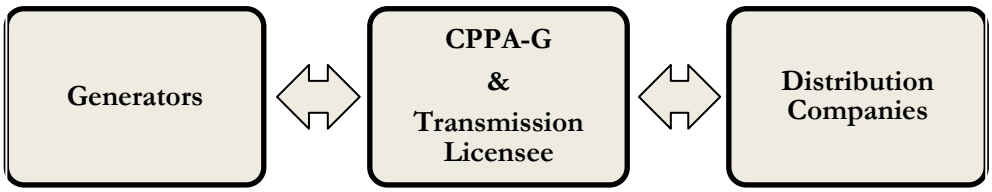


Chart 2: Purpose and Scope

SOP-1 Billing and Verification Process CPPA-G will generate electricity sales bill to distribution and generation companies following the verification of meter reading data and claimed invoices submitted by generation companies. The following SOPs document the entireprocess and contain information on the procedure for verification, calculation and generation of DISCO Electricity Sales Bill, Generation Company Export/Back-feed Energy Bill and LD Invoices to Generation Companies.

A. GENERATION SIDE - BILLING AND VERIFICATION PROCESS

The following diagram is representing a general view of the Billing and Verification processes at CPPA-G.

A-1 GENERAL FLOWCHART OF THE PROCESS

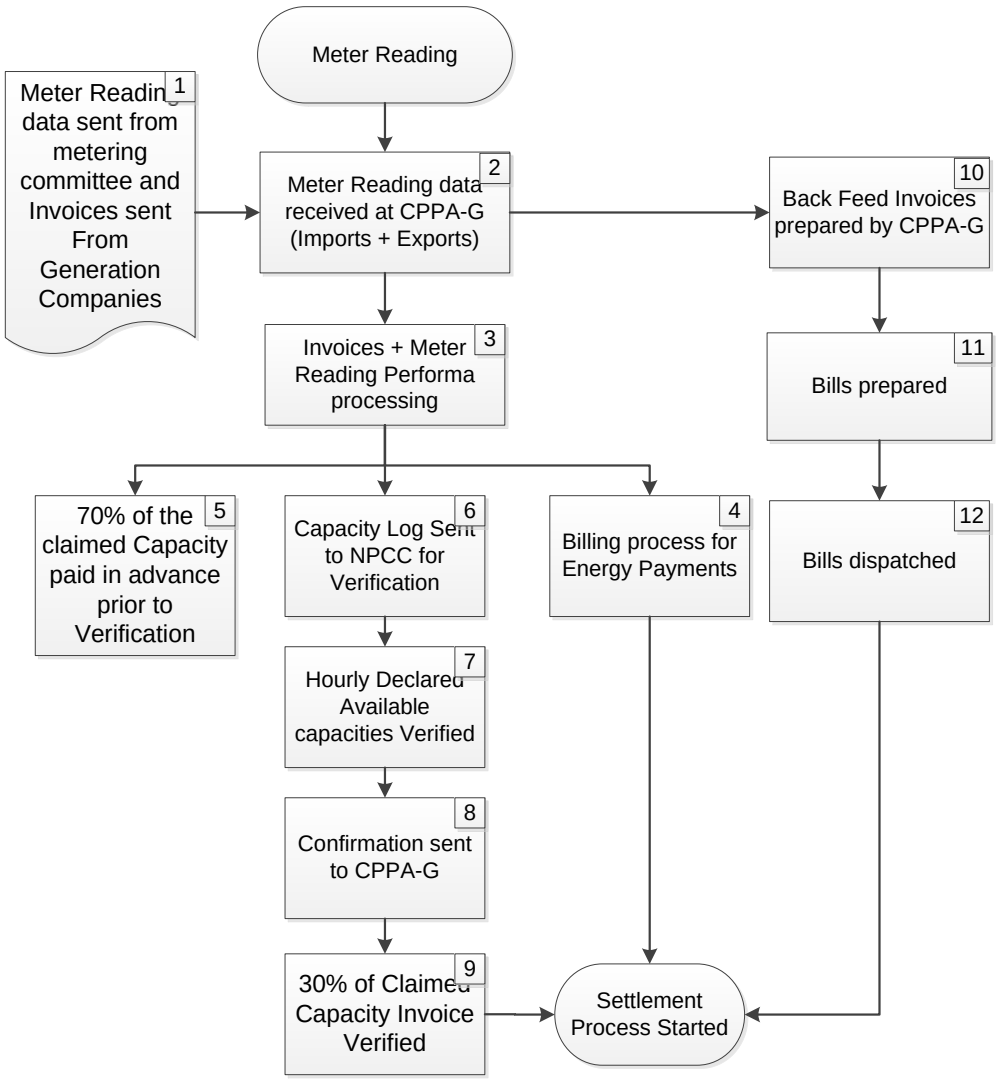


Chart 13: General Overview of Verification and Billing Process (Generation Side)

A-2 DESCRIPTIVE OVERVIEW OF THE PROCESS

SR. NO.	PROCESS ID	PROCESS DESCRIPTION
1	Meter Reading data receivedfrom metering committee and Invoices receivedfrom Generation Company	Metering Committee willsend Meter Reading data and claimed Capacity and Energy Purchase Price Invoices will besentby Generation Company.
2	Meter Reading Data received at CPPA-G (Imports + Exports)	Concerned CPPA-G department receives Meter Reading Performa along with Capacity/Energy Invoices for both export and import energy bill calculation.
3	Invoices + Meter Reading Performa's processing	Concerned CPPA-G department will process the data; the process ranges from data entry to bill preparation.
4	Billing process for Energy Payments	Energy Invoices sent from Generation Company will be processed by CPPA-G departments after which thebills are generated to the relevant DISCOs.
5	70% of the claimed Capacity paidin advance prior to Verification	Generation companies are paid 70% of the Capacity Claim based on the Capacity Purchase Price Invoices.
6	Capacity Log sent to NPCC for Verification	CPPA-G will send the record to NPCC, to verify the Declared Available Capacity Log submitted in the Capacity Purchase Price Invoices.
7	Hourly Declared Available Capacities Verified	NPCC will confirm the details in the Capacity Log and notify in case of any discrepancy. NPCC will match the hourly data with their own Dispatch instructions.
8	Confirmation sent to CPPA-G	NPCC will forward the verified data to CPPA-G with corrections.
9	30% of Claimed Capacity Invoice Verified	CPPA-G departments will approve/verify30% of previous billing month's Capacity Payments invoices

		based on Capacity data verified by NPCC and then will forward those to CPPA-G Treasury Department.
10	Back Feed Invoice Prepared by CPPA-G	CPPA-G will process data for back-feed/export energy calculations on the basis of Meter Reading Performa,
11	Bills prepared	Concerned CPPA-G department will prepare the Bills.
12	Bills dispatched	Bills are dispatched to Generation Company for Back feed energy payments.
13	Settlement process	The Settlement Process will involve following the processes entailed in 4, 9 and 12.

Table 2: General View of Billing and Verification Process (Generation Side)

B. DISTRIBUTION SIDE - BILLING AND VERIFICATION PROCESSES

B-1 GENERAL FLOWCHART OF THE PROCESS

The following diagram is representing a Distribution Side view of the Billing and Verification processes at CPPA-G.

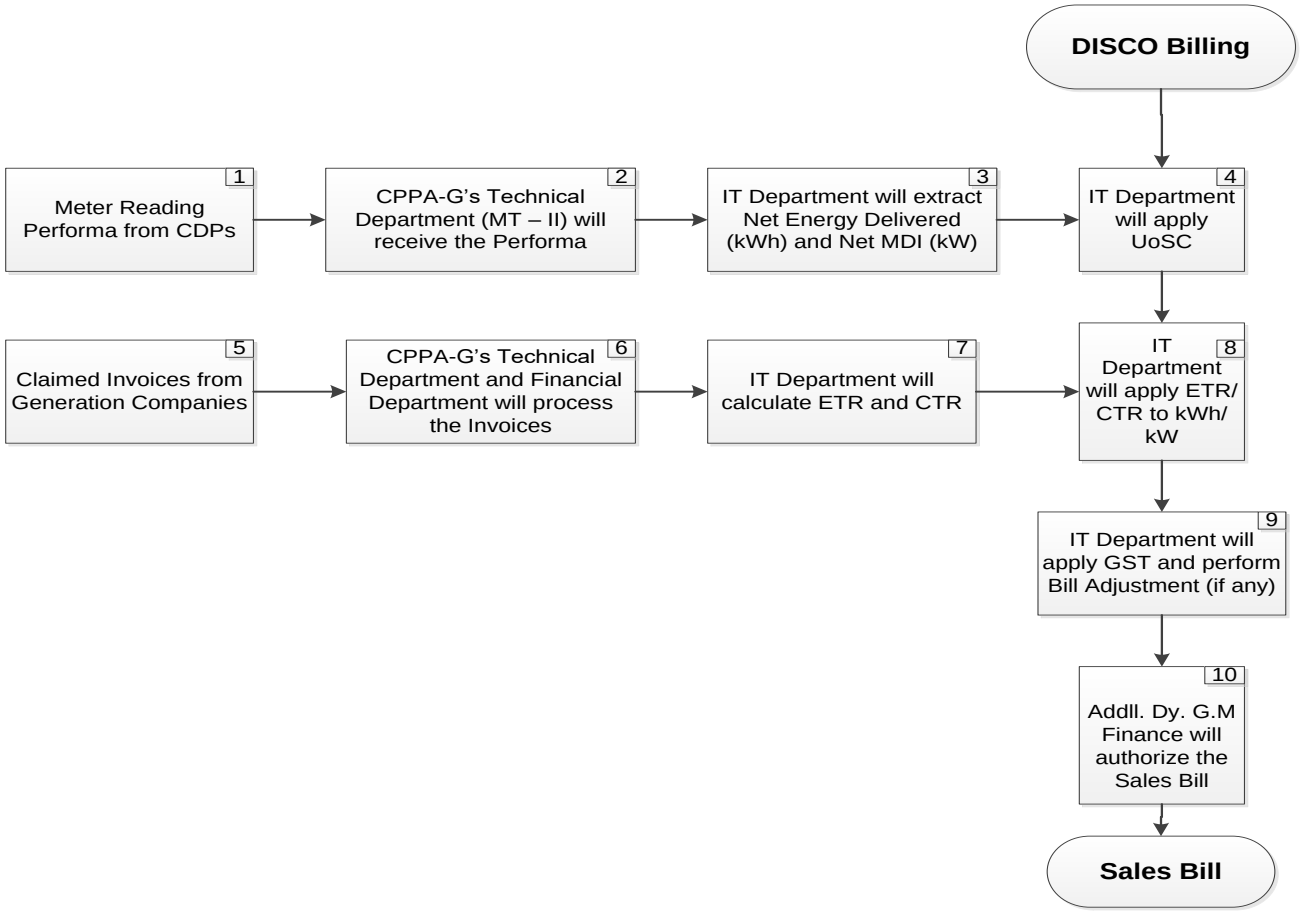


Chart 24: General View of Billing and Verification Process (Distribution Side)

B-2 DESCRIPTIVE OVERVIEW OF THE PROCESS

SR. NO.	PROCESS NAME	DESCRIPTION OF PROCESS
1.	Meter Reading Performa from CDPs	At the start of a billingmonth, Metering Committee will forward the Meter Reading Performa, for previous billing month, to CPPA-G.
2.	CPPA-G's Technical Department (MT – II) will receive the Performa	Manager (Technical) – II will receive the Performa and forward to IT Department.
3.	IT Department will extract Net Energy Delivered (kWh) and Net MDI (kW)	IT Department will calculate the Net Energy Delivered (in kWh) and Net MDI (in kW) to DISCOs from Meter Reading Performa of DISCO-specific CDPs.
4.	IT Department will apply UoSC	NEPRA approved Use of System Charges, including Fixed System Charges, are applied to Net Energy Delivered and Net MDI.
5.	Claimed Invoices from Generation company	At the start of a business month, Generation company will forward their Capacity and Energy Claimed Invoices, for a billing month, to CPPA-G.
6.	CPPA-G's Technical Department and Financial Department will process the Invoices	Technical and Financial Department will verify the Claimed Energy and Capacity Purchase Price.
7.	IT Department will calculate ETR and CTR	After verification, IT department will calculate the Basket Price for the billing month and formulate CTR and ETR.
8.	IT Department will apply ETR/CTR to kWh/kW	IT Department will apply the calculated Transfer Rates to Energy Delivered and MDI respectively.
9.	IT Department will apply GST	IT Department will apply GST on ETP 1 (Energy

	and perform Bill Adjustment (if any)	Transfer Payments chargeable to GST).
10.	Additional Dy. G.M Finance will authorize the Sales Bill	Additional Dy. G.M Finance will verify the Sales Bill and will forward the same to respective DISCOs.

Table 3: General View of Billing and Verification Process (Distribution Side)

C. OVERALL BILLING AND VERIFICATION SOPS

C-1 GENERAL FLOWCHART OF THE PROCESS

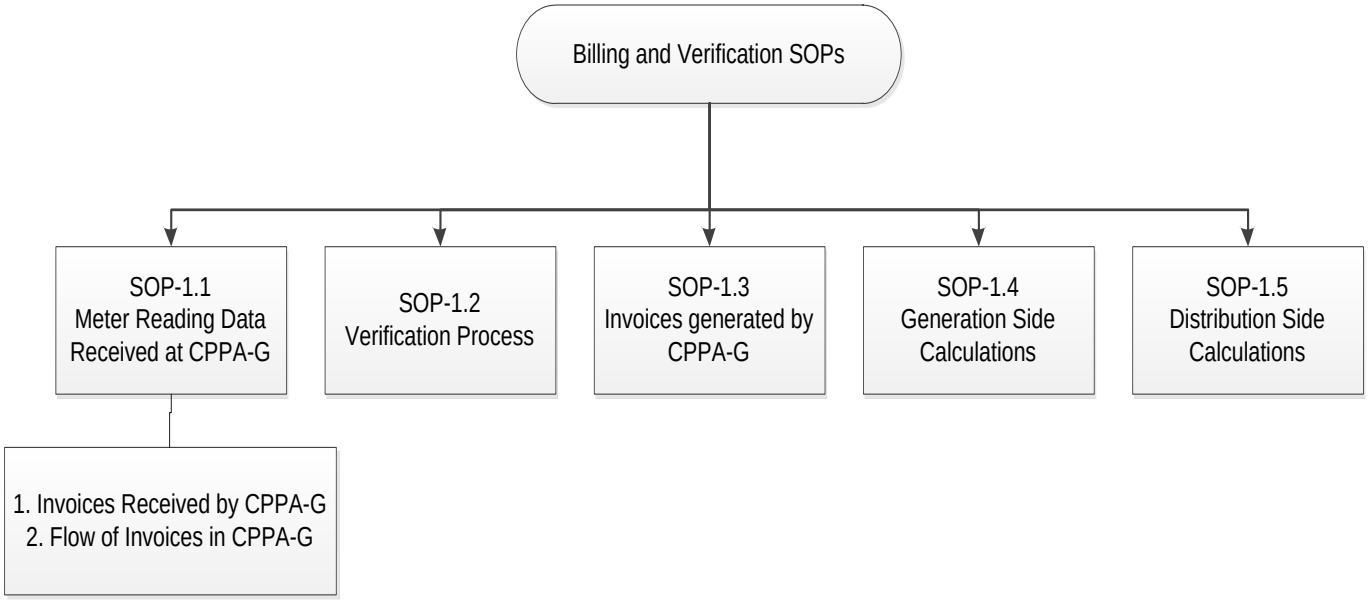


Chart 3~~5~~: Billing and Verification Process SOPs

C-2 DESCRIPTIVE OVERVIEW OF THE PROCESS

Following sub-processes covers all the activities related to Billing and Verification Process:

SUB-PROCESS ID	SUB-PROCESS NAME
SOP-1.1	Meter Reading Data Received at CPPA-G
SOP-1.2	Verification Process
SOP-1.3	Invoices generated by CPPA-G
SOP-1.4	Generation Side Billing Calculations
SOP-1.5	Distribution Side Billing Calculations

Table 4: Billing and Verification Process SOPs

D. METER READINGS AT CDPS

D-1 COMMON DELIVERY POINTS (CDPS)

Common Delivery Points are metering locations on the NTDC Grid Network,which are between NTDC and Distribution Companies or NTDC and Generation Company.Energy transaction takes place at this point, where energy transaction means electrical energy can be exported or imported from one party to another party.

D-2 TYPES OF CDPS

Common Delivery Points are grouped under the following categories:

1. Generation company to NTDC
2. Generation company to DISCOs
3. NTDC to DISCOs
4. SPPs, NCPPs to DISCOs
5. DISCOs to DISCOs
6. DISCOs to NTDC (Auxiliary)
7. Imports from Iran
8. Rental Power CDPs
9. KE

D-2.1. LIST OF CDPS

There are a total of 554 Common Delivery Points functional in the Power System of Pakistan as of November, 2014.

*(Refer to **Annexure no .1** for List of CDPs)*

D-3 READING OF METERS

The readings of the Metering/ Back-Up Metering System shall be the responsibility of metering committee appointed by NTDC and shall be used to calculate the correct amount of Net Electrical Output. Meter Reading Performa contains energy and capacity readings. It includes exports as well as imports at a specific CDP. (Meter Reading Performa are attached in **Annexure no. 3**)

The Metering System shall be used to measure the Net Electrical Output, provided that during any period when the Metering System is out of service as a result of maintenance, repairs or testing, then the best available information, which may include the Back-Up Metering System, shall be used to

measure the Net Electrical Output. Meter Reading Committee shall give recommendation on usage of metering data i.e. Main Meter data or Back – up Meter data on conditional basis.

D-3.1. FREQUENCY OF READINGS

The local totalized readings of the Metering System and the Back-Up Metering System shall be read on the Commercial Operations Date and thereafter monthly on the last business day of each Month or such other Day as may be mutually agreed upon by the parties.

D-3.2. TIME OF READING

The reading shall be taken during normal business hours unless otherwise mutually agreed by the parties and shall maintain a log of all such meter readings. The recorded measurements for each hour during the relevant period and the local totalized recorded measurements shall be delivered by the metering committee to the CPPA-Gwithin two (2) business days after the readings are taken.

D-3.3. METER READING PERFORMA / FORM

Meter Reading Performa is prepared jointly by both parties present at the time of meter reading. This Performa contains readings from Back-up as well as Primary Metering System. The following data is mentioned in the Performa:

- Billing Month
- Reading Date
- Name of the Location
- Name of the Grid Station
- Feeder's Name
- Meter Name (for Primary and Back-up meters)
- Meter Make (for Primary and Back-up meters)
- Present Reading (Active and Reactive energy reading for Imported and Exported energy from both metering systems)
- Previous Reading (Active and Reactive energy reading for Imported and Exported energy from both metering systems)
- Multiplying factor
- MDI (Billing, Cumulative and Metering)
- Signatures from metering committee

*(Refer to **Annexure no .3** for Meter Reading Performa)*

After sending Meter Reading Performa, each Generation Company sends an invoice claiming payments. This invoice is sent to CPPA-G and contains information related to energy and capacity payments.

For energy payment, the following data is given:

- Net Energy Delivered at Energy Metering System
- Energy payment (with and without Sales Tax)
- Hourly meter readings, for the whole month, along with K_h and D_h factors.

For capacity payment, the following data is given:

- Capacity payment (claimed)
- Hourly readings for declared available capacity
- NPCC Demand Capacity Dispatch Instructions for each hour of the month
- Ambient temperature and total available capacity for each hour of the month.

SOP-1.1 METER READING DATA RECEIVED AT CPPA-G

SOP-1.1.1. TYPE OF DATA RECEIVED

Meter Reading Performa from CDPs and Invoices (or Claims) from Generation Companies are received at the respective CPPA-G departments. This data is then used for invoicing the respective DISCOs and calculation of Back-Feed/ Export Energy Billing (payable by Generation Company). It has always been preferred by CPPA-G that Metering Committee and Generation Company should send their respective Performa and Claims/Invoices in the very beginning of the next month for timely processing of billing.

SOP-1.1.2. DEPARTMENTS OF CPPA-GINVOLVED

Following are the main departments concerning the verification and billing process being performed at CPPA-G:

1. **GM CPPA-G**

   GM CPPA-G receives the Energy and Capacity Invoices from Generation Company. It also oversees the CPPA-G functions and all other tasks thereof.

2. **Manager Technical**

   This department verifies the Energy and Capacity data of the claims/Invoices by the Generation Companies and further processing of bulk invoices.

3. **IT Department**

   This department performs the tasks related to Energy Reading, entering records and preparing billing invoices.

4. **Finance & Treasury**

   This department is concerned with payments and similar issues pertaining to Generation Companies.

SOP-1.1.2.1. OFFICIAL JOB DESCRIPTIONS OF CPPA-G PERSONNEL

SR. NO.	NAME & DESIGNATION	BRIEF JOB DESCRIPTION
1.	CEO/GM	Head of the Office. Supervising all technical, financial, legal, administrative and other issues relating to CPPA-G.
2.	CE – I (Settlement)	Processing/verification of Capacity and Energy invoices of existing/ future IPPs (Thermal), GENCOs, Hydel power plants and Malakand – III Processing of billing Invoices to bulk consumers (DISCO and KE) Dealing with the collection of metering data of all CDPs and reconciliation/settlement of disputes (if any) in this regard.
3.	Manager (HR&A) CPPA-G	Dealing with all HR and Admin issues of CPPA-G
4.	CE – II (Procurement)	Dealing with matters of existing/future SPPs/CPPs etc. connected on 11kV system and having contracts with DISCOs. Dealing with matters of existing/future IPPs (Wind, Solar and SHPPs) connected on 132kV system and having contracts with NTDC, alternate energy power projects and renewable energy.
5.	Dy. GM Finance (CPPA-G)	Dealing with all matters relating to payments and other issues of IPPs, GENCOs, Hydel Power Projects, DISCOs, KE etc.
6.	DG (IT)	Dealing with all issues relating to IT for preparation of billing invoices etc.

Table 5: Official Job Descriptions of CPPA-G Personnel

SOP-1.1.3. USAGE OF DATA

SOP-1.1.3.1 METER READING PERFORMA (SOURCE: CDPs)

- Metering Committee submits a Meter Reading Performa at the first business date of every month.
- IT Department receives the Meter Reading Performa to further process it for back-feed billing.

