China Power Hub Generation
Company Ltd.

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Ref #: CPHG-NEPRA/KK-ZY/2016-0040

June 29, 2016

Syed Safeer Hussain
Registrar
National Electric Power Regulatory Authority (NEPRA)
NEPRA Tower, Ataturk Avenue (East), G-5/1
Islamabad

Subject: APPLICATION FOR ADJUSTMENT OF TARIFF FOR OPTIMAL JETTY DESIGN FOR 2 X 660 MW IMPORTED COAL PROJECT OF CHINA POWER HUB GENERATION COMPANY (PRIVATE) LIMITED.

Dear Sir,

1. Reference is made to China Power Hub Generation Company (Private) Limited's (the **"Company"**) requirement of an optimal jetty design including a dedicated Coal Transshipment Solution (CTS) for the purposes of the 2 x 660 MW imported coal power plant and the adjustment of the costs related thereto.

2. The decision of NEPRA regarding reconsideration request filed by Government of Pakistan in the matter of the upfront tariff for imported coal power projects as issued by NEPRA in 26 June 2014 (**"Upfront Tariff 2014"**) read with NEPRA's decision dated 21 November 2014 (duly notified vide SRO No. 15(I)/2015 dated 13 January 2015) in the matter of review petition of Mr. Asad Umar, provides, *inter alia*, the following:

   a. *The jetty cost including its O&M cost per ton will be subject to **adjustment** on the basis of verifiable documentary, evidence (Reference paragraph 49 of the Upfront Tariff);*

   b. *The cost of dedicated jetty will be determined and **fixed and variable cost will be reflected under relevant tariff components i.e. capacity and energy charges respectively** (Reference paragraph 108 of SRO no. 15(I)/2015 dated 13 January 2015).*

3. The Company accepted the upfront tariff on 15 September 2015.

4. Under case number NEPRA/TRF-342/CPHGCL-2016 dated 12 February 2016 (**"Company's Upfront Tariff"**) relating to the Company, NEPRA decided *Inter alia* that:

   a. *Since the project is based on dedicated jetty, the cost of common jetty facility shall be excluded from the price of coal and the cost of dedicated jetty will be added to the respective components of tariff.....* (Reference paragraph 3(I) xiv) (i) of Company's Upfront Tariff*);*

   b. *The provisions of the Order of the Authority notified vide SRO No. 15(I)/2015 dated 13th January 2015 will also apply in the matter as and where applicable.* (Reference paragraph 4 of SRO No. 15(i)/2015).

5. Accordingly, we herewith submit an application for adjustment of the Company's Upfront Tariff for the optimal jetty design including as an integral part a dedicated CTS for importing coal for the 2 x 660 MW imported coal power plant, located near HUBCO's current 1,292 MW RFO power plant at Hub, Balochistan. Besides attaching all relevant documentary evidence, we are enclosing the signed EPC contract of coal offloading jetty.

6. We request NEPRA for adjustment of the Company's Upfront Tariff, based on thoroughly analyzed cost effective optimal jetty and associated CTS.

7. We would like to express our profound thanks to your constant support and cooperation. Should you have any questions, please do not hesitate to contact us.

Yours sincerely,

Zhao Yonggang
Chief Executive Officer,
China Power Hub Generation Limited Company

Encl.

a. All supporting documents as the documentary evidence
b. EPC Contract for Coal-Unloading Jetty and Transshipment for China Power Hub Generation Coal Fired Power Project

Copy: **Managing Director**
Private Power & Infrastructure Board
Ministry of Water and power
50 Nazimuddin Road, F-7/4, Islamabad

BEFORE
THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

APPLICATION FOR ADJUSTMENT OF UPFRONT TARIFF FOR OPTIMAL JETTY DESIGN FOR 2X660 MW IMPORTED COAL PROJECT

AT HUB, DISTRICT LASBELA, BALOCHISTAN

BY
CHINA POWER HUB GENERATION COMPANY (PRIVATE) LIMITED

DATED: June 29, 2016

Glossary

BEPA	Balochistan Environmental Protection Agency
COD	Commercial Operations Date as provided in the Power Purchase Agreement
CPEC	China Pakistan Economic Corridor
CPHG	China Power Hub Generation Company (Private) Limited
CPIH	China Power International Holding Limited
CPPA	Central Power Purchasing Agency (Guarantee) Limited
CTS	Coal Transshipment Solution
EOI	Expression of Interest
Financial Close	Date of financial close as provided in the Letter of Support issued to CPHG as provided in the Power Purchase Agreement
HUBCO	The Hub Power Company Limited
KPT	Karachi Port Trust
Monsoon Months	A period starting from 15 May to 15 September (sea state with consistent wave height of above two (02) meters), or such as other period as described by the PMD
NEPRA or Authority	National Electric Power Regulatory Authority
NOC	No Objection Certificate
NTDC	National Transmission & Dispatch Company Limited
O&M	Operations & Maintenance
PFT	Panamax Floating Terminal
PMD	Pakistan Meteorological Department
PPIB	Private Power & Infrastructure Board
ROE	Return on Equity
SLUB	Self-Loading & Unloading Barges

1. INTRODUCTION

The Hub Power Company Limited (HUBCO) is a public limited company incorporated and existing in Pakistan under the Companies Ordinance, 1984. HUBCO has power plants at Hub (1292 MW Gross), Narowal (225 MW Gross) and seventy-five per cent (75%) stake in Laraib Energy Limited (84 MW). HUBCO is the first and the largest Independent Power Producer (IPP) in Pakistan, contributing to approximately 10% of electricity generation of the country.

China Power International Holdings (CPIH) is one of the five largest power corporation group companies in China. CPIH boasts 25,000 MW of total installed capacity, 91,181 GWh annual power generation and USD 18.23 Billon of total assets with more than 15,000 employees.

HUBCO and CPIH (the **"Sponsors"**) incorporated a Special Purpose Vehicle (SPV) company by the name of China Power Hub Generation Company (Private) Limited (**"CPHG"**) for the purpose of designing, engineering, constructing, insuring, commissioning, owning, operating and maintaining a 2x660 MW (gross ISO) imported coal-fired electric power generation facility at Hub, Balochistan.

The size, credibility and collective knowledge and experience of HUBCO and CPIH makes CPHG well poised to efficiently develop and operate the project. CPHG has signed the Engineering, Procurement and Construction (**"EPC"**) contracts for both power plant and jetty and has engaged Chinese financial institutions for purposes of project financing. The project is listed in China Pakistan Economic Corridor (CPEC) portfolio jointly supported by the Governments of China and Pakistan.

2. BACKGROUND & BASIS OF UPFRONT TARIFF ADJUSTMENT

2.1 The Upfront Tariff

The Project Company accepted the upfront tariff (**"Company's Upfront Tariff"**) on September 15, 2015 pursuant to the decision of NEPRA regarding reconsideration request filed by Government of Pakistan in the matter of the upfront tariff for imported coal power projects as issued by NEPRA in June 2014 (**"Upfront Tariff 2014"**).

The Company's Upfront Tariff allows flexibility for adjustment of the cost of a standalone jetty required for the purpose of the project. Important excerpts related to the standalone jetty from NEPRA's Upfront Tariff 2014 and the Decision of the Authority in the matter of Review Petition filed by Fazal-e-Akbar & Company on behalf of Asad Umar (Member National Assembly) under NEPRA (Review Procedure) Regulations 2009 (the **"Asad Umar Decision"**), are given in the subsequent paragraph.

2.2 Jetty Tariff Regulatory Regime prescribed by NEPRA

- *The jetty cost including its O&M cost per ton will be subject to **adjustment** on the basis of verifiable documentary, evidence. The Authority expects that before requesting an adjustment in jetty cost, the petitioner will have to thoroughly investigate into the possibilities of changing the design of jetty in a way that **least cost and reliable coal offloading facility** is arrived through transparent competitive process while taking on board the PPIB, Pakistan Navy, Pakistan Coast Guard, Ministry of Ports and Shipping and clearance from all the relevant departments* - Reference paragraph 49 of the Upfront Tariff 2014;

- *The cost of standalone jetty shall be determined and allowed by the Authority on case to case basis subject to provision of verifiable documents to the satisfaction of the Authority* - Reference paragraph 106 of the Asad Umar Decision;

- *The cost of dedicated jetty will be determined and **fixed and variable cost will be reflected under relevant tariff components i.e. capacity and energy charges respectively*** - Reference paragraph 108 of the Asad Umar Decision.

