

NATIONAL THERMAL POWER CORPORATION LTD.

PRESENTATION

ON

CERC DISCUSSION PAPER ON TERMS & CONDITIONS OF TARIFF APPLICABLE FROM 01.04.2004

NOVEMBER 10, 2003

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Capacity Addition & Resources Required

Rs 9,00,000 crores investment required in generation, transmission, distribution etc.

Assuming 30:70 ratio 2,70,000 crores of equity and 6,30,000 crore debt needed in next 8-9 years

In the present climate, CPSUs, State Utilities and private sector put together are not in position to make required investments

212000 MW

108930 MW

During 2002-03 peak shortages were 12.2% and energy shortages were 8.8%.

These shortages are with 57% households yet to be electrified.

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State Utilities, in financial difficulty, not in a position to generate investible resources on their own

1991-92

2002-03 (RE)

Widening gap between av. Cost and av. Tariff

Paise/Kwh

Alarming increase in Financial Losses

(Rs. Crores)

Source: Economic Survey; 2002-03

GAP

2001-02

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Even if AT&C losses are reduced by 20% in the coming 5 years, the Utilities would still face substantial gap between cost of supply and average tariff for each unit sold.

WHILE CURRENT THRUST ON DISTRIBUTION REFORMS SHOULD CONTINUE, SIMULTANEOUS FOCUS
REQUIRED ON ADDING NEW GENERATION CAPACITY AND AUGMENTING TRANSMISSION

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Private Sector – Meager investments after private Power Policy in 1991 and outlook pessimistic

Merely 5476 MW* capacity addition by IPPs in VIII and IX Plans

Only 2024 MW+ under construction presently

During last 2-3 years many IPPs (Hirma, Co-gentrix, Bhadravati, Hinduja, Videocon, Rosa, AES etc) have abandoned the projects

Many International players like National Power, Powergen, CL&P, Southern Electric, PESG etc appear to have lost interest in Indian Power sector.

* Excluding 1015 MW started before private power policy

+ Excluding 1444 MW Dhabol phase II

There is a need to create conducive environment to promote investment in the sector.

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Statutory Provisions reg.

Uniform Tariff Norms

As per Section 61(a) of the Electricity Act 2003, State Regulatory Commissions while specifying the terms & conditions for determination of tariff, shall be guided by the principles and methodologies specified by the Central Commission for determination of tariff applicable to generating companies and transmission licensees.

This statutory provision ensures applicability of uniform tariff norms for all utilities in the country such as central power utilities, state power utilities, IPPs, licensees etc.

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Since the tariff norms being evolved by the Commission will be applicable to all generators in the country, it is necessary that operating performance of all generators is considered so that norms fixed are based on industry average and form a reasonable benchmark.

Tariff norms being evolved by the Hon'ble Commission be also viewed for its impact on the state utilities and central power utilities.

It is submitted that these Tariff norms should ensure uniformity, predictability and accountability.

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Tariff on Normative Basis

In the current tariff norms there are many components which are provided on actual basis. This leads to micro management by the regulator and scrutiny of various details for due diligence.

Following provisions in the present tariff are on actual basis:

Rate of interest on loan

Repayment of loans (normative or actual whichever is higher)

O&M cost

Station operating parameters (for new stations norm or actual whichever is lower)

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Due diligence of these parameters has led to delay in finalisation of tariff orders and also resulted in many disputes.

Tariff norms may be fixed on normative basis. Norms should have provision for efficiency gain.

In fact, Hon'ble Commission in its Order dt.21.12.2000 at clause 8.1 has spelled out guiding principle to promote efficiency –

“In regulated tariff, it is necessary to keep a provision to reward for better performance in order to promote efficiency and economy through cost reduction.”

Provisions on normative basis will promote efficiency in the sector and set new benchmark for future.

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The Hon'ble Commission may specify different factors for tariff determination on normative basis as given below:

Return - % ROE

Depreciation on normative basis

Interest rate linked to PLR

Predefined Loan Repayment Period

Normative Debt:Equity Ratio

Benchmark/Current Capital Cost

Working Capital provisions on norms

O&M Cost - %age of current capital cost

Plant Operating Parameters on norms

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Need To Optimise Return & Depreciation

It is often argued that to bring down cost of supply to end consumers, generation tariff should be reduced.

