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# ***Evaluation of Shakti Sustainable Energy Foundation***

September 2017



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# Contents

<b>1. Executive Summary</b> .....	<b>4</b>
1.1. Introduction .....	4
1.2. Cross-Cutting Findings .....	4
1.3. Clean Power .....	5
1.4. Energy Efficiency .....	6
1.5. Sustainable Transportation .....	8
1.6. Climate Policy .....	9
1.7. Organisational Development .....	10
1.8. Evolution of Shakti’s role .....	11
1.9. Shakti’s competitive advantages .....	12
1.10. Key recommendations .....	12
<b>2. Introduction</b> .....	<b>14</b>
2.1. Evaluation objectives .....	16
2.2. Evaluation approach .....	16
<b>3. Progress towards goals</b> .....	<b>19</b>
3.1. What do key stakeholders perceive to be the most important impacts or results of Shakti’s work, including grants and other services? .....	19
3.1.1. Cross-cutting .....	19
3.1.2. Clean power .....	20
3.1.3. Energy efficiency .....	27
3.1.4. Sustainable transportation .....	29
3.1.5. Climate policy .....	31
<b>4. Strategic effectiveness</b> .....	<b>33</b>
Has Shakti’s programme strategy served to efficiently deliver on its goals? .....	33
How relevant are Shakti’s goals and targets in the current policy environment? .....	39
How well has Shakti been able to proactively identify key emerging opportunities and accordingly redefine sector strategies to adapt to evolving external developments and learnings? .....	43
In what ways (if any) could the balance of staff efforts between grants and other types of services be improved? .....	44
<b>5. Organisational development</b> .....	<b>45</b>
How have Shakti’s internal organisational structure and systems enhanced its ability to act on its strategic framework? .....	45
How have the leadership and management functions affected the strategy enhancement process and results? .....	49
How effective are Shakti’s processes and practices for learning from successes and challenges and for incorporating that learning into future work? .....	50
<b>6. Evolution of Shakti’s role in the larger sustainability landscape</b> .....	<b>51</b>

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How effective has the evolution of Shakti’s role during the last five years been in positioning Shakti as a strategic re-granting organisation in the larger philanthropic landscape? .....	51
Shakti’s comparative advantage .....	53
To what extent and how has Shakti helped to build the field and increase the performance of the ‘organisational ecosystem’ where it operates? .....	54
How effective has Shakti’s approach toward building external partnerships with concerned stakeholders been in its different areas of work? .....	55
<b>7. Key lessons and recommendations .....</b>	<b>57</b>
<b>Annexure .....</b>	<b>62</b>

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# *Acknowledgements*

We would like to thank Shakti Sustainable Energy Foundation for providing us with the opportunity to conduct this evaluation. We appreciate Shakti's hands-off approach during the evaluation, respecting our objectivity and independence at all stages.

We would also like to thank all the stakeholders with whom we had one-to-one discussions for taking out their precious time and contributing to this evaluation.

Lastly, we would like to thank Mr Shishir Soti, for facilitating stakeholder meetings and sharing all the information that was relevant to our evaluation.

## **Disclaimer**

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# 1. Executive Summary

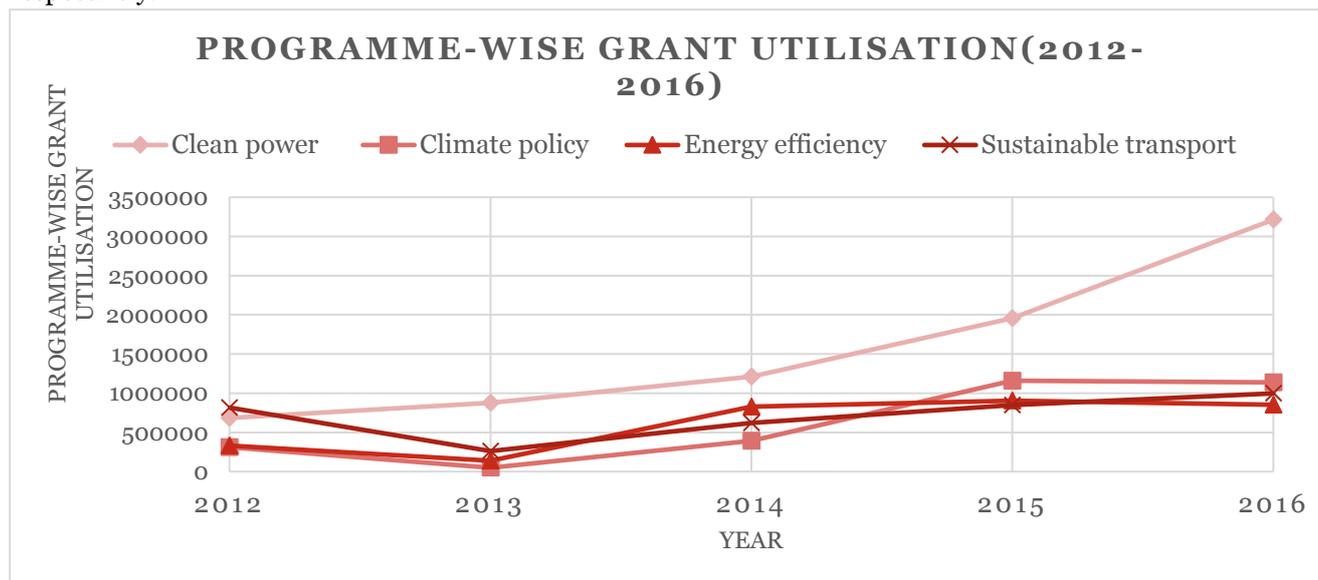
## 1.1. Introduction

This is an executive summary of a full evaluation conducted for Shakti Sustainable Energy Foundation in 2017. The evaluation provided an external assessment of the impact of Shakti Foundation in its core thematic areas of investment—clean energy, energy efficiency, sustainable transportation and climate policy during 2012–2016. The evaluation covered programme-wise grant utilisation, effectiveness of the strategies deployed, strategic evolution, progress towards the proposed goals, and objectives and internal organisation structure.

The evaluation was intended not only to reflect on past strategic decisions, grant making and Shakti Foundation’s role in the thematic areas but also to update the understanding of baseline conditions, needs and opportunities, and identify ways to increase the overall impact.

The evaluation method centred on stakeholder interviews, document reviews and desktop research to generate evidence and information that can be utilised to collate responses against each of the above evaluation questions. Over 50 structured interviews were conducted to gather the opinion and views from a wide range of external and internal stakeholders, who included policy makers, donors, grantee partners, contractors, Shakti’s board members, key executive staff of Shakti and other experts. The policy makers identified belonged to both national and subnational governments with an almost equal share. The stakeholder interviews were either conducted face-to-face or through telephonic discussions guided by customised data collection instruments. A few stakeholders provided written responses to a pre-defined questionnaire via electronic communication. The responses of various stakeholders were synthesised and aggregated to inform the evaluation.

Shakti’s mission is to aid the design and implementation of policies that promote both judicious use of existing energy reserves and development of cleaner energy alternatives, with the ultimate vision of building a clean and secure energy future for India. To fulfil this mission, Shakti has been making grants in the areas that they believe are most likely to facilitate strategic goals. Till 2016, Clean Power utilised close to 45% of the grant pool, followed by Transport, Energy Efficiency and Climate Policy, which utilised 21%, 17% and 17% of the grants respectively.



Source: Data shared by Shakti Sustainable Energy Foundation

## 1.2. Cross-Cutting Findings

Shakti’s high-level goals are ambitious and far-reaching. Progress has been made on shaping policies and building institutional capacity to design and implement policies. Shakti and its partners have been successful in mobilising credible evidence to inform policy design on various themes across major sectors of influence. In a sense, Shakti-supported interventions have helped the government and other important stakeholders appreciate the gravity of the developmental issues/challenges faced in the sectors and the need to speed up

critical actions in a coordinated manner. Shakti's ability to convene stakeholders and bring in consensus amongst various stakeholders by identifying their concerns and incorporating ways to address them, has been widely appreciated. In this section, we address the three overarching issues: Key stakeholders perception to be the most important impacts or results of Shakti's work, identification of key opportunities and relevance of Shakti's goals and targets in the current policy environment.

### *1.2.1. What do key stakeholders perceive to be the most important impacts or results of Shakti's work, including grants and other services?*

Shakti's strategic initiatives have been directed towards filling the policy and structural gaps in terms of climate policy and clean energy. At the national level, Shakti's efforts have facilitated the formulation of policies, programmes and proper allocation of resources, whereas at the subnational level, they have largely focused on addressing key barriers to deployment and capacity building for effective overall implementation which is now reaping benefits. Decision makers have relied on Shakti for technical assistance to support policy- and implementation-related interventions. Shakti has played a crucial role in capacity development of marginal players in the field of sustainability and expanding the narrative horizon of important sectors according to grantee partners. Shakti's interventions have also led to wealth of new information available in public domain to inform future policies and effectiveness of existing policies.

### *1.2.2. How well has Shakti been able to proactively identify key emerging opportunities and accordingly redefine sector strategies to adapt to evolving external developments and learnings?*

Shakti Foundation has always been highly cognisant of the evolutionary changes taking place in the social, political and economics dynamics of the development in the various sectors of influence, and they have evolved and adapted themselves according to these changes. This has helped Shakti to identify and advance key emerging opportunities and even redefine sector strategies.

### *1.2.3. How relevant are Shakti's goals and targets in the current policy environment?*

Shakti established the long-term sectoral goals for 2030 and worked back to set medium-term goals for 2020. Shakti's programme goals fit perfectly into a framework that reflects the theory of change.

New policies and progress strategies need to be aligned with the ambitions set under the recent developments like the Paris climate accord and Kigali Agreement. The convergence of various themes such as renewable energy, energy efficiency, Demand Side Management (DSM), electric utility reforms, sustainable transportation, and building and appliance efficiency will enable and facilitate cross-cutting impact. According to the grantees, most of the goals and targets align with the current policy environment and are relevant in the present/immediate future context.

## **1.3. Clean Power**

Clean power has been the largest area of investment by Shakti in the past five years. Nearly 8 million USD of Shakti's programme budget has been utilised by the programme between 2011 and 2016, broadly under the renewable energy, electric utilities and rural energy access themes. In the past five years, the programme has evolved from focus at the central level to states such as Tamil Nadu, Maharashtra, Gujarat, Karnataka, Uttar Pradesh, Jharkhand, Kerala, Andhra Pradesh and Haryana. The question of key stakeholders' perception, effectiveness of Shakti's programme strategy, and relevance of its goals and targets have been discussed below.

### *1.3.1. What do key stakeholders perceive to be the most important impacts or results of Shakti's work, including grants and other services?*

According to stakeholders, Shakti facilitated softening of market barriers for wind and solar energy investments and also eliminated investor concerns. The sense of coordination between central and state governments to implement renewable energy targets has also enhanced.

Some crucial areas where Shakti had the most impact have been performance evaluation of Phase 1 of the National Solar Mission, development of India's 'Renewable Electricity Roadmap 2030', national- and state-level wind potential assessments, technical and commercial frameworks to integrate wind energy into the grid

realising UJALA (Nationwide LED bulb programme implemented by Energy Efficiency Services Ltd. (EESL)) initiative by supporting demand aggregation strategies, procurement and large-scale implementation.

### 1.3.2. Has Shakti’s programme strategy served to efficiently deliver on its goals?

Shakti’s strategy to convene stakeholders and create coalitions of partners to work on important issues has worked effectively to get the attention of key decision makers in the government. Shakti also supported DSM delivery and implementation models that helped bridge the institutional capacity gaps that have delayed the progress from a long time. Stakeholders appreciated the support extended by Shakti for private sector participation through Distributed Renewable Energy (DRE)-based mini-grids. These well thought-out strategies were effectively complemented by the relationships with several influential governmental institutions like Ministry of New and Renewable Energy (MNRE), Ministry of Power (MoP), Bureau of Energy Efficiency (BEE) and NITI Aayog, nodal agencies, Distribution Companies and electric regulatory commissions to bridge the policy vacuum.

### 1.3.3. How relevant are Shakti’s goals and targets in the current policy environment?

Long-term outcomes for 2030	Intermediate outcomes for 2020
<ul style="list-style-type: none"> <li>▪ Renewable energy (RE) constitutes 25% (or 1000 TWh) of the power system               <ul style="list-style-type: none"> <li>▪ Market potential of end-use efficient technologies has been realised</li> </ul> </li> <li>▪ DSM programmes are initiated in at least 20 states</li> <li>▪ India has an efficient electricity distribution system, operating at globally acceptable loss levels               <ul style="list-style-type: none"> <li>▪ Distribution reforms are adopted nationwide</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Significant power sector market reforms, policy initiatives, enabling grid protocols and regulatory ease, combined with effective implementation result in 298 TWh of reliable RE generation at the grid (221 TWh above current generation levels)               <ul style="list-style-type: none"> <li>▪ Improved resource/generation efficiency of fossil-fuel based power plants</li> </ul> </li> <li>▪ Deployment of end-use efficient technologies delivers a reduction of 274 TWh in bus bar demand vis-à-vis BAU               <ul style="list-style-type: none"> <li>▪ DSM programmes initiated in at least 5 states                   <ul style="list-style-type: none"> <li>▪ Improvements in distribution</li> </ul> </li> </ul> </li> <li>▪ Lifeline energy services (at least lighting and mobile phone charging) made available to energy-deprived consumers by cleaner means that are reliable and affordable</li> </ul>

According to grantees, the goals set by Shakti are reasonable, achievable and relevant enough in the current scenario. The goals also bode well with India’s Intended Nationally Determined Contributions (INDCs) target to reduce the intensity of its emissions by 30–35% (compared to 2005), and to achieve 40% cumulative electric power capacity from non-fossil fuel based energy resources by 2030.

The goals are also relevant as some of the state utilities are still witnessing unsustainable level of distribution and commercial losses and are not able to recover the cost of service, thereby facing financially unsustainable operations. However, goals related to access and quality of supply, especially in the context of rapidly increasing grid-based access, can be included in the present objectives.

## 1.4. Energy Efficiency

Shakti’s energy efficiency programme has made grants broadly under industry, appliances and building themes in the past five years. Nearly 3.05 million USD of Shakti’s programme budget has been utilised by the energy efficiency programme between 2011 and 2016. The 2011 strategic framework centred on having self-sustaining appliance energy efficiency programmes, ECBC-compliant commercial construction, an enabling policy environment for the energy-efficient buildings sector, and energy efficiency performance of Indian industries at par with global standards.

In the past five years, the energy efficiency programme has been actively supporting both the centre and states such as Maharashtra, Gujarat and Madhya Pradesh.

### 1.4.1. What do key stakeholders perceive to be the most important impacts or results of Shakti's work, including grants and other services?

Shakti has supported capacity building of state-designated agencies and analysis to inform super-efficient appliance standards and policies. According to stakeholders, most influential impacts were in the following areas:

- Shakti's efforts towards developing state-level ECBC implementation roadmaps and third-party ECBC compliance verification approaches and tools have contributed towards capacity building of state-designated agencies and other stakeholders. It also enhanced the awareness about different energy-efficient building standards, challenges and complexities involved.
- Decision makers praised Shakti's efforts in supporting the roll-out of Perform, Achieve, Trade (PAT) scheme- a Tradeable Energy Savings Certificates scheme under National Mission for Enhanced Energy Efficiency (NMEEE).
- Shakti's efforts to assess the potential energy efficiency improvement in the railways sector were well appreciated.

### 1.4.2. Has Shakti's programme strategy served to efficiently deliver on its goals?

Shakti's strategy to support the effective implementation of ECBC and also facilitate an enabling policy environment for energy-efficient buildings has been effective in adopting a holistic approach to the problems faced by stakeholders. In the appliances programme, Shakti's investments for market transformation initiatives has been widely perceived as efficient, non-repetitive and complementing the efforts of other development partners. Shakti's strategy of focusing on expanding and facilitating market-driven voluntary actions among institutional consumers and the SME sector has been perceived as effective in tapping the potential for energy efficiency improvements. According to policy makers, Shakti's efforts to convene stakeholders and set up constructive dialogues with decision makers have been effective.

### 1.4.3. How relevant are Shakti's goals and targets in the current policy environment?

Long-term outcomes for 2030	Intermediate outcomes for 2020
<ul style="list-style-type: none"> <li>▪ India has self-sustaining appliance energy efficiency programmes that are at par with the best in the world               <ul style="list-style-type: none"> <li>▪ 90% of all commercial construction in India is ECBC compliant</li> </ul> </li> <li>▪ An enabling policy environment for an energy-efficient buildings sector</li> <li>▪ 60-70 Mtoe of energy savings are achieved in industries compared to BAU</li> <li>▪ The energy efficiency performance of Indian industries is at par with global standards</li> </ul>	<ul style="list-style-type: none"> <li>▪ A stringent appliance energy standards and labelling (S&amp;L) programme, covering over 30 appliances is effectively implemented</li> <li>▪ The S&amp;L programme results in 110 TWh per annum (p.a.) of end-use energy savings</li> <li>▪ At least 3 super-efficient appliances, whose energy performance significantly exceeds existing standards, are introduced in the market</li> <li>▪ The ECBC is implemented across the country for new commercial buildings with a 70% compliance rate in all cities with a population greater than 5 million               <ul style="list-style-type: none"> <li>▪ Wider adoption of energy efficiency measures leads to 12–15 million Mtoe of energy savings</li> <li>▪ Decrease GHG emission of industry by 25% in 2020 from 2005 levels (128 MT of CO<sub>2</sub>e) and corresponding annual energy savings of 117 TWh electricity; 659,375 TJ gas; 817,625 TJ oil; and 1,134,125 TJ coal</li> </ul> </li> <li>▪ Catalyse notification of complimentary policies and achieve additional co-benefits</li> </ul>

According to most of the grantees, these goals and objectives serve well for the present requirement. However, according to one grantee, the objective to enable a policy environment for an energy-efficient building sector is a little fuzzy and it will be important to spell out what is meant by enabling policy environment (e.g. mandatory

data disclosure for energy-intensive buildings, publication of national energy use benchmarks for building type and major systems, a supportive and vibrant energy services ecosystem worth 20,000 crore INR).

## 1.5. Sustainable Transportation

Shakti's sustainable transportation has been the second largest area of investment in the past five years. Nearly 3.59 million USD of Shakti's programme budget has been utilised by the sustainable transportation programme between 2011 and 2016. The programme has largely focused on surface transportation modes and targeted interventions broadly under public transport systems and vehicle fuel efficiency themes. The 2011 strategic framework centred on having a higher passenger share through sustainable modes of transport, efficient management of freight operations and fuel efficiency and emission norms at par with global best practices.

The programme has been actively supporting both central and state government stakeholders. In this section, we address three issues: Key stakeholders' perception to be the most important impacts or results of Shakti's work, efficient delivery on programmatic goals, and relevance of Shakti's goals and targets in the current policy environment.

### 1.5.1. What do key stakeholders perceive to be the most important impacts or results of Shakti's work, including grants and other services?

Some high-impact developments by Shakti as perceived by stakeholders were:

- Shakti provided handholding support for the planning and implementation of smart city solutions
- Shakti-supported research, technical assistance and outreach efforts have immensely contributed to the adoption of stringent vehicular emission norms and notification of a fuel efficiency S&L programme.
- Shakti provided support for prioritising sustainable transport investments under JNNURM, design and deployment of BRTS and sustainable bus terminals, public bicycle sharing systems, Transit-oriented Development (TOD) policies, and mixed and use policies.
- Outputs from Shakti's grants have triggered further research to understand important gaps in urban mobility planning.

### 1.5.2. Has Shakti's programme strategy served to efficiently deliver on its goals?

Shakti's strategy in the public transport sector has supported interventions largely focused on motorised and non-motorised urban transport systems, city land use policies, optimisation and road to rail transition for freight movement. Shakti's efforts towards training on tools for air quality measurements and monitoring have been effective in building the capacity of central and state pollution control board officials in delivering their duties towards air quality management. According to policy makers, Shakti's efforts towards implementing pilot demonstration projects have effectively highlighted the project implementation barriers. Also, Shakti's strategy to support fleet driver behaviour training for improving bus fuel efficiency was effective.

### 1.5.3. How relevant are Shakti's goals and targets in the current policy environment?

Long-term outcomes for 2030	Intermediate outcomes for 2020
<ul style="list-style-type: none"> <li>▪ 90% of passenger trips are made by sustainable modes of transport, and freight operations are efficiently managed</li> <li>▪ Fuel efficiency and emission norms in India are at par with global best practices</li> </ul>	<ul style="list-style-type: none"> <li>▪ 5 states adopt Sustainable Urban Transport Projects (SUTPs) that emphasise sustainable public and freight transport concepts</li> <li>▪ Urban transport funding is allocated in line with sustainable land use and transportation principles               <ul style="list-style-type: none"> <li>▪ Improved urban and transport systems avoid 219 billion vehicle-kilometres-travelled equivalent (VKte)                   <ul style="list-style-type: none"> <li>▪ 46 MtCO<sub>2</sub>e is abated on account of passenger modal shifts</li> </ul> </li> </ul> </li> <li>▪ Fuel consumption by two wheelers is reduced by 20% (4.8 litres per 100 km)</li> <li>▪ Fuel consumption by light duty vehicles is reduced by 10% (30 litres per 100 km)</li> </ul>

- Fuel consumption by heavy duty vehicles is reduced by 10% (2 litres per 100 km)
- Euro VI equivalent or better vehicle and fuel quality standards are adopted

According to the grantees and other stakeholders, these objectives are fully aligned with the current policy requirements but aligning and implementation are two completely different things. Therefore, the execution strategies required for achieving these far-reaching goals and objectives must be thorough and efficiently deployed.

## 1.6. Climate Policy

In the past five years, Shakti's climate policy programme has made grants broadly under themes such as GHG accounting, international dialogues, diesel subsidies, energy-efficient brick kilns, air quality management, HFC phase out and low-carbon development pathways. Nearly 3.06 million USD of Shakti's programme budget has been utilised by the climate policy programme between 2011 and 2016. The 2011 strategic framework centred on India becoming a part of an efficient and equitable global governance structure that effectively responds to the threat of climate change.

### 1.6.1. What do key stakeholders perceive to be the most important impacts or results of Shakti's work, including grants and other services?

Shakti's efforts in the areas of cleaner brick kilns, air quality management, low-carbon growth pathways for states, Green House Gas (GHG) inventory analysis and energy security index have been widely appreciated by policy makers and grantee partners. Some of Shakti's high-impact initiatives according to stakeholders are mentioned below:

- Shakti provided technical assistance and research to introduce cleaner brick production norms and policies in Bihar.
- Shakti supported the first modelling exercise of India's Hydrofluorocarbons (HFC) emissions, focusing on a sector-wise climate impact.
- Shakti contributed to building a consensus for the US-India Track II Dialogue on Climate Change and Energy.

### 1.6.2. Has Shakti's programme strategy served to efficiently deliver on its goals?

Shakti has largely focused on achieving a consensus among its key stakeholders by supporting research to frame issues, inform dialogues and highlight opportunities for progressive action, aiding implementation of low-carbon initiatives, and developing the capacities of civil society organisations in the medium to long term. These interventions proved highly effective. Moreover, Shakti's contribution to Lima established trust and confidence in the Ministry of Environment, Forest and Climate Change (MoEFCC). Shakti's support towards the highly influential India-U.S. Track II Dialogue on Energy and Climate Change has been effective in bringing the US and India together on the climate front like never before and informing India's Paris Climate Agreement talks. Also, Shakti's efforts to support the first modelling exercise of the all-India HFC emissions, focusing on sector-wise climate impact, has been effective in informing India's commitments to cut down HFCs in the Kigali Agreement.

