National Electric Power Regulatory Authority

Islamic Republic of Pakistan

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Registrar

No.NEPRA/R/TRF-98/SPGL-2008/9315-17
July 29, 2008

Subject: **Determination of Generation Tariff in the Matter of Star Power Generation Ltd. (SPGL) (Case # NEPRA/TRF-98/SPGL-2008)**
Intimation of Determination of Tariff pursuant to Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997)

Dear Sir,

Please find enclosed the subject Determination of the Authority along with Annexure-I & II (37 pages) in Case No. NEPRA/TRF-98/SPGL-2008.

2. The Determination is being intimated to the Federal Government for the purpose of notification of the approved tariff in the official gazette pursuant to Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997) and Rule 16(11) of the National Electric Power Regulatory Authority Tariff (Standards and Procedure) Rules, 1998.

3. Please note that only Order of the Authority at para 21.2 of the Determination relating to the reference tariff, adjustments & indexation along with Annexure-I & II needs to be notified in the official gazette. The Order is reproduced for the purpose of clarity and is attached herewith.

Enclosure: As above

29.07.08
(Mahjoob Ahmad Mirza)

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The Secretary
Cabinet Division
Government of Pakistan
Cabinet Secretariat
Islamabad

CC:
1. Secretary, Ministry of Water & Power, Islamabad.
2. Secretary, Ministry of Finance, Islamabad.

ORDER OF THE AUTHORITY
IN CASE NO. NEPRA/TRF-98/SPGL-2008
TO BE NOTIFIED IN THE OFFICIAL GAZETTE

Pursuant to Rule 6 of the NEPRA Licensing (Generation) Rules 2000 Star Power Generation Limited (SPGL) is allowed to charge, subject to adjustment of Capacity Purchase Price on account of net dependable capacity and net thermal efficiency as determined by test jointly carried out by Central Power Purchasing Agency (CPPA) and the petitioner, the following is approved as specified tariff for SPGL for delivery of electricity to CPPA of NTDC for procurement on behalf of Ex-WAPDA Distribution Companies:

REFERENCE SPECIFIED TARIFF

Tariff Components	Year 1 to 10	Year 11 to 25	Indexation
Capacity Charge PKR/kW/Hour)			
O&M Foreign	0.0904	0.0904	US$ /PKR & US CPI
O&M Local	0.1023	0.1023	WPI
Cost of Working Capital	0.0297	0.0297	KIBOR
Insurance	0.1185	0. 1185	US$ /PKR
Debt Service – Local	1.5159	-	KIBOR
Return on Equity	0.4340	0.4340	US$ /PKR
ROE during Construction	0.0517	0.0517	US$ /PKR
Total Capacity Charge	**2.3424**	**0.8265**	
Energy Charge on Operation on Gas Rs./kWh			
Fuel Cost Component	2.6443	2.6443	Fuel Price
Variable O&M	0.1859	0.1859	US$ /PKR & US CPI

Note:

i) Component wise tariff is indicated at Annex-I

ii) Debt Servicing Schedule is attached as Annex-II

The following adjustments /indexations shall be applicable to reference tariff;

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I. Adjustment in EPC Cost (One Time)

The Authority has assessed EPC cost as US$ 131.427 million out of which US$ 105 million is offshore and US$ 26.427 million is onshore to be incurred in Pak Rupees. Since the exact timing of payment to EPC contractor is not known at this point of time therefore an adjustment for foreign currency fluctuation for the portion paid in the relevant foreign currency will be made. In this regard, the sponsor will be required to provide all the necessary relevant details along with documentary evidence. Based upon such information the relevant currency of EPC cost components shall be established and applied to the corresponding EPC cost components. The relevant tariff components i.e. Insurance, ROE, ROEDC, Principal Repayment and Interest Charges shall be adjusted only for currency fluctuation against the reference parity values.

II. Adjustment due to Variation in Net Capacity and Net Thermal Efficiency

The reference tariff has been determined on the basis of minimum net capacity of 124.5 MW at delivery point, at following reference site conditions;

Ambient Temperature	26.9 °C
RH	40
Inlet Pressure Loss	126.6 mmH_2O
Exhaust Pressure Loss	350 mmH_2O
Gross Output	128.455 MW
Gross Heat Rate (LHV)	7022.88 MMBTU
Aux. Power Consumption	3.955
Net Output	124.5 MW
Net Plant Heat Rate (BTU/kWh)	7,245.56

All the relevant tariff components shall be adjusted at the time of COD based upon the Initial Dependable Capacity (IDC) to be carried out for determination of contracted capacity. Adjustment shall not be made if IDC is established less than net capacity of 124.5 MW at reference site conditions. The adjustments shall be made according to the following formula:

$$CC_{(Adj.)} = CC_{(Ref)} \times 124.5MW / NC_{(IDC)}$$

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Note: Above formula shall be applicable to all the individual relevant components of Capacity Charges.

Where;

$CC_{(Adj)}$ = Adjusted relevant Capacity Charge components of tariff
$CC_{(Ref)}$ = Reference relevant Capacity Charge components of tariff
$NC_{(IDC)}$ = Net Capacity at reference site conditions established at the time of IDC test

Note:- Reference capacity charge components of Tariff i.e. Revised O&M Foreign, Revised O&M Local, Insurance, Debt Servicing, Return on Equity and ROEDC to be adjusted as per IDC test.

III. Adjustment due to variation in Net Efficiency

The reference tariff has been determined on the basis of minimum net efficiency of 47.1%. Based upon the heat rate test of the complex to be carried out jointly by Central Power Purchasing Agency (CPPA) and the Petitioner at the time of COD, the reference fuel cost component of tariff shall be adjusted in case the net efficiency is established higher than 47.1%. The adjustment shall be made according to the following formula;

$FC_{(Adj)}$ = Rs. 2.6443 per kWh / 7245.56 x $HR_{(T)}/NC_{(IDC)}$ x 124.5

Where;

$FC_{(Adj)}$ = Adjusted net efficiency of the complex at COD
$HR_{(T)}$ = Net Efficiency in Btu per kWh established after Heat Rate Test at the time of COD
$NC_{(IDC)}$ = Net Capacity established at the time of IDC test at COD

IV. Cost of Working Capital

Cost of working capital pertaining to bank commission in respect of the bank guarantee for the security deposits Rs. 0.0141/kW/hr will be adjusted (one time) at the time of COD for variation in gas price as against the reference fuel gas price.

The inventory level of spares to be maintained by the IPP will be established at the time of COD and the cost of working capital component Rs. 0.0156/kW/hr will be

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revised accordingly. The overall adjusted cost of working capital established at the time of COD will be adjusted only for KIBOR variation thereafter.

V. Adjustment in Insurance as per actual

The actual insurance cost for the minimum cover required under contractual obligations with the Power Purchaser, not exceeding 1.35% of the EPC cost, will be treated as pass-through. Insurance component of reference tariff shall be adjusted as per actual on yearly basis upon the production of authentic documentary evidence by SPGL according to the following formula;

$$Insurance_{(Adj.)} = AIC / P_{(Ref)} * P_{(Act)} / 67.7 * ER_{(Rev)}$$

Where;

- AIC = Adjusted Insurance Component (Rs. kW/hr) as per IDC Test
- $P_{(Ref)}$ = Premium subject to maximum of 1.35% of the adjusted EPC
- $P_{(Act)}$ = Actual Premium or 1.35% of the adjusted EPC whichever is lower
- $ER_{(Rev)}$ = The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan at Invoice date

VI. Adjustment Based on Actual Interest During Construction

Debt Service, ROE and ROEDC shall be adjusted on account of actual variation in drawdown and Interest During Construction with reference to the estimated figure of US$23.207 million.

VII. Adjustment due to Custom Duties & Taxes

Debt Service, Return on Equity and ROE during construction shall be adjusted on account of actual variation in custom duties & Taxes with reference to the estimated figure of US$ 5.040 million. The impact of withholding tax on local services is not known at this point of time. However, these will be adjusted along with other duties and taxes as per the actual on the provision of documentary evidence at COD.

VIII. Adjustment for variation in Dollar/Rupee parity

Relevant reference tariff components shall be adjusted at COD on account of variation in Dollar/Rupee parity.

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IX. Adjustment of Withholding Tax

Withholding tax on dividend is o a pass-through item, which is allowed in accordance with the "Government Guidelines for determination of tariff for new IPPs". In a reference tariff table, withholding tax number is indicated as reference and CPPA (NTDC) 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 at the time payment i.e. hourly payment (Rs./kW/hour) spread over a 12 month according to the following formula:

Withholding Tax Payable = $[\{15\% * (E_{(Ref)} - E_{(Red)})\} + ROEDC_{(Ref)}] * 7.5\% * ER_{(Rev)} / 67.7$

Where:

$E_{(Ref)}$ = Adjusted Reference Equity at COD

$E_{(Red)}$ = Equity Redeemed

$ROEDC_{(Ref)}$= Reference Return on Equity During Construction

$ER_{(Rev)}$ = The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan

In case Company does not declare a dividend in a particular year or only declares a partial dividend, then the difference in the withholding tax amount (between what is paid in that year and the total entitlement as per the Net Return on Equity) would be carried forward and accumulated so that the Company is able to recover the same in hourly payments spread over 12 months period as a pass through from the Power Purchaser in future on the basis of the total dividend pay out.

X. Pass-Through Items

No provision for income tax, workers' profit participation fund and workers' welfare fund, any other tax, excise duty or other duty, levy, charge, surcharge or other governmental impositions, payable on the generation, sales has been accounted for in the tariff. If SPGL is obligated to pay any tax on the income purely generated from its operation i.e. Electricity Generation of power producer, the exact amount should be reimbursed by CPPA on production of original receipts. This payment may be considered as pass-through (as Rs./kW/hour) hourly payment spread over a 12

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months period in addition to the capacity purchase price in the Reference Tariff. Furthermore, in such a scenario, SPGL may also submit to CPPA details of any tax shield savings and CPPA will deduct the amount of these savings from its payment to SPGL on account of taxation.

