Enabling Low-cost Financing for Renewable Energy in India

SHAKTI
SUSTAINABLE ENERGY
FOUNDATION

CRISIL
INFRASTRUCTURE ADVISORY

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1. Executive Summary

1.1 Background

The objective behind the assignment was to facilitate the availability of low-cost, long-term financing, predominantly debt financing, for renewable energy in India. Towards this ultimate objective, it is essential to understand current finance and banking regulations that determine availability and cost of finance to renewable energy projects, and potential of such regulations (or through amendments) to enable mechanism of low cost finance through targeted and sector specific interventions.

CRIS's methodology for the assignment included the following components

i. Understanding of as is scenario through primary and secondary research of domestic banking and financial section entities
    a. As part of this phase, CRIS engaged with various participants including public sector banks (State Bank of India, Bank of Baroda), infrastructure focused NBFCs (L&T Infrastructure Finance Ltd, IREDA). The discussions with the participants are ongoing and the document is a summary of the findings so far.
    b. CRIS also conducted secondary research including reviewing of annual reports of 10 banks/NBFCs, RBI regulations, ECB regulations, etc.
ii. Secondary research / stakeholder discussion for international experience
    a. For understanding international regulations, CRISIL has reviewed the regulations in four countries – Germany, Spain, UK and USA.
iii. Qualitative analysis through analytical frameworks to draw sector-specific interventions
iv. Industry interactions and stakeholder consultation on analysis of findings / suggestions

As a background, it may be noted that the major lenders to renewable energy sector in the current situation are SBI, IREDA, L&T Infra, IDFC and PTC Financial Services.

1.2 Banking and Finance Sector Regulations

The purpose of understanding banking and financial sector regulations were the following

- *To understanding how banking and financial sector regulations impact availability of financing/credit flow to certain sectors and renewable energy sector in particular?*
- *Whether there are regulations that impact the cost of debt funding across sectors and to specific sectors, and regulatory interventions that could impact such costs*

The key findings from the review of the regulations are the following

- The banking regulations and RBI directives have the power to direct credit to specific sectors and influence the purpose, interest rates, exposure limits, security and other terms and conditions of lending to sectors by banks. The powers are provided for in the Banking Regulations Act 1949 and RBI Act, 1934. While enabling provisions exist, RBI does not follow a policy of directed credit (except for priority sector dispensation) and leaves these factors to be determined by the banks.
- Regulatory agencies can modify policies to prevent overexposure to risky sectors in the interest of reducing the overall systemic risk or to encourage others. One way in which this is achieved is by increasing the risk weight and provisioning norms. Lower risk weights allow the capital costs

to be lower for those sectors; final interest rates for borrowers would be determined by other factors as well.

    - As an example Commercial Real Estate (CRE) Residential Housing Segment attracts a lower risk weight of 75% as compared to 100% for the CRE segment.
    - In the case of infrastructure, investment in securitized paper pertaining to an infrastructure facility satisfying certain criteria attracts only 50% risk weight. This does not favor the developers through, as one of the conditions is that the paper should be rated AAA.
    - Certain categories such as capital market exposure can have risk weights even beyond 100%, going up to 125% or even 150%.

- Regulatory bodies however, do not mandate lending to any sector as the credit decision ultimately lies with the lender who is exposed to the risk. In practice therefore, the exposure to sectors is a function of regulatory directives as well as the banks internal policies and the demand for funds from companies/projects with acceptable risk profiles.
- For e.g., priority sector lending norms for off grid renewable energy projects were indicated not to have increased credit flow to the sector on account of the higher risk perception. Loans given to individuals to set up off-grid solar and other renewable energy solutions for households were allowed to be classified as priority sector in 2012
- Banks prefer to factor in the increased cost for not meeting priority sector obligations in their overall cost rather than lending to risky sectors even if they are in priority sector. With significant portion of the total NPAs being attributed to priority sectors, 16 of the 26 public sector banks, 10 of the 20 private sector banks and 2 of the 41 foreign banks had not achieve the priority sector lending norms during 2012-13. While priority sector norms for foreign banks with less than 20 branches are easily met (through export credit etc.), priority sector norms for foreign banks with more than 20 branches are sought to be made on par with domestic banks over a period of 5 years from April 1, 2013. Part of the priority sector lending requirements are being met through purchase of securitized pools backed by priority sector assets such as commercial vehicles, microfinance, etc.; shortfalls are to be made good through investment in Rural Infrastructure Development Fund (RIDF) instituted by NABARD by domestic scheduled commercial banks and Small Enterprises Development Fund (SEDF) set up by SIDBI.
- Participants were of the view that banking and finance sector regulations have not been responsible for low proportion of renewable energy projects in the lending portfolio for most banks.
- This also ties in to the fact that while there are individual and group exposure norms provided for in the regulations (RBI Master Circular, July 2013), no sector level exposure limits were mandated by regulations and it was indicated that banks may considerer internal limits for sectors. It has been indicated that "*These limits could be fixed by the banks having regard to the performance of different sectors and the risks perceived. The limits so fixed may be reviewed periodically and revised, as necessary".* Hence the internal procedures of banks have to be looked at in conjunction with the banking and financing sector regulations.
- For infrastructure in particular, group exposure limit is relaxed by 10% in the case of lending to infrastructure sector (i.e., 50% instead of 40%). The definition of infrastructure is as per the Annexure provided in the Master Circular on Exposure Norms, which indicated infrastructure to include infrastructure sub sector under different categories as transport, energy, water & sanitation, communication, social and commercial infrastructure, etc.
- Public sector banks are subject to dual regulation, i.e. regulation by the Finance Ministry in addition to RBI; the Nayak committee in report in May 2014 had highlighted this as an issue – the report indicated that the Finance Ministry's directives could be both explicit (through the issue of guidelines) and through undocumented suasion and in the period October 2012 to January 2014

the Finance Ministry issued 82 circulars to public sector banks where as private sector banks are free of dual regulation. The committee has recommended that Government should cease to issue any regulatory instructions applicable only to public sector banks, as dual regulation is discriminatory and that RBI should be the sole regulator for banks, with regulations continuing to be uniformly applicable to all commercial banks.

One of the take-aways is that even if a sector is given additional benefits (e.g. priority sector status), credit flows to the sector via bank lending is expected to increase only if the risk is mitigated or the risk perception is reduced. Given that risk perception is paramount and as lenders vary in their understanding and comfort with renewable energy projects, capacity building to the lenders on renewable energy, associated risks and mitigations measures could help in lowering the risk perception.

In addition to sector allocation, Banking and financial sector regulations also play a role in determining the cost of funds. The Reserve Bank of India influences the overall cost of funds for banks by changing the Repo Rates Cash Reserve Ratio, and other ratios.

- Repo Rate, the cost at which borrow from (or lend to) (currently 8% for repo and 7% for reverse repo) impacts the short term cost of borrowing for banks
- Marginal Standing Facility, another source of borrowing for banks limited up to 2% of their net demand and time liabilities is also available (currently 9%).
- Other ratios such as Savings Deposit Rate (currently 4%), Cash Reserve Ratio (currently 4%), Statutory liquidity ratio (currently 23%) also impact the cost of funds

Under the Base Rate regime which came in place in July 2010, banks have to calculate the Base Rate and provide loans based on this. Banks were free to use any method to calculate their base rates (RBI did provide an illustrative formula), provided RBI found it consistent. Banks were also directed to announce their base rates on their websites, in keeping with the objective of making lending rates more transparent. Currently (as of March 2014), the base rate for banks ranged from 9.5% to 11.50% with most banks having base rate around 10% (it may be noted that this is irrespective of which sector/borrower and applicable for the bank as whole). As specified by the Reserve Bank of India, the lending rates for loans and advances are not permitted to be lower than the Base Rate with the exception of certain categories of loans specified by the Reserve Bank of India. The exceptions are (i) deposits and small-ticket borrowers under the differential interest rate (DRI) scheme (ii) loans to banks' own employees, and (iii) agricultural loans. The DRI scheme was introduced in 1972 and provides concessional interest rate at 4% to weaker sections of the society, with small ticket sizes.

While base rate is common for all borrowers of a bank, the following would be added to the base rate for arriving at the rate applicable for loan to particular borrower

- Tenor premium (an additional slab of interest over the base rate for over a year)
- Risk premium (depending on the risk slot in which a bank places a customer)
- Product premium (cost of administering a particular product)

Another set of regulations pertain to that of NPA classification and provisioning norms. Generally terms loans are considered to be NPA if they have not paid principal/interest for 90 days; depending on the period in which an asset has remained an NPA, they are to be classified as substandard asset, doubtful asset or loss asset. Banks have to provide provisions for these assets which place a cost on them and the longer a loan is an NPA, the higher the provisioning requirements. In addition, for infrastructure projects if the date of commencement of commercial operations is delayed beyond 2 years, it would also be considered an NPA unless it is restructured; this requirement is of less

importance to renewable energy projects because such delays are not expected. It may be difficult to argue for any relaxation of provisioning or classification norms as CRIS view is that these are required for managing systemic risk. More stringent NPA norms for banks as compared to NBFCs were not indicated in interviews to be a major issue in lending to renewable energy sector as proper precautions are taken in the form of debt service reserve accounts to handle temporary mismatches in cash flows.

It may be noted that the NBFCs have different set of regulations as compared to banks. For instance, only NBFCs to which the RBI had given a specific authorization are allowed to accept/hold public deposits, unlike banks. As a result, their cost of funds tends to be higher without access to low cost deposits. There are separate directions on prudential norms, capital adequacy, etc. vide Non-Banking Financial Companies Prudential Norms Directions issued by RBI. The base rate regime is not applicable for NBFCs, although some NBFC(s) (IFCI) has voluntarily adopted base rate below which they would not lend. Further, NPA classification for term loans is at 6 months as compared to 90 days for banks.

From the perspective of renewable energy projects, both the cost of funds for banks and the cost of funds for NBFCs are relevant as projects get funded by both banks and NBFCs. Further, NBFCs borrow funds from banks which are used for on lending, hence the cost of funds for banks have a cascading impact on the ultimate cost of funds.

1.3 Internal Procedures on Sector Allocation and Terms

As seen in the previous section, a corollary to the role of Banking Regulations is how the sector exposure and other norms are set as per the internal policies of banks and financing entities, as either of them or both are expected to be responsible for lending to certain sectors and the terms of such lending including interest rate.

CRIS has reviewed the last 5 years annual reports of 10 entities with representation from public sector banks, private sector banks and NBFCs. The entities include Axis Bank, Bank of Baroda, Bank of India, Canara Bank, HDFC Bank, ICICI Bank, IREDA, IDBI Bank, Punjab National Bank and State Bank of India.

CRIS has compiled the sector exposures as a proxy for the sector allocations. Sector exposures, which are reported publicly by most banks, are a combination of the planned allocation as well as from particular sectors with acceptable risk profiles, and were considered to be a better indicator for our analysis. Further, sector exposure limit is an internal confidential document and not shared by banks; the sector allocation/exposure limit only serves as guidance and depending on business requirements; they can go beyond provided the responsible committees are aware of it and it is transparent.

Table 1: Sector Exposure

Sl no	Sector	Amount (Rs.'000 Bn), March 2014	Growth over previous year
1	Industry	25,229	13.1
1.1	Mining & Quarrying (incl. Coal)	353	2.0
1.2	Food Processing	1,480	26.1

Sl no	Sector	Amount (Rs.'000 Bn), March 2014	Growth over previous year
1.2.1	Sugar	348	5.5
1.2.2	Edible Oils & Vanaspati	213	24.7
1.2.3	Tea	32	25.5
1.2.4	Others	887	37.0
1.3	Beverage & Tobacco	186	12.6
1.4	Textiles	2,040	11.1
1.4.1	Cotton Textiles	1,011	9.3
1.4.2	Jute Textiles	20	–8.6
1.4.3	Man-Made Textiles	216	14.1
1.4.4	Other Textiles	793	13.4
1.5	Leather & Leather Products	103	18.4
1.6	Wood & Wood Products	94	21.9
1.7	Paper & Paper Products	331	17.2
1.8	Petroleum, Coal Products & Nuclear Fuels	635	–1.3
1.9	Chemicals & Chemical Products	1,677	5.3
1.9.1	Fertiliser	306	13.8
1.9.2	Drugs & Pharmaceuticals	492	–0.7
1.9.3	Petro Chemicals	435	–1.4
1.9.4	Others	443	14.7
1.10	Rubber, Plastic & their Products	368	18.0
1.11	Glass & Glassware	87	17.0
1.12	Cement & Cement Products	541	18.0
1.13	Basic Metal & Metal Product	3,620	15.2
1.13.1	Iron & Steel	2,685	13.5
1.13.2	Other Metal & Metal Product	934	20.5
1.14	All Engineering	1,456	13.3
1.14.1	Electronics	367	9.9
1.14.2	Others	1,088	14.6
1.15	Vehicles, Vehicle Parts & Transport Equipment	677	15.1
1.16	Gems & Jewellery	720	17.7
1.17	Construction	614	17.7
1.18	Infrastructure	8,398	15.1
1.18.1	Power	4,883	17.4

Sl no	Sector	Amount (Rs.'000 Bn), March 2014	Growth over previous year
1.18.2	Telecommunications	904	3.0
1.18.3	Roads	1,574	19.9
1.18.4	Other Infrastructure	1,036	9.3
1.19	Other Industries	1,850	2.2

Some of the key observations from the analysis of the exposures of 10 large banks/NBFCs include the following:

- The exposures to particular sectors vary with different banks. This indicates that the lending to certain sectors is not only influenced by the inherent risk or attractiveness of a particular sector but also the lender's ability to assess the risk appropriately and the lender's comfort with the sector.
    - As an example, Infrastructure and Iron and Steel are couple of sectors which contribute high proportion of overall exposures among public sector banks such as SBI, Punjab National Bank and Bank of Baroda. While among the private sector banks like HDFC Bank, ICICI Bank and Axis Bank, financial services/NBFCs constitute high proportion of overall exposures.
    - Similarly, Bank of Baroda has been having fund based exposures to energy sector (electricity generation, distribution and transmission) of 10-20% over the last five years ending FY 2012-13; for SBI, even though exposure is higher in absolute amounts, it comprises between 3 to 6 % of the portfolio over the last five years ending FY 2012-13.
- The differing risk perception of sectors with different entities was also corroborated in one of the discussions where an NBFC indicated that it could take higher exposure to selective renewable energy projects than many other banks because of their better understanding of the associated risks and the parameters which would impact the risk profile.
- Hence it is critical that Capacity Building exercises be conducted to ensure adequate understanding of renewable energy for financiers which could lower the risk perception.

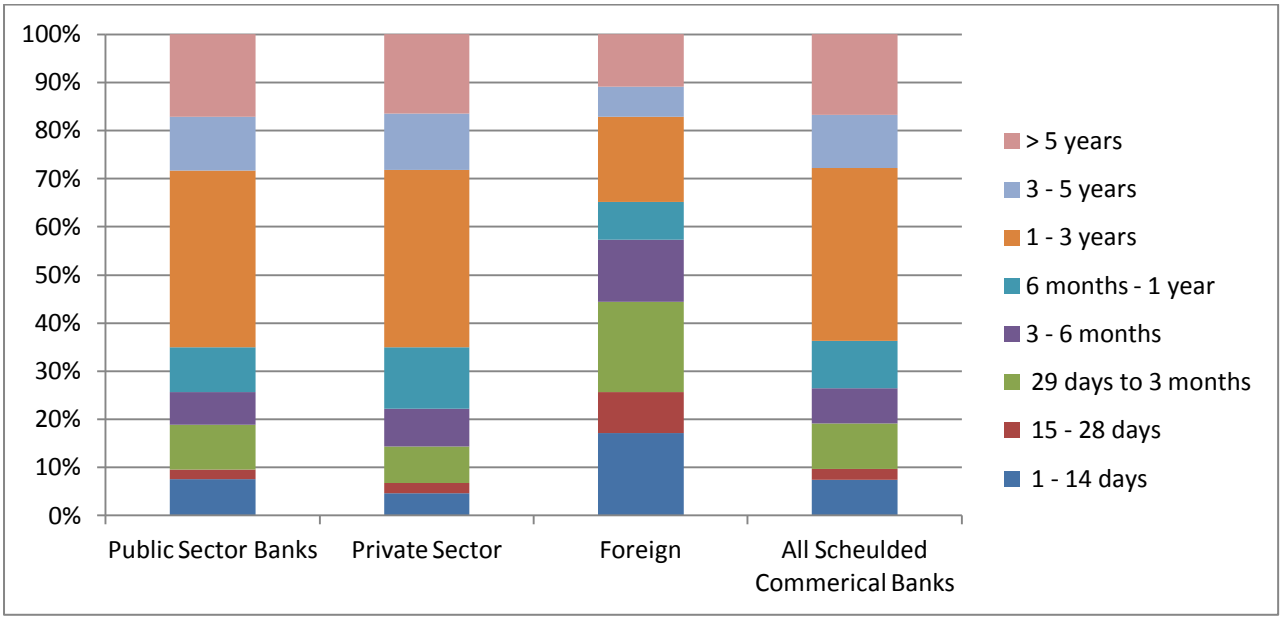
Tenure of loans

- CRIS has analyzed the tenure profile of loans of banks and it was observed that banks have adequate amount of advances with maturity of over 5 years. Most banks have 10-15% of their advances coming from loans with maturity of over 5 years. Axis Bank was an exception and had a higher share (among banks considered) of 42% of advances being from loans with maturity of over 5 years.
- One of the reasons for small proportion in long tenures is due to the liability mix of banks. The majority of deposits and borrowings which constitute the liability side of the bank are short or medium term – As of 2012-13, only 16% and 21% of the deposits and borrowings respectively of all banks in India were over 5 years. Hence for asset liability management, banks asset side portfolios tend to be skewed towards those with shorter tenure.
- Usually, the banks prefer shorter tenures as it reduces the risk exposure whereas the developers favour long term loans to arrange for free cash flow. Current share of renewable energy is small and is not expected to cause large asset liability mismatches. Further, availiability of various fiscal and financial benefits also impact the loan term. Hence, the loan

tenure is driven by cash flow workings as well as certainty and availability of cash flows to meet debt repayments which are also impacted by term of PPA.

- During discussions with banks, it emerged that tenure as such is not a constraint for lending to renewable projects as banks provide long term loans selectively which can be used by renewable energy and other infrastructure projects with long project lives. The deposit base of banks have been constantly growing and therefore there is a minimum deposit which banks can be consider to be available for long term lending and disburse as required.

Figure 1: Tenures



Source: Statistical Tables relating to Banks in India, 2012-13, Reserve Bank of India. Breakup of information beyond 5 years is not available.

1.4 Sources and Costs of Funds for Banks and NBFCs

The sources and costs of funds for banks and financing entities were analyzed to understand the rationale for differences between the costs for different entities and whether there exist areas in which the costs of funds may be reduced at the overall level or for specific sectors.

Sources of funds for banks include the following

- Deposits
  - Current accounts and savings account (CASA)
  - Term deposits
- Borrowings
  - Borrowings from other bank
  - Borrowings from capital markets
  - International borrowings
- Others – Securitization, etc.

Among the different sources, the deposits account for the largest component. For the banking sector as a whole, deposits accounted for 78% of the total liabilities in FY 2012-13, hence the cost of funds

are driven largely by the cost of deposits. The component within deposits that has the lowest cost is the CASA deposits, which accounted for 33% of deposits in FY 2012-13 for the banking sector. High CASA ratios lead to lower overall cost of funds as the bank pays minimal interest rate on such deposits. Some of the banks which have high CASA ratios include SBI (44% in FY 2012-13), ICICI Bank (43%), HDFC Bank (43%), and Axis Bank (43%).

The remaining fund requirements are met by borrowings, both domestic and international

- The domestic borrowings take the form innovative perpetual debt instruments, hybrid debt capital and subordinated bonds. Perpetual bonds do not have any maturity date and give issuers the comfort that equity capital offers in their capital base, which also provides them treatment as part of tier-I capital (Tier 1 Capital traditionally comprise equity instruments, while tier-II capital of a bank comprises debt instruments). While the proportion of borrowings among banks is low, there are exceptions such as ICICI Bank which had 33% of liabilities from borrowings.
- International borrowings also are another source of borrowings. For instance, ICICI Bank has been raising international borrowings with maturity of 6 to 10 years and maximum tenure of 15 years; the last issuance in 2012 had cost of senior bonds of 4.70% to 5.75% and the subordinated bonds at 6.35% to 7.25%. The reasons for limited international borrowings subsequently is likely to be the higher costs of hedging which would make the costs for international borrowing comparable to domestic sources.

The overall cost of funds would be calculated from the weighted average of the costs from different sources – (e.g. deposits constituting 80% to 90% of liabilities and borrowings at borrowings – 10% to 20% with variations between banks). CASA deposits are the cheapest sources of funds followed by other deposits, borrowings, etc.

The overall cost of funds for the 54 banks considered in FY 2012-13 ranged from 4.55% to 8.89% with average of 6.8%. The reasons for the divergence include the proportion of CASA deposits, credit profile of the individual banks, support from government, non-performing assets, capital base, etc.

- For example, banks like ICICI Bank, SBI and Axis Bank which have high CASA ratios have lower overall cost of funds (4.5% to 5.6% in FY 2012-13). All three have the highest ratings on the rating scale from domestic rating agencies.
- On the other extreme, the banks which have higher cost of funds are generally old public sector banks with weaker financial ratios. For instance, Lakshmi Vilas Bank which has CASA of only 15% and with gross NPA of 4.5% is rated A- and the bond raising in FY 2012 was at annualized cost of 11.90% which is on the higher side.

The cost of funds as above is to be distinguished from the base rate. The cost of funds is one component of the base rate, and the formulae for base rate may be decided by the bank. The illustrative methodology for computation of base rate by banks as provided by RBI is the sum of four components – Cost of Deposits/Funds, negative carry on CRR and SLR, unallocatable overhead cost and average return on net worth.

Other factors such as the risk premium, tenure premium etc. impact the final lending rate to borrowers. Hence we have to look at risk assessment of individual projects or companies.

With respect to the financing mix of NBFCs, it is to be noted that NBFCs do not have access to low cost CASA deposits and hence have to rely on loans from banks as well as market borrowings. For instance, IREDA, which is focused on renewable energy, has the following sources of funds

- Secured taxable bonds with maturity of 10 years and interest rate of 8.44% to 9.60%. These are rated high because of 100% GoI ownership of IREDA, regular financial support through equity infusion and Letter of Comfort from MNRE, which enables lower costs of funding.
- Tax free bonds, also guaranteed by GoI (further details in Current Incentives Section) with interest rate of 8.41% to 8.8% with tenure of 10-20 years
- Unsecured term loans from various banks and financial institutions with maturity period ranging from 7 to 16 years and bear a fixed as well as floating interest rate ranging from 7.20 % to 10.25%.
- Funds from NCEF
- International borrowings from multilateral bodies guaranteed by Government of India with maturity period of10 to 40 years and bearing fixed and floating interest rate. However, the fee for sovereign guarantee is not the same for all borrowers, and reduction of the guarantee fee for IREDA could help in reducing cost of funds for renewable energy projects.

As can be observed, the cost of funds for non-banking institutions are on the higher side as compared to banks without access to CASA deposits. Even then, some of the entities had indicated that they are able to offer comparable interest rates to renewable energy projects by having leaner operating structure and management.

Access to lower cost source of funds for particular sectors can be channelized to result in lower cost funding for that particular sector, without impacting other sectors, i.e., match funding. This can be used by both domestic banks and foreign banks. It has been availed of in the following cases

- Refinance scheme of NHB
- Refinance Scheme of NABARD
- Refinance scheme of SIDBI
- FCNR - Foreign Exchange Non Resident (Banks)

The lending rate is at discretion of lender; however having lower cost source of funds allow them to price such loans cheaper, subject to base rate. Thus match funding is possible and benefits of lower costs of funds can be passed on to specific sectors; hence combining commercial and non-commercial sources of capital is also possible to reduce the costs of financing for renewable energy projects even without specific policy interventions.

1.5 Other sources of Debt Funding for RE

While banks and NBFCs continue to be the main source of debt funding for RE, other sources include foreign financial agencies like the US Export Import Bank (EXIM) and the Asian Development Bank. These funds are also generally routed through banks/NBFCs. Reliance on capital markets has been limited, due to less well developed capital markets, especially for lower rated debt.

Further, the debt capital markets had less presence of long term investors such as pension funds which could have matched the tenure requirements of renewable energy projects better. Although India has $80 billion in employee pensions, the investment options were restricted as previously, the government allowed EPFO money managers to invest up to 30 percent of funds in debt of only state-run companies.

In 2013, the Government relaxed rules on corporate bond investments, allowing up to 55 percent of pension funds to be invested in debt issued by companies, banks and state-run financial firms. This is expected to allow greater access to funds for sectors with long term fund requirements such as infrastructure.

1.6 Current Incentives Impacting Financing to RE

While there are many incentives in place which promote renewable energy, there are only few that directly impact the cost of financing. The most prominent among them are indicated below.

- National Clean Energy Fund and soft loans from IREDA - The National Clean Energy Fund was created to support entrepreneurial ventures and research in the field of clean energy technologies with contributions made via a levy of Rs. 50 per tonne of coal. The funds from NCEF are utilized for promoting renewable energy and one of the ways is by providing zero cost funds to Indian Renewable Energy Development Agency (IREDA) to on-lend to banks at 2% which would be further used for on lending to viable renewable energy projects at concessional rate of interest not exceeding 5 per cent. Although IREDA contributes 30% of the debt contribution, the exposure is being taken to the individual banks and not the projects which provide benefits of speedy penetration and risk mitigation for IREDA.

There are some improvements possible in this such as timely receipt of amount so that it could be utilized fully during financial year, providing greater certainty to developers of availability of such low cost funding, etc.

- Tax free bond issuance - Entities such as IREDA, IIFCL, etc. have been permitted by the Government to issue tax free bonds to the public in terms of Section 10(15)(iv)(h) of the Income Tax Act and the CBDT Notification, with interest rate lower than comparable bonds and having long tenures of 10, 15, and 20 years. This provides the entities with cheaper sources of funding which can be used for on lending, and the benefits can be passed on to the ultimate borrower, which in the case of IREDA would be renewable energy projects.

In February 2014, IREDA had come out with tax-free bonds of Rs. 1000 crores with interest rate of 8.4% to 8.8% depending on tenure. The instruments were provided higher rating factoring in GoI's 100% ownership of IREDA, financial support from GoI and Letter of comfort issued by MNRE (GoI). Other infrastructure companies using this route include India Infrastructure Finance Company (IIFCL) and Ennore Port. Given the large size of the issue there is likely to be adequate trading on secondary market which would provide adequate liquidity for investors. The private sector may also be able to issue tax free bonds based on need and capacity, as indicated by Finance Ministry in Budget, and also based on The Central Board of Direct Taxes (CBDT) notification, which is likely in June 2014. This would provide option for infrastructure players with strong credit profile to access cheaper funds via the capital market; but whether renewable energy developers would be able to tap this source directly remains to be seen given their smaller fund requirements and weaker credit profiles without support from GoI. Hence it could be more feasible for tax free bond issuances by IREDA and other financiers for renewable energy rather than by the projects directly.

Multilaterals raising money from foreign markets also help in increasing access for domestic developers. While IFC had selectively lent amount in Indian rupees to few entities (e.g. Sundaram Finance) along with back to back swap counterparties, in October 2013 it raised $1 bn from offshore investors issuing rupee linked bonds in October 2013 at 7.75% with 2 year maturity and using proceeds to finance private sector investment; addressing climate change impact was one of the aims. It plans to issue subsequent rupee bond issuances to finance infrastructure and longer term assets. The benefit of this for the developers is that they have access to international financing through this route without additional hedging requirements.

