

Deliberations of the Task Force
on
Roadmap for India on Solar & Wind Energy
beyond 13th Plan



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Executive Summary

Energy security is a critical strategic and economic issue for India. The National Action Plan on Climate Change launched by the Hon'ble Prime Minister on June 30, 2008 emphasised the need for a graduated shift from economic activity based on fossil to one based on non-fossil fuels, and from reliance on non-renewable and depleting sources of energy to renewable sources. The Electricity Act.2003 already provides a role for Renewable Energy sources and Tariff Policy, 2006 mandates the State Electricity Regulatory Commissions (SERCs) to fix a minimum percentage of energy purchases from renewable sources of energy, taking into account availability of such resources in the region and its impact on retail tariff.

From an energy security perspective, solar is the most secure of all sources, since it is abundantly available. Theoretically, a small fraction of the total incident solar energy (if captured effectively) can meet the entire country's power requirements. Similarly, the peninsular and western parts of India are rich in wind resource. The geographical spread of renewable energy resource is a boon for this country. It is also clear that given the large proportion of poor and energy un-served population in the country, every effort needs to be made to exploit the relatively abundant sources of renewable energy available to the country. While, today, domestic coal based power generation is the cheapest electricity source, future scenarios suggest that this could well change.

Already, faced with crippling electricity shortages, price of electricity traded internally touched Rs.7 per unit for base loads, and around Rs 8.50 per unit during peak periods. The situation will also change, as the country moves towards imported coal to meet its energy demand. The price of power will have to factor in the higher prices of coal in international markets and the cost of developing import infrastructure. It is also evident that as the cost of environmental degradation is factored into the mining of coal, as it must, the price of this raw material will increase. In a situation of energy shortages, the country is increasing the use of diesel-based electricity, which is both expensive - costs as high as Rs15 per unit - and polluting. It is in this scenario, that the solar and wind imperatives are both urgent and feasible to enable the country to meet its long-term energy needs.

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The Task Force constituted by the Planning Commission in June, 2013 held three meetings, identified various issues which needed to be addressed and considered interventions of the Government. However, the recommendations could not be adopted by the Task Force during the currency of the erstwhile Planning Commission. In order to share the views received during the deliberations, the present Report is being brought out capturing the broad suggestions made by the members of the Task Force and participants at the meetings.

Given the severity of the situation, Government of India needs to act urgently, focusing on the following key areas:

- i) Setting up of Ultra Mega Solar Projects and Roof-Top Solar Projects to meet the upscale solar target of 1,00,000 MW by 2020;
- ii) Substituting kerosene for lighting and cooking purposes in rural areas with Solar Energy/Heating;
- iii) Expediting the project “Green Corridor” for transmission of renewable power;
- iv) Enforcement of RPO by all the States and taking action to amend the Electricity Act. 2003 to increase penalty for non-fulfilment of RPO, and make it mandatory;
- v) Bringing down the cost of equipment to make it help achieve grid parity;
- vi) Support domestic market manufacturing through subsidy, to provide level playing field with imported solar equipment;
- vii) Need for providing finance for the Wind Project developers for achieving the 12th Plan target of 15 GW and NAPCC target of 60 GW by 2022.
- viii) Need for low interest rate loans from financial institutions and also encourage non-recourse financing in the future.
- ix) Solar and Wind could be made amenable to decentralized distribution;
- x) SERCs need to show support for RE as per Electricity Act.2003
- xi) Identify major reasons for low capacity expansion in the States and find ways to improve the sector.

Accordingly, the report includes early action measures classified as per the following categories:

- 1. Finance related recommendations**
- 2. Manufacturing related recommendations**
- 3. Infrastructure related policy measures**
- 4. Regulatory Support**
- 5. Support through GOI measures**
- 6. State Government related policies for encouragement of RE**

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Chapter 1

Introduction and Context

1 Introduction and Context

1.1 Context and objective of this Report

1.1.1 The Planning Commission vide its order dated 24th June, 2013 constituted a Task Force under the Chairmanship of Shri B.K. Chaturvedi, Member (Energy) to coordinate different activities relating to solar energy, integrate solar power in the electricity grid and provide marketing support to this power, and build solar sector considering the satisfactory progress made under the Jawaharlal Nehru National Solar Mission, even beyond the 13th Plan Period. Subsequently, it was also decided to consider issues being faced by the wind sector. It was felt that many concerns were similar to these two renewable energy sources, and could be addressed commonly.

1.1.2 The constitution of the Task Force was as follows:

1. Shri B.K. Chaturvedi, Member (Energy), Planning Commission, Chairman
2. Chief Economic Adviser, MoF, Member
3. Secretary, Power, Member
4. Secretary, MNRE, Member
5. Secretary, DIPP, Member
6. Secretary, DEITY, Member
7. Advisor, (Energy), Member
8. Secretary, CERC, Member
9. Chairman, SBI, Member
10. Director General, FICCI, Member
11. Director General, CII, Member
12. JS, Solar, MNRE, Member Secretary

The Task Force was authorised to co-opt officials from related organizations from time to time.

1.1.3 The Terms of Reference (TOR) of the Task Force was as follows:

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- i) To suggest policy interventions for improving domestic manufacturing;
- ii) To suggest measures to enhance availability of cost-effective finance;
- iii) To ensure effective implementation/strengthening of the REC mechanism;
- iv) To address issues related to evacuation of solar power and development of green corridors;
- v) To seek involvement of State Governments for solar capacity development.

The constitution of the Task Force is at Annexure-A

1.1.4 The **1st meeting** of the Task Force was held on 9th September,2013 and deliberated on the following issues:

- i) Setting up of Ultra Mega Solar Projects around Sāmbhar Lake in Rajasthan;
- ii) Substituting kerosene for lighting and cooking purposes in rural areas with use of Solar Energy/Heating;
- iii) Expediting the project “Green Corridor” for transmission of renewable power;
- iv) Enforcement of RPO by all the States and taking action to amend the Electricity Act to increase penalty for non-fulfilment of RPO and make it mandatory.
- v) Bringing down the cost of equipment to make it help achieve grid parity;
- vi) Support Domestic Market manufacturing through subsidy, to provide level playing field with imported solar equipment;

1.1.5 The **2nd meeting** of the Task Force was held on 1st November,2013 and representatives from different organizations presented their views as given below:

- i) Need for providing finance for the Wind Project developers for achieving the 12th Plan target of 15 GW and NAPCC target of 17 GW by 2020.
- ii) Need for low interest rate loans from financial institutions and also encourage non-recourse financing in the future.
- iii) Solar and Wind could be made amenable to decentralized distribution;
- iv) SERCs need to show support for RE as per Electricity Act.2003
- v) Task Force’s need to look upon enforcement of RPO by SERCs.

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1.1.6 **The 3rd meeting** of the Task Force was held on 3rd December, 2013 and presentations covered the following issues:

i) Status of manufacturing of solar and wind power equipments-

- a) International Debt is much cheaper;
- b) Chinese industry has decimated manufacturing of these equipments in India and world-wide.
- c) Government of India should create a barrier against dumping/cheap import and extend financial support to this sector.

ii) Financial Matter and policy issues-

- a) Lack of reliable long-term site specific resource and operational data;
- b) Lack of evacuation infrastructure for RE;
- c) Unbundling of land/EPC/equipment and O&M issues needed to bring down costs.
- d) State Government to assist in arranging land and necessary facilities;
- e) Enforcement of RPO obligations;
- f) Need for a bouquet of financial models to choose from;
- g) Need for “carving out” of funds dedicated for financing this sector;
- h) State Governments need to create payment security mechanism just like NVVN at the national level;
- i) Security creation of assets to increase lender’s confidence, for recovery of loans.
- j) IIFCL’s credit enhancement to be examined.
- k) Need for Certification of imported solar equipments.

iii) Major reasons for low performance by the States and ways to improve the sector-

- a) Inadequate availability of land and solar resources, insufficient State Government initiative and delayed payments for power purchase;
- b) Need for a Long-Term stability in policy framework;
- c) Availability of operational data from reliable sources;
- d) Need for a strong evacuation infrastructure and establishment of payment security mechanism in view of weak financial health of DISCOMS;
- e) SERCs may follow CERC norms for uniform tariff setting;
- f) Procurement process/bidding process need to be refined to filter out impractical bids for award of RE projects;
- g) Quality standards should be maintained;
- h) Low cost resources through tax-Free Bonds for IREDA;
- i) Leveraging of NCEF funds through IREDA.

iv) Regulatory environment and improvement needed-

- a) Lack of RPO enforcement by SERCs and fixing of RPOs by SERC as per convenience;
- b) Definition of “Co-generation”, in the Electricity Act.2003 which presently includes “fossil fuel based generation” need to be amended.
- c) High price in solar and wind in the REC mechanism in the Tariff Policy and the Electricity Act. 2003 needs a fresh look.

1.1.7 The minutes of above three meetings of the Task Force are at Annexure-B

1.2 Call to action

1.2.1 India’s electricity generation is dominated by coal (about 60%). With a total installed generation capacity of 254 GW as on end October, 2014, Renewable Energy source of power constitute only 13%. The latter is significant from the point of view of curbing emissions. Although the country ranks low in per capita emissions, it is amongst the top five emitters of overall greenhouse gas emissions. As a developing country, it does not have binding emissions reduction targets, but we have voluntarily declared a target reduction of 20-25 percent in emissions intensity by 2020 compared to 2005, at the Copenhagen talks.