XI. Indexations:

The following indexation shall be applicable to the reference tariff as follows;

a) Indexation applicable to O&M

The Fixed O&M local component of Capacity Charge will be adjusted on account of Inflation (WPI) and Fixed O&M foreign component on account of variation in US CPI and dollar/Rupee exchange rate. Quarterly adjustment for local inflation, foreign inflation and exchange rate variation will be made on 1st July, 1st October, 1st January and 1st April based on the latest available information with respect to WPI notified by the Federal Bureau of Statistics (FBS), US CPI issued by US Bureau of Labor Statistics and revised TT & OD selling rate of US Dollar notified by the National Bank of Pakistan. The mode of indexation will be as under:

i) Fixed O&M

$F\ O\&M_{(LREV)}$ = Rs. 0.1023/kW/Hour * $WPI_{(REV)}$ /132.1

$F\ O\&M_{(FREV)}$ = Rs.0.0904/kW/Hour * US $CPI_{(REV)}$/213.528* $ER_{(REV)}$/67.7

Where:

$F\ O\&M_{(LREV)}$	=	the revised applicable Fixed O&M Local Component of the Capacity Charge indexed with WPI
$F\ O\&M_{(FREV)}$	=	the revised applicable Fixed O&M Foreign Component of the Capacity Charge indexed with US CPI and Exchange Rate variations
$WPI_{(REV)}$	=	the revised wholesale Price Index (manufactures)
$WPI_{(REF)}$	=	132.1 wholesale price index (manufactures) of March 2008 notified by Federal Bureau of Statistics
US $CPI_{(REV))}$	=	the revised US CPI
US $CPI_{(REF)}$	=	213.528 US CPI for the month of March 2008 as notified by the US Bureau of Labor Statistics

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$ER_{(REV)}$ = the Revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan

Note: The reference numbers indicated above shall be replaced by the revised numbers after incorporating the required adjustments at COD.

ii) Variable O&M

The formula for indexation of variable O&M component will be as under:

V O&M = Rs. 0.1859/kWh / 67.7* $ER_{(Rev)}$ / 213.528 * US $CPI_{(Rev)}$

Where:

V $O\&M_{(REV)}$	=	The revised applicable variable O&M component of the capacity charge.
$ER_{(REf)}$	=	Reference TT & OD selling rate of US dollar of Rs. 67.7 per US$ as notified by the National Bank of Pakistan
US $CPI_{(REV)}$	=	The revised US CPI
US $CPI_{(REF)}$	=	Reference US CPI (All Urban Consumers) of 213.528 for March 2008 as notified by the US Bureau of Labor Statistics
$ER_{(REV)}$	=	Revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan

Note: The reference Variable O&M indicated above shall be replaced with the revised number at COD after incorporating the required adjustment based upon the IDC Test.

iii) Adjustment for KIBOR variation

The interest part of fixed charge component will remain unchanged throughout the term except for the adjustment due to variations in interest rate as a result of variation in quarterly KIBOR according to the following formula;

$$\Delta I_{(L)} = P_{(LREV)} * (KIBOR_{(REV)} - 10.00\%) / 4$$

Where:

$\Delta I_{(L)}$ = the variation in interest charges on local loan applicable corresponding to variation in quarterly KIBOR. Δ I can be positive or negative depending upon whether $KIBOR_{(REV)}$ > or < 10.00%. The interest payment obligation will be enhanced

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or reduced to the extent of Δ I for each quarter under adjustment applicable on quarterly

$P_{(REV)}$ = is the outstanding principal (as indicated in the attached debt service schedule to this order) on a quarterly basis on the relevant quarterly calculations date. Period 1 shall commence on the date on which the 1st installment is due after availing the grace period.

iv) Fuel Price Variation

The Variable Charge Part of the tariff relating to fuel cost shall be adjusted on account of the fuel price variations as and when notified by the relevant authority, which in the instant case is the Oil & Gas Regulatory Authority (OGRA). In this regard, the variation in SPGL's allowed rate relating to fuel cost shall be revised according to the following formula:

$FC_{(Rev)} = FC_{(Adj)}$ per kWh * $FP_{(Rev)}$ / Rs. 364.983 per MMBTU

Where:

$FC_{(Rev)}$ = The revised fuel cost component of Variable Charge on Mari low BTU gas.
$FP_{(Rev)}$ = The new price of gas as notified by the relevant Authority per MMBTU of fuel adjusted for LHV-HHV factor.
$FC_{(Adj)}$ = Adjusted fuel cost component subsequent to heat rate test at COD

Adjustment on account of local inflation, foreign inflation, foreign exchange variation, KIBOR variation and fuel price variation will be approved and announced by the Authority for immediate application within seven working days after receipt of SPGL's request for adjustment in accordance with the requisite indexation mechanism stipulated herein.

For one time adjustment of relevant tariff components at COD according to the mechanism laid down in this order, SPGL shall submit the relevant documents to NEPRA within 30 days of COD for adjustment.

XII. Terms and Conditions of Tariff:

i) Capacity Charge Rs./kW/hour applicable to dependable capacity at the delivery point.

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ii) The tariff is applicable for a period of 25 years commencing from the date of the Commercial Operation.

iii) Use of Low BTU Gas from Mari is allowed as single fuel for operation of the plant.

iv) All new equipment will be installed and the plant will be of standard configuration.

v) The plant availability shall be 90%.

vi) Dispatch criterion will be based on the Energy Charge.

vii) Auxiliary Load has been assumed to be approximately 3.955 MW.

viii) Scheduled Outage periods per annum shall be in accordance with the 2006 standardized PPA.

ix) NTDC will be responsible for constructing the interconnection to the grid.

x) All invoicing and payment terms are assumed to be in accordance with the 2006 standardized PPA.

xi) Tolerance in Dispatch shall be in accordance with 2006 standardized PPA.

xii) If there is any change in any assumption that may lead to change in the tariff shall be referred to NEPRA for approval.

xiii) 100% of debt has been assumed to be local provided however that in the event SPGL uses a mix of foreign and local loan, the future benefits of the lower interest rates shall be passed on to the Power Purchaser.

xiv) No corporate income tax and no minimum turnover tax have been assumed.

xv) Working capital has been financed by a separate Working Capital facility, and is not included in the project cost.

The above tariff and terms and conditions be incorporated in the Power Purchase Agreement between SPGL and CPPA.

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No. NEPRA/TRF-98/SPGL-2008 JULY 29, 2008

DETERMINATION OF GENERATION TARIFF IN THE MATTER OF STAR POWER GENERATION LIMITED (SPGL)

Petitioner

Star Power Generation Limited (SPGL)
2nd Floor, Razia Sharif Plaza, 90-W, Jinnah Avenue, Blue Area, Islamabad

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AUTHORITY

Nasiruddin Ahmed
Member

29/7

Abdul Rahim Khan
Member

28/7

Maqbool Ahmad Khawaja
Member

28/7

Khalid Saeed
Chairman

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BACKGROUND

1.1 Star Power Generation Limited (the "Company") is a special purpose vehicle incorporated by Emirates Trading Agency, LLC (a company of the Al-Ghurair Group) as sponsors to set up the Project. The Project was meant to be one of the first projects under the 2002 Power Policy. The Company filed the earlier tariff petition in March 2005 on the basis of agreement with the Power Purchaser. The Authority gave its Determination in May 2005.

1.2 Star Power Generation Limited (**SPGL**) (Generation License No. IGSPL/02/2005) filed Petition ("**Modification Petition**") on May 19, 2008 under Section 31 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (XL of 1997) (the "**Act**") read with Rule 3 of the National Electric Power Regulatory Authority (Tariff Standards and Procedures) Rules, 1998 (the "**Rules**") for Revision/Modification of the Generation Tariff Ruling dated June 15, 2005. The petition was admitted by the Authority on May 27, 2008.

1.3 Notice of admission/public hearing in the matter was published on June 4, 2008. A public hearing on the petition was held on June 17, 2008 at NEPRA Main Office, Islamabad. Accordingly letters were sent to all stakeholders inviting their comments/participation in the tariff setting proceedings. The hearing was participated by all the stakeholders.

2. Relief Sought

2.1 Petitioner submitted that due to the increase in the Project Cost, the Company is facing the direct negative impact on the Project. Therefore, in the view of the facts and evidences provided in this Modification Petition, the Company requested the Authority to approve its Reference Generation Tariff, the reference prices, and indices may be determined on the current reference rates and figures. Other relief sought in the petition may be approved.

3. ISSUES

3.1 In light of the comments of stakeholders, information provided by the petitioner and proceedings of the case the following main issues arising out of the proceedings were considered by the Authority:

- Delay in Project
- Net Plant Capacity

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- Project Cost
  - EPC Cost
    - Non-EPC Works
    - Project Development Cost
    - Pre-Operating Costs
    - Financing Fee & Charges
    - Legal/Financial Advisory/Regulatory Costs And Charges
    - Custom Duties & Special Federal Excise Duty
    - Interest During Construction (IDC)
- Capacity Charge
- Energy Charge
- Timeline of the Project

3.2 The decision of the Authority is set out in the following paragraphs.

4. Delay in Project

4.1 According to the petitioner the project could not be implemented for a period of about 3 years due to the following reasons;

- The Concession Agreements i.e. the Implementation Agreement (the "**IA**"), the Power Purchase Agreement (the "**PPA**") and the Gas Supply Agreement (the "**GSA**") were not ready when required or needed by the Company and other contracting parties including the GOP itself.
- The Company received the drafts of only the PPA and the IA in May 2006.
- The Company identified a list of key issues in respect of the Concession Agreements (the "**GSA Key Issues**") in September, 2006.
- The GSA Key Issues were resolved in September, 2007.
- The IA was signed on September 27, 2007, GSA on October 31, 2007 and the PPA was signed on March 10, 2008 paving the way for the Company to proceed with EPC/O&M Contracts.
- Further, once the Company received positive indications that GSA Key Issues were likely to be resolved, the EPC Contractors were asked to finalize their bids. When the potential EPC contractors asked the major equipment suppliers to update their offers, the gas turbine vendor took over six months to provide an offer/technical parameters and the steam turbine vendor quoted

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an ex-works delivery that would have made time for delivery at site almost equal to construction period of the project.

4.2 According to the petitioner the project could not be implemented for a period of about 3 years due to the following reasons;

5. Net Plant Capacity

5.1 The petitioner has revised its net capacity and the net heat rate as compared to the petition of 2005. The comparison, of previously determined net capacity and the net heat rate vis-à-vis the proposed net capacity and the net heat rate, is given hereunder:

Net Capacity	124.5 MW	from 125.84 MW (Original)
Net Heat Rate	7,245 BTU/kWh	from 7096 BTU/kWh (Original)

5.2 According to the petitioner the change in capacity was on account of change in gas specification. The Central Power Purchasing Agency (CPPA) objected to the reduction in capacity and increase in Heat Rate on the ground that the petitioner did not substantiate its contention with proper documentary evidence i.e. Manufacturer's recommendations along with degradation curves and other relevant data. According to CPPA with improved calorific value of Gas there should have been positive effect on Plant output and efficiency.

5.3 In response to CPPA's comments the petitioner stated that the petitioner also raised similar concerns with the EPC contractor but after a reasonable due diligence was constrained to accept these figures as these were performance parameters provided and guarantied by the EPC contractor duly supported with the relevant calculations. Notwithstanding with foregoing the company was willing to accept a heat rate and capacity test at COD to address CPPA concerns. The relevant tariff components would be revised at the time of COD based on the tests to be carried out in the presence of the power purchaser.

5.4 The Authority considers that petitioner's proposal regarding heat rate and capacity test at COD is reasonable therefore is accepted. In case as a result of tests, the net output is established higher than the minimum net out put of 124.5 MW or net efficiency is established higher than 47.1%, the relevant tariff components will be adjusted accordingly.

