FICCI Solar Energy Task Force Report on

Financing Solar Energy



By
FICCI Solar Financing Subgroup

FICCI

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FOREWORD



Financing will be an important pillar for the success of solar energy in India and needs to be addressed with a sense of urgency to enable the objectives of the National Solar Mission to be achieved. The FICCI Solar Energy Task Force has therefore embraced this pillar with high priority and has accordingly set up a Solar Financing Subgroup to deliberate and recommend solutions for channelling cost effective finance to this sector of national importance.

This Report on Financing Solar Energy provides policy recommendations to enable low cost financing and greater accessibility to finance for Solar Energy projects in India. The paper also highlights the barriers to financing for solar energy projects, the financing needs of the sector based on base case and best case scenarios, and the solutions to channel cost effective finance to the sector.

FICCI believes that the success of the National Solar Mission will largely depend on the availability of low cost finance for the solar sector. This report reflects the views of players in the solar value chain and is a result of the collaborative work of the FICCI Solar Energy Task Force after intensive discussions and deliberations. I hope this Report will be useful for policymakers to evolve appropriate financing mechanisms and help shape policy in this direction. I am sure the Report will also be a valuable insight to stakeholders of the solar energy sector in India.

Dr. A Didar Singh
Secretary General
Federation of Indian Chambers of Commerce and Industry

1. Background - Solar Financing in India

Solar Energy occupies a critical place in India's power strategy due to its scalability, easy deployability and availability of abundant sunshine. With declining costs and availability of free fuel resource, Solar Energy can enhance India's energy security, mitigate carbon emissions and also improve economic well-being. India through the Jawaharlal Nehru National Solar Mission (JNNSM) and through various state government initiatives has embarked on a program to support the growth of the industry through large grid-connected and decentralized projects and by providing support for local manufacturing.

However, some challenges need to be addressed. Solar energy projects today require large upfront investment and due to its higher prevailing costs have reasonably long payback periods. Despite favourable policies and support being provided by the Central Government and the State Governments, lenders are reluctant to provide financing for solar power projects. Lenders are wary about off-taker risk with regard to a number of states given their financial health. Additionally, banks in India face structural challenges due to their sectoral exposure limits. Financing of solar projects falls within the power sector which also includes large thermal coal or gas based power plants. The large amount of credit extended to the fossil fuel based power sector has caused banks to reach their respective exposure limits thus limiting their appetite for solar and renewable energy projects.

Given these challenges, the sector needs additional policy and structural reforms and assistance from the Government to empower the lending community to finance solar energy projects. This paper includes critical analysis of these challenges and attempts to put forward few suggestions after gathering inputs from various stakeholders.

2. Assumptions from National Solar Mission

The Jawaharlal Nehru National Solar Mission (JNNSM) targets 20,000 MW or more by 2022 leading to conditions of grid-competitive solar power. Interim JNNSM targets are 1,100 MW by 2013 and reaching 4,000 MW to 10,000 MW by 2017 through the mandatory use of the renewable purchase obligation (RPO) by utilities and backed with a preferential tariff.

S.No.	Application Segment	Target		
		Phase -1 (2010-13)	Phase-2 (2013-17)	Phase-3 (2017-22)
1	Solar thermal collectors	7 million m^2	15 million m^2	20 million m^2
2	Off grid solar applications	200 MW	1,000 MW	2,000 MW
3	Grid power, including roof top and small plants	1,100 MW	4,000 - 10,000 MW	20,000 MW

Source: MNRE, 2013

3. Debt Finance - Domestic Fund & ECB Requirement

For calculating fund requirement for debt, we have assumed 2 cases for grid projects viz. base case (6.7 GW by 2017 and 20 GW by 2022) and best case (9.5 GW by 2017 and 40 GW by 2022). The debt equity ratio assumed is 30:70. We have considered the potential for External Commercial Borrowings (Ecbs) starting at 60% and gradually decreasing to 30% by 2022 as domestic manufacturing increases and simultaneously import percentage decreases.