### 1.6.3. How relevant are Shakti's goals and targets in the current policy environment?

Long-term outcomes for 2030	Intermediate outcomes for 2020
<ul style="list-style-type: none"> <li>▪ India is a part of an efficient and equitable global governance structure that effectively responds to the threat of climate change.</li> </ul>	<ul style="list-style-type: none"> <li>▪ India's GHG emissions intensity declines by 35% from 2005 levels.               <ul style="list-style-type: none"> <li>▪ 25% of the identified non-CO2 abatement opportunities are captured.</li> <li>▪ The concept of low-carbon growth planning secures a credible foothold within key government agencies at the national and state</li> </ul> </li> </ul>

level and policies and programmes are designed and implemented for a few key priority low-carbon initiatives.

According to one grantee, now that India has joined the Paris climate accord and the Kigali Agreement, Shakti may consider shifting the focus towards further raising its climate ambitions, commitments and international cooperation. The medium-term ambitions set for 2020 still remain relevant and converge with the government's priorities. Apart from the existing goals, air quality management could be another important long-term area of focus for Shakti.

## 1.7. Organisational Development

Shakti's organisational structure has evolved over the years past its start-up phase and through a period of sustained growth in staffing and funding levels. Moreover, its internal stakeholders noted that the strategy has always been to keep the structure flat and lean, which also aligns with the vision of Shakti's donors.

Over the years, Shakti's operations function has been disaggregated into more specific non-programme functions to meet the growing needs of the organisation, which now leads to having the following five major systems in place:



Shakti's programme functions are headed by the Chief of Programmes (CoPs) who reports to the CEO on all programme-related operations. Programme teams are organised based on the functional areas they serve (i.e. clean power, sustainable transport, climate policy and energy efficiency) and consist of domain specialists who structure, design and execute grants through a network of partners.

Shakti started off with a grant making role and with time ably evolved the additional convener role as well to achieve the desired results, establishing credibility and stature amongst relevant stakeholders spanning across various programme areas. To keep pace with the evolving landscape, new areas have been included and expanded as the need arose. For example, Energy access was on the fringe but was subsequently expanded and consolidated and now significant work has happened not only in drafting enabling framework at the central level, but also in implementation support at the state level. Air quality management was also included and initiatives in this area have been appreciated by policy makers and grantee partners for bringing out strong regulations, informing stakeholder actions and changing/broadening the narrative around important climate change issues. Shakti now works with a wide pool of implementing partners as well as grantees at the central as well as the state level. An overwhelming majority of stakeholders in this evaluation, including donors, grantees and policy makers, commended the competency level of Shakti's programme staff.

The finance function, led by the Chief Financial Officer (CFO), has steered the organisation from conducting a quarterly internal audit process to a monthly cycle. The unit is also responsible for Foreign Contribution (Regulation) Act (FCRA) compliance and all other statutory compliances of being a section 25 company. Policy makers have characterised Shakti as the industry leader in delivering quick and timely responsive assistance. Further, grantee partners have commended the overall time taken by Shakti's grant-making system, from its conceptualisation to it being awarded as the best in the industry. However, some room for improvement by doing away with redundant systems and processes was also pointed out. Optimising non-programme expenses without compromising the rigor of compliance has also been identified as a priority for Shakti.

Shakti has managed to get one large new international donor every year over the past few years, thus diversifying its funding pool. Another important success is that the donors have now transitioned from a one-year funding cycle to two- or three-year funding cycles (multi-year funding), which has enabled Shakti to make its grantee partners, who value long-term commitments to build capacity, undertake long-term planning and focus on the big picture. As FCRA funding can only be extended to FCRA grantees, foreign dependency on funds poses serious limitations to build a field of climate philanthropy. Further, domestic funding is crucial to mitigate the risk of FCRA renewal and allows Shakti to engage more grantee partners.

The branding policy adopted by Shakti has helped brand 'Shakti' reach out to a larger audience and establish trust and credibility among key decision makers in the government. Internal stakeholders have clarified that

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Shakti is not an organisation that wants to put itself out in the front, but one that wishes to be visible to the right audience while staying in the background.

Competitive compensations/salaries have been a contributing factor for a low attrition rate of 12% in the organisation. The attrition risk is higher among programme staff, especially at the senior associate and associate level. This is because the structural limitations in the organisation gradually manifest into perceived lack of career growth opportunities for staff at this level.

Grant-making is another key area where Shakti's leadership- and management-driven functions have clearly affected results. The management's action to improve internal coordination has also yielded positive results. Annual dialogues, a yearly event that brings together all partners, grantees, consultants, policy makers and donors under one strategic planning platform, also gathered praise for its effectiveness in building a consensus on success factors, emerging issues and focus areas for their grants.

## ***1.8. Evolution of Shakti's role***

Shakti has progressed significantly in facilitating public impact, is better known now and is more visible in public discourse. Shakti's programme officers have evolved overtime as specialists in their areas of work with strong domain knowledge and with the capacity to provide a coherent view for key decision makers in the government. Shakti has established a unique way to bring coherence in the areas it studies where there is not much capability. All these factors have led to Shakti being perceived by stakeholders and the industry at large as a sustainable development partner, knowledge facilitator, coordinator and aggregator.

### ***1.8.1. Perceptions of Shakti's board, leadership and management***

Overtime, Shakti has evolved significantly in facilitating public impact. Shakti's efforts in convening, bringing key stakeholders together to debate and collaborate has been a key factor in this evolution. Considering its limited size, Shakti is more visible as a grant-making organisation and has recognition in niche areas of focus. By working closely with the government and extending quick responsive assistance to help achieve common goals, Shakti has built confidence with relevant bureaucrats and policy makers. Without this, Shakti's ability to critique and guide decision makers towards an objective policy pathway would have been difficult.

### ***1.8.2. Grantee perceptions***

Shakti is perceived as the promoter of forward-looking interventions. Further, its programme officers are perceived to be competent and flexible to the needs of stakeholders and are known to demonstrate considerable domain knowledge. Shakti has emerged as an active convener of civil society and policy makers from national and subnational levels. Its role as a convener has been very effective in the acknowledgment of key issues and building a consensus among policy makers and other stakeholders.

### ***1.8.3. Policymaker perceptions***

Shakti has been able to co-ordinate with civil society, think tanks and policy makers and bring forth coherent views. It has also emerged as a prominent knowledge facilitator in the field of sustainable development. Shakti is perceived as resourceful and capable of bringing together relevant, competent specialists from different fields and is also known as a supporter of government objectives, one that does not impose its ideas but makes knowledge available to make informed decisions.

### ***1.8.4. Donor perceptions***

Almost all of Shakti's donors were convergent on the idea that Shakti has evolved as a credible institution, providing timely technical support and facilitating informed decision making by policy makers. Shakti has emerged as the thought leader in some areas of funding and a strategist for identifying relevant partners for campaigns in specific areas. It has provided technical support and has built a field of climate philanthropy by bringing together a large number of CSOs/NGOs/non-profits and building their capacity while facilitating a high-level policy change.

However, divergent views were also expressed as one donor critiqued Shakti for focusing too much on national-level policy making and for embracing dual identities of a re-grantor and think tank. The donor opined that Shakti could do more to increase the government's focus towards solving important and neglected problems in the sector as a whole—for example, pace, transparency and capacity.

## ***1.9. Shakti's competitive advantages***

By virtue of being closer to the ground, Shakti is better informed, has better knowledge of the grantee landscape, knows who can do better and at which part of the value chain and is known to be reactive and responsive in its grant making. Policy makers also identified Shakti's as one of the key drivers for stakeholders to solve important problems in the sector. The key competitive advantages of Shakti have been mentioned below:

- Indigenous roots and presence
- Deep in-house technical expertise
- Long-term donor commitment
- Nimble strategy and speed of action
- Ability to convene
- Collaborative relationships and network of partners

Donors appreciated the composition of Shakti's board, which comprises distinguished Indian citizens only. These factors have not only given Shakti a sense of credibility as a domestic institution but also made policy makers comfortable working with Shakti.

Grantee partners noted that Shakti has emerged as an active convener of civil society and policy makers on national and subnational levels. Further, Shakti's efforts in convening, bringing key stakeholders together to debate and collaborate has been a key factor in facilitating public impact.

## ***1.10. Key recommendations***

Elements that have proven key to Shakti's success to date include the deep technical competence of its programme staff, strategic partnerships, convening capacity, some opportunistic grant-making, working collaboratively with both grantees and policy makers, handholding smaller CSOs/NGOs/non-profit organisations, facilitating strategic partnerships, collaborations and coalitions, providing long-term (multi-year) funding commitments, and leading the philanthropic community in building the capacities of institutions.

A significant share of Shakti's grants have been structured to inform policy design or specific programme/project implementation design. As the work continues in key geographies and sectors, opportunities to support largescale programmes or project implementation are likely to increase. Shakti can best fulfil its mission by considering the following high-level recommendations:

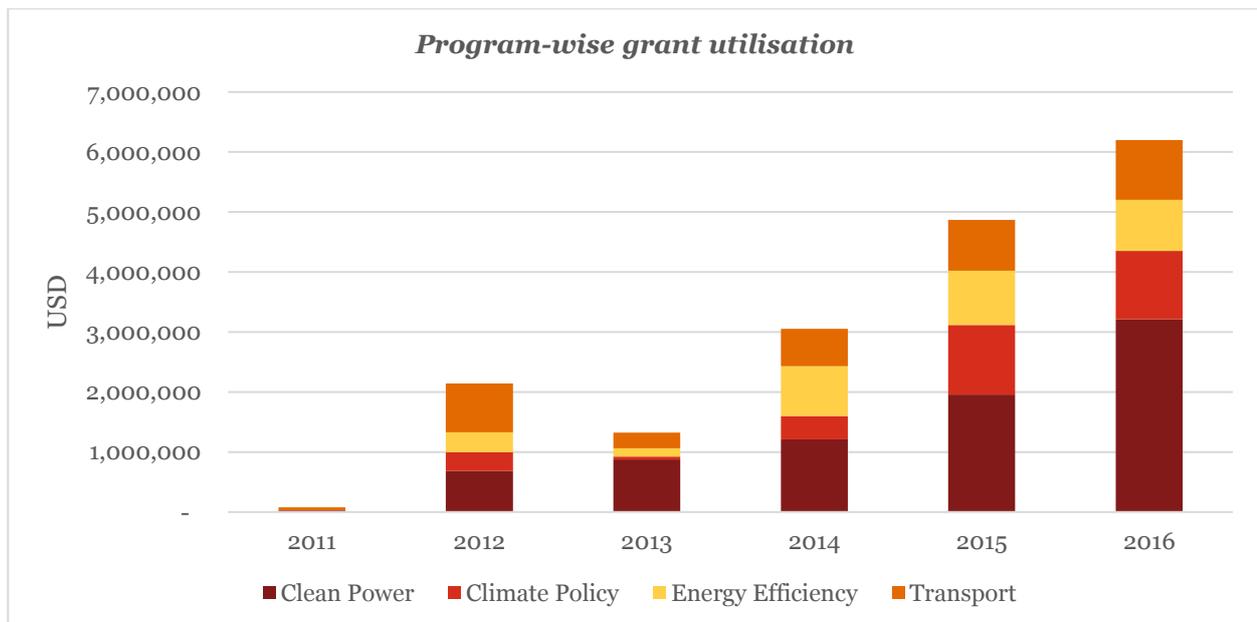
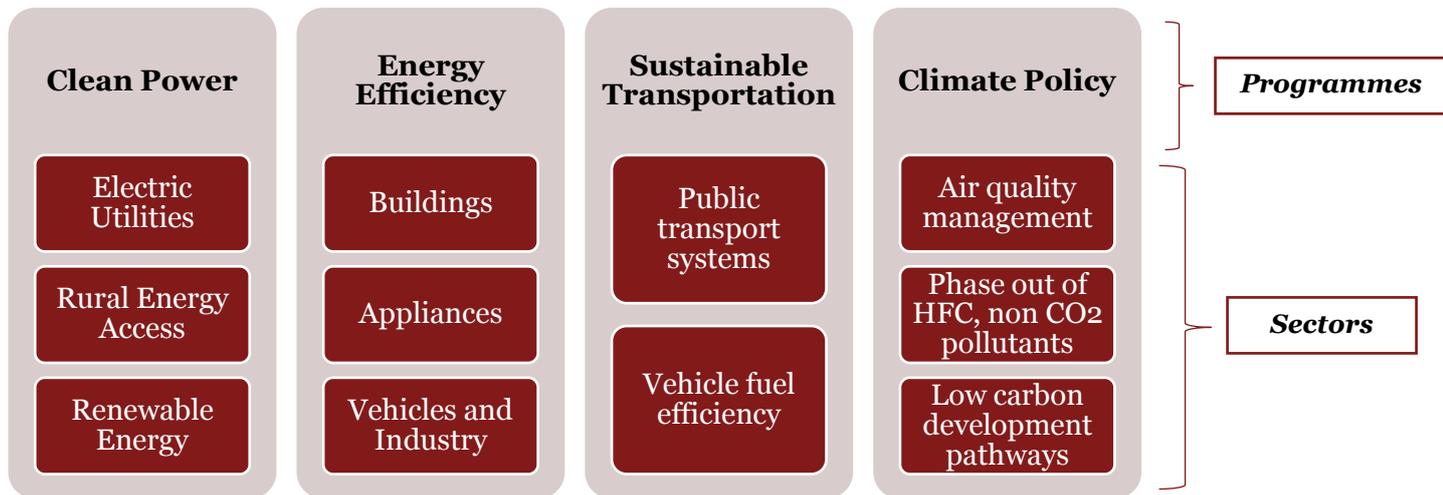
- Shakti should continue playing the roles of a re-grantor, fund manager, development partner, convener, thought leader, coordinator, incubator, integrator, knowledge facilitator, aggregator and collaborator.
- It should continue harnessing the power of changing narratives around important themes.
- It should identify converging themes to tap cross-cutting opportunities.
- It should provide a long-term vision and enlighten the path forward for the government on various themes.
- It should continue targeting actions at subnational levels in the thematic areas where major policy gaps have been addressed to support meaningful implementation and facilitate impact.
- It should continue providing multi-year grants to its grantee partners to foster flexibility, build capacity and encourage long-term planning, thereby leading to more meaningful impacts of initiatives.
- It should strengthen communications and advocacy-related activities.
- It must be mindful of the perception of its dual role as a re-grantor and think tank, as both require different approaches and different success drivers.
- It should continue with its flat and lean organisational structure.

- 
- It should continue diversifying its pool of international donors and managing credibility and reputational risks.
  - It should identify and explore opportunities to raise endowment funds and utilise such funds to create real assets and secure long-term financial security.

## 2. Introduction

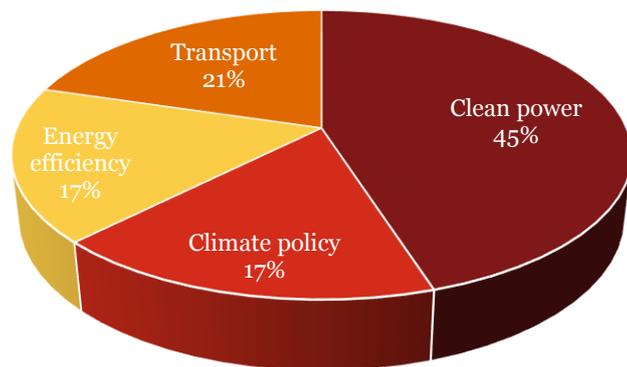
Shakti Sustainable Energy Foundation (hereinafter referred to as 'Shakti') is a section 25 non-profit company that was established in 2009 as a grant-making organisation to support India's sustainable development and clean energy objectives. Shakti's mission is to aid the design and implementation of policies that promote both the judicious use of existing energy reserves and development of cleaner energy alternatives, with the ultimate vision of building a clean and secure energy future for India. To fulfil this mission, Shakti has been making grants in the areas that it believes are most likely to facilitate strategic goals. The thematic areas of investment are strategically identified over the years, keeping in mind the dynamics of social, political and economic contexts of development.

### Shakti's thematic areas of investment



Source: Data shared by Shakti Sustainable Energy Foundation

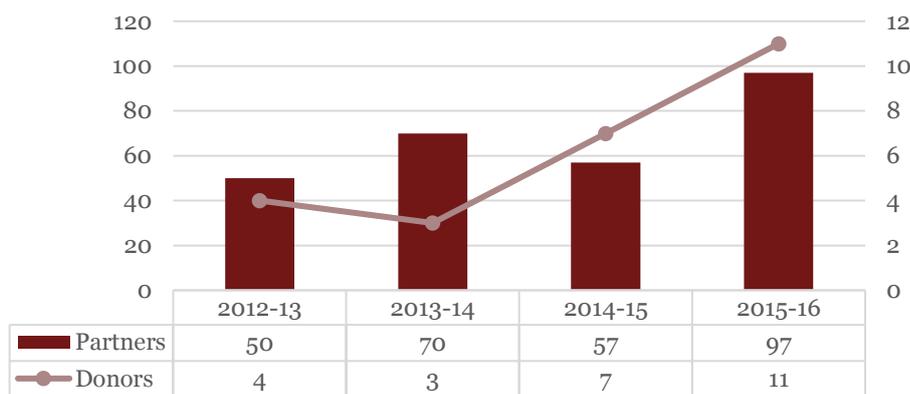
**Program wise cumulative grant utilisation between 2011 and 2016**



Source: Data shared by Shakti Sustainable Energy Foundation

Shakti’s modus operandi involves re-granting funds received from donors to grantee partners who have the capacity to best execute the work that is identified to progress towards goals in various thematic areas. Shakti’s grantee partners include civil society organisations (CSO)/non-governmental organisations (NGO)/non-profits, academic institutions and professional consultancy firms, who are engaged via project/grant awards. There have been over 10 donors and 97 grantee partners associated with Shakti since 2015-16.

**No. of grantee partners and donors engaged by Shakti**



Source: Shakti’s annual energy dialogues 2011-16<sup>1</sup>

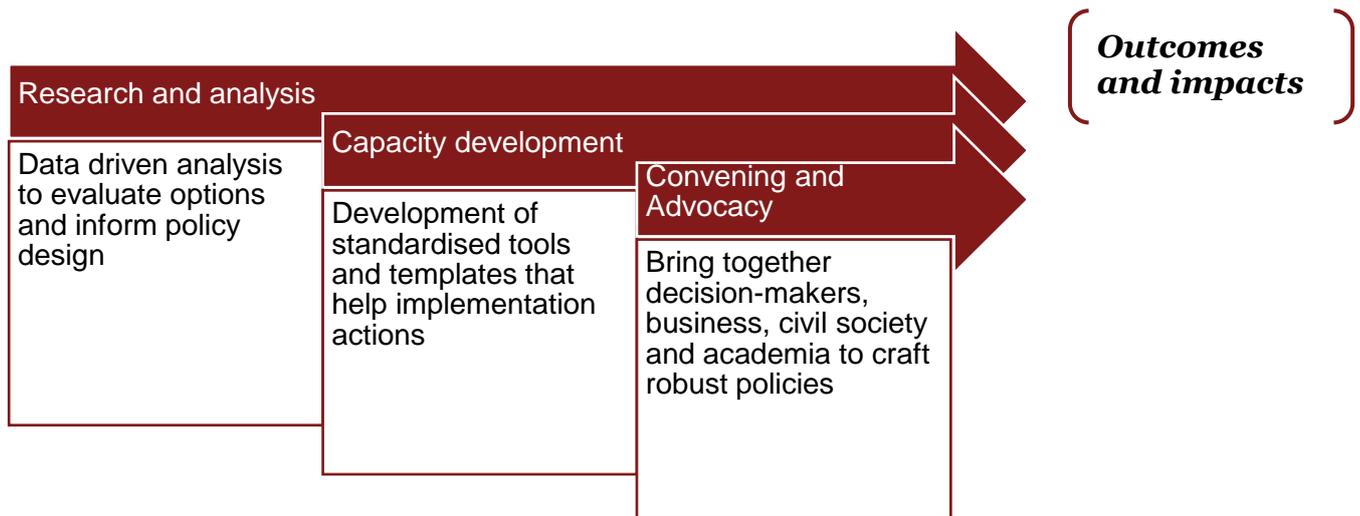
Shakti’s grants are designed to achieve the following objectives:

- Create a broader consensus within India on the need to transition to a clean energy pathway
- Enable the design and implementation of national and sub-national policies that promote energy efficiency, renewable energy and sustainable transport solutions
- Develop a vibrant civil society engaged in clean energy issues

Shakti’s programmatic grants typically support three types of initiatives/activities i.e. research and analysis to inform policy design, capacity development, and convening and advocacy. The activity types depicted below do not necessarily indicate that outcomes will be achieved only by executing all three types of activities in that particular order. Shakti’s grantees and initiatives do progress in this fashion as they address a given issue.

<sup>1</sup> Retrieved from <http://shaktifoundation.in/>

However, grantees may be engaged in any one type of activity or in multiple categories of activities simultaneously.



The approach followed by Shakti has shed light on the type of activities that Shakti most commonly supports and how these activities enable progress towards broader strategic goals in different thematic areas of interventions. It may be useful for Shakti to map the typology of the entire population of activities/initiatives it has undertaken in the past five years and assess gaps in the activity design within each of the major thematic areas or geographies of investment, where Shakti may want to consider granting funds, building new partnerships or funding collaborations to fill those gaps. While every aspect of this analysis was not examined for this report, it may be useful for Shakti to consider the findings of such an analysis to underpin future discussions on strategy.

## 2.1. Evaluation objectives

Shakti’s activity design is based on a strategic framework that was developed in 2011 when Shakti had completed three years of its grant-making operations. The framework established sectoral goals for 2030 and worked backwards to set intermediate goals for 2020, based on which annual plans were framed. Shakti now has five years of experience in implementing its strategic framework.

PwC was appointed in January 2017 to conduct an independent evaluation of Shakti for the period from 2011-16. The primary audience for this evaluation is Shakti, who will use the findings to:

- i. Help inform a ‘strategy refresh’ for elements of Shakti’s work.
- ii. Help Shakti strengthen itself as an organisation.

Other audiences include Shakti’s donors and its board who are equally interested in the organisation’s evaluation.

## 2.2. Evaluation approach

The evaluation is largely retrospective and guided by the following overarching questions set forth by Shakti:

**Progress towards goals:** What do key stakeholders perceive to be the most important impacts or results of Shakti’s work (including grants and other services)?

**Strategic framework:** Has Shakti’s programme strategy, designed around four main themes and working at the federal, state and city levels, served to efficiently deliver on its programmatic goals?

- How relevant are Shakti’s goals and targets in the current policy environment?
- How well has Shakti been able to proactively identify key emerging opportunities and accordingly redefine sector strategies to adapt to evolving external developments and learnings? Are there any gaps in the identification and follow-through process? Have there been examples of any major new opportunities that were advanced to respond to emerging external developments?
- In what ways did Shakti’s programme staff balance their efforts between grants and other types of services?

**Organisational development:** How has Shakti’s internal organisational structure and systems enhanced its ability to act on its strategic framework?

- How have its leadership and management functions affected the strategy enhancement process and results?
- How effective are Shakti’s processes and practices for learning from successes and challenges and for incorporating that learning into future work?

**Strategic evolution:** How effective has the evolution of Shakti’s role during the last five years been in positioning Shakti as a strategic re-granting organisation in the larger philanthropic landscape?

