**Reading List:**

1.Internet of Things (IoT) and the Energy Sector  
Naser Hossein Motlagh 1 , Mahsa Mohammadrezaei 2 and Julian Hunt 3 and Behnam Zakeri 3,4,\*

2.Internet of Things-aided Smart Grid: Technologies,  
Architectures, Applications, Prototypes, and Future  
Research Directions  
Yasir Saleem, Student Member, IEEE, Noel Crespi, Senior Member, IEEE, Mubashir Husain Rehmani, Senior Member, IEEE, and Rebecca Copeland

**Review: Internet of Things (IoT) and the Energy Sector**

Naser Hossein Motlagh 1 , Mahsa Mohammadrezaei 2 and Julian Hunt 3 and Behnam Zakeri 3,4,\*

by Hector Lopez 6/1/20

**Summary**

The paper highlights the future of research in the blockchain and green iot solutions. The paper covers the virtual powerplant idea as an aggregation of prosumers and discusses the needs for democratization of energy by tracking the distributed cost of energy consumption. Fog Computing seems to be the best way for blockchain technologies in IoT to be adopted in the energy sector because it circumvents the computational and security needs for a mature network by utilizing existing infrastructure built at wind and solar sites. The paper offers an insight into the use of IoT in the energy sector by providing the breakdown of the most important component to energy consumption, HVAC followed by lighting. These two components can be controlled by blockchain solutions and have a great. impact. Leading to the idea that a transformation of the grid can occur when IoT networks transform the energy sector from a centralized supply chain into a decentralized, smart and optimized system.

**Review: Internet of Things-aided Smart Grid: Technologies, Architectures, Applications, Prototypes, and Future Research Directions**

Yasir Saleem, Student Member, IEEE, Noel Crespi, Senior Member, IEEE, Mubashir Husain Rehmani, Senior Member, IEEE, and Rebecca Copeland

**Summary**

The paper dives into a detailed breakdown of each segment of the smart grid. The survey results in acknowledging the lack of research in published prototypes of IoT network simulations. The smart grid architecture proposed shows the layers involved in the networks overlaying the digital network with the physical network of power transmission. Most of the research surveyed has been shown to be focused on the Home area networks or HAN’s . IoT networks are built around mesh communications such as blue tooth and zigbee that allow for near field communications for systems don’t require high-reliability. In a smart grid the HAN is the first layer that needs to be connected through a field area network (FAN) or neighborhood area network (NAN). The best solution for NAN’s for IoT is LoraWan but its still not as useful for smart grid control because of the security concerns. The best NAN communication technology is a mix of cellular communication, wireless mesh and existing wired telecom lines. The WAN wide area network is best implemented with wired telecom lines to provide reliability needed by the smart grid. The greatest challenge of IoT penetration into the Smart Grid is the problem of interoperability. The different network solutions do not have clear standard for various reasons described in the paper around regional and technical constraints. The lack of standards causes manufacturers in HAN networks to adopt the best communication technology for the service or product that is provided. Compounding the problem smart grid technology will not change until there is economic demand to push the risk of grid stability into untested wireless communication technologies.