1.2.2 India has been promoting renewable energy through its Ministry of New and Renewable Energy (MNRE) since the 1980s, through its various programmes. The growth of Renewable Energy Source in India has registered significant growth from 1997.

1.2.3 With the enactment of the Electricity Act, 2003, generation of power using renewable energy source has got a further boost. Under this Act, one of the functions of the State Electricity Regulatory Commissions included in their mandate is to promote the generation of electricity from renewable sources of energy. Further, with the amendment of the Tariff Policy, 2006 in January, 2011, the State Commissions are required to reserve a minimum of 0.25% for purchase of solar energy by the end of 2012-13 and further go up to 3% by 2022. The non-solar component has been separately provided.

1.2.4 The Central Electricity Regulatory Commission has issued guidelines for fixing feed-in-tariff for purchase of Solar power taking into account the current cost and technology trends. These are being revised on an annual basis. The CERC has also issued Regulations for purchase of Renewable Energy

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Certificates by an obligated entity. As mandated in the Electricity Act, the State Electricity Regulatory Commission has issued Regulations for compliance of RPO by an obligated entity and has also spelled out consequences of default on non-compliance of its direction.

1.2.5 The National Action Plan on Climate Change launched by the Hon'ble Prime Minister on 30th June, 2008 pointed out: "India is a tropical country, where sunshine is available for longer hours per day and in great intensity. Solar energy, therefore, has great potential as future energy source. It also has the advantage of permitting the decentralized distribution of energy, thereby empowering people at the grassroots level". In the Budget speech of 2014-15, the Finance Minister made an announcement to take up Ultra Mega Solar Power Projects in Rajasthan, Gujarat, Tamil Nadu, and Ladakh region in J&K and launch a scheme for solar power driven agricultural pump sets and water pumping stations for energizing one lakh pumps. Implementation of the Green Energy Corridor Project will be also be accelerated in the current financial year to facilitate evacuation of renewable energy across the country. In the recent Budget speech (2015-16), an announcement was made to revise the target of Renewable Energy capacity to 1,75,000 MW by 2022; comprising 1,00,000 MW of Solar, 60,000 MW of Wind 10,000 MW of Bio mass and 5,000 MW of small Hydro.

1.3 Approach

1.3.1 To ensure that Government actions are aligned with the country's energy security goals, the Task Force was guided by the following overarching principles:

1. Finance related recommendations

- 1.1. Financial support to renewable energy
 - Grant of subsidy/VGF for development of RE in the short term
 - Ensure compliance of RPOs by DISCOMS
 - Dedicate a percentage of National Clean Energy Fund for RE projects
 - Increase the term loan period up to 25 years through DFIs
 - GOI to provide hedging cover to the foreign exchange component of the debts raised for RE projects
- 1.2. Enhance availability of funds to the solar/wind sectors
 - A separate exposure limit may be established for financing RE sector by banks
 - Banks to come up with specific schemes to provide loans for off-grid solar RE projects
 - Initiate measures to access foreign funds through a local financial institution.

1.3 Reduce perceived risk of banks.

- Creation of a fund to provide risk cover to a portion of bank finance
- Introduce a system of certification of solar equipment
- Train the bankers to assess the true viability of RE projects.

2. Manufacturing related recommendations

2.1 Support for up-gradation of technology

2.2 Remove duties on raw-material to reduce the cost of domestic manufacture

2.3 Provide assured market for domestic manufacturers through DCR

2.4 Introduce QC check for ensuring quality of imported materials.

3. Infrastructure related policy measures

3.1 Up-gradation of grid to facilitate integration of solar and wind energy

3.2 Up-gradation of transmission infrastructure

3.3 Establishment of solar parks

4. Regulatory Support

4.1 Granting statutory backing to RPOs

4.2 Modification of REC mechanism to make it more practical

4.3 Lower wheeling charges for renewable energy

4.4 Introduce nation-wide regulations to promote roof-top solar projects

4.5 Issue “must run” status for solar and wind power projects.

5. Support through GOI measures

5.1 Statutory measures:

- Amendment of Electricity Act.2003
- Enforce use of RE based products (provision for RPOs in the Electricity Act, 2003)

5.2 Issue policies for development of renewable energy by Government

Departments/Organization

- All conventional energy companies to generate a fixed percentage of their

generation through renewable energy (provision RGOs in the Electricity Act, 2003)

- Reduce taxes on RE products
- Support from State Governments/DISCOMS

6. State Government related policies for encouragement of RE

6.1 Issue policies for RE, including net-metering and grid-connectivity for roof-top solar PV

6.2 Development of transmission infrastructure

6.3 Allow use of Government land and facilitate change of land use for RE.

Chapter 2

Early Action Measures

2 Early Action Measures

2.1 Finance related recommendations

Recommendations of the Committee

1. Financial support to renewable energy

- Grant of subsidy/VGF for development of RE
 - Subsidies be progressively replaced by interest subvention
- Ensure compliance of RPOs by DISCOMS
- Dedicate a percentage of National Clean Energy Fund for RE projects
- Increase the term loan period up to 25 years through DFIs
- GOI to provide hedging cover to the foreign exchange component of the debts raised for RE projects

2. Enhance availability of funds to the solar/wind sectors

- A separate exposure limit may be established for financing RE sector by banks
- Banks to come up with specific schemes to provide loans for off-grid solar RE projects (1-2% of total priority sector lending be ear-marked for off-grid projects by Banks)
- Initiate measures to access foreign funds through a local financial institution.

3. Reduce perceived risk of banks.

- Introduce a system of certification of solar equipment
- Train the bankers to assess the true viability of RE projects.

2.1.1 The cost of renewable energy projects has been falling over the last several years. The requirement of financial support (VGF or GBI, etc.) has now much reduced. However, the sector will still need to be supported in the immediate term as the cost of renewable energy is still higher than the cost of conventional energy. It is also evident that these projects are entirely capex front ended with very low

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variable costs. If the Government were to continue to support capacity addition in these sectors, it is expected that the costs may come down further, due to scaling up of local manufacturing of RE equipment in India.

2.1.2 One way to help in reduction of cost of renewable energy and make it viable is to provide subsidy in the shape of grants/viability gap funds to bring down the project cost itself. The cost of debt could be brought down also, while the tenure of the debt may also be increased, along with purchase support. This needs to be done through the following means:

- Grant of subsidy/VGF for development of RE
- Ensure compliance of RPOs by DISCOMS
- Utilize NCEF to provide grants to these sectors
- Domestic Financial Institutions (DFI) may provide long term loans (15 to 25 years)
- Enable access to low cost ECB by creation of a fund to pay hedging charges against foreign exchange fluctuations

2.1.3 The NAPCC targets for share of RE by the year 2020, and the targets included in the 12th Five Year Plan require major augmentation to the renewable energy capacity in the country. These targets have been further up scaled by the Government. In order to achieve the above targets, there would also be a need to augment availability of funds to finance this sector. In the light of large demands of debt capital on the banking sector by competing sectors, RE projects get a lower priority for multiple reasons. In the light of the above, it is essential that this sector is assured of financing through a slew of measures such as the following:

- ✓ Separate exposure limit in banks for RE with earmarking of 2-3% of total lending to this sector
- ✓ Banks to devise a specific scheme for loaning off-grids and solar RE systems
- ✓ Tasking a financial agency to raise money overseas (from pension funds, etc.) to loan RE sector.

2.1.4 One reason for banks' reluctance to finance the RE sector has been its perceived high risk. However, renewable energy is a viable sector and with rising prices of conventional power, this sector is less riskier to finance, than even the conventional power, in spite of the present higher cost of renewable energy. Another reason for the high risk perception of bankers is lack of knowledge/data relating to the

likely power production, which in turn is dependent on wind resource and solar irradiation data. In order to lower this risk perception, the following measures need to be adopted:

- ❖ Provide exposure and training to banks.
- ❖ Certify solar equipment, as is done for wind energy sector to enhance banker confidence

2.2 Manufacturing related recommendations

Recommendations of the Committee

1. Support for up-gradation of technology
2. Remove duties on raw-material to reduce the cost of domestic manufacture
3. Provide assured market for domestic manufacturers through DCR
4. Introduce QC check for ensuring quality of imported materials.

2.2.1 Domestic manufacturers have so far faced problems of unfair competition, due to their getting out priced by imported products. As RE is higher priced, developers any way look out for measures to reduce cost, and enhance price competitiveness. When faced with cheaper imports, often due to dumping, this industry does qualify for protection. One way of helping it lower the cost, could be to remove duties on imported raw-material. This is particularly true in the case of solar cells, for which there is inadequate capacity in the country. Another way of enhancing price competitiveness is to provide the manufacturing sector with low cost funds. The JNNSM policy document recognizes the strength of the manufacturing sector particularly in its ability to employ large workforce.

2.2.2 There is often a charge that imported products are of higher technical specifications. In order that the domestic manufacturing conforms to the latest technology, and supplies matching specifications if not better, there is a need to support up-gradation of technology. MNRE may develop a scheme in this regard. At the same time, it has to be ensured that the imported products of substandard quality are not allowed to be installed in the country merely on the basis of their lower prices. Therefore, while the domestic manufacturers must ensure top technical specifications, at the same time poor quality should not be allowed to be imported.

