SME Climate Hub

ACTION GUIDE

Switching to Renewable Electricity in India

A practical guide to help MSMEs adopt renewable energy.

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Switching to Renewable Electricity

Introduction

This guide aims to assist MSMEs transition to renewable energy sources. It focuses on electricity, but you should also consider other types of energy use - such as heating, cooling, and steam - depending on the nature of your business.

Solutions already exist to halve emissions by 2030, and it's feasible that 90% of global electricity could come from renewable sources by 2050. Making the switch to renewable energy in your business is the climate solution with perhaps the greatest impact on emissions, making it a vital part of aligning your organisation with the goal of keeping global heating below 1.5°C.

India has set strong climate commitments including achieving 500 GW of non-fossil fuel energy capacity and sourcing 50% of its electricity from renewables by 2030. As the country advances toward its net-zero target by 2070, a shift to renewable energy is not just an environmental imperative—it's a strategic opportunity for MSMEs to cut energy bills, protect your business from power outages and rising costs, and make your operations future ready.

India's MSMEs use nearly 25% of all electricity consumed by the industrial sector—most of this comes from coal and other fossil fuels. If MSMEs start using green energy (like solar or wind), it can help India meet its climate goals.

This also gives Indian MSMEs a chance to get ready for export markets, where global buyers are increasingly preferring low-carbon products across supply chains. This means renewable energy is about competitiveness and long-term market advantage. While the new trade rules—such as CBAM in the European Union are still evolving and may grant temporary exemptions to small businesses—they may soon require products to be made using clean energy.

Reducing energy use

See Box 1 for Government Schemes and Incentives for Indian MSMEs

Reducing energy use is an important first step - not only will it reduce emissions, but it will also lower costs. So, regularly monitor your energy usage and look for savings and efficiency opportunities. Check for government advice or incentives**Error! Reference source not found.** that can help you make this transition and boost energy efficiency - there may be grants, tax rebates and other schemes available to reduce the up-front costs. See other guides on the SME Climate Hub for more guidance on how to reduce energy usage in your operation. For rented/leased premises refer Box 2.

Measure and Understand

Start by working out your annual consumption of each different type of energy you use (electricity, district heating, fossil gas, steam, district cooling). This information can be provided by your suppliers. Use a smart

The Government of India is facilitating installation of smart meters to enable automatic measurement of energy flow. MSMEs and DISCOMS (Distribution Companies) should work together for the installation of smart meters. DISCOMs can leverage the funding available from the Revamped Distribution Sector Scheme (RDSS) for installations. Benefits include fewer power disruptions, improved billing transparency, and enabling conditions for clean energy adoption.

meter to collect data on the energy use by your organisation and consider how it may change in the coming years.

> MSMEs can also engage a certified energy auditor to identify areas of energy wastage and receive expert recommendations- while leveraging available state-level subsidies that help cover the cost of the audit. For eg: subsidies available in Tamil Nadu and Haryana.

Knowing your usage is essential as energy supplier options and prices often depend on volume. Further granularity in power consumption data like 15 min consumption data shall be required for renewable power procurement process. Energy delivered through grids is typically measured and sold in kWh. So, to track your progress in switching to renewables, look at the percentage of your purchased energy (in kWh) that comes from renewable sources.

KEY ACTIONS

A range of actions can help businesses transition to renewable energy. Box 3 at the end of this document provides a practical checklist of such actions, while a few key options are described below:

On-Site Renewable Energy Generation

If possible, install renewable energy sources at your location, or encourage your landlord to do so. Of course, this may not be feasible for all organisations and probably won't cover all your electricity needs. See our guide on installing renewable energy for more information. Find case studies on how SMEs have done this at our learning tool Climate Fit: Climate Action for your operations.

> MSMEs can use the rooftop space or ground space available in their premises to install renewable energy project. This provides lowest cost of renewable power and MSMEs should consider maximising potential of this route. Roughly, it could cover 10-15% of your energy needs depending on the rooftop space availability. It is however important to choose the right business models to minimize risk and maximize returns.
>
> India specific MSME case study 1 and case study 2 are available on the SME Climate Hub India Page. Cluster level case studies can be found here.

Power Purchase Agreements

The next best option is a long-term (15-25 years) power purchase agreement (PPA) with a renewable energy project developer. This supports renewable energy growth. PPAs are a significant commitment, and it is therefore crucial to fully understand the terms and potential impacts on your budget. For smaller companies, teaming up with others to acquire an "aggregated" PPA can reduce costs and protect against price volatility (see guidance on PPAs here and aggregated PPAs here).

In India, Green Energy Open Access is a mechanism that allows consumers to procure green electricity directly from green energy producers or Independent Power Producers (IPP), regardless of location, by giving access to national transmission and distribution systems.

Eligibility: Any individual consumer or group of consumers with a sanctioned load of more than 100 kW are eligible for open access. However, for captive model, there is no minimum project size requirement – even smaller MSMEs can participate if they join together.

Regulation: Permissions, charges, and rules for open access differ from state to state. MSMEs must check with their State Electricity Regulatory Commission (SERC) and local DISCOM before proceeding.

