

Smart Grid 101

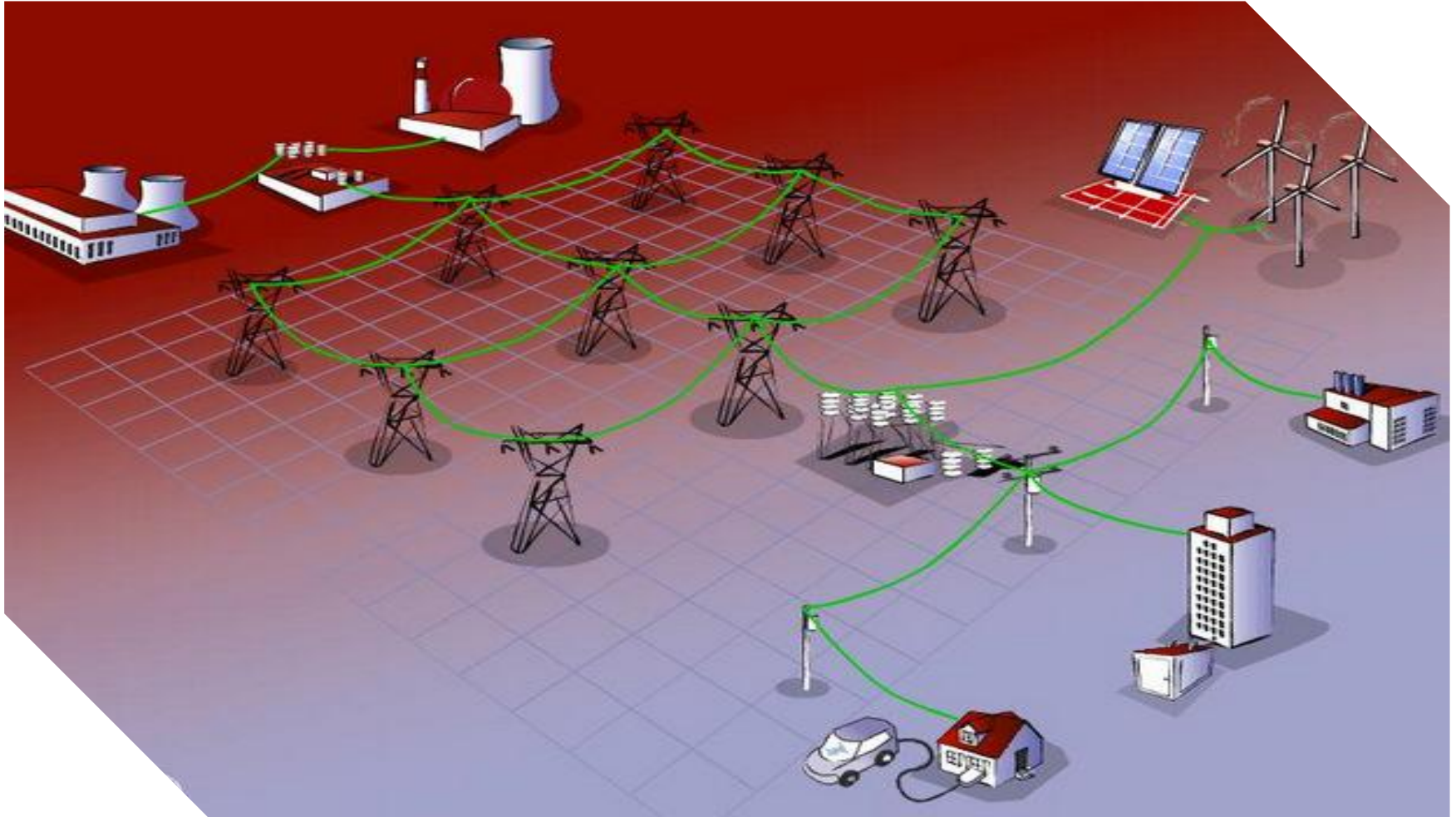
Colleen Ramsey

Objectives

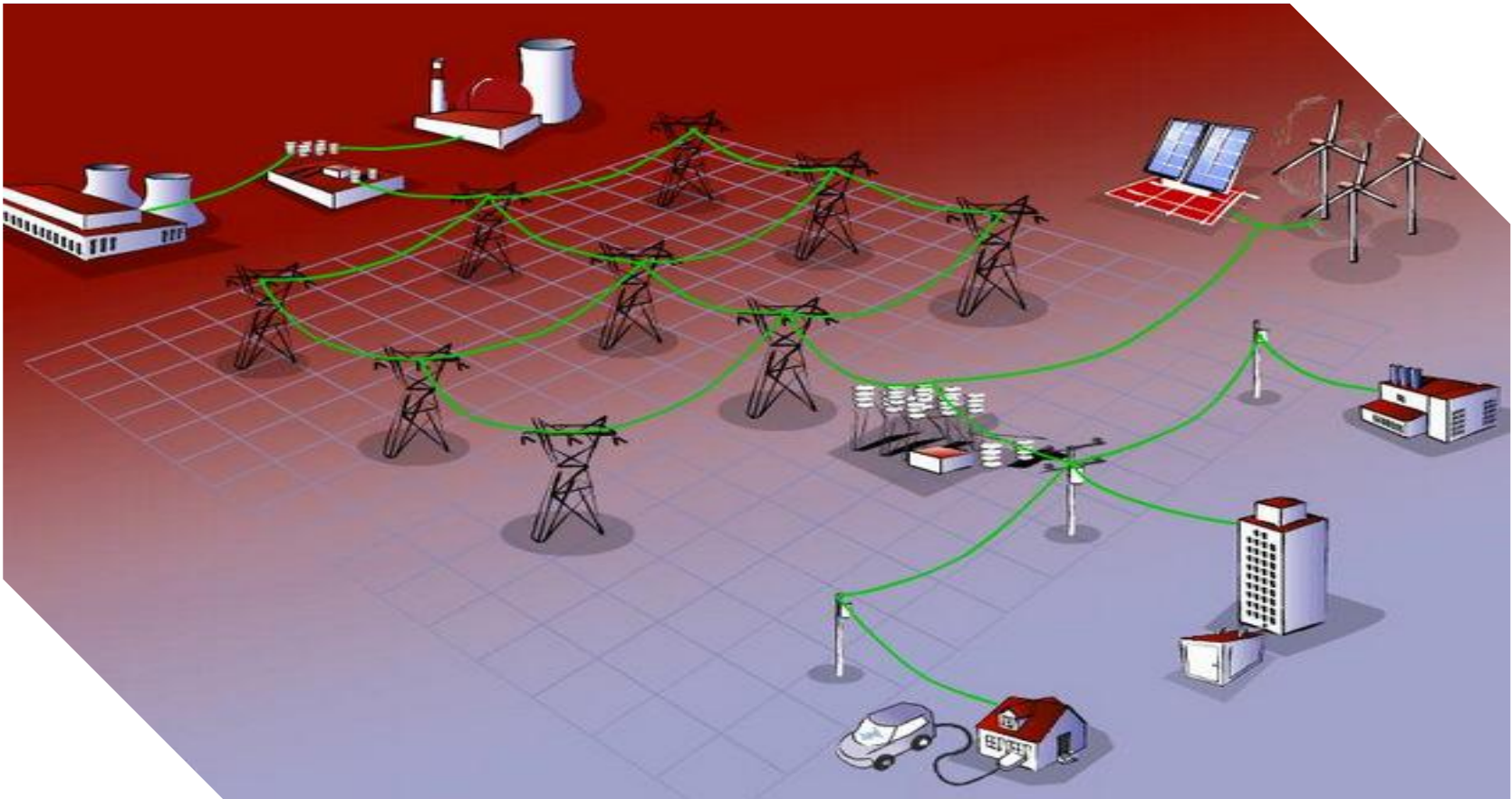
- What is Smart Grid?
 - What is the grid?
 - Why make it smart?
- Why all the hype about Smart Grid?
- What are the benefits of Smart Grid?
 - To renewable generation
 - To utilities
 - To electric customers
- Questions and Answers?



What is the grid?



What does and doesn't the grid know now?



Why all the hype about Smart Grid?

- Funding of Smart Grid is part of the American Recovery and Reinvestment Act, i.e., Economic Stimulus funds
- Supports many aspects of the National Energy Policy
 - Promotes customer choice related to energy efficiency and time-of-use rates
 - Improves the reliability and efficiency of the grid
 - Improves the ability to add more renewable generation (Wind, Solar, etc.)
 - Potential to reduce green house gases and dependency on foreign oil

Benefits for renewable resources

Improved integration of renewables

- Create energy storage solution
- Relieve transmission congestion
- Create better forecasting models