2.2.3 There is also a need to provide assured market for domestic manufacturers, at least in the initial years. As we have seen, the cost of solar equipment has come down over the years, and it should not be the case, that Indian production does not witness this global trend. When viewed against the subsidies which are presently being extended to this sector, it needs to be ensured that the Indian Government's financial resources do not end up supporting foreign manufacture, but is deployed in development of domestic manufacturing capabilities. In this regard, there could be a trade-off between requirement of DCR in domestic tenders, and imposition of duties on imported products, especially in the light of similar imposition against Chinese products in many parts of the world. As the present level of domestic manufacture (solar equipment) is much lesser than the envisaged solar capacity additions, perhaps, DCR imposition in domestic tenders would suffice.

2.3 Infrastructure related policy measures

Recommendations of the Committee

1. Up-gradation of grid to facilitate integration of solar and wind energy
2. Up-gradation of transmission infrastructure
3. Establishment of solar parks

2.3.1 Transmission infrastructure is essential for any power generation source. Unlike conventional energy, RE faces problems in attracting transmission infrastructure. The reasons are:

- Small size of RE projects;
- Location in difficult/interior areas; and
- Poor capacity utilization.

2.3.2 In the above circumstances, developers are unable to tap the best potential, or have to live with poor quality of transmission facility. The picture is likely to improve with the implementation of the "Green Corridors" project, which will address the RE capacity which will come up by 2017. But, Ministry of Power needs to offer transmission infrastructure for medium term development as well (end of 15th FYP).

2.3.3 RE being variable/intermittent, needs management for its acceptance in the grid. Surges of RE in the high resource days/months have to be accommodated, while low production in poor seasons may have to be taken care of, by activating “back up” power. This situation could further aggravate the present scenario, wherein RE is more expensive, while the lower priced conventional power is sought to be backed down. The entire issue, therefore, is not merely a technical challenge, but also a financial one. As RE supply is projected to rise manifold, it is proposed that adequate investment is done in Renewal Energy Management Centres (REMCs), as well as in upgrading the IT infrastructure to handle the grid with large RE based power.

2.3.4 Solar power requires a large tract of land, to tap the high resource potential in a particular location, and also achieve the viable scale of production, to make the erection of accompanying infrastructure financially viable. MNRE is upscaling and fast tracking the solar capacity target to 100,000MW by 2020 from the existing JNNSM target of 20,000 MW by 2022. This energy resource is most amenable to development through solar parks. The infrastructure required by solar PV installations, is easier to provide at a specific location than numerous locations, especially because solar installations may concentrate in interior locations to tap lower priced land. The latter would require extensive infrastructure development, because of remoteness and would be financially viable, only if the solar plants were to be of a critical “mass”. This suggestion may require funding support from the GOI, as well as implementation support from the State Governments.

2.4 Regulatory Support

Recommendations of the Committee

1. Granting statutory backing to RPOs
2. Modification of REC mechanism to make it more practical
3. Lower wheeling charges for renewable energy
4. Introduce nation-wide regulations to promote roof-top solar
5. Issue “must run” status for solar and wind power.

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2.4.1 We have already discussed supporting projects of RE by States through a statutory back up to RPOs. As of now, RPOs are supported through regulations. The entire scheme of RPOs leave much to be desired on many accounts, viz., poor RPO levels viewed against resource potential in the States, granting extensions, absence of long term RPOs, etc. At this rate, it would be impossible to achieve the NAPCC target of 15% penetration of RE by 2020. However, it is hoped that with the anticipated statutory back up, RPO would become a major tool in development of RE.

2.4.2 The REC scheme needs to be made more practical. It has been experienced that even though the RECs are short of the total RPO requirement, there is poor RPO compliance. Then, there is the issue of the State DISCOMS being able to contract REC through long term PPAs on lower price, than the ceiling price of RECs. This explains their dis-interest in RECs. Hence, a call for review of REC scheme to make it more practical.

2.4.3 The regulatory aspect governing RE, calls for a major overhauling. In this regard, wheeling charges for RE, facilitation for banking, and regulation to promote net-metering/roof top solar are particularly notable. There is wide variance amongst State in adopting different models in the above areas. While State Governments may have flexibility in adopting the measure best suited to their specific situation, including that of RE resource, there ought to be regulatory support for adopting different options at the State Government levels. In this regard attention is also drawn towards “must run” status for solar and wind power projects.

2.5 Support through GOI measures

Recommendations of the Committee

1. Statutory measures:

- Amendment of Electricity Act.2003
- Enforce use of RE based products

- | |
|---|
| <p>2. Issue policies for development of renewable energy by Central Government departments/organization</p> <ul style="list-style-type: none">➤ All conventional energy companies to generate a fixed percentage of their generation through renewable energy➤ Reduce taxes on RE products➤ Support from State Government/DISCOMS |
|---|

2.5.1 The Electricity Act.2003 and policies issued therein, need to be revisited in the light of the newly acknowledged potential of RE. It is understood, that Ministry of Power is already in the process of considering amendments in favour of RE which is expected to meet most of the expectations of the RE sector. It is felt that definitions of several terms in the Act, including those of ‘RE sources’, ‘obligated entity’, etc., need to be redefined. But the greatest emphasis needs to be given, on granting statutory status to Renewable Power Obligations (RPOs). If the Electricity Act.2003 could give a statutory back up to a long term RPO trajectory for different States, and make non-compliance of RPOs a punishable offence, it would be a shot in the arm for RE.

2.5.2 Along with the statutory changes, suitable policies also need to be issued for development of RE. These policies may support roof-top solar, allotment of land, provide incentive for States for meeting RPOs, etc. Such policies at the Government level could go a long way in making Central Government Departments pro-active, in installing RE projects on their vacant land and roof tops. Such policies could also mandate conventional energy companies, including oil and gas PSUs, to generate a fixed percentage of RE against their total production/generation of conventional energy.

2.5.3 Encouragement also needs to be given to RE based products, both in the consumer and industrial sectors. Such usages could be of solar water heaters, aero - generated power, heating solutions in the industry including hybrid ones. These products could particularly be encouraged through lower taxes.

2.6 State Government related policies for encouragement of RE

Recommendations of the Committee

1. Issue policies for RE, including net metering and grid-connectivity for roof-top solar PV
2. Develop transmission infrastructure
3. Allow use of Government land and facilitate change of land use for RE.

2.6.1 The State Governments have a major responsibility for helping realize the solar/wind resource potential in the States. They have to facilitate execution of projects on the ground. In this regard, it would be ideal if all the States were to issue State specific policies for RE. Only a handful of States have issued state specific RE policies.

2.6.2 The infrastructure issues which have come up for specific recommendations earlier, have a large interface with the State Governments. The development of transmission infrastructure, including control centres/IT equipment for management of RE has to be developed by the State Governments.

2.6.3 While the State Governments and regulatory bodies may issue statutory as well as regulatory/policy regulations, respectively, the States need to develop their own SOPs to implement the same. Two way meters, grid-connectivity for roof top solar, and purchase of solar and wind power through right tariff fixation, are important areas where State Regulators and State Governments have to act in unison. State Governments also have a role in providing their own subsidy support, and tariff fixation for different sectors. Therefore, their willingness to buy RE and supporting it, either in fixation of higher price of renewable energy to consumers, or through subsidy support (including VGF) would be necessary for this sector to grow.

Chapter 3

The way forward

3 The way forward

The Task Force on Solar and Wind Energy held three meetings with the various stakeholders like Ministry of Power, MNRE and Ministry of Finance, Wind power association, Solar power associations, FICCI, CII and financial sectors like SBI, MVVN. After due deliberations with the stakeholders, following recommendations/suggestions were received by the Committee, which have been classified into three categories:

- **Manufacturing related issues**
- **Financing related issues, and**
- **Policy /regulatory related issues**

3.1 Manufacturing Related Issues

(Stakeholders: FICCI/CII, ASSOCHAM, Indian Solar Manufacturing Association, Wind Independent Power, Indian Wind Turbine Manufacturers Association, Wind Independent Power Producers Association, Indian Wind Power Association, Sun Edison and Lanco)

(For Existing and new capacities)

Sl. no.	Issues	Suggestions/Recommendations/way forward
1	High cost/ low availability of finance	There should be <ul style="list-style-type: none"> • Interest subvention (14%-5%) directly to banks <ul style="list-style-type: none"> - For Existing Units - For New Units during 2014-17 • Long tenure of loan (12 yrs.) by according infra status to solar manufacturing (same as power-gear equipment) • Fund allocation to meet requirements of existing Government schemes (eg. SIPS, M-SIPS, capital subsidy)
2	Absence of supply chain domestically	We should: <ul style="list-style-type: none"> • Incentivize domestic manufacturing of supply chain components • Rationalize tax – remove VAT & CST • Correct inverted duty structure • Extend M-SIPS to entire solar ecosystem
3	Technology gap - efficiencies	There should be: <ul style="list-style-type: none"> • Technology up-gradation fund with sunset clause

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		<p>of 5 yrs.</p> <ul style="list-style-type: none"> • Creation of R&D ecosystem (with Government-industry-academia linkage) for continuous technology upgrade
4	There is lack of adequate demand	<p>There is need to:</p> <ul style="list-style-type: none"> • Develop Domestic Market through DCR for initial 5 years to facilitate development of PV ecosystem
5	<p>Aggressive Dumping of solar cells since middle of 2011</p> <ul style="list-style-type: none"> • All solar manufacturing have been referred to corporate debt restructuring cell BIFR • 80% of cell manufacturing capacity has been shut down • Module manufacturers are operating at 35% capacity utilization 	

3.2 Financing of Solar and wind sectors:

(Stakeholders: SBI, Power Finance Corporation, NVVN, etc.)