2.3 Jetty Tariff Adjustment:

Keeping in view the aforesaid jetty-related regulatory regime prescribed by NEPRA, this application for the adjustment of the Company's Upfront Tariff is being submitted:

a. Based on optimal jetty design resulting in lowest impact on levelized Upfront Tariff;

b. After keeping on board all stakeholders;

c. With the request to replace the (a) cost of common jetty ($ 9.46/ton) and (b) Other Costs (10% of FOB Price) with the Fixed and Variable cost components of optimal jetty design to be adjusted under relevant tariff components i.e. capacity and energy charges respectively;

d. The optimal jetty design for CPHGC project has been worked out to be the combination of (i) with lower trestle length and transshipping coal from bigger size Ocean Going Vessel (OGV) to

Transshipment Vessel and bring coal to Jetty through barges, (ii) outsourced Coal Transshipment Solution (CTS) during non-Monsoon Months, and (iii) use of Alternative Port during Monsoon Months.

2.4 Jetty Tariff Adjustment Summary

CPHG's application is structured in the following manner:

1. Capital expenditure comprising the EPC and non-EPC costs will form part of the aggregate project cost (which will comprise the project cost of the power plant and the jetty Complex).

2. Certain O&M costs of permanent nature have been included in the Fixed O&M category consistent with the nature of the upfront tariff.

3. O&M costs of variable nature have been included as additional line items under the Variable O&M category consistent with the nature of the upfront tariff.

4. Clarifications in the assumptions and additional assumptions relating to the jetty and Coal Transshipment Solution (CTS) have been provided separately.

2.5 Stakeholders' Consultancy

CPHG project will be one of the largest imported coal fired power plants in the country and thus the management of CPHG has taken the responsibility to evaluate the unique requirements of the project and solutions to mitigate any potential risks associated with it. In order to ensure smooth running of the power plant and guarantee reliable energy to the national grid, the Project Company has to have a foolproof process of securing and offloading coal.

Keeping in view the above, the Sponsors engaged Guangzhou Electric Design Institute (**"GEDI"**) and CCCC Second Harbor Engineering Company Limited (**"CCCC"**) to prepare a detailed Feasibility Study Report (**"FSR"**) to evaluate the best jetty solutions to fulfill approximately four (04) million tons per annum coal import requirement for the project. After the completion of FSR by CCCC and GEDI, the Sponsors appointed a highly reputable international marine engineering firm, Royal HaskoningDHV (**"RHDHV"** or the **"Owner's Engineer"**) to review the same. On the basis of RHDHV's review of the FSR, a detailed concept paper was prepared and presented to the Authority on November 26, 2015 (**"Concept Paper"**) comprehensively covering the various marine logistics options available and under evaluation by CPHG which is attached as *Annex A*.

Relevant stakeholders were updated regularly with the progress of development and summary of the correspondence is as follows:

Correspondence with Stakeholders		
Date	**Details**	
October 20, 2014	Inclusion of dedicated jetty as part of overall tariff	o NEPRA
March 16, 2015	NOC to undertake Geo-technical Study and Surveys	o Ministry of Defense
April 19, 2015	Jetty Progress and Pre-Feasibility	o Ministry of Water and Power o Ministry of Ports and Shipping o FBR o Naval Intelligence o Maritime Security Agency o Pakistan Cost Guard o PPIB o NTDC
May 12, 2015	Jetty Tariff Concept	o NEPRA o Ministry of Water and Power o PPIB o CPPA
June 23, 2015	Presentation on clarification required on Jetty Tariff Determination Process	o NEPRA
October 8, 2015	Approval for Jetty Design and probable cost under upfront tariff	o NEPRA o Ministry of Water and Power o PPIB o CPPA
November 26, 2015	Detailed Presentation of Concept Paper to the Authority presenting all options evaluated by the Sponsors along with project cost	o NEPRA
December 11, 2015	Request for NOC and Permission to construct a dedicated Jetty	o Ministry of Defense
January 26, 2016	Jetty Working Paper	o NEPRA
April 5, 2016	Issuance of NOC and Permission to construct a Dedicated Jetty	o Ministry of Defense
June 21, 2016	Issuance of NOC to CPHG for installation of Barge Jetty for coal length 1.5KM	o BEPA

In addition to the correspondence listed above, CPHG has had several other meetings with NEPRA from time to time to provide an update and seek their guidance.

3. Optimal Jetty Design Selection Process

3.1 Logistics Consideration in Selection of Coal Specifications

A thorough due diligence process, conducted internally and by an internationally renowned & reputable coal consulting firm Wood Mackenzie, determined the design coal (optimal coal CV to be used by the power plant) for CPHG power plant as 5,500 kcal/kg NAR for reference coal whereas the check coal (lowest coal CV to be used by the power plant) was determined to be 50:50 blend of 4,700 Kcal/kg NAR and 5,500 Kcal/kg NAR to reduce supply risk of a specific CV Coal. Screening criteria for coal selection, apart from the coal specification, was determined as (i) product reserves, (ii) life of the sourced mine and (iii) current and future cost.

Special consideration was also given to freight economics during the process of coal selection so as to transport the optimal amount of coal tonnage. The estimated coal quantity for the project based on design and check coal would approximately be 3.6 - 4.1 million metric tons per annum ("**MTPA**"). The Project Company needs to ensure that this quantity is supplied through highly reliable and cost effective end to end supply chain solution, including port facilities, handling and transportation until coal stockyard in order to guarantee the required availability to Central Power Purchase Agency (Guarantee) Limited (CPPA).

3.2 Possibility of Utilizing Existing Ports

CPHG and the Sponsors of the project have diligently evaluated all logistical possibilities to ensure reliable coal supply to the power plant. A detailed evaluation of capacity at existing ports as well as future growth plans has been conducted keeping the technical and economic benefits and risks in perspective. A high level assessment report of various jetty solution options (Jetty Working Paper) was shared with NEPRA on January 26, 2016 attached as *Annex B*.

The sea-borne leg of the coal supply chain will be handled by dry bulk Ocean Going Vessels ("**OGV**") which are readily available and cost effective. As per discussions with suppliers and CPHG's own research, majority of the bulk commodity trade is performed using large dry bulk OGV (categorized as Panamax and Capesize). These vessels range from 75,000 Dead Weight Tonnage (DWT) up to 150,000 DWT. However, Handymax and Supramax vessels, ranging from 35,000 DWT to 60,000 DWT are also used for ports with draft limitation.

The OGV traffic and freight vary widely based on selection of the vessel. To put things in perspective, CPHG's annual coal requirements can be met through one of the following:

(a) 72 vessels of 55,000 DWT (Supramax);
(b) 50 vessels of 75,000 DWT (Panamax); or
(c) 32 vessels of 125,000 DWT (Capesize).

Smaller vessel size increases complexity of operations due to significantly higher number of vessels per month thereby making supply chain exceedingly difficult. It is evident that Panamax or larger vessels would simplify the supply chain and result in freight savings on cost per ton of coal.

Pakistan currently entertains two major ports namely KPT and PQA in close proximity to the Project site. Pakistan International Bulk Terminal Limited (**"PIBTL"**) situated at Port Qasim Authority, is currently under development and is expected to begin commercial operations by 2017.

PQA and KPT are located at a distance of approximately 115 Kilometers (KM) and 53 KM from Project site respectively. KPT currently handles nearly all of the international coal imports into the country. KPT's proximity to plant site and history of coal unloading made it the primary choice for complete coal supply chain analysis (port handling, storage and transportation). Nonetheless, CPHG also conducted detailed road network analysis from PQA to Project site keeping Pakistan's first common use coal terminal, PIBTL, in perspective.

3.3 Process of utilizing KPT

At KPT, the imported coal is discharged, stored and transported in 'open bulk' state. Therefore, KPT has to provide open storage area and importers have to ensure prompt evacuation of all stocks from quayside to the designated stockyard in Groyne coal yard located at Karachi port.