SOP-1.1.3.2 INVOICES (ENERGY AND CAPACITY) (SOURCE: GENERATION COMPANY)

Generation Companysubmits an Invoice or a Claim regarding the amount (in PKR) due towards the CPPA-Gfor a specific billing month. These Claims are submitted usually at the beginning of a month and payments are demanded within a specific period (25 days according to 1994 Policy, 30 days according to 2002 policy). CPPA-G processes such claims within these pre-determined dates for verification.

*See **Annexure No. 4** for portion of 2002 Power Policy Capacity Purchase Price Invoice.*

*See **Annexure No. 5** for portion of 2002 Power Policy Energy Purchase Price Invoice.*

*See **Annexure No. 6** for portion of 1994 Power Policy Capacity Purchase Price Invoice.*

*See **Annexure No. 7** for portion of 1994 Power Policy Energy Purchase Price Invoice.*

SOP-1.1.4. INVOICES RECEIVED BY CPPA-G (INWARD)

SOP-1.1.4.1. CAPACITY PAYMENT INVOICES

Capacity Payments (according to PPA Section 9.6 and Schedule1 of Power Policy of 2002):

- After Commercial Operations Date, the CPPA-G / NTDC shall pay the Generation Company the Capacity Payments for the Available Capacity for each month or part-month.
- Such Available Capacity will be considered as the Declared Available Capacity, unless;
  - The Revised Declared Available Capacity (R.D.A.C) informed by the Company is less than the Declared Available Capacity.
  - The Adjusted Declared Available Capacity is greater than or less than the Declared Available Capacity or Revised Available Capacity, and is notified 45minutes prior to the start of that hour.
  - The Revised Declared Available Capacity is greater than the Declared Available Capacity, notified at least 4hours prior to the start of the relevant hour. If not notified than the Adjusted Declared Available Capacity shall be applicable, as notified up to 45minutes prior to the start of such hour.
  - Net Electrical Output is less than the Dispatched Net Electrical Output due to reasons other than as described in Section 5.4(d) of PPA under Power Policy of 2002:
    - Constraints on the Grid System
    - Variations in the Grid System frequency outside the Technical Limits
    - Grid System voltage outside the Technical Limits
    - A Force Majeure event
- The CPPA-Gwill also pay the Capacity Price for each kW of the prevailing Tested Capacity unavailable during which the Complex is undergoing a Scheduled Outage planned by the Company. But the total outages for which payments will be made shall not exceed the product of the then-prevailing Tested Capacity and the number of hours permitted for Scheduled Outages.
- The CPPA-Gshall also pay the Capacity Price for each kW of thethen-prevailing Tested Capacity unavailable during which the Complex is undergoing a Forced or Partial Forced Outage notified by the Generation Company not later than 1hour prior to the relevant Maintenance Outage provided that total outages shall not exceed the product of the then Prevailing Tested Capacity and 348hours plus the no of hours (not to exceed 72hours) for

which the Generation Company has not received payment as a result of completing the Scheduled Outage in less time than is allowed.

- If the Tested Capacity of the Complex as determined by the two consecutive Annual Capacity Tests is reduced by an amount that exceeds 6% of the Contract Capacity and if there are any further reductions in Tested Capacity in excess of 2% of the Contract Capacity thereafter, then in each case the "Reference Non-Debt Service Component" of Capacity Price for the present and subsequent agreement year shall be adjusted so that, the Capacity Price for the Average Available Capacity for the term shall equal the Levelized Capacity Price (Schedule 1 of PPA under Power Policy of 2002).

In view of Power Policy 1994, the Generation Company shall notify CPPA-G and the GoP in writing that it elects Exchange Risk Insurance or Indexation of the foreign loan portion of the Non-Escalable component of the Capacity terms of Schedule 6 of PPA under Power Policy 1994. If Generation Company elects Exchange Risk Insurance, it will notify CPPA-G no later than the date of financial closing whether it elects to pay the premium for Exchange Risk Insurance or after COD to have the premium paid directly by CPPA-G with reduction in the CPP equal to the Exchange Risk Insurance component thereof.

At any time on the firstbusiness day, the Generation Company may submit an invoice stated in Rupees for the Capacity Paymentdue in respect of the Available Capacity during the previous month (or part-month) and seventy percent (70%) of the estimated Available Capacity during that month, such invoice shall set forth for each hour of the relevant Month (or part-month) the Capacity Price, the Available Capacity and the then-prevailing Tested Capacity.

SOP-1.1.4.1.1. FLOWCHART OF THE PROCESS W.R.T POWER POLICY 2002

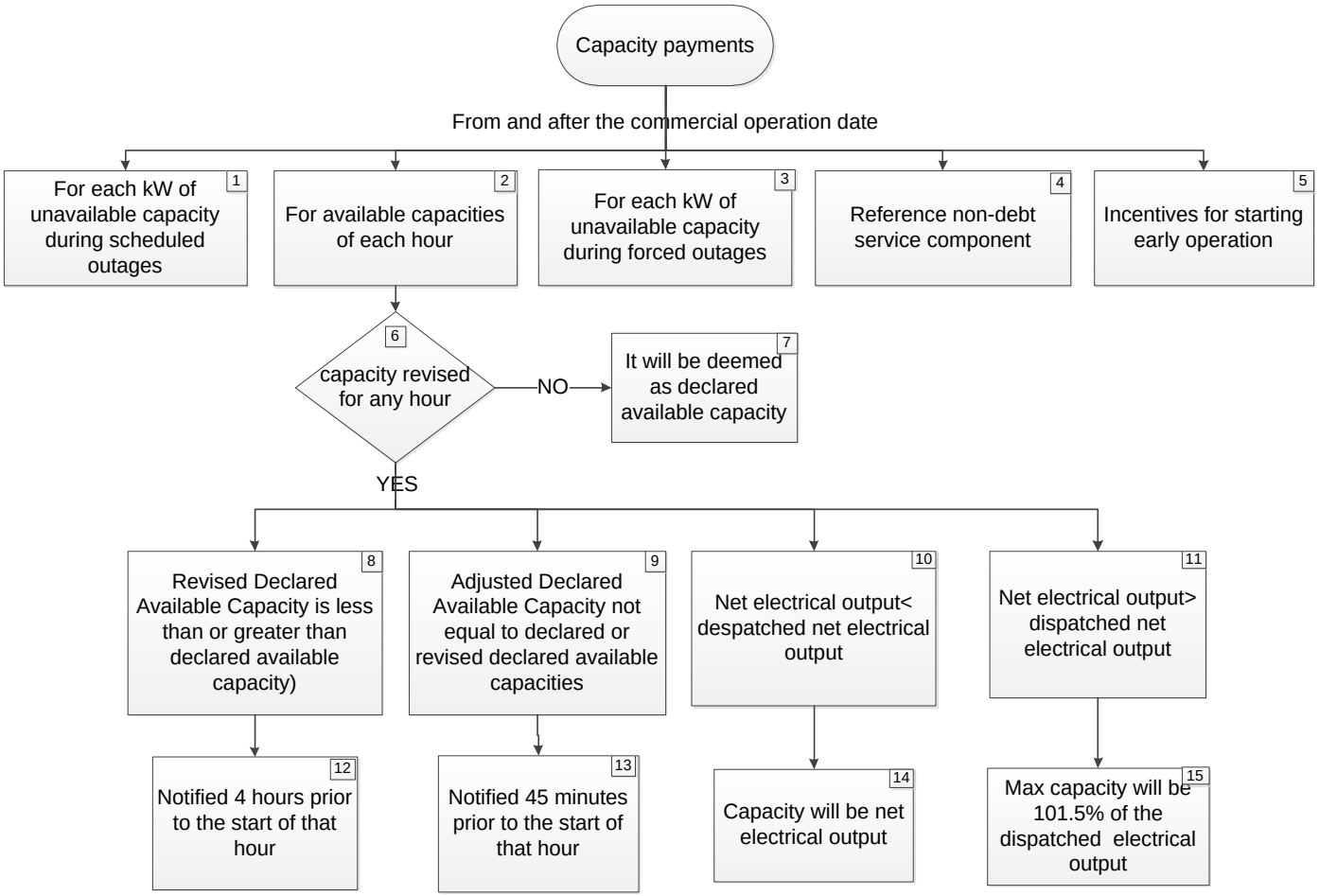


Chart ~~4~~6: Capacity Payments w.r.t Power Policy 2002

SOP-1.1.4.1.2. DESCRIPTION OF THE PROCESS ACTIVITIES

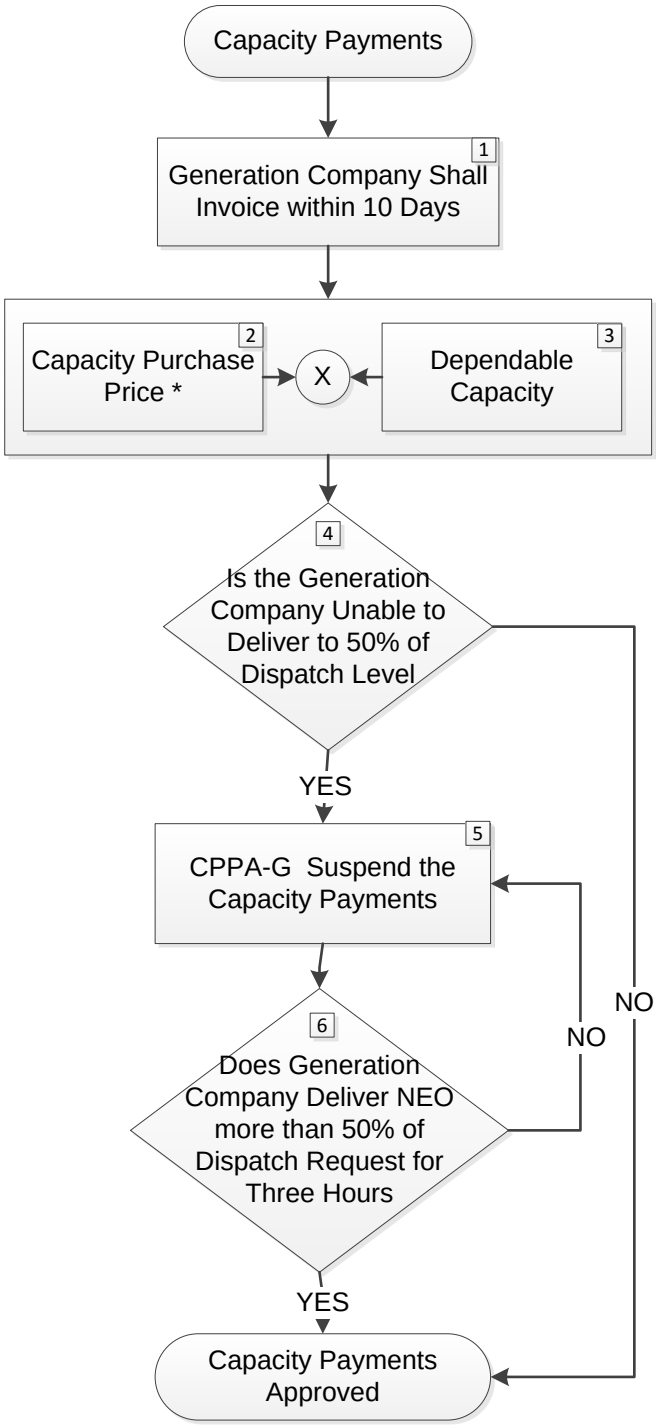
SR. NO.	PROCESS NAME	DESCRIPTION OF PROCESS
1.	For each kW of unavailable capacity during scheduled outages	The CPPA-G shall pay to the Generation Company the Capacity Price for each kW of the then-prevailing Tested Capacity found unavailable during any period during which the Complex is undergoing a Scheduled Outage after Commercial Operations Date.
2.	For Available capacities of each hour	The CPPA-G shall pay the Generation Company the Capacity Payments, in accordance with the Power Purchase Agreement, for the Available Capacity for each Month (or part-Month).
3.	For each kW of unavailable capacity during forced outages	The CPPA-Gshall pay to the Generation Company the Capacity Price for each kW of the then prevailing Tested Capacity then unavailable during any period during which the Complex is undergoing a Forced or Partial Forced Outage notified by the Generation Company not later than two (2) hours (except in the case of an emergency shutdown) prior to the relevant hour or a Maintenance Outage notified by the Generation Company
4.	Reference non-debt service component	If the Tested Capacity of the Complex as determined by two (2) consecutive Annual Capacity Tests is reduced by an amount that exceeds six percent (6%) of the Contract Capacity and if there are any further reductions in Tested Capacity in excess of two percent (2%) of the Contract Capacity thereafter, then in each case the "Reference Non-Debt Service Component" of the Capacity Price for the present Agreement Year and each subsequent Agreement Year shall be adjusted
5.	Incentives for starting early	If Commercial Operation Date is prior to 31st October

	operation	2008 then an incentive equivalent to Rs. 0.1795/KW/h is paid along with normal payments until aforementioned date.
6.	Capacity revised for any hour	Generation Company has the right to revise its available capacity for each hour.
7.	Declared available Capacity	Available Capacity shall in any hour be the Declared Available Capacity, unless otherwise specified.
8.	Revised declared available capacity is less than or greater than declared available capacity)	The Generation Company has informed the NTDCof a Revised Declared Available Capacity in accordance with PPA - Section 5.3(c) (ii) under Power Policy of 2002 that is not equal to the Declared Available Capacity of the Generation Company prevailing at the Declaration Deadline, in which case the Available Capacity for that hour shall be the Revised Declared Available Capacity (at the Reference Site Condition prevailing at the time of such declaration).
9.	Adjusted declared available capacity not equal to declared or revised declared available capacities	The Generation Company has informed the NTDCof an Adjusted Declared Available Capacity in accordance with PPA-section 5.3 under Power Policy of 2002.
10.	Net electrical output< dispatched net electrical output	In such case the Available Capacity for the applicable hour shall be the capacity, in MW, as determined by the Net Electrical Output for such hour
11.	Net electrical output> dispatched net electrical output	Net electrical output for some hour is greater than dispatched net electrical output.
12.	Notified 4 hours prior to the start of that hour	Revised Declared Available Capacity is notified at least four (4) hours prior to the start of the relevant hour.
13.	Notified 45 minutes prior	New Available Capacity is to be notified 45 minutes

	to the start of that hour	before the start of that specific hour.
14.	Capacity will be net electrical output	The Net Electrical Output is less than the Dispatched Net Electrical Output, in such case the Available Capacity for the applicable hour shall be the capacity, in MW, as determined by the Net Electrical Output for such hour
15.	Max capacity will be 101.5% of the dispatched electrical output	The Net Electrical Output is more than the Dispatched Net Electrical Output for that hour then in that case the Available Capacity for that hour shall be the capacity, in MW, as determined by the Net Electrical Output for such hour subject to a maximum upper limit of one hundred and one and one fifth percent (101.5%) of the Dispatched Net Electrical Output.

Table 6: Capacity Payments w.r.t Power Policy 2002

SOP-1.1.4.1.3. FLOWCHART OF THE PROCESS W.R.T POWER POLICY 1994



1. Base on 60% of Plant Factor- as in Power Policy 1994

Chart 57: Capacity Payments w.r.t Power Policy 1994

SOP-1.1.4.1.4. DESCRIPTION OF THE PROCESS ACTIVITIES

SR. NO.	PROCESS NAME	DESCRIPTION OF PROCESS
1.	Generation Company shall Invoice within 10 Days	The Generation Company shall invoice CPPA-Gfor the Capacity Payments due for each month at any time following the 10th day of such month.
2.	Capacity Purchase Price	Shall be determined in accordance with the then-prevailing Dependable Capacity.
3.	Dependable Capacity	With respect to Power Policy 1994, Adjusted Capacity is referred to as Dependable Capacity
4.	Is the Generation Company Unable to Deliver to 50% of Dispatch Level	For a period of 18 consecutive days, if Generation Company is unable to deliver 50% of Dispatch level as requested by CPPA-G.
5.	CPPA-Gsuspends the Capacity Payments	CPPA-G suspends the Capacity Payments if the Generation Company can't deliver at least 50% of Requested Dispatch Level.
6.	Does Generation Company delivers NEO more than 50% of Dispatch Request for 3hours	If the Generation Company notifies that it is again capable of meeting NTDC's Dispatch Request and it can deliver more than 50% of Dispatch Request for three consecutive hours, then CPPA-G shall allow Capacity Payments.

Table 7: Capacity Payments w.r.t Power Policy 1994

SOP-1.1.4.2. ENERGY PAYMENT INVOICES

W.r.t. Power Policy of 2002

The CPPA-Gshall pay to the Generation Company the Energy Payments for Dispatched and Delivered Net Electrical Output for the relevant Month (or part-Month).Such payments will be calculated in accordance with the provisions of Schedule 1; provided that in any Agreement Year the Power Purchaser shall in any event take delivery of or pay for the Minimum Annual Energy every month during the Firm Delivery Period.

The CPPA-G shall pay to the Generation Company the Minimum Energy Shortfall Period (in accordance with Section 9.6 of PPA under Power Policy of 2002).

The NTDC shall be entitled to Dispatch and purchase an amount of Net Electrical Output (N.E.O) equal to the undelivered aggregate Minimum Energy Shortfall (Banked Energy) on a "first-in-first-out" basis for which it has made Minimum Energy Shortfall Payments, up to end of the Firm Delivery Point of the immediately following 1agreement year; provided that:

- NTDC shall have first dispatched the Minimum Monthly Energy for such month in which it proposes to draw Banked Energy.
- In no event shall the NTDC have a right to take dispatch and take delivery of Net Electrical Output (N.E.O) during any hour in excess of the Declared Available Capacity for such hour.
- Any Minimum Energy shortfall Payment made in a month and not drawn upon until the end of Firm Delivery Period in the Following Agreement Year shall expire permanently.

W.r.t. Power Policy of 1994

However, in Power Policy of 1994,the Energy Purchase Price can be revised by the Generation Company. This Revised Energy Purchase Price will be used for the purpose of payment of NEO and Dispatch while in effect, until notified by the Generation Company that the Revised Energy Purchase Price is no longer to be used, however, such Revised Energy Purchase Price shall be effective for not less than one week.

There is also a special provision for *Energy Purchase Price Premium* in the Power Policy 1994. It says that if COD occurs on or before the "Premium Date" (December 31, 1997 w.r.t PPA), then WAPDA shall pay to the Generation Company a premium of price equal to US cent

0.25/kWh of NEO delivered from COD and continuing to the 10th anniversary of such date, provided that the Dependable Capacity is maintained above 100MW during such 10year period.

At any time on the first Business Day, the Generation Company may submit an invoice stated in Rupees for the Energy Payment due in respect of the previous month (or part-Month). Such invoice shall set forth for each hour of the relevant month, the Energy Price (as determined in accordance with Schedule 1), the Dispatched Net Electrical Output, the Fuel Cost Component or weighted average Fuel Cost Component, as applicable, and such other information and calculations, in reasonable detail, so as to permit the CPPA-Gto confirm that the calculation of the amounts shown in the invoice comply with the provisions of this Agreement and Schedule 1 of PPA under Power Policy of 1994.

Any Minimum Energy Shortfall Payment due in respect of the previous month is determined in accordance with Section1 of PPA under Power Policy of 1994.

SOP-1.1.4.2.1. FLOWCHART OF THE PROCESSW.R.T. POWER POLICY 1994 & 2002

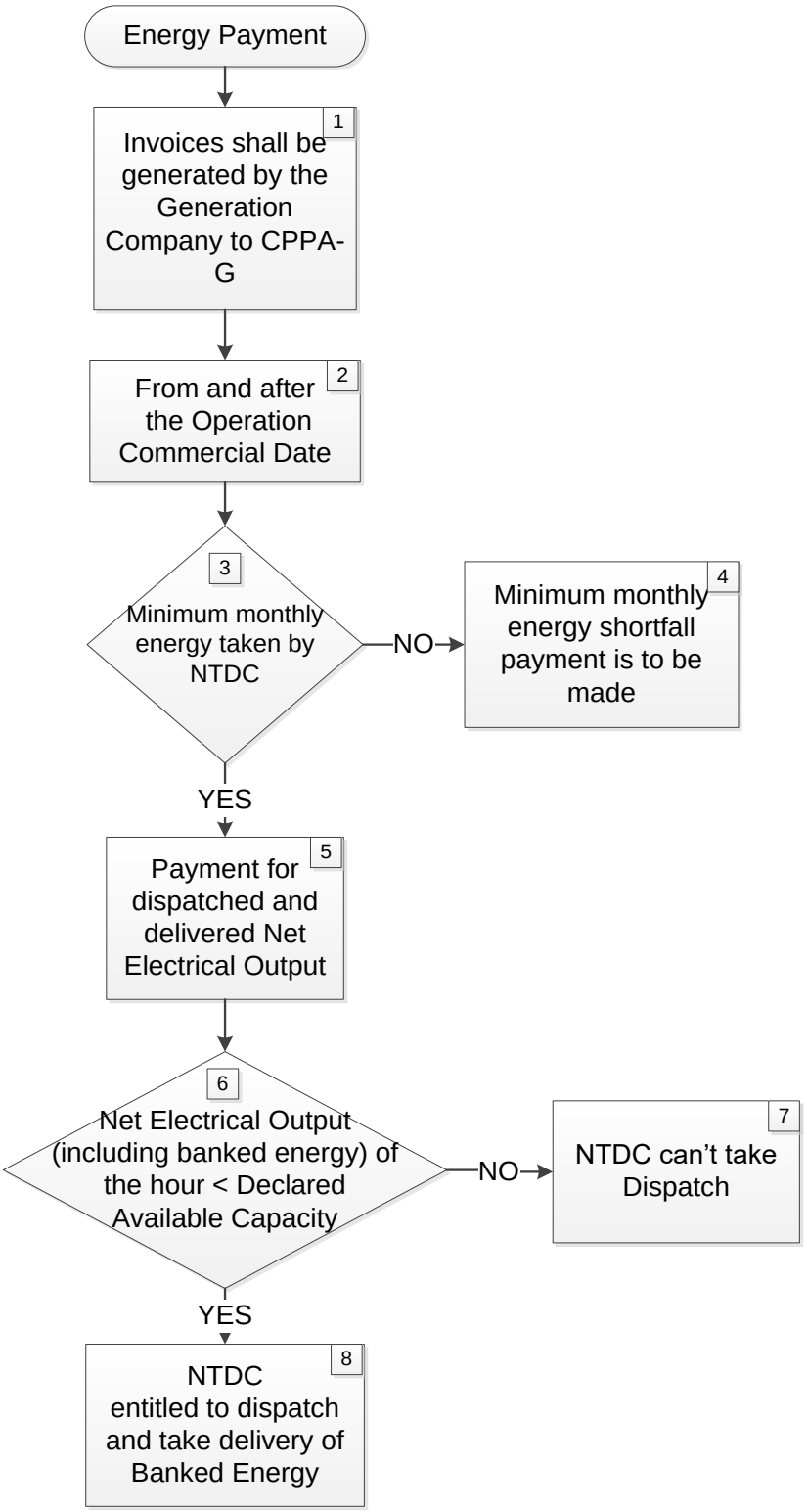


Chart 68: Energy Payments w.r.t Power Policy 1994 and 2002

SOP-1.1.4.2.2. DESCRIPTION OF THE PROCESS ACTIVITIES

SR. NO.	PROCESS NAME	DESCRIPTION OF PROCESS
1	Invoices shall be generated by Generation Company to CPPA-G	For energy payments to be made by CPPA-G, Generation Company has to generate an invoice and forward it to CPPA-G.
2	From and after the operation Commercial Operation Date	The CPPA-G shall pay to the Generation Company the Energy Payments in accordance with the procedures specified in Section 9.6 under Power Policy of 2002 for Dispatched and Delivered Net Electrical Output for the relevant month (or part-Month), such payments being calculated in accordance with the provisions of Schedule 1 of PPA under Power Policy of 2002.
3	Minimum monthly energy taken by NTDC	In any Agreement Year the CPPA-Gshall in any event take delivery of or pay for the Minimum Annual Energy.
4	Minimum monthly energy shortfall payment is to be made	If in any Agreement Year there is an Annual Energy Purchase Shortfall, the Power Purchaser shall pay to the Generation Company in accordance with Section 9.6 of PPA under Power Policy of 2002 the Annual Energy Purchase Shortfall Payments.
5	Payment for dispatched and delivered net electrical output	The CPPA-Gshall pay to the Generation Company for dispatched and delivered Energy Credits the then-prevailing Energy Price for each kWh of Energy Credits *less* the applicable Fuel Cost Component paid for the relevant Annual Energy Purchase Shortfall.

