

## APP Comments on Draft National Electricity Policy 2021

Since the last time the National Electricity Policy was drafted in 2005, significant changes have taken place in the generation and transmission segments, which have provided an impetus for the evolution of the power market as well. On the other hand, despite significant improvement in the laying down of electricity connecting infrastructure, the overall distribution segment remains afflicted with the problems of the past. Taking into consideration the present state of the power sector, the Draft NEP addresses multiple areas (15 of them, as outlined in para 4.1) to lay out the imperatives for transformation of the sector to a sustainable position.

The Draft NEP 2021 has many positive features, and rightly focuses on the policy interventions required for the major challenges in the decade ahead for the Indian Electricity sector.

However, we feel that certain aspects need deeper coverage in the new National Electricity Policy in view of their impact on the energy landscape. We have categorized these aspects across 5 main categories:

- **Excess availability – mainstreaming un-requisitioned surplus**
- **Changing energy mix (transition path towards higher RE)**
- **Shift from Regulated Markets to Competitive Power Markets**
- **Affordability, access and consumption**
- **Sustainability and financial viability of distribution segment**

The above categories correspond with the focus areas of the NEP.

Our comments on the Draft NEP are divided into 3 sections:

1. **Summary of Recommendations** (*Pages 2 to 6*)
2. **Clause-wise comments and suggested changes/inclusions** in line with our recommendations (*Pages 7 to 31*)
3. **Explanatory memorandum** which outlines the rationale behind our main recommendations (*Pages 32 to 44*)

## Summary of Recommendations

### A. Excess availability – mainstreaming un-requisitioned surplus

The entry of the private sector in generation led to huge capacity addition during the 11<sup>th</sup> and 12<sup>th</sup> Plan periods, eventually leading to mismatch between supply and demand of power (un-requisitioned surplus) and imbalance between fuel availability and installed generation capacity – a direct outcome of planning based on individual silos. Presently we have more than 40 GW of stranded generation capacity (19 GW of coal based plants and 24 GW of gas based plants).

The Draft NEP does talk about ensuring sufficient availability of fuel so that no generation capacity is stranded due to shortage of fuel. However, that is not adequate to meet the current situation of falling PLFs and the emerging scenario of increasing RE in energy mix. Recognizing that coal is and will remain a significant part of our energy basket for the foreseeable future, **the NEP policy framework needs to mainstream the existing stranded assets and make coal based generation sustainable by greening the existing fossil fuel energy basket.**

In this regard our recommendations are:

#### a. Mainstreaming the existing stranded/sub-optimally used assets:

- a. **Expeditious retirement of old coal assets which are inefficient and cannot meet emission norms in a viable manner.**
- b. **Decoupling of coal linkages and PPAs** - power generated by using linkage coal should be allowed to be sold in the short term markets (power exchanges and DEEP portal). As clearly explained in the Explanatory Memorandum, the short term market prices in the last 3-4 years have been lower than the long and medium term prices and are expected to stay muted with increasing RE influx.
- c. **Inclusion of stranded gas assets in existing energy basket** - NEP should consider gas as a transition fuel and recommend the revival of gas based assets on the lines of the earlier e-bid RLNG scheme. NEP may also consider inclusion of gas within GST which will help to improve viability of gas based power.
- d. **New coal based assets needs reconsideration till existing capacity on ground is utilized** – The decision to build any new coal based plant in the future should be based on a thorough assessment of the demand-supply situation and the quantum of stranded and underutilized thermal capacity (coal & gas) on ground. Many under-construction projects are located far from coal sources, and therefore have very low possibility of being dispatched regularly, especially in the emerging

scenario. A study needs to be conducted to see if the investments already made in land and infrastructure for these projects can be better utilized, so that the likelihood of these projects only adding to the burden of Discoms (fixed cost for idling capacity) can be avoided.

**b. Transition path towards sustainable use of coal**

- **Move away from quantity (tonnage) based coal production targets towards a complete focus on quality consciousness.** Emphasis to be laid on proper sizing and crushing of coal, and conditioning and beneficiation of coal before dispatch.
- **Methodology of pricing of coal needs change from Rs/ton basis to Rs/kcal basis** to incentivize the coal companies to supply higher quality of coal.
- **Technologies pertaining to carbon sequestration and storage, coal gasification, CBM etc., need to be prioritized on a war footing.**
- **Giving higher priority to more efficient supercritical units in the merit order list.**

**c. Expeditious implementation of emission control equipment and improving visibility on recovery of investment through:**

- Implementation of ‘provisional tariff’ mechanism to ensure recovery of additional tariff immediately after commissioning of the equipment.
- Suitable cost compensation and financing mechanism to be developed for plants without PPA.

**B. Changing energy mix (transition path towards higher RE)**

India has set a target of 450 GW of RE capacity by 2030. It is noted that this 450 GW target does not include hydro or nuclear sources, both of which are non-fossil fuel based. Assuming that 450 GW of RE capacity is achieved by 2030, then as per CEA’s report on optimal generation mix for 2029-30, total non-fossil sources (including hydro and nuclear) will account for 65% of installed capacity – surpassing India’s NDC commitment of 40% of installed capacity from non-fossil fuel sources and signaling a tectonic shift in our energy mix.

While we are fully committed towards cleaning up our energy mix, it is also important to keep feasibility aspects in mind. Keeping in view the intersectoral linkages (power, coal and railways and the impact on Central and State sectoral revenues, the Expert Committee would need to craft

out the transition path holistically to ensure the pace of energy transition is socially inclusive, financially feasible, economically viable and environmentally sustainable. Keeping the above in mind, our recommendations are:

- a. Early addressal of potential conflicts and difficulties** - NEP should factor in and cover challenges pertaining to financing (estimated around Rs 3-3.5 lakh Cr annually) and land requirement (estimated 3-4 lakh hectares) for attaining the RE targets.
- b. Mitigating spillover impact on other segments** - Energy planning has to be done in an integrated manner and not in separate silos. The NEP may like to calibrate the transition path by taking a balanced approach which considers all the possible pros and cons.
- c. Accounting for real costs** - With decreasing RE costs and largescale influx of RE, subventions need to be tapered slowly and NEP may consider an intermediary target date where all fuel sources should compete on their own merits.
- d. Promoting procurement of RE power on RTC basis by bundling with other sources of energy to address issues pertaining to intermittency of RE power.**

### **C. Shift from Regulated Markets to Competitive Power Markets**

The Draft NEP has covered in depth the various measures required for undertaking the next level of reforms in the power markets. The intentions to deepen and evolve the power markets are very clear, but on the other hand, the extant policy and regulatory framework has several infirmities which would need to be explicitly addressed through the NEP in order to lay down the preparatory groundwork for the proposed evolution of the power markets as envisaged. Some of the issues which need to be considered are:

- a. Removal of regulatory and policy impediments to increase the liquidity and volume of power flow through the exchanges:**
  - Decoupling of coal linkages from PPAs to enable all power plants to participate in wholesale markets, including short term transactions.
  - Simplifying coal allocation process with uniform methodology across all generation companies, as was in place under the New Coal Distribution Policy (prior to SHAKTI). SHAKTI policy has introduced multiple allocation modes with multiple price points, thereby completely distorting the competitive landscape of power procurement.

- Complete removal of all discriminatory provisions on the basis of ownership. All policies and regulations in the Sector should be ownership-neutral and efficiency-centric.
  - Removing segregated transmission access between long, medium and short term – shift towards transmission planning and access based on General Network Access
- b. **Coordinated scheduling and dispatch of supply resources at the regional and national levels** – MBED framework may be explored in more detail.
  - c. **Implementation of a common and standardized Merit Order Despatch framework across all States.**
  - d. **Provide timelines for various market enhancement measures already specified in the Draft NEP.**

#### **D. Affordability, access and consumption**

With the huge investments made in transmission and distribution network, we have significantly improved household connectivity. However, this has not translated into a corresponding increase in electricity consumption and today also we are less than half of the global average in per capita consumption of electricity. Our national average per capita electricity consumption also hides huge intra and inter-State disparities. The NEP must attempt to remove these disparities and ensure a minimum consumption level for rural and urban households.

Lower electricity consumption by poor households can be largely attributed to issues with the affordability of power. Accordingly, the NEP must focus on the following measures to improve the affordability of power:

- a. **Shift from generic subvention between different consumer categories to lifeline tariff and increase minimum consumption level for poor households to at least 60 units per month.**
- b. **Dismantle the cost-plus regime by ensuring that all prospective power offtake and transmission contracts are awarded on competitive basis in order to induce efficiencies in output price.**
- c. **Rationalization of taxes and duties on the electricity generation, transmission and distribution supply chain**
  - Reduce the level of taxes on fuel and transportation and other components.