It is also pertinent to note the regulatory agencies and legislations for provisions (whether sector specific or overall)

- For direct tax related exemptions and benefits (such as tax free bonds, income tax holiday, etc.), the provisions have to be included in the Income Tax Act, or its amendments provided for by the Finance Act. Notifications are issued by Central Board of Direct Taxes (CBDT). The IT Department is part of the Department of Revenue, Government of India.
- Examples include
- For benefit in indirect taxes (such as import duty reductions), provisions for provided for via notifications issued by Central Board of Excise and Customs. This board is the nodal national agency responsible for administering Customs, Central Excise, Service Tax & Narcotics in India, and comes under the Department of Revenue, Ministry of Finance.
- Risk weights, provisioning norms, broad exposure norms for banks/NBFCs are provided for by RBI via RBI Act, Banking Regulations Act and various circulars and notifications. The Board is appointed by the Government of India and 2 directors on the Board of RBI are from the Ministry of Finance.

1.7 Risk Assessment of Renewable Energy Projects

In CRIS's discussions with financiers, it emerged that while absence of fuel supply issues, shorter gestation period, and lower operational costs in renewable power projects make them safer as compared to conventional projects in terms of risk perception, there are other risks associated with renewable projects. One of the key risks is the regulatory risk and the continuity of incentives. While there are mechanisms such as preferential/ feed in tariffs, renewable purchase obligation (RPO), Renewable energy certificates (REC), Income tax holiday – 80IA benefits, Accelerated depreciation (AD), Generation based incentive (GBI), Duty & tax exemption / concessional duty for imports, etc., there are uncertainties in continuity and non uniformities which could be improved.

The following are the key risks associated with renewable energy projects in general

- Regulatory/Policy risk
  - Regulatory risk and continuity of incentives
  - Non uniformity in policy guidelines at central and state levels
  - Uncertainty and divergence in feed-in tariffs approved by SERCs
  - Lack of long-term RPO trajectory and its compliance
- Permitting Risk
  - Land acquisition and forest clearances
  - Lack of forecasting tools and grid management
- Financing Risk
- Operating Risk
  - Financial losses of distribution utilities and non payment
  - Inadequate evacuation and transmission infrastructure
  - Other operational risks such as (CUF degradation, etc.)

Beyond these there are type specific risk factors such as change in wind patterns, lack of database for irradiation for solar projects, etc.

Multiple participants provided the feedback that risk associated with renewable projects, especially the regulatory and policy risk was critical and reducing the risk would help in lowering cost of financing.

1.8 International Experience

CRIS has reviewed the mechanisms supporting renewable energy in Germany, Spain, UK and USA. In Germany, while the common incentive mechanisms are present such as feed in tariff for up to 20 years, capital subsidies up to 40%, investment tax credits, etc., one of the notable mechanism is soft loans financing by KfW banking group (a German government-owned development bank, which is the largest funded of renewable energy projects in developing countries). Credit terms range from 10 to 20 years while interest rates offered are 1% to 2% below market interest levels. The KfW group manages 90% of its borrowing needs via the capital markets, mainly through bonds that are guaranteed by the federal government; the exemption from corporate taxes and unremunerated equity from public shareholders allows it to have low cost of funds and to lend at lower rates than commercial banks. There are also schemes for municipalities, energy service providers and users of the electricity from renewable energy projects.

Incentive schemes in Spain for renewable energy include feed in tariff/guaranteed return[1], utility purchase obligation, investment tax credits, capital subsidies/grants/rebates up to 40%, financing of up to 70% of project investment under public financing scheme with loans at low interest, etc. The public financing scheme was started in 2002 under the Renewable Energy Plan 2000-2010 under which a financing line was provided by the Official Credit Institute (ICO) and the Institute for Diversification and Energy Saving (IDAE) for renewable energies and improving efficiency projects (saving and fuel switching in industry, energy efficiency in buildings, etc.). Spain has drawn back many of the incentives on the wake of deficit in the electricity system, and there are regulatory risks currently; however the financing structures that promoted renewable energy can be considered while also ensuring the sustenance of such support programs. Share of renewable energy in overall electricity consumption had increased from 20% in 2006 to over 50% in some months in 2013.

In the UK, incentive mechanisms include feed in tariff, renewable heat incentive, utility purchase obligation, tradable certificates, capital subsidies/grants/rebates, tax exemptions/rebates, etc. The financial support for renewables was provided for under the National Renewable Energy Action Plan (NRAP) in 2009. The largest loan scheme specifically targeting renewable energy technology investment in the UK was launched in November 2009 by the European Investment Bank in conjunction with RBS, Lloyds Banking Group and BNP Paribas Fortis. The scheme offers onshore wind projects loans totaling £1.4 billion of which EIB provides 50% and the remainder would be matched by the other three banks. The loans are made available to eligible onshore wind projects with a total project cost of between £20m and £100m. EIB is the European Union's long-term financing institution which supports projects promoting EU objectives in energy and climate change mitigation, among others.

In the USA, incentives include feed in tariff, renewable purchase standards, renewable energy credits, net metering policies, renewable fuel standards, renewable energy rebates, grants, exemptions/rebates/credits, etc. The Federal Government has also launched programmes such as clean renewable energy bonds, qualified energy conservation bonds, loan guarantee program, etc.

[1] *The feed in tariff has been suspended for new plants in 2013 and replaced with guaranteed return of 7.5%. As compared to this, India has cost plus tariff at expected return of 16%*

Under Clean Renewable Energy Bonds (CREBs) program, certain public entities such as electric cooperatives and government entities can issue bonds to finance renewable energy projects for which the bondholder receives federal tax credits in lieu of a portion of the traditional bond interest, resulting in a lower effective interest rate for the borrower. The functioning of the Qualified Energy Conservation Bonds are similar to CREBs. Under the Loan Guarantee program, the U.S. Department of Energy DOE is authorized to offer more than $10 billion in loan guarantees for energy efficiency and renewable energy projects (usually more than $25 million) for eligible technologies.

In Brazil, incentives include feed in tariff, REC, reduction in taxes at federal and state levels, soft loans, etc. As a part of promoting renewable energy, Brazilian Development Bank (BNDES) finances up to 80% of total investment with 60% national content requirement – the bank receives funding from international donors such as KfW, Giz, etc. and passes funds to regional banks thereby building capacity of local financing institutions.

A review of the international mechanisms which provide low cost debt financing to renewable energy sector indicates that there are areas which could be considered in India such as the following, greater detail being provided in the next section.

- Soft loans to renewable energy projects
- Government guarantee for lenders to renewable energy projects
- Tax benefits for bond issues of renewable energy projects or tax benefits for purchasers of renewable energy power
- Financing for purchasers of renewable energy, etc.

1.9 Recommendations

Based on a combination of secondary research, input from financing entities and international practices, some of the recommendations for reducing cost of finance for the renewable sector are as below. In many cases there would be an intermediary involved who would be administering the scheme or through funds are channelized. The optimal way in which to ensure benefits are passed on to developers in such cases, and does not lie with the intermediary, is to have adequate competition; for instance, if a benefit is being provided, a few agencies could be allowed to act as intermediaries. Putting limitations on the profit margin or stipulations, etc. may be inadequate mechanisms which also entail higher monitoring costs.

- **Synthesized Products/ New Investors:** Allowing pension funds, insurance companies, and sovereign funds having long term horizons to invest in renewable energy projects through encouraging securitization market; this would allow access to longer term investments via subscription of longer term tranches to such organizations. Domestic pension funds have been recently allowed to invest in corporate debt securities up to a limit and similarly, other investors could also be brought in. However, reducing risks in renewable projects is also important as fiduciary responsibilities of pension funds would remain paramount.
- **Tax free bonds:** Other renewable energy project financiers in addition to IREDA may be allowed to raise capital from market via issuance of tax free bonds, for on-lending to renewable energy sector. Alternatively, the tax credit may be provided to the investor who could net it off against his tax liability. Allowing tax free bonds for private sector developers is already under consideration or expected in June 2014 CBDT notification; however there is required monitoring mechanism to ensure the loss to exchequer is being put to good use. The limit for tax free issuances is currently Rs. 50,000 for FY 2013-14 which is lower than the

previous year, but appears to be adequate as the limit was not reached even in the previous year.

- **Inflation Linked Bonds:** From the issuer's perspective the risk of the fixed rate borrowing is taken by the issuer. A floating rate bond can transfers the risk to the investor and it also matches the lending rates with the borrowing rates over the period of the loan. As compared to pure tax free bonds, where the retail investor interest is also dependent on which tax bracket he is in, inflation linked bonds could help investor have returns in line with inflation or cost of living. In the corporate bond market, both floating and fixed rate bonds are common. Typically floating rate bonds are linked to Mumbai Interbank Offer Rate (MIBOR). If a new benchmark is being used (e.g. CPI inflation), prior approval of RBI is required the first time it is used.
- **Capital Gains Tax bonds:** Capital Gains tax exempt bonds (Section EC54 bonds), currently being allowed for REC and NHAI, providing interest rate of 6% and lock in of 3 years, may be allowed for renewable energy lenders. Option may be provided to investors of higher lock in period with higher interest rates as well.
- **Tradable tax credits** - Tradable tax credits which provide an advantage for developers who do not have corresponding set off against such tax benefits but can sell it to others can also be issued by the developers.
- **Reduction of sovereign guarantee fee**: - Currently differing guarantee fee is levied by Government of India as Sovereign Guarantee fee when funds from ADB and multilaterals are availed of among different public sector entities; there could be case of lowering this for public sector entities/NBFCs involved in financing renewable energy projects.
- **Government/intermediary guarantees**– Currently government guarantees in India are provided to government bodies and agencies and not to private players. However, there could be a rationale for allowing a government agency to provide guarantee for select renewable energy projects in exchange for guarantee fees.

  Alternatively, entities which have higher capability and understanding of renewable energy sector could consider, subject to business rationale, provide guarantee to qualifying projects after credit appraisal in exchange for guarantee fee. In such a case however, the guarantor's credit profile has to be high enough for the guarantee to be beneficial. Alternately, the guarantee could be provided via an adequately capitalized SPV and structures in place to allow the maximum exposure within this corpus. There is already a Credit Guarantee Fund Scheme set up by GoI for Micro and Small Enterprises with small ticket sizes, and similar fund may be carved out of the NCEF for this purpose.

  For the mechanism to work effectively and the funds to be effectively utilized, there should be supporting infrastructure in place to deal with stressed assets as well.

  Currently Partial Risk Guarantee facility is available, but IIFCL is the only player and fees are on higher side; a more competitive market would help in moderating the fees, allowing IPPs to raise bonds from the market with the credit support.

  .
- **Infrastructure Debt fund**: - Currently the Infrastructure Debt fund can lend to PPP projects and such funds have been floated by IL&FS, ICICI Bank, IDFC, India Infrastructure Finance Company (IIFCL) and IDBI. As per the RBI mandate, infrastructure debt funds can invest in projects only after one year of commencement of operations.

  Allowing funding from Infrastructure Debt fund to renewable energy projects that meet well defined criteria even if they are not public private partnerships or to create mechanisms that allow structuring the projects as private public partnerships would help in great access to

finance for renewable energy projects. This would allow longer tenure funds into renewable energy sector. However, on a standalone basis it is unlikely that the credit profile of renewable energy developers would be in high investment grade, hence the ultimate decision for lending would remain with the fund.

- **Improvement in soft loans scheme** - Soft loans under IREDA NCEF Refinance scheme are available through IREDA at concessional rate, however currently there is uncertainty for developers on the availability of such soft loans when project economics are worked out, hence the full benefits are not being able to tapped into and the soft loan scheme only add to the profits of the develop in case he obtains the loan subsequently. An improvement could be made such that MNRE can directly sign a pact with State Governments wherein every project selected under State policies would be provided this benefit via the bank/NBFC from which he obtains the financing, to which IREDA would disburse the funds. It may be noted that there should still not be any promised bank loan and it should be subject to the normal credit process of the banks. Further, the payment timelines to IREDA could be improved so that the full allocation may be utilized during the financial year.
- **Renewable Energy Development Fund** – Similar to the Rural Infrastructure Development Fund (IRDF) of NABARD, a renewable energy fund could be created which would be used for lending to priority sector renewable energy assets (i.e. off grid) and therefore would be considered towards priority sector requirements for banks investing in the fund.
- **Capacity Building**: - Capacity building for lenders in renewable energy projects would help them to understand the risks associated with renewable energy projects better and could lower the risk perception.

  Another mechanism is for the Government/MNRE to empanel a set of agencies who would appraise renewable energy projects. This would provide additional comfort for lenders who do not have full in house capability to assess renewable energy projects.
- **Regulatory certainty and continuity of incentives** – While there are operational incentives such as preferential/ feed in tariffs, renewable purchase obligations, renewable energy certificates, Income tax holiday – 80IA benefits, accelerated depreciation, generation based incentives, etc., they could be harmonized and certainty of continuity assured so that investors have adequate comfort.

Some of the mechanisms which were considered but not being included in recommendations are providing priority sector lending status for renewable energy projects, bank focused on renewable energy sector, allowing banks authority to lend below base rate without approval of RBI, financing for purchasers of renewable energy, etc.

2. Background

The purchase of power from renewable energy sources, beyond the Renewable Purchase Obligations (RPOs) stipulated by the respective State Electricity Regulatory Commissions, is closely linked to the cost of supply of renewable power, and the achievement of Grid Parity by renewable energy sources. While policies of accelerated depreciation, generation based incentives, income tax holidays etc. serve to reduce the cost of energy from renewable power sources, a key component of the cost of energy from renewable power is the cost of capital.

The cost of debt and the return expectations of investors are dependent on multiple risk and financing parameters including length of construction period and operating period, stage of construction, presence of power purchase agreements, Financial health of Distribution Utilities, State of Economy, Risk free rate, Inflation expectations, risk weights applicable to lending banks, type of financing – recourse/nonrecourse, etc. The renewable sector industry could benefit with lower cost of capital, especially debt capital and long term financing.

The objective of the assignment was to understand current finance / banking regulations that determine availability and cost of finance to RE; and potential of available regulations / provisions (or through amendments) to enable mechanism of low cost finance through targeted and sector specific interventions.

3. Scope of Work

The scope of work for the project involved collecting information from key commercial banks, financial institutions (FIs), other funding mechanisms and select bilateral and multi-lateral development banks, and relevant government entities to document the following:

1. Sector-wise, annual allocations made in last five years including:
    - Range of interest rates
    - Range of loan tenors
    - Exposure at project level
    - Typical range of ticket size
    - Historical performance of different sectors in terms of servicing debts
2. Factors that influence setting their:
    - Sector preferences
    - Year-on-year lending decisions at the portfolio level
3. Sources and costs of finance:
    - Sources of finance for these commercial banks, FIs and multi-lateral/bilateral banks
    - Different contributing factors to arriving at their risk-free lending rates – this includes cost at which they borrow capital from their sources, among other factors
4. Procedures followed or contributing factors towards determining:
    - Sectoral exposure limits
    - Sectors to be included in their lending portfolio
    - Positioning of these sectors in their portfolio – whether an independent sector or a sub-sector of another sector
5. The role of current banking regulations or provisions therein towards:
    - Influencing the availability of finance to a particular sector or sub-sector
    - Reducing the cost of borrowing
    - Increasing the loan tenors
    - Enabling financial sops to a particular sector or sub-sector
6. Provisions, whether typical or special, in current Indian banking/financial regulations that may allow or disallow combining non-commercial and commercial sources of capital to lower the cost of borrowing capital
7. Examples of sectors where these kind of arrangements to lower the cost of capital have been developed and operated before and their mechanics (if above is allowed) – this includes both Indian and international experiences
8. Propose possible interventions in policy, regulatory or legislative framework towards creating low cost, long term financing instruments for renewable energy sector
9. Highlight special comforts/assurances that lenders seek from RE projects and key risks involved in requesting special (financial) dispensations for any particular sub-sector (RE in this case) and resultant impacts

4. Domestic Policy and Regulatory Review – Financing

CRIS has reviewed the regulations that impacts the financing to particular sectors, such as the access to financing sources, domestic and foreign, sectoral limits, cost of borrowing, tenure of loans, etc.

4.1 RBI's Power to Control Advances

The Banking Regulations Act, 1949, with subsequent amendments provides powers to RBI to control advances by banking companies. Section 21 of the Act provides as below,

Power of Reserve Bank to control advances by banking companies.-

1) *Where the Reserve Bank is satisfied that it is necessary or expedient in the public interest or in the interests of depositors or banking policy so to do, it may determine the policy in relation to advances to be followed by banking companies generally or by any banking company in particular, and when the policy has been so determined, all banking companies or the banking company concerned, as the case may be, shall be bound to follow the policy as so determined.*

2) *Without prejudice to the generality of the power vested in the Reserve Bank under sub- section (1), the Reserve Bank may give directions to banking companies, either generally or to any banking company or group of banking companies in particular, as to--*

    a) *the purposes for which advances may or may not be made,*

    b) *the margins to be maintained in respect of secured advances,*

    c) *the maximum amount of advances or other financial accommodation which, having regard to the paid- up capital, reserves and deposits of a banking company and other relevant considerations, may be made by that banking company to any one company, firm, association of persons or individual,*

    d) *the maximum amount up to which, having regard to the considerations referred to in clause (c), guarantees may be given by a banking company on behalf of any one company, firm, association of persons or individual, and*

    (e) the rate of interest and other terms and conditions on which advances or other financial accommodation may be made or guarantees may be given.

The guidelines and directives which are analyzed subsequently are in exercise of the statutory power provided to RBI under the Banking Regulation Act. It may be noted that even though it has the power, RBI has moved away from directed lending policies of the past.

4.2 Priority Sector Lending

The Reserve Bank of India has guidelines/instructions/directives to banks on Priority Sector Lending. Master Circular incorporating the existing guidelines/instructions/directives is released in July; some of the key provisions in the Circular released in July 2013 in the context of the current assignment are the following.

- Categories
    - There are six categories under priority sector – agriculture, micro and small enterprises, education, housing, export credit and others.
- Percentage requirement
    - 40 per cent and of adjusted net bank credit target for domestic commercial banks/foreign banks with more than 20 branches (32 per cent for foreign banks with less than 20 branches)
- Consequence of not meeting requirements
    - All scheduled commercial banks having shortfall in lending to priority sector target/sub shall be allocated amounts for contribution to the Rural Infrastructure Development Fund (RIDF) established with NABARD and other Funds with NABARD/NHB/SIDBI/other Financial Institutions, as decided by the Reserve Bank from time to time; the interest rates for such contributions would be decided by RBI. These are generally low at 3 to 6%.
    - Non-achievement of priority sector targets and sub-targets will be taken into account while granting regulatory clearances/approvals for various purposes

There are instances of banks failing to meet priority sector lending targets - As on March 31, 2013 domestic banks (both public and private) were below the target of priority sector lending. During this period, 16 of the 26 public sector banks, 10 of the 20 private sector banks and 2 of the 41 foreign banks could not achieve the target of overall public sector lending," RBI said in its Annual Report 2012-13. As of March 31, 2013 (provisional), the priority sector advances were 36.2%, 37.5%, and 35.1% for public sector banks, private sector banks, and foreign banks respectively.

Priority sector status is given for off-grid renewable projects

6.6. Loans sanctioned by banks directly to individuals for setting up off-grid solar and other off-grid renewable energy solutions for households.

Rates to priority sector may be lower or the same depending on preferences of bank. RBI does not issue any specific guideline on mandating rates for priority sector loans and it is left to the discretion of the bank.

From the interviews, it has emerged that the priority sector lending targets are not met in many cases; but as the credit decision has to rest solely with the bank, it cannot be imposed on the bank; hence many banks prefer to lend to safer assets in non-priority sectors while factoring in the incremental costs for not meeting the priority sector obligations.

It has also emerged during interviews that the priority sector status given for off-grid renewable projects has not increased the financing to these types of projects. There are risks associated with off-grid projects relating to demand predictability and credit worthiness of off takers. Also these have limited scalability and low ticket sizes without regulatory framework and have not attracted interest of financiers.

4.3 Exposure Norms

The Reserve Bank of India's guidelines under the Sector Exposure Norms is consolidated under the Master Circular, July 2013, the provisions of which in the context of the current assignment are the following.

- Reserve Bank of India has advised the banks to fix limits on their exposure to specific industry or sectors and has prescribed regulatory limits on banks' exposure to individual and group borrowers in India
- Ceilings on individual and group exposures
    - The exposure ceiling limits would be 15 percent of capital funds of the bank in case of a single borrower and 40 percent of capital funds in the case of a borrower group.
    - Credit exposure to a single borrower may exceed the exposure norm of 15 percent of the bank's capital funds by an additional 5 percent (i.e. up to 20 percent) provided the additional credit exposure is on account of extension of credit to infrastructure projects.
    - Credit exposure to borrowers belonging to a group may exceed the exposure norm of 40 percent of the bank's capital funds by an additional 10 percent (i.e., up to 50 percent), provided the additional credit exposure is on account of extension of credit to infrastructure projects.
    - In addition, the banks may, in exceptional circumstances, with the approval of their Boards, consider enhancement of the exposure to a borrower (single as well as group) up to a further 5 percent of capital funds subject to the borrower consenting to the banks making appropriate disclosures in their Annual Reports.
    - The exposure limits will also be applicable to lending under consortium arrangements.
- Sector exposures
    - Apart from limiting the exposures to an individual or a Group of borrowers, as indicated above, banks may also consider fixing internal limits for aggregate commitments to specific sectors, e.g. textiles, jute, tea, etc., so that the exposures are evenly spread over various sectors. These limits could be fixed by the banks having regard to the performance of different sectors and the risks perceived

In summary, the sector exposure limits as provided for in current regulations may be decided by the banks subject to overall group/individual exposures which also are fairly large, and unlikely to be a constraint for limiting funding to renewable energy sector.

4.4 External Commercial Borrowing

ECBs refer to commercial loans in the form of bank loans, securitized instruments (e.g. floating rate notes and fixed rate bonds, non-convertible, optionally convertible or partially convertible preference shares), buyers' credit, suppliers' credit availed of from non-resident lenders with a minimum average maturity of 3 years.

Indian companies are allowed to access funds from abroad through External Commercial Borrowings (ECB), Foreign Currency Convertible Bonds (FCCBs), Preference Shares, Foreign Currency Exchangeable Bonds (FCEBS), etc.

There are two routes for ECB, the automatic and the approval route. Under the automatic route, corporates can avail of ECBs, with the maximum amount being USD 750 million, with cost ceiling2 over 6 month LIBOR of 3.5% for 3 to 5 years and 5% beyond five years3. End use includes import of capital goods, interest during construction for infrastructure companies, etc. There were restrictions on utilization of ECB, but currently general corporate purpose is also currently allowed. Prepayments are allowed for ECBs up to $500 mn without prior approval of RBI subject to meeting minimum tenure requirements (3 years).

The approval route for availing ECBs requires permission from RBI and is allowed in special cases. For e.g. companies in the infrastructure sector, are permitted to import capital goods by availing of short term credit (including buyers' / suppliers' credit) in the nature of 'bridge finance', with RBI's prior approval provided the bridge finance shall be replaced with a long term ECB as per extant ECB guidelines4. Repayment of rupee term loans with ECBs requires that at least 75 per cent should be for capital expenditure for new infrastructure project (60 per cent in the case of companies in the power sector).

Vide RBI circular dated 22 July 2010, take-out financing arrangement through ECB, under the approval route, for refinancing of Rupee loans availed of from the domestic banks by eligible borrowers in the sea port and airport, roads including bridges and power sectors.

While the ECB route is accessible to infrastructure sector players, the key risk in availing of external debt is the hedging cost. In CRISIL's interaction with financiers, it emerged that while the un hedged cost of foreign debt is currently very low with LIBOR being less than 1%5, the hedging cost would make it comparable to that of the cost of domestic debt. Further hedging is not available for long period, with the maximum hedge being only for 5 years.

4.5 NPA Classification

The classification and provisioning norms for banks are provided for in the RBI notification - Prudential Norms on Income Recognition, Asset Classification and Provisioning pertaining to Advances

A non-performing asset is considered one interest and/ or installment of principal remain overdue for a period of more than 90 days in respect of a term loan.When an asset remains an NPA for more than a year, banks are to classify it from substandard asset to doubtful asset. Uncollectible loans are to be classified into the loss assets category.

The provisioning norms are as below, applicable for banks

2 All-in-cost includes rate of interest, other fees and expenses in foreign currency except commitment fee, pre-payment fee and fees payable in Indian rupees. The payment of withholding tax in Indian Rupees is excluded for calculation of the all-in-cost.

3 As an illustration, if 6 month LIBOR is at 0.5%, all-in-cost ceiling would be 4% for 3-5 years tenure.

4 Bridge loan may be replaced with Rupee Term Loan as well.

5 6 month Libor in Feb/March 2014 was 0.33%

- For substandard assets
    - 15%
- For doubtful assets
    - 25%/40%/100% depending on upto 1 year/2 years/3 years for secured portion
    - 100% for unsecured portion
- For loss assets
    - 100 per cent

For infrastructure project loans, in addition to 90 days period, if the project does not commence commercial operations within 2 years of original date of commencement of commercial operations, it would also be considered NPA unless it is restructured before this date. Depending on the revised date of commencement of commercial operations, the provisioning requirement can vary from 0.40 per cent to 5 per cent in phased manner.

For NBFCs, the provisions are provided for in Non-Banking Financial (Non - Deposit Accepting or Holding) Companies Prudential Norms (Reserve Bank) Directions, 2007 (Amended upto June 30, 2013). A term loan where installments are overdue for more than 6 months is considered an NPA; to that extent provisioning norms are less stringent. However, NBFCs also have to classify loans as NPAs in case of delayed commencement of commercial operations beyond 2 years, similar to banks.

More stringent NPA norms for banks as compared to NBFCs are not observed to be a major issue in lending to renewable energy sector. While there have been delays, for instance Tamil Nadu had delayed payments for a year; it would impact NPAs for both type of entities. Debt service reserve accounts are put in place to handle temporary mismatches in cash flows.

The financing entity assesses the risk of the project including the off taker risk. Depending on the risk appetite as well as risk taking ability of the financier (banks may have more risk taking ability because of their strong capital base, but some of the NBFCs have more risk taking appetite and less regulatory controls), lending decisions are taken.

From the perspective of renewable energy projects; delay in commencement of commercial operations beyond 2 years is of less importance, as this is not expected; hence the additional provisioning norms applicable for infrastructure projects is not of great concern.

As to the question of whether the NPA classification norms and provisioning norms may be relaxed for renewable energy projects, CRIS view is that these norms are in place to manage systemic risk and linked to performance of the sector, and there is not sufficient rationale to relax these.

4.6 Regulation by Finance Ministry

Public sector banks are subject to dual regulation, i.e. regulation by the Finance Ministry in addition to RBI; the Nayak committee in report in May 2014 had highlighted this as an issue.

Dual regulation, by the Finance Ministry in addition to RBI. The Finance Ministry's directives could be both explicit (through the issue of guidelines) and through undocumented suasion. For instance, in the period October 2012 to January 2014 the Finance Ministry issued 82 circulars to public sector banks. Private sector banks are free of dual regulation.

The committee has recommended that Government should cease to issue any regulatory instructions applicable only to public sector banks, as dual regulation is discriminatory and that RBI should be the

sole regulator for banks, with regulations continuing to be uniformly applicable to all commercial banks.

4.7 Government Schemes – Interest Subvention

Interest subvention schemes has been provided to encourage exports

- With a view to encourage exports, the Government decided to continue to extend interest subvention of 2 per cent on pre and post shipment rupee export credit for certain employment oriented sectors. The provisions are provided for in the Master Circular on Rupee/Foreign Currency Export Credit & Customer Service to exporters.
- Pre-shipment or packing credit refers to credit provided by a bank to an exporter for financing purchase, manufacturing, etc. of goods prior to shipment, while post shipment credit refers to such credit after shipment of goods/rendering of services.
- The eligible industries has increase over time with each new scheme and incudes handicrafts, carpet, handlooms, small and medium enterprises, readymade garments, processed agriculture goods, sports goods and toys, engineering goods (235 items in tariff schedule) etc.
- For prompt paying farmers, additional interest subvention of 3% is provided for from disbursement to repayments (Union Budget - Union Budget - 2013-14 Interest Subvention Scheme)
- Banks are required to completely pass on the benefit of interest subvention, as applicable, to the eligible exporters upfront and submit the claims to RBI for reimbursement duly certified by the external auditor. The subvention would be reimbursed by RBI on the basis of quarterly claims submitted by the banks in the prescribed format.

