

The utility of the future

Embrace diversification and new business models



Energy Generators and Transmission and Distribution companies face a landscape experiencing unprecedented change. By 2040, global demand for energy will have risen by 30%.

At the same time, the shift to renewable network generation, coupled with distributed local and domestic generation from solar and wind, is transforming demand profiles.

To survive, utilities must embrace diversification and new business models - achieved with the right operational visibility, asset management strategy, and a service-centric mindset.

A changing landscape

Decarbonization: the shift to renewable energy generation

According to the latest edition of the IEA's annual [Renewables Market Report](#), renewables are set to account for almost 95% of the increase in global power capacity through 2026, with more than half provided by solar PV. The increase in renewable capacity over the period of 2021 to 2026 is expected to be 50% higher than from 2015 to 2020.

Many major players in the oil & gas sector are creating multi-disciplinary joint ventures and acquiring start-ups in their move towards 'sustainable energy'. *This means diversification into solar, wind and increasingly, hydrogen.* In an effort to create new, long-term revenues whilst reaching Paris Agreement global emission targets, a growing number of major energy and utility companies are teaming up with agile enterprises and disruptive start-ups.

Hydrogen is likely to become a critical energy source as the first steps towards a 'hydrogen society' infrastructure begin to emerge, and generation costs decrease. Heat pump technology is now maturing, and governments are backing green heating with grants. Energy companies are increasingly looking at energy-as-a-service models, managing clean energy provision for customers end-to-end.

Diversification: new opportunities, new business models

Energy companies need to diversify, or they will disappear. Renewable energy is now a reality that already makes up a significant portion of our energy supply. But as power generation companies diversify into renewable energy to compete, they face new business management challenges. To operate renewables alongside traditional methods of power generation, companies must embrace new business models.

Many new challengers are entering the Transmission & Distribution market, and must deal with disruptive technology, distributed energy sources and changing consumer demands. While renewable energy sources grow, the lifetime of existing assets will be extended, requiring robust maintenance and monitoring to remain reliable and safe.

Industry, as well as private households are increasingly looking to energy sources like solar panels and geothermal systems to supplement their primary energy supply, bypassing the traditional energy companies.

This “Behind-the-Meter” Generation and growth of distributed energy resources erodes the revenue of power generation and distribution companies. It also exposes a national or regional grid that is currently not designed to accommodate decentralized, renewable energy production.

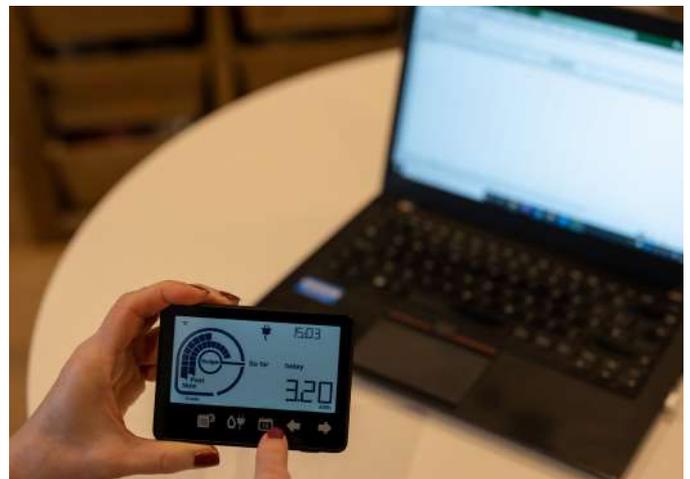
In response, utilities can diversify, selling and servicing Distributed Energy Resources (DERs) like solar panels directly to end consumers. Energy and utilities players are uniquely positioned to leverage their economies of scale: they have access to an established service workforce, which in turn supports more consumer choice, new payment plans to offset up-front costs, and faster service. Consumers embracing self-generation offers can reduce energy costs (or monetize surplus energy sold back to the grid) while also dealing with a regulated and certified company.

As utilities lose their monopoly of the grid, and more high value energy consumers switch to self-generation islands or microgrids, the utilities will need to introduce connection and operation fees to generate revenue and cover the cost of maintaining supplies to smaller last mile/ occasional user customers. The duty of care remains unchanged: a utility must still provide enough power to sustain all of the connections that it has, regardless of whether energy is consumed or not. Increasingly, demand response agreement models to optimize green energy consumption and reduce ‘dirty’ generation in peak periods will filter down to consumers.

