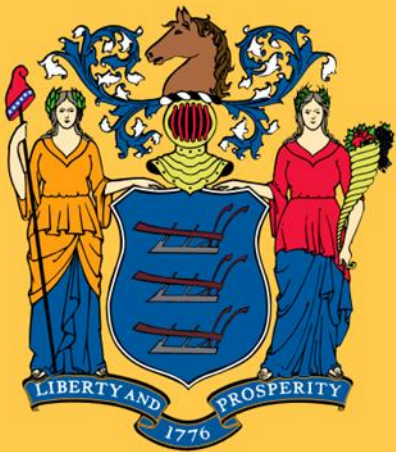


National Council on Electricity Policy



Transmission and Distribution Interface for Resilience

Thomas Walker
New Jersey Board of Public Utilities

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Definition of resilience (Merriam-Webster)

1. *The capability of a strained body to recover its size and shape after deformation caused especially by compressive stress.*
2. *An ability to recover from or adjust easily to misfortune or change.*

FERC, PJM/RTO, State, Agency, Customer

What does it mean for Energy? Reactive or proactive?

Energy Resilience

- Energy Supply Resiliency: at the FERC and RTO levels
- Energy Delivery Resiliency: RTO level, local distribution level
- Community Resilience: microgrid and municipal level
- Facility Resilience: continued operations of critical facilities such as hospitals and services

Can apply to “Blue Sky”, “Grey Sky”, and “Black Sky” days.

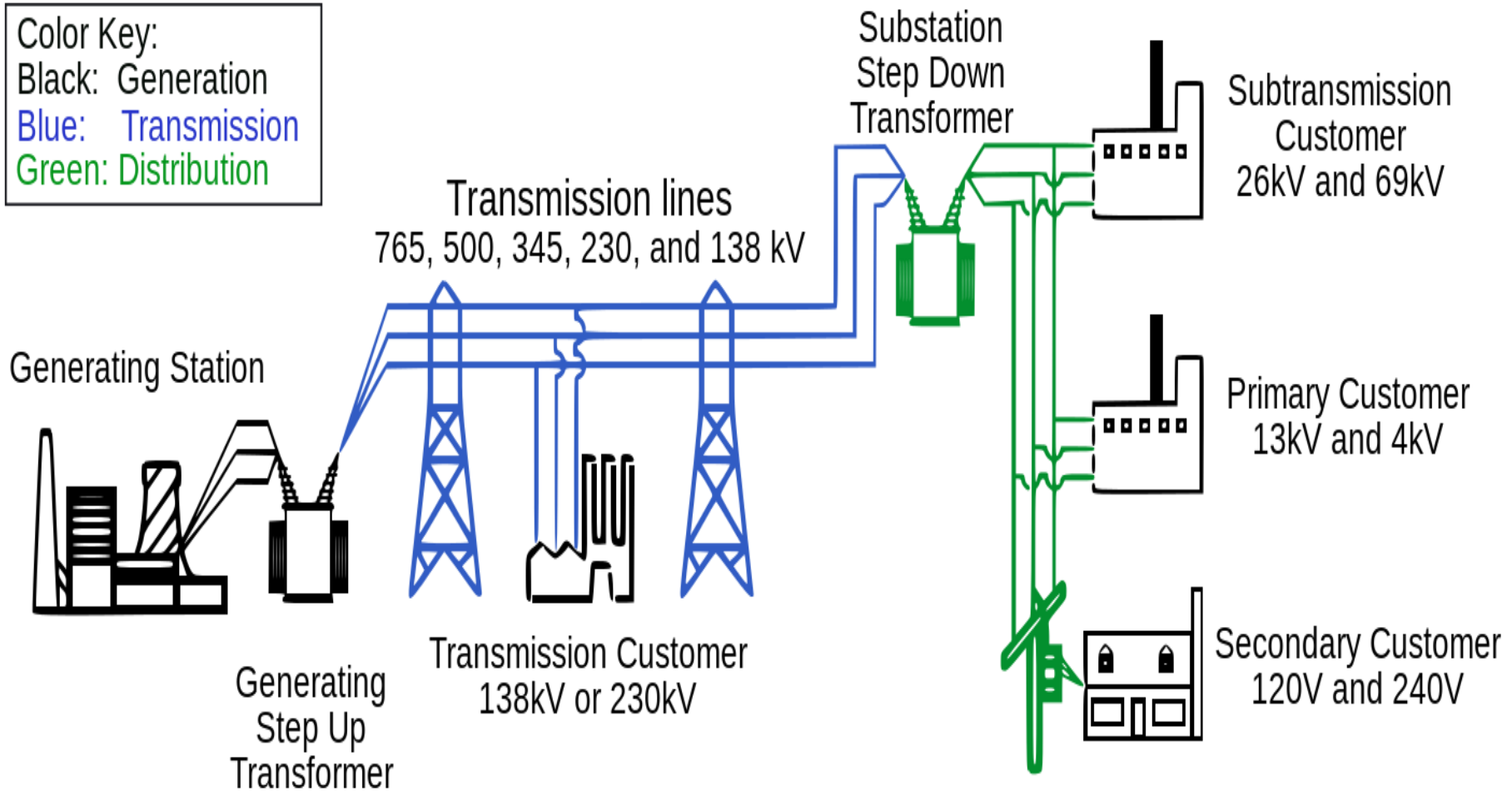
Examples of the Generator – Transmission – Distribution Systems

