

Republic of the Philippines
ENERGY REGULATORY COMMISSION
San Miguel Avenue, Pasig City

**IN THE MATTER OF THE APPLICATION FOR
THE APPROVAL OF THE PROPOSED
REVISED PLANT HEAT RATES FOR LUZON,
VISAYAS AND MINDANAO GRIDS WITH
PRAYER FOR PROVISIONAL AUTHORITY**

ERC CASE NO. 2009-003RC

NATIONAL POWER CORPORATION

, *Applicant*
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APPLICATION

APPLICANT **National Power Corporation** (NPC), through the undersigned counsel, unto this Honorable Commission, most respectfully states that:

1. Applicant NPC is a government-owned and controlled corporation created by and existing under and by virtue of Republic Act No. 6395, as amended, with principal office address at NPC-Office Building Complex, corner Quezon Avenue and BIR Road, Diliman Quezon City.

2.. NPC is mandated under its Charter to undertake the development of hydroelectric generation of power and the production of electricity from nuclear, geothermal and other sources of energy in order to attain, among others, the objective of providing adequate and reasonable price of electric power nationwide. NPC is filing this application in its capacity as the current legal owner of all the existing generation assets and energy, and also as applicant and implementing agency for the unbundled generation rates as approved by the Honorable Commission in its Orders dated September 6 and 20, 2002 (ERC Case No. 2001-901), April 13, 2005 (ERC Case No. 2004-178) and all Orders/Decisions relative to applications filed under the Generation Rate Adjustment Mechanism (GRAM).

3. On June 30, 2008, the Honorable Commission in ERC Case No. 2004-111 issued its Decision approving the new heat rate caps and Heat Rate (HR) degradation factors applicable to all NPC-owned as well as NPC-Independent Power Producer (IPP) power plants.

The Existing Heat Rate Caps

4. The filing of the application under ERC Case No. 2004-111, approved by the Honorable Commission in the above-stated Decision, was pursuant to a directive for NPC to file its application for approval of the proposed Heat Rate caps and Heating Values of the different types of fuel as updated to Calendar Year 2003 levels. The filing was also necessary as the existing HR caps are no longer reflective of the quality of actual fuel deliveries and actual efficiencies of NPC-owned power plants and IPPs. Since the approval by the then Energy Regulatory Board (ERB) of the existing HRs and HVs in 1993 for Visayas and Mindanao, and in 1996 for Luzon, said HRs and HVs were never updated even with the adoption of the GRAM in October 2002.

5. Thus, even prior to the issuance of the Decision in ERC Case No. 2004-111, applicant NPC has proposed for the updating of the existing heat rate caps by using an assumed net degradation factor of less than one percent (1%) or merely point three seven five percent (0.375%) per annum under its GRAM applications starting with its 7th GRAM in ERC Case No. 2006-073RC. However, the Honorable Commission, in approving said GRAM application on February 7, 2007, did not concur with NPC's assumptions prompting applicant NPC to file a Motion for Reconsideration on August 3, 2007, which is yet to be resolved by the Commission up to this date.

6. In its application under ERC Case No. 2004-111, NPC raised the following issues relative to the continued implementation of the existing HR caps based on "per fuel type and per grid" under its GRAM applications as well as its Basic Generation Rate applications:

i. The actual Diesel/Bunker consumptions with generation used for dual-firing operations in order to maintain boiler flame stability (since the load dispatch of said plants are low) were not considered in the calculation of their HRs which resulted to HR distortion and fuel costs disallowances. The reason is that the fuel consumption of coal-fired plants is referred solely to the volume and cost of coal consumed alone excluding actual bunker/diesel consumption.

ii. Another HR distortion to the diesel plants can be attributed to the fact that the actual Diesel/Bunker consumptions of coal-fired plants are made part of the Diesel/Bunker consumptions of the diesel plants.

iii. Further, all the reported fuel consumptions without generation (start-up fuels) form part of the HR calculations thus, further distorting the actual HRs of NPC's power plants.

iv. Finally, considering that the standard HVs prescribed in the computation of the HR of coal-fired plants were not updated, the computed HRs are also not reflective of the efficiencies of the plants. It is worth mentioning that these standard HVs prescribed for coals in Luzon and Visayas represent the typical HVs of Semirara coal and Cebu coal being used at NPC's Calaca and Naga coal-fired power plants, respectively. Since then, however, imported coal supplies with higher heating value (> 10,000 Btu/lb) have been procured and used in said coal-fired power plants including the newest coal-fired power plants put up by IPPs as well as NPC plants like Masinloc (now privatized) and Sual.