Cost of supply to end consumers for 2001- 02 was 350 paise/ unit.

Out of this, cost of generation was only about 150 paise/unit where as about 110-120 paise/unit was on account of AT&C losses.

In the cost of generation, approx. 60% is on account of fuel cost.

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Return & Depreciation, which promote investment in the sector constitute only about 22% of cost of generation, which is about 9% of the cost of supply to end consumers.

Any reduction in return & depreciation, which have only a small impact in reduction in tariff but will have a multiplier effect on resource mobilisation, since a resource of 1 crore can be leveraged for investment of 3.3 crores.

Return & Depreciation need to be optimised considering the requirement of the sector and should not be part of cost reduction exercise.

NEED TO OPTIMISE RETURN & DEPRECIATION Contd.

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Rate of Return

Options :

Link rate of return with interest rate

Return based on Investment requirement

In the developed economies where there is no requirement for additional investment, return can be linked to interest rates.

In a situation of continuing demand growth in power sector, return has to be comparable with return available in other sectors, to attract investment in the sector.

Rate of return should be adequate considering the risk associated in the sector.

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Some of the risks associated with the power sector are –

Long gestation period – no return on equity during construction period – IRR works out to only about 10% for loan repayment period of 10 years

Financial health of SEBs – inadequate payment safeguards

Availability of loans of shorter tenure

Regulatory uncertainty

Fluctuation in demand

Transmission constraints

Fuel risk

Ensuring sustained availability of plant at higher performance level

Rate of Return contd.....

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The Hon'ble Commission had earlier appointed M/s. CRISIL as Consultant for suggesting rate of return. The Consultant had suggested Capital Asset Pricing Model (CAPM) based on risk free return and premium based on risk perception in the industry.

M/s. CRISIL had concluded that returns available in the power sector are much lower from that of alternate investment opportunities with comparable risk factors and had proposed a rate of return of 18 to 22% for different utilities.

Rate of Return contd.....

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Rate of Return contd.....

Based on the recommendations of the Consultant, Commission in its Order dated 21.12.2000 had concluded that–

“As such, present ROE of 16% is advisable to be retained for the next tariff period as well. It would, however, be ensured that any revision in future would not result in the ROE falling below 16%. This should assuage the feeling of uncertainty on the part of the investors.”

Considering the present requirement of resources for the growth of the power sector in the country, it would be appropriate to enhance existing rate of return of 16%.

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Commission in its Order dated 21.12.2000 at clause 2.10 had said that :

“It is necessary to stick to the original loans as per approved project cost and the original schedule of repayment. The contracted interest rate shall be applied on the schedule outstanding loan amount for the ensuing tariff period. Thus any bullet payments or extension of the tenor of the loan shall be exclusively to the account of the utilities concerned.”

Above provision implies that original loans along with original repayment schedules and original interest rate shall be considered for the purpose of tariff and any benefit of swapping / bullet payment shall be allowed to the utilities.

Interest on Loan

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However, in the subsequent tariff orders for different stations, benefit of swapping of loans to the utilities was not allowed.

Interest on loan is being provided based on –

Actual rate of interest

Repayment of loan on normative Debt:Equity or actual whichever is higher.

Such practices have led to micro-management of details and also does not provide any incentive to utilities for financial engineering – swapping of loans etc.

Utilities have no incentive to borrow at lower rates.

Interest rate may be fixed on normative basis linked to PLR.

Amount of loan in tariff may be considered on normative Debt:Equity ratio and repayment period may be predefined.

Interest on Loan contd.....

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Benchmark Capital Cost

Before enactment of Electricity Act 2003, cost approved by CEA under TEC used to form the basis for investment approval.

For the purpose of tariff, Commission has been adopting actual capital expenditure limited to TEC approved cost.

Now, under the new Electricity Act, 2003, since TEC has been dispensed with the basis of capital cost for the purpose of tariff needs to be defined.

In a tariff based competitive bidding, capital cost is irrelevant but in case of other projects where tariff is to be determined by the Regulator, capital cost forms an important element of the tariff.

