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RO	SES	IA	OA-I	OA-II

TEL Reference: TEL-NEPRA-SM-09
August 8, 2023

The Registrar
National Registrar Electric Power Regulatory Authority NEPRA Tower,
Ataturk A venue (East), G-5/1,
Islamabad.

REGISTRAR OFFICE
Diary No: 11628
Date: 24-8-23

Subject: Corrigendum on behalf of Thar Energy Limited for Modification of its Generation License

Dear Sir,

Thar Energy Limited (TEL) is pleased to make the following amendments to the Generation License Modification Application submitted vide letter TEL-NEPRA-SM-05 dated December 07, 2022.

- In paragraph 2.1 of section 2 *"Proposed Modification"*, table of ramping rate has been modified.
- In paragraph 3.1 *Rationale for the Modification to Ramping rate of section 3*, Hold Time and ramp rate of Warm Start has been modified.
- In paragraph 3.2 *Rationale for the Modification to the Time required for the Synchronization of the Grid*, section has been revised based on the Startup curves provided by OEM.

Licensing Department
Diary No. 3167
Dated 22-08-23

Best Regards

Saleemullah Memon
Chief Executive Officer

Forwarded please.
☑ For nec action ☑ for information

1. DG (Lic.)	2. DG (Admn./HR)
3. DG (M&E)	4. DG (CAD)
5. DG (Trf.)	6. Dir. (Fin.)
7. Dir. (Tech.)	8. Consultant
9. I.A	10. Dir. (IT)

For kind information please
1. Chairman
2. M (Tech.)
3. M (Lic.)
4. M (Trf. & Fin)
5. M (Law)

Enclosed:

1. Corrigendum

BEFORE

THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

APPLICATION FOR MODIFICATION OF

GENERATION LICENSE NO. IGSPL/83/2017 DATED JUNE 07, 2017

ON BEHALF OF

THAR ENERGY LIMITED (TEL)

PURSUANT TO REGULATION 9(1A) OF THE NEPRA (APPLICATION, MODIFICATION, EXTENSION AND CANCELLATION) PROCEDURE REGULATIONS, 2021), READ TOGETHER WITH THE REGULATION OF GENRATION, TRANMSIOSION AND DISTRIBUATION OF ELECTRIC POWER ACT ,1997 AND ALL OTHER ENABLING PROVISIONS OF LAW

Dated 08 August 2023

1 DETAILS OF THE PETITIONER

1.1 Name and Address

Name:	**Thar Energy Limited**
Address:	09th Floor, Ocean Tower Block-9, Main Clifton Road Karachi, 75600, Pakistan
Phone:	+92 21 3587 4677-86 +92 21 3583 9018
Fax:	+92 21 3587 0397

1.2 Particulars of Authorized Representative

Name:	Mr. Saleemullah Memon
Designation:	Chief Executive Officer

1.3 Particulars of Authorized Representative

Thar Energy Limited (the "**Company**") is private limited Company incorporated under the laws of Pakistan and is establishing a 330MW indigenous Thar coal based thermal generation facility located at Thar Coal Block-II, Village Singharo-Bitra in Taluka Islamkot, District Tharparkar, in the province of Sindh.

NEPRA granted the Company Generation License NO. IGSPL/83/2017 DATED JUNE 07, 2017 (the "**Generation License**") under section 15 of the Regulation of Generation, Transmission and Distribution of Electric Power Act ,1997.

2 PROPOSED MODIFICATION

Pursuant to Regulation 10(1) of the 2021 Regulations, Company herby applies for the following modifications to the specification set out in Schedule 1 of the Generation License:

2.1 The ramping rates (MW/min) set out in row V of table F of the schedule 1 of the Generation License (under the heading "Detail of Generation Facility / Power Plant are proposed to be written as follows:

Complex NET load range % age	Cold Start (% / Min)	Warm Start (%/Min)	Hot Start (% /Min)
0 – 25 %	0.35	0.67	1.00
Hold Time	10 minutes		
25 – 50 %	0.35	0.67	1.00
Hold Time	10 minutes		
50 – 75 %	0.35	0.67	1.00
Hold Time	10 minutes		

75 – 90 %	0.35	0.67	1.00
Hold Time	10 minutes		
90 – 100 %	0.35	0.67	1.00
Total Time	326 minutes	189 minutes	140 minutes

2.2 The time required to Synchronize to the grid (Hrs.) set out in row (VI) of table F of Schedule 1 of Generation License (under the heading "Detail of Generation Facility / Power Plant are proposed to be modified as follows:

Length of Shutdown	**Notice Required to Synchronize (The time start after boiler ignited)**
Not more than 2 hours	100 min
More than 2 hours but less than 8 hours	150 min
More than 8 hours but less than 32 hours	360 min
More than 32 hours but less than 150 hours	550 min
More than 150 hours	770 min

3 STATEMENT OF THE REASON IN SUPPORT OF THE MODIFICATION

The above modifications to Ramping rates and the time periods for Synchronization to the Grid are necessary because these specifications were provided by the Company to NEPRA at the time of filling of the application for grant of its Generation license and were tentative and indicative in nature. Accordingly, these specifications require modification in light of the actual design and requirement of the power plant and the data and instructions provided by the manufacturer to the Company.

Consistent with NEPRA determination in the matter of similar IPPs modification application and Article 3.2 of Generation License, The Company hereby requesting modification of its Generation License in light of actual design of the power plant and the data provided and instruction received by the Company from the manufacturer.

