

TotalEnergies

Service station solarization

Project design

TotalEnergies' solar project was launched in 2017, with the aim of installing solar power across 4,500 service stations. As of May 2023, solar panels have been installed across 3,800 stations, averaging 17 kilowatt peak (65 megawatt peak total). Over USD \$100 million has been invested and more than 1,000 employees have been involved, across 60 countries.

A variety of solar panels have been installed on canopies, building rooftops and ground placements in service stations across the world. Energy efficiency measures were combined with solar installation to drive significant carbon reductions.

Results of the integrated approach

One of the biggest obstacles was finding a compromise between optimizing energy efficiency and solar production whilst adhering to local regulations, such as grid integration and planning guidelines. A network of reliable suppliers and strong partnerships have been crucial for the success of this project. Standardized approaches to installations have also reduced cost whilst increasing the construction speed and improving health and safety conditions.

The program has enabled knowledge-building of internal technical services as well as knowledge-sharing and training of over 1,000 staff in over 60 countries. It has also showcased that in some countries, these solutions are available, feasible and scalable to help B2B customers or prospects to decarbonize their operations. It has enabled technical knowledge building across both TotalEnergies teams and contractors, supporting the development of new small-scale solar local channels and accelerating the scale-up of these solutions.

Key facts

- 3,800 solar-powered service stations
- Current installations save an estimated 36,000 tonnes of CO₂ per year*
- 80 gigawatt hours of solar energy is produced each year*
- 182 engineering, procurement and construction firms have been integrated into the program, working with subsidiaries in over 60 countries to ensure safe and continuous operation of solar installations

Project archetype

Middle- and last-mile electrification; retail

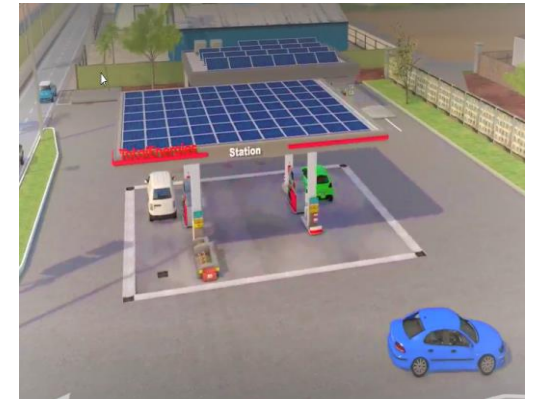


Image credit TotalEnergies

[Watch a video about the solarization program](#) and [read the TotalEnergies Sustainability & Climate 2023 Progress Report](#)

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Business context

TotalEnergies is a multi-energy company that produces and markets fuels, natural gas and electricity. Its operations are based across the world, spanning Africa, Asia, the Middle East, America and Europe. **To reach global ambitions of carbon neutrality by 2050, TotalEnergies is taking action to reduce operational emissions from its industrial facilities (Scope 1 & 2) by over 40% by 2030.**

To deliver on this, the Marketing and Services division has set a range of goals:

- Reduce carbon emissions by over 40% worldwide
- **Solarize 4,500 service stations**
- Perform energy efficiency audits for all subsidiaries with a significant share of CO₂ emissions

Subsidiaries can carry out an energy audit via a dedicated internal tool, 'D-carbon View', specifically designed and provided by the central network team. This tool allows subsidiaries to:

- Estimate initial energy consumption and carbon emissions
- Propose solutions to decrease carbon emissions
- Define an action plan

The central network team is also currently working on new technical solutions that can be implemented during the construction or renovation of service stations to limit environmental impacts.

Value & transparency

Feasibility studies are carried out, for each service station, using calculated simulations of specific architecture efficiency and returns on investment. These studies use data from manual surveys and standard data such as yields and irradiation simulations to validate project plans. Ten pilot subsidiaries were selected to develop a standardized approach, including products and processes (such as equipment testing, framework agreements, pricings and reporting), providing a robust foundation for scaled deployment across all countries.

Mobilization & skills

A solar project manager has been assigned within each subsidiary along with a team of engineering, operational and maintenance managers. Suppliers can lead solar installations autonomously (including analysis, design, implementation and operation) upon completion of a 5-day specific 'service-station solarization' training course, a certified health and safety 'license to operate' course and use of a turnkey package of solar panel installation and operational guidelines (all of which are provided internally by the Marketing and Services division of TotalEnergies).

Advocacy & incentives

Following the initial simulations carried out for every service station in each subsidiary, a global goal was set to install solar panels across 4,500 stations. This was further broken down into individual subsidiaries' objectives. These objectives are reviewed on a regular basis and are embedded into the yearly budget analyses of each subsidiary.