MSMEs can participate via:

1) Group Captive Models: In this model, the IPP develops and operates the renewable project, while consumers:

• Own at least 26% stake in the project (cumulatively).

• Consume at least 51% of the power generated annually.

This allows multiple MSMEs in a cluster or association to pool demand and benefit together.

2) Third Party Sale model: In this model, the IPP develops, owns and operates the renewable project while consumers buy power from IPPs under a mutually agreed PPA. This means no upfront capital is needed by consumers. It may be noted that if the sanctioned load is above 100kW, then consumers are eligible for simple PPA with the IPP. However, if the sanctioned load is below 100kW as in case of smaller MSMEs, they can join hands through an aggregator who combines their demand and signs a larger PPA on their behalf, reducing cost and complexity. This is called demand aggregation.

Virtual PPAs can also be explored by MSMEs in states where renewable energy potential is low, or where land, transmission or regulatory challenges exist. These are financial contracts where you continue using grid electricity but purchase renewable energy certificates (RECs) linked to a renewable project elsewhere. Virtual PPA guidelines were recently proposed in India for commercial and industrial consumers.

Green Tariffs

Many companies find it easiest to switch to a green tariff from an energy supplier. When you sign up for a green tariff, your energy supplier commits to sourcing a certain share (or all) of electricity from renewable energy (this could be a combo of directly procured RE and purchased Energy Attribute Certificates (EACs)). In some countries, multiple suppliers offer green tariff options you can compare. In others (like where power is regulated), you may check with your local utility provider for tariff rates.

In some countries, green tariffs are bundled with EACs which are tradable certificates proving renewable energy generation. However, buying these certificates alone does not guarantee the physical electricity you use is directly renewable; it certifies that an equivalent amount has been generated elsewhere.

When you pick a Green Tariff make sure to check:

- Additionality: Does your green tariff support new renewable energy projects? Or is it just using certificates from old projects? It's best if your tariff helps create new clean energy.
- Quality of the green power: Look for tariffs backed by EACs or guarantees of origin. Ensure these certificates are *retired* (cancelled) after purchase to avoid double counting. Trusted labels like Green-e (USA) or EKOenergy (Europe) can indicate genuine products.

Most Indian DISCOMs and private suppliers offer Green Tariffs, a type of electricity pricing structure where customers pay a premium for electricity generated from renewable sources like wind, solar, or hydroelectric power. This route is one of the simplest ways to procure renewable power, requiring only that the consumer notify their local DISCOM of the desired percentage of renewable power to be procured based on their current power consumption. In exchange, the DISCOM issues a green bill as proof, but since the green attributes are retained by the DISCOM, it does not allow the consumer to make a verifiable and unique claim about their renewable power procurement.

In the Indian context, EACs are officially called Renewable Energy Certificates (RECs). These are certificates that represent proof that 1 MWh of renewable electricity was generated. These can be bought or sold in Indian Energy Exchange (IEX), Power Exchange India Limited (PXIL), and Hindustan Power Exchange (HPX).

For MSMEs power exchanges can be complex but RECs can be an effective way for MSMEs to meet voluntary or mandatory renewable energy targets.

MSMEs can use three practical steps before using RECs to ensure their claim to renewable power is unique and traceable:

1) RECs should be only purchased through approved power exchanges like IEX, PXIL, HPX or power trader.

2) A certificate of purchase with a unique number must be obtained from the supplier to ensure your claim is unique and traceable.

3) Ensure that procured RECs are from accredited renewable energy generator with state agency/ Regional Load Despatch Centre (RLDC) and registered with National Load Despatch Centre (NLDC).

4) Confirm that RECs will be retired (cancelled) after being allocated to you, so they are not reused or double counted.

Since India follows a 'One Nation, One Grid' system the physical location of the RE project is not important. What matters most is that RECs are legitimate, retired and transparently issued. MSMEs can also buy other international traded RECs like International-RECs (I-RECs) or Tradeable Instrument for Global Renewables (TIGRs).

- Where the green power comes from: The green energy should ideally be from the same country or local grid you use. Buying certificates from far away may not truly make your electricity greener locally.

Engage with Employees

Switching to renewable energy becomes simpler with lower energy use. Encourage your team to find ways to cut energy consumption across your operations, including for your buildings, IT equipment, data storage, and more.

Engage your team during energy-focused days such as:

- Energy Conservation Day (Dec 14)
- World Environment Day (June 5)
- National Renewable Energy Day (Aug 20)

Encouraging employee participation fosters a culture of sustainability and innovation.

