Comments on "Draft Amendments to Tariff Policy 2016"

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1. **Objectives of the policy**

   (e) Promote generation, transmission and use of electricity from renewable energy sources including rooftop solar.

   (j) Promote cross-border trade of electricity[1].

   (k) Promote development of a market for ancillary services in a technology agnostic manner (thereby giving adequate opportunity for the available and the emerging technologies to compete)

2. **Competitive environment for capacity expansion and guidelines for competitive bidding:** Section 5.2 of the Tariff Policy continues to leave ample room for creation of large capacity under Section 62 of the Electricity Act, 2003, thereby avoiding competitive bidding. This is also not in congruence with the listed objective, promoting 'competition', of the tariff policy.

   Given that about 80% of the consumer tariff is on account of power procurement cost, it is important to adopt all possible measures to minimise the impact particularly through competitive procurement of power. Thus, all power procurement, long-term, medium-term or short-term, must be based on the principles of competitive bidding.

   Adequate provision should also be made, in the existing guidelines for competitive bidding, to **allow existing generating companies particularly with Central sector companies (through capacity expansion) to bid for any greenfield power procurement under long-term agreements.** This would not only give a competitive edge to the existing generating companies but ultimately benefit the consumers in terms of lower tariff.

3. Section 5.2 also seems to be open-ended as it provides for capacity expansion up to hundred percent of the 'existing' capacity over multiple rounds i.e. it does not have a restriction on number of times such capacity expansion can be resorted to.

4. **Need to bring greater cost efficiency with Central sector generation companies:** Deletion of 'generation' from section 5.3, would perpetuate the cost plus philosophy in the

[1] Given the rising share of variable renewable energy capacity in the Indian grid, import of hydro electricity (especially two way trade with pumped hydro) could play a mutually beneficial role.

Central sector generation companies thereby obliterating any incentive for capital cost reduction and greater operational efficiency.

5. **Promotion of Pumped Storage Plants (5.5):** With growing penetration of variable renewable energy, the country needs to make better operational deployment of the existing pumped storage plants, where additional investment has been made to create a provision for energy storage. Further, the economics PSPs should be established through habit projects by bundling these with variable RE projects like solar and wind.

6. **Exclusion of cost of time overrun from capital cost for deriving O&M expenses:** While approving O&M expenses as a proportion of capital expenditure, cost of time overrun on account of additional IDC should be excluded. Since 'delay' did not create any additional value for the asset created, inclusion of IDC penalises the consumers while offering extra undue benefit to the project developers,

7. **Balance between the interests of consumers and the need for investment:** The preamble to the Electricity Act, 2003 specifically provides for 'protecting interest of consumers', while 'generally for taking measures conducive to development of electricity industry'. It is important to mention here that the act clearly emphasises 'protection of consumers interest' rather than the same being balanced against the 'interest of investments'

   Section 5.11 (a) of tariff policy seems to dilute even the existing provision by replacing 'needs to' with 'may'.

8. **Return on investment:** Section 5.11 (a) seems to suggest that the electricity sector should get the highest possible return as it states that the rate of return in the sector should be at least at par with that in 'other sectors', irrespective of the differences in their risk profile.

   Given that the sector has now overcome power shortages and seems to have sufficient surplus, at least at the national level with the exception of certain peaking hours. Adequate balance needs to be made now to ensure that appropriate returns are made available in the distribution segment, while also ensuring that surplus generation capacities do not waste national resources and also do not add up to the costs to be borne by the consumers.

   Rate of return for government owned enterprises, especially those in the Central sector, have had adequate payment security mechanism supported through the tripartite agreement related to the SEB dues. In such instances, the rate of return should have been adequately adjusted downwards. In the case of transmission projects, the assurance of cost recovery and payment, and considerably less operational risk should demand even lower rate of return. Appropriate capital pricing based analysis should be used to value the underlying risk while fixing the required rate of return.

9. **Sunset for rate of return regulation:** Rate of return based regulatory framework, specially with relaxed normative parameters, ensure over capitalisation[2] leading to higher overall burden for the consumers. Even after more than 20 years since the onset of the 'independent' regulation in India, the overall regulatory philosophy still continues to rely on a regulatory framework that does not seem to sufficiently encourage competition and promote efficiency in the sector. With normative rate of return regulation, some progress has already been demonstrated. Greater competitive spirit and cost efficiency cannot be brought out with the status quo and the regulatory framework. A debate for the choice of alternate needs to be initiated with the guidance emerging from the tariff policy.