4.8 Combining Different Sources of Capital

Access to lower cost source of funds for particular sectors can be channelized to result in lower cost funding for that particular sector, without impacting other sectors, i.e., match funding. This can be used by both domestic banks and foreign banks. It has been availed of in the following cases

- Refinance scheme of NHB
- Refinance Scheme of NABARD
- Refinance scheme of SIDBI
- FCNR - Foreign Exchange Non Resident (Banks)

The lending rate is at discretion of lender; however having lower cost source of funds allow them to price such loans cheaper, subject to base rate.

5. Domestic Policy and Regulatory Review – Renewable Energy

5.1 Subsidy on Capital Costs

MNRE subsidy on capital cost is extended to renewable energy projects.

	Special Category States (NE Region, Sikkim, J&K, HP & Uttaranchal)	Other States
Small Hydro Power projects [Upto 25 MW]	Rs 2.25 crores X (C MW)^0.646	Rs 1.50 crores X (C MW)^0.646
Biomass Power projects	Rs 25 lakh X (C MW)^0.646	Rs 20 lakh X (C MW)^0.646
Bagasse: Co-generation	Rs 18 lakh X (C MW)^0.646	Rs 15 lakh X (C MW)^0.646
Bagasse : Co-generation projects by cooperative/ public/joint sector 40 bar & above 60 bar & above 80 bar & above	 Rs. 40 lakh * Rs. 50 lakh Rs. 60 lakh Per MW (maximum support Rs. 8.0 crore per project)	 Rs. 40 lakh * Rs. 50 lakh Rs. 60 lakh Per MW (maximum support Rs. 8.0 crore per project)
Biomass Power using Advanced Technologies	Rs. 1.2 crore X (C MW)^0.646	Rs. 1.0 crore X (C MW ^0.646
Wind Power projects [demonstration, upto 6 MW]	Rs 3.00 crores X (C MW)^0.646	Rs 2.50 crores X (C MW)^0.646

For off grid solar, the capital subsidy is to the extent of 30 per cent of the benchmark cost. Under the project financial criteria, it has to be funded through a mix of debt and incentives where the promoters' equity contribution would be at least 20%. If the project promoter follow all these applicability conditions, MNRE would provide financial support through a combination of 30 % subsidy and/or 5% interest bearing loans to the eligible project.

While capital subsidies are available, many of them are for small projects and have less impact on overall capacity addition in renewable sector. Besides there is time period involved in obtaining approval and receiving payment, and in some cases it is after commissioning of the project where the requirement of subsidy would be less.

5.2 National Clean Energy Fund

The National Clean Energy Fund was created to support entrepreneurial ventures and research in the field of clean energy technologies. The contributions to the NCEF are made via a levy of Rs. 50 per tonne of coal which is collected by the Central Board of Excise and Customs (CBEC). Indian

Government expects to collect INR 10,000 crore under the NCEF by 2015. The Plan Finance II (PF-II) Division of the Department of Expenditure, Ministry of Finance (MOF), is the agency which finalises the modalities of disbursing NCEF money.

However, three years since its creation, there have been a few areas of concern related to NCEF in terms of its underutilization, appraisal process and evaluation framework, monitoring mechanism and non-alignment of guidelines with objectives of the fund. There is a need to identify a well-defined mechanism for prioritizing project selection and engage in regular consultations with various stakeholders. Taking into consideration the substantial investments required in R&D, it is of utmost importance to use NCEF for providing support to development of renewable / clean energy projects, to reduce cost of capital, to finance big-scale projects such as green corridors for transmission; and to implement integrated forecasting measures for renewable energy.

In the context of financing renewable energy projects, the funding mechanism could be use domestic private investment and international resources and markets, as well while also allowing projects to use multiple sources of funding support including NCEF.

A recent update on NCEF is that the Cabinet Committee on Economic Affairs has approved the proposal to amend the guidelines for appraisal and approval of projects eligible for financing under NCEF, by which existing and eligible appraised and approved schemes / programmes for renewable energy sector will get financing from the NCEF. This will allow “Grid Interactive and Distributed Renewable Power” and “Research Design, Development in Renewable Energy” programmes of MNRE to be financed from NCEF.

The NCEF is an important source for lowering cost of financing for renewable energy sector and mechanisms could be considered utilising proceeds from NCEF.

5.3 Soft loans from IREDA

MNRE and the Indian Rural Energy Development Agency (IREDA) had issued guidelines for financing wind energy projects, applicable from 3rd February 2009. The repayment period is for 10 years with moratorium of 1 year and promoter’s equity contribution requirement of 30%.

In the Union Budget of 2013-14, the Government indicated it would provide low interest bearing funds from the National Clean Energy Fund (NCEF) to Indian Renewable Energy Development Agency (IREDA) to on-lend to viable renewable energy projects at concessional rate of interest. The scheme will have a life span of five years. The scheme currently is as follows

- Subsidised debt at 5 per cent interest rate is provided for renewable energy projects from select banks which have agreement with IREDA which provides loans to these banks at 2 per cent with condition that it would be used for funding renewable energy projects at cost not exceeding 5%.
- The National Clean Energy Fund is utilised for the same from which funds are obtained at zero interest.
- IREDA i contributes 30% of the debt contribution (typically 70%), i.e. 21% of overall project cost, with the exposure being taken to the individual banks and not the projects; balance 49% would remain with the bank.

The mechanism of tying up with banks for the same allows faster penetration of the scheme across projects in India.

Rs. 12500 crore is allocated over 5 years for this, which could support a capacity addition of 2000 MW considering Rs. 6 cr/MW.

The benefit to developers of low cost debt via IREDA is substantial. However, developers as of now do not have certainty that the debt at subsidised rates would be available and hence would not be able to factor it in their pricing.

The amounts are also granted to IREDA towards the close of the financial year which is another bottleneck for fully utilising the available funds.

5.4 Tax Free Bonds

Tax free bonds – Entities such as NHAI, IREDA have been able to come up with public issue of tax free bonds; with interest rate lower than comparable bonds. These are in various tenures such as 10 years, 15 years, 20 years, etc. This provides such entities which cheaper sources of funds for on lending, and the benefits can be passed on to the ultimate borrower, which in the case of IREDA would be renewable energy projects. The interest rate for the bonds of IREDA is 8.8 per cent.

The tax free classification is in terms of Section 10(15)(iv)(h) of the Income Tax Act and the CBDT Notification.

5.5 Feed in Tariffs

Feed-in tariffs are one of the most effective policy instruments that help in encouraging the rapid development of renewable energy sources and more specifically wind energy in India. Indeed, going by European Commission update on renewable energy policies in the European Union (EU), ‘‘well adapted feed in tariff regimes are generally the most efficient and effective support schemes for promoting renewable electricity’’. The basic idea behind feed-in tariff policies is to offer guaranteed price for fixed periods of time for electricity produced from renewable energy sources. Such price can be differentiated based upon the type of technology, the size of the installation, the quality of the resource, the location of the project, as well as a number of other project-specific variables, which boosts investors’ confidence and promote them to make new investments in the sector.

Feed-in tariffs allows reasonable return and reduces the revenue risks of investing in renewable energy technologies significantly and develops a favorable environment for promoting rapid market growth.

Different States have adopted different methodologies to determine the feed in tariff.

- Fixed price model approach with full or partial inflation adjustment is the approach which is being used as in case of Maharashtra and CERC. Inflation adjustments guard renewable energy developers against a decline in the real value of project revenues by tracking changes in the broader economy. Further tariffs have been defined specific to wind zones as well. This methodology offers greater returns for investors as the tariff in the State of Maharashtra is the highest in the country.
- Few States, unlike Maharashtra, have adopted a fixed, minimum price at which the electricity generated from wind generator (installed during a control period) would be bought for a contracted period of time, and would be fixed for the duration of the contract, irrespective of the retail price of electricity. The fixed price model therefore remains independent of other variables, such as inflation, the price of consumables, etc. The tariff in these States is

compensated for the absence of external inflation adjustment by including it in its assumptions as part of tariff calculation methodology adopted by different States.

While feed in tariff provides some level of certainty of pricing, most of the major wind states vary in their approaches for determination of tariff. In order to offer greater value for the investors, such States should follow a coherent approach for aligning their tariff determination approach with CERC methodology.

However, the notified CUFs by the respective SERCs still remain a debatable issue. Further, there have been instances where utilities have backtracked on purchase on the availability of cheaper sources of power supply. Hence the benefits of feed in tariffs could be further improved. As it provides certainty, feed in tariffs have potential of reducing risk perceived by investors and therefore reducing their return expectations, thereby lowering cost of capital.

5.6 Other Incentives

There are other benefits provided for renewable energy projects, other than those which lower the cost of debt/capital directly. These serve to enhance returns or provide certainty which is expected to reduce risk, and therefore return expectation and hence indirectly could reduce cost of capital. Brief impact of these incentives is given below; detailed section is provided in Annexure.

Accelerated Depreciation: Accelerated depreciation has been instrumental in large capacity additions of wind energy in the past, independent SPVs derive little benefit from accelerated depreciation due to lack of profits in initial years against which the accelerated depreciation benefits can be obtained. Further, the benefits of tax reduction are not transferrable to another entity; and MAT would still have to be paid. Current Applicability: Solar, Small Hydro.

Income Tax Exemption: Infrastructure projects are exempted from paying corporate tax for 10 continuous years within the first 15 years of commercial operation under Section 80 IA of the Income Tax Act.

GBI: This scheme provides an incentive of Rs. 0.50/kWh through IREDA with a total cap of Rs. 6.2 million/MW spread over a minimum of 4 years (i.e., an annual cap of Rs. 1.55 million/MW). While continuity of GBI for parties who have availed it is certain till 12th plan, key issue is disbursement of GBI funds as MNRE faces budget constraints from Ministry of Finance.

RPO: -

The RPO regulations were launched by Central Electricity Regulatory Commission (CERC) in order to meet NAPCC targets of consumption from renewables to the tune of 15% by 2020. Subsequently, the RPO scheme was adopted by various State governments for specifying obligated entities to procure a minimum percentage of renewable energy on annual basis. Under the RPO framework, non-compliance of RPO attracts penalties on such entities.

The key issues in RPO are that enforcement is not made; and there is no long term trajectory of RPO.

REC:

REC mechanism was implemented in December 2010 in order to facilitate states with low renewable potential / capacity to comply respective stipulated RPOs. However, the quantity of unredeemed RECs have almost tripled in last one year. Further, the mechanism has witnessed implementation challenges. Some power-starved states as well as utilities are willing to buy power instead of purchasing RECs. Financial institutions are also hesitant in lending to projects based on RECs

scheme. At the same time, there have also been some cases where REC mechanism has given way to extra / supernormal profits to certain generators. Demand-supply mismatch, absence of long term certainty in terms of price (beyond FY 2016-17) & availability, concerns of project financers are some of the major issues which have diverted developer's interest from REC based sale of power. Thus, in the current format, applicability of this mechanism is a matter of concern that requires immediate attention.

6. Sector Wise Allocations and Others

6.1 Background

CRIS has analyzed sector wise exposures and other details for financiers including nationalized banks, private sector banks, NBFCs etc. One of the key purposes behind the analysis is to look at any sectors which have seen increased allocation over the years in relation to the overall portfolio. For the analysis, CRIS has compiled information from annual reports and other reports in public domain along with interaction with bank officials.

We have also analyzed the cost of funds for the financiers and factor driving them.

Table 2: Financiers active in renewable sector

Type of Investor	Category	Total Registered in India	Active in Renewable Sector	Percentage of Bank Transacting in RE sector
Commercial Banks	Public Sector Banks	26	9	35%
	Private Sector Banks	30	6	20%
	Foreign Banks	37	-	0%
Equity Investors	Private Equity	51	16	31%
	Venture Capital	180	21	12%
Institutional Investors	Insurance Funds	24	11	46%
Development Banks	Development Financial Institutions	3	3	100.00%

As can be observed, a number of large financing sources are not participating in RE projects. Capital market access is also limited expected primarily due to low ticket size of renewable energy projects funding which is more easily met by banks and NBFCs. Disclosure norms are also stringent for capital market financing.

6.2 Sector Preferences and Procedures

Some of key responses obtained on influencing sector preferences are provided below

- Sector allocations are based on internal bank policies in conjunction with RBI caps. Sanctions are also counted towards exposure internally, which is different from outstanding exposure generally reported; Limits applicable on both sanctions and disbursements. Allocation to sectors changes based on risk perception
- Sector wise allocations are derived from risk management guidelines, RBI guidelines and current industry trends. Government policy including regulations, incentives, etc., market demand-supply scenario, bank's risk perception for a particular sector, historical performance

of the sector etc. contribute to the sector wise allocation. Review of weakness / stress parameters in a specific sector is done and risk management guidelines are followed.

- Financing sector does not have lending targets; as safety is of most concern. Only public sector banks face pressure to lend.

6.3 Sector Exposures

The exposures to particular sectors vary with different banks. Infrastructure and Iron and Steel are couple of sectors with high exposures in public sector banks such as SBI, Punjab National Bank and Bank of Baroda. Among the private sector Banks like HDFC Bank, ICICI Bank and Axis Bank, financial services/NBFCs constitute a large proportion.

With reference to the energy sector also, the proportion varies. Bank of Baroda has been having fund based exposures to energy sector (electricity generation, distribution and transmission) of 10-20% over the last five years ending FY 2012-13; for SBI, even though exposure is higher in absolute amounts, it comprises between 3 to 6 % of the portfolio over the last five years ending FY 2012-13.

For details of exposures for each entity, refer Annexure – Entity Wise Analysis

Sl no	Sector	Amount (Rs.'000 Bn), March 2014	Growth over previous year
1	Industry	25,229	13.1
1.1	Mining & Quarrying (incl. Coal)	353	2.0
1.2	Food Processing	1,480	26.1
1.2.1	Sugar	348	5.5
1.2.2	Edible Oils & Vanaspati	213	24.7
1.2.3	Tea	32	25.5
1.2.4	Others	887	37.0
1.3	Beverage & Tobacco	186	12.6
1.4	Textiles	2,040	11.1
1.4.1	Cotton Textiles	1,011	9.3
1.4.2	Jute Textiles	20	–8.6
1.4.3	Man-Made Textiles	216	14.1
1.4.4	Other Textiles	793	13.4
1.5	Leather & Leather Products	103	18.4
1.6	Wood & Wood Products	94	21.9
1.7	Paper & Paper Products	331	17.2
1.8	Petroleum, Coal Products & Nuclear Fuels	635	–1.3
1.9	Chemicals & Chemical Products	1,677	5.3
1.9.1	Fertiliser	306	13.8
1.9.2	Drugs & Pharmaceuticals	492	–0.7

Sl no	Sector	Amount (Rs.'000 Bn), March 2014	Growth over previous year
1.9.3	Petro Chemicals	435	–1.4
1.9.4	Others	443	14.7
1.10	Rubber, Plastic & their Products	368	18.0
1.11	Glass & Glassware	87	17.0
1.12	Cement & Cement Products	541	18.0
1.13	Basic Metal & Metal Product	3,620	15.2
1.13.1	Iron & Steel	2,685	13.5
1.13.2	Other Metal & Metal Product	934	20.5
1.14	All Engineering	1,456	13.3
1.14.1	Electronics	367	9.9
1.14.2	Others	1,088	14.6
1.15	Vehicles, Vehicle Parts & Transport Equipment	677	15.1
1.16	Gems & Jewellery	720	17.7
1.17	Construction	614	17.7
1.18	Infrastructure	8,398	15.1
1.18.1	Power	4,883	17.4
1.18.2	Telecommunications	904	3.0
1.18.3	Roads	1,574	19.9
1.18.4	Other Infrastructure	1,036	9.3
1.19	Other Industries	1,850	2.2

6.4 Costs and Sources of Funds

Among most banks, the deposits account for 85% to 90% of the source of funds and the cost of funds are largely driven by the cost of deposits. Within the deposits CASA provides the lowest costs of fund and banks having high CASA ratios tend to have lower cost of funds. For SBI, the CASA ratio was 46% for FY 2013-14.

The remaining fund requirements are met by borrowings, both domestic and international. The domestic borrowings take the form innovative perpetual debt instruments, hybrid debt capital and subordinated bonds. Foreign borrowings contributed to approximately half the total borrowings for many banks. The largest bank, SBI has international cost of funds of approximately 2%; ICICI Bank has also been raising international borrowings, and the last raising in 2012 had coupon of 4.75%.

Note on Innovative perpetual debt instruments:-RBI has laid down conditions for IPDI for them to qualify for inclusion as Tier I capital which include limit of 15% of total Tier I capital, perpetual maturity, fixed or floating interest, no put option with investor and call option allowed after 10 years with prior approval of RBI.

CRIS has analyzed the sources of the costs of funds and historical cost of funds. The cost of funds for FY 2012-13 for the banks considered range from 4.55% to 8.89% with average of 6.87%. Some representative costs of funds are SBI at 6.5% and ICICI Bank at 6.3% for FY 2012-13.

The reasons for the divergence include the proportion of CASA deposits, credit profile of the individual banks, support from government, non-performing assets, capital base, etc. The banks with the lowest cost of funds in the list – i.e., ICICI Bank, Bank of Baroda and SBI have CRISIL AAA rating for its long term debt obligations.

Table 3: Cost of Funds – Public Sector Banks

Bank	Cost of Funds
SBI and Associates	
State Bank of Bikaner & Jaipur	6.65%
State Bank of Hyderabad	7.29%
State Bank of India	5.63%
State Bank of Mysore	6.92%
State Bank of Patiala	6.94%
State Bank of Travancore	6.88%
Other Nationalized Banks	
Allahabad Bank	6.83%
Andhra Bank	7.13%
Bank of Baroda	5.04%
Bank of India	5.66%
Bank of Maharashtra	6.49%
Canara Bank	7.07%
Central Bank of India	6.67%
Corporation Bank	6.89%
Dena Bank	6.74%
IDBI Bank Ltd	5.95%
Indian Bank	6.92%
Indian Overseas Bank	7.22%
Oriental Bank of Commerce	7.35%
Punjab and Sind Bank	7.90%
Punjab National Bank	6.11%
Syndicate Bank	5.91%
UCO Bank	6.68%
Union Bank of India	6.37%
United Bank of India	6.39%
Vijaya Bank	7.14%

Table 4: Cost of Funds - Private Sector Banks

Bank	Cost of Funds
Old Private Sector Banks	
Catholic Syrian Bank	8.07%
City Union Bank	8.16%
Dhanlaxmi Bank	7.28%
Federal Bank	6.75%
ING Vysya Bank	6.70%
Jammu & Kashmir Bank	6.28%
Karnataka Bank	7.90%
Karur Vysya Bank	7.62%
Lakshmi Vilas Bank	8.89%
Nainital Bank	6.82%
Ratnakar Bank	7.15%
South Indian Bank	7.54%
Tamil Nadu Mercantile Bank	8.21%
New Private Sector Banks	
Axis Bank	5.62%
Development Credit Bank	7.08%
HDFC bank	6.41%
ICICI Bank	4.55%
IndusInd Bank	7.48%
Kotak Mahindra Bank	6.95%
Yes Bank	8.01%
State Bank of Bikaner & Jaipur	6.65%
State Bank of Hyderabad	7.29%
State Bank of India	5.63%
State Bank of Mysore	6.92%
State Bank of Patiala	6.94%
State Bank of Travancore	6.88%
Allahabad Bank	6.83%
Andhra Bank	7.13%
Bank of Baroda	5.04%

Source: Statistical Tables 2012-13, RBI

For details of cost of funds for selected entity, refer Annexure – Entity Wise Analysis

The risk free rate is mentioned in some of the annual reports and ranged from 8-9% in FY 2012-13 (banks considered – ICICI Bank, HDFC Bank). It is observed that the risk free rate is higher than cost of funds by around 2-3%.

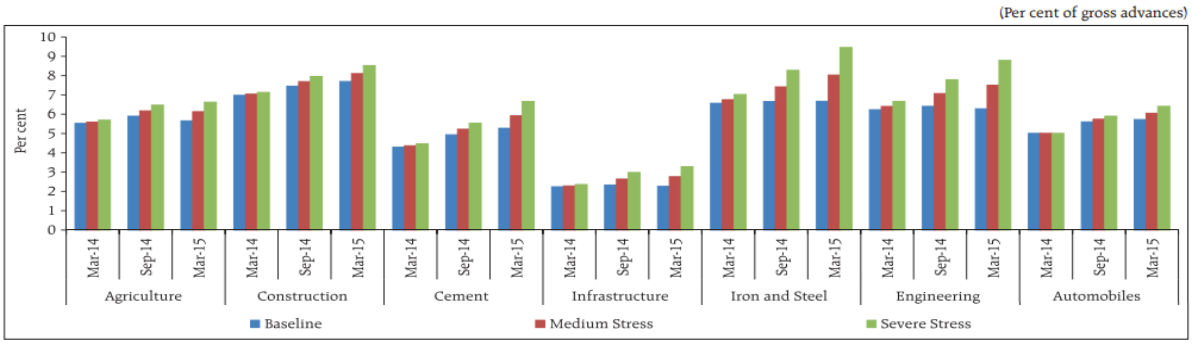
6.5 Performance of Sectors

While sector wise NPAs with broad classification into agriculture, industry, and services are being reported for many banks, detailed sector NPAs are being reported for few.

For State Bank of India, construction, computer software, tea were some sectors which had high NPAs. Performance of infra portfolio especially power has been good. The NPAs in Infrastructure power sub segment has been less than or max around 1% in the last 5 years ending 2012.13.

For details of performance of sectors for each entity, refer Annexure – Entity Wise Analysis.

The projected sector exposures are as below, as provided for in the Financial Stability Report, released by RBI in December 2013. It may be noted that among sectors of agriculture, construction, cement, infrastructure, iron and steel, engineering and automobiles, infrastructure has the lowest projected NPA

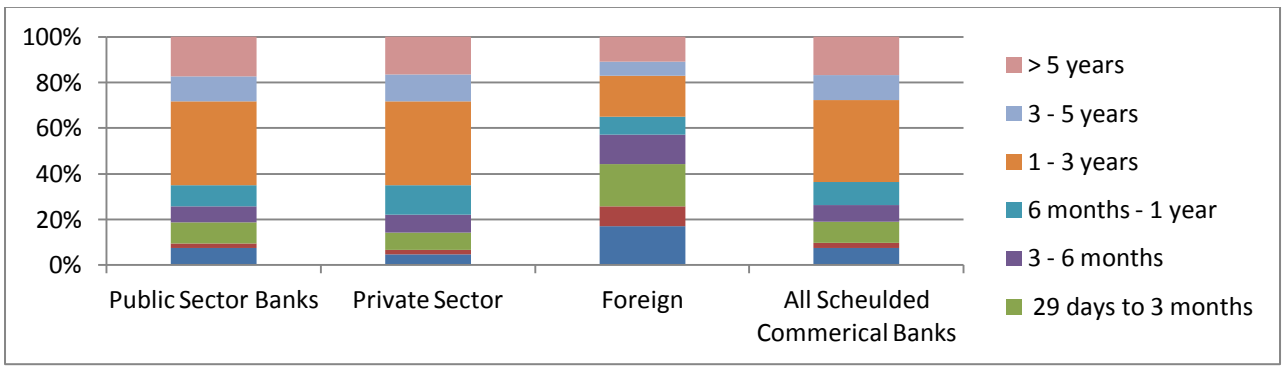


Source: RBI Supervisory Returns and Staff Calculations

6.6 Tenures

An analysis of the tenure of advances of banks indicated that loan tenures of greater than 5 years account for 10%- 20% of exposure.

Figure 2: Tenures



Source: Statistical Tables relating to Banks in India, 2012-13, Reserve Bank of India. Quantitative information beyond 5 years is not available; however, proportion of loans of 10 years and above was indicated to be negligible.

In the context of renewable energy with high capital costs, longer tenure allows installment payments to be lower (although total interest paid out will be higher).

It was noted in the discussions that tenure as such is not a constraint for lending to renewable projects. Banks provide long term loans selectively which can be used by renewable energy and other infrastructure projects with long project lives.

- Fundamentally, banks would prefer to keep tenures on the lower side to reduce the risk exposure while developers would like to have the maximum tenure so that there is more free cash flow which can be utilized for expansion, working capital etc. If cash flows are insufficient to meet the required debt obligations, banks would prefer to extend the tenure to the extent the required for meeting the debt coverage rations
- One of the constraints in the tenure is the terms of PPA for which the tariff is certain which is case specific. As an example, while Karnataka, PPA for wind is for 25 years, tariff is certain only for 10 years; whereas in Andhra Pradesh, the tariff is certain for entire 25 year period. For private power purchase agreements, the PPA term itself could be shorter.
- As regards the asset liability matching for banks, current share of renewable energy is small and at this stage it is unlikely to cause large asset liability mismatches. This also ties in to the feedback that they are able to provide tenures meeting the requirement of renewable energy projects.
- Another factor which impacts the tenure in some cases is the availability of benefits – for example, depreciation or tax benefits may stop after a period when the cash flows may be insufficient to meet the shortfalls.
- So the tenure is driven by the cash flow workings and certainty and availability of cash flows to meet debt repayments. While earlier the sector was driven by investors focused on tax benefits and tenure available was shorter; currently the door to door tenure available of up to 12-15 years appears to be adequate within the framework of existing PPA arrangements.

In addition to banks, there are other institutions as well such as LIC, Provident Fund, Army Welfare Funds, etc. which provide long term loans with appropriate pricing.

It is pertinent to look at how financing of other long term assets are done, for e.g. aircrafts. Typically they are financed on lease model; manufacturers also tap into external commercial assistance source; there are also players like GE capital who provide financing. A key difference as compared to renewable energy projects is also that there is a valuable asset backing the loan where the asset price can go up or down based on demand supply conditions. There are structures available of up to 20 years with combination of bullet and amortizing payments. However many end of being refinanced within 10 years based on value of liquid assets. A bullet payment structure at end of 15 years based on refinancing was experimented for renewable energy but was not successful as investors did not prefer taking long term refinancing risk.

6.7 Other Inputs from Meetings

- Some interviewees were of the opinion that there were no issues related to ticket size restrictions or higher transaction costs for renewable energy.

7. Risk Assesment of Renewable Projects

In CRIS's discussions with financiers, it has emerged that absence of fuel supply issues, shorter gestation period, and lower operational costs in renewable power projects make them safer as compared to conventional projects in terms of risk perception, and there are other risks associated with renewable projects. One of the key risk factors for the renewable projects was regulatory uncertainty and continuity of incentives. There have been instances where the state distribution utilities had entered into PPAs, but with cheaper sources of supply coming up, some of them had backtracked on the commitments. Resource risk was also mentioned as a key risk factor in the case of wind where the wind pattern could change and in the case of solar where limited site specific irradiation data is available.

The following are the key risks faced across renewable energy projects

- Regulatory risk and continuity of incentives
- Non uniformity in policy guidelines at central and state levels
- Uncertainty and divergence in feed-in tariffs approved by SERCs
- Lack of long-term RPO trajectory and its compliance
- Lack of forecasting tools and grid management
- Financial losses of distribution utilities and non payment
- Inadequate evacuation and transmission infrastructure: Since the potential sites are located in remote areas, the lack of evacuation infrastructure acts as the biggest impediment to the cost-effective hydropower potential.
- Operational risk (CUF degradation, etc.)
- Land acquisition and forest clearances

All the issues highlighted above have a state-specific significance. Among all, the issue of transmission and evacuation infrastructure is the most important and predominant in the states of Tamil Nadu, Gujarat, and Rajasthan. Similarly, states like Maharashtra, Andhra Pradesh, and Karnataka will also require support towards transmission evacuation and grid management. Besides, the revision of tariff in the state of Andhra Pradesh is detrimental for the development of wind power projects in the state and requires immediate attention.