Newly Approved Net Plant Heat Rates

7. The Honorable Commission recognized the need to set reasonable Heat Rate (HR) levels/caps to measure the plant efficiency taking into consideration the type and age of the plant. More importantly, the Commission recognized the need to resolve the above-stated issues surrounding the use of the existing HR caps and thus, issued its Decision with due consideration of the following:

i. New heat rate caps on a per power plant basis instead of one (1) specific heat rate cap on a per grid and per fuel type;

ii. New heat rate caps calculated covering fuel consumptions with generation for each particular power plant and not distorted with the inclusion of fuel consumptions without generation;

iii. Heat rate cap per plant (termed as “Minimum Heat Rate”) based on the lowest of the actual heat rate over a three (3) year period from CY2004 – CY2006. This was pursued to intentionally capture the lowest heat rate of power plants/IPPs thus, giving customers an assurance that fuel consumed beyond such HR caps are not passed-on to them.

8. The Commission approved two (2) sets of HR caps, one (1) applicable to NPC-owned power plants and another for NPC-contracted independent power producers (IPPs). For NPC plants, the Commission approved for adoption, the Minimum HRs cited in the Decision. On the other hand, although the Commission cited Minimum HRs for the IPPs, it pointed out that said Minimum HRs only apply should there be no Guaranteed HRs agreed upon by the parties under existing/valid Power Conversion Agreements (PSA) or Build-Operate-Transfer (BOT) contracts and the like.

For NPC Power Plants and NPC-IPPs without Contract Guaranteed Heat Rates

9. Applicant respectfully submits that considering that the newly approved HR caps for the power plants correspond to the lowest among the actual heat rates for the period CY2004 to CY2006, said caps are not reflective of the most current operational efficiencies as well as the peculiarities brought about by different consumption patterns of customers, seasonal generation mix, WESM trading behaviors and system constraints/congestions, among others, present in CY2007. For

instance, power plants that are required to be dispatched at low loads to provide margin for power system security and reliability will inherently have higher actual HR. Thermal power plants will tend to be dispatched higher during summer months when dam water elevations in hydro power plants are low. Most of the baseload and intermediate power plants that are not designed for daily start/stop operation will have higher HR during off-peak hours when the system demand is low and lower HR during peak hours when the system demand is high. System constraint/congestion such as a San Jose Transformer problem will limit the dispatch of power plants in North Luzon, resulting to high HR and may increase the dispatch of power plants in South Luzon, thus resulting to lower HR. It is inherent therefore, that thermal power plants with higher dispatch approaching their rated capacities will have lower actual heat rates while those with lower dispatch will have higher actual heat rates. On account of the above considerations that affect the plants' heat rate behavior in relation to plant dispatch, applicant proposed the use of a more current test period which likewise covers full annual operations of the WESM.

Proposed Heat Rate Caps

10. Applicant is proposing to adopt HR caps that would be representative of the annual average heat rate of its plants/IPPs (without contract guaranteed heat rates) and adopt the lowest actual annual average among the latest available three (3) year period, in this case, CY2005 to CY2007 instead of the CY2004 to CY2006 period under ERC Decision dated June 30, 2008 in ERC Case No. 2004-111. It is respectfully emphasized that applicant is also proposing the updated HR caps to serve as benchmarks that will penalize NPC for inefficient operation (for actual HR higher than the proposed HR caps herein) and allow NPC to retain the savings derived from efficient operation (with lower actual HR) to improve further the operations of its plants/IPPs. The proposed HR caps are shown in the table below with supporting figures/calculations in **Annex "A"**.

Table 1. Proposed Heat Rate Caps Updated to CY2007, Btu/kWh

	Proposed HR Cap
PLANTS	BTU/KWH
CALACA	11,439
LIMAY (BLOCK A)	9,907
LIMAY (BLOCK B)	9,912
NAVOTAS	11,785
BDPP	9,447
PB 101	9,351
PB 103	9,238
PDPP	9,251
PB 102	9,175
PDPP3	8,848
NMPC 1	9,307
NMPC 2	8,949
PB 104	9,134

For NPC-IPPs with Contract Guaranteed Heat Rates

11. The Honorable Commission recognized that guaranteed yearly heat rates in the approved contracts of NPC-IPPs reasonably serve as benchmark for efficient plant operation and maintenance of NPC-IPPs. However, the guaranteed HR provided in the existing and valid NPC-IPP contracts are based on performance test at various load levels up to contracted net capacity or guaranteed HR at reference capacity (usually at 100% load) but corrected to the actual average load.

