



ENERGY

Contact us today to learn more about how we can help you navigate the uncertainties of the Energy Cloud.

ERIK GILBERT
Director
303.728.2536
erik.gilbert@navigant.com

JAY PAIDIPATI
Director
303.728.2489
jpaidipati@navigant.com

BILHUDA RASHEED
Senior Consultant
781.270.8411
bilhuda.rasheed@navigant.com

navigant.com/Energy

About Navigant

Navigant Consulting, Inc. (NYSE: NCI) is a specialized, global professional services firm that helps clients take control of their future. Navigant’s professionals apply deep industry knowledge, substantive technical expertise, and an enterprising approach to help clients build, manage and/or protect their business interests. With a focus on markets and clients facing transformational change and significant regulatory or legal pressures, the Firm primarily serves clients in the healthcare, energy and financial services industries. Across a range of advisory, consulting, outsourcing, and technology/analytics services, Navigant’s practitioners bring sharp insight that pinpoints opportunities and delivers powerful results. More information about Navigant can be found at navigant.com.

iDER MATURITY ASSESSMENT

PREPARING FOR THE ENERGY CLOUD REQUIRES A DETAILED PLAYBOOK. THE FIRST STEP IS AN ASSESSMENT TO UNDERSTAND YOUR LEVEL OF PREPAREDNESS.

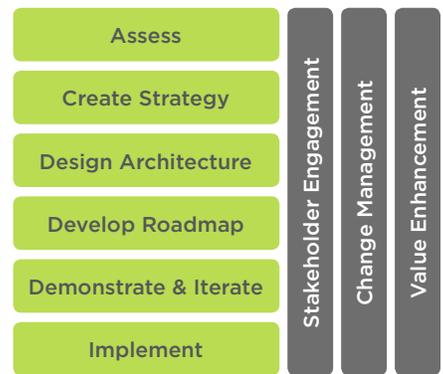
WHY PREPARE FOR DISTRIBUTED ENERGY RESOURCES?

Distributed energy resource (DER) adoption is one of the most disruptive factors impacting the grid today and into the future. Navigant’s forecasts show that DER capacity is expected to grow almost three times faster than new central station generation over the next five years. North American utilities, meanwhile, are at various stages of integrating distributed generation, demand response, energy efficiency, electric vehicles, and energy storage. Many are unprepared for the dynamic impact these resources will have on current grid operations. For utilities to take control of their future, an integrated DER strategy and approach is critical.

The direction is clear. The industry is moving away from a one-way grid architecture powered by large centralized generation assets like fossil fuel, hydro, and nuclear power plants, and toward a platform of highly networked distributed energy, two-way power flows, and intelligent grid architecture. We call this the Energy Cloud. To help our clients navigate this changing landscape, Navigant has developed the Energy Cloud Playbook.

ENERGY CLOUD PLAYBOOK

The Energy Cloud Playbook includes a detailed assessment of your organization’s DER preparedness. Navigant’s multi-faceted iDER Maturity ModelSM provides an assessment of a utility’s progress toward DER integration. We start with a blueprint for what a fully integrated DER system looks like and then define five levels of integrated DER (iDER) maturity based on that blueprint. We then assess your strategy, organization, and operations against these maturity levels.



WHAT DOES A FULLY INTEGRATED DER SYSTEM LOOK LIKE?