The current throughput of the port is approximately 6.0 MTPA with a storage capacity of merely 200,000 MTPA at the Groyne Yard (limit as per the Sindh Environment Protection Agency requirement).

Due to draft restrictions at KPT, it cannot handle Panamax and Capesize vessels at the port. Therefore, Supramax vessels are required to be used which result in increased number of vessels (due to smaller vessel size) which leads to operational complexity and more importantly, increases higher freight cost per ton of coal. Historically, the difference in freight between a Supramax and a Capesize vessel has ranged from US$ 2 - 8 per ton depending on global marine freight rates.

After unloading at KPT, the coal is then transferred either directly from quayside or through Groyne Yard via trucks in continuous operations to the plant. This process will require CPHG to ensure availability of deep draft berths, experienced stevedoring crew and sufficient number of trucks to transport coal at the time the vessel arrives at the KPT. The stevedore is responsible for operating ship cranes and managing all port operations safely. Normal ship cranes utilize 4x25 metric ton grabs, capable of discharging cargo at a rate of 12,000 – 15,000 metric tons Per Weather Working Day (PWWD).

The road conditions create a further bottleneck for inland logistics of coal from KPT to the plant site. CPHG engaged AA Associates to conduct road, traffic and port congestion studies to evaluate the possibility of moving coal via trucks from KPT attached as *Annex C*. The studies identified the following two main routes that link KPT with the CPHG plant:

(a) Karachi Northern Bypass (**"KNBP"**) and Regional Cooperation for Development (**"RCD"**) Highway; and
(b) Mubarak Village and Mauripur road.

Average speed on the above routes are 24 Km/h and 20 Km/h respectively. Both roads are highly degraded and congested, which means the same cannot be used to transport more than 5,000 tons per day coal. The studies confirm that the infrastructure cannot handle entire volume required for full load operations despite heavy investment in road upgradation.

According to the Concept Paper presented to the Authority, it is evidenced that due to the requirement of larger quantities of coal, KPT as a single point of delivery would be a failure. Furthermore, it would be necessary to have a multiple supply solution even in case of a dedicated coal jetty.

3.4 Site Studies Undertaken for construction of dedicated coal jetty

Since 1980s multiple power project developers conducted feasibilities studies for development of coal fired power plants on the coast. It includes:

(a) 3600 MW coal power plants by WAPDA at Khalifa Point;
(b) 1200 MW coal power plant by AES Pakistan Private Limited at Gadani, Balochistan;
(c) 1200 MW coal power plant by Mitsui & Co. at Gadani, Balochistan; and
(d) 6000 MW coal power plants under Pakistan Power Parks Scheme at Gadani, Balochistan.

Each developer conducted feasibility study to evaluate cost effective & reliable coal import solution. All studies recommended construction of dedicated coal import jetty (mother vessel or barge jetty) to meet coal import requirements.

Similarly, CPHG undertook various site studies to determine construction of cost effective and reliable on-site jetty. After obtaining the necessary no objection certificates from Ministry of Defense, CPHG engaged internationally reputable and specialized consultants to conduct various studies to ensure that selected solution is technically viable and the most cost effective solution. A summary of the studies carried out till date is as follows:

Studies	
Marine Topography	CHEC
Geo-Technical Investigation (incl. bore hole sampling)	CHEC
Establishment of Project Control Points	TCI
Preliminary Chart Datum Study	TCI
Waves and Currents Data Collection	TCI
Wave Modelling study	GEDI

3.5 Optimal Jetty Design

Since coal supply logistics are the lifeline of any coal power project, it is imperative that the selected solution is reliable, efficient and suitable to overcome the supply chain bottlenecks (i.e. slowdowns or stoppages such as vessel or barge delay, delay in port services, labor stoppage, weather, maintenance, breakdowns, tide, traffic along access ways, etc.).

Therefore, it is important to prioritize the following:

- Guaranteeing a smooth and continued feeding of coal; and
- Conceiving a reliable and efficient supply chain solution which has the optimum cost-ratio between ocean transportation costs, terminal costs and performances (considering both capital and operational costs).

Based on detailed technical & commercial analysis, the feasibility study consultant recommended the following options:

A. Mother Vessel jetty solution; or
B. Barge jetty solution with CTS.

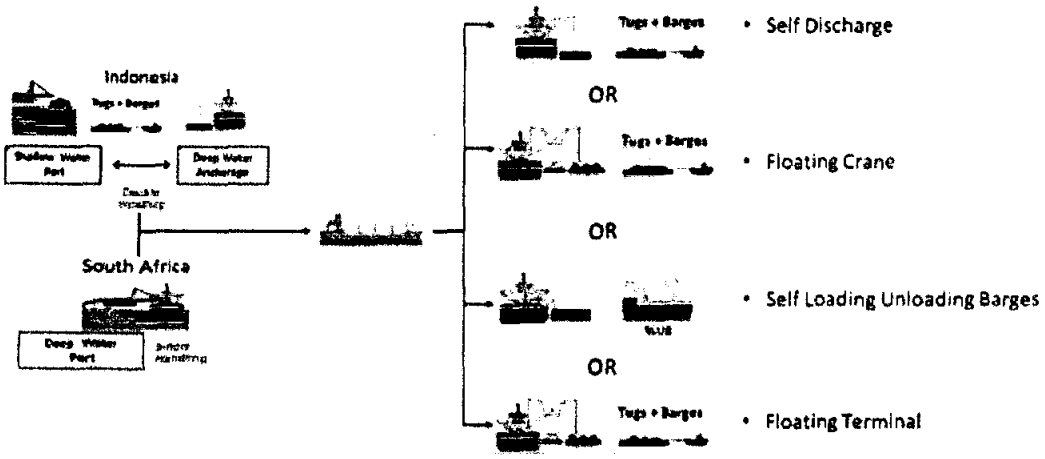
The options were discussed with NEPRA on September 15, 2015. Based on the input received in relation to high upfront CAPEX, CPHG being a responsible entity undertook further due diligence to reevaluate these options to make them economically feasible. After extensive deliberations with the marine experts including RHDHV, Inchcape Shipping Services and Logmarin Advisors, it became evident that an optimal solution would be to construct a non-Monsoon Months barge jetty while outsourcing the CTS to an experienced Floating Terminal operation company to ensure lower cost and reliable operations. Accordingly, CPHG updated the Feasibility Study Report (FSR) to include the aforementioned structure as option C.

Mother Vessel jetty is the most expensive but has least operational challenges as OGV directly berths alongside a fixed structure inside an enclave protected by a breakwater structure. Given the hard rock base in Pakistan coastal region, dredging poses major environmental challenge and results in exorbitant cost. In order to avoid dredging and achieve the desired 14 meter sea depth (draft), Mother Vessel jetty length needs to be more than 4.8 KM into the sea. The conveyor system has to be designed to withstand adverse sea conditions during the Monsoon Months and equipment has to be designed for highly corrosive environment. The structure will likely become inoperable during Monsoon Months and yet offers the longest operation period during the year (300 days). The structure will be able to handle up to 100,000 DWT vessels for discharge.

The barge jetty with transshipment solution proposed in options B and C is prevalent on ports and terminals servicing projects in remote locations. Similar operations are quite common in Indonesia, India and North East Australia. The operation is predicated on balancing CTS and shorter and more localized jetty with capability to handle barges which taxi goods from the unloading system. The barge jetty operation is more complex than the Mother Vessel jetty in Option A, it offers scalability, redundancy and reduces capital cost.

Option C in particular is of interest to CPHG as it offers significantly lower initial capital outlay whilst having higher redundancies to mitigate operational risks. The CTS will be outsourced to an experienced third party capable of managing similar coal transshipment operations globally, which would reduce operational risk significantly. As mentioned earlier, similar operations are common practice globally with well-established standard practices.

In order to comply with the guidance of Authority under the Upfront Tariff 2014, CPHG evaluated several jetty and CTS options that are being used all over the world. The Sponsors inducted Logmarin Advisors, a leading offshore terminal design firm, to prepare a Transshipment Feasibility Report for CTS by evaluating various CTS solutions such as Floating Cranes, Self-Loading Unloading Barges (**"SLUB"**) and Panamax Floating Terminal (**"PFT"**).