Sl. no.	Issues	Suggestions/recommendations / way forward
1.	Lack of reliable long term site specific resource and operational data	<ul style="list-style-type: none"> • Making available operational data of RE projects in the public domain to facilitate informed decision by the sector participants • Setting up more monitoring stations • Updating existing data

Deliberations of the Task Force on Roadmap for India on Solar & Wind Energy beyond 13th Plan

2	<p>Availability of power evacuation infrastructure</p> <p>Seasonality of RE power, Majority of wind generation takes place during a 4-6 months window; solar better, but limited to sun light</p>	<ul style="list-style-type: none"> • Make RE evacuation a high-transmission priority • CERC has accorded ‘Must Run’ status to wind and solar power projects – enforcement. • Availability of an RE project for generation should be treated as ‘deemed generation’.
3	<p>Lending Exposure limits</p> <p>Headroom related constraints in power sector exposure levels of individual lenders</p>	<p>There is need to have:</p> <ul style="list-style-type: none"> • Allocation of separate limits for RE projects • An additional financial instruments to facilitate churning of portfolio
4	<p>Priority Sector status for RE financing</p> <p>Unlike off-grid projects, grid connected projects’ financing not included under Priority Sector</p>	<ul style="list-style-type: none"> • Bank loans to grid-connected RE projects up to 25 MW too may be included under priority sector lending
5	<p>Payment security - precarious financial health of State Utilities - strength of the PPA comes from the credit worthiness of the Discoms</p> <ul style="list-style-type: none"> • Discom’s ability to honour its contractual obligation under PPA • Risk of utility default over the tenure of the PPA 	<p>There should be:</p> <ul style="list-style-type: none"> • Strict FRP compliance for Discoms to ensure their long term viability • Effective open access - enable direct purchase by other large obligated entities • Distributed generation of RE
6	<p>Availability of key facilities – land,</p>	<p>There is a need of</p> <ul style="list-style-type: none"> • Setting up RE parks – bundled facilities - on lease/

Deliberations of the Task Force on Roadmap for India on Solar & Wind Energy beyond 13th Plan

	<p>evacuation, water, input resource data, etc. – in wind sector integrated model being offered by equipment suppliers</p> <ul style="list-style-type: none"> • Acquisition of large tracts of land – a challenge • Hindrance in development of RE projects • Project costs/ risks vary from project to project 	<p>sale model</p> <ul style="list-style-type: none"> • Facilitating approvals/ off take arrangements, etc. largely state oriented
7	<p>Availability of long term funds</p> <ul style="list-style-type: none"> • Assets/ contracts have long lives – require long term funding to bring down costs/ improve risk profile. • Banks have been a major source of debt funding so far. • Are constrained by ALM issues – limits loan tenor - adds to project risks. • Exposes banks to liquidity and interest rate risks 	<ul style="list-style-type: none"> • Long term funds is a necessity • Diversification of sources/ instruments is needed. • Churning of loan portfolio of banks • Banks may be allowed to raise RE bonds – sans SLR/ CRR requirements • Credit enhancement support to improve credit rating & stimulate diversified participation / markets – NCEF could be leveraged through IREDA, select banks, etc. • Support from institutions like ADB, KfW, JICA, etc. – funding/ credit guarantee
8	<p>Availability of Equity</p> <ul style="list-style-type: none"> • Given the uncertainties/ risks and viability related issues, conservatism in DER is preferred – say around 60:40 Or max. 65:35 • Equity constraints are also being faced 	<ul style="list-style-type: none"> • Alternative sources of equity/ quasi equity need to be built up.

Deliberations of the Task Force on Roadmap for India on Solar & Wind Energy beyond 13th Plan

	<p>– developers look for more aggressive debt levels.</p>	
9	<p>Tariff Setting – Preferential tariff norms not uniform</p> <p>Zone based tariff principles not followed by several States</p> <ul style="list-style-type: none"> • Wide range of tariffs among different states - Rs 3.51 in TN to Rs 5.91 per kWh in MP – skewed development of sector. • Impact of inflation/ indexation of cost structures not factored in in preferential tariffs 	<ul style="list-style-type: none"> • Consistent approach to determining preferential tariffs across different states based on capex and operating costs, generation experience and maturity of technology
10	<p>Power Purchase Agreements</p> <p>Lower tenure PPA – (e.g. 13 yrs. in MH) not able to leverage longer project life of 25 years</p> <ul style="list-style-type: none"> • PPAs not signed before commissioning in some states – e.g. Maharashtra, a key wind power state 	<ul style="list-style-type: none"> • There should be a longer tenure PPA • Upfront signing of PPAs eliminating risk for lenders
11	<p>Forecasting and scheduling on day ahead basis</p> <p>Due to intermittent</p>	<p>The guidelines may be reviewed based on actual experience</p>

Deliberations of the Task Force on Roadmap for India on Solar & Wind Energy beyond 13th Plan

	nature of wind power this is a key challenge – may have financial implications	
12	<p>Payment Security</p> <ul style="list-style-type: none"> • Not uniform across PPAs of different States – impacts financing decisions of lenders • Deteriorating health of state Discoms 	Uniform PPAs with payment security mechanism
13	<p>Tariff setting: Two Methods:</p> <ol style="list-style-type: none"> 1. F-i-T 2. Reverse Bidding <ul style="list-style-type: none"> • F-i-T not being determined by states based on uniform methodology (as per CERC) • Reverse Bidding is leading to non-bankable bids - Aggressive bidding – lowest Rs 5.51 / kWh in Karnataka 	<ul style="list-style-type: none"> • F-i-T mechanism has been normally followed globally until the markets mature • CERC recommendations to form basis of tariff setting in all States uniformly • Minimum technical qualification criteria must be stipulated for bankable bids – bidders would not only set up the projects, but also be able to ensure smooth operations
	Other Issues	
1	<p>Diverse PPA formats/terms across states –</p> <p>Risk perception varies – PPA related issues. Bankable PPAs facilitates non-recourse financing</p>	There should be a Standardized PPA across different States.
2	<p>Enforcement of RPO obligations</p> <p>Strengthening of market mechanism</p>	<p>There should be a uniform RPO targets across States</p> <ul style="list-style-type: none"> • Strict enforceability of RPO obligations • Stiff penalties for non-compliance • Compliance monitoring

Deliberations of the Task Force on Roadmap for India on Solar & Wind Energy beyond 13th Plan

	<ul style="list-style-type: none"> • RPO targets adopted across the states are not uniform • Enforcement of RPO is lacking • REC prices have remained subdued with high unsold inventory • APPC+REC route for development of RE sector, as an alternative to F-i-T has not taken off 	<ul style="list-style-type: none"> • REC floor and forbearance pricing to be made more acceptable, e.g. solar floor price appears out of sync • Providing statutory backing to RPOs
3	<p>Land acquisition & Statutory clearances – significant land requirements</p> <ul style="list-style-type: none"> • Short implementation - delays in statutory clearances derail project – tariff linked to specified commissioning schedule • Land acquisition / usage conversion issues 	<ul style="list-style-type: none"> • Unified, light-touch regulation for RE • Single window clearance for RE projects
4	<p>Operations & Maintenance Contract</p> <p>Developers rely largely on equipment suppliers for O&M.</p> <ul style="list-style-type: none"> - Also includes free O&M for stabilization period. <p>Conflict of interest–supplier may not highlight issues in equipment</p>	<ul style="list-style-type: none"> • Specialized agency focused on O&M may be encouraged • This may bring in transparency and more efficiency and may bring confidence in the financial sector
5	<p>EPC Contracts</p> <p>Turnkey EPC contracts may</p>	<p>Own development model in place of turnkey EPC – may</p>

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	not have transparent break-up of components	help to reduce inefficiency of bundling
6	Wind Sites Turbine manufacturers identify wind sites, set up wind masts for data collection and supply data to developers – quality of data leaves much to be desired.	CWET can be made the nodal agency for identification of sites, setting of wind monitoring stations and collection of data
7	Security creation <ul style="list-style-type: none"> Security on forest land cannot be created. 	<ul style="list-style-type: none"> Facilitation letter from forest authorities to be made uniform across States Step-in/ substitution rights be provided.
8	Equipment Certification <ul style="list-style-type: none"> No standardization of equipment – whereas in wind sector, CWET is the certifying agency, no such agency is available for solar. Quality assurance for panels leads to uncertainty over bankability 	<ul style="list-style-type: none"> Solar equipment certification in line with that done by CWET for WTGs Bid documents to stipulate that equipment shall be sourced from empanelled suppliers/minimum technical criteria for equipment

3.3 Renewable Energy Regulatory/Policy related Issues (MNRE/MoP)

MNRE	Issues	Suggestions/Recommendations/way forward
1	RPO percentage	SERCs to specify certain percentage of total energy consumption from renewable in the area of distribution licensee. Ref-(Section 86(1) (e) EA 2003, National Tariff Policy)
2	Feed-in-Tariff	Renewable power procurement should be at preferential tariffs (Ref(National Tariff Policy6.4 (1) (iii))
3	Impact on retail tariff	An Appropriate Commission to fix a minimum