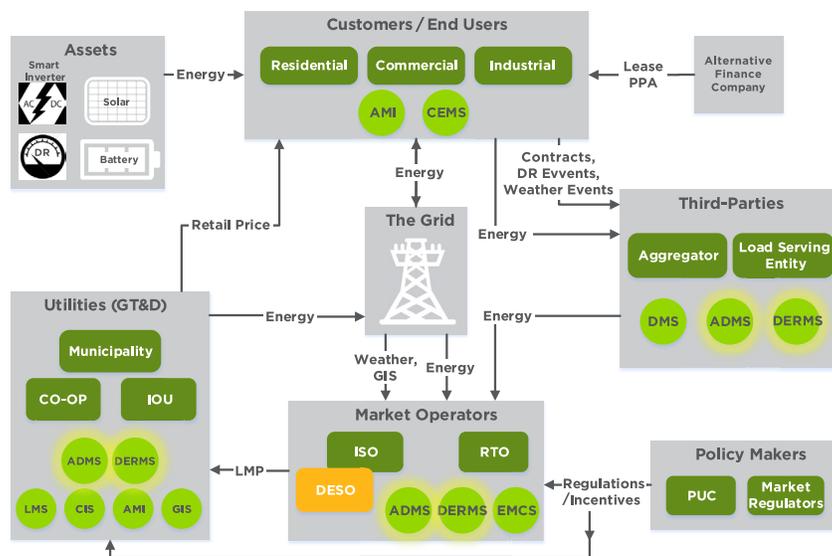
Utilities at advanced iDER maturity levels will have addressed issues arising from high DER penetration such as intermittency, reverse energy flows, and power quality issues. They are using information and operations technology (IT/OT) in coordination and have aligned their business processes, operations, and organization appropriately. DER management systems (DERMSs) and advanced distribution management systems (ADMSs) are managing DER output at the feeder and substation level. At this advanced DER maturity level, utilities have augmented their role as a supplier of electricity and have assumed the role of a platform provider, enabling prosumers to market their DER assets in an open market. This role is not only critical to fully maximize the benefits of DER, but will be key to provide future value to utilities’ customers and shareholders.

The graphic below summarizes Navigant’s blueprint for a fully integrated DER system. It shows utilities, customers, third parties, market operators, and regulators working in conjunction with integrated DER processes for full integration across operations, energy markets, and IRP. These processes are supported by critical information, operations, and communications technology (IOCT) systems to ensure active, real-time, and large-scale integrated DER management. In such a system, evolving energy economics and increasing customer choice, supported by strong policies and mandates, drive DER penetration. Third-party aggregators and customers are incentivized to participate in the local energy markets, supported by transactive energy platforms and systems.

HOW DOES THE IDER MATURITY ASSESSMENT WORK?

The blueprint for this advanced and fully functioning iDER system is described as Level 5 in Navigant’s iDER Maturity Assessment. Navigant’s multi-faceted Maturity Model benchmarks a utility against the five maturity levels across the following major dimensions:

- Customers and Programs
- Regulation and Policy
- Business Models
- Technology
- Operations



Utilities can leverage the iDER Maturity Model assessment to understand and map out a profitable path to the future. The two utility profiles (below) describe how organizational initiatives can be benchmarked against our iDER maturity model.

EXAMPLE UTILITY A: BUSINESS AS USUAL MARKET (FROM MATURITY LEVEL 1 TO 2)

A utility in a state representative of business as usual (BAU) stayed the course on investing in traditional generation assets and was reluctant to even pursue advanced metering infrastructure (AMI) investments. However, disappointing load growth and increased federal regulations targeting fossil generation of late are undermining long-standing assumptions, causing management to reevaluate priorities. This includes surveying DER opportunities and contemplating shifting investments toward assets and services that would support DER. The question remains whether these efforts will be too little too late, as their customers increasingly become targets for third-party providers of energy services.

EXAMPLE UTILITY B: GRID REFORM MARKET (FROM MATURITY LEVEL 3 TO 4)

A utility that operates in what could be characterized as a grid reform state (i.e., under aggressive renewable and distributed policies) has taken a decidedly Energy Cloud mindset. Anticipating a more networked grid, this utility has begun developing new services—integrating electric vehicle (EV) charging with demand response, offering bring your own device programs to customers, etc.—to serve an integrated, plug-and-play electricity system that it believes will enhance the value of individual assets across the network. With the goal of shifting away from the traditional ratepayer model, this utility is taking steps to provide customers maximum flexibility and choice in how they use energy in order to maximize value across the network. To accomplish this, this utility is proactively building collaborative partnerships with technology providers.

MATURITY LEVEL	DESCRIPTION
LEVEL 5	Fully mature iDER business Full set of value-added DER products and services, significant revenue, fully integrated into IRP, markets, and operations
LEVEL 4	Managed iDER at scale Full implementation, DER at scale, fully integrated into IRP, markets, and operations, limited value-added DER products and services
LEVEL 3	Integrated pilot DER Piloting, DER at scale, initial integration of some DER into IRP, markets, and operations
LEVEL 2	Fragmented DER at scale Planning, DER at scale, not integrated
LEVEL 1	Inactive DER Inactive, no significant DER at scale, not integrated