The electric grid we rely on today was established over a century ago when the demand for electricity was relatively straightforward. Initially, it was designed for utility companies to supply power to households on a monthly cycle, creating a one-directional flow of energy that struggles to adapt to the dynamic energy demands of modern society.

In contrast, the smart grid introduces a bidirectional communication system that fosters interaction between energy providers and consumers. This evolving network combines communications, control systems, automation, and advanced technologies to enhance the efficiency, reliability, security, and sustainability of the grid.

Within smart homes, the infrastructure allows consumers to monitor and manage their energy usage through smart meters. A Home Area Network (HAN) interlinks various smart devices, such as appliances and thermostats, with an energy management platform, enabling optimal energy utilization.

Smart grid technology offers grid operators valuable insights into energy consumption patterns in real time, which helps in minimizing outages and reducing the need for manpower in monitoring facilities. The distribution system is responsible for transporting electricity from utility companies to both residential and commercial spaces via power lines, switches, and transformers. By leveraging distribution intelligence, smart grids can quickly detect issues, adjust the flow of electricity, and expedite the restoration of services.

It was a discovery for me to connect homes to working systems in case of an emergency. There was an example in the video, an energy transmission tower broke down, and while it was being repaired, energy was brought to the house from another tower.

Для меня стала открытием идея подключать дома к работающим системам в случае чрезвычайной ситуации. В видео был пример, сломалась вышка энергопередачи, и пока её чинят, к дому провели энергию от другой вышки.