- To what extent and how has Shakti helped to build the field and increase the performance of the ‘organisational ecosystem’ where it operates?
- How effective has Shakti’s approach toward building external partnerships with concerned stakeholders been in its different areas of work?

The evaluation method was centred on stakeholder interviews, document reviews and desk research to generate evidence and information that can inform the assessment against each of the above evaluation questions. In doing so, the evaluation drew largely on existing available information and has the characteristics of a summative and synthesised effort.

### 2.2.1 Stakeholder interviews

The PwC team conducted over 50 structured interviews to gather opinions and views from a wide range of external and internal stakeholders. The interviewees comprised policy makers, donors, grantee partners, contractors, Shakti’s board members, key executive staff of Shakti and other experts. An almost equal share of policy makers identified belonged to both national and sub-national governments. The stakeholder interviews were either conducted face-to-face or through telephonic discussions guided by customised data collection instruments. A few stakeholders provided written responses to a pre-defined questionnaire via electronic communication. The responses of various stakeholders were synthesised and aggregated to inform the evaluation.

The interviewees were jointly identified by the Shakti and PwC teams. Further, they were informed that the information they provided would be treated as confidential and would not be directly attributed to them or their organisation in this report.

#### Profile of external interviewees

Stakeholder group	Number of interviewees
Policy makers	15
Grantees (CSO/NGO/non-profits, think tanks, industry associations and bodies, and academia)	13
Contractors (professional advisory/consultancy services firms)	4
Donors	4
<b>Total</b>	<b>36</b>

#### Profile of internal interviewees

- i. Chairman and three board members
- ii. Chief Executive Officer (CEO)
- iii. Chief of Programmes (COP)
- iv. Chief Financial Officer (CFO)
- v. Head of Partnerships (HOP)
- vi. Head, Human Resources
- vii. Communications Manager

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- viii. Senior Programme Manager, Power
  - ix. Senior Programme Manager, Climate Policy
  - x. Programme Manager, Transport
  - xi. Programme Manager, Energy Efficiency

### *2.2.2. Document reviews*

The PwC team reviewed over 35 documents provided by Shakti as useful background information. These included five annual reports, two previous evaluation reports, one grantee perception survey, eight strategic framework narratives and over 25 closure reports for selective grants and initiatives in the past five years.

- Strategic framework – 2020 and 2030 annual goals, strategy narratives
- Previous evaluation studies
- Grant and/or project closure reports for high-impact initiatives
- Grantee perception report
- Annual reports of the last five years

### *2.2.3 Desk research*

The PwC team also conducted desk research to triangulate information gathered about the perceived impact of Shakti's activities in specific areas (wherever possible) and identify and document high-level changes anticipated in the strategic framework.

### *2.2.4. Scope and limitations*

While the information sources were triangulated where possible to check for consistency, rigorous verification was not possible with the information available. Furthermore, without a counterfactual, we could only assess plausible contribution to impact and not direct attribution. It is important to understand that high-level goals and impacts are achieved through multiple interventions, supported by multiple actors. Considering Shakti's role as a philanthropic fund manager, convener, and coordinator in the broader context, the audience must be mindful of the limitations in proving direct attribution to high-level outcomes. We used an inductive approach and moved from providing specific observations based on interviewee responses to broader generalisations and findings about the programmes. The baseline used for most of the evaluation was the state of affairs in 2011.

The evaluation was necessarily limited in scope, given that it did not aim to closely examine the impact of individual grants/initiatives. Instead, it focused on high-level aggregated impact on the sector as a whole from a series of grants and initiatives that were of most interest to Shakti's leadership.

### *2.2.5. Structure of the report*

This evaluation report has been structured to align with the evaluation framework and questions set in the terms of reference. The report is divided into distinct chapters (after the introduction section), focusing on the four broad evaluation parameters: progress towards goals, strategic effectiveness, organisational development and evolution of Shakti's role in the larger sustainability landscape. In each of these chapters, our evaluation assessment is presented separately for each of the evaluation questions set in the terms of reference. The assessment is provided separately for each of the four broad programme areas, wherever relevant.

## 3. Progress towards goals

### 3.1. What do key stakeholders perceive to be the most important impacts or results of Shakti's work, including grants and other services?

#### 3.1.1. Cross-cutting

Shakti's high level goals are ambitious and far reaching. Progress has been made towards shaping policies and building institutional capacities to design and implement policies. It is difficult to definitively attribute the causality of these advancements specifically to Shakti's grant-making. However, it is likely that without Shakti's efforts, we would not be where we are today in terms of the ambitions, preparedness and readiness for implementation of clean energy solutions and the conservation of precious fossil fuel resources.

In 2011, the Indian government's appreciation of climate change and clean energy was at a nascent stage. There was a sense of limited momentum and coordination on the policy front. Over the past five years, Shakti's grant-making has been focused on filling this policy vacuum and, therefore, technical assistance was the first order of the day. Shakti and its partners have been successful in mobilising credible evidence to inform policy design on various themes across major sectors of influence. In a sense, Shakti supported interventions have helped the government and other important stakeholders appreciate the gravity of the developmental issues/challenges and undertake critical actions in a coordinated manner. This is especially profound at the Government of India level largely facilitated by data-driven collaborative research, analysis and advocacy by bringing together the government, civil society and academia. At the sub-national level, Shakti's interventions have resulted in a greater sense of appreciation on the need to act, which is largely facilitated by capacity building and pilot /demonstration projects complemented with tools and principles for effective implementation. On the contrary, at the national level, the appreciation is more on the need to set ambitions and formulate appropriate policies, programmes, allocate resources and leverage collaboration with state-level agencies and the private sector for coordinated implementation.

Over the years, Shakti's efforts have changed the face of public policy research in India, especially in the niche areas of sustainable energy, transport and climate policy. Shakti's grants have been effective in bringing out much-needed critical information in the public domain. Decision makers in the government have relied on Shakti and its partners for timely and responsive technical assistance to support policy design and implementation related actions. By virtue of its role as the aggregator of research, capacity building and advocacy related initiatives, Shakti has been successful in facilitating concerted, coherent, synergistic, integrated and coordinated actions by decision makers. Shakti's ability to convene stakeholders and bring in consensus amongst various stakeholders by identifying their concerns and incorporating ways to address them, has been widely appreciated.

#### **Impact: Heightened appreciation of developmental challenges, issues, needs to set ambitions and initiate actions**

For example, Shakti led efforts in the energy access sector have enabled stakeholders to appreciate and acknowledge the long neglected market barriers for scaling up renewable energy based mini grids. Both at central and state government level, electricity regulators have notified conducive policies and regulations to de-risk private sector investments from grid extension and the resulting uncertainty when the main grid reaches the isolated mini/micro grid. Similarly, efforts in the freight segment have enabled the government's premier think tank to appreciate the huge modal imbalance (dominance of roads over railways) in national freight movement.

#### **Impact: Heightened sense of coordinated actions between state and central governments**

For example, Shakti's contribution towards the government's 'Renewable Electricity Roadmap for 2030' and Shakti-led collaborative platforms such as the 'Utility CEO Forum on Demand Side Management' and others have played a catalytic role in driving coordinated actions between central and state nodal agencies to rapidly scale up the adoption of grid scale solar energy solutions, solar PV rooftop and pumping systems and demand side management (DSM) programmes involving LED lighting solutions.

In the eyes of the evaluator, it is sometimes a challenge for Shakti and its partners to create an environment, with the key decision makers in the government, where the highlighted problems and failures are perceived as opportunities for learning. Also in a bureaucracy like India, consensus building takes time and there are several motivations and interests to be considered within a government. Now that Shakti has built a consensus on several important issues plaguing the sectors, donor concerns are likely to be addressed in times to come.

The grantee partners noted two significant outcomes from Shakti's efforts over the years. The first is the capacity development of marginal players in the field of sustainability. These players, who would not have otherwise received the opportunity to express their opinion or to support implementation at the ground level, are being enabled to make a difference. The second is the new information that has come to light because of Shakti's activities. This information has been very effective in changing and broadening the narrative around important themes in sectors where there is insufficient data. The information may also have quite an impact on future policy-making in those sectors.

***Impact: Wealth of new information available in the public domain to inform future policies and the effectiveness of existing policies***

For example, Shakti led interventions to design and implement city-level demonstration projects in the areas of non-motorised transport, public bicycle sharing, bus rapid transit, para transit, public transport information systems, etc. have enabled a wealth of new information to inform future policies promoting sustainable transportation. Similarly, research efforts in the freight segment have made a wealth of new information available to the government. This information is being used to develop future strategies thus increasing the share of the Indian Railways in the movement of national freight.

***Impact: Heightened sense of collaboration between the government and civil society to inform policy***

For example, in the climate policy domain, in 2011, the government was sceptical about engaging civil society. Over the years, this perception has changed as the government actively involved civil society actors to inform its position in the United Nations Framework Convention on Climate Change (UNFCCC), Lima, and the Paris Conferences. The 'US-India Track 2 dialogue on climate change and energy' supported by Shakti brought together Government and civil society actors like never before in the days leading to the historic UNFCCC climate conference in Paris in December 2015.

***Impact: Consensus building with the government on important clean energy developmental issues and solutions***

For example, Shakti-led efforts over the years both at a national and sub-national level, especially in the state of Uttar Pradesh, have been successful in building consensus with the government on the role of decentralised renewable energy-based mini grids in meeting the energy access developmental goals. This was despite the government's far-fetched ambition for grid extension to cover unelectrified villages and households.

### ***3.1.2. Clean power***

Clean power has been the largest area of investment for Shakti in the past five years. Nearly 8 million USD from Shakti's programme budget was utilised, between 2011 and 2016, broadly under the renewable energy, electric utilities and rural energy access themes.

The 2011 strategic framework for the clean power programme was centred on improving the share of renewable energy in the power system, realising the market potential of end use efficient technologies, initiating DSM programmes across states, having efficient electricity distribution systems operating at globally acceptable loss levels and enabling distribution reforms to be adopted nationwide.

In the past five years, the programme has evolved from its central-level focus to a focus on states such as Tamil Nadu, Maharashtra, Gujarat, Karnataka, Uttar Pradesh, Jharkhand, Kerala, Andhra Pradesh and Haryana.

### ***Progress relative to goals***

This section summarises the sectoral progress against some of the high-level goals laid out in Shakti's 2011 strategic framework. Over the past five years, many of Shakti's grants served as building blocks, allowing change to occur. In other cases, political and economic realities shifted unexpectedly and hindered progress against the original goals.

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**By 2030, renewable energy will constitute 25% (or 1,000 TWh) of the power system; by 2020, renewables will contribute 298 TWh of power generation**

In 2011, the usage of renewable energy had still not caught the imagination of Indian stakeholders and continued to be a fringe player. There was a great degree of inertia perceived for scaling up renewables. Moreover, stakeholders were often questioned the use of renewables. However, over the years, the country has overcome this systemic inertia. Stakeholders are now faced with the question of the level of renewables can the system accommodate, with renewable energy no longer considered a fringe player.

In 2011, renewables constituted 5% of the all-India electricity generation and 8% of the all-India installed capacity. By the end of 2016-17, according to the statistics provided by the Central Electricity Authority (CEA), electricity generation from renewables was 82 TWh, which is about 7% of all-India electricity generation. In terms of the installed capacity, in 2016, renewables constituted 15% of the all-India capacity.<sup>2</sup>

Furthermore, over the years, India's solar energy target has increased fivefold to 100 GW. The overall target for renewable energy is 175 GW by 2022. One of the largest renewable capacity expansion programmes in the world is being taken up by India. The government is aiming to increase its share of clean energy through a massive thrust in renewables. A capacity addition of 14.30 GW of renewable energy has been reported during the last two and half years<sup>3</sup>. The core drivers for the development and deployment of renewable energy in India include energy security, electricity shortages, energy access, and climate change around which Shakti's grants have been effective in changing and broadening the narrative over the years. Confident of the growth rate in the clean energy sector, the Government of India has committed to 40% cumulative electric power capacity from non-fossil fuel based energy resources by 2030 under the Paris Climate Accord.

In a way, Shakti's efforts have helped in eliminating investor concerns and have softened the market barriers for wind and solar energy investments. There is also a heightened sense of coordination between central and state governments to implement the ambitious renewable energy targets.

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<sup>2</sup> Press Information Bureau, Government of India, Ministry of New and Renewable Energy (MNRE) 2016, Year End Review [Press Release], Retrieved from <http://pib.nic.in/newsite/PrintRelease.aspx?relid=155612>

<sup>3</sup> MNRE 2016

### **High-impact initiatives**

#### **➤ Performance assessment of Phase 1 of National Solar Mission**

*In 2011, the National Solar Mission (NSM), which is one of the eight national missions under the National Action Plan on Climate Change, had for the first time set concrete targets for solar energy deployment (20 GW by 2022). Perceived as the single most important policy driver for solar energy development in the country, the mission which is in its first phase, demonstrated large scale deployment strategies and on-ground implementation of solar energy solutions. Shakti led efforts to evaluate the performance of Phase 1 identified procurement-related challenges and provided recommendations to review deployment targets. In a way, this informed the government's efforts in the design of the remainder of the phases of the mission, revision of deployment targets and subsequent evolution of the policy into one of the world's largest solar energy expansion programmes.*

#### **➤ NITI Aayog's Renewable Electricity Roadmap 2030**

*Shakti, in collaboration with other key players, facilitated an extensive stakeholder-driven exercise to contribute towards the development of India's 'Renewable Electricity Roadmap 2030' led by the government's premier think tank, NITI Aayog. The initiative identified key investor concerns (e.g. project development/sanctions, licensing, grid connectivity), market barriers (e.g. high cost of renewables) and provided actionable recommendations to scale up renewable electricity deployment. Shakti also supported the government in setting up an overseeing mechanism for coordinated implementation of policy recommendations between central-and state-level nodal agencies. In a way, these interventions, supplemented by global tailwinds and declining solar panel prices, guided the states in adopting national policies and driving unprecedented capacity addition of grid scale solar and wind power systems.*

#### **➤ National-and state-level wind potential assessments**

*Shakti's support towards national and state level wind potential assessments drew so much attention to the vast untapped potential of the wind sector that the Government of India constituted a committee to reassess India's wind potential, with Shakti as the formal member and contributor. Based on the analysis conducted under the aegis of this committee, the government acknowledged 302 GW of revised wind power potential at a hub height of 100 m. This dramatically altered the market perception by underscoring the fact that potential is no longer a constraint for wind power, thus providing a major boost to investors and utilities in wind-rich states.*

#### **➤ Technical and commercial frameworks to integrate wind energy into the grid**

*Shakti supported efforts to create technical and commercial frameworks to integrate wind energy into the grid and brought the issue of grid integration of renewables under the spotlight. In a way, these interventions, along with the 'grid integration blueprint - challenges and solutions', informed the government's green energy corridor policy for the large-scale grid integration of renewables.*

### **By 2030, the market potential of end use efficient technologies will be realised; by 2020, the deployment of end use efficient technologies will deliver a reduction of 274 TWh**

By 2011, the National Mission for Enhanced Energy Efficiency (NMEEE) - India's most comprehensive energy efficiency policy - had emphasised the need to accelerate the shift to energy-efficient appliances in designated sectors through innovative measures, making these energy-efficient products more affordable and facilitate market transformation for energy efficiency. However, there was limited traction on this front as many end use efficient technologies still faced the high-cost barrier because of low volumes and the inability to leverage the economies of scale in several key markets.

Over the years, several end use energy-efficient technologies such as solar water heaters, solar irrigation pumps, rooftop solar PV systems, Bureau of Energy Efficiency (BEE) approved 5-star air conditioners, refrigerators, irrigation pump sets, electric geysers, etc. have been deployed at different scales through a combination of centre and state-driven policies, pilot programmes and incentives. However, their penetration is still negligible as compared to the market potential. The Government's Unnat Jeevan by Affordable LEDs and Appliances for All (UJALA) scheme, implemented by the Energy Efficiency Services Limited (EESL), adopted demand aggregation strategies and bundled procurement to bring down the upfront cost of LED lamps by 87%<sup>4</sup>. This

<sup>4</sup> <http://ujwalbharat.gov.in/three-years-achievements-english/#/20>

has resulted in market penetration of over 250 million self-ballasted LED lamps, over 0.9 million energy-efficient ceiling fans and over 2.3 million LED tubular lamps<sup>5</sup>. This has cumulatively helped India save 32 TWh of electricity annually, the production of which would otherwise have consumed 19 million tonnes of coal and 25 million tons of CO<sub>2</sub> emissions. Moreover, consumers are saving over 124 billion INR on their electricity bills annually. The programme has emerged as the world's largest energy self-financed and self-sustained market transformation initiative for promoting end-use energy efficient technologies. Further, the programme has not only surpassed traditional benefits, such as energy savings and reduced carbon emissions, but also triggered large scale investment in the manufacturing of end-use efficient technologies, generated employment and other macro benefits. The success of the UJALA programme has demonstrated that such initiatives can not only be executed but also successfully replicated for several critical end use applications such as lighting, space cooling with ceiling fans and air conditioners. UJALA's tangible benefits have resulted in healthy competition among all state governments in India to devise customised energy-efficiency programmes and execute them independently, emulating the scalable models demonstrated by EESL. By 2019, the government aims to replace 770 million old wasteful lamps with modern, efficient and long-lasting LED bulbs. Under the Government of India's Street Lighting National Programme (SLNP), over 21 lakh conventional street lights have been replaced with LED street lights across the country over the years. This has resulted in energy savings of 0.3 TWh.

Shakti's early-stage interventions to demystify LED lighting technology, markets, and support demand aggregation strategies, centralised institutional procurement of LEDs, specific market mechanisms for large-scale programme implementation, especially in Puducherry, have been a driving force for the government to champion the market penetration of end use efficient technologies under the UJALA initiative.

### **High-impact Initiatives**

#### **➤ LED lighting market assessment and demand aggregation strategies**

*In 2009, a central core committee led by the Ministry of Power (MoP), Government of India, first conceived the idea of demand aggregation to enhance market volumes, improve economies of scale and reduce the high upfront cost of LED lamps, perceived as the most energy efficient solution for general lighting illumination markets in the country. The committee also suggested a centralised institutional mechanism to implement the proposed demand aggregation strategies and vested the responsibility to EESL. To facilitate effective implementation of demand aggregation strategies in the early stages of the evolution of the LED lighting market (i.e. 2011-12), Shakti, in collaboration with its partners, supported the estimation of LED lighting demand, energy savings potential, segregation and prioritisation of LED lighting markets. The efforts also focused on the objective evaluation of demand aggregation strategies and centralised institutional procurement models to inform the government's efforts towards bringing down the cost of LED lamps. The initiative identified important demand aggregation markets (e.g. railways and defence establishments, households, public administrative buildings), strategies (e.g. utility scale DSM programme with centralised institutional procurement) and institutions for implementation.*

#### **➤ Standard offer programme design support for the LED lighting initiative in Puducherry**

*In 2013-14, the Government of India, through EESL, successfully adopted demand aggregation strategies and bundled the demand for LED lamps for residential lighting applications in the union territory of Puducherry. Shakti, in collaboration with its partners, invested in the early-stage programme design. For the first time, a 'standard offer' programme design was successfully adopted to enable robust cost recovery mechanisms for EESL. Additionally, on-bill financing and bulk procurement strategies made LED lamps more affordable for the targeted end users. EESL successfully procured and distributed over 7 lakh self-ballasted LED lamps at a cost of 320 INR per lamp to households in Puducherry. Consequently, the tremendous success of this initiative lent momentum to similar actions in other states. Shakti's support in the early-stage programme design helped the initiative evolve into a national flagship programme, known as UJALA, for the large-scale deployment of end use energy-efficient technologies for mass markets. Perceived as a world-class self-sustaining market transformation initiative, the UJALA programme is widely appreciated for its tremendous scale of success, resulting from over 250 million self-ballasted LED lamps distributed to households and institutions across the country. Over the years, EESL has achieved over 85% cost reduction in the overall cost of LED lamps in progressive phases of procurement (320 INR per lamp to 38 INR per lamp).*

<sup>5</sup> Ministry of Power, Ujala National Dashboard, Retrieved from <http://www.ujala.gov.in/>

### ***Policymaker's testimony***

*Shakti's support for the EESL's Puducherry LED lighting initiative, the first successful demonstration of mass LED distribution has helped shape the overall national drive for LEDs*

- *Managing Director, EESL, joint venture of PSUs under the MoP, Government of India*

*Source: First regional meeting of the Utility CEO Forum on DSM*

### **By 2030, DSM programmes will be initiated in at least 20 states; by 2020, DSM programmes will be initiated in at least five states**

Until 2011, there was no systematic approach and regulatory framework guiding the planning and implementation of DSM programmes, except in a few states. The DSM programmes were largely implemented on a pilot scale and were concentrated only in a few progressive states and utilities (e.g. Maharashtra, Karnataka, Delhi, etc.).

Over the years, electricity regulators in more than 15 states have notified DSM regulations. Under the UJALA initiative, utility scale DSM programmes have been successfully initiated and implemented in most Indian states. Apart from the programmes driven under the national UJALA initiative, several states including Delhi, Maharashtra, Andhra Pradesh, Rajasthan, Karnataka and Gujarat have independently initiated DSM programmes by focusing on demand response and emulating the UJALA model for other important end use applications such as motors, pump sets, water heaters, air conditioners and street lights,.

Together, Shakti's interventions to support DSM regulations, innovative DSM programme designs, load research studies, handholding of electric utilities for DSM implementation and DSM knowledge facilitation through convening platforms have certainly influenced and informed key decision makers on the large scale adoption of DSM programmes in many states.

### ***High-impact initiative***

#### ***➤ Utility CEO Forum on Demand Side Management***

*The 'Utility CEO Forum on Demand Side Management', co-promoted by Shakti and EESL gained high acceptance among Indian electric utilities and regulators as the industry leading platform for knowledge and experience sharing on DSM planning and implementation. More than 20 state electricity regulatory commissions and 35 electricity distribution utilities have participated in the forum meetings (thematic round table discussions) between February 2013 and August 2016 to share and learn from their collective experiences. Several other DSM market participants such as central and state nodal agencies, financial institutions, and technology/service providers also attended the forum meetings to take stock of DSM opportunities, market and business potential, implementation challenges, policy gaps and critical success factors for large scale implementation. Over the years, the forum's activities significantly enhanced stakeholder confidence in the promise of DSM and, in many ways, informed the efforts by multiple stakeholders to design and implement utility scale DSM programmes.*

### ***Policymaker's testimony***

*'The Kerala State Government and Kerala State Electricity Board have benefited immensely from the collective knowledge and experiences shared at the forum meetings to advance DSM implementation in the state. I urge the senior management of all electricity distribution companies to participate in the forum gatherings and learn from the collective wisdom.'*

*- Principal Secretary to the Government of Kerala and Ex-CMD, Kerala State Electricity Board*

*Source: Tenth meeting of the Utility CEO Forum on DSM*

### **Lifeline energy services are made available to energy-deprived consumers by cleaner means that are reliable and affordable.**

According to the 2011 census of India, an estimated 300 million people have no access to electricity. The idea of providing decentralised renewable energy (DRE) based micro/mini grids offering lifeline energy services to energy deprived sections of the society has been in the process of implementation since long. By 2011, the 'Remote Village Electrification Programme' by the MNRE, the 'Decentralised Distributed Generation (DDG)' scheme by the MoP and the 'off-grid solar programme' under the National Solar Mission (NSM), all of which were actively promoting DRE services to rural populations. Over the years, Deendayal Upadhyaya Gram Jyothi Yojana (DDUGJY), 24\*7 Power for All, and Ujwal DISCOM Assurance Yojana (UDAY) programmes have continued to promote DRE based mini grids for achieving the energy access developmental goals of the government. Despite these programmes, the fundamental challenges remained. The private sector was wary about participating because of the perceived risk from the stated grid extension ambitions of the government and the resulting uncertainty of the asset/investment when the main grid reaches the isolated mini/micro grid. Further, there was no comprehensive policy that existed to address this gap.