Based on detailed technical and commercial analysis done by CPHG's consultants, it was recommended that PFT is the most reliable and cost effective CTS solution. The Transshipment Feasibility Report issued by Logmarin Advisors is also enclosed as *Annex D* for the Authority's perusal.

The 10-year historic wave and tide data from National Oceanic and Atmospheric Administration for a nearby locations and 1-year data collected by the Sponsors for jetty clearly indicated that CTS and barge jetty would only operate during the non-Monsoon Months which starts from mid-September and ends mid-May. Considering a natural constraint, an appropriate multi-modal solution was developed by dividing the unloading operations into two steps:

1. Unloading OGV via CTS to barges and bring coal through jetty during the non-Monsoon Months; and

2. Transport balance coal by unloading OGV via KPT (or an alternative port) and transporting coal by trucks directly to plant throughout the year to cater for coal consumption during the Monsoon Months.

3.6 Rationale for Alternative Port Operations Throughout the Year

Due to low draft restrictions at KPT and PQA, it can only handle smaller OGV equipped with grab cranes onboard. In order to maintain a shipping schedule without the risk of demurrage, the vessels are required to be scheduled throughout the year, which would also help in managing the inventory at the storage yard at the port.

Furthermore, there is no rail network connecting KPT or PQA to CPHG project site at Hub, Balochistan. Trucks are loaded from the storage yard, using a pay-loader shovel mechanism, which is prone to breakdowns resulting in higher handling loss. Trucks are required to be weighed at KPT or PQA weigh-bridge which creates a logistical bottleneck while tarpaulin sheets are used to minimize handling losses. Trucks in Pakistan do not have hydraulic unloading and require manual offloading at plant sites.

Based on road conditions and level of service on both routes, following scenarios were evaluated for transporting the Monsoon Months coal from KPT and PQA:

6,000	10	109
5,000	12	91
4,000	15	73

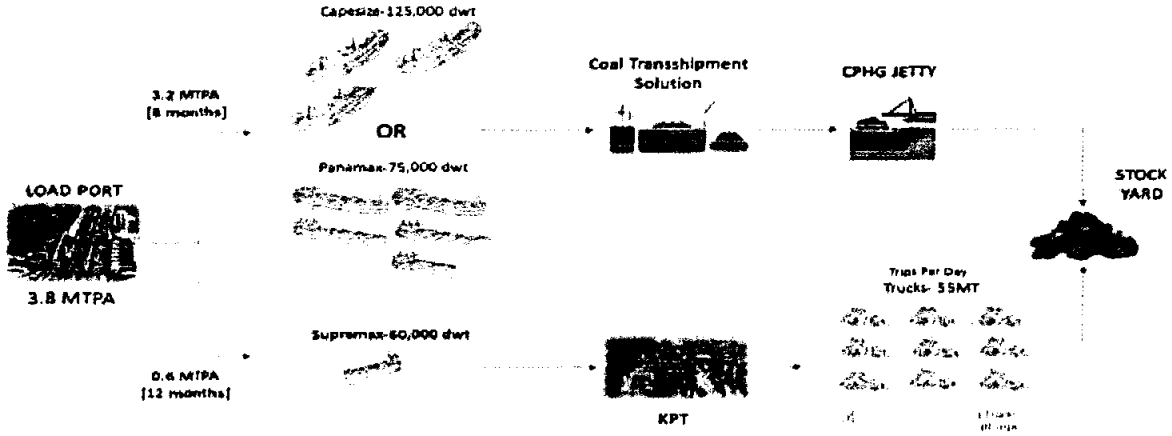
To overcome logistic bottleneck at KPT, PQA and level of service issues on route, the consultants recommended transporting no more than 5,000 tons per day. Considering the Monsoon Months coal requirement is 600,000(assuming plant maintenance outage during Monsoon Months) or 900,000 tons otherwise, it can only be fulfilled by year round trucking operations from KPT to the Project site.

Our logistics analysis of the routes to Hub, Balochistan corroborated that existing road networks are capable of handling only incremental traffic of approximately 90 truck trips a day. The major impediments seriously affecting the traffic plying conditions are due to traffic congestion, encroachments including road side parking etc. To meet daily coal requirement for 2 x 660 MW power plant, the Project Company would require more than 240 truck trips a day which cannot be handled by the existing road network from KPT or PQA to CPHG. The daily coal shipment bottleneck can only be overcome by spreading the coal import operations from KPT or PQA throughout the year instead of Monsoon Months. It would reduce daily truck trips required to import 600,000 – 900,000 tons coal required during Monsoon Months.

One of the primary reasons for use of alternate port to import Monsoon Months shortfall coal quantities is to manage the coal supply chain within the allowed working capital provided in the upfront tariff. In case the Project Company is not allowed to use alternate port and import entire annual coal quantity through jetty and CTS in non-Monsoon Months, it would require additional working capital of USD 71 Million to cater for stockpile of 160 to 180 days at the beginning of Monsoon Months to comply with site inventory at all times as per the Power Purchase Agreement (PPA). This would translate into extra cost of working capital of USD 5 Million per year. Similarly a bigger coal stockyard would be required for which an additional USD 15 Million CAPEX would be incurred.

4. SYNOPSIS OF CPHG PROPOSED LOGISTICS SOLUTION

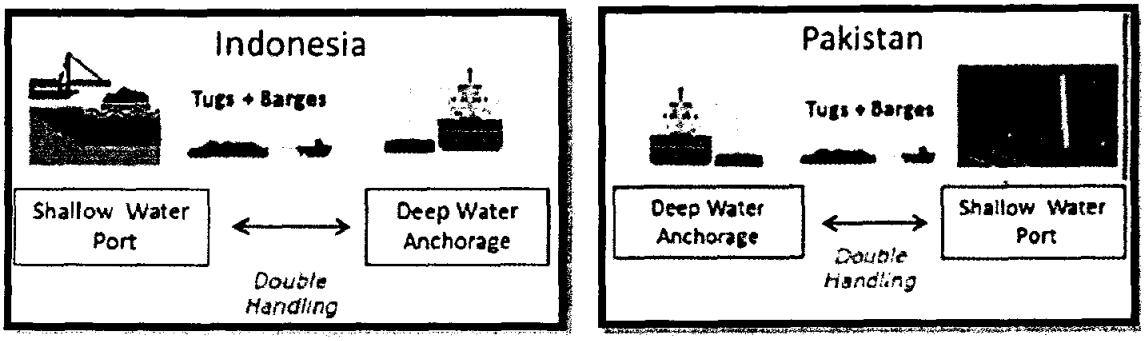
The complete summary of the process is described below:



4.1 Coal Transshipment Solution (CTS) to Jetty

Introduction

Floating transfer operations have been used since the end of the Second World War as numerous berths and equipment in Europe were destroyed and the demand for import was exponential. The concept of floating terminal technology has greatly developed over the period of time and of the use of floating terminals in operation for dry-bulk, oil and gas all over the world and the trend toward the utilization of this alternative is growing. Currently, there are approximately 370 units operating all over the world. For example, Indonesia exports coal from a hundreds of mines primarily through Indonesian standard barges (flat top and towed), reaching the open sea for transshipment to the vessel, due to the draft limitation. Barges usually range from 8,000 DWT to 12,000 DWT, delivering the coal downstream to deep water anchorage in the open sea. At anchorage, vessels up to Capesize can be loaded via CTS facilities.

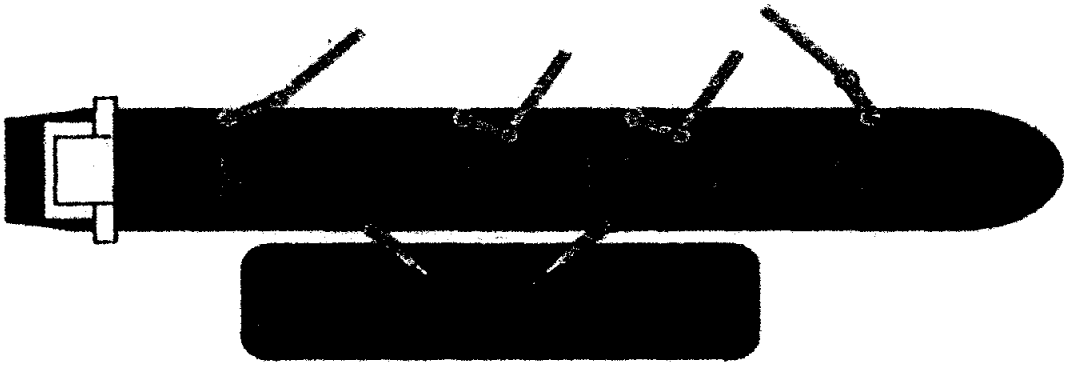


Similarly, due to the draft limitation and lack of onshore grab unloaders at KPT, Capesize or Panamax vessels (which do not have self-unloading cranes onboard) cannot be berthed or unloaded. Hence, a CTS is required to unload OGV and transfer the coal to the barges which will then be unloaded at the CPHG barge jetty via onshore grab unloaders.