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No utility can sustain if a part of the capital cost is disallowed after it has been actually incurred.

To have uniform practice through out the country, it is proposed that Hon'ble Commission in consultation with the Authority may fix benchmark capital cost which could be adopted for the purpose of tariff.

Utilities can make investment decisions considering this benchmark capital cost.

Alternatively, Commission may notify Independent Agencies for project cost appraisal based on which utilities could go ahead with investment and same could form basis for tariff fixation.

Benchmark Capital Cost contd.....

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Options:

Return on Equity plus Interest on Loan

Return on Net Fixed Assets

Return on Total Capital

Return on Equity plus Interest on Loan approach requires the Regulator to undertake detailed analysis of the different loans, their repayment schedules and other terms & conditions.

This approach does not provide incentive to utility to lower cost of borrowings as even higher rates are passed through in tariff.

Basis of Return

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Basis of Return contd.....

Net Fixed Assets approach adopts a reducing rate base considering the amount of cumulative depreciation.

Depreciation is recovered primarily for the purpose of recovering the original investment and accumulating funds for replacement of assets after their useful life.

Reducing depreciation from the gross capital would result in lowering the capital base and, in turn, reducing the amount of return available.

Under such an approach, assets which are more than 10-15 years old will earn virtually no return because of (i) lower initial capital cost and (ii) further reduction by the amount of accumulated depreciation.

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Return on Total Capital can provide for efficient financing at competitive rates and leave incentive for further financial engineering to the utility.

Since loans are repaid out of the retained earnings, return should be available on the total capital employed.

This approach will also result in generation of resources by the existing utilities by leveraging existing assets.

Such an approach is also very relevant for the state sector, where the assets are of older vintage and will earn virtually no return, if the existing approach is continued.

Basis of Return contd.....

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The weighted average rate of return on total capital could be determined considering the prescribed return on equity and interest rate based on prevailing PLR or any other accepted basis. Normative debt:equity of 70:30 for the stations approved after 30.3.92 & 50:50 for the earlier stations could be considered for this purpose.

In case return on total capital employed is not considered, existing practice of ROE on constant equity & interest on loan on normative basis may be continued.

Basis of Return contd.....

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Income Tax

Present practice regarding Income Tax is on pass through basis.

Alternatively, it can be provided by increasing ROE by grossing up by Income Tax rate.

Existing provision of Income Tax pass through may be retained so that benefit of lower income tax on account of tax holidays, provisions of depreciation under Income Tax Act etc. are passed on to the beneficiaries.

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Depreciation

Rates of depreciation should be adequate to provide resources for replacement of assets after their useful life and accordingly, existing provisions of the Income Tax Act, the Companies Act and the Electricity (Supply) Act envisage accelerated recovery of depreciation over a much shorter period than the economic life of the assets.

Keeping in view the requirement of resources for the power sector, Govt. of India had increased rates of depreciation in March, 1994. These rates of depreciation were uniformly applicable to all power utilities including generating companies, SEBs, IPPs, licensees etc.

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In the last 7-8 years, required investments could not be made in the power sector as a result of which requirement of resources for capacity addition and R&M work has increased.

The reduced rates of depreciation stipulated by the Commission will result in reduction in internal resources of all power utilities in the country including central generating companies and state electricity boards. This will adversely affect the capacity addition programme in the power sector.

Further, loans available are of lower tenure – 7-8 years. Rates of depreciation along with advance depreciation should be adequate to facilitate loan repayment.

Depreciation contd.....

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Present rates of depreciation along with advance depreciation are not adequate and entire ROE during initial 7-8 years will have to be used for loan repayment & investors will not be able to distribute any dividend during this period. Such an investment proposition will not be acceptable to any investor.

Accelerated recovery of depreciation will help power utilities in mobilising resources from the existing capacities for capacity addition.

Rate of depreciation as notified by GOI vide notification dt. 29.3.1994 may be continued at least for the coming 10 years.

Depreciation contd.....

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With the enactment of Electricity Act, 2003, E(S) Act has been repealed and now all power sector companies will have to comply with the Companies Act and provide depreciation in the books of accounts as per Schedule XIV.