6	Net electrical output (including banked energy)of the hour<declared available capacity	In no event shall the NTDC have a right to take Dispatch and delivery of Net Electrical Output (including Energy Credits) during any hour in excess of the Declared Available Capacity for such hour.
7	NTDC can't take dispatch	If Net Electrical Output (including Energy Credits) during any hour in excess of the Declared Available Capacity for such hour then NTDC is not entitled to take dispatch of banked energy.
8	NTDC entitled to dispatch and take delivery of banked energy	Following any Agreement Year in which the NTDC has made an Annual Energy Purchase Shortfall Payment, the NTDC shall be entitled to Dispatch and take delivery of an amount of Net Electrical Output equal to the then undelivered aggregate Annual Energy Purchase Shortfall and receive a credit.

Table 8: Energy Payments w.r.t Power Policy 1994 and 2002

SOP-1.1.4.3. COMMISSIONING TEST INVOICES

The CPPA-Gshall also pay for the Fuel Cost Component of all Net Electrical Output produced during Commissioning Tests carried out prior to the Commercial Operations Date and due in respect of the previous month

SOP-1.1.4.4. CAPACITY TEST INVOICES

The Generation Company shall also bill the CPPA-Gfor Energy Price of all Net Electrical Output produced during an Annual Capacity Test or any additional Capacity Tests carried outpursuant to Article VIII of PPA under Power Policy of 2002, following the Commercial Operations Date and due in respect of the previous Month (or part month).Such invoice shall set forth the Energy Price or the Fuel Cost Component, as applicable, as determined in accordance with Section 8.7 and Schedule 1 under Power Policy of 2002, the Net Electrical Output delivered during the relevant tests, and such other information and calculations, in reasonable detail, so as to permit the CPPA-Gto confirm that the calculation of the amounts shown in the invoice comply with the provisions of thePPA and Schedule 1 under Power Policy of 2002.

SOP-1.1.4.5. PASS-THROUGH ITEM INVOICES

The Generation Company shall invoice the CPPA-Gto recover as a Pass-Through Item Payments in accordance with Schedule1 of PPA under Power Policy of 2002. The Generation Company shall also be entitled to recover as a "Pass-Through Item", payments by the Generation Company into the Worker's Welfare Fund and the Worker's Profit Participation Fund for its employees.

Supplemental Tariffs shall also be invoiced in the same manner and on the same schedule as invoices for Capacity Payments and Energy Payments, provided;

- In Capacity Payments manner, the basis for such payments does not vary with the amount of Dispatched and Delivered N.E.O generated.

- In Energy Payments manner, the basis for such payments varies with the amount of Dispatched and Delivered N.E.O generated.

The CPPA-Gshall pay the invoices generated by the Generation Company for any Pass-Through Item due in respect of the previous month (or part-month) in accordance with Schedule 1 of PPA under Power Policy of 2002.

*(Refer to **Annexure no. 8** for a Pass-through Item Invoice)*

SOP-1.1.4.6. UNIT START-UP INVOICES

The Generation Company shall charge for any Unit Start-Up Charges due in respect of the previous Month (or part-Month) as determined in Schedule 1 of PPA under Power Policy of 2002.

The CPPA-Gshall pay to the Generation Company all Start-Up charges, except for the following;

- Start-Up that is in excess of the Free Start-Ups for the relevant year
- Start-Up that is required to comply with a Dispatch Instruction or Revised Dispatch Instruction.
- Start-Up that does not follow a Forced or Partial Forced Outage, Maintenance Outage, Scheduled Outage, or Forced Majeure Event affecting the Generation Company.

SOP-1.1.4.7. INTEREST PAYABLE INVOICES

The Generation Company shall also charge for any interest payable hereunder on an amount not paid by the due and payable date, showing the calculation of such claimed interest in reasonable detail.

*(Refer to **Annexure no. 9** for Delay Payment Invoice)*

SOP-1.1.4.8. SUPPLEMENTAL TARIFF INVOICES

The Generation Company shall also bill CPPA-G for any Supplemental Tariff due in respect of the previous month (or part month) in accordance with Schedule 1 of PPA under Power Policy 2002.

All these billing invoices shall cater such supporting information as may reasonably be necessary to substantiate the amounts claimed in the invoice. Such supporting information shall include, *inter alia*, the relevant invoice from the relevant Coal Supplier or Coal Suppliers under the relevant Coal Supply Agreement or Coal Supply Agreements; the relevant Foreign Exchange Bulletins showing the applicable exchange values between the Rupee and the Dollar; the relevant GOP Bureau of Statistics publication showing the relevant wholesale price index values; evidence of the relevant KIBOR and LIBOR values, as applicable; invoices or payment receipts for any amount claims asPass-Through Items; and paper and electronic copies of meter readings showing the Dispatched and Delivered Net Electrical Output and Net Electrical Output delivered during testing.

SOP-1.1.5. FLOW OF INVOICES IN CPPA-G

SOP-1.1.5.1. GENERAL FLOWCHART OF THE PROCESS

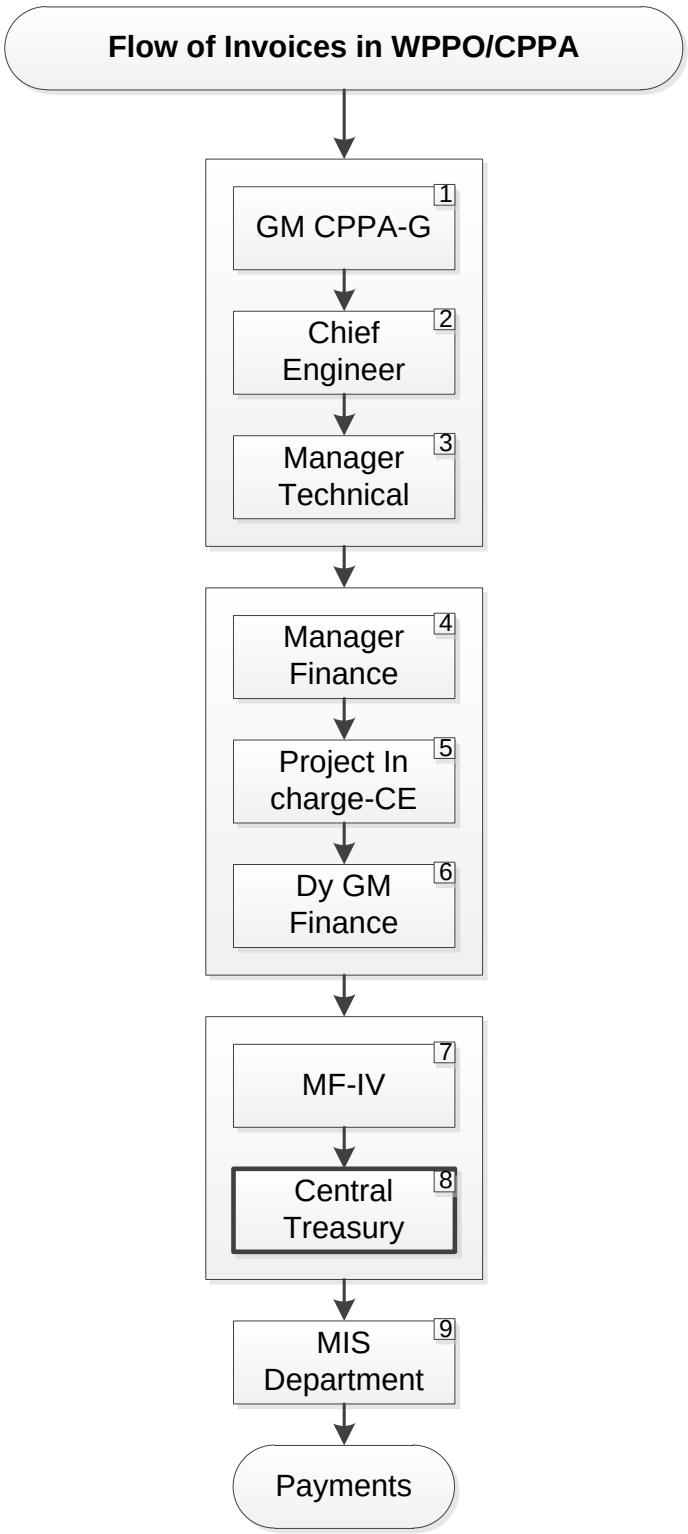


Chart 79: Flow of invoices in CPPA-G

SOP-1.1.5.2. DETAILS OF PROCESS ACTIVITIES

SR. NO.	PROCESS NAME	DESCRIPTION OF PROCESS
1	GM CPPA-G	Receipt of Invoice(s) in the office of GM CPPA-G& stamped determining the due date of Invoice.
2	Chief Engineer	Invoice marked to Project In-charge (Chief Engineer) who forward it to the Technical Director for Technical Verification.
3	Manager Technical	Having Received the Invoice, Manager Tech performs Technical Verification (Energy in kWh or Availability in MW) and forwards to the concerned Manager Finance for Financial Verification.
4	Manager Finance	On receipt of Invoice from Manager Tech;Manager Finance performs financial calculation and verify pursuant to the relevant clauses of PPA or NEPRA as applicable and forwards it to Chief Engineer for Administrative approval.
5	Project In charge-CE	CE being project in-charge accords administrative approval of the invoice and forwards it to Dy. GM Finance for payment.
6	Dy. GM Finance	1) Dy. GM Finance forwards the invoice to MF-IV/T for raising demands for funds and recording it in accounts. 2) Both Project In-charge and Dy. GMFinance signs the pass order.
7	MF (CPPA-G)	Invoices are being recorded in the books of accounts and demands for payments thereof raised by CPPA-G to Treasury.
8	Central Treasury	Central Treasury makes the payment of aforementioned demands subject to availability of funds i.e. online or pay order/bank draft under intimation to CPPA-G
9	MIS Department	Maintain the records for NEPRA and other reporting purposes.

Table 9:Flow of invoices in CPPA-G

SOP-1.2 VERIFICATION PROCESS

Concerned CPPA-G Departments verify the Claimed Invoices provided by the Generation Company. The purpose of such verification is to induce transparency and accuracy in dispersing payments and consequently establishing smooth working of settlements in the power sector. During the verification process each concerned department of CPPA-Ginvolved in verification will contact the relevant entity to authenticate Generation Company' claims related to Declared Available Capacity and Energy Generated.

Different personnel in the respective departments process Invoices of specified Generation Company.

SOP-1.2.1. CAPACITY INVOICE VERIFICATION

Invoices are delivered to the General Manager[1] of the CPPA-G department by the respective Generation Company. The stamped Invoices determine the due date on which the invoices are to be paid by the CPPA-G.

The GM of the CPPA-G department then sends the Claimed Invoices to the Chief Engineer of the Settlement department (CE-I in CPPA-G), who then further sends them to the Manager of the Technical department for technical verification.

Technical department verifies the Energy Claimed Invoices and then sends the hourly record of "Declared Available Capacity (in MW)" to NPCC for Capacity Claim Verification. NPCC will match the data with their own Dispatch instructions and if any changes discovered, it will be revised and notified to the Technical department. If still, in any case there is some inconsistency in the data, NPCC's record will be considered authentic.

After NPCC verifies the Claimed Invoices, they send it back to the technical department of CPPA-G from where these invoices are sent to Manager Finance (I or II, depending on the type of Generation Company), where financial calculations are performed on the invoices pursuant to the relevant clauses of the PPA or NEPRA and forwarded to Chief Engineer Settlement (CE – I) for administrative approval.

From here, the Invoices are sent to Deputy General Manager Finance.

Both CE and Deputy GM Finance signs the pass order to Manager Finance (MF-II[2]), where invoices are being recorded in the books of accounts, which finally sends these processed invoices to the IT and Treasury department for payments.

[1] In case of IPPs under Power Policy 1994, the Claimed Invoices are sent to the General Manager of WPPO.
[2] MF – IV in case of WPPO

*Refer to **Annexure No. 10** for office working of Technical Department during Capacity Invoice (2002 Power Policy) verification.*

*Refer to **Annexure No. 11** for office working of Financial Department during Energy Invoice (2002 Power Policy) verification.*

*Refer to **Annexure No. 12** for NPCC verification letter.*

SOP-1.2.2. ENERGY INVOICE VERIFICATION

General Manager of CPPA-G receives Claimed Energy Invoice by the respective Generation Company along with an electronic record, which contains half hourly readings of the relevant month generated automatically by SMS meters installed on sites. Moreover

- If the parties' representatives, that are present at the time of meter reading, come to an agreement that the meter reading is accurate, then such notice is conveyed to Generation Company as a part of metering.
- If Parties presume that main metering system is not working accurately then readings from back-up metering system is used to prepare bills.

All the data received from Generation Company is given to Chief Engineer-I so it may be forwarded to Technical department[3]. It is further confirmed if sum of hourly meter readings for a specific month is equal to total localized reading for this month and difference between readings of two metering systems is not more than ±0.5%. After the data is verified, it is sent to Manager Finance-I to forward it to treasury department for bill payments.

*Refer to **Annexure No. 13** for office working of Technical Department during Capacity Invoice (2002 Power Policy) verification.*

*Refer to **Annexure No. 14** for office working of Financial Department during Energy (2002 Power Policy) Invoice verification.*

[3] Invoices of IPPs are given to Addl. Manager (Tech)-I and that of Generation Companies, SPPs, NCPPs and Hydel power plants are sent to Addl. Manager (Tech)- IV

SOP-1.2.3. FLOWCHART OF VERIFICATION PROCESS

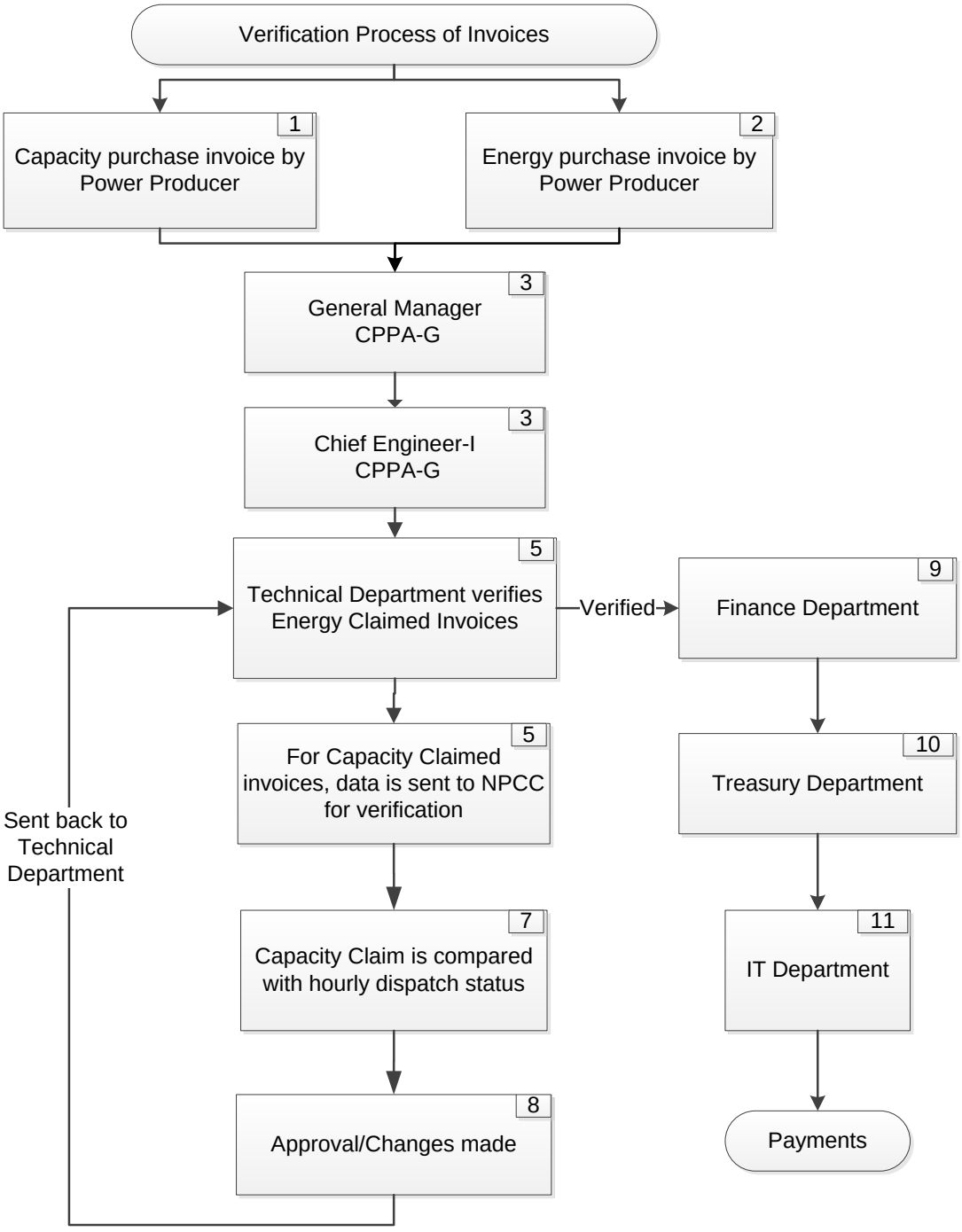


Chart 8~~10~~: Verification Process Flowchart

SOP-1.2.4. DESCRIPTION OF THE PROCESS ACTIVITIES

SR. NO.	PROCESS NAME	DESCRIPTION OF PROCESS
1	Capacity Purchase invoice by Generation Company	Each power producing company sends its capacity purchase invoice at the start of every month to CPPA-G.
2	Energy Purchase invoice by Generation Company	Each power producing company sends its energy purchase invoice at the start of every month to CPPA-G.
3	General Manager CPPA-G	Receipt of Invoice(s) is received in the o/o GM CPPA-G& stamped determining the due date of Invoice.
4	Chief engineer-I CPPA-G	Invoice is marked to Project In-charge (Chief Engineer) who forwards it to the Technical Director for technical verification.
5	Technical Department verifies energy claimed invoices	Having received the Invoice, Director Tech performs technical verification (Energy in kWh or Availability in MW) and forwards to the concerned Director Finance for financial verification.
6	For Capacity Claimed invoices, data is sent to NPCC for verification	Capacity claimed invoices are given to NPCC for verification.
7	Capacity Claim is compared with hourly dispatch status	NPCC verifies the given data by comparing it with its own dispatch instructions for the entire month.
8	Approval/Changes made	After comparison, NPCC gives its approval or makes changes accordingly.
9	Finance Department	After the process of verification of invoices (energy and capacity) is completed, they are sent back to finance department for further application of multiplication factors (like K_T and K_L) may be applied according to

		tariff instructions specified by NEPRA.
10	Treasury Department	Finance department sends the final verified invoice along with bill to treasury department, for the payments to be made to Generation company.
11	IT Department	Treasury department will also notify IT Department for processing and record up-gradation.

Table 10: Verification Process

SOP-1.3 INVOICES GENERATED BY CPPA-G (OUTWARD)

SOP-1.3.1. DISCOS AND KE BILLING

CPPA-G generates Power/Electricity Sales Bill (also called Transfer Payments-TP) to DISCOs/KE to recover Generation Company's generation costs and NTDC Use of System Charges (UoSC). DISCO/KE bills are based on the following aspects:

- Meter Reading Performa and;
- Company Claimed Capacity and Energy Invoices.

Meter Reading is performed at CDPs on midnight of last day of every month to document the final readings for billing purpose. Metering Committee usually forwards the Meter Reading Performa to CPPA-G on 1st business day of next month. Similarly, Generation companies usually forward the Claim Energy and Capacity Invoices to CPPA-G on 1st or 2nd business day of next month. CPPA-G will process the metering data from the Meter Reading Performa and claimed invoices data sent from Generation company, and after getting it verified,CPPA-G will generate provisional Bills by mid of that month and a 15 days deadline is accorded to DISCOs/KE for payment. However, in the event of any prior or subsequent agreement, due date for payment can be adjusted. In case, DISCOs are unable to meet the deadline, a late payment surcharge is applied by CPPA-G.

