

MINISTRY OF POWER  
RESOLUTION

New Delhi, Dated the ~~6<sup>th</sup>~~28<sup>th</sup> January, ~~2006~~2016

TARIFF POLICY

No. 23/2/2005-R&R (Vol. ~~III~~X).

## 1.0 INTRODUCTION

In compliance with section 3 of the Electricity Act ~~2003~~2003, the Central Government notified the Tariff Policy on 6<sup>th</sup> January, 2006. Further amendments to the Tariff Policy were notified on 31<sup>st</sup> March, 2008, 20<sup>th</sup> January, 2011 and 8<sup>th</sup> July, 2011. In exercise of powers conferred under section 3(3) of Electricity Act, 2003, the Central Government hereby notifies the revised Tariff ~~policy in continuation of the National Electricity Policy (NEP) notified on 12<sup>th</sup> February 2005.~~Policy to be effective from the date of publication of this resolution in the Gazette of India.

Notwithstanding anything done or any action taken or purported to have been done or taken under the provisions of the Tariff Policy notified on 6<sup>th</sup> January, 2006 and amendments made thereunder, shall, in so far as it is not inconsistent with this Policy, be deemed to have been done or taken under provisions of this revised policy.<sup>1</sup>

The National Electricity Policy has set the goal of adding new generation capacity ~~of more than one lakh MW during the 10<sup>th</sup> and 11<sup>th</sup> Plan periods to have~~and enhancing per capita availability of ~~over 1000 units of~~ electricity per year and to not only eliminate energy and peaking shortages but to also have a spinning reserve ~~of 5% in the systems~~as specified by the Central Electricity Authority. Development of the power sector has also to meet the challenge of providing access for affordable electricity to all households in next five years.

It is therefore essential to attract adequate investments in the power sector by providing appropriate return on investment as budgetary resources of the Central and State Governments are incapable of providing the requisite funds. It is equally necessary to ensure availability of electricity to different categories of consumers at reasonable rates for achieving the objectives of rapid economic development of the country and improvement in the living standards of the people.

Balancing the requirement of attracting adequate investments to the sector and that of ensuring reasonability of user charges for the consumers is the critical challenge for the regulatory process. Accelerated development of the power sector and its ability to attract necessary investments calls for, inter alia, consistent regulatory approach across the country. Consistency in approach becomes all the more necessary considering the large number of States and the diversities involved.

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<sup>1</sup>This amendment incorporates the principle underlying Section 6 of General Clauses Act, 1897 to preserve validity of all lawful/valid past actions under the previous Policy.

## 2.0 LEGAL POSITION

Section 3(1) of the Electricity Act, 2003 empowers the Central Government to formulate the tariff policy. Section 3(3) of the Act enables the Central Government to review or revise the tariff policy from time to time.

~~The Act also requires that the~~ Central Electricity Regulatory Commission (CERC) and State Electricity Regulatory Commissions (SERCs) shall be guided by the tariff policy in discharging their functions including framing the regulations ~~under section 61 of the Act.~~

~~Section 61 of the Act provides that~~ Regulatory Commissions shall be guided by the principles and methodologies specified by the Central Commission for determination of tariff applicable to generating companies and transmission licensees.

The Forum of Regulators has been constituted by the Central Government under the provisions of the Act which would, inter alia, facilitate consistency in approach specially in the area of distribution.

## 3.0 EVOLUTION OF THE POLICY

The tariff policy has been evolved in consultation with the State Governments ~~and~~ the Central Electricity Authority (CEA) ~~and keeping in view the advice of~~ the Central Electricity Regulatory Commission and ~~suggestions of~~ various stakeholders.

## 4.0 OBJECTIVES OF THE POLICY<sup>2</sup>

The objectives of this tariff policy are to:

- (a) Ensure availability of electricity to consumers at reasonable and competitive rates;
- (b) Ensure financial viability of the sector and attract investments;
- (c) Promote transparency, consistency and predictability in regulatory approaches across jurisdictions and minimise perceptions of regulatory risks;
- (d) Promote competition, efficiency in operations and improvement in quality of supply;
- (e) Promote generation of electricity from Renewable sources;
- (f) Promote Hydroelectric Power generation including Pumped Storage Projects (PSP) to provide adequate peaking reserves, reliable grid operation and integration of variable renewable energy sources;
- (g) Evolve a dynamic and robust electricity infrastructure for better consumer services;
- (h) Facilitate supply of adequate and uninterrupted power to all categories of consumers;
- (i) Ensure creation of adequate capacity including reserves in generation, transmission and distribution in advance, for reliability of supply of electricity to consumers.

## 5.0 GENERAL APPROACH TO TARIFF

Introducing competition in different segments of the electricity industry is one of the key features of the Electricity Act, 2003. Competition will lead to significant benefits to

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<sup>2</sup>This expansion of objectives is consistent with the statutory and policy objectives of promoting renewable energy, hydroelectric power and securing reliable supply.

consumers through reduction in capital costs and also efficiency of operations. It will also facilitate the price to be determined competitively. The Central Government has already issued detailed guidelines for tariff based bidding process for procurement of electricity by distribution licensees ~~for medium or long term period vide gazette notification dated 19<sup>th</sup> January, 2005.~~

All future requirement of power should continue to be procured competitively<sup>3</sup> by distribution licensees except in cases of expansion of existing projects or where there ~~is a State company owned or controlled/owned company by the State Government as an identified~~ developer and where regulators will need to resort to tariff determination based on norms<sup>4</sup> provided that expansion of generating capacity by private developers for this purpose would be restricted to one time addition of not more than ~~50~~100% of the existing capacity.

~~Even for the Public Sector projects, tariff of all new generation and transmission projects should be decided on the basis of competitive bidding after a period of five years or when the Regulatory Commission is satisfied that the situation is ripe to introduce such competition.~~

Provided further that the Appropriate Commission, as defined in the Electricity Act, 2003, shall ensure that in case of expansion of such projects, the benefit of sharing of infrastructure of existing project and efficiency of new technology is passed on to consumers through tariff<sup>5</sup>.

Provided also that the State Government can notify a policy to encourage investment in the State by allowing setting up of generating plants, including from renewable energy sources out of which a maximum of 35% of the installed capacity can be procured by the Distribution Licensees of that State for which the tariff may be determined under Section 62 of the Electricity Act, 2003<sup>6</sup>.

Provided that notwithstanding the provision contained in para 5.11(j)<sup>7</sup> of the policy, the tariff for such 35% of the installed capacity shall be determined by SERC.

However, the 15% of power outside long term PPAs allowed under para 5.7.1 of National Electricity Policy shall not be included in 35% allowed to be procured by Distribution Licensees of the State<sup>8</sup>.

The tariff of all new generation and transmission projects of company owned or controlled by the Central Government shall continue to be determined on the basis of

<sup>3</sup> The revised policy is in direct conflict with the judgement of APTEL holding that Para 5.1 of the Tariff Policy ultra vires to Section 62 of the Electricity act such that procurement could be done either by bilateral regulated PPA or competitive bidding: 2010 ELR (APTEL) 404 @ Paras 17-23, 31-32.

<sup>4</sup> Carve out and differential treatment qua State Gencos which own around 34.5% of total installed capacity in the country.

<sup>5</sup> Consistent with Section 51 of Electricity Act. It is important to ensure that sharing of the benefit is NET of cost of the infrastructure and new technology.

<sup>6</sup> Exception from procurement only based on competitive bidding.

<sup>7</sup> As such, even for Composite Scheme PPAs, this 35% power will be subject to locational SERC jurisdiction - taking it out of CERC jurisdiction and effectively extending the fiat of Section 64(5) from an "election" to a "mandate" beyond the express language of the statute.

<sup>8</sup> Those PPAs are outside long term procurement.

competitive bidding as per the Tariff Policy notified on 6<sup>th</sup> January, 2006 unless otherwise specified by the Central Government on case to case basis<sup>9</sup>.

Further, intra-state transmission projects shall be developed by State Government through competitive bidding process for projects costing above a threshold limit which shall be decided by the SERCs<sup>10</sup>.

The Central Electricity Regulatory Commission in consultation with Central Electricity Authority and other stakeholders shall frame within six months, regulations for determination of tariff for generation of electricity from projects using coal washery rejects. These regulations shall also be followed by State Electricity Regulatory Commissions<sup>11</sup>.

Provided that procurement of power from coal washery rejects based projects developed by Central/State PSUs, Joint Venture between Government Company and Company other than Government Company in which shareholding of company other than Government Company either directly or through any of its subsidiary company or associate company shall not be more than 26% of the paid up share capital, can be done under Section 62 of the Act<sup>12</sup>.

The developer, of a hydroelectric project, including Pumped Storage Plant (PSP), would have the option of getting the tariff determined by the appropriate Appropriate Commission for the power to be sold through long term Power Purchase Agreements (PPAs) on the basis of performance based cost of service regulations if the following conditions are fulfilled:

- (a) The appropriate Appropriate Commission is satisfied that the project site has been allotted to the developer by the concerned State Government after following a transparent two stage process. The first stage should be for prequalification on the basis of criteria such as of financial strength as measured by networth, past experience of developing infrastructure projects of similar size, past track record of developing projects on time and within estimated costs, turnover and ability to meet performance guarantee etc. In the second stage, bids are to be called on the basis of only one single quantifiable parameter, such as, additional free power in excess of 13% percentage of free power, as notified by the Central Government, equity participation offered to the State Government, or upfront payment etc. any other parameter to be notified by the Central Government from time to time.