A. Base Case Scenario

Debt Fund & ECB Requirements										
Base Case (6.7 GW by 2017, 20 GW by 2022)										
Figures in Rs. Crores	JNNSM Phase 1	JNNSM Phase 2				JNNSM Phase 3				
	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22
CAPEX(Rs.Cr/MW)	10	8	7.6	7.2	6.9	6.5	6.2	6	6	6
Capacity Added in MW	950	1,050	1,200	1,400	1,600	1,900	2,200	2,600	3,000	3,600
Total Capex	9,500	8,400	9,120	10,108	10,974	12,380	13,619	15,600	18,000	21,600
Equity (30%)	2,850	2,520	2,736	3,032	3,292	3,714	4,086	4,680	5,400	6,480
Total Debt Requirement	6,650	5,880	6,384	7,076	7,682	8,666	9,533	10,920	12,600	15,120
ECB%	60%	60%	56%	52%	48%	44%	40%	36%	32%	30%
ECB Requirement	3,990	3,528	3,575	3,679	3,687	3,813	3,813	3,931	4,032	4,536

Assumptions for base case include:

1. 1,441 MW of grid connected solar projects as on Mar 09, 2013 as per MNRE data[1]
2. Discount rate of 9% is used[2]
3. Capacity addition for 2014 is obtained by fulfilling 65% target of the RPO gap for FY13-14[3]
4. 20 GW capacity requirement is obtained by considering 60% fulfillment of RPO requirement in FY22[4]
5. Capacity addition is expected to follow a growing trend from Year 2015
6. Capex is assumed to be decreasing by 5% each year till INR 6 Cr in FY20[5]

[1] *State-wise installed capacity data compiled on the basis of information obtained from IREDA, NVVN, State Agencies and Project Developers by MNRE*
[2] *Market Information*
[3] *Solar RPO compliance status, MNRE, 2013*
[4] *Based on the National Electricity Plan for Generation, January 2012; Data from MNRE, 2013*
[5] *The Rising Sun-2. KPMG, 2012*

B. Best Case Scenario

Debt Fund & ECB Requirements										
Best Case (9.5 GW by 2017, 40 GW by 2022)										
Figures in Rs. Crores	JNNSM Phase 1	JNNSM Phase 2					JNNSM Phase 3			
	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22
CAPEX(Rs.Cr/MW)	10.0	8.0	7.4	6.9	6.4	6.0	6.0	6.0	6.0	6.0
Capacity Added in MW	950	1,350	1,700	2,200	2,800	3,500	4,400	5,600	7,300	9,700
Total Capex	9,500	10,800	12,648	15,222	18,018	21,000	26,400	33,600	43,800	58,200
Equity (30%)	2,850	3,240	3,794	4,567	5,405	6,300	7,920	10,080	13,140	17,460
Total Debt Requirement	6,650	7,560	8,854	10,656	12,612	14,700	18,480	23,520	30,660	40,740
ECB%	60%	60%	56%	52%	48%	44%	40%	36%	32%	30%
ECB Requirement	3,990	4,536	4,958	5,541	6,054	6,468	7,392	8,467	9,811	12,222

Assumptions for best case include:

1. Capacity addition in 2014 is obtained by fulfilling 70% target of the RPO gap for FY13-14[3]. 10% additional capacity is considered for sustainability and energy security[2]
2. 34 GW capacity requirement is obtained by considering 100% fulfillment of RPO requirement in FY22[4]. 20% additional capacity is considered on the base of 34 MW for sustainability and energy security totaling up to 40 MW[2]
3. Capacity addition is expected to grow at an increasing trend from Year 2015
4. Capex is assumed to be reducing at 7% year-on-year from CERC 2012-13 specified baseline till INR 6 Cr in FY18[5]

[2] *Market Information*
[3] *Solar RPO compliance status, MNRE, 2013*
[4] *Based on the National Electricity Plan for Generation, January 2012; Data from MNRE, 2013*
[5] *The Rising Sun-2. KPMG, 2012*

C. Off-Grid Scenario

Debt Fund & ECB Requirements										
Base Case (0.8 GW by 2017, 3 GW by 2022)										
	JNNSM Phase 1	JNNSM Phase 2				JNNSM Phase 3				
	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22
CAPEX(Rs.Cr/MW)	14	12.5	10.6	9	7.7	7	7	7	7	7
Capacity Added in MW	100	100	130	160	200	260	330	420	530	670
Total Investment Required	1400	1250	1381	1445	1535	1820	2310	2940	3710	4690
Total Debt Requirement (@60%)	840	750	829	867	921	1092	1386	1764	2226	2814