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6. EPC PRICE

6.1 Off-Shore

6.1.1 SPGL requested to allow offshore EPC cost of US$105 million. CPPA while objecting to the increase in cost of Plant Equipment US$ 105 million in the Revised Petition as against US$ 62.1 million in previous tariff determination (1.7 time higher) stated that the Company's request was not supported with the item-wise break-up of Plant Equipment Cost along with its comparison with previous rates; therefore the Company should be asked to provide the same.

6.1.2 In CPPA's opinion the changes in EPC cost during 3 year time span form 2005 to 2008, seemed to be on much higher side. According to CPPA the feasibility was completed and approved by PPIB on 25-11-2004 and the tariff was also determined by NEPRA vide No.NEPRA/LAG-73/Tariff-2005/342 dated 1-06-2005; Had the Company firmed up the EPC Cost at that time, then the prices would have not gone so up. According to CPPA the increase of prices by the EPC contractor can be attributed towards delay in finalizing of EPC contract by the Petitioner. CPPA also referred to NEPRA's decision with respect to Foundation Power Company located in the same vicinity based on low Btu Mari gas and Combined Cycle Power Plant that was allowed EPC Cost of US$ 162.6 Million (176.655 MW).

6.1.3 Responding to the CPPA's comments, SPGL submitted that it had obtained a competitive EPC price to ensure the project construction in accordance with the Earlier Tariff Ruling. On account of the delays associated with availability of initial drafts and finalization of Concession Agreements, the EPC Contract could not be finalized and as a result thereof the EPC price expired. Since expiry in early 2006 of the EPC bid, the Company continued to solicit proposals from various EPC Contractors and approached at least three Turkish and four Chinese Companies during the years 2006-2007. However, the EPC Contract could not be finalized due to various reasons such as non-resolution of GSA Key Issues, open ended bids, short price validities, abnormal pricing by EPC Contractors due to power market environment and ex-works delivery period of the steam turbine at site almost equal to construction period.

6.1.4 According to SPGL the main reason for such a long delivery schedule was due to extraordinary high demand as compared to available supply. As a result of this gap in demand and supply, the lead times were increasing substantially; consequently the manufacturers and EPC contractors all around the world were increasing their prices

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each month in order to give affordable timelines to the purchasers. Reputed manufacturers of turbines like General Electric, Siemens, Alstom and Ansaldo are heavily booked. SPGL further stated that the price and delivery of turbines were subject to the negotiation of EPC contracts and the down payment followed by opening of the relevant letter of credit facilities within the limited non-negotiable validity period dictated by the supply contractors. The down payment only ensured booking of time slot for the delivery and did not in any way ensure fixing of the price. The price was open to changes in material rates, labour inflation, and currencies parity (e.g. Euro/Dollar Parity). In the event that the sponsor failed to make this payment, the delivery slot was lost and the availability of next slot might not be acceptable to the sponsor due to the schedule agreed with Power Purchaser. Furthermore; the letter of credit facility for the entire amount could only be opened after achieving the financial close as most projects are based on 75:25 debt-equity ratio and it was not possible to open 100% L/C for EPC out of sponsors' own resources. In addition to the aforementioned, the prices of both steel and copper have significantly increased.

6.1.5 The cost of equipment as per the details provided by the petitioner is about US$ 89 million which is comparable with the equipment price indicated in the GTW Handbook 2007-08. The Authority further compared the off-shore EPC cost with the cost allowed in the case of FPDCL which is also based on same fuel and location. The EPC off-shore cost allowed to FPDCL was US$ 126.4 million that works out to be US$ 715/kW based on net capacity of 176.655 MW in the determination dated June 13, 2008. In the instant case the off-shore EPC price works out as US$ 843/kW which is about 18% higher as compared to the per kW EPC off-shore cost of FPDCL. The difference in off-shore EPC price is mainly attributable to; (i) size of plant (SGPL is smaller as compared to FPDCL), (ii) 8 months time lag between signing of EPC contract by SPGL and revision of the EPC contract by FPDCL, (iii) further increase in the input cost like material, salaries, wages etc.

6.1.6 Having considered evidence provided by the petitioner, comments of the CPPA and keeping in view the international demand of power plants, energy crises in the country, the Authority considers that the requested off-shore EPC price of US$ 105 million by SPGL is reasonable therefore the same is allowed.

6.2 <u>EPC Price On-shore</u>

6.2.1 According to the petitioner its on-shore EPC price as per the construction contract is US$ 40.77 million. This cost is meant to cover the cost of (i) civil works i.e. pile

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foundation, thermal system, water treatment system, water supply system, electrical system and remainder of the plant (ii) raising of site (iii) design, erection and commissioning (iv) gas turbine services (v) steam turbine services (vi) custom and inland transportation. In the original petition the cost of such activity was determined as US$ 16.422 million. In the current petition, the cost increase requested by the petitioner is about US$ 24.328 million which is 1.48 times of the originally determined cost.

6.2.1.1 Civil Works

6.2.1.1.1 In the original petition the petitioner requested for the cost of civil works including piles US$ 4.94 million. The petitioner in the current petition has requested US$ 14.653 million which is 2.97 times of the original requested cost. The petitioner while justifying the requested increase stated that the increase was attributable to the rise in power plant services over the period due to a combination of rising global demand and related supply constraints of trained work-force plus specific issues such as rise in cost of local construction services, Pakistan's risk profile with respect to foreign EPC personnel and increase in transportation cost.

6.2.1.1.2 The Authority considers that the reasons given by the petitioner in support of increased cost of civil works are valid to some extent but do not fully justify. The increase in cost of civil works has to be seen in the local perspective therefore the petitioner's requested cost of civil works cannot be accepted as such and needs to be rationalized. The available statistics regarding increase in cost of building materials (iron bars and sheets and bricks) does not support the cost of civil works requested by the petitioner. According to the information published by the Federal Bureau of Statistics (Inflation Monitor for December 2005) WPI inflation with respect to building materials (iron bars and sheets and bricks) during the period July-December 2005-06 over the same period of FY 2004-05 was 1% which means that during the period of FY 2005-06 there was no material change in the cost of building materials. During the period July 2006 to June 2007 there was an increase of 7.69% when the WPI of building materials increased from 148.50 in July 2006 to 159.92 in July 2007. In the FY 2007-08 there was an extraordinary increase in the cost of building materials. WPI in May 2007 was 156.74 which increased to 207.8 in May 2008. If the cost of civil works allowed to the petitioner in 2005 is adjusted for variation in WPI, the adjusted civil works cost works out as US$ 6.973

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million. The Authority further considers that some provision on account of country risk and expected increase in cost of building materials and cost of labour has to be made. In this regard the Authority considers that 20% increase over the amount of US$ 6.973 million would be a fair assessment. Accordingly the Authority has assessed US$ 8.368 million as cost of civil works as against the requested amount of US$ 14.653 million.

6.2.1.2 Additional Civil Works - Raising of SITE

6.2.1.2.1 The petitioner requested US$ 1.80 as additional cost for additional civil works i.e. raising of site. In order to assess the reasonability of the cost requested by the petitioner, the Authority has used cost allowed to other projects for similar work as reference. Based on the information available, the Authority has assessed US$ 0.628 million in this context.

6.2.1.3 Design, Engineering & Erection, Balance of Plant (BOP) Commissioning

6.2.1.3.1 The petitioner requested US$ 22.347 million comprising of US$ 16.18 million for design, erection and commissioning, US$ 4.47 for gas turbine commissioning and US$ 1.70 million for steam turbine commissioning as against the cost of US$ 8.492 million determined in the original determination dated June 1, 2005.

6.2.1.3.2 The petitioner's requested cost is about 3 times of the cost originally allowed by the Authority in its earlier determination. The Authority considers that the petitioner's requested cost is abnormally high and cannot be accepted as such. In the determination dated June 2005, the cost allowed of US$ 8.492 million in this regard was about 13.67% of the off-shore EPC price. If the same %age is applied to the off-shore EPC of US$ 105 million, the cost of design, engineering & erection, commissioning and testing works out as US$ 14.35 million. In order to make fair assessment the Authority also carried out further analysis after adjusting the cost determined in the original petition for variation in Euro/US$ parity (from 1.2 to 1.593) and US CPI (from 194.5 in June 2005 to 216.632 in May 2008), providing 20% on account of premium country risk and high demand of EPC contractors. The adjusted cost accordingly works out as US$ 14.42 million. Considering further allowance for commissioning of gas turbine and steam turbine, the Authority considers that US$ 16.180 million for design, engineering & erection, commissioning and testing (including installation of gas turbine commissioning and steam turbine commissioning) would be a fair assessment.

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6.2.1.4 Inland Transport & Clearance

6.2.1.4.1 The petitioner requested US$ 1.971 million on account of inland transport and clearance. In original petition the petitioner was allowed US$ 0.75 million on this account. In order to make a fair assessment of this cost, the cost allowed in the original determination has been adjusted for variation in local CPI i.e. from 126.09 in June 2005 to 176.5 in June 2008. In addition to the adjustment for variation in local CPI further allowance for variation in fuel prices in the amount of US$ 0.75 million determined by the Authority in June 1, 2005 has also been provided. After making the aforementioned adjustments the amount of US$ 1.25 million has been assessed and allowed to be adjusted at COD as per actual subject to maximum of US$ 1.97 million.

6.2.2 Based on the decisions made in the preceding paragraphs with respect to individual cost items, the overall onshore EPC cost of US$ 26.427 million is considered reasonable and being allowed as against the requested cost of US$ 40.7 million.

7 NON-EPC COSTS INCREASE

7.1 SPGL submitted that along with the Gas Transmission Facilities, the following items were also not included in the scope of work of the EPC Contractor and the Company would award separate contracts for these:

- Residential Colony
- Water Supply Tube wells, Water Storage Pond, Pumping Station & Water Pipeline
- Access Road to the Complex

7.2 SPGL requested for US$ 11.253 million on account of abovementioned works.

7.2.1 Residential Colony

7.2.1.1 SPGL submitted that Company required a full fledged residential colony with all amenities such as mosque, club, community hall, market, dispensary, playground etc. for the operation and maintenance of the Complex as the same is located in a remote area. The nearest towns of Sukkur and Rahim Yar Khan are 100 Km from the plant location. The estimated constructed area of all living and support buildings is around 94,000 square feet apart from infrastructure development works such as sewerage, water supply, internal roads, boundary wall, external electrification, footpaths and

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landscaping etc. SPGL stated that since 2005 price of cement, labour, petrol, oil and lubricants, bricks, steel, copper, aluminum etc has been increased therefore the construction of residential colony is US$ 4.0 Million. According to CPPA the amount of US$ 4.0 million in the Revised Petition as compared to previous tariff determination figure of US$ 1.8 million was 2.22 times higher as compared to previous cost.