Operation

A Panamax bulk carrier will be converted into a PFT for the purpose of transshipment of coal from vessel to the barges. The converted carrier will be kept at anchorage in the open sea, serving approaching vessels responsible for coal transportation from source. The OGV during the non-Monsoon Months would arrive at the anchorage from the loading port such as Richards Bay South Africa, Newcastle Australia and East Kalimantan Indonesia. The OGV will be offloaded by the CTS which would be equipped with grab cranes. These will be installed on one side working together with four/five coal receiving hoppers center mounted in between the holds.

A conveyor belt system and two barge loaders will load one barge simultaneously. The offloading will then take place from the CTS to the barges for transporting coal to the Jetty to be offloaded and stored at power plant's coal yard.



Buffer storage will be required to keep the process continuous. PFT provides a sizable amount of intermediate buffer storage to smooth out the weather based disruptions in unloading & loading operation of OGV and barges to transport to jetty.

When both OGV and barge are available, coal is transferred from vessel to barges directly. While waiting for the next barge, the OGV discharging continues using the CTS buffer storage. On the contrary, in case of vessel being unavailable for offloading but barge ready to be loaded, coal can be loaded from the CTS buffer storage by cranes and loaded on the barge.

The primary factors for selection of this solution are reliability of unloading/loading operations in sea state with a 2 meter wave height, economic gains, by way of achieving substantial savings in the dry-bulk sea borne freight without incurring prohibitive investment costs and environmental impact associated with the building of 5 – 6 kilometers long deep water jetty.

Seasonal Limitation

The CTS operation would be inoperable during the Monsoon Months due to rough state of sea where wave height is consistently more than 2.5 meters in the open sea. The CTS based unloading operations are done in the open sea about 4 to 6 nautical miles from the shore; it is extremely dangerous to carry out such operations during Monsoon Months.

In order to maintain a continuous supply of coal to the plant during the Monsoon Months, it is critical to bring the balance coal quantity through KPT. As stated above, the Sponsors engaged A.A. Associates to carry out a road condition and traffic survey to assess KPT handling capabilities and road conditions from KPT to CPHG site. The traffic data showed that maximum of 5000 tons per day (90 truck trips for trucks with loading capacity of 55 tons each) can be transported through various routes from KPT to CPHG. The 4-month coal consumption for power plant would range from 600,000 to 900,000 tons. The Monsoon Months coal requirement would be close to the lower end of the range if CPHG is permitted planned plant maintenance during the Monsoon Months. Given the road conditions and port handling capacity limitation, it is recommended to transport the required 4-month quantity throughout the year to ensure uninterrupted power plant operations.

4.2 Benefits of the Proposed Logistics Solution

The logistics solutions presented above would result in streamlined operations and ensure a reliable supply chain of coal for the power plant. The Project Company would utilize CTS during the non-Monsoon Months to offload Capesize or Panamax vessels to capitalize on lower freight cost per ton of coal, thereby reducing the overall cost of coal from load port in country of origin to plant stockyard. The balance quantity of coal corresponding to non-Monsoon Months would be arranged via KPT throughout the year, thus circumventing the bottlenecking issues associated with KPT. This would result in smooth operations throughout the year for the power complex.

5. SELECTION PROCESS FOR JETTY EPC CONTRACTOR

5.1 Advertisement and Open Invitation

Pursuant to the Asad Umar Decision and based on technical and economic evaluation of the proposed options in the FSR, CPHG invited international competitive EPC bids for the barge jetty from EPC contractors.

An advertisement for the coal import jetty was placed in the national newspapers on December 8, 2015 attached as *Annex E(i)* to issue Request For Proposal (RFP) document to the reputable EPC contractors with relevant experience.

5.2 Issuance of RFP and Proposals by Bidders

In response to the advertisement, fourteen (14) companies from United Kingdom, China, Turkey, UAE and Pakistan expressed their interest in the project. In consultation with the Owner's Engineer, RFP for the jetty was prepared, specifying the requirements attached as *Annex E(ii)*.

RFP was issued to seven (07) companies which fulfilled the requirements for bidding documents fee.

The detailed technical and financial bids were received from three (03) bidders namely;

1) NWEPDI + NDRI (**"NDRI"**);
2) China Harbour Engineering Company Ltd. (**"CHEC"**); and
3) China Machinery Engineering Corporation (**"CMEC"**).

5.3 Pre-Bid Meetings and Site Visits

A Pre-bid meeting was held on December 17, 2015 for all interested bidders as an introductory session on the RFP and instructions to bidders for submission of the proposals. Face to face meetings were also held with individual bidders from December 18 - 22, 2015 to answer any queries related to the project or RFP. Project site visits were also arranged for interested bidders.

5.4 Bid Opening

Technical and Commercial Bids were opened in the Board Room Third Floor, Islamic Chamber of Commerce Building, St 2/A, Block 09, Clifton, Karachi, Pakistan, the office of China Power Hub Generation Company (Pvt) Ltd at Pakistani time 6:10 pm on February 01, 2016. The Bids were handed over to the technical and commercial evaluation teams for detailed evaluation.

5.5 Evaluation Method

A two stage evaluation process was followed for the selection of preferred jetty EPC contractor, comprising of a high level evaluation and a detailed evaluation.

High Level Evaluation Report:

Evaluation was carried out by the technical and commercial teams led by the Owner's Engineer personnel along with members from the Project Company to determine compliance with the requirement set out in the RFP. The High Level Evaluation Report is attached herewith as *Annex E(iii)*. The committee recommended the following top two (02) bidders for detailed evaluation:

1) CHEC and
2) NDRI

Criteria for Detailed Evaluation

The detailed evaluation criteria was developed by the Owner's Engineer for evaluation of proposals attached as *Annex E(iv)* at the start of bidding process and was included in the RFP issued to bidders in December 2015. The technical and commercial proposals were evaluated by giving equal weightage to the technical and commercial aspects. Marine structures, jetty design and equipment formed the major part of the technical, whereas bid price and commercial terms & conditions were the key factors for the commercial evaluation.

Detailed Evaluation Report (Technical and Commercial):

Face to face meetings were held with the shortlisted bidders from March 14 – 17, 2016 in Karachi to discuss all key aspects of the bids including design methodology, proposed work schedule, equipment specifications, commercial terms and Health, Safety and Environment (HSE) processes.

Subsequent to the detailed discussion with the bidders, Detailed Evaluation Report attached *as Annex E(v)* was issued by Owner's Engineer on April 21, 2016. The report thoroughly evaluated the bids on the basis of design methodology, construction program including construction management during monsoon and various other technical aspects. A scoring matrix with a detailed breakdown was also included in Detailed Evaluation Report. CHEC was determined to be the top bidder based on the Detailed Evaluation Report.

5.8 Negotiations with Top Bidder

Final negotiation meeting was held with CHEC from April 25 – 29, 2016 to close out technical scope and contractual terms. Project Company's technical and commercial teams attended the meetings along with the Owner's Engineer. Design and drawings submitted by CHEC were thoroughly discussed to ensure compliance with the British Standards and Eurocodes for Marine works and all other technical requirements as given in the Consolidated Design Criteria (**"CDC"**) as attached in *Annex E(vi)*

The commercial team along with Project Company's legal counsel negotiated the contractual terms and conditions for execution of the EPC contract.

5.9 Signing of Jetty EPC Contract

The EPC contract was signed between CPHG and China Harbor Engineering Company on *June 7 2016*. Final scope of work summary and signed contract is attached as *Annex E(vii)*.