In the tariff structure prevailing in the power sector, it has been the practice to provide uniform rates of depreciation for the purpose of tariff and accounts.

In view of this, alternatively, rates of depreciation for tariff may be prescribed as per Companies Act along with Advance Against Depreciation to facilitate repayment of loans.

Depreciation contd.....

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BENEFITS PASSED ON TO SEBs

INCENTIVE TO GENERATOR

K.PRAO

SINGLE PART

Two part tariff structure has been designed to share the benefits of higher performance with the beneficiaries.

High threshold level for recovery of fixed charges is not in line with the basic concept of the two part tariff.

High threshold level of 80% is justified only in single-part tariff.

Two Part Tariff Structure

CERC

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Operating PLF/availability in the country has gradually improved and has reached a level of 72% during the year 2002-03.

Considering average backing down of about 2%, national average PLF + 2% can be adopted as Target availability norm for recovery of fixed charges.

Performance level for recovery of fixed charges

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High norms for target availability poses significant risk to generating stations for non-recovery of fixed charges. To mitigate such risks, following is proposed for kind consideration of the Commission:

Cumulative availability for the total tariff period may be considered instead of the present practice of annual availability, so that non-recovery of fixed charges in any particular year can be compensated by improved availability in the subsequent yrs.

Drawal schedules of the beneficiaries may be limited to generation corresponding to target availability and generation beyond this may be allowed for trading/direct power supply.

Trading in availability may be considered, i.e. a station which is unable to achieve target availability level can purchase capacity from other stations to offset its deficit.

Incentive/Disincentive may be provided on equitable basis.

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The concept of Availability Based Tariff as finalised in the NTF provided for incentive on availability of the station.

This was envisaged to incentivise generators for making the units available to meet the requirement of the grid.

Providing incentive based on availability will also ensure that actual generation of the station is not PLF driven, which was earlier the practice and had resulted in wide frequency variations.

At present, SEBs are giving schedules considering variable cost plus incentive which is distorting merit order operation.

Incentive on availability will promote Merit Order Operation.

Incentive on Availability

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Further, for declaring the availability of the station, generator has to make all arrangements for availability of fuel, equipments, manpower etc. PLF from the station thereafter depends on the schedules given by the beneficiaries.

In view of the above, under availability based tariff, incentive should be linked to the availability of the station and not on PLF.

Incentive on Availability contd.

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PROPOSED

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Incentive/Disincentive

For performance above the normative levels of availability adequate incentive needs to be provided for improving capacity utilisation.

So far, in all tariff regimes (single part, K.P.Rao, 30th March Notification, NTF) rates of incentive and disincentive have been provided on equitable basis, so that in case the utility incurs disincentive because of under performance in any year is able to compensate the same in subsequent year by improved higher performance.

Under ABT, much higher rate of disincentive has been provided which is almost 6-7 times of the rate of incentive.

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Incentives and disincentives need to be comparable within a reasonable range of operation say, above 60 percent so that year to year variations can be compensated.

Uniform rate of incentive and disincentive as 50% of fixed charges may be provided.

Alternatively uniform rate of incentive and Disincentive may be fixed for all power stations which could be 40 p/Kwh based on 50% of the average fixed cost of all the generating stations in the country.

Incentive/Disincentive contd.....

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Target Availability during Stabilisation Period

During stabilisation period, it would not be possible to achieve operating performance to meet target availability norm.

Achieving target performance level requires commissioning of all equipments, overcoming design and manufacturing deficiencies, extensive plant adjustments, optimisation of systems and tuning of control systems, which can be done over a period of time.

It has been the practice (K.P.Rao, 30th March'92 notification) to adopt lower operating norms during stabilisation period.

Commission in its notification dtd. 26.3.2001 has also recognised this requirement and has provided relaxed norms during stabilisation period for specific oil consumption, heat rate and auxiliary power consumption.

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However, no lower norms for target availability have been indicated for stabilisation period.

Govt. of India notification dt. 30.3.1992 provides for PLF norms (4500 hrs) during stabilisation period which is 75% of the norms applicable (6000 hrs) after stabilisation period.