7.2.1.2 The Authority considers that the cost requested by the petitioner needs to be examined on rational basis. The cost allowed in the original determination is adjusted for variation in WPI inflation from 148.5 in July 2006 to 207.8 in May 2008 during the 3 years period with respect to building materials as published by the Federal Bureau of Statistics. After incorporating WPI adjustment the cost of US$ 1.8 million originally allowed works out as US$ 2.519 million. After providing for infrastructure cost, the Authority has assessed US$ 3 million as cost for residential colony.

7.2.2 Access Road

7.2.2.1 The petitioner requested an amount of US$ 0.5 million on account of access road. The Authority considers that the requested amount is reasonable therefore decides to allow as such.

7.2.3 Water Supply/Tube-Wells

7.2.4.1 The petitioner requested an amount of US$ 0.653 million on account of water supply/tubewells. The requested amount being reasonable and comparable with the cost allowed in other cases is allowed for water supply/tube-wells.

7.2.4 Gas Transmission Facility

7.2.4.1 SPGL submitted that the Company is required to construct, own and operate the 16-KM Gas Transmission Facility from Mari Gas Field's Gathering Station to the Company's Power Complex. In order to do so the Company "Right of Way" with a width of 15 meters for the entire 16-KM length of line, aggregates to approximately 59 acres of land. The estimated cost of Right of Way is US$ 0.2 Million. In addition to the acquisition of Right of Way, the revised scope of work for the Gas Transmission Facility as per the provisions of the GSA will include design, engineering, procurement and construction of a 12 Inch diameter, spiral welded pipeline of approximately 16-KM length with all accessories such as pig receiver/launcher, valve,

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flanges, coating material, cathodic protection, corrosion inhibiting system with a back up Gas Metering Station including a gas chromatograph. The Cost for this revised scope for Gas Transmission Facility is estimated at US$ 5.1 Million excluding Right of Way cost. SPGL requested that cost of US$ 5.3 million for Gas transportation.

7.2.4.2 CPPA did not agree to the cost of gas transmission pipeline as requested by the petitioner. According to CPPA the cost of 16 km Gas Pipeline (12" dia) including Right of Way of US$ 0.2 Million should be approximately US$ 3.2 Million as against US$ 5.3 Million claimed by the petitioner, which is higher by 1.66 times. The CPPA also refer the case of Foundation Power Company in which NEPRA allowed Gas Pipeline Cost as US$ 6.4 million having 14.67 KM long Pipeline with a dia of 20" to be laid form Mari Gas Field to the Power plant located in the same vicinity.

7.2.4.3 In response to the CPPA's comments, petitioner stated that its price of US$ 5.3 million was based on the quotations received from Marathon who are also constructing the gas pipeline for FPDCL. According to the quotations the cost of pipeline and related works and metering station/gas chromatograph was Rs. 318 million. The petitioner further stated that the pipe price was net of taxes and ex-factory which was subject to further increases subsequent to the announcement of budget for FY 2008-09.

7.2.4.4 Based on the evidence and justification given by the petitioner and comparing with the cost allowed in the case of Foundation Power Company, the Authority considers that the cost of gas transmission line of US$ 5.3 million as requested by the petitioner is reasonable therefore decides to allow as such.

7.2.5 Evaporation Pond

7.2.5.1 SPGL submitted that Company was required to change the originally selected location for the Project due to not only security reasons but also in light of issue of proximity of the water sources required for the operation of the Plant. The new site for the Plant, which has been purchased in the same area, is located near the existing facilities of the Gas Supplier and Engro Fertilizer and is in relative proximity of water sources of the requisite quality and quantity.

7.2.5.2 SPGL stated that its new site is located in the vicinity of irrigation canals, the treated waste water from the plant cannot be discharged into this system. Therefore, the Company proposed that evaporation ponds be constructed at the Site for the discharge

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of treated waste water, where it will be left for further treatment and evaporation and the residual organic sludge, if any, shall be used as fertilizer for the horticulture. The Project Cost associated with the construction of these evaporation ponds is estimated at US$ 0.8 million.

7.2.5.3 The petitioner's request is not supported with the proper documentary evidence. The Authority considers that in this regard the petitioner should provide certificates from the Sindh Irrigation Department and Environment Protection Agency. The Authority however on the basis of analysis cost of the civil works in the preceding paragraphs has assessed US$ 0.5 million as cost of evaporation.

8 Project Development Costs

8.1 SPGL requested US$ 3.78 million on account of feasibility study/conceptual report, sponsors expenses till financial close, project management/independent engineer and legal/financial advisory/regulatory costs.

8.2 SPGL requested cost is reasonable and comparable with the costs allowed by the Authority on this account to other projects therefore the Authority decides to allow US$ 3.78 million on this account.

9. Pre-Operating Costs

9.1 SPGL requested US$ 4.72 million on account of land/expenses, fuel for test first fill of lube, administrative cost during construction, insurance and mobilization advance for O&M.

9.2 The information provided by the petitioner supported the abovementioned costs as reasonable except first fill of lube and fuel cost for testing. The cost requested on account of first fill of lube is the responsibility of EPC contractor and is therefore not allowed separately.

9.3 According to the petitioner in the original tariff petition US$ 50,000 were included as fuel cost for testing. However, under the negotiated PPA, the power purchaser is only obliged to pay the fuel component of energy price for power generated during testing and commissioning after synchronization of the plant. All fuel cost associated with testing and commissioning prior to synchronization of the complex including the Take or Pay Quantity charges under GSA are to be borne by the company. The

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company estimated that the total cost of the fuel for testing and commissioning prior to synchronization will amount to US$ 500,000 and requested to allow the same.

9.4 CPPA contested with the petitioner request for allowing US$ 500,000 for pre commissioning test cost. According to CPPA, pursuant to the Star Power Tariff determination by NEPRA the Complex is a single fuel (i.e low Btu Gas) based Power Plant. Resultantly the Company will be paid for Fuel Cost Component during testing of the Complex for each unit of energy supplied to the system. The logic and the requirement of the Complex testing beyond provision of the PPA are not justified. An amount of US$ 0.05 Million was approved by NEPRA for fuel to be used during commissioning. Now the Company has claimed and requested to enhance the same to 10 times higher to originally allow by NERPA amounting to US$ 0.5 Million.

9.5 Having considered the petitioner request and CPPA's comments and rapid increase in fuel prices, the cost for fuel for test allowed in the original determination is being assessed and allowed as US$ 0.15 million as against requested amount of US$ 0.5 million.

9.6 As regards the insurance cost, the exact amount payable by petitioner cannot be established at this point of time therefore for the purpose of calculation of tariff; the insurance cost requested by the petitioner is accepted by the Authority subject to adjustment at the time of COD based upon the documentary evidence provided by the petitioner. The adjustment on this account is expected to be up to maximum of 1.35% of EPC price. An overall amount of US$ 4.27 million on account of Pre-Operating costs is therefore allowed.

10. FINANCING FEES AND CHARGES

10.1 SPGL requested an amount of US$ 1.782 million on account of Financing Fees and Charges. SPGL submitted that due to the increase in EPC and Non-EPC Costs due to the reasons explained under respective heading, the estimates of arrangement fee, other expense of arrangement, L/C charges, L/C related charges, commitment fee and registration fee have gone up in the same proportion. The Petitioner requests for a revision under this head as well. Based upon the revised CAPEX this cost has been assessed as US$ 1.654 million subject to adjustment on actual basis at COD up to maximum of 3% of the borrowing.

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11. OTHER FEES AND CHARGES

11.1 SPGL submitted that in the original tariff petition, the cost of the PPIB's legal counsel was not included. However, PPIB included cost of US$ 100,000 as fee for their legal counsel in the Letter of Support. In view of the aforesaid, additional costs incurred by the Company due to the delays encountered by the Project, the Company requests the Authority for an increase of US$ 130,000 in Project Costs related to legal and financial advisory. The Authority, based upon the revised CAPEX allows assessed US$ 1.446 million on account of other fees and charges to be adjusted at the time of COD subject to provision of detailed breakup and documentary evidence. The fees and charges pertaining to the financing arrangement of the project shall be considered as part of financing fee and charges while applying the cap of 3% for financing fee and charges.

12. CUSTOM DUTIES & SPECIAL FEDERAL EXCISE DUTY

12.1 SPGL submitted that Original Tariff Application was based on the assumption that no Custom Duty is payable on the import of Plant/Equipment for setting up an IPP. The determination by the Authority was made on the same basis. However, subsequent to the Earlier Tariff Ruling, the import of Plant/Equipment for setting up a power plant now attracts a concessionary customs duty of 5% of the plant/equipment value. Thereafter the payment of custom duty at actual at the prevalent concessionary rates was provided as a part of Project Costs in all subsequent determinations. The Company requested the inclusion of payment of custom duty on the same basis in the revision of tariff. For calculation purposes 80% of the plant and equipment cost is assumed to be imported.

12.2 The Company, like all other IPPs under the Power Policy 2002, assume a maximum of 5% of the equipment cost for the purposes of customs duties. The Company learnt that at the time of import it may be required to pay Customs Duties in excess of the aforesaid 5% on account of certain equipment being treated by the Customs Authorities as the one which is "locally manufactured". SPGL submitted that Authority is well aware of the nature of the EPCC arrangement in which the EPC contractors do not warranty the performance of a power plant where its certain components are purchased from sources other than the EPC contractor. In light thereof, SPGL requested the Authority to include a statement in the tariff ruling that any import taxes/ duties in excess of the assumed 5% would be a pass-through item to the Power Purchaser.

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12.3 SPGL submitted that in 2007, Special Federal Excise Duty (SFED) at 1% of the total value of imports has been levied by the Government of Pakistan. There is a possibility that the Plant/Equipment to be imported for the Complex would attract additional 1% SFED on top of the 5% Custom Duty as requested. The Company requests the Authority that the additional 1% SFED, if payable, along with the 5% custom duty on the value of import of plant/equipment be considered a pass through item.

12.4 The Authority in other similar cases allowed 5% custom duties with the provision of adjustment as per actual at COD. Accordingly after taking into account the additional levy of 1% SFED assuming 80% import of equipment the amount of custom duties and taxes in the instant case has been worked out as US$ 5.04 million to be adjusted at the time of COD as per the actual.

13. Interest During Construction (IDC)

13.1 SPGL requested an amount of US$ 23.329 million as interest during construction on the basis of proposed disbursement of CAPEX of US$ 169.72 million.

13.2 Based on the assessed CAPEX of US$ 154.470 million and proposed disbursement plan, the IDC is being allowed as US$ 23.207 million to be adjusted at the time of COD as per actual loan disbursement.

14 CAPACITY CHARGE

14.1 Fixed O&M Costs

14.1.1 SPGL submitted that in the Earlier Tariff Ruling the Authority allowed a fixed O&M Costs of Rs. 120/kW/Month to the Company where fifty percent (50%) of the allowed Costs were indexed to local WPI at a base rate of WPI index of 111.37 and the balance fifty percent (50%) was indexed to changes in exchange rate parity of US$/Pak Rs. at 1US$ = 60 Pak Rs. The petitioner requested the Authority that the base Fixed O&M Tariff reflected the above indexation along with the US CPI indexation for the Foreign Exchange Component of the Fixed O&M Costs as allowed to other IPP's under the policy guidelines issued subsequent to the Earlier Tariff Ruling, and hence there has been no change, effectively, in the Fixed O&M Costs. The Fixed O&M Costs included in the tariff table are based on current indices of WPI/ US CPI and US$/Pak Rs. parity applied to original determined Costs.

