

HOW PRODUCT & SERVICE INNOVATIONS AT THE GRID'S EDGE ARE DISRUPTING THE TRADITIONAL UTILITY BUSINESS MODEL

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Overview

New technological innovations allow today's customers a wide variety of choices not historically available. Today's consumers can generate some or virtually all their power needs, at least part of the time, which means they can become *prosumers*. With declining cost of storage, they can go a step further and become *prosumagers*. And even more exotic variety of consumers are emerging, enabled by intermediaries who can increasingly aggregate their consumption, generation and storage while monetizing the value of such aggregation. Other emerging models include peer-to-peer trading made possible through blockchain technology, to name an example.

Methods

The author examines the impact of such *customer stratification* as consumers self-select how and how far they may wish to migrate from the traditional reliance on the bundled regulated services offered by the local distribution network, historically the only type of service available to them. As more customers select different service options, the impact on the traditional service providers becomes pronounced.

Results

The early indications of the consumer stratification include loss of revenues as well as potentially problematic flows on the distribution network as more consumers become prosumers and prosumagers, many feeding the network rather than withdrawing from it. These impacts are already evident in places with high concentration of rooftop solar PVs, electric vehicles (EVs), or both. The impact will become progressively more noticeable and problematic over time.

Conclusions

Traditional utilities and distribution network operators in places such as California, Hawaii, Queensland, South Australia, many parts of Europe including Germany, Italy and Denmark, are already confronting the impact of distributed energy resources (DERs) in increasing concentrations. Regulators and policymakers must modify the tariffs and the rates charged to consumers, prosumers, prosumagers and the more exotic varieties based on the values they derive from the network and the costs they impose on the same.

References

Innovation & disruption at the grid's edge, Fereidoon Sioshansi (Ed), Academic Press, 2017.