In the past five years, there have been promising developments to remove this uncertainty in the policy and regulatory framework for DRE based mini grids. The first major development to impact the broader mini-grid sector was the amendment to the National Tariff Policy (NTP), which explicitly acknowledged the risk of the main grid reaching an area where a mini-grid operates prior to the end of its payback period. Further, there was also the need to put in place an appropriate regulatory framework to mandate the compulsory purchase of power into the main grid from such DRE based mini/micro grids. The NTP also acknowledged the role of DRE based mini grids in providing energy access to India's unserved and underserved sections. Later, the advent of state level policies and regulations for DRE based mini-grids from the Uttar Pradesh New and Renewable Energy Development Agency (UPNEDA) and the Uttar Pradesh Electricity Regulatory Commission (UPERC) set the foundation for state-level efforts to encourage and support DRE based mini-grid development. Subsequently, draft regulations for the supply and generation of power from renewable energy based mini-grids have been notified by the Jammu and Kashmir State Electricity Regulatory Commission (JKSERC) and Bihar Electricity Regulatory Commission (BERC). Taking lessons and inspiration from state-level efforts, the MNRE published a draft national policy on renewable energy based mini/micro grids, thus providing a framework for all states to follow.

Shakti's interventions at the national and state level, especially in the state of Uttar Pradesh, to inform DRE-based mini grid policies and regulations, have been a driving force in achieving the above mentioned outcomes.

### **High-impact initiative**

#### **➤ MNRE's draft national policy on renewable energy based mini grids**

*Shakti was part of an expert committee constituted by the MNRE to draft the first ever national policy on renewable energy based mini grids. With a focus on building a supportive ecosystem for mini grid development, the draft policy has set a target to achieve a deployment of at least 10,000 renewable energy based micro and mini grid projects across the country, each with an installed capacity of 500 MW in the next five years. The policy lays down various options available for the states to choose and select the best alternatives. The policy is perceived by the industry as a good first step in encouraging more DRE-based mini / micro grid installations and enhancing the financial security of existing installations.*

#### **➤ UPERC Draft Mini-Grid Renewable Energy Generation and Supply Regulations, 2016**

*Shakti, in collaboration with its partners, supported the formulation of the draft mini-grid regulations for the state of Uttar Pradesh. These regulations have, for the first time, provided concrete options for mini grid developers in the state for migration into a suitable operational framework and/or exit from the mini grid asset when it is reached by the extended main grid. The regulations also outlined technical standards for the construction of a public distribution network, grid interconnection, metering arrangements, operational, commercial and contractual frameworks for renewable energy based mini/micro grids. Policy makers noted there is a heightened sense of financial security among the existing mini/micro grid operators since the notification of such regulations.*

### **India has an efficient electricity distribution system, operating at globally acceptable loss levels**

Broadly, there are two important indicators monitored by the government and industry to evaluate loss levels in the electricity transmission and distribution system. As per the latest energy statistics compiled by the Central Statistics Office (CSO) of the Ministry of Statistics and Programme Implementation, Government of India, the all-India losses in transmission and distribution (T&D<sup>6</sup>) of electricity have reduced from 23.97% in 2010-11 to 21.81% in 2015-16. Also as per the latest statistics compiled by the CEA, the all-India aggregate technical and commercial losses (AT&C<sup>7</sup>) in electricity distribution have reduced from 26.35% in 2010-11 to 24.62% in 2014-15. Apart from this, progress has been made in setting ambitions for AT&C loss reduction to 15% by FY 2019 under the UDAY scheme, which is India's most comprehensive electricity distribution reform that is centred on operational efficiency improvement. In addition, electricity distribution companies are notified as designated consumers and mandatory loss reduction targets are stipulated under the Perform Achieve and Trade (PAT) cycle 2, within the governing framework of the Energy Conservation Act 2001.

### **Distribution reforms are adopted nationwide**

India's electricity distribution sector has been traditionally grappling with operational inefficiencies, limited accountability, rising revenue gap, deteriorating losses and financial indiscipline. The lack of comprehensive reforms until 2011 had exacerbated the situation even further. In 2015, the commencement of UDAY, along with the 24\*7 Power for All agenda, kick-started the most comprehensive reform to provide a permanent resolution of past as well as potential future issues of the Indian electricity distribution sector, which is perceived to be the weakest link in the electricity value chain. The reform is centred on four broad initiatives: improving operational efficiencies with concrete AT&C loss reduction targets, reducing the cost of power purchase with concrete targets for bridging the gap between the cost of supply and revenue realisation, reducing interest cost for achieving financial turnaround, and enforcing financial discipline through alignment with state finances. The government's latest performance report on the UDAY scheme has estimated savings to the tune of 11,989 crore INR on account of interest cost reduction till December 2016. Estimated savings in power purchase cost is more than 2100 crore INR. The latest reported AT&C loss levels are around 20.20%. The gap between

<sup>6</sup> T&D losses = {1- (total energy billed/total energy input in the system)} x 100

<sup>7</sup> AT&C losses = {1- (billing efficiency x collection efficiency)} x 100; where, billing efficiency= total unit billed/total unit inputs and collection efficiency = revenue collected /amount billed

the average cost of supply and revenue realisation has reduced from 61 paisa per kWh in FY-16 to 49 paisa per kWh in FY-17.

In the evaluator's eyes, Shakti's contribution towards loss reduction and reforms in the electricity distribution sector is not as significant as in other sectors such as renewable energy, DSM and energy access. Thus far, Shakti's efforts in the electricity distribution sector can largely be perceived as the first step in the long journey towards facilitating any meaningful impact.

### **3.1.3. Energy efficiency**

Shakti's energy efficiency programme has made grants broadly under industry, appliances and building themes in the past five years. Nearly 3.05 million USD of Shakti's programme budget has been utilised by the energy efficiency programme between 2011 and 2016. The 2011 strategic framework has been centred on having self-sustaining appliance energy efficiency programmes and Energy Efficient Building Code (ECBC) compliant commercial constructions, enabling a favourable policy environment for the energy-efficient buildings sector, and ensuring that the energy efficiency performance of Indian industries is on par with global standards.

In the past five years, the energy efficiency programme has been actively supporting both the centre and states such as Maharashtra, Gujarat and Madhya Pradesh.

#### *Progress relative to goals*

**India has self-sustaining appliance energy efficiency programmes that are on par with the best in the world; at least three super-efficient appliances, whose energy performance significantly exceeds existing standards have been introduced in the market**

In the past five years, two broad types of self-sustaining appliance energy efficiency programmes have emerged. The first type represents utility scale appliance procurement and distribution programmes, such as the national government's UJALA initiative, that has already demonstrated tremendous success in achieving rapid market transformation. The UJALA initiative has emerged as the world's largest self-sustaining appliance energy efficiency programme whose portfolio includes super-efficient technologies – namely, the self-ballasted LED lamps (both bulbs and tube lamps) and the energy-efficient BEE 5-star ceiling fans<sup>8</sup>. The UJALA implementation model is being increasingly emulated by several state-level institutions and utilities to establish self-sustaining appliance energy efficiency programmes focusing on important and emerging energy-efficient end use technologies.

The second type is the standards and labelling programmes that involves energy labels<sup>9</sup> and Minimum Energy Performance Standards (MEPS)<sup>10</sup> for select end use appliances. In 2011, the standards and labelling programme for appliances administered by the BEE was active with 14 categories of appliances and equipment covered under the programme, where 4 categories fell under the mandatory labelling regime and the other 10 under the voluntary regime. In the past five years, the total number of appliances covered under the mandatory and voluntary regimes has grown by 28%. Currently, 8 categories are covered under the mandatory regime and 13 under the voluntary regime.

Also in the past five years, other super-efficient technologies such as LED television sets, inverter ACs and inverter refrigerators have been successfully introduced in the market.

Shakti's interventions to support capacity building of state-designated agencies and analysis to inform super-efficient appliance standards and policies have been a guiding force in the achievement of the above mentioned initiatives.

**90% of all commercial construction in India is ECBC<sup>11</sup> compliant creating an enabling policy environment for the energy efficient buildings sector**

<sup>8</sup> Both the conventional AC induction motor and brushless DC electric motor (BLDC) fans

<sup>9</sup> Enables consumers to make an informed choice at the point of purchase, either by showing the comparative performance of appliances (rating labels) or by identifying best-in-class products (endorsement labels).

<sup>10</sup> Provides a level playing field in competitive markets by removing the worst performing products without diminishing consumer choice

<sup>11</sup> The ECBC, which was notified in May 2007, sets minimum energy standards for new commercial buildings having a connected load of 100kW or contract demand of 120kVA and above. The major components of the building which are being addressed through the code are: envelope (walls, roofs, windows), lighting systems, HVAC systems, water heating and pumping system and electrical power system.

By 2011, four years had passed since the notification of ECBC by the BEE. During that time, the government was grappling with the different states for the effective implementation of the code. While the central government has powers under the Energy Conservation Act 2001, the state governments have the constitutional authority to modify the code to suit local climatic conditions and issue relevant notifications. Urban local bodies have the ultimate authority to integrate the notified ECBC provisions into local building bye-laws and enforce the code effectively. There has been a clear gap in terms of stakeholder awareness, capacity and resources to plan and implement the code at the state level.

Over the years, the states of Uttar Pradesh, Rajasthan, Odisha, Uttarakhand, Karnataka, Andhra Pradesh, Haryana, Telangana and union territory of Puducherry have modified the code to suit their local conditions and have issued relevant notifications for its adoption. ECBC cells have been established in the states of Uttar Pradesh, Chhattisgarh and Karnataka to strengthen the institutional capacity for implementation at the state level. Apart from this, there are established technical tools, model documents, design guidelines and ready reference material for proper compliance with the ECBC, and the wider adoption of energy-efficient building standards in other key markets. Despite this progress, states/urban local bodies are yet to adopt and enforce the code effectively in spirit.

Policy makers have noted that Shakti's interventions towards developing state level ECBC implementation roadmaps, third-party ECBC compliance verification approaches and tools have contributed to the government's efforts towards building the capacity of state designated agencies and other important stakeholders for effective enforcement and compliance of ECBC provisions. Stakeholders also noted Shakti's efforts towards creating a heightened sense of awareness about the different energy efficient building standards, key markets for wider adoption of standards, and challenges and complexities for enforcing building standards.

**60-70 million tonnes of oil equivalent (Mtoe) of energy savings are achieved in industries compared to business-as-usual (BAU) scenarios; the energy efficiency (EE) performance of Indian industries is on par with global standards.**

By 2011, the government was getting ready to regulate energy consumption of large energy-intensive industries in a systematic approach akin to ISO 50001 by implementing robust energy efficiency standards under the PAT initiative. In the small and medium scale enterprises (SME) sector, the BEE, Ministry of Micro, Small and Medium Enterprises (M/o MSME) and Small Industries Development Bank of India (SIDBI) were among the leading institutions working on a wide range of activities that involved capacity building, and spreading awareness about and financing energy efficiency opportunities in specific industry clusters.

Over the years, the government has notified obligatory targets specific to energy consumption reduction for 478 individual entities in eight energy-intensive sectors, which represented 65% of India's total industrial energy consumption. In the first cycle of compliance (2012-15), the implementation of PAT resulted in 8.67 Mtoe of energy savings and 122 million tonnes of CO<sub>2</sub> emissions reduction, which is equivalent to 1.25% of India's primary energy supply and 1.93% of India's overall emissions respectively<sup>12</sup>. Subsequently the PAT cycle 2 (2016-19) deepened and widened its compliance reach by including three more energy intensive sectors and notifying targets to 621 entities. This cycle seeks to achieve 8.869 Mtoe of energy savings.

Over the years, SIDBI has emerged as the leading financial institution in the SME sector for promoting energy efficiency investments through low-cost financing incentives and market mechanisms. SIDBI has also been operating concessional lending schemes for improving energy efficiency in the MSME sector. Further, SIDBI's 'partial risk sharing facility' is widely perceived as a game-changing initiative to facilitate the transition of the energy service company (ESCO) market, and related investments, to advance energy efficiency opportunities in the SME sector. The complementary activities of the BEE and M/o MSME have progressed in generating information and awareness about cluster specific energy consumption and energy efficiency opportunities, demonstrating projects and capacity building at the grass-roots level.

Apart from this, large institutional energy consumers such as the Indian Railways, have made tremendous progress over the years in energy conservation, energy management and alternative energy adoption<sup>13</sup>. The Indian Railways is also set to take on the ambitious goal of alternative energy adoption, along with institutional capacity for implementation<sup>14</sup>, and is one of the three new energy-intensive sectors included in the ambit of PAT cycle 2, for regulating specific energy consumption across all establishments both in traction and non-traction segments in a systematic approach.

<sup>12</sup> Presentation by the BEE at the 'International Conference on Demand Side Energy Efficiency', 2016

<sup>13</sup> Railways System for Analysis of Vidyut Energy. Retrieved from <https://www.railsaver.gov.in/index.html>

<sup>14</sup> Indian Railways Annual Report 2015-16

Shakti's efforts to support the smooth roll-out of PAT have been well appreciated by decision makers in the government. Decision makers have noted Shakti's support to collate and inform the energy footprint of various industrial sectors as foundational for the expansion of PAT. The inclusion of petroleum refineries in the designated consumer category and, subsequently, under PAT cycle 2 was one of the key outcomes of Shakti's support. Shakti's partners noted that Shakti's efforts in the cement sector resulted in an eightfold increase in alternative fuel adoption (from 0.5% to 4%). Extensive capacity building on the part of pollution control board officials raised general awareness about technologies, standards and policies. There is a clear policy framework now to enhance alternate fuels in the cement industry. The cement, paper, and iron and steel sectors have benefited from technology compendiums to make informed decisions on implementing waste heat recovery technologies. At least 25% of technologies illustrated in the compendiums have been implemented. Shakti's grantee partners also noted efforts to build the capacity of energy service companies, standardise energy performance contracting and create measurement and verification (M&V) templates. These have gone a long way in informing SIDBI's partial risk sharing facility initiative. The partners also appreciated Shakti's efforts to inform the Indian Railways' actions and potential for energy efficiency improvement.

### **3.1.4. Sustainable transportation**

Shakti's sustainable transportation has been the second largest area of investment in the past five years. Nearly 3.59 million USD of Shakti's programme budget has been utilised by the sustainable transportation programme between 2011 and 2016. The programme has largely focused on surface transportation modes and targeted interventions broadly under public transport systems and vehicle fuel efficiency themes. The 2011 strategic framework centred on having a higher passenger share through sustainable modes of transport, efficiently managing freight operations, and keeping fuel efficiency and emission norms at par with global best practices.

The programme has been actively supporting both central and state government stakeholders.

#### ***Progress relative to goals***

**90% of passenger trips are made by sustainable modes of transport and freight operations are efficiently managed.**

Transport is largely a state subject in India. By 2011, the National Urban Transport Policy (NUTP) 2006 served as the overarching transport planning guideline for the different states. The NUTP was more of a policy framework containing general guidelines rather than rules for implementation. The erstwhile Jawaharlal Nehru National Urban Renewal Mission (JNNURM) was the major ongoing national urban reform that focused on integrated development of urban infrastructure and service delivery mechanisms, one of which was urban transport. The National Mission for Sustainable Habitats (NMSH) was one of the eight missions under the National Action Plan for Climate Change that aimed to make cities sustainable through energy efficient buildings and shift to public transport. However, the lack of sustainable transport principles in the NUTP was perceived as a major policy gap to influence states for prioritising sustainable modes of transport. JNNURM's focus was largely on urban roads and fly overs instead of creating infrastructure for public transport and non-motorised transport systems that are more sustainable. Beyond this, the lack of awareness, demonstration/pilot projects and capacity among urban managers were perceived as major challenges to advance the planning and implementation of sustainable urban transport systems at the state level.

Over the years, several projects adopting sustainable transport concepts such as Mass Rapid Transit System (MRTS) and Bus Rapid Transit System (BRTS) were successfully commissioned under JNNURM<sup>15</sup>. Sustainable transportation concepts such as non-motorised transport (NMT) (i.e. bicycle sharing systems), walking infrastructure, transit oriented development (TOD), sustainable bus terminal designs and sustainable intermediate para transit modes (e.g. e-rickshaws) have been introduced in some cities on a limited scale. The urban development policies are catching up with the concepts of sustainable transportation, with these already ingrained in Atal Mission for Rejuvenation and Urban Transformation (AMRUT) and the Smart Cities Mission. Further, electric vehicles have caught the attention of the government. There is a sense of heightened capacity among transport system planners for voluntary adoption of sustainable transport concepts enabled by the availability of robust design guidelines and evaluation tools.

Shakti's efforts to support tools for prioritising sustainable transport investments under JNNURM, design and deployment of BRTS and sustainable bus terminals, regulatory overhaul for promoting last mile connectivity through intermediate para transits, TOD policies and mixed land use policies, public bicycle sharing systems,

<sup>15</sup> Ministry of Urban Development, Government of India. (n.d.). Compendium of projects and reforms under Jawaharlal Nehru National Urban Renewal Mission. Retrieved from <http://jnnurm.nic.in/wp-content/uploads/2012/11/Compendium-Projects-amp-Reforms-JnNURM-MoUD-July-12-Vol-01Part-01.pdf>

walking infrastructure audits and formulation of urban transport policies have been widely appreciated by decision makers in the government. Grantees noted that Shakti's efforts have heightened the sense of urgency among decision makers to identify and address gaps in the urban transport policy. Various actors across locations were able to network and contribute in a coherent way because of the discussions facilitated by Shakti.

For instance, in the freight segment, the heightened appreciation of the huge modal imbalance<sup>16</sup> (dominance of roads over railways) among key policy makers has been one of the biggest achievements over the years. There is a wealth of new information available with the government to inform future policies that promote road to rail transition for freight movement and optimise urban freight movement.

Grantees noted that the way key decision makers in the government have accepted the research outputs and disseminated the findings through workshops in various cities demonstrates the value of Shakti's grants. The outputs of Shakti's grants have triggered further research to understand important gaps in urban mobility planning.

### **High-impact initiatives**

#### **➤ Handholding cities for the planning and implementation of smart city solutions**

*The government's Smart Cities Mission is one of the principal urban development policies to assist more than 100 cities in sustainable and inclusive development through smart solutions enabled by technology applications. Shakti, in collaboration with its partners, supported the development of the smart city proposals of four cities: Visakhapatnam and Kakinada (in Andhra Pradesh) and Jaipur and Udaipur (in Rajasthan). In a way, this led to the inclusion of sustainable mobility and the building of energy efficiency solutions into the smart city development proposals. The solutions covered public transport, walking and cycling solutions, car restraint measures, regulations for para transit and green building improvements, all core ingredients to help build the smart cities of tomorrow. All of the four cities cleared the smart city challenge and became eligible for the first round of funding through the Smart Cities Mission. Shakti, with the help of its partners, further assisted the selected smart cities in piloting key interventions by bolstering PPPs for sustainable transport initiatives such as public bicycle sharing, sustainable bus terminals and intelligent transport systems. PPP business models and policy enablers required to promote these initiatives were developed and shared with the cities.*

### **Fuel efficiency and emission norms in India are on par with global best practices**

In the past five years, India has made great strides in the adoption of vehicular emission norms. Introduced in the year 2000, the Bharat Stage Emission Standards (BSES) are vehicle fuel quality and emission norms enforced by the government to regulate the output of air pollutants from internal combustion engines, including motor vehicles. The BSES are analogous to the European (Euro) emission norms. By 2011, the BS IV standards were active in 13 cities and the BS III standards in the rest of India. Currently, all of India has been made to comply with the BS IV standards. Moreover, the implementation of the BS V standards, earlier scheduled for 2019, has been pushed forward. The BS VI standards, originally proposed to commence by 2024, has been now been advanced to 2020. This is largely perceived as a big step towards lower emissions and better public health.

On the fuel efficiency front, in 2015, the MoP notified fuel efficiency standards for passenger cars. Subsequently in early 2016, the government released a draft notification for a labelling programme for passenger cars based on their fuel efficiency standards notified earlier. In addition, the government has formed a committee that has been evaluating the fuel efficiency standards for heavy duty vehicles.

Grantees noted that Shakti-supported research, technical assistance and outreach efforts, undertaken with the help of its partners, have immensely contributed towards the adoption of stringent vehicular emission norms and notification of fuel efficiency standards and labelling programmes.

<sup>16</sup> NITI Aayog. (2017). 'Three Year Action Agenda'

### **High-impact initiatives**

➤ **Technical assistance and research to inform fuel efficiency standards for passenger cars and heavy duty vehicles**

*Shakti, in collaboration with its partners, provided technical assistance and research support to inform the fuel efficiency standards for passenger cars and heavy-duty vehicles. This support led the government to notify fuel efficiency standards for passenger cars in 2015 and notify a labelling programme for cars in early 2016. The design of this labelling programme is also based on technical assistance and research supported by Shakti. The labels are expected to provide buyers with valuable information on a car's fuel economy, energy use, fuel costs and environmental impact, which will help make more informed purchase decisions. India is expected to fully implement these standards by 2017. Apart from this, Shakti also submitted its recommendations for fuel efficiency standards for Heavy Duty Vehicles (HDVs), which are expected to be notified any time.*

➤ **Technical assistance, research and outreach to inform vehicular emission norms**

*Shakti's efforts with multiple partners and policy-makers helped craft a compelling vision for better fuel quality norms in India. Findings from the research on the 'techno-economic viability automotive fuel quality options' submitted to the official 'Auto Fuel Policy Committee' helped to inform the fuel emission standard road-map for the entire country. Targeted engagement of key stakeholders, including the Ministry of Petroleum and Natural Gas (MoPNG) and Society of Indian Automobile Manufacturers (SIAM), has contributed to the positive discourse on more stringent norms.*

### **3.1.5. Climate policy**

In the past five years, Shakti's climate policy programme has made grants broadly under themes such as GHG accounting, international dialogues, diesel subsidies, energy-efficient brick kilns, air quality management, hydrofluorocarbon (HFC) phase out and low carbon development pathways. Nearly 3.06 million USD of Shakti's programme budget has been utilised by the climate policy programme between 2011 and 2016. The 2011 strategic framework centred on India becoming part of an efficient and equitable global governance structure that effectively responds to the threat of climate change.

The climate policy programme has been actively supporting both central and state government stakeholders.

#### ***Progress relative to goals***

**India is part of an efficient and equitable global governance structure that effectively responds to the threat of climate change.**

In the past five years, India has emerged as a major player in the global effort to address climate change, despite suffering from chronic energy poverty. India signed and ratified the landmark Paris Agreement with a binding commitment to make nationally determined contributions towards climate change mitigation and adaptation. India has sought to balance tradeoffs between increasing energy output and ensuring that additional generation does not add significantly to the country's carbon emissions. This positive discourse was largely made possible from the heightened appreciation of the Indian economy's vulnerability to climate change, sectoral developments, the government's willingness to engage on climate change issues and UNFCCC-led international climate negotiations. In Kigali last year, India displayed leadership and flexibility by announcing substantive commitments along with concrete measures to cut down HFCs.

Grantees noted the India-US track II dialogue on climate change has been credited for bringing the US and India together on the climate front like never before.