Maintenance challenges

Operating a mixed power generation portfolio or bringing in new business models such as joint ventures or additional products and services, brings new maintenance challenges. The growth of DERs will see energy companies faced with monitoring and servicing hundreds of thousands of new, small-scale assets. They will need to make a focused effort to implement smart and predictive technologies such as artificial intelligence (AI), machine learning (ML), and digital twins to turn the flood of data into intelligible insights. *In fact, IDC predicts* that by 2025, over 50 percent of utilities will increase spend in automating operations with an emphasis on edge, AI and ML technologies, thus doubling the penetration of predictive and prescriptive maintenance.*

* IDC FutureScope: Worldwide Utilities 2021 Predictions



Increasing consumer expectations

Consumers are increasingly expecting the same choice, responsiveness, and value that they experience when shopping online from their utility providers. Utilities must expand communication channels, digitize basic services, and create more self-service options with a personalized experience. At the same time, optimizing the productivity of the field workforce to deliver the best possible customer experience provides another opportunity to differentiate in an increasingly crowded marketplace.

Understanding data

For over 40 years utilities have invested hugely in SCADA, Internet of Things, smart meters and more and amassed a wealth of data that is currently untapped. Yet by investing in big data analytics utilities can extract actionable insights to help them plan effectively. *Analytics can pinpoint poor performing assets, monitor agreements, and help inform energy projections for future capacity and demand.*

Infrastructure: from asset ownership to leasing

In 2022, investment in transmission infrastructure will increase from billions to trillions. To support this, infrastructure must be modernized and strengthened to accommodate the increased electric loads for the sustainable energy goals we've set, requiring a complete overhaul of existing transmission facilities. While Europe benefits from some geographic interconnectivity to share generation capacity between neighbouring countries, in North America the expanded grid needs to be self-reliant. The integration of new generation capacity and a way to capture that – for example with batteries – is key.



While traditionally utilities have owned assets and infrastructure, increasingly with renewables utilities are instead becoming operators, leasing transmission and distribution networks and assets. For example, instead of buying, owning and maintaining a smart meter fleet, they will elect to procure a service contract to lease them, including deployment and maintenance, for the lifetime.

Distributed assets at the edge of the grid create further complications. Local generation from renewables obscures the supply and demand dynamics that drive capital investments, yet power companies need to maintain reliable service and quality as the grid energy expert. This shift away from owning the assets to a decentralised landscape means utilities must start investing not just in Advanced Distribution Management System (ADMS) solutions but also Distributed Energy Resources Management (DERM) solutions, too.

Ensuring compliance and performance

In a regulated sector, environmental issues and a focus on resilience make it more important than ever to extract the most value from your available resources. This means efficiently managing new projects, optimizing usage of field engineers, ensuring the supply network can meet demand.

A holistic response to succeed

Manage Assets, Projects and Service with IFS Cloud

The need to manage new investment projects, complex and linear assets, a distributed field workforce and increasing customer expectations poses many challenges for the energy and utilities ecosystem.

By applying holistic, composable, seamless software capabilities across Assets, Projects and Service, IFS removes business silos to create united, smart and agile organizations.

Manage and maintain complex transmission network assets

Planning new investment and managing the operation of power network and equipment is key to keeping customers connected, ensuring the safety of your workforce and of local communities, and improving your operating margin. IFS Enterprise Asset Management offers seamless linear asset management including mapping and GIS integration, Asset design management and Mobile optimization. Capabilities include:

- Asset planning and operations
- Asset operations and maintenance
- Asset performance management



Control and complete projects faster

Projects in the utilities industry are complex, involving multiple stakeholder divisions such as sub-contractor workforces, regulators, government agencies, and more. Typically, this meant using separate software products across different stages of the project such as tendering, commercial, estimating, engineering, procurement, manufacturing & fabrication, planning, cost control, construction, installation and commissioning. In contrast, IFS supports the management of complex project lifecycles, and joint ventures with seamless, fully integrated project management software. Capabilities include:

- Project Gantt functionality – multiple operations
- Definitive view of entire project lifecycle
- Bid to Contract Management
- BIM, CAD and Product Lifecycle Management

Deliver market leading service with an optimized field workforce

Optimizing the productivity of your field workforce while delivering a great experience for your customers is ever more challenging in today's on-demand economy. IFS's world-class real-time scheduling and optimization tool uses AI and advanced algorithms to deliver the optimum workforce schedule, increasing satisfaction, building loyalty, and growing revenue. Capabilities include:

- Dynamic scheduling optimization - multiple dependencies
- Workforce automation
- Remote assistance - augmented reality
- 'What-if' planning
- Real-time visibility using any device

Find out more

Further information, e-mail info@ifs.com, contact your local IFS office or visit ifs.com



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