Color Key:

Black: Generation

Blue: Transmission

Green: Distribution



State Structure

Vertically Integrated

- Generation to customer
- Policy for State Benefits only
- What are drivers?

Deregulated

- Generation to RTO to EDC to Customer
- What is Regional Goal?
- What are EDC Goals?
- What are Customer Goals?
- What does the State regulator want?

Energy Supply Resiliency

- **FERC and RTO levels**
 - Daily operations and delivery
 - Peak load events
 - Major outage events
 - NERC criteria
 - PJM



Energy Delivery Resiliency

- **Local Distribution Level**

- Daily operations and delivery – with or without generation options
- System reliability and functionality
- Outage events
- Distribution automation
- Networking
- Communications
- EDC and GDC under BPU Regulation

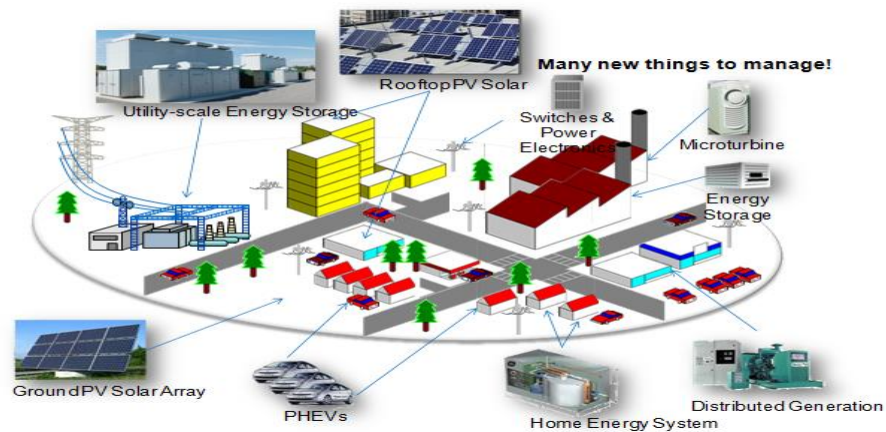


Community Resilience

- **Microgrid and Municipal:**

Campus, Facility or community microgrids

- Fueled by Distributed Energy Resources (DER)
- Separate, shared, “rented” infrastructure
- Owner/operator?
- Footprint



Key Aids/Intrusions

Landscape

- Daily operations and delivery
- Peak load events
- Major outage events
- NERC criteria
- PJM
- Energy Efficiency
- Distribution Automation
- Battery Storage
- Distributed Energy
- Resources
- AMI

Key Points

Policy in place

Who/What/How

Regional Impact

Lessons Learned

Going forward / Ideas