Shakti's efforts in the areas of cleaner brick kilns, air quality management, low-carbon growth pathways for states, GHG inventory analysis and energy security index have been widely appreciated by policy makers and grantee partners for bringing out strong regulations, informing stakeholder actions and changing/broadening the narrative around important climate change issues.

### **High-impact initiatives**

➤ **Technical assistance and research to inform cleaner brick production norms and policies in Bihar**

*Shakti's efforts to support policy, financial and service delivery measures in favour of new brick-making technologies and other studies informed the Bihar state government's decision to constitute interdepartmental task force for promoting cleaner brick-making technologies and alternative building materials. In early 2016, the Bihar State Pollution Control Board passed an order requiring brick kilns in Patna and the surrounding areas to upgrade to cleaner technologies. This was an important development and a first for any State Pollution Control Board to ask brick-makers to move away from traditionally used technologies. Several initiatives supported by Shakti have contributed to the technical evidence that shaped this order.*

➤ **HFC emission scenarios and implications of an HFC phase-down for India**

*Shakti supported the first modelling exercise of India's HFC emissions, focusing on a sector-wise climate impact. The initiative set out to answer key questions in India's quest to cut down HFCs, such as - What alternatives exist to HFCs? What is the technical and commercial viability of these alternatives? What are the challenges associated with intellectual property rights, transition costs and safety? The outputs from this exercise resulted in a more informed discourse on HFCs, particularly to address the critical issues associated with the phase-down.*

➤ **Building consensus: The US-India Track II dialogue on climate change and energy**

*For more than six years, the US-India Track II dialogue on climate change and energy has played an important role in fostering greater bilateral cooperation in the areas of climate change and energy. The dialogue has focused on important areas such as innovations in renewable energy, low-carbon pathways for growth, climate resilience and HFCs. The dialogue's participants include distinguished representatives from academia, research institutions, civil society and industry. The dialogue's meeting in the year 2015, set against the backdrop of the Paris Agreement, was particularly significant. Recognising the need for an effective implementation framework for the National Development Council, it laid out concrete ideas for collaboration on issues like advancing the Paris Climate Agreement, minimising air pollution, and limiting the locking of high-carbon futures. With the national energy and climate position of both countries rapidly evolving, a joint action for both countries seemed very relevant against the global effort to tackle climate change. The dialogue's outcomes have informed India's international climate negotiations, especially India's position on the Paris Climate Agreement, Kigali Amendment and HFC phase-down..*

## 4. Strategic effectiveness

### *Has Shakti's programme strategy served to efficiently deliver on its goals?*

Shakti's internal stakeholders described the fundamental approach to grant-making as 'maximising impact with limited resources'. They noted that Shakti is mindful that public policy investments offer the greatest value for philanthropic donations, and in the past five years, a fair share of investments have been targeted to inform policy design. This strategy has worked effectively as some of the major policy gaps, especially at the national level, have been bridged. Furthermore, in the areas where major policy gaps were bridged, the focus has gradually shifted to implementation and by virtue of this, the actions are targeted, to a greater extent, at sub-national levels (state and cities).

In retrospect, there is a sense of balance and consistency in this approach across all programmes and sectors of focus.

Also, initially, there was significant system inertia that Shakti sought to target through its programmes and activities. This inertia existed across government ministries and departments both at national and subnational levels. Some of this inertia was also exacerbated by capacity issues amongst key stakeholders, particularly at the state level. Shakti's work at all levels was effective in overcoming the inertia through persistent analysis, advocacy and information dissemination activities.

This evaluation did not analyse the quantum of grants and/or the number of initiatives supported at the federal, state and city level in the past five years and how the mix has enabled progress towards broader strategic programme goals. However, such analysis may be useful for Shakti to underpin its future efforts in updating the strategic framework.

The following sections will discuss the effectiveness of Shakti's programme strategies narrated and documented by internal stakeholders. Wherever possible, we have attempted to triangulate the effectiveness of the strategy adopted from the information shared by external stakeholders and other sources of information available in the public domain.

#### *Clean power*

**Long standing relationships with the MNRE, MoP, BEE, NITI Aayog and Central Electricity Regulatory Commission (CERC) have been effective in informing national efforts to bridge the policy vacuum. Relationships with EESL, energy departments, nodal agencies, electricity regulatory commissions and distribution utilities at the state level have been effective in supporting capacity building efforts and demonstrating high-impact interventions.**

The support to central stakeholders has been effective in shaping national policies on several important themes that are crucial to guide and reform the sector. The partnerships at the state level have been more effective regarding capacity building for last mile implementation of policies and initiating voluntary actions that can further inform national policy design for the replication of successful models. Key tools of support and partnership modalities included strong technical, legal and economic analyses, demonstration of successful DSM programmes, credible technical and economic assessments of renewable resource availability, exposure to policies that drive RE prices down, support for regulatory, legislative and ministerial champions, and solid advocacy by civil society.

Many of the above decision makers were influenced through direct experiences with successful programmes, capacity building by credible experts, pressure from a variety of stakeholders and their own desire to avoid shortages and sustain growth.

*Shakti has been decisive in giving grants, which is one of the key drivers of impact.*

- Grantee

*Shakti's collaboration with the government shows its keenness to facilitate efforts towards reshaping policy.*

- Grantee

**In an environment of obligatory targets, high cost of renewable power and increasing revenue gap for power procurers, Shakti's strategy to prep the markets for voluntary action was well thought out and effective**

In 2011, India had entered the regime of renewable purchase obligations. The NSM was announced with ambitious targets. There was a cloud of uncertainty over the preparedness of Indian markets to effectively adopt these policies, exacerbated by high renewable electricity costs and financial distress in the electricity distribution sector - the main obligated entity. Sensing the need to prepare Indian markets for voluntary action, Shakti focused its efforts on themes such as grid integration of renewables, financing and incentives to eliminate investor concerns and soften market barriers.

**Shakti's strategy to convene stakeholders and create coalitions of partners to work on important issues has worked effectively to get the attention of key decision makers in the government**

Over the years, Shakti has established several convening platforms such as the 'Wind Discussion Forum', 'Utility CEO Forum on DSM' and 'Indian Renewable Energy Federation' to bring together diverse stakeholders and share collective wisdom in the fields of renewable energy and DSM. This has worked effectively to get the attention of key decision makers on important issues. It has also enabled Shakti to contribute towards the development of important policies that are driving some of the major renewable energy and DSM initiatives today in a concerted and coordinated manner. Some important examples in this regard are NITI Aayog's Renewable Electricity Roadmap 2030, EESL's UJALA, the draft Renewable Energy Act, draft amendments to the Electricity Act 2003, etc.

Shakti's convening and advocacy platform, 'Utility CEO Forum on DSM', in particular was able to tap the collective wisdom of utilities, regulators and service providers, bridge the knowledge gap, and inform and accelerate voluntary DSM actions by replicating successful models such as UJALA.

Shakti led coalitions such as the 'India Innovation Lab for Green Finance' and 'Solar Rooftop Policy Coalition' have brought together different partners to share their expertise and knowledge, and build a unified voice on policy related solutions in relevant fields.

**Shakti's strategy to support third party DSM delivery and implementation models has helped bridge crucial institutional capacity gaps that derailed the progress for long.**

In the initial years, convinced that the lack of DSM regulations were a major barrier to scale up adoption of utility driven DSM programmes, Shakti supported the formulation and adoption of such regulations. However, the lack of proper enforcement of DSM regulations and limited capacity within utilities delayed on-ground DSM actions. Shakti quickly reinvented its strategy and focused its interventions to support third-party, market-based DSM delivery and implementation models. Some of these interventions informed EESL, newly established state-owned energy service companies, to champion the implementation of large-scale DSM programmes. Today, EESL has successfully bridged the capacity gap to plan, design and implement large scale utility DSM programmes and is gaining momentum.

**Shakti demonstrated that investing early in policy design and market mechanisms can build the evidence required to shape a policy in its final form and also identify best practices that can lead to better long-term results.**

Shakti began advocating demand aggregation and bundled procurement strategies for promotion of LED lighting as early as 2011. An early stage LED project in Puducherry, supported by Shakti and its partners, successfully demonstrated the value of these strategies in bringing down the upfront cost of LED self-ballasted lamps. The government, through EESL, later adopted the Puducherry model to shape the national UJALA initiative that is widely appreciated for its tremendous success.

**Policymaker's testimony**

- *Shakti's ability to convene experts and key decision makers in the government onto one platform has been successful in tapping the collective wisdom, bridging knowledge gaps and informing voluntary actions.*
- *Shakti has gained a lot of momentum since 2011. The number of projects they are working on and the number of partners they are working with have all gone up in the last 2-3 years.*

**In the energy access sector, Shakti's strategy to support private sector participation through DRE-based mini grids rather than the government's grid extension efforts is well appreciated by stakeholders.**

The government has always had a clear and unambiguous goal to expand its grid and reach the entire population. Shakti did not challenge the idea but was sceptical of the timeline to achieve 100% electrification and hence it wanted to work with a renewable energy solution. Shakti believed that without private sector participation, un-electrified communities may have to wait for longer periods to get access to electricity. Shakti's interventions in the sector have been effective in executing this strategy and addressing investor concerns through robust policy and regulations. The idea is also gaining momentum among many stakeholders at national and sub-national levels.

## *Energy efficiency*

**Long-standing partnerships and relationships with the BEE have worked effectively and have contributed towards national policy gaps. Relationships with state-designated agencies have helped advance effective implementation of policies and those with SIDBI and the Ministry of Railways have helped advance emerging opportunities**

Shakti's long standing relationship with the BEE, a national policymaking body, has worked effectively to contribute towards bridging major policy gaps. Shakti's efforts and relationship with SDAs in the states of Gujarat, Maharashtra, Madhya Pradesh, etc. have helped advance the implementation of policies, build capacity, trust, and demonstrate high impact interventions. Over the years, Shakti has established strong relationships with SIDBI and the Ministry of Railways. This has helped advance the energy efficiency agenda in emerging markets with a huge potential and promise of impact.

**In the industry programme, Shakti's strategic focus has evolved from supporting PAT implementation to the expansion and facilitation of market-driven voluntary actions among institutional consumers and the SME sector. This strategy has been perceived as effective in the context of enormous untapped potential for energy efficiency improvement among large industrial sectors not covered under PAT, institutional consumers, and the lack of capacity and resources in the SME sector.**

In the large industries sector, Shakti initially focused its investments on supporting the smooth roll-out of the government's PAT scheme for its cycle 1 compliance (2012-15) that resulted in 8.67 Mtoe of savings. The major support elements included informing baseline setting, institutional mechanisms for implementation, development of M&V protocols, data reporting systems for obligated consumers, preparation of technology compendiums for select sub-sectors and training of energy auditors and officials of SDAs in Maharashtra, Chhattisgarh, Punjab, Orissa, Kerala, Madhya Pradesh, and Rajasthan. Furthermore, Shakti supported PAT expansion by informing the widening and deepening strategies for cycle 2 compliance (2016-19), which includes three more sectors and another 143 individual entities coming under the ambit of robust energy efficiency regulations.

In the heterogeneous MSME sector, sensing the need for voluntary actions, Shakti supported SIDBI, the BEE and the M/o MSME to promote market-based energy efficiency implementation models. The major support elements included the development of the model energy performance contract (EPC) and M&V protocols, all of which have informed SIDBI's 'partial risk sharing facility' design.

In the last five years, Shakti has also invested in the Indian Railways. Shakti's partners noted the interventions have not just informed implementation related activities but also streamlined budgetary allocations for improving energy efficiency at the highest decision-making level.

**In the appliances programme, Shakti's investments for market transformation initiatives, rather than setting energy efficiency standards, have been widely perceived as efficient, non-repetitive and complementing the efforts of other development partners who are also assisting the government on this front.**

Other organisations have for long been working actively in the Indian appliances sector to develop energy efficiency standards. Shakti has been mindful of this and, therefore, its efforts have been directed more towards facilitating market transformation and building the capacity of SDAs for effective implementation of national policies and programmes. The LED market transformation, discussed in the earlier section, is a key success story in this regard. Shakti also supported the BEE's ambitious Super-Efficient Equipment Programme (SEEP) that aimed to transform the market with super-efficient technologies such as BLDC motors and LED lighting. To support India's standards and labelling (S&L) programme, Shakti supported the prioritisation of appliances,

techno-economic analysis, robust monitoring and evaluation framework and the role of the civil society in the effective implementation of the S&L programme.

**In the buildings sector, Shakti's strategy to support the effective implementation of ECBC and also facilitate an enabling policy environment for energy-efficient buildings, in general, has been effective in adopting a holistic approach to the problems faced by stakeholders.**

In the buildings sector, Shakti initially made investments to facilitate the adoption of ECBC into building bye-laws and effective enforcement of such bye-laws by Urban Local Bodies (ULBs) through state level roadmaps, compliance mechanisms and tools that enable effective enforcement by authorities. Shakti's grantee partners noted that, in a sense, these efforts heightened the sense of institutional capacity gaps among ULBs and, in general, the lack of capacity among other important stakeholders to embrace ECBC provisions.

Apart from ECBC adoption, Shakti also made investments to broaden the concept of energy-efficient buildings by promoting ideas such as sustainable habitats and intersecting themes including sustainable cities, efficiency in the urban built environment and cool roof manuals for the wider adoption of energy efficiency principles and standards.

### ***Policymaker's testimony***

*Shakti's efforts to reach out to various stakeholders and convene them has been effective.*

*Shakti makes an honest effort to get the attention of decision makers in the government by opening up constructive dialogues supported by robust evidence.*

## ***Sustainable transportation***

**Shakti's strategy, which is centred on developing customised SUTP, enabling a national policy environment for states to adopt customised SUTP, demonstrating success for SUTP via city-level pilots and developing the capacities of urban managers to implement SUTP, is sound and appropriate.**

Although there has been no visible effect on the number of states adopting customised SUTP over the years, the strategy has worked effectively in incorporating sustainable transport concepts and principles in the revised NUTP that serves as the general guideline for the states. Moreover, the strategy has worked in creating an enabling national policy environment with AMRUT and the Smart Cities Mission - the two major ongoing urban reform initiatives having ingrained sustainable transport concepts. This way, Shakti has managed to influence the funding patterns in the urban transport sector towards sustainable solutions.

At a city level, Shakti's strategy to support the demonstration projects for the deployment of BRTS, bus terminal designs for multi modal integration and parking management have been effective in building pressure, capacity and, more importantly, bringing out critical implementation challenges into the spotlight. Furthermore, Shakti's interventions to support the regulatory overhaul for last mile connectivity through intermediate para transit, design of TOD policies, mixed land use policies, NMT systems, and public bicycle sharing and walking infrastructure have all contributed towards an increased understanding and awareness about different concepts for sustainable transport among policy makers.

In the freight segment, Shakti's strategy has been to inform road to rail transition policies. Shakti's additional efforts in this segment are further focused on data-driven analysis to inform congestion in the rail freight network, optimisation in freight movement and options to take on additional load from the road share.

Overall, Shakti's strategy in the public transport sector has supported interventions largely focused on motorised and non-motorised urban transport systems, city land use policies, optimisation and road-to-rail transition for freight movement.

### ***Policymaker's testimony***

*Shakti is the most noticeable Indian re-granting organisation engaged in the field of supporting the UN's sustainable development goals.*

*Shakti's strategy to support fleet driver behaviour training for improving bus fuel efficiency was effective.*

*Shakti's efforts towards implementing pilot demonstration projects has effectively brought the project implementation barriers into the spotlight.*

**Shakti's strategy in the vehicles and fuels theme centred on increasing the efficiency of existing heavy duty vehicles and new vehicle fleet (both passenger cars and heavy duty) via S&L, improving the fuel quality for all vehicles to BS/Euro VI levels. The advocacy and outreach efforts to key government stakeholders on the economic and public health benefits of improved fuel efficiency, quality and reduced emissions has facilitated landmark decisions with regard to the implementation of vehicle fuel efficiency, quality and emission standards in the past five years.**

Shakti's efforts, with the help of its partners, have informed the fuel economy standards for both passenger cars and heavy-duty vehicles. Average fuel consumption standards for passenger cars have been notified by the government.

Shakti's strategy to inform the Auto Fuel Policy Committee on the roadmap for auto fuel quality standards has worked effectively to set out concrete timelines for the nationwide implementation of BS IV and VI standards. Furthermore, Shakti's concerted outreach and advocacy efforts, with the help of its partners, supported by robust evidence on the economic and public health benefits of improved fuel quality, have resulted in the government's announcement to skip BS V standard and leapfrog to BS VI standards. The timeline for the implementation of BS VI standards has also been advanced.

Shakti's efforts towards the training of officials of central and state pollution control boards on tools such as SIM-air for air quality measurements and monitoring has been effective in building the capacity of these institutions in performing their duties towards air quality management (AQM).

All of these tactics have directly or indirectly put pressure on relevant authorities to take action in a timely and systematic approach. The training and capacity building has enabled the officials of central and state pollution control boards to better implement the tools developed in support of the auto fuel policies. Studies based on technical research have lent weight and credibility to the standards that were proposed. Through trials and pilot projects, Shakti and its partners were able to demonstrate the success of low-carbon technology implementation and its feasibility for replication on a large scale.

**Garnering support from civil society, experts and academia has been effective in managing the pushback from industry lobbies, developers and automakers. The strategy has further caught the attention of key national stakeholders such as the Ministry of Petroleum and Natural Gas (MoPNG), Ministry of Urban Development (MoUD), Ministry of Road Transport and Highways (MoRTH), Institute of Urban Transport (IUT) and Environment Pollution Authority for the National Capital Region (EPCA). Shakti's strategy to actively cultivate relationships with state urban development departments, state transport departments and undertakings, urban local bodies by way of supporting city-level demonstration projects has been effective in building credible evidence for sustainable transport policies.**

Anticipating pushback from industry lobbies, developers, and automakers, Shakti garnered the support of civil society, experts and academia to support policy makers in countering such pressure. The civil society has also been actively engaged in outreach and advocacy efforts, especially for creating awareness amongst the public. Capacity building, as a long-term strategy, has been effective in maintaining pressure on decision makers and continuous up-gradation of technical expertise for the launching of projects. Sumnet India, a network of transport-related NGOs, has been an important partner and ally in fielding the right projects and policies at the city level and advocating them through various channels. The Sumnet forum has been important from the perspective of creating larger buy-in from stakeholders, initiating softer behavioural changes for masses and exerting pressure on decision makers through constant interactions with the media by keeping issues alive in the memory of the public.

Shakti's strategy to inform highly influential technical committees mandated with framing important public policies such as the transport policy and Auto Fuel Policy has been effective in broadening the narratives with sustainable transport principles, concepts and ambitions.

## *Climate policy*

Shakti's strategy in the climate policy programme is sound and effective, with climate mitigation functioning as the overarching driver. This strategy is centred on building capacity and deepening engagements with key stakeholders (industry, media, research community and governments) to raise India's climate ambitions, supporting research on climate change and areas with climate co-benefits, supporting the development and implementation of low carbon growth plans at national and state levels, supporting the development and implementation of strategies for the reduction of black carbon emissions, establishing an environmental management programme at Shakti to promote improved AQM and developing a comprehensive view of investments needed to implement cross-sector plans.

Shakti's focus has largely been on domestic climate actions rather than international negotiations. Domestic actions involved state-level action plans and some cross-cutting issues like brick kilns and HFC phase-out. Urban air quality is a portfolio that began its investments much later in view of the growing concerns on outdoor air pollution. Now the focus is also on building the capacity of civil society.

### **A high-level approach part of the climate policy programme has always been to maximise opportunities and minimise threats for most stakeholders.**

There is a potential organisational risk to Shakti if it is perceived to be advocating measures that are not in the best interest of the country. In this regard, Shakti worked with a wide cross-section of stakeholders to build consensus. Specifically, Shakti's approach has been to highlight the important role that progressive climate policy development in India will play for stakeholders to succeed in their own agendas.

Short-term interventions focused on responding to stakeholder concerns on costs and growth implications from pursuing low-carbon development targets. Gradually, the interventions evolved to support the implementation of green projects to build stakeholder confidence in the concept of green growth and build the capacity to devise action plans to respond to climate change. Long-term interventions sought to provide an environment within which India feels comfortable defining its future emissions trajectory that is consistent with achieving a desired global GHG stabilisation pathway.

Initially, Shakti deliberately stayed away from national policy makers owing to political sensitivity and, instead, targeted state-level stakeholders. Slowly, the engagement with national stakeholders took place leading up to Shakti supporting Lima COP. Shakti's contribution to Lima established the trust and confidence in the MoEFCC.

### **Active engagement on the part of the government, industry, civil society and academia has been effective in overcoming the critical barriers<sup>17</sup> to execute the programme strategy. Shakti's high-level tactics have largely focused on building consensus amongst key stakeholders, supporting research to frame issues, informing dialogues and highlighting opportunities for progressive action, aiding implementation of low-carbon initiatives, and developing the capacities of civil society organisations over the medium to long term.**

Shakti's support to the highly influential India-U.S. track II dialogue on energy and climate change has been effective in bringing US and India together on the climate front like never before and informing India's Paris Climate Agreement talks.

Shakti's efforts to support the first modelling exercise of all India HFC emissions focusing on sector-wise climate impact has been effective in informing India's commitments to cut down HFCs in the Kigali Agreement.

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<sup>17</sup>Low priority assigned for environmental and climate change issues by many important decision makers and stakeholder groups.

- The deadlock at UNFCCC negotiations and the lack of leadership shown by developed countries acted as a disincentive for India to take ambitious actions domestically on climate change.
- Low capacity at all levels of the government and civil society to work on climate change issues, which also translates into a dearth of quality grantee partners for Shakti.

government depended on the contribution from NGOs. Shakti facilitated in developing the strategy for Kigali talks and shaping the final agreement.

Shakti encouraged capacity building efforts and provided technical assistance to brick makers and entrepreneurs in Bihar to adopt cleaner and more efficient technologies with the ultimate objective of reducing air pollution. This study received good traction over the years. Significant policy progress has been made in the state to improve cleaner brick production by providing incentives for entrepreneurs to change technology.

Shakti's efforts in the formulation of broader energy security index has widened the narrative and informed India's goals to reduce energy import dependence and formulate long-term energy strategies.

At the sub-national level, Shakti's efforts to support the GHG inventory analysis and the development of marginal GHG abatement cost curve for the state of Madhya Pradesh has been useful to inform low-carbon pathways and prioritisation of sectors for initiating stakeholder actions.

Shakti's efforts towards supporting the development of air quality monitoring infrastructure will go a long way to inform stakeholder actions. The idea has been to create measurement infrastructure in the country that can be further used for modelling and informing policy actions based on real time quality data.

The India Greenhouse Gas Programme, co-supported by Shakti, has received formal recognition from the government. The programme has been acknowledged as an important industry-led initiative that is helping Indian businesses voluntarily act against the threat of climate change.

Shakti and its eminent partners in civil society formed the GHG platform India with the goal of providing universal access to national GHG emission estimates in certain major economic sectors of influence. Thus far, the platform has produced national estimates for the energy, industry waste, and agriculture, forestry and other land use (AFOLU) sectors from 2007 to 2012 for carbon dioxide, methane and nitrous oxide.

### ***Policymaker's testimony***

*The GHG inventory and abatement cost curve study was useful and found its applications in related areas. Madhya Pradesh was the first to embrace such an analysis, with other states following suit.*

*Shakti supported interventions in climate change areas are relevant.*

## ***How relevant are Shakti's goals and targets in the current policy environment?***

As discussed earlier, Shakti established long-term sectoral goals for 2030 and worked backwards to set medium term (intermediate) goals for 2020. Shakti's programme goals fit perfectly into a framework that reflects the theory of change. The targets were set in 2011 and are different from those envisioned by the government.