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<sup>9</sup> This change enshrines in policy a discriminatory treatment in favour of Central Government owned Generation (over 26% of total installed capacity) and Transmission Projects – even new ones. The ambiguous wording is likely to result in claim of extension of sunset clause of 5 years in Tariff Policy and untrammelled discretion in the hands of the Central Government to be exercised on a case-to-case basis to sanctify such discrimination.

<sup>10</sup> Thus SERC can define/change limits re. competitive bidding for intra-state transmission projects with no sunset clause.

<sup>11</sup> An important action item for CERC/CEA to evolve regulations for tariff determination for power generated from coal washery rejects.

<sup>12</sup> Another instance of discrimination against private sector.

(b) ~~Projects of more than 100 MW design capacity for which sites have been awarded earlier by following a transparent process and on the basis of predetermined set of criteria would also be covered in this dispensation.~~

~~(eb)~~—Concurrence of CEA (if required under Section 8 of the Act), financial closure, award of work and long term Power Purchase Agreement (PPA) (of ~~more than 35 Years~~the duration of 35 years or more) of the capacity specified in ~~(dc)~~ below with distribution licensees are completed by ~~31.12.2015~~. 15.08.2022.

<sup>13</sup>(c) Long term PPA is firmed up for 60% or more of the total saleable design energy, balance being allowed for merchant sale.

Provided that distribution licensees can extend the duration of long term PPA beyond 35 years for a further period of 15 years at the existing terms and conditions subject to the approval of Appropriate Commission<sup>14</sup>.

Provided further that nothing contained in this clause shall apply to Pumped Storage Plants (PSP).

(d) ~~Long term PPA would be at least for 60% of the total saleable design energy. However, this figure of 60% would get enhanced by 5% for delay of every six months in commissioning of the last unit of the project against the scheduled date approved by the Appropriate Commission before commencement of the construction.~~ The time period for commissioning of all the units of the project shall be fixed at four years from the date of approval of the commissioning schedule by the Appropriate Commission<sup>15</sup>. However, the Appropriate Commission may, after recording reasons in writing, fix longer time period for ~~large storage hydro electric projects and (reservoir as well as run-off-of-the-river projects)~~ of more than ~~500~~100 MW capacity. ~~Adherence to the agreed~~Agreed timelines to achieve the fixed commissioning schedule ~~shall be verified through independent third party verification.~~ alongwith penalty for delay shall be decided by the Appropriate Commission in consultation with the Central Electricity Authority. The Appropriate Commission shall allow pass through the Interest During Construction (IDC) and Financing Cost (FC) only upto the period of delay not attributable to the developer, as approved by the CEA<sup>16</sup>.

(e) Award of contracts for supply of equipment and construction of the project, either through a turnkey or through well defined packages, are done on the basis of international competitive bidding.

Notwithstanding anything contained in Para 5.5 above, the developers of hydro electric projects of more than 100 MW design capacity for which sites have been awarded

<sup>13</sup> There is a need to reconcile amongst the 35% in the 2<sup>nd</sup> proviso to para 5.2 above, 15% in para 5.7.1 of NEP and 60% mentioned here, specifically for circumstance where conflicts or ambiguity may arise.

<sup>14</sup> The provision is progressive in encouraging merchant sale. However, it is unclear as to how this factors in CEA approval under Section 8(2), particularly on technical and safety aspects.

<sup>15</sup> This constitutes an additional element of regulation of generation by ERCs which must be borne in mind by developers, lenders, borrowers, suppliers, and regulators.

<sup>16</sup> This is an important facet where a new role of CEA is envisaged re. Extension of CoD and Implications, which if implemented diligently can be an important facilitator to resolve issues.

earlier by following a transparent process and on the basis of pre-determined set of criteria would have the option of getting the tariff determined by the Appropriate Commission for the power to be sold through long term PPA on the basis of cost plus under Section 62 of the Act<sup>17</sup>.

In ~~cases, where the conditions mentioned above at (a) to (e) are fulfilled,~~ case of projects covered under Para 5.5 and 5.6, the Appropriate Commission shall determine tariff ensuring the following<sup>18</sup>:

- (i) Any expenditure incurred or committed to be incurred by the project developer for getting project site allotted (except free power ~~up to 13%~~ as notified) would neither be included in the project cost, nor any such expenditure shall be passed through in tariff.
- (ii) The project cost shall include the cost of the approved R&R plan of the Project which shall be in conformity with the following:
  - (a) (a) the National Rehabilitation & Resettlement Policy currently in force;
  - (b) (b) the R&R package as enclosed at appendix; ~~and the cost of project developers' 10% contribution towards RGGVY project in the affected area as per the project report sanctioned by the Ministry of Power.~~
- (iii) Annual fixed charges shall be taken pro-rata to the saleable design energy tied up on the basis of long term PPAs with respect to total saleable design energy<sup>19</sup>. The total saleable design energy shall be arrived at by deducting the following from the design energy at the bus bar:
  - (a) ~~13% of free power (12%~~ Free power as notified by the Central Government from time to time for the host ~~Government and 1%~~ State and the riparian State and percentage for contribution towards Local Area Development Fund as constituted by the State Government). This ~~12%~~ free power may be suitably staggered as decided by the State Government.
  - (b) Energy corresponding to 100 units of electricity to be provided free of cost every month to every Project Affected Family notified by the State Government to be offered through the concerned distribution licensee in the designated resettlement area/ projects area for a period of ten years from the date of commissioning<sup>20</sup>.

The Appropriate Commission shall provide for suitable regulatory framework for incentivizing the developers of Hydro Electric Projects (HEPs) for using long-term instruments in order to reduce the tariff burden<sup>20</sup> in the initial years.

appropriate market conditions. Shortages of power supply will need to be overcome.

<sup>17</sup> Thus a differentiated track is envisaged for hydro, even in competitively bid procurement.

<sup>18</sup> This paragraph has a significant bearing on the bid and tariff assumptions/basis of bids.

<sup>19</sup> As such, a part of fixed charges attributable to other than long term PPAs shall be allocated to that offtake.

<sup>20</sup> An important regulation to watch out for.

Multiple players will enhance the quality of service through competition. All efforts will need to be made to bring power industry to this situation as early as possible in the overall interests of consumers. Transmission and distribution, i.e. the wires business is internationally recognized as having the characteristics of a natural monopoly where there are inherent difficulties in going beyond regulated returns on the basis of scrutiny of costs<sup>21</sup>.

5.10 Consumer interest is best served in ensuring viability and sustainability of the entire value chain viz., generation, transmission and distribution of electricity, while at the same time facilitating power supply at reasonable rate to consumers. The financial turnaround/restructuring plans are approved by the Appropriate Government from time to time to achieve this objective. The Appropriate Government as well as the Appropriate Commission while implementing such plans shall ensure viability of the generation, transmission and distribution in terms of recovery of all prudent costs<sup>22</sup>.

~~5.3~~5.11 Tariff policy lays down the following framework for performance based cost of service regulation in respect of aspects common to generation, transmission as well as distribution. These shall not apply to competitively bid projects as referred to in para 6.1 and para 7.1 (6)<sup>23</sup>. Sector specific aspects are dealt with in subsequent sections.

**(a) Return on Investment**

Balance needs to be maintained between the interests of consumers and the need for investments while laying down rate of return. Return should attract investments at par with, if not in preference to, other sectors so that the electricity sector is able to create adequate capacity. The rate of return should be such that it allows generation of reasonable surplus for growth of the sector<sup>24</sup>.

The Central Commission would notify, from time to time, the rate of return on equity for generation and transmission projects keeping in view the assessment of overall risk and the prevalent cost of capital<sup>25</sup> which shall be followed by the SERCs also. The rate of return notified by CERC for transmission may be adopted by the ~~State Electricity Regulatory Commissions~~ (SERCs) for distribution with appropriate modification taking into view the ~~higher~~ risks involved. For uniform approach in this matter, it would be desirable to arrive at a consensus through the Forum of Regulators.

While allowing the total capital cost of the project, the Appropriate Commission would ensure that these are reasonable and to achieve this objective, requisite benchmarks on capital costs should be evolved by the Regulatory Commissions.

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<sup>21</sup> Regrettably, elements of market development have again not been spelt out – leaving a gap.

<sup>22</sup> Para 5.10 is an important reaffirmation of Section 61(b), (c) & (d) principles for ERCs and stakeholders to build upon and enforce both qua financial restructuring/refinancing plans; liquidation of regulatory assets; prudence of tariff et.al.

<sup>23</sup> The Tariff Policy rightly clarifies that the Competitive Bidding Guidelines shall be the governing framework for Section 63 PPAs.

