Form 1

General Information of the Power Plant

Name of the Generation Company:	JPCL etc
Name of the Power Station	TPS Jamshoro etc
Installed Capacity ISO	660 MW
Installed under Policy	1994 / 2002 / 2013 / Captive / SPP etc (whichever is applicable)
Project Type	Public / Private / PPP etc (whichever is applicable)
Executing Agency	PPIB / AEDB / Energy deptts / KE / G to G / Private (whichever is applicable)
LOI Details	Issued by PPIB / KE etc (whichever is applicable)
Basis	BOO or BOOT (whichever is applicable)
Location (Region, District, Province):	Haveli Bahadur Shah, Jhang, Punjab etc
Type of Tariff	Cost Plus, Upfront, Competitive, COD Adjustment, Review Motion etc (whichever is applicable)
NEPRA's Applicable Rules / Regulations	Tariff Standard Rules / Upfront Tariff Regulations etc (whichever is applicable)
Type of Technology:	Thermal
Characteristic of Plant:	Steam Turbine
Other Characteristic of Plant: (Boiler Type)	Subcritical boiler / Super Critical / Ultra Super Critical / Advanced Ultra super critical etc (Whichever is applicable)
Other Characteristic of Plant: (Turbine Type)	Condensing / Extraction / Backpressure etc (whichever is applicable)
Fuel Type	Coal/RFO/Gas/HSD/Bagasse/Biomass/Solid Waste etc (Hihglight Primary, alternative and Secondary Fuel) etc
Site Specific Features:	Vicinity to sea / Near to Load center / Thar Desert etc. (whichever is applicable)
Special Technological Features:	Siemens SST 6000 Turbine etc.
Environmental related Features:	FGD / ESP / CEM etc. (whichever is applicable)
Contract Type	Take and Pay / Take or Pay/ Not Applicable etc (whichever is applicable)
Power Purchaser	CPPAG or DISCO or BPCs or K-Electric etc (whichever is applicable)
Period of the Contract	30 years/ 5 years/ any number of year / Not Applicable etc (Whichever is applicable)
Construction Mode	EPC etc
Water Arrangement	Ground water / Special Arrangement other sources (whichever is applicable)
Generation License	Issued or under process
IA status	Signed / under process / Not applicable etc (whichever is applicable)
Soverign Guarantee	Applicable / Not applicable
PPA status	Signed / under process / Not applicable etc (whichever is applicable)
Fuel Supply Agreement	Coal Supply Agreement / Gas Supply Agreement / Fuel Supply Agreement signed or under process etc (whichever is applicable)
Coal Jetty	Required / Not Required
Requested Levellized Tariff (Rs/kWh or US Cents/kWh) for a contract period	7.39

Form 2	
Breakup of Project Cost	
Description	**USD Million or Any other Currency**
EPC cost:	
Offshore EPC Cost	
Onshore EPC Cost	
Non EPC Cost:	
Project Development & Advisors cost	
Project Management	
O&M Mobilization and Training	
Land Cost	
Security Surveillance	
Insurance during construction	
Testing and Commissioning	
Custom duties and Cess	
Capital Spares	
One Month Escrow Account (If Required)	
Fuel Pipeline Cost	
Backup Fuel Inventory	
CAPEX	
Financing Fees & Charges	
Interest During Construction	
Misc Premium (e.g. ECA*) / Sinosure Fees	
**DSRA	
Total Project Cost	
Total Project Cost MUSD / MW	

* Export Credit Agency

**Debt Servicing Reserve Account

Form 3

Breakup of capital cost for Coal, RFO, Gas, Bagasse, Biomass and Solid Waste based projects

Sr No.		Mill USD or Any other Currency
	Power Island	
	Plant and Equipment:	
	Steam Generator Island	
	Turbine Generator Island	
	Civil works	
	Main Plant and Admin building	
	CW system	
	DM Water Plant	
	Clarification Plant	
	Chlorination Plant	
	Fuel Handling and Storage system	
	Ash Handling System (whereever applicable)	
	Coal Handling Plant (whereever applicable)	
	Cooling Towers	
	Road and Drainage	
	Fire fighting system	
	C&I Package	
	Total Plant and Equipment excluding taxes and duties	
	Initial Spares	
	Balance of Plant	
	BOP Mechanical:	
	External Water Supply System	
	Cooling Water System	
	DM Water Plant	
	Clarification Plant	
	Chlorination Plant	
	Fuel Handling and Storgae system	
	Ash Handling System (whereever applicable)	
	Coal Handling Plant (whereever applicable)	
	Rolling Stock and Locomotives	
	Air Compressor system	
	Air condition and ventilation system	
	Fire fighting system	
	HP/LP piping	
	Total BoP Mechanical	
	BOP Electrical	
	Switchyard Package	
	Transformer Package	
	Switch gear Package	
	Cables, Cable facilities and grounding	
	Lighting	
	Emergency D.G set	
	Total BoP Electrical	
	Ancillary Civil Works:	
	Ash disposal area development (wherever applicable)	
	Township and Colony	
	Temporary construction and enabling works	
	Total EPC Cost	
	Details of Additional Facilities Required (Yes / No)	
	Reverse Osmosis / Desalination Plant	
	Railway spur line	
	Jetty Details	
	FGD plant	
	Length of tranmission line upto interconnection point	
	BOP Spares not part of EPC scope	
	Any Variations required from EPC scope	