Assumptions for off-grid include:

1. Capex is assumed to be reducing at 15% each year till INR 7 Cr in 2018
2. Off-grid subsidy is not considered for analysis
3. ECB % will decrease from 60% to 30% due to indigenous manufacturing in the entire value chain
4. Debt funding for grid connected solar projects at 70% and for off-grid at 60% from financial institutions

D. Summary of Financing Requirements

Base case: The total debt fund requirement would be around INR 21,674 Cr on a present value basis for additional 5.3 GW by 2017 and INR 52,249 Cr on a present value basis for additional 18.6 GW by 2022. The ECB requirement would be INR 11,699 Cr by 2017 and INR 22,714 Cr by 2022. The domestic fund requirement would be INR 9,975 Cr by 2017 and INR 29,536 Cr by 2022.

Best case: The total debt fund requirement would be around INR 31,551 Cr on a present value basis for additional 8 GW by 2017 and INR 99,135 Cr on a present value basis for additional 38.6 GW by 2022. The ECB requirement would be INR 19,346 Cr by 2017 and INR 47,617 Cr by 2022. The domestic fund requirement would be INR 12,204 Cr by 2017 and INR 51,518 Cr by 2022.

Off-grid case: The Debt fund requirement would be around INR 2,708 Cr on a present value basis for additional 0.6 GW by 2017 and INR 7622 Cr on a present value basis for additional 2.8 GW by 2022. ECB case would not be feasible in case of off-grid projects. Debt percentage is taken at 60% of the investment required. We have assumed off-grid would reach around 3 GW by 2022.

Figures in Rs. Crores	Base Case		Best Case		Off-Grid case	
	FY17	FY22	FY17	FY22	FY17	FY22
NPV of Debt Requirement	21,674	52,249	31,551	99,135	2,708	7,622
NPV of ECB Requirement	11,699	22,714	19,346	47,617	NA	NA
Domestic Fund requirement (NPV)	9,975	29,536	12,204	51,518	2,708	7,622

4. Financing Challenges

Despite favourable policies and support being provided by the Central and State Governments, solar power financing faces the following major challenges:

1. **Power Sector Exposure Limit:** Most banks have already reached their exposure limits in power sector set by them in pursuance of the RBI guidelines. In addition, there is continual asset liability mismatch due to the long term nature of the solar power plant projects. These factors cause tightness in liquidity and borrowing costs.

2. **Lack of Payment Security / SEB Health:** Though the Centre has provided Gross Budgetary Support of INR 486 Cr towards payment security mechanism under JNNSM giving some comfort to the lenders, deteriorating financial health of the state utilities makes the lenders uncomfortable in financing state sponsored solar power projects. As a result lenders tend to place solar projects in high risk categories and that increases cost of borrowing.

3. **Smaller Size Projects:** To enhance participation by more bidders/developers, solar projects are fragmented into small capacities as compared to traditional power plants and therefore, lenders are reluctant to finance small transactions. Even if finance is available, transaction costs are higher.

4. **Technology:** Solar is relatively new to India. Banks/Development Finance Institutions (DFIs) are still reluctant to invest in technologies that have not been followed closely. Given the perceived technology risk, project finance in solar is yet to take off on a substantial scale.

5. **Lack of On-Ground Insolation Data:** Solar Radiation is a raw material for solar power and any error in solar resource estimation adds uncertainty to the future returns. On ground solar insolation data is sketchy and a database needs to be developed for different locations to give comfort to the lenders. Hence, lack of insolation data results in lenders insisting on (P90 - P95) levels for energy production and revenues.

6. **High Sensitivity to Variable Interest Rates and Impact on Financial Viability:** Variable interest rate impacts the cost of the project to a significant extent as all the investment is upfront and projects are debt funded.