<sup>24</sup> This is an important principle to press before ERCs to give meaning to Section 61(b), (c) & (d). It brings in the well-established principle that regulated tariff must include reasonable return – neither being oppressive for consumer nor confiscatory for the utility.

<sup>25</sup> Crucial guidance to Section 61(b), (c) & (d).

~~Explanation: For the purposes of return on equity, any cash resources available to the company from its share premium account or from its internal resources that are used to fund the equity commitments of the project under consideration should be treated as equity subject to limitations contained in (b) below.~~

~~The Central Commission may adopt the alternative approach of regulating through return on capital.~~ The Central Commission may adopt either Return on Equity approach or Return on Capital approach whichever is considered better in the interest of the consumers<sup>26</sup>.

The State Commission may consider 'distribution and supply margin' as basis for allowing returns in distribution business at an appropriate time. The State Commission may also consider price cap regulation based on comprehensive study. The Forum of Regulators should evolve a comprehensive approach on "distribution margin" within one year in this regard. The considerations while preparing such an approach would, inter-alia, include issues such as reduction in Aggregate Technical and Commercial losses, improving the standards of performance and reduction in cost of supply<sup>27</sup>.

#### **(b) Equity Norms**

For financing of future capital cost of projects, a Debt: Equity ratio of 70:30 should be adopted. Promoters would be free to have higher quantum of equity investments. The equity in excess of this norm should be treated as loans advanced at the weighted average rate of interest and for a weighted average tenor of the long term debt component of the project after ascertaining the reasonableness of the interest rates and taking into account the effect of debt restructuring done, if any. In case of equity below the normative level, the actual equity would be used for determination of Return on Equity in tariff computations.

#### **(c) Depreciation**

The Central Commission may notify the rates of depreciation in respect of generation and transmission assets. The depreciation rates so notified would also be applicable for distribution assets with appropriate modification as may be evolved by the Forum of Regulators<sup>28</sup>.

Provided that the Appropriate Commission shall specify, for the purpose of tariff determination, a upper ceiling of the rate of depreciation to be applicable during the useful life of the project and the developer shall have the option of indicating, while seeking approval for tariff, lower rate of depreciation subject to the aforesaid ceiling<sup>29</sup>.

The rates of depreciation so notified would be applicable for the purpose of tariffs as well as accounting.

There should be no need for any advance against depreciation<sup>30</sup>.

<sup>26</sup> Guideline to effectively implement Section 61(b) to (d).

<sup>27</sup> Action item for SERCs.

<sup>28</sup> Action item for FoR to facilitate SERCs on adapting CERC notified depreciation rates.

<sup>29</sup> Action item for ERCs.

<sup>30</sup> This appears to be a guideline to the level of depreciation that must be allowed qua debt service requirements et.al.



Benefit of reduced tariff after the assets have been fully depreciated should remain available to the consumers.

Notwithstanding the above, power from those plants of a generating company, where either whose PPAs have expired or plants have completed their useful life, may be bundled<sup>31</sup> with power from renewable generating plants to be set up through the process of bidding or for which the equipment for setting up such plant is procured through competitive bidding. In such cases, power from such plants can be reallocated to beneficiaries purchasing power from renewable energy generating plants on the principles to be decided by Appropriate Government. The Obligated Entities which finally buy such power shall account towards their renewable purchase obligation to the extent of power bought from renewable energy generating plants.

The scheduling and despatch of such conventional and renewable generating plants shall be done separately.

**(d) Cost of Debt**

Structuring of debt, including its tenure, with a view to reducing the tariff should be encouraged. Savings in costs on account of subsequent restructuring of debt should be suitably incentivised by the Regulatory Commissions keeping in view the interests of the consumers.

**(e) Cost of Management of Foreign Exchange Risk**

Foreign exchange variation risk shall not be a pass through. Appropriate However, appropriate costs<sup>32</sup> of hedging and swapping to take care of foreign exchange variations should be allowed for debt obtained in foreign currencies. This provision would be relevant only for the projects where tariff has not been determined on the basis of competitive bids.

**(f) Operating Norms**

Suitable performance norms of operations together with incentives and disincentives would need to be evolved along with appropriate arrangement for sharing the gains of efficient operations with the consumers<sup>33</sup>. Except for the cases referred to in para 5.3-5.11(h)(2), the operating parameters in tariffs should be at “normative levels” only and not at “lower of normative and actuals”. This is essential to encourage better operating performance. The norms should be efficient, relatable to past performance, capable of achievement and progressively reflecting increased efficiencies and may also take into consideration the latest technological advancements, fuel, vintage of equipments, nature of operations, level of service to be provided to consumers etc. Continued and proven inefficiency must be controlled and penalized.

The Central Commission would, in consultation with the Central Electricity Authority, notify operating norms from time to time for generation and transmission. The SERC would adopt these norms. In cases where operations have been much below the norms for many previous

<sup>31</sup> Bundling of power from Conventional Sources with RE, while segregating scheduling and dispatch will pose its implementation challenges.

<sup>32</sup> Important clause – devil lies in details of implementation.

<sup>33</sup> Action item for ERCs – CERC/CEA.

years, the SERCs may fix relaxed norms suitably and draw a transition path over the time for achieving the norms notified by the Central Commission, or phase them out in accordance with the norms specified by the Authority in this regard.

Operating norms for distribution networks would be notified by the concerned SERCs. For uniformity ~~of approach in determining such norms for distribution,~~ the Forum of Regulators<sup>34</sup> should evolve the approach including the model guidelines for treatment ~~of taking into consideration the~~ state specific distinctive features.

**(g) Renovation and ~~Modernisation~~ Modernization**

Renovation and modernization ~~(#of generation plants (including repowering of wind generating plants) need to be encouraged for higher efficiency levels even though they may have not completed their useful life. This shall not include periodic overhauls) for higher efficiency levels needs to be encouraged. A multi-year tariff. A Multi-Year Tariff (MYT) framework may be prescribed which should also cover capital investments necessary for renovation and modernization and an incentive framework to share the benefits of efficiency improvement between the utilities and the beneficiaries with reference to revised and specific performance norms to be fixed by the Appropriate Commission. Appropriate capital costs required for ~~pre-determined~~ predetermined efficiency gains and/or for sustenance of high level performance would need to be assessed by the Appropriate Commission.~~

**(h) Multi Year Tariff**

- (1) Section 61 of the Act states that the Appropriate Commission, for determining the terms and conditions for the determination of tariff, shall be guided, inter-alia, by ~~multi-year tariff principles. The MYT framework is to be adopted for any tariffs to be determined from April 1, 2006.~~ Multi-Year Tariff (MYT) principles. The framework should feature a five-year control period. The initial control period may, however, be of 3 year duration for transmission and distribution if deemed necessary by the Regulatory Commission on account of data uncertainties and other practical considerations. In cases of lack of reliable data, the Appropriate Commission may state assumptions in MYT for first control period and a fresh control period may be started as and when more reliable data becomes available.
- (2) In cases where operations have been much below the norms for many previous years, the initial starting point in determining the revenue requirement and the improvement trajectories should be recognized at “relaxed” levels and not the “desired” levels. Suitable benchmarking studies may be conducted to establish the “desired” performance standards. Separate studies may be required for each utility to assess the capital expenditure necessary to meet the minimum service standards<sup>35</sup>.
- (3) Once the revenue requirements are established at the beginning of the control period, the Regulatory Commission should focus on regulation of outputs and not

<sup>34</sup> Action item for FoR of vital importance.

<sup>35</sup> The tariff trajectory will need to balance between fair recovery of costs and causing tariff shock – perhaps within the 7 year period in para 8.2.2(b) below keeping in mind sub-clause (4) below.

the input cost elements. At the end of the control period, a comprehensive review of performance may be undertaken.

- (4) Uncontrollable costs should be recovered speedily to ensure that future consumers are not burdened with past costs. Uncontrollable costs would include (but not limited to) fuel costs, costs on account of inflation, taxes and cess, mix in case of adverse natural events<sup>36</sup>.
- (5) Clear guidelines and regulations on information disclosure may be developed by the Regulatory Commissions. Section 62 (2) of the Act empowers the Appropriate Commission to require licensees to furnish separate details, as may be specified in respect of generation, transmission and distribution for determination of tariff.

(i) **Benefits under ~~CDM~~ Clean Development Mechanism (CDM)**

Tariff fixation for all electricity projects (generation, transmission and distribution) that result in lower Green House Gas (GHG) emissions than the relevant base line should take into account the benefits obtained from the Clean Development Mechanism (CDM) into consideration, in a manner so as to provide adequate incentive to the project developers.

<sup>37</sup>(j) Composite Scheme

Sub-section (b) of Section 79(1) of the Act provides that Central Commission shall regulate the tariff of generating company, if such generating company enters into or otherwise have a composite scheme for generation and sale of electricity in more than one State.

Explanation: The composite scheme as specified under section 79(1) of the Act shall mean a scheme by a generating company for generation and sale of electricity in more than one State, having signed long-term or medium-term PPA prior to the date of commercial operation of the project (the COD of the last unit of the project will be deemed to be the date of commercial operation of the project) for sale of atleast 10% of the capacity of the project to a distribution licensee outside the State in which such project is located.