Beyond these, there are some risk factors specific to the type of renewable energy project which are indicated below.

7.1 Risk Assessment for Specific Project Types

a) Wind

The wind power industry in India has reached, to an extent, a stage of maturity, but still faces certain issues, which need to be addressed:

- Inadequacy of generation based incentive (GBI) and uncertainty with regard to its continuity as well as continuity of Accelerated Depreciation (AD).
- Inadequate evacuation and transmission infrastructure

b) Solar

The bankability of the projects allotted under the competitive bidding scheme has not yet been established. The other issues that are detrimental for the growth of solar power projects in India are:

- As compared to wind which is mature, solar was perceived to be at nascent stage and hence more operational risk may be faced
- Database for irradiation data not available at specific sites and is based on interpolation; unlike in wind where CWET recording available
- The long approval processes and the inability of the state governments to provide single-window clearance to developers
- The viability of a project depends on the correctness of the radiation data for the site and thus unavailability of radiation data for most of the project sites act as a major hindrance.
- The state nodal agencies could be involved to a larger extent, and single-window clearance could be enabled to cut down the lead time faced by the developers at each step.

c) Small Hydro

The pace of small hydropower development, which increased significantly during the first 4 years of the 11th Plan period (2008–2012), has now stabilized. The development has been relatively slow because of the following issues.

- Implementation time: The implementation of small hydro projects is governed by the state policies and the potential sites are allotted by the state governments to private developers. The process of allotment of sites and selection of developers is often time consuming and has been usually litigated. The implementation of projects is also affected due to difficult terrain and limited working season.
- Hydrological and geological uncertainties: Small hydro projects, due to their inherent scale, do not undergo a thorough hydrological and geological investigation prior to project allotment or even construction. There have been instances in the past wherein a wide variation in generation has been observed as against the envisaged generation.
- Feed-in tariff: Even though the SERCs have announced the feed-in tariff, the following issues still remain unaddressed:
    - Some states have fixed/levelised tariff, whereas other states have incorporated escalation factors.
    - The feed-in tariffs do not adequately compensate for the high resource and other operational risks investors are likely to face over the 35-year investment time horizon.
- In order to increase attractiveness of RE-based power development and to facilitate further investments by private developers, individual states need to align their respective RE tariff to the latest CERC tariff.
- Impact on environment: The sites allocated for small hydro projects generally have some trees or forest cover. Therefore, the projects require compulsory afforestation and also impact the aquatic life (fish etc.).

d) Biomass

Although biomass-based power generation can be scheduled and carried out throughout the year at a much higher capacity utilization factor, this type of power generation faces several issues:

- Availability of biomass: The availability of biomass fuel has been a serious concern and reduction in the availability of biomass fuel in the state owing to its increased use by alternate/competing markets has become a matter of concern.
- Biomass price: Since biomass-based power projects are the only category of non-conventional power projects that have fuel cost therefore fuel cost has an associated impact on the viability of the projects as well. It is understood that the existing approved fuel cost (as per the tariff order of various states) has made the survival of biomass plants difficult in various states.
- Feed-in tariff: As per the feed-in tariff announced by various SERCs, there is a divergence among states on the following aspects:
    - The biomass tariff framework adopted by different states varies from each other and from CERC as well.
    - Some states have used market determined cost of biomass fuel as market determined and some have incorporated the equivalent heat rate mechanism to determine the tariff.
    - Wastage in the storage of biomass stock has not been considered by some states while calculating the tariff.
- Area reservation policy: The area reservation policy has been rendered ineffective owing to the increased alternative usage of biomass fuel. Further, coordination with state governments is required to restrict inefficient alternate usage of biomass fuel.

7.2 Risk Variation

Based on feedback from interviewees, relative ranking of risk between renewable projects of different types, in increasing order of risk perception are as below in the table.

Table 5: Risk Perception

7.3 Technology

Technology was not indicated to be a major risk factor. For instance, banks have experience in lending to both thin films versus crystalline for solar projects, and geared versus gearless for wind projects; no major risk was observed in these different technologies. There was one view favoring thin film over crystalline.

One of the respondents indicated that the key risk in solar was the PV modules and they selected the projects based on trusted module manufacturers.

7.4 Risk Mitigation - Additional Comforts for Renewable Projects

Because of the specific risk factors associates, CRIS discussed with various banks whether any additional comforts are taken for renewable projects and if so, what are such mechanisms. Some of key responses received from interviewees with regards to additional comforts being taken for renewable projects are as below

- Some banks indicate that there are no additional comforts/assurances taken specifically when investing in renewable projects. Non-recourse funding is still not available to renewable energy projects, similar to other sectors
- Usually a comprehensive risk analysis is conducted to get confidence about the project capability and special comforts / assurance are in the form of Quality of debt-service capability, Structuring of the overall loan, Promoter guarantees, Cash accruals

8. International Experience

CRIS has reviewed the regulations and incentives in other countries in the context of financing for renewable energy sector.

Internationally, a wide variety of policy instruments have been employed by various developed as well as developing countries for incentivizing promotion of renewable energy sources. These incentives have been targeted to lower the cost of capital for renewable energy developers directly through capital subsides / grants, low interest loans, tax holidays or indirectly through feed-in-tariffs, quota obligations, etc. The prime motive of these governments for offering direct or indirect incentives is to reduce the cost of renewable energy by increasing the acceptability of the renewable energy projects in the market.

As per the detailed analysis of international regime for renewable energy financing, we have factored the available instruments under three major categories. These categories are:

Regulatory / policy level initiatives

Regulatory / policy level initiatives cover various regulatory / policy level initiatives offered by different national governments. These initiatives include feed-in-tariffs / preferential tariffs, renewable purchase standards / quota obligations, renewable energy certificates / green certificates / credits, net metering among others. Such initiatives aid in lowering the overall cost of financing for renewable energy projects by developing a viable market base for power generated from renewable energy sources.

Fiscal incentives

Fiscal incentives majorly include tax related incentives provided to renewable energy project developers and equipment manufacturers for promoting development of renewable energy sector in the country. Some of the major fiscal incentives are capital subsidies / grants, generation related incentives, reduction in various applicable taxes (Sales tax, VAT, etc.).

Public financing initiatives

Public financing initiatives, generally known as government financing initiatives play a vital role in attracting private sector investments in the renewable energy sector. These initiatives are responsible for mobilizing commercial investments towards renewable energy sector innovation. Some of the major public financing initiatives include grants, credit lines, concessional finance, risk mitigation instruments and market aggregation activities among others.

Table 6: Status of worldwide renewable energy policies

	Feed-in Tariffs	Renewable Portfolio Standard	Subsidies, grants, rebates	Investment or tax credits	Sales tax, energy tax, excise tax or VAT reduction	Tradable RE Certificates	Energy production payments or tax credits	Net metering	Public, Investments, loans or financing	Public competitive bidding
USA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
UK	Y	Y	Y	N	Y	Y	N	N	Y	N
Australia	Y	Y	Y	N	N	Y	N	N	Y	N
Canada	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Japan	Y	Y	Y	Y	N	Y	N	Y	Y	N
Russia	N	N	Y	N	N	Y	N	N	N	N
Brazil	N	N	N	Y	N	N	N	N	Y	Y
China	Y	Y	Y	Y	Y	N	Y	N	Y	Y
India	Y	Y	Y	Y	Y	Y	Y	N	Y	N
South Africa	Y	N	N	N	N	N	N	N	Y	Y
Mexico	N	N	N	Y	N	N	N	Y	Y	Y

8.1 Germany

Germany is one of the key renewable markets in European Union and is currently generating around 20% of its overall energy production pie through renewable energy sources. It has been one of the pioneers in the field of renewable energy development in Europe with a proper policy for renewable energy development in place from 1979 onwards. This was further strengthened by the Electricity Feed-In Act 1991 which regulated the purchase and price of electricity generated by various renewable sources including hydropower, wind energy, solar energy, landfill gas, sewage gas, and biomass. Further, German government's decision to move towards a nuclear-free nation by 2022, in response Fukushima nuclear tragedy in Japan, ensures continued growth of renewable energy sources in Germany.

The table below showcases the regulatory and fiscal initiatives provided by Government of Germany for lowering the cost of financing for renewable energy projects.

Initiative / Incentives	Description
Regulatory / Policy Level Initiatives	
Feed-in-tariff scheme	Government of Germany provides technology and capacity specific feed-in-tariffs for following renewable technologies for a period of 15-20 years: Hydropower – ranges from 'Up to 500 kW' to 'Over 50 MW';

Initiative / Incentives	Description
	Landfill gas – ranges from 'Up to 500 kW' to 'Up to 50 MW'; Sewage gas – ranges from 'Up to 500 kW' to 'Up to 50 MW'; Mine gas – ranges from 'Up to 1 MW' to 'Over 5 MW'; Biomass – ranges from 'Up to 150 kW' to 'Up to 20 MW'; Geothermal; Onshore & offshore wind; and Solar energy.
Fiscal Incentives	
Capital subsidies / grants / rebates	Capital subsidies up to 40% of investments are provided to individuals and small and medium-sized businesses for installations of solar collectors under Market Simulation Program. Non-repayable grants for research and development in the field of photovoltaic, wind power, geothermal, solar thermal power plants and low temperature solar thermal. Soft loans and investment incentives by the market incentive programme for biomass combined heat and power (CHP), small hydro-power, photovoltaic (PV) in schools Several soft loans schemes indirectly support renewable energy technologies including the "DtA Umweltschutz- Bürgschaftsprogramm," the "KfW-Mittelstandsprogramm", the "KfW-Umweltprogramm", for enterprises, and the "KfW-Infrastrukturprogramm", for municipalities. Credit terms range from 10 to 20 years. The interest rates offered are 1% to 2% below market interest levels.
Investment Tax Credits	Deductions and accelerated depreciation are provided for leased and owned buildings meeting green building requirements.

Apart from these instruments, KfW (Kreditanstalt für Wiederaufbau) offers long term low cost loans to renewable energy projects including wind, solar, biomass, and geothermal projects. Most of these long term low interest loans have fixed interest rates for a specified period (ten years or more) and have a repayment-free start-up period. The following table summarizes various public financing schemes promoted by KfW for renewable energy projects.

Programme	Targeted Group	Targeted Technology	Type of funds
KfW Renewable Energies Programme -	Private individuals and not-for-profit organizations which feed the generated electricity/heat into the grid	Electricity from solar (PV), biomass, wind energy, hydro, geothermal energy	Up to 100% of investment costs eligible for financing, not more than EUR 25

Programme	Targeted Group	Targeted Technology	Type of funds
Standard	Self-employed professionals farmers German & non-German enterprises majority-owned by private individuals Enterprises in which local authorities, churches or charities hold an interest Investment funds	Electricity and heat from renewable energies, generated in combined heat and power stations	million
KfW Renewable Energies Programme – Storage	Private individuals Not-for-profit organizations Self-employed professionals, farmers Enterprises	New installations of stationary battery storage systems combined with photovoltaic systems	Up to 100% of investment costs for the battery storage system and the photovoltaic system
KfW Renewable Energies Programme - Premium	Private individuals and not-for-profit organizations which use the generated heat exclusively for their own needs Self-employed professionals Small and medium-sized enterprises (SMEs) Enterprises that are majority-owned by municipalities and that do not meet the SME threshold values for turnover and number of employees Large enterprises only if their solar thermal, deep geothermal, heat storage and heating network measures are particularly deserving of support Municipalities, municipally owned enterprises and municipal special-purpose associations Energy service providers	For large plants in which heat is generated from renewable energies	Up to 100% of the financeable costs of investment, not more than EUR 10 million

Programme	Targeted Group	Targeted Technology	Type of funds
Variant-Deep geothermal energy		For facilities to develop and use deep hydrothermal or petro-thermal energy with more than 400 m drilling depth.	Up to 80% of the financeable net investment costs, maximum of EUR 10 million
KfW Offshore Wind Energy Programme	Project Developers	Establishment of wind farms off the German coast of the North and Baltic Sea	Up to 70% of the total debt capital requirements, not more than EUR 700 million per project Project financing in the form of direct loan/financing package
KfW - Environment and Energy Saving Program	Private Companies	Development of renewable power projects	Credit term for between 10-20 years with a two to five year redemption holiday. Interest rate ~ 2% below market level and there is a 50% lending limit.

8.2 Spain

High dependency on imported energy, absence of domestic gas resources and presence of low quality coal propelled Spanish Government towards energy saving, energy efficiency and diversification of primary resources through the Plan for Energy Saving & Efficiency, 1991-2000. The Government promoted development of renewable energy resources in Spain by providing assured network access, utility's purchase contract and a fixed power price through the Energy Conservation Law 82/1980 which was further strengthened under the 2818/1998 Royal Decree.

The Government of Spain adopted the Plan for the Promotion of Renewable Energy (PFER) for 1999-2010. This plan refined government policy for renewable energy by setting technology specific & overall renewable targets as well as developing a new set of incentives including investment subsidies, soft loans and promotion of third party financing investments. However, owing to rising annual tariff deficits, the Spanish Government has suspended the FIT scheme in 2013 for upcoming plants. The table below showcases policy / regulatory and fiscal incentives which have been utilized by Spain in the past to promote renewable energy resources.

Initiative / Incentives	Description
Regulatory / Policy Level Initiatives	
Feed-in-tariff scheme	Government of Spain provided technology and capacity specific feed-in-tariffs for following renewable technologies under "Royal Decree 436/2004": Self-producers using CHP associated with business activity other than electricity generation Solar photovoltaic and Solar-thermal for electricity generation Onshore and Offshore wind power. Geothermal power and ocean power. Hydroelectric with power ≤ 10 MW. Hydroelectric with power > 10 MW and ≤ 50 MW. Biomass/energy crops or wastes from agriculture and forestry. Biomass/biogas/sewage sludge/controlled landfill gases. Biomass/industrial installations in the agriculture and forestry sector. Municipal solid waste Currently, the FIT scheme has been replaced by a new scheme wherein renewable energy generators will receive a guaranteed return of 7.5% for the next six years.
Utility Purchase Obligation	As per the Royal Decree RD 436/2004, electricity distributors are obligated to buy electricity produced and the National Commission of Energy looks at settlement of costs incurred by reimbursing distributors under rules laid down in RD 436/2004. Solar obligations in Barcelona and Madrid in residential buildings, sport centers, hospitals and industrial buildings using hot water. Under Technical Buildings Code (CTE), buildings have to meet 30-70% of the Domestic Hot Water (DHW) demand with solar thermal energy.
Fiscal Incentives	
Capital subsidies / grants / rebates	Under the 'General Direction of the Institute for Energy Saving and Diversification', subsidies provided for supporting solar thermal energy as a part of "Promotion Plan for Renewable Energy" framework. This includes all investments in installations of solar thermal such as hot clean water applications, climatization of swimming pools, hot water process in industries, applications for heating and climatization. Maximum funding does not exceed 40% of the eligible costs and is provided to Beneficiaries to natural or legal persons, private or public, groups of non-profit local corporations in the renewable energy and solar thermal energy sector.

Initiative / Incentives	Description
Investment Tax Credits	10% reductions in investment tax for investments in solar thermal and solar PV technologies under Law on Fiscal, Administrative and Social Measures

A public financing scheme, ICO-IDAE financing line, was introduced under the "Renewable Energy Plan 2000-2010" by the Official Credit Institute (ICO) and the Institute for Diversification and Energy Saving (IDAE) for projects in renewable energy and energy efficiency sectors. Up to 70% of the project investment made by natural / legal persons of public / private nature in renewable energy and energy efficiency sectors can be financed under this scheme. The subsidies are provided through one of the following modalities:

- Discounting of 2 / 3.5 points on interest rate for all renewable energy and energy efficiency projects
- Direct subsidy to the partial redemption of financing for solar thermal and solar PV projects

Further, in addition to the above mentioned discounts, IDAE provides further discount / subsidies to the interest rate to be applied to the ICO loan received:

- Solar PV – Direct subsidy of 19% of eligible cost in addition to discount;
- Solar Thermal – Direct subsidy of 26% of eligible cost in addition to discount
- Others – 3.5 points discount on interest rate

8.3 United Kingdom

In order to achieve European Union's target of meeting 15% of energy demand from renewable sources by 2020 by increasing the share of energy consumed by the UK from low-carbon technologies including renewables, the UK Government launched the National Renewable Energy Action Plan (NRAP) in 2009. The NRAP framework focused on:

- Establishment of financial support for renewables;
- Identification and addressing issues affecting deployment of renewables; and
- Development of emerging technologies.

In order to establish a suitable framework for promotion of renewable energy technologies, following policy / regulatory initiatives and fiscal incentives were provided by the UK Government.

Initiative / Incentives	Description
Regulatory / Policy Level Initiatives	
Feed-in-tariff scheme[6]	UK Government programme to promote uptake of power from small-scale renewable (> 5 MW) & low-carbon electricity generation technologies. A project under FIT scheme receives: Generation tariff – Fixed rate paid by energy supplier for each kWh of electricity generated. Export tariff - 3p/kWh from energy supplier for each unit exported back to the electricity grid. Energy bill savings – Less energy bills The FIT provided under this scheme is indexed linked and hence, increases / decreases with changes in inflation. Currently, the UK Government has proposed to lower down the FIT support for solar and onshore wind energy in order to increase the off-shore technology in the coming years
Renewable Heat Incentive	The Renewable Heat Incentive (RHI) scheme provides financial support to non-domestic (commercial, industrial, public, not-for-profit and community) renewable heat generators and bio-methane producers. Under RHI, continuous income stream for 20 years is provided to an organization installing an eligible renewable heating system to make renewable heat commercially attractive. This scheme is applicable for the following technologies: Biomass boilers (Including CHP biomass boilers) Solar Thermal Ground Source Heat Pumps Water Source Heat Pumps On-Site Biogas combustion Deep Geothermal Energy from Municipal Solid Waste Injection of bio-methane into the grid
Utility Purchase Obligation	The Renewables Obligation (RO) was introduced in UK power sector for the first time in 2002 in order to provide incentives for the deployment of large-scale renewable electricity in the UK. Licensed UK electricity suppliers are obligated to source a specified proportion of electricity

6 https://www.gov.uk/government/policies/increasing-the-use-of-low-carbon-technologies

Initiative / Incentives	Description
	procured eligible renewable sources. There are three different types of RO in UK. These are: The RO for England and Wales The RO for Scotland – The Scottish Government) The RO for Northern Ireland – The Department of Enterprise, Trade and Investment) Suppliers can meet their obligation by: Presenting ROCs; or Making a buy-out payment to Ofgem to cover any shortfall in ROCs requirement (set at £42.02 per ROC for 2013/14); or Combination of both. The RO is expected to close to new generators on 31 March 2017. And electricity generation accredited under the RO will continue to receive its full lifetime of support (20 years) until the scheme closes in 2037.
Renewable Transport Fuels Obligation	The Renewable Transport Fuel Obligation (RTFO) order obligates fossil fuel suppliers to procure a share of fuel for road transport supplied in the UK from renewable sources or pay substitute amount of money. Applicable for fuel suppliers supplying at least 450,000 liters fuel per year
Tradable Certificates	'Renewable Obligation Certificates' (ROCs) are tradable certificates issued by Office of Gas & Electricity markets (OFGEM). Long-term value of a ROC is made up of the buyout price, i.e. the payment avoided by the supplier for presenting ROCs to OFGEM, plus 10% i.e. roughly £46 per ROC in 2013/14 prices.
Fiscal Incentives	
Capital subsidies / grants / rebates	Renewable heat premium payment (RHPP) – One time payments to householders through vouchers for installing renewable heating technologies – solar thermal panels, heat pumps and biomass boilers. Interest free loans up to £10,000 are provided from the Scottish Government for owner occupiers in Scotland for installation of domestic renewables system.
Tax Exemptions / Rebates	Income tax holidays Duty-free import of machinery and equipment and related materials Real property tax of 1.5% on the original cost, less accumulated normal depreciation or net book value of equipment, machinery and other

Initiative / Incentives	Description
	improvements actually used in the RE facilities Preferential corporate income tax rate of 10% on net income after lapse of income tax holidays period Accelerated depreciation on plant, machinery and equipment used Zero-rated value-added tax (VAT) on certain transactions e.g. sale of power generated from renewable sources, purchase of local goods/services needed for the development of the solar power plant Tax exemption on sale of carbon credits

Department of Energy and Climate Change funds various renewable energy technologies for meeting UK's target to 15% of total energy consumption from renewable sources by 2020 through the 'Environmental Transformation Fund'. Further, various Government department and organizations fund renewable energy technologies through direct support for promoting the development, demonstration and deployment of renewable energy technologies. The following table provides a list of such institutions[7].

Department / Institutions	Support for renewable energy
Department for Business, Innovation and Skills	Funding renewable energy technologies as part of the Low Carbon Industrial Strategy to equip British businesses and workers to maximize the economic opportunities and minimize the costs of the transition to a low carbon economy
Carbon Trust	Supports renewable energy technologies as part of its portfolio of activities aimed at reducing future carbon emissions
Energy Technologies Institute	Funds renewable energy technologies
Technology Strategy Board	Funds renewable energy technologies to enable UK businesses to work with one another or with the research community to advance technology for UK business and economic benefit
Regional Development Agencies	Funds renewable energy technologies to support regional strategies and targets for renewable energy

8.4 United States of America

The USA has been a forerunner in renewable energy development for many years. Although, this place pole position shifted to European Union during 1990s, the USA, with its developing policies and market structure has always been one of the strongholds of renewable energy in the world.

7 http://www.nao.org.uk/wp-content/uploads/2010/06/101135.pdf

The development of renewable energy sources in the USA started with enactment of Public Utilities Regulatory Policy Act (PURPA) in 1978. Under PURPA, the State utilities were obligated to purchase power from small renewable generators and co-generators at a pre-defined cost. This was followed by Energy Policy Act 1992, which introduced Federal production tax credit (PTC) and other tax incentives for renewable energy sector. In the later years, a 10% investment tax credit and favorable depreciation were implemented for renewables.

At State level, a number supportive renewable energy policies were enacted including renewables portfolio standards, public benefit funds, net metering, subsidies, tax credits, rebates, low-interest loans, and many other financial incentives came into force. The following table summarizes various policy measures and fiscal incentives utilized by USA for promoting development of renewable resources.

Initiative / Incentives	Description
Regulatory / Policy Level Initiatives	
Feed-in-tariff scheme[8]	Unlike a single feed-in-tariff for entire country, utility-based and state-level FIT policies have been implemented in the USA. ▪ Utility based FIT scheme – Initiated by state utility to meet utility - specific goals such as RPS targets, encouraging distributed generation. For example, Madison Gas & Electric in the State of Wisconsin purchases renewable energy at a predefined FIT in green power purchase program ▪ State level FIT scheme – Initiated by State Government and is followed by the utilities in respective states such as California, Washington among others.
Renewable Purchase Standards	Renewable portfolio standards (RPS) / renewable electricity standards (RES) are designed to promote renewable electricity generation by obligating energy utilities to supply a certain minimum share of their electricity from designated renewable resources. Although, no nationwide RPS program exists in the US, around 30 States have already implemented enforceable RPS or similar mandated renewable capacity policies. Suppliers can meet their obligation by: ▪ Presenting RECs; or ▪ Supplying renewable energy or ▪ Combination of both.
Renewable Energy Credits or Green Tags	In US, most States with RPS programs have developed renewable energy certificate trading programs for promoting renewable energy development. For each unit of power that an eligible producer generates, a certificate or credit is issued which can be sold either in conjunction with the underlying

8 http://www.pv-magazine.com/services/feed-in-tariffs/feed-in-tariffs-for-various-countries/#united_states

Initiative / Incentives	Description
	power or separately to energy supply companies.
Net Metering Policies	Many States have issued 'Net Metering Policy' for enabling customers to use electricity generated in excess of their consumption for offsetting use of electricity from the grid in order to encourage distributed renewable generation. The net metering policies of States may differ from each other in terms of technology and fuel specified, capacity limits, aggregate capacity, compensation to customers etc.
Renewable Fuel Standards (RFS)	RFS is a US federal program that requires certain percentage of transportation fuel in a given geographic area to be replaced by renewable fuels. Under this scheme, the regulator may specify sector wise goals for specific kind of fuels. For example, US Environmental Protection Agency (EPA) has set 6 million gallon target for cellulosic biofuels use in 2013. Various States have announced their specific RFS based upon local conditions and target technologies. For example, the States of Minnesota set a RFS of 2% biodiesel in total diesel sales till 2013.
Fiscal Incentives	
Renewable Energy Rebates	Renewable energy rebates / buy-down programs which provide a refund / discount for cost of new renewable energy installations. Such rebate programs are administered through local utilities / state agencies and rebates are provided based up on installed capacity of system. Some of the rebate programs under implementation are: ▪ New Jersey Renewable Energy Incentive Program ▪ California – Low income solar water heating rebate program ▪ Colorado - Renewable energy rebate program ▪ Oregon - Smart water heat rebate program ▪ New York – Anaerobic digester gas-to-electricity rebate ▪ Texas – Solar water heating rebate program
Grants	▪ Tribal Energy Program Grant – Provides financial and technical assistance for promoting tribal energy sufficiency, economic growth and employment on tribal lands through development of renewable energy and energy efficiency technologies ▪ Repowering Assistance Bio refinery Program – Up to 50% grant offered by U.S. Department of Agriculture (USDA) to replace fossil fuels used to produce heat or power to operate the bio refineries with renewable biomass ▪ Rural Energy for America Program (REAP) – Offers grant up to 25% of project cost for promoting promotes renewable energy and energy efficiency for agricultural producers and rural small businesses
Exemptions / Rebates / Credits	▪ Modified Accelerated Cost-Recovery System (MACRS) + Bonus Depreciation ▪ Business Energy Investment Tax Credit (ITC) – Provided to

Initiative / Incentives	Description
	Commercial, Industrial, Utility, Agricultural consumers; Up to 30% for solar, fuel cells, small wind and PTC-eligible technologies; 10% for geothermal, micro turbines and CHP ▪ Renewable Electricity Production Tax Credit (PTC) – Per unit tax credit for electricity generated by renewable energy resources and sold by the taxpayer to an unrelated person; Applicable for industrial and commercial customers; 2.3¢/kWh for wind, geothermal, closed-loop biomass; 1.1¢/kWh for other eligible technologies. Generally applies to first 10 years of operation.

Source: http://www.dsireusa.org/

Apart from these schemes, the Federal Government has also launched a number of loan programs for assisting in providing low cost financing for renewable energy projects. These loan programmes are listed in the table below

Loan Program	Description
Clean Renewable Energy Bonds	Under Clean renewable energy bonds (CREBs) program, certain public entities such as electric cooperatives, government entities can issue bonds to finance renewable energy projects. The bondholder receives federal tax credits in lieu of a portion of the traditional bond interest, resulting in a lower effective interest rate for the borrower. ▪ Eligible technologies – Solar thermal electric, photovoltaic, landfill gas, wind, biomass, hydroelectric, geothermal electric, municipal solid waste, hydrokinetic power, anaerobic digestion, tidal energy, wave energy, ocean thermal ▪ Applicable sectors – Schools, Local Government, State Government, Tribal Government, Municipal Utility, Rural Electric Cooperative
Qualified Energy Conservation Bonds	Issued by state, local and tribal governments to finance certain types of energy projects under the Energy Improvement and Extension Act of 2008, enacted in October 2008. QECBs are qualified tax credit bonds similar to Clean Renewable Energy Bonds or CREBs. The bondholder receives federal tax credits in lieu of the traditional bond interest. Credits exceeding a bondholder's tax liability may be carried forward to the succeeding tax year. ▪ Eligible technologies – Solar Thermal Electric, Photovoltaic, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, Hydrokinetic Power, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal ▪ Applicable sectors – State, local and tribal governments
Loan Guarantee Program	Under this program, U.S. Department of Energy DOE is authorized to offer > $10 billion in loan guarantees for energy efficiency and renewable energy projects (usually > $25 million) ▪ Eligible technologies – Solar Thermal Electric, Solar Thermal Process

Loan Program	Description
	Heat, Photovoltaic, Wind, Hydroelectric, Geothermal Electric, Fuel Cells, Day lighting, Tidal Energy, Wave Energy, Ocean Thermal, Biodiesel, Fuel Cells using Renewable Fuels ▪ Applicable sectors – Commercial, Industrial, Nonprofit, Schools, Local Government, State Government, Agricultural, Institutional, Any non-federal entity, Manufacturing Facilities

Source: http://www.dsireusa.org/

8.5 Brazil

Brazil was one of the first developing countries which took up the task of developing alternative energy sources with the launch of the National Alcohol Program in mid-1970s. The National Alcohol Program was launched with an aim to phase out automobile fuels derived from fossil fuels in favor of ethanol produced from sugar cane. As per the World Bank's World Development Indicators (WDI), alternative and nuclear energy accounted for 15.4% of total energy use in 2011 in Brazil, compared to 12.0% in the United States and 8.7% for the world as a whole.