7. **Evacuation Arrangements:** Evacuation of power produced is not possible in case the grid is unavailable or if the evacuation infrastructure is insufficient. Developers need to be compensated by the discom by way of a deemed generation clause in the Power Purchase Agreement. Lenders typically look for a deemed generation clause and if it not there, then this results in a higher interest rate.

In view of the above challenges, developers of solar power projects are finding it difficult to get their projects funded.

The Ministry of New and Renewable Energy (MNRE) is addressing points 3-5 with knowledge sharing of demonstrated technologies, installing monitoring stations on their own as well as through all developers of the National Solar Mission and building scale into the assignment of Power Purchase Agreements (PPAs). However points 1-2 remain a critical challenge for the banking policymakers and some suggestive steps towards addressing these challenges are described below.

5. Steps to Address Financing Challenges

We summarize below the steps that could be considered to increase the flow of funds to the solar energy sector:

A. Making Renewable Energy as an Independent Sector within the Banking / RBI guidelines

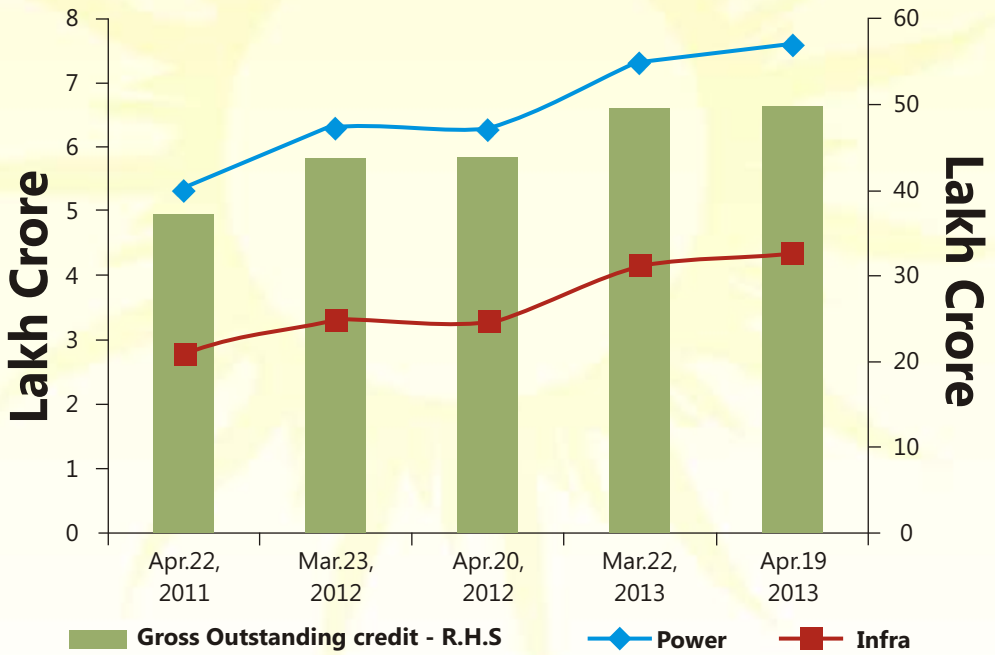
Renewable energy should be considered as a separate sector for measuring sectoral exposure limits by banks. Actual exposure to the power sector varies in banks from 7.5% to 9% of the total gross credit but banks have already reached their respective exposure limits based on their commitments. Removal of renewable energy sector from specific caps for power sector will channel funds to renewable energy projects. Separate caps may be stipulated for each renewable category such as solar and wind.

a) Background

The Indian economy has been growing at a rate of 7.5% over the past 10 years. The power sector has also been growing at a similar rate to contribute to the growth of our economy. The installed power capacity in India has grown from 97,884 MW in March 2000 to 2,23,625 MW in April, 2013 (Central Electricity Authority, 2013). About 68% of the installed generation capacity is from fossil fuels. The contribution of renewable energy sources (other than Hydro) to the total installed power capacity as on April 2013 is only 27,541 MW (12.3%). Under the 12th Plan (2012-2017), it is envisaged to add generation capacity of 75,000 - 100,000 MW, which itself requires huge outlay of funds for the Power Sector.

b) Bank Credit for Power Sector

The growth of Credit (i.e. outstanding) in Power Sector has increased from INR 2,77,576 Cr in April, 2011 to INR 4,35,268 Cr in April, 2013 (credit growth by over 57% in two years) whereas the credit for overall Infrastructure sector has increased by 42% during same period (i.e. INR 5,34,340 Cr in April, 2011 to INR 7,59,481 Cr in April, 2013). During this period the non-food credit has increased only by 33% only (i.e. INR 3,682,918 Cr to INR 4,888,435 Cr).



