

*Siemens Energy Recognized for*

**2021**

**Product Leadership**

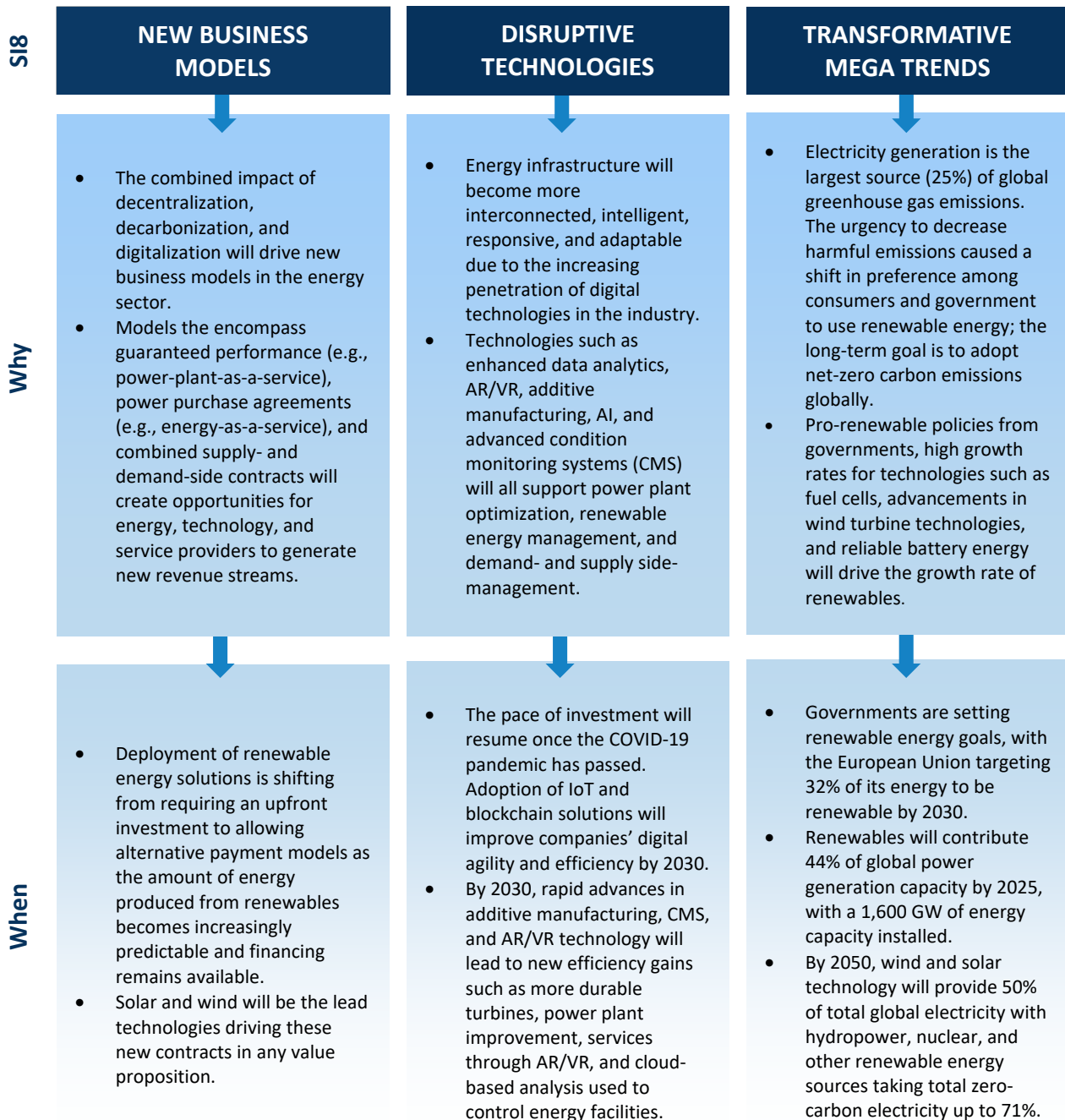
Global Smart Grid Equipment Industry

*Excellence in Best Practices*

**SIEMENS**  
**ENERGY**

## Strategic Imperatives

Frost & Sullivan identifies three key strategic imperatives that impact the power generation industry: new business models, disruptive technologies, and transformative mega trends. Every company that is competing in the power generation space is obligated to address these imperatives proactively; failing to do so will almost certainly lead to stagnation or decline. Successful companies overcome the challenges posed by these imperatives and leverage them to drive innovation and growth. Frost & Sullivan’s recognition of Siemens Energy is a reflection of how well it is performing against the backdrop of these imperatives.



## Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each award category before determining the final award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. Siemens Energy excels in many of the criteria in the smart transformer space.

AWARD CRITERIA	
<i>Product Portfolio Attributes</i>	<i>Business Impact</i>
Match to Needs	Financial Performance
Reliability and Quality	Customer Acquisition
Product/Service Value	Operational Efficiency
Positioning	Growth Potential
Design	Human Capital

### Match to Needs

*“Grid-related projects are coming under increasing cost and time pressure, with investors demanding better utilization of asset while regulators are mandating better power quality and grid resiliency.”*

**- Rajalingam A C, Industry Principal**

The proliferation of renewable energy installations and other distributed generation assets is impacting utilities and grid networks worldwide. Specifically, such proliferation is disrupting conventional business models and grid stability. Furthermore, grid-related projects are coming under increasing cost and time pressure, with investors demanding better utilization of assets while regulators are mandating better power quality and grid resiliency.

The growing complexity of the grid spurs energy companies to embrace digital transformation. Digital devices help prevent grid failure or blackouts and also identify any change in the performance of a transmission and distribution (T&D) asset in real time. Such real-time monitoring helps utilities minimize downtime and the occurrence of unplanned outages. Recognizing the market’s changing dynamics, leading companies such as Siemens Energy are launching digital smart grid products, including smart transformer and switchgear for its utility customers worldwide. Siemens Energy stands out from competitors as it is the only company to offer a comprehensive digital transformer (Sensformer™) portfolio for its global customer base.

Sensformer operates similar to a traditional transformer, while its Internet of Things (IoT) gateway can measure various critical parameters in real time. In 2018, the company expanded its offering to switchgear and other grid equipment for both T&D voltage classes. The development of a comprehensive portfolio of next-generation technology products positions Siemens Energy as a preferred-vendor-of-choice among utility and industrial customers globally.

### **Reliability and Quality**

Reliability and resiliency is a key performance indicator for any utility. Moreover, regulators continuously monitor grid performance based on these two factors as countries witness the proliferation of distributed energy resources (DERs). Frost & Sullivan notes that Siemens Energy's grid equipment is known for quality and reliability.

Along the same lines, the Sensformer's in-built IoT gateway allows it to add intelligence to the network. It also offers operators information such as oil level, top oil temperature, low-voltage winding current, and the asset's GPS location. Prior to the launch of the Sensformer, sensors from transformers and switchgear were collected by separate systems, making it nearly impossible for smaller and mid-level utilities without advanced analytics solutions to integrate data for effective decision-making. With the Siemens Energy product portfolio, data generated from its Sensgear™, Sensformer, and other digital products can be combined to generate new insights that not only make operators' tasks easier but can be done without significant investment.

*"The simplicity of Siemens Energy's digital products, coupled with its ability to accelerate utility operators' digital transformation, has brought the company widespread accolades. Frost & Sullivan strongly believes such a client-friendly approach will further increase Siemens Energy's share in the global smart grid equipment market in coming years."*

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Further, operators can access a cloud-based platform application that acts as a digital twin, helping operators visualize data while offering strategic insights that enable near real-time decision-making at any given point in time. Such an approach helps utilities address the fluctuations caused by intermittent resources along the grid. Siemens Energy also offers a number of applications customized to customer requirements through its MindSphere operating system. MindSphere is a cloud-based IoT platform that enables connectivity between grid assets and digital systems, thereby providing a strong value addition by supporting a multitude of services and apps.

Siemens Energy's comprehensive solution addresses all critical processes in a substation, allowing for the digitization of critical asset maintenance and life cycle analysis, both of which was previously performed through analog signals, standalone sensors, or other systems. By combining solutions into one platform and utilizing a digital twin, operators can make accurate decisions related to asset management.

According to Frost & Sullivan, offering IoT-enabled grid equipment (such as transformers or switchgear) at the same cost of traditional equipment will disrupt the competitive landscape significantly. Siemens Energy is poised for market success due to its comprehensive and cost-effective digital smart grid equipment portfolio.