Form 4
Detailed Breakup of Non EPC and Project Development Costs

Items	Details
Project Development & Advisors cost	Attach Annexures
Project Management	Attach Annexures
O&M Mobilization and Training	Attach Annexures
Land Cost	Attach Annexures
Security Surveillance	Attach Annexures
Testing and Commissioning	Attach Annexures
Other Spares if not included in EPC / LTSA	Attach Annexures

Note: Process of hiring of consultants and selection
process shall be provided along with relevant agreements.

Form 5
Selection of EPC Contractor / Selection of O&M Contractor

Applicable Frame work	NEPRA (Selection of Engineering, Procurement and Construction Contractor by Independent Power Producers) Guidelines, 2017
	NEPRA Competitive Bidding Tariff (Approval Procedure) Regulations, 2017

Name / No of Construction / Supply / Service Package		Package A	Package B	Package C
Scope of works				
Awarded through ICB or not?				
No. of bids received				
Date of award				
Date of start of Work				
Date of Completion of work				
Value of Award				

Note: Provide all the details of selection process of EPC Contractor / O&M Contractor including EOI's and RFP's

Form 6

Financing Assumptions

Total Project Cost	Million US $ / Any other Currency
Total Project Cost	PKR
Capital Structure:	
Debt	Million US $ / Any other Currency
Equity	Million US $ / Any other Currency
Debt % of Total Project Cost	%
Equity % of Total Project Cost	%
Debt (Foreign Component)	Million US $ / Any other Currency
Debt (Local Component)	Million US $ / Any other Currency
Equity (Foreign Component)	Million US $ / Any other Currency
Equity (Local Component)	Million US $ / Any other Currency
Loan etc	Million US $ / Any other Currency
Construction Period	Months
Grace Period - Years	No.
Loan Repayment Period - Years	No.
Loan Repayment Terms and Details	
Return on Equity	%
Insurance Cost - % of Total EPC	%
Exchange Rate for US $ or other relevant currencies	PKR
KIBOR	%
Spread over KIBOR	%
LIBOR	%
Spread over LIBOR	%
Discount Rate	%
Land Required for Power Plant Indexations on tariff components	Acres Provide details
Expected Financial Close	dd-mm-year
RCOD	dd-mm-year
COD	dd-mm-year
Sinosure Fees (Wherever applicable)	Million US $ / Any other Currency

Form 7	
Technical Assumptions	
Capacity Calculations	
Gross Capacity (ISO)	MWs
Gross Capacity (RSC)	MWs
Auxiliary Load (RSC)	MWs
Auxiliary Load (RSC)	% of gross capacity
Net Capacity (RSC)	MWs
Annual Net Generation at 100% plant factor	GWh
Efficiency Calculations:At ISO (As per OEM) at full load	
Thermal Efficiency Gross LHV ISO	%
Heat Rate Gross LHV ISO	Btu/kWh
Thermal Efficiency Net LHV ISO	%
Heat Rate Net LHV ISO	Btu/kWh
Efficiency Calculations:At RSC (Guaranteed by EPC Contractor) at full load	**With and With out Correction Factors**
Thermal Efficiency Gross LHV RSC	%
Heat Rate Gross LHV RSC	Btu/kWh
Thermal Efficiency Net LHV RSC	%
Heat Rate Net LHV RSC	Btu/kWh
Partial Load Curves v/s Heat Rate (Correction Factors)	OEM Curves on OEM Letter head
Degradation due to aging v/s Heat Rate (Correction Factors)	OEM Curves on OEM Letter head
Efficiency Sharing Mechanism	Yes / No
Misc. Information	
Plant Availability	%
Schedule Outage	Days
Forced Outage	Days
Maintenance Cycle	Years
Start /Stops	Allowed in PPA or Not?
Plant Factor	%
Project Useful Life	Years
Generation Voltage	kV
Interconnection Voltage Level	kV
Grid for Interconnection	Nearest Grid Available for Interconnection
Original Equipment Manufacturer (OEM) (Name of OEM Manufacturer)	GE / Siemens / Harbin etc
Owners Engineer	Fitchner / NESPAK etc
EPC Contractor	CMEC / Descon etc
Plant Machinery	New / Used
Status of Studies	Feasibility Study, Interconnection Study, EIA Study, Simulation Study, Stability Study, Geo technical study etc conducted or not?
Fuel Details:	
Calorific Value of fuel (RFO / Coal / Gas / Bagasse / Biomass / Soild Waste) LHV / HHV	Btu/lb or Btu/Scf
Conversion Factor BTUs/KGs	No.
HHV-LHV Factor	No.
Fuel Price HHV	USD/MMBtu or USD/kg or PKR/kg
Fuel Price LHV	USD/MMBtu or USD/kg or PKR/kg
Specific fuel Consumption (Gross / Net)	kg/kWh etc (Both gross / net)
Inland Transportation of Fuel	Yes / No
Adjustment in CV for RFO based projects only	Required / not?
Interconnectivity:	
Interconnection Arrangement	220 KV / 132 KV / 11 KV etc

