Sub: Minutes of meeting held on 30th June, 2014 in UPERC in respect of issues related to development of Renewable Energy in the State of Uttar Pradesh.

ATTENDEES:

1. Hon'ble Sri Desh Deepak Verma, Chairman
2. Hon'ble Smt Meenakshi Singh, Member
3. Hon'ble Sri Indu Bhushan Pandey, Member
4. Sri A.K. Srivastava, Secretary, UPERC
5. Sri Sanjay Srivastava, Director(Generation), UPERC
6. Sri Vikas Chandra Agrawal, Director(Distribution), UPERC
7. Sri Amit Bhargav, Director(Tariff),UPERC
8. Sri Abhishek Srivastava, Jt. Director(generation),UPERC
9. Participants from other government institutions / industry as per enclosed attendance sheet.

1. To discuss the potential for development of RE in UP and other concerning issues, a meeting of RE stakeholders was called by the Commission on 30th June 2014 in its office.

2. Considering the depleting sources of conventional fossil fuel and for ever growing demand for energy to drive growth, environmental friendly replenish able source of clean and green energy has become the need of the hour. The green energy saves our society and future generations from the hazards of toxic gases produced from non-renewable sources.

3. Solar power and biomass can be two important resources for meeting the energy requirement for Uttar Pradesh. It is estimated that total potential for Renewable Energy (RE), except solar power, in India is around 90,000 MW. As of now about 32,000 MW out of total 2,40,000 MW approx. (13% of total energy produced) comes from renewable sources, out of which wind, biomass and small hydro power (SHP) are

the major contributor followed by contribution from bagasse based co-generation and waste based generation. However for UP, the bagasse is the major contributor of RE.

4. It is estimated that on an average, UP receives solar radiations of the level of around 5 kwh/m^2/day. UP, owing to its geographical and climatic conditions has great potential for solar power but it is still not fully harnessed. UP, facing severe power crisis owing to high demand, specially in peak hours in summer season, may convert the abundant energy received from Sun into opportunity by generating electricity, irrigation pumping, light and cooking heat.

5. Municipal Solid Waste (MSW) is available in abundance too which otherwise, poses challenge to both environment and public health. utilized for generating power, can be through technology improvisation to harness this resource.

6. A presentation on all these aspects was made by UPNEDA officials regarding "Potential and Achievement from Renewable Energy (RE) Generation". Besides the facts stated above already, in regard to UP State, the present scenario of developments in Renewable Energy was highlighted as follow:

- Of the estimated potential of about 2700 MW generation from bagasse based generation almost 2300 MW has been exploited (1140 MW is exported to grid / 1160 MW is installed for captive consumption).
- Of the estimated potential of 2257 MW generation from non- bagasse based biomass power, around 250 MW is generated (including grid interactive and captive generation) and project of around 250 MW capacity are under consideration.
- Of the estimated potential of 300 MW generation based on bio-industrial effluents, around 110 MW could be exploited so far.

- Based on cow dungs, 2 power projects of 10 kW each are already operative and under Kamdhenu Yojana, 13 projects totaling 176 kW are submitted to Ministry of New & Renewable Energy (MNRE) for sanction.
- In regard to energy from Biomass, the Central government offers subsidy schemes that range from 0.5 Cr. / MW to maximum 5 Cr. / project.
- Availability of abundant sunshine in contiguous wasteland in Bundelkhand region is seen as major facilitator for setting up of solar power projects in region with estimated potential of around 60 GW, given only 0.5% area is utilized for solar project.
- Under phase-I GBI scheme of Jawaharlal Nehru National Solar Mission (JNNSM), 7 MW is installed.
- Solar project of 5 MW capacity is installed at Allahabad under NTPC Vidyut Vyapar Nigam (NVVN) bundling scheme.
- Solar projects of 15 MW capacity have been installed by NTPC and of (for captive use) 2 MW by Rail Coach Factory Raebareli.
- 130 MW capacity solar projects are under consideration under state solar policy.
- The grid interactive rooftop Solar PV plants are quite helpful in reducing grid power usage and incase of intermittent power supply in reducing diesel consumption.
- The option of rooftop SPV grid interactive plants is not yet exploited for want of proper connectivity, metering mechanism, compensatory feed-in tariff for excess solar power fed to grid and enabling regulation along with facilitation of upfront capital requirement.
- However, it is planned to resolve above issues and to promote rooftop SPV grid interactive plants utilizing at least 25% of plinth area with the target to have 20 MW capacity added under this category.

- It is proposed to promote rooftop SPV power plants up to 50 KW under Net Metering mechanism and above 50 KW under Net Energy Billing mechanism i.e. gross metering mechanism.
- For facilitation of upfront capital requirement for rooftop SPV facility of subsidy @30% from MNRE is facilitated and rest 70% to be borne by the beneficiary
- It was informed by Principal Secretary Alternate Energy Sources (AES), GoUP that issues regarding metering mechanism and banking of solar power for one year are under discussion with UPPCL.
- 335 un-electrified villages have been lighted up so far through solar lights and 23 villages have been electrified through mini grid solar plants.
- Designing and implementation of sustainable mini grid projects in PPP mode on BOOM (Build Own Operate Maintain) basis from 10 KWp up to 500 KWp /site/village is under progress at UPNEDA level as stand-alone system in rural areas not connected to the grid.
    - For mini grid, 30 % finance is to be provided by MNRE and 30% from State Government and rest 40% is to be borne by project developer.
    - It is mandatory to supply electricity in rural household at pre decided tariff of say Rs. 50/- per month per household for load up to 30 W and 150/- per month per household for load up to 100 W.
    - Besides this the developer is free to decide tariff as agreed mutually between user and developer.
    - The minimum operating period of project would be 10 years.

