

IDC MarketScape: Worldwide Distributed Energy Resource Management Systems 2022 Vendor Assessment

John Villali

Jayesh Verma

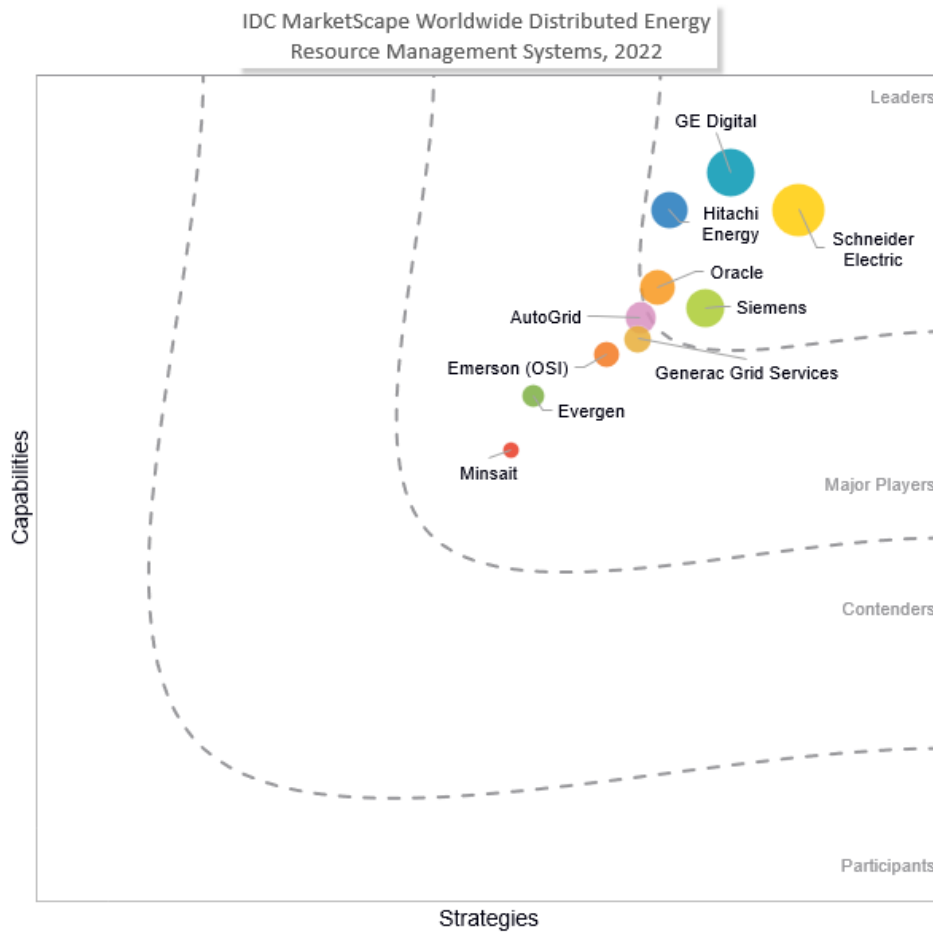
Gaurav Verma

THIS IDC MARKETSCOPE EXCERPT FEATURES GE DIGITAL

IDC MARKETSCOPE FIGURE

FIGURE 1

IDC MarketScape Worldwide Distributed Energy Resource Management Systems Vendor Assessment



Source: IDC, 2022

Please see the Appendix for detailed methodology, market definition, and scoring criteria.

IN THIS EXCERPT

The content for this excerpt was taken directly from IDC MarketScape: Worldwide Distributed Energy Resource Management Systems 2022 Vendor Assessment (Doc # US47455621). All or parts of the following sections are included in this excerpt: IDC Opinion, IDC MarketScape Vendor Inclusion Criteria, Essential Guidance, Vendor Summary Profile, Appendix and Learn More. Also included is Figure 1.

IDC OPINION

The proliferation of distributed energy resources (DERs) globally has spurred investment and research and development (R&D) efforts in creating innovative technologies that can enable utility distribution networks to manage dispersed and cleaner forms of energy in the most optimal and economical manner. Distributed energy resource management systems (DERMSs) are becoming essential software offerings to help manage the power grid and are on the top of mind for many utilities executives. This document helps the power and utility sector better understand the current state of distributed energy resource management offerings provided by well-established vendors in this space and also provides a summary of the evaluation and assessment of distributed energy resource management systems in the market today.