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		percentage for purchase of energy from RE sources taking into account their availability in the region and its impact on retail tariffs . (National Tariff Policy 6.4 (1))
4	RPO applicability to OA/CPP	<ul style="list-style-type: none"> • SERCs to specify certain percentage of total energy consumption from renewable in the area of distribution licensee. • This suggested RPO framework is also applied to OA and CPPs and not distribution licensee alone (Section 86(1) (e) EA 2003, NTP, Rajasthan High Court Judgement 2012).
5	RE certificates	Authorities to issue renewable certificates, which are tradable to enable utilities which are falling short to meet RPO (CERC REC Regulation 2010).
6	Increase in RPO targets	<ul style="list-style-type: none"> • Progressively, the share of electricity from non-conventional sources would need to be increased as prescribed by SERCs (Clause 5.12.2 NEP) • RE injection into the national grid set at 5% at the beginning of FY 2009–10 to be increased at 1% per annum in the subsequent years to reach 15% at the end of FY 2019–20 (NAPCC) • SERCs may set higher percentages than this minimum at each point in time (NAPCC).
7	RPO compliance verification	Central and State Governments may set up a verification mechanism to ensure that the renewables based power is actually procured as per the applicable standard (DMRPS or SERC specified) – (Section 4.2.2 NAPCC)
8	Penal provisions	Penalties for non-compliance of directions by Appropriate Commission (Section 142 EA 2003, Section 4.2.2 NAPCC)
9	Regulatory issues There is ambiguity between cogeneration from fossil fuel and renewable energy (Appellate Tribunal for Electricity has ruled that co-generation from fossil fuel may be considered	There is need to provide policy framework

	for meeting RPOs)	
10	<p>RPO compliance regime</p> <ul style="list-style-type: none"> - No long term visibility (3 to 5 years) - Lack of enforcement of RPO by SERCs- Instead of enforcing penalty, some of the SERCs have waived obligation for past years or carry forward it for future years - Very few SERCs initiated proceeding for enforcement of RPO- Lack of monitoring and verification mechanism for RPO compliance at State level - RPO currently being fixed on RE resource availability in States. Since a part of RPO is to be satisfied through REC mechanism for resource scarce States advisory from CERC to SERCs would help 	<p>There should be long term RPO targets. Like Bihar has projected up to 2022 including Kerala and HP.</p>
11	<p>Proposals for Amendment in Electricity Act 2003 w.r.t. Functions of State Commission</p> <p>To promote cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity</p>	<p>Functions of State Commission</p> <p>We need to promote generation (including co-generation using renewable sources of energy only) of electricity from renewable sources of energy:-</p> <ul style="list-style-type: none"> • by providing suitable measures for connectivity with the grid and sale of electricity to any person; • by encouraging market based instruments such as renewable energy certificate, <p>and also specify;</p>

	<p>with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee</p>	<ul style="list-style-type: none"> • a minimum electricity purchase obligation to be carried out by the obligated entity from renewable sources of energy including through REC, as a percentage of total consumption of electricity; • measures for ensuring compliance of renewable purchase obligation including by way of levy of penalty for non-compliance of such obligation without prejudice to any other penalty under this Act; <p>and also</p> <ul style="list-style-type: none"> • encourage setting up of renewable energy generating plants by conventional power generating companies by introducing instruments like bundling of renewable energy power with conventional power with tariff pass through
12		<p>Other Suggestions:</p> <ul style="list-style-type: none"> • The Central Government ought to publish the National Renewable Energy Policy from time to time. The Ministry of New and Renewable Energy shall bring out this policy at the earliest and update/revise it at regular interval with at least once in 5 years duration (Section 3(2A)); • Exempt RESCOs from distribution licensee requirement. (Section 13); • Central and State Transmission Utility shall provide due consideration and priority to generation capacities based on renewable sources of energy (Section 38& 39); • Exempting renewable energy from cross subsidy and open access charge on sale of electricity generated from renewable energy sources (section 42(2)); • PROVIDED in case of grid penetration in the areas where off-grid renewable energy systems already exists, both the systems may co-exist with independent power distribution network along with the provision of grid integration of the off-grid system by the respective DISCOMS (Section 14) • The Appropriate Commission shall endeavour to promote the development of a market (including

Deliberations of the Task Force on Roadmap for India on Solar & Wind Energy beyond 13th Plan

		<p>trading and forward market) in power and in market based instruments such as Renewable Energy Certificates in such manner as may be specified and shall be guided by the National Electricity Policy and the Tariff Policy referred to in Section 3 in this regard(Section 66 1 (e))</p> <ul style="list-style-type: none"> • Provision shall be made in Annual Revenue return (ARR) for meeting Renewable Purchase Obligation (RPO) shortfall by keeping sum money aside to purchase Renewable Energy Certificates equivalent to the shortfall (Section 142 (a))
MoP	M/o Power has indicated that they are looking at amendments in the Electricity Act to make scope of Renewable Purchase Obligation (RPO) wider and more enforceable	<p>Following changes were proposed by MOP:</p> <ul style="list-style-type: none"> • Long term trajectory for RPO • Incentive structure for distribution utilities for buying renewable energy to compensate for financial and reliability issues • M/o Power may work closely with MNRE to support bundling of conventional power to make RE more affordable • Strengthening of institutional framework for handling Ultra Mega Renewable Power projects • RE should focus on island states to provide reliable and substitute power against diesel in a time bound manner. • DDG through RE sources should also be given preference for electrification of remote areas • On financial issues, RE projects can be considered for priority lending and RFO (Renewable Funding Obligation) can be imposed on the financial institutions
IREDA		<ul style="list-style-type: none"> • Payment Security Mechanism (in view of weak financial health of DISCOMs) • Uniform methodology for tariff setting – SERCs may follow CERC norms • Refining of procurement / bidding process to filter out impractical bids. • Ensuring maintenance of quality standards • Low cost resources though Tax Free Bonds for IREDA • Leveraging NCEF funds through IREDA as announced in the Budget

4.1 Annexure-A

Constitution of Task Force

No.P-11072/4/2013-RE(P&E)
Planning Commission
Power & Energy Division

Yojana Bhawan, Sansad Marg
New Delhi, Dated 24th June 2013

OFFICE MEMORANDUM

The Government has accorded high priority to harnessing of solar capacities in India. Development of the vast solar potential of India requires support of multiple agencies housed in different Ministries of the Government. There is also a felt need to integrate solar power in the electricity grid and provide marketing support to this power. The solar sector needs to build on the satisfactory progress under the Jawaharlal Nehru National Solar Mission, even beyond the 13th Plan period.

2. In the light of the above, with a view to coordinate different activities relating to solar energy, it is found appropriate that the Planning Commission may constitute a Task Force chaired by the Member (Energy).

3. The constitution of the Task Force is as follows:

- | | |
|---|------------------|
| 1. Shri B.K.Chaturvedi, Member (Energy),
Planning Commission | Chairman |
| 2. Chief Economic Adviser, MoF | Member |
| 3. Secretary, Power | Member |
| 4. Secretary, MNRE | Member |
| 5. Secretary DIPP | Member |
| 6. Secretary, DEITY | Member |
| 7. Adviser (Energy) | Member |
| 8. Secretary, CERC | Member |
| 9. Chairman, SBI | Member |
| 10. Director General, FICCI | Member |
| 11. Director General, CII | Member |
| 12. JS, Solar, MNRE | Member-Secretary |

4. The Task Force may co-opt officials from related organizations from time to time.

5. Terms of Reference of the Task Force:

- i) To suggest policy interventions for improving domestic manufacturing.
- ii) To suggest measures to enhance availability of cost-effective finance;
- iii) To ensure effective implementation/strengthening of the REC mechanism;
- iv) To address issues related to evacuation of solar power and development of green corridors;
- v) To seek involvement of State Governments for solar capacity development.

6. The Task Force would submit its report within six months. P&E Division of the Planning Commission will provide secretarial support.

Sd/-
(Rajnath Ram)
Deputy Adviser
24-6-2013

Copy to:

1. Member (Energy), Planning Commission, Yojana Bhawan, New Delhi-1
2. Chief Economic Adviser, Ministry of Finance, North Block, New Delhi-1
3. Secretary, Ministry of Power, Shram Shakti Bhawan, New Delhi-1
4. Secretary, MNRE, CGO Complex, Block XIV, Lodhi Road, New Delhi-3
5. Secretary, DIPP, Udhyog Bhawan, New Delhi
6. Secretary, DEITY, CGO Complex, Block XIV, Lodhi Road, New Delhi-3
7. Chairman, CERC, 3 rd & 4 th Floor, Chanderlok Building, 36, Janpath, New Delhi-1
8. Director General, FICCI, Federation House, Tansen Marg, New Delhi-1
9. Director General, CII CII Central Office, Mantosh Sondhi Centre 23 Institutional Area, Lodi Road, New Delhi-110003
10. CMDs/MDs, CEOs of PFC, IREDA, IFC, L&T, Sun Edison and Lanco as invitees
11. Copy to PS to DCH/PS to Member (Energy)/PPS to Secretary, PC/Shri Anil Kumar Jain, Adviser (Energy)/OSD (Pet).

No.M/12026/10/2008(Coal) Pt.II
Planning Commission
Power & Energy Division

Yojana Bhawan, Sansad Marg
New Delhi Dated September 30, 2013

OFFICE MEMORANDUM

Looking to the vast potential of wind power in India and its robust performance in the recent years, it is found appropriate to consider issues relating to this sector in an inter-Ministerial Committee. Therefore, in continuation to the OM No.P-11072/4/2013-RE (P&E) dated 24th June 2013, the competent authority has decided to extend the mandate of the Task Force on Solar Sector in India to Wind Sector as well.