- Delinking of Mega Power benefits with PPAs in order to reduce the cost of short term power procurement.
- Avoid charging of Electricity Duty on auxiliary consumption by certain States.

#### **E. Sustainability and financial viability of distribution segment**

The distribution segment continues to be the weakest link in the power sector in terms of financial and operational sustainability. The current financial metrics paint a very grim picture – huge overdue payables to generation companies, massive book losses (close to pre-UDAY levels), significant debt overhang, increasing ACS-ARR gap which has doubled within a year, and an increasing amount of accumulated regulatory assets. This clearly shows that notwithstanding the various bail out packages provided, the distribution segment in its current form is not sustainable and threatens the entire value chain.

As the distribution segment is the primary revenue earner for the entire sector, immediate steps are required to ensure financial turnaround of the segment in order to protect the power sector's existing and proposed investments (as envisaged in the NEP) and achieve sustainability for the future. Towards this end, we have the following suggestions:

- a. Affixing timelines to the various interventions mentioned in the Draft NEP for improving the health of the Distribution utilities.**
- b. Institutionalization of a rigorous payment security mechanism for generators –** Restoring the distribution segment back to viability would take some time. In the meanwhile, to ensure that the spillover impact of the financial health of the Discoms do not impair the entire upstream value chain and does not result in collateral damage to banking sector, it is imperative that a rigorous payment security mechanism. Bill discounting mechanism under REC/PFC may be put in place, backstopped by direct devolution from State funds.
- c. Formation of National Monitoring Committee to ensure that proposed recommendations are actually implemented on the ground.**

### APP's Detailed clause-wise comments on Draft National Electricity Policy 2021

Our detailed comments which include the major recommendations covered in the preceding pages as well as other suggestions based on the same philosophy and approach are as below:

Clause No.	Provision as per Draft National Electricity Policy 2021	APP Comments
2.0	<i>Aims and Objectives of National Electricity Policy 2021</i>	<p>The following may be added to the aim &amp; objectives of the NEP 2021:</p> <ul style="list-style-type: none"> <li>• <i>Increasing consumption of electricity by poor/low income households in rural and urban areas by making electricity more affordable.</i></li> <li>• <i>Institutionalization of a rigorous payment mechanism to ensure financial sustainability of the sector.</i></li> </ul>
General Comment	<i>General comments regarding increasing power consumption and removal of inter and intra-State disparities.</i>	<p><b>Affordability, access and consumption:</b></p> <p>While the Draft NEP talks about providing reliable and affordable electricity to all consumers, it should also focus on ensuring equity so that the benefits of electricity reach the poor and low income level households. The low consumption by poor households can be largely attributed to issues with the affordability of power and concerted efforts are required to ensure increase in consumption of electricity by them, along with reduction of inter and intra-State inequities.</p>

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		<p>It is therefore suggested that a separate section/sub-section may be dedicated to this aspect, which can focus on improving affordability of power through means such as:</p> <ul style="list-style-type: none"> <li>• <b>Shift from generic subvention between different consumer categories to lifeline tariff and increase minimum consumption level for poor households to at least 60 units per month.</b></li> <li>• <b>Removing inefficiency in the entire value chain of power sector by doing away with the cost plus framework entirely.</b></li> <li>• <b>Rationalization of taxes and duties on the electricity generation, transmission and distribution supply chain.</b></li> </ul>
5.2	<p><i>“In future, coal based stations may have to resort to two shift operation and may have to be operated at reduced generation levels to provide flexibility to cope with variable generation from renewable energy sources. Further, to make the existing coal based plants more flexible, retrofitting of existing coal based stations and combined cycle gas stations, coupled with adoption of suitable operating practices may be explored to achieve higher degree of flexibility.”</i></p>	<p>Two shift operations on existing coal based TPPs (including supercritical plants) would result in the following:</p> <ul style="list-style-type: none"> <li>• Increase in the number of stress cycles on Boiler and Turbine components which may lead to increased downtime of these critical equipments and additional maintenance expenditure.</li> <li>• Increase the start up oil consumption, ultimately leading to increase in the cost of power, and</li> <li>• Require oil support for sustained operations below the technical minimum of 55%, again leading to increase in cost of power.</li> </ul>



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		<p>We should thus be very careful about two shift operations, especially in view of the harmful effect on asset life. It should not be forced on any plant unless approved by the OEM for such operation.</p> <p>Even for plants which could provide such technical and flexible support, it would significantly impact their plant efficiency parameters and will thus need suitable compensation towards R&amp;M so that plant health is not adversely impacted.</p> <p>Accordingly, the highlighted portion of the para may be changed as follows:</p> <p><i>“In future, coal based stations may have to resort to two shift operation and may have to be operated at reduced generation levels to provide flexibility to cope with variable generation from renewable energy sources, <b><u>if such operations are technically feasible and approved by the OEM of the concerned stations.</u></b> Further, to make the existing coal based plants more flexible, retrofitting of existing coal based stations and combined cycle gas stations, coupled with adoption of suitable operating practices may be explored to achieve higher degree of flexibility. <b><u>A differential tariff / incentive mechanism may be introduced for flexible operation of thermal power plants especially coal/lignite based power plants. In order to sustain such investments, available corpus such as PSDF etc. may be leveraged to meet this objective of improving grid stability</u></b>”</i></p>

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5.3	<p><i>“Differential tariffs between peak and off-peak hours for consumers and generating stations by CERC/SERCs, as envisaged in the Tariff Policy, should be introduced expeditiously in order to appreciate the value of peaking power.”</i></p>	<p>It is suggested that specific timelines may be put in place for introduction of Peak/Off-Peak Tariffs for time bound implementation; for instance by 1 April 2023/2024.</p>
5.5	<p><i>“While the total installed capacity through renewables was only about 3,812 MW as on 31 .03.2005, the capacity has since increased to about 87,027.68 MW as on 31.03.2020. Government has set a target of 1,75,000 MW of generation capacity from renewables by the year 2022.In order to meet the variable generation from renewable energy sources, the long-term requirement of Balancing Capacity should be assessed periodically by CEA in consultation with various stakeholders.”</i></p>	<p>The Draft NEP has only mentioned the 2022 target of 175 GW RE. It is necessary to consider longer timeframes for the purpose of the National Electricity Policy and in this regard, the target stated by GoI to reach 450 GW of RE capacity by 2030 may be touched upon. Further, this 450 GW target does not include hydro or nuclear sources, both of which are non-fossil fuel based. Assuming that 450 GW of RE capacity is achieved by 2030, then as per CEA’s report on optimal generation mix for 2029-30, total non-fossil sources (including hydro and nuclear) will account for 65% of installed capacity – surpassing India’s NDC commitment of 40% of installed capacity from non-fossil fuel sources by 2030 – NEP may like to review this aspect and clarify whether the 450 GW targets should include hydro and other non-fossil fuel based sources.</p> <p>India’s stated target of 450 GW of RE capacity by 2030 requires huge resources in terms of financing and land requirements. Clear policy guidelines need to be laid down to avoid conflicts in allocation of resources and to protect interests of all concerned stakeholders. Further, with this rising influx of RE and its consequent spillover impact on other segments such as the coal sector, which is a substantial revenue generator for the government and allied services such as the railways, energy</p>

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		<p>planning needs to be done in an integrated manner and not in separate silos. The transition path towards RE, while highly desirable, needs regular calibration by taking a balanced approach which considers all the possible pros and cons.</p>
<p><b>New Para under ‘Thermal Generation’</b></p>	<p><i>New suggested para on ‘Transition path towards sustainable use of coal’</i></p>	<p>The following may be added:</p> <p><i>“Coal is by far the most dominant and abundant energy resource in the country and will practically continue to play an important role in our energy mix. On the other hand, the drawbacks of coal usage are also very real and need to be urgently addressed. The way forward is to develop a transition strategy for sustainable use of coal while bringing in greater amounts of clean energy into our mix. To achieve this the following may be considered:</i></p> <ul style="list-style-type: none"> <li>• <i>Move away from quantity (tonnage) based coal production targets towards a complete focus on quality consciousness. Emphasis to be laid on proper sizing and crushing of coal, and conditioning and beneficiation of coal before dispatch.</i></li> <li>• <i>Methodology of pricing of coal needs change from Rs/ton basis to Rs/kcal basis to incentivize the coal companies to supply higher quality of coal.</i></li> <li>• <i>Technologies pertaining to carbon sequestration and storage, coal gasification, CBM etc., need to be prioritized on a war footing.</i></li> </ul>