In addition to the above, we set out below the specific reasons for each modification requested by the Company from NEPRA

3.1 Rationale for the modification to Ramping Rates

Modification to the Ramping rates is necessary because:

a. TEL power plant is equipped with a Circulating Fluidized Bed (CFB) boiler and Thar lignite coal combusted. For CFB boiler, the normal ramp rate is no more than 1%Pe/min for Hot startup, 0.67% Pe/min and 0.35% Pe/min for Warm and Cold startup respectively.

b. High moisture lignite coal is combusted, and some residence time required to ensure proper burning. If the Ramping rate is not followed, the circulation and heating of the furnace cannot be ensured, faster ramp rate may cause excess coal feed to furnace in low temperature condition, which may result in localized explosion, ash fusion and clinker formation in Boiler. Therefore, the modification to the Ramp rate, set out in paragraph 2. 1 above, has been proposed to ensure safe and efficient operation of the power plant.

c. Meanwhile, the ramp rate is crucial to ensure proper heating of the Boiler, Steam Turbine, and Steam pipelines to avoid exceed thermal stress. If the Ramping rate is not limited, it may cause an adverse change in the airflow, distribution of coal, and difficulty in achieving thermal &chemical equilibrium for the CFB boiler, which may impact the system parameters like steam pressure, steam temperature etc. adversely. Under these circumstances, the boiler may overheat or leak. Furthermore, heat stress protection on the cylinder metal will be triggered and load ramping will be limited by GE TCS system, or even the operational life span of turbine may be affected.

d. According to Chinese relevant standards, the Ramp rate of CFB unit should be limited no more than 1%Pe/min, to ensure main system parameters are properly under controlled, such as boiler bed temperature, primary air pressure, second air flow, drum level, main steam pressure, main/reheat steam temperature, etc. Ramp rate of TEL Power Plant shall be limited within 1%Pe/min for Hot startup, 0.67% Pe/min and 0.35% Pe/min for Warm and Cold startup respectively.

e. Based on recent operational experience of CFB boiler at TEL plant and operational practices of other plants of similar technology, Hold Time is added after every step load change and ramp rate for Warm Start is changed, for normalizing the operational parameters like furnace pressure, steam pressure, steam temperature and to avoid any undue stresses on the machine. Thermal stresses were quite evident and seen on different parts of the CFB boiler during recent planned outage of TEL plant, therefore, the above-mentioned changes are done per OEM/EPC recommendations, to avoid any damage to plant machinery.

Annexure 1: Start-up Load Profiles

3.2 Rationale for the modification to the Time required for the Synchronization to the Grid

The following modifications to the time required for the synchronization to the Grid are based on the technical requirements of the manufacturer's technical specification (set out in Annexure 2 of this Application), and take into consideration the efficient and safe operation of the plant:

More than 150 hours: Total 770 Minutes, wherein, 200 minutes are required auxiliary boiler start and auxiliary steam system warm up, as well as for boiler water purity & pressure raising; 500 minutes are required for CFB boiler to setup temperature and pressure after the successful ignition: hot flushing time of 30 minutes in addition to Boiler Startup time to achieve the steam purity is required; Then, 40 minutes are required for turbine rolling and synchronization to grid. Therefore total 770 minutes are required for unit startup.

More than 32 hours and less than 150 hours: Total 550 Minutes wherein 200 minutes are required for auxiliary boiler start and auxiliary steam system warm up, as well as for boiler water purity & pressure raising, 290 minutes are required for CFB boiler to setup temperature and pressure after the successful ignition: hot flushing time of 30 minutes is needed; Then, 30 minutes are required for turbine rolling and synchronization to grid. Therefore total 550 minutes are required for unit startup.

More than 8 hours and less than 32 hours: Total 360 Minutes wherein 200 minutes are required for auxiliary boiler start and auxiliary steam system warm up, as well as for boiler water purity and pressure raising; 145 minutes are required for CFB boiler to set up temperature and pressure after the successful ignition; Then, 15 minutes are required for turbine rolling and synchronization to grid. Therefore total 360 minutes are required for unit startup.

More than 2 hours less than 8 hours: Total 150 minutes, wherein 135 minutes are required for CFB boiler to set up temperature and pressure after the successful ignition; Then, 15 minutes are required for turbine rolling and synchronization to grid. Therefore, total 150 minutes are required for unit start-up.

Not more than 2 hours: Total 100 minutes, wherein 85 minutes are required for CFB boiler to set up temperature and pressure after the successful ignition; Then, 15 minutes are required for turbine rolling and synchronization to grid. Therefore, total 100 minutes are required for unit start-up.

Annexure 2: Startup curves

4 STATEMENT OF THE IMPACT OF THE PROPOSED MODIFICATION ON THE TARIFF, QUALITY OF SERVICE, AND PERFORMANCE OF THE COMPANY OF ITS OBLIGATIONS UNDER THE GENERATION LICENSE

4.1 Impact of the Proposed Modification on the Tariff

The Company has opted for upfront coal tariff, for 1 x 330 MW Coal Power Plant, issued by NEPRA. Since the upfront tariff is a fixed tariff, the proposed modification to the Company's Generation License will have no impact on the tariff.

4.2 Impact of the Proposed Modification on Quality of Service

The Company hereby certifies that the Upfront Tariff and the obligations enunciated in the Generation License are fully acceptable to the Company and that the proposed modification will not impact the quality of service. Rather, the modification is necessary as explained above in order to avoid any impairment in the quality of service.

4.3 impact of the Proposed Modification on the Performance of the Company of Its Obligations under the Generation License

For the reasons explained above, the proposed modification would facilitate the Company in fulfilling its obligations under the Generation License.