10. **Regulatory benchmarks:** Even while it has been suggested above to adopt competitive bidding for new projects (including expansion of existing projects), normative parameters, both operational as well as financial, in use for existing projects should increasingly be benchmarked to the national as well as international best practices. Absence of benchmarking studies across the regulatory landscape in India results in the relaxed choice of benchmarked parameters for tariff determination purposes.

11. Section of 5.11 (b):

    Line 1 - Replacement of 'should' with 'shall' obviates the need for any deviation from the suggested debt to equity ratio of 70:30. The relevant statement should, thus, be deleted.

    Line 2 - 'quantum' should be replaced with 'proportion'.

12. Section of 5.11 (c): Depreciation -

    The Rate of Depreciation so 'notified/specified' could be the basis for the purpose of tariff, however, the companies registered under the Companies Act 2013 would still be able to use a different rate of depreciation for taxation/accounting purposes. This should be provided for in the relevant section.

    The assets are not to be 'fully' depreciated in accounting/regulatory dispensation. The sentence may appropriately be corrected.

13. **Roadmap for energy storage:** With the improvement in economics, some of the energy storage technologies may become relevant only if ancillary services clearly incentivises faster response either through storage or through flexible generation.

14. **Competitive bidding for 'Stored' RE and RPO:** The Electricity Act, 2003 does not explicitly provide for 'storage'. In the current legal dispensation storage technologies particularly that are used for 'energy' supply purpose, should be provided with adequate clarity with respect to the energy to be accounted towards RPO if renewable energy was been stored.

    Further, economics of storage technologies can be well demonstrated by inviting competitive bids for firm supply of electricity during peak hours from peaking capacity or energy stored

[2] International literature provides adequate evidence, citing Averch-Johnson effect, for over capitalisation in the presence of rate of return regulation.

15. **Delink norms from past performance (5.11 (f)):** Relating operating norms to past performance would continue to burden the sector with historical inefficiencies. A clear migration needs to be made to regulatory environment wherein operating norms are no longer defined as per the 'past performance', and are reflective of the regulator's intent to bring significant efficiency gains and sector. This can be undertaken by gradually delinking operating norms with vintage so that inefficient plants/assets are replaced with efficient plants thus lowering the overall social burden. This would also enhance utilisation factor for the efficient plants. Investors, would then have the choice of either improving efficiency of such assets, or replacing the same with efficient assets.

16. **Competition - Tariff Policy vis-a-vis Electricity Act, 2003:** Section 61 of the Electricity Act, 2003 empowers the Appropriate Commission 'to specify' the terms and conditions for the determination of tariff and be 'guided by' the aspects listed therein. If the listed 'guidelines' are to be 'adhered to' by the Appropriate Commission, particularly the SERCs, the following proviso should be even more binding in nature,

    > "the factors which would encourage competition, efficiency, economical use of the resources, good performance and optimum investments"

    The Tariff Policy seems to dilute the scope for competition by persisting with cost plus tariff for central sector investments, particularly with relaxed normative parameters.

17. **Uniformity Vs Congruence, and Consistency in regulatory framework:** the role of Forum of Regulators is important to evolve a congruent approach to regulation, including setting up of operating norms. With different 'starting points' and sectoral context, 'uniformity' would continue to evade the horizon. Hence, congruence and consistently in regulatory approach would be a achievable outcome for the sector in short- to medium-term.

18. **Provide for stringent SERC norms than those notified by CERC/CEA (5.11 (f))** : It is assumed that the norms notified by the Central commission would always be more stringent than those adopted by a State Commission. There are/could be instances of benchmarks identified by an SERC to be more stringent than the one set by CERC/CEA. Policy should allow for setting up of more stringent operating norms. Thus, the policy should suggest that norms to be adopted by SERCs should be at least as in stringent as those adopted/notified by CERC/CEA.

19. **Renovation and modernisation - Cost benefit analysis to be part of the business plan submitted by the utilities to the respective ERC:** Cost-benefit analysis of capital investment to achieve predetermined efficiency gains should become an integral part of the investment proposals/business plan submitted by the regulated entities. A repository of the related data should be maintained by the regulated entity as well as the respective regulatory commission so as to ensure effective benchmarking of capital cost across spectrum of available technological options.

