

How innovation and disruptions is reshaping the future of the power sector

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Abstract

The electric power sector is undergoing fundamental transformations at an unprecedented pace brought about due to rapid uptake of distributed energy resources or DERs, a two-edged sword which is eroding utility revenues as increasing number of *consumers* become *prosumers* by *using less* – through energy efficiency schemes – while producing more of what they consume – through distributed self-generation.

If the cost of storage declines, as expected, prosumers can move a step further by becoming *prosumagers* – consuming, producing and storing energy by better management of when and how energy is used, generated and/or stored.

Moreover, promising developments in machine-to-machine (M2M) communications, open platforms using blockchain encryption allows *prosumers* to engage in peer-to-peer (P2P) trading by sharing distributed generation and storage.

Add a new generation of aggregators, integrators and intermediaries will open new opportunities for consumers, prosumers and prosumagers to become proactive in future energy marketplace both at retail and wholesale level.

This presentation examines how such developments are disrupting the traditional business model of the incumbents while creating opportunities for new entrants and the challenging facing the regulators and policymakers.

The implications of developments in power sector are important since an increasing share of global primary energy is diverted to electricity generation.

Biographical sketch of Fereidoon P. Sioshansi

Dr. Sioshansi is President of **Menlo Energy Economics**, a consulting firm based in San Francisco advising clients on diverse energy issues. He is a frequent speaker at international conferences speculating on the rapid transformation of the electricity sector and emerging business models.

He has over 35 years of experience including working at **Southern California Edison Company** (SCE), the **Electric Power Research Institute** (EPRI), **National Economic Research Associates** (NERA), and **Henwood Energy**, now part of **ABB**.

He is the editor and publisher of **EEnergy Informer**, a monthly newsletter celebrating 27 years of publication with international circulation. **EEnergy Informer** is regularly featured in **The Electricity Journal**, **Energy Spectrum** (UK), **Renew Energy** (Australia), **California Currents** (US), **Energize** (So. Africa), **Energy Post** (the Netherlands) and the **IAEE Forum**.

He has edited 10 books published by **Academic Press**:

- **Innovation and disruption at the grid's edge: How distributed energy resources are disrupting the traditional utility business model**, forthcoming June 2017;
- **Utilities of the Future: Future of Utilities; How technological innovations in distributed generation will reshape the electric power sector**, April 2016;
- **Distributed Generation and its Implications for the Utility Industry**, June 2014;
- **Evolution of Global Electricity Markets, New Paradigms, New Challenges, New Approaches**, June 2013;
- **Energy Efficiency: Towards the End of Electricity Demand Growth**, Feb. 2013;
- **Smart Grid: Integrating Renewable, Distributed & Efficient Energy** (2011);
- **Energy Sustainability and the Environment: Technology, Incentives, Behavior** (2011);
- **Generating Electricity in a Carbon Constrained World** (2009);
- **Competitive Electricity Markets: Design, Implementation, Performance** (2008); and
- **Electricity Market Reform: An International Perspective** (2006).

He has degrees in Engineering and Economics, including an MS and Ph.D. in Economics from **Purdue University**.