

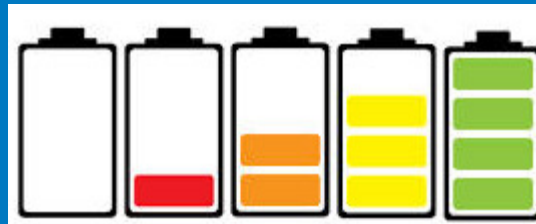
## Designing Community / Industrial Microgrids



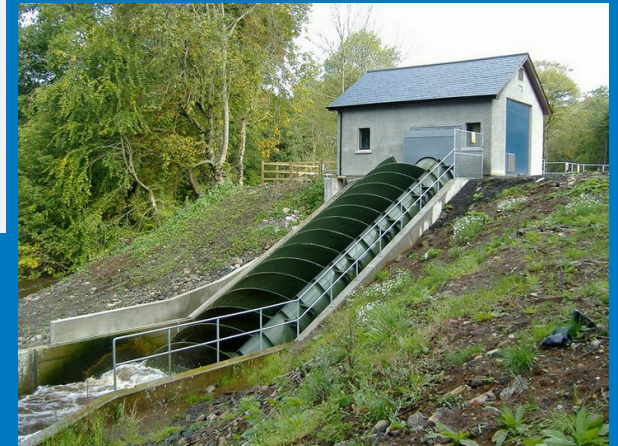
Wind



Solar



Battery



Hydro

URI Capstone Project 2015

# Introduction

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- **nationalgrid**
  - An international electricity and gas company and one of the largest investor-owned energy companies in the world. We play a vital role in providing energy to millions of customers across the northeastern U.S. and Great Britain in an efficient, reliable and safe manner.
  
- Kevin Malloy
  - Manager Telecom Operations NE / NYC & LI
  - Over 25 years with **nationalgrid** and predecessor companies
  - Prior High Tech start-up experience
  - URI alumnus!