20. **Multi-year tariff (5.11 (h) (2))**: Power sector, especially the distribution sector, have been lagging behind in terms of operational as well as financial performance. In such circumstances, continuation with the principle of 'relaxed' improvement trajectories needs

to be reconsidered. This also seems to be in contrast with UDAY targets which are fairly aggressive but desirable.

21. **Multi-year tariff (5.11 (h) (3))**: The suggestion to focus on regulation of outputs rather than input cost elements does not seem to be in sync with the existing practice of truing up of the revenue as well as cost elements.

22. **Regulatory information system and public availability of data:** The regulatory process across ERCs is heavily dependent on large volume of data shared by the regulated entities and those processed and finalised by the ERC. Availability of such data in the public domain would enable benchmarking of performance across the regulated entities.

23. **Generation (6.0): "**Adequacy of generation is also essential for efficient functioning of power market and to ensure reliability of the power system." (underlined text added)

24. **Demand forecasting and power procurement:** Cost of power purchase account for about 80% of the cost of electricity supply to consumers. A reduction in cost of power procurement can be achieved by (i) developing a reliable and scientific forecast for electricity demand for long-term, medium-term and short-term, and (ii) developing a power procurement strategy, considering existing, pipeline, candidate PPAs, and short-term power procurement - including bilateral (banking and sale/purchase), traders, power exchanges, DEEP etc.

    The study undertaken by the Dept of IME, IIT Kanpur for a northern state found that significant cost reductions can be achieved through appropriate long-term forecast and planning power procurement.

25. **Regulatory framework for long-term demand forecasting and power procurement planning (8.0):** Absence of a regulatory framework to ensure regular long-term demand forecasting, and power procurement planning has historically led to either shortage of power or higher fixed cost burden due to surplus PPA.

    A five-day workshop called **Regulatory Research Camp (RRC) organised by Centre for Energy Regulation (CER) at IIT Kanpur** was aimed at developing a regulatory framework for this topic of relevance. Detailed and focused discussions between officials from selected SERCs and distribution utilities, and the academia lead to development of a regulatory framework that could be tailored and adopted by the respective SERCs. Outcome of the deliberations would be shared with the stakeholders for a wider consultation.

26. **A TOD based tariff category for charging electric vehicles (EVs) (8.3 (8)):** Electric vehicles, which are expected to play a greater role in passenger and goods transport in future, need adequate charging infrastructure and appropriate pricing for the same. The SERCs should suggest adoption of separate TOD based tariff for electric vehicle charging (for connections requiring 3 kW or more) even for use by consumers in the existing tariff categories, as well as for dedicated charging stations.

    EV charging should be identified for full coverage through smart meters. A separate tariff category would ensure clear visibility of their consumption behaviour and the design of TOD based tariff using smart meters. Further, usage of a smart meter would

also make V2G interactions (for tapping energy stored in EV batteries) technologically feasible. It is very important to ensure this approach be adopted much before growth of charging the load in the system. In its absence, it would become difficult for the utilities to address variability of the new load over and above that being imposed on account of RE variability.

27. **Competitive bidding guidelines for differential fixed charges for peak and off-peak hours (6.2 (1)):** A number of state utilities are currently saddled with excess PPAs resulting in higher burden of fixed costs for the consumers. The situation could have been addressed by entering into long-term and medium-term power procurement contracts designed for specific hours (particularly peak hours), which attract high fixed charges. However, in doing so, the distribution utilities must evaluate the impact of fixed charges applicable only for peak hours (and the resultant energy charges) versus those applicable RTC contract. There is a need to develop appropriate competitive bidding guidelines to accommodate the suggested differential fixed charges.

28. **Intra-regional and inter-regional Swapping of PPAs signed by the distribution utilities:** The power sector continues to witness substantial capacity under un-requisitioned surplus from Central sector plants. Apart from this, PPAs signed with the state generating companies and IPPs also continue to remain underutilised across a number of surpluses states. Sale of excess capacity long-term PPAs should be encouraged to be sold through competitive bidding.

    While un-requisitioned surplus capacity is offloaded in short-term through bilateral contract, traders, power exchanges and DEEP portal, a re-assignment of the identified capacity under existing PPAs and help bring more stable revenue certainty to the distribution utilities with surplus power, while also ensuring better predictability of available capacity to the distribution utilities which continue to witness power shortages.