12. In case of guaranteed HR based on performance test, applicant is proposing the adoption of actual HR, meaning full recovery of actual fuel costs with generation, if resulting performance tests indicate that the heat rate of the NPC-IPP plant passed the contract guaranteed heat rates at rated capacity. Otherwise, the equivalent cost of fuel consumed pertaining to the excess of actual HR vis-à-vis the guaranteed HR shall be disallowed for recovery. A sample determination on whether the actual fuel cost with generation of an IPP plant under this arrangement is recoverable in full or not is shown in the table below

**Table 2. Fuel Cost Recovery Determination
(Performance Test based)**

	2008 HR TEST BTU/KWH	2008 GNHR BTU/KWH	MARCH 2008		APRIL 2008		MAY 2008	
			ACTUAL NHR BTU/KWH	FUEL COST RECOVERY	ACTUAL NHR BTU/KWH	FUEL COST RECOVERY	ACTUAL NHR BTU/KWH	FUEL COST RECOVERY
IPP 1	6,830	6,094	6345	Partial	6291	Partial	6323	Partial
IPP 2	8,620	8,640	8701	Full	8737	Full	8769	Full
IPP 3	9,430	9,623	10635	Full	10862	Full	10556	Full
IPP 4	9,326	9,462	10793	Full	11105	Full	11243	Full

IPP 1	2008 GNHR BTU/KWH	ACTUAL NHR BTU/KWH	EXCESS HR BTU/KWH	Remarks
March 2008	6,094	6345	251	Equivalent cost of fuel consumed pertaining to excess HR shall be disallowed for recovery
April 2008	6,094	6291	197	
May 2008	6,094	6323	229	

13. In case of guaranteed HR corrected to actual average load, applicant is proposing the adoption of actual HR, meaning full recovery of actual fuel costs with generation, if computed actual monthly heat rate is equal or lower than the guaranteed HR corrected to the actual average load based on HR Curve a sample of which is attached as **Annex “B” & series**. In case actual HR is higher than the guaranteed HR after correction based on actual average load, recovery of actual fuel costs with generation shall be limited up to the level of guaranteed HR corrected to the actual average load. A sample determination on whether the actual fuel cost with generation of an IPP plant under this arrangement is recoverable in full or not is shown in the table below.

**Table 3. Fuel Cost Recovery Determination
(Heat Rate Curve based)**

	LOADING MW	2008 GNHR BTU/KWH	MARCH 2008			APRIL 2008			MAY 2008		
			ACTUAL LOADING MW	ACTUAL NHR BTU/KWH	ADJUSTED GNHR * BTU/KWH	ACTUAL LOADING MW	ACTUAL NHR BTU/KWH	ADJUSTED GNHR * BTU/KWH	ACTUAL LOADING MW	ACTUAL NHR BTU/KWH	ADJUSTED GNHR * BTU/KWH
UNIT 1	300	10360	150	11528	11532	275	10534	10468	130	11575	11783
UNIT 2	350	9862	200	10060	10439	300	10489	9905	130	11389	11169

Test Period of Recovery	Fuel Recovery		Remarks
	UNIT 1	UNIT 2	
March 2008	Full	Full	Adjusted GNHR is HIGHER than Actual HR
April 2008	Partial	Partial	Adjusted GNHR is LOWER than Actual HR
May 2008	Full		Adjusted GNHR is HIGHER than Actual HR
May 2008		Partial	Adjusted GNHR is LOWER than Actual HR

Adjustment based on "HR CURVE" means the HR equivalent based on Performance HR Curve considering the average load (MW) of the plant

Approved Net Plant Heat Rate Degradation Factor

14. The Honorable Commission likewise recognized the need for an Annual Heat Rate Degradation Factor (DF) in order to capture the inherent heat rate

deterioration of the plants. HR deterioration is inevitable as the plant gets older despite regular preventive maintenance/overhauls. Manufacturers normally prescribed different heat rate deteriorations for their supplied plants. Attached hereto are is a matrix marked as **Annex “C” and Series** containing the Guaranteed Net Heat Rate of each NPC-IPP plant including the specific contract provision relative to the same. The matrix also provides a basis for the determination of the allowable heat rate deterioration/degradation pursuant to the pertinent provisions in the IPP contracts;

