The first megawatt-scale smart solar district

Challenges
The Alpes-Maritimes administrative department in southeast France lies on the periphery of the transmission grid, which is a structural handicap for its electricity supply. However, it also has an abundant supply of renewable energy, especially solar. Significantly increasing the share of renewable—but intermittent and dispersed—energy in the power supply requires upgrades to the grid architecture.

Headed by ERDF, Nice Grid is the first European smart solar district demonstration project and is part of the Grid4EU programme, which aims to test innovative electricity management solutions. There are currently several hundreds of residential, industrial and municipal customers participating in the €30 million four-year project.

How it works
EDF recruits customers willing to be equipped with solar panels and smart meters. Using the smart management system, the network operator controls and optimises all local energy resources for the solar district in real time. Nice Grid draws on three key factors to balance supply and demand in the district:
- next-day forecasts for solar energy production compared to demand;
- battery storage to participate in continuity of service by maintaining voltage and frequency across the grid to offset any intermittency in the supply of solar energy and absorb consumption peaks;
- incentivising residential and industrial customers to better manage their consumption.

Benefits
These tests provide a significant contribution to the emergence of smart cities through key advances in:
- **Technology**: integrating solar energy into the power grid, installing smart meters, managing energy (to control conditions that affect grid operations; provide solar and consumption forecasts; overcome technical constraints; and ensure cost-effective management) and achieving load balancing through the use of storage solutions;
- **Efficiency**: new solutions and incentives empowering customers to promote demand-side management and improve consumption; creating new services and jobs;
- **Environment**: extensively integrating solar energy and managing distributed resources to significantly reduce CO₂ emissions;
- **Society**: providing real-time information to turn customers into responsible consumer-producers (or “prosumers”) who rethink the way they use electricity.

---

1 France’s public electricity distribution network manager, Electricité Réseau Distribution France.