DISCO/KE monthly billing includes the following parts:

- Energy and Capacity Details
  - Net Energy Transferred to DISCO in kWh
  - Reactive Energy Transferred in kVARh
  - Maximum Demand (MDI) of DISCO in kW
- Application of Use of System Charges (UoSC)
  - Fixed Charges
  - Variable Charges
- Application of Capacity and Energy Transfer Rates
- Application of GST
- Bill Adjustment (if any)

Bill Calculation/Transfer Payment Calculation

When each and every aspect of DISCO /KE billing is taken into account, the Electricity/ Power sales Bill (also referred to as Transfer Payment) payable by DISCOs/KE is calculated by using the following formula:

$$\boldsymbol{Sales\,Bill/TP = \ TC + UoSC + GST}$$

Where,

- TP = Transfer Payments in PKR
- TC = Transfer Charges
- UoSC = Use of System Charges in PKR
- GST = Application of 17% GST on ETC 1 in PKR

Refer to ***Annexure No. 15*** *for a sample KE Bill generated by CPPA-G for the month of October 2014.*

Refer to ***Annexure No. 16*** *for KE Meter Reading Performa for October 2014.*

Refer to ***Annexure No. 17*** *for calculation of CTR and ETR for October 2014.*

SOP-1.3.2. BACK-FEED BILLING EEP[4]

CPPA generates Electricity Consumer Bill to charge generation companies for importing electricity from the NTDC Grid. This is classified as an outward payment invoice (w.r.t CPPA) and is referred to as Back Feed Billing or Export Energy Invoice. Officially the term used by the Generation Company when it imports energy from NTDC, is simply the "Import Energy", whereas the term used by NTDC and WPPO when it exports energy to Generation Company, is referred to as "Back Feed EEP (Export Energy Payment)". A time frame of maximum 15 days is allocated to the Generation Company for bill payment. Furthermore, there is no official format set by any party for monthly Joint Meter Performa, used in Back-feed Energy Price Payment (EPP).

The process of the flow of energy exported to Generation Company by NTDC is as follows:

At first, Meter Reading Performa, which includes month-end meter reading of Cut-off Delivery Points (Imports and Exports) along with Load Data Profile, is sent by Generation Company to the Technical department of CPPA-G. Then the Technical department further processes the data for bills processing and send it to the IT department for data verification/checking. At final, all such data is sent to the Finance Department for final checks. The DG M.F (Manager Finance) (Billing & Recovery) of the Finance Department finalizes the data regarding Back Feed Billing and then, on DG Mf's approval, the data is sent back to the concerned Generation Company with a covering letter for seeking compensation on amount of energy imported by the concerned Generation Company.

If in any case, there are any faults or errors discovered in the data by the IT Department, they are immediately sent to the Metering Committee by the Deputy Manager/Director of the Technical Department. The Metering Committee members then solve the issue and correct the problem with consensus. Once the issue is solved by the Metering Committee, the data is sent again to the Technical Department of the CPPA-G, which further sends the verified data again through the same process as discussed above.

*(Refer to **Annexure no. 18** for EEP Bill)*

*(Refer to **Annexure19** for a sample Notifying Document from Technical Department)*

$$\boldsymbol{Electricty\ Consumer\ Bill} = (\boldsymbol{VC} + \boldsymbol{FC} \pm \boldsymbol{FPA} + \boldsymbol{Misc.C} + \boldsymbol{LPF\ Penalty} + \boldsymbol{Electricity\ Duty} + \boldsymbol{GST} \pm \boldsymbol{Adjustment} \pm \boldsymbol{Arrear/LPS})$$

Where,

- Electricity Consumer Bill in PKR

[4] EEP-Export Energy Price

- VC = Variable Charges in PKR
- FC = Fixed Charges in PKR
- FPA = Fuel Price Adjustment in PKR
- Misc. C = Miscellaneous Charges and Factors (e.g. Neelum-Jhelum Fund) in PKR
- LPF Penalty = Penalty arising in case of Low Power Factor (LPF) in PKR
- Electricity Duty = Application of 1.5% Electricity Duty in PKR
- GST = Application of GST (as notified in percentage [%]) in PKR
- Adjustment = Any addition or reduction in Bill (if required) in PKR
- Arrears/LPS = Any addition or reduction in Bill (if required) in terms of Arrears or Late Payment Surcharge (LPS) in PKR

SOP-1.3.2.1 FLOW CHART OF THE BACK FEED EEP

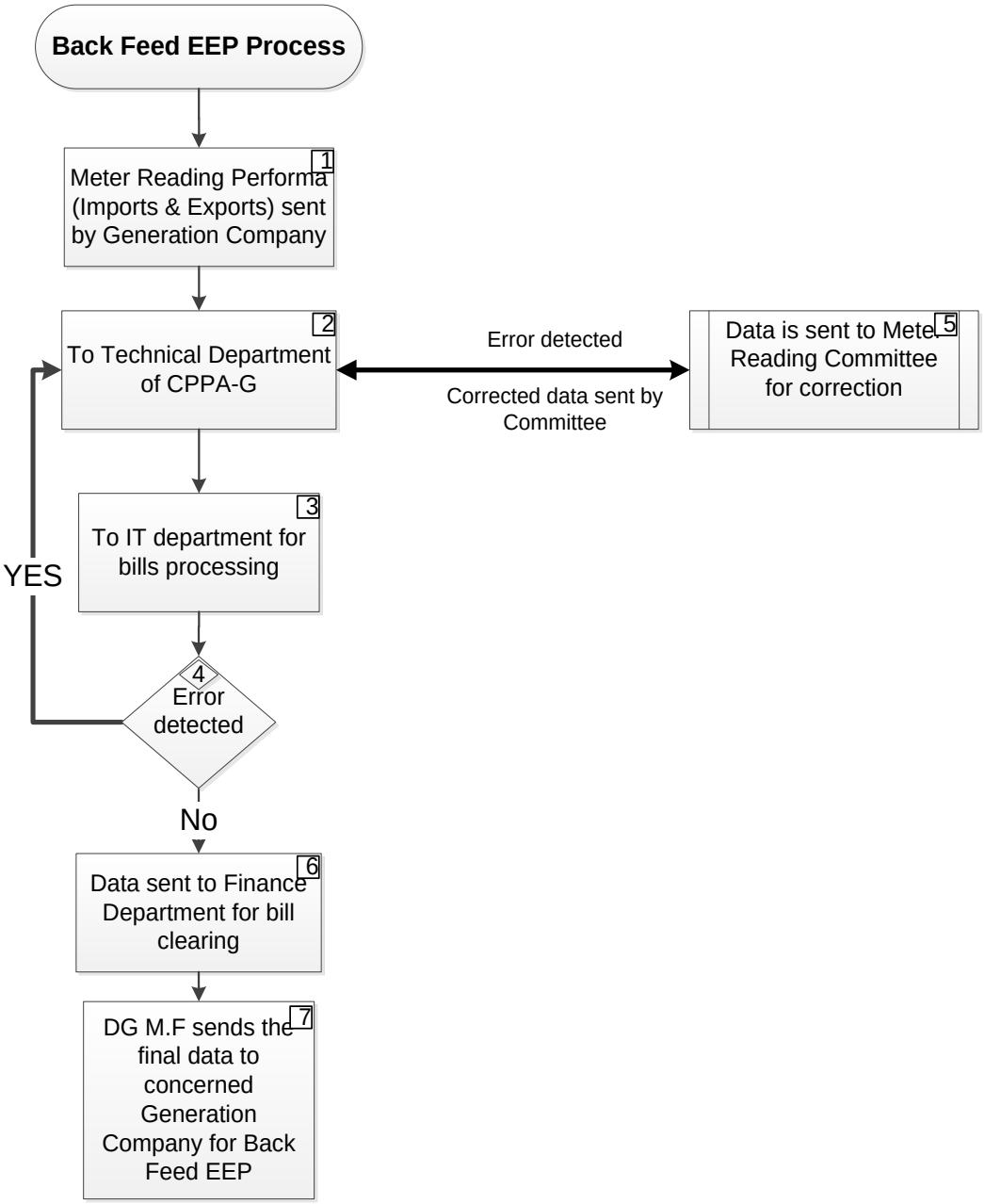


Chart 9~~11~~: Back-Feed Billing

SOP-1.3.2.2 DESCRIPTIVE OVERVIEW OF THE PROCESS

SR. NO.	PROCESS NAME	DESCRIPTION OF PROCESS
1.	Meter Reading Performa (Imports & Exports) sent by Generation Company	Generation Company sends its Meter Reading Performa to CPPA-G which contains all Import and Export Energy.
2.	To Technical Department of CPPA-G	The Technical Department is the first one to get such data.
3.	To IT department for bills processing	Technical Department sends that data to the IT Department and detects for any error.
4.	Error detected	In case of data error found, IT department sends that data back to Technical Department, which then forwards it to the Metering Committee for clarification.
5.	Data is sent to Meter Reading Committee for correction	Members of the Metering Committee sorts out the flaw in the data and after correcting the data with their unanimous approval, they send it back to the Technical Department, which then follows the regular flow of the data for Back Feed Invoices.
6.	Data sent to Finance Department for bill clearing	IT department when formulates the Billing from the corrected data, sends it to the Finance Department for bill clearance.
7.	DG M.F sends the final data to concerned Generation Company for Back Feed EPP	Deputy General Manager Finance finalizes the data, approves it and sends it to the respective IPP in the form of Back Feed Invoice under his own stamp.

Table 11: Back-Feed Billing

SOP-1.3.3. LIQUIDATED DAMAGES

SOP-1.3.3.1. WITH RESPECT TO POWER POLICY 2002

Without prejudice, the Parties agree that any Liquidated Damages payable shall be the Power Purchaser's exclusive remedy against the Company.

The following liquidated damages shall apply to Declared Available Capacity (D.A.C) or Revised Declared Available Capacity (R.D.A.C) and be payable by the Generation Company only after utilization of the no of hours available to the Generation Company for its Forced or Partial Outages.

- Generation Company shall pay to the Power Purchaser an amount equal to 10% of the difference between R.D.A.C (and D.A.C) prevailing 12hours before the start of the operations day and the R.D.A.C prevailing 4hours before the start of the Operating Day multiplied by the applicable Capacity Price for the relevant hour of that Operating Day adjusted in accordance with Schedule 1 of Power Purchase Agreement (PPA) under Power Policy of 2002. Whereas, no adjustment shall be made to the D.A.C or R.D.A.C to the actual Ambient Site Condition.
- If R.D.A.C is made less than 4hours prior to the beginning of an Operating Day, then the Generation Company shall pay an amount equal to 20% of the difference between R.D.A.C prevailing at 4hours prior to the start of the Operating Day and R.D.A.C prevailing at the start of the Operating Day multiplied by the applicable Capacity Price for the relevant hour of that Operating Day, adjusted in accordance with Schedule 1 of PPA under Power Policy of 2002.
- For any hour if D.A.C is revised upward with a notice at least 4 hours prior to the start of the relevant hour to the Power Purchaser., no Liquidated Damages shall be payable. In fact such notice shall take effect from the start of the next Operating Hour in which such notice is delivered to the Power Purchaser.
    - If the Generation Company is dispatched according to the R.D.A.C but it is unable to comply with such Dispatch instruction, then liquidated damages shall be payable at twice the rate (i.e. 200%) of those payable as explained below.
- If the Generation Company fails to comply with a Dispatch Instruction for any hour except if it is because of the events set out in Section 5.4d (Events not in Generation Companies hand) and Section 9.1d (Forced/Partial Forced Outages) under Power Policy of 2002, the Power Purchaser will be paid liquidated damages an amount equal to 100% of the difference

between the R.D.A.C/D.A.C prevailing at the start of the relevant hour and the Available Capacity for that hour multiplied by the applicable Capacity Price for such hour.

  - Liquidated Damages payable under this section shall be in addition to any liquidated damages payable under section 9.4b for the same hour under Power Policy of 2002.

- If Generation Company couldn't achieve the Required Commercial Operations Date, then for each month the Generation Company shall pay $2.5/kW of contract capacity as liquidated damages

- The Parties agree that such liquidated damages are1 reasonable estimates for the actual damages/losses anticipated, and not a penalty.

Based on the PPA signed under Power Policy of 2002, The Liquidated Damages discussed above will not be applicable if site ambient conditions are not same as that of forecasted ambient conditions and company has notified changes in available capacity on the basis of recent ambient conditions forty five (45) minutes prior to the start of relevant hour.

SOP-1.3.3.2. WITH RESPECT TO POWER POLICY 1994

Delay in Commissioning

If the Complex has not been commissioned on or before the required COD, then the Generation Company shall pay to WAPDA, monthly in arrears as liquidated damages for days in the occurrence of the COD, $2.50 per KW of estimated dependable capacity per month prorated daily until the commercial operations date.

Forced Outage and Partial De-rating

In the event that the sum of, Equivalent Weighted Forced Outage Energy, Weighted Complex Partial De-Rating and Weighted Complex Maintenance Outages, exceeds Ω[5] MWh, then the Generation Company shall pay to WAPDA, as L.Ds, the Capacity Damages Amount multiplied by {(A+B+C) - Ω}, however, for the first agreement year, the sum of A+B+C shall be multiplied by 0.75.

A) *Equivalent Weighted Forced Outage Energy*

The equivalent weighted forced outage energy for the complex is determined by the summation of the product of a, b and c (following processes).

a) Each hour of Forced Outage

b) Dependable Capacity of complex as last tested

c) Applicable Weighting Factor

[5] (Where Ω is equal to the Average Dependable Capacity multiplied by 470)

B) *Weighted Complex Partial De-Rating*

The weighted complex partial de-rating, expressed in MWh, is determined by the summation of the product of a, b and c (following processes).

a) Partial de-rating during the period a partial forced outage was in effect.

b) Time in hours that such partial de-rating shall be in effect

c) The applicable weighting factor

C) *Weighted Complex Maintenance Outages*

Weighted complex maintenance outages, expressed in MWh, is determined by summation of the product of a, b, c and d (following processes).

a) The Reduction in dependable capacity during the period a maintenance outage was in effect

b) The time in hours that maintenance outage shall be in effect

c) Applicable weighting Factor

d) 0.5

D) The Weighting Factor[6] applicable to hours of Forced Outage, Partial De-rating and Maintenance Outage shall be:

	WORKING DAYS		**FRIDAYS**
Months	12 Peak Hours	12 Non-Peak Hours	24 Hours[7]
January	2.5	2.0	1.5
February	2.5	1.5	1.0
March	1.0	0.5	0.5
April	1.0	0.5	0.5
May	2.5	0.5	0.5
June	2.6	0.5	0.2
July	1.0	0.5	0.2

[6] WAPDA reserves the right to designate new periods and Weighting Factors by giving 12months prior notice. Maximum value of any Weighting Factor shall be 2.6.

[7] Total Weighted Hours shall not exceed 8760/agreement year.

August	0.5	0.0	0.2
September	0.5	0.5	0.2
October	0.5	0.5	0.2
November	1.0	0.5	0.2
December	2.0	1.0	1.0

Table 12: Weighting Factor

Provided, however,

i. WAPDA reserves the right to designate new Weighting Factors by giving written notice to the Company, at least 12months prior to the first day of any agreement.
ii. Maximum value of any Weighting Factor shall be 2.6
iii. Total Weighting hours per Agreement year shall be 8,760
iv. The hours in any period shall be consecutive
v. There shall be no two periods in any one day, and on Fridays, except during any of two WAPDA's peak months.
vi. WAPDA shall only make such re-designations in response to long term load and generation changes.

Dispatch Level

In the event that after two identical Dispatch requests separated by the greater of;

a) A sufficient period of time for Generation Company to have compiled with the first request based on ramp time schedules as provided in the technical limits

b) 10 minutes the Generation Company does not achieve the operating level requested by the WAPDA (NTDC) pursuant to within time allowed by technical limits, within a tolerance of ± 3%,

It is then, that the Generation Company shall pay to WAPDA, as Liquidated Damages, an amount to Rs. 0.3 per kWh for each kWh outside the tolerance.

Provided,

i. WAPDA shall not be entitled to LDs if the requested operating level cannot be achieved within the Technical Limits or is above the D.A.C of the Complex.
ii. If the Company is unable to meet the requested Dispatch for a continuous period of 3 hours, then such shortfall shall be treated as a partial De-rating.

Waiver of Defenses

If the Parties agree on sums that are reasonable as L.Ds and are the sole remedy of WAPDA in the event of any following failure of the Complex.

1) Not in service by the required Commercial Operations Date
2) Not capable of achieving and maintaining the expected Dependable Capacity
3) Cannot minimize the number of Force Outage Hours and Partial De-Rating
4) Cannot achieve the designate operating levels

The Company hereby waives, to the extent permitted by applicable law, any defense as to the validity of any L.Ds in this agreement on the grounds that such L.Ds are void as penalties.

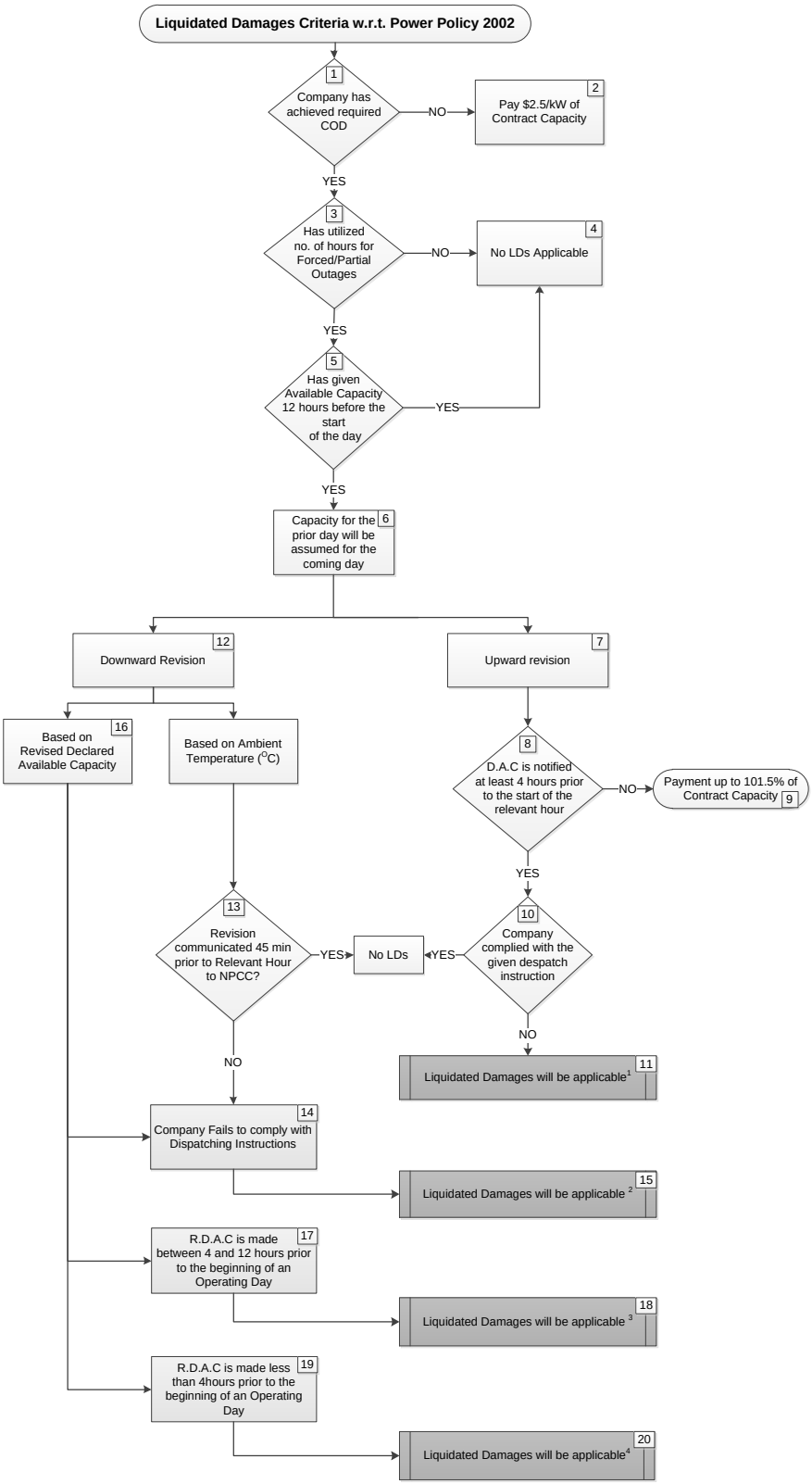
Adjustment

The Amount of all of the liquidated damages set forth in Section 9.4 (b - Forced Outages and Partial De-Rating) and 9.4 (c - Dispatch Level) of Power Policy under 1994 shall be adjusted from time to time in accordance with Schedule – 6 (Tariff, Indexation and Adjustment) of Power Policy under 1994.

