



# Perspectives on Microgrid Development

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[Imagination at work.](#)

# Challenges

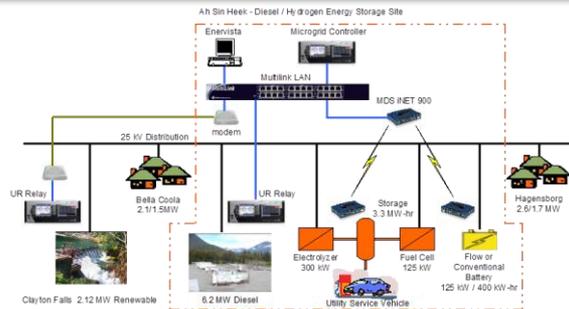
- Value Proposition
- Interoperability
- Interconnection Requirements
- Standards & Testing
- Asset ownership
- Application Engineering

Technology is only one piece of the puzzle

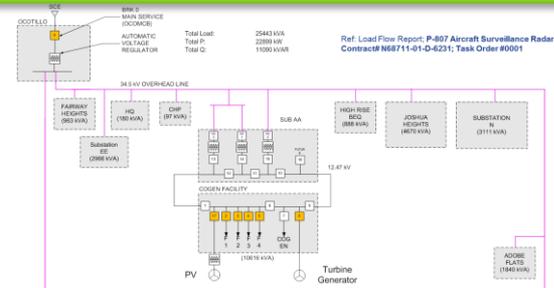


# Major Developmental Efforts at GE

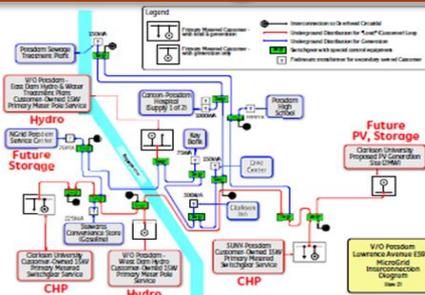
## Bella Coola Remote Microgrid



## 29Palms Grid-tied