It is further submitted that the proposed modification may be accepted as it:

a) does not cause NEPRA to act or acquiesce in any act or omission of the licensee in a manner contrary to the provisions of the Regulation of the Generation, Transmission and Distribution of Electric Power Act, 1997 or the rules or regulations framed thereunder.

b) is beneficial to the consumers as it will ensure safe and efficient operation of the power plant.

c) is reasonably necessary for the Company to perform its obligations effectively and efficiently under the Generation License.

d) is reasonably necessary to ensure the continuous, safe and reliable supply of electric power to the consumers keeping in view the financial and technical viability of the Company; and

e) is in accordance with the design requirements of the manufacturer, as certified by the manufacturer.

5 PRAYER

In view of the above, it is hereby most respectfully requested that NEPRA may kindly:

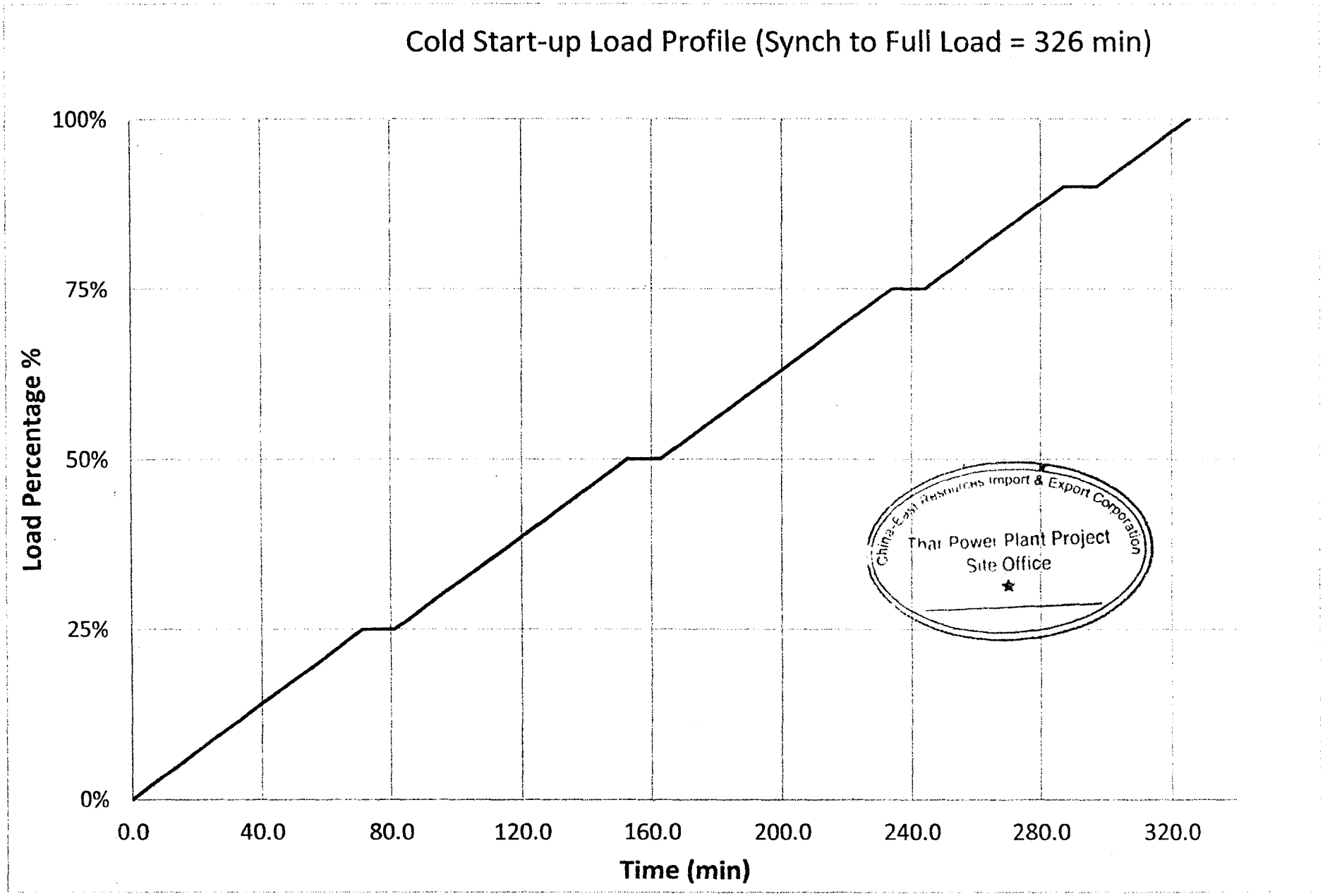
i. accept the proposed modification to the Generation License to ensure safe and /efficient operation of the Company'330 MW power plant,