Security

a) Generation Company Security
b) WAPDA (NTDC) security
c) Improper Draws

SOP-1.3.3.3. FLOWCHART OF THE PROCESS W.R.T POWER POLICY 2002



SOP-1.3.3.4. DESCRIPTION OF PROCESS ACTIVITIES W.R.T POWER POLICY 2002

SR. NO.	PROCESS NAME	DESCRIPTION OF PROCESS
1.	Company has achieved Required Commercial Operations Date	If company has fulfilled the condition of achieving commercial operation date as described in the contract
2.	Pay $2.5/kW of Contract Capacity	If the Company is in breach of its obligation to achieve the Commercial Operations Date by the Required Commercial Operations Date, then for each Month (prorated daily) thereafter until the Commercial Operations Date is actually achieved, the Company shall pay the Power Purchaser as liquidated damages an amount equal to two and one-half Dollars ($2.50) per kW of Contract Capacity per Month (prorated daily) until the Commercial Operations Date is achieved.
3.	Has utilized no of hours for Forced/Partial Outages	Liquidated Damages shall apply to Revised Declared Available Capacity only after utilizing the no of hours available to the Generation Company for its Forced or Partial Outages
4.	No L.Ds[8] applicable	No Liquidated Damages shall be paid if Forced/Partial Outage hours are not first utilized by the Generation Company or if D.A.C[9] is revised with a notice at least 12 hours prior to the start of the relevant day of the Power Purchaser or dispatch instruction upon upward revision is complied.
5.	Has given available capacity 12 hours before the start of the day	If there is any revision to the available capacity then company should inform Power Purchaser at least 12 hours prior to the start of the day.
6.	Capacity for the prior day will be assumed for the coming day	If company does not inform power purchaser about the capacity of the coming day, then it will

[8] Liquidated Damages
[9] D.A.C-Declared Available Capacity

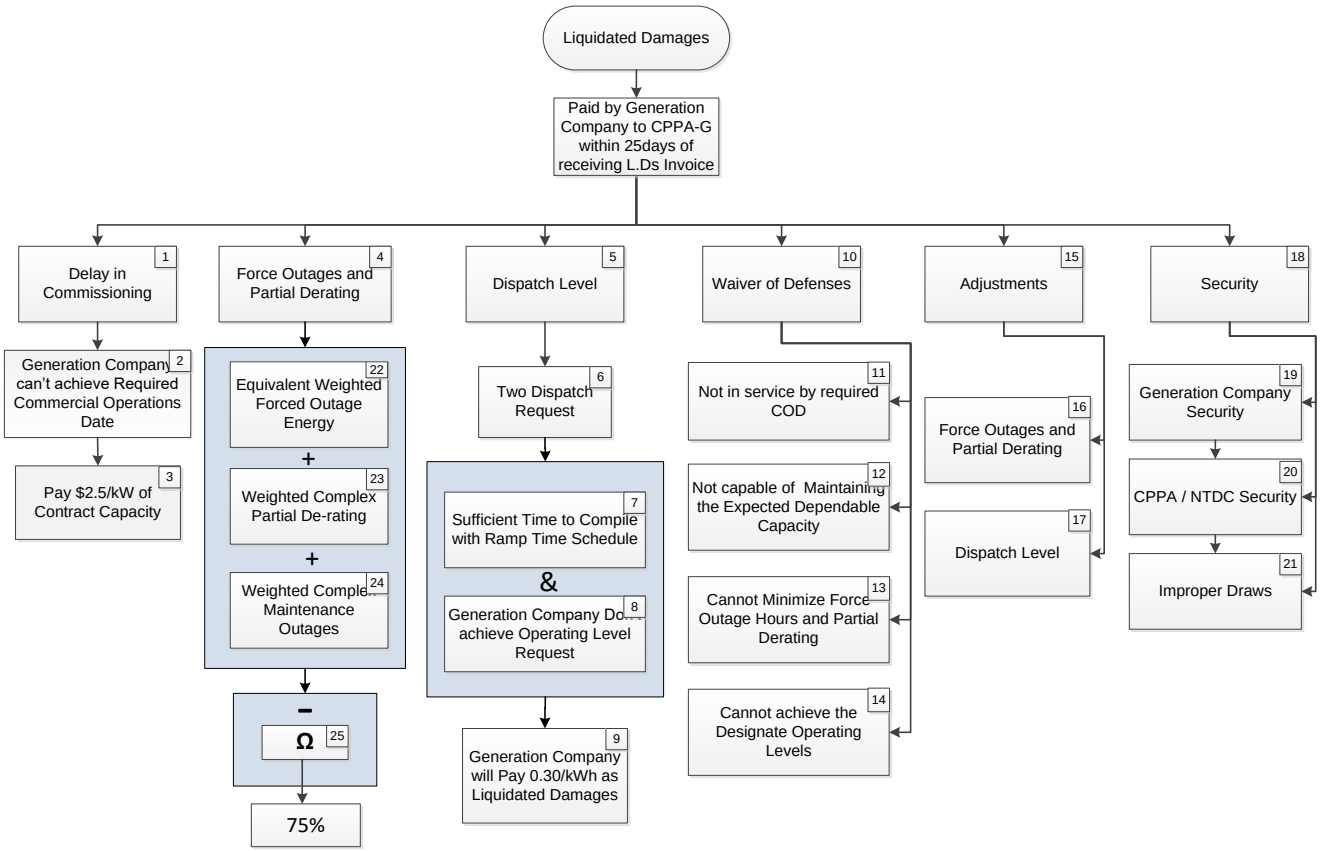
		be considered as given for the previous day.
7.	upward revision	Upward revisions to the Declared Available Capacity after the Declaration Deadline
8.	D.A.C is notified at least 4 hours prior to the start of the relevant hour	Such notice shall take effect from start of the next operating hour in which such are notice is delivered to the NTDC
9.	Payment up to 101.5% of Contract Capacity	Supply shall not in any event exceed one hundred and one and one-half percent (101.5%) of the Dispatched Net Electrical Output for the relevant hour.
10.	Company complied with the given dispatch instructions	Company dispatched according to instructions after revising its capacity
11.	Liquidated Damages will be applicable[1]	$LD = 200\%\left(A1 - (B1 \times C1)\right)$ ..... Eq. no. 1 Where A1 = R.D.A.C prevailing at the start of that hour B1 = Available Capacity for that hour C1 = Capacity Price for the relevant hour of that Operating Day
12.	Downward Revision	Company notifies that it will not be able to supply complete contracted capacity
13.	Revision communicated 45 min prior to Relevant Hour to NPCC?	The notification by the company of declared available capacity or any revised declared available capacity shall be made at he forecasted ambient conditions. If any change to the forecasted ambient conditions occurs then company should notify available capacity or any revised declared available capacity forty five minutes prior to the start of the relevant hour.
14.	Company Fails to comply with	In this case Generation Company shall pay an

	Dispatching Instructions	amount equal to 100% of the difference between R.D.A.C prevailing at start of the relevant hour and the Available Capacity for that hour multiplied by the applicable Capacity Price for such hour
15.	Liquidated Damages will be applicable 2	$LD = 100\%\left(A2 - (B2 \times C2)\right)$ ..... Eq. no. 2 Where A2 = R.D.A.C prevailing at the start of that hour B2 = Available Capacity for that hour C2 = Capacity Price for the relevant hour of that Operating Day
16.	Based on Revised Declared Available Capacity	Company notifies change in available capacity without change in forecasted ambient conditions
17.	R.D.A.C[10] is made between 4 hours and 12 hours prior to the beginning of an Operating Day	In this case Generation Company shall pay an amount equal to 10% of the difference between R.D.A.C prevailing 12hours and the R.D.A.C prevailing 4hours before the start of the Operating Day multiplied by the applicable Capacity Price for the relevant hour of that Operating Day
18.	Liquidated Damages will be applicable [3]	$\mathrm{LD} = 10\%\left(\mathrm{A3} - (\mathrm{B3} \times \mathrm{C3})\right)$ ..... Eq. no. 3 Where A3 = R.D.A.C prevailing 4hours before start of the Operating Day B3 = R.D.A.C prevailing 12hours before start of the Operating Day C3 = Capacity Price for the relevant hour of

[10] R.D.A.C-Revised Declared Available Capacity

		that Operating Day
19.	R.D.A.C is made less than 4hours prior to the beginning of an Operating Day	In this case Generation Company shall pay an amount equal to 20% of the difference between R.D.A.C prevailing 4hours prior to the start of the Operating Day and R.D.A.C prevailing start of the Operating Day multiplied by the applicable Capacity Price for the relevant hour of that Operating Day
20.	Liquidated Damages will be applicable[4]	$LD = 20\%\left(A4 - (B4 \times C4)\right)$ ..... Eq. no. 4 Where A4 = R.D.A.C prevailing at the start of the Operating Day B4 = R.D.A.C prevailing 4hours before start of the Operating Day C4 = Capacity Price for the relevant hour of that Operating Day

SOP-1.3.3.5. FLOWCHART OF THE PROCESS W.R.T POWER POLICY 1994



(X) = Equivalent Weighted Forced Outage Energy = A1 x B1 x C1

A1. For each hour of forced Outage

B1. Dependable Capacity of Complex as last tested

C1. Applicable Weighting Factor

(Y) = Weighted Complex Partial De-rating = A2 x B2 x C2

A2. Partial de-rating during the period a partial forced outage was in effect.

B2. Time in hours that such Partial De-rating shall be in effect

C2. The Applicable Weighting Factor

(Z) = Weighted Complex Maintenance Outages = A3 x B3 x C3 x 0.5

A3. Reduction in Dependable Capacity during the period Maintenance Outage was in effect

B3. Time in hours in which Maintenance Outage shall be in effect

C3. Applicable Weighting Factor

Force Outages and Partial De-rating = 0.75 x {**(X + Y + Z) - Ω**}

Here, **"Ω"** is equal to the Average Dependable Capacity multiplied by 470 hours

SOP-1.3.3.6. DESCRIPTION OF THE PROCESS ACTIVITIES W.R.T POWER POLICY 1994

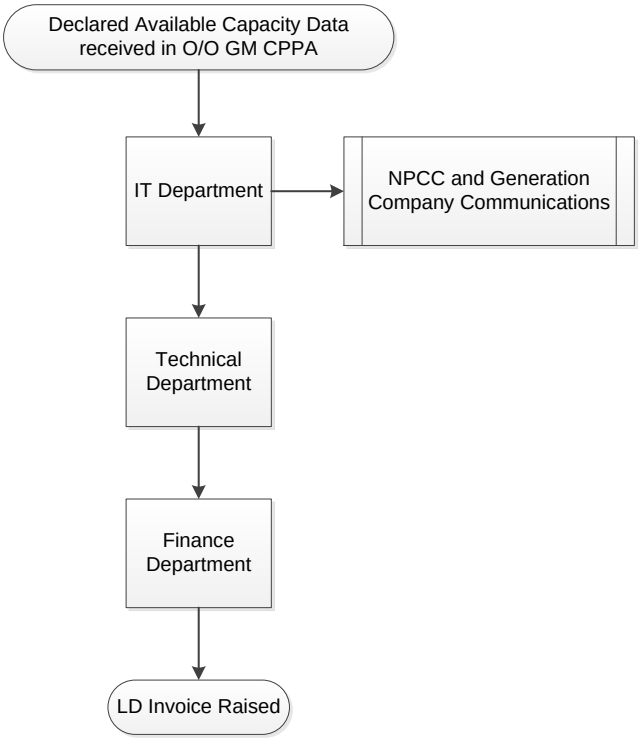
SR. NO.	PROCESS NAME	DESCRIPTION OF PROCESS
1.	Delay in commissioning	If the complex is not commissioned on or before required COD, then the Generation Company shall pay to CPPA-G, monthly in arrears, as L.Ds
2.	Generation Company can't achieve Required Commercial Operations Date (RCOD)	In case the Generation Company can't achieve required COD, then the following amount shall be paid as is defined in the next process.
3.	Pay $2.5/kW of contract capacity	Generation Company shall pay such amount in case of not fulfilling required COD.
4.	Force outages and partial re-rating	The complete formula to calculate forced outages and partial de-rating is described in the sub part of the entire flow chart.
5.	Dispatch level	As required by the NTDC.
6.	Two dispatch request	There are two dispatch requests by NTDC
7.	Sufficient time to compile with ramp time schedule	Ramp time schedule is defined in the technical limits-as in Power Policy 1994
8.	Generation Company don't achieve operating level request	Within a tolerance of +-3%
9.	Generation Company will Pay 0.30/kWh as liquidated damages	For each kWh outside the tolerance level
10.	Waiver of defenses	The Generation Company shall waive any defense as to the validity of any L.Ds on the grounds that such liquidity damages are void as penalties.
11.	Not in service by required COD	The Complex is not in service by the required COD.
12.	Not capable of maintaining the expected	The Complex is not capable of maintaining the Expected Dependable Capacity.

	dependable capacity	
13.	Cannot minimize force outage hours and partial de-rating	The Complex cannot minimize the no. of forced outage hours and partial de-rating.
14.	Cannot achieve the designate operating level	The Complex cannot achieve the designated operating level
15.	Adjustments	The amounts of all the L.Ds shall be adjusted from time to time.
16.	Force outages and partial de-rating	Adjustments in L.Ds can be w.r.t. forced outages and partial de-rating
17.	Dispatch level	Adjustments in L.Ds can be w.r.t. dispatch Level.
18.	Security	Security w.r.t. Generation Company, CPPA-G and improper draws.
19.	Generation Company security	The Generation Company shall provide Letter of Credit, on financial closing, to CPPA-G in an amount equal to $25/kW
20.	CPPA-G Security	On COD, CPPA-G shall provide Letter of Credit to the Generation Company which shall have a term of 12months from COD.
21.	Improper Draws	If any party draws against Letter of Credit to which it is not entitled to do so, then the drawing party shall repay with all costs plus interest at the base rate.
22.	Equivalent Weighted Forced Outage Energy	Product of • For Each hour of forced Outage • Dependable Capacity of Complex as Last Tested • Applicable Weighting Factor
23.	Weighted Complex Partial De-rating	Product of • Partial de-rating during the period a partial forced

		outage was in effect. • Time in Hours that Such Partial De-rating shall be Effect • The Applicable Weighting Factor
24.	Weighted Complex Maintenance Outages	Product of • Reduction in Dependable Capacity During the Period of Maintenance Outage was in effect • Time in hours in which maintenance outage shall be in effect • Applicable weighting Factor
25.	Ω	It is equal to the Average Dependable Capacity multiplied by 470 hours

Table 1344: Liquidity Damages w.r.t. Power Policy 1994

SOP-1.3.3.7. FLOW OF INTER-DEPARTMENTAL LD INVOICES



SOP-1.3.3.8. PAYMENT OF LIQUIDATED DAMAGES

With respect to Power Policy 1994, WAPDA shall compute and advice the Generation Company in the invoice for L.Ds, within 14days after the end of each month and within 30days of the end of each agreement year. Once the invoice is delivered by WAPDA, the Generation Company shall pay the L.Ds by no later than 25days after.

SOP-1.3.3.8.1. FLOWCHART OF PAYMENT FOR L.DS W.R.T POWER POLICY 1994

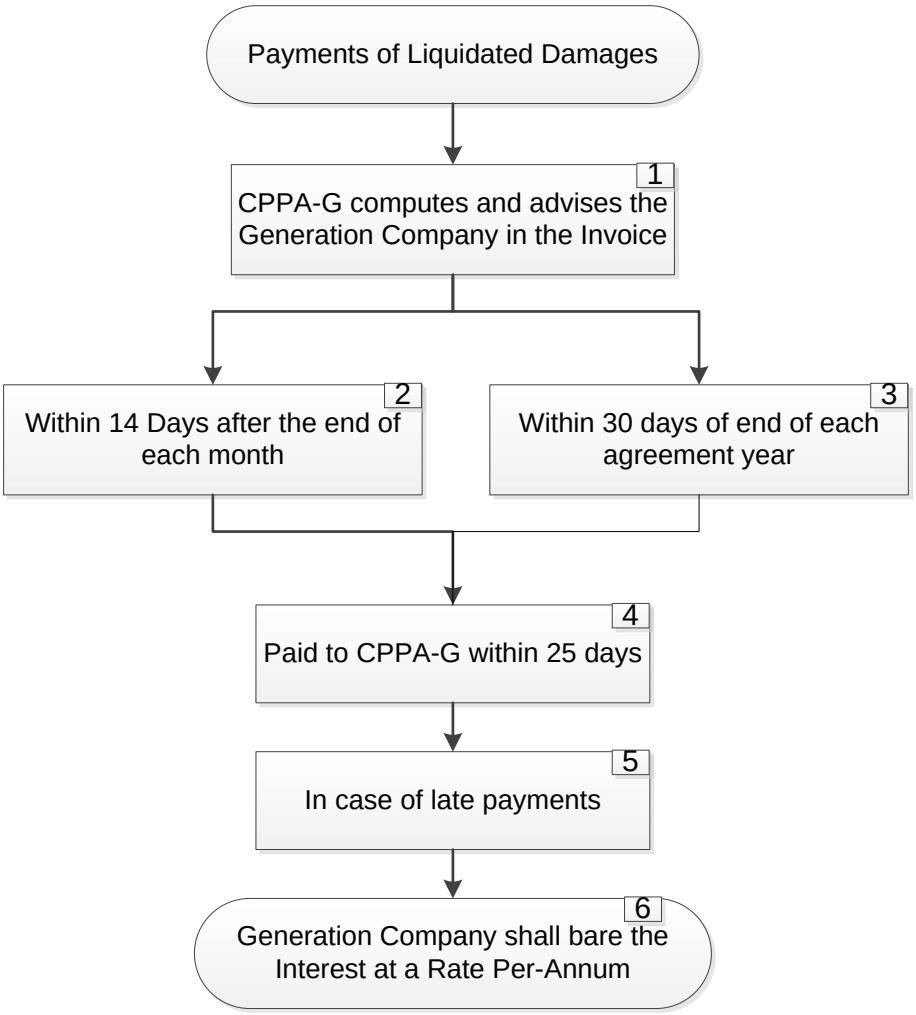


Chart 1044: Payment of Liquidity Damages w.r.t. Power Policy 1994

SOP-1.3.3.8.2. DESCRIPTIVE OVERVIEW OF THE PROCESS

SR. NO.	PROCESS NAME	DESCRIPTION OF PROCESS
1.	CPPA-G computes and advises the Generation Company in the Invoice	After computing L.Ds, CPPA-Gasks for an Invoice of L.Ds by the Generation Company.
2.	Within 14 Days after the end of each month	CPPA-Gshall raise Invoice within 14days after the end of each month.
3.	Within 30 days of end of each agreement year	CPPA-Gshall also raise Invoice within 30days after the end of each agreement year.
4.	Paid to CPPA-G within 25 days	The Generation Company shall pay the Invoiced amount to CPPA-G within 25days after delivery of Invoice by CPPA-G.
5.	In case of late payments	If the Generation Company fails to pay L.Ds within 25days after delivery of Invoice by CPPA-G.
6.	Generation Company shall bare the Interest at a Rate Per-Annum	In case of late payments, Generation Company shall pay an interest at a rate per annum equal to the Base Rate plus 2% per annum.

Table 14~~15~~: Payment of Liquidity Damages w.r.t. Power Policy 1994

SOP-1.3.4. INTEREST PAYABLE

Interest payable is any amount not paid by the due and payable date, showing the calculation of such claimed interest in reasonable detail, together with such supporting information as may reasonably be necessary to substantiate the amounts claimed in the invoice.

- Such supporting information shall include Foreign Exchange Bulletins, showing applicable exchange values between Rupee and Dollar, evidence of KIBOR and LIBOR values and copies of D.A.C, R.D.A.C or A.D.A.V together with record of failure to dispatch according to Dispatch instructions, used to calculate such damages.

Either Party may require clarification or substantiation of any amount included in an invoice or statement submitted under Section 9.5(a), (b), or (c) of PPA under Power Policy of 1994, by delivering notice of such requirement to the other Party. The Party receiving such request shall provide the requested clarification and substantiation of such invoice or statement within five (5) Business Days of its receipt of such request.

SOP-1.4 GENERATION SIDE CALCULATIONS

The very first calculation encountered in processing billing, is during verification of energy meter reading. It is verified as:

$$\sum \textbf{Hourly meter readings} = \textbf{Local Totalized reading}$$

After the meter readings are sent to CPPA-G, Energy and Capacity calculations are done in the following way

SOP-1.4.1. CALCULATIONS FOR CAPACITY PAYMENTS

SOP-1.4.1.1. WITH RESPECT TO POWER POLICY 2002

The Capacity Payment for the applicable month shall be equal to the aggregate sum (for all of the hours in such month) of the Capacity Payment earned for each hour of the month. The equation to calculate Capacity Payment can be written as:

$$\textbf{Capacity Payments}_{M} = \sum_{h=1}^{n} \textbf{Capacity Payments}_{h}$$

$$\textbf{Capacity Payments}_{h} = \textbf{Capacity Price}_{h} * \textbf{Available Capacity}^{11}{}_{h}$$

Where,

Capacity Payments $_M$ = Capacity Payments, in rupees, paid for the relevant month

Where,

Capacity Price $_h$ = (Non-Debt Component of CPP $_h$ + Debt Service Component $_h$) *PWF $_h$

Non-Debt Component of CPP $_h$ = Fixed O&M $_h$ + Insurance $_h$ + ROE[12] $_h$+ ROE DC[13] $_h$

Debt Service Component $_h$ = Debt Service Component [F][14] $_h$ + Debt Service Component [L][15]$_h$

SOP-1.4.1.2. WITH RESPECT TO POWER POLICY 1994

WAPDA shall pay the Capacity Payment to the Generation Company, calculated as follows:

$$\textbf{Capacity Payment} = \textbf{Capacity Purchase Price} * \textbf{Dependable}^{16}\ \textbf{Capacity}$$

[11] Available Capacity $_h$ = Available Capacity in kW, for Hour h of the relevant Month, and h=each hour in the month for which a Capacity Payment is being calculated
[12] ROE- Return On Equity
[13] ROE DC- Return On Equity During Construction
[14] Debt Service Component [F]= Foreign Debt Service Component
[15] Debt Service Component [L]= Local Debt Service Component

Here, the Capacity Purchase Price is established on the basis of a 60% plant factor[17]. If COD occurs on a date which is not the first day of a month, then the Capacity Payment shall be multiplied by the following as:

$$\text{Capacity Price} * \left[\frac{number\ of\ days\ remaining\ in\ the\ month}{number\ of\ days\ in\ such\ month}\right]$$

If for a period of 18 consecutive days, the Generation Company is unable to deliver NEO at least 50% of the Dispatch Levels, then WAPDA shall suspend Capacity Payments until the Generation Company delivers NEO for 3 consecutive hours exceeding 50% of the next Dispatch request by WAPDA.

[16] With respect to Power Policy 1994, Dependable Capacity is Adjusted Capacity
[17] Provided in Power Policy of March 1994

SOP-1.4.2. CALCULATIONS FOR ENERGY PAYMENTS

The energy payment for the relevant month shall be equal to the aggregate sum (for all of the hours in such month) of the energy payment earned for each hour of the month, and shall equal:

$$\textbf{Energy Payment}_{M}=\sum_{h=1}^{n}\textbf{Energy Payment}_{h}$$

Where,

$\text{Energy Payment}_{M}$=Energy Payment, in Rupees, paid for the relevant month;

$\text{Energy Payment}_{h}$=Energy Payment, in Rupees, paid for h hour of the month;

n = the number of hours in the relevant month

h = the hour for which an energy payment is being calculated

The energy payment earned for each hour of a month shall be calculated as follows:

$$\textbf{Energy Payment}_{h}=\textbf{Energy Price}_{h}*\textbf{NEO}_{h}$$

Where,

NEO_h=the net electrical output of the complex for the relevant hour

$\text{Energy Payment}_{h}$=Energy Payment, in Rs, payable for hour h;

$\text{Energy Price}_{h}=FCC_h+VO\&M_h$

Where,

$VO\&M_h$=hourly variable O&M component

$FCC_h=(FCC_{REF}*FCAF_t)*K_h*DH_h$

Where,

FCC_{REF}=the reference fuel cost component

$FCAF_t$=the applicable fuel cost adjustment factor

K_h=the load correction factor for the complex in hour h

DH_h=the heat rate degradation factor for the complex

SOP-1.4.3. CALCULATIONS FOR COMMISSIONING TEST

The fuel cost component (Gas or HSD as the case may be) shall be calculated by using the fuel cost adjustment factor for the applicable hour, h, according to the following formula:

$$\mathbf{FCAF_t = \frac{FC_t}{FC_{ref}}}$$

Where,

$FCAF_t$=the fuel cost adjustment factor applicable to hour h

FC_t=the price per unit of gas or HSD as determined by the concerned regulatory authority from time to time consumed during hour, h

$FC_{ref\ Gas}$, as determined by NEPRA

$FC_{ref\ HSD}$, as determined by NEPRA

t=time on which calculation was made

SOP-1.4.4. CALCULATIONS FOR CAPACITY TEST

For all Net Electrical Output delivered prior to COD, CPPA-G shall pay to the Generation Company a Test Energy (Pre-COD) Payment. Following COD, CPPA-G shall pay to the Generation Company a Test Energy (Post-COD) Payment calculated in accordance with Section 9, PART 4 (Schedule1) of PPA under Power Policy 2002.

