Impact Measurement Case Study

ONERGY SOLAR

LOCATION: India

Target Beneficiaries: Rural households, institutions and communities

Sector: Renewable energy

Business model: ONergy Solar is a social enterprise that provides innovative solar energy solutions to underserved households, communities and institutions. It operates a vast sales and service network in remote locations across India through regional renewable energy centers (RECs), which carry ONergy Solar's products, and provide technical staff and support services to clients who install solar energy systems.

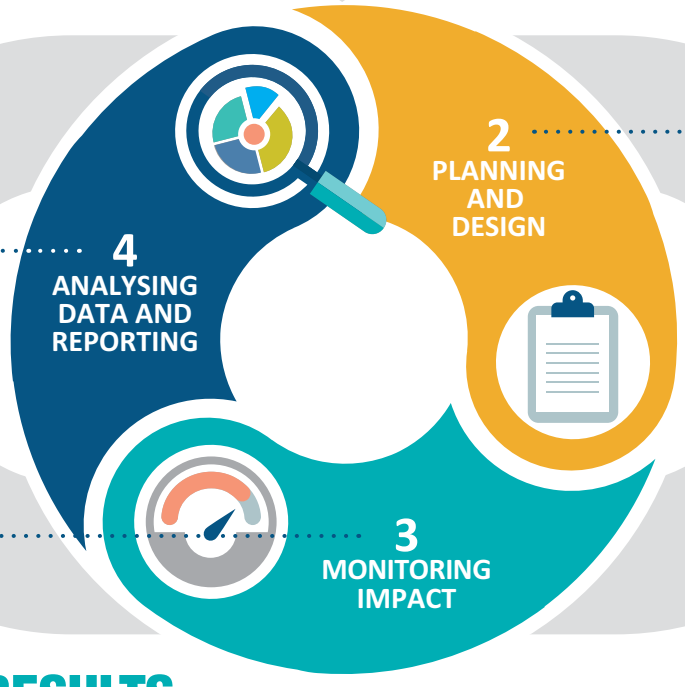
THE OBJECTIVE

ONergy Solar was established in 2009 with a deep commitment to a sustainable and equitable India. While the company has consistently measured the environmental impact of its business, it engaged with BIMS to better understand its clients' needs, the perceived and actual added value of its solutions, and the socio-economic impacts of its business on rural families, communities and institutions.

THE PROCESS

1 ASSESSING READINESS

ONergy Solar is a progressive business with medium readiness for measuring impact. With BIMS, it surveyed individual customer households as well as community and institutional clients to guide its sales and service teams, and communicate its impacts to stakeholders and investors.



Key social-impact metrics measured through the surveys included:

1. customer demographics;
2. customers' electricity and energy consumption patterns;
3. their use of solar energy products and systems;
4. reductions in the use of 'dirty' fuels; and
5. cost savings.

ONergy Solar developed two surveys: one for households using ONergy Solar products and the other for communities and institutions with commercial solar energy installations. Sampling was based on product categories and customer types.

RESULTS

More than **300** customers of several different client types were surveyed. The data indicated that:

(i) **40** percent of households surveyed lived below USD 4 per day in terms of 2011 purchasing power parity in India;

(ii) **75** percent of households faced at least two hours of power cuts each day while **95** percent of households used solar lights at least two hours per day;

(iii) **81** percent of institutional clients would recommend other government departments to install a solar power plant; and

(iv) nearly **71** percent of them believe that their use of dirty fuel has been reduced to some degree.

ONergy Solar is using the impact data to: (i) better segment its market and strategize growth; (ii) assess and update sales and service offerings; and (iii) develop improved communication and marketing tools for new customer segments and investors.

This publication is part of a series of case studies on BCtA Impact Measurement Services (BIMS), a Business Call to Action (BCtA) initiative that demonstrates how inclusive businesses can measure and apply impact data.

BIMS provides 21 participating BCtA member companies with technical expertise and technology to design and implement survey-based data collection for assessing social and environmental as well as operational performance. BIMS is implemented by BCtA with support from implementing providers Arthify and Echo Mobile.

About ONergy Solar

Government of India statistics for 2016[1] show that nearly 25 percent of rural villages across the country still lack electricity. Even in villages that are electrified, only 70 percent of households on average have access to electricity. These statistics vary tremendously across states, with up to 50 percent of villages in the Eastern India yet to be connected to the electrical grid.