6. SELECTION PROCESS FOR CTS CONTRACTOR

6.1 BIDDING PROCESS

6.1.1 Advertisement and Open Invitation

As discussed above, the Project Company inducted Logmarin Advisors as the consultant to prepare a Transshipment Feasibility Report for coal transshipment services from the OGV to the Jetty. An International Competitive Bidding (**"ICB"**) process was initiated for the selection of Coal Transhipper. An advertisement was placed in Dawn on April 7, 2016 to invite Expression of Interest (**"EOI"**) from prospective Transshippers for complete Coal Transshipment Solution on Build, Own and Operate (**"BOO"**) basis for a tenor of 10 – 15 years.

6.1.2 Issuance of RFP and Proposals by Bidders

Logmarin Advisors prepared the CTS RFP for interested Coal Transshippers. In response to the advertisement, 10 companies submitted EOI, out of which 6 were prequalified based on their financial strength, prior experience in Marine cargo handling, Shipping, Barging and Transshipment.

Transshipment Solution's RFP was issued to the prequalified companies on April 14, 2016 for submission of the final technical and commercial proposal by no later than May 20, 2016.

All prospective bidders were given two (02) weeks to seek clarifications regarding the technical and commercial scope, terms & conditions. All prospective bidders' queries were compiled by Logmarin Advisors and a consolidated response was shared with all bidders.

6.1.3 Bid Submission and Evaluation

All six (06) bidders submitted their respective bids on May 20, 2016. All bids are currently being reviewed by Logmarin Advisors and the Project Company. A comprehensive technical and commercial criteria would be used to evaluate bids. Detailed Evaluation Report along with all relevant documents including the final CTS contract would be submitted to NEPRA as soon as the process concludes.

7. INVESTMENT

7.1 The following capital cost investment for the jetty project is as follows:

Investment/Cost	Amount (USD Million)
EPC	192.47
Non-EPC	37.90
CAPEX	230.37

7.2 Jetty EPC Cost

The EPC cost represents the EPC for the construction of barge jetty as part of 2 x 660 MW power plant complex. This figure represents a final negotiated price with a world class EPC contractor after a thorough process of competitive bidding. A brief profile of the selected EPC contractor, CHEC, is as below:

CHEC Profile	– Has a global footprint in over 80 countries – Ranked 165 in Fortune 500 and 4th as a Top Global Contractor – Core Business in EPC of Marine Engineering
EPC Experience outside China	– Many contracts outside china – Jetty Extension-Lamma Power Station – Red Sea Gateway Civil works
EPC within Pakistan	– EPC contract for EETL-LNG terminal PQA – Port Qasim EPTL Terminal Project – Karachi Port Oil Terminal project

Unforeseen Undersea Ground Conditions

CHEC has more than 2 decades of experience of marine works in Pakistan. Despite the experience, one particular risk, under sea ground conditions, cannot be foreseen by the contractor or the Project Company. The seabed under the jetty construction area could potentially have crevasses, caves, cracks or fractures etc. which would only become known to the contractor or the Project Company at the time of detailed geotechnical investigation or construction. If it is discovered that seabed conditions do not conform to the general conditions assessed by preliminary geotechnical investigation during FSR, then it would result in change in design or design methodology.

Under international marine works construction practice, any such risk cannot be transferred to the contractor or mitigated before actual construction of the structure. Given the nature of this risk, CPHG would like to highlight this to the Authority in advance as it could potentially lead to a revision in EPC cost. Nonetheless, any such claim on the premise of unforeseen undersea ground conditions would be thoroughly investigated by the Project Company, Owner's Engineer and a competent authority before acceptance of any change order by the contractor.

7.3 Non- EPC Cost

Non-EPC cost covers the entire development and oversight related various costs including Project Administration expenses, site security and surveillance, Engineering consultancy, other consultancy, Insurance during construction, Staff Housing Colony, Jetty O&M Mobilization & Training, CTS Mobilization, Utilities during Commissioning, Inventory Buildup Cost and Regulatory Expenses. The details of each cost are given below:

Non-EPC	USD Million
Administration Expenses	13.63
Site Security and Surveillance	2.60
Design and Construction Management Fee	3.04
Other Consultancy	5.71
Insurance During Construction	2.16
Staff Housing Colony	1.90
Jetty O&M Mobilization & Training	2.20
CTS Mobilization	1.80
Utilities during Commissioning	1.74
Inventory Buildup Cost	2.22
Regulatory Expenses	0.89
Total Non-EPC	**37.90**

7.3.1 Administration Expenses

This sub-head covers staff related costs of Jetty project development team such as salaries and wages and other benefits in line with the industry practice. Other general & administrative expenses including but not limited to office rent, utilities, local & foreign travelling for design review meetings, trips by foreign consultants, vehicles & transportation cost, office supplies, IT and communication system costs and housing facilities for expats in Jetty team are to be covered in this sub-head.

7.3.2 Site Security and Surveillance

Given the security situation in Balochistan, it is critical to ensure the safety of all expats (Project Company employees, Owner's Engineer team and EPC contractor's personnel) at the Project site. Therefore, necessary security measures will be taken during the project development and construction phase. The Project Company would be required to engage Marine Security Services from Pakistan Navy approved security entity, Special Service Group (SSG) Commandoes, Police and Private Security Guards for this purpose. Due to remoteness of site and extensive marine works for the Jetty Project, the Project Company will also be arranging the food and living facilities for the security personnel and a team of unskilled labor e.g. cooks, attendants, janitors etc. who will be working at those facilities. In addition, the Project Company will also be procuring security vehicles and security equipment like bulletproof jackets, walkie-talkie sets, binoculars, search-lights etc. for continuous surveillance of the Project Site throughout the construction phase.

7.3.3 Engineering Consultancy for Design and Construction of Jetty

RHDHV, a highly reputable international marine engineering firm, has been involved with the Project from the start and has played an active role in the FSR review, RFP development, Consolidated Design Criteria (CDC), Bid Evaluation and final selection of the EPC contractor. RHDHV, would also continue as the Owner's Engineer for basic and detailed design review of the Jetty and construction supervision of all marine works to be carried out by CHEC up to the COD. They have significant experience in Pakistan and have worked on projects such as KPT Deep Sea Cargo Terminal and construction of new KPT Breakwater etc.

7.3.4 Other Consultancy

The Project Company has undertaken feasibility and technical studies conducted by internationally reputable and specialized consultants like CHEC, GEDI, CCCC, Techno-Consult International, Hagler Bailly, Logmarin etc. RIAA Barker Gillette and Mayer Brown have been engaged as the Company's Legal Advisors. Deloitte Hong Kong has been hired as the Financial and Tax Advisor whereas Deloitte Pakistan has been engaged as the local Tax, Accounting and Audit Advisor. Marsh UK has been appointed as the Insurance Advisor. The Project Company will be engaging an Independent Engineer pursuant to the requirement under the PPA. Further, the Company will also be engaging a Customs Advisor for assisting in clearing the imported goods and a Third Party Inspection Company for inspection services during construction phase.

7.3.5 Insurance during Construction

The Project Company will be procuring some key insurance policies such as Marine Insurance, Delay in Start-up Insurance, Construction/Erection All Risks (CEAR) Insurance and Third Party Liability Insurance, Terrorism Insurance etc. for the construction phase as well as the operations phase of the Project.

7.3.6 Staff Housing Colony

The Project site is located in Balochistan in a remote area, Jetty operation & maintenance team including expatriates shall need to be accommodated on the Project site, henceforth, a staff housing colony on site is a necessity to provide reasonable accommodation to the staff including expatriates. Safety and security of the staff would also need to be ensured.

7.3.7 Jetty O&M Mobilization and Training

O&M staff for Jetty will be mobilized to the Project site prior to the COD. Therefore, the Project Company would incur mobilization cost including salaries, administrative expenses and training costs for the Jetty O&M staff.

7.3.8 CTS Mobilization

CTS and other service vessels would be mobilized to the project site a few months before COD to carry out pre-commissioning tests for CTS and Jetty. Mobilization of CTS is also necessary for building initial coal inventory before COD. CTS contract term would only commence from COD, hence, the Project Company would be liable to pay mobilization costs to Coal Transshipper.