    To allow such portfolio rebalancing across utilities, it would be important to improve visibility of URS and the associated price for re-evaluating the merit order dispatch in the short run and evolving a more optimal power procurement strategy in the long run.

29. **Change in law and associated impact on cost (6.2 (4)):** Tariff policy should clearly specify the change in law is being recognised only in the Indian context.

    Further, it is also important to emphasise that change in cost could either be on account of increase in certain cost components and/or decrease in other cost components. The way 'increase in cost' is suggested to be pass through, any 'cost savings' on account of change in law must also be reported and passed on to the buyer and thus to the ultimate consumers.

30. **Use of treated water by thermal power plants (6.2 (5)):** Although, the policy mandates utilisation of treated wastewater by the thermal power plants within a 50 km radius, compliance mechanism for the same be put in place. This should include identification of the monitoring authority, compliance reporting and treatment for shortfall in compliance.

31. **Banking of energy from captive generation:** A number of states have taken adequate regulatory steps to ensure that banking of energy across peak (off-peak) hours treated analogously within the slots. The approach needs to be adopted across all the states to

ensure that the value of electricity banked and that received do not differ significantly and thus place additional financial burden on the utilities.

32. **Uniform RPO without REC Market? (6.4 (1)):** Renewable energy resource endowments vary across states significantly both in quantum as well as mix of resources. In such circumstances prescription of a common RPO trajectory would not be economically efficient for the country. Absence of a vibrant REC market further accentuates this concern.

    The basic philosophy of introduction of the REC market in India[3] was to allow RPO compliance in an economically efficient manner, especially when obligated entities are not able to secure adequate renewable energy from local resources. Interstate transmission of large quantum of renewable energy also poses greater challenges for its scheduling. Further, additional transmission capacity would remain underutilised due to seasonal and daily variation in its generation profile, thus further highlighting the relevance of the REC market.

33. **REC Market as the RPO Compliance Mechanism:** Feed in tariff and renewable energy certificates (RECs) with APPC are the two alternate revenue streams for a renewable energy project developer. **The REC mechanism is best suited to be used a RPO compliance mechanism.** This can be done by registering all the renewable energy projects (including those under a feed-in-tariff mechanism) under the REC framework and issuing RECs as per the due process. RE project developers under the feed in tariff mechanism, would then need to compulsorily transfer the certificates to the obligated entities (utilities) with whom they have signed the PPA (see figure below). Some of the advantages are listed below

    - RPO compliance monitoring would become much easier with greater national visibility through the NLDC registration framework for RECs.

    - The obligated entities, having over achieved their RPO, may now be able to trade excess RE procurement by selling the RECs received bundled with the RE procurement and under is feed in tariff

    - Improvement in liquidity and efficiency in the REC market.

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[3] The author contributed to development of the REC market in India with two original research discussing REC implementation published as early as 2006 and 2009. Subsequently, a number of inputs (on the related regulations) provided to CERC have also been adopted.

"Nationally Tradable Renewable Energy Credits for Renewable Portfolio Obligation in the Indian Power Sector", SEE Conference Proceedings, Bangkok., 21-23 Nov.2006, ISBN 974-456-653-1 (Book Chapter).

"A Market for Renewable Energy Credits in the Indian Power Sector", Renewable and Sustainable Energy Review, Elsevier, 2009. doi:10.1016/j.rser.2007.10.011

"Economics, Regulation and Implementation Strategy for Renewable Energy Certificates in India" in India Infrastructure Report 2010, Oxford Univ. Press. http://www.idfc.com/pdf/report/Chapter-3.pdf

- Flexibility in compliance with banking and rollover of RECs.

- Distribution utilities can easily re-bundle RECs to offer the **'green electricity products'** to its consumers thus deepening RE penetration.