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		<ul style="list-style-type: none"> <li>• <i>Giving higher priority to more efficient supercritical units in the merit order list.</i></li> </ul>
5.6	<p><i>“While India is committed to add more capacity through non-fossil sources of generation, coal based generation capacity may still be required to be added in the country...”</i></p>	<p><i>The following may be added:</i></p> <p><b><i>“As there exists significant quantum of un-requisitioned surplus generation capacity at present, addition of any new coal based capacity may be considered only after the existing capacity (coal &amp; gas) on the ground is utilized. In order to ensure this, the decision to build any new coal based plant in the future should be based on a thorough assessment of the demand-supply situation and the quantum of stranded and underutilized thermal capacity (coal &amp; gas) on ground. This will take care of optimal utilization of investments already made.</i></b></p> <p><b><i>All such new procurement, to be carried out after utilization of existing assets, should be on competitive bidding basis only. Projects which are already under construction assets should focus on ultra-supercritical technology for reduced emissions.”</i></b></p>
5.6	<p><i>“Therefore, endeavour should be to adopt the most efficient technology for coal-based power stations available at any point of time. All future coal based plants should only be of super critical/ultra super critical technology or other more efficient technology.”</i></p>	<p>Under existing PPAs where a thermal power developer desires to substitute supply through a RE source, with all other terms and conditions of PPA unaltered, such proposals need to be encouraged. Such RE power received may be accounted against RPO obligation of Distribution Company and it may be treated as deemed supply under the PPA. Such</p>

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		proposals will reduce our carbon footprint and will be in the overall interest of all stakeholders.
5.7	<i>“Adequate coal should be made available to meet the requirements of power plants so that generation capacity is not stranded due to shortage of coal.”</i>	The coal allocation framework should ensure full quantity of coal as requirement to meet normative availability and there should not be any restrictive policy of coal usage as long as coal supplied to power plants is utilized for power production. Further, in order to facilitate sufficient supply of coal to meet full normative requirement, the provision of Performance Incentive in the FSA, which provides for payment of premium for coal supply beyond 90% of Annual Contracted Quantity should be permanently waived.
5.7	<i>“To address concerns regarding quality of coal, third party sampling of coal has been started at loading as well as at receipt end.”</i>	<b><i>Coal sampling has started at receiving end but it remains of no practical relevance since only the loading end results are used for commercial billing. Policy change is required to ensure that the quality of coal as received at the plant should be considered for payment purpose. It must also be ensured that the results of the third party sampling may be made available in a timely manner and coal companies must take prompt action in issuing full refund due to grade slippages, if any. Persistent grade slippages from a particular source should result in reclassification/regrading of the concerned mine. Further, it is recommended that receipt end results should be considered for payment purposes as it is more reflective of actual quality of coal finally received.</i></b>

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5.8	<p><i>India has the 4th largest reserves of coal in the world but still we are importing coal and thus, loosing huge amount of foreign exchange. The domestic coal production has also been augmented to fully meet the demand of power sector. Therefore, there is need to minimize use of imported coal in the power stations.</i></p>	<p>Imported coal may be cheaper for coastal plants, on a landed cost basis considering full costs, including ash disposal cost (imported coal has much lower ash content). This was one of the reasons why imported coal based plants were promoted in the NEP 2005. Hence the following changes may be made:</p> <p><i>“India has the 4th largest reserves of coal in the world but still we are importing coal and thus, loosing huge amount of foreign exchange. The domestic coal production has also been augmented to fully meet the demand of power sector. Therefore, there is need to minimize use of imported coal in the power stations. <b><u>However, in some plants imported coal may still be a least cost option considering full cost including ash disposal costs. For such plants, the use of domestic or imported coal may be dependent on net generation cost basis.</u></b>”</i></p>
5.9	<p><i>Use of natural gas as a fuel for power generation would depend upon its availability at reasonable prices. At present, about 6.74% of total installed capacity is through gas based plants and the average PLF of such plants is about 22.15% only because of less availability of domestic gas and high landed cost of imported Regassified Liquefied Natural Gas. The possibility of utilizing the existing gas turbine/combined cycle gas based capacities for peaking or balancing may be explored.</i></p>	<p>While gas based plants, especially combined cycle plants, do have their limitations in terms of flexibility under part load operations and would need to be combined with other flexible options such as storage or demand response, they are still significantly more flexible and nimble than most coal fired plants and hence <b>NEP should consider gas as a transition fuel and recommend the revival of gas based assets on the lines of the earlier e-bid RLNG scheme (this recommendation was clearly made by the HLEC on stressed assets).</b></p> <p><b>The NEP may also consider inclusion of gas within GST which will help to improve viability of gas power as the existing VAT scheme</b></p>

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		<p><b>leads to very high taxation and also varies significantly from State to State. Further, a separate bucket for gas allocation for power plants may be done, as has been done for coal, since power plants find it difficult to compete with other non-regulated sectors while bidding for new gas supplies.</b></p> <p>Keeping in view a considerable increase in production of natural gas expected from the KG basin, any devaluation of INR with respect to USD will have a huge financial impact on natural gas prices. Hence, the pricing of the gas should be changed to INR instead of dollars.</p>
<p><b>5.11</b></p>	<p><i>Delay in the construction of hydro projects is primarily due to the reasons like delays in environment and forest clearances, settlement of rehabilitation &amp; resettlement issues, resolutions of inter-state issues, land acquisition, inadequate infrastructural facilities at hydro potential sites, law &amp; order I local issues, funds constraint and contractual issues etc. causing significant time and cost overruns thereby impacting their commercial viability.</i></p>	<p>To avoid delays in construction of hydro projects, proper requirements and timeline for environmental approvals for construction of hydro project should be clearly laid out. The state government should facilitate in the rehabilitation and resettlement process. Further, any benefits being made available to RE sources should also be extended to hydro power since it is classified as a RE source.</p>
<p><b>5.12</b></p>	<p><i>Special efforts have to be made to promote more storage or pondage based hydro generation units in order to meet the peaking and balancing requirements of the country. In this regard , pumped storage power plants, assume significant importance since they are considered as one of the best sources for renewables integration and</i></p>	<p>Potential of pumping storage capacity is to be established from basin-wise study and distinguished between reservoir-based and run-of-river projects in order to optimally serve the dual purpose of irrigation and balancing capacities in energy mix. Consistent with deeper market design, principles will be necessary for pricing both peak power and near-time delivery of grid balancing and ancillary services. In order that costs are</p>

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	<p><i>for supply of balancing power for grid stabilization. A potential of 96,524 MW of pumped storage capacity has been identified, of which just about 4, 785 MW has already been developed so far. Some of the reasons which have impacted the -growth of pumped storage plants in the pas-t are continued -focus on development of conventional hydro power, non-availability of adequate off-peak power for pumping, lack of differential pricing for peak and off-peak power and relatively costlier tariff vis-a-vis tariff of conventional hydro power.</i></p>	<p>reflected in downstream electricity usage, suitable design of differentiated Time-of-Day (TOU) / Time-of-Use (TOU) tariff and Critical Peak Pricing is to be implemented for select consumer segments based on “User Pays” principle.</p> <p>Siting of hydel projects, including pumped storage, is a function of resolution of inter-disciplinary issues of infrastructure, engineering and local constraints that should be monitored through an institutional body set up under Ministry of Power to ensure coordination between CEA, State Governments and project developer.</p>
<p><b>5.21</b></p>	<p><i>“....Two-part tariff mechanism may be an option, particularly in case of medium/long-term procurement with hybrid operation of renewable energy source with conventional generation.”</i></p>	<p>Introduction of two part tariff is a welcome step and can be easily introduced in case of new projects where contracts are yet to be signed. However, there are large number of projects with single part PPAs, which are facing maximum problems in terms of curtailment without any compensation, Such projects would benefit most from the proposed two part tariff.</p> <p><b>Therefore, it is suggested that one time amendment of contracts may be considered to introduce two part tariff in case existing renewable energy projects.</b></p>



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5.23	<p><i>“Long term growth trajectory of RPOs' for non-solar as well as solar sources has been issued by the Ministry of Power uniformly for all States/UTs up to year 2021-22. Trajectory beyond this period, if required, shall be notified by the Ministry of Power in consultation with MNRE from time to time.”</i></p>	<p>Many states have not notified RPOs beyond next one to two years. The trajectory proposed by Ministry of Power, in such cases, can be a default provision. Therefore, the following may be suitably incorporated:</p> <p><b><i>“Ministry of power may notify a long term RPO trajectory. The State Regulatory Commissions can adopt the same or notify higher RPO under section 86(1)(e). In case the State Regulation Commissions have not notified the RPO as specified by Ministry of Power may be considered for compliance.”</i></b></p>
5.24	<p><i>“In the past it has been seen that the system of Renewable Purchase Obligations (RPOs) supported by REC (Renewable Energy Certificate) mechanism have not worked satisfactorily”</i></p>	<p>Non enforcement of RPO is the main reason for RPO/REC mechanism not delivering expected impact. The state commission have been allowing waivers / carry forward of unmet RPO impacting the REC market while APTEL in OP 1,2,&amp; 4 of 2013 had specifically prohibited such relaxation. As a concept REC is appropriate looking at geographical concentration of RE resources and also as it does not require any transmission waivers. It is also easy for non discom obligated entities to meet its RPO without any long term commitment. Therefore, the following may be appropriately included:</p> <p><b><i>“A mechanism for tracking RPOs and its compliances by different states may be created at central level. The status of compliance may be regularly presented in the forum of regulators or reported to a appropriate body and the compliance of RPO may be considered as one of the factors deciding the Central Assistance to the states. The</i></b></p>