14.1.2 The CPPA submitted that the petitioner asked for Ps. 34.2 per kWh as Fixed O&M

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cost in its revised Petition whereas it was allowed Ps.16. per kWh by NEPRA as Fixed O&M in its tariff determination. The increase in fixed O&M cost is on much higher side.

14.1.3 Petitioner in support of its claim also provided the preliminary agreement of O&M contract according to which the fixed O&M foreign currency component is Rs. 65.974/kW/month and fixed O&M local component of Rs. 74.654/kW/Month. The working of fixed O&M foreign component is based on exchange rate of Rs. 67.7 per US$ and US CPI (urban consumers March 2008) 213.528. The working of local fixed O&M component is based on WPI (March 2008) of 132.10.

14.1.4 The Authority has examined the petitioner's request on the basis of documentary evidence provided by the petitioner and CPPA's comments. The Authority considers that the requested fixed O&M is reasonable and is comparable with the adjusted O&M cost (for variation in US$ parity, US CPI, WPI etc) allowed in the original determination of June 2005. The Authority has therefore decided to allow fixed O&M foreign currency component as Rs. 0.0904/kW/hr and fixed O&M local component as Rs. 0.1023/kW/hr. The overall fixed O&M component works out as Rs. 0.1926/kW/hr. In future the foreign component will be adjusted on account of variation in Rs./US$ parity and US CPI and local on account of WPI variation according to the following formula:

$F\ O\&M_{(LREV)}$ = Rs. 0.1023/kW/Hour * $WPI_{(REV)}$ /132.1

$F\ O\&M_{(FREV)}$ = Rs.0. 0904/kW/Hour * US $CPI_{(REV)}$/213.528* $ER_{(REV)}$/67.7

Where:

$F\ O\&M_{(LREV)}$	=	the revised applicable Fixed O&M Local Component of the Capacity Charge indexed with WPI
$F\ O\&M_{(FREV)}$	=	the revised applicable Fixed O&M Foreign Component of the Capacity Charge indexed with US CPI and Exchange Rate variations
$WPI_{(REV)}$	=	the revised wholesale Price Index (manufactures)
$WPI_{(REF)}$	=	132.1 wholesale price index (manufactures) of March 2008 notified by Federal Bureau of Statistics
US $CPI_{(REV))}$	=	the revised US CPI
US $CPI_{(REF)}$	=	213.528 US CPI for the month of March 2008 as notified by the US Bureau of Labor Statistics

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$ER_{(REV)}$ = the Revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan

Note: The reference numbers indicated above shall be replaced by the revised numbers after incorporating the required adjustments at COD.

14.2 INSURANCE

14.2.1 The petitioner has requested insurance @ 1.35% of EPC cost. The request being in line with the cases already determined by the Authority therefore is accepted. Based upon the adjusted EPC Rs. 0.1185 per kW per hour has been worked out as cost of insurance and is allowed to SPGL.

14.3 WORKING CAPITAL

14.3.1 SPGL submitted that earlier petition was filed on an assumption that the Company would not be required to provide any letter of credit to the Gas Supplier as security for the Company's payment obligations. Further, no working capital was allowed to the Company for the initial inventory for spare parts or its costs as part of Project Cost. Pursuant to the finalized GSA, the Company must provide the Gas Supplier with a Security Deposit equivalent to four (4) month supply of Gas in the form of a Bank Guarantee (which at the current rate would amount to around US$ 11 Million). Further the Company is also required to import and keep an initial inventory of spare parts amounting to US$ 6 Million. It is therefore submitted that the Earlier Tariff Ruling be revised to enable the Company to absorb the costs of:

(a) The amount of bank commission payable in respect of the Bank Guarantee for the Security Deposit (US$ 11.0 Million X 1.6% US$ 0.176 Million) and indexed to changes in Gas Price.

(b) Collaterals (other than the Project assets) to be provided by the Company to secure such L/C and/or Bank Guarantee.

(c) Carrying Costs of Inventory of Spare Parts (US$ 6.0 Million X 12 % (KIBOR plus 2.0%*50%) = US$ 0.36 Million) and indexed to changes in KIBOR and US CPI.

14.3.2 SPGL's request for allowing cost of bank commission in respect of the bank guarantee for the security deposits being legitimate is allowed subject to adjustment at the time of COD in accordance with the terms agreed with the bank. This will also be subject to one time adjustment due to change in gas price at the time of COD.

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14.3.3 The Authority considers that SPGL's request for allowing carrying cost of maintaining inventory of spares is not duly supported with the documentary evidence. In Authority's opinion the cost of spare parts assumed by the petitioner is not reasonable and therefore cannot be accepted as such. The exact amount of spare parts inventory cannot be assessed at this point of time without relevant documentary evidence i.e. details of the parts required to be maintained as inventory. The Authority considers that a provision of working capital requirement for spare parts inventory to the extent of 2% of off-shore EPC for the purpose of tariff calculation would be a fair assessment. Accordingly cost of working capital pertaining to spare parts inventory has been assessed as 0.0297/kW/hr. The actual amount of inventory will be established at the time of COD based on the relevant documentary evidence i.e. EPC contracts and O&M contracts, detail scope of spare parts along with item wise costs duly supported with import documents etc. The carrying cost determined at the time of COD will be adjusted for variation in KIBOR after COD.

14.4 Return on Equity (ROE)

14.4.1 The petitioner requested Rs. 0.5245 per kW per hour as Return on Equity of US$ 49.0963 million to achieve net 15% IRR. After making necessary adjustment the SPGL's equity has been assessed as US$ 45.194 million. Based upon the revised equity of SPGL, ROE works out as Rs. 0.4340 per kW per hour.

14.4.2 The petitioner requested to allow quarterly adjustment on account of US$/PKR exchange rate based on the revised TT&OD selling rate of US$ notified by the National Bank of Pakistan (NBP). SPGL's request is in line with the decision of the Economic Coordination Committee (ECC) therefore is allowed subject to adjustment on account of exchange rate variation according to the following formula;

$$ROE_{(Rev)} = ROE_{(Ref)} * ER_{(Rev)} / ER_{(Ref)}$$

$ROE_{(Rev)}$	=	The revised ROE component of the Capacity Purchase Price,
$ROE_{(Ref)}$	=	The reference ROE component of the Capacity Purchase Price.
$ER_{(Rev)}$	=	The revised TT & OD selling rate of US$ as notified by the National Bank of Pakistan
$ER_{(Ref)}$	=	The reference exchange rate of PKR 67.7 of April 2008 = 1 US$

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14.5 Return on Equity During Construction (ROE DC)

14.5.1 On the basis of 15% IRR, ROEDC has been worked out as Rs. 0.0517 per kW per hour subject to adjustment at the time of COD on account of actual drawdown of equity. ROEDC component of tariff will be adjusted subject to exchange rate variation according to the following formula;

$ROEDC_{(Rev)} = ROEDC_{(Ref)} \times ER_{(Rev)} / ER_{(Ref)}$

$ROEDC_{(Rev)}$	=	The revised ROEDC component of the Capacity Purchase Price,
$ROEDC_{(Ref)}$	=	The Reference ROEDC component of the Capacity Purchase Price.
$ER_{(Rev)}$	=	The revised TT & OD selling rate of US$ as notified by the National Bank of Pakistan
$ER_{(Ref)}$	=	The reference exchange rate of PKR 67.7 of April 2008 = 1 US$

14.6 Withholding Tax

14.6.1 The petitioner submitted that Withholding tax on dividends (currently at 7.5%) as required to be deducted under the Income Tax Ordinance, 2001 or any other law for the time being in force at the time of such payment is considered as pass-through. The petitioner requested Rs. 0.066 per kW per hour. Based on the revised equity the amount of withholding tax in the instant case has been assessed as Rs. 0.0364/kW/hr which shall be adjusted on account of changes in equity according to the following formula;

$\text{Withholding Tax Payable} = [\{15\% * (E_{(Ref)} - E_{(Red)})\} + ROEDC_{(Ref)}] * 7.5\% * ER_{(Rev)} / 67.7$

Where:

$E_{(Ref)}$	=	Adjusted Reference Equity at COD
$E_{(Red)}$	=	Equity Redeemed
$ROEDC_{(Ref)}$	=	Reference Return on Equity During Construction
$ER_{(Rev)}$	=	The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan

14.7 Debt Servicing

14.7.1 SPGL submitted that Earlier Tariff Ruling was based on a Debt/Equity ratio of 78:22.

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However, in most of the Projects determined subsequently this ratio is 75:25. The local Lenders financing the IPPs, that have achieved Financial Closure, require this ratio. The Company is arranging the Project Financing from the local banks with Habib Bank as the Lead Arranger. The Company requests that they may be allowed the alteration of Debt/Equity ratio to 75:25 in their request for revision of Tariff.

14.7.2 The Authority in the instant case has determined debt amount of US$ 135.582 million which is 75% of the project cost. Based on the interest rate of 13.00% (3 – month KIBOR i.e. 10.00% + 300 basis points) the Authority has assessed the debt service component of Rs. 1.5159 per kW per hour subject to adjustment for variation in KIBOR on quarterly basis according to the following formula;

$$\Delta I = P_{(REV)} * (KIBOR_{(REV)} - 10.00\%) / 4$$

Where:

ΔI	=	the variation in interest charges applicable corresponding to variation in quarterly KIBOR. ΔI can be positive or negative depending upon whether $KIBOR_{(REV)}$ > or < 10.00%. The interest payment obligation will be enhanced or reduced to the extent of ΔI for each quarter under adjustment applicable on quarterly
$P_{(REV)}$	=	is the outstanding principal (as indicated in the attached debt service schedule to this order) on a quarterly basis on the relevant quarterly calculations date. Period 1 shall commence on the date on which the 1st installment is due after availing the grace period.

15. ENERGY CHARGE

15.1 Fuel Cost

15.1.1 The petitioner has requested fuel cost component of Rs. 2.018 per kWh based on low BTU Mari Gas. The calculation has been based on the following reference parameters:

Plant Load Factor	100%
Net Plant Heat Rate (BTU/kWh)	7,245
Reference HHV Gas Price (MMBTU/kWh)	251.55
HHV-LHV Factor	1.1075530

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Reference LHV Gas Price (MMBT/kWh)	278.60
Fuel Price (PKR/kWh)	2.018

15.1.2 The petitioner in support of its working of fuel cost component submitted relevant data provided by the EPC contractor. The Authority observed that the efficiency based on which the fuel cost component has been worked out is about 1% less than the efficiency determined in the original determination of June 2005. The Authority is constrained to adopt the reference numbers as indicated by the EPC contractor for calculation of fuel cost component. The Authority however considers that the heat rate test has to be carried out at the time of COD along with IDC test in order to arrive at exact heat rate. The fuel cost component will be adjusted in case the efficiency is established higher than the efficiency of 47.1% indicated by the EPC contractor. Adjustment in the heat rate shall also be made in case the net capacity is established higher than the 124.5 MW as indicated by the EPC contractor.