7.3.9 Utilities during Commissioning

The Project Company will be arranging utilities for testing and commissioning of the Jetty.

7.3.10 Inventory Buildup Cost

This sub-head includes the cost of handling coal for testing and commissioning of the Jetty and building up coal inventory prior to synchronization of the first unit of power plant.

7.3.11 Regulatory Expenses

This sub-head include the stamp duties on contracts and payments to the government for acquiring necessary approvals e.g. right of way, use of transshipment anchorage area, any other marine surcharges etc.

7.4 Assumptions

A. The assumptions of the Company's Tariff Approval shall apply to this application except to the extent of the following:

1. The Capital Cost Indexation (reference para II (vii) of the Company's Tariff Approval) shall not be applicable to the jetty related capital cost.

2. The guaranteed availability of jetty during the year shall stand amended as mentioned herein to account for the required outage including the outage during the Monsoon Months.

B. This application for the approval of the jetty-related costs is based on the following assumptions:

1. During the operation of the dedicated jetty facilities, the cost petitioned herein shall replace the cost of common jetty facilities mentioned under paragraph 56 (xix) of the Upfront Tariff 2014.

2. Project cost components including capex, customs duties and charges, Sinosure fee, interest during construction, financing fees and charges will be increased to take into consideration the additional costs of jetty.

3. Various tariff components such as debt servicing, ROE, insurance, Fixed O&M and Variable O&M will be revised to take into account the additional capital and operation expenditures associated with the jetty. For the avoidance of doubt, the Fixed O&M and the Variable O&M shall be increased to account for, inter alia, the costs payable in relation to the CTS.

4. Due to the weather constraints of operating the barge jetty during Monsoon Months a shortfall coal quantity of 600,000 tons assuming plant maintenance outage during Monsoon Months otherwise this quantity would be 900,000 tons.

5. Port handling charges as determined by KPT or PQA from time to time together with any taxes/duties/surcharges levied by the Federal or Provincial government shall be considered as pass-thru for the Project Company. Transportation charges to be paid in addition, on actual basis.

6. The port handling and transportation charges for importing Monsoon Months shortfall coal quantities through an alternative port (e.g. KPT/ PQA) shall be paid under "other cost" (reference paragraph II (xix) of the Company's Upfront Tariff).

7. Provincial Services Sales tax is assumed to be pass-thru in the total Project Cost.

8. Transshipment Feasibility Report numbers provided herein are exclusive of local taxes, duties, levies and port & anchorage charges to be imposed on CTS. The impact of these is assumed to be trued up at the COD.

9. The auxiliary consumption of jetty shall be considered part of the power plant Complex and no separate provision has been assumed.

10. Jetty together with CTS shall form part of the term "Complex" as defined in the standardized Power Purchase Agreement.

11. Considering the nature of the project i.e. an integrated power plant and jetty project, there will be single Financial Close and single COD for such integrated Complex.

7.5 Variable O&M

This variable O&M component consists of fuel for jetty and CTS (i.e. conveyors, portable ship unloaders, barges and tug boats) and water usage during barge unloading. The calculation of reference amount is as follows:

Variable Components	Total Cost (USD/ MT)	Total Cost (US Cents/KWh)
Jetty Variable O&M	0.19	0.0079
CTS Variable O&M	0.75	0.0314
Bunker Cost	1.85	0.0778
Total Variable O&M	**2.79**	**0.1171**

Note: The variable O&M cost shown above would not apply during Monsoon Months.

Tariff Component Calculation Formula
$VOM_{(Ref)} = JVOM_{(Ref)} + CTVOM_{(Ref)} + BC_{(Ref)}$
Where:

$VOM_{(Ref)}$	Total Variable O&M associated with barge jetty and CTS
$JVOM_{(Ref)}$	Foreign $JVOM_{(Ref)}$ + Local $JVOM_{(Ref)}$
$CTVOM_{(Ref)}$	Foreign $CTVOM_{(Ref)}$ + Local $CTVOM_{(Ref)}$
$BC_{(Ref)}$	Cost of bunker fuel required for operating CTS, barges and tugboats
Foreign $JVOM_{(Ref)}$	Foreign component of barge jetty specific variable O&M
Local $JVOM_{(Ref)}$	Local component of barge jetty specific variable O&M
Foreign $CTVOM_{(Ref)}$	Foreign component of CTS specific variable O&M
Local $CTVOM_{(Ref)}$	Local component of CTS specific variable O&M

7.6 Indexation and Escalation

40% of the JVOM and CTVOM is local whereas 60% of the JVOM and CTVOM is foreign in nature. The local component will be indexed to:

a) Local CPI, as issued by the Pakistan Federal Bureau of Statistics

The foreign component of EPP will be indexed to:

a) The USD/PKR exchange rate, based on revised TT and OD selling rate of USD notified by the National Bank of Pakistan; and

b) US CPI, as issued by the US Bureau of Labor Statistics.

c) The cost of Bunker Fuel shown above is based on the last two (02) year's average FOB price of Marine Diesel Oil (**"MDO"**) at Fujairah as reported by Platts. The actual Bunker Fuel price indexation would be based on average monthly MDO fuel price calculated based on Fujairah FOB price for the relevant month plus all other local charges such as Black premium, OMC margin and transportation etc.

Indexation Formula
The variable O&M cost component shall be indexed based on the following formula:
Foreign $JVOM_{(Rev)}$ = Relevant Reference Tariff Component*($US\ CPI_{(Rev)}$ / $US\ CPI_{(Ref)}$)* ($USD_{(Rev)}$/$USD_{(Ref)}$)
Local $JVOM_{(Rev)}$ = Relevant Reference Tariff Component*($Local\ CPI_{(Rev)}$ / $Local\ CPI_{(Ref)}$)
Foreign $CTVOM_{(Rev)}$ = Relevant Reference Tariff Component*($US\ CPI_{(Rev)}$ / $US\ CPI_{(Ref)}$)* ($USD_{(Rev)}$/$USD_{(Ref)}$)
Local $CTVOM_{(Rev)}$ = Relevant Reference Tariff Component*($Local\ CPI_{(Rev)}$ / $Local\ CPI_{(Ref)}$)
$BC_{(Rev)}$ = Relevant Reference Tariff Component*($BPI_{(Rev)}$ / $BPI_{(Ref)}$)

Where:

Local CPI $_{(Rev)}$	The revised local CPI as notified by the Pakistan Federal Bureau of Statistics
Local CPI $_{(Ref)}$	The CPI as on April 11, 2016 date, as notified by the Pakistan Federal Bureau of Statistics
US CPI $_{(Rev)}$	The revised US CPI as notified by the US Bureau of Labor Statistics
US CPI $_{(Ref)}$	The CPI as on April 11, 2016date, as notified by the US Bureau of Labor Statistics
USD $_{(Rev)}$	The revised USD/PKR exchange rate, based on revised TT and OD selling rate of USD notified by the National Bank of Pakistan
USD $_{(Ref)}$	The USD/PKR exchange rate as on April 11, 2016 date, based on revised TT and OD selling rate of USD notified by the National Bank of Pakistan
BPI $_{(Rev)}$	The average Bunker price of MDO (Fujairah) in USD per ton as notified by Bunker Index for the relevant period
BPI$_{(Ref)}$	The average Bunker price of MDO (Fujairah) in USD per ton as notified by Bunker Index as on [xx] date

7.7 Capacity Purchase Price

Fixed O&M

This Fixed O&M component primarily consists of fixed operation and maintenance cost for jetty in addition to fixed charges for the Coal Transshipment Solution. Reference values are as follows:

Component	Reference Annual Amount (USD M)	Total Cost (USD/ MT)	Reference Annual Amount (US Cents / KWh) @ 100% LF
Jetty Fixed O&M	4.16	1.10	0.0391
CTS Fixed O&M	20.70	5.46	0.1945
Total Fixed O&M	**24.86**	**6.56**	**0.2336**

Tariff Component Calculation Formula

FOM $_{(Ref)}$ = JFOM $_{(Ref)}$ + CTFOM $_{(Ref)}$

Where:

FOM$_{(Ref)}$	Total Fixed O&M associated with barge jetty and CTS
JFOM$_{(Ref)}$	Foreign JFOM$_{(Ref)}$ + Local JFOM$_{(Ref)}$

$CTFOM_{(Ref)}$	Foreign component of CTS specific fixed O&M
Foreign $JFOM_{(Ref)}$	Foreign component of barge jetty specific fixed O&M
Local $JFOM_{(Ref)}$	Local component of barge jetty specific fixed O&M

Indexation and Escalation

50% of the JFOM is local whereas 50% of the JFOM is foreign.