5.12. While it is recognized that the State Governments have the right to impose duties, taxes, cess on sale or consumption of electricity, these could potentially distort competition and optimal use of resources especially if such levies are used selectively and on a non- uniform basis.

In some cases, the duties etc. on consumption of electricity is linked to sources of generation (like captive generation) and the level of duties levied is much higher as compared to that being levied on the same category of consumers who draw power from grid. Such a distinction is invidious and inappropriate. The sole purpose of freely allowing captive generation is to enable industries to access reliable, quality and cost effective power. Particularly, the provisions relating to captive power plants which can be set up by group of consumers has been brought in recognition of the fact that efficient expansion of small and

<sup>36</sup> This is of critical relevance qua realising regulatory asset with carrying cost as also FPPCA implementation across the country.

<sup>37</sup> An important clarification of scope of Section 79(1)(b).

medium industries across the country will lead to faster economic growth and creation of larger employment opportunities.

For realizing the goal of making available electricity to consumers at reasonable and competitive prices, it is necessary that such duties are kept at reasonable level.

~~Though, as per the provisions of the Act, the outer limit to introduce open access in distribution is 27.1.2009, it would be desirable that, in whichever states the situation so permits, the Regulatory Commissions introduce such open access earlier than this deadline.~~

5.13 The Act provides for introduction of open access for consumers of one megawatt and above in a time bound manner. The Regulatory Commissions shall introduce open access for different categories of consumers as per the provisions of the Act<sup>38</sup>.

## GENERATION

Accelerated growth of the generation capacity sector is essential to meet the estimated growth in demand. Adequacy of generation is also essential for efficient functioning of power markets. At the same time, it is to be ensured that new capacity addition should deliver electricity at most efficient rates to protect the interests of consumers. This policy stipulates the following for meeting these objectives.

### Procurement of power

As stipulated in para 5.1, power procurement for future requirements should be through a transparent competitive bidding mechanism using the guidelines issued by<sup>39</sup> the Central Government ~~vide gazette notification dated 19<sup>th</sup> January, 2005~~ from time to time. These guidelines provide for procurement of electricity separately for base load requirements and for peak load requirements. This would facilitate setting up of generation capacities specifically for meeting ~~peak~~ such requirements.

However, some of the competitively bid projects as per the guidelines dated 19<sup>th</sup> January, 2005 have experienced difficulties in getting the required quantity of coal from Coal India Limited (CIL). In case of reduced quantity of domestic coal supplied by CIL, vis-à-vis the assured quantity or quantity indicated in Letter of Assurance/FSA the cost of imported/market based e-auction coal procured for making up the shortfall, shall be considered for being made a pass through by Appropriate Commission on a case to case basis<sup>40</sup>, as per advisory issued by Ministry of Power vide OM No. FU-12/2011-IPC (Vol-III) dated 31.7.2013.

### Tariff structuring and associated issues

- (1) A two-part tariff structure should be adopted for all long -term and medium-term contracts to facilitate Merit Order dispatch. According to National Electricity Policy, the Availability Based Tariff (ABT) is also to be introduced at State level ~~by April~~

<sup>38</sup> It must be effective – without distortions and barriers.

<sup>39</sup> Please see footnotes 3, 4 and 9 above.

<sup>40</sup> This clause seeks to address the domestic coal shortages alone on a case-to-case basis but fails to deal with imported coal issues. However, if seen in context of genesis of port based imported coal projects, this should provide support to regulatory resolution of issues on a case-to-case basis. (CCEA decision dated 21.06.2013).

~~2006.~~ This framework would be extended to generating stations (including grid connected captive plants of capacities as determined by the SERC). The Appropriate Commission may also shall introduce differential rates of fixed charges for peak and off peak hours for better management of load within a period of two years<sup>41</sup>.

Power stations are required to be available and ready to dispatch at all times. Notwithstanding any provision contained in the Power Purchase Agreement (PPA), in order to ensure better utilization of un-requisitioned generating capacity of generating stations, based on regulated tariff under Section 62 of the Electricity Act 2003, the procurer shall communicate, at least twenty four hours before 00.00 hours of the day when the power and quantum thereof is not requisitioned by it enabling the generating stations to sell the same in the market in consonance with laid down policy of Central Government in this regard. The developer and the procurers signing the PPA would share the gains realized from sale, if any, of such un-requisitioned power in market in the ratio of 50:50, if not already provided in the PPA. Such gain<sup>42</sup> will be calculated as the difference between selling price of such power and fuel charge. It should, however, be ensured that such merchant sale does not result in adverse impact on the original beneficiary(ies) including in the form of higher average energy charge vis-à-vis the energy charge payable without the merchant sale. For the projects under section 63 of the Act, the methodology for such sale may be decided by the Appropriate Commission on mutually agreed terms between procurer and generator or unless already specified in the PPA<sup>43</sup>.

- (2) Power Purchase Agreement should ensure adequate and bankable payment security arrangements to the Generating companies. In case of persisting default on payment of agreed tariff as per PPA<sup>44</sup> in spite of the available payment security mechanisms like letter of credit, escrow of cash flows etc. the generating companies may sell such power to other buyers.
- (3) In case of coal based generating stations, the cost of project will also include reasonable cost of setting up coal washeries, coal beneficiation system and dry ash handling & disposal system.
- (4) After the award of bids<sup>45</sup>, if there is any change in domestic duties, levies, cess and taxes imposed by Central Government, State Governments/Union Territories or by any Government instrumentality leading to corresponding changes in the cost, the same may be treated as “Change in Law” and may unless provided otherwise in the PPA, be allowed as pass through subject to approval of Appropriate Commission.
- (5) The thermal power plant(s) including the existing plants located within 50 km radius of sewage treatment plant of Municipality/local bodies/similar organization shall in

<sup>41</sup> Action item for ERCs – Demand Side Management.

<sup>42</sup> What about AT&C losses if delivery points are different and how does this take care of costs for such sales like OA charges?

<sup>43</sup> Action item for ERC/Parties.

<sup>44</sup> Of significance to restore credibility to the payment security mechanism and remedies for default, if implemented scrupulously.

<sup>45</sup> Risk re. Gap between 7 days before Bid Submission Date & Award of Bid. Can pose serious problem.

the order of their closeness to the sewage treatment plant, mandatorily use treated sewage water produced by these bodies and the associated cost on this account be allowed as a pass through in the tariff. Such thermal plants may also ensure back-up source of water to meet their requirement in the event of shortage of supply by the sewage treatment plant. The associated cost on this account shall be factored into the fixed cost so as not to disturb the merit order of such thermal plant. The shutdown of the sewage treatment plant will be taken in consultation with the developer of the power plant<sup>46</sup>.

### **Harnessing captive generation**

Captive generation is an important means to making competitive power available. Appropriate Commission should create an enabling environment that encourages captive power plants to be connected to the grid.

Such captive plants could ~~inject~~ supply surplus power ~~into the~~ through grid subject to the same regulation as applicable to generating companies. Firm supplies may be bought from captive plants by distribution licensees using the guidelines issued by the Central Government under section 63 of the Act taking into account second proviso of para 5.2 of this Policy.

The prices should be differentiated for peak and off-peak supply and the tariff should include variable cost of generation at actual levels and reasonable compensation for capacity charges.

~~Alternatively, a frequency based real time mechanism can be used and the captive generators can be allowed to inject into the grid under the ABT mechanism.~~

Wheeling charges and other terms and conditions for implementation should be determined in advance by the respective State Commission, duly ensuring that the charges are reasonable and fair.

Grid connected captive plants could also supply power to non-captive users connected to the grid through available transmission facilities based on negotiated tariffs. Such sale of electricity would be subject to relevant regulations for open access: including compliance of relevant provisions of rule 3 of the Electricity Rules, 2005.

~~—Non-conventional and renewable~~ Renewable sources of energy generation including ~~co~~ Co-generation from renewable energy sources:

- (1) Pursuant to provisions of section 86(1 )(e) of the Act, the Appropriate Commission shall fix a minimum percentage of the total consumption of electricity in the area of a distribution licensee for purchase of energy from ~~such~~ renewable energy sources, taking into account availability of such resources ~~in the region~~ and its impact on retail tariffs. ~~Such percentage for purchase of energy should be made applicable for the tariffs to be determined by the SERCs latest by April 1, 2006. Cost of purchase of renewable energy shall be taken into account while determining tariff by SERCs. Long term growth trajectory of Renewable Purchase Obligations (RPOs) will be prescribed by the Ministry of Power in consultation with MNRE<sup>47</sup>.~~

<sup>46</sup> Important for Water linkage & Tariff & other issues.

<sup>47</sup> Action item for SERCs – MoP & MNRE.

Provided that cogeneration from sources other than renewable sources shall not be excluded from the applicability of RPOs.