The recently published 'Three Year Action Agenda' by NITI Aayog, the government's premier think tank, serves as useful reference to evaluate the relevance of Shakti's medium term goals in the current policy environment. NITI Aayog is also preparing the fifteen year vision and seven year strategy to depart from the traditional five-year planning process. Going forward, this would serve as useful reference to underpin the review of Shakti's long-term ambitions set for 2030.

### ***Clean power***

#### **Long-term outcomes for 2030**

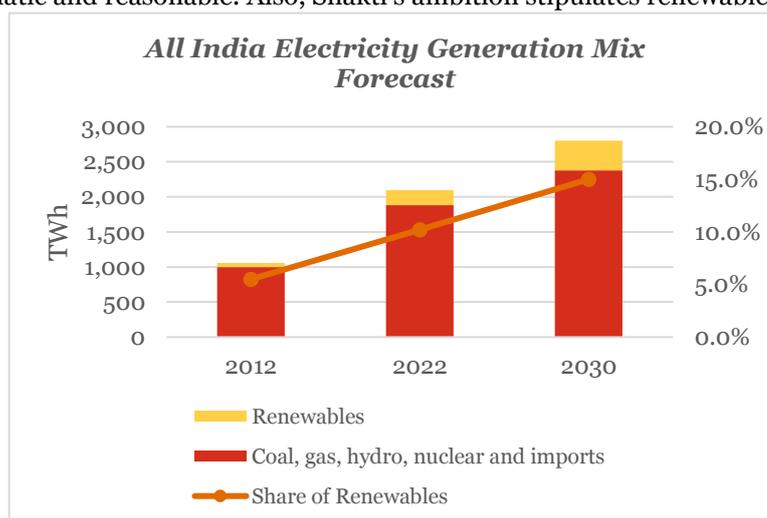
- Renewable energy constitutes 25% (or 1,000 TWh) of the power system
  - Market potential of end use efficient technologies has been realised
- DSM programmes are initiated in at least 20 states.

#### **Intermediate outcomes for 2020**

- Significant power sector market reforms, policy initiatives, enabling grid protocols and regulatory ease, combined with effective implementation results in 298 TWh of reliable RE generation at the grid (221 TWh above current generation levels)
- Improved resource/generation efficiency of fossil fuel based power plants

- India has an efficient electricity distribution system, operating at globally acceptable loss levels
- Distribution reforms are adopted nationwide
- Deployment of end use efficient technologies delivers a reduction of 274 TWh in bus bar demand vis-à-vis BAU
  - DSM programmes initiated in at least five states
  - Improvements in distribution
- Lifeline energy services (at least lighting and mobile phone charging) made available to energy-deprived consumers by cleaner means that are reliable and affordable

The share of renewables in the all-India electricity generation mix has improved from 5% in FY 2011 to 7% FY 2017. The cumulative electricity generation from renewables in FY 2017 was 82 TWh. According to the India Energy Security Scenarios modelled by NITI Aayog in April 2015, renewable electricity generation by 2022 and 2030 is expected to be 213 TWh and 424 TWh respectively. This would be approximately 10% and 15% of the total electricity generation expected at the grid respectively for those years. NITI Aayog’s ‘Three Year Action Agenda’ has proposed to achieve 100 GW renewable capacity by 2019-20. Considering the progress in the last five years, the current policy outlook and the level of market maturity, Shakti’s long and medium-term goals for the renewable energy sector seem to be pragmatic and reasonable. Also, Shakti’s ambition stipulates renewable energy generation and not the mere capacity addition. This aligns with the increased focus of the government to promote generation over and beyond capacity addition. It may be useful for Shakti to set separate goals for distributed renewable energy generation<sup>18</sup>, deployment capacity of energy storage solutions, grid integration infrastructure capacity and eco system, institutional capacity and effective implementation/enforcement of renewable purchase obligations (RPOs) in the overall renewable energy programme.



In the electric utilities sector, Shakti’s ambitions are relevant and are touted to have far-reaching impacts. In the current policy environment, the government’s aspirations to expand the successful UJALA initiative to ACs, fans and pumps, limit electricity distribution losses, achieve UDAY targets through cooperative efforts, increase the efficiency of thermal power plants, all of them converge with Shakti’s ambitions for the sector.

In the energy access sector, the need of the hour is that ‘electrification’ must evolve from just a wire to actual service delivery, without load shedding. The government targets to electrify (extend the main grid by setting up pole and wiring infrastructure) all villages by 2018 and all households by 2022. Shakti believes that DRE -based mini/micro grids are far more cost effective to connect remote sections and provide reliable supply instead of extending the main grid, which has a reputation for massive load shedding and crippled supply. Therefore, it may be useful for Shakti to set ambitions that reflect electricity service delivery (e.g. number of hours of supply) through sustainable energy sources.

According to grantees, the goals set by Shakti are reasonable, achievable and relevant enough in the current scenario. The goals also bode well with India’s Intended Nationally Determined Contributions (INDCs) target to reduce the intensity of its emissions by 30–35% (compared to 2005), and to achieve 40% cumulative electric power capacity from non-fossil fuel based energy resources by 2030.

The goals are also relevant as some of the state utilities have unsustainable level of distribution and commercial losses and are not able to recover their cost of service, thereby facing financially unsustainable operations. However, goals related to access and quality of supply, especially in the context of rapidly increasing grid-based access, can be included in the present objectives.

<sup>18</sup> Grid connected and off grid capacity separately

## Energy efficiency

### Long term outcomes for 2030

- India has self-sustaining appliance energy efficiency (EE) programmes that are at par with the best in the world
- 90% of all commercial construction in India is ECBC-compliant
- An enabling policy environment for an energy-efficient buildings sector
- 60-70 Mtoe of energy savings are achieved in industries compared to BAU
- The energy efficiency performance of Indian industries is at par with global standards

### Intermediate outcomes for 2020

- A stringent appliance energy S&L programme, covering over 30 appliances is effectively implemented
- The S&L programme results in 110 TWh per annum (p.a.) of end-use energy savings
  - At least three super-efficient appliances, whose energy performance significantly exceeds existing standards, are introduced in the market
  - A robust and multi-dimensional institutional network exists to support appliance efficiency
  - ECBC is implemented across the country for new commercial buildings with a 70% compliance rate in all cities with a population greater than five million
  - A robust code for new residential buildings is in place
- Wider adoption of energy efficiency measures lead to 12-15 million Mtoe of energy savings
- Decrease the GHG emissions of industries by 25% in 2020, from 2005 levels (128 MT of CO<sub>2</sub>e) and corresponding annual energy savings of 117 TWh electricity; 659,375 TJ gas; 817,625 TJ oil; and 1,134,125 TJ coal
- Catalyse the notification of complimentary policies and achieve additional co-benefits by way of enhanced energy security, addressing local pollution issues and sustained industrial growth through the development of a cleaner and energy-efficient industry sector

In the energy efficiency sector, NITI Aayog's 'Three Year Action Agenda' has advocated cost-effective energy efficiency policy solutions, extended the reach of current energy efficiency programmes to sectors not covered, created nation-wide awareness campaigns, effectively implemented PAT, institutional capacity strengthening of national and SDAs, extension of UJALA initiative to fans, ACs and pumps, and brought out all the appliances under the S&L programme.

In the buildings sector, Shakti's ambition of securing 90% of all commercial construction to be ECBC-compliant by 2030 and 70% compliance in all major cities by 2020 is far-fetched and quite ambitious. The diversity of existing building codes and standards (e.g. the National Building Code, Leadership in Energy and Environmental Design (LEED), Green Rating for Integrated Habitat Assessment (GRIHA)), the lack of resources and technical capacity among enforcement agencies, builders, architects, engineers, and building material suppliers is perceived as the biggest challenge for the wider adoption of ECBC in India. In this context, it may be useful for Shakti to frame its medium-term goals to reflect the following:

- ❖ Institutional capacities at various levels to implement and enforce ECBC
- ❖ Technical expertise and awareness to implement ECBC
- ❖ ECBC compliance in model buildings in all five climatic zones

In the industry sector, Shakti's ambition of 60-70 Mtoe of energy savings by 2030 is reasonable and pragmatic. However, the ambition of achieving 25% reduction in GHG emissions from industries by 2020 (128 MT CO<sub>2</sub>e reduction from 2005 levels) can be further enhanced, given the scale of achievements in PAT cycle 1 and expectations in cycle 2. It may be useful for Shakti to set specific medium-term goals that support effective implementation and expansion of PAT. These goals could reflect the widening and deepening of PAT compliance regime, capacity building of SDAs for effective enforcement of M&V guidelines, stringency of standards and effective implementation of energy saving certificates (ESCerts) trading. It may also be useful to set separate goals for energy efficiency advancement in the SME sector. These goals could reflect the amount of financing extended for energy efficiency investments, number of units adopting ISO 50001 standard etc.

In the appliances sector, Shakti's ambition of covering 30 appliances under the S&L programme by 2020 and achieving 113 TWh of annual energy savings from the programme is ambitious. The ambition of introducing at least three super-efficient appliances into the market can be further strengthened with market transformation objectives. The ambition of having a robust and multi-dimensional institutional network to support appliance energy efficiency is relevant and converges with the government's priorities. It may also be useful to frame

medium-term goals that reflects the capacity development of SDAs for effective implementation and enforcement of appliance standards.

According to most of the grantees, these goals and objectives serve well for the present requirements. However, according to one grantee, the objective to enable a policy environment for an energy-efficient building sector is a little fuzzy and it will be important to spell out what is meant by enabling policy environment (e.g. the mandatory data disclosure for energy-intensive buildings, publication of national energy use benchmarks for building type and major systems and supportive and vibrant energy services ecosystem worth 20,000 crore INR).

## *Sustainable transportation*

<b>Long-term outcomes for 2030</b>	<b>Intermediate outcomes for 2020</b>
<ul style="list-style-type: none"> <li>▪ 90% of passenger trips are made by sustainable modes of transport, and freight operations are efficiently managed</li> <li>▪ Fuel efficiency and emission norms in India are at par with global best practices</li> </ul>	<ul style="list-style-type: none"> <li>▪ Five states adopt SUTPs that emphasise sustainable public and freight transport concepts</li> <li>▪ Urban transport funding is allocated in line with sustainable land use and transportation principles</li> <li>▪ Improved urban and transport systems avoid 219 billion vehicle-kilometres-travelled equivalent (VKte)               <ul style="list-style-type: none"> <li>▪ 46 MtCO<sub>2</sub>e is abated on account of passenger modal shifts</li> </ul> </li> <li>▪ Fuel consumption by two wheelers is reduced by 20% (4.8 l per 100 km)</li> <li>▪ Fuel consumption by light duty vehicles is reduced by 10% (30 l per 100 km)</li> <li>▪ Fuel consumption by heavy duty vehicles is reduced by 10% (2 l per 100 km)</li> <li>▪ Euro VI equivalent or better vehicle and fuel quality standards are adopted</li> </ul>

NITI Aayog's 'Three Year Action Agenda' recognises that India's transport sector is still faced with severe modal imbalances and remains heavily dependent on conventional fuels. The need to shift from roads to railways and other sustainable modes of transport both in freight and surface transport markets is very much there on the wall. The government has already announced its intent for the nation-wide implementation of BS VI norms by 2020. In this sense of things, Shakti's goals for the sector still remain relevant with far-reaching impact.

However, to undertake a meaningful review of the progress towards some of the quantitative goals, there is a need to support the development of a national framework for monitoring the VKte for all the available modes of transport including the sustainable ones. This framework should be able to disaggregate the VKte for urban and non-urban travel and should be further supported by robust data collection and a management system.

In addition, it may be useful for Shakti to identify the convergence of goals in the sustainable urban transport sector with other far-reaching developmental policies of the government and frame targets accordingly. For example, Shakti could frame its ambitions for promoting sustainable public and freight transport solutions within the contours of the Smart Cities Mission of the government of India to facilitate larger impact. Shakti could also consider setting a separate goal for scaling up adoption of electric vehicles and setting up vehicular charging infrastructure<sup>19</sup>, especially since the government has recognised the benefits of electric mobility and announced its intentions to introduce electric vehicles in a very big way.

In the vehicle fuel efficiency segment, the implementation of fuel economy star-rating labels needs to gain some traction. In this context, Shakti's medium-term ambitions could reflect to support the effective implementation of fuel economy star-rating labels for both light-duty and heavy-duty vehicles.

According to the grantees and other stakeholders, these objectives are completely aligned with the current policy requirements but aligning and implementation are two completely different things. Therefore, the execution strategies required for achieving these far-reaching goals and objectives must be thorough and efficiently deployed.

<sup>19</sup> This target also applies to the Clean Power Plan.

## Climate Policy

Long term outcomes for 2030	Intermediate outcomes for 2020
<ul style="list-style-type: none"><li>India is a part of an efficient and equitable global governance structure that effectively responds to the threat of climate change.</li></ul>	<ul style="list-style-type: none"><li>India's Green House Gas (GHG) emissions intensity declines by 35% from 2005 levels<ul style="list-style-type: none"><li>25% of the identified non-CO2 abatement opportunities are captured</li></ul></li><li>The concept of low carbon growth planning secures a credible foothold within key government agencies at the national and state level, and policies and programmes are designed and implemented for a few key priority low carbon initiatives.</li></ul>

Now that India has joined the Paris Climate Accord and the Kigali Agreement, Shakti may consider shifting its focus towards further raising the climate ambitions, commitments and international cooperation. The medium-term ambitions set for 2020 still remain relevant and converges with the government's priorities. Shakti can consider to set goals to establish a robust monitoring framework that is at par with global standards and binding requirements under the climate accords.

Apart from the existing goals, AQM could be another important area of focus for Shakti to set far-reaching goals. Sub-national governments are becoming increasingly cautious about the air pollution in cities and the national government has announced ambitious interventions involving electric vehicles and BS VI norms to tackle this growing menace.

According to one grantee, now that India has joined the Paris climate accord and the Kigali Agreement, Shakti may consider shifting the focus towards further raising its climate ambitions, commitments and international cooperation. The medium-term ambitions set for 2020 still remain relevant and converge with the government's priorities. Apart from the existing goals, air quality management could be another important long-term area of focus for Shakti.

### Cross-cutting

The ambitions set under the Paris Climate Accord and Kigali Agreement need to get translated into actions across economic sectors or geographies. In this regard, the implementation of the nationally determined contributions (NDCs) and Kigali commitments could, in spirit, be an important cross-cutting ambition for 2030.

Shakti's internal stakeholders also believe that targeting actions at the city level can be an effective strategy for NDC implementation. Cities will be the hubs for economic activity and emissions going forward. Cities are also an intersection or convergence of various themes such as renewable energy, energy efficiency, DSM, electric utility reforms, sustainable transportation, low-carbon habitats (building and appliance efficiency), all of which enable cross-cutting opportunities for investment that facilitate far-reaching impact on stakeholders and the community in general. This strategy also aligns with a majority of stakeholders, who stressed on the need to initiate actions across converging themes, where cross-cutting opportunities promise a greater number of interested stakeholders, larger impact and attention of decision makers at all levels.

According to the grantees, most of the goals and targets align with the current policy environment and are relevant in the present/immediate future context.

### ***How well has Shakti been able to proactively identify key emerging opportunities and accordingly redefine sector strategies to adapt to evolving external developments and learnings?***

In the past five years, Shakti's thematic areas of interventions and the principal actors involved in those sectors have evolved. The internal stakeholders noted that, as an organisation, Shakti has been mindful of this evolutionary process and the social, political and economic dynamics of the development in the various sectors of influence. This is helping Shakti identify and advance key emerging opportunities or even redefine sector strategies. Today, Shakti's sector strategies, grants and interventions have evolved to take advantage of the external developments and learnings.

LED lighting, AQM, off-grid distributed renewable energy, grid integration with renewables, energy pricing, energy storage, sustainable freight transport, energy productivity in the Indian Railways, space cooling and solar rooftops are some examples of emerging opportunities advanced by Shakti as noted by internal and external stakeholders. These opportunities have shown great potential to solve important and /or neglected problems in the sector and progress towards goals through disruptive technologies, collaborations and partnerships, cross-cutting markets with converging themes and other innovative ways that are sometimes enabled by policy change. The continuously evolving programme strategy is also perceived as the biggest challenge for Shakti by internal stakeholders.

Climate finance, climate change adaptation and resilience could be the new areas for Shakti to make a strategic impact in the context of India's NDCs.

### ***In what ways (if any) could the balance of staff efforts between grants and other types of services be improved?***

In the past five years, apart from grant making, Shakti has been fulfilling its mission by actively taking part in government-established technical committees and convening stakeholders on various themes. These non-grant activities are an integral part of Shakti's operations to be better informed for grant design and, also, to advocate policy. Shakti was part of expert committees constituted by NITI Aayog, the MNRE, BEE, Petroleum Conservation Research Association (PCRA), etc. on various themes such as revising India's wind power potential, drafting renewable energy legislation, national policy on renewable energy based mini grids, renewable electricity roadmap formulation and implementation, fuel efficiency standards for heavy-duty vehicles in India, and urban road manual development.

The internal stakeholders noted that while grant-making has been an essential function, non-grant activities have been desirable functions and have positively informed grant selection and the credibility of policy input provided. Over the years, Shakti has remained alert to such desirable functions and leveraged them as complementary programme strategies to accelerate programme goals. In this context, non-grant activities may be driven to the extent of available bandwidth to be visible and inform grant-making.

## 5. Organisational development

### **How have Shakti's internal organisational structure and systems enhanced its ability to act on its strategic framework?**

The past five years have been a time of transition for Shakti. It has evolved past the start-up phase through a period of sustained growth in staffing and funding levels. For the most part, Shakti's internal organisational and team structure has been aligned logically and practically around the broad thematic areas of intervention, strategic goals and grant-making activities.

#### **Organisational structure**

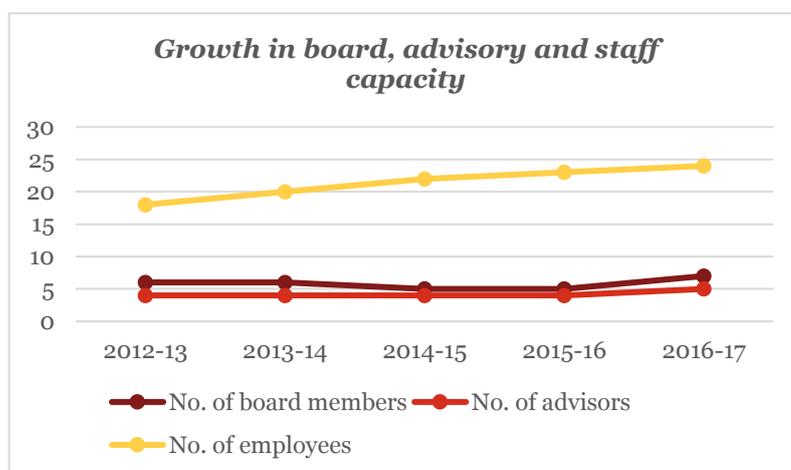
Shakti's organisational structure has evolved over the years. Its internal stakeholders noted that the strategy has always been to keep the structure flat and lean. This also aligns with Shakti's donors' vision.

The board of directors has been the principal governing body. The board has consisted of five to seven members in the last five years. Four members have remained with the board since its inception. Internal stakeholders noted the virtually unchanged board has contributed to stability and continuity in the organisation's strategy and operations. Donors appreciated the Indian origin of board members, unlike similar re-granting organisations in other countries who have international donor representatives on their boards. They also characterised the board members as having unquestionable reputation and credibility, a key enabler for Shakti to fulfil its mission. The board is assisted by a group of 4-5 advisors who are outstanding personalities in the fields of interest for Shakti. Some of the advisors represent the international donor partners who have supported Shakti for long. The executive staff is headed by the CEO who is also the executive member of the board. The organisational structure under the CEO consists of programme teams and non-programme functions.

Shakti's programme functions are headed by the Chief of Programmes who reports to the CEO on all programme related operations. The programme teams are organised based on the functional areas they serve (i.e. clean power, sustainable transport, climate policy and energy efficiency), and they consist of domain specialists who structure, design and execute grants through a network of partners. The programme teams are headed by a programme manager or senior programme manager, depending on the size of the programme. The programme leads are supported by staff designated at three levels: senior associate, associate and assistant, in this order. Currently programme officers are assigned for pan-India operations without any specific region under their jurisdiction. Shakti's programme staff are widely praised for their deep technical knowledge and expertise.

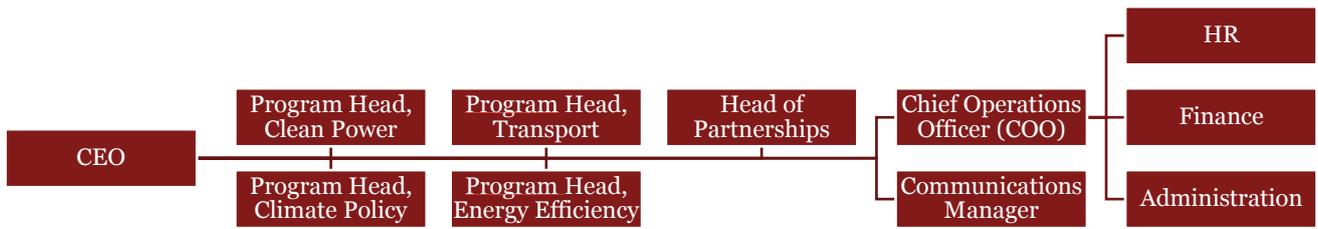
The key non-programme functions include human resources (HR), finance, contracting, communications, and fundraising/partnerships. In the initial years, the HR, finance, and contracting functions were consolidated under the 'operations' function. Over the years, operation have been disaggregated into more specific non-programme functions to meet the growing needs of the organisation. The internal stakeholders noted that this strategy helped to get more competency focused resources to manage those functions efficiently and effectively.

Internal stakeholders also noted that the future expansion of the organisation, if such a need arises, could happen within the existing structural contours. Horizontal integration among different programmes in some of the key overlapping areas can be the focus for future strategy.