15. In the determination of the allowable heat rate degradation for NPC plants and NPC-IPPs without contract degradation factor or yearly guaranteed heat rates, the average annual heat rate increase from CY2005 to CY2007 based on historical heat rate performance tests covering CY2004 to CY2007 of comparable NPC-IPPs (with guaranteed HRs) shall be used. The table below shows the actual HR performance tests and resulting HR degradation factors applicable to NPC plants and NPC-IPPs without contract degradation factor.

Table 4. Heat Rate Degradation Factors

IPP PLANT	HEAT RATE TEST RESULTS, BTU/KWH				DEGRADATION FACTORS, %			
					2004-2005	2005-2006	2006-2007	Average
	2004	2005	2006	2007	2005	2006	2007	2005-2007
BPPC	8,536	8,563	8,563	8,620	0.32%	0.00%	0.66%	0.33%
SUAL	9,180	9,284	9,375	9,430	1.14%	0.97%	0.59%	0.90%
PAGBILAO	9,138	9,179	9,137	9,326	0.44%	-0.46%	2.07%	0.69%

16. Given the above-stated annual degradation factors of comparable NPC-IPP, the proposed HR caps to be used for purposes of calculating allowable and recoverable fuel costs with generation of NPC-plants and NPC-IPP plants without guaranteed heat rates covering test periods starting CY2008 should be adjusted accordingly by applying one (1) annual degradation considering that the proposed HR caps are already updated to CY2007 levels.

Heating Values to be Used in the Determination of Allowable Fuel Costs

17. In calculating the Allowable Fuel Cost Recovery, herein applicant proposed that the HV of the delivered coal should be based on the HV as shown in the

corresponding certificates of analysis. This shall no longer be fixed at a constant value considering the diversity of coals available in the market and the need to encourage coal supply competition. However, for Bunker and Diesel, which quality are already considered standard in the industry, use of heating values of 18,500 Btu/lb and 19,500 Btu/lb, respectively, will be used without need for submission of quality certificates.

Methodology for Recovery of Allowable Fuel Costs without Generation

18. In addition to the recovery of the allowable fuel costs with generation, applicant also proposed a separate mechanism for recovery of the allowable fuel cost without generation.

19. It is inevitable that the plant should start-up to operate which means it will incur fuel consumption without generation. However, unlike the main fuel of thermal power plants, efficient use of start-up fuel is difficult to determine. For one, start-up fuel consumption of the plant must not be limited to scheduled shutdowns or those instructed by the System Operations (SO) or at the instance of the Market Operator (MO). The plant would rather stay online at all times to ensure its revenues. To monitor and classify start-ups will be cumbersome, notwithstanding that such will require exchange of information between NPC and PSALM, which may be inappropriate under Wholesale Electricity Spot Market (WESM) Rules. Moreover, coordination with System Operations (SO) of the National Transmission Corporation (TransCo) or Market Operations (MO) of WESM will likewise require the consent from PSALM.

20. In view of the above circumstances, Applicant NPC is proposing the lowest yearly allowable start-up fuel based on the total fuel consumption without generation for the latest 3 years operation of the plant. For purposes of computing the monthly start-up fuel consumption to be allowed, the following shall be followed:

a. Initial allowable monthly fuel consumption without generation shall be based on the lowest yearly fuel consumption without generation divided by 12 or actual monthly fuel consumption without generation, whichever is lower.

b. Succeeding allowable monthly fuel consumption without generation shall be based on the lowest yearly fuel consumption without generation divided by 12 plus any savings from previous monthly fuel consumptions without generation, if any or actual fuel consumption without generation, whichever is lower.

c. Cumulative savings from the last month of the previous year could be carried-over to the first month or succeeding months of the forthcoming year.