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		<i>waiver/carry forward of unmet RPO in case RECs were available in the year under consideration should not be allowed.”</i>
<b>New Para in ‘Renewable Energy Sources’</b>	<i>New suggested para on accounting for real costs of RE</i>	It is important to start accounting for real costs of RE sources (after considering transmission charge waivers, cost on the grid, avoidance of cross-subsidy charges, etc) so that the decision making process for setting up future generation capacities can be based on more accurate signals. <b>Therefore, with decreasing RE costs and largescale influx of RE, subventions need to be tapered slowly and NEP may consider an intermediary target date where all fuel sources should compete on their own merits.</b>
<b>5.25</b>	<i>“The intermittent renewable sources of electricity are concentrated in certain states. Therefore, power from such states is likely to flow to other states, whereas the host state would be left to bear the variability of generation. There is need to devise a pragmatic mechanism for either sharing of the cost arising due to such variability by entities concerned or sharing such costs on country wise basis. A similar mechanism may be required at intra-state level.”</i>	<p>The country will benefit from a uniform system for this, rather than different States/SERCs implementing it in their own way. In summary, the Forecasting/Scheduling penalties should be at a DISCOM’s control area, rather than at each generating station/pooling sub-station level, and the cost of variances should also be borne pro-rata by all RE generators in the control area. This will reduce the level and incidence of penalties on individual plants. One should note that the responsibility of running the grid smoothly in the face of a large amount of infirm RE generation is typically done by the grid companies around the world, rather than individual RE generator.</p> <p>Further, several RE tenders on RTC basis have been successfully allocated by SECI. New hybrid tenders for RE + Thermal and RE + Solar for RTC power supply are under bidding stage. RE based RTC tenders</p>

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		<p>are the right mechanism for addressing intermittency of RE power and reducing fixed cost burden on distribution utilities. NEP should therefore stipulate that in future RE shall be procured preferably on RTC basis. Accordingly, we suggest the inclusion of the following:</p> <p><i>“A uniform mechanism for implementing Forecasting/Scheduling penalties should be laid down which would be applicable to all States. Such penalties should be applicable on a Discom’s control area, with the cost of variances to be borne pro-rata by all RE generators in the control area. This would reduce the level and incidence of penalties on individual plants, in line with international practices. To further address issues related to intermittency of RE power, future procurement of RE should be preferable on RTC basis, including hybrid modes such as RE+Thermal.”</i></p>
<p><b>5.27</b></p>	<p><i>Traditionally, microgrids with distributed generation , have been used to supply electricity in areas where it is not feasible or cost effective to provide electricity to the consumers through the main grid. For example, in India, solar generation based microgrids have been used to electrify some remote villages. The distributed generation sources, should preferably be, renewable sources of energy. Micro grids are increasingly being used in cities or towns, in urban centers, on university or corporate campuses, in hospitals or at data centers</i></p>	<p>NEP should suggest laying down a regulatory framework for leveraging these microgrid resources to deliver grid-interactive flexibility services and enable load participation while supporting self-generation and demand side management by consumers. This will be instrumental in facilitating energy transition with a larger RE portfolio.</p>

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	<i>having some local renewable energy generation for enhancing the reliability of power supply.</i>	
5.30	<i>“Traditionally, Renovation and Modernization of old thermal power stations was being done for achieving higher efficiency level with state of the art technology life extension, raising the operative capacity with improvements in performance parameters and complying with prevailing environmental norms....”</i>	CEA has already identified 76 units which are older than 25 years and have SHR greater than 2600 kcal/kwh. An expeditious phasing out plan for these plants will contribute to the international efforts against global warming while also improving the utilization levels of more efficient and newer plants which can produce electricity at a cheaper rate.
New Section	<i>New Para/section on ‘Easier financing approaches for power sector’</i>	<p>Presently, the banks have to follow Basel Norms for maintaining capital adequacy while facilitating loans for infrastructure projects. The existing credit ratings focus on immediate cash flows and hence are not suited for long gestation infrastructure projects. The power sector needs continuous investment to meet the stringent emission norms as well as for the construction of new projects. In order to rectify the current scenario wherein banks only fund corporates having high rating, <b>a separate credit rating system should be allowed by the government and adopted by Credit Rating Agencies for better credit enhancement and avoid mispriced loans.</b></p> <p>The new credit rating system can be Expected Loss Method (ELM) which can factor in both the probability of default and the recovery perspective</p>

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		for each time period. The Expected Loss for each time period can be used to arrive at the final Expected Loss for whole the project.
6.2	<i>The CTU and the STUs should draw up implementation plans for Inter-state (ISTS) and Intra-state (Intra-STs), respectively and for up to next five (5) years period identifying specific transmission projects which are required to be taken up along with their implementation time lines, after considering the plans made by CEA and studying the progress of in generation capacity and demand.</i>	Implementation plans for Intra-state networks should be encouraged to consider the upgradation of existing transmission system and sub-stations to higher voltage at the STU level in order to further strengthen the transmission system and offer better evacuation facility. All intra-state transmission network projects should be awarded on competitive basis to ensure lower cost and reduced time frame as has been demonstrated in inter-State transmission projects.
6.4	<i>“The principle for planning of transmission system should be that prior agreement between buyers and seller of electricity might not be a pre-condition for network expansion. The transmission system should be available as per the requirements of transmission customers and developed matching with growth of generation and load, as far as possible.”</i>	<p>NEP may also provide for removal of segmented transmission access between long, medium and short term. Short / medium term and power exchange transactions can no longer be restricted to "spare margins" on the lines, which has been the basic premise of the open access regulations. <b>It is time to shift towards transmission planning and access based on General Network Access for economic network utilization, congestion management and flexible capacity trading. NEP must lay out a firm timeline for the introduction of GNA.</b></p> <p>Further, in case of RE resource rich areas, a mechanism for advance planning and construction of transmission system may be developed since the gestation period of renewable power projects is much lower than the time required to build necessary EHV transmission systems. Options of</p>

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		creation of RE transmission licensee and/or advance procurement of standard equipment like transformers may be evaluated.
6.7	<i>“There is a need to streamline the process of approval of transmission projects, before any investment is made in creating these infrastructures. The ISTS projects drawn up by CTU shall be placed before the National Committee on Transmission constituted by the Central Government. A similar mechanism should be drawn by State Governments for approval of Intra-STS projects of STUs.”</i>	As the share of the private sector in the overall transmission system is increasing, there should be adequate representation from all industry players in the transmission planning committees irrespective of their ownership so that the expertise developed by such players can also be appropriately utilized. Further, the formation of State Level Transmission Committee for approval of Intra-State Transmission projects of STUs should be time-bound.
6.8	<i>“The transmission projects as approved by the appropriate government(s) would be executed either through regulated tariff mechanism under Section 62 of the Act or through tariff based competitive bidding under Section 63 of the Act, as to be notified by the respective government, in accordance with the Tariff Policy of Government of India.”</i>	Both inter-State and intra-State transmission projects should be awarded through tariff based competitive bidding under Section 63 of the Act as a matter of policy, instead of execution under Section 62. Any exceptions to this principle must be very rare and clear-cut reasons for making the exceptions should be spelt out in view of the huge time and cost benefits obtained through the award of projects on competitive bidding basis.
<b>General comment to 7.0 (Distribution)</b>	<i>General comment on timelines for proposed interventions to turn around the Distribution utilities.</i>	The Draft NEP has clearly outlined a concerted list of interventions – unified scheme for development of adequate distribution infrastructure, solarization of agricultural pumps, feeder segregation, creation of right environment for PPP, separation of carriage and content, cost reflective and timely tariffs, DSO for real time operation, technological