15.1.3 Based upon the reference parameters and taking the latest gas prices notified by Oil and Gas Regulatory Authority (OGRA), the fuel cost component in the instant case has been worked out as Rs. 2.6443 per kWh as against 2.0185/kWh. In future fuel cost shall be revised according to the following formula:

$FC_{(Rev)}$ = Rs. 2.6443 per kWh * $FP_{(Rev)}$/Rs.364.9830 per MMBTUs

Where:

$FC_{(Rev)}$ = Revised fuel cost component of Variable Charge

$FP_{(Rev)}$ = The new fuel price as notified by the relevant Authority per MMBTUs of fuel adjusted for LHV-HHV factor.

16. VARIABLE O&M COSTS

16.1 SPGL stated that earlier tariff petition assumed the operation and maintenance requirements provided under the regime of 1994 Power Policy in the absence of finalized PPA. The Variable O&M Cost allowed to the Company in the Earlier Tariff Ruling were Rs. 0.1224/kWh indexed to variation in US$/Pak Rs. parity. The Company assumes that the US CPI indexation allowed subsequently under the policy guidelines shall also be available to the determined Costs. Therefore, if the US CPI indexation and exchange rate variation is applied to the determined Costs on the base rate of December 2004, used in the Earlier Tariff Ruling, the Variable O&M Costs at current US CPI and exchange rate will work out to Rs. 0.1559/kWh.

16.2 SPGL submitted that the operation and maintenance under the 2002 Power Policy

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PPA is materially different from the aforesaid assumed regime. The new regime requires higher availability, more and frequent reporting (including availability declarations), and places a greater share of risk on the Operator than that envisaged under the 1994 PPA. Based on these parameters and the O&M offers received, the Company requests the Authority for a revision of the variable O&M Component of the Earlier Tariff Ruling. The Company requests an addition of Rs. 0.010/kWh to cater for the requirements imposed on the O&M Operator by the PPA of the 2002 Power Policy, which was not available to the Company neither at the time of filing of the original tariff petition nor when the Earlier Tariff Ruling was issued.

16.3 In addition to the aforementioned, the Company would operate and maintain the Gas Transmission Facilities under the definition of the Complex. These Costs in relation to the Gas Transmission Facility were not included in Original Tariff Ruling. Such additional Costs include;

(a) Continuous injection of additives in the Gas Line to avoid corrosion;
(b) HSD costs to ensure availability of the corrosion protection layer; and
(c) Cost of scrapper pigs.

16.4 The examination of the information revealed that aforementioned costs are around US$ 290,000 per annum and translate to approximately Rs. 0.03/kWh at current indexation and exchange rate. The Company requested to revise its variable O&M to Rs. 0.1959/kWh after incorporating the impact of indexation, change of regime and the O&M of Gas Transmission Facility.

16.5 According to the CPPA, the variable O&M costs Ps. 19.6 per kWh claimed by the petitioner is on the higher side as compared with Foundation Power Company where variable O&M cost of Ps. 17.46 per kWh was allowed by NEPRA. Furthermore reasons of including HSD costs to ensure availability, corrosion protection layer of Gas pipeline, needed to be clarified by the Company.

16.6 The petitioner in support of its request provided the Preliminary O&M Agreement, according to which the variable O&M fee to be paid to the O&M contractor is Rs. 0.1559/kWh. The Authority considers that the petitioner requested variable O&M is almost equal to the previously determined variable O&M after incorporating the relevant adjustment of US CPI and exchange rate variation. The Authority has therefore decided to allow Rs. 0.1559/kWh on account of variable O&M fee payable to the O&M contractor. The Authority is however not convinced for allowing Rs.

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0.010/kWh as a premium for regime change. The Authority considers that petitioner's request for allowing the cost of maintaining gas transmission facility is justified therefore has decided to allow Rs. 0.030/kWh on this account.

16.7 On the basis of aforementioned the Authority has determined variable O&M cost of Rs. 0.1859/kWh to be adjusted according to the following formula:

V O&M = Rs. 0.1859/kWh / 67.7* ER $_{(Rev)}$ / 213.528 * US CPI $_{(Rev)}$

Where:

V O&M $_{(REV)}$	=	The revised applicable variable O&M component of the capacity charge.
ER $_{(REf)}$	=	Reference TT & OD selling rate of US dollar of Rs. 67.7 per US$ as notified by the National Bank of Pakistan
US CPI $_{(REV)}$	=	The revised US CPI
US CPI $_{(REF)}$	=	Reference US CPI (All Urban Consumers) of 213.528 for March 2008 as notified by the US Bureau of Labor Statistics
ER $_{(REV)}$	=	Revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan

17. TIMELINE OF THE PROJECT

17.1 According to SPGL its expected COD will be about 27 months from the financial close. The Authority considers that in order to pass on the benefit to the consumers of cheaper electricity generated through dedicated low Btu gas, the project must achieve Financial Closing and go into the construction phase without further delay. The delay in implementation of the project since the Authority's earlier determination of June 2005 as well as the increase in capital cost of the project in the instant petition since then is substantial. In ordinate delays in implementations of tariff determination and the associated cost increases result not only in delay in procurement of essentially required generating capacity to meet shortages in supply but also lead to undue increase in tariff. In order to avoid such undesirable outcomes, it will be prudent to discourage delay in project implementation when tariff for generating company has already been determined by the Authority.

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18. INDEXATION

18.1 According to SPGL the Tariff should be indexed:

(a) in accordance with the existing policies of the GOP; and

(b) in accordance with corresponding benefits and terms that have been made available by NEPRA to other IPPs thereafter, on a non-discriminatory basis.

18.2 The Company submits that, in its view, the basis for such indexations are as follows:

Capacity Charge	Application Indexation
Fixed O&M Foreign	US$/PKR Parity & US CPI
Fixed O&M Local	WPI (Manufactures)
Cost of Working Capital	KIBOR plus changes in Gas Prices
Insurance	US$/PKR Parity & US CPI
Debt Service	KIBOR
ROE	US$/PKR Parity
ROEDC	US$/PKR Parity
Energy Charge	
Fuel Cost	Gas Price
Variable O&M Foreign	US$/PKR Parity & US CPI

18.3 All the indexations shall be available according to the decisions made in the preceding paragraphs of this determination.

19 ONE TIME ADJUSTEMENTS

19.1 SPGL stated that Company seeks confirmation from the Authority that the Capital Cost of the Project be subject to one time adjustment at the time of COD for the following items, thus resulting in a change in ROE, ROEDC, Debt Servicing and Equity Redemption:

(a) Project Capital Cost for actual exchange rate prevailing on the date of

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(b) Change in base rate (KIBOR) based on actual interest payment during construction;
(c) Actual utilization of debt and equity;
(d) Arrangement Fee subject to maximum of 1.20% of borrowing; and
(e) Custom Duties and Taxes including the Federal Excise Duty on imports at actual.

19.2 The one time adjustment will be made by the Authority according to the decisions made in the preceding paragraphs.

20. GAS FLARING

20.1 SPGL stated that low BTU Gas, being the primary fuel for the Project, is to be supplied through a dedicated pipeline exclusively for the Company. The length of the gas transmission line for the Complex is such that it cannot absorb the system or Complex load rejections and will therefore necessarily result in flaring of gas until the gas wells are shut-down safely. As the gas pipeline is for a single user, it is not possible to divert gas within a network to other users. Such flaring of gas adds additional financial burden on the Company as the Gas Supplier will bill this flared gas quantity to the Company pursuant to the GSA. The technical limits of the gas reservoir envisage at least 20-30 minutes for shut-down in accordance with internationally accepted petroleum and safety standards and gas will continue to be flared during this period of time. Similarly, grid system disturbances, sudden load fluctuations and internal or external faults would result in the flaring of gas for a longer period. The cost of such flared gas could vary, depending upon system disturbances.

20.2 SPGL submitted that Earlier Tariff Ruling is silent on the issue of allowing the Company to recover the cost of flared gas in the circumstances described above. It is submitted that the Earlier Tariff Ruling be amended to allow the Company to claim the amount of this flared gas on the basis of invoices to be received from the Gas Supplier.

20.3 The petitioner has not provided any working in support of its claim. The petitioner's concern cannot be addressed without proper working and evidence. The Authority considers that the petitioner may evolve a workable and verifiable mechanism for

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allowing adjustment for the cost of gas flared as a result of aforementioned reasons based on international benchmark and international practices. The mechanism so evolve may be submitted for consideration of the Authority.

21. Summary of the Decisions

21.1 The generation tariff has been assessed on the basis of following;

Plant Capacity (Gross ISO) MW	133 MW
Plant Capacity (Net at reference site conditions) MW	124.5
Plant Availability	90%
EPC Price Offshore	US$ 105 million
EPC Price Onshore	US$ 26.427 million
Non-EPC Cost	US$ 18.003 million
Custom Duties & Taxes	US$ 5.040 million
Financing Fees	US$ 1.654 million
Other Fees & Charges	US$ 1.446 million
Interest During Construction	US$ 23.207 million
Reference PKR/US$ exchange rate	1US$ = 67.7
Plant Load Factor	100%
Net Plant Heat Rate (BTU/kWh)	7,245
Reference HHV Gas Price (MMBT/kWh)	329.54
Reference LHV Gas Price (MMBT/kWh)	364.9830
HHV-LHV Factor	1.1075530
Reference Thermal Efficiency	47.1%
Reference KIBOR (3-monthly)	10.00%
IRR	15%

REFERENCE SPECIFIED TARIFF

Tariff Components	Year 1 to 10	Year 11 to 25	Indexation
Capacity Charge PKR/kW/Hour)			
O&M Foreign	0.0904	0.0904	US$ /PKR & US CPI
O&M Local	0.1023	0.1023	WPI
Cost of Working Capital	0.0297	0.0297	KIBOR
Insurance	0.1185	0. 1185	US$ /PKR
Debt Service – Local	1.5159	-	KIBOR

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Return on Equity	0.4340	0.4340	US$ /PKR
ROE during Construction	0.0517	0.0517	US$ /PKR
Total Capacity Charge	**2.3424**	**0.8265**	
Energy Charge on Operation on Gas Rs./kWh			
Fuel Cost Component	2.6443	2.6443	Fuel Price
Variable O&M	0.1859	0.1859	US$ /PKR & US CPI

Note: i) Component wise tariff for operation on gas is indicated at Annex-I & debt servicing schedule is attached as Annex-II.

