The Climate Group — Study on off-grid energy business models in India

Case studies of high potential enterprises

This case study has been developed by The Climate Group in collaboration with Dalberg Global Development Advisors. The case study is based on public data available on the enterprise, conversations with management teams and operational staff at the enterprise and field visits to operational sites. Throughout the document, we have included all data sources. Our observations are based on best available data, but should not be seen in any way as a financial recommendation.
ONergy emerged from SwitchON as a for-profit enterprise to sustainably deliver last mile solar solutions to rural communities

Company evolution

2008
• SwitchON is started as a non-profit for climate change advocacy; Founders, Vinay and Piyush Jaju realize the key to selling solar is the last mile sale

2009
• ONergy is started as a for-profit company that can make last mile sales to rural customers

2010
• First Renewable Energy Center (REC) is started to sell solar lanterns and lighting products
• Support from Selco Incubation Centre

2011
• ONergy begins selling solar home systems

2012
• ONergy expands into Odisha on a contract with MNRE and UNDP

2013
• Started InONvation incubator to develop new products and innovations

2014
• ONergy expands into Jharkhand.

Regions of operation

HQ: Kolkata, West Bengal

Source: Dalberg interviews and analysis; company websites;
ONergy distributes products through its local branches as well in partnerships with local NGOs and third party distributors.

**Design and manufacturing**
- ONergy’s Design Team designs a product with support from SwitchON.
- Designs for parts are sent to an OEMs\(^1\) both domestic and abroad who manufacture the components to specifications.
- Parts for solar products are sent to a storage facility.

**Assembly, storage, and delivery**
- Products are assembled from components and quality check at central warehouses.
- Assembled products are stored until needed by local ONergy branches called Renewable Energy Centers (REC).
- Products are delivered to RECs or partners after orders come in.

**Distribution by channel partners**
- Products reach end-consumers through one of ONergy’s 200 distribution partners or RECs.
- These partners can be local VLEs\(^2\), NGOs, MFIs, Self Help Groups, or larger dealer-distributors; RECs are often located with partners.
- While “Normal Partners” work with ONergy’s RECs to make sales, a second type of partner called “Super Partners” have their own rural dealer-distribution network.

Source: Dalberg interviews and analysis.
1. Original Equipment Manufacturer
2. Village Level Entrepreneur
ONergy collaborates with SwitchON to develop new products and designs

Punam Energy Pvt. Ltd.
For profit social enterprise which sells solar products

SwitchON
Non-profit NGO that engages in research and advocacy for climate and energy issues

1. Researching a solution
ONergy and SwitchON identify and research potential innovations. This could be a new product, design, or business model.

2. Piloting a solution
ONergy and SwitchON pilot a new solution in the field and refine the solution from these results.

3. Implementing the solution
ONergy will develop incorporate successful pilots into new lines of business.

Example: SwitchON and ONergy have developed solar-powered, irrigation pumps and micro-grids which can be sold to local entrepreneurs. Currently, they are collaborating on a product for solar powered cold-storage and refrigeration and a solar powered computer.

Source: Dalberg interviews and analysis
ONergy has developed an innovative entrepreneur-led model for its micro-grid and water pump irrigation businesses

1. Solar micro-grids
   - 200W – 10kW solar plant
   - ONergy sells plant to third-party organizations such as TERI and local entrepreneurs
   - Plant cost is USD 1000-41000
   - Third-party sells the plant to a local entrepreneur
   - Bank linkage is done for entrepreneur
   - Entrepreneur sells power to local households
   - Power is enough to cover basic lighting and mobile charging

2. Solar irrigation pumps
   - 1HP – 5HP solar powered pump
   - Costs USD 2400-12000
   - ONergy sells irrigation pump to local entrepreneur/organizations
   - Entrepreneurs buy pump by paying ONergy on usage basis
   - Entrepreneur sells water to local farmers for irrigation
   - Farmers pay ~USD 1.17 per hour to use pump
   - The entrepreneur recovers costs over 4 years

ONergy has completed 100 micro-grid projects and 5 irrigation pump projects in West Bengal, Odisha & Jharkhand. ONergy plans to build 100 pumps and more micro-grids in the future.

Source: Dalberg interviews and analysis
Since ONergy partners with distributors for last mile sales, margins on products are substantial; ONergy has been profitable since 2012.

**Unit level cost breakdown of a 75W SHS**

(% of retail price in USD)

<table>
<thead>
<tr>
<th></th>
<th>Retail price</th>
<th>COGS</th>
<th>Distribution &amp; Installation</th>
<th>Marketing &amp; Opex</th>
<th>Profit margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>USD 333 (INR 20,000)</td>
<td>58%-66%</td>
<td>10%-18%</td>
<td>4%</td>
<td>20 - 28%</td>
<td></td>
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</tbody>
</table>

Partners receive commission for distribution and installation.