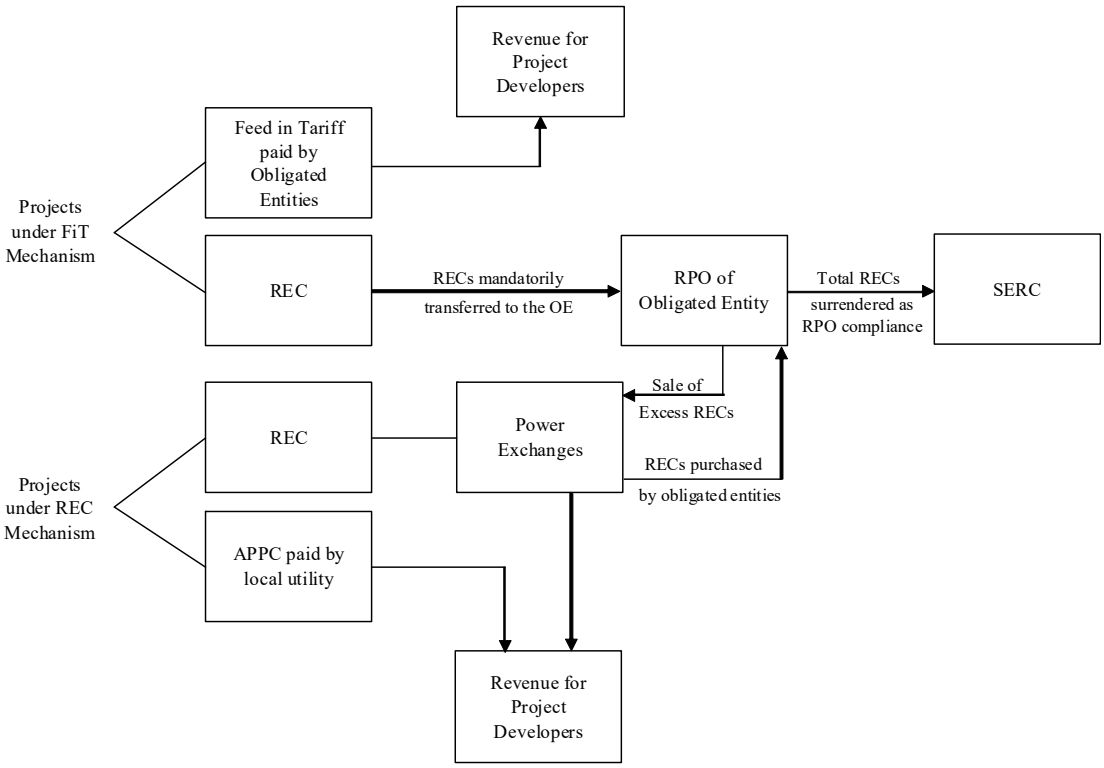

Figure 1: REC mechanism is best suited to be used a RPO compliance mechanism

34. Rejuvenate the REC Market: Deletion of sections 6.4 (1) (iii) & (iv) seems to create a policy uncertainty regarding continuation of support to the REC market. The REC market in an instrument to drive efficiency into RE development roadmap for the country. It needs to be strengthened by addressing the shortcomings listed below

- Introduction of REC multiplier for a single REC market, thus merging solar and non-solar RECs[4]

- Reduction in size of tradable REC from the current level of 1 MWh.

- Removal of floor and forbearance price.

- Introduction of the concept of 'buyout price', to be decided by the SERCs, as a compliant penalty

[4] Given that CERC regulations provide for vintage based RECs, there does not seems to be a legal hurdle to introduce REC multiplier to evolve a common market. Further, narrowing down of difference in tariff for Solar PV between non-solar technologies should make that task even easier.

- The concept of Renewable Energy Service Company, as retained in section 6.4 (7), can be effectively deployed using the RECs

35. **RE tariff and benefit to consumers:** Section 6.4 (2), while suggesting determination of RE tariff under Section 62 of the Electricity Act, 2003, seems to suggest that tariff determined on the basis of solar radiation and wind intensity 'benefit the consumers'. In fact, higher RE tariff determined for low solar radiation or low wind intensity areas are detrimental to the interests of the consumers. If the intention is to benefit the consumers, and uniform RE tariff across the state would provide incentive to first harness RE from areas endowed with better resources (i.e. higher solar radiation/wind intensity).

36. **Need for regulatory certainty regarding Standards of Performance (SOP) (8.0):** The proposed amendments to the Tariff Policy limit the flexibility to the SERCs in defining SOPs, which may need to be tailored to the local conditions to encourage operational efficiency, quality of supply and better customer service. Further, adoption of 'uniform' SOPs does not leave room for adoption of stringent standards than those prescribed by CEA[5]. Further, effective monitoring, implementation and compliance framework for SOPs needs to be emphasised in the tariff policy. Regulatory uncertainty would leave the consumers stranded while utilities struggle to catch up with the dynamic environment.