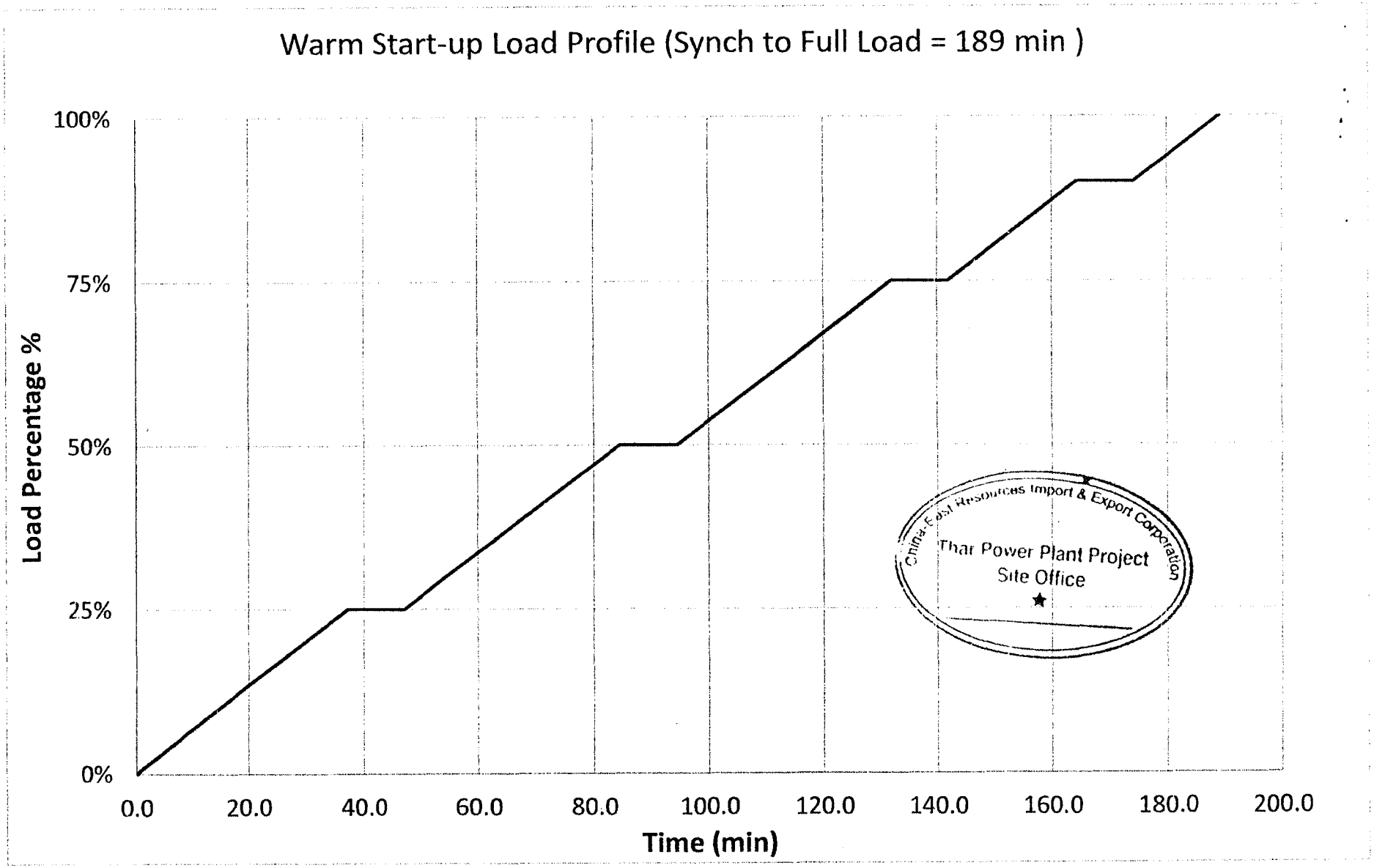
ii. treat the Company's request for modification to the Generation License on a nondiscriminatory basis; and

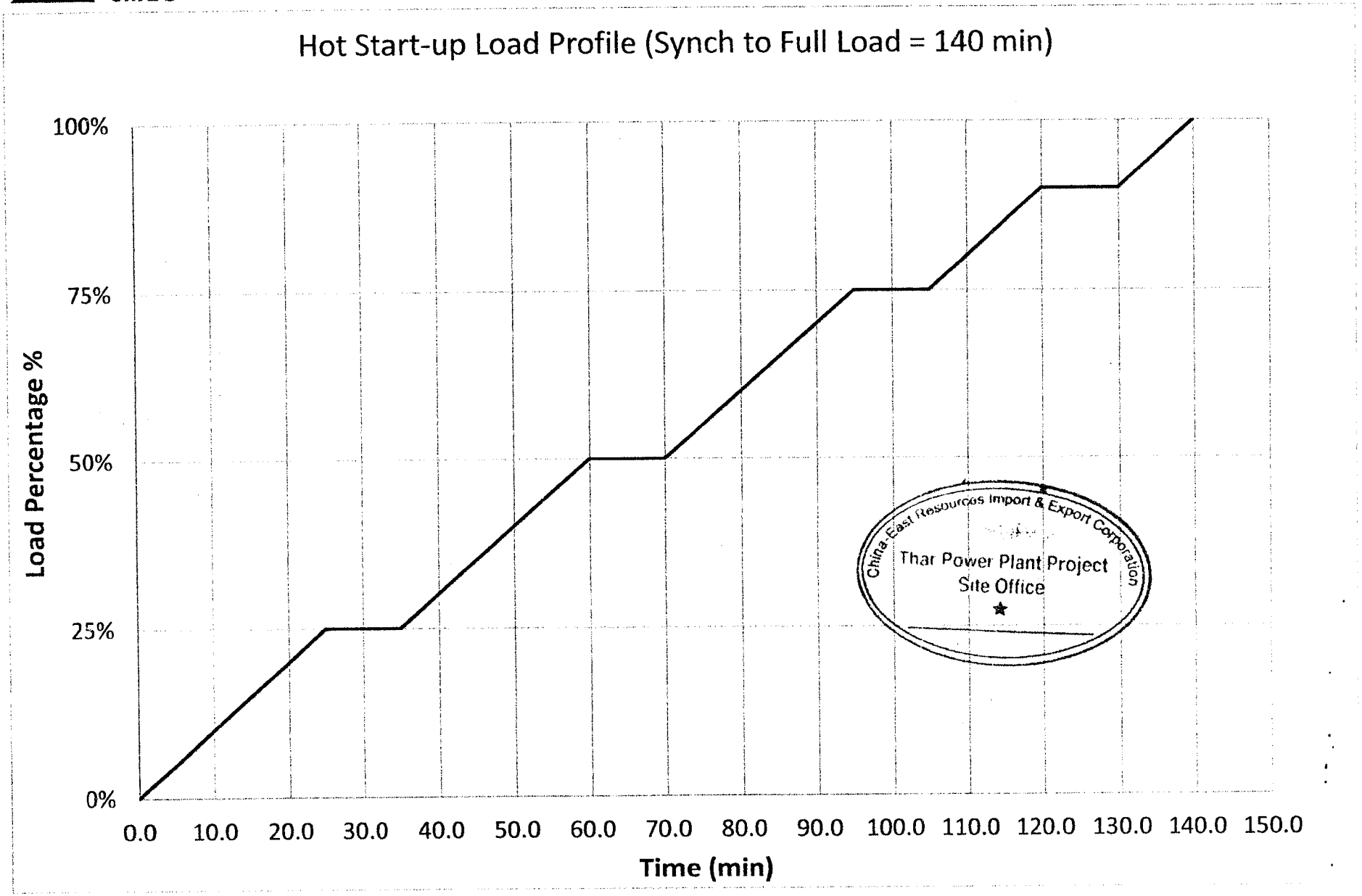
iii. grant such other relief as NEPRA may deem appropriate in the circumstances