Source: Sectoral Deployment data from Reserve Bank of India, 2013

Considering the importance of Power Sector, it is evident that its credit growth is higher than overall Infrastructure credit growth. This has resulted in an enhanced power sector portfolio with Banks**.** Furthermore, the power sector needs to grow to achieve the planned growth. It is estimated that an investment outlay of USD 320 billion is needed for the electricity sector (approximately INR 14.5 Lakh Cr at an average debt funding requirement of INR 2 Lakh Cr per year**)** in the 12th Five Year Plan (2012-2017).

The funds available for power sector will be inadequate to support such expansion.

c) Financing Renewable Energy Project under Power Sector exposure limit

As per the prevalent banking practice, advances to renewable energy sector are also accounted in power sector exposure limits. Taking this into consideration, there may not be enough headroom for accommodating renewable energy sector under power sector exposure ceiling norms, which will affect the debt funding of renewable energy sector. Thus this necessitates a paradigm shift of Banks' treatment of renewable energy sector as separate from conventional power sector and having separate exposure ceiling norms.

d) Renewable Energy can be considered as a Separate Sector because of the following:

i. Government Policy Initiatives for Renewable Energy

The governments, both at the Central and State levels, have been providing strong fillip for harnessing renewable energy potential in India. The total grid interactive renewable energy power during the period 2013-17 as projected

by MNRE is approximately 18,000 MW requiring an investment in excess of INR 1,20,000Cr. Some of the significant policy initiatives towards achieving the projected capacities of renewable energy sector include:

- Renewable Purchase Obligation of a minimum of 5% on all distribution utilities
- Trading of Renewable Energy Certificates (REC)
- 10 year tax holiday in a block of 15 years for renewable energy projects
- Generation based incentive for grid connected wind energy projects
- Accelerated depreciation benefits for wind energy projects
- Launching of Jawaharlal Nehru National Solar Mission (JNNSM) for development of solar power projects
- Gross Budgetary support of INR 486 Cr to MNRE as payment security scheme to enable financial closure of projects under JNNSM

These steps have resulted in creation of a favourable business environment for the development of the renewable energy sector. As a result, the total installed capacity from renewable sources has increased from approximately 2,000 MW in March, 2000 to 27,541 MW in April, 2013.

ii. Priority in Procurement for Renewable Source of Energy

A Distribution Licensee is required to meet Renewable Power Obligations for which it has to procure renewable energy, the payment towards power procurement is treated as an operating expense and it is a higher priority expense item. Therefore, procurement of renewable energy becomes a priority item for obligated licensees.

iii. Conservation of Fossil fuels and Altering India's Energy Mix

As per Planning Commission estimates, 1,00,000 MW of power generating capacity is expected to be added in the 12th Five Year Plan, of which 18,280 MW (18%) will be from renewable energy sources. Thus, there is a clear thrust on building the renewable energy capacities in the 12th Five Year Plan. Debt funding of renewable energy projects by Banks will be a major step towards this direction. This will also help in conserving the limited coal reserves of the country.

iv. To promote "Green Banking Policy" of Banks

Financing of the renewable energy projects will help banks to reduce their carbon footprint (from the thermal power projects being financed by the banks) and hence will promote "green banking".

B. Increasing Liquidity through Various Measures

a) Solar Energy Fund

Though Centre has given support to provide Gross Budgetary Support of INR 486 Cr towards payment security mechanism under JNNSM giving some comfort to the lender, deteriorating financial health of the state utilities with losses touching almost INR 82,000 Cr make the lenders uncomfortable in financing state sponsored solar power projects. As a result lenders tend to place solar projects in high risk categories and that increases the cost of borrowing.