The Government of Brazil adopted the 'Brazil National Climate Change Plan' in 2008 with an aim to reducing greenhouse gas emissions from deforestation through targets for reducing deforestation, and establishing funding mechanisms and financial incentives to achieve the aim of reducing Amazon deforestation by over half by 2017. The following table summarizes various policy measures and fiscal incentives utilized by Brazil for promoting development of renewable resources.

Initiative / Incentives	Description
Regulatory / Policy Level Initiatives	
Feed-in-tariff scheme	Under the PROINFA program, a Government designated agency buys energy from wind, biomass and small hydro developers at pre-set preferential prices for a period of 20 years.
Mandatory Bio-diesel requirement	Mandatory Bio-diesel requirement have been designed in order to promote the consumption of biodiesel - a mix of vegetable oil and sugar-cane ethanol with standard diesel. Mandatory Biodiesel requirement law was enacted in 2005 with B2 biodiesel requirement (diesel with 2% biofuel) and currently B5 biodiesel requirement (diesel with 5% biofuel) is being implemented three years ahead of its scheduled implementation date of 2012 as per the 2005 law.
Renewable Energy Certificates	Renewable generators under the PROINFA program issue renewable energy certificates proportional to the amount of clean energy produced by the plant of each year.
Electric Power Auctions	New power projects participate in reverse auctions for long-term (20 years) power purchase agreements with energy distributors organized by Brazil's electricity regulatory agency. The power thus acquired is fed into

Initiative / Incentives	Description
	the power pool thereby raising the average pool price and passed on to final consumer – capped to 5% increase during 20 year period.
Fiscal Incentives	
Tax rebates	▪ Federal tax – 75% reduction on income tax for projects in Northeast Brazil ▪ State Tax – Reduction of 56%, 64% or 81% on VAT due from monthly sales, for a period of up to 12 years, depending on the nature of the project, its location etc. ▪ Municipal tax - Reduction or exemption of municipal taxes.
Financing / Loans	▪ Brazilian Development Bank (BNDES) – As a part of promoting renewable energy, BNDES finances up to 80% of total investment with 60% national content requirement. BNDES passes funds to regional banks thereby building capacity of local financing institutions. It receives funding from international donors such as KfW, Giz, etc. who provide credit line to BNDES for small hydro, biogas and grid-connected PV pilot projects. ▪ Brazil Northeast Bank – Soft loans for larger projects at cheaper rates in Northeastern states. ▪ State Government Financing Agencies (DESENBAHIA) – Loans at lower rates for investments of up to US$ 25 million and for working capital.

The BNDES provides direct funding directly from the BNDES and indirect funding loans through financial institutions accredited by the BNDES to renewable energy projects including electricity generation from biomass, wind, solar, small hydro and other alternative energy contractors from public auctions held in 2014 under the 'Conditions of financial support for the Renewable Energy Generation segment - Auctions 2014'[9].

For direct funding operations,

Cost of funding = Financial cost + Basic spread + Credit risk rate

For indirect funding operations,

Cost of funding = Financial cost + Basic spread + Financial intermediation rate + Financial institution spread

The components of direct & indirect funding interest rates are explained below:

1. BNDES Financial Cost

This represents the funding cost and is usually benchmarked to one of the following:

[9] *Source:http://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Areas_de_Atuacao/Infraestrutura/Energia_Eletrica/Leilao_Energia/projetos_renovaveis_2014.html*

- TJLP – Central Bank's long term interest rate which is currently fixed at 5% per annum;
- TJ-462 - Interest Rate Provisional TJLP + 462 = 1.0%;
- Currency basket - Change or variation UMBNDES (BNDES' BNDES' international funding costs & the US dollar);
- Fixed Rate plus the variation of the U.S. dollar ;
- LIBOR – LIBOR + fixed Surcharge + variation in U.S. dollar ;
- IPCA - National Consumer Price Index Broad + charges;
- TJFPE - Fixed interest rate pre-shipment + Variation in U.S. dollar.

2. BNDES Basic Spread

Basic spread represents the average margin over levied over the funding cost by the BNDES to cover its operational expenses.

3. Credit Risk Rate

Credit risk rate is levied by the BNDES as a margin to cover non-performing loans in the sector. This varies according to the credit worthiness of the borrower.

4. Financial Intermediation Rate

This rate reflects the systemic risk of accredited financial institutions who lend on behalf of the BNDES and is limited to 0.5% per year.

5. Financial Institution Spread

It is the rate that reflects the credit risk assumed by the accredited financial institutions, and will be determined by the institution transferor of the funds.

The following table provides details about the rates and charges levied by the BNDES for renewable energy projects:

Parameters	Direct Funding	Indirect Funding
BNDES Financial Cost	At least TJLP*	At least TJLP*
BNDES Basic Spread	1.0% per annum	1.0% per annum
Credit Risk Rate	Up to 2.87% per annum based upon credit risk	-
Financial Intermediation Rate	-	0.1% per annum for MSMEs; 0.5% per annum for other companies
Financial Institution spread	-	As negotiated between financial institution & the client

** TJLP long term interest rate – 5.00% per annum 31st May 2014*

The Bank finances up to 90% of the value of eligible items for MSMEs. For other clients, the maximum contribution may be up to:

Segment	Maximum Share (%)
Hydropower	70
Biomass, wind, solar, small hydro & other	80

Segment	Maximum Share (%)
Cogeneration using biomass boiler with pressure greater than or equal to sixty (60) bar	90

The loan tenure for renewable energy projects vary from 16-20 years as shown in the table below:

Segment	Maximum amortization period
Hydro plants (> 1000 MW)	20 years
Hydro plants (30 MW – 1000 MW)	20 years
Wind energy and biomass	16 years
Small hydro and other alternative energy	20 years

9. Recommendations on Mechanisms for Lowering Cost of Finance

The chapter provides information on mechanisms for lowering cost of finance. In many cases there would be an intermediary involved who would be administering the scheme or through funds are channelized. The optimal way in which to ensure benefits are passed on to developers in such cases, and does not lie with the intermediary, is to have adequate competition; for instance, if a benefit is being provided, a few agencies could be allowed to act as intermediaries. Putting limitations on the profit margin or stipulations, etc. may be inadequate mechanisms which also entail higher monitoring costs.

9.1 Synthesized Products/ New Investors

Allowing pension funds, insurance companies, and sovereign funds having long term horizons to invest in renewable energy projects through encouraging securitization market; this would allow access to longer term investments via subscription of longer term tranches to such organizations. Domestic pension funds have been recently allowed to invest in corporate debt securities up to a limit and similarly, other investors could also be brought in.

The credit ratings of projects continue to be an important factor impacting the investor interest which is also driven by the off taker risk. Hence continuity of incentives, regulatory clarity and capacity building to reduce risk perception are some of the measures that would be required to develop investor interest in these financing mechanisms. Reducing risks in renewable projects is also important as fiduciary responsibilities of pension funds would remain paramount. Further, although such structures are prevalent in foreign markets, Indian investors have preferred simpler structures.

Beyond that the credit enhancement or guarantees also have costs which depend on the extent of support/recourse etc. Liquidity is also a concern as the secondary bond market is not active currently. When there is greater depth of market and secondary trading, there is likely to be higher interest from investors in such structures.

9.2 Tax Free Bonds

Other renewable energy project financiers in addition to IREDA may be allowed to raise capital from market via issuance of tax free bonds, for on-lending to renewable energy sector. Alternatively, the tax credit may be provided to the investor who could net it off against his tax liability. Allowing tax free bonds for private sector developers is already under consideration or expected in June 2014 CBDT notification; however there is required monitoring mechanism to ensure the loss to exchequer is being put to good use. The limit for tax free issuances is currently Rs. 50,000 for FY 2013-14 which is lower than the previous year, but appears to be adequate as the limit was not reached even in the previous year.

9.3 Inflation Linked Bonds

Raising funds through inflation linked/ floating rate bonds is an option that may be considered by renewable energy financiers.

From the issuer's perspective the risk of the fixed rate borrowing is taken by the issuer. A floating rate bond can transfer the risk to the investor and it also matches the lending rates with the borrowing rates over the period of the loan. As compared to pure tax free bonds, where the retail investor interest is also dependent on which tax bracket he is in, inflation linked bonds could help investor have returns in line with inflation or cost of living.

In the corporate bond market, both floating and fixed rate bonds are common. Typically floating rate bonds are linked to Mumbai Interbank Offer Rate (MIBOR). If a new benchmark is being used (e.g. CPI inflation), prior approval of RBI is required the first time it is used.

9.4 Capital Gains Tax bonds

Capital Gains tax exempt bonds (Section EC54 bonds), currently being allowed for REC and NHAI, providing interest rate of 6% and lock in of 3 years, may be allowed for renewable energy lenders. Option may be provided to investors of higher lock in period with higher interest rates as well.

9.5 Tradable Tax Credits

Currently tax benefits are available for the company / SPV, which reduce the tax liability of company and ultimately the tax burden of investors, provided the company has profits to set it off against. In some other countries, tradable tax credits are available which provides an advantage for developers who do not have corresponding set off against such tax benefits but can sell it to others who can benefit from this. While there is a debate on whether tax based benefits or generation based incentives is the optimal solution for incentivizing renewable energy sector, if the tax benefits are given, then it may also be advisable to have tax credits to provide a level playing.

9.6 Reduction of Sovereign Guarantee Fee:

Currently differing guarantee fee is levied by Government of India as Sovereign Guarantee fee when funds from ADB and multilaterals are availed of among different public sector entities; there could be case of lowering this for public sector entities/NBFCs involved in financing renewable energy projects.

9.7 Government / Intermediary Guarantees

Currently government guarantees in India are provided to government bodies and agencies and not to private players. However, there could be a rationale for allowing a government agency to provide guarantee for select renewable energy projects in exchange for guarantee fees.

Alternatively, regulations could allow entities which have higher capability and understanding of renewable energy sector, for e.g. IREDA, to provide guarantee to qualifying projects after credit

appraisal in exchange for guarantee fee. In such a case however, the guarantor's credit profile has to be high enough for the guarantee to be beneficial. Alternately, the guarantee could be provided via an adequately capitalized SPV and structures in place to allow the maximum exposure within this corpus. There is already a Credit Guarantee Fund Scheme set up by GoI for Micro and Small Enterprises with small ticket sizes, and similar fund may be carved out of the NCEF for this purpose.

For the mechanism to work effectively and the funds to be effectively utilized, there should be supporting infrastructure in place to deal with stressed assets as well.

Currently Partial Risk Guarantee facility is available, but IIFCL is the only player and fees are on higher side; a more competitive market would help in moderating the fees, allowing IPPS to raise bonds from the market with the credit support.

9.8 Infrastructure Debt Fund

Finance Minister in his budget speech for 2011-12 had announced setting up of Infrastructure Debt Funds (IDFs) in order to accelerate and enhance the flow of long term debt in infrastructure projects. This is allowed only for investment in debt securities of only PPP projects which have a buyout guarantee and have completed at least one year of commercial operation.

Currently the Infrastructure Debt fund can lend to PPP projects and such funds have been floated by IL&FS, ICICI Bank, IDFC, India Infrastructure Finance Company (IIFCL) and IDBI. As per the RBI mandate, infrastructure debt funds can invest in projects only after one year of commencement of operations.

Allowing funding from Infrastructure Debt fund to renewable energy projects that meet well defined criteria even if they are not public private partnerships or to create mechanisms that allow structuring the projects as private public partnerships would help in great access to finance for renewable energy projects. This would allow longer tenure funds into renewable energy sector.

However, on a standalone basis it is unlikely that the credit profile of renewable energy developers would be in high investment grade, hence the ultimate decision for lending would remain with the fund.

9.9 Improvement in Soft Loans Scheme

Soft loans under IREDA NCEF Refinance scheme are available through IREDA at concessional rate, however currently there is uncertainty for developers on the availability of such soft loans when project economics are worked out, hence the full benefits are not being able to tapped into and the soft loan scheme only add to the profits of the develop in case he obtains the loan subsequently. An improvement could be made such that MNRE can directly sign a pact with State Governments wherein every project selected under State policies would be provided this benefit via the bank/NBFC from which he obtains the financing, to which IREDA would disburse the funds. It may be noted that there should still not be any promised bank loan and it should be subject to the normal credit process of the banks. Further, the payment timelines to IREDA could be improved so that the full allocation may be utilized during the financial year.

Preapprovals for developers is another measure that could provide more certainty for developers to factor in their bid pricing/economics.

9.10 Renewable Energy Development Fund

Similar to the Rural Infrastructure Development Fund (IRDF) of NABARD, a renewable energy fund could be created which would be used for lending to priority sector renewable energy assets (i.e. off grid) and therefore would be considered towards priority sector requirements for banks investing in the fund.

9.11 Capacity Building

Capacity building for lenders in renewable energy projects would help them to understand the risks associated with renewable energy projects better and could lower the risk perception.

Another mechanism is for the Government/MNRE to empanel a set of agencies who would appraise renewable energy projects. This would provide additional comfort for lenders who do not have full in house capability to assess renewable energy projects.

9.12 Regulatory Certainty and Continuity of Incentives

While there are operational incentives such as preferential/ feed in tariffs, renewable purchase obligations, renewable energy certificates, Income tax holiday – 80IA benefits, accelerated depreciation, generation based incentives, etc., they could be harmonized and certainty of continuity assured so that investors have adequate comfort.

9.13 Other mechanisms

Some of the mechanisms which were considered or came in discussions, but which are not being recommended include the following.

9.13.1 Priority Sector Lending Status

Providing priority sector lending status to renewable projects could arguably lower the cost of financing for renewable projects. However, this is not recommended for the following reasons

- The risk assessment would remain the same, and this is likely not to channelize additional funds to the sector
- For banks to meet priority sector obligations through small ticket size of renewable energy projects is also not easy; while banks do meeting priority sector obligation through commercial loans buyout from other banks, these are bulk transactions with several thousand borrowers, which is unlikely to be the case for renewable energy sector.
- While priority sector status is given for off grid; it has not resulted in increased/cheaper financing to the sector.
- Banks indicated reluctance to lend to higher risk projects purely for meeting priority sector lending targets.

9.13.2 Bank focused on renewable energy sector

This is not recommended as there are already multiple banks and risk exposure of such a bank would be high due to exposure to only one sector, which could cause risk to deposits.

9.13.3 Allowing to lend below base rate without specific exemption

RBI could provide specific exemptions to lend below base rate as was provided in the case of funds from IREDA in 2010 for solar projects; however a broad allowance of lending below base rate could have systemic risks and not recommended.

9.13.4 Financing for purchasers of renewable energy

Currently most of the benefits are available only to the developer. On the other hand, if incentives are available to the procurers of renewable energy, there could be increased demand for purchase of renewable energy. Given however, that the purchasers are distribution utilities and there are renewable purchase obligations and other items impacting their finances, it is not recommended.

10. Stakeholder Feedback and Incorporation

Recommendations on policy interventions are useful only to the extent that the stakeholders understand them and have their buy in. Although implementation of such recommendations may take additional time, the buy in of stakeholders is critical.

Table 7: Stakeholders

CRIS's has discussed the recommendations with the following stakeholders

- India Renewable Energy Development Agency (IREDA),
- Power Trading Corporation

Further stakeholders may include the following

- Power Finance Corporation
- Ministry of Finance
- Reserve Bank of India
- Indian Bank's Association
- Securities and Exchange Board of India

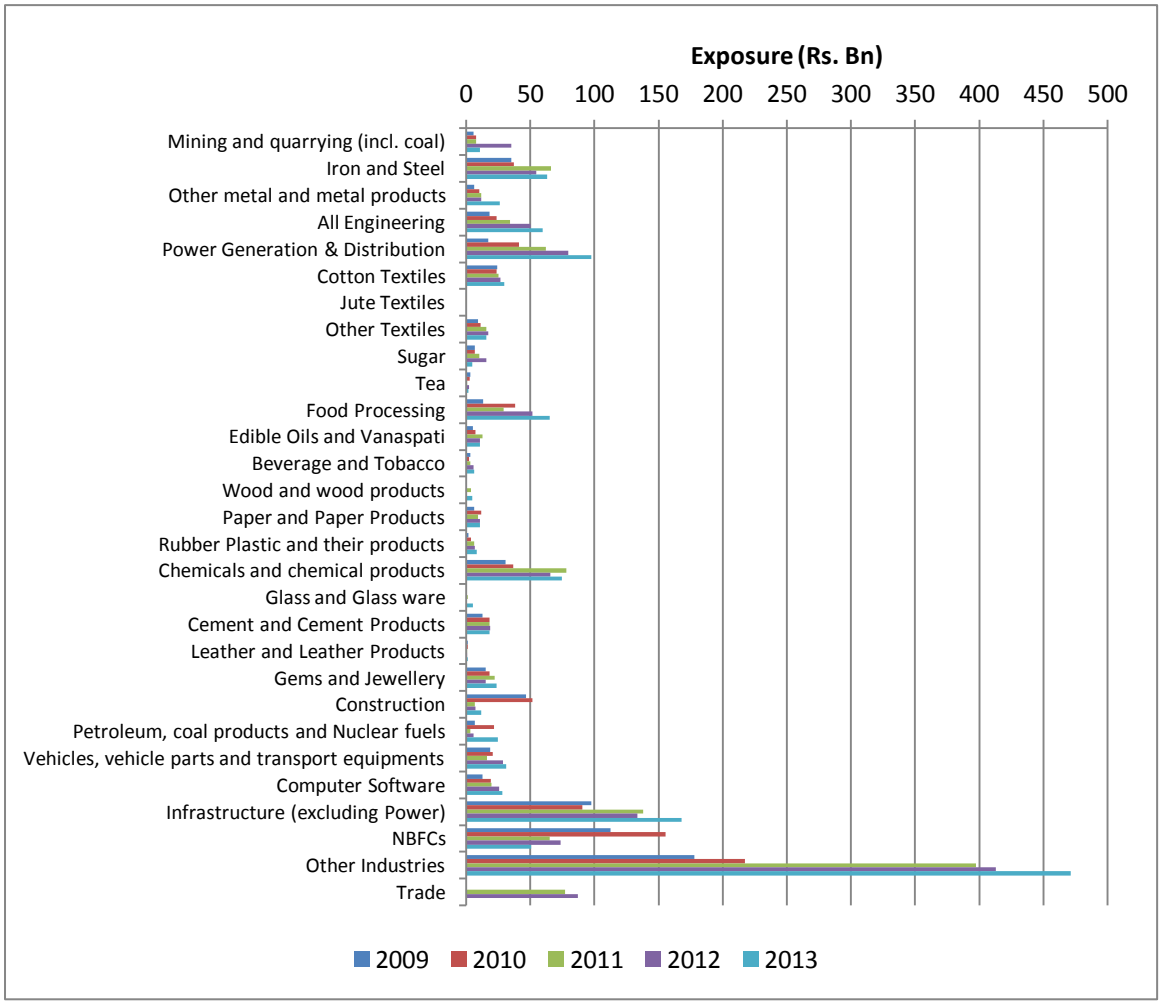
11. Annexure - Entity Wise Analysis

Note: The entities are arranged in alphabetical order

11.1 Axis Bank

11.1.1 Sector wise Exposure

Figure 3: Axis Bank Exposure



Note: Fund based exposure, does not include residuary other advances

As it can be inferred from the graph that infrastructure, chemical products and other industries have witnessed sharp investments.

11.1.2 Tenure

The maturity bucket of Axis bank for financial year 2012-13 in Rs. Billion is as follows:-

Table 8: Maturity Bucket - Axis Bank

Maturity Bucket	Advances of Axis Bank
1 day	23.17
2 to 7 days	19.59
8 to 14 days	17.77
15 to 28 days	24.38
29 days to 3 months	101.97
Over 3 months and upto 6 months	112.20
Over 6 months and upto 12 months	123.49
Over 1 year and upto 3 years	453.12
Over 3 years and upto 5 years	261.46
over 5 years	832.49
Total	1969.66

Axis Bank has 42% of advances over 5 years which is on higher side as compared with others.

11.1.3 Sector Performance

The sector-wise NPA as a proportion of their advances is as follows:-

Table 9: Sector-wise NPA from FY 2009-10 to FY 2012-13

Particulars	Percentage of NPAs to Total Advances in that Sector (%)			
	2010	2011	2012	2013
Agriculture and allied activities	2.31%	2.56%	2.33%	2.36%
Industry (Micro & small, medium and large)	0.95%	1.15%	0.75%	1.09%
Services	0.69%	0.21%	0.96%	1.60%
Personal loans	1.86%	1.38%	0.81%	0.64%

11.1.4 Sources and Cost of Funds

A steady growth of low-cost CASA deposits, which on a daily average basis increased to Rs. 809 bn a as of March 2013 from Rs. 708, helped in containing the cost of funds, which had risen over the period due to the hardening of interest rates on term deposits. Overall, the daily average cost of funds in FY 2012-13 increased to 6.55% from 6.28% last year. During the year, the cost of deposits increased to 6.73% from 6.47% last year primarily due to an increase in cost of term deposits by 18 basis points (from 8.92% to 9.10%). During the same period, the yield on earning assets increased by 9 basis points to 9.75% from 9.66% last year.

The sources of fund for axis bank for FY 2012-13 are as follows:-

Table 10: Sources of Funds - Axis Bank

Sources of Funds for Axis Bank	Amount in Rs. Billion
Demand Deposits	
From banks	29
From others	454
Savings Bank Deposits	638
Term Deposits	
From banks	151
From others	1,254
Total Deposits	**2,526**
Borrowings in India	
Reserve Bank of India	
Other banks	22
Other institutions & agencies	144
Borrowings outside India	273
Total Borrowing	**440**
Total Funds available to Axis Bank	**2,966**

The percentage mix of sources of funds for axis bank for FY 2012-13 is as follows:-

Table 11: Sources of Funds - Axis Bank

Sources of Funds for Axis Bank	Percentage
Deposits	85.18%
Borrowings	14.82%

Table 12: Cost of Funds – Axis Bank

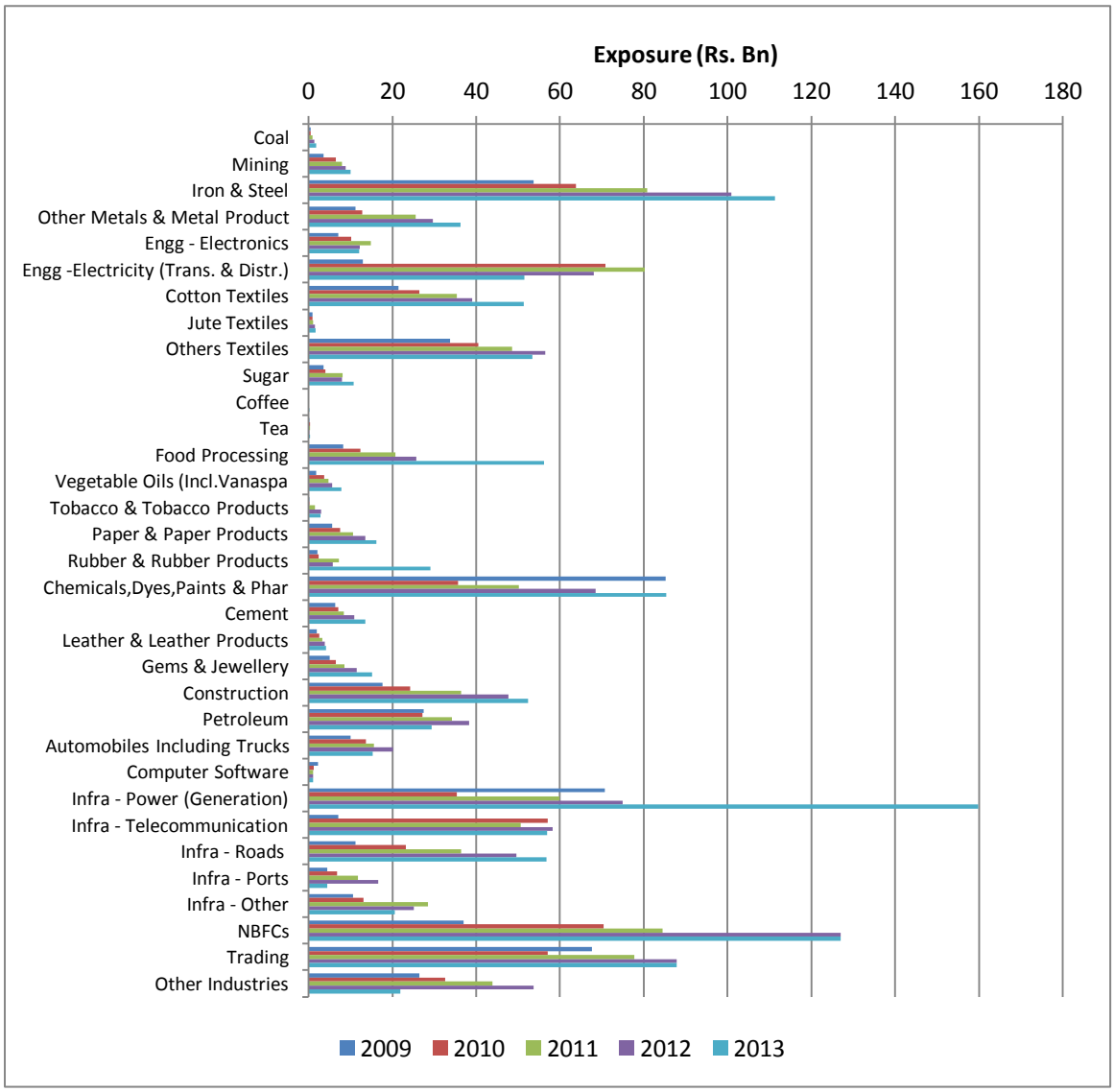
FY	Cost of Funds
2009	6.50%
2010	5.20%
2011	4.96%
2012	6.28%
2013	6.55%

11.2 Bank of Baroda

11.2.1 Sector Classification and Exposure

Broadly sectors are classified into infra and non infra. Further classification is made within these broad categories. As can be observed in table below, there has been sharp increase in investments in infrastructure sector in FY 2012-13. Other sectors such as food processing also witnessed sharp increase in FY 2012-13. Sugar was one sector where the exposure decreased in FY 2012-13.

Figure 4: Sector Exposures – Bank of Baroda



Note: Refers to fund based advances, excludes residuary other advances

Interest Rates

No sector specific interest rates; interest rates depends on individual companies

11.2.2 Sector Exposure

Exposure is maximum to 70% for both infra and non-infra; in some cases up to 75%.

11.2.3 Sector Performance

Gross NPAs and net NPAs to advances stood at 2.4% and 1.3% as of March 2013.