37. **Power procurement planning through long-term/medium-term PPAs (8.0):** It has been amply demonstrated a number of distribution utilities that short-term power procurement through bilateral, traders as well as through power exchanges can effectively supplement long-term/medium-term PPAs in meeting the consumers' electricity demand and also reduce power procurement cost. Even while the section mandates need for long-term/medium-term PPAs to meet the annual 'average' electricity demand, while also ensuring 24-hour supply of adequate and uninterrupted power to all categories of consumers, the importance of short-term power procurement/sale, in managing short-term demand supply mismatch and for optimising power procurement cost, should also be highlighted.

38. **Need for more effective multi-year tariff (MYT) framework (8.1 (2)):** The economic foundation of a multi-year tariff regime is based on sharing of benefits arising out of improvement in operational efficiency and short-term to medium-term investments undertaken by the utilities. Deletion of the relevant section would further reduce the effectiveness of the MYT framework. Instead, the regulatory approach should strengthen planning as well as the implementation under MYT by requiring **detailed business plan incorporating planned investment based on a reasoned cost-benefit analysis.**

39. **Need for innovations in tariff design (8.1 (4)):** The following statement proposed to be added should be modified as suggested below (deletions identified as ~~strikethrough~~ and editions identified as <u>underlined</u> text)

[5] A subsequent para of section 8.0 retains statements that allude to a penalty, which would be determined by the respective SERC.

The tariff shall be a two-part tariff with the ~~capital~~ fixed costs being reflected in the fixed charges linked to the ~~capacity~~ sanctioned load/maximum demand and the energy charges reflecting the variable cost components including, but not limited to, the variable cost of power procurement, interest in working capital etc. ~~average purchase price of power with administrative margins~~.

40. **Reliability based tariff for effective demand-side management for 24-hour supply (8.2.1 (1)):** Utilities can meet their obligation for 24-hour reliable electricity supply to the consumers not only by ensuring power procurement at any cost but also by adopting tariff based demand-side management. Cost associated with the same should be allowed to be pass through in the tariff.

    Reliability based tariff can effectively be used to deploy the demand-side management program by the utilities. The consumers would thus have the option of receiving '24-hour supply at any cost' versus choosing lower effective tariffs by offering part or full of their load for curtailment by the utilities, if required. SERCs should adopt a roadmap to ensure coverage of sanctioned load beyond a certain limit to be provided with an option of reliability based tariff, with adequate incentives. Such tariff can be more effectively implemented with the deployment of smart meters.

41. **AT&C loss reduction trajectory & UDAY(8.2.1 (2)):** As AT&C losses have a direct impact on tariff to be determined by the SERCs, they need to play an active role in fixing loss reduction trajectory under UDAY. T&D loss have a direct impact on tariff determination, whereas collection efficiency has a limited impact in the form of higher interest on working capital. The suggested limit of 15% AT&C loss post March 2019, can thus be more effectively implemented with the bottom of a strategy for tuition transformer (DT) level T&D loss reduction targets.

42. **Need for Distribution transformer (DT) level loss reduction targets (8.2.1 (2)):** The sector has so far adopted a top-down approach, wherein loss reduction targets are specified for the distribution utility/state. In the absence of **analogous distribution transformer (DT) level targets to be set up by the distribution utility,** there is no bottom up ownership for performance improvement.

    The SERCs should adopt a loss reduction approach, by segregating DT level losses in (deciles) subgroups and specify stringent loss reduction target for DTs with higher losses. Further, SERCs should mandate quarterly DT-level performance monitoring wherein it should publish the list of DTs in the descending order of their losses along with name of associated officials. Such transparency may also help utilities garner consumer-level cooperation. Best performing DTs in terms of quarterly loss reduction should be adequately incentivised and publicised. The utilities should be mandated to provide a clear plan outlining technical as well as operational measures for the worst performing DTs. These should, in turn, evolved bottom up from the field level, thereby having a better sense of ownership and commitment to the targets.

43. **Independent scrutiny of data (8.2.1 (2)):** Independent scrutiny of financial and technical data submitted by any licensee could be achieved more effectively through benchmarking

studies wherein scientific methodologies could be adopted to identify inefficiencies as compared to their peers.