- Off grid solar plants of ~ 2.5 MW capacities are installed in various Govt. / private offices.
- More than 2 lakhs street lights and 1.5 lakhs solar home lighting system has been installed/distributed.
- Solar home lighting systems of capacity of 18 W are proposed to be distributed to registered labourers through U.P. Labor Department.
- 41 solar pumps for drinking water and 900 pumps under Rashtriya Krishi Vikas Scheme for irrigation purposes, have been installed.
- Deployment of 600 solar pumps is planned in 2014-15 and 2015-16 in Bundelkhand region that will be financed under special Bundelkhand package.
- Renewable energy systems of 120 W capacity solar modules have been installed in 44000 nos. houses under Lohia Awas.
- By laws the installation of solar water heating system has been mandated in all buildings with area more than 500 $M^{2.}$ ~26 Lakhs Ltr. Capacity solar water heating systems have been installed.
- About 60,000 box type solar cookers have been distributed and 1156 dish type solar cookers installed at various dhabas/ school mess etc.
- It is estimated that potential for Small Hydro Power (SHP) Plant in State is about 167 MW and of that only 25.10 MW is exploited and 7 projects with total capacity of ~ 6.5 MW are in pipeline.
- In regard to Wind power, the initial estimated potential is of about 137 MW at 50 mtr. above ground level and 1260 MW at 80 mtr. above ground level in Sharda- Ghahghra basin. Data collection activities of other sites at Shajahanpur and Kheri are underway.
- It was also pointed out that reports regarding compliance of RPO are not received from distribution licensees.

7. In its submission representative of Hindustan Power (a solar power project developer) made following suggestions:

- Taking a cue from experience of other states, solar power projects need to be allowed through MoU route at preferential tariff rates determined by the Commission with Capacity Utilization Factor (CUF) @ 16%.
- To adopt Hon'ble CERC's RE tariff regulation 2012 in regard to rebate/surcharge on payment.
- Similar to provisions made by Hon'ble GERC in its order for "determination of tariff for procurement by distribution licenses and others from solar energy projects" dated 27.01.2012, metering be done at generator's end with all necessary evacuation infrastructure being taken care of by STU/ licensee .
- Sharing of CDM benefits should be done after receipt of proceeds as clarified by Hon'ble CERC in Statement of Reasons (SoR) dated 06.02.2014.
- Loan tenure for solar project should be 8-10 years instead of 10 years (provided in previous regulations), as loaning agency IREDA offers loan for a period of 8 year only.
- Depreciation should be @ 7% for initial 10 years and rest 20% may be spread over useful life.
- In line with the provisions of Hon'ble CERC (interstate transmission charges and losses) regulations 2010 dated 15.06.2010 the solar power should be exempted from paying transmission charges and losses.
- In case of roof top solar PV system, norms need to be a little relaxed, since higher capital is required vis-à-vis big scale solar PV projects.

8. In its submission, representative of A2Z (a Waste to Energy/WtE project developer) made following suggestions:

- 100% power generated from WtE must be purchased by the DISCOM.
- Considering the financial and operational issue following parameters must be approved while deciding tariff
    - CAPEX – 10 Cr./MW
    - GCV - 2250 Kcal/kg
    - SHR - 4600 Kcal/KWh
    - APC – 15%
    - PLF – 60% for 1st year and 70% after that onwards.

9. To further exploit potential for bagasse based generation, UP Sugar Mills Cogen Association submitted followings:

- Preferential tariff should be continued which is in line with the CERC regulations.
- Modernization & up gradation should be allowed.
- For off season period, tariff structure for coal based generation should be considered.
- Proper transmission systems should be in place.
- SHR better than 3100 Kcal be considered.
- Timely payment from DISCOMS should be ensured.
- DISCOMS should fulfill REC obligations

10. M/s Sukhbir Agro (a biomass based generator) submitted followings:

- Procurer is reluctant to enter into PPA with biomass generator
- RPO obligation is not fulfilled by DISCOM.
- Cost of biomass fuel, its calorific value and its transportation cost need to be considered when deciding tariff.

11. It was desired by the RE developers that separate tariff be given for each type of biomass, owing to difference in their calorific value and transportation cost.

12. Mr. Rakesh Goel (a freelancer working in the field of electrification of remote areas through solar power) informed that at present for establishing 40 W solar system it costs around Rs. 8000/- and raised the issue of developing sustainable model for electrification of remote villages through this kind of systems.

13. The reluctance of DISCOMs in entering into PPA with generator below 3 MW was also brought to the notice of the Commission.

The Commission took the cognizance of all above suggestions, and issued following directives:

I. NEDA to expedite development of sustainable off grid model for electrification of remote villages through solar power.
II. NEDA to form a cell for promotion of RE that could also provide a single window clearance for same.
III. Biomass generators to submit details about the availability and costing of different type of biomass projects.
IV. UPPCL /DISCOMs to fulfill its RPO obligation and put up a report to the Commission regarding its present status.
V. It was also decided to have separate meeting to discuss issues regarding RPO.
VI. Further comments were invited from all stakeholders for development of RE.
VII. NEDA to examine all the suggestions, and put up a comprehensive paper for making changes in policies, regulation wherever required

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Place : Lucknow
Dated: 16.09.2014