The monthly Test Energy (Pre-COD) Payment shall be equal to aggregate sum of the N.E.O delivered during each such hour multiplied by the Fuel Cost Component applicable to each hour in such month. The Test Energy (Pre-COD) Payment earned for each hour shall be calculated as follows:

$$\textbf{Test Energy (Pre-COD) Payment}_{h} = \sum_{h=1}^{n} \textbf{FCC*N.E.O}_{h}$$

Where,

Test Energy (Pre-COD) Payment $_{h}$ = The Test Energy (Pre-COD) Payment in rupees, earned for hour h.

FCC $_{h}$ = The Fuel Cost Component for hour h

N.E.O $_{h}$ = The Net Electrical Output of the Complex in kWh for hour h.

The Test Energy (Post-COD) Payment shall be equal to the aggregate sum (for all of the hours during which Annual Capacity Test or any test thereof was carried out after COD) of the N.E.O delivered during each such hour of the Annual Capacity Tests period or other retest period multiplied by the Energy Price applicable to each such hour.

SOP-1.4.5. CALCULATIONS FOR PASS-THROUGH ITEM

Pass through items shall be payable by the CPPA-G to the Generation Company on the basis of actual costs reasonably incurred by the Generation Company to satisfy the requirements of the power purchase agreement or to the extent that the Generation Company is obligated pursuant to the laws of Pakistan to make payment for such pass through item.

Withholding tax on dividends is also a pass through item just like other taxes as indicated in the government guidelines. Withholding tax shall be paid @ 7.5% of the return on equity (including return on equity during construction). The Power Purchaser shall make payment on account of withholding tax at the time of actual payment of dividend subject to maximum of 7.5% of 15% equity according to the following formula:

Withholding Tax Payable = [{15% * (E (Ref) - E (Red)} + ROEDC (Ref)] x 7.5%

Where,

E (Ref) = reference equity (US$46.388 million X 60)

E (Red) = Equity Redeemed

ROEDC (Ref) = Reference Return on Equity during Construction

SOP-1.4.6. CALCULATIONS FOR UNIT START-UP

The Start-Up charges shall be calculated as follows:

$$\mathbf{SC_M = (MDIR_X * N) + (SC_{Ref} * FX\ Adjust_q)\ N}$$

Where,

SC_M = Start-Up charges earned during the month M

$MDIR_X$ = Total fixed charged due to the respective DISCO/NTDC during the relevant month divided by the total number of Start-Ups performed during the month.

N = Number of Start-Ups, payable by the CPPA-G.

SC_{Ref} = Reference Start-Ups Charge

$FX\ Adjust_q$ = The FX adjustment factor for the quarter that includes hour h.

SOP-1.4.7. CALCULATIONS FOR SUPPLEMENTAL TARIFF

The supplemental tariff payment for a month shall be equal to the aggregate sum of the supplemental tariff payment for each hour in such month. The supplemental tariff payment for each hour of the month shall be calculated as follows:

$$\mathbf{STP_m = \sum_{h=1}^{n} STP_h}$$

$$\mathbf{STP_h = RRR_{fixed} * AvailCap_h}$$

Where,

STP_h=the supplemental tariff payment for a restoration, in rupees, for hour h of the month

RRR_{fixed}=the restoration recovery rate, in Rs./kW/hour

RRR_{fixed} will be determined as follows:

$$\mathbf{RRR_{fixed} = \frac{R_t}{TC_t * PIT_t}}$$

Where,

R_t=the total cost of the restoration, as determined by NEPRA, or in accordance with PPA

TC_t=the then-prevailing tested capacity at time t, expressed in kW

PIT_t=the total number of hours remaining in the term from time t

t = following the day the parties agree on restoration costs to be recovered by the Generation Company as per NEPRA or the resolution of a dispute

h= an hour in the month for which a supplemental tariff payment is calculated

$AvailCap_h$=the available capacity, in KW, for hour h of the month provided

SOP-1.4.8. CALCULATIONS FOR LIQUIDATED DAMAGES

a) Delay in Commissioning;

If the Complex is not commissioned on or before the Required COD, then the Generation Company shall pay to the Power Purchaser, monthly arrears, as L.Ds as calculated hereunder for delays in the occurrence of COD at the rate of US$2.50 per kW of the Contract Capacity per month.

$$\mathbf{LD_M = \frac{US\$2.5 \times Contract\ Capacity\ in\ MW \times 1000}{Number\ of\ days\ in\ the\ month} \times Number\ of\ days\ delayed\ in\ a\ month}$$

b) Due to Shortfall of Initial Tested Capacity in comparison to Contracted Capacity:

If the Initial Tested Capacity at the time of commissioning of the Complex on COD is less than the Contract Capacity, then the Company shall pay to the Power Purchaser L.Ds as per following formula:

$$\mathbf{LD_C = (Contract\ Capacity - Initial\ Tested\ Capacity)\ in\ MW * LD\ Rate}$$

Where,

LD_C = LD due to shortfall of Contract Capacity

LD Rates are:

For Shortfall of up to 2% of Contract Capacity = US$ 117,000

For Shortfall >2% &up to 5% = US$ 234,000

For Shortfall >5% &up to 10% = US$ 350,000

c) Liquidated Damages after COD; The Generation Company shall pay LDs to the Power Purchaser as formulated hereunder;

I. If D.A.C is revised between 12hours and 4hours prior to the beginning of an operating day.

LDs= 0.1 * (D.A.C. at Declaration Deadline-R.D.A.C) * Capacity Price$_h$

II. When D.A.C is revised less than 4hours prior to the beginning of an Operating day.

L.Ds= 0.2* (D.A.C. at Declaration Deadline-R.D.A.C) * Capacity Price$_h$

III. If Company fails to comply with Dispatch Instructions.

L.Ds= (D.A.C, or R.D.A.C if applicable-Dispatch Level achieved)* Capacity Price$_h$ for the relevant hour h, of the Operating Day.

SOP-1.4.9. CALCULATIONS FOR INTEREST PAYABLE

In case, the power purchaser was unable to pay Generation Company within due date, power purchaser shall pay company recent KIBOR rate + 4.5% interest in extra.

SOP-1.4.9. CALCULATIONS FOR EXPORT ENERGY (EE) / BACK-FEED BILLING

EEP/Back-feed Electricity Consumer Bill has the following important parts:

- Energy and Capacity Details
  - Active Energy Meter Readings and Net/Total Energy usage in kWh
  - Reactive Energy Meter Readings and Net/Total reactive Energy usage in kVARh
  - Maximum Demand (MDI) of consumer in kW
- Power Factor and Low Power Factor Details
- Application of various Charges and Factors including GST
- Bill Adjustment (if any)

Electricity Consumer Bill Calculations

When each and every aspect of EE/Back-feed billing is taken into account, the Electricity/ Power sales Bill (also referred to as Electricity Consumer Bill) payable by the Generation Company is calculated as:

$$\boldsymbol{Electricty\ Consumer\ Bill} = (\boldsymbol{VC} + \boldsymbol{FC} \pm \boldsymbol{FPA} + \boldsymbol{Misc.C} + \boldsymbol{LPF\ Penalty} + \boldsymbol{Electricity\ Duty} + \boldsymbol{GST} \pm \boldsymbol{Adjustment} \pm \boldsymbol{Arrear/LPS})$$

Where,

- Electricity Consumer Bill in PKR
- VC = Variable Charges in PKR
- FC = Fixed Charges in PKR
- FPA = Fuel Price Adjustment in PKR
- Misc. C = Miscellaneous Charges and Factors (e.g. Neelum-Jhelum Fund) in PKR
- LPF Penalty = Penalty arising in case of Low Power Factor (LPF) in PKR
- Electricity Duty = Application of 1.5% Electricity Duty in PKR
- GST = Application of GST (as notified in percentage [%]) in PKR

- Adjustment = Any addition or reduction in Bill (if required) in PKR
- Arrears/LPS = Any addition or reduction in Bill (if required) in terms of Arrears or Late Payment Surcharge (LPS) in PKR

Calculation of Net Energy, Net Reactive Energy and Capacity Components

CPPA will calculate Net Energy usage for a billing month based on the Meter Reading Performa submitted from the Metering Committee. Monthly Net Energy Usage is calculated for both Active (in kWh) and Reactive Energy (kVARh). Moreover, Maximum Demand (referred to as MDI on Meter Reading Performa) (in kW) is also based on the reading provided in the Performa.

Calculation of Power Factor and Low Power Factor

Power Factor (PF) is a unit less quantity and is calculated as follows:

$$\boldsymbol{PF = \frac{Active\ Power(W)}{Apparent\ Power\ (VA)}}$$

Or

$$\boldsymbol{PF = \frac{Active\ Power(W)}{\sqrt{[Active\ Power(W)]^2 + [Reactive\ Power\ (VAR)]^2}}}$$

Where,

- PF = Power Factor or ratio of Active to Apparent Power
- Active Power = Useful component of Apparent Power, measured in W, calculated from Net Active Energy usage
- Reactive Power = Wattles component of Apparent Power, measured in VAR, calculated from Net Reactive Energy usage

Power Factor should be 0.9; otherwise a Low Power Factor Penalty is applied. LPF is calculated as follows:

$$\boldsymbol{LPF = 0.9 - PF};\ (\text{provided PF} < 0.9)$$

Where,

- LPF = Low Power Factor
- PF = Power Factor

Application of Variable and Fixed Charges/Factors

CPPA considers a generation company as a consumer of DISCO/KE during electricity import. Hence, the application of tariff is dependent on:

1. Location of a generation company in territory of a specific DISCO/KE and;
2. Tariff guidelines for the respective DISCO

A tariff guideline for each DISCO/KE is notified annually and is approved by NEPRA. CPPA will mention and highlight the Tariff category applicable for each generation company.

*(Refer to **Annexure 20** for a non-exhaustive list of generation companies and respective geographical DISCO area.*

Variable Charges are applied on Active Energy usage and are calculated as:

$$\boldsymbol{VC = Tariff \times Total\ Energy\ Imported}$$

Where,

- VC = Variable Charges in PKR
- Tariff = Rate per kWh, as specified in Tariff Schedule

Fixed Charges are applied on Active Energy usage is calculated as:

$$\boldsymbol{FC = Tariff \times MDI}$$

Where,

- FC = Variable Charges in PKR
- Tariff = Rate per kW, as specified in Tariff Schedule

Application of Fuel Price Adjustment (FPA)

NEPRA issues a monthly Fuel Price Adjustment (FPA) statement depending on the cost of electricity dispatched. FPA is charged per kWh and CPPA will increment or decrement the Consumer Bill depending on the directives of NEPRA.

$$\boldsymbol{FPA_{Month} = FPA_{Month}\ Rate \times (Total\ Energy\ Imported)_{Month}}$$

Where,

- FPA_{Month} = Increment or decrement, in PKR, based on Fuel Price Adjustment, for a specific month
- FPA_{Month} Rate = Fuel Price Adjustment Rate for a specific month, in PKR per kWh, as notified by NEPRA/GoP
- $(\text{Total Energy Imported})_{Month}$ = Total Active Energy, in kWh, imported by generation company for a specific month

Application of Miscellaneous Charges

NEPRA may notify an additional charge depending on directives from GoP. For example, a Neelum-Jhelum Fund charge is being levied on all DISCO consumers. This Miscellaneous Charge is calculated as follows:

$$\boldsymbol{Misc.C = Tariff \times Total\ Energy\ Imported}$$

Where,

- Misc. C = Miscellaneous Charges in PKR
- Tariff = Rate per kWh, as specified in NEPRA or GoP Notification.

This charge can also be applicable per kW if directed in GoP Notification.

Application of LPF Penalty

PF should be at least 0.9 and a LPF Penalty is applied as follows:

$$\boldsymbol{LPF\ Penalty = LPF \times FC\ (Tariff) \times MDI \times 2}$$

Where,

- LPF Penalty = Low Power Factor Penalty in PKR
- FC = Fixed Charges Rate, as specified in Tariff Schedule, in PKR
- MDI = Maximum Demand in kW

Application of Electricity Duty

Electricity Duty, as notified in percentage (%) by GoP, is imposed on Variable Charges as follows:

$$\boldsymbol{ED = ED_{\%} \times VC}$$

Where,

- ED = Electricity Duty in PKR
- $ED_{\%}$ = Electricity Duty Percentage, as notified by GoP (At present 1.5% is applied)
- VC = Variable Charges in PKR

Application of GST

GST, as notified in percentage (%) by GoP, is taxed as follows:

$$\boldsymbol{GST = GST_{\%} \times (VC + FC + ED)}$$

Where,

- GST = Application of GST in PKR
- $GST_{\%}$ = GST Percentage, as notified by GoP (At present 17% is applied)
- VC = Variable Charges in PKR

- FC = Fixed Charges in PKR
- ED = Electricity Duty in PKR

Application of Bill Adjustment

Bill is adjusted (added or subtracted as required) if the need arises.

Application of Arrear/LPS

CPPA can also adjust the bill by incorporating Arrears or Late Payment Surcharge (LPS) if required (in PKR).

Application of Late Payment Surcharge (LPS)

In case of payment after the due date, a LPS penalty (in PKR) will be levied on the Electricity Consumer Bill and amount will be raised fittingly. At present, an 8.5% penalty is applicable.

SOP-1.5 DISTRIBUTION SIDE CALCULATIONS

Bill Calculation/Transfer Payment Calculation

When each and every aspect of DISCO /KE billing is taken into account, the Electricity/ Power sales Bill (also referred to as Transfer Payment) payable by DISCOs/KE is calculated by using the following formula:

$$\boldsymbol{Sales\ Bill/TP = \ TC + UoSC + GST}$$

Where,

TP = Transfer Payments in PKR

TC = Transfer Charges

UoSC = Use of System Charges in PKR

GST = Application of 17% GST on ETC 1 in PKR

SOP-1.5.1. ENERGY AND CAPACITY COMPONENTS

CPPA-G will collect all the Metering Data collected from CDPs of respective DISCOs/KE and calculate Net Energy Units transferred/delivered to each DISCO and KE. Each energy unit is measured in kWh. With reference to DISCO/KE; Net Energy Delivered to any DISCO/KE is calculated by taking the difference of total Energy imported from DISCO/KE and total Energy exported to DISCO/KE.

Although the Metering System at CDPs is capable of measuring Reactive Energy (in kVARh) transferred, currently NEPRA has no provision of charging any bill to DISCOs on Reactive Energy usage.

Finally, monthly Maximum Demand (MDI) or Peak Demand of each DISCO is also recorded at CDPs, and net MDI is reflected in the Bills generated to DISCOs. It is measured in kW. With reference to DISCO/KE; Net MDI is calculated by taking the difference of total DISCO/KE Imported MDI and total DISCO/KE Exported MDI.

SOP-1.5.2. APPLICATION OF TRANSMISSION CHARGE / USE OF SYSTEM CHARGE / WHEELING CHARGE

NTDC levies two types of wheeling/use of system charge (UoSC) to DISCOs;

- Fixed Charge (USCF) and;
- Variable Charge (USCV).

These charges are petitioned by NTDC to NEPRA for every Fiscal Year. After the NEPRA's approval, these charges become applicable to all DISCOs for the whole FY. NTDC imposes these charges to;

- Maintain power transmission and distribution system including 500kV/220kV/132kV transmission lines, transformers, circuit breakers, protection equipment and metering systems.
- Provide for financial responsibilities such as employees' salaries and benefits (such as free electricity), vehicular expenses and debt payments.
- Invest in installation of new equipment so as to augment and expand the capacity of national grid of Pakistan.
- To mitigate Transmission and Transformation (T&T) losses incurred and;
- To earn NEPRA allowed Return on Equity (RoE) (for FY 2013-14, RoE is 13.1%).

Use of System Charge is calculated as follows:

$$\boldsymbol{UoSC = USCF + USCV}$$

Where,

USCF = Fixed Use of System Charges

USCV = Variable Use of System Charges

NEPRA has approved the following charges for FY 2013 – 14

- $\boldsymbol{Fixed\ Charge\ (USCF) = PKR\ 102.43\ per\ kW\ (MDI)\ per\ month}$
- $\boldsymbol{Variable\ Charge\ (USCV) = PKR\ 0.2367\ per\ kWh \times LAL\ Factor}$

Fixed charges are applicable on the Maximum Demand Indicator (MDI) value (in kW) and Variable charges are applicable on energy transferred to DISCOs/KE (in kWh) during a billing period. Variable Charges are not applied as per current NEPRA provisions.

The LAL factor represents the Adjustment of Losses and Load factor imposed on the transmission system by a user (e.g. DISCO or KE). LAL is taken as unity (1) until NEPRA develops a mechanism for its determination.

SOP-1.5.3. APPLICATION OF CAPACITY AND ENERGY TRANSFER RATES

NTDC imposes these charges on DISCOs and KE for procuring power from Generation company. Transfer Rate (TR) is applicable on both MDI and consumption of Energy respectively.

- ETR = Energy Transfer Rate to DSICOs/KE in **PKR per kWh per Month**
- CTR = Capacity Transfer Rate to DISCOs/KE in **PKR per kW (MDI) per Month**

NEPRA has already provided a mechanism for calculating TR and by using that mechanism, CPPA-G calculates the monthly values of TR.

SOP-1.5.3.1. CAPACITY TRANSFER RATE (CTR)

Capacity Transfer Rate (CTR) is applied to DISCOs to compensate Generation company for Capacity Payments. CTR is calculated by taking sum of Capacity Generation costs, as verified by CPPA-G, of all Generation company for each billing month and subtracting sum of Liquidated Damages payable by Generation company for the same billing month. The result of which is further divided by the sum of Maximum Demand (MDI) recorded at all CDPs of every DISCO/KE for each billing month.

$$\boldsymbol{CTR = \frac{\sum(CpGenCap \; - \; LD)}{\sum MD}}$$

Where,

CpGenCap = Generation company cost for Capacity component of electrical power generation for a billing month in PKR

LD = Liquidated Damages payment by Generation company in PKR

MD = Maximum Demand in a billing month in kW

In bill calculation, Capacity Charges are calculated by multiplying CTR with monthly MDI of each respective DISOC/KE, hereby referred to as Capacity Transfer Charge (CTC).

$$\boldsymbol{CTC = CTR \times MDI_{DISCO/KE}}$$

SOP-1.5.3.1. ENERGY TRANSFER RATE (ETR)

Similarly, Energy Transfer Rate (ETR) is levied upon DISCOs to compensate Generation company for Energy Payments, and is calculated by taking sum of Energy Generation costs, as verified by CPPA-G, of all Generation company for each billing month and dividing it by the sum of energy units recorded at CDPs of each DISCO/KE for the respective billing month.

$$ETR = \frac{\sum CpGenEn}{\sum EUs}$$

Where,

- CpGenEn = Generation company cost for Energy component of electrical power generation for a billing month in PKR
- EUs = Energy Units recorded at CDPs of DISCOs/KE during each billing month in kWh

Energy cost, for each DISCO/KE, is calculated by multiplying ETR with Energy Units of that DISCO/KE (in kWh) hereby referred to as Energy Transfer Charge (ETC). But in bill calculation, Energy Transfer Chargeis divided into two parts;

- Energy Transfer Charge that is chargeable to GST
- Energy Transfer Charge that is not chargeable to GST

$$ETC\ 1 = ETR\ 1 \times DISCO/KE_{EU}$$

$$ETC\ 2 = ETR\ 2 \times DISCO/KE_{EU}$$

To calculate total Energy Transfer Charge, both ETC 1 and ETC 2 are added together

$$ETC = ETC\ 1 + ETC\ 2$$

SOP-1.5.4. TRANSFER CHARGES

Total transfer charges are calculated by adding Capacity Transfer Charge and Energy Transfer Charge.

$$TC = CTC + ETC$$

Where,

TC = Transfer Charges in PKR

CTC = Capacity Transfer Charge in PKR

ETC = Energy Transfer Charge in PKR

SOP-1.5.5. APPLICATION OF GST

A GST of 17% is applied on the Energy Payments that are chargeable to GST (ETC 1) whereas, there is no GST applied to ETC 2 because it includes payments such as, markups, supplemental tariffs etc.

SOP-1.5.6. BILL ADJUSTMENTS

CPPA-G will apply Bill Adjustment in this section; in case of any adjustments arise in the form of Arrears, Energy Charges or GST.