Form 8

Plant Characteristics for Coal, RFO, Gas, Bagasse, Biomass and Solid Waste based projects

Name of the Company			
Name of the Power Station			
Unit(s)/Block(s) Paramaters	**Unit-I**	**Unit-II**	**Unit-III**
Name of Boiler Manufacturer			
Name of Turbine Generator Manufacturer			
Main Steam Pressure at turbine inlet (kg/cm2) abs1			
Main Steam Temperature at Turbine Inlet (deg C)1			
Main Steam flow at Turbine inlet under MCR condition (tons/hr)2			
Main Steam flow at Turbine inlet under VWO condition (tons/hr)2			
Reheat Steam Pressure at Turbine Inlet (kg/cm2) abs1			
Reheat Steam Temperature at Turbine Inlet (deg C)1			
Units gross electrical output under MCR / Rated condition (MW)2			
Units gross electrical output under turbine VWO condition (MW)2			
Design Condenser Back Pressure ((kg/cm2)(a))			
Design Cooling Water Temperature (deg C)			
Guaranteed Design Gross Turbine Cycle Heat Rate (kcal/kWh)3			
Guaranteed Design Gross Turbine Cycle Efficiency (%)			
Steam Flow at Superheater outlet under MCR condition (tons/hr)			
Steam Pressure at Superheater outlet under MCR condition (kg/cm2) abs			
Steam Temperature at Superheater outlet under MCR condition (deg C)			
Steam Temperature at Reheater outlet under MCR condition (deg C)			
Design / Guaranteed Boiler Efficiency (%)			
Type of Cooling Tower			
Type of Cooling System4			
Type of Boiler Feed Pump5			
Special Features/Site Specific Features6			
Special Technological Features7			
Environmental Regulation related Features8			
Any other Special Features			
Cooling Method: Dry Cooling / Wet Cooling etc (whichever is applicable)			
Condensate Cooling Mechanism: Once Through / Closed Loop etc (whichever is applicable)			

1- At Turbine MCR Condition
2- With 0% (Nil) make up and Design Cooling Water Temparature
3- At MCR output based on gross generation, 0% (Nil) Makeup and Design Cooling Water Temperature
4- Closed Circuit Cooling, once through cooling sea cooling, natural cooling, natural draft cooling, induced draft cooling etc.
5- Motor driven, Steam turbine driven etc.
6- Any site specific feature such as Vicinity to sea, Intake/makeup water systems etc. scrubbers etc. Specify all such features.
7- Any Special Technological feature like Advanced class FA Technology in Gas Turbines etc.
8- Environmental regulation related features like FGD, ESP etc.

Note 1: Heat Balance Diagrams has to be submitted along with above information incase of new stations.

Form 9	
Breakup of Annual O&M Expenses	
	USD / kWh
Variable O&M	
Chemicals and consumables	
Repair and maintenance (Including Initial / Capital spares cost)	
Services and outages cost	
LTSA Variable Cost	
Rs/kWh	
	USD / KW / hr
Fixed O&M	
Admin Expenses	
Rent	
Electricity Charges	
Travelling and Coveyance	
Telephone	
Advertising	
Entertainment	
Employee Cost	
Details of employees	
Slaries,wages and allowances	
Staff welfare expenses	
Office Expenses	
Security	
Transportation	
Professionals Fees	
Utilities	
Contract Services	
Training	
LTSA Fixed costs	
Rs/kW/hr	