ONergy Solar was established in 2009 with the vision *of empowering India and creating a sustainable future through solar energy by 'energizing' 10 million lives by 2022*. ONergy Solar offers a complete range of solar energy solutions to underserved households and institutions, primarily in the Eastern India. This region includes some of the country's poorest states with the least amount of electrical connectivity, and is home to 35 percent of India's base-of-the-pyramid population. According to the 2011 census, the states of West Bengal, Odisha, and Jharkhand contain 16.6 million rural households – or 83 million people – who do not have access to electricity. While new solar energy solutions are available on the market, this region is plagued by poor-quality products and a lack of consumer financing.

ONergy Solar operates as an inclusive business,[2] with products and services specifically designed for those who lack access to basic infrastructure. As of June 2017, the company operated in 12 states, where its solar solutions reached half a million individuals and more than 300 institutional clients. These solutions include: 10 MW-solar rooftop system installations; 250 solar micro grids; more than 500 irrigation pumps; and more than 5,000 solar-powered street lights.

ONergy Solar provides solar energy solutions through two product lines: (i) *rural energy access,* consisting of solar lighting solutions, irrigation pumps and micro grids for both individual customers as well as community and institutional clients; and (ii) *grid and rooftop systems* for commercial institutions, community-based organizations and government agencies. They include design, engineering, manufacturing, installation and maintenance of photovoltaic panels and related products, and aim to lower energy costs for customers by maximizing the efficiency of alternative energy. ONergy Solar also supports its clients with financing by teaming up with banks and by structuring installations so that no upfront costs have to be incurred.

Over the years, ONergy Solar has developed Renewable Energy Centres (RECs) as hubs to manage a wide distribution and servicing network catering to clients in remote areas. Home to a network of rural entrepreneurs and other partners, RECs not only stock ONergy Solar's products, but undertake awareness campaigns, train ONergy Solar staff and clients in managing solar installations, and facilitate consumer financing.

1 https://garv.gov.in/garv2/dashboard/garv

2 Inclusive businesses are commercially viable business ventures that engage people living at the base of the economic pyramid – people with less than USD 10 per day in 2015 purchasing power – as consumers, producers, suppliers, distributors of goods and services, and employees.