Microgrid



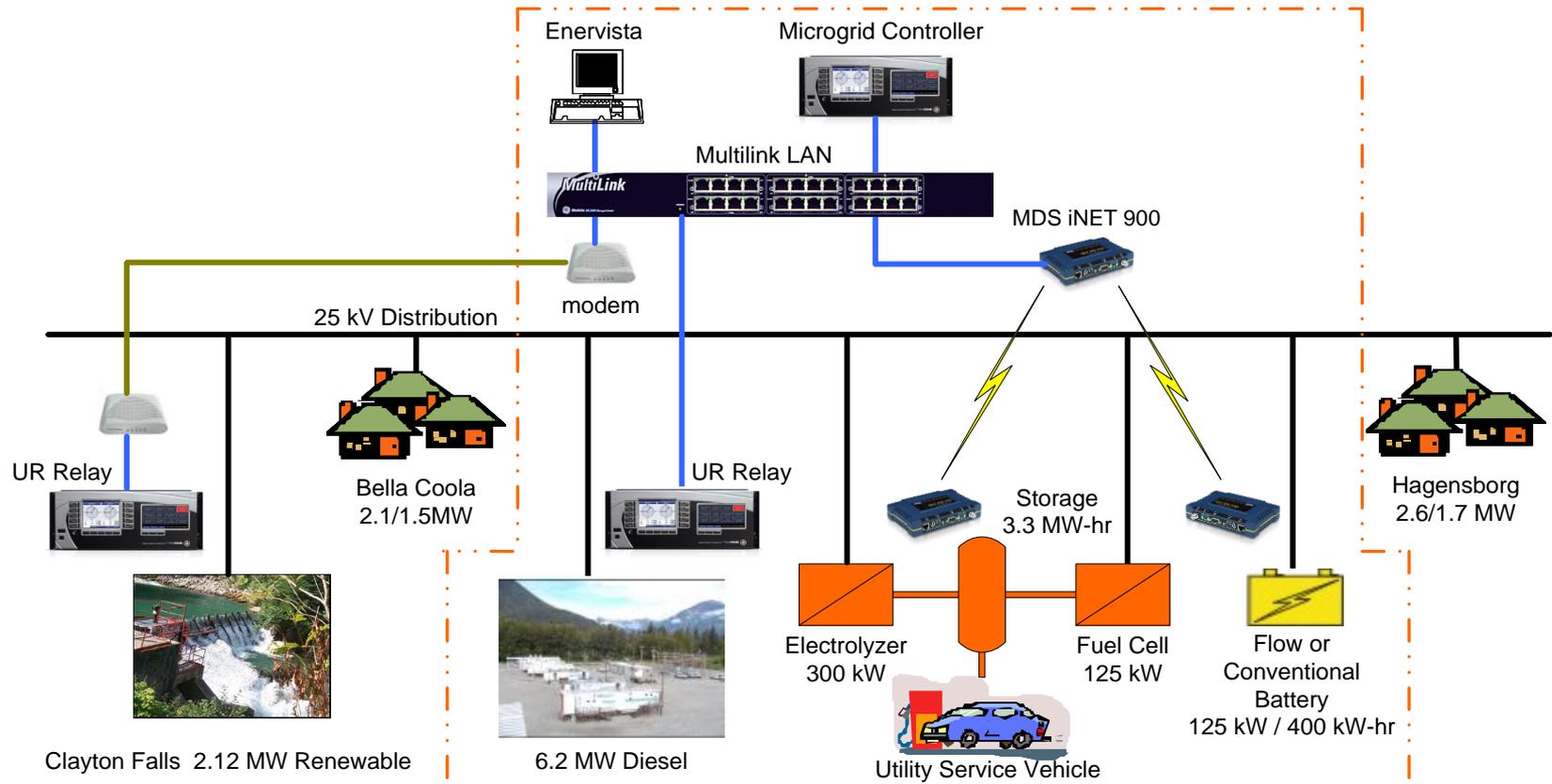
## Potsdam Community Microgrid



# Remote Microgrid, Bella Coola

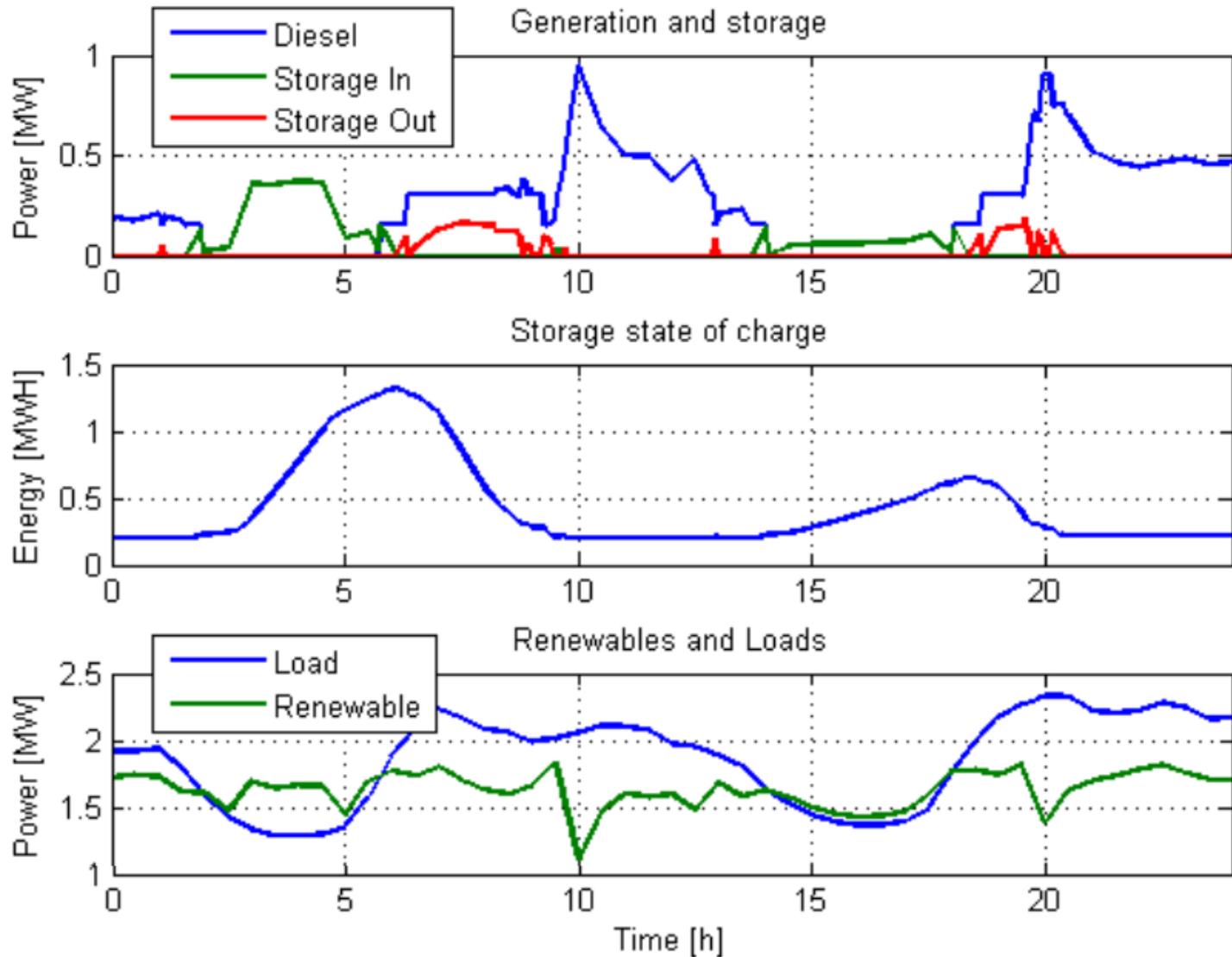


Ah Sin Heek - Diesel / Hydrogen Energy Storage Site

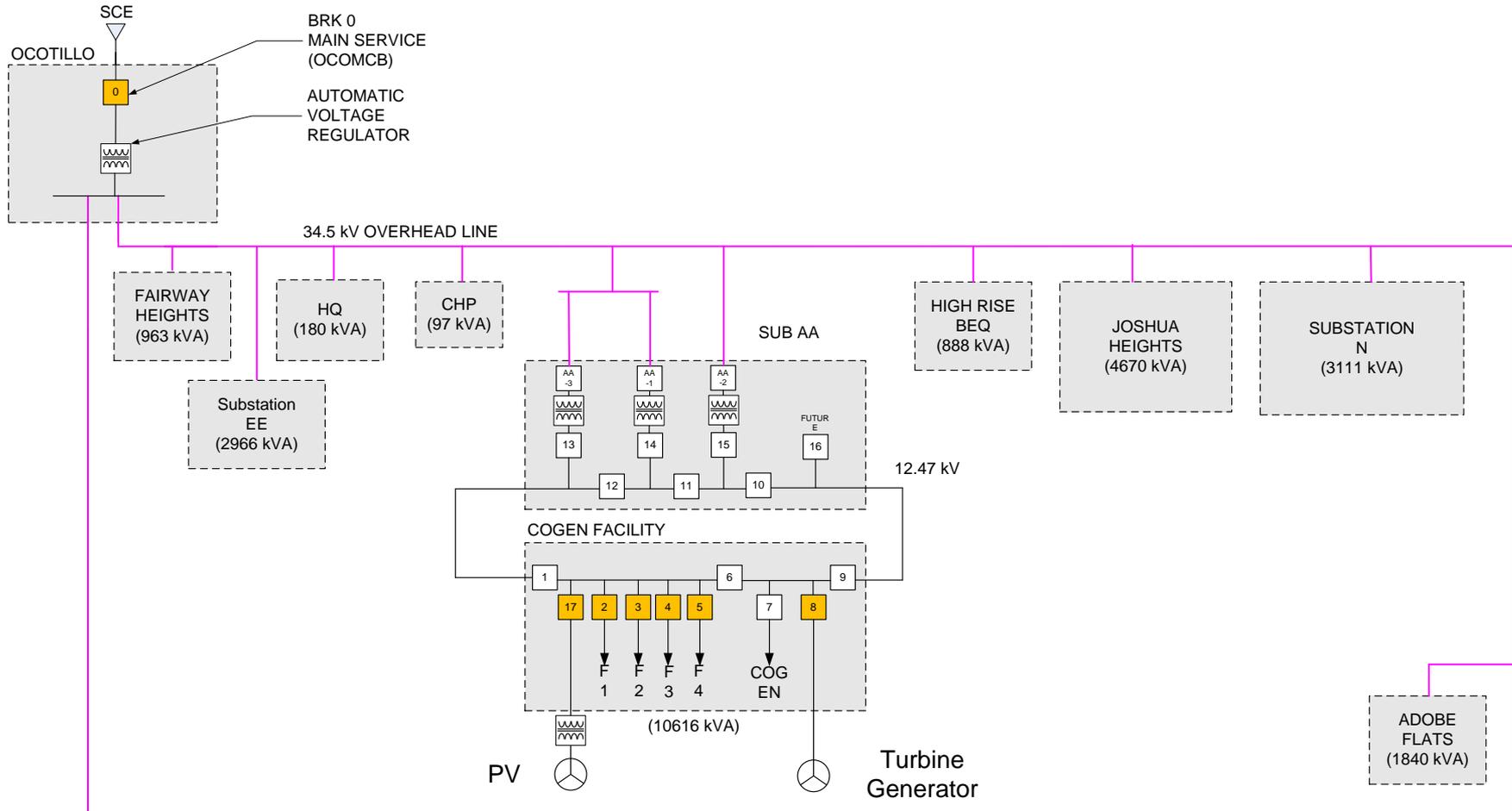


## Minimize Diesel Use

# Bella Coola Remote Microgrid



# Grid-tied Microgrid at 29Palms Military Base



# Microgrid Control Objectives

## Phase I (Optimal Dispatch)

- Optimal Dispatch of DERs
- Co-optimization of Electrical and Thermal Loops
- Islanding Capabilities