**ONergy PnL 2013 - 14**

‘000 USD

- Total Revenue: 746.9
- Total cost: 743.0
- Net profit: 3.9

Source: Dalberg interviews and analysis

1. Renewable Energy Centers
ONergy plans on driving higher revenues through rapid geographic and branch expansion

### Expansion plans and branch level economics

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual Revenue ('000 USD)</th>
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<tbody>
<tr>
<td>2012</td>
<td>360</td>
</tr>
<tr>
<td>2013</td>
<td>760</td>
</tr>
<tr>
<td>2014</td>
<td>1,400</td>
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<tr>
<td>2015(e)</td>
<td>2,800</td>
</tr>
<tr>
<td>2016(e)</td>
<td>4,900</td>
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**Target:**
- ONergy plans to increase its existing REC to 50
- The expansion would translate to hiring 170 employees and developing 1000 rural entrepreneurs

**Necessary Investment:**
- Typically it takes 3-4 months to operationalize an REC and move beyond pilot
- Initial financial investment for an REC is USD 17,000

**Recovery of costs:**
- An REC breakeven happens in 1st year itself. Payback on investment is in the 4th year.

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*ONergy plans to sell a total of 130,000 units of a range of solar solutions during this time period*

Source: Interviews with the ONergy team; Dalberg analysis
ONergy plans to expand its entrepreneur led businesses and deepen penetration in the short term and diversify product portfolio in the long term.

**Operations till date**
(2009 – 2014)

- Established as a for-profit entity to promote sustainable models for energy access
- Developed a Renewable Energy Center (REC) model which explored both direct sales and a partnership based model
- Explored entrepreneur led models for larger ticket size products such as irrigation pumps and mini-grids
- Geographical expansion in West Bengal, Odisha and Jharkhand
- Continued association with SwitchON for R&D, training as well as larger advocacy for climate and energy issues
- Development of the Innovation incubator to replicate new solutions
- 30 – 40% of consumer mix consists of off-grid households
- Impacted 200,000 lives with operations in over 1500 villages

**Portfolio diversification and expansion**
(2020+)

- Focus on a developing and selling a larger portfolio of products: cookstoves, solar water heaters
- Develop technology for more sophisticated products and continue to be a dynamic player innovating as per the needs of the customer and stay in tune with the advances in technology
- Develop technology for commercial purposes: refrigeration technology, technology for weavers and artisans, etc.
- Expansion into north-eastern states in India

**Scale up**
(2015 – 2020)

- Scale up by deeper penetration into existing areas, expansion in newer regions, adding more products as per consumer demand.
- Explore a decentralized mini-grid model, run by VLE’s
- Further strengthen asset light (entrepreneur led) models for sales/service from solar irrigation pumps, mini-grids, etc.
- Deeper penetration in existing regions of operations (especially Bengal and Odisha, owing to large demand and a conducive environment for partnerships)
- Strengthen after-sales support for RECs
- Grow sales to institutional and commercial players, but by a small about
- Two-thirds of investment to be directed towards sales to underserved households

Source: Interviews with the ONergy team; Dalberg analysis
1. Village Level Entrepreneur
### Major challenges include development of strong partnerships, branding and setting up internal systems and process that can aid scale up

<table>
<thead>
<tr>
<th>Capability to manage partnerships for sales and consumer finance</th>
<th>Description</th>
<th>Mitigation strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>• ONergy currently sells products to distribution partners who take care of customer acquisitions, credit assessment and last miles sales, with some direct-sales</td>
<td>• In the long term, ONergy has plans to hire dedicated Business Development and partnership management staff</td>
<td></td>
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<tr>
<td>• In the future ONergy wants to move to a more dealer-distributor model alongside other asset-light business models that are entrepreneur led</td>
<td>• ONergy to focus on developing separate channels – cash sales, bank financing, microfinance, institutional customers</td>
<td></td>
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<tr>
<td>• However, currently Onergy has a diverse set of partnerships ranging from MFIs, cooperatives, NGOs, etc. and does not have a standard process to look for partners, initiate or retain partnerships</td>
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<tr>
<th>Obtaining subsidies in a timely manner</th>
<th>Description</th>
<th>Mitigation strategy</th>
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<tr>
<td>• In the absence or delay in receiving Government subsidies, banks are hesitant to lend to consumers</td>
<td>• ONergy plans to strengthen partnerships in the near future and to deepen penetration in regions such as Odisha</td>
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<tr>
<td>• In addition, ONergy’s network of other consumer finance partners is relatively nascent</td>
<td>• ONergy to focus on developing financing partnerships with cooperative banks and NBFC which are not subsidy dependent</td>
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<tr>
<td>• This creates a bottleneck in selling low-ticket size products that need consumer financing</td>
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<th>Developing a strong brand</th>
<th>Description</th>
<th>Mitigation strategy</th>
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<tr>
<td>• ONergy sources equipment from multiple OEM's as well as enterprises such as Selco leading to an inconsistency in branding of their products (some products carry the ONergy logo, while some others might be co-branded or have the logo of the supplier)</td>
<td>• ONergy is looking to make it’s product branding more uniform and sales of only ONergy branded products</td>
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<tr>
<td>• This could deter brand visibility and recall for ONergy amongst rural household customers</td>
<td>• ONergy through it’s R&amp;D work with SwitchON is trying to develop capabilities that can develop technology catering to specific needs of rural customers</td>
<td></td>
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<tr>
<td>• In addition, ONergy also faces competition from large players such as Samsung in specific product categories like low cost TVs</td>
<td>• ONergy’s wide portfolio of products spread the risk of possible competition from other players</td>
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<tr>
<th>Streamlining internal systems and process to prepare for scale up</th>
<th>Description</th>
<th>Mitigation strategy</th>
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<td>• As ONergy prepares for the next phase of growth, it will be crucial to improve internal functions as well as standardize operating processes and bring in greater operational efficiency</td>
<td>• ONergy is looking to set up strong monitoring and governance systems</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• ONergy is looking to integrate technology such as mobile/sales-force apps, barcoding, etc. to generate greater efficiency while also capturing data that can be used for monitoring and other analysis</td>
</tr>
</tbody>
</table>