SOP-1.5.7. FLOWCHART – FACTORS INVOLVED IN DISCOS BILLING

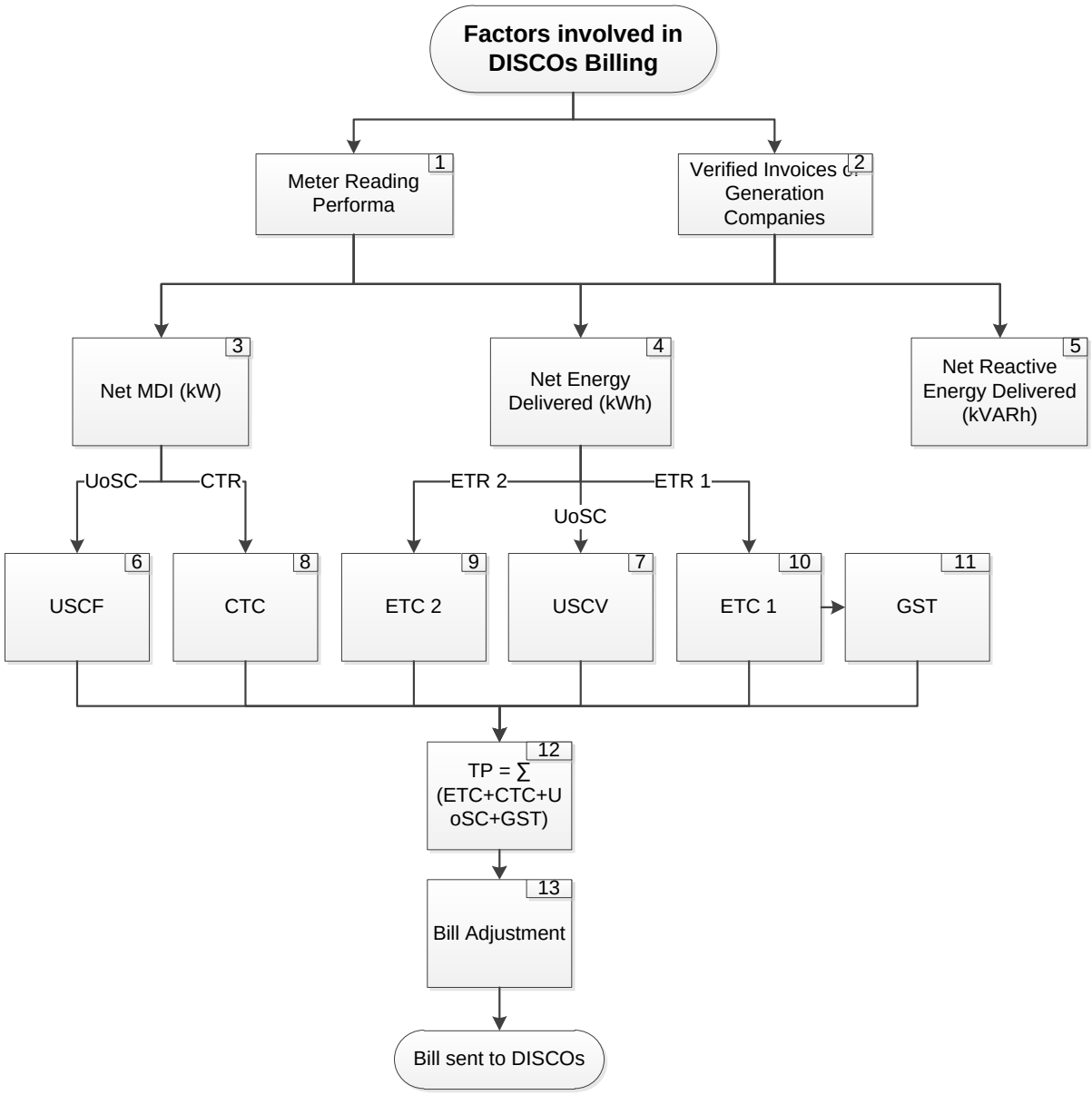


Chart 1145: Factors involved in DISCOs Billing

SOP-1.5.7.1. DESCRIPTION OF PROCESS ACTIVITIES

SR. NO.	PROCESS NAME	DESCRIPTION OF PROCESS
1.	Metering Reading Performa	At the start of every month, Metering Committee will send the Meter Reading Performa to CPPA-G.
2.	Claimed Invoices	Generation company will send the Claimed Invoices for Capacity payment and Energy payment to CPPA-G.
3.	Net MDI (kW)	Total DISCO/KE Imported MDI – Total DISCO/KE Exported MDI measured at associated CDPs.
4.	Net Energy Delivered (kWh)	Total DISCO/KE Imported Energy – Total DISCO/KE Exported Energy measured at associated CDPs.
5.	Net Reactive Energy Delivered (kVARh)	Total DISCOs /KE Imported Reactive Energy – Total DISCO/KE Exported Reactive measured at associated CDPs. At present, NEPRA has no mechanism for charging DISCOs/KE on Reactive Energy usage.
6.	USCF	Fixed component of Use of System Charges (UoSC).
7.	USCV	Variable component of Use of System Charges (UoSC). At present, NEPRA has no mechanism for charging DISCOs on this factor.
8.	CTC	Application of CTR to respective DISCO/KE MDI will yield the Capacity Transfer Charges (CTC) in PKR.
9.	ETC 2	Application of ETR 2 to Energy transferred to the respective DISCO/KE will yield the Capacity

		Transfer Charges 2 (ETC 2) in PKR.
10.	ETC 1	Application of ETR 1 to Energy transferred to the respective DISCO/KE will yield the Capacity Transfer Charges 1 (ETC 1) in PKR.
11.	GST	Application of GST @ 17% (can be changed by GoP) to ETC 1.
12.	TP = ∑ (ETC+CTC+UoSC+GST)	To calculate Transfer Payments/Sales Bill, payable by DISCOs/KE, add ETC (1& 2), CTC, UoSC (USCF & USCV) and GST
13.	Bill Adjustment	If there are any adjustments in ETC, CTC or Arrears, it is applied prior to sending the final Sales Bill to DISCOs/KE for payment with a 15 Days deadline.

Table 15~~16~~: Factors involved in DISCOs Billing

CPPA-G raises invoice to all DISCOs individually, for net amount of electrical energy drawn on monthly basis. NEPRA determines tariff rate for FCC (Fuel cost component) to help prepare bill and invoice.

Total Incoming energy amount for eachDISCO, is calculated by summing all individual import energies and subtracting all exported energies on all CD Points associated with a particular DISCO.

SOP-1.6 LATE PAYMENT SURCHARGE (LPS) AND DELAYED PAYMENT SURCHARGE (DPS)

Any delay in payment by a Generation Company (for back-feed) or Distribution Company or CPPA-G will result in application of Late Payment Surcharge (LPS) or Delayed Payment Surcharge (DPS).

SOP-1.6.1. PAYMENT DELAY BY GENERATION COMPANY

Generation Company is obliged to pay for energy imported from the grid. A LPS surcharge of fixed percentage is applicable of the payment is made after due date. The LPS and Due Date is mentioned on the Export Energy or Back-feed Invoice generated by CPPA-G. At present, LPS is charged as an additional 10% on Variable Charges (VC), Fixed Charges (FC), Low Power Factor (LPF) Penalty and Surcharges excluding Electricity Duty (ED) and GST.

SOP-1.6.2. PAYMENT DELAY BY DISTRIBUTION COMPANY

DISCO will be levied Late Payment according to the following mechanism, as specified in prevailing Electricity Supply Agreements (ESAs).

- As specified in ESA in 9.3 (d)

"Late Payments: Late payments by WAPDA or the Company, as the case may be, shall bear mark-up at a rate per annum equal to the Base Rate plus four percent (4%) per annum compounded semi-annually, and shall be computed for the actual number of Days on the basis of a three hundred sixty-five (365) Day Year"

Calculation for LPS under ESA

$$x = y - 183(n)$$

$$CB_{n+1} = LPS_n + CB_n$$

$$Total\ LPS = \sum_{n=0}^{N} LPS_n$$

$$LPS_n = \sum_{n=0}^{N} \left[\frac{CB_n \times (Base\ Rate + 4.0\%)}{365} \times D \right]$$

Where,

n = Number of Duration of 6 months each (n=0,1,2…N)

N = Number of durations (i.e. n)

y= Total Days

x= Remaining Days from 'y'

LPS= Late Payment Surcharge

CB_n= Closing Balance

D= 183 if duration is 6 months otherwise D=x

SOP-1.6.3. PAYMENT DELAY BY CPPA-G

PPA under power policies of 1994, 2002 and 2006 specify the factors applicable on delayed payments. Generation companies can demand DPS on any type of payment from CPPA-G including

- Pass Through Items
- Energy Payments
- Capacity Payments
- Differential Capacity Payments

DPS is calculated according to guidelines agreed upon in PPA.

- PPA under 1994 specify in 9.7(e) that

"Late Payments shall bear interest at a rate per annum equal to the Base Rate plus two percent (2%) per annum compounded semi-annually and shall be computed for the actual number of Days on the basis of a three hundred sixty-five (365) Day Year."

SOP-1.6.3.1. CALCULATION FOR DPS UNDER 1994 POWER POLICY

$$\boldsymbol{x = y - 183(n)}$$

$$\boldsymbol{CB_{n+1} = DPS_n + CB_n}$$

$$\boldsymbol{Total\ DPS = \sum_{n=0}^{N} DPS_n}$$

$$\boldsymbol{DPS_n = \sum_{n=0}^{N} \left[\frac{CB_n \times (Base\ Rate + 2.0\%)}{365} \times D \right]}$$

Where,

n = Number of Duration of 6 months each (n=0,1,2…N)

N = Number of durations (i.e. n)

y= Total Days

x= Remaining Days from 'y'

DPS= Delayed Payment Surcharge

CB_n= Closing Balance

D= 183 if duration is 6 months otherwise D=x

- Similarly, PPA under 2002 specify in 9.6(d) that

"Late payments by either Party of amounts due or payable under this Agreement shall bear interest at a rate per annum equal to the Delayed Payment Rate."

"Delayed Payment Rate: KIBOR plus four and one-half percent (4.5%) per annum, compounded semi-annually, calculated for the actual number of Days which the relevant amount remains unpaid on the basis of a three hundred and sixty five (365) Day year."

SOP-1.6.3.2. CALCULATION FOR DPS UNDER 2002 POWER POLICY

$$\boldsymbol{x = y - 183(n)}$$

$$\boldsymbol{CB_{n+1} = DPS_n + CB_n}$$

$$\boldsymbol{Total\ DPS = \sum_{n=0}^{N} DPS_n}$$

$$\boldsymbol{DPS_n = \sum_{n=0}^{N} \left[\frac{CB_n \times (KIBOR + 4.5\%)}{365} \times D \right]}$$

Where,

n = Number of Duration of 6 months each (n=0, 1, 2…N)

N = Number of durations (i.e. n)

y= Total Days

x= Remaining Days from 'y'

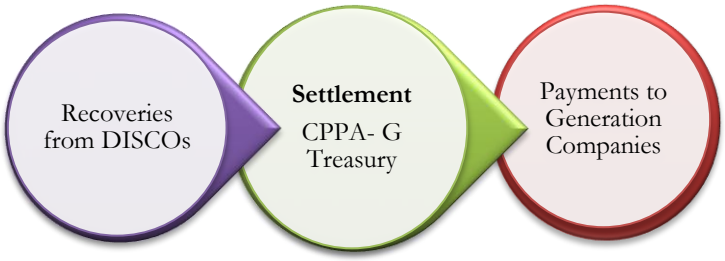
DPS= Delayed Payment Surcharge

CB_n= Closing Balance

D= 183 if duration is 6 months otherwise D=x

SOP-2 SETTLEMENT AND PAYMENT PROCESS

The Settlement Process at CPPA-G involves the settling of receipts from distribution companies and payments to generation companies. This process is real time and performed on a daily basis. The settlement process follows the billing and verification process and leads to payments to the Generation Companies.



SOP-2.1 DEPARTMENTS OF CPPA-G INVOLVED IN THE SETTLEMENT PROCESS

The following departments of CPPA-Galong withthe CPPA-G Settlement Committee are involved in the settlement process; CPPA-G Settlement Committeeshall provide assistance to the Treasury Department in the settlement of payables and liabilities.
The role of each department is explained under each heading:

DEPARTMENT	ROLES
Technical Department	• Verification of energy and capacity Invoices
Finance Department	• Approval of payments • Preparation of demand forms for funds availability • Billing to DISCOs
Treasury Department	• Receipts from DISCOs and payment to Generation company

Table 164~~7~~: Departments of CPPA-G involved in the Settlement Process

SOP-2.2. ROLE OF THE TECHNICAL DEPARTMENT

The Technical Department is involved in the verification process (explained previously in SOP-1 of this report).After performing the verification process on the invoices sent by generation companies, the Manager Technical sends verified Invoices along with an "Advice" mentioning the verified capacity reading in kW and energy reading in kWh.

SOP-2.2.1. ADVICE SENT BY MANAGER TECH. TO FINANCE DEPARTMENT AFTER VERIFICATION OF INVOICES

The Advice of verified readings is also copied to following individuals (subject to change on case to case basis):

- Manager Technical - I
- Additional Manager Technical - I
- Manager Finance
- Additional Manager Finance

*Refer to **Annexure no. 21** for Technical Department Advice on CPP Invoice*

*Refer to **Annexure no. 22** for Technical Department Advice on EPP Invoice*

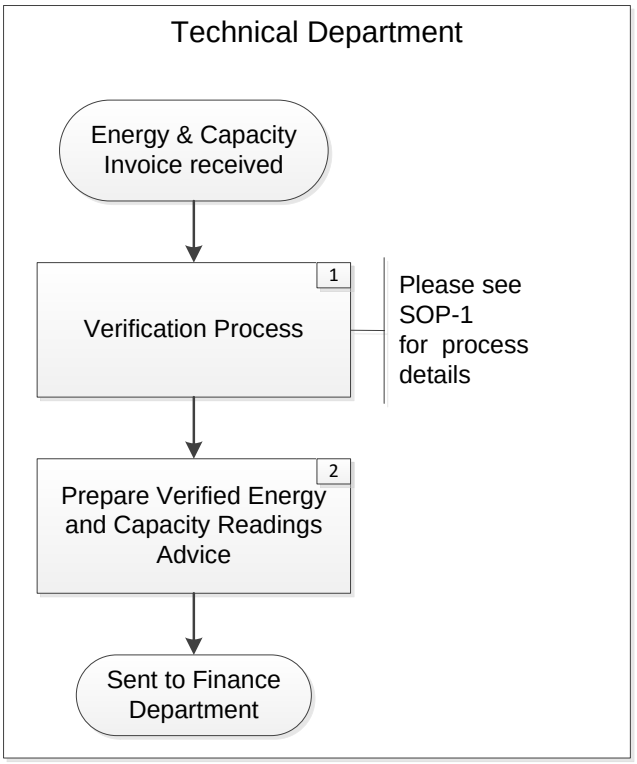


Chart 12~~16~~: Role of Technical Department in Settlement Process

SOP-2.3. ROLE OF THE FINANCE DEPARTMENT

The Finance Department (Manager Finance) upon receiving of verified invoices from the Technical – I Department (Settlements) will apply the NEPRA's determined CPP and insurance component on verified capacityreadings (refer to SOP- 1.4.1. for calculations details) and will apply FCC and variable O&M rate on verified energy readings - NEO (refer to SOP-1.4.2. for calculations details) to calculate the total amount payable to the concerned generation company for the month.

SOP-2.3.1. APPLICATION OF NEPRA'S DETERMINED RATES

Manager Finance will apply the NEPRA's determined rates on capacity and energy reading verified by Manager Technical.

*Refer to **Annexure no. 23** for Financial Department Advice on CPP Invoice*

*Refer to **Annexure no. 24** for Financial Department Advice on EPP Invoice*

SOP-2.3.2. "APPROVED AND PASSED FOR PAYMENT" ADVICE

After the application of NEPRA determined rates, Manager Finance will send an "Advice" to Chief Engineer –I (Settlements) and Dy. G.M. Finance for the approval of payments mentioned in the said invoice. Following CPPA-G officials sign and approve the advice:

- Manager Technical – I attests the energy / capacity readings mentioned on the advice.
- Manager Finance attests the calculation of energy / capacity payment amount.
- Chief Engineer – I and Dy. G.M. Finance approves the requested payment.

*Refer to **Annexure no. 25** for sample Approved CPP Invoice*

*Refer to **Annexure no. 26** for sample Approved EPP Invoice*

*Refer to **Annexure no. 27** for sample Approved GST on EPP Invoice*

SOP-2.3.3. DEMAND FORMS PREPARED

After getting approval for the requested payment amount, Manager Finance will prepare a Demand Form directing Treasury Department to arrange the funds for the said payment amount and will forward the Demand Form to Manager Finance – Treasury (office located at Napier Road, Lahore). From this point forward settlement role of treasury department commences.

SOP-2.3.3.1. DESCRIPTION OF DEMAND FORM

The Demand Form is of two types, one containing the capacity payments and other containing the energy payments of the respective generation company. For capacity payments, two Demand Forms containing particulars of current billing month amount (70% advance payment) and previous billing

month amount (30% verified payment) are sent to the Treasury department. Similarly, two Demand Forms for energy payments for NEO and applicable GST amounts are sent.

The contents of the Demand Form are as follows:

- Invoice number of the associated generation company,
- Amount required to be paid by CPPA-G treasury department,
- Due date of payment, and;
- Name of Generation Company.

Furthermore, the Demand form contains a special note for the Manager Finance – Treasury to arrange the payment of such demand of the respective generation company, including the name of bankfrom which such amount has to be paid.

*Refer to **Annexure no. 28** for a sample Demand Form for 70% Advance CPP Payment*

*Refer to **Annexure no. 29** for a sample Demand Form for 30% Verified CPP Payment*

*Refer to **Annexure no. 30** for a sample Demand Form for EPP Payment*

*Refer to **Annexure no. 31** for a sample Demand Form for GST applicable on EPP Payment*

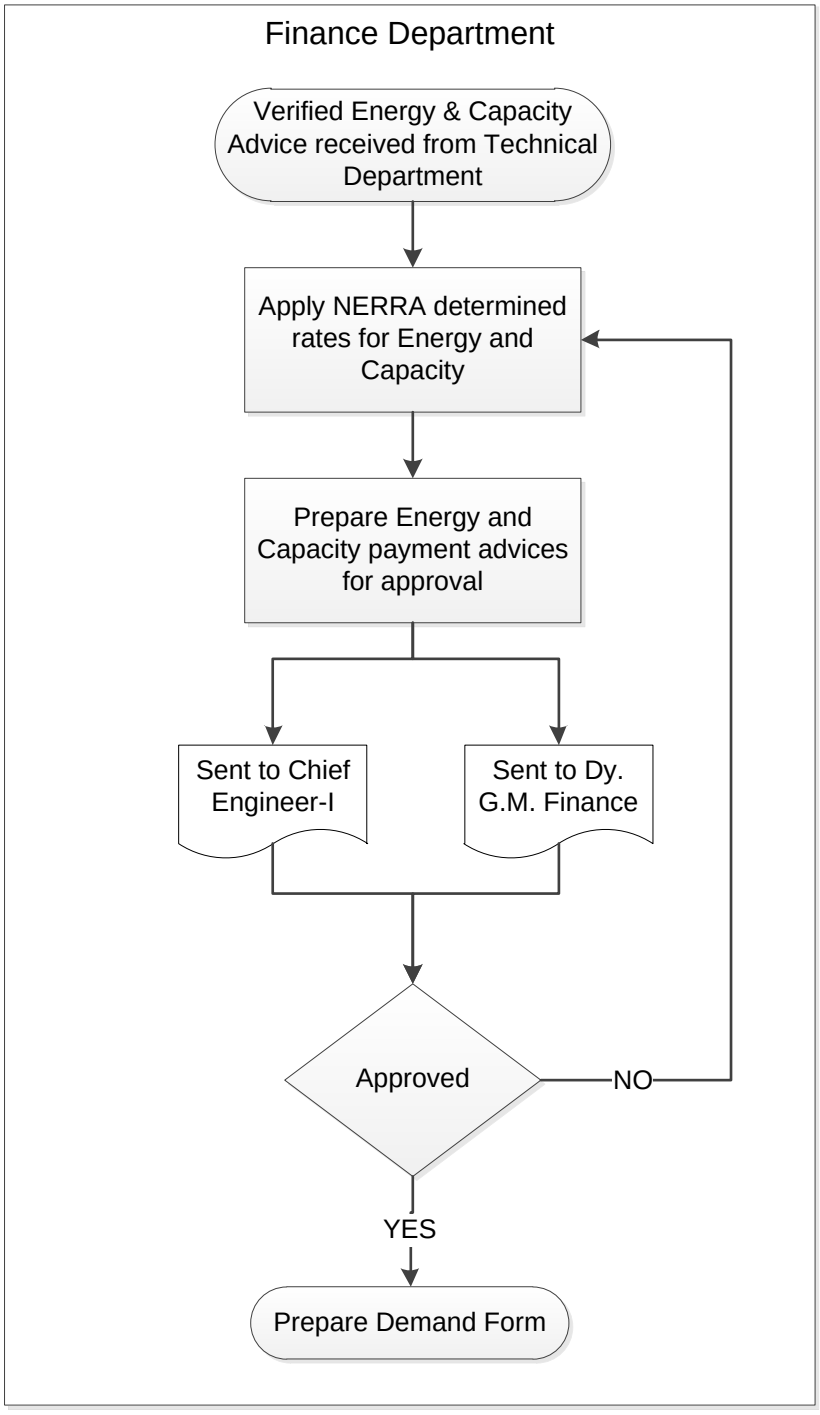


Chart 13~~17~~: Role of Finance Department in Settlement Process

SOP-2.4. ROLE OF THE TREASURY DEPARTMENT (WORKING UNDER FINANCE DEPARTMENT)

Role of the Treasury department begins when the Manager Finance-II of the CPPA-G or the Manager Finance-IV of the WPPO sends the "Demand Form" to the Manager Finance – Treasury. The working of Treasury Department involves following major documents explained separately:

- Revenue Collection &Remittance Statement (sent by DISCOs)
- Bank Statements of Daily Transactions
- Cash Collection Report
- Daily Payments Instruction
- List of Pending Liabilities
- Summarized Liability Report (prepared twice a day by MF-T)

SOP-2.4.1. LIST OF DOCUMENTS USED BY TREASURY IN SETTLEMENT PROCESS

Below is a list of documents along with explanations regarding the purpose and function of each document in the settlement process.

SOP-2.4.1.1. REVENUE COLLECTION & REMITTANCE STATEMENT (SENT BY DISCOs)

This document is used to record the daily remittances from DISCOs to CPPA-G and the amount retained by DISCOs for their own expenditures, mentioned in the document under the heading of "Retention". This document is prepared by each Distribution Company and is then sent to the CPPA-G.

The contents associated with this document are in tabular form containing;

- Names of the Banks associated with CPPA-G and G.P.O
- Amount transferred in each bank account on that day.
- Previous day transactions.
- Final cumulative amount of remittance.
- Retained amount under the head "Retention"
- Break-up of retained amount is also mentioned by some distribution companies, i.e. the amount retained is for the purpose of office expense, pension, salary, income tax, etc.