The sector-wise NPA as a proportion of their advances from FY 2010 to FY 2013 are as follows:-

Table 13: Sector-wise NPA from FY 2010 to FY 2013

Particulars	Percentage of NPAs to Total Advances in that Sector (%)			
	2010	2011	2012	2013
Agriculture and allied activities	3.33%	3.47%	3.99%	4.91%
Industry (Micro & small, medium and large)	1.06%	1.76%	1.12%	3.31%
Services	0.82%	1.22%	2.72%	5.27%
Personal loans	3.68%	1.72%	3.66%	6.87%

11.2.4 Tenure

Tenure is generally 7 to 8 years for non-infra; 10 to 12 years for infra including renewable.

The overall maturity bucket of bank of Baroda for financial year 2012-13 in Rs. Billion is as follows:-

Table 14: Maturity - Bank of Baroda

Maturity Pattern	Advances of Band of Baroda
Next day	46.34
2–7days	82.69
8–14days	108.81
15–28days	92.25
29days–3 months	442.33
>3 months–6 months	365.42
>6 months–1 year	302.67
>1 year–3 years	952.97
>3 years–5 years	367.05
>5 years	521.32
Total	3281.86

11.2.5 Ticket sizes

There is no restriction on ticket size; only the approval authority changes – SME/mid corporate/large cooperate.

11.2.6 Sources and Costs of Funds

Source of fund include CASA deposits, fixed deposits (long term) and deposits from companies (typically at higher cost). As long term funds are limited, asset liability mismatch arises which the bank looks at reducing every 2-3 years.

Table 15: Sources of Funds - Bank of Baroda

Sources of Funds for Bank of Baroda	Amount in Rs. Billion
Demand Deposits	
From banks	14.05
From others	342.73
Savings Bank Deposits	843.03
Term deposits From banks	724.22
Term deposits From others	2814.80
Total Deposits	**4738.83**
Borrowings in India	
Reserve Bank of India	
Other banks	3.35
Other institutions & agencies	2.05
Innovative Perpetual Debt Instruments	19.12
Hybrid Debt Capital	50.00
Subordinated Bonds	24.90
Borrowings outside India	166.37
Total Borrowing	265.79
Total Funds available to Bank of India	**5004.63**

Table 16: Sources of Funds – Bank of Baroda

Sources of Funds for Bank of Baroda	Percentage
Deposits	94.69%
Borrowings	5.31%

The cost of funds for the last five years is given below. It can be noted that the cost of funds is primarily driven by the cost of deposits.

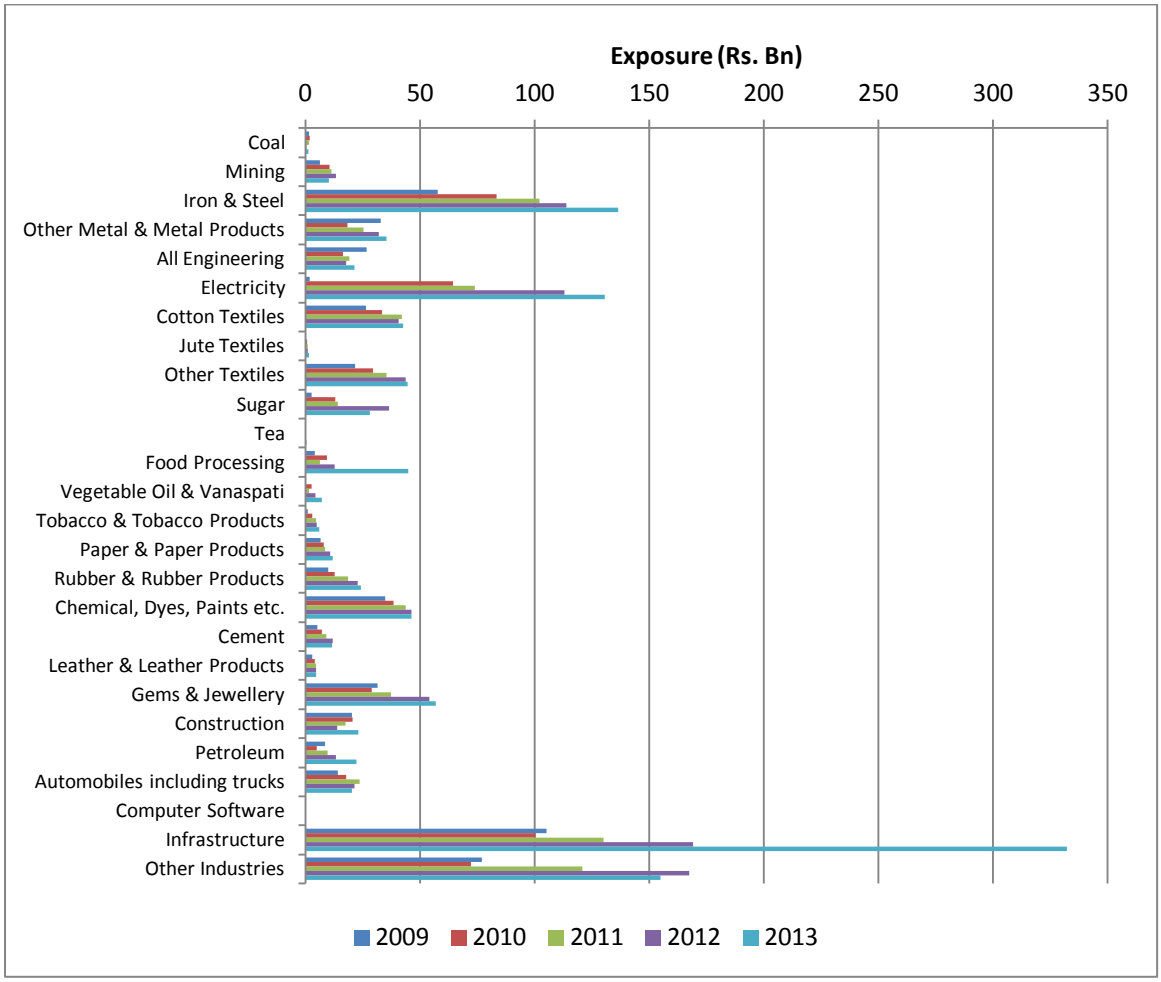
Table 17: Cost of Funds - Bank of Baroda

FY	Cost of Funds	Cost of Deposits
2008	5.75%	
2009	5.81%	5.71%
2010	4.98%	4.90%
2011	4.67%	4.56%
2012	5.64%	5.62%
2013	5.75%	5.80%

11.3 Bank of India

11.3.1 Sector Exposure

Figure 5: Sector Exposure – Bank of India



Note: Fund based exposure, does not include residuary other advances

Food processing and infrastructure showed large increases in FY 2012-13 over the previous year.

11.3.2 Sector Performance

The sector-wise non-performing assets as a percentage of respective sector-wise advances from financial year 2009-10 to financial year 2012-13 is given below:-

Table 18: Sector-wise NPA from FY 2009-10 to FY 2012-13

Particulars	Percentage of NPAs to Total Advances in that Sector (%)			
	2010	2011	2012	2013
Agriculture and allied activities	2.36%	2.94%	2.67%	2.02%
Industry (Micro & small, medium and large)	3.09%	2.56%	1.90%	4.82%
Services	4.74%	2.29%	3.57%	2.96%
Personal loans	4.16%	4.30%	2.56%	1.30%

11.3.3 Tenure

The maturity bucket of Bank of India for financial year 2012-13 in Rs. Billion is as follows:-

Maturity Pattern	Advances of BoI
Next day	274.21
2–7days	60.29
8–14days	42.68
15–28days	96.35
29days–3 months	761.36
3 months–6 months	346.85
6 months–1 year	185.01
1 year–3 years	300.80
3 years–5 years	308.08
>5 years	518.05
Total	2893.68

11.3.4 Sources and Cost of Funds

The sources of fund for Bank of India comprise the mix of debt and demand deposits by different category of consumers.

Table 19: Sources of Funds - Bank of India

Sources of Funds for Bank of India	Amount in Rs. Billion
Demand Deposits	
From banks	10.59
From others	192.26
Savings Bank Deposits	776.21
Term deposits From banks	389.42
Term deposits From others	2449.91
Total Deposits	3818.40
Borrowings in India	
Reserve Bank of India	0.00
Other banks	
Tier I Capital (I.P.D.I.)	5.71
Upper Tier II Capital	0.70
Unsecured Non-convertible Redeemable Bonds	1.11
Others	14.88
Other institutions & agencies	
Tier I Capital (I.P.D.I.)	11.09
Upper Tier II Capital	41.63

Unsecured Non-convertible Redeemable Bonds	16.89
Others	62.53
Borrowings outside India	0.00
Tier I Capital (I.P.D.I.)	4.61
Upper Tier II Capital	13.05
Others	181.47
Total Borrowing	**353.68**
Total Funds available to Bank of India	4172.07

The fund mix for Bank of India in 2012-13 is as follows:-

Table 20: Sources of Funds - Bank of India

Sources of Funds for Bank of India	Percentage
Demand Deposits	91.52%
Borrowings	8.48%

Table 21: Cost of Funds - Bank of India

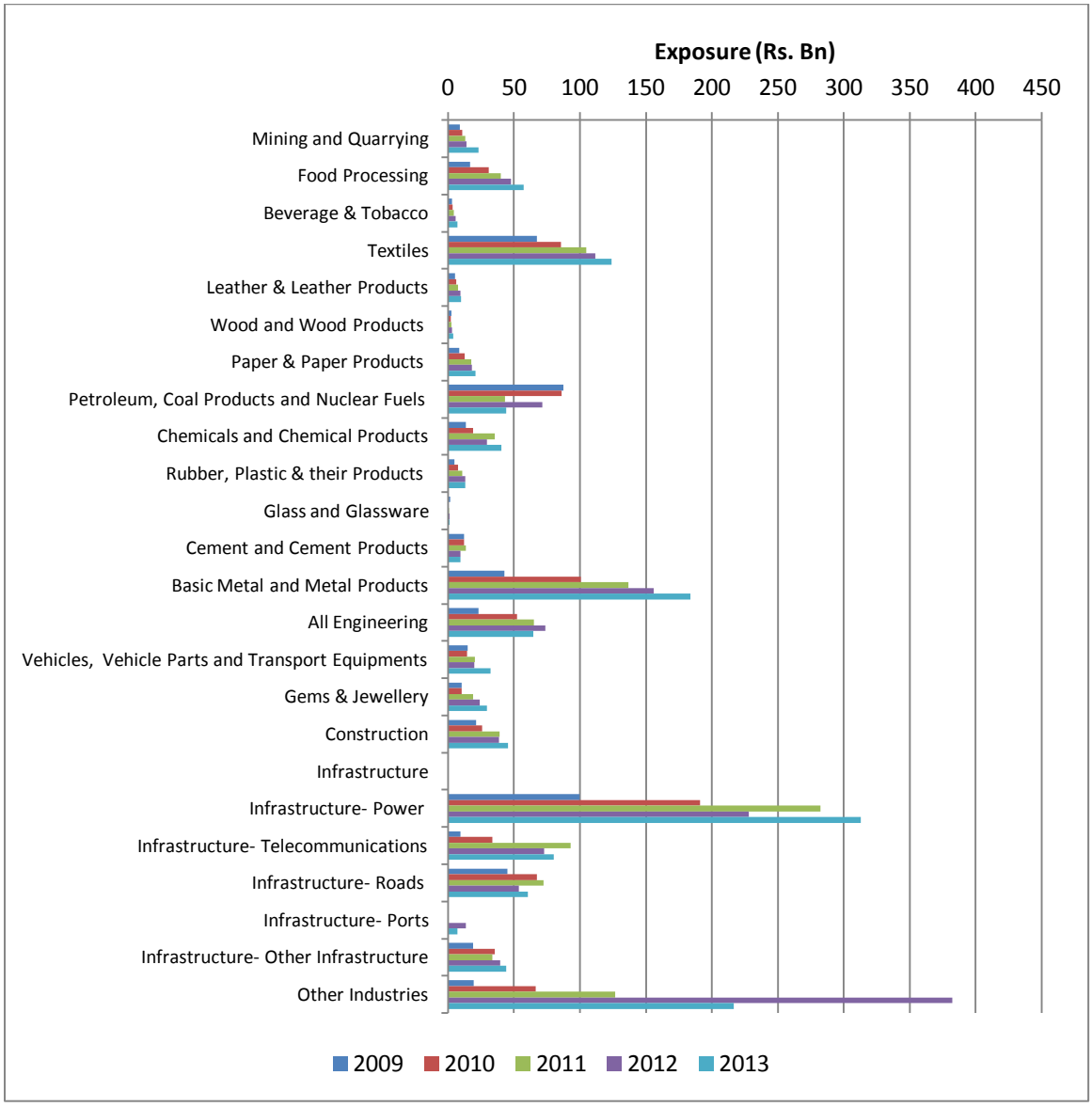
FY	Cost of Funds
2008	5.07%
2009	5.37%
2010	4.84%
2011	4.57%
2012	5.58%
2013	5.50%

11.4 Canara Bank

11.4.1 Sector Exposure

It can be inferred from the chart that infrastructure, metal and metal products, textile and other industries have attracted sharp investments from Canara Bank.

Figure 6: Sector Exposure - Canara Bank



Note: Fund based exposures mentioned

The sectors having exposure greater than 5% are as follows:-

31st March 2013 (Rs. Billion)	
Industry	**Fund Based**
Iron and Steel	147.91
Power	347.39
Other Industries	223.84

11.4.2 Sector Performance

The sector-wise NPA from FY 2009-10 to FY 2012-13 is as follows:-

Table 22: Sector-wise NPA from financial year 2009-10 to 2012-13

Particulars	Percentage of NPAs to Total Advances in that Sector (%)			
	2010	2011	2012	2013
Agriculture and allied activities	3.33%	3.47%	3.99%	4.91%
Industry (Micro & small, medium and large)	1.06%	1.76%	1.12%	3.31%
Services	0.82%	1.22%	2.72%	5.27%
Personal loans	3.68%	1.72%	3.66%	6.87%

11.4.3 Tenure

The maturity bucket of Canara bank for financial year 2012-13 in Rs. Billion is as follows:-

Table 23: Maturity - Canara Bank

Maturity Bucket	Advances of Canara Bank
1 day	54.08
2 to 7 days	66.89
8 to 14 days	72.04
15 to 28 days	90.22
29 days to 3 months	226.68
Over 3 months and upto 6 months	209.30
Over 6 months and upto 12 months	397.29
Over 1 year and upto 3 years	654.16
Over 3 years and upto 5 years	232.89
over 5 years	423.58
Total	2427.14

11.4.4 Cost of Funds

The Bank's cost of deposits increased to 7.72% due to high interest rates prevailing during the year. The yield on advances improved to 11.13% as at March 2013 compared to 10.93% last year. Interest spread stood at 2.09% compared to 2.23% as at March 2012.

Table 24: Sources of Funds Canara Bank

Sources of Funds for Canara Bank	Amount in Rs. Billion
Demand Deposits	
From banks	2.36
From others	146.57
Savings Bank Deposits	711.68
Term deposits From banks	121.05
Term deposits From others	2576.90

Sources of Funds for Canara Bank	Amount in Rs. Billion
Total Deposits	**3558.56**
Borrowings in India	
Reserve Bank of India	
Other banks	
Other institutions & agencies	35.26
Unsecured Redeemable Bonds (IPDI and Subordinated Debt)	73.54
Borrowings outside India	
Other banks	80.47
Unsecured redeemable bonds (subordinated debt)	13.57
Total Borrowing	**202.83**
Total Funds available to Bank of India	**3761.39**

Table 25: Cost of Funds - Canara Bank

FY	Cost of Funds
2010	5.65%
2011	5.37%
2012	6.72%
2013	6.96%

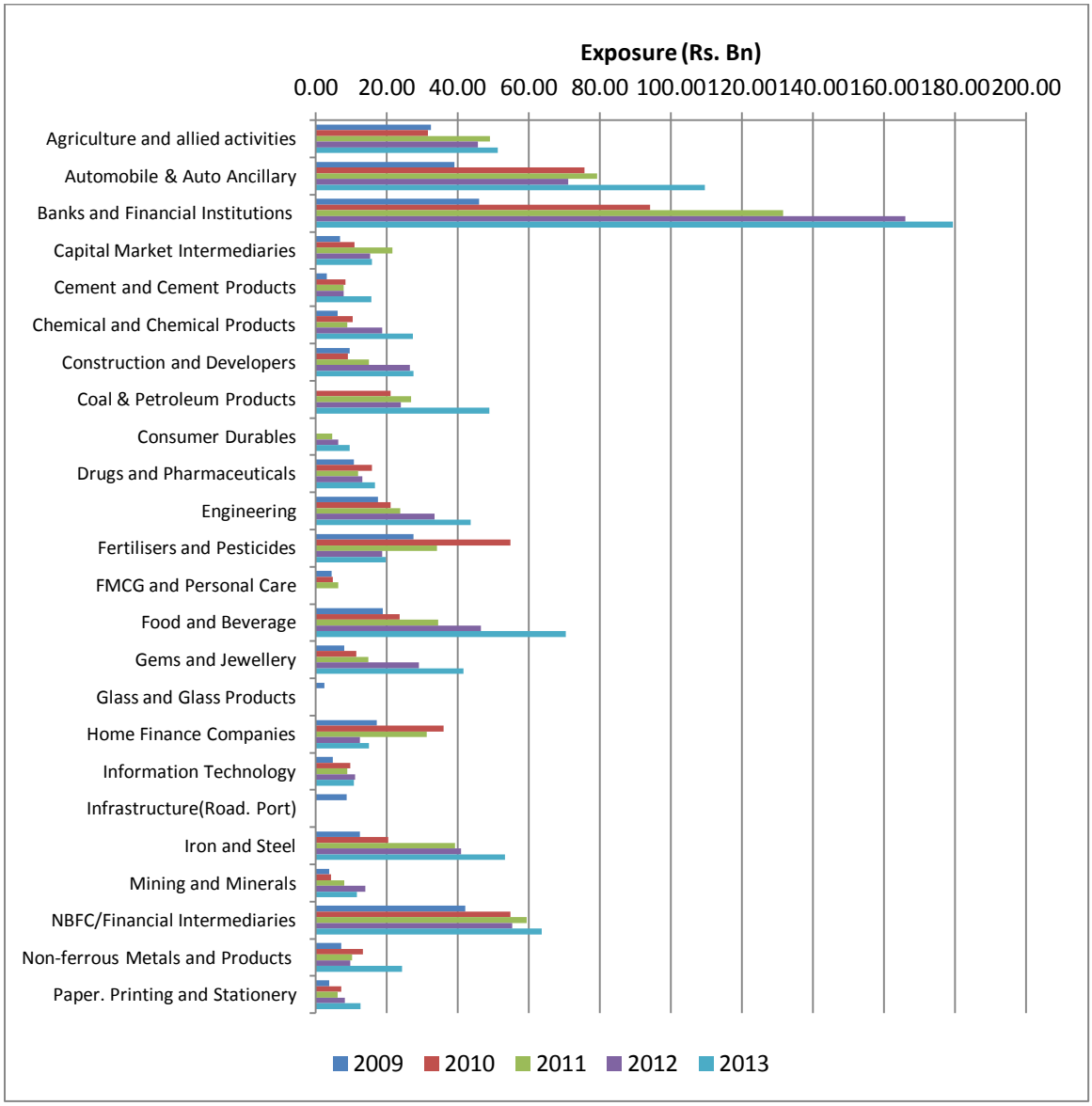
11.5 HDFC Bank

HDFC Bank is the fifth largest bank in India by assets. It is the largest bank in India by market capitalization as of February 2014. As on Jan 2 2014, the market cap value of HDFC was around USD 26.88B. The bank was promoted by the Housing Development Finance Corporation, a premier housing finance company (set up in 1977) of India.

As of 31 March 2013, the bank had assets of INR 4.08 trillion. For the fiscal year 2012-13, the bank has reported net profit of INR 69 billion, up 31% from the previous fiscal year. Its customer base stood at 28.7 million customers on 31 March 2013.

11.5.1 Sector Exposure

Figure 7: Exposure of HDFC Bank from 2009 to 2013



It can be seen that retail asset has shown achieved significant proportion of advance from HDFC Bank.

The exposure of HDFC Bank greater than 5% for different sectors as on 31st march 2013 is given below:-

Table 26: Exposure of HDFC Bank (exposure > 5%) as on 31st march 2013

31st March 2013 (Rs. Billion)	
Industry	**Fund Based**
Road Transport	157.58
Banks and Financial Institutions	179.43

31st March 2013 (Rs. Billion)	
Industry	**Fund Based**
Wholesale Trade	178.46

11.5.2 Sources of Funds

Table 27: Sources of Funds

Sources of Funds for HDFC Bank	Amount in Rs. Billion
Demand Deposits	
From banks	10.39
From others	512.72
Savings Bank Deposits	882.11
Term deposits From banks	14.28
Term deposits From others	1542.98
Total Deposits	**2962.47**
Borrowings in India	
Reserve Bank of India	2.75
Other banks	7.25
Other institutions & agencies	24.39
Upper and lower Tier II Capita and innovative perpetual bonds	160.44
Borrowings outside India	135.24
Total Borrowing	**330.07**
Total Funds available to Bank of India	**3292.54**

It may be noted that of the borrowings, a large part is from outside India.

Risk Free rate

The risk free interest rate mentioned ranged from 8-9% in FY 2012-13.

Net Interest Margin

The net interest margin was 4.50% for the year ending 31st March 2013.

11.5.3 Sector Performance

Non-performing assets (NPAs) to gross advances was 0.97% in the year ending 31st March 2013. Industry (Micro & small, Medium and Large) had 1.04 % of total NPA against their total advances. Agriculture sector had 0.90% of their total advances as non-performing asset.

The percentage of NPA to the total advances in top four sectors from FY 2010 to FY 2013 are as follows:-

Table 28: Percentage of sector-wise NPA to their respective advances

Particulars	Percentage of NPAs to Total Advances in that Sector (%)			
	2010	2011	2012	2013
Agriculture and allied activities	0.91%	0.54%	0.92%	0.90%
Industry (Micro & small, medium and large)	1.46%	1.67%	1.30%	1.04%
Services	3.86%	1.59%	0.94%	0.60%
Personal loans	1.11%	1.55%	0.52%	0.62%

11.5.4 Tenure

The tenure of bank's loan and advances as on 31st march 2013 are as follows. Tenure over 5 years comprised 7.6% of advances.

Table 29: Tenure of Loans and Advances as on 31st march 2013

Tenure As at March 31, 2013	Loans & Advances in Rs. Billion
1 day	51.61
2 to 7 days	47.71
8 to 14 days	46.17
15 to 28 days	69.39
29 days to 3 months	226.73
Over 3 months to 6 months	226.77
Over 6 months to 12 months	257.01
Over 1 year to 3 years	1105.69
Over 3 years to 5 years	181.46
Over 5 years	184.66
Total	2397.21

11.6 ICICI Bank

ICICI Bank is India's largest private sector bank. Retail advances constitute 39% of advances, which has increased in FY 2013 over the previous year.

11.6.1 Credit Policies

11.6.2 Sector Exposure

Policies

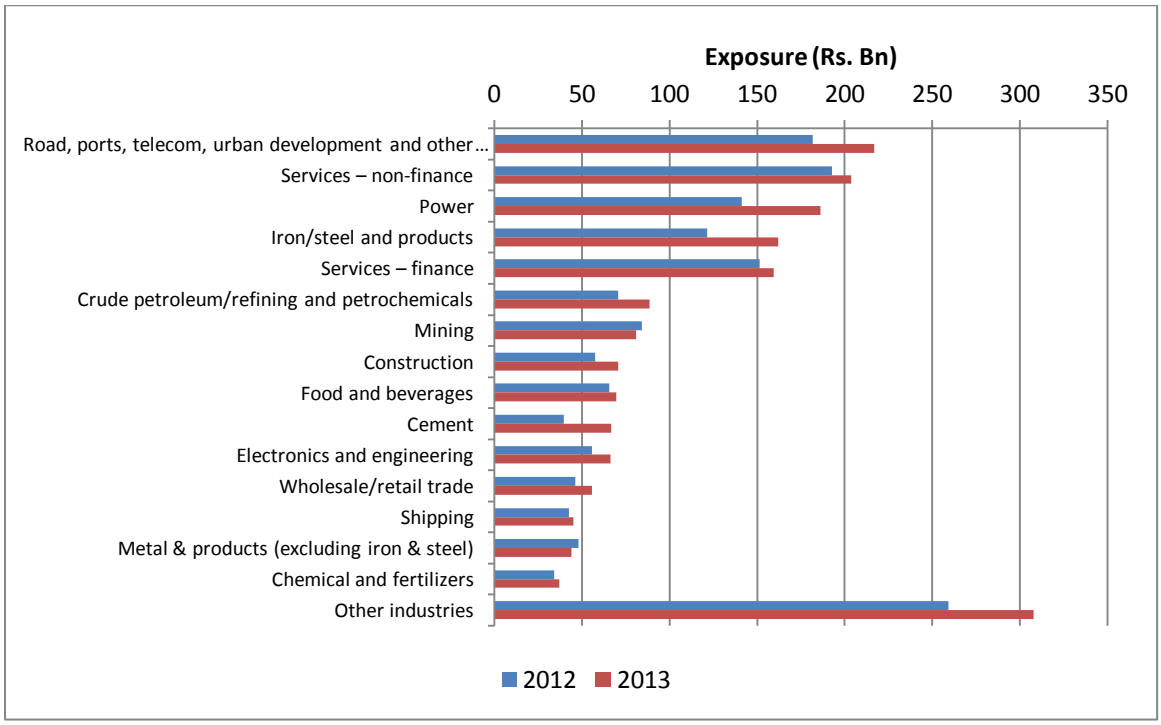
In order to assess the credit risk associated with any financing proposal, ICICI Bank assesses a variety of risks relating to the borrower and the relevant industry. Borrower risk is evaluated by considering: (i) the financial position of the borrower by analyzing the quality of its financial statements, its past financial performance, its financial flexibility in terms of ability to raise capital and its cash flow adequacy; (ii) the borrower's relative market position and operating efficiency; and (iii) the quality of management by analyzing their track record, payment record and financial conservatism.

ICICI Bank evaluations Industry risk by considering (i) certain industry characteristics, such as the importance of the industry to the economy, (ii) its growth outlook, cyclicality and government policies relating to the industry; (iii) the competitiveness of the industry; and (iv) certain industry financials, including return on capital employed, operating margins and earnings stability.

Limits have been stipulated on single borrower, borrower group, industry and longer tenure exposure to a borrower group. Exposure to top 10 borrowers and borrower groups, exposure to capital market segment and unsecured exposures for the ICICI Group (consolidated) is reported to the senior management committees on a quarterly basis.

The chart below shows the sector exposure

Figure 8: Sector Exposure – ICICI Bank



Note – Excludes retail finance

It can be noted that there was a larger increase in certain sectors such as power, iron/steel and products, and retail finance in FY 2012-13 as compared to the previous year

11.6.3 Sector Performance

Retail advances also constitute highest proportion of the NPAs (80% of NPAs are from retail advances).