It has been decided that this "Task Force on Solar and Wind Energy" would invite various associations and bodies associated with wind energy to present their views whenever the Task Force takes up issues relating to this sector. A list of these bodies is annexed. The Terms of Reference of the Task Force would remain same with the replacement of the term "Solar power/energy" in respective paras of the above referred OM by "Solar & Wind power".

suod.
G. S. S.
1.10.13

sd/
(Rajnath Ram)
Deputy Adviser
Tel. 23096728

Annexure- as above

Copy to:

1. Member (Energy), Planning Commission, Yojana Bhawan, New Delhi-1
2. Secretary, Ministry of Power, Shram Shakti Bhawan, New Delhi-1
3. Secretary, MNRE, CGO Complex, Block XIV, Lodhi Road, New Delhi-3

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4. Secretary, DIPP, Udyog Bhawan, New Delhi
5. Secretary, DEITY, CGO Complex, Block XIV, Lodhi Road, New Delhi-3
6. Chairman, CERC
7. Director General, FICCI
8. Director General, CII
9. CMDs/MDs, CEOs of PFC, IREDA, IFC, L&T, Sun Edison and Lanco as invitees
10. Wind Association as per Annexure
11. Copy to PS to DCH/PS to Member (Energy)/PPS to Secretary, PC/Shri Anil Kumar Jain, Adviser (Energy)/OSD (Pet).


(Rajnath Ram)
Deputy Adviser
Tel. 23096728

Annexure

1. WIPPA (Wind Independent Power Producers Association) : Mr. Sunil Jain, 9810518308, sunil.jain@herofutureenergies.com
2. IWPA (Indian Wind Power Association) : K Kasturirangan, 9842255908, chairmaniwpa@windpro.org
3. INWEA (India Wind Energy Association) : Shri V. Subramanium, 9810401174, subra@inwea.org
4. IWTMA (Indian Wind Turbine Manufacturers Association) : Ramesh Kymal, 9840730510, r.kymal@gamesacorp.com

4.2 Annexure B

Minutes of the Meetings of the Task Force

No. P-11072/4/2013-RE (P&E)

Planning Commission

(Power & Energy Division)

Subject: Minutes of 1st Meeting of Member (Energy) led Task Force on Solar Sector held on 09.09.2013

Member (E) in chair. The list of participant is at annexure

At the outset, the Chairman of the Task Force welcomed the participants for the meeting and invited MNRE to make their presentation.

JS (MNRE), while making presentation highlighted various issues pertaining to the solar sector as listed below:

- Importance of enforcing renewable purchase obligations (RPO) by all the States
- Devising plans for financing of solar projects by Banks/Financial Institutions to reduce cost of finance and enhance availability
- Steps required to improve transmission infrastructure and grid integration
- Requirement of Regulatory and Policy framework for promotion of grid connected rooftop PV projects
- Ensuring availability of good quality solar equipment particularly home lighting systems
- Increasing availability of trained manpower and capacity building so as to improve service of the systems installed anywhere in the country
- Steps required for the manufacturing sector to attain self-sufficiency
- Steps required to achieve the targets of JNNSM

The following issues were discussed:

1. Ultra Mega Solar Projects have been identified particularly in Rajasthan. While planning for this, it was felt that one has to simultaneously plan for evacuation infrastructure. DHI representative informed that about 18,000 acre land has been identified around Sāmbhar Lake. A Note in this regard is being circulated for consideration by the Cabinet. Six PSUs such as BHEL, Power Grid Corporation have been taken on board for realising the project.

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2. In rural areas many people use kerosene for lighting and cooking purposes. Solar energy/heating can be a substitute in a big way in rural areas.
3. Department of Heavy industries informed about the proposal to set up larger project in Sāmbhar Lake area and BHEL's intentions to go for manufacturing of panels. If suitable policy mechanism is evolved, it could not only create local value addition but create jobs, too. The Salt pans of Gujarat, Maharashtra and Rajasthan states may be explored for development of large solar projects.
4. JS, MOP stated that transmission of renewable power is being taken up under the project "Green Corridor". MOP is taking action to amend the Indian Electricity Act to increase the penalty for non-fulfilment of RPO and make it mandatory. It was suggested that state representatives should also be taken on board in the Task Force both to hear the version of renewable energy surplus States and also of the deficit ones.
5. The representative from Moserbaer stated that there is no level playing field between then domestic manufacturers and imported Solar equipment manufacturers. He informed that a detailed write up would be sent in this regard to Planning Commission. It was acknowledged that the views of local manufacturers needed to be factored into for a decision on import curbs versus open sourcing.
6. Power Finance Corporation stated that funding is an issue because of poor quality of data pertaining to the solar projects and their viability. Some export independent agencies may be needed for vetting the irradiation data. No satellite data or local project area data are available. In some cases, it is even difficult to establish the data source. A variation of about 35-40% have been noticed in the data. No guarantee is available for quality assurance in the manufacturing side. This is major issue. Levelised tariff is another area of concern. MNRE informed that Solar Energy Centre has been identified as the recognised agency for certifying the data. PFC stated that there remains a problem when PBG is transferred to NVVN. It was also brought out that government guarantee could add project cost, therefore an amicable solution may be found out after mutual consultations.
7. FICCI indicated that better feed-in-tariff along with green production incentive of Rs. 1-2 per kWh may bring many solar projects into stream. Also technology up gradation is required so that domestic industry can match international standards. High interest costs, short term year of repayment were also important issues. FICCI was requested to provide a write up on their recommendations to the Planning Commission.

Deliberations of the Task Force on Roadmap for India on Solar & Wind Energy beyond 13th Plan

8. It was suggested that states having potential of high insolation may also be called for discussions. It is quite important to evolve long term business model keeping in view the capital costs, land acquisition, debt financing, depreciation, price discovery etc. Emphasis should be given for volume maximisation in the states with highest potential as these States could yield the cheapest solar power.
9. It was argued that RPO endorsement provision needs to be made stronger otherwise REC market could collapse.
10. The representatives of the banking sector brought out that Manufacturing solar module/panel has not been found to be viable in the country, as lot of Chinese components are available at lower costs. There is a need to provide support to the industry by the government to make the manufacturing sector viable. It was also pointed out that subsidy should be provided on the manufacturing side to reduce the price of equipment and resultant cost of solar power, so as to enable achievement of grid parity. Discussion was oriented towards how to design the Incentive for large size solar thermal so as to make it viable.
11. IREDA also indicated that there is need to bring down the cost of equipment to help achieve grid parity thereby maximising the installed capacity. It was suggested that IREDA should submit a paper to Planning Commission on how to bring down the cost.
12. Based on the above discussions, it was decided to call for presentation on the following four areas:
 - i. FICCI/CII along with the related manufacturing associations should make a presentation on issues related to manufacturing side
 - ii. NVVN, SBI, PFC and banking sectors should make a presentation to highlight the issues related to funding/financing of the solar projects.
 - iii. IREDA should make a presentation related to states indicating the factors responsible for high performance and low performance. They should also bring out the views of the states and what support was required from the centre?
 - iv. A Presentation on RPO issues, regulatory issues and policy related matters would be desirable. MoP, MNRE and CERC may bring out these issues jointly.

Chairman indicated to finalise the report in next two months.

The meeting ended with vote of thanks to the chair.

Deliberations of the Task Force on Roadmap for India on Solar & Wind Energy beyond 13th Plan

Subject : List of Participants for the 1st Meeting of Task Force on Solar and Wind Energy on 09-09-2013
at 5.00 P.M at Room No.136 Yojana Bhawan

Sl.No	Name (Shri/Ms)	Designations, Organization
1	B. K. Chaturvedi	Member (Energy), Planning Commissionin chair
2	Ratan P. Watal	Secretary, MNRE
3	Shri Saurabh Chandra	Secretary, DIPP, Ministry of Commerce & Industry
4	Shri Satyanarayana	Secretary, Department of Electronics & IT
5	Shri Anil K. Jain	Adviser(Energy),Planning Commission
6	Shri Tarun Kapoor	Joint Secretary, MNRE
7	Ms Jyoti Arora	Joint Secretary, Ministry of Power
8	Dr. Arbind Prasad	DG, FICCI
9	Shri Rita Roy Choudhary	FICCI
10	Shri Rajnath Ram	Dy.Adviser, Planning Commission
11	Dr.S.C Sharma	OSD, Planning Commission
12	Shri Manish Singhal	Head-BD North, L & T
13	Shri A.R.Soni	L&T
14	Shri Debashish Majumdar,	CMD, IREDA
15	Sanyukta Samaddar,	Director, HI
16	Shri R.K. Tandon,	CMD, Hindustan Salts Limited
17	Shri Deepak Puri	Moser Baer-CII
18	Shri Rajesh Menon	CII
19	Shri Satnam Singh,	CMD, PFC
20	Shri Saibaba,	CEO, Lanco Solar
21	Shri Sumant Sinha,	CEO &Chairman, Renew Power
22	Shri P.K. Malhotra,	Dy. MD, SBI, Mumbai
23	Shri W.V.K Krishna Shankar,	Director/IS&P, BHEL
24	Shri C.V.S Murthy	G.M, I/C, BHEL

No. P-11072/4/2013-RE (P&E)

Planning Commission

(Power & Energy Division)

Subject: Minutes of the meeting of “Task Force on Solar and Wind Sectors” under chairmanship of Member (Energy) held on 1-11-2013

Member (Energy) in Chair. The list of participants is annexed.