- (i) Within the percentage so made applicable, to start with, the SERCs shall also reserve a minimum percentage for purchase of solar energy from the date of notification ~~in the Official Gazette which will go up to 0.25% by the end of 2012-2013 and further up to 3% by 2022.~~ of this policy which shall be such that it reaches 8% of total consumption of energy, excluding Hydro Power, by March 2022 or as notified by the Central Government from time to time.
- (ii) Distribution Licensee(s) shall compulsorily procure 100% power produced from all the Waste-to-Energy plants<sup>48</sup> in the State, in the ratio of their procurement of power from all sources including their own, at the tariff determined by the Appropriate Commission under Section 62 of the Act.
- (iii) It is desirable that purchase of energy from ~~non-conventional~~ renewable sources of energy takes place more or less in the same proportion in different States. To achieve this objective in the current scenario of large availability of such resources only in certain parts of the country, an appropriate mechanism such as Renewable Energy Certificate (REC) would need to be ~~evolved~~ promoted. Through such a mechanism, the renewable energy based generation companies can sell the electricity to local distribution licensee at the rates for conventional power and can recover the balance cost by selling certificates to other distribution companies and obligated entities enabling the latter to meet their renewable power purchase obligations. ~~In view of the comparatively higher cost of electricity from solar energy currently, the~~ The REC mechanism should also have a solar specific REC.
- ~~(iii) It will take some time before non-conventional technologies can compete with conventional sources in terms of cost of electricity. Therefore, procurement by distribution companies shall be done at preferential tariffs determined by the Appropriate Commission. iv)~~ Appropriate Commission may also provide for a suitable regulatory framework for encouraging such other emerging renewable energy technologies by prescribing separate technology based REC multiplier<sup>49</sup> (i.e. granting higher or lower number of RECs to such emerging technologies for the same level of generation). Similarly, considering the change in prices of renewable energy technologies with passage of time, the Appropriate Commission may prescribe vintage based REC multiplier (i.e. granting higher or lower number of RECs for the same level of generation based on year of commissioning of plant).
- (2) ~~Such procurement by Distribution Licensees for future requirements~~ States shall endeavor to procure power from renewable energy sources through competitive bidding to keep the tariff low, except from the waste to energy plants. Procurement of power by Distribution Licensee from renewable energy sources from projects above

<sup>48</sup> Important issue for promoting Waste to Energy and evolving models in Smart City program.

<sup>49</sup> Action item for ERCs to promote RE while providing for technology and vintage based differential pricing elements.

the notified capacity, shall be done, as far as possible, through competitive bidding process under Section 63 of the Act within suppliers offering energy from same type of non-conventional sources. In the long-term, these technologies would need to compete with other sources in terms of full costs, from the date to be notified by the Central Government<sup>50</sup>.

However, till such notification, any such procurement of power from renewable energy sources projects, may be done under Section 62 of the Electricity Act, 2003. While determining the tariff from such sources, the Appropriate Commission shall take into account the solar radiation and wind intensity which may differ from area to area to ensure that the benefits are passed on to the consumers.

- (3) The Central Commission should lay down guidelines ~~within three months~~ for pricing ~~non-firm~~ intermittent power, especially from ~~non-conventional~~ renewable energy sources, ~~to be followed in cases~~ where such procurement is not through competitive bidding. The tariff stipulated by CERC shall act as a ceiling for that category.
- (4) In order to incentivize the Distribution<sup>51</sup> Companies to procure power from renewable sources of energy, the Central Government may notify, from time to time, an appropriate bid-based tariff framework for renewable energy, allowing the tariff to be increased progressively in a back-loaded or any other manner in the public interest during the period of PPA, over the life cycle of such a generating plant. Correspondingly, the procurer of such bid-based renewable energy shall comply with the obligations for payment of tariff so determined.
- (5) In order to promote renewable energy sources, any generating company proposing to establish a coal/lignite based thermal generating station after a specified date shall be required to establish such renewable energy generating capacity or procure and supply renewable energy equivalent to such capacity, as may be prescribed by the Central Government from time to time after due consultation with stakeholders. The renewable energy produced by each generator may be bundled with its thermal generation for the purpose of sale. In case an obligated entity procures this renewable power, then the SERCs will consider the obligated entity to have met the Renewable Purchase Obligation (RPO) to the extent of power bought from such renewable energy generating stations.

Provided further that in case any existing coal and lignite based thermal power generating station, with the concurrence of power procurers under the existing Power Purchase Agreements, chooses to set up additional renewable energy generating capacity, the power from such plant shall be allowed to be bundled and tariff of such renewable energy shall be allowed to be pass through by the Appropriate Commission. The Obligated Entities who finally buy such power shall account towards their renewable purchase obligations.

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<sup>50</sup> Action item for MoP.

<sup>51</sup> Action item for MoP.



Provided also that scheduling and despatch of such conventional and renewable generating plants shall be done separately<sup>52</sup>.

(6) In order to further encourage renewable sources<sup>53</sup> of energy, no inter-State transmission charges and losses may be levied till such period as may be notified by the Central Government on transmission of the electricity generated from solar and wind sources of energy through the inter-state transmission system for sale.

(7) Appropriate Commission may provide regulatory framework to facilitate generation and sale of electricity from renewable energy sources<sup>54</sup> particularly from roof-top solar system by any entity including local authority, Panchayat Institution, user institution, cooperative society, Non-Governmental Organization, franchisee or by Renewable Energy Service Company. The Appropriate Government may also provide complementary policy support for this purpose.

Explanation: “Renewable Energy Service Company” means an energy service company which provides renewable energy to the consumers in the form of electricity.

## TRANSMISSION

The transmission system in the country consists of the regional networks, the ~~interregional~~ inter-regional connections that carry electricity across the five regions, and the State networks. ~~The national transmission network in India is presently under development.~~ Development of the State networks has not been uniform and capacity in such networks needs to be augmented. These networks will play an important role in intra-State power flows and also in the regional and national flows. The tariff policy, ~~insofar~~ in so far as transmission is concerned, seeks to achieve the following objectives:

1. Ensuring optimal development of the transmission network ahead of generation with adequate margin for reliability and to promote efficient utilization of generation and transmission assets in the country;
2. Attracting the required investments in the transmission sector and providing adequate returns.

### Transmission pricing

(1) A suitable transmission tariff framework for all inter-State transmission, including transmission of electricity across the territory of an intervening State as well as conveyance within the State which is incidental to such ~~inter-state~~ interstate transmission, ~~needs to be~~ has been implemented with the objective of promoting effective utilization of all assets across the country and accelerated development of new transmission capacities that are required.

(2) The National Electricity Policy mandates that the national tariff framework implemented should be sensitive to distance, direction and related to quantum of power flow. This ~~would be~~ has been developed by CERC taking into consideration the advice of the CEA.

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<sup>52</sup> Implementation mechanism must be carefully understood re. merit order, open access/grid priority et.al.

<sup>53</sup> Action item for MoP.

<sup>54</sup> Action item for ERC/Government.

~~Such~~ Sharing of transmission charges shall be done in accordance with such tariff mechanism ~~should be implemented by 1<sup>st</sup> April 2006, as amended from time to time.~~

(3) Transmission charges, under this framework, can be determined on MW per circuit kilometer basis, zonal postage stamp basis, or some other pragmatic variant, the ultimate objective being to get the transmission system users to share the total transmission cost in proportion to their respective utilization of the transmission system. The ~~overall tariff framework~~ 'utilization' factor should duly capture the advantage of reliability reaped by all. The spread between minimum and maximum transmission rates should be such as not to inhibit planned development/augmentation of the transmission system, but should discourage non-optimal transmission investment.

(4) In view of the approach laid down by the NEP, prior agreement with the beneficiaries would not be a ~~pre-condition~~ precondition for network expansion. CTU/STU should undertake network expansion after identifying the requirements in consonance with the National Electricity Plan and in consultation with stakeholders, and taking up the execution after due regulatory approvals. For smooth operation of the grid, efforts should be made to develop transmission system ahead of generation<sup>55</sup>.

(5) The Central Commission ~~would establish, within a period of one year,~~ has specified norms for capital and operating costs, ~~operating standards and performance indicators for transmission lines at different voltage levels. Appropriate baseline studies may be commissioned to arrive at~~ and laid down Standards of Performance for inter-State transmission licensees. Tariff determination and adherence to Standards of Performance shall be carried out in accordance with these norms, as amended from time to time.

(6) Investment by transmission developer including CTU/STUs would be invited through competitive bids. ~~The Central Government has already issued tariff based competitive bidding guidelines for transmission service vide Gazette Notification dated 13<sup>th</sup> April, 2006, in accordance with the guidelines issued by the Central Government from time to time.~~

(7) ~~The tariff of the projects to be developed by CTU/STU after the period of five years or when the Regulatory Commission is satisfied that the situation is right to introduce such competition (as referred to in clause 5.1) would also be determined on the basis of competitive bidding.~~ While all future inter-state transmission projects shall, ordinarily, be developed through competitive bidding However, in the following cases the ~~exemptions~~ process, the Central Government may give exemption<sup>56</sup> from competitive bidding route may be adopted: (i) First two experimental for (a) specific category of projects of strategic importance, technical upgradation etc. or (b) works for 1200 KV HVDC line. (ii) ~~Works~~ required to be done to cater to an urgent situation or which are required in a compressed time schedule by CTU/STUs as decided by the Central Government on a case to case basis.