Therefore, creation of a larger and dedicated fund that supports any default by state utilities will go a long way in mitigating perceived risk of default. This could be done through budgetary allocation from the National Clean Energy Fund

(NCEF). This could be designed along the lines of the U.S. Loan Guarantee program to enable mitigation of initial risks associated with solar energy growth with an aim to accelerate grid parity. This fund could achieve the following:

1. Provide backstop or credit enhancement for solar projects coming under the National Solar Mission (NSM)

2. Meet the Viability Gap Funding (VGF) requirements of upcoming bids

b) Solar Bonds

Solar bonds would strengthen loan market by creating higher liquidity and mitigating risk. It would allow banks to access long tenor of dedicated funds for the sector. For a bond market, a minimum rating of BBB level is required. To get suitable bond rating, government backing of bonds (structured obligations) through sovereign funds is important. Please see Appendix including SunPower Solar bond and CRISIL municipal bond rating parameters. Power Finance Corporation (PFC) along with Indian Renewable Energy Development Agency (IREDA) can create bonds and fund projects. The Government could also underwrite payment with regards to electricity delivered by developers either through issue of GOI bonds or through creation of special funds specifically designed to minimize the risk. Additionally, Solar bonds could be made tax-free to mobilize bond market.

c) Securitisation

Refinancing of loans or Take-out financing would mitigate Asset Liability mismatch of banks and specialized Non-Banking Financial Company (NBFC) in solar lending. DFIs / Banks / NBFCs should be allowed to use sovereign rating to borrow long term funds in domestic /international markets through issuance of bonds. If

sectoral allocation for power projects has exceeded the bank's cap, the bank can have their loans refinanced through RBI and/or other banks. Further, securitisation of solar loan portfolio would allow banks to reduce risk and invest in new projects. Insurance companies, pension funds should be allowed to purchase solar loan portfolios from banks. Government sponsor agencies could refine, purchase and repackage loans originated by banks/NBFCs for sale with suitable credit enhancement to domestic insurance companies and pension funds. A large project loan could be broken into small pieces to be bought by insurance companies, individuals, banks, pension funds and so forth. This should be backed by Default Guarantee Fund to provide securitised instruments an investment grade character and can be subscribed to even by highly (credit) risk-averse lenders. A good size (critical mass) of solar projects with a lender will enable this mechanism.

d) Construction Loans

Construction loans should be allowed for a 3 year period or longer instead of current 1 year. This would help Engineering, Procurement & Construction (EPC)/Service Providers to receive payment from developers on deferred payment basis over 5 to 10 years.

e) Making Solar a Priority Sector

Current policy for inclusion under priority sectors is based on sectors that impact:

- Large section of the population
- The weaker sections
- Employment intensive sectors such as agriculture, tiny and small enterprises

Given the social and environmental impact of solar projects, it is recommended that RBI may include loans for solar projects under the priority sector similar to the case of education and housing sector. Inclusion of renewable energy projects in the priority sector will give a boost to both on-grid and off-grid applications.

C. Lowering Cost of Borrowing

a) Reducing or eliminating the tax on interest

Conducive taxation policies would enable lenders/sponsors to enhance returns on investments e.g. interest income received by Financial Institutions (FI)/lenders on loan portfolio/ bonds could be made tax exempt. Making interest income non-taxable will enable lowering of coupon rate on such bonds and also attract investors. Renewable Energy or Solar Bonds can function as a viable and attractive vehicle available to investors with tax appetite. These bonds would be appealing given their green attributes.

b) Increasing Access to External Commercial Borrowing (ECB) Funding

Availability of cheap and abundant foreign capital through avenues such as ECBs, Supplier Credit, Participation of Original Equipment Manufacturers (OEM), EPC players, multilateral agencies (IFC, ADB, JBIC, OPIC, EXIM etc.) can raise funds. ECB norms should be further relaxed for Solar projects. Currently, ECBs are not allowed to pay-off existing rupee term loans which could be relaxed. This would help in lowering the cost of borrowing and channelize long-term and low cost funds into infrastructure projects that require long-term and large capital investments. Availability of external capital can help bridge the gap for total debt required for funding solar sector.

c) Reducing Hedging Costs

Hedging costs can be significant and in the range of 3.5 - 5%. These add to the interest rate associated with the ECB funding. Suitable steps taken in the direction of reducing hedging cost will have a direct impact on the financial viability of upcoming solar projects.