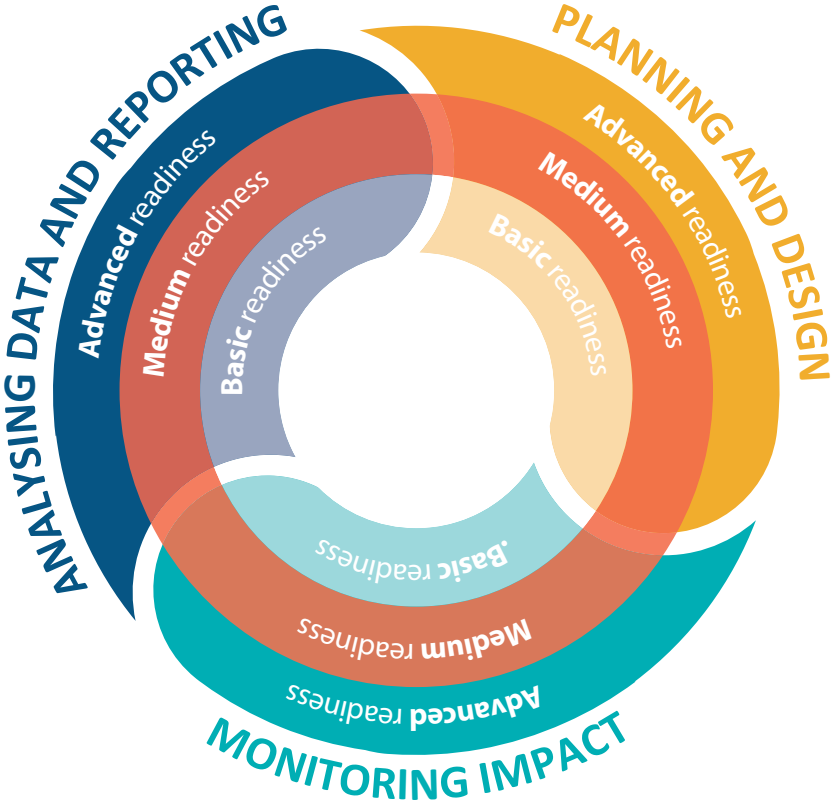
Step 1: Assessing readiness

Effective impact measurement[3] begins with **determining the reason for measuring impact**. A wide variety of tools are available for businesses to measure, manage and report on their social and environmental impact. Approaches range from those generating quick feedback to those requiring a longer timeframe to prove systemic impact. BCtA believes it is important for companies to choose the right approach that meets their business needs given the available resources.

Assessing the company's readiness for impact measurement is a critical first step in determining what impact data to collect, how to collect it and how to use it for business development and social and environmental impact performance. In assessing a company's readiness to measure its impact, BCtA considers its maturity stage and capacity, which is determined based on the company's clarity of purpose, data-driven culture and resources available for data monitoring and collection.

ONergy Solar is a profitable business at the **progressive stage,** which is expanding rapidly to meet its customers' growing energy needs. This expansion is in not only geographic, but also in its scope of products and services – with new technologies, partnerships and projects constantly being explored. ONergy Solar's work on public-sector projects is also increasing: the company has partnered with government agencies such as the National Small Industries Corporation, the Ministry of New and Renewable Energy, and the Solar Energy Corporation of India.

The company has garnered accolades from Indian as well as international organizations, and has attracted investments from social-impact funds such as Oiko Credit and Halloran Philanthropies. With a clear social and environmental mission, ONergy Solar regularly reports on its environmental impact to investors and other stakeholders. While external reporting mainly covers reductions in carbon emissions brought about by ONergy Solar's products, the company has also started tracking beneficiaries' socioeconomic status and other operational data related to social impacts, which means it has a **medium readiness** for measuring impact.



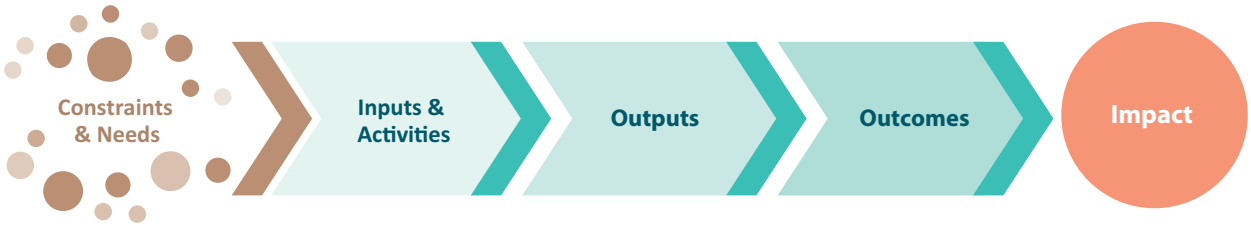
3 In this case study, 'impact measurement' refers to the measurement of social, economic and environmental performance of inclusive business.

Step 2: Planning & design

The planning step involves developing an Impact Value Chain[4] that links business goals, strategies and operations to outcomes and impact related to the Sustainable Development Goals (SDGs)[5]. The Impact Value Chain is the basis for developing impact metrics and indicators that address the needs identified in the previous step.

The Impact Value Chain guides companies in determining what to measure and where to collect data by mapping business goals, strategies and operations against outcomes related to the SDGs. For ONergy Solar, metrics related to understanding clients' needs, including the perceived and actual added value of its solutions, and the socio-economic impacts of its business on rural families and communities had never before been measured.

ONergy Solar's Impact Value Chain



Constraints & Needs

- Lack of infrastructure for electricity
- Distrust of solar energy products, which are seen as easily breakable and fragile
- Prohibitive initial cost of solar energy systems

Inputs & Activities

Develop portfolio of standard and customized solar energy products to meet market needs

- Testing results of new product offerings
- Anticipated social and environmental benefits at time of product selection

Set up REC & distribution partnerships

- Annual growth in RECs
- Number of active distributors per REC

Provide alternative financing services

- Percent of new customers asking for financing support

Outputs

Enhanced customer awareness/marketing

- Percent of target market aware of benefits of solar energy
- Percent of target market aware of ONergy Solar (brand and products)