Distributed energy resource management is becoming a growing and critical need for the power and utilities industry globally. DER penetration is piecemeal and at distinct stages of development globally, depending on the region and the goals for individual utilities and power market participants. The global *Energy Transition* – the movement toward cleaner power generation (i.e., solar, wind, batteries, and electric vehicles [EVs]) and away from traditional fossil fuels (i.e., coal, natural gas, and oil) – has accelerated the pace of adoption and deployment activity around DERMS. In addition to the growth of utility connected renewable energy resources such as wind and solar farms, utility distribution operators are now being challenged with growing number of customer-owned DERs in their utility footprint such as rooftop solar, battery storage, and electric vehicles. The expansion of DERs along with the environmentally conscious choices electric customers pursue in the ways they consume, produce and, in some cases, sell excess energy back to their utilities to participate in wholesale and distribution-level power markets is changing the traditional centralized utility system model to one that is more complex, customer driven, and decentralized.

The DERMS market has a wide range of offerings that can accommodate utilities and their electric end-use customers. Products, programs, and services have a wide range from assisting power market participants with DER registration, DER aggregation, bidding and scheduling DERs into wholesale and distribution-level markets, demand response (DR) programs, and electric vehicle to grid applications, monitoring, control, and the dispatch of DERs and more. Each utility and the regions in which they operate will have unique needs and requirements in meeting their needs to manage DERs and their power grids effectively. As DERs continue to grow and become an integral part of utility power systems, several market participants can be impacted and have the ability to add to the overall optimization of behind the meter energy resources and the power grid. Various entities such as local utilities, third-party aggregators, distribution system operators (DSOs), electric customers, and regulators will be impacted by the expansion of DERs and play a contributing role as this nascent market evolves.

Key findings from the research effort for this IDC MarketScape for worldwide distributed energy resource management include:

- The connectivity and communication protocols to enable the control and dispatch of DERs are in the early stages of development. Collectively from technology vendors to DER owners to distribution system operators, the ability to effectively communicate with, control, and dispatch DERs at scale continues to be refined and a work in progress. Whether it is through Institute of Electrical and Electronics Engineers' (IEEE's) 2030.5 protocol or Open Automated Demand Response (OpenADR) or other communication protocols, there has not been a common standard that has adopted globally by the power and utilities sector. The ability to automate and control DERs will continue to be a key area of development, which will enable the effective management and optimization of DERs at scale.
- A standalone DERMS offering or a DERMS offering as an extension of an advanced distribution management system (ADMS) can both suffice depending on the users' needs. Nevertheless, the evolution of a platform approach to operations is developing and is expected to be adopted more, which can provide a more holistic view to operations, including the management of DERs. Core systems such as enterprise management, asset management, field services, and market management in the power and utilities sector are beginning to blend and complement each other to provide the most efficient, collaborative, and informative operating practices. Electricity end users and utility customers will be key in further developing the DERMS market. Currently, one of the fastest-growing DER is rooftop solar. Rooftop solar plus the ability to effectively manage energy storage will be a cornerstone for any DERMS. Electricity customers' participation in the *Energy Transition* and being more involved and incentivized to own DERs and participate in utility programs around demand response and electric vehicles will drive the growth and inevitable need for DERMSs.

IDC MARKETSCAPE VENDOR INCLUSION CRITERIA

To be considered in this IDC MarketScape, technology vendors must have a working history in the utility industry, which offer a DERMS software product and meet the following minimum criteria:

- The technology vendor has worked with utilities in the area of DERMS and offers a DERMS off-the-shelf product or a corresponding DERMS module that can be integrated with a utility's existing DERMS application.
- The vendor must have DERMS implementations supported in at least two of the following regions: Europe, the Middle East and Africa, Asia/Pacific, and Americas.