44. **Direct benefit transfer for subsidies:** Introduction of direct benefit transfer (DBT) for giving electricity subsidies is a timely initiative as pricing subsidies have caused significant damage to the sector, promoted inefficient consumption and also deteriorated groundwater resources across the country.

    Due to significantly high estimation of electricity consumption by unmetered private agriculture connections, **direct benefit transfer would also reduce overall subsidy burden on the respective governments.**

    Operational efficacy of DBT would significantly depend on the accuracy of consumer level data and the methodology used for calculation for subsidy. In the absence of relevant data about land ownership, land irrigated by the pump sets and the cropping practices of the farmer, the subsidy to be paid would depend on the capacity of the pump sets. This methodology would **incentivise the agriculture consumers to correctly report the connected load of the pump sets** as it will directly influence the amount of subsidy to be received directly by the consumers.

45. **Progressive reduction of cross subsidy (8.3):** The spirit of tariff progressively reflecting costs of supply of electricity needs to be retained as clearly laid down in Section 61 (g) of the Electricity Act, 2003. Deletion of the word 'progressively' in Section 8.3 of the tariff policy needs to be undone. It sets this would also frustrate efforts to bring in retail competition by separating carriage and content in future.

46. **MYT framework for open access and cross-subsidy surcharge (8.5.1):** Open access consumers as well as the utilities should have regulatory certainty, and a medium-term visibility of the applicable cross-subsidy surcharge. This is a need to adopt a multi-year tariff (MYT) framework specifying trajectory of cross-subsidy surcharge and other applicable conditions.

47. **Time frame for 'eliminating' cross subsidy surcharge (8.5.1):** Amendments to Section 39 and 40 of the Electricity Act, 2003 had done away with 'elimination' of cross subsidy surcharge. The proposed amendment to the tariff policy, by suggesting a one-year period for 'elimination' of cross subsidy surcharge, may need to pass the judicial scrutiny.

48. **Caution for widespread deployment of prepaid meters (8.3 (2)):** Full-scale migration from post paid meters to prepaid meters for all consumers is not advisable. Utilities as well as the consumers are not be in a position to bear cost of replacement of all the existing meters with prepaid meters. This would place additional cost burden on the sector as existing meters are yet to complete their technical and economic life. International experience also does not paint a rosy picture for prepaid meters, specially due to its adverse impact on vulnerable sections of society.

    There is an inherent assumption that prepaid system will do away with all the problems associated with metering, billing, connection and disconnection. It would only address the problem of collection efficiency and may still encourage wiretapping or tampering with prepaid meters. Further, significantly strengthening of IT infrastructure would be required to ensure that such meters cannot be tampered with. **A thorough cost-benefit analysis**

should be undertaken both from the perspective of the utility as well as the consumers.

The following implementation strategy may be adopted

- **Prepaid meters to be given as a choice to new consumers,** with adequate incentive for prepayment.

- Prepaid meters should primarily be installed on the premises of the consumers who are payment defaulters.

- Usage of temporary nature, for example construction sites.

49. **Phased deployment of smart meters (8.4 (3)):** Smart meter deployment should initially be limited to the prosumers (consumers who also sell electricity to the grid) especially for domestic, commercial/institutional category, and connections to be provided for electric vehicle (EV) charging (see #26 above).

50. **Regulatory framework to capitalise on smart meters:** Deployment of smart meters should not be taken as an end in itself as the technological intervention would not be sufficient to justify its benefits for the consumers and the utilities. In order to tap the dividends of 'smart meters', **SERCs should develop to the a regulatory framework incorporating the concepts of availability based tariff, curtailable loads, dynamic pricing for electricity and finally peer to peer electricity trading in future.**

51. **Standby charges for open access customers (8.5.6):** standby charges should be applicable for the open access customers only to the extent of contacted demand not retained with the distribution licensee.

52. **Fixed cost for Standby charges (8.5.6):** The proposed amendment suggests that standby charges should reflect the 'actual' fixed and variable cost liability of the Discoms to supply backup power to the open access customers. It should be noted that 'actual' fixed cost liability associated with backup power is zero as fixed costs associated with the existing PPAs are already an existing liability of Discoms. Hence standby charges would essentially be the variable cost in such cases. It is suggested to use temporary tariff in lieu of standby charges as backup power reflects the 'temporary' nature of the arrangement.