  *Refer to **Annexure no. 32** for a sample DISCO Daily Collection Report (HESCO*

  *Refer to **Annexure no. 33** for a sample DISCO Daily Collection Report (MEPCO)*

SOP-2.4.1.2. BANK STATEMENTS OF DAILY TRANSACTIONS

A total of 11 Banks and General Post Office (GPO) are associated with CPPA-G in which all payments are made by the DISCOs and all payments are made to Generation Company by CPPA-G. The names of the banks are as under:

1. National Bank of Pakistan – NBP
2. United Bank Limited – UBL
3. Habib Bank Limited – HBL
4. Muslim Commercial Bank – MCB
5. Allied Bank Limited – ABL
6. Bank of Punjab – BOP
7. Punjab Provincial Cooperative Bank – PPCB
8. First Women Bank – FWB
9. Askari Bank Limited – ACBL
10. Bank of Khyber – BOK
11. Standard Chartered Bank – SCB

Bank Statement is a computer generated transaction statement sent by the above mentioned banks to the Manager Finance – Treasury on daily basis and Collection Statement in case GPO.

*Refer to **Annexure no. 34** for a sample Bank Statement*

*Refer to **Annexure no. 35** for a sample GPO Collection Statement*

SOP-2.4.1.3. CASH COLLECTION REPORT

The Cash Collection Report is prepared by Manager Finance and sent to CPPA-G Settlement Committee. This report contains following data:

- Collections from each DISCO for a specific day named "Today's collection"
- Collections from each DISCO for previous day named "Previous Day"
- Balance in each associated bank (11 banks and GPO) together with profit rate
- Total collections and available balances

*Please refer to **Annexure no. 36** for a sample Cash collection report / Bank Balances' Position*

SOP-2.4.1.4. DAILY PAYMENT INSTRUCTIONS

CPPA-G Settlement Committeeprepares Daily Payment Instruction on daily basis and forwards the documents to Manager Finance (Treasury) for the payments to be made to Generation Company. These Instructions are divided into:

- Generation company-Wise Payment Instructions
- Bank-Wise Payment Instructions

SOP-2.4.1.4.1. GENERATION COMPANY-WISE PAYMENT INSTRUCTIONS

This document is prepared with assistance of CPPA-G Settlement Committeeand contains the following data:

- Demand No. of each Generation Company, clustered category wise
- Previous day's NEO of each power producer
- Amount due for the production of previous day's output of each power producer.

*Please refer to **Annexure no. 37** for a sample Daily Payment Instructions*

SOP-2.4.1.4.2. BANK-WISE PAYMENT INSTRUCTIONS

This document lists the exact amount that will be drawn from a particular bank account and transferred to a particular Generation Company.

*Please refer to **Annexure no. 37** for a sample Daily Payment Instructions*

SOP-2.4.1.5. LIST OF PENDING LIABILITIES

The Pending Liabilities Report is prepared on a daily basis according to thepayment demands received. A Summarized Liability Report is also prepared using the List of Pending Liabilities and is updated twice a day (day start and day end). Liability report contains following information:

- Due date for the payment along with its Demand Formno. and the company name.
- Nature of the payment for each demand and subsequent payments.
- Payment (in millions) for each respective Demand No.

Additional information provided with the Liability Report is:

- Month's opening balance for each power producer
- Additions made during the month for each power producer
- Total payables and accumulated payment before that specific day

*Refer to **Annexure no. 38** for a sample Summary of Pending Liabilities Document*

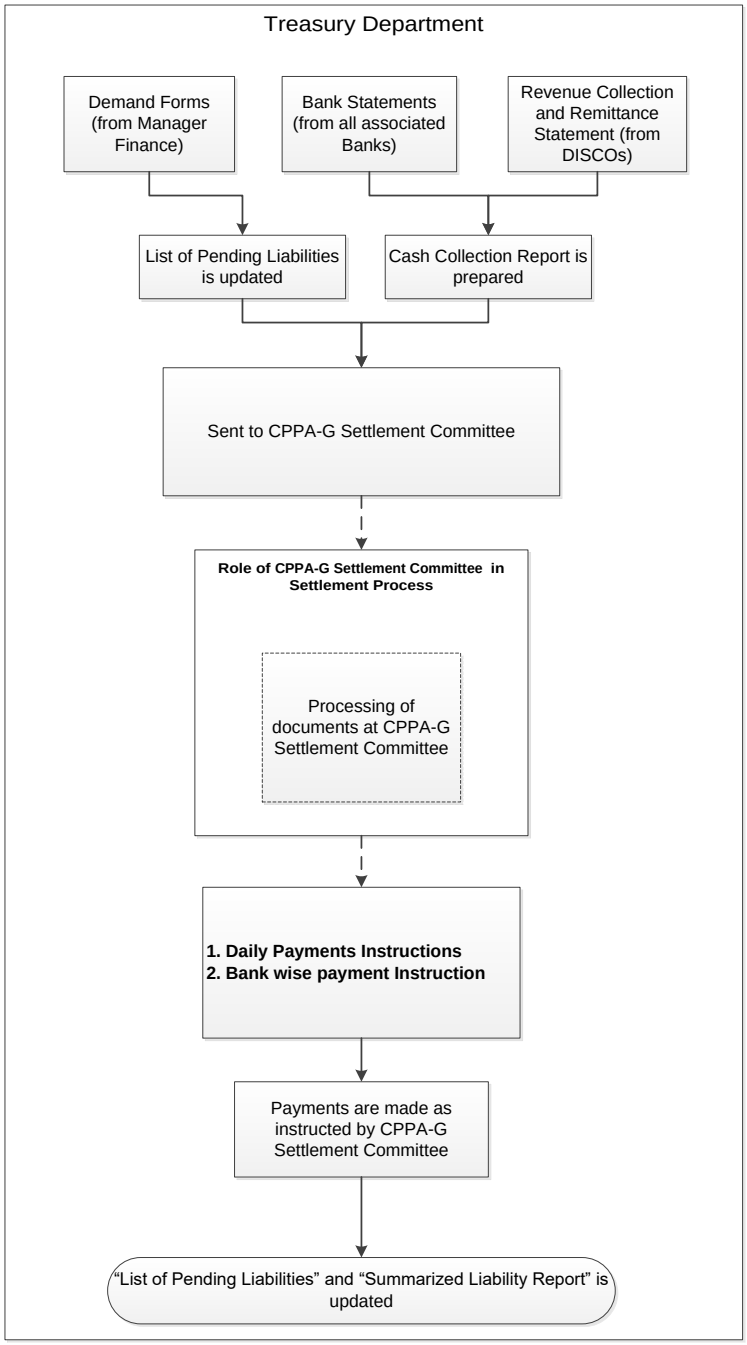


Chart 1448: Role of Treasury Department in Settlement Process

SOP-2.5. ADJUSTMENTS OF SUBSIDIES

The Government of Pakistan provides subsidy tothe DISCO consumers on the followings factors:

- DISCOs Tariff differential (between Electricity Tariff charged to consumers by DISCO and Electricity Tariff charged to DISCOs by CPPA-G determined by NEPRA)
- Consumption of electricity for agricultural usage
- GST

In cases where the GoP is currently providing a subsidy, the tariff schedule as determined by NEPRA is published in the Official Gazette along with a second schedule based on subsidized tariffs; this second schedule is stated as the rate to be collected from consumers. The difference in revenues – based on the difference between NEPRA determined tariffs and the second schedule subsidized tariff – is provided as a subsidy by the GOP to the relevant DISCO.

Ministry of Finance instructs State Bank of Pakistan (SBP) to transfer subsidy payments into a CPPA-G (National Bank of Pakistan) NBP bank account. On directions of CPPA-G Settlement Committee, Treasury department of CPPA-G will credit receivables balances of DISCOs.

Refer to ***Annexure no. 39*** *for a sample Subsidy Payment Instruction from MoF*

Refer to ***Annexure no. 40*** *for a sample Daily Funds Collection Advice from NBP*

Refer to ***Annexure no. 41*** *for a sample Request for Allocation from CPPA-G*

Refer to ***Annexure no. 42*** *for a sample DISCO wise break-up of Subsidy Payments from PEPCO*

Refer to ***Annexure no. 43*** *for a sample Credit Memo from CPPA-G*

SOP-2.5.1. FLOWCHART OF THE PROCESS

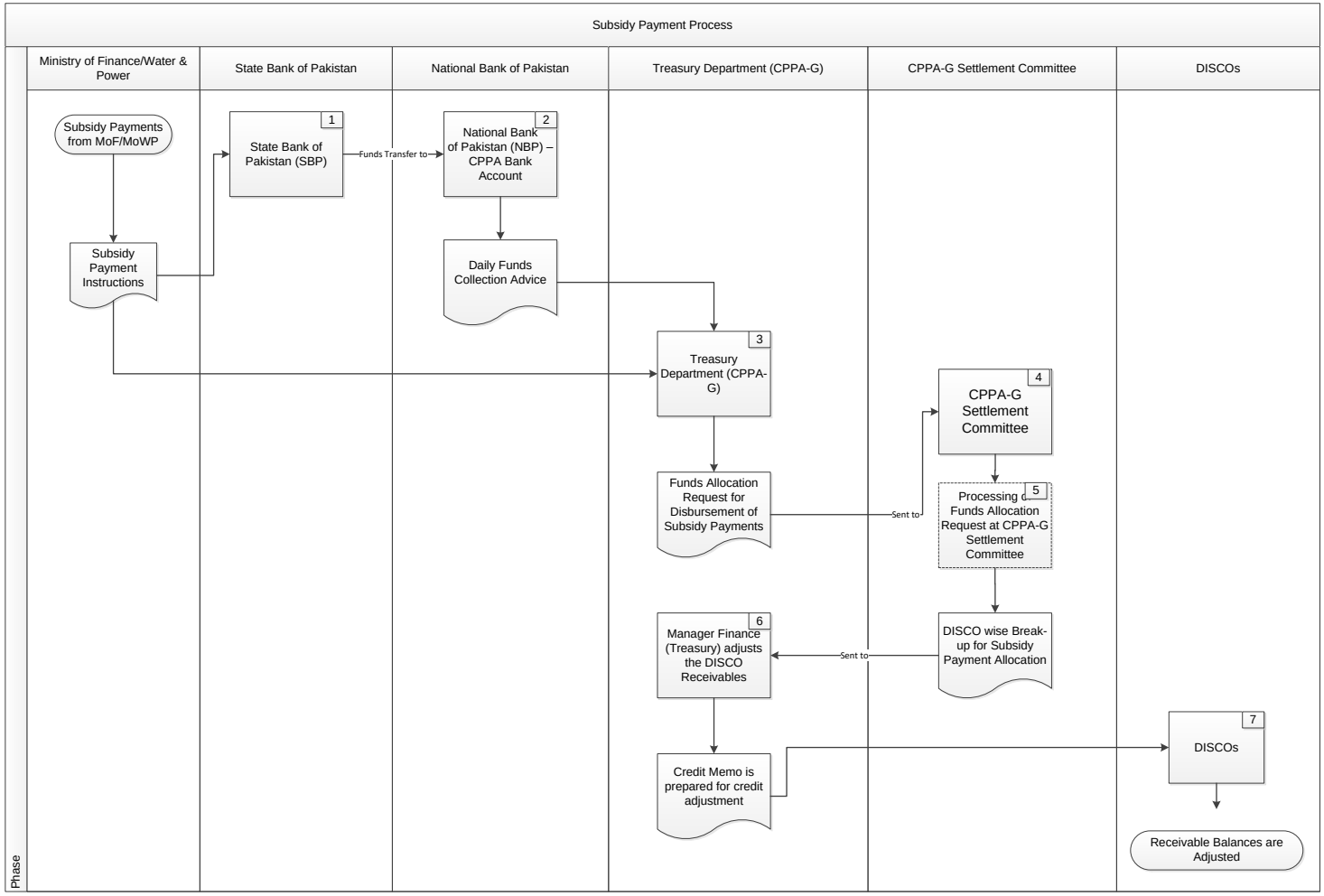


Chart 15~~19~~: Adjustment of Subsidies

SOP-2.5.2. DESCRIPTION OFPROCESS ACTIVITIES

SR. NO.	PROCESS NAME	DESCRIPTION OF PROCESS
1.	State Bank of Pakistan (SBP)	Subsidy Payment Instruction is forwarded to State Bank of Pakistan (SBP) detailing the subsidy amount in PKR and details of recipient's Bank account.
2.	National Bank of Pakistan (NBP) – CPPA-G Bank Account	State Bank of Pakistan (SBP) will transfer funds into CPPA-G Bank Account in National Bank of Pakistan (NBP).
3.	Treasury Department (CPPA-G)	National Bank of Pakistan (NBP) will prepare a Daily Funds Collection Advice based on the incoming Subsidy from Ministry of Finance.
4.	CPPA-G Settlement Committee	Manager Finance (Treasury) will send a Funds Allocation Request to CPPA-G Settlement Committeefor directions on disbursement of Subsidy funds.
5.	Processing of Funds Allocation Request at CPPA-G Settlement Committee	CPPA-G Settlement Committee will process the request and prepare a DISCO-wise Break-up for Subsidy Payments.
6.	Manager Finance (Treasury) adjusts the DISCO Receivables	Treasury Department (CPPA-G) will adjust the DISCOs Receivable balances based on DISCO-wise payment break-up received from CPPA-G Settlement Committee.
7.	DISCOs	Treasury Department (CPPA-G) will prepare a Credit Memo detailing the subsidy credited against a particular DISCO.

Table 1748: Adjustment of Subsidies

SOP-2.6. ROLE OF CPPA-G SETTLEMENT COMMITTEE IN THE SETTLEMENT PROCESS

The Treasury Department of CPPA-G requires assistance fromCPPA-G Settlement Committee in making payments to Generation Company out of the available funds (collections from DISCOs) on a daily basis.

Daily Payments Instructions and Subsidy Payment Instructions are issued by the CPPA-G Settlement Committee directing the Manager Finance – Treasury to make payments as:

- Total payments to be made to each Generation Company.
- Demand No. against which the payment is required to be made.
- Bank-Wise break-up of Payments Instruction i.e. how much payment to be made from which bank account *(see SOP-2.4.1.2. for the list of Bank Accounts associated with CPPA-G for Settlement)*

  Refer to ***Annexure no. 37*** *for a sample Current Daily Payment Instructions*

SOP-2.6.1. CONSTITUTION OF CPPA-G SETTLEMENT COMMITTEE

A committee shall be constituted by Board of Directors of CPPA G to stream line the payment mechanism under settlement and billing mechanism. This committee may consist of the following:

1.	Chief Executive Officer CPPA-G	Chairman
2.	Chief Financial Officer CPPA-G	Member
3.	General Manager CPPA-G Technical	Member
4.	Other appropriate representatives of the Market	Member

Section 9.4.4 and 9.4.5 of the Commercial Code relates to the mechanism for setting-up "Payment Priority List" in making payments to the generation Companies and shall be applicable to the CPPA-G Settlement Committee in making payment decisions and issuing Daily Payments Instructions to the Treasury Department of CPPA-G.

SOP-2.6.2. IPPS PAYMENT MECHANISM

- **To IPPs under energy policy 1994 & 2002**
  Based on previous day's Net Electrical Output (NEO)
- **Additional funds if any, are allocated based on the following:**
  - Percentage of total payables as of yesterday.
  - Percentage of capacity payments due beyond 45 days.

- Total capacity payments due as of yesterday.

All three (3) aforementioned options are calculated to see the overall impact the choice of adoption of one of the allocation bases is decided by theChief Executive Officer adopted.

During high revenue regime, leftover funds are kept to manage the lean time requirement of generation and to make inevitable payments.

SOP-2.6.3. PSO PAYMENT MECHANISM

- Tariff differential subsidy is being released by Ministry of Finance for onward payment to PSO to maintain generation level at HUBCO, KAPCO & GENCOs.

SOP-2.6.4. GENCOS& NTDC PAYMENT MECHANISM

- **GENCOs**

  Salaries, pension and medical share expenses have to be paid by 27th of each month according to respective demands of each GENCO out of revenue collection.

- **NTDC**

  Salaries, pension and medical share expenses have to be paid by 27th of each month according to NTDC demands out of revenue collection.

SOP-2.6.5. WAPDA PAYMENT MECHANISM

WAPDA Hydel is being paid according to its monthly energy invoice from revenue collection.

SOP-2.6.6. CHASHMA NUCLEAR POWER PLANT / SHYDO HYDEL POWER PAYMENT MECHANISM

Payments to Chashma Nuclear Power Plant / Shydo Hydel Power are being made out of revenue collection on the basis of monthly invoice viz. number of days in the month.

SOP-2.7. SUMMARIZED SETTLEMENT PROCESS

SOP-2.7.1. FLOWCHART OF THE OVERALL PROCESS

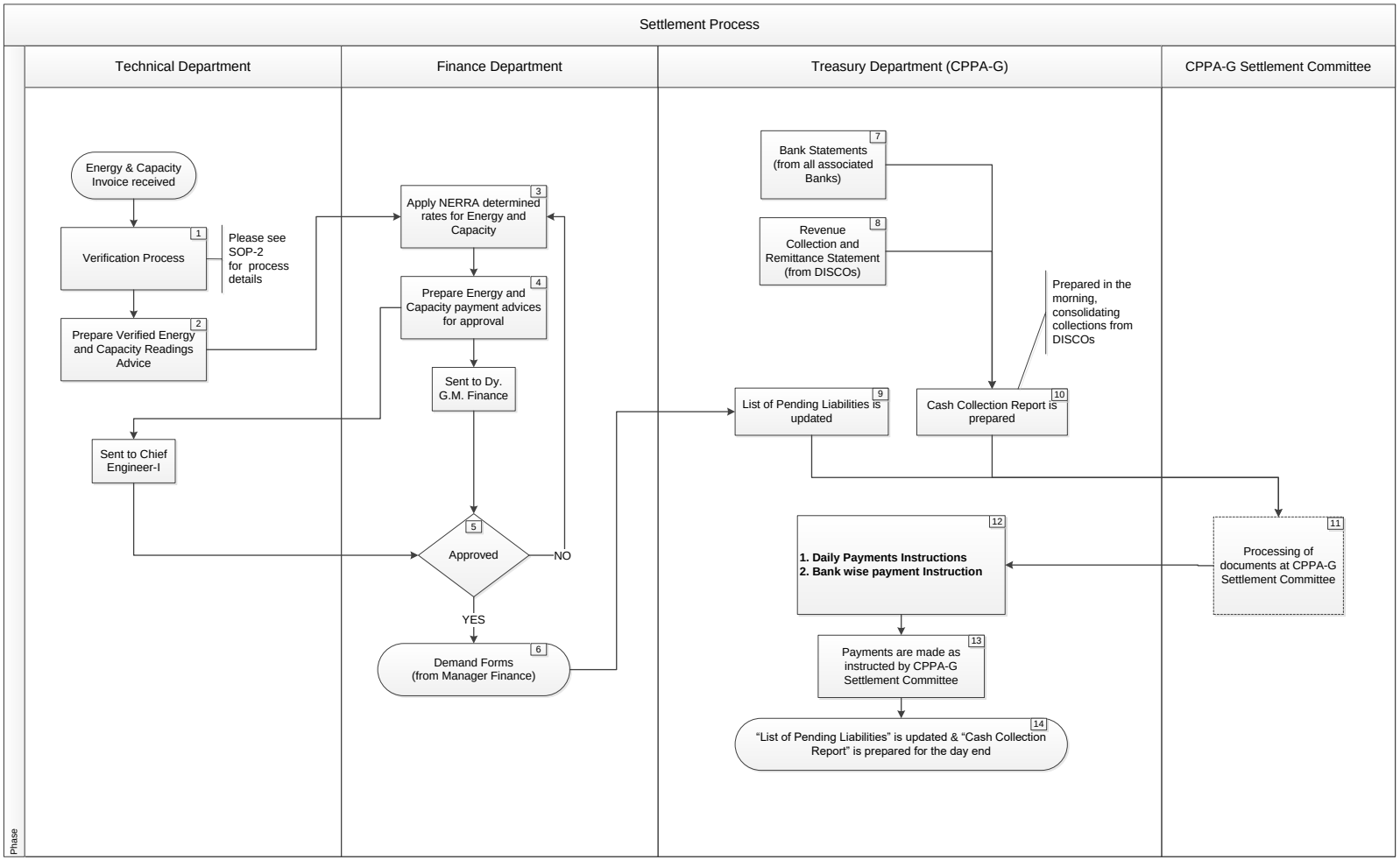


Chart 16~~20~~: Overview of Settlement Process

SOP-2.7.2. DESCRIPTION OF THE PROCESS ACTIVITIES

SR. NO.	PROCESS NAME	DESCRIPTION OF PROCESS
1.	Verification Process	Technical Department will verify the Claimed Invoices
2.	Prepare Verified Energy and Capacity Readings Advice	Technical Department will prepare an Advice for Financial Department, which will include Verified CPP and EPP along with application of K_T and K_L factors.
3.	Apply NERRA determined rates for Energy and Capacity	FinanceDepartment will apply the NEPRA approved FCC and CPP rates.
4.	Prepare Energy and Capacity payment advices for approval	Finance Department will prepare Advice for Dy. G.M and CE – I for approval of payments to Generation Company.
5.	Approved?	Dy. G.M Finance and CE – I will approve the payments.
6.	Demand Forms	Upon approval, Manager Finance will prepare Demand Forms and send them to Manager Finance (Treasury)
7.	Bank Statements (from all associated Banks)	Manager Finance (Treasury) will receive daily Bank Statements and GPO Collection report.
8.	Revenue Collection and Remittance Statement (from DISCOs)	Manager Finance (Treasury) will receive daily DISCO revenue collection report.
9.	List of Pending Liabilities is updated	Based on the Demand Forms, Pending Liabilities will bedaily updated.
10.	Cash Collection Report is prepared	Based on the daily Bank Statements, daily GPO Collection report and daily DISCO Revenue Collection documents, Manager Finance (Treasury) will prepare a daily Cash Collection Report.

11.	Processing of documents at CPPA-G Settlement Committee	Pending Liabilities and Cash Collection Reports will be sentdaily to CPPA-G Settlement Committee for further processing.
12.	1. Daily Payments Instructions 2. Bank-Wise Payment Instruction	Manager Finance (Treasury) will receive Daily Payment Instructions including Bank wise Payment Instructions from CPPA-G Settlement Committeedetailing the payments authorized to specific Generation company from specific Bank A/Cs.
13.	Payments are made as instructed by CPPA-G Settlement Committee	Manager Finance (Treasury) will transfer payments to Generation company as directed by CPPA-G Settlement Committee.
14	"List of Pending Liabilities"& "Summarized Liability Report" is updated	Manager Finance (Treasury) will update the Pending Liabilities at the day end to reflect transactions.

Table 18~~19~~: Overview of Settlement Process

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X ANNEXURES

(Refer to attached file folder for Annexures)