### ***Product Value and Positioning***

Traditionally, critical grid equipment, including transformers, switchgear, circuit breakers, and other equipment, are physically connected but not digitally linked. Moreover, some of these products are connected to legacy SCADA systems via analog systems such as copper cable. A major challenge with traditional automation systems is the inability to instantly and simply obtain real-time information about primary assets. Instead, operators or managers must scan through multiple layers or systems to identify relevant information. Further, traditional top-down approaches are still followed in the grid network, despite generated power shifting from distribution via a central power plant to DERs. Grid operators are increasingly embracing bidirectional power flow along the grid network due to a rise in DERs. Considering the above-mentioned factors and expected growth in digitalization in the utility industry, Siemens Energy realized the need for a digital solution located at critical nodes across the network. Siemens Energy also wanted to address the challenges inherent in diverse architectures and protocols by deploying sensors in transformers to perform pressure readings and monitor temperature and other parameters.

To address the inefficiencies of existing solutions, Siemens Energy developed its unique Sensformer™ (sensor + transformer) offering. The solution leverages physics and data to offer intelligence from transformers installed across the network, regardless of the product class (e.g., MV/HV), size, and power rating. Unlike solutions offered by competitors, Sensformer™ offers customers the opportunity to connect to the asset directly, thereby transforming voltage regulators into an info hub. The resulting valuable data not only offers insights on transformer health but allows operators to understand the current status of the grid network, allowing for enhanced reliability and resiliency of the entire grid.

Frost & Sullivan notes that Siemens Energy uniquely positioned its product to replace the need for traditional sensors, conventional transformers, and standard communication networks and their associated architecture and automation layers. Instead, it provides a single solution that can leverage the IoT to deliver superior value for its utility customers.

### ***Customer Acquisition and Growth Potential***

Cash-constrained utilities struggle to enable connectivity across their grid assets, especially primary assets such as transformer and switchgear. With its Sensformer and Sensgear products, Siemens Energy was able to combine function and information in a single solution. Following the success of its Sensformer launch in 2018, Siemens Energy introduced Sensgear the following year, and currently extends the offering to all of its T&D products. Siemens Energy believes in the co-creation of customer-centric use cases as a key to a long-lasting and ongoing business relationship. Additionally, with COVID-19 impacting the normal operations of utilities and other industries, most operators are exploring remote monitoring solutions.

With its in-built capabilities, Siemens Energy's comprehensive digital portfolio is better positioned to capitalize on market needs than competitors, allowing it to widen its customer base globally. Since the first installation of its Sensformer and Sensgear products in Australia, the company has acquired new customers across the world, including in China, South East Asia, Dubai, Europe, and other regions. The simplicity of Siemens Energy's digital products, coupled with its ability to

accelerate utility operators' digital transformation, has brought the company widespread accolades. Frost & Sullivan strongly believes such a client-friendly approach will further increase Siemens Energy's share in the global smart grid equipment market in coming years.

## Conclusion

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Despite digitalization initiatives gaining popularity globally, there was little hope for cost-efficient digital grid equipment to support utilities in altering the status quo. Siemens Energy's cost-effective digital product portfolio, including its innovative Sensformer™ and Sensgear™ offerings, addresses industry constraints, positioning the company as an attractive alternative to conventional offerings. Moreover, Siemens Energy's ability to provide digital products at the same cost of traditional grid equipment helps operators generate and leverage data to improve their resiliency, reliability, and flexibility, resulting in a superior value addition.

With its strong overall performance, Siemens Energy earns Frost & Sullivan's 2021 Product Leadership Award in the global smart grid equipment industry.

## What You Need to Know about the Product Leadership Recognition

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Frost & Sullivan's Product Leadership Award recognizes the company that offers a product or solution with attributes that deliver the best quality, reliability, and performance in the industry.

### Best Practices Award Analysis

For the Product Leadership Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

#### *Product Portfolio Attributes*

**Match to Needs:** Customer needs directly influence and inspire the product portfolio's design and positioning

**Reliability and Quality:** Products consistently meet or exceed customer expectations for performance and length of service

**Product/Service Value:** Products or services offer the best value for the price compared to similar market offerings

**Positioning:** Products serve a unique, unmet need that competitors cannot easily replicate

**Design:** Products feature innovative designs, enhancing both visual appeal and ease of use

#### *Business Impact*

**Financial Performance:** Strong overall financial performance is achieved in terms of revenues, revenue growth, operating margin, and other key financial metrics

**Customer Acquisition:** Customer-facing processes support efficient and consistent new customer acquisition while enhancing customer retention

**Operational Efficiency:** Company staff performs assigned tasks productively, quickly, and to a high-quality standard

**Growth Potential:** Growth is fostered by a strong customer focus that strengthens the brand and reinforces customer loyalty

**Human Capital:** Commitment to quality and to customers characterize the company culture, which in turn enhances employee morale and retention