2. At the outset, Shri Anil Kumar Jain, Adviser (Energy), Planning Commission welcomed the participants and informed that the instant meeting was the first one on the expanded mandate of the Task Force, which would also cover wind sector along with solar energy. The participants in the meeting related to the wind sector, while the members hailing from solar energy sector would be invited next, when the Task Force took up the issues relating to their sector.

3. Member (E) made brief opening remarks and welcomed the participants. He hoped that the Task Force would be able to identify the issues which need to be addressed both by the industry and the Government in order to tap the vast potential of wind resources in our country. Following Member’s remarks, Shri Alok Srivastava, JS, MNRE made a brief presentation on the present status of the wind energy potential and capacity utilization through the different Plan period. He mentioned that the pace of growth of wind energy had slackened during the 12th Plan due to uncertainty on availability of GBI and AD. Consequently, the fresh capacity creation fell to 1700 MW in the first year (2012-13) and even in the present year, the same capacity is likely to be created. With the Government having announced GBI from the beginning of the 12th Plan, the pace of the capacity of the wind power will pick up. He, however, added that there is a felt need for continuing AD and it is likely that during the budgetary exercise for the year 2014-15, this aspect may be addressed by the Government of India. The presentation also highlighted some of the issues which are holding back the growth including land related issues, evacuation related problems and under-availability of finance as well as markets for wind power.

4. Following the above presentation, Member (E) invited the representatives of different organizations to present their views on the subject. The observations of the participants have been captured as below:

Shri Ramesh Kymal, President, India Wind Turbine Manufacturers' Association

5. Shri Kymal observed that the wind turbine manufacturing capacity in the country had grown at a fast pace over the years. The Indian turbines are also known for their quality and India is an exporter of turbines to the entire world including the developed countries. He added that as per the findings of E&Y in a study commissioned by them, it has been found that Indian wind turbines are one of the lowest priced ones in the world. He added that the critical issue before project developers is the poor availability of finance. There is a preference in financiers for balance-sheet based financing and not for IPPs. India could easily achieve the 12th Plan target of 15 GW, as well as NAPCC target of 17 GW capacities by 2020, if RPOs were enforced. As the entire issue was related to financing, there is a need for the Government to set aside foreign exchange savings accruing from the sector by avoiding fuel imports, for financing this sector. He suggested that a sum of Rs.12000 crore was approximately needed to fund the sector and these funds could be rotated annually by a financing agency such as IREDA.

Shri Debashish Majumdar, Chairman, IREDA

6. Shri Majumdar's remarks reflected on the historical origin of RECs stating that the objective of the same was that the sector would be funded by electricity consumers without the need for Government to fund the renewable sector. However, this mechanism has not delivered so far. He observed that due to complex reasons, the power sector as a whole is not seen as bankable any more. The current problem is that renewable energy which otherwise has strong financial fundamentals, has also been clubbed with the power sector. He felt that it would be useful, if NCEF funds could be obtained and blended with debt funds from financial institutions, so that the zero interest NCEF could lead to a lower rate of interest on the blended debt fund. He also recommended that the banks need a different loan window for the renewable energy sector and there is a need to encourage non-recourse financing in the future. He felt that availability of funds was not an issue in the Indian conditions, but it is the mind set of the financiers, who do not find the renewable energy sector bankable due to the larger disdain for power sector.

Shri A.K. Agarwal, Director (Project), PFC

7. Shri Agarwal made two important remarks. He felt that as RPOs were not being enforced, they do not provide comfort to financiers. Therefore, no financing takes place against the scheme of RPO. Secondly, Shri... mentioned that PFC does both recourse and non-recourse financing. He agreed that there ought to be a separate window in the banking sector for funding renewable energy projects. He added that the sector was wrongly maligned as they do not have any NPA for this sector in PFC.

Shri P.K.Malhotra, Dy.MD, SBI

8. Shri Malhotra remarked that it would be incorrect to say that banks are not financing the renewable energy sector and do not distinguish between renewable energy vis-à-vis power sector. However, the banks differ with the risk perception as observed by IREDA/PFC. This is because of the regulatory set up being different between banks and the above institutions. Regardless of the following sector, if payments are not realized by banks in 90 days intervals, the account is rendered NPA. In IREDA/PFC it was 180 days. He added that wind was an attractive sector vis-à-vis the conventional power and it has already achieved grid parity. However, interest payments often do not get paid within 90 days, as due to seasonality, IPP do not have the capacity to pay interest during the lean season. He felt that there was a need for RBI to allow payment in instalments towards interest to be deferred beyond 90 days during the under-resource period of wind and extend it to 180 days. This was supported by IREDA as they have adopted 180 days norm and it was felt that this makes a huge difference in financing by banks vis-à-vis IREDA/PFC.

Shri P.K.Sinha, Secretary, Ministry of Power, GoI

9. Shri Sinha observed that as regards RPO obligations, the issue pertains entirely to enforcement as State Governments go for cheap power, SERCs are influenced into not enforcing the RPOs. He added that the Ministry of Power was considering amendments in the Electricity Act to make RPOs effective. Shri Sinha felt need for focus on larger wind projects, perhaps, in offshore on similar lines as MNRE's proposal to support large solar projects. He added that there was a need to consider how wind and solar could be made amenable to decentralized distribution. He also felt that we have to look at our large Islands, viz., A&N Islands and Lakshadweep Islands, and MNRE may develop renewable energy options in these two islands.

Shri Jami Hossain, Indian Wind Power Association

10. Shri Hussain fully supported the views of the IWTMA and felt that besides the IPPs, the Government also needed to address the concerns of AD investors. This alone could help it to achieve the target of 2500 MW/year capacity addition. He felt, in order to address the grid availability issues, there is a need to identify large areas where resource is rich and then set up evacuation infrastructure in such regions.

Shri Sunil Jain, CEO, WIPPA

11. Shri Jain observed that availability of finance was not the real reason which is holding back the wind sector. While he appreciated need for a separate window for financing wind sector for a sharper focus, but there was no need for sops and the market mechanism could be allowed to play its role. However, the issue that was holding back growth was regulatory uncertainty. There are no long term policy commitments on power purchase, infrastructure policy, tariff fixation, wind capacity auctions, etc. These issues hinder large financial commitments by project developers. There was a need for 5 year policy window so that investors could realize their projects from concept stage to power production stage. He felt that there is a need to have a different statutory mechanism than the Electricity Act for the renewable energy sector. He also added that SERCs need to show their support for RE, as provided in the Electricity Act for this sector.

Shri V. Subramanian, former Secretary, MNRE

12. Shri Subramanian observed that there is a need for the Task Force to look at the issues confronting the SERCs who are rightly responsible for enforcing RPOs and other mechanisms. If need be, MNRE should take a stand consistent with law and place its views before SERCs. Further, the 15% RPO observance by 2020 was largely a NAPCC vision statement, it needs to be given a firm status. He added that there was a need to look at re-powering of the earlier capacity as good wind sites which were taken away earlier, need to be re-powered. May be the Planning Commission should come out with a policy for re-powering. Finally, he added that the State Governments need to look at RE sector as a development agenda in itself, and not ignore it in favour of their power utilities.

Shri W.V.K. Krishan Shankar, Director/IS&P, BHEL

13. Shri Shankar commented that they were already working on RE solution for Lakshadweep, and could introduce 80% RE penetration in less than 10 years in these islands.

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In the end, Member (E) made the following observations:

- i. We need to adopt an aim to introduce up to 80% renewable energy solution in the next 10 years in our islands.
- ii. Member (E) would chair a group with Secretaries in the Ministries of Power and MNRE as well as from the Departments related to renewable energy from two State Governments, which would suggest a road map for effective implementation of RPOs. This group will also look at the regulatory aspects of the wind sector.
- iii. Funding was identified as a major bottleneck and as directed during the earlier meeting of the Task Force on Solar Energy, SBI, PFC and IREDA would give joint inputs on funding aspects.

The meeting ended with a vote of thanks to the Chair.

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Planning Commission

Power and Energy Division

Subject : List of Participants for the Task Force on Solar and Wind Energy 01.11.2013

Sl.no	Name and Designation (Shri /Ms.)	Organization
	B.K Chaturvedi ,Member (Energy)	Planning Commission
	Anil Kumar Jain, Adviser (Energy),	Planning Commission
	Tarun Kapoor Joint Secretary	MNRE
	Alok Srivastava Joint Secretary	MNRE
	Dilip Nigam, Director	MNRE
	Dr. Ajay Kumar, Joint Secretary	Dept. of Electronics
	Shubhra Singh, Joint Secretary	DIPP
	S. Jainendra Kumar, Director	D/O Heavy Industry
	Rajnath Ram, Deputy Adviser	Planning Commission
	Dr. S. C Sharma, OSD	Planning Commission
	Arbind Prasad ,Director General	FICCI
	Rita Roy Choudhary , Sr. Director	FICCI
	Pranav Patel Assistant Director	FICCI
	P.K Malhotra, Dy, MD	SBI Mumbai
	Shashanka Shekhar Panda, Head Public Policy	RENEW Power
	Rasika	CII
	Y.K Sehgal	Power Grid

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	Kashish Bhambhani	Power Grid
	Debashish Majumdar, CMD	IREDA
	A,K Agarwal Director Project	PFC
	W.V.K. Krishan Shankar, Director /IS&P	BHEL
	D.P Bhutani, Principal Advisor	BHEL
	G.S Rotti, GM	BHEL
	Deepak Gupta , Sr. Prog. MGR	Shakti Foundation
	K.R. Nair , Vice President	Indian Wind Power Association
	Jami Hossain , President	-do-
	Ramesh Kymal	Chairman , Indian Wind Turbine Manufacturing Association
	V.Subramanian	Technical Wind Energy Association
	D. V Giri, Secy.	Gas India Wind ...
	Bhaskar Deol	NRDC
	Anjali Jaiswal	NRDC
	R.K Tandon
	Dr. V.S. G Rao	LANCO Solar , Gurgaon
	Dr. Arunabha Ghosh, CEO	Council on Energy , Environment
	Sunil Jain CEO	Hero Future and WIPPA

No. P-11072/4/2013-RE(P&E)

Planning Commission

Power & Energy Division

Subject: Minutes of the Third meeting of the Task Force on Solar and Wind Energy held on 3-12-2013 at Planning Commission.