D. Steps to Improve Performance of State Utilities

Power utilities in the country face aggregate transmission and commercial losses of around 30% due to unmetered and unaccounted use - the highest in the world. In the past, the financial health of many SEBs has mainly deteriorated due to insufficient cost recovery, inadequate tariffs and high operating costs.

Power Distribution Reform was identified as the key area to bring about the efficiency and improve financial health of the power sector. Consequent to the Ministry of Power taking various initiatives in the past, some of the states restructured their SEBs to achieve financial viability and improve operational efficiency and hence the position was stabilized. In the recent past, there have been some cases of default in payment by distribution companies. According to the **Shunglu Committee** Report, SEB cumulative losses for the five years ending FY10 amounted to INR 82,000 Cr and losses after subsidy stood at INR 27,000 Cr. The reasons are well-known - low tariffs due to political compulsions, high distribution losses and delayed payment of subsidies by governments - all have led to a sharp deterioration in the health of SEBs. The committee has suggested steps to bring them down to INR 22,100 Cr by FY17.

More concerted action is required to be taken to incentivize/disincentivize the distribution entities to improve their operational and financial performance. Some of the suggestions could be as under:-

- Linking of benefits to state utilities under various schemes of the Government (such as Rajiv Gandhi Gramin Vidyutikaran Yojana (RGGVY) and Accelerated Power Development and Reform Programme (APDRP) are grant funded schemes) with the commitment, action and outcome on distribution reform.
- Unallocated power from Central Generating Stations (approximately 8,000 MW) could be used as a tool if the state utilities are not able to improve their performance and financials. Adoption of standardized rating model not only focuses on performance and on the ability to sustain the performance but also incentivizes the relative improvement in performance and at the same time disincentivizes the deterioration in performance.

  Unending extension to the states for reorganization of SEBs which have yet to be unbundled should no longer be resorted to further.

6. Summary of Recommendations

The policy framework put forth by the MNRE through the National Solar Mission has accelerated the growth of the solar industry in India. However, there are some initial challenges seen in financing of solar projects in India originating primarily from the cap in the bank's sectoral exposure limits, risk perception around off-takers (SEBs) and lack of technology and on-ground demonstration data. While the MNRE is taking active steps to address the technology and on-ground risk perceptions through knowledge management and sharing, there is need for structural changes to banking guidelines to allow flow of funds to the renewable energy sector.

The FICCI Solar Energy Task Force (SETF) which includes various stakeholders from the solar industry recommends the following suggestions to address these challenges and collaboratively work for the success of the solar industry in India.

These recommendations include:

1. Making Renewable Energy as an independent sector (separate from Power Sector) as many banks have reached their sectoral exposure limits.
2. Improving Liquidity through a solar energy fund, solar bonds, refinancing by pension/insurance funds, longer duration construction loans and making solar a priority sector.
3. Lowering the Cost of Debt by eliminating the tax on interest received by banks and relaxing ECB norms.
4. Addressing performance of state utilities and improving their fiscal health.

   The FICCI Solar Financing Subgroup sees addressing these challenges as imperative for the growth of Solar Energy in the country and would like to suggest a collaborative approach among various stakeholders including the Ministry of New and Renewable Energy (MNRE), Ministry of Power (MOP), Reserve Bank of India (RBI), the financing community and the industry.

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8. About the FICCI Solar Energy Task Force

FICCI Solar Energy Task Force was launched in March 2010, with the launch of Jawaharlal Nehru National Solar Mission (JNNSM) to provide a platform for the solar energy sector to deliberate on policy and regulatory issues and advance interests of the sector at domestic and global platforms. The Task Force is represented by 32 members from the entire value chain of the solar industry including manufacturers, project developers, system integrators, EPC companies, raw material suppliers as well as the certification agencies. Mr V Saibaba, CEO, Lanco Solar is the current Chairman, and Mr Vivek Chaturvedi, CMO, Moser Baer Solar is the Co-Chairman of the FICCI Solar Energy Task Force.