Annexure 1

Start-up Load Profiles


Cold Start-up Load Profile (Synch to Full Load = 326 min)
100%
75%
50%
25%
0%
Load Percentage %
0.0
40.0
80.0
120.0
160.0
200.0
240.0
280.0
320.0
Time (min)
China East Resources Import & Export Corporation
Thar Power Plant Project
Site Office

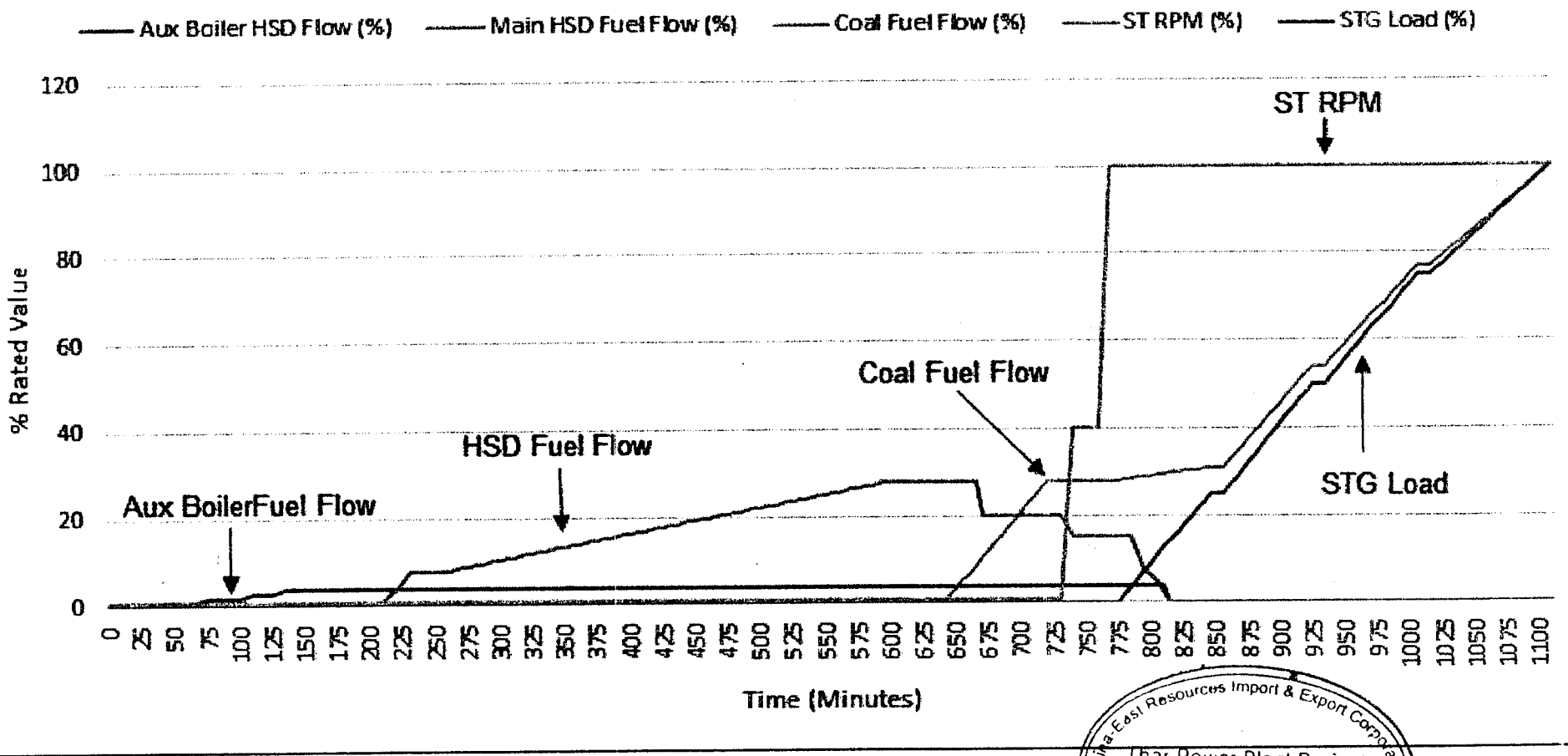

Warm Start-up Load Profile (Synch to Full Load = 189 min)
100%
75%
50%
25%
0%
Load Percentage %
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0
180.0
200.0
Time (min)
China East Resources Import & Export Corporation
Thar Power Plant Project
Site Office