21.2 In view of the above the Authority hereby approves the tariff of Star Power Generation Limited (SPGL) as set out in the following order;

ORDER

Pursuant to Rule 6 of the NEPRA Licensing (Generation) Rules 2000 Star Power Generation Limited (SPGL) is allowed to charge, subject to adjustment of Capacity Purchase Price on account of net dependable capacity and net thermal efficiency as determined by test jointly carried out by Central Power Purchasing Agency (CPPA) and the petitioner, the following is approved as specified tariff for SPGL for delivery of electricity to CPPA of NTDC for procurement on behalf of Ex-WAPDA Distribution Companies:

REFERENCE SPECIFIED TARIFF

Tariff Components	Year 1 to 10	Year 11 to 25	Indexation
Capacity Charge PKR/kW/Hour)			
O&M Foreign	0.0904	0.0904	US$ /PKR & US CPI
O&M Local	0.1023	0.1023	WPI
Cost of Working Capital	0.0297	0.0297	KIBOR
Insurance	0.1185	0. 1185	US$ /PKR
Debt Service – Local	1.5159	-	KIBOR
Return on Equity	0.4340	0.4340	US$ /PKR
ROE during Construction	0.0517	0.0517	US$ /PKR
Total Capacity Charge	**2.3424**	**0.8265**	

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Energy Charge on Operation on Gas Rs./kWh			
Fuel Cost Component	2.6443	2.6443	Fuel Price
Variable O&M	0.1859	0.1859	US$ /PKR & US CPI

Note:

i) Component wise tariff is indicated at Annex-I

ii) Debt Servicing Schedule is attached as Annex-II

The following adjustments /indexations shall be applicable to reference tariff;

I. <u>Adjustment in EPC Cost (One Time)</u>

The Authority has assessed EPC cost as US$ 131.427 million out of which US$ 105 million is offshore and US$ 26.427 million is onshore to be incurred in Pak Rupees. Since the exact timing of payment to EPC contractor is not known at this point of time therefore an adjustment for foreign currency fluctuation for the portion paid in the relevant foreign currency will be made. In this regard, the sponsor will be required to provide all the necessary relevant details along with documentary evidence. Based upon such information the relevant currency of EPC cost components shall be established and applied to the corresponding EPC cost components. The relevant tariff components i.e. Insurance, ROE, ROEDC, Principal Repayment and Interest Charges shall be adjusted only for currency fluctuation against the reference parity values.

II. <u>Adjustment due to Variation in Net Capacity and Net Thermal Efficiency</u>

The reference tariff has been determined on the basis of minimum net capacity of 124.5 MW at delivery point, at following reference site conditions;

Ambient Temperature	26.9 °C
RH	40
Inlet Pressure Loss	126.6 mmH_2O
Exhaust Pressure Loss	350 mmH_2O
Gross Output	128.455 MW
Gross Heat Rate (LHV)	7022.88 MMBTU
Aux. Power Consumption	3.955
Net Output	124.5 MW
Net Plant Heat Rate (BTU/kWh)	7,245.56

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All the relevant tariff components shall be adjusted at the time of COD based upon the Initial Dependable Capacity (IDC) to be carried out for determination of contracted capacity. Adjustment shall not be made if IDC is established less than net capacity of 124.5 MW at reference site conditions. The adjustments shall be made according to the following formula:

$$CC_{(Adj.)} = CC_{(Ref)} \times 124.5MW / NC_{(IDC)}$$

Note: Above formula shall be applicable to all the individual relevant components of Capacity Charges.

Where;

$CC_{(Adj)}$ = Adjusted relevant Capacity Charge components of tariff

$CC_{(Ref)}$ = Reference relevant Capacity Charge components of tariff

$NC_{(IDC)}$ = Net Capacity at reference site conditions established at the time of IDC test

Note:- Reference capacity charge components of Tariff i.e. Revised O&M Foreign, Revised O&M Local, Insurance, Debt Servicing, Return on Equity and ROEDC to be adjusted as per IDC test.

III. Adjustment due to variation in Net Efficiency

The reference tariff has been determined on the basis of minimum net efficiency of 47.1%. Based upon the heat rate test of the complex to be carried out jointly by Central Power Purchasing Agency (CPPA) and the Petitioner at the time of COD, the reference fuel cost component of tariff shall be adjusted in case the net efficiency is established higher than 47.1%. The adjustment shall be made according to the following formula;

$FC_{(Adj)}$ = Rs. 2.6443 per kWh / 7245.56 x $HR_{(T)}/NC_{(IDC)}$ x 124.5

Where;

$FC_{(Adj)}$ = Adjusted net efficiency of the complex at COD

$HR_{(T)}$ = Net Efficiency in Btu per kWh established after Heat Rate Test at the time of COD

$NC_{(IDC)}$ = Net Capacity established at the time of IDC test at COD

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IV. Cost of Working Capital

Cost of working capital pertaining to bank commission in respect of the bank guarantee for the security deposits Rs. 0.0141/kW/hr will be adjusted (one time) at the time of COD for variation in gas price as against the reference fuel gas price.

The inventory level of spares to be maintained by the IPP will be established at the time of COD and the cost of working capital component Rs. 0.0156/kW/hr will be revised accordingly. The overall adjusted cost of working capital established at the time of COD will be adjusted only for KIBOR variation thereafter.

V. Adjustment in Insurance as per actual

The actual insurance cost for the minimum cover required under contractual obligations with the Power Purchaser, not exceeding 1.35% of the EPC cost, will be treated as pass-through. Insurance component of reference tariff shall be adjusted as per actual on yearly basis upon the production of authentic documentary evidence by SPGL according to the following formula;

$$Insurance_{(Adj.)} = AIC / P_{(Ref)} * P_{(Act)} / 67.7 * ER_{(Rev)}$$

Where;

- AIC = Adjusted Insurance Component (Rs. kW/hr) as per IDC Test
- $P_{(Ref)}$ = Premium subject to maximum of 1.35% of the adjusted EPC
- $P_{(Act)}$ = Actual Premium or 1.35% of the adjusted EPC whichever is lower
- $ER_{(Rev)}$ = The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan at Invoice date

VI. Adjustment Based on Actual Interest During Construction

Debt Service, ROE and ROEDC shall be adjusted on account of actual variation in drawdown and Interest During Construction with reference to the estimated figure of US$23.207 million.

VII. Adjustment due to Custom Duties & Taxes

Debt Service, Return on Equity and ROE during construction shall be adjusted on account of actual variation in custom duties & Taxes with reference to the estimated

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figure of US$ 5.040 million. The impact of withholding tax on local services is not known at this point of time. However, these will be adjusted along with other duties and taxes as per the actual on the provision of documentary evidence at COD.

VIII. Adjustment for variation in Dollar/Rupee parity

Relevant reference tariff components shall be adjusted at COD on account of variation in Dollar/Rupee parity.

IX. Adjustment of Withholding Tax

Withholding tax on dividend is o a pass-through item, which is allowed in accordance with the "Government Guidelines for determination of tariff for new IPPs". In a reference tariff table, withholding tax number is indicated as reference and CPPA (NTDC) 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 at the time payment i.e. hourly payment (Rs./kW/hour) spread over a 12 month according to the following formula:

$$\text{Withholding Tax Payable} = [\{15\% * (E_{(Ref)} - E_{(Red)})\} + ROEDC_{(Ref)}] * 7.5\% * ER_{(Rev)} / 67.7$$

Where:

$E_{(Ref)}$ = Adjusted Reference Equity at COD

$E_{(Red)}$ = Equity Redeemed

$ROEDC_{(Ref)}$ = Reference Return on Equity During Construction

$ER_{(Rev)}$ = The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan

In case Company does not declare a dividend in a particular year or only declares a partial dividend, then the difference in the withholding tax amount (between what is paid in that year and the total entitlement as per the Net Return on Equity) would be carried forward and accumulated so that the Company is able to recover the same in hourly payments spread over 12 months period as a pass through from the Power Purchaser in future on the basis of the total dividend pay out.

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X. Pass-Through Items

No provision for income tax, workers' profit participation fund and workers' welfare fund, any other tax, excise duty or other duty, levy, charge, surcharge or other governmental impositions, payable on the generation, sales has been accounted for in the tariff. If SPGL is obligated to pay any tax on the income purely generated from its operation i.e. Electricity Generation of power producer, the exact amount should be reimbursed by CPPA on production of original receipts. This payment may be considered as pass-through (as Rs./kW/hour) hourly payment spread over a 12 months period in addition to the capacity purchase price in the Reference Tariff. Furthermore, in such a scenario, SPGL may also submit to CPPA details of any tax shield savings and CPPA will deduct the amount of these savings from its payment to SPGL on account of taxation.

XI. Indexations:

The following indexation shall be applicable to the reference tariff as follows;

a) Indexation applicable to O&M

The Fixed O&M local component of Capacity Charge will be adjusted on account of Inflation (WPI) and Fixed O&M foreign component on account of variation in US CPI and dollar/Rupee exchange rate. Quarterly adjustment for local inflation, foreign inflation and exchange rate variation will be made on 1st July, 1st October, 1st January and 1st April based on the latest available information with respect to WPI notified by the Federal Bureau of Statistics (FBS), US CPI issued by US Bureau of Labor Statistics and revised TT & OD selling rate of US Dollar notified by the National Bank of Pakistan. The mode of indexation will be as under:

i) Fixed O&M

$F\ O\&M_{(LREV)} = Rs.\ 0.1023/kW/Hour * WPI_{(REV)}/132.1$

$F\ O\&M_{(FREV)} = Rs.0.0904/kW/Hour * US\ CPI_{(REV)}/213.528 * ER_{(REV)}/67.7$

Where:

$F\ O\&M_{(LREV)}$ = the revised applicable Fixed O&M Local Component of the Capacity Charge indexed with WPI

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$F\ O\&M_{(FREV)}$	=	the revised applicable Fixed O&M Foreign Component of the Capacity Charge indexed with US CPI and Exchange Rate variations
$WPI_{(REV)}$	=	the revised wholesale Price Index (manufactures)
$WPI_{(REF)}$	=	132.1 wholesale price index (manufactures) of March 2008 notified by Federal Bureau of Statistics
$US\ CPI_{(REV))}$	=	the revised US CPI
$US\ CPI_{(REF)}$	=	213.528 US CPI for the month of March 2008 as notified by the US Bureau of Labor Statistics
$ER_{(REV)}$	=	the Revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan

Note: The reference numbers indicated above shall be replaced by the revised numbers after incorporating the required adjustments at COD.

ii) <u>Variable O&M</u>

The formula for indexation of variable O&M component will be as under:

$V\ O\&M$ = Rs. 0.1859/kWh / 67.7* $ER_{(Rev)}$ / 213.528 * $US\ CPI_{(Rev)}$

Where:

$V\ O\&M_{(REV)}$	=	The revised applicable variable O&M component of the capacity charge.
$ER_{(REf)}$	=	Reference TT & OD selling rate of US dollar of Rs. 67.7 per US$ as notified by the National Bank of Pakistan
$US\ CPI_{(REV)}$	=	The revised US CPI
$US\ CPI_{(REF)}$	=	Reference US CPI (All Urban Consumers) of 213.528 for March 2008 as notified by the US Bureau of Labor Statistics
$ER_{(REV)}$	=	Revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan

Note: The reference Variable O&M indicated above shall be replaced with the revised number at COD after incorporating the required adjustment based upon the IDC Test.

iii) <u>Adjustment for KIBOR variation</u>

The interest part of fixed charge component will remain unchanged throughout the term except for the adjustment due to variations in interest rate as a result of variation in quarterly KIBOR according to the following formula;

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$\Delta I_{(L)}$ = $P_{(LREV)}$ * ($KIBOR_{(REV)}$ - 10.00%) / 4

Where:

$\Delta I_{(L)}$ = the variation in interest charges on local loan applicable corresponding to variation in quarterly KIBOR. Δ I can be positive or negative depending upon whether $KIBOR_{(REV)} >$ or $<$ 10.00%. The interest payment obligation will be enhanced or reduced to the extent of Δ I for each quarter under adjustment applicable on quarterly

$P_{(REV)}$ = is the outstanding principal (as indicated in the attached debt service schedule to this order) on a quarterly basis on the relevant quarterly calculations date. Period 1 shall commence on the date on which the 1st installment is due after availing the grace period.

iv) <u>Fuel Price Variation</u>

The Variable Charge Part of the tariff relating to fuel cost shall be adjusted on account of the fuel price variations as and when notified by the relevant authority, which in the instant case is the Oil & Gas Regulatory Authority (OGRA). In this regard, the variation in SPGL's allowed rate relating to fuel cost shall be revised according to the following formula:

$FC_{(Rev)}$ = $FC_{(Adj)}$ per kWh * $FP_{(Rev)}$ / Rs. 364.983 per MMBTU

Where:

$FC_{(Rev)}$ = The revised fuel cost component of Variable Charge on Mari low BTU gas.
$FP_{(Rev)}$ = The new price of gas as notified by the relevant Authority per MMBTU of fuel adjusted for LHV-HHV factor.
$FC_{(Adj)}$ = Adjusted fuel cost component subsequent to heat rate test at COD

Adjustment on account of local inflation, foreign inflation, foreign exchange variation, KIBOR variation and fuel price variation will be approved and announced by the Authority for immediate application within seven working days after receipt of SPGL's request for adjustment in accordance with the requisite indexation mechanism stipulated herein.

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For one time adjustment of relevant tariff components at COD according to the mechanism laid down in this order, SPGL shall submit the relevant documents to NEPRA within 30 days of COD for adjustment.

XII. Terms and Conditions of Tariff:

i) Capacity Charge Rs./kW/hour applicable to dependable capacity at the delivery point.

ii) The tariff is applicable for a period of 25 years commencing from the date of the Commercial Operation.

iii) Use of Low BTU Gas from Mari is allowed as single fuel for operation of the plant.

iv) All new equipment will be installed and the plant will be of standard configuration.

v) The plant availability shall be 90%.

vi) Dispatch criterion will be based on the Energy Charge.

vii) Auxiliary Load has been assumed to be approximately 3.955 MW.

viii) Scheduled Outage periods per annum shall be in accordance with the 2006 standardized PPA.

ix) NTDC will be responsible for constructing the interconnection to the grid.

x) All invoicing and payment terms are assumed to be in accordance with the 2006 standardized PPA.

xi) Tolerance in Dispatch shall be in accordance with 2006 standardized PPA.

xii) If there is any change in any assumption that may lead to change in the tariff shall be referred to NEPRA for approval.

xiii) 100% of debt has been assumed to be local provided however that in the event SPGL uses a mix of foreign and local loan, the future benefits of the lower interest rates shall be passed on to the Power Purchaser.

xiv) No corporate income tax and no minimum turnover tax have been assumed.

xv) Working capital has been financed by a separate Working Capital facility, and is not included in the project cost.

The above tariff and terms and conditions be incorporated in the Power Purchase Agreement between SPGL and CPPA.

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Star Power Generation Limited (SPGL)
Reference Tariff Schedule

Year	Energy Charge (PKR/kWh)			Capacity Charge (PKR/kW/Hr)										Capacity	Tariff	
	Fuel	Variable O&M	Total	Fixed O&M-Local	Fixed O&M-Foreign	Insurance	Cost of Working Capital	Return on Equity	Return on Equity during Construction	Withholding Tax @7.5%	Loan Repayment	Interest Charges	Total	PKR per kWh	PKR per kWh	US Cents per kWh
1	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364	0.4428	1.0731	2.3788	3.9647	6.7949	10.0368
2	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364	0.5032	1.0127	2.3788	3.9647	6.7949	10.0368
3	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364	0.5719	0.9440	2.3788	3.9647	6.7949	10.0368
4	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364	0.6499	0.8660	2.3788	3.9647	6.7949	10.0368
5	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364	0.7386	0.7773	2.3788	3.9647	6.7949	10.0368
6	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364	0.8394	0.6765	2.3788	3.9647	6.7949	10.0368
7	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364	0.9540	0.5619	2.3788	3.9647	6.7949	10.0368
8	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364	1.0842	0.4317	2.3788	3.9647	6.7949	10.0368
9	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364	1.2321	0.2837	2.3788	3.9647	6.7949	10.0368
10	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364	1.4003	0.1156	2.3788	3.9647	6.7949	10.0368
11	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364		-	0.8630	1.4383	4.2685	6.3050
12	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364		-	0.8630	1.4383	4.2685	6.3050
13	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364		-	0.8630	1.4383	4.2685	6.3050
14	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364		-	0.8630	1.4383	4.2685	6.3050
15	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364		-	0.8630	1.4383	4.2685	6.3050
16	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364		-	0.8630	1.4383	4.2685	6.3050
17	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364		-	0.8630	1.4383	4.2685	6.3050
18	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364		-	0.8630	1.4383	4.2685	6.3050
19	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364		-	0.8630	1.4383	4.2685	6.3050
20	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364		-	0.8630	1.4383	4.2685	6.3050
21	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364		-	0.8630	1.4383	4.2685	6.3050
22	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364		-	0.8630	1.4383	4.2685	6.3050
23	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364		-	0.8630	1.4383	4.2685	6.3050
24	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364		-	0.8630	1.4383	4.2685	6.3050
25	2.6443	0.1859	2.8302	0.1023	0.0904	0.1185	0.0297	0.4340	0.0517	0.0364		-	0.8630	1.4383	4.2685	6.3050
Levelized Tariff (1-25 Years)			**2.8302**										**1.8891**	**3.1485**	**5.9787**	**8.8312**

Reference Exchange Rate	PKR 67.7 = 1 US$
Reference US CPI	213.528 for March 2008 as notified by the US Labour Bureau of Labor Statistics
Reference WPI (Manufacturer)	132.1 for March 2008 as notified by the Federal Bureau of Statistics
Reference Fuel Price	Rs. 364.983 per MMBTU

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Star Power Generation (Private) Limited
Debt Servicing Schedule

Period	Local Debt Principal Million Rs.	Local Debt Repayment Million Rs.	Local Debt Mark-up Million Rs.	Local Debt Balance Million Rs.	Local Debt Debt Service Millin Rs.	Annual Principal Repayment Rs./kW/ hr.	Annual Interest Rs./kW/ hr.	Annual Debt Servicing Rs./kW/ hr.
	9,178.93	114.99	298.32	9,063.94	$413.31			
	9,063.94	118.73	294.58	8,945.21	413.31			
	8,945.21	122.59	290.72	8,822.62	413.31			
	8,822.62	126.57	286.74	8,696.04	413.31			
1	9,178.93	482.89	1,170.35	8,696.04	1,653.23	0.4428	1.0731	1.5159
	8,696.04	130.69	282.62	8,565.36	413.31			
	8,565.36	134.93	278.37	8,430.42	413.31			
	8,430.42	139.32	273.99	8,291.10	413.31			
	8,291.10	143.85	269.46	8,147.26	413.31			
2	8,696.04	548.79	1,104.45	8,147.26	1,653.23	0.5032	1.0127	1.5159
	8,147.26	148.52	264.79	7,998.73	413.31			
	7,998.73	153.35	259.96	7,845.38	413.31			
	7,845.38	158.33	254.97	7,687.05	413.31			
	7,687.05	163.48	249.83	7,523.57	413.31			
3	8,147.26	623.68	1,029.55	7,523.57	1,653.23	0.5719	0.9440	1.5159
	7,523.57	168.79	244.52	7,354.78	413.31			
	7,354.78	174.28	239.03	7,180.50	413.31			
	7,180.50	179.94	233.37	7,000.56	413.31			
	7,000.56	185.79	227.52	6,814.77	413.31			
4	7,523.57	708.80	944.43	6,814.77	1,653.23	0.6499	0.8660	1.5159
	6,814.77	191.83	221.48	6,622.94	413.31			
	6,622.94	198.06	215.25	6,424.88	413.31			
	6,424.88	204.50	208.81	6,220.38	413.31			
	6,220.38	211.15	202.16	6,009.23	413.31			
5	6,814.77	805.54	847.70	6,009.23	1,653.23	0.7386	0.7773	1.5159
	6,009.23	218.01	195.30	5,791.22	413.31			
	5,791.22	225.09	188.21	5,566.13	413.31			
	5,566.13	232.41	180.90	5,333.72	413.31			
	5,333.72	239.96	173.35	5,093.76	413.31			
6	6,009.23	915.47	737.76	5,093.76	1,653.23	0.8394	0.6765	1.5159
	5,093.76	247.76	165.55	4,846.00	413.31			
	4,846.00	255.81	157.49	4,590.18	413.31			
	4,590.18	264.13	149.18	4,326.06	413.31			
	4,326.06	272.71	140.60	4,053.35	413.31			
7	5,093.76	1,040.41	612.82	4,053.35	1,653.23	0.9540	0.5619	1.5159
	4,053.35	281.57	131.73	3,771.77	413.31			
	3,771.77	290.73	122.58	3,481.05	413.31			
	3,481.05	300.17	113.13	3,180.87	413.31			
	3,180.87	309.93	103.38	2,870.94	413.31			
8	4,053.35	1,182.40	470.83	2,870.94	1,653.23	1.0842	0.4317	1.5159
	2,870.94	320.00	93.31	2,550.94	413.31			
	2,550.94	330.40	82.91	2,220.54	413.31			
	2,220.54	341.14	72.17	1,879.40	413.31			
	1,879.40	352.23	61.08	1,527.17	413.31			
9	2,870.94	1,343.77	309.46	1,527.17	1,653.23	1.2321	0.2837	1.5159
	1,527.17	363.68	49.63	1,163.49	413.31			
	1,163.49	375.49	37.81	788.00	413.31			
	788.00	387.70	25.61	400.30	413.31			
	400.30	400.30	13.01	(0.00)	413.31			
10	1,527.17	1,527.17	126.07	(0.00)	1,653.23	1.4003	0.1156	1.5159

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
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