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		<p>interventions for reduction of AT&amp;C losses, transparent reporting of reliability indices, improved demand forecasting, smart meters and DBT, etc.</p> <p>Our experience with the earlier policy framework has clearly shown that many of the provisions remain on paper. <b>Therefore, all provisions relating to such interventions should be made time-bound, along with laying out roadmaps and defining accountability wherever required, lest they remain statements of intent with uneven implementation across the country.</b></p>
7.7	<p><i>“Thus, there is a need to create right environment for public private partnership in the distribution sector in the country.”</i></p>	<p>Outright privatization of Distribution Circles, as proposed for the UTs, should also be explicitly given as an option. Further, the Draft NEP talks about sub-licensees, while the Electricity Act Amendment talks about delicensing of distribution – this disconnect may be looked into.</p>
7.14	<p><i>Demand forecasting by the distribution utilities should be done under various time horizons and also on season-wise basis to decide on long-term, medium terms and short-term power procurements. After analyzing the expected load curve, procurement decisions regarding base load capacity and peaking capacity should be taken.</i></p>	<p>To avoid price shocks/price volatility to Discoms and end consumers, increase in base load demand should be met by long term PPAs. NEP may like to mandate the Regulators and Discoms to take necessary steps in that direction.</p>

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7.17	<p><i>All new electricity connections should be released with smart pre-paid meters/simple pre-paid meters. Further, existing meters should also be replaced with pre-paid meters in a phased manner so as to achieve 100% pre-paid metering within 3 years from the date of issuance of this policy.</i></p>	<p>In order to encourage pre-paid meters, the government should firstly mandate all the government buildings and premises to install pre-paid meters in a time bound manner so that the revenue stream for DISCOM improves.</p> <p>100% pre-paid metering within a time frame of 3 to 4 years will lead to substantial increase in power purchase cost to the consumers as well as for the already financially weak Discoms. <b>The SERCs must specify a framework to assess benefits against costs and investments incurred and appropriately phase the overall smart meter implementation. Areas with high metering, billing and collection inefficiencies should be high priority target areas for pre-paid metering. For low priority areas other measures such as demand response, load management may be weighed against the costs of pre-paid meter installation. All costs on account of pre-paid meter installation should be a cost pass through in tariffs.</b></p>
<p><b>New Para under 7.0 (Distribution)</b></p>	<p><i>New Para – Setting up of National Monitoring Committee</i></p>	<p>The following may be added:</p> <p><i>“In order to monitor, report and follow up on the progress of implementation of various policy measures outlines in the National Electricity Policy, 2021, a National Monitoring Committee may be created. This Committee may monitor and submit quarterly reports on the target timelines as mentioned in the Policy, to ensure that the proposed recommendations are actually implemented on the ground.”</i></p>



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8.5	<p><i>“Forecasting and scheduling of renewable energy sources, as is being done for conventional generating plants, should be made mandatory by Appropriate Commissions; though a margin for error need to be specified, beyond which deviation charges would become applicable. Till SERCs bring out these standards, the CERC standards should apply by default to help the State Load Dispatch Centers.”</i></p>	<p>Forecasting &amp; Scheduling penalties should be done on a DISCOM’s license area basis, rather than at each generating station/pooling sub-station level, and the cost of variances should also be borne pro-rata by all RE generators in the control area. This will reduce the level and incidence of penalties on individual plants. One should note that the responsibility of running the grid smoothly in the face of a large amount of infirm RE generation is typically done by the grid companies around the world, rather than individual RE generator.</p>
8.7	<p><i>“The State Governments should take similar action for separation of SLDCs from State Transmission Companies.”</i></p>	<p>Suggestive timelines may be provided.</p>
<p><b>General comments under 9.0 (Power Markets) – Implementation of MBED, Uniform MOD Principles</b></p>	<p><i>General suggestions on implementation of MBED, uniform MOD principles and timelines for implementation of market strengthening measures.</i></p>	<ul style="list-style-type: none"> <li>• Market Based Economic Dispatch (MBED) concept floated by CERC may be explored in more detail in the NEP with specific timelines for its introduction as it would help lead to significant cost optimization, lower RE curtailment and utilization of low cost stranded assets while taking care of legacy contractual arrangements.</li> <li>• The NEP should recommend the implementation of a common and standardized MOD framework which can be utilized by all the stakeholders as this would reduce instances of inconsistencies and discrepancies across States in the procedure being followed for preparation of MOD. Due to these variations and non-adherence to standard MOD practices, the whole purpose of MOD gets defeated –</li> </ul>

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		<p>Discoms end up procuring expensive power and cheaper power available in the system is not fully utilized.</p> <p>The new framework for MOD should move away from purely financial cost criteria to economic cost, which can be brought about by also including specific coal consumption and environmental aspects in the MOD, which will help to reduce carbon emissions and reward efficiency in operations. Further, a unified and standardized MOD framework across States will avoid issues like some States charging Electricity Duty on auxiliary consumption – an untenable stipulation that leads to double taxation and distorts the electricity market. <i>A detailed note on MOD has been submitted by us to MoP for uniformity and standardization, which is being attached herewith for the Committee’s consideration.</i></p> <ul style="list-style-type: none"> <li>• Draft NEP 2021 has covered several important aspects related to future grid operations and power markets such as Ancillary services and its market based procurement, Automatic Demand Management Systems, Longer duration forward contracts, derivatives etc – <b>in order to assist with crystallizing these measures, tentative timelines may be specified for each so that stakeholders can focus on working towards the same.</b></li> </ul>
<p><b>New para under 9.0</b></p>	<p><i>New Para - Removing regulatory and policy impediments to improve liquidity and flow in the market</i></p>	<p><b>New para may be added:</b></p> <p><i>“For deepening the spot markets and to usher in the next level of reforms in the power markets, it is vital to first remove the regulatory and policy</i></p>

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		<p><i>impediments which are holding back the market participants and preventing the increase in liquidity and volume of power flow through the exchanges. Coal linkages need to be liberalized and decoupled from PPAs in order to enable all power plants to participate in wholesale markets, including short term transactions. The process of coal allocation needs to be completely simplified with a common unified process for all power generating companies, without any kind of discrimination between different categories of generating stations on the basis of ownership or any other criteria. Further, all policies and regulations in the Sector should be ownership-neutral and efficiency-centric. Removal of these distortions will help institute a truly competitive, healthy and sustainable power market.”</i></p>
<p><b>New Para under 9.0</b></p>	<p><i>New para - Financial Sustainability of the entire value chain of the power sector</i></p>	<p><b>Payment Security Mechanism</b></p> <p>New para may be added:</p> <p><i>“In order to ensure that delays in payments by Discoms do not impair the entire value chain, a rigorous payment security mechanism may be implemented with bill discounting mechanism under REC/PFC or any other suitable agency, backstopped by direct devolution from State funds. The State Regulatory Commissions may be mandated to specify a transparent mechanism for payments to the generators by Discoms and compliance with the mechanism may be reviewed periodically, at least once in a year.”</i></p>

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9.3	<p><i>DEEP portal has been created by Ministry of Power for e-bidding for procurement of short-term and medium term power. This has resulted in lower lead time for procurement as well as highly competitive prices. All states should use this portal for procuring power on competitive basis under various time horizons.</i></p>	<p>While the DEEP portal has been effective in bringing buyers and sellers on a platform, there are have been some shortcomings like non-issuance/delayed issuance of LoA and non-offtake post conclusion of bids. Such shortcoming could be ironed out with regulatory oversight. Therefore the following may be added:</p> <p><b><i>“DEEP portal may be brought under the purview of Central Electricity Regulatory Commission to make it more effective and bring regulatory oversight to its operations.”</i></b></p>
<p><b>New Para under 11.0 (R&amp;D)</b></p>	<p><i>New para on R&amp;D work on frontier technologies and constitution of National Taskforce on Frontier Technologies</i></p>	<p><b><i>“In order to develop a transition strategy for sustainable use of coal while bringing in greater amounts of clean energy into our mix, technologies pertaining to carbon sequestration and storage, coal gasification, CBM etc., need to be prioritized on a war footing. Efforts have to be made to harness the results of various Hydrogen energy research projects carried out internationally, to eventually utilize in Indian context. Proper financing mechanisms have to be put in place to fund these initiatives lest they remain on paper - environmental related corpus such as the National Clean Energy Fund may earmarked for researches aimed at delivering low carbon power options.</i></b></p> <p><b><i>To ensure the above tasks are carried out in right earnest, it is suggested that a National Taskforce on Frontier Technologies may be constituted, consisting of technocrats, academicians and research institution, who shall work towards the goal of developing indigenous capability and technology.</i></b></p>