<sup>55</sup> This can be a game-changer provided that the CTU and STU are held accountable for slippages in this regard instead of passing burden of capex and grid development to Gencos.

<sup>56</sup> Unguided discretion to Government of India to carve out bilateral procurement with regulated tariff – perpetuating discrimination in favour of PGCIL.

~~(iii) The intra-state transmission projects by STUs will be exempted from competitive bidding route for further 2 years beyond 6.1.2011.~~

~~(78) After coming into effect of the CERC has specified Regulation on framework for the inter-State transmission, a. A similar approach should be implemented by SERCs ~~in next two years~~ for the intra-State transmission, duly considering factors like voltage, distance, direction and quantum of flow.~~

(89) Metering compatible with the requirements of the proposed transmission tariff framework should be established on priority basis. The metering should be compatible with ABT requirements, which would also facilitate implementation of Time of Day (ToD) tariffs.

#### ~~—Approach to transmission~~ Transmission loss allocation

(1) Transactions ~~should be~~ are being charged on the basis of average losses arrived at after appropriately considering the distance and directional sensitivity, as applicable to relevant voltage level, on the transmission system. Based on the methodology laid down by the CERC in this regard for inter- state transmission, the ~~Forum of Regulators~~ SERCs may evolve a similar ~~approach~~ framework for intra-state transmission.

The loss framework should ensure that the loss compensation is reasonable and linked to applicable technical loss benchmarks. The benchmarks may be determined by the Appropriate Commission after considering advice of CEA.

(2) It would be desirable to move to a system of loss compensation based on incremental losses as present deficiencies in transmission capacities are overcome through network expansion. ~~(2)~~ The Appropriate Commission may require necessary studies to be conducted to establish the allowable level of system loss for the network configuration, and the capital expenditure required to augment the transmission system and reduce system losses. Since additional flows above a level of line loading ~~leads~~ lead to significantly higher losses, CTU/STU should ensure upgrading of transmission systems to avoid the situations of overloading. The Appropriate Commission should permit adequate capital investments in new assets for upgrading the transmission system.

#### **Other issues in transmission**

(1) Financial incentives and disincentives should be implemented for the CTU and the STU around the ~~key performance indicators~~ Key Performance Indicators (KPI) for these organisations. Such KPIs would include efficient network construction, system availability and loss reduction.

(2) All available information should be shared with intending users by the CTU/STU and the load dispatch centers, particularly information on available transmission capacity and load flow studies.

(3) In extraordinary circumstances including threat to security to the State, public order or natural calamity, if the Central Government allocates power out of the unallocated

share of the Central Generating Stations or otherwise, such allocation of power will have priority over short-term, medium-term and long-term access in this order<sup>57</sup>.

### Ancillary Services

- (1) The Central Commission<sup>58</sup> may introduce the norms and framework for ancillary services, including the method of sharing the charges, necessary to support the power system or grid operation for maintaining power quality, reliability and security of the grid.
- (2) The Central Commission shall also consult the Central Electricity Authority, SERCs/JERCs, CTUs/STUs and NLDC/RLDC/SLDCs while specifying the norms for ancillary services.
- (3) The State Commission shall also adopt the norms and framework for ancillary services as specified by the Central Commission.

### **DISTRIBUTION**

Supply of reliable and quality power of specified standards in an efficient manner and at reasonable rates is one of the main objectives of the National Electricity Policy. The State Commission should determine and notify the standards of performance of licensees with respect to quality, continuity and reliability of service for all consumers. It is desirable that the Forum of Regulators determines the basic framework on service standards. A suitable transition framework could be provided for the licensees to reach the desired levels of service as quickly as possible. Penalties may be imposed on licensees in accordance with section 57 of the Act for failure to meet the standards.

Making the distribution segment of the industry efficient and solvent is the key to success of power sector reforms and provision of services of specified standards. Therefore, the Regulatory Commissions need to strike the right balance between the requirements of the commercial viability of distribution licensees and consumer interests. Loss making utilities need to be transformed into profitable ventures which can raise necessary resources from the capital markets to provide services of international standards to enable India to achieve its full growth potential. Efficiency in operations should be encouraged. Gains of efficient operations with reference to normative parameters should be appropriately shared between consumers and licensees.

Appropriate Commission should mandate Distribution Licensee to undertake load forecasting<sup>59</sup> every year and to publish and submit to the Commission their short, medium and long-term power procurement plans to meet the load.

The State Regulatory Commission will devise a specific trajectory so that 24 hours supply of adequate and uninterrupted power can be ensured to all categories of consumers by 2021-22 or earlier depending upon the prevailing situation in the State.

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<sup>57</sup> There is need to evolve a suitable framework to implement this provision for genuinely extraordinary circumstances, and to suitable reconstitute Transmission assets rendered stranded for periods which may impair the investment.

<sup>58</sup> Action item for CERC.

<sup>59</sup> Action item for ERCs.

Micro-grids<sup>60</sup> supplying renewable energy are being set up in such areas where the grid has not reached or where adequate power is not available in the grid. Investment involved in setting up of such microgrids is substantial. One of the risks of investment is grid reaching the area before the completion of the project life and thereby making power from micro grids costly and unviable. In order to mitigate such risk and incentivize investment in microgrids, there is a need to put in place an appropriate regulatory framework to mandate compulsory purchase of power into the grid from such micro grids at a tariff to be determined under section 62 of the Act considering depreciated cost of investments and keeping in view industry benchmark and with a cap if necessary, as approved by the Appropriate Commission<sup>61</sup>. The Appropriate Commission shall notify necessary regulations in this regard within six months.

### **Implementation of Multi-Year Tariff (MYT) framework**

- (1) This MYT framework would minimise risks for utilities and consumers, promote efficiency and appropriate reduction of system losses and attract investments ~~and~~. It would also bring greater predictability to consumer tariffs on the whole by restricting tariff adjustments to known indicators ~~on~~ of power purchase prices and inflation indices. The framework should be applied for both public and private utilities.
- (2) The State Commissions should introduce mechanisms for sharing of excess profits and losses with the consumers as part of the overall MYT framework . In the first control period the incentives for the utilities may be asymmetric with the percentage of the excess profits being retained by the utility set at higher levels than the percentage of losses to be borne by the utility. This is necessary to accelerate performance improvement and reduction in losses and will be in the long term interest of consumers by way of lower tariffs.
- (3) As indicated in para ~~5.3-5.11~~(h), the MYT framework implemented in the initial control period should have adequate flexibility to accommodate changes in the baselines consequent to metering being completed.
- (4) Licensees may have the flexibility of charging lower tariffs than approved by the State Commission if competitive conditions require so without having a claim on additional revenue requirement on this account in accordance with Section 62 of the Act.
- (5) At the beginning of the control period when the “actual” costs form the basis for future projections, there may be a large uncovered gap between required tariffs and the tariffs that are presently applicable. ~~The~~This gap should be fully met through tariff charges and through alternative means that could inter-alia include financial restructuring and transition financing.
- (6) Incumbent licensees should have the option of filing for separate revenue requirements and tariffs for an area where the State Commission has issued multiple

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<sup>60</sup> Important provision for Smart Grids and Smart Cities.

<sup>61</sup> Action item for ERCs.

distribution licenses, pursuant to the provisions of Section 14 of the Act read with para 5.4.7 of the National Electricity Policy.

- (7) Appropriate Commissions should initiate tariff determination and regulatory scrutiny on a suo moto basis in case the licensee does not initiate filings in time. It is desirable that requisite tariff changes come into effect from the date of commencement of each financial year and any gap on account of delay in filing should be on account of licensee.

### **Framework for revenue requirements and costs**

The following aspects would need to be considered in determining tariffs:

- (1) All power purchase costs need to be considered legitimate unless it is established that the merit order principle has been violated or power has been purchased at unreasonable rates. The reduction of Aggregate Technical & Commercial (~~ATC~~AT&C) losses needs to be brought about but not by denying revenues required for power purchase for 24 hours supply and necessary and reasonable O&M and investment for system ~~upgradation~~up-gradation. Consumers, particularly those who are ready to pay a tariff which reflects efficient costs have the right to get uninterrupted 24 hours supply of quality power. Actual level of retail sales should be grossed up by normative level of T&D losses as indicated in MYT trajectory for allowing power purchase cost subject to justifiable power purchase mix variation (for example, more energy may be purchased from thermal generation in the event of poor rainfall) and fuel surcharge adjustment as per regulations of the SERC.
- (2) ~~ATC~~AT&C loss reduction should be incentivised by linking returns in a MYT framework to an achievable trajectory. Greater transparency and nurturing of consumer groups would be efficacious. For government owned utilities improving governance to achieve ~~ATC~~AT&C loss reduction is a more difficult and complex challenge for the SERCs. Prescription of a MYT dispensation with different levels of consumer tariffs in succeeding years linked to different ~~ATC~~AT&C loss levels aimed at covering full costs could generate the requisite political will for effective action to reduce theft as the alternative would be stiffer tariff increases. Third party verification of energy audit results for different areas/localities could be used to impose area/locality specific surcharge for greater ~~ATC~~AT&C loss levels and this in turn could generate local consensus for effective action for better governance. The SERCs may also encourage suitable local area based incentive and disincentive scheme for the staff of the utilities linked to reduction in losses.