Member (Energy) in Chair. The list of participants is annexed.

2. Member (E) greeted the participants and recalled the decisions taken in the previous two meetings. He invited the identified associations/agencies to make presentations regarding their recommendations. The salient observations of the presenters were as follows:

(i) Presentation on manufacturing by CII & FICCI

3. A comprehensive presentation on the status of manufacturing of solar and wind power equipments was made. The salient observations were as follows:

- Debt is much cheaper internationally than in India;
- Chinese industry has decimated manufacturing of these equipments not only in India, but on a world-wide basis. They have been helped by Government grants which straight away reduces the cost of manufacturing; and
- Even Government of India needs to extend financial support to this sector perhaps, by erecting some kind of barrier against dumping/cheap import.

4. It was argued that Indian industry has the capability to produce solar panels as per world's best efficiency norms. Hence, encouraging Indian manufactured products over imported ones would not compromise on performance. Member (E) raised several issues on technological improvements globally, efficiency levels, including feedback from industry associations as to what policy intervention was sought to promote roof top SPV. It was responded that various finance instruments including net-metering, inter-state loans for roof top and other such measures would be helpful. Ms Shubhra Singh, JS, DIPP added that the

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new manufacturing policy (NMP) has provisions to promote solar manufacturing in the country. The Department has already identified salt lands and is examining their suitability for promotion of both solar equipment manufacture and solar energy development.

(ii) Presentation on financing by SBI/PFC

4. This presentation was made jointly on behalf of NVVN, PFC and the banking sector. This covered both financial matters as well as policy issues. The presentation covered the following aspects:

- There is Lack of reliable long term site specific resource and operational data
- There is lack of evacuation infrastructure for RE;
- Unbundling of land/EPC/equipment and O&M issues (handling by State agencies in an efficient manner) is needed to bring down costs. Government assistance was sought in arranging land and necessary facilities;
- Enforcement of RPO obligations
- As regards policy framework on financing, their needs to be a bouquet of financial models to choose from;
- There ought to be some "carving out" of funds dedicated for financing this sector;
- State Governments need to create payment security mechanism just like NVVN at the national level;
- Security creation of the assets should be of such type which increases the lender confidence, for recovery of loans, should their be a case of assets to be taken over and transferred to another entity; and
- A need was voiced to examine why the IIFCL's credit enhancement scheme has not taken off. It was also pointed out that imported solar equipment presently does not go through certification. It was argued that this lacuna may be fulfilled.

(iii) The presentation on State Government issues by Shri D. Mazumdar, CMD, IREDA

5. Shri Mazumdar, brought out the issues which hold back the States to realize the potential of wind and solar energy in their respective domains. The major issues raised were as follows:

- The major reasons for low performance by the states were identified as:
 - Inadequate availability of land and solar resource
 - Insufficient State government initiative
 - Conducive long term policies yet to stabilize
 - Delayed payments for power purchase
- To improve the sector outlook and attract investments in these sectors, following were proposed:
 - There should be a Long term stability in policy framework
 - Operational data should be made available from reliable sources
 - There should be strong evacuation infrastructure. Payment Security Mechanism needs to be established in view of weak financial health of DISCOMs
 - A common/uniform methodology should be adopted for tariff setting. SERCs may follow CERC norms
 - There should be refinement in the process of procurement / bidding process so as to filter out impractical bids for award of RE projects.
 - Quality standards should be maintained
 - Low cost resources through Tax Free Bonds for IREDA
 - Leveraging of NCEF funds through IREDA

(iv) Presentation on regulatory matters made by Shri Alok Shrivastava, JS, MNRE and Ms.Jyoti Arora, JS, MoP

6. A joint presentation was presented by MNRE and MoP on the regulatory environment and the studies needed to improve the environment.

- It was stated that there is lack of RPO enforcement by SERCs. States fix RPO targets as per their convenience and not commensurate with the capacity/potential. It was pointed out that long term RPOs were required to provide assurance to the industry;

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- Electricity Act presently includes fossil fuel based generation also in the definition of “co-generation”. Perhaps, this needs to be amended;
- MoP is already considering amendments both in the Electricity Act and Tariff Policy;
- RPOs long term trajectory ought to be put into the Statute itself; and
- It was also mentioned that the new Tariff Policy and Electricity Act provisions had factored in very high price in solar and wind in the REC mechanism. The recent reality of low prices calls for a fresh look

7. Member (E) summed up that the Task Force needs to spell out the strategy for achieving both short term renewable energy target as well as the longer ones, with due place for all stakeholders. He directed that the Task Force may finalize its report on the above two set of recommendations in two submissions. Based on the discussions held so far, he observed that a Sub-Committee may perhaps prepare a report which may be submitted to the Government. The constitution of the Sub-Committee would have Joint Secretaries concerned from the Ministries of MNRE and Power. The Adviser (Energy), Planning Commission may be the Convener of this Sub-Committee which would submit its report by the first week of January, 2014.

The meeting ended with a vote of thanks to the Chair.

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Planning Commission

Power & Energy Division

Subject: List of participants for the Task Force on Solar & Wind Energy-03.12.2013.

Sl.No	Name & Designation (Shri/Ms)	Organization	Contact Nos.
1.	B.K.Chaturvedi, Member (Energy)	Planning Commission	
2.	Shri A.K.Jain , Adviser(Energy)	Planning Commission	
3.	Dr.S.C Sharma, OSD	Planning Commission	
4.	Shri Rajnath Ram,Dy.Adviser	Planning Commission	
5.	Shri Rakesh Shah(Adviser-CERC)	CERC	8750112020
6.	Shri R R Jha	PFC	9868549105
7.	Shri A Chakravarthi, ED	PFC	011-23456687
8.	Shri Sushant Sinha,Chairman	Renewable Power	0124-4896671
9.	Shri J. Arora	M/o Power	011-23710389
10.	Shri Prnay Kumar	M/o Power	01123715250
11.	Shri S B Agnihotri	MNRE	
12.	Shri Alok Srivastava	MNRE	9868107118
13.	ShriP C Maitham, Director	MNRE	9899669312
14.	Shri Dilip Nigam, Director	MNRE	9891184867
15.	Shri Taren Kapoor, Joint Secretary	MNRE	8130461118

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16.	Shri Krishan Dhawan	Shakti Foundation	9910821666
17.	Shri Deepak Gupta	Shakti Sust.Energy Foundation	9958545441
18.	Shri B K Makhija, Director	RREC	9414066789
19.	Shri Rahul Gupta,M.D	Indo Solar	9810210465
20.	Shri P.K. Kheruka,Vice Chairman	Gujarat Borosil Ltd.	9821037435
21.	Shri Subir Sen, G.M	Powergrid	9650293185
22.	Ms Shubhra Singh, J.S	DIPP	9560052144
23.	Samyukta Samaddar,Director	DHI	9918939069
24.	Gururaj Rolli, GM	BHEL	9650235666
25.	Shri W.V.K. Krishna Shanker, Director	(IS &P), BHEL	9810977858
26.	Shri O.P Bhutani, Principal Advisor	BHEL	9810413982
27.	Shri Deepak Puri	Moser Baer	9818156000
28.	Shri Vivek Chaturvedi	Moser Baer	9810174090
29.	Shri Debasish Majumdar,CMD	IREDA	9810563220
30.	Shri V. Saibaba	Lanco Solar Pvt.Ltd	9971067373
31.	Shri V.S Gangadara Rao	Lanco Solar Pvt. Ltd.	9971067373
32.	Shri Vikram Kotru	FICCI	9717840606
33.	Shri Sarvesh Kumar	IWTMA/ASSOCHAM	9810091100
34.	Shri Vineet Mittal	WELSPUN/ASSOCHAM	----
35.	Shri Kalyan Kukherjee,Director	ASSOCHAM	9899061154
36.	Shri Narendra Mishra	ASSOCHAM	9891766968
37.	Disha Banerjee	WELSPUN Energy Ltd	9910446655

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38.	Shri Sanjeev Singhal	State Bank of India	9819799411
39	Shri Rajnish Kumar, CGM	SBI,PFSBV	7506271088
40.	Gulshan Mallik	DGM,SBI,PFSBU	9958799433
41.	Shri Alok Verma	Manager,SBI, Policy	9650114173
42.	Shri N.K.Sharma	CEO,NVVN	011-24361929
43.	Shri A.K.Maggu	GM,NVVN	9650995995
44.	Shri P.K.Mahajan	AGM,NVVN	9650992230
45.	Shri Saurabh Yadav	GM,Suzlon	9873085034
46.	Shri Rajeev Palakshappa	Assc.Fellow,CEEW	9711701932
47.	Shri S.S Panda	Head,Public Policy, Renew	9873305166