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<p><b>New Para under 13.0</b></p>	<p><i>Energy Conservation and Energy Efficiency</i></p>	<p>Studies have shown that a major portion of India’s incremental electricity demand is going to come from space cooling. Hence, it is necessary that energy efficiency and energy conservation efforts be directed towards making space cooling more efficient. It has been proven worldwide that District Cooling systems offer between 20 – 40% reduction in energy intensity of cooling.</p> <p>Just like other initiatives such as Ujala programme, ECBC, PAT scheme for industries, etc. NEP should take this opportunity to create a special mission for implementation of District Cooling Systems (DCS) in the country and ensure that the incremental space cooling requirement in India is met from the most efficient sources. The said mission should, after a detailed study, suggest policy initiatives to promote district cooling, draft standard bidding documents and conduct tender rounds on behalf of the municipal bodies for implementation of the DCS.</p>
<p><b>14.2</b></p>	<p><i>In order to economize use of land for sub-stations, Gas Insulated Sub-stations (GIS) should be adopted, particularly in urban areas, which require about 30% less land as compared to conventional substations.</i></p>	<p>From an environmental standpoint, SF6 is hazardous and adversely impacts climate change. Hence, alternatives to usage of SF6 gas in Gas Insulated Sub-stations should be actively encouraged and explored for a more benign environment footprint of the transmission and distribution utilities.</p>
<p><b>14.5</b></p>	<p><i>Stringent emission norms have been notified by MoEF&amp;CC for SO2, NOx, mercury and water which are required to be achieved in accordance with a notified time schedule and have cost implications on the</i></p>	<p>Lenders require greater visibility of the commencement of tariff recovery instead of having to wait 6-12 months for the outcome of usual regulatory process of determining compensation. Further, the NEP should also take into account the cost compensation mechanism for projects which do not</p>

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	<p><i>operation/design of coal based plants. In addition to the equipment cost to be incurred to meet the revised norms, there will be auxiliary power consumption. Efforts must be made to meet the compliance norms in the most cost effective way in order to minimize cost to consumers. These impacts should be captured by Regulators in the tariff determined under Section 62 of the Electricity Act. In case of tariff determined through tariff based competitive bidding under Section 63 of the Electricity Act 2003, these impacts should be allowed under "Change of Law" provision.</i></p>	<p>have PPAs. Therefore, it is suggested that the following may be added in this para:</p> <p><b><i>“The recovery of additional tariff due to emission control equipment should start immediately after commissioning of the equipment, in order to give visibility and comfort to the lenders and reduce the time gap between the commencement of additional debt service obligations and recovery in tariff. Such a ‘provisional tariff’ mechanism can be facilitated through cost benchmarking on the basis of many recently awarded tenders, and can be subject to true up at the end of the year.</i></b></p> <p><b><i>Suitable cost compensation and financing mechanism for emission control equipment needs to be developed to avoid the complete stranding of projects without PPAs. Environmental related corpus such as the National Clean Energy Fund may be leveraged to sustain emission related capex and associated expenses for operating emission control equipment for such plants without PPA.</i></b></p> <p><b><i>Plants which satisfy the new emission norms should have ‘coal cess’ removed from their billing. This will benefit the consumer at large as they would not have to pay for two different activities meant for the same purpose i.e. pollution check through ECS implementation and penalizing through Coal cess for using coal as fuel.”</i></b></p>
<p><b>15.3</b></p>	<p><i>“With increase in size and complexity of our power sector, there should also be a review of roles/functional skill set of personnel in the statutory bodies like CEA,</i></p>	<p>The existing barrier and bias between public and private sector needs to be removed. Even in the formation of Committees and other sectoral bodies, it is seen that the private sector participation is often not</p>

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	<p><i>CERC, SERC and other organizations like CTU, STUs, NLDC, RLDCs and SLDCs, to align with new requirements.”</i></p>	<p>encouraged. Looking at the significant role being played by the private sector (30% share of conventional electricity generation and almost complete dominance in RE generation), and the growing use of technical know-how by the private sector in various aspects pertaining to usage of Information Technology and Operational Technology, it is time that government starts considering the private sector as an equal partner in the common objective of development of power sector.</p> <p>Towards this end, policy bias needs to be overcome and statutory bodies (both central and state) should consider taking bright private sector professionals on deputation. Equally, if the respective governments deem fit, the private sector should take on-board public-sector officials for a defined term. The exchange will be mutually beneficial, aid in knowledge transfer and capacity building of both the public and private sectors.</p>

## Explanatory Memorandum on Main Recommendations

### A. Excess availability – mainstreaming un-requisitioned surplus

The National Electricity Policy 2005 was drafted during a period of deficit and scarcity of power supply. Since that period, we have made vast strides in building up our generation capacity, encouraged and driven by the thrust laid down in the Electricity Act 2003 towards opening up the generation segment to competition. The entry of the private sector in generation led to huge capacity addition during the 11<sup>th</sup> and 12<sup>th</sup> Plan periods, eventually leading to mismatch between supply and demand of power (un-requisitioned surplus) and imbalance between fuel availability and installed generation capacity. The outcome of this over zealotry is that today we have stranded generation capacity of around 43 GW, comprising of 19 GW of coal based assets which are stranded without PPA/coal, and 24 GW of gas based assets which are stranded due to shortage of domestic gas.

The Draft NEP does talk about ensuring sufficient availability of fuel so that no generation capacity is stranded due to shortage of fuel, but we suggest that the NEP should also consider the evolving energy mix trajectory and outline measures for moving towards sustainable utilization of existing power assets, since coal is and will remain a significant contributor to our energy basket for the near future. In this regard our suggestions are:

#### a. Mainstreaming the existing stranded/sub-optimally used assets:

- a. **Expedient retirement of old coal assets which are inefficient and cannot meet emission norms in a viable manner** – CEA has already identified 76 units which are older than 25 years and have SHR greater than 2600 kcal/kwh. An expedient phasing out plan for these plants will contribute to the international efforts against global warming while also improving the utilization levels of more efficient and newer plants which can produce electricity at a cheaper rate.
- b. **Decoupling of coal linkages and PPAs** – IPP capacity of around 9 GW have existing linkages from the coal companies but are unable to access their linkage coal due to lack of medium/long term PPAs, despite being recently commissioned plants based on the most efficient technologies. With our focus on sustainable use of coal through lower emissions, and our move towards deeper power market liquidity, **these plants should be brought on stream by allowing them to sell power generated by using linkage coal in the power exchange and DEEP portal.** Considering the evolving energy mix, the probability of coal based power plants getting into new long term/medium term PPAs in the near future is low and



this decoupling of coal linkage and PPAs will help to rescue investment made in efficient and low emission plants from becoming NPAs.

- c. **Inclusion of stranded gas assets in existing energy basket** – Gas based power, with its fast ramp down and ramp up capability (10% per minute for combined cycle plants as compared to 3% per minute for super critical plants), can play a crucial role in balancing the ever-increasing renewable energy generation and maintaining grid stability. The Draft NEP has covered the current situation of low PLF of gas based plants due to shortage of domestic gas and high landed cost of imported RLNG. However, while gas based plants, especially combined cycle plants, do have their limitations in terms of flexibility under part load operations and would need to be combined with other flexible options such as storage or demand response, they are still significantly more flexible and nimble than most coal fired plants and hence **NEP should consider gas as a transition fuel and recommend the revival of gas based assets on the lines of the earlier e-bid RLNG scheme (this recommendation was clearly made by the HLEC on stressed assets). The NEP may also consider inclusion of gas within GST which will help to improve viability of gas power.**
- d. **Go slow on creation of new coal based assets** – After struggling with shortages for decades, several States today are facing challenges posed by un-requisitioned surplus power. While around 20 GW of recently commissioned coal based capacity, with latest technology and best possible efficiencies, is currently untied without medium term or long term PPAs, it has been observed that new coal based TPPs are being commissioned by PSUs under cost plus regime, at very high tariffs.

**Considering the current scenario of low PLFs and stranded capacities without PPA, addition of any further thermal capacity requires serious re-consideration until the existing capacity on ground is utilized. In order to ensure this, the decision to build any new coal based plant in the future should be based on a thorough assessment of the demand-supply situation and the quantum of stranded and underutilized thermal capacity on ground.** Not only will this avoid sinking in further investments for new (and costly) TPP capacity, but this will also provide incremental coal production to the existing TPPs and help improve their PLFs.

Further, many under-construction projects are located far from coal sources, and therefore have very low possibility of being dispatched regularly, especially in the emerging scenario. A study needs to be conducted to see if the investments already made in land and infrastructure for these projects can be better utilized, so that the

likelihood of these projects only adding to the burden of Discoms (fixed cost for idling capacity) can be avoided.