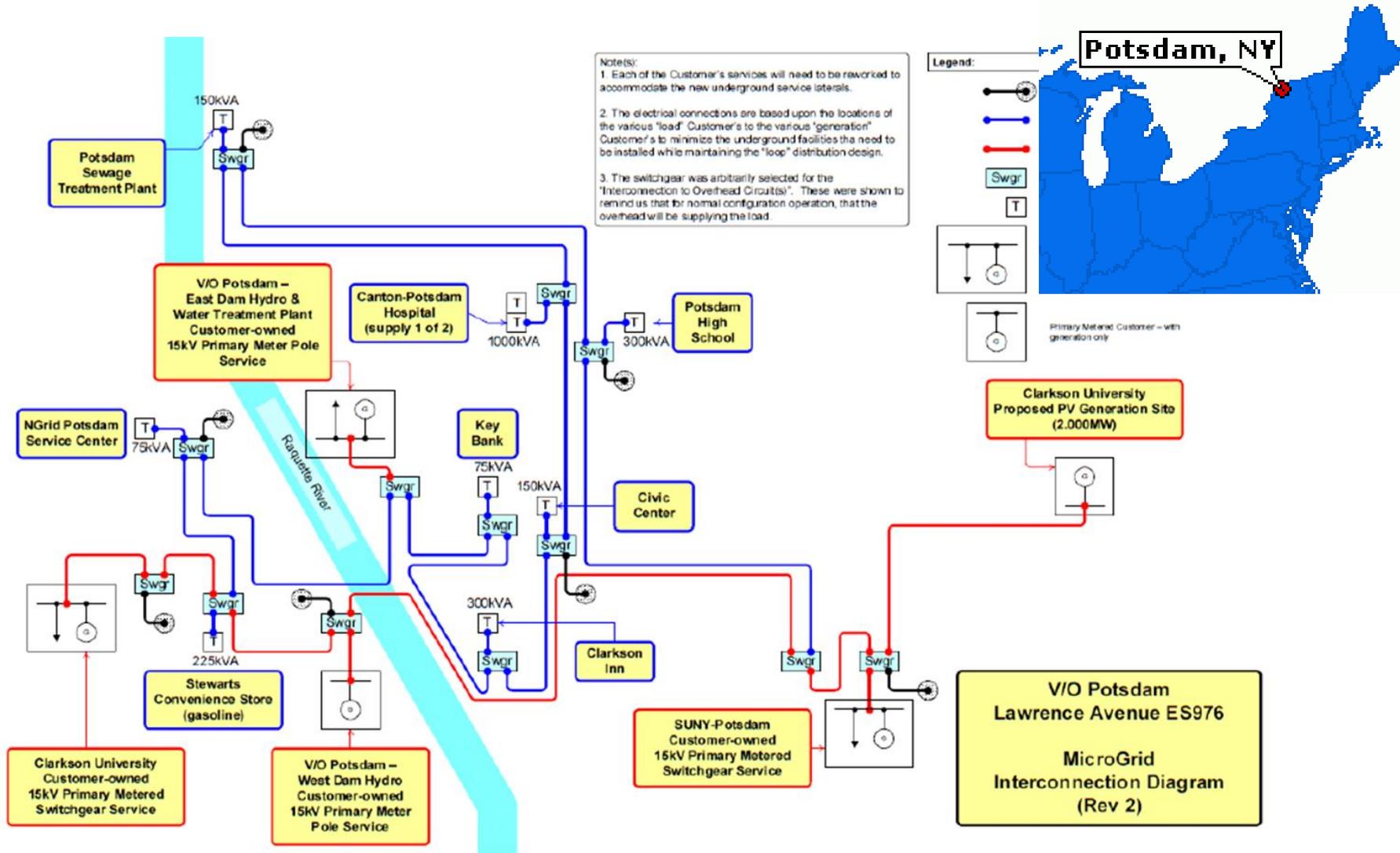
## Phase II (Integrated Volt/VAr Control)

- Peak Load Reduction using CVR
- Manage High PV Penetration
- Voltage Flattening
- Minimizing Utility asset operations

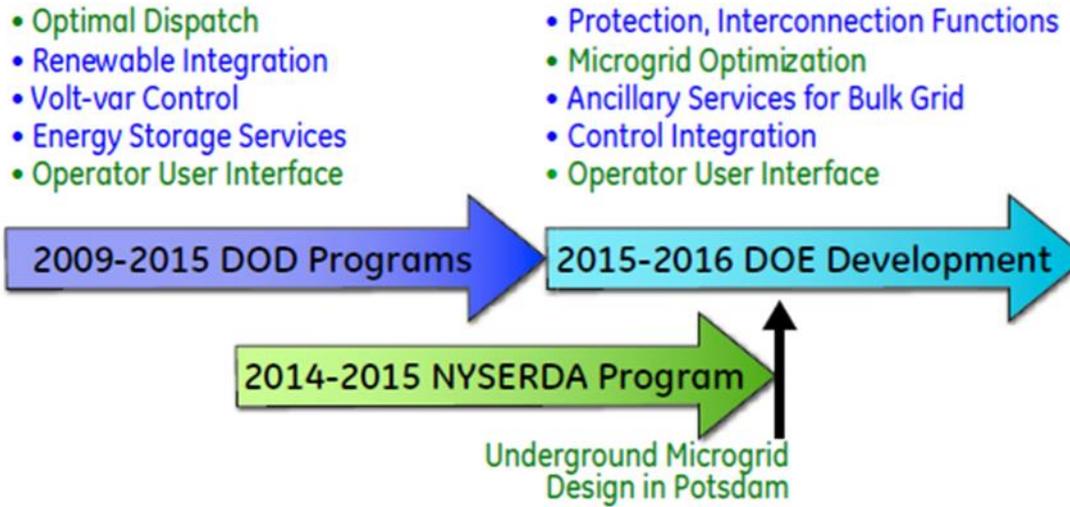
## Phase III (Integration of Energy Storage)