ADVICE FOR TECHNOLOGY BUYERS

When evaluating investments in DERMS, technology buyers should consider the following:

- DERMS is not a one-size-fits-all product. Every utility, distribution system operator, DER owner, operator, and market participant will have their own unique set of needs and circumstances as it relates to distributed energy resource management. Many utilities may be at vastly distinct stages of maturity from a technology and distributed energy resource market penetration standpoint. Be sure to understand immediate needs and also be able to forecast and have a vision for future obstacles and challenges in managing DERs. Most DERMS offerings are built to be flexible and can be bought in modules, providing buyers the option to

purchase what is needed now and for the near future while having the opportunity to purchase additional modules that may become more important down the line.

- Consider a technology platform approach in efforts to run an efficient, reliable, and cost-effective utility operation. A technology platform provides the ability to integrate core utility systems, applications, and modules that can provide more accurate results when all systems, process, and personnel are working as a whole in tandem. From distributed energy resource management, enterprise asset management, and field services and asset management, core utility systems can produce greater results and efficiencies when taking a holistic and integrated approach to operations, which also include distributed energy resource management.
- Take into account the growing utility vendor ecosystem when investing in a DERMS. The vendors offering DERMS products have a wide range of capabilities. Implementation can be done by a single vendor offering an end-to-end DERMS software platform or can be offered by multiple vendors that offer several distinct individual modules that can meet your specific needs. Research the DERMS technology landscape to obtain a strong understanding of costs and capabilities of offerings in the DERMS space that can save a significant amount of time and expenses.
- Join a consortium or utility technology end-user group geared toward DERMS to get a better understanding of capabilities available to the market and gain better insight into future anticipated trends in the distributed energy management space. Obtaining knowledge from other power market participants and utilities within your regional footprint as well as around the globe can provide a clearer vision of current and future market opportunities and challenges, which may lie ahead.

VENDOR SUMMARY PROFILES

This section briefly explains IDC's key observations resulting in a vendor's position in the IDC MarketScape. While every vendor is evaluated against each of the criteria outlined in the Appendix, the description here provides a summary of each vendor's strengths and challenges.

GE Digital

GE Digital is positioned in the Leaders category in the 2022 IDC MarketScape for worldwide distributed energy resource management systems.

Headquartered in San Ramon, California, GE Digital is a global industrial software company that serves a wide range of industrial companies including energy and utilities. Founded in 2015, GE Digital has grown to over 4,000 employees, operating through worldwide offices in 125 countries. GE Digital's DERMS products have evolved leveraging GE's domain expertise, industrial knowledge, and utilities-operations-centric experience. The company currently has over 80 live implementations of its DERMS solution in the utility sector, with its largest customer base in North America alongside growing presence in Europe, the Middle East and Africa, and Australia.

GE Digital delivers its DERMS through its Renewables & DER Orchestration offering with flexible deployment support for either on premises or in the cloud. The company offers DERMS modules through a wide range of utilities-specific products. GE Digital's DERMS modules are primarily integrated with the company's advanced distribution management system, advanced energy management system (AEMS), advanced market management system (AMMS), and geographic information systems (GISs) offerings. Key functional capabilities offered through these DERMS products include DER visualization and modeling tools, planning and simulation, scheduling and

forecasting, remote monitoring and control, power flow directional indicating and alarming, DER registration, fault detection, and DERMS data export and reporting. Serving many of the needs of electrical grid operators and the market operators, the company enables DER planning and management through 12 functional modules, split across 3 useful time frames:

- **Offline:** Allows all offline activities to plan, model, and connect DERs via four modules
- **Look ahead:** Provides forecasting and scheduling capabilities offered through forecasting, grid analysis, grid optimization, and flexibility market and flexibility market interface modules
- **Real time:** Enables operation in real-time leveraging capabilities around DER reliability and switching, DER curtailment, frequency control, and voltage optimization

GE Digital's DERMS allows grid operators to expand the embedded capabilities deep within the algorithms and applications of their existing utility systems to effectively manage DERs. For example, a GIS planning module can be enhanced with the DER-modelling capability and an ADMS can be enabled with DER modelling, real-time situational awareness, and power flow analysis. In addition, a grid operator can also be offered new capabilities that can be added as a separate container-based, composable modules integrated to the existing IT/operations technology systems, such as GE Digital's Electric Connection Checker, Adaptive Network Management, Fast Frequency Control, and Flexibility Market Interface.

