Seize the benefits of green energy and the smart grid

Electrical energy storage system for buildings optimizes self-consumption, costs, and reliability
Are you getting the most from your onsite energy production?

Do you want to cut energy costs and emissions while enhancing power reliability?
A powerful part of your energy prosumer strategy

Realize a fully optimized microgrid that maximizes savings and reliability from all onsite generation assets.

Your business depends on continuous, cost-effective sources of electricity. But the increasing demands on the power grid are causing instability and price volatility. Smart grid technology and programs — such as demand response and advanced tariffs — are emerging to address these problems, but you need to take an active role as an energy prosumer to fully benefit.

You may have already begun building a local microgrid by installing onsite renewable energy generation to offset costs and reduce your carbon footprint. Your generation assets and energy-consuming loads are now an important distributed energy resource for the smart grid. But to monetize the maximum value of this flexibility without causing business disruptions you need to store the energy you produce and intelligently optimize the way you save it, consume it, and sell it to the grid.

Energy storage is the key

Schneider Electric, the global specialist in energy management, offers you the key to being a smart player on the smart grid. Our complete Prosumer Solution includes an integrated, electrical energy storage system that enables a reliable and comfortable means to access a wide range of value-added smart grid services. This will help you optimize your energy bill, ensure a backup supply, and boost your green image.

+10%
The expected rise in electricity costs for Germany in 2013.

+23%
The expected rise in electricity costs for industrial customers in France by 2016.

1 Institute for Energy Research
2 Le Point.fr / Reuters
An energy storage system as smart as the smart grid

Cut electrical energy costs and emissions while enhancing your resilience to grid disruptions

Our electrical energy storage system (EESS) is an integral and important part of our complete Prosumer Solution. The solution extends the smart grid to within your buildings, enabling access to value-added services and opportunities to supply ‘negawatts’ (curtail load) or ‘posiwatts’ (provide energy) to the grid. As a leader in smart grid technologies, you can trust that Schneider Electric will deliver a complete solution that is tailored to your needs, and ensures you know exactly when and how to store, self-consume, or sell that energy.

StruxureWare™ Demand Side Operation
Cloud-based SaaS application optimizes your participation in demand response programs and the operation of your distributed energy assets. Aggregates all energy-related data feeds and coordinates communication with the smart grid. Uses advanced algorithms to help you make fast decisions about cost-saving opportunities.

Smart gateway
Monitors all energy generation, storage, and load assets. Connects to our cloud-based Prosumer Solution Platform and coordinates actions with your energy storage, power, building, and process systems.

Electrical energy storage system
A safe, flexible, high-capacity energy storage system is central to efficiently adapting your energy production and consumption to the needs of your business and the smart grid, while also enhancing power reliability.

Prosumer energy storage solution
Distributed energy resources
4 ways to boost savings and uptime

Maximize energy self-consumption

The ability to store the energy you locally produce helps increase self-consumption. Store energy when it’s optimal to do so, and use it when it’s most needed. And a stable, self-produced energy resource can gain some independence from the grid while helping decrease your energy bill (depending on grid electricity cost).

Optimize your energy profile

Energy storage gives you better control and forecasting of your energy profile. Shift grid energy consumption to lower tariff ‘gap’ hours by supplying loads with stored energy during higher cost peak hours. Use stored energy to optimize your power subscription based on your real needs, and avoid penalties for peak power consumption. You can also sell stored energy to the grid when the prices are high.

Participate in DR programs

To improve grid stability and avoid running higher polluting peak power plants, DR programs will pay for your ability to consume less or more energy on request. With energy storage, you can quickly and comfortably respond by self-consuming or charging your batteries from the grid, or using stored energy to support other ancillary services, such as helping adjust grid frequency or voltage, or helping rebuild the grid after a full blackout.

Ride through blackouts*

Downtime can be very costly for your business. Your energy storage system can ensure power quality and reliability, by acting as a backup supply in the event of grid fluctuations or complete outages.

* Capability is offered as an option.

The new vocabulary of the smart grid

The evolution of energy production, distribution, and consumption represents a new, highly dynamic paradigm for all parties, supported by new programs and smart technologies.

- **Prosumer** - A commercial or industrial business, or residential homeowner, that proactively produces and consumes energy.
- **Building management system** - Controls energy-consuming loads throughout the building, including lighting, heating, cooling, IT, and security.
- **DER** - Distributed energy resources — such as generation assets or curtailable loads — that can be leveraged and monetized on the smart grid.