Increased product sales & installation

- Percent change in sales/installations by product
- Percent market share in different regions
- Year-on-year total solar-energy capacity

Improved after-sales services

- Frequency of service/support required by product/installation

Outcomes

Increased customer-base and access to renewable energy

- Year-on-year customer base by product line
- Percent change in solar energy usage across market segments

Decreased usage of dirty/fossil fuels

- Percent reduction in dirty fuel consumption per household due to ONergy Solar solutions

Increased access to affordable products

- Cost saving due to ONergy Solar solutions

Impact

Reduced carbon emissions

- CO_2 emissions per household in market areas

Improved living standards of rural households

- Changes in electricity consumption by use in market areas
- Year-on-year changes in customers' incomes and asset-ownership
- Changes in overall livelihoods and well-being

Larger renewable energy ecosystem

- Change in market size and numbers of competitors, distributors, vendors, etc.

Decision-making questions:	Which products and services need to be developed or enhanced?	Which activities need to be focused on to ensure a solid reputation and customer satisfaction?	Which external actors are driving or limiting renewable energy use?	Other than by reducing carbon emissions, how can ONergy Solar increase its benefits to customers and the larger ecosystem?

4 The Impact Value Chain integrates multiple approaches such as the theory of change, results chain, logframe and business value chains.

5 Adopted in September 2015 by all United Nations member states, the SDGs are a set of 17 global goals and 169 targets related to key development issues facing society today. Countries aim to achieve them by 2030.

Step 3: Monitoring impact

To monitor impact, BIMS recommends that companies collect data on their operations as well as social and environmental performance on an ongoing basis. Businesses can assess data from primary and secondary sources such as invoices, inventories, customer registrations, market-research reports, social media, surveys and polls.

Identifying sources of data is critical for developing data-collection plans using the Impact Value Chain. Many companies already have data that can be used for impact measurement. BIMS suggests that companies first determine if they can analyse the data they already have. Only if this is not possible should they plan on collecting new data.

ONergy Solar's products require that the company keep track of all its customers and sales for warranty purposes, after-sales service and to assess its carbon-credit eligibility. While most of these data are simple, they allow ONergy Solar to tap into a database of customers in order to request more information when needed. ONergy Solar's operational data, which are collected in the regular course of its business activities, consist of village-level data, customer information, data on customer satisfaction and pre-installation, pre-dispatch and post-installation data.

Through its engagement with BIMS, ONergy Solar initially developed five surveys for: (i) branding; (ii) operations; (iii) technical support; (iv) household customers; and (v) institutional customers. However, due to time and resource constraints, only the household and institutional customer surveys were carried out. ONergy Solar plans to integrate questions from the remaining surveys into its regular operational reporting activities.

Survey implementation

As a BIMS participant, ONergy Solar wanted to better understand its social impact by customer type, product category and region. Only the customer type and product categories were used to stratify the sample because regional variations were expected to be minimal. Two different survey tools were created – one for household customers who had purchased ONergy Solar solutions for their domestic needs and another for institutional and community clients who had purchased larger-ticket solutions for commercial reasons, benefiting larger number of people. The products were differentiated based on ONergy Solar's two product lines: rural energy access and roof-top/grid systems.

- Household Customer Survey: ONergy Solar field staff relied on a list of customers that they had on file to carry out the household customer survey. While sampling was not by region, efforts were made to collect data from as many RECs as possible in order to engage the field staff at the RECs in the impact-measurement process. In all 167 household customers who had purchased solar lanterns and micro-grids were surveyed.
- Institutional Customer Survey: A similar approach was taken with institutional customers who had purchased larger installations such as rooftop power plants and street lighting systems. In all 145 commercial customers and beneficiaries were surveyed across twelve RECs.

Step 4: Analysing data and reporting

While the purpose and usability of impact data can vary for each inclusive businesses, in general the results of impact measurement are used to answer one or more of the following questions:

1. Who is being impacted?
2. How are they being impacted?
3. What are the drivers contributing to or limiting this impact?
4. How can this impact be scaled up and linked to the SDGs?

Who is being impacted?