Hot Start-up Load Profile (Synch to Full Load = 140 min)
100%
75%
50%
25%
0%
Load Percentage %
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
110.0
120.0
130.0
140.0
150.0
Time (min)
China-East Resources Import & Export Corporation
Thar Power Plant Project
Site Office

Annexure 2

Start-up Curves

TEL 1*330MW CFPP - Cold Startup Curve after 150 Hours
(100% MCR, Performance Coal)



China East Resources Import & Export Corporation
Thar Power Plant Project
Site Office

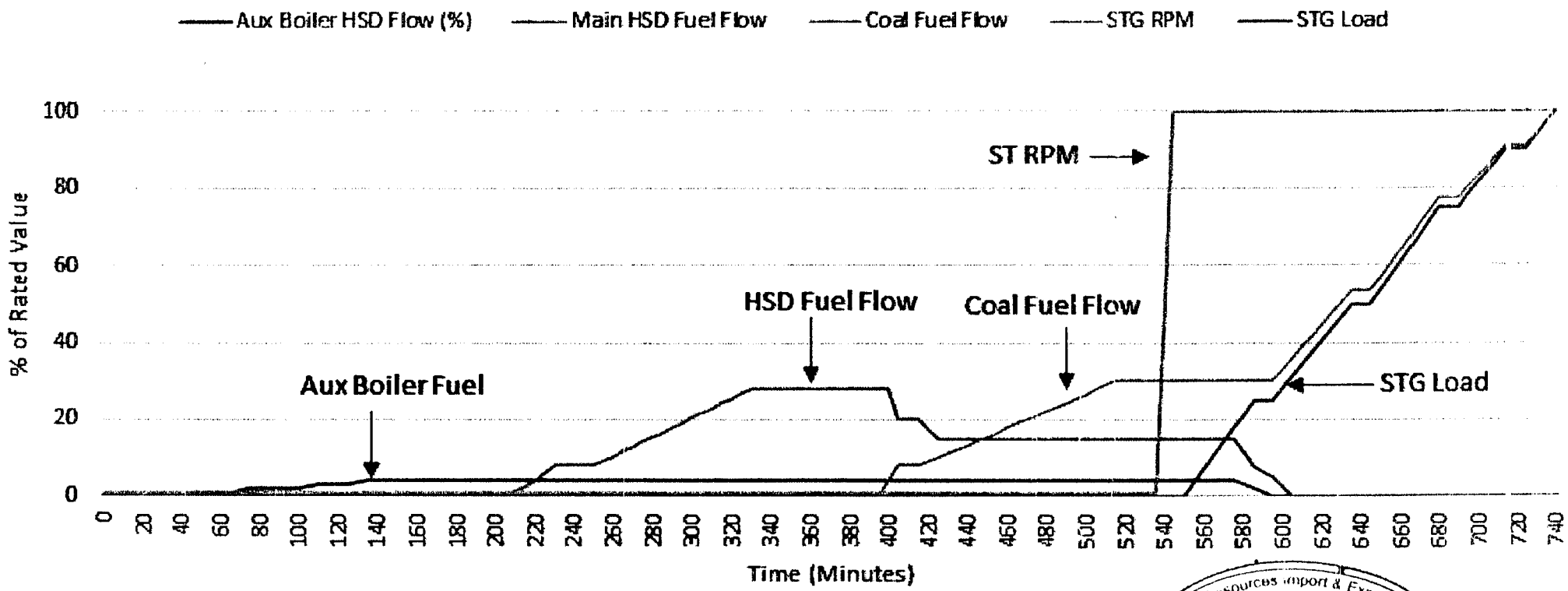
Note:

All OEM requirements will be followed.

This graph is only used to inform NTDC the time of unit startup.

The bed inventory should be 10 ~ 12 KPa equivalent before startup.

TEL 1*330MW CFPP Warm-2 Startup Curve after 32 hrs & less than 150hrs (100% MCR, Performance Coal)