- **DR** - Demand response. A remunerative program that pays the energy user for adjusting allocation of energy resources during a requested period.
- **Microgrid** - An integrated energy system with interconnected loads and generation assets, operating in parallel with the grid or in an islanded mode.
- **SaaS** - Software-as-a-service. A cloud-based, constantly updated application that delivers high financial or operational value through a web portal, with no requirement to install local software.

15000

Typical cost (in euros) of 1 to 3 hour of power outage for an industrial or commercial business.

Source: leonardo-energy.com, 2008. Poor power quality costs European businesses more than 50 billion a year.
Advanced storage components maximize efficiency and flexibility

A highly modular, integrated system that fits any size and type of application

Our energy storage system features the highest quality, best-in-class components. The power conversion sub-system is manufactured entirely by Schneider Electric. For the battery and battery management sub-systems, Schneider Electric is collaborating with Saft, an industry leader with over 15 years of experience in the development and commercialization of Li-Ion energy storage systems.

This fully tested, validated, and documented architecture assures you of exceptional safety, reliability, and efficiency. Different batteries types can be used, and the entire system is highly modular, adapting to any power and energy requirement, and supporting easy expansion as your needs grow.

Saft battery storage technology offers:

- Field-proven, high-performance NCA Li-Ion technology
- Better than 95% energy efficiency
- Very low self discharge rate (5% per month)
- 20 years design lifetime
- Sophisticated battery management system featuring: monitoring, control, alarms, cells balancing, data logging, and optional diagnostic interface
- Advanced industrial design and stringent qualification processes ensuring the highest safety and robustness
- Low maintenance requirements, with safe handling of battery modules due to low voltage modules (24V)
- Comprehensive battery recycling program: 100% of each battery is recyclable, following European Battery Directive (2006/66/EC)
- Completely CO2 emissions free over the entire life cycle

A fully pre-tested, validated, and documented solution architecture (TVDA).
Expert services ensure added value and peace of mind

Schneider Electric partners with you to support the entire life cycle

Schneider Electric has many decades of experience on the supply and demand side of energy. Our expertise and leadership in smart grid technologies, energy management, and electrical installations make us a one-stop-shop for your energy storage needs. We will deliver a cost-effective, turnkey electrical energy storage system that will perfectly integrate with your business.

1. First, we'll perform a complete technical and economical audit of your facility to help carefully define your requirements.

2. Based on this analysis, we will design an energy storage system that perfectly fits your requirements, and establish a team to provide comprehensive management for the entire project.

3. Our expert team will provide full installation and commissioning services to ensure your storage system is implemented safely, quickly, and with minimal disruption to your operations.

4. Finally, we’ll be there to ensure you achieve your goals, supporting you in every way possible to ensure you’re maximizing every benefit now, and in the future.

+45.8%
Worldwide 10-year average annual growth rate for the photovoltaic energy production, 2001 to 2011.

Source: Observ’ER, 2012, Electricity generation from renewable sources in the world.
Smart choices for extending your prosumer strategy

Enhanced services support a deeper level of holistic energy management

Once your new energy storage system is in place and you’re connected to the Prosumer Solution platform, you can choose from a broad package of complementary, subscription-based services from Schneider Electric.

- **StruxureWare™ Energy Operation** – A powerful portal to all of the physical and financial aspects of your energy consumption, production, cost savings, and CO2 reductions.
- **Asset management** – Equipment monitoring, reporting, maintenance scheduling, and supervision of building energy status.
- **Demand response management** – We’ll help you choose the most remunerative DR programs to participate in, and ensure you leverage the most flexibility from your energy storage and loads.
- **Consultation on energy arbitrage** – Analyze the market in real-time and optimize your energy purchases and sales to take full advantage of price differentials.
- **Energy efficiency and reliability improvements** – Implement smarter energy management strategies to optimize your energy bills, reduce energy waste, validate the payback of efficiency upgrades, and help ensure a more stable energy supply.

80%
Share of renewable energy production by 2050, targeted by Germany’s Energiekonzept energy action plan.
Source: nouvelle-europe.eu
Schneider Electric and Saft are helping Syndicat Départemental des Energies du Morbihan (SDEM) implement the first demonstrator prototype in France of a smart grid-ready energy storage and management system for an office building, integrating electric vehicles and maximizing consumption from solar and wind energy production.

“We believe in the future of electricity storage and intend to demonstrate the relevance of this option, including reducing the risk of blackouts that affects Brittany during peak periods.”

Henri Le Breton, chief executive, SDEM
For more information on energy storage and our other prosumer solutions, visit www.schneider-electric.com