Source: Interviews with the ONergy team; Dalberg analysis

1. Original Equipment Manufacturers
Given growth plans, ONergy is looking to address specific org development and financing needs

**Short term**

*Target: USD 4.9 million by 2016*

- No plans to extend the management team
- Expansion of mid-management teams to oversee REC\(^1\) branch operations
- Hiring of sales and technical team members at REC1 levels, as ONergy deepens penetration in Odisha, West Bengal and Jharkhand

**Long term**

*Target: N/A*

- Building out a stronger technical team at the HQ\(^2\) level
- Bringing in dedicated staff to handle institutional sales, and take care of Business Development and partnerships

**HR needs**

- Looking to raise INR 8 Crores (USD 1.5 million) in the next two years largely for working capital needs as well as expansion through setting up of REC\(^1\)s

**Financing**

- ONergy to explore working capital financing through debt (commercial and non-commercial terms)

Source: Interviews with the ONergy team; Dalberg analysis

1. Renewable Energy Centers
2. Headquarters
ONergy has potential to develop into a rural white goods company for clean energy solutions

- **Potential to grow into a diversified clean energy products company in the future.** ONergy sells a wide variety of products such as solar home systems, lanterns, TVs, water heaters and irrigation pumps that see a strong demand today. In addition, ONergy also has plans to develop innovative products such as solar powered computing systems. The diversity in ONergy's product portfolio allows the company to spread risk and not let competitors or new entrants affect a significant section of the business. ONergy’s focus on customizing technology for consumers and improving after sales service will enable them to address rural needs in the long term. Also, ONergy currently has 200 distribution partners and their focus on strengthening this model, will ensure the company has strong rural distribution networks to sell multiple white goods in the future.

- **Strong focus on constant technology and business model innovation.** In collaboration with its non-profit partner SwitchON, ONergy is able to dedicate financial resource to develop new products and explore new business models. Given, ONergy engages in last mile sales through its network of partners, the company is keen to remain flexible in terms of developing partnerships and business models that are likely to succeed in specific regions. In term of products, ONergy is developing products like solar computers and solar powered refrigeration for commercial enterprises. Interesting business models include entrepreneur led model for irrigation pumps and mini-grid service provision. Through innovative business models, ONergy seeks to address more than one challenges – for e.g., Entrepreneur led models make for an effective third-party sales channel, but are also likely to increase overall brand visibility for ONergy both by word-of-mouth as well as large visible installations.

- **Proven profitability and a strong revenue stream likely to grow substantially in the near future.** ONergy made USD 1.4 mn in revenues in 2014, and is breaking even. ONergy’s gross margins are at 20 – 30%, given an operational model that relies on partners for customer acquisition, last mile sales and payment collections. In the future, ONergy is likely to move towards a dealer-distributor for product sales reducing operational costs further. In addition, ONergy would continue to develop other channels of sales through banks, MFIs and institutions. In addition, ONergy plans to deepen penetration in existing regions that is likely to drive volumes and help ONergy reach a target of USD 16 – 17 mn in revenues by 2020 (at 50 – 70% year on year growth). Alongside solar home systems, ONergy is likely to expand its their micro-grids and irrigation pump business and provide a complete range of solar solutions.
ONergy’s management team has strong experience in marketing and finance.

**Relevant experience**

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Experience</th>
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<tbody>
<tr>
<td>Vinay Jaju</td>
<td>Co-founder, COO</td>
<td>SP Jain, Mumbai, General Electric, Australia, Grameen Shakti, Bangladesh</td>
</tr>
<tr>
<td>Piyush Jaju</td>
<td>Co-founder, CEO</td>
<td>Economics, St. Xaviers College, Kolkata, Financial services and investment banking</td>
</tr>
<tr>
<td>Alok Piri</td>
<td>VP - Sales and marketing</td>
<td>MBA Goa Institute of Management, 15 years in sales and marketing in rural and commercial sectors</td>
</tr>
<tr>
<td>Sudpita Dawn</td>
<td>GM - Operations</td>
<td>Commerce, St. Xaveriers Kolkata, Six Sigma Certification ISI</td>
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<tr>
<td>Shweta Maheshwari</td>
<td>Communications Head</td>
<td>Masters in marketing and advertising, JWT, Dentsu</td>
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</tbody>
</table>

Source: Dalberg interviews, company website