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Site Office

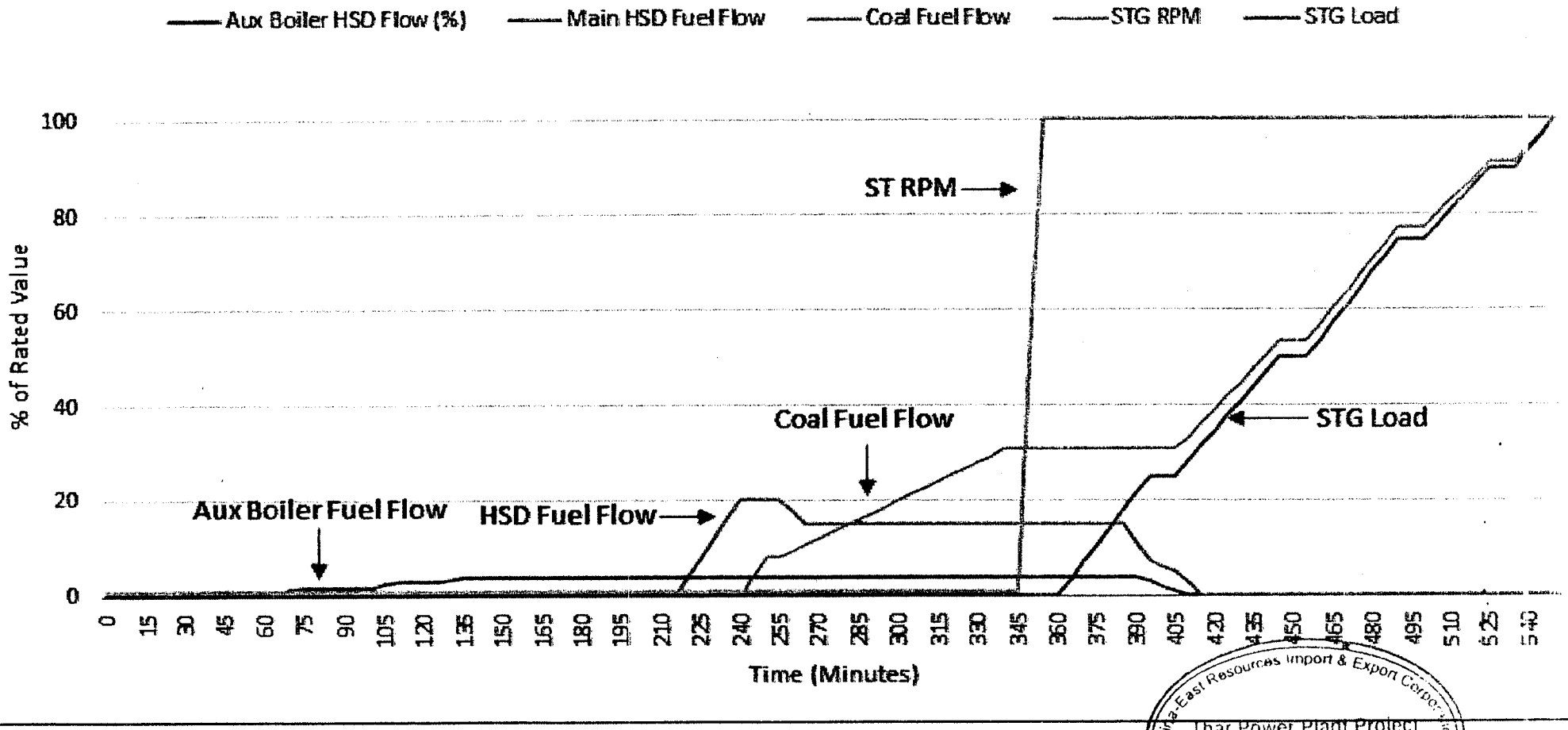
Note:

All OEM requirements will be followed.

This graph is only used to inform NTDC the time of unit startup.

The bed inventory should be 10 ~ 12 KPa equivalent before startup.

TEL 1*330MW CFPP Warm-1 Startup Curve after 8 hrs & less than 32 hrs (100% MCR, Performance Coal)



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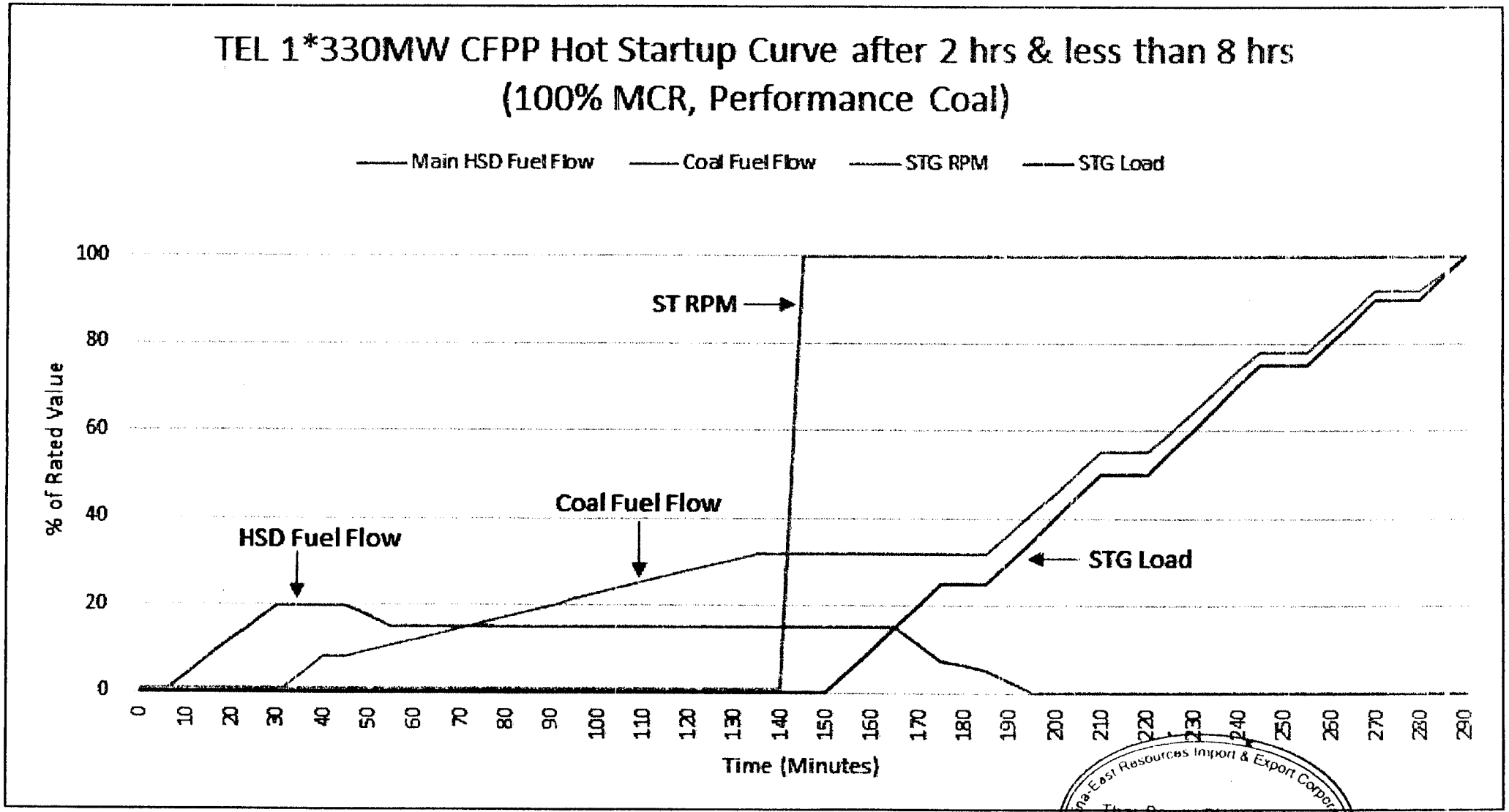
Note:

