

SIDEBAR: THE HISTORY OF INDUSTRIAL FACILITY POWER DISTRIBUTION

In the early years of the 20th century, there were no power grids. Large industrial facilities were the first large-scale adopters of electricity, because it enabled mechanization in manufacturing. Factories installed their own electric generators and ran their own power systems (what are now known as “microgrids”). They also ran their own backup power systems to ensure reliability. Neighboring factories realized they could reduce resiliency costs by syncing their power systems and sharing backup resources. This created a local network of overhead power lines; nearby homes were ultimately allowed to connect to these lines, since they were typically owned by the factories or employees of the factories. These local power networks were created and run by factories and ultimately became the steppingstone to form power grids.

From 1920 – 1960, the power grid centralized power production because it was more cost-effective at the time to generate a lot of power at a central location and then distribute it. This is the moment monopolistic electric utilities were formed and end-users lost control of the power grid. Factories became customers and the energy supply was no longer theirs.

PURPA was passed in 1978 and The National Energy Policy Act was passed in 1992. These two groundbreaking pieces of legislation built the foundation for deregulation. With deregulation, customers started to gain access to alternative generation suppliers. This introduction of market options for the first time in 70 years prompted industrial customers to realize the shenanigans utilities had been perpetuating. Deregulation woke the sleeping giant of corporate energy purchasing and the power grid has not been the same since.

Building the modern power grid was tremendously complicated and immensely expensive. And, the monopolistic utilities and cooperatives who were charged with building it have utterly failed to maintain it. They have continued to rebuild above ground distribution networks (literally big sticks with wires like it’s 1900). They have failed to invest in automation, smart self-healing technologies, and efficiency. They haven’t even been able to keep the trees cut around their sticks with wires. They have not captured the real cost of maintaining the old grid and they have over-distributed profits to investors. A day of reckoning is coming as the aging grid crumbles. What’s more, those electric utilities are expecting consumers to bail them out again so they can spend trillions more dollars putting more sticks in the ground. Rates will skyrocket, and that’s before you consider other modern factors like putting a cost on carbon.

Corporations who operate energy-intensive businesses are scared, and have spent the last three decades relearning about energy. This period has given rise to energy-efficiency projects, demand response, peak shaving, and on-site generation projects. Corporations want to control their supply chain, and energy is a vital part of that supply chain. Corporations are now actively exploring ways to further take control of their energy purchasing. And, the single biggest thing they can do to take control of their energy needs is make their own power on-site.

With the advent of super fast computers, high speed switches and control algorithms, fiber optic and wireless communication, IGBTs, and new other modern equipment, there is no need for a centralized power grid. And, there most certainly is no legitimate need to have monopolistic electric utilities or electric cooperatives. They are big inefficient monsters necessitated by the past. They have deep pockets, and they will take a few decades to die off.

After 100 years of not being in control, end-users are fed up and they are taking back the power grid.