Total Allowable Fuel Costs for Recovery

21. Using the formula indicated below, the Total Allowable Fuel Cost Recovery (with and without generation) in the GRAM or other cost recovery mechanism that may be authorized by the Commission, shall be the sum of the costs of Allowable Fuel Cost Recovery with Generation and the Allowable Fuel Cost Recovery without Generation:

$$\text{Total Allowable Fuel Cost Recovery} = \text{Allowable Fuel Cost Recovery} + \text{Allowable Start-Up Fuel Cost}$$

22. The proposed HR caps for the Luzon, Visayas and Mindanao Grids are based on actual operations as updated to the period CY2005 to CY2007 from the newly approved bases of CYs2004 to CY2006.

23. Further, applicant NPC believes that the proposed Heat Rate caps and Heating Values for Luzon, Visayas and Mindanao grids and associated mechanism for the recovery of allowable fuel costs in the GRAM or other cost adjustment mechanism/s are just, fair and reasonable as it allows the recovery of allowable fuel costs incurred consistent with sound engineering practice and the principles of free and competitive electricity market as provided under R.A. 9136, which will ultimately redound to the best interest and benefit of the consuming public.

24. Finally, the approval of proposed HR caps for Luzon, Visayas and Mindanao grids will rectify the existing methodology of determining the allowable fuel costs as follows:

i. Replace the existing HR caps based on CY1993 for Visayas and Mindanao, and CY 1996 for Luzon including the standard Heating Values for recovery of allowable fuel costs covering test periods up to end of CY2007.

ii. Replace the use of the newly approved HR caps under ERC Case No. 2004-111 in the recovery of allowable fuel costs covering test periods starting CY2008.

25. Pursuant to the amended Section 4 (e) of Rule 3 of the Implementing Rules and Regulations (IRR) of R.A. No. 9136 which took effect June 26, 2007 and to ERC Resolution No. 38, Series 2006, copies of the instant Application were furnished the respective Sangguniang Panlungsod of Makati and Quezon Cities (**Annex "D"**). The Petition was also published in a newspaper of general circulation (**Annex "E"**).

PRAYER

WHEREFORE PREMISES CONSIDERED, applicant most respectfully prays to this Honorable Commission that the proposed Net Plant Heat Rate caps for NPC power plants and NPC-IPP plants in Luzon, Visayas and Mindanao grids and associated mechanism for recovery of the Allowable Fuel Costs with and without generation under the existing Generation Rate Adjustment Mechanism (GRAM) or other cost recovery mechanism as may be authorized by the Commission, as well as the proposed Heating Values be **APPROVED** for adoption by applicant NPC. Applicant further prays that pending the necessary public hearing, a provisional authority be issued to applicant NPC for the adoption of the proposed Heat Rate caps in the GRAM and other rate applications.

Other reliefs just and equitable under the premises are likewise prayed for.

Quezon City for Pasig City, Metro Manila, January 16, 2009.

FOR THE SOLICITOR GENERAL

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VERIFICATION AND CERTIFICATION

I, **FROILAN A. TAMPINCO**, of legal age, Filipino, with office address at NPC Office Building Complex cor. Quezon Ave. and Agham Road, Diliman, Quezon City, after being duly sworn hereby affirm and state that:

1. I am the President of the National Power Corporation, one of the applicant herein; I am one of those who caused the preparation of this Joint Application, I have read the same and understood the allegations contained therein, and affirm that the contents thereof are true and correct, as far as NPC is concerned, based on authentic records at my disposal and on information of my own personal knowledge;
2. I am duly authorized by the Board of Directors to certify that Applicant NPC has not heretofore commenced any other action or proceeding involving the same issues before the Supreme Court, Court of Appeals or any other judicial, quasi-judicial or administrative tribunal. A copy of Resolution No. 2001-134 is attached as required by Rule 3, Section 4 of the Rules of Practice and Procedure.
3. To the best of my knowledge and belief, no such similar action or proceeding is pending before the Supreme Court, Court of Appeals, or any other tribunal or agency.
4. If I should hereafter learn that a similar action or proceeding has been filed or is pending before the Supreme Court, the Court of Appeals, or any other tribunal or agency, I undertake to report such fact within five (5) days therefrom to the Honorable Commission.

IN WITNESS WHEREOF I have hereunto affixed my signature this ____ day of January 2009 here at Quezon City.

FROILAN A. TAMPINCO
Affiant

SUBSCRIBED AND SWORN TO before me this ____ day of January 2009 here at Quezon City, affiant exhibiting to me his CTC No. _____ issued on _____ at _____.

Doc. No. _____;
Page No. _____;
Book No. _____;
Series of 2009.