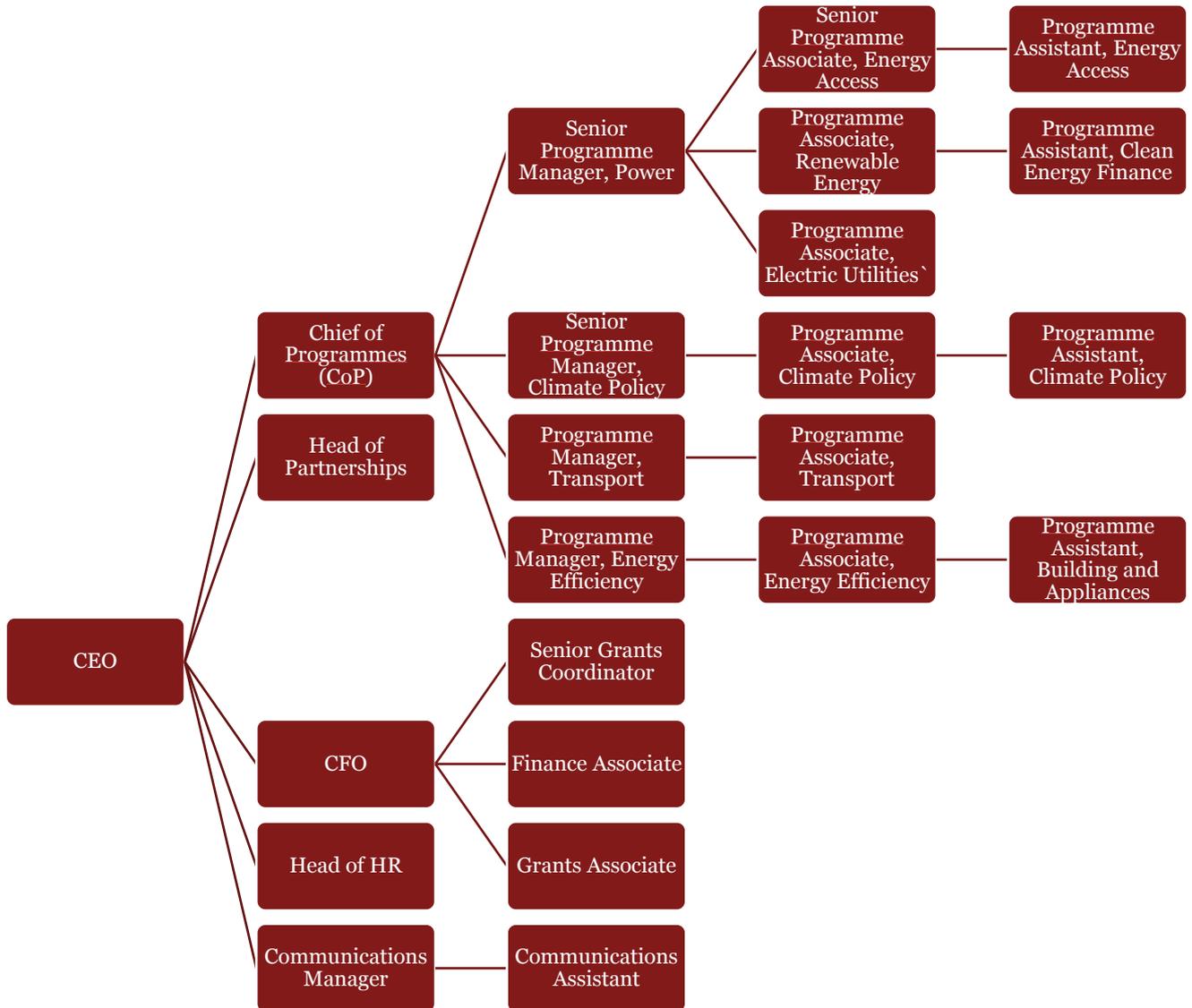


Source: Shakti Sustainable Energy Foundation

### Shakti's organogram in 2011 (limited to top management)



### Shakti's full organogram in the current scenario



### CoP

The CoP was appointed to consolidate all programme related functions under one umbrella. This position was filled in 2013. The CoP has the ultimate responsibility of framing and implementing the organisation's programme strategy. All the individual programme leads report to the CoP who in turn reports to the CEO for programme related operations. The role of the CoP becomes all the more important in overlapping areas of investments when the specific interventions require horizontal integration of two or more programme teams. Programmes such as energy efficiency, which was earlier operated as three different programmes (i.e. buildings,

industry and appliances) has now been consolidated into one programme. More recently, a new programme vertical for climate finance related interventions has been established.

Shakti started off with a grant making role and with time ably evolved the additional convener role as well to achieve the desired results, establishing credibility and stature amongst the relevant stakeholders spanning across various program areas. To keep pace with the evolving landscape, new areas have been included and expanded as the need arose. For example, Energy access was on the fringe but was subsequently expanded and consolidated and now significant work has happened not only in drafting enabling framework at the central level, but also in implementation support at the state level. AQM was also included and initiatives in this area have been appreciated by policy makers and grantee partners for bringing out strong regulations, informing stakeholder actions and changing/broadening the narrative around important climate change issues. Shakti now works with a wide pool of implementing partners as well as grantees at the central and state level. An overwhelming majority of stakeholders in this evaluation, including donors, grantees and policy makers, commended the competency level of Shakti's programme staff.

### *Financial operations and contracting*

This unit within Shakti is a four member team headed by the CFO directly reporting to the CEO. In the last five years, this unit has set up a robust grant-making (contracting) system and developed a finance manual that has helped standardise and streamline finance-related functions such as accounting, audit and budgeting. An industry leading grant management system called Fluxx is adopted to approve high-value transactions with a digital trail. Finance-related functions are managed using Tally. Internal stakeholders have no qualms about Fluxx but they believe Tally can be replaced with a more efficient system.

This unit, led by the CFO, has steered the organisation's internal audit process from a quarterly cycle to a monthly one. The unit is also responsible for Foreign Contribution (regulation) Act (FCRA) compliance and all other statutory compliances as Shakti is a section 25 company.

Internal stakeholders noted that Shakti's disaggregated structure has been effective in handling the growing volume of grant-making and transactions in the last five years. The monthly internal audit report consists of all the essential items that are monitored including the advances at the end of the previous month, liabilities, grant payments, fund flow statements, burn rate (committed funds out of annual budget), delayed milestones in individual grants, number of signed contracts, number of grants that have gone for no cost extension and milestones overdue by 60 days.

The grantee partners commended Shakti's grant-making system, from its conceptualisation to it being awarded as the best in the industry. The policy makers characterised Shakti as the industry leader in delivering quick and timely responsive assistance.

At the same time, some of the grantee partners critiqued the grant-making process as being lengthy with redundant systems and processes, especially after the basic idea conceptualisation to final award of the grant.

Internal stakeholders noted that Shakti is mindful of the share of funds spent for non-programme functions. Optimising non-programme expenses without compromising the rigor of compliance has always been on the agenda for this unit.

### *Fundraising*

Fundraising is an integral function for the programme teams and is closely coordinated with the programmes, communications and finance units in Shakti. The head of partnerships has the overall responsibility to manage the existing donor relationships and also to augment the donor base through new relationships with both international as well as domestic institutions.

Internal stakeholders noted that Shakti has managed to get one large new international donor every year over the past few years to diversify its funding pool. Another important success is that the donors have now transitioned from a one-year funding cycle to two or three-year funding cycles (multi-year funding). This has enabled Shakti to pass on the comfort to grantee partners who value long-term commitments to build capacity, undertake long-term planning and focus on the big picture.

Domestic fundraising has been unsuccessful so far. The dependency on foreign funds is a major inhibitor for Shakti's performance as noted by internal stakeholders. As FCRA funding can only be extended to FCRA grantees, foreign dependency on funds poses serious limitations to build a field of climate philanthropy by

bringing together a large number of CSOs/NGOs/non-profits to influence policy change. Domestic funding is crucial to mitigate the risk of FCRA renewal and allows Shakti to engage more grantee partners.

Part of the problem is that there are insufficient philanthropic organisations in the country who prioritise climate change and the environment as important areas of investment, or who believe in the re-granting model. There is limited capacity in Indian philanthropy to fund the climate ecosystem. Most philanthropic organisations in India don't realise and appreciate how climate change affects the general wellbeing of the communities. Making the connection to the broader spectrum of issues is where the real challenge lies. If Shakti can demonstrate that its work is critical for addressing the broader spectrum of issues (e.g. healthcare, wellbeing), then possibly it can appeal to a wider range of philanthropists, especially in the domestic arena. There are very few philanthropic organisations in the world who believe in Shakti's narrow policy-led approach to sustainable development. Shakti must realign its approach to tap domestic corporate social responsibility (CSR) funds (funded by corporate houses). Shakti must pay careful attention to the mutual interests while tapping the CSR funds. More importantly, Shakti would also have to evaluate and consider conflicts arising from such fund raising. Credibility of grant products (i.e. objectivity and independence) is an important risk to be evaluated while raising domestic funds.

Shakti is mindful that it works in a sensitive environment. Being an FCRA-registered entity, Shakti has internalised standards to manage credibility and reputational risks that arise from fundraising. The existing donors are approved by the Indian government and these donor entities are not on any watch list in India.

Shakti's existing donors can be classified under two categories. The first category includes the core donors, whose donations do not come with any pre-conditions to invest in specific thematic areas/programmes. The second category includes programme-specific donors whose donations come with pre-conditions to invest in specific programmes or geographies and/or engage specific grantee partners. Core grants provide more flexibility over conditional grants. Shakti could continue to thrust the comparative advantages and unique propositions that embed quality and assurance in its services as a fund manager.

The lack of endowment funds is another crucial gap noted by internal stakeholders in fundraising thus far. Endowment funds could help Shakti create real assets (e.g. office space) that provide long-term financial security and also provide flexibility to use such funds for immediate day-to-day activities, thereby allowing the grant money to be invested purely for programme purposes. Whether Indian FCRA regulations allow such endowment funds from foreign donations is an area to investigate and make informed strategies going forward.

## *Communications and branding*

Shakti's communications and branding unit comprises a two-member team headed by a communications manager. The key external communications platforms include the Shakti's website<sup>20</sup>, social media (Facebook, LinkedIn, YouTube and Twitter) and collateral such as publications, annual reports and newsletters. Internal stakeholders noted that having a dedicated communications team has helped organise the website content, layout of publications, reports and other collateral to enhance brand value and visibility. They also noted that the branding policy adopted by Shakti has helped brand 'Shakti' reach out to a larger audience and establish trust and credibility among key decision makers in the government. The disaggregated structure for non-programme functions has worked effectively for the communications team as reporting directly to the CEO has helped understand and execute the branding vision of Shakti and how Shakti wants to be perceived by various stakeholders.

Internal stakeholders have clarified that Shakti is not an organisation that wants to put itself out in the front. Its preferred strategy involves being visible for the right audience and being in the background for the wider public at the same time.

On the larger question of whether foundations such as Shakti should take the lead on policy change or serve as neutral conveners, in the evaluator's eyes, maintaining a neutral stance may be a missed opportunity for Shakti to leverage its influence to advance progress towards goals and achieve greater impact.

## *HR systems*

Shakti's HR policies and systems have evolved over the years. A full-time HR manager has been leading crucial HR-related functions such as recruitment, orientation, training, performance evaluation, competency reviews, salary benchmarking, employee relations, and motivation and recognition.

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<sup>20</sup> Shakti Sustainable Energy Foundation. Retrieved from <http://shaktifoundation.in/>

Internal stakeholders noted the importance of competency reviews conducted periodically for staff at all levels. An overwhelming majority of stakeholders in this evaluation, including donors, grantees and policy makers, commended the competency level of Shakti's programme staff.

The internal stakeholders noted that the performance evaluation system adopted by Shakti is fair and transparent. It includes peer feedback, self-appraisal and supervisor evaluation. The performance evaluation scorecard includes two broad parameters - work delivery (what) and behavioural competency (how). On the work delivery front, the evaluation parameters are different for programme leads and support staff. However, these parameters remain the same irrespective of the designation for programme support staff. On the behavioural competency front, there are different expectations for programme leads and support staff at different levels. There is remarkable difference in the expectations on certain key result areas (KRAs) such as strategy, stakeholder engagement, number and volume of grants, and fundraising.

The internal stakeholders also noted that the attrition rate in the organisation is about 12%. Sector competitive compensation / salaries has been a contributing factor for the low attrition rate. The attrition risk is higher among programme staff, especially at the senior associate and associate level. This is because the structural limitations in the organisation gradually manifest into the perceived lack of career growth opportunities for staff at this level.

Succession planning for the role of the CEO, CoP and programme leads is another food for thought noted by internal stakeholders, especially in the context of sustainability. There is a clear succession gap for these roles that could be bridged with investment and a clear plan of action.

Shakti is mindful of the training requirements of its staff and the value it provides. Internal stakeholders noted weekly programme team meetings as one of the key platforms for learning, especially among newly joined staff. The trainings for assistants and associates includes technical subject matter, soft skills, leadership development, effectiveness, effective writing and presentation and customised training module for managers.

The internal stakeholders appreciate the benefits from gender diversity in the organisation. They noted that currently 42% of Shakti's staff is female. If one measures diversity among the CEO's direct reporting staff, it is 50% female. One of the donors also noted the potential for further improvement on this front.

## ***How have leadership and management functions affected the strategy enhancement process and results?***

Shakti's annual Dialogues is a leadership-and management-driven initiative that has successfully established a platform for clarifying Shakti's vision and strategy to its partners. Shakti's annual dialogues is an annual event that brings together all the partners: grantees (CSOs/NGOs), consultants, policy makers and donors under one strategic planning platform. In the initial years, the focus of annual Dialogues was to review the effectiveness of Shakti's activities in various thematic areas and chalk out a strategy for actions and partnerships in the upcoming year. The annual Dialogues has gradually evolved to focus more on the understanding of sectoral developments in formulating and redefining the sector strategies.

Grant-making is another key area where the leadership-and management-driven functions have clearly affected results. Continuous engagement by Shakti's leadership and management with external stakeholders in the private sector, government and civil society has helped to absorb the general sense of where and how the grants can be made effective. This also informed the grant-making decisions by Shakti.

Also, in the initial years, the board members reviewed and approved every project funding proposal. However, as the volume of grants grew, not only did this process become slow and inefficient, the sense of accountability and responsibility among the programme staff to demonstrate value for money gradually diminished. The leadership stepped in to set a minimum floor value for the funding proposals to be approved by the board without diluting its power to review. Since then, the whole grant-making process for funding proposals below a certain value has been nimble and efficient. The board successfully reinforced the accountability on programme staff to demonstrate value for money.

Shakti engages partners for detailed grant/activity/project design support, a decision driven by Shakti's leadership and management. Internally, Shakti identifies key strategic areas for intervention, after which the partners elaborate the basic idea into a bankable and detailed project design. Shakti has been able to bridge the staff capacity gap through this initiative that has enabled it to design and execute several grants.

Apart from the above, consolidation of programme-related functions by appointing a CoP, disaggregation of operations into separate HR and finance functions, consolidation of an energy efficiency programme, assigning staff capacity to strengthen air quality and energy access programmes, periodic evaluations and the recent decision to establish a dedicated practice on climate finance are some of the examples of leadership-and management-driven initiatives that have affected the strategy enhancement process and results. The climate finance initiative cuts across existing themes and is perceived as a complementary strategy for the existing thematic areas to accelerate progress towards goals.

The management's action to improve internal coordination has also yielded positive results.

***The management is cooperative. Leadership has trust on the employees. There is less bureaucracy, thus allowing faster collaboration.***

***- A Shakti employee***

## ***How effective are Shakti's processes and practices for learning from successes and challenges and for incorporating that learning into future work?***

As discussed earlier, 'annual Dialogues' - a key initiative driven by Shakti over the last five years – has facilitated learning from successes and challenges and has helped to incorporate that learning into future work. Grantee partners noted that the annual Dialogues are very effective in building consensus on success factors, emerging issues and focus areas for their grants.

Internal stakeholders also noted that the monthly programme team meetings and grant closure reviews as important processes and practices adopted for gaining useful insights into successes and challenges. Continuous improvement requires a commitment to learning. Therefore, Shakti could consider systematising such processes and practices for internal learning going forward.

***The annual energy dialogue can be held once in six months, especially to accommodate the views of changing government officials.***

***- Grantee***

## ***6. Evolution of Shakti's role in the larger sustainability landscape***

### ***How effective has the evolution of Shakti's role during the last five years been in positioning Shakti as a strategic re-granting organisation in the larger philanthropic landscape?***

How has Shakti's role evolved during the last five years in the larger sustainability landscape?

#### ***Perceptions of Shakti's board, leadership and management***

Shakti has progressed significantly in facilitating public impact, is better known now and is more visible in public discourse. The stakeholders and the industry at large perceive Shakti as a sustainable development partner, knowledge facilitator, coordinator and aggregator. Partners look up for Shakti's involvement to play the role of a facilitator for change. Shakti has effectively played the role of a coordinator to ensure that all stakeholders are making concerted efforts. Simultaneously, as 'programme manager', Shakti has diligently managed the philanthropic resources it has been entrusted with. Shakti provides an indirect facility to foreign donors to remain present in India even when they are not. Shakti's services as a fund manager is at mark in terms of the quality of delivery, programmatic approach and outreach.

Shakti's programme officers have evolved over-time as specialists in their areas of work with strong domain knowledge regarding who can provide a coherent view for the key decision makers in the government. Shakti has also established a unique way to bring coherence in the areas it studies, where there is hardly any capacity. It can aggregate discrete outputs from individual grantees to advocate broad based policy changes.

Shakti's efforts in convening and bringing key stakeholders together to debate and collaborate, have been a key factor in this evolution. Moreover, although Shakti is small in size, it has gained visibility as a grant-making organisation and has recognition in niche areas of focus.

In its initial years, Shakti was perceived as having a limited reach among policy makers and insufficient knowledge about their priorities for development. This resulted in partners perceiving Shakti's activities to be based on speculation. This led Shakti to adopt the push strategy in many of the areas to progress toward goals. However, over-time, Shakti has been able to build trust and confidence among policy makers as a credible partner in the areas of sustainable development. Shakti is more often than not chosen by partners and the government for solving important problems and for shaping policy. The open style of administration by the newly established government at the centre has further enabled Shakti to be a part of the decision-making process. This has helped Shakti better inform its grant-making by focusing on themes where it believes can make a difference.

By working closely with the government and extending quick responsive assistance to help achieve common goals, Shakti has built confidence with relevant bureaucrats and policy makers. Without this, Shakti's ability to critique and guide decision makers towards an objective policy pathway would have been difficult.

#### ***Grantee perceptions***

Shakti has emerged as an active convener of civil society and policy makers from national and subnational levels. Its role as a convener has been effective in the acknowledgment of key issues and building consensus among policy makers and other stakeholders. This has had a positive effect on creating an energy conscious society and an energy-proficient network, consisting of a diverse range of intellectuals, coming from various walks of life and having their very own expertise and experience.

Shakti has emerged as an important stakeholder in the sustainability debate. Perceived as an important player in shaping India's energy policy, Shakti has played an important role in effectively bringing out the key issues pertaining to the Indian power sector and has brought to light issues which are otherwise neglected due to the lack of intellectual or financial support. Shakti is often regarded as a preeminent organisation in the

development of energy efficiency policies and investments. Shakti is also one among few organisations to help create vision statements for the Government of India.

Shakti's programme officers are perceived to be competent, flexible to the needs of stakeholders and are known to demonstrate a wide breadth of domain knowledge gained from funding so many research organisations on a diverse range of subjects. A by-product of gaining deeper insights on the sectors is that one inadvertently leans towards a behaviour that moderately reflects that of a think tank.

Shakti is perceived as a promoter of forward-looking interventions. Its modest approach towards its work supported by its grants and not claiming credit for its successes is a welcome change and has made it respectable in the field.

Shakti is not perceived as a think tank as much as it is perceived to be an organisation that has identified certain thrust areas and has funded policy research in those areas.

Shakti has played the roles of both a re-granting organisation and a think tank. This dual role has led to confusion regarding its identity in the larger sustainability landscape. A re-granting organisation and a think tank would need two different approaches or different success drivers. Therefore, Shakti must aim to streamline its role and functions either towards being a re-granting organisation or a think tank.

When grants are linked to the perception of think tanks, it may cloud the vision and pose some challenges to be objective and flexible, however, this approach has worked well for International organisations such as ECF.

### *Policymaker perceptions*

In the initial years, Shakti was not actively involved in policy making and implementation. However, over-time, Shakti's widespread activities and outreach have made it quite popular and reliable. It has also developed a certain degree of comfort to be able to work with the key decision makers in government circles. A long-term association with government stakeholders has built a sense of trust and confidence among decision makers.

Shakti's ability to co-ordinate with civil society, think tanks and policy makers, bring coherent views on policy gaps and market perspectives has come to characterise its role as an integrator and facilitator in the larger sustainability landscape. Shakti's ability to bring the experience at state/city level and subnational government views on national policy design is widely appreciated by policy makers at the national level.

Shakti has emerged as a prominent knowledge facilitator in the fields of sustainable development. Its efforts to reach out to stakeholders have been effective and its convening strategy has been commendable. The convening platforms of Shakti are perceived to offer a well-endowed learning experience.

Shakti is perceived as resourceful and capable in bringing together relevant competent specialists in different fields. Timely and responsive support from Shakti has further strengthened this perception.

Shakti is perceived as the supporter of government objectives, one that does not impose its ideas but makes knowledge available to make informed decisions. Shakti is also known to make honest efforts open up a constructive dialogue with government stakeholders to bring to the fore certain matters.

Shakti's staff is perceived as being capable and competent with good domain knowledge; however, they are considered to be over worked. Interactions with Shakti's technical staff are known to be informative and the overall collaborative experience with Shakti reflects the quality of organisational values and work.

Shakti is perceived as a capacity-building partner helping to implement out-of-the-box ideas that might have otherwise never been implemented.

Shakti is recognised as an implementation partner helping to manage projects at the micro level, which other organisations generally fail to do. Shakti's ability to bring context-specific issues in tier-2 and tier-3 cities, micro-level planning and management has been known to be effective.

### *Donor perceptions*

Almost all of Shakti's donors were convergent on the idea that Shakti has evolved as a credible institution, providing timely technical support and facilitating informed decision making by policy makers. Shakti has emerged as a thought leader in some areas of funding and a strategist for identifying relevant partners for campaigns in specific areas. It has provided technical support and has built a field of climate philanthropy by

bringing together a large number of CSOs/NGOs/non-profits and building their capacity while facilitating a high-level policy change.

However, divergent views were also expressed as one donor critiqued Shakti for focusing too much on the national-level policy making, for being over-reliant on technical knowledge rather than political-economy context, for not engaging donors more often on the strategy front and for embracing dual identities of a grantor and a think tank. The donor opined that Shakti could do more to increase the government's focus towards solving important and neglected problems in the sector as a whole—for example, pace, transparency and capacity.

The donor also criticised Shakti for having a strong branding policy. The donor noted that the branding policy in its existing form could make it difficult for Shakti to maintain a sense of neutrality. Another donor felt 'electric vehicles' seemed like a missed opportunity.

## ***Shakti's comparative advantage***

### ***Indigenous roots and presence***

Donors value the indigenous roots of Shakti and resulting legitimacy for supporting the government towards sustainable development. Donors also appreciated the composition of Shakti's board, which comprises distinguished Indian citizens only. These factors have made Shakti, a credible domestic institution and have encouraged policy makers to work with it.

Grantee partners noted that Shakti's operational presence in India makes it more approachable and accessible. Shakti's programmes are locally based and have evolved over the years. An understanding of the sectoral context, problems and root causes, and stakeholder interests and priorities has reduced transactional costs associated with grant structuring and execution for both Shakti and its grantee partners.

Shakti's policy makers identified Shakti as the 'go-to partner' to solve important problems in the sector.

By virtue of being closer to the ground, Shakti is better informed, has better knowledge of the grantee landscape, who can do better and at which part of the value chain, and be reactive and responsive in its grant-making. Shakti can disaggregate value components based on competency and then aggregate them into one piece, slice and dice and add it as one. Moreover the transaction burden and the perceived cost to make direct interventions by foreign donors is relatively higher.

### ***Deep in-house technical expertise***

The deep knowledge of Shakti's programme staff on technical subject matter and the political context and reality on ground is a major asset noted by many donors, grantee partners and policy makers. This also gives Shakti strong credibility and a unique power to convene important stakeholders in various fields of interest.

Grantee partners noted that Shakti's programme staff is quick to find out if the analysis is inaccurate and generally demonstrates a wide breadth of domain knowledge gained from funding so many research organisations on a diverse range of subjects. This adds great value to grantees as they learn from collective wisdom.

Policy makers noted that Shakti's programme officers are generally perceived as competent and flexible. Interactions with Shakti's staff are perceived as informative and overall the collaborative experience reflects the quality of organisational values and work.