The Task Force has six Subgroups: Subgroups on on Solar Financing, Securing Supply Chain, Creating Sustainable Demand, Off-grid and Decentralized Solar Applications, Solar Thermal, and Performance Standards, comprising solar industry stakeholders and chaired by industry leaders.

The members of the FICCI Solar Energy Task Force include the following:

- Abengoa Solar India
- ACME Telepower Limited
- Allied Glasses Pvt. Ltd
- Alstom Power
- Applied Materials India Pvt. Ltd.
- AREVA India
- Astonfield Renewable Resources Limited
- Bharat Heavy Electricals Ltd.
- DSM India Private Limited

- Emmvee Photovoltaic Power Pvt Ltd.
- Grundfos Pumps India Pvt Ltd.
- IL&FS Energy Development Company Ltd.
- Indian Oil Corporation Limited (IOCL)
- Kiran Energy
- Lanco Solar
- Larsen & Toubro Limited
- Maharishi Solar Technology (P) Ltd.
- Mahindra Partners
- Moser Baer Solar
- NTPC Limited
- OMC Power
- Photon Energy Systems Ltd.
- Solar Semiconductor Pvt. Ltd.
- Solid Solar
- Sunborne Energy
- Suryachakra Power Corporation Limited
- Tata Power Solar
- Thermax Limited
- Titan Energy Systems Ltd
- TUV Rheinland
- Underwriters Laboratories
- Welspun Energy Limited

9. Acknowledgements

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- Mr Ardeshir Contractor, Managing Director, Kiran Energy (Chair of FICCI Solar Financing Subgroup),
- Dr Vishwesh Palekar, Mahindra Partners (former Chair of FICCI Solar Financing Subgroup)
- Mr Anand Jain, Head-Business Development, Kiran Energy
- Mr Siddhartha Bhargava, Manager-Business Development, Kiran Energy
- Ms Rita Roy Choudhury, Senior Director and Head-Environment, Climate Change, Renewable Energy, FICCI
- Mr Nirbhay Srivastava, Assistant Director-Renewable Energy, FICCI
- Mr Satish Kamat, Formerly with Mahindra Partners
- Mr Sachin Jain, Formerly with Mahindra Partners

We would also like to acknowledge the inputs of senior officials from leading public and private sector banks such as SBI, ICICI, IDBI, IDFC and SBI Caps in the initial phase of development of this Report.

10. Appendix

a) Solar Bonds

Launch Date - December 15, 2010

Banks - Societe Generale and BNP Paribas

Size - € 195.2 million

Developer - SunPower

Project Size - 44MW Montalto di Castro park, Italy; Project was already installed while time of issuing bonds

Tenor - 18 years

Two Classes -

- A1 bonds of € 97.6 million in fixed rate notes paying 5.715% and due in 2028 - are guaranteed by Italian export credit agency SACE and sold to institutional investors and rated Aa2 by Moody's
- A2 bonds of € 97.6 million in fixed rate notes paying 4.839% and due in 2028 - all purchased by the European Investment Bank and rated Baa3 from Moody's
- Societe Generale also provided two 5-year VAT facilities worth € 22 million. The SACE-wrapped A1 tranche, which is rated by Moody's the same as SACE, Aa2, is priced at a fixed rate of 5.715%, equivalent to 445bp over 6-month Euribor (assuming a Euribor rate of 1.26%).

b) How Municipal Bonds are rated by CRISIL

CRISIL's Rating Criteria for Municipal Bonds

CRISIL's Rating Methodology involves an in-depth assessment of the following factors:

- Legal and administrative framework
- Economic base of the service area
- Municipal finances
- Existing operations of the municipal body
- Managerial assessment
- Project specific issues
  - Proposed projects
  - Project tenure and funding patterns
  - Debt servicing requirements due to new projects
  - Existing level of service & improvements envisaged
- Credit enhancement structure
  - Escrow of specific tax revenues:
    - Ensure non co-mingling of cash flows
    - Level of collateralisation
    - Reliability of source (e.g. octroi)

- SG guarantee
  - Credit quality of guarantor
  - Legal validity
  - Conditional/unconditional
  - Irrevocability
  - Trustee's powers to invoke guarantee



Industry's Voice for Policy Change

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