Box 1: Government schemes and incentives for MSMESs

Udyam Registration allows SMEs to access various benefits, including loans at lower interest rates, subsidies, and incentives for energy related projects. There are many government schemes for MSMEs, but the right one depends on what your immediate goal is:

1) ***Financial support for Green Energy / efficiency investments:*** MSMEs looking for affordable loans for a major equipment upgrade or energy saving, clean-tech, or renewable energy project.
   i) SIDBI Sustainable Finance Scheme
      - offers loans for energy efficiency, green technology and GHG emission reductions.
   ii) Credit Linked Capital Subsidy for Technology Upgradation (CLCSS)
      - offers capital subsidy for upgrading to modern, proven, and advanced manufacturing technologies and equipment including energy efficient machinery or energy related technologies.
   iii) Indian Renewable Energy Development Agency (IREDA) schemes
      - offer concessional loans and financial assistance for renewable energy, energy efficiency and waste to energy projects.
   iv) MSE-GIFT Scheme
      - provides support to MSMEs in accessing institutional finance at a concessional rate for adopting clean / green technologies and help them shift to sustainable business operations.

2) ***Technical support and capacity building:*** MSMEs needing expert guidance for energy audits, technology adoption, quality improvements or process optimization
   i) ADEETIE scheme
      - is inviting Expressions of Interest from eligible MSMEs in 60 clusters spanning 14 sectors to offer a) financial aid with lower interest on loans and b) technical support for energy audits, DPRs, post implementation monitoring and verification
   ii) MSME Lean Scheme
      - offers 90% financing for enhancing Domestic and Global Competitiveness of MSMEs through the application of various Lean Techniques including resource optimization.

iii) Technology and Quality Upgradation (TEQUP) Support

- Supports MSMEs for generating awareness on energy efficiency, conducting energy audits, implementing energy efficient technologies and acquiring product certification licenses.

3) ***Certification incentives and subsidies:*** MSMEs aiming for certifications or compliance support to build market credibility, especially for exports or global buyers
   i) MSME Sustainable (ZED) Certification
      - promotes Zero Effect Zero Defect practices and provides subsidies on certification cost, graded incentives and reduced loan rates, and financial assistance for testing/product certification, technology upgradation and handholding consultancy support
   ii) MSME Innovative Design Scheme
      - helps MSMEs to avail expert advice on real time design problems (for new and existing product portfolios) with 60 to 75% financial assistance at different stages (strategy/concept, design and completion of prototype) of the project.
      - Key criteria to assess applications include cost competitiveness, energy efficiency, environmental impact, process/product efficiency, waste reduction, material optimisation.

4) ***Energy management:*** MSMEs keen to monitor, use data to plan energy savings and manage energy use better
   i) The Revamped Distribution Sector Scheme
      - supports DISCOMs in installing smart meters, ensuring MSMEs receive reliable electricity and accurate bills. This improved metering enables energy audits, helping MSMEs identify and reduce their energy costs efficiently

5) ***Energy generation and consumer benefits***: MSMEs involved in generating their own power through renewables
   i) The Rights of Consumers Rules 2020 and its amendments in 2021 and 2024
      - offer net metering benefits allowing SMEs to sell excess power back to the grid based on the state level metering regimes, capacity limits and accounting mechanisms.

6) *More Central/ State schemes can be explored on the myScheme Portal and Champions Portal.

Box 2: Making the switch in rented facilities

Operations in rental/leased facilities could be a significant challenge in switching to renewable energy. Possible options to overcome these challenges would be to:

- Review your lease contract for clauses related responsibility for energy efficiency or emissions reductions. Use these to start a discussion with the facility owner / co-manufacturer or address the subject when the lease contract will be negotiated, if not sooner.

- Check if your landlord has a Climate Transition Action Plan (CTAP) or publicly disclosed climate goals. If so, these commitments may align with and support your proposals.
- Engage other tenants if you are in a multi-occupant building or site, to identify common objectives related to electricity consumption, demonstrate demand to the landlord and share resources and costs.
- Engage and negotiate with landlord highlighting benefits of reduced energy bills, enhanced property value and possible subsidies.
- Offer a co-investment model or revenue sharing agreement.
- Explore RESCO (Renewable Energy Service Company) models where a third party installs and owns the rooftop system with zero investment from owner or tenant by convincing your landlord and other tenants

Box 3: Checklist for Indian MSMEs transitioning to Renewable Electricity

- **Assess and plan:**
  - ☐ Have I spoken to my DISCOM about renewable energy options?
  - ☐ Have I checked my eligibility for renewable energy subsidies?
  - ☐ Do I have meter ownership to procure open access under captive mode?
  - ☐ Is my electricity consumption above 100 kW – can I go for open access third party model?
  - ☐ Do I have sufficient roof space for solar panels?
- **Collaborate and aggregate:**
  - ☐ Can I partner with nearby MSMEs for an aggregated Power Purchase Agreement?
  - ☐ Have I spoken to my cluster association about available renewable energy options?
  - ☐ Has my cluster association approached the Bureau of Energy Efficiency (BEE) for energy audits or support for energy efficiency?
- **Explore options:**
  - ☐ Did I explore the possibility of switching to Green tariffs?
  - ☐ Have I leveraged/consulted MSME support available through SME Climate Hub or MSME Development Institutes?
- **Track and monitor:**
  - ☐ Have I conducted a baseline energy assessment and set renewable energy targets?
  - ☐ Am I monitoring progress and reporting achievements?

Important references:

- Energy Conservation Guidelines for MSMEs
- Energy Efficient Technologies
- Explore more on SME Climate Hub's Action Space