- b. **Transition path towards sustainable use of coal** - As stated in the draft NEP, India has the 4th largest reserves of coal in the world. Coal is by far the most dominant and abundant energy resource in the country and will practically continue to play an important role in our energy mix. On the other hand, the drawbacks of coal usage are also very real and need to be urgently addressed. The way forward is to develop a transition strategy for sustainable use of coal while bringing in greater amounts of clean energy into our mix. There are many steps that should be immediately prioritized towards this effort:
- **Moving away from quantity (tonnage) based coal production targets towards a complete focus on quality consciousness. Emphasis to be laid on proper sizing and crushing of coal, and conditioning and beneficiation of coal before dispatch.**
  - **To assist with the above, the methodology of pricing of coal needs change from Rs/ton basis to Rs/kcal basis in order to incentivize the coal companies to supply higher quality of coal to improve their revenues. Freight pricing may also be relooked in this regard, to disincentivize supply of low quality coal across the board.**
  - **Technologies pertaining to carbon sequestration and storage, coal gasification, CBM etc., need to be prioritized on a war footing.**
  - **Coal consumption for electricity generation on per-unit basis can be reduced by giving higher priority to more efficient supercritical units in the merit order list. For example, when ranking two or more plants with the same VC (upto 1 decimal point) in the merit order, priority may be given to efficient plants which have lower specific coal consumption.**
- c. **Ensuring expeditious implementation of emission control equipment and improving visibility on recovery of investment** – The Draft NEP has covered the requirement of meeting the new stringent emission norms through installation of emission control equipment. It has also explicitly provided for capturing the equipment cost and other related impacts, such as increased auxiliary consumption etc., in the tariffs under Section 62 and Section 63 projects. **However, it is also important to mention in the NEP that the recovery of additional tariff due to emission control equipment should start immediately after commissioning of the equipment, without having to wait for 6-12 months for the usual regulatory process of determination of compensation. Such a**

**‘provisional tariff’ mechanism can be facilitated through cost benchmarking on the basis of many recently awarded tenders, and can be subject to true up at the end of the year.** This is required to give visibility and comfort to the lenders and reduce the time gap between the commencement of additional debt service obligations and recovery in tariff.

Further, there is significant quantum of coal based capacity which is presently not covered under PPAs (~20 GW) - not only do they have nil visibility on the recovery of investments in emission control equipment but they are also unable to obtain financing for the equipment due to lack of power offtake tie up. **Suitable cost compensation and financing mechanism needs to be developed to avoid the complete stranding of such assets. Environmental related corpus such as the National Clean Energy Fund may be leveraged to sustain emission related capex and associated expenses for operating emission control equipment for such plants without PPA.**

## B. Changing energy mix (transition path towards higher RE)

India has set a target of 450 GW of RE capacity by 2030. It is noted that this 450 GW target does not include hydro or nuclear sources, both of which are non-fossil fuel based. Assuming that 450 GW of RE capacity is achieved by 2030, then as per CEA's report on optimal generation mix for 2029-30, total non-fossil sources (including hydro and nuclear) will account for 65% of installed capacity – surpassing India's NDC commitment of 40% of installed capacity from non-fossil fuel sources and signaling a tectonic shift in our energy mix.

While we are fully committed towards cleaning up our energy mix as we owe it to our coming generations, it is also important to keep feasibility aspects in mind. The Expert Committee will have an important role to play to map out the trajectory of RE's increasing share while considering the potential fallout effects on other segments. The most important issues which need to be considered are:

- a. **Investment and land required** – It has been estimated that around \$500 billion would be required to reach the 450 GW capacity target, i.e estimated annual financing of Rs 3-3.5 Lakh Cr. **The NEP should factor in the means, sources and feasibility of this daunting financing requirement.** The other daunting requirement is of land – with total estimated land requirement of around 3 to 4 lakh hectares, this gives rise to significant risk of socio ecological conflicts. We have already seen the Supreme Court stepping in to address ecological concerns in the major RE focus states of Gujarat and Rajasthan wherein it has directed that all powerlines passing through Great Indian Bustard habitats will have to be laid underground. Many RE projects across the country are already stalled due to ongoing land conflicts with communities which have been using the land for their livelihood. The problem will only increase going ahead as we move towards large solar parks which require large tracts of land. **The NEP should consider this aspect and lay down policy guidelines for dealing with such conflicts in a manner that best protects interests of all concerned stakeholders.**
- b. **Spillover impact on other segments** – With rising influx of RE, PLF of coal based plants, which have been steadily falling since 2009-10 (77.5%) till current year (53.4%) will be set to fall even further, with CEA predicting levels of 45% eventually. While we have already talked about the need for improving utilization of existing generation assets, one also has to keep in mind the impact of this transition on the coal sector. During the first round of commercial coal auctions held in Oct-Nov 2020, India's Home Minister stated that the coal sector would be the largest contributor to India's ambition of being a \$5 trillion economy, while Ministry of Coal announced that the mine-bearing states would garner a total revenue of Rs 6,656 crore annually (over the life of mine) from these mines. The impact of the transition on the Indian Railways would also be pronounced, considering that

coal contributes to around 43% of railway freight revenue. While Coal India moves towards its 1 billion tonnes production target, it is becoming increasingly evident that **energy planning has to be done in an integrated manner and not in separate silos. Looking at the fallout and spillover impact on other segments, the NEP may like to calibrate the transition path by taking a balanced approach which considers all the possible pros and cons.**

- c. **Accounting for real costs** – The existing RE framework provides substantial support in terms of free transmission and wheeling, avoidance of cross-subsidy charges, and discounted or aggregated land at solar parks. RE also raises costs on the rest of the grid through mismatch with peak demand periods, reduced output, increased ramping, lower utilization of existing plants, etc. CEA estimates these costs as Rs 1-1.5/kwh, excluding land support. **With decreasing RE costs and largescale influx of RE, subventions need to be tapered slowly and NEP may consider an intermediary target date where all fuel sources should compete on their own merits.**
- d. **Promoting procurement of RE power on RTC basis** - several RE tenders on RTC basis have been successfully allocated by SECI. New hybrid tenders for RE + Thermal and RE + Solar for RTC power supply are under bidding stage. RE based RTC tenders are the right mechanism for addressing intermittency of RE power and NEP should stipulate that in future RE shall be procured preferably on RTC basis.

### C. Shift from Regulated Markets to Competitive Power Markets

The Draft NEP has covered in depth the various measures required for undertaking the next level of reforms in the power markets. The intentions to deepen and evolve the power markets are very clear, but on the other hand, the extant policy and regulatory framework has several infirmities which would need to be explicitly addressed through the NEP in order to lay down the preparatory groundwork for the proposed evolution of the power markets as envisaged. Some of the issues which need to be considered are:

- a. **Removing the regulatory and policy impediments to increase the liquidity and volume of power flow through the exchanges:**
  - a. **Removal of restrictive usage of coal** – At present, existing linkage coal holders can access their coal only for generating power to be sold under long term and medium term PPAs. While our electricity market trends have been showing a steady move away from new long term PPAs towards medium term and short term transactions, the existence of such restrictive conditions strikes a discordant note and puts an artificial limit on the availability of cheap power in the short term markets. In the future, with ever increasing renewable energy penetration, the coal available for power sector is expected to be higher than the consumption and thus there is no rationale in continuing with the restrictive usage policy - **fuel linkages should be liberalized and decoupled from PPAs to enable all power plants to participate in wholesale markets, including short term transactions.**
  - b. **Simplifying the process of coal allocation under SHAKTI policy and making it more equitable** – The SHAKTI Policy introduced differentiation in mechanism of allocation and pricing of coal, on the basis of ownership of the power plant. For the PSU Gencos, the policy continues with the practice of allocation on notified price based on nomination/recommendation from MoP. However, for IPPs, this allocation process has been removed and instead multiple different auction categories have been prescribed, turning the entire process into a complex and confusing web of different modalities. Some of these modalities are expressly unworkable and impractical, such as the two-stage auction process envisaged for commissioned/soon to be commissioned IPPs without PPAs, where the IPPs are first expected to quote forward premium in coal linkage auctions and then later take part in a reverse bidding for power procurement contracts, without having any idea of when such power procurement bids will be called. **The process of coal allocation needs to be completely simplified with a common unified process for all power generating companies, without any kind of impractical conditions regarding PPA requirements and without any discrimination between**

**different categories of generating stations on the basis of ownership or any other criteria.**

- c. Ensuring level playing field for all market participants by complete removal of discriminatory framework** – For sustainable long-term growth of the sector, it is imperative to institute equitable and transparent processes to be applied in a uniform manner across all generation plants when it comes to fuel allocation, power off-take contracts, fuel payment terms, fuel transportation, etc. This is essential as in the competitive power market, private sector and public sector companies compete with each other for the same consumers and therefore, any bias in the above items is bound to create distortions in the playing field. Unfortunately, IPPs face discrimination in each of the above aspects. It is high time that the crutches of protectionism should be removed so that all the power sector entities can be part of the same vibrant competitive power market. **There needs to be complete removal of all discriminatory provisions on the basis of ownership. All policies and regulations in the Sector should be ownership-neutral and efficiency-centric. Removal of these distortions will help institute a truly competitive, healthy and sustainable power market.**
- d. Removing segregated transmission access between long, medium and short term** – The experiences of the past 5-7 years clearly show that the process of transmission planning and the Regulations have not kept pace with the evolving dynamics of power markets. The entry of the private sector developers and the process of Case-1 bidding resulted in development of capacity without any pre-determined direction of current flow and helped to create an enabling environment for competition among generators/traders to choose their customers and vice versa. However, this has been the major cause of imbalance in the transmission system - today we have a capacity of more than 20 GW of TPPs who are scouting for buyers and do not know their future beneficiaries.