In view of the above, for stabilisation period target availability level as 75% of the norms applicable after stabilisation period may be prescribed.

Target Availability during Stabilisation Period contd.....

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Plant Operating Norms

Options :

Based on actual performance

Based on norms

For new stations, operating norms have been provided on actual or norm whichever is lower.

Actual operating parameters for the purpose of recovery of fuel charges will not provide any incentive to the utility for improving their performance.

Operating parameters should be fixed on normative basis for promoting efficient operation.

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As operating norms will be uniformly applicable to all utilities in the country, norms fixed should be based on industry average and should form a reasonable benchmark.

It is necessary that norms are fixed based on operating performance of all utilities considering –

Technology

Unit size

Age of the Plant

Fuel used

Plant Operating Norms contd.....

43

2500

–

93

8-9

420

2x210MW

Vijayawada-III

A.7

62.6

74.9

72.3

64.8

78.8

68.49

90.0

77.0

78.8

80.0

82.0

90.0

77.0

85.0

95

68.75

85

77.2

PLF

2916

3201

21

1000

5x200

Obra - B

C.5

2455

2470

11-24

1050

5x210 MW

Tuticorin

B6

2703

3200

10-19

1260

6x210

Kolaghat

B.7

C.4

C.3

C.2

C.1

B.5

B.4

B.3

B.2

B.1

A.6

A.5

A.4

A.3

A.2

A.1

S.No.

2450

2500

12-18

420

2x210 MW (excl.U-7)

Raichur

2527

2824

17-20/6-12

2340

4x210MW+3x500MW

Chandrapur

2549

2644

9-10

1000

2x500MW

Anpara B

2527

2545

13-16

840

4x210MW

Mettur TPS

2549

2644

15-17

630

3X210MW

Anpara A

2500

2647

10-19

1260

6x210MW

GGSSTP, Ropar

2450

2500

4

840

4x210MW

Raichur TPS

2500

2546

5-6

420

2x210MW

GHTP, Bhatinda

2500

—

5-6

500

2x250MW

Kathgodam, S-V

2500

—

8-9

420

2x210MW

Rayalaseema

20-35/19-24

16-23

22-24

21-24

2-5

Age of Plant (Yrs)

2676 (2636)

2681

690

1x60MW+3x210MW

Parli

2689 (2502)

2894

1142.5

5x62.5MW+4x210MW

Satpura

2690 (2507)

2712

910

2x140MW+3x210MW

Nasik

2763 (2716)

2774

478

1x58MW+2x210MW

Bhusawal

2550

2839

420

2x210 MW

Khaparkheda - B

SERC approved

Petition

Heat Rate (Kcal/Unit)

Capacity

(MW)

Units & Unit Size

Heat Rate of State Generating Stations (Thermal)

Note: i) Age of station has been considered for 200/500 MW units.

ii) In case of stations with units smaller than 200/500 MW, shown in brackets, Heat Rate for 200/500 MW is computed by considering HR of 3100 kCal/kwh for smaller units.

Age : 0-10 years

20-25 yrs

Age : 10-20 yrs

44

Age-wise Heat Rate Norms for 200/500 MW Coal based Units approved by SERCs

2670

20-25

2540

10-20

2515

0-10

Heat Rate Norm

Wt. Avg. (kCal/kwh)

Age (Years)

45

Reasons for Continuing

Existing Norms for Gas Stations

Operating Norms for gas based stations of NTPC (Anta, Auraiya, Gandhar, Kawas & Dadri) were finalised by CEA on 18.3.96.

Norms finalised for these stations were at variance with the norms stipulated earlier in 30th March'92 notification for gas stations.

Based on the technology, design heat rate and operational conditions, CEA had approved different norms for these stations.

CEA Approved Heat Rates

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Further, NTPC has been submitting quarterly operating data of its power stations to the Commission. From the operating data submitted for gas based stations, it may be seen that heat rate of the station at 80% loading is above 2070 kcal/kwh and in some cases, it is as high as 2166 kcal/kwh.

Actual operating PLF of gas based stations is also only about 70-80% due to limited availability of gas and high cost of liquid fuel.