With over 5% of company revenue spend annually on DERMS R&D and product upgrades, GE Digital typically releases new software modules upgrades every six months to one year. Leveraging depth and breadth of companywide utility industry knowledge and resources, the company is working on multiple strategic upgrades as part of its DERMS product road map that includes, but not limited to, coordinated management of fast edge controllers (fast frequency control, inverter curves, and grid forming devices) across T&D operations.

In addition, in December 2021, GE Digital announced the acquisition of Opus One – a software company based in Ontario, Canada, which has a core focus on DERMS. Opus One brings GE Digital expertise and working knowledge on the optimization of DERs, distribution grid operations, and DER market management. The acquisition of Opus One complements GE Digital DERMS offering both in accelerating road map items and in bringing additional reach to new, emerging market segments. Key areas of expansion in GE Digital's DERMS products coming out of the Opus One acquisition include DER planning, distribution grid and DER flexibility optimization, demand response, DER on boarding, policy and control, and enabling entities such as aggregators and DER owners and operators participate in wholesale or distribution-level power markets.

Strengths

- GE Digital has a solid geographic footprint in the global utility market with strong base industry experience across transmission, distribution, and market operators and over 55 live implementations of DERMS with 30 additional customers now added through Opus One Solutions. GE Digital has built a foundation of utility and clean energy expertise to address operational needs in both the renewables and DER integration space.
- GE Digital's DERMS products offer a deep breadth of capabilities through the company's 12 natively interoperable modules designed to be deployed within a multivendor environment, allowing end users to avoid vendor lock-in. All its 12 DERMS modules, such as DER-enabled GIS, DER-enabled ADMS, and DER-enabled AEMS, offer flexibility to its utility clients by allowing them to integrate each DERMS module either separately or embed directly into the existing utility systems.

- GE Digital's acquisition of Opus One will strengthen the company's presence in the DERMS space with an expanded solution portfolio, talent pool, and innovation focus. Combining GE Digital's robust DERMS and renewable energy expertise and products with Opus One's distribution operations working knowledge and focus on DER optimization, analytics, planning, operations, and markets will create a broader and more comprehensive set of DERMS offerings to the market.

Challenges

- Although GE Digital works with some of the most progressive utility customers globally on innovative DERMS projects, early adopter customer feedback cited integration and compatibility challenges with its existing utility system and DERMS application, which delayed the deployment process.
- GE Digital has made significant efforts and investments to strengthen its DERMS capabilities and offer a regular cycle product upgrades. However, some of its utility clients noted mediocre user experience related to compatibility issues with some of GE's modules and software upgrades.

APPENDIX

Reading an IDC MarketScape Graph

For the purposes of this analysis, IDC divided potential key measures for success into two primary categories: capabilities and strategies.

Positioning on the y-axis reflects the vendor's current capabilities and menu of services and how well aligned the vendor is to customer needs. The capabilities category focuses on the capabilities of the company and product today, here and now. Under this category, IDC analysts will look at how well a vendor is building/delivering capabilities that enable it to execute its chosen strategy in the market.

Positioning on the x-axis, or strategies axis, indicates how well the vendor's future strategy aligns with what customers will require in three to five years. The strategies category focuses on high-level decisions and underlying assumptions about offerings, customer segments, and business and go-to-market plans for the next three to five years.

The size of the individual vendor markers in the IDC MarketScape represents the estimated market share for each vendor in the global DERMS market based on IDC Energy Insights' research and estimates of each vendor's worldwide DERMS client base and estimated revenue for each vendor within the global DERMS market.

IDC MarketScape Methodology

IDC MarketScape criteria selection, weightings, and vendor scores represent well-researched IDC judgment about the market and specific vendors. IDC analysts tailor the range of standard characteristics by which vendors are measured through structured discussions, surveys, and interviews with market leaders, participants, and end users. Market weightings are based on user interviews, buyer surveys, and the input of IDC experts in each market. IDC analysts base individual vendor scores, and ultimately vendor positions on the IDC MarketScape, on detailed surveys and interviews with the vendors, publicly available information, and end-user experiences in an effort to provide an accurate and consistent assessment of each vendor's characteristics, behavior, and capability.

