

Monetizing DERMS use cases: The what, why and how of creating value

Already robust, the growth of distributed energy resources (DERs) such as solar and battery storage in the U.S. is set to accelerate dramatically with the Inflation Reduction Act (IRA).

As the variety and volume of DERs introduced to the grid accelerate, the need for tools to manage these resources so they can participate in markets and support the grid becomes paramount. Enter distributed energy resource management systems (DERMS), software platforms that have emerged to optimize the benefits of DERs.

Monetizing the growing list of benefits...

The Electric Power Research Institute lists 20 DERMS use cases, including:

- ✓ **DER flexible interconnection** — lower upfront expenses by reducing grid connection time and costs; allow DERs to begin earning revenue faster
- ✓ **Wholesale market participation** — improve grid reliability; provide multiple and growing revenue opportunities for DERs
- ✓ **Distribution grid upgrade deferral and grid voltage support** — create capital expenditure savings and help resolve grid capacity limitations
- ✓ **Economic optimization** — utilize DERs when market and grid conditions are ideal (e.g., times of peak demand)
- ✓ **Peak load reduction** — save on wholesale market energy purchases, generation capacity requirements and grid capacity for utilities; reduce expensive demand charges for asset owners
- ✓ **Load shifting and duck curve management** — reduce ramping, response and reserve unit utilization and costs
- ✓ **Backup power** — leverage DER assets on-site to enhance resilience and produce valuable clean energy and other services
- ✓ **Microgrid control** — monetize new, clean and flexible DER assets in microgrids to deliver resiliency as well as additional tariff, market and grid value
- ✓ **Self-consumption of renewable DERs** — enable customers to co-optimize onsite and behind-the-meter cost savings with grid and market revenue opportunities

...to real customers

Deployments of DERMS are already delivering tangible benefits to utilities, their customers and the grid.

Flexible interconnection/distribution grid upgrade deferral

- ✓ The utility AVANGRID was able to defer **\$2 million in grid upgrades** to connect 17 megawatts of solar PV to two substations in New York.
- ✓ In the UK, customers utilizing Smarter Grid Solutions' DERMS have deferred **\$300 million in grid upgrades** from 365 megawatts of renewable capacity.

Microgrid control

- ✓ Hydro-Québec's Lac-Mégantic microgrid project includes energy storage, solar, and backup diesel generation. Using DERMS, Hydro-Québec has reduced running time for the diesel generator in both planned and unplanned island situations. It has also reduced the loss of critical loads during grid outages.

Stacked revenue benefits

- ✓ An energy storage project in New York City with Endurant and Con Edison yields a conservative revenue of **\$50,000 per megawatt-hour** installed storage capacity per year from energy arbitrage and participation in reserve and capacity markets in the New York Independent System Operator (NYISO) wholesale market. These revenues can be augmented with other stacked revenues and are comparable with battery market value in other ISO markets.

Take the next steps toward deploying a DERMS

The first step in choosing a DERMS is understanding the application or challenge it's trying to solve. Here are some tips on getting started:

Select the right partner

It's important to select a DERMS provider with experience in the use cases you want to pursue and that has a track record of success.

Complete an analysis

One advantage of working with an experienced DERMS provider is that they can work with you to figure out the use cases that will quickly deliver benefits and value.

Start small

Implementing DERMS to solve a straightforward use case can prove the value and build critical momentum that can speed more ambitious future deployment.

Extend

Roll out DERMS to areas of the grid following the path of DER monetization, while extending the use cases to address new needs and value opportunities.

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Smarter Grid Solutions (SGS) is a leading enterprise energy management software company specializing in distributed energy resource management systems (DERMS) and operating internationally from bases in the UK and US. If you would like to benefit from SGS' technological, operational, and implementation with DERMS, monetizing a broad range of use cases for customers, visit: <https://www.smartergridsolutions.com/contact-us>.