These heat rate values are based on the heat rate tests conducted at site on fortnightly basis and before carrying out tests, operating conditions are stabilised.

Heat Rates under Operating Conditions

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Design Gross heat rate of gas turbines in combined cycle is varying from 1900(without Nox) to 1995 Kcal/kwh (with Nox).

Considering an operating margin of 12%, which is required on account of degradation in heat rate for actual operating conditions, normative heat rate works out to 2175 kcal/kwh.

Heat rate norm fixed by CEA for these stations is well within the value based on operating margins.

Heat Rates of Non NTPC Stations

Other than NTPC, similar gas based station is located at Uran-MSEB. MERC has approved heat rate of 1996 Kcal/Kwh on NCV basis for the station which works out to be 2170 kcal/kwh on GCV basis.

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Environmental Conditions

Stringent environmental norms are being considered for gas based stations. There will be a significant degradation of the heat rate to comply with stringent environmental norms. At present, environmental norms applicable for gas based stations are about 150 ppm/NOx. In future, these norms could be reduced to 50 ppm/NOx.

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To ensure availability of the station, units are made available round the clock, whereas actual schedules given by the beneficiaries are much lower.

Average gas available for NTPC station is about 60% of the capacity.

After implementation of availability based tariff, most of the utilities are not giving schedule on liquid fuel generation and only on rare instances, during peak hours schedules on liquid fuels are given. As a result of the operating PLF of gas stations are significantly reduced, as shown here:

ABT Considerations

50

68.9

58.6

56.5

75.9

73.2

2003-04

(upto5.11.03)

71.7

78.8

77.6

Dadri

73.1

65.3

81.7

Kawas

58.5

62.7

48.5

Gandhar

73.5

80.6

80.6

Auraiya

75.1

83.3

78.3

Anta

2002-03

2001-02

2000-01

Station

Partial loading adversely affects operating heat rate of the station.

Heat Rate norms for existing gas stations may be specified considering above factors and for existing stations, existing norms may be continued.

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Operation & Maintenance Charges

Adequate provision of O&M charges needs to be made in the tariff to ensure improved performance for the station on sustained basis.

Inadequate expenditure on maintenance has led to deterioration in the operating performance of many stations in the country.

With the ageing of the stations, the O&M requirement also increases due to:

higher requirement of maintenance

higher price of spares than spares supplied with main equipment

higher duty for imported spares against project duty for spares purchased with main equipment

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O&M charges may be provided as a percentage of current capital cost.

Current capital cost may be specified at the beginning of tariff period.

Percentage of current capital cost may be specified considering—

Age of the plant

Technology used – Indigenous/Imported

Unit size

Type of fuel

Operation & Maintenance Charges contd.....

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State & Central Genco O&M Cost Data

26.81

4.35

11.89

10.57

Average

16.00

NTPC Average

8

13.63

0.00

5.84

7.79

WBPDC

7.

29.3

0.00

14.67

14.63

UP Genco.

6.

25.03

15.38

5.50

4.15

Rajasthan Genco

5.

18.89

1.51

8.34

9.04

OPGC

4.

20.34

2.23

14.54

3.57

KPC

3.

28.97

0.00

20.50

8.47

HPGC

2.

15.77

0.00

8.15

7.62

APGENCO

1.

Total O&M (P/kwh)

Misc.

(P/kwh)

Estt/

Admn(P/kwh)

O&M (P/kwh)

GENCO

S.No.

Source : Annex 4.6 – A & 3.18 of Annual Report (2001-02) on the working of SEB & EDs by Planning Commission

16 p/unit of O&M cost corresponds to about 2.8% of current capital cost (based on Simhadri cost of about Rs. 3.5 Cr/MW)

26.81 p/unit of State Gencos on same analogy will correspond to 4.7% of current capital cost.

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Operation & Maintenance Charges contd.....

Proposed percentage of current capital cost—

Coal based stations –

2.5% for stations upto 10 years

3% for stations of 10 years to 20 years

3.5% for stations > 20 years.

Gas based stations –

3% for stations upto 5 years

4% for stations of 5 years to 10 years

5% for stations > 10 years

For Liquid fuel stations, additional 0.5% over gas based stations may be allowed.