Market Definition

This IDC MarketScape will assess technology vendors working with utilities in the area of distributed energy resource management systems (DERMSs). The geographic scope will be worldwide within the utility vertical. Over the next several years, utilities will have a focus on DERMS due to the influx of renewable generation and distributed energy sources coming on to the grid. DERMS will help utilities manage and control these renewable and distributed energy resources providing clean energy and guaranteeing reliability to power systems. DERMS will play a direct role in providing utilities the necessary tools in the coming years to adapt to the changes in regional power markets globally with the increased efforts in decarbonization, digitalization, and the evolution of decentralized power systems.

LEARN MORE

Related Research

- *European Smart Metering Program and Smart Grids Evolution* (IDC #EUR148895122, March 2022)
- *IDC MarketScape: Asia/Pacific (Excluding Japan) Digital Transformation Service Providers for Utilities 2022 Vendor Assessment* (IDC #AP46791621, February 2022)
- *IDC MarketScape: Worldwide Field Service Management Solutions for Utilities 2022 Vendor Assessment* (IDC #US47455521, January 2022)
- *Innovation and Enterprise Intelligence for Energy Transmission System Operators: Experiences From Europe* (IDC #EUR148341121, November 2021)
- *IDC FutureScape: Worldwide Utilities 2022 Predictions* (IDC #US47075621, October 2021)
- *IDC TechBrief: Advanced Distribution Management Systems* (IDC #US48258321, September 2021)
- *IDC Perspective: A Framework for the Future Power Enterprise in Asia/Pacific* (IDC #AP47075421, July 2021)
- *IDC MarketScape: Worldwide SaaS and Cloud-Enabled Utilities EAM Applications 2021 Vendor Assessment* (IDC #US47884520, June 2021)
- *IDC MarketScape: Worldwide Utilities Asset Performance Management 2020-2021 Vendor Assessment* (IDC #US46211820, December 2020)
- *IDC MarketScape: North American Distributed Energy Resource Management Systems Strategic Consultants and Systems Integrators 2020 Vendor Assessment* (IDC #US44514919, March 2020)

Synopsis

This IDC study evaluates vendors in the distributed energy resource management systems (DERMSs) space for the utilities industry through a qualitative and quantitative assessment of their capabilities and strategies. It aims to aid utilities in deciding on their current or future DERMS implementations, as well as to assist vendors in deepening their understanding of the competitive landscape.

"Ramping up investment in renewables will not suffice. In the absence of an effective distributed energy resources (DER) management strategy, utilities will struggle to progress on the path to net zero," said Gaurav Verma, research manager, IDC Energy Insights. "Vendors in this space have made

impressive strides through technological innovations, offering automated forecasting, AI/ML-powered real-time monitoring and control, demand response modelling, and grid optimization to support utilities with DER-enabled operational capabilities."

"Distributed energy resources and renewable generation assets coupled with climate change challenges are creating a complex environment that utilities need to manage; hence, DERMS becomes an essential platform, providing the required capabilities to monitor, control, and effectively navigate the integrated energy resources," says Jayesh Verma, senior research manager, IDC Asia/Pacific Energy Insights.

"Distributed energy resource management systems are becoming essential software offerings to help manage the power grid and are on the top of mind for many utilities executives. This document helps the power and utility sector better understand the current state of distributed energy resource management offerings provided by well-established vendors in this space and also provides a summary of the evaluation and assessment of distributed energy resource management systems in the market today," said John Villali, research director, IDC Energy Insights.

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

Global Headquarters

140 Kendrick Street
Building B
Needham, MA 02494
USA
508.872.8200
Twitter: @IDC
blogs.idc.com
www.idc.com

Copyright and Trademark Notice

This IDC research document was published as part of an IDC continuous intelligence service, providing written research, analyst interactions, telebriefings, and conferences. Visit www.idc.com to learn more about IDC subscription and consulting services. To view a list of IDC offices worldwide, visit www.idc.com/offices. Please contact the IDC Hotline at 800.343.4952, ext. 7988 (or +1.508.988.7988) or sales@idc.com for information on applying the price of this document toward the purchase of an IDC service or for information on additional copies or web rights. IDC and IDC MarketScape are trademarks of International Data Group, Inc.

Copyright 2022 IDC. Reproduction is forbidden unless authorized. All rights reserved.