The SERC shall undertake independent assessment of baseline data for various parameters for every distribution circle of the licensee ~~and this exercise should be completed latest by March, 2007.~~

The SERC shall also institute a system of independent scrutiny of financial and technical data submitted by the licensees.

As the metering is completed ~~upto~~up to appropriate level in the distribution network, ~~latest by March, 2007,~~ it should be possible to segregate technical losses. Accordingly technical loss reduction under MYT framework should then be treated as distinct from commercial loss reduction which ~~require~~requires a different approach.

- (3) Section 65 of the Act provides that no direction of the State Government regarding grant of subsidy to consumers in the tariff determined by the State Commission shall be operative if the payment on account of subsidy as decided by the State Commission is not made to the utilities and the tariff fixed by the State Commission shall be applicable from the date of issue of orders by the Commission in this regard. The State Commissions should ensure compliance of this provision of law to ensure financial viability of the utilities. To ensure implementation of the provision of the law, the State Commission should determine the tariff initially, without considering the subsidy commitment by the State Government and subsidised tariff shall be arrived at thereafter considering the subsidy by the State Government for the respective categories of consumers.
- (4) Working capital should be allowed duly recognising the transition issues faced by the utilities such as progressive improvement in recovery of bills. Bad debts should be recognised as per policies developed and subject to the approval of the State Commission.
- (5) Pass through of past losses or profits should be allowed to the extent caused by uncontrollable factors. During the transition period controllable factors should be to the account of utilities and consumers in proportions determined under the MYT framework.
- (6) The contingency reserves should be drawn upon with prior approval of the State Commission only in the event of contingency conditions specified through regulations by the State Commission. The existing practice of providing for development reserves and tariff and dividend control reserves should be discontinued.
- (7) Section 61 of the Act mandates that the Appropriate Commission, while determining tariff, shall not only ensure safeguarding of consumer's interests but also the recovery of the cost of electricity in a reasonable manner. Section 62 of the Act further provides for periodic tariff adjustment during a year to take care of the variation in fuel price, as may be specified.

Therefore, the Appropriate Commission shall specify an appropriate price adjustment formula for recovery of the costs, arising on account of the variation in the price of fuel, power purchase etc. on monthly/quarterly basis for recovery of all prudent costs of the generating company and the licensee<sup>62</sup>.

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<sup>62</sup> A positive provision which must be pressed into action to resolve issues of liquidating long standing and ballooning regulatory assets and ineffective FPPCA implementation.

~~8.2.2.~~ 8.2.2 The facility of a regulatory asset has been adopted by some Regulatory Commissions in the past to limit tariff impact in a particular year. This should be done only as a very rare exception, in case of natural calamity or force majeure conditions and subject to the following guidelines:

- a. ~~The circumstances should be clearly defined through regulations, and should only include natural causes or force majeure conditions.~~ Under business as usual conditions, ~~the opening balances of uncovered gap must be covered through transition financing arrangement or capital restructuring~~ no creation of Regulatory Assets shall be allowed;
- b. ~~Carrying cost of Regulatory Asset should be allowed to the utilities; c. ——— Recovery of outstanding Regulatory Asset~~ Assets along with carrying cost of Regulatory Assets should be time-bound and within a period not exceeding three years at the most and preferably within control period; seven years. The State Commission may specify the trajectory for the same<sup>63</sup>.
- d. ~~——— The use of the facility of Regulatory Asset should not be repetitive.~~
- e. ~~——— In cases where regulatory asset is proposed to be adopted, it should be ensured that the return on equity should not become unreasonably low in any year so that the capability of the licensee to borrow is not adversely affected.~~

#### **Tariff design: Linkage of tariffs to cost of service**

It has been widely recognised that rational and economic pricing of electricity can be one of the major tools for energy conservation and sustainable use of ground water resources.

In terms of the Section 61(g) of the Act, the Appropriate Commission shall be guided by the objective that the tariff progressively reflects the efficient and prudent cost of supply of electricity.

The State Governments can give subsidy to the extent they consider appropriate as per the provisions of section 65 of the Act. Direct subsidy is a better way to support the poorer categories of consumers than the mechanism of cross-subsidizing the tariff across the board. Subsidies should be targeted effectively and in transparent manner. As a substitute of cross-subsidies, the State Government has the option of raising resources through mechanism of electricity duty and giving direct subsidies to only needy consumers. This is a better way of ~~targetting~~ targeting subsidies effectively.

Accordingly, the following principles would be adopted:

1. ~~In accordance with the National Electricity Policy, consumers~~ Consumers below poverty line who consume below a specified level, ~~say 30 units per month, as prescribed in the National Electricity Policy~~ may receive a special support through cross subsidy. Tariffs for such designated group of consumers will be at least 50% of the average cost of supply. ~~This provision will be re-examined after five years.~~

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<sup>63</sup> Action item for ERCs.



2. For achieving the objective that the tariff progressively reflects the cost of supply of electricity, the ~~SERC~~ Appropriate Commission would notify a roadmap ~~within six months with a target that latest by the end of year 2010-2011~~ such that tariffs are brought within  $\pm 20$  % of the average cost of supply. The road map would also have intermediate milestones, based on the approach of a gradual reduction in cross subsidy.

~~For example if the average cost of service is Rs 3 per unit, at the end of year 2010-2011 the tariff for the cross-subsidised categories excluding those referred to in para 1 above should not be lower than Rs 2.40 per unit and that for any of the cross-subsidising categories should not go beyond Rs 3.60 per unit.~~

3. While fixing tariff for agricultural use, the imperatives of the need of using ground water resources in a sustainable manner would also need to be kept in mind in addition to the average cost of supply. Tariff for agricultural use may be set at different levels for different parts of a state depending ~~on~~ ofon the condition of the ground water table to prevent excessive depletion of ground water. Section 62 (3) of the Act provides that geographical position of any area could be one of the criteria for tariff differentiation. A higher level of subsidy could be considered to support poorer farmers of the region where adverse ground water table condition requires larger quantity of electricity for irrigation purposes subject to suitable restrictions to ensure maintenance of ground water levels and sustainable ground water usage.
4. Extent of subsidy for different categories of consumers can be decided by the State Government keeping in view various relevant aspects. But provision of free electricity is not desirable as it encourages wasteful consumption of electricity ~~besides,~~ Besides in most cases, lowering of water table in turn creating avoidable problem of water shortage for irrigation and drinking water for later generations. It is also likely to lead to rapid rise in demand of electricity putting severe strain on the distribution network thus adversely affecting the quality of supply of power. Therefore, it is necessary that reasonable level of user charges ~~are~~ is levied. The subsidized rates of electricity should be permitted only up to a pre-identified level of consumption beyond which tariffs reflecting efficient cost of service should be charged from consumers. If the State Government wants to reimburse even part of this cost of electricity to poor category of consumers the amount can be paid in cash or any other suitable way. Use of prepaid meters can also facilitate this transfer of subsidy to such consumers.
5. Metering of supply to agricultural / rural consumers can be achieved in a consumer friendly way and in effective manner by management of local distribution in rural areas through commercial arrangement with franchisees with involvement of panchayat institutions, user associations, cooperative societies etc. Use of ~~self-closing load limiters~~ smart meters may be encouraged as a cost effective option for metering in cases of “limited use consumers” who are eligible for subsidized electricity.

#### **Definition of tariff components and their applicability**

1. Two-part tariffs featuring separate fixed and variable charges and Time differentiated tariff shall be introduced on priority for large consumers (say, consumers with demand exceeding 1 MW) within one year and subsequently for all consumers

within a period of five years or such period as may be specified<sup>64</sup>. This would also help in flattening the peak and implementing various energy conservation measures.

2. The National Electricity Policy states that existing PPAs with the generating companies would need to be suitably assigned to the successor distribution companies. The State Governments may make such assignments taking care of different load profiles of the distribution companies so that retail tariffs are uniform in the State for different categories of consumers. Thereafter, the retail tariffs would reflect the relative efficiency of distribution companies in procuring power at competitive costs, controlling theft and reducing other distribution losses.
3. The State Appropriate Commission may provide incentives<sup>65</sup> to encourage metering and billing based on metered tariffs, particularly for consumer categories that are presently unmetered to a large extent. The metered tariffs and the incentives should be given wide publicity. Smart meters have the advantages of remote metering and billing, implementation of peak and off-peak tariff and demand side management through demand response. These would become essential in future for load-generation balancing due to increasing penetration of intermittent type of generation like wind and solar power.

Appropriate Commission shall, therefore, mandate smart meters for:

- (a) Consumers with monthly consumption of 500 units and more at the earliest but not later than 31.12.2017;
- (b) Consumers with monthly consumption above 200 units by 31.12.2019.