O&M charges during tariff period may be provided based on 10% escalation.

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Rebate on Prompt Payment

With the falling interest rate, there is a need to review the existing rebate rate of 2.5%.

Rebates are financed out of provision of two months receivables in working capital.

Rebate rate needs to be reduced considering the present cash credit rate.

Graded rebate based on the date of payment would promote early payments by customers.

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About 50% of the installed capacity in the country is under operation for more than 15 years and several stations have completed one lakh operating hours.

To ensure safe, efficient and reliable operation of these stations on sustained basis and to ensure operation at rated capacity, it is necessary to carry out R&M.

Renovation & Modernisation

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Commission may specify R&M charges on Rs. Lacs/MW for plant which have operated 1,00,000 operating hours and for every subsequent period of 30,000 hours.

Utilities can undertake R&M work based on these standard packages and approval on case to case basis can be dispensed with. Expenditure incurred within the standard packages could be allowed for capitalisation for recovery through tariff.

Renovation & Modernisation contd.....

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Foreign Exchange Rate Variation (FERV)

It has been the practice in power sector to capitalise impact of extra rupee liability on account of FERV and recover the same through tariff.

All companies are required to prepare their accounts as per the accounting standard stipulated by the Institute of Chartered Accountants of India (ICAI).

Above provisions regarding FERV were in line with the standards stipulated by ICAI at AS-11.

59

AS-11 has now been revised w.e.f. 1.4.2004 and it provides that:

For the loans availed before 1.4.2004, extra rupee liability on account of FERV shall be accounted as per Accounting Standard of 1994, which provided for capitalisation of same.

For the loans availed after 1.4.2004, extra rupee liability on account of FERV shall be charged to revenue in the same year.

Tariff provisions for FERV may also be made in line with the provisions of applicable Accounting Standard.

FERV contd.....

60

Present Tariff provisions provide that capital expenditure upto 20% of the approved capital cost shall be considered during the next tariff revision.

In actual practice only essential systems and services required for operation of the stations are completed and capitalised upto COD.

There are many services/systems, like administrative office, township, ash dyke, off site services etc. which are completed after the COD of the unit.

Even where project is completed, capital expenditure is incurred on account of ash dyke, system upgradation, replacement of obsolete equipments, R&M of plant etc.

Additional Capitalisation

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Expenditure incurred on such facilities may be substantial but less than 20% of the approved capital cost. Not allowing revision of tariff on account of capitalisation of such expenditure till the next tariff revision will amount to penalising utilities.

NTPC has been commissioning units ahead of schedule. Not allowing Addcap during tariff period will compel utilities to declare COD after completion of all activities which may extend COD upto schedule date and will not be in interest of beneficiaries.

Additional Capitalisation contd.....

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It would not be fair to expect from generating company to incur expenditure and wait for recovery till next tariff revision. To take care of above, following alternatives may be considered:

Tariff for new units may be fixed based on approved capital cost and adjustments based on actual capitalisation during the tariff period can be subsequently passed on to the beneficiaries.

Tariff may be fixed based on actual capitalisation on the date of COD along with anticipated capital expenditure during the tariff period.

Tariff may be fixed on actual capitalisation on COD and impact of additional capitalisation may be allowed on yearly basis.

Govt. of India tariff notifications specifically provided revision of fixed charges on account of additional capitalisation on yearly basis. This practice may be continued.

Additional Capitalisation contd.....

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ABT FOR ALL GENERATING COMPANIES

In the present system of ABT, RLDC is not involved in the scheduling of generation in the states. They are scheduling central generating stations (CGS) only which is about 25% generation in the region.

RLDC looks at the state as a 'black box' without ensuring that the drawal schedule given by the State Load Despatch Centre (SLDC) have been arrived at after considering merit-order of power stations of the state and their central sector shares.

This system is not only creating un-economic operation in terms of merit order, but also causing frequent backing down by CGS leading to increased forced outages and unsafe operation.

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Such fragmented approach does not provide an effective control over grid frequency.

Presently, ABT is implemented for central sector generators. However, to ensure merit order despatch, ABT may be extended to cover all generating stations of the state sector as and when SEBs are unbundled.