All OEM requirements will be followed.

This graph is only used to inform NTDC the time of unit startup.

The bed inventory should be 10 ~ 12 KPa equivalent before startup.

TEL 1*330MW CFPP Hot Startup Curve after 2 hrs & less than 8 hrs (100% MCR, Performance Coal)



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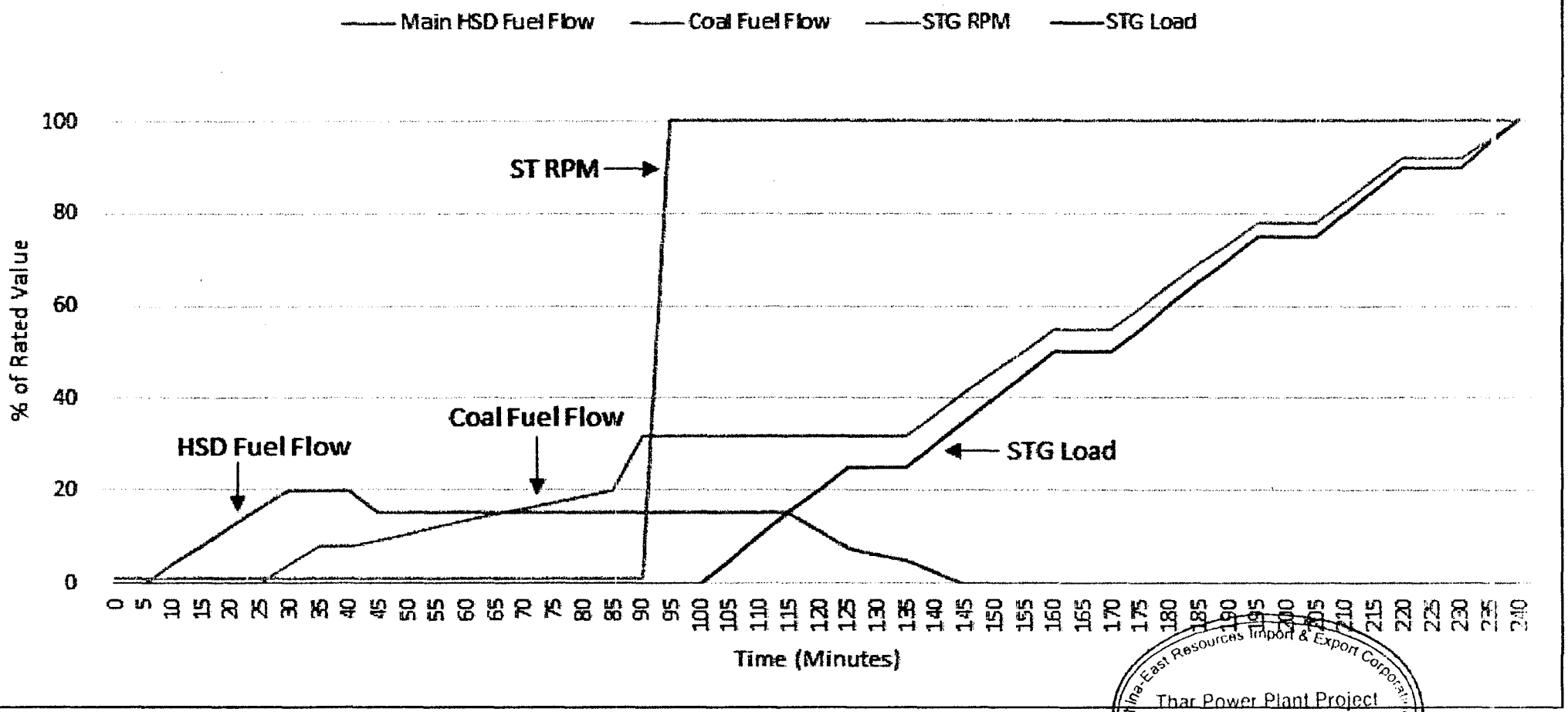
Note:

All OEM requirements will be followed.

This graph is only used to inform NTDC the time of unit startup.

The bed inventory should be 10 ~ 12 KPa equivalent before startup.

TEL 1*330MW CFPP Very Hot Startup Curve less than 2 hours (100% MCR, Performance Coal)



China-East Resources Import & Export Corporation
Thar Power Plant Project
Site Office

Note:

All OEM requirements will be followed.

This graph is only used to inform NTDC the time of unit startup.

The bed inventory should be 10 ~ 12 KPa equivalent before startup.