ONergy Solar's solutions cater to populations that lack basic energy infrastructure and therefore depend on inefficient and dirty energy sources like paraffin, kerosene, diesel and other fossil fuels. Most of ONergy Solar's clients reside in remote rural areas and are engaged in agriculture. Customers' income levels were measured in the household survey using the Progress out of Poverty Index for India and through self-reported monthly household income. These data showed that: 40 percent of surveyed customers lived below USD 4 per day based on 2011 purchasing power parity; and 84 percent reported incomes below USD 8 per day. In addition, 75 percent of them did not have electricity for at least two hours each day. Similarly, the institutional client survey results showed that 79 percent of respondents did not have electricity for at least one hour per day.

How are they being impacted?

ONergy Solar's household customers use their solar products mainly for lighting and charging mobile phones, whereas community-level clients use the products for street lighting and pumping water into fields. Institutional customers use roof-top systems and micro-grids to save on grid-based electricity and diesel generator costs. While a handful of customers had purchased solar water-heater systems, their use and demand were low.

The greatest impact of ONergy Solar's solutions is replacing dirty fuels and reducing carbon emissions. Customers' survey responses showed that 53 percent of households use solar light between two and four hours daily, with a related reduction in fossil fuel costs of approximately USD 4 per month. In addition, 92 percent of households reported children's increased use of the solar lights. Community-level impacts included convenience and increased access to water, with 75 percent of farmers replacing diesel generators with solar irrigation pumps that run two to four hours per day. Institutions saved an average USD 13 per month after installing solar lights.

What are the drivers contributing to or limiting this impact?

The key external factors affecting ONergy Solar's impact are: (i) government supported grid-based electrification of rural villages; (ii) government subsidies and support for solar solutions; (iii) the cost of production and energy efficiencies of solar solutions; and (iv) the cost of alternate energy sources, especially carbon-based fuels. ONergy Solar also found that the upfront capital costs of household solar solutions – accompanied by a perception that solar energy solutions are unreliable – deter people from investing in and adopting these solutions. Therefore, the company's current strategy is to focus on government and commercial clients instead of household solutions. In this way, it can exploit economies of scale in terms of profitability, use and environmental impact.

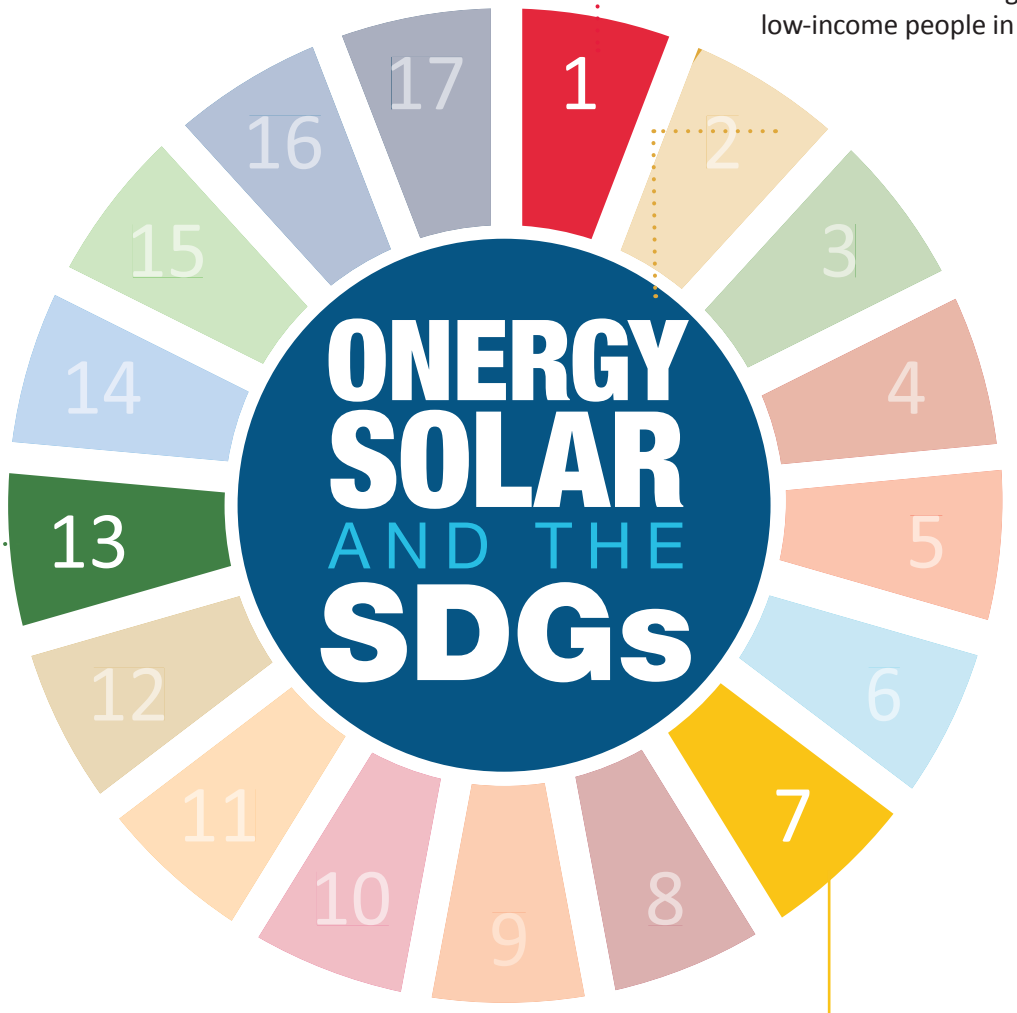
How can this impact be scaled up and linked to the SDGs?