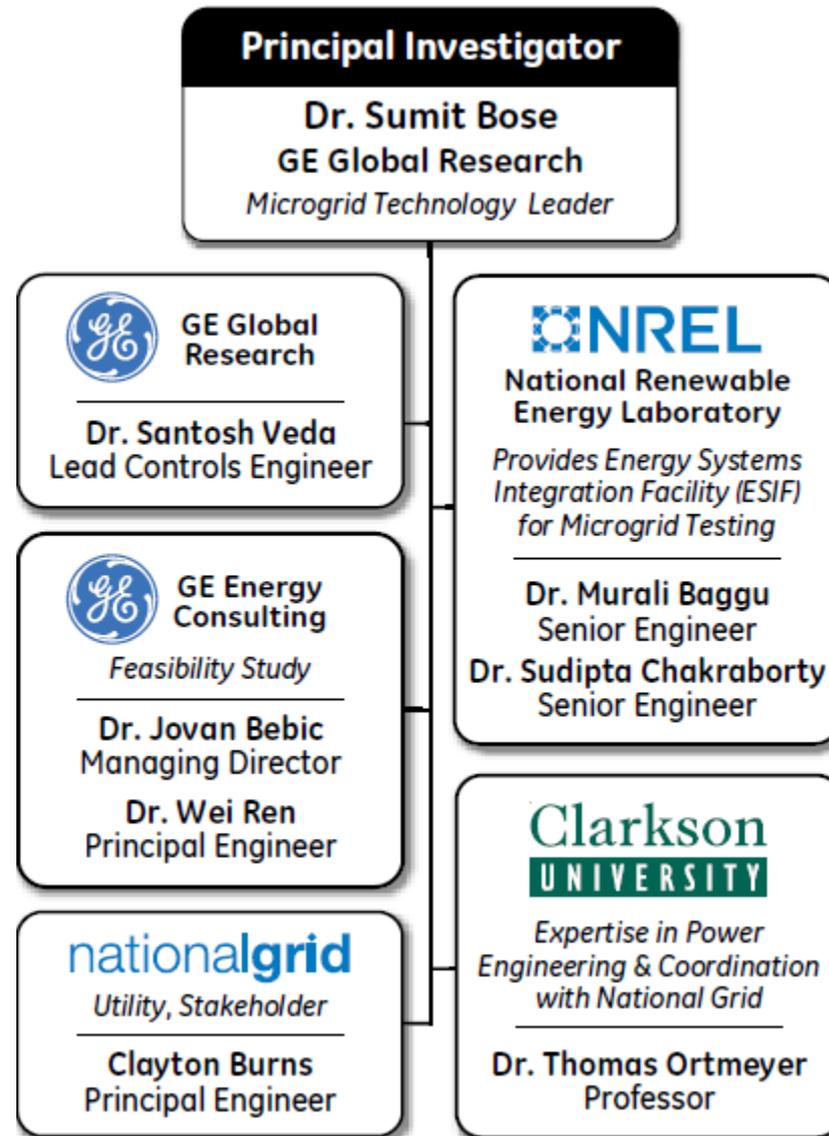
# Community Microgrid at Potsdam, NY



# Microgrid at Potsdam, NY



# Partners



# Control Objectives

- Disconnection (IEEE 1547)
- Resynch and Reconnection (IEEE 1547)
- Protection (coordinate with utility breaker and assets)
- Steady State Frequency (utility), voltage (ANSI 84.1) and power quality (customer)
- Dispatch assets for optimized energy consumption and generation
- Provision of grid services like frequency regulation, demand response
- Community-defined resilience objectives





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