Commission may issue appropriate directions so that ABT can be extended to all generating utilities.

ABT contd...

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Regional Pooled Tariff

It has been the practice so far to fix station-wise tariffs for Central Sector generating companies.

Transmission charges are recovered on the concept of pooled fixed charges of all the lines and apportioned based on the capacity allocations of the beneficiaries.

State power utilities also do not make any distinction as they charge only one rate for each consumer category irrespective of the cost they incur in generating or purchasing the power.

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Regional Pooled Tariff contd.....

There is a large variation in tariff of different stations as compared to the average tariff of each utility due to variation in their capital cost and fuel used.

At times, customers at least temporarily prefer to shed loads rather than purchase power from higher cost stations. Examples:

Demand of Southern Region in 1985 for a pooled tariff in view of higher cost of Ramagundam, compared to Singrauli and Korba.

Demand of Eastern Region in 1986 for a pooled tariff in view of higher cost of Farakka compared to Singrauli, Korba and Ramagundam.

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Initial refusal of West Bengal to avail power from Talcher. Today Talcher is a preferred source of supply.

Reluctance of Kerala to avail entire power from Kayamkulam. Eventually 50 percent of Kayamkulam capacity being pooled with other low cost power.

There is a strong case for each generator to adopt regional pooled tariff for optimum utilisation of installed capacity.

Pooled rate can be worked out utility-wise on regional basis. Variation in rates for supply of power on account of cost of fuel and capital cost would be levelled off in the pooled tariff.

Regional Pooled Tariff contd.....

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Pooled tariff can be worked out by combining fixed charges of all power stations of each utility in the region and the same can be shared by the beneficiaries in proportion to the total capacity allocation made to them from the power stations.

This will also encourage trading of power to promote competition in the power sector.

Variable charges could be worked out each month by taking weighted average of the applicable variable charges based on actual ESO of different stations.

Regional Pooled Tariff contd.....

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Long Run Marginal Cost (LRMC) Pricing

At present, due to variation in capital cost and use of fuel, different tariffs are being charged for different stations.

All industries fix price of the product which is not varied based on the source from which it is produced.

It is desirable to have a commodity price for electricity so that uniform tariffs can be charged by all utilities.

This would enable leveraging of existing assets to generate resources by existing utilities.

At current capital cost of Rs.4 cr per MW cost of bulk power from pit head stations would be about 220-230 paise per unit (fixed cost about 170-180 paise per unit).

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Recent experience in power trading also indicate that utilities are willing to buy power at a rate of 230 – 250 paise per unit.

Central and State Governments have established substantial capacity at costs significantly lower than cost of power from new stations.

Tariff based on LRMC would facilitate mobilisation of resources from these old investments for reinvestment by these utilities.

China has successfully adopted this concept to fund its massive capacity addition programme.

LRMC contd....

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A phased Transition to LRMC pricing would be desirable. Commission may stipulate that minimum fixed charges for bulk sale of electricity as determined by the Commission will not be fixed lower than 100 paise per unit which represents about 60-70% of the fixed cost of the new plant. This minimum rate may be reviewed during the next Tariff review.

LRMC contd....

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Applicability of Tariff Norms for Life of Station

Frequent revision of tariff norms leads to regulatory uncertainties and higher risk perceptions by the investors.

Investment decision for a project are made based on tariff norms applicable at that time.

Equipments selection is made to comply with the operating norms.

Funds for the project are tied up considering the expected cash flow from the station.

Any subsequent change in the tariff norms will adversely affect financial performance of the project and, therefore, needs to be avoided.

Norms based on which investment decision is made should continue for the life of the station.

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Tariff Policy

Electricity Act, 2003 provides for formulation of Tariff Policy by Central Government and Regulatory Commissions shall be guided by the provisions of the Tariff Policy while formulating terms & conditions of tariff.

Govt. of India has already constituted a Task Force under the chairmanship of Sh.N.K.Singh, Member(E), Planning Commission for recommendation of Tariff Policy.

Tariff Policy is expected to be finalised soon.

Commission may consider provisions of the Tariff Policy while finalising the Tariff Norms.

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Thank you