100% of CTFOM is Foreign

The Local Jetty Fixed O&M Cost component of Purchase Price will be indexed to:

a) Local CPI, as issued by the Pakistan Federal Bureau of Statistics

The Foreign Jetty and CTS Fixed O&M Cost component of Purchase Price will be indexed to:

b) The USD/PKR exchange rate, based on revised TT and OD selling rate of USD notified by the National Bank of Pakistan; and

c) US CPI, as issued by the US Bureau of Labor Statistics

Indexation Formula

The Jetty fixed O&M cost component shall be indexed based on the following formula:

Foreign $JFOM_{(Rev)}$ = Relevant Reference Tariff Component*(US $CPI_{(Rev)}$ / US $CPI_{(Ref)}$)* (USD $_{(Rev)}$/USD $_{(Ref)}$)
Local $JFOM_{(Rev)}$ = Relevant Reference Tariff Component*(Local $CPI_{(Rev)}$ / Local $CPI_{(Ref)}$)
$CTFOM_{(Rev)}$ = Relevant Reference Tariff Component*(US $CPI_{(Rev)}$ / US $CPI_{(Ref)}$)* (USD $_{(Rev)}$/USD $_{(Ref)}$)

Where:

$USCPI_{(Rev)}$	The revised US CPI as notified by the US Bureau of Labor Statistics
$USCPI_{(Ref)}$	The CPI as on April 11, 2016 date, as notified by the US Bureau of Labor Statistics
$USD_{(Rev)}$	The revised USD/PKR exchange rate, based on revised TT and OD selling rate of USD notified by the National Bank of Pakistan
$USD_{(Ref)}$	The USD/PKR exchange rate as on April 11, 2016 date, based on revised TT and OD selling rate of USD notified by the National Bank of Pakistan
Local $CPI_{(Rev)}$	The revised local CPI as notified by the Pakistan Federal Bureau of Statistics
Local $CPI_{(Ref)}$	The CPI as on April 11, 2016 date, as notified by the Pakistan Federal Bureau of Statistics

8. ADJUSTMENT SOUGHT

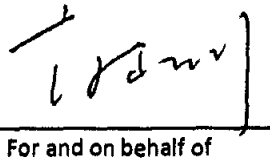
CPHG requests the honorable Authority to kindly approve the following costs and components relating to jetty and associated CTS:

1. Capital expenditure comprising the EPC and non-EPC costs which will be added to the project cost already allowed for the power plant.

2. The additional Fixed O&M and the additional Variable O&M together with the applicable indexations as mentioned herein above which will be added to the Fixed and Variable O&M components already allowed for the power plant.

3. The assumptions mentioned under paragraph 7.4 above.

The Authority is kindly requested to approve the costs provided herein at the earliest to enable the Project Company to achieve Financial Close and Construction Start in a timely manner.



For and on behalf of
China Power Hub Generation Company (Private) Limited

Dated: 29 June 2016

Indicative Jetty/CTS Tariff Table based on Reference Upfront Tariff

Tariff for Imported Coal (Cent/Kwh)

Energy Purchase Price (Cent/Kwh)				
Year	Variable O&M			Total EPP (Cent/Kwh)
	Bunker	Local	Foreign	
1	0.0778	0.0157	0.0235	0.1170
2	0.0778	0.0157	0.0235	0.1170
3	0.0778	0.0157	0.0235	0.1170
4	0.0778	0.0157	0.0235	0.1170
5	0.0778	0.0157	0.0235	0.1170
6	0.0778	0.0157	0.0235	0.1170
7	0.0778	0.0157	0.0235	0.1170
8	0.0778	0.0157	0.0235	0.1170
9	0.0778	0.0157	0.0235	0.1170
10	0.0778	0.0157	0.0235	0.1170
11	0.0778	0.0157	0.0235	0.1170
12	0.0778	0.0157	0.0235	0.1170
13	0.0778	0.0157	0.0235	0.1170
14	0.0778	0.0157	0.0235	0.1170
15	0.0778	0.0157	0.0235	0.1170
16	0.0778	0.0157	0.0235	0.1170
17	0.0778	0.0157	0.0235	0.1170
18	0.0778	0.0157	0.0235	0.1170
19	0.0778	0.0157	0.0235	0.1170
20	0.0778	0.0157	0.0235	0.1170
21	0.0778	0.0157	0.0235	0.1170
22	0.0778	0.0157	0.0235	0.1170
23	0.0778	0.0157	0.0235	0.1170
24	0.0778	0.0157	0.0235	0.1170
25	0.0778	0.0157	0.0235	0.1170
26	0.0778	0.0157	0.0235	0.1170
27	0.0778	0.0157	0.0235	0.1170
28	0.0778	0.0157	0.0235	0.1170
29	0.0778	0.0157	0.0235	0.1170
30	0.0778	0.0157	0.0235	0.1170
Average				
1-10 Years	0.0778	0.0157	0.0235	0.1170
11-30 Years	0.0778	0.0157	0.0235	0.1170
1-30 Years	0.0778	0.0157	0.0235	0.1170
Levelized =		10.00%		
1-30 Years	0.0778	0.0157	0.0235	0.1170

Capacity Purchase Price (Cent/Kwh)									
Year	Fixed O&M		Insurance	ROE	Debt	Interest	Total CPP (Cents/Kwh)	Total CPP @ 85% (Cent/Kwh)	
	Local	Foreign							
1	0.0195	0.2141	0.0152	0.1872	0.1637	0.0991	0.6989	0.8222	
2	0.0195	0.2141	0.0152	0.1872	0.1720	0.0909	0.6989	0.8222	
3	0.0195	0.2141	0.0152	0.1872	0.1807	0.0822	0.6989	0.8222	
4	0.0195	0.2141	0.0152	0.1872	0.1898	0.0731	0.6989	0.8222	
5	0.0195	0.2141	0.0152	0.1872	0.1993	0.0635	0.6989	0.8222	
6	0.0195	0.2141	0.0152	0.1872	0.2094	0.0535	0.6989	0.8222	
7	0.0195	0.2141	0.0152	0.1872	0.2200	0.0429	0.6989	0.8222	
8	0.0195	0.2141	0.0152	0.1872	0.2310	0.0318	0.6989	0.8222	
9	0.0195	0.2141	0.0152	0.1872	0.2427	0.0202	0.6989	0.8222	
10	0.0195	0.2141	0.0152	0.1872	0.2541	0.0079	0.6989	0.8213	
11	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
12	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
13	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
14	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
15	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
16	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
17	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
18	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
19	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
20	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
21	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
22	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
23	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
24	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
25	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
26	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
27	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
28	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
29	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
30	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
Average									
1-10 Years	0.0195	0.2141	0.0152	0.1872	0.2063	0.0565	0.6988	0.8221	
11-30 Years	0.0195	0.2141	0.0152	0.1872	-	-	0.4360	0.5130	
1-30 Years	0.0195	0.2141	0.0152	0.1872	0.0688	0.0188	0.5250	0.6160	
Levelized =	10.00%								
1-30 Years	0.0195	0.2141	0.0152	0.1872	0.1294	0.0419	0.6073	0.7145	

Total Tariff (Cent/Kwh)	
Year	Total Tariff (Cent/Kwh)
1	0.9392
2	0.9392
3	0.9392
4	0.9392
5	0.9392
6	0.9392
7	0.9392
8	0.9392
9	0.9392
10	0.9383
11	0.6300
12	0.6300
13	0.6300
14	0.6300
15	0.6300
16	0.6300
17	0.6300
18	0.6300
19	0.6300
20	0.6300
21	0.6300
22	0.6300
23	0.6300
24	0.6300
25	0.6300
26	0.6300
27	0.6300
28	0.6300
29	0.6300
30	0.6300
Average	
1-10 Years	0.9391
11-30 Years	0.6300
1-30 Years	0.7330
Levelized =	10.00%
1-30 Years	0.8315