## Project 1 - Description

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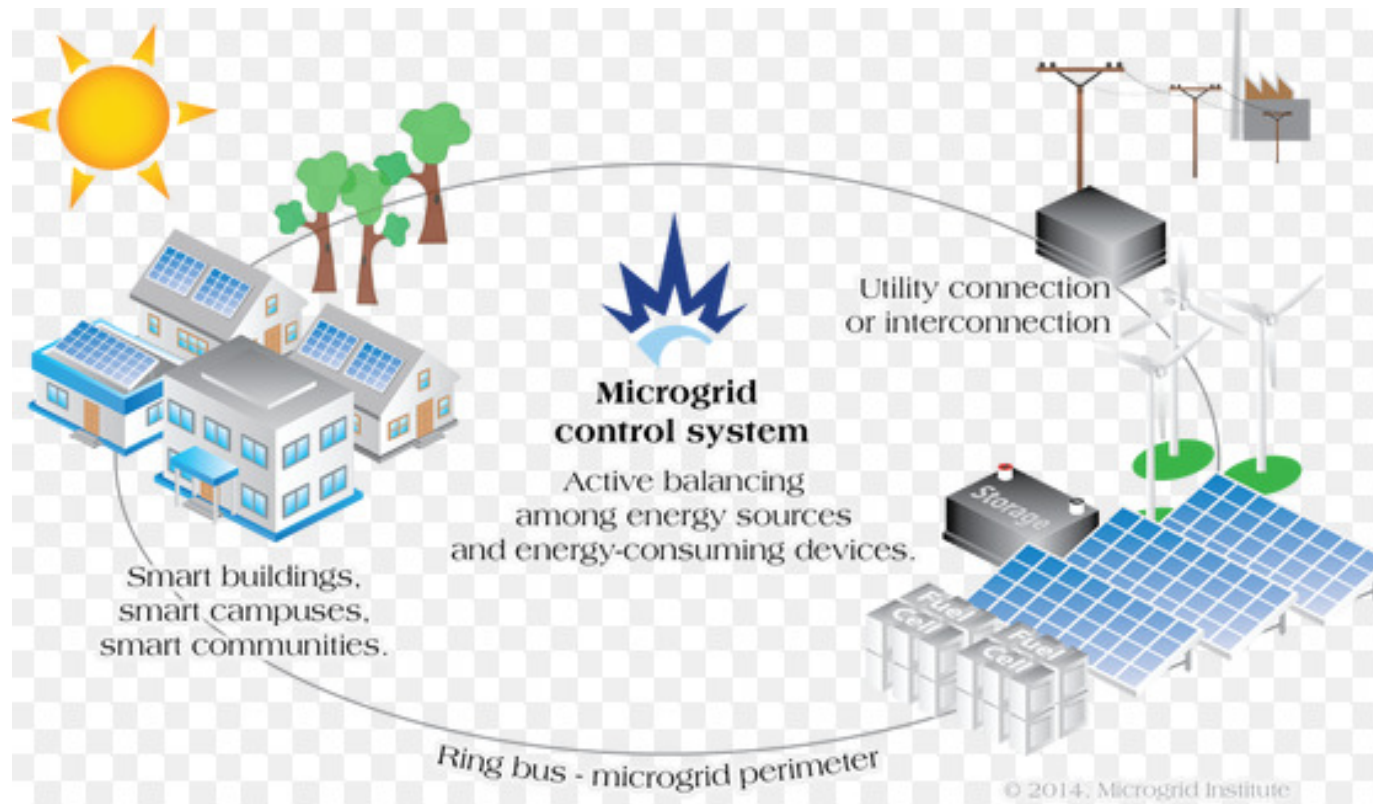
- This project is to design a community microgrid.
- What is a community microgrid?
  - An energy system specifically designed to meet some of the needs of a community. A system that operates as part of, or independent from, the larger utility infrastructure.
- Consist of the following:
  - Generation
    - Solar, Wind, Thermal, Hydro, Battery Storage
  - Distribution Capacity
  - Energy Management System – Smart Systems
- The pilot area is to be determined by the team based on initial analysis of the entire State of Rhode Island.

## Project 2 – Description (New)

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- This project is to design an independent industrial microgrid.
- What is an industrial microgrid?
  - An energy system specifically designed to meet most of the needs of a commercial development with critical energy needs. A system that operates as part of, or independent from, the larger utility infrastructure.
- Consist of the following:
  - Generation
    - Solar, Wind, Thermal, Hydro, Battery Storage, Renewables
  - Distribution Capacity
  - Energy Management System – Smart Systems
- The Pilot area is Quonset Development Corp.

# Typical Microgrid System



## Task to be completed

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- Conceptual Design
  - What you anticipate it will look like
- Project Cost Estimate
  - Financial Cost to achieve
- Create Technical Specifications
  - Product Technical Reviews
- Design and Configuration of the System
  - Using actual RI locations for pilot
  - Possible White Paper for publication or submittal to town or agency (New)
- Project Closeout
  - Review of Conceptual Design and Cost Estimates vs Actual

## Why is this important?

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- Renewable Energy Sources are everywhere
- Systems are more complex and demand greater stability
- Demand is increasing for cleaner power
- Customers want higher levels of reliability
- Cost Savings !
- Job Opportunities !

## Required Skills

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- Project Team – Two teams of 2 EE's
- General electronics and some power / control theory
- Alternative energy knowledge (helpful but not required)
- Ability to read and understand technical manuals
- Technical drawing skills
- Ability to work with vendors and other SME's



## Security Clearances

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- Must have a clean driving record
- May be subject to a personal background check



## Contact information

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- Kevin Malloy – Manager Telecom NE
- c/o nationalgrid
- 280 Melrose Street
- Providence R.I. 02907
  
- 401.784.7260 (o)
- 401.255.4884 (c)
  
- kevin.malloy@nationalgrid.com