Further, two way smart meters shall be provided to all prosumers, who also sell back electricity to the grid as and when they require.

In order to enable energy audit in the distribution system, all distribution companies shall ensure smart meters in their electricity system throughout the chain from transformers at 132kV level right down to distribution transformer level at 11kV and further down to each consumer. Further, in order to reduce theft of power, the distribution companies should have enabling feature like distribution SCADA with distribution management system and energy audit functions. SERCs shall mandate these to be in place within two years.

4. The SERCs may also suitably regulate connection charges to be recovered by the distribution licensee to ensure that second distribution licensee does not resort to cherry picking by demanding unreasonable connection charges. The connection charges of the second licensee should not be more than those payable to the incumbent licensee.

#### **Cross-subsidy surcharge and additional surcharge for open access**

National Electricity Policy lays down that the amount of cross-subsidy surcharge and the additional surcharge to be levied from consumers who are permitted open access should not be so onerous that it eliminates competition which is intended to be

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<sup>64</sup> Action item for ERCs.

<sup>65</sup> Action item for ERCs.

fostered in generation and supply of power directly to the consumers through open access.

A consumer who is permitted open access will have to make payment to the generator, the transmission licensee whose transmission systems are used, distribution utility for the wheeling charges and, in addition, the cross subsidy surcharge. The computation of cross subsidy surcharge, therefore, needs to be done in a manner that while it compensates the distribution licensee, it does not constrain introduction of competition through open access. A consumer would avail of open access only if the payment of all the charges leads to a benefit to him. While the interest of distribution licensee needs to be protected it would be essential that this provision of the Act, which requires the open access to be introduced in a time-bound manner, is used to bring about competition in the larger interest of consumers.

~~Accordingly, when open access is allowed the surcharge for the purpose of sections 38, 39, 40 and sub-section 2 of section 42 would be computed as the difference between (i) the tariff applicable to the relevant category of consumers and (ii) the cost of SERCs may calculate the cost of supply of electricity by the distribution licensee to supply electricity to the consumers of the applicable class. In case of a consumer opting for open access, the distribution licensee could be in a position to discontinue purchase of power at the margin in the merit order. Accordingly, the cost of supply to the consumer for this purpose may be computed as the as aggregate of (a) the per unit weighted average cost of power purchase costs (inclusive of fixed and variable charges) of top 5% power at the margin, excluding liquid fuel based generation, in the merit order approved by the SERC adjusted for average loss compensation of including meeting the Renewable Purchase Obligation; (b) transmission and distribution losses applicable to the relevant voltage level and commercial losses allowed by the SERC; (c) transmission, distribution and wheeling charges up to the relevant voltage level; and (b) the distribution charges determined on the principles as laid down for intra state transmission charges d) per unit cost of carrying regulatory assets, if applicable.~~

#### Surcharge formula:

$$S = T - [ C / (1 + L / 100) + D + R ]^{66}$$

Where

S is the surcharge

T is the ~~Tariff~~ tariff payable by the relevant category of consumers; including reflecting the Renewable Purchase Obligation

C is the ~~Weighted~~ per unit weighted average cost of power purchase ~~of top 5% at the margin excluding liquid fuel based generation and renewable power~~ by the Licensee, including meeting the Renewable Purchase Obligation

D is the ~~Wheeling charge~~ aggregate of transmission, distribution and wheeling charge applicable to the relevant voltage level

<sup>66</sup> Progressive change in the formula for recovery of carrying cost of regulatory assets.

L is the ~~system Losses for the applicable voltage level, expressed as a percentage~~ aggregate of transmission, distribution and commercial losses, expressed as a percentage applicable to the relevant voltage level

~~The cross-subsidy surcharge should be brought down progressively and, as far as possible, at a linear rate to a maximum of 20% of its opening level by the year 2010-11.~~

R is the per unit cost of carrying regulatory assets.

Above formula may not work for all distribution licensees, particularly for those having power deficit, the State Regulatory Commissions, while keeping the overall objectives of the Electricity Act in view, may review and vary the same taking into consideration the different circumstances prevailing in the area of distribution licensee<sup>67</sup>.

Provided that the surcharge shall not exceed 20% of the tariff applicable to the category of the consumers seeking open access.

Provided further that the Appropriate Commission, in consultation with the Appropriate Government, shall exempt levy of cross subsidy charge on the Railways<sup>68</sup>, as defined in Indian Railways Act, 1989 being a deemed licensee, on electricity purchased for its own consumption.

No surcharge would be required to be paid in terms of sub-section (2) of Section 42 of the Act on the electricity being sold by the generating companies with consent of the competent government under Section 43(A)(1)(c) of the Electricity Act, 1948 (now repealed)<sup>69</sup> and on the electricity being supplied by the distribution licensee on the authorisation by the State Government under Section 27 of the Indian Electricity Act, 1910 (now repealed), till the current validity of such consent or ~~authorisations~~authorisation.

The surcharge may be collected either by the distribution licensee, the transmission licensee, the STU or the CTU, depending on whose facilities are used by the consumer for availing electricity supplies. In all cases the amounts collected from a particular consumer should be given to the distribution licensee in whose area the consumer is located. In case of two licensees supplying in the same area, the licensee from whom the consumer was availing supply shall be paid the amounts collected.

The additional surcharge for obligation to supply as per section 42(4) of the Act should become applicable only if it is conclusively demonstrated that the obligation of a licensee, in terms of existing power purchase commitments, has been and continues to be stranded, or there is an unavoidable obligation and incidence to bear fixed costs consequent to such a contract. The fixed costs related to network assets would be recovered through wheeling charges.

<sup>67</sup> Action item for ERCs.

<sup>68</sup> Questionable directive couched in mandatory language.

<sup>69</sup> Untenable provisions – referring to a statute repealed 13 years ago.

8.5.5 Wheeling charges should be determined on the basis of same principles as laid down for intra-state transmission charges and in addition would include average loss compensation of the relevant voltage level.

8.5.6 In case of outages of generator supplying to a consumer on open access, standby arrangements should be provided by the licensee on the payment of tariff for temporary connection to that consumer category as specified by the Appropriate Commission. Provided that such charges shall not be more than 125 percent of the normal tariff of that category.

## 9.0 Trading Margin

The Act provides that the Appropriate Commission may fix the trading margin, if considered necessary. Though there is a need to promote trading in electricity for making the markets competitive, the Appropriate Commission should monitor the trading transactions continuously and ensure that the electricity traders do not indulge in profiteering in situation of power shortages. Fixing of trading margin should be resorted to for achieving this objective.

Sd/-

(U.N. PANJIAR)

~~Additional Secretary to the Government of India~~

To

JYOTIARORA, Jt. Secy

**APPENDIX : SALIENT FEATURES OF THE APPROVED REHABILITATION & RESETTLEMENT PROVISIONS FOR HYDRO POWER PROJECTS**

- 1. SCOPE OF COVERAGE.** The following provisions shall be applicable even if one family is affected by the development of a Hydro Power Project.
- 2. DEFINITION OF PROJECT AFFECTED FAMILIES (PAFs).** A Project Affected Family (PAF) shall mean a family whose place of residence or other property or source of livelihood has been affected by the development of a hydro project and who have been residing in the affected zone for two years preceding the date of declaration of notification under Section-11 of the LARR Act. The affected family would also include squatters.
- 3. DEFINITION OF AGRICULTURAL LABOURER.** A person normally residing in the affected zone for two years preceding the date of declaration of the affected zone and earns his/her livelihood principally by manual labour on agricultural land.
- 4. DEFINITION OF NON-AGRICULTURAL LABOURER.** A person normally residing in the affected zone for two years preceding the date of declaration of the affected zone and who does not hold any land in the affected zone but earns his/her livelihood principally by manual labour or as rural artisan or a service provider to the community.
- 5. DEFINITION OF SQUATTERS.** A family occupying Government land in the affected zone without a legal title, at least for 5 years prior to the date of declaration of notification under Section-11 of LARR Act.
- 6. REHABILITATION/RESETTLEMENT COLONIES.** This policy aims to provide built up houses to Project Affected Families (PAFs) who get displaced due to the development of hydro projects to the extent possible. However, wherever opted for, liberal House Construction Allowance would be given in lieu.
- 7. TRAINING AND CAPACITY BUILDING.** This policy also emphasizes the need to provide training to the Project Affected Families as well as to the local population for a sustained livelihood. Special training programmes from ITIs aimed at providing the required skills to the local population would be undertaken by the Project developers at least six months prior to commencement of construction. This is expected to boost the employability of the PAFs and other people residing in the vicinity of the project.
- 8. ADDITIONAL PROVISIONS.** This policy envisages additional provisions for Project Affected Families such as:
  - o Scholarships for meritorious students.
  - o Extension of medical facilities.
  - o Marriage grants.
  - o Subsistence grants.
  - o Support for income generation schemes for cooperative and self-help groups.
  - o Seed, pesticides and fertilizer subsidies, and irrigation support.

**Besides the additional provisions mentioned above, the normally applicable provisions of the National Policy on Rehabilitation and resettlement, currently in force, would be applicable.**