The performance of NPA to advances for FY 2011-12 and FY 2012-13 is as follows:-

Table 30: Percentage of NPA to Advances in FY 2011-12 and FY 2012-13

Particulars	Percentage of NPA to Advances	
	2011-12	2012-13
Retail Finance	7.46%	5.17%
Road, ports, telecom, urban development and other infrastructure	0.08%	0.06%
Services Non-finance	0.19%	4.31%
Power	0.06%	0.05%
Iron/steel and products	0.75%	1.23%
Services–Finance	0.00%	0.00%
Crude Petroleum/refining and petrochemicals	0.07%	0.05%
Mining	0.00%	0.25%
Construction	1.55%	3.18%
Food and beverages	2.34%	2.79%
Cement		
Electronics and Engineering	3.24%	3.91%
Wholesale/retail trade	2.48%	7.46%
Shipping	1.06%	0.84%
Metal & products (excluding iron & steel)	2.31%	2.41%
Chemical and fertilizers	4.44%	3.58%
Other industries	3.42%	4.35%

11.6.4 Tenure

The maturity bucket of ICICI bank for financial year 2012-13 in Rs. Billion is as follows:-

Table 31: Tenure - ICICI Bank

Maturity Bucket	Advances of ICICI Bank
1 day	9.52
2 to 7 days	17.93
8 to 14 days	43.30
15 to 28 days	60.65
29 days to 3 months	213.91
Over 3 months and upto 6 months	227.87
Over 6 months and upto 12 months	361.05
Over 1 year and upto 3 years	1305.94

Over 3 years and upto 5 years	606.65
over 5 years	452.71
Total	3299.53

11.6.5 Sources and Cost of funds

Table 32: Sources of Funds – ICICI Bank

Sources of Funds for ICICI Bank	Amount in Rs. Billion
Demand Deposits	
From banks	20.39
From others	348.87
Savings Bank Deposits	856.51
Term deposits From banks	117.89
Term deposits From others	1582.49
Total Deposits	**2926.14**
Borrowings in India	
Reserve Bank of India	156.25
Other banks	18.71
Unsecured redeemable debentures/bonds	218.17
Borrowings in the forms of bonds and debentures (excluding subordinated debt)	15.52
Other institutions & agencies	60.59
Tier I Capital (I.P.D.I.)	13.01
Upper Tier II Capital	98.17
Redeemable Non-Cumulative Preference Shares (RNCPS)	3.50
Borrowings outside India	
Tier I Capital (I.P.D.I.)	18.41
Upper Tier II Capital	48.86
Others	496.02
Bonds and Notes	306.20
Total Borrowing	**1453.41**
Total Funds available to Bank of India	**4379.55**

While most banks rely on CASA deposits, ICICI Bank has high proportion – 33% of the funding sources being from borrowings.

Securitized assets comprised Rs. 8 bn as of March 31, 2013, although the bank did not securitise any assets during the year.

During FY 2012-13, the cost of interest bearing liabilities was 6.43% comprising of CASA deposits at 2.97% and term deposits at 8.47%, other borrowings being at 6.54%.CASA Deposits comprised 42% in FY 2012-13. Historical Cost of funds are given below

Table 33: Cost of Funds – ICICI Bank

FY	Cost of Funds
2009	7.00%
2010	5.80%
2011	5.40%
2012	6.33%
2013	6.43%

Risk Free rate

The risk free interest rate mentioned ranged from 7.99% to 8.87% in FY 2012-13.

Net Interest Margin

The net interest margin was 3.11% (average yield on advances at 9.94%, on other investments at 7.73%, other interest earning assets at 5.96%).

Bond Raising

ICICI Bank has been raising international borrowings with maturity of 6 to 10 years and maximum 15 years. The last issuance was in 2012. The cost for senior bonds were 70% to 5.75% and the subordinated bonds at 6.35% to 7.25%

11.7 IREDA

IREDA is a Public Limited Government Company established in 1987, under the administrative control of Ministry of New and Renewable Energy (MNRE) to promote, develop and extend financial assistance for renewable energy and energy efficiency /conservation projects. As it is focused on renewable sector, the sector wise analysis in this case is done for the sub sectors within renewable energy.

Loan sanction versus disbursement

Table 34: Sanctions versus Disbursement to Different RE Sectors by IREDA in 2012-13

Sectors	Sanctions	Disbursements
Wind Power	17.92	12.08
Hydro Power	9.14	3.56
Biomass Co-generation	7.11	3.48
Energy Efficiency & Conservation	0.00	0.60
Solar Energy	3.22	1.51
Waste to Energy & Misc.	0.08	0.02

TOTAL	**37.47**	**21.26**

Exposure

The sector-wise exposure for different sectors from financial year 2008-09 to financial year 2012-13 are as follows:-

S.No.	Sectors	2008-09	2009-10	2010-11	2011-12	2012-13	Cumulative since 1987
1	Wind Power	7.29	11.74	14.96	16.44	17.92	100.76
2	Hydro Power	3.43	4.83	9.85	7.73	9.14	55.94
3	Cogeneration	3.20	1.40	2.79	5.00	7.11	32.69
4	Biomass Power	0.16	0.17	0.49	0.00	0.00	7.89
5	Energy Efficiency & Conservation	0.40	0.00	2.62	1.41	0.00	9.76
6	Solar Photovoltaic	0.33	0.00	0.39	3.45	3.22	13.25
7	Solar Thermal	0.08	0.09	0.00	0.00	2.05	0.00
8	Waste to Energy	0.00	0.00	0.17	0.04	0.08	0.87
9	Biomethanation from Industrial Effluents	0.00	0.00	0.00	0.00	0.00	0.19
10	Biomass Briquetting	0.00	0.00	0.00	0.00	0.00	0.12
11	Biomass Gasification	0.00	0.00	0.00	0.00	0.00	0.72
12	Miscellaneous	0.00	0.00	0.00	0.00	0.00	0.33
TOTAL		**14.90**	**18.24**	**31.26**	**34.06**	**37.47**	**224.59**

The percentage-wise allocations of different sectors for last five years are as follows:-

Table 35: Percentage-wise Allocation to Different Sectors from 2008-09 to 2012-13

S.No.	Sectors	2008-09	2009-10	2010-11	2011-12	2012-13
1	Wind Power	48.92%	64.37%	47.84%	48.25%	47.82%
2	Hydro Power	23.05%	26.51%	31.49%	22.69%	24.40%
3	Cogeneration	21.47%	7.68%	8.93%	14.67%	18.98%
4	Biomass Power	1.09%	0.95%	1.57%	0.00%	0.00%
5	Energy Efficiency & Conservation	2.70%	0.00%	8.37%	4.14%	0.00%
6	Solar Photovoltaic	2.24%	0.00%	1.26%	10.12%	8.58%
7	Solar Thermal	0.54%	0.49%	0.00%	0.00%	5.47%
8	Waste to Energy	0.00%	0.00%	0.54%	0.11%	0.22%
9	Biomethanation from Industrial Effluents	0.00%	0.00%	0.00%	0.00%	0.00%
10	Biomass Briquetting	0.00%	0.00%	0.00%	0.00%	0.00%
11	Biomass Gasification	0.00%	0.00%	0.00%	0.00%	0.00%
12	Miscellaneous	0.00%	0.00%	0.00%	0.00%	0.00%
TOTAL		100.00%	100.00%	100.00%	100.00%	100.00%

11.7.1 Performance

As on March 31, 2013 the gross and net NPAs was 3.86% and 0.92%, respectively against gross and net NPAs was 5.46% and 2.50% as on March 31, 2012.

11.7.2 Sources of Funds

The Sources of Funds for IREDA are as below

- Taxable bonds: - Secured, non-convertible, redeemable taxable bonds under various series typically with a maturity period of ten years from the date of allotment and bearing an interest rate ranging from 8.44% to 9.60%. These bonds were issued on private placement basis and are currently listed on the “whole sale debt market segment on the NSE.
- Term Loans: - IREDA avails secured as well as unsecured long term and short term loans from various banks and financial institutions. These loans are mostly in the nature of term loans with a maturity period ranging from 7 to 16 years and bear a fixed as well as floating interest rate ranging from 7.20 % to 10.25%.
- International Borrowings: - As on December 31, 2013, IREDA’s foreign currency borrowings was Rs. 38.47 bn from multilateral bodies and which are either guaranteed by the Government of India. These loans have a typical maturity period ranging from 10 to 40 years from the date of disbursement and bear a fixed and floating interest rate.

11.7.3 Others

IREDA indicates its intention to diversify areas of financing towards the following in the annual report

- non-fund based facilities like providing ‘performance guarantee’ for renewable energy projects,
- providing refinance to banks/financial institutions for on-lending to renewable energy projects under National Clean Energy Fund and
- fee based advisory/consulting services and
- expand the scope of providing loan against securitization of future receivables from the renewable energy projects.

11.8 IDBI Bank

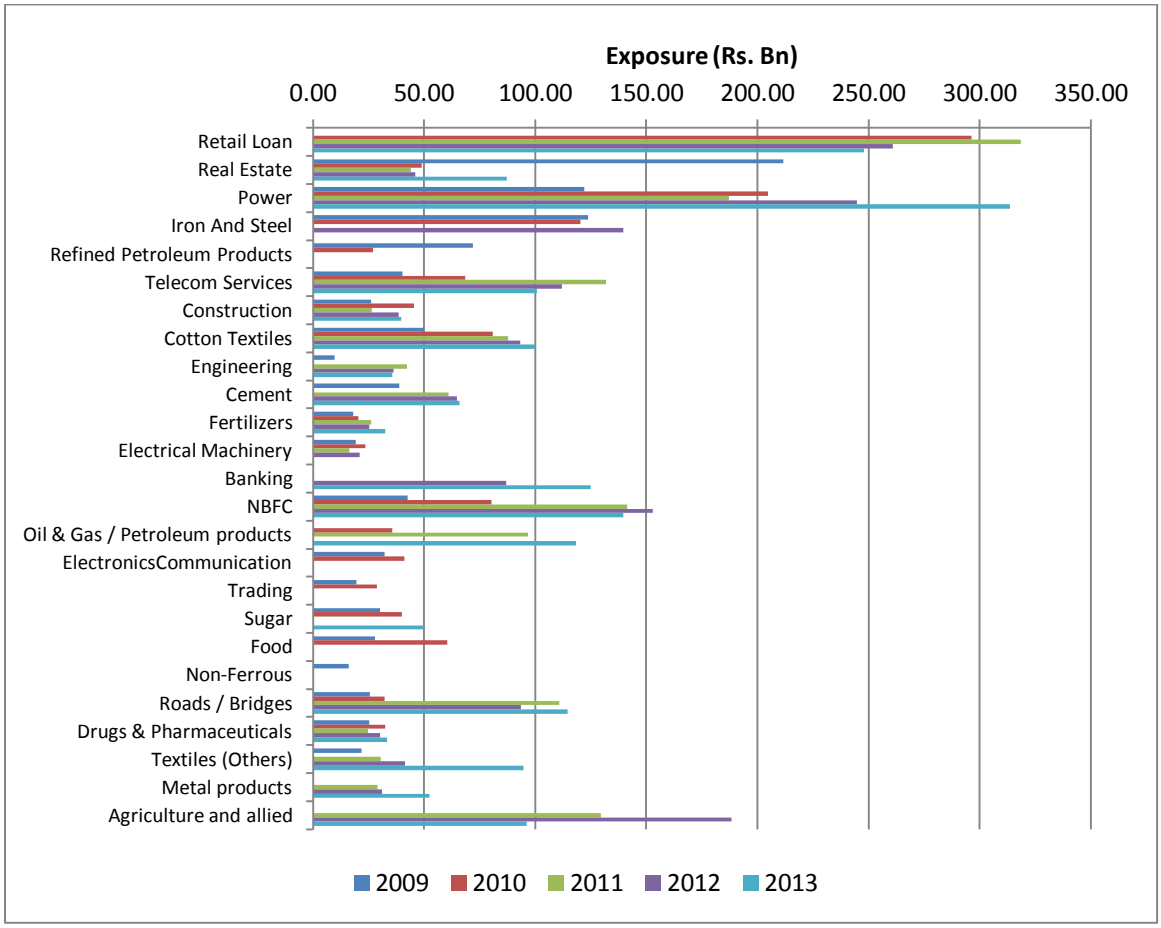
IDBI Bank Limited (IDBI) is an Indian financial service company categorized by RBI as an "other public sector bank". It was established in 1964 by an Act of Parliament to provide credit and other facilities for the development of the fledgling Indian industry.

It is currently 10th largest development bank in the world in terms of reach with 1159 branches including one overseas branch at DIFC, Dubai and 779 centers including two overseas centres at Singapore & Beijing. IDBI Bank is on a par with nationalized banks and the SBI Group as far as government ownership is concerned. It is one among the 26 commercial banks owned by the Government of India.

The Bank has an aggregate balance sheet size of INR 3.2 trillion as on 31 March 2013.

11.8.1 Sector Exposure

Figure 9: Sector-wise Exposure of IDBI Bank



Retail loan and power sector attracted most of funds from 2008 to 2012.

Net Interest Margin

The net interest margin was 2.12% for the year ending 31st March 2013.

11.8.2 Sector Performance

Sector-wise non-performing assets (NPAs) from FY 2008-09 to FY 2012-13 are as follows:-

Table 36: Sector-wise NPA from 2008-09 to 2012-13

Sector	2008-09	2009-10	2010-11	2011-12	2012-13
Agriculture & allied activities	1.70%	1.70%	1.57%	3.56%	7.19%
Industry (Micro & small, Medium and Large)	0.97%	0.97%	1.95%	2.56%	3.15%

Sector	2008-09	2009-10	2010-11	2011-12	2012-13
Services	0.97%	0.97%	0.88%	1.72%	2.89%
Personal Loans	0.86%	0.86%	1.13%	1.24%	1.28%

11.8.3 Tenure

The maturity bucket of IDBI bank for financial year 2012-13 in Rs. Billion is as follows:-

Table 37: Maturity – IDBI Bank

Maturity Bucket	Advances of IDBI Bank
1 day	15.70
2 to 7 days	25.61
8 to 14 days	23.50
15 to 28 days	24.55
29 days to 3 months	127.15
Over 3 months and upto 6 months	70.22
Over 6 months and upto 12 months	113.68
Over 1 year and upto 3 years	821.49
Over 3 years and upto 5 years	253.30
over 5 years	487.86
Total	1963.06

11.8.4 Sources of Funds

The Singapore Dollar Bond issue by IDBI Bank during 2012-13 was the first benchmark public bond transaction by any Indian entity in the Singapore Dollar bond market, opening up a new source of funding and investor diversification for Indian issuers.

Table 38: Sources of Funds

Sources of Funds for IDBI Bank	Amount in Rs. Billion
Demand Deposits	
From banks	30.87
From others	302.02
Savings Bank Deposits	237.60
Term deposits From banks	237.57
Term deposits From others	1463.10
Total Deposits	**2271.16**

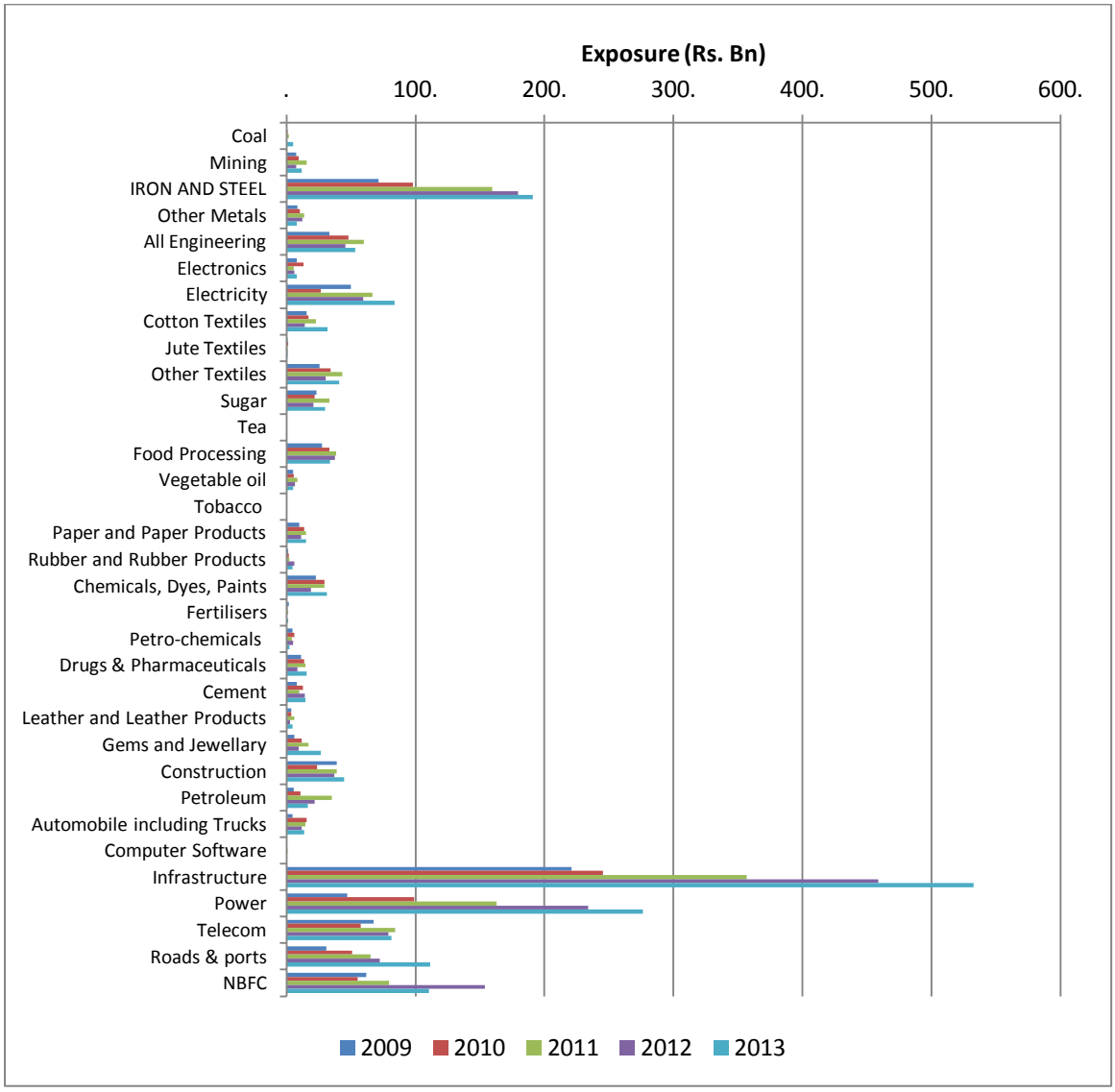
Sources of Funds for IDBI Bank	Amount in Rs. Billion
Borrowings in India	
Reserve Bank of India	
Other banks	8.14
Tier I Capital (I.P.D.I.)	25.59
Upper Tier II Capital	42.86
Unsecured Redeemable Bonds	102.96
Others	254.37
Borrowings outside India	224.17
Total Borrowing	**658.09**
Total Funds available to Bank of India	**2929.25**

11.9 Punjab National Bank

Punjab National Bank is the third largest bank in India in terms of asset size (US$6.6 billion by the end of FY 2012-13).

11.9.1 Sector Exposure

Figure 10: Sector Exposure- Punjab National Bank



It can be inferred from the graph that infrastructure, telecom, NBFC were highest attractor of funds from PNB.

11.9.2 Sector Performance

Sector-wise non-performing assets (NPAs) as on 31st March 2013 and 31st March 2012 is as follows:-

Table 39: Sector-wise NPA to Total Advances in that Sector (2012-13 and 2011-12)

S. No.	Sector	Percentage of NPAs to No. Total Advances in that sector	
		31.03.2013	31.03.2012
1	Agriculture & allied activities	6.33%	5.03%
2	Industry (Micro & small, Medium and Large)	5.47%	2.86%
3	Services	2.80%	3.46%
4	Personal Loans	3.31%	2.54%

11.9.3 Tenure

The maturity bucket of Punjab National bank for financial year 2012-13 in Rs. Billion is as follows:-

Table 40: Maturity - Punjab National Bank

Maturity Bucket	Advances of PNB
1 day	194.21
2 to 7 days	30.52
8 to 14 days	24.97
15 to 28 days	30.52
29 days to 3 months	221.96
Over 3 months and upto 6 months	174.79
Over 6 months and upto 12 months	788.87
Over 1 year and upto 3 years	616.59
Over 3 years and upto 5 years	300.80
over 5 years	735.33
Total	3118.54

11.9.4 Sources and Cost of Funds

The sources of fund for Punjab National bank for FY 2012-13 are as follows:-

Table 41: Sources and Costs of Funds

Sources of Funds for Punjab National Bank	Amount in Rs. Billion
Demand Deposits	
From banks	29.74
From others	269.00
Savings Bank Deposits	1234.70

Sources of Funds for Punjab National Bank	Amount in Rs. Billion
Term deposits From banks	111.14
Term deposits From others	2271.01
Total Deposits	**3915.60**
Borrowings in India	
Reserve Bank of India	57.00
Other banks	5.83
Tier I Capital (I.P.D.I.)	20.21
Subordinated debt for tier II Capital	22.65
Other institutions & agencies	11.76
Upper Tier II Capital	66.10
Borrowings outside India	212.66
Total Borrowing	**396.21**
Total Funds available to Bank of India	**4311.81**

The cost of fund of Punjab National Bank from financial year 2007-08 to financial year 2012-13 is as follows:-

Table 42: Cost of funds from 2007-08 to 2012-13

Particulars	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Cost of fund	4.90%	5.51%	4.75%	4.57%	5.62%	5.70%

Net Interest Margin

The net interest margin was 3.52% for the year ending 31st March 2013.

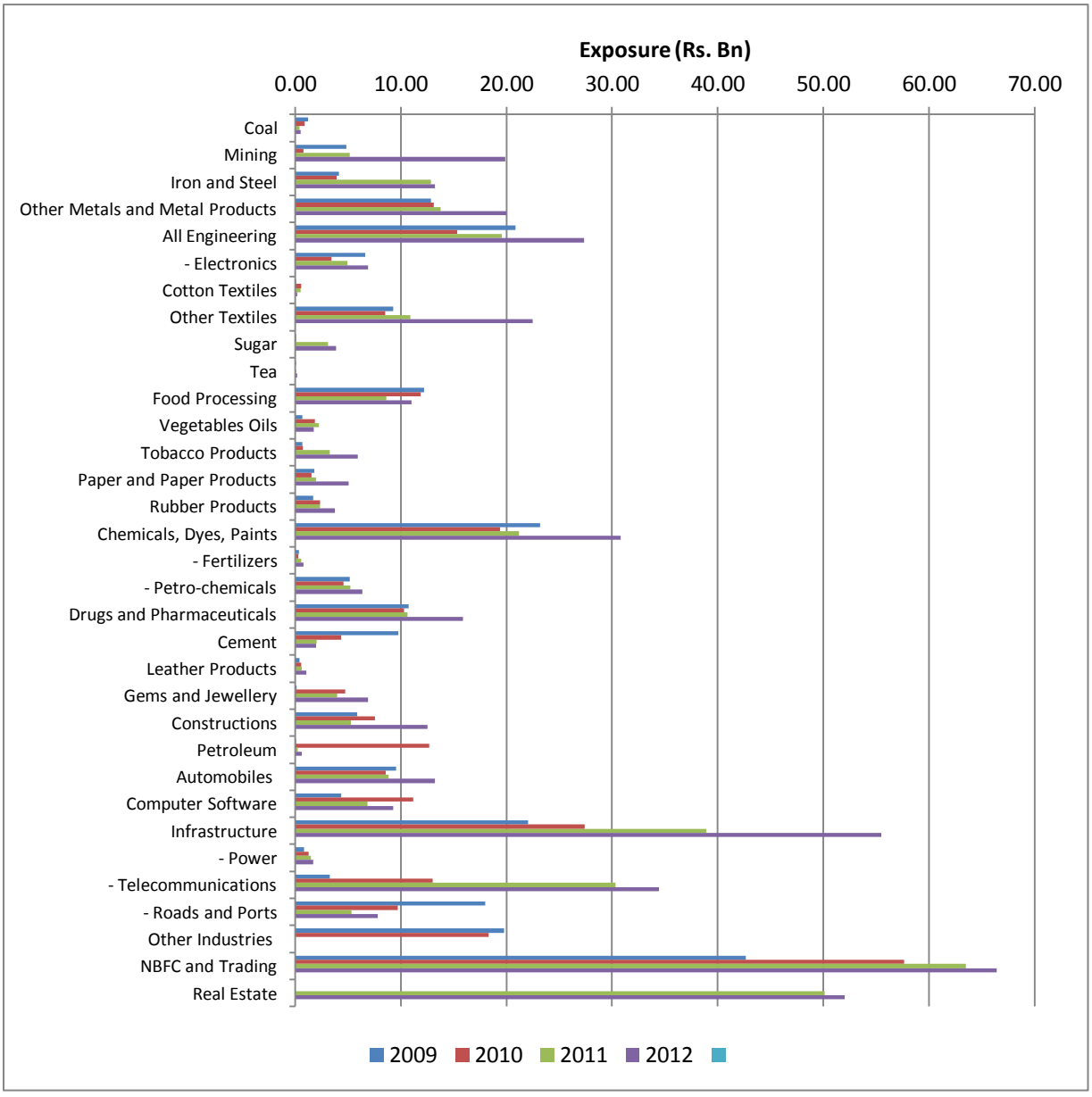
11.9.5 Standard Chartered Bank

Standard Chartered PLC is a British multinational banking and financial services company headquartered in London, United Kingdom. It operates a network of over 1,700 branches and outlets (including subsidiaries, associates and joint ventures) across more than 70 countries and employs around 87,000 people. It is a universal bank with operations in consumer, corporate and institutional banking, and treasury services. Despite its UK base, it does not conduct retail banking in the UK, and around 90% of its profits come from Africa, Asia and the Middle East.

11.9.6 Sector Exposure

Infrastructure, chemical and paint sector and NBFCs were main absorber of funds from Standard Chartered Bank.

Figure 11: Sector-wise Exposure of Standard Chartered Bank



11.9.7 Sector Performance

Sector-wise exposure of Standard Chartered Bank is as follows:-

Table 43: Sector-wise NPA of Standard Chartered bank for FY 2010-11 and 2011-12

Sector	2010-11	2011-12
Agriculture & allied activities	0.64%	0.00%
Industry (Micro & small, Medium and Large)	0.46%	0.65%
Services	0.34%	1.01%
Personal Loans	0.43%	0.38%

11.9.8 Tenure

The maturity bucket of is as follows:-

Table 44: Maturity - Standard Chartered Bank

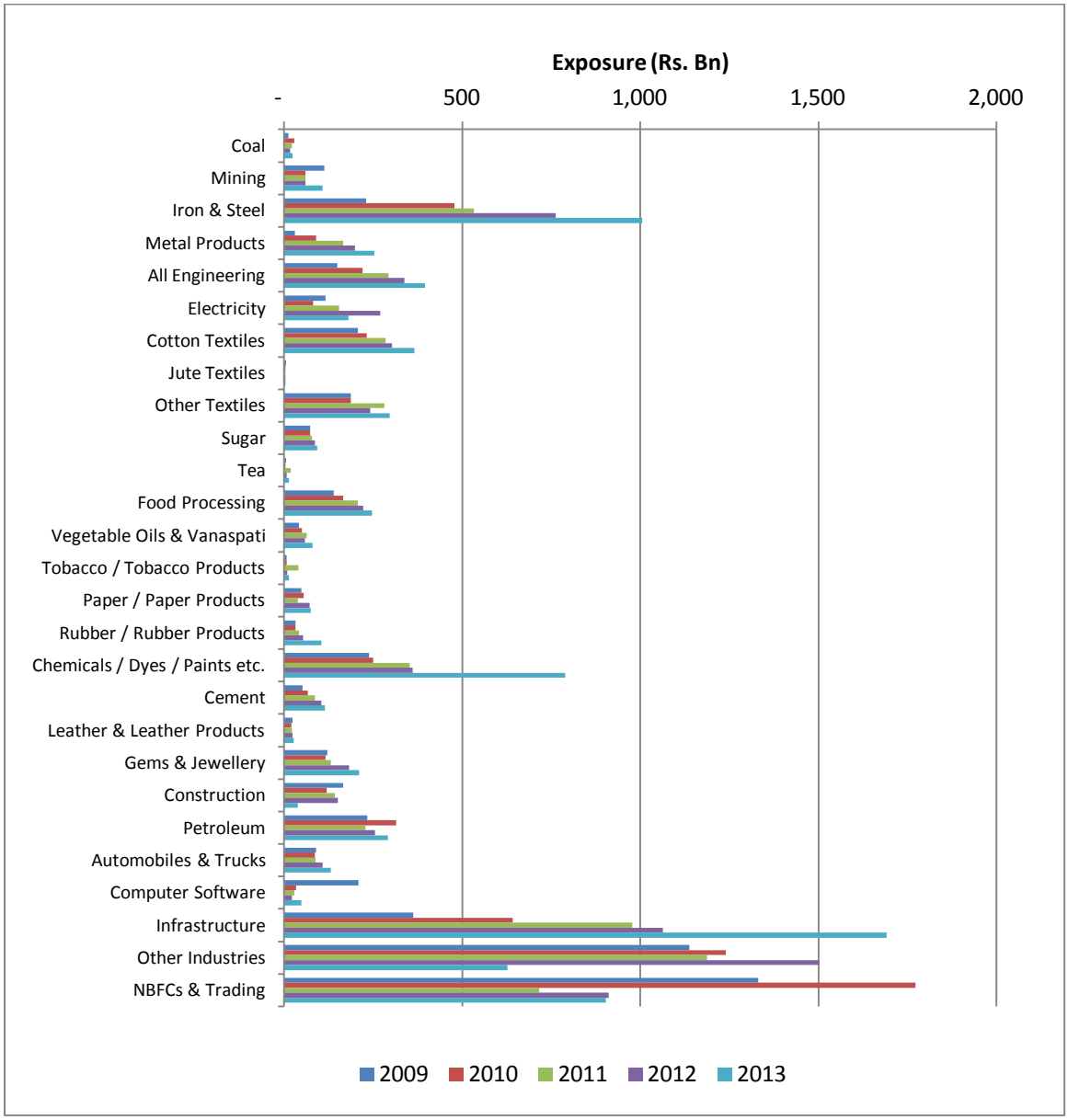
Maturity Bucket	Advances of Std. Chartered Bank
1 day	17.37
2 to 7 days	37.76
8 to 14 days	42.18
15 to 28 days	24.72
29 days to 3 months	115.26
Over 3 months and upto 6 months	65.18
Over 6 months and upto 12 months	37.45
Over 1 year and upto 3 years	80.51
Over 3 years and upto 5 years	30.33
over 5 years	104.94
Total	555.70

11.10 State Bank of India

SBI is the largest public sector bank in India with total fund based outstanding of Rs. 14,676 bn as of March 31, 2013. It may be noted that the exposure to infrastructure has been increasing in the last four financial years. Power constituted between 30% to 42% of exposure to infrastructure sector. While total infrastructure growth was 30% in the last year ending March 2013, exposure to power sector within infrastructure had grown at larger rate of 46%.