The main objective of BIMS is to support inclusive businesses in adopting impact measurement practices that help them to plan, monitor and deliver on their intended social and environmental impact – and contribute to achieving the SDGs.

Using the Impact Value Chain, ONergy Solar identified the following SDGs that are in line with its intended impact:

SDG 1 NO POVERTY

As a social enterprise, ONergy Solar's mission is to provide affordable solar energy solutions to low-income people in rural India.



SDG 13 CLIMATE ACTION

To date, ONergy Solar has impacted over 500,000 lives by providing energy solutions to more than 100,000 households while saving 24,890 metric tons of CO_2 emissions.

SDG 7 AFFORDABLE AND CLEAN ENERGY

The company has demonstrated that: (i) 75 percent of farmers who purchased solar irrigation pumps replaced diesel generators for pumping water; (ii) 71 percent of customers surveyed reported a reduction in fossil fuel use by USD 4 per month; and (iii) 92 percent of households reported that their children had increased the household's use of solar lights.

Lessons learned from ONergy Solar's impact measurement

Measuring long-term impact goals requires assessing day-to-day operations

As a progressive business that is still developing its product and service portfolio, ONergy Solar needed to link its operational activities to its long-term goals. While it tracked outputs such as units sold, installations completed and after-sales visits made through BIMS, ONergy Solar's management looked for insights into the progress it was making by assessing the links between its strategies, activities and goals. Therefore in addition to quantifying the reduction in carbon emissions through its products, ONergy Solar's management is now more aware of the drivers and constraints that impact its social goals.

Impact measurement can and should involve a variety of stakeholders

Inclusive businesses by definition work in tough market conditions and have to constantly adapt their operations and products to sustain themselves. Over the years, ONergy Solar has had to pivot its business from selling solar products directly to households to focusing on institutional clients requiring large-scale renewable energy solutions. While this change followed market dynamics, ONergy Solar's management believes it can proactively anticipate market needs in the future by involving a variety of stakeholders through its impact-measurement activities.

Impact measurement should be integrated into field staff's daily activities

During the initial phase of BIMS implementation, ONergy Solar's field team (sales and technical staff) had some challenges in scheduling regular data collection activities as locations for carrying out surveys and providing installations and services were not always the same. Going forward, to achieve greater efficiency and effectiveness, ONergy Solar intends to collect very specific and limited social-impact data by dovetailing data collection with field staff's existing workload and linking the data to performance parameters that are relevant to the field staff.

Business Call to Action (BCtA) aims to accelerate progress towards the Sustainable Development Goals (SDGs) by challenging companies to develop inclusive business models that engage people at the base of the economic pyramid – people with less than USD 10 per day in terms of 2015 purchasing power parity – as consumers, producers, suppliers, distributors of goods and services, and their employees.

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Ministry of Foreign Affairs of the Netherlands

MINISTRY FOR FOREIGN AFFAIRS OF FINLAND

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