In this background, we have to recognize the limitations of the present system and the fact that short / medium term and power exchange transactions can no longer be restricted to "spare margins" on the lines, which has been the basic premise of the open access regulations. **It is time to shift towards transmission planning and access based on General Network Access for economic network utilization, congestion management and flexible capacity trading.**

- b. Coordinated scheduling and dispatch of supply resources at the regional and national levels - Market Based Economic Dispatch (MBED) concept floated by CERC may be explored in more detail in the NEP with specific timelines for its introduction as it**

would help lead to significant cost optimization, lower RE curtailment and utilization of low cost stranded assets while taking care of legacy contractual arrangements.

- c. **Need for a standardized Merit Order Despatch framework** - Adherence to MOD helps states in optimizing their power procurement strategies, leading to lower overall power purchase cost for the Discoms as well as the consumers. The National Tariff Policy 2016 states that merit order mechanism should be uniform across States. However, it has been observed that due to a lack of Central level guidelines on preparation of merit order, there are several instances of inconsistencies and discrepancies across States in the procedure being followed for preparation of MOD, calculation of variable cost, etc. Due to these variations and non-adherence to standard MOD practices, the whole purpose of MOD gets defeated – Discoms end up procuring expensive power and cheaper power available in the system is not fully utilized.

**Therefore, the NEP should recommend the implementation of a common and standardized MOD framework which can be utilized by all the stakeholders for long term, medium term and short term PPAs.**

- d. **Efficient electricity markets to coordinate demand and supply** - Draft NEP 2021 has covered several important aspects related to future grid operations and power markets such as Ancillary services and its market based procurement, Automatic Demand Management Systems, Longer duration forward contracts, derivatives etc – **in order to assist with crystallizing these measures, tentative timelines may be specified for each so that stakeholders can focus on working towards the same.**



#### D. Affordability, access and consumption

Long strides made in the recent past have ensured setting up of adequate ground level infrastructure to significantly improve household connectivity to the grid/other electricity sources, at a national level. However, this has not translated into a corresponding increase in electricity consumption – our national average per capita consumption of electricity is still low at 1208 units as of 2019-20, less than half of the global average.

These averages also hide some striking inter-State and intra-State disparities. For example, average per capita consumption ranges from a minimum of 332 units in Bihar to a maximum of 15,517 units in Dadra Nagar Haveli, followed by Gujarat at 2,388 units. Within a state like Uttar Pradesh for example, we have Noida at around 4000 units while Azamgarh is at 400 units. As per National Survey Sample Office's (NSSO) surveys, in most States, about 15-20% of all households consume less than 30 units per month. Thus, with regard to electricity consumption, there is striking similarity between the power sector and the food sector – the paradox of abundance coupled with very low electricity usage amongst the poor households.

Therefore, while the Draft NEP talks about providing reliable and affordable electricity to all consumers, it should also focus on ensuring equity so that the benefits of electricity reach the poor and low income level households. The low consumption by poor households can be largely attributed to issues with the affordability of power and concerted efforts are required to ensure increase in consumption of electricity by them, along with reduction of inter and intra-State inequities. Accordingly, the NEP must focus on the following measures to improve the affordability of power:

- a. **Shift from generic subvention between different consumer categories to lifeline tariff and increase minimum consumption level for poor households to at least 60 units per month** – The minimum consumption level of 30 units as mentioned in the NEP 2005 needs to be revised so that concerted efforts can be made towards ensuring equity in electricity consumption and removal of widespread disparities.
- b. **Removing inefficiency in the entire value chain of power sector through removal of cost plus framework** – Till date our attempts at reforming the sector have been mostly focused on the distribution end. At no point of time have we tried to reform the inefficiencies of the upstream segment - coal production and transportation, cost of power generation and evacuation, etc. These inefficiencies stem from the prevalent cost-plus regime in almost all the upstream activities. For example, notwithstanding the extant policy framework of procurement of power on competitive basis, all Central and State plants still commission new plants on cost plus basis whereas a study by the Central Electricity Regulatory Commission had shown the financial benefits of price discovery through competitive basis. **Therefore, going forward, we need to dismantle the cost-plus regime**

**by ensuring that all prospective power offtake and transmission contracts are awarded on competitive basis in order to induce efficiencies in output price.** This will help to lower the cost of power procurement.

- c. Rationalization of taxes and duties on the electricity generation, transmission and distribution supply chain** – Not only do taxes and duties comprise a huge chunk of the landed cost of coal (over 103% of the base price), they have also been increasing at a steady rate – increase of 207% for coal and 300% on coal transportation over a period of 7-8 years. Many generation projects have also not been able to get benefits of the Mega Power Policy which provided various duty incentives, due to lack of PPAs in the market. In the distribution segment, we have an example of some States charging Electricity Duty on auxiliary consumption, which essentially amounts to double taxation since Electricity Duty is also charged on the electricity generated using the auxiliary consumption.

As we are not in a position to further subsidize the cost of power and deploy additional cross-subsidies at the cost of other consumer categories, **the solution to making power more affordable is to rationalize the level of taxes and duties on the various components of the electricity generation, transmission and distribution supply chain. Further, delinking of Mega Power benefits with power tied under long term PPAs should be permitted as that will further reduce the cost of short-term power purchase for the Discoms.**

## E. Sustainability and financial viability of distribution segment

The distribution segment continues to be the weakest link in the power sector in terms of financial and operational sustainability. The current financial metrics paint a very grim picture – overdue payables to generation companies at Rs 74,206 Cr (as on Mar 2021); total book losses at Rs 49,600 Cr for FY 19 (close to pre-UDAY levels); total debt estimated to touch Rs 6 lakh cr by FY 22; AT&C losses rising again and almost at 24%; ACS-ARR gap doubled within a year to Rs 0.52/kwh in FY 2019; Accumulated regulatory assets in excess of Rs 1,16,000 Cr. This clearly shows that notwithstanding 3 bail out packages and the 4th in the offing, the distribution segment in its current form is not sustainable and threatens the entire value chain.

As the distribution segment is the primary revenue earner for the entire sector, immediate steps are required to ensure financial turnaround of the segment in order to protect the power sector's existing and proposed investments (as envisaged in the NEP) and achieve sustainability for the future. Towards this end, we have the following suggestions:

- a. **Affixing timelines to the proposed interventions** - The Draft NEP has clearly outlined a concerted list of interventions – creation of right environment for PPP, separation of carriage and content, cost reflective and timely tariffs, DSO for real time operation, technological interventions for reduction of AT&C losses, transparent reporting of reliability indices, improved demand forecasting, smart meters and DBT, etc. **However, most of the above had found a place in the NEP 2005 too. We need to attach timelines to these interventions** and really think out of the box for evolving a suitable incentive/disincentive framework to ensure these measures are implemented within the defined timelines.
- b. **Formation of National Monitoring Committee** – Many of the excellent policy formulations in NEP 2005 may have been implemented by now if there was a designated agency to oversee, monitor, report and follow up on the progress of implementation of the policies outlined. It was such kind of intensive monitoring in the past which helped us to build up generation capacity rapidly in the country, and going forward, once the NEP assigns target timelines for the proposed policy interventions for turnaround of the Discoms, **the task of monitoring and submitting quarterly reports on the targets may be assigned to a National Monitoring Committee which shall ensure that proposed recommendations are actually implemented on the ground.**
- c. **Institutionalization of a rigorous payment security mechanism for generators** – Significant delays by Discoms in payment to generators, along with differential and ad-hoc priorities in payment to generators based on ownership or on source of fuel, has become the norm. In order to ensure that such tactics do not impair the entire value chain while the

reform measures envisaged under the NEP take their time to get grounded, it is recommended that:

- **Bill discounting mechanism under REC/PFC may be put in place (similar to the Liquidity Infusion Package established by MoP), backstopped by direct devolution from State funds as suggested by the HLEC on stressed power projects.**
- **The State Regulatory Commissions may be mandated to specify a transparent mechanism for payments to the generators by Discoms and compliance with the mechanism may be reviewed periodically, at least once in a year.**