11.10.1 Sector Exposure

Figure 12: Sector Exposure – SBI – Fund Based

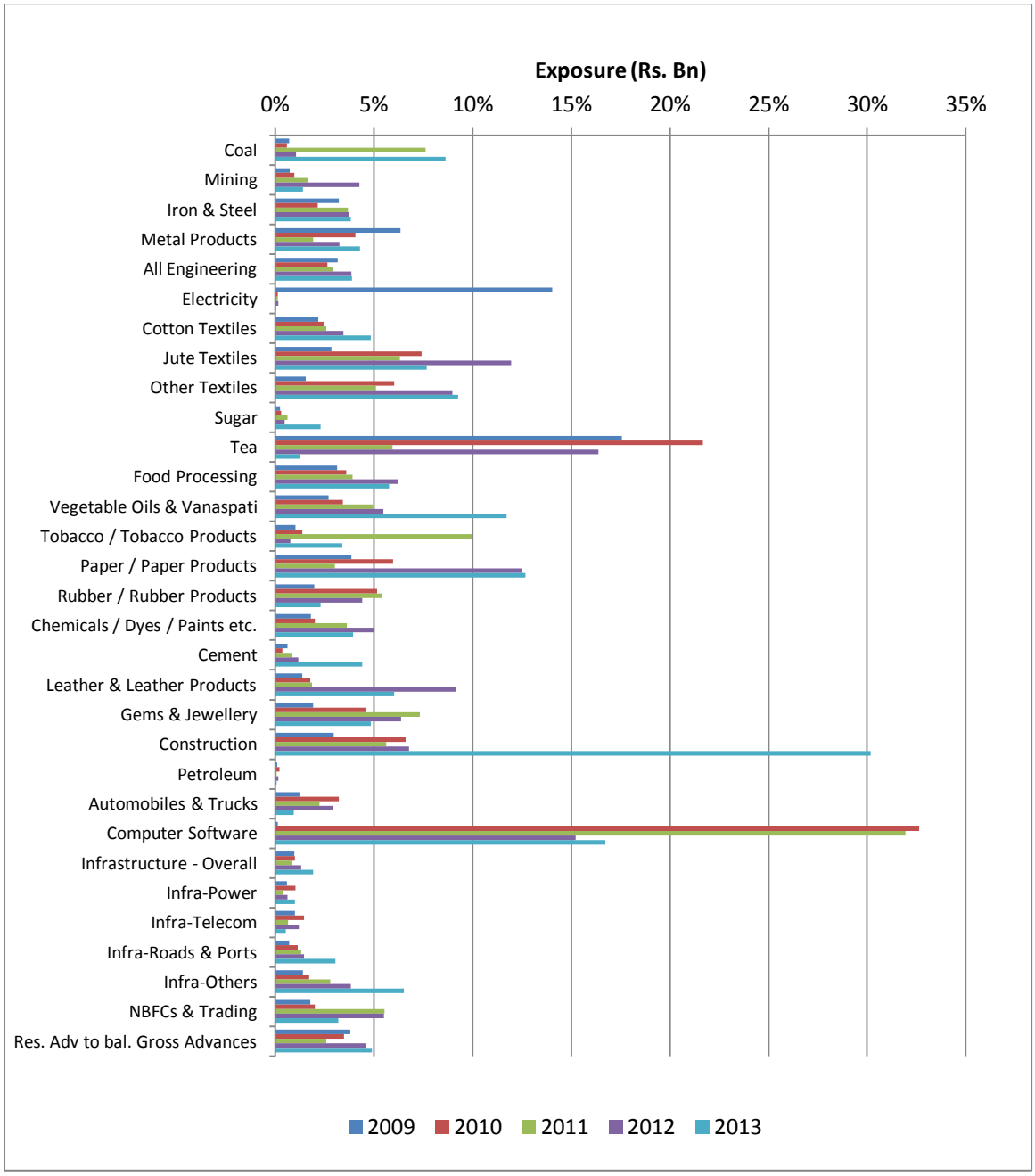


Note – Excludes residuary advances

11.10.2 Sector Performance

SBI has an overall NPA of 2.5%. The sector wise NPAs are given below. It can be observed that construction, computer software, tea were some sectors which had high NPAs. Performance of infra portfolio especially power has been good. The NPAs in Infrastructure power sub segment has been less than or max around 1% in the last 5 years ending 2012.13.

Figure 13: NPA - SBI



11.10.3 Cost of Funds

Being a bank and having large CASA deposits, SBI has relatively low cost of funds. The domestic cost of funds for the last 2 years ending March 2013 ranged from 5.41% as of March 2011 to 6.46% as of March 2013 (steadily increasing). CASA ratio was 46% during FY 2013-14, which lead to keeping overall cost of funds low at 6.46%. International costs of funds have ranged from 2.02% to 1.95% during same period, thus lower than domestic by 3.5%.

Interest Margin

The net interest margin in the last three years ending March 2013 has been in the range of 3.32% to 3.84%, with 3.34% as of FY 2012-13.

Bond raising

SBI had in January 2014 announced intention to raise bonds for Rs. 20 bn with tenure of 120 months (10 year bullet) carries a coupon 9.69 per cent

12. Annexure - Existing Incentives for Renewable Energy – Detailed

In order to promote development of renewable energy sources in India, various Central and State level fiscal incentives are provided to renewable energy developers in order to attract investments in the sector.

While many of these incentives supporting renewable energy does not directly lower cost of finance; but has impact on risk assessment and profitability; risk assessment indirectly lowering return expectations and therefore cost of capital.

The incentives include:

- Renewable purchase obligation (RPO);
- Renewable energy certificates (REC);
- Income tax holiday – 80IA benefits;
- Accelerated depreciation (AD);
- Generation based incentive (GBI);
- Preferential / feed-in tariffs (FIT);
- Duty & tax exemption / concessional duty for imports; etc.
- Other incentives;

The section provides details on

12.1 Accelerated Depreciation

The major fiscal incentive offered by the Ministry of Finance (MoF), GoI, during the past had been the provision of AD on plant and machinery of renewable energy projects. The investors were allowed to claim 80% of the gross block as depreciation (as tax-deductible expenditure) in the first year of installation of a project. It substantially reduces the stated income for income tax purposes during the year, thereby deferring income tax pay-out. The main advantage of AD is that it enables a profit-making company to almost entirely set off its equity investment requirements in a wind energy project against the tax deductions available through AD.

The tax shelter had been one of the major contributors to improve the attractiveness of wind energy sector. This is apparent from the fact that the incentive has resulted in attracting sizeable private investment in the wind energy sector and more than 90% of wind-energy capacity has been installed through the AD route or balance sheet financing till March 2011.

W.e.f. 1 April 2012, the benefits of AD has been removed for the wind energy sector. The investors are allowed to claim 15% depreciation on WDV basis and additional 20% depreciation in the first year, which was announced during Budget 2012. It is worth mentioning that AD of 80% is still applicable for other renewable energy projects like solar, biomass, and small hydro. This policy change has stalled

the installation of wind energy projects during FY 2012-13 and may impact the capacity addition targets for the 12th Plan.

Current Applicability: Solar, Small Hydro

While accelerated depreciation has been instrumental in large capacity additions of wind energy in the past, independent SPVs derive little benefit from accelerated depreciation due to lack of profits in initial years against which the accelerated depreciation benefits can be obtained.

The benefits of tax reduction are not transferrable to another entity; and MAT would still have to be paid.

12.2 Income Tax Exemption

Infrastructure projects are exempted from paying corporate tax for 10 continuous years within the first 15 years of commercial operation under Section 80 IA of the Income Tax Act. Income tax current rate is 30 per cent with surcharge of 5 per cent and education cess of 3 per cent.

Applicability: All Infrastructure Projects

12.3 Generation-based incentives

The Central Government announced a scheme for the implementation of GBI for grid interactive wind power projects in December 2009. The intention behind the scheme was to provide a level playing field and benefits to the IPPs and other investors, who could not avail the benefits of AD. The scheme provides an incentive of Rs. 0.50/kWh through IREDA with a total cap of Rs. 6.2 million/MW spread over a minimum of 4 years (i.e., an annual cap of Rs. 1.55 million/MW). The GBI level was calculated to equate the benefits under AD, which are available during the project life.

Under this scheme, the government of India earmarked subsidies by way of generation incentives to the tune of Rs 3.8 billion. The GBI scheme size was specified as 4,000 MW and was available to the projects commissioned till 31st March 2012. Also, as mentioned earlier, the GBI scheme was available to projects not availing AD benefits and meeting other criteria specified in the scheme.

The scheme expired on 31st March 2012 and has been reintroduced for the entire 12th Plan after drop in capacity installation after withdrawal of AD benefits and financial inability of SERCs to pay a higher tariff to wind projects.

IREDA is the nodal agency for the implementation of GBI.

Applicability: Wind

Exclusions: The scheme is not applicable for third party sale and merchant plants (but is applicable for captive power plants).

While continuity of GBI for parties who have availed it is certain till 12th plan, key issue is disbursement of GBI funds as MNRE faces budget constraints from Ministry of Finance.

12.4 Renewable Purchase Obligation

The RPO regulations were launched by Central Electricity Regulatory Commission (CERC) in order to meet NAPCC targets of consumption from renewables to the tune of 15% by 2020. Subsequently, the

RPO scheme was adopted by various State governments for specifying obligated entities to procure a minimum percentage of renewable energy on annual basis. Under the RPO framework, non-compliance of RPO attracts penalties on such entities. The following table highlights total RPO percentages (non-solar + solar) specified by various SERCs.

Table 45: RPO

State	RPO levels specified by SERCs		
Assam	4.2%	5.6%	7.0%
Andhra Pradesh	5%	5%	5%
Bihar	4.0%	4.5%	5.0%
Delhi	3.4%	4.8%	6.2%
Gujarat	7.0%	-	-
Haryana	2.05%	3.1%	-
Himachal Pradesh	10.25%	10.25%	10.25%
J&K	5.0%	-	-
Jharkhand	4.0%	-	-
Goa and other UTs	3.0%	-	-
Karnataka	10.25%	For BESCOM, MESCOM,CESCOM	
	7.25%	For GESCOM, HESCOM, Hukeri	
Kerala	3.6%	4.0%	4.4%
Madhya Pradesh	4.0%	5.5%	7.0%
Maharashtra	8.0%	9.0%	9.0%
Manipur	5.0%	-	-
Mizoram	7.0%	-	
Orissa	5.5%	6.0%	6.5%
Punjab	2.9%	3.5%	4.0%
Rajasthan	7.1%	8.2%	-
Tamil Nadu	9.0%	-	-
Tripura	2.0%	-	-
Uttar Pradesh	6.0%	-	-
Uttarakhand	5.05%	-	-
West Bengal	4.0%	4.0%	5.0%

The RPOs issued by central and state regulators are intended to be a key driver for the development of renewable energy in India. However, due to lack of implementation and enforcement of RPOs at

the state level, the obligated entities have not been meeting the respective RPO levels. The obligated entities include distribution companies, captive power consumers and open access consumers.

FOR came out with its report on renewable policy wherein some of the key recommendations made in this report regarding the RPO are as mentioned below.

- RPOs should be maintained at the minimum level of 5% by 2010 as suggested in the NAPCC. Besides, the RPO level should increase progressively as envisaged in the National Electricity Policy. The increase could be 1% every year till it reaches 10%.
- While fixing the RPO, the impact on average power purchase cost needs to be assessed.
- RPOs shall also be applicable to captive consumers and open access consumers.
- The report emphasizes on the Renewable Energy Certificate (REC) mechanism, which could go a long way in enabling states that are deficit in renewable potential to meet their obligations while encouraging developers to set up generation facilities based on renewable sources in the most optimal locations.

FOR has suggested the following to ensure compliance with RPO by different obligated entities to procure the energy requirement in line with the RPO levels:

- Obligated entities have to deposit an amount at the forbearance price decided by CERC into a separate fund on the basis of the shortfall in units of RPO.
- A separate fund is to be created and maintained by such obligated entities.
- Such fund is to be utilized for purchase of the RECs.
- If the distribution licensee fails to deposit the amount directed by CERC within 15 days, it shall be considered breach of its licence condition.
- Where any other obligated entity fails to comply, it shall also be liable for penalty as may be decided by SERC under Section 142 of the act
- In case of genuine difficulty in complying with the RPO because of non-availability of certificates, the obligated entity can approach SERC for carry forward to the next year.

Most of the SERCs have notified the RPO regulations. However, the RPO targets vary and there have been shortfalls in meeting these obligations, with limited enforcement. Hence the impact of RPO on renewable energy sector is not fully realized.

12.5 REC Mechanism

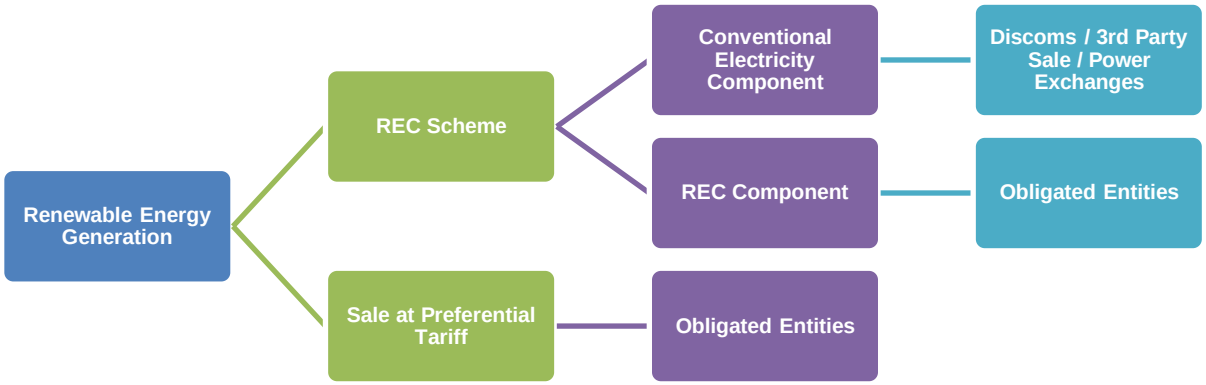
The renewable energy potential is state specific; some states have abundant renewable energy potential, whereas the other states are renewable energy deficient. However, the states that are harnessing more renewable energy based power are also bearing the impact of cost of expensive renewable energy. In order to avoid the effect of state specific availability/lack of renewable potential, REC mechanism provides an excellent tool to ensure that all States contribute in the development of renewable energy sector. The REC mechanism was implemented in December 2010 and facilitates RPO compliance in states with low renewable potential/capacity.

The REC mechanism offers the potential to expand the market for renewable energy by broadening the availability and scope of power products, which are available to the customers. The concept of RECs is based on separating the environmental or green power attribute of renewable energy

generation from the underlying electrical energy. This creates two separate, though related, products for sale by the renewable energy generator:

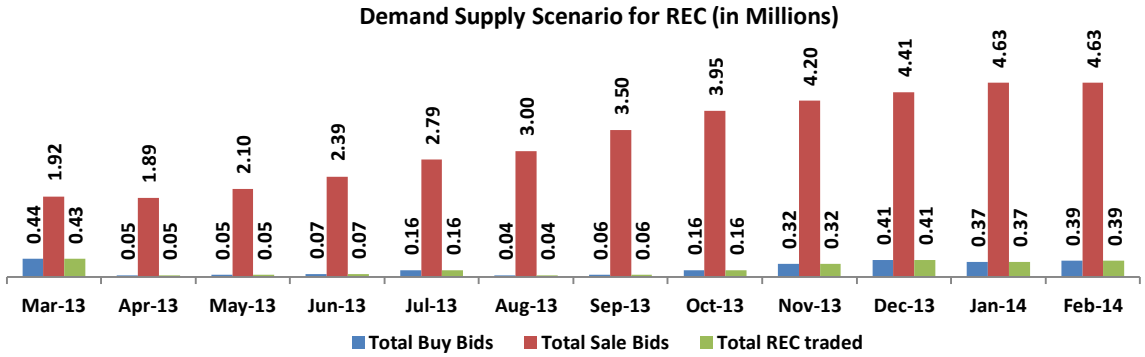
- electricity as a commodity and
- renewable attributes (alternatively known as renewable certificates, green certificates, green tags, and environmental attributes).

Figure below exhibits the conceptual framework of REC mechanism followed by its salient features.



An REC represents the renewable attributes of 1 MWh of renewable energy generation. The renewable attributes may be sold separately or combined with electricity at the point of sale by the developer.

The following figure shows the supply-demand analysis of last 1 year of trading sessions cumulative at both exchanges:



As one can see that the quantity of unredeemed RECs have almost tripled in last one year. Further, the mechanism has witnessed implementation challenges. Some power-starved states as well as utilities are willing to buy power instead of purchasing RECs. Financial institutions are also hesitant in lending to projects based on RECs scheme. At the same time, there have also been some cases where REC mechanism has given way to extra / supernormal profits to certain generators. Demand-supply mismatch, absence of long term certainty in terms of price & availability, concerns of project financers are some of the major issues which have diverted developer's interest from REC based sale of power.

Other limitations include that projects must be connected to the grid for REC eligibility, restriction on resale, disallowance of trading outside designated exchanges, inappropriate floors for RECs, uncertainty of price over long term, etc.

Thus, in the current format, applicability of this mechanism is a matter of concern that requires immediate attention.

While the REC mechanism is good for promoting renewable energy utilization, the uncertainties associated with the mechanism currently restrict the factoring of continued benefit on account of the mechanism over the life of the project/repayment horizon.

12.6 State Specific Regulations

Apart from these incentives, following state specific incentives are provided by states governments:

- Concessional transmission / wheeling charges for sale of electricity within the state;
- Concessional cross subsidy surcharge for sale from renewable sources to third party
- Cheaper land for setting up renewable project
- Stamp duty exemption for purchase of land
- Electricity duty exemption for generation of electricity from renewable sources
- Banking facility of power

As per the detailed analysis of incentives available for renewable energy financing in Indian states, we have factored the available instruments under following categories. These categories are:

	Feed-in Tariffs	Renewable Purchase Obligations	Sales tax, energy tax, excise tax or VAT reduction	Renewable Energy Certificates	Generation Based Incentives for Wind	Net metering foe Solar	Competitive bidding for Solar
Andhra Pradesh	Y	Y	Y	Y	Y	Y	Y
Arunachal Pradesh	N	Y	Y	Y	Y	N	N
Assam	N	Y	Y	Y	Y	N	N
Bihar	Y	Y	Y	Y	Y	N	Y
Chhattisgarh	Y	Y	Y	Y	Y	N	Y
Delhi	N	Y	Y	Y	Y	Y	N
Goa & UTs	N	Y	Y	Y	Y	N	N
Gujarat	Y	Y	Y	Y	Y	Y	Y
Haryana	Y	Y	Y	Y	Y	N	N
Himachal Pradesh	Y	Y	Y	Y	Y	N	N
Jharkhand	N	Y	Y	Y	Y	N	N
Karnataka	Y	Y	Y	Y	Y	Y	Y
Kerala	Y	Y	Y	Y	Y	Y	N
Madhya Pradesh	Y	Y	Y	Y	Y	N	Y

	Feed-in Tariffs	Renewable Purchase Obligations	Sales tax, energy tax, excise tax or VAT reduction	Renewable Energy Certificates	Generation Based Incentives for Wind	Net metering foe Solar	Competitive bidding for Solar
Maharashtra	Y	Y	Y	Y	Y	N	Y
Manipur	N	Y	Y	Y	Y	N	N
Meghalaya	N	Y	Y	Y	Y	N	N
Mizoram	N	Y	Y	Y	Y	N	N
Nagaland	N	Y	Y	Y	Y	N	N
Orissa	Y	Y	Y	Y	Y	N	Y
Punjab	Y	Y	Y	Y	Y	Y	Y
Rajasthan	Y	Y	Y	Y	Y	N	Y
Tamil Nadu	Y	Y	Y	Y	Y	N	Y
Tripura	N	Y	Y	Y	Y	N	N
Uttar Pradesh	Y	Y	Y	Y	Y	N	Y
Uttarakhand	Y	Y	Y	Y	Y	N	N
West Bengal	Y	Y	Y	Y	Y	N	N

13. Annexure - Questionnaire

- Risk Assessment for renewable energy projects
  - What is your perception of risk for renewable energy projects as compared to conventional / infrastructure projects?
  - What is your view in terms of relative ranking of risk for different types of renewable energy technologies?
    - Wind
    - Solar
    - Biomass
    - Small Hydro
    - Others including upcoming technologies such as hybrid, geo-thermal etc.
  - How do you perceive risk in new equipments / technologies such as thin film vs. crystalline in solar, gearless vs. gear fitted wind turbines etc.?
- What are the key risks considered by lenders in renewable energy sector and what in your view are the top 10 risk factors in order of importance. Examples are given below, but it need not be restricted to these only
  - Regulatory Risk
  - Construction timelines
  - Continuity of Incentives
  - Demand Risk
  - Tariff
  - Operational Risk
  - Resource Risk
  - Non Payment by Procurers
  - Equipment Availability
  - O&M expenses
  - Environmental factors
  - Management and Staff Capability
  - Evacuation and Connectivity
  - O&M Cost overrun
  - Cost of Debt
  - Exchange Rate
  - Stability of returns
  - Inadequacy of collateral/security enforcement
  - Minimum level of DSRA
  - Lack of financial strength in promoter balance sheet
  - Technology Risk
  - Any other, please specify
- Sector wise allocations
  - Sector wise annual allocations for range of interest rates, loan tenors, project level exposure, ticket size ranges and performance of different sectors of last 5 years
  - Information till FY 2012-13 (if not available, till FY 2011-12 can be given)

	Interest Rates	Loan Tenures (years)	Project Level Exposure	Ticket Sizes (Rs. Cr)	Comment on Performance	Positioning in overall portfolio (Sector or a sub-sector)
<Sample Sector>	BR+3% - BR+5%, Avg of 4%	3-5	Up to 70%	40-80 aver 70cr	180+dpd=3%	
Power						

Overall						

  - What are the factors contributing to preferences between different sectors? How does it change every year and impact lending decisions?
  - What are the procedures that are in place for determining sectoral limits and focus?

- Specifically for the renewable energy projects, what are the factors responsible for current state of renewable energy sector in lending portfolio?
- Regulatory provisions on combining non-commercial and commercial sources of capital to lower borrowing cost
- Cases of lowering cost of capital specific sectors
  - In your experience over the last years, have there been instances where cost of capital has been lowered specifically for some sectors (as distinct from overall lowering across all sectors due to interest rate changes)? Could you share some details of the same?
- Renewable energy as compared with other sectors
  - What is your assessment of attractiveness of renewable energy for investment (debt/equity)?
  - What are the special comforts/assurances that you seek when investing in / lending to renewable energy projects as compared to other projects?
  - What are the limitations, if any, faced in investing in renewable energy projects. Sample items are mentioned below
    - Lower than expected returns on project
    - Ticket size restrictions
    - High transaction cost
    - Low level of DSRA
    - High risk
    - Lack of sufficient number of investable projects
    - Exit options and lack of sufficient buyers (if equity investment)
    - Others
- Sources and Costs of finance
  - What are the difference sources of funds for you?
  - What are the costs of different sources and overall cost of capital?
  - What are other factors that contribute to your calculation of risk free lending rates?

- What are any steps at government/regulatory/legislative level that you feel may help in lowering cost of your source of funds which could indirectly help in reducing cost of funding for renewable energy projects?

- What role current banking regulations or provisions play or potentially can play towards a particular sector or a sub-sector in terms of:
  - Making availability of adequate finance
  - Reduce cost of debt
  - Increasing maximum loan tenures
  - Enabling special financial incentives that can reduce cost of debt
- How are priority sector lending norms impacting finance availability and cost of finance to sectors?

Additional Specific Discussion Points - For multilateral / bilateral agencies

- Could you share any examples of policy interventions in other countries that have helped reduce cost of capital for renewable energy projects?
- What is your sense of relative attractiveness and risk profile of renewable energy in India as compared to other countries?

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About the study

The study has been supported by Shakti Sustainable Energy Foundation and carried out by CRISIL Risk and Infrastructure Solutions Limited.

About Shakti Sustainable Energy Foundation (www.shaktifoundation.in)

Shakti Sustainable Energy Foundation works to secure the future of clean energy in India by supporting the design and implementation of policies that promote both the efficient use of existing resources as well as the development of new and cleaner alternatives. Shakti's efforts are concentrated in four specific areas: power, energy efficiency, transport, and climate policy.

The organization acts as a systems integrator, bringing together stakeholders in strategic ways to enable clean energy policies in these fields. It also belongs to an association of technical and policy experts called the ClimateWorks Network. Being a member of this group further helps Shakti connect the policy space in India to the rich knowledge pool that resides within this network.

About CRISIL Infrastructure Advisory (www.crisil.com)

CRISIL Infrastructure Advisory is a division of CRISIL Risk and Infrastructure Solutions Limited, a 100% subsidiary of CRISIL Limited – India's leading Ratings, Research, Risk and Policy Advisory Company.

CRISIL Infrastructure Advisory is India's premier advisor focusing on policy issues, as well as commercial and contractual issues in the areas of transport, energy and urban infrastructure. We also provide support to international firms planning investments in India. Over a period of time, CRISIL Infrastructure Advisory has built a unique position for itself in these domains and is considered the preferred consultant by governments, multilateral agencies and private-sector clients. We have extended our operations beyond India and are present in other emerging markets in Africa, Middle East and South Asia.