Initial Spares as % of Plant and Equipment Cost, %	

Note1: LTSA Contract / O&M Contract be provide upfront for Approval

Form 10

Calculation of IDC

US$ Million or any other currency

Debt Amount
KIBOR
Spread over KIBOR
LIBOR / other
Spread over LIBOR / other
Total Interest Rate

	Construction Period			Debt Principal	IDC	Fin. Fees	DSRA
Year	**1st Year**	**2nd Year**	**3rd Year**				
Opening Balance							
1st Quarter							
Principal Amount							
Interest							
Closing Balance							
Opening Balance							
2nd Quarter							
Principal Amount							
Interest							
Closing Balance							
Opening Balance							
3rd Quarter							
Principal Amount							
Interest							
Closing Balance							
Opening Balance							
4th Quarter							
Principal Amount							
Interest							
Closing Balance							
Total Debt Incl. IDC							

Form 11

Calculation of ROE				
IRR of ---%				
Year	Equity (Million US$)	ROE (Million US$)	ROEDC (Million US$)	ROE (Rs./kWh)

Energy shall be taken from technical assumptions.

11 06 15

Form 12
Comparison with Similar Technology National and International Plants

Project Cost Breakup (Million USD) or any other currency				
EPC cost				
Offshore EPC cost				
Onshore EPC cost				
EPC Cost / MW				
Non EPC cost				
Project Development & Advisors cost				
Project Management				
O&M Mobilization and Training				
Land Cost				
Security Surveillance				
Insurance during construction				
Testing and Commissioning				
Custom duties and Cess				
Capital Spares				
One Month Escrow Account (If required)				
Capex				
Financing Fees and Charges				
Interest during construction				
* ECA Premium				
Total Project Cost				
Project Cost / MW				
Fixed O&M				
Variable O&M				
* Export Credit Agency etc				

Form 13

Calculation of Working Capital		
Total Net Capacity		MW
Hours per Day		Hours
Heat Rate		Btu/kWh
Fuel Price		Rs./MMBtu
Daily Requirement of Fuel		MMBtus
() days Fuel Reqquirement		MMBtus
() days Fuel Cost at full load		Rs.
SBLC Charges (If Applicable)		Rs.
Receivable Requirement:		
Days		
Amount required for ----- days		Rs.
GST @ %		Rs.
Total Amount Required		Rs.
Base Rate		
Spread over KIBOR		
Total Interest Rate		
Cost of Receivables		Rs.
Alternate Invetory of fuel		
Days		
Heat Rate (Gross Net) & (HHV LHV)		Btu/kWh
CV (Gross Net) & (HHV LHV)		Btus/Liter
Alternate Fuel Requirement for 7 days on 60% Load		Liters
Alternate Fuel Price including Sales Tax		
Total Amount Required		
Total cost of Working Capital		
Working Capital Component		**Rs./kW/h**

Form 14

Debt Service Schedule (Typical for Local Currency)

Gross Capacity MWs US$/PKR Parity

Net Capacity MWs Debt US$ Million

KIBOR Debt in Pak Rupees Rs. Million

Spread over KIBOR

Total Interest Rate

Period	Principal Million Rs.	Principal Repayment Million Rs.	Interest Million Rs.	Balaance Million Rs.	Debt Service Million Rs.	Principal Repayment Rs./kW/h	Interest Rs./kW/h	Debt Servicing Rs./kW/h
1								
2								
3								
4								
1st Year								
5								
6								
7								
8								
2nd Year								
9								
10								
11								
12								
3rd Year								
13								
14								
15								
16								
4th Year								
17								
18								
19								
20								
5th Year								
21								
22								
23								
24								
6th Year								
25								
26								
27								
28								
7th Year								
29								
30								
31								
32								
8th Year								
33								
34								
35								
36								
9th Year								
37								
38								
39								
40								
10th Year								

14-08 15

Form 15

Refrence Tariff Table (Fuel, Open Cycle)

Year	Energy Purchase Price (Rs./kWh)						Capacity Purchase Price (PKR/kW/Hour)									Total Tariff	
	Fuel	Ash / Bagasse waste Disposal	Water Charges	Limestone	Var. O&M	Total EPP	Fixed O&M local	Fixed O&M foreign	Cost of W/C	Insurance	ROE	Debt Repayment	Interest Charges	Total CPP	Capacity* charge@ ---- %	Rs. / kWh	Cents/kWh
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
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21																	
22																	
23																	
24																	
25																	
26																	
27																	
28																	
29																	
30																	
Average																	
1-10																	
11-30																	
1-30																	
Levelized																	
1-30																	

* Plant factor depending on the technology and fuel