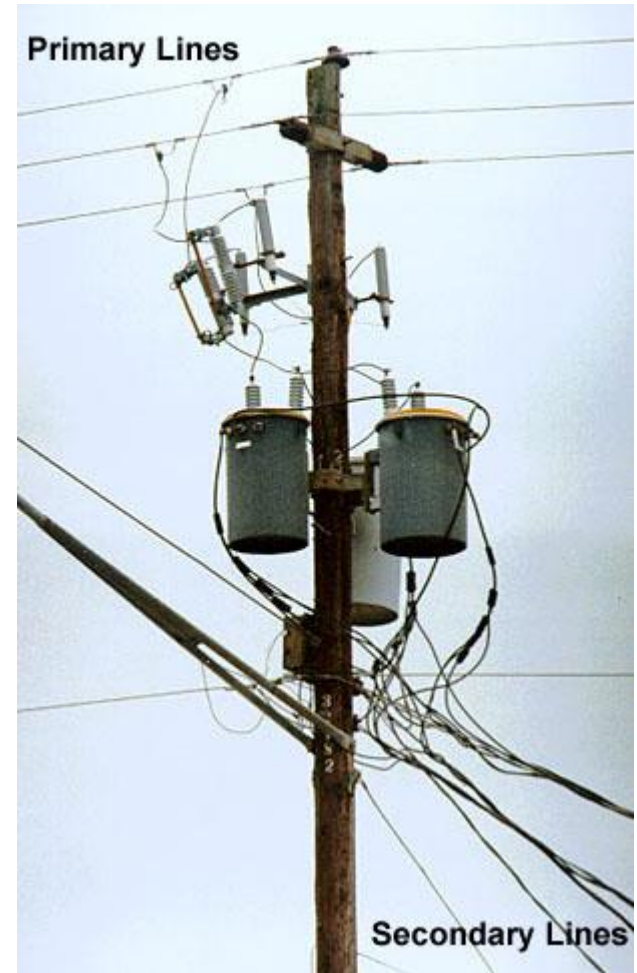
Improved integration of distributed generation

- Distribution systems upgraded for two way power flow
- Bi-directional meters (Smart Meters)



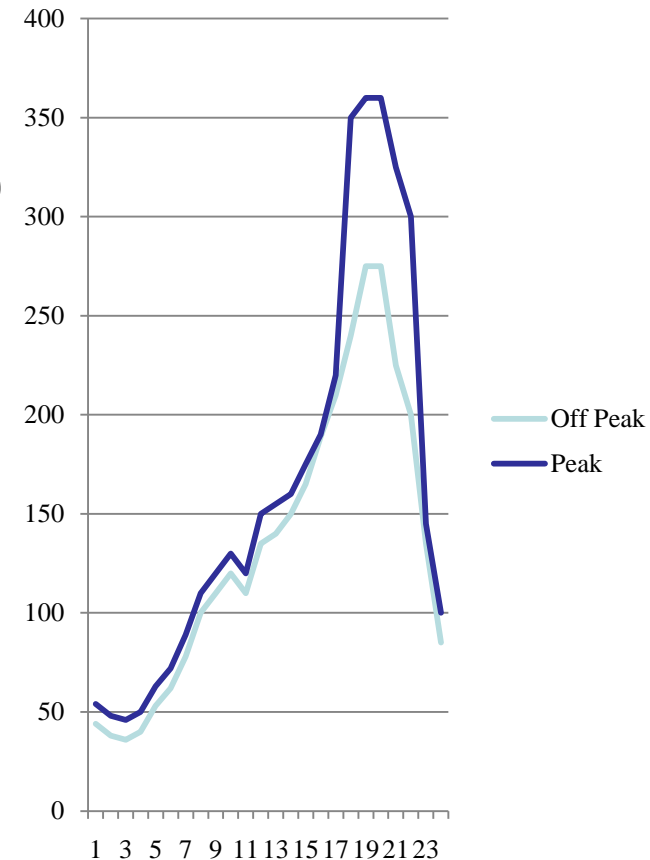
Utility benefits to Smart Grid

- Improve Reliability
 - Reduce the risk of equipment failure
 - Reduce outage durations (Smart Metering and Self-Healing Networks)
- Improve Grid efficiencies through monitoring and automation
 - May postpone the need to build new infrastructure
 - Saves energy



Customer Benefits of Smart Grid

- Promotes customer choice related to
 - energy efficiency
 - time-of-use or time variant rates
 - demand response or control (Manage the peak)



Summary

- So, what is Smart Grid?

It is the combination of information and communication technology with the electric grid to:

Enable consumers to manage their usage and chose the most economically efficient offering, while

Maintaining grid **reliability and stability** enhanced by **automation** and

Utilizing the most **environmentally gentle** generation **alternatives** including renewable generation and energy storage. (Berkeley Labs)

More Information

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