### ***Long-term donor commitment***

Shakti has managed to get one large new international donor every year to diversify its funding pool. Additionally, in the last 1-2 years, the donors have transitioned from a one-year funding cycle to two or three-year funding cycles (multi-year funding). This has enabled Shakti to make some of its grantee partners who value long-term commitments comfortable with regard to capacity building, undertaking long-term planning and focusing on the big picture.

### ***Nimble strategy and speed of action***

Shakti is widely appreciated for being nimble in its strategy and actions. Grantee partners appreciated Shakti for being flexible and open to new ideas and forward looking interventions. This has enabled Shakti and its

partners to pick up emerging opportunities in various fields and create visible impact in areas where there is limited capacity. Policy makers noted Shakti as resourceful and capable of quickly mobilising relevant competent specialists in different fields. Shakti's ability to bring expertise and resources to work in multidisciplinary areas and its experience of working with the central and state governments is a key advantage that has fostered strong relationships with many key decision makers in the government.

### *Ability to convene*

Grantee partners noted that Shakti has emerged as an active convener of civil society and policy makers at national and subnational levels. Shakti's efforts in convening, bringing key stakeholders together to debate and collaborate, has been a key factor in facilitating public impact. Shakti's efforts in connecting local CSOs with international experts has been very effective in capacity building. Shakti's has played its role as a peer learner platform effectively through its convening activities, thus adding great value to grantee partners.

Partner also noted that Shakti's role as a convener has been effective in the acknowledgment of key issues and building consensus among policy makers and other stakeholders. This has had a positive effect on creating an energy-conscious society and an energy proficient network consisting of a diverse range of intellectuals, coming from various walks of life and having their very own expertise and experience.

Policy makers noted Shakti's ability to co-ordinate with civil society, think tanks and policy makers and bring coherent views on policy gaps and market perspectives. The convening platforms of Shakti are perceived to offer a well-endowed learning experience. Shakti's non-competitive role enables it to perform the above-mentioned activities effectively.

### *Collaborative relationships and network of partners*

Shakti, as a New Delhi based institution has developed a close network with policy makers at national and subnational levels. It also has long-standing relationships with many government departments in several states and cities across the country.

At the national level, Shakti has long-standing relationships with five key ministries: the MNRE, MoUD, MoRTH, MoP and MoEFCC. Apart from this, it also maintains strong relationships with NITI Aayog, the BEE, CERC, CEA, IUT, Association of State Road Transport Undertakings (ASRTU), PCRA, Central Pollution Control Board (CPCB), etc.

At the state level, Shakti has fostered strong relationship with energy departments, transport departments, urban development departments, urban local bodies and municipalities, state nodal agencies for renewable energy and energy conservation, state road transport undertakings, electricity distribution utilities, regulatory commissions etc.

Other important network partners include financial institutions and multilateral and bilateral development partners such as SIDBI, the World Bank, Department of International Development (DFID), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), United States Agency for International Development (USAID) and International Energy Agency (IEA).

Shakti's network of civil society, NGOs, think tanks and consultants comprises over 100 partners. The network of international donor partners is about 11.

Several interviewees commented on the important contributions that Shakti makes as a result of its ability to forge relationships with policy makers, listen to grantees, and establish partnerships based on mutual respect. Shakti seeks to maximise thoughtful, collaborative work between partners and explicitly invests staff time and money to do so.

## ***To what extent and how has Shakti helped to build the field and increase the performance of the 'organisational ecosystem' where it operates?***

Shakti has been mindful of the need to build a field of climate philanthropy in India by bringing together a large number of CSO. Shakti understands the value of building the capacity of civil society and creating an ecosystem of think tanks to influence and aid policy design and implementation both at national and sub-national levels. In this regard, Shakti has partnered with over 50 CSOs, NGOs and academic institutions across the country who have banked on Shakti's grants to build and deliver research and capacity building programmes, advocacy

campaigns and/or specific projects/initiatives. By allowing many of the credible CSOs to count on its resources, Shakti has actively contributed to their capacity development over the years (e.g. CII, Sunnet India, Centre for Study of Science, Technology and Policy (CSTEP), Alliance for an Energy Efficient Economy (AEEE), Centre for Science and Environment (CSE), etc.). The grantee partners noted that Shakti's convening activities (including the annual 'Energy Dialogues') have helped many small and emerging CSOs to connect with international experts and build organisational capacity by fostering strategic partnerships through collaborations and coalitions.

At the same time, donors are concerned about the high share of grants going to professional consultancy organisations in some fields of funding. The donor community believes that Shakti could do much more in expanding its network of CSOs/NGOs/non-profits and building their capacity to influence a much larger group of stakeholders. Shakti's board believes that part of the problem is the limited CSO capacity in the fields of sustainability. The internal stakeholders noted that the number of experts/practitioners in niche areas is limited. Sometimes, the need to work with strong robust organisations, who can deliver cutting-edge quality outputs and build stakeholder confidence, compelled Shakti to engage and partner with professional consultancy firms with relevant experience and expertise. The consultancy organisations come handy in delivering timely and responsive technical assistance to the government on specific projects/initiatives. Moreover, Shakti has limitations to give FCRA funding to FCRA grantees. Internal stakeholders also noted there is a dearth of FCRA-registered civil society capacity in the fields of sustainable development even though India has over a million NGO's. In terms of professionalism, only few are up to the mark. Smaller organisations do not work in certain specialised areas, and in other areas they have limited bandwidth. Moreover, they can handle only one project at a time. Many CSOs focus on education and health. Also, most established NGOs are based in Delhi and have little capacity to work in states. Similarly, some NGOs are focused in select regions and have limited capacity to work outside their base region. Additionally, the perceived risk of funding smaller NGOs in the current FCRA regime is high.

Some of the grantee partners critiqued Shakti for providing short-term funding commitments. Shakti's internal stakeholders clarified that they have started to pass on the benefits of multiyear commitments from international donors to their grantee partners. At the same time, grantee partners appreciated the value provided by Shakti in the structuring and execution of grants. They noted that Shakti's programme staff have excellent domain knowledge and leverage their deep insights to give critical feedback to address hurdles more effectively. Shakti's team also helps in fine tuning the ideas. Shakti facilitates strategic partnerships between grantees to complement capabilities, bring international perspectives and additional resources. Shakti provides relevant strategic views about the projects is open-minded and practical. The programme staff's domain knowledge enables monitoring the project more closely for an effective outcome. This is a critical value-add for grantee partners.

***Shakti has helped set up HR systems and processes to support our organisational development.***

***- Grantee***

## ***How effective has Shakti's approach toward building external partnerships with concerned stakeholders been in its different areas of work?***

Shakti, being a New Delhi based institution has developed a close network with policy makers at national and sub-national levels. It has long-standing relationships with many government ministries, departments and institutions at the centre and in several states across the country.

At the national level, Shakti has long standing relationship with five key ministries: the MNRE, MoP, MoUD, MoRTH and MoEFCC. Apart from this, they also maintain strong relationship with national institutions such as NITI Aayog, the BEE, CERC, CEA, IUT, ASRTU, PCRA and CPCB.

At the state level, Shakti has fostered strong relationship with energy departments, transport departments, urban development departments, urban local bodies, state nodal agencies for renewable energy and energy conservation, state road transport undertakings, electricity distribution utilities, regulatory commissions, etc.

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Shakti's other important network of partners includes financial institutions, multilateral and bilateral development partners such as SIDBI, the World Bank, DFID, GIZ, USAID and IEA. Partnerships with bilateral and multilaterals have helped inform efforts, focus on unique opportunities and avoid repetitive work.

Shakti's network of civil society, NGOs, think tanks and consultants comprise over 100 partners. The network of international donor partners is about 11.

Several interviewees commented on the important contributions of Shakti as a result of its ability to forge relationships with policy makers, listen to grantees, and establish partnerships based on mutual respect. Shakti has always sought to maximise thoughtful, collaborative work between partners and has explicitly invested staff time to do so. Shakti's model has been to identify global expertise and help initiate a symbiotic relationship.

The grantee partners identified the following as drivers for fostering partnerships by Shakti.

- a. Complementing capabilities with technical capacity relevant to a respective sector's problems
- b. Need for additional resources
- c. Credibility and reputation of the stakeholder

## 7. Key lessons and recommendations

Shakti has its role cut out and is fulfilling its responsibilities appropriately and meaningfully. In the past five years, together with its grantee partners, Shakti has facilitated concrete outcomes and contributed to real impact. However, some challenges still loom.

Key lessons learned from the experience of grant-making can be summarised as follows:

- ❖ In the past five years, Shakti has evolved past the start-up phase through a period of sustained growth in staffing, funding and operations. It is important to sustain this transition effectively.
- ❖ A significant share of Shakti's grants have been structured to inform policy design or specific programme / project implementation design. As the work continues in key geographies and sectors, opportunities to support large scale programme or project implementation are likely to increase.
- ❖ Investing early on in policy design and market mechanisms have built the evidence required to shape a policy in its final form and also identified best practices leading to better long-term results.
- ❖ It is vital for Shakti to walk the narrow line of being visible and invisible by virtue of its fundraising activities. Shakti has to be visible to be able to influence stakeholders and still not come across as another actor struggling to gain power.
- ❖ It is also vital for Shakti to remain relevant and manage the conflict of energy transformation from fossil fuels to renewables, clean and sustainable. Shakti's grant making strategy considers the continuously evolving political economy of energy transition, sustainability and growth.
- ❖ By virtue of being a re-grantor, Shakti is able to see an entire field of actors and understand where the capacity doesn't exist. Shakti's value is perceived at levels higher than individual grants. As an aggregator, the understanding of the performance of various grants and their outcomes should be able to provide sufficient insights into what works and who can be the best partner in creating a combined output to meet the intended goals. Shakti is able to envision the value add from different grantee partners and structures programme/interventions by upfront planning. This is an important value add for donors that is helping them meet their expectations. Which grantee partners can add best value and where in the value chain of the programme do they fit in best, are some of the key questions that are being addressed by Shakti in performing its role as a strategic re-grantor. Shakti should continue to explore ways to further improve these functions.
- ❖ Elements that have proven key to Shakti's success to date include the deep technical competence of programme staff, strategic partnerships, convening capacity, some opportunistic grant-making, working collaboratively with both grantees and policy makers, handholding smaller CSOs/NGOs/non-profit organisations, facilitating strategic partnerships, collaborations and coalitions, and providing long term (multi-year) funding commitments and leading the philanthropic community in building capacity of institutions.
- ❖ It is vital that Shakti is mindful of the growing perception of colonisation by the government. Two of the respondents indicated so. Although a close association with the government might have helped Shakti raise its profile and probity in the past five years, the growing perception as the implementation arm of the government, may entail other more significant risks. If this deters donors from granting additional funds, Shakti's relationship with the government could become a self-fulfilling prophecy. Shakti may lose both trust and legitimacy in its role as an independent institution.

Shakti can best fulfill its mission by considering the following high-level recommendations:

- ❖ Shakti should continue playing the roles of a re-grantor, fund manager, development partner, convener, thought leader, coordinator, incubator, integrator, knowledge facilitator, aggregator and collaborator; all of which have been characteristic of Shakti's evolution in the larger sustainability development landscape of India over the past five years.
- ❖ Continue grant-making in the existing thematic areas (i.e. clean power, sustainable transport, climate policy and energy efficiency) by deepening the focus to promote emerging technologies, synergies and markets within the broad contours of the sector.
- ❖ Continue harnessing the power of changing narratives around important themes by generating critical new information and evidence.
- ❖ Identify converging themes to tap cross-cutting opportunities that involve a greater number of interested stakeholders, promise broad-ranging impacts and get the attention of decision makers at all levels.

- ❖ Provide long-term vision and enlighten the path forward for the government on various themes. In the overall vision on sustainability, analyse the political economy of energy and provide a synthesis of where India should be in 2025/2030.
- ❖ It should continue targeting actions at sub-national levels in thematic areas where major policy gaps have been addressed to support meaningful implementation and facilitate impact. Subnational efforts must be focused in few select states that value Shakti's contribution. More importantly long term engagements and support for few select states must be prioritised over short term initiatives in a larger number of states. At the same time, for specific interventions, deploy short-term resources and have a clear exit strategy. Given that the resources are limited, they shouldn't be locked in for the long-term on a single intervention. The strategy should be to occupy more of the intellectual space, demonstrate value from ideas and establish thought leadership.
- ❖ Continue building a field of climate philanthropy by engaging a larger group of philanthropies, CSOs, NGOs, non-profits and building the capacities of organisations for effective deployment in the areas where Shakti operates.
- ❖ It should continue providing multi-year grants to its grantee partners to foster flexibility, build capacity and encourage long-term planning, thereby leading to more meaningful impacts of initiatives.
- ❖ Provide more core grants instead of project-based grants to grantee partners to further enable flexibility and capacity building and to make them more sustainable in the long term.
- ❖ Strengthen communications-and advocacy-related activities by taking risks and setting examples for others to follow. Establish robust internal communication systems, especially with the donors, grantee partners and the board to communicate strategy and get stakeholder buy in. In the grant proposals and gist, provide special emphasis on what motivates the government, how do larger politics play into targeted issues, what is the information required and what sources of information are valuable to the government.
- ❖ Develop mechanisms to more readily track and attribute impact from the full range of grant-making activities and other ways of providing support that are central to Shakti's operating model but not easy to capture in traditional evaluations and without purposeful data collection over time.
- ❖ Shakti must be mindful of the perception of its dual role as a re-grantor and think tank, as both require different approaches and different success drivers. Effective communication about its role, intent and strategy to donors and grantee partners might allay some of these perceptions. Some references and examples of Shakti's international peers could also help build a compelling case for this.

### Organisational development

- ❖ Continue with a flat and lean organisational structure and a disaggregated structure for the non-programme functions to sustain its effectiveness, efficiency and productivity benefits. Any expansion of the organisation, if such a need arises to accommodate growing funding levels and operational strategy could happen within the Shakti's existing structural contours.
- ❖ Identify and explore opportunities for horizontal integration among different programmes, especially for implementing grant-making strategies in intersecting/converging/cross-cutting/overlapping themes and actions.
- ❖ Initiate succession planning for the CEO, CoP and programme leads. A clear plan of action with appropriate budget allocations that explore both internal and external options could be devised.

#### Why should Shakti continue its branding policy?

- Shakti's peers have similar branding policies and are running them effectively
- None of the grantees have objected to the branding policy
- Donors concerns on branding issues with grantees may be misplaced
- Donors concerns about maintaining neutral stance is not effective for Indian conditions
- Drastic changes in branding may undermine Shakti's visibility going forward which is less in some states
- Shakti should not restrict its branding vision to existing donor perceptions. Tomorrow new donors may insist and value strong branding
- Shakti's brand makes it a desirable place for employees to work

#### Why should Shakti dilute its branding policy?

- Shakti is not an organisation that believes in putting itself out in the front and prefers staying in the background. However, Shakti has to make itself visible for the right audience.
- Communications and branding is often an area of review. Is Shakti overdoing and increasing the perception of it being a think tank or is it underdoing and compromising its visibility?

- ❖ The grant-making function in Shakti, designed for CSOs/NGOs/nonprofits, can be reviewed to identify redundant systems and processes for corrective actions. The overall objective of this review should be efficiency improvement (reducing the timeline between basic idea conceptualisation and final award) without compromising the rigor of compliance systems.
- ❖ The annual dialogue can be held once in six months to accommodate the views of the changing stakeholder landscape.
- ❖ Systematise internal processes and practices for learning from successes and challenges and for incorporating that learning into future work.

## **Fundraising**

- ❖ Continue diversifying its pool of international donors and managing credibility and reputational risks that arise from fundraising.
- ❖ Continue exploring domestic fundraising options with a renewed strategy for improving the success rate. Explore ways to make the connection to the broader spectrum of issues such as public health and economic development to appeal to a wider range of philanthropists. Mutual interests could be leveraged while tapping CSR funds. More importantly, evaluate conflicts arising from domestic corporate fund raising. Credibility of grant products (i.e. objectivity and independence) is an important risk to be evaluated while raising domestic funds.
- ❖ Continue to thrust comparative advantages and unique propositions that embed quality and assurance in the services as fund manager so as to enhance the share of core grants over programme-specific funding.
- ❖ Identify and explore opportunities to raise endowment funds and utilise such funds to create real assets (e.g. office space) and secure long term financial security for Shakti. Investigate whether Indian FCRA regulations allow such endowment funds from foreign donations and make informed strategies going forward.

## **Programme strategy and focus**

Shakti's approach to grant making could internalise activities that enable the creation of powerful narratives and messaging that acknowledge that climate change mitigation is a co-benefit, with stakeholders and decision makers placing more importance on sustainability outcomes. Shakti could also look beyond the current policy landscape and broaden its foresight towards neglected legacy issues and emerging challenges to bring them under a more noticeable spotlight.

LED lighting, AQM, off-grid distributed renewable energy, grid integration with renewables, energy pricing, energy storage, sustainable freight transport, energy productivity in the Indian Railways, space cooling, and solar rooftops, etc. are examples of emerging opportunities advanced by Shakti in the past five years. While all of these themes can continue to be focused on in the current policy environment, climate finance, climate change adaptation and resilience are new areas for Shakti to make more systematic effort to facilitate a strategic impact for sustainable energy development.

The clean power, energy efficiency, sustainable transport and climate policy programmes already have a clear strategy with a cohesive set of goals. Staying focused and being nimble in response to changing political economy contexts will be key. Based on stakeholder inputs and our own analysis, we recommend considering the following to refresh programme strategy and goals.

### *Clean power*

- ❖ Set separate goals for distributed renewable energy generation, deployment capacity of energy storage solutions, grid integration infrastructure capacity and eco system, institutional capacity and effective implementation/enforcement of RPOs.
- ❖ For energy-deprived sections of society, set ambitions that reflect electricity service delivery (e.g. number of hours of supply) through DRE-based mini/micro grids.

### *Energy efficiency*

- ❖ Frame medium-term goals that reflect the following:
  - Institutional capacities at various levels to implement and enforce ECBC, appliance standards, PAT regulations
  - ❖ Technical expertise and awareness to implement ECBC
  - ❖ ECBC compliance in model buildings in all the five climatic zones

- ❖ Effective expansion of PAT reflecting the widening and deepening of the PAT-compliance regime, capacity building of SDAs for effective enforcement of PAT M&V guidelines, stringency of standards and effective implementation of ESCerts trading.
- ❖ Set separate goals for energy efficiency advancement in the SME sector. These goals could reflect the amount of financing extended for energy efficiency investments, number of units adopting ISO 50001 standard etc.

### *Sustainable transport*

- ❖ Set ambitions to establish a national framework for monitoring the VKte for all the available modes of transport including the sustainable ones. This framework should be able to disaggregate the VKte for urban and non-urban travel and should be further supported by a robust data collection and management system.
- ❖ Identify convergence of goals with other far-reaching developmental policies of the government and frame targets accordingly.
- ❖ Set separate goals for scaling up adoption of electric vehicles and vehicular charging infrastructure.
- ❖ Set medium-term ambitions to support the effective implementation of vehicle fuel economy star-rating labels.

### *Climate policy*

- ❖ Shakti must focus on raising the climate ambitions of India.
- ❖ Set ambitions to establish a robust monitoring framework that is at par with global standards and binding requirements under the climate accords of Paris and Kigali.
- ❖ Set far reaching goals in AQM.

### *Cross-cutting*

- ❖ Targeting actions at the city level can be an effective strategy for NDC implementation. Cities will be the hubs for economic activity and emissions going forward. Cities are also an intersection of various themes such as renewable energy, energy efficiency, DSM, electric utility reforms, sustainable transportation, low carbon habitats (building and appliance efficiency), all of which enable cross-cutting opportunities for investment and facilitate far reaching impact on stakeholders and the community in general.
- ❖ If Shakti is interested in exploring additional areas of grant-making, we recommend considering the following based on stakeholder inputs and our own analysis.



# Annexure

## List of external stakeholders consulted for this evaluation

<b>Sr. no.</b>	<b>Sector</b>	<b>Stakeholder type</b>	<b>Name</b>	<b>Organisation</b>
1	Climate policy	Grantee	Vaibhav Chaturvedi	Council on Energy, Environment and Water (CEEW)
2	Climate policy	Grantee	Srinivas Krishnaswamy	Vasudha Foundation
3	Climate policy	Grantee	Kiran Pasricha	Ananta Centre
4	Climate policy	Consultant	Amit Khera	McKinsey and Company
5	Climate policy	Policymaker	Manoj Kumar Singh	MoEFCC
6	Climate policy	Policymaker	B Sengupta	CPCB
7	Climate policy	Policymaker	Lokendra Thakkar	EPCO
8	Climate policy	Policymaker	Naveen Kumar	Govt. of Bihar
9	Energy efficiency	Grantee	K S Venkatagiri	CII
10	Energy efficiency	Grantee	Satish Kumar	AEEE
11	Energy efficiency	Grantee	Rajan Rawal	CEPT University
12	Energy efficiency	Consultant	G.C. Datta Ray	DESL
13	Energy efficiency	Policymaker	Ajay Mathur	Formerly BEE, (Now TERI)
14	Energy efficiency	Policymaker	Saurabh Kumar	EESL
15	Energy efficiency	Policymaker	Raju Pandya	GEDA
16	Energy efficiency	Policymaker	Rajiv Kumar	SIDBI
17	Sustainable transport	Grantee	Ashish Rao Ghorpade / Emani Kumar	ICLEI South Asia
18	Sustainable transport	Grantee	Anumita Roy Chowdhury	CSE
19	Sustainable transport	Grantee	Akshima Ghatge	TERI
20	Sustainable transport	Consultant	Samir Kumar Sharma	DIMTS
21	Sustainable transport	Policymaker	Ashok Bhattacharjee	DDA/CSE

22	Sustainable transport	Policymaker	Sumant Kumar	PCRA
23	Sustainable transport	Policymaker	Sidharth Sihag	Udaipur Municipal Corporation
24	Sustainable transport	Academia	Geetam Tiwari	ITRANS
25	Clean power	Grantee	Anshu Bhardwaj	CSTEP
26	Clean power	Grantee	Shantanu Dixit	Prayas
27	Clean power	Grantee	G M Pillai	WISE
28	Clean power	Consultant	Anish De	KPMG
29	Clean power	Policymaker	P. Ravikumar	Government of Karnataka
30	Clean power	Policymaker	G. Prasad	MNRE
31	Clean power	Policymaker	Gireesh. B. Pradhan	CERC
32	Clean power	Policymaker	Desh Deepak Sharma	UPERC
33	Donor	Donor	Leonardo Lacerda	Oak Foundation
34	Donor	Donor	Margarita Parra	Hewlett Foundation
35	Donor	Donor	Matt Baker	Hewlett Foundation
36	Donor	Donor	Justin Guay	Packard Foundation

### *List of internal stakeholders consulted for this evaluation*

- i. Jamshyd N. Godrej - Chairman
- ii. Nitin Desai, Board Member
- iii. Naina Lal Kidwai, Board Member
- iv. Meher Pudumjee, Board Member
- v. Krishan Dhawan, Board Member and CEO
- vi. Chinmaya Acharya, CoP
- vii. Vatsala Joseph, Chief Financial Officer
- viii. Shishir Soti, Head of Partnerships
- ix. Surendra Singh, Head, HR
- x. Aditi Sinha, Communications Manager
- xi. Deepak Gupta, Senior Programme Manager, Power
- xii. Kunal Sharma, Senior Programme Manager, Climate policy
- xiii. Ravi Gadepalli, Programme Manager (Transport)
- xiv. Shubhashis Dey, Programme Manager (Energy efficiency)



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