Emera Technologies

EPSCoR Webinar

OCTOBER 25, 2019

Safety Briefing

Introduction

- Quik Quarter/Thrifty Nickel
- Air Force / VA Tech / UNM – EE
- Intel
- MODE / Emcore / SolAero
- Novalux
- Cell Robotics
- FootPrints
- TriLumina
- City of ABQ
- Emera / Emerging Technologies

Emera

- Emera Inc. is a geographically diverse energy & services company
- Headquartered in Halifax, Nova Scotia
- www.emera.com
  - $8.4B Market Capitalization*
  - $5.9B in Revenue
  - $29.6B in Assets
  - Ticker Symbol: EMA (TSX)

We invest in electricity generation, transmission and distribution, gas transmission and distribution, and utility energy services with a strategic focus on transformation from high carbon to low carbon energy sources

*All figures in US dollars as at Dec 31, 2017

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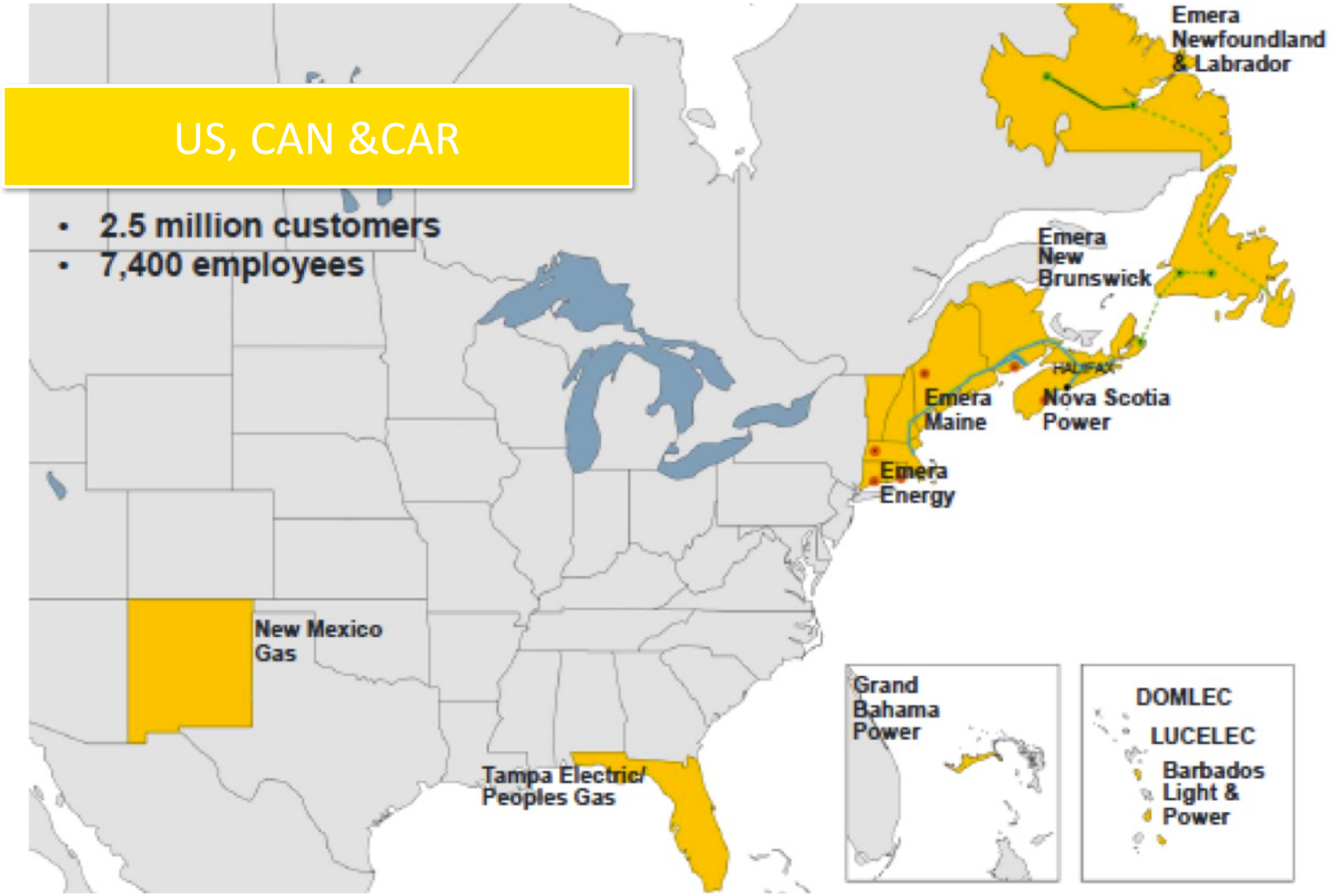
Where we operate



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The Problem

- Renewable Penetration not progressing at Scale or Pace necessary
- Military / Critical Site Security requires Resilience
- Technology Piecemeal – No Systems Approach
- Fragmented Business Models

Our Approach

- Energy Expertise
- Sandia National Labs
- UNM
- Utility Experience
- Disrupters
- Blank sheet of paper
- Motivated Resources
- Take advantage of trends in cost / approach

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Key Attributes

- **New Mexico** – SNL, KAFB, UNM, NMSU, PNM, Developers/Builders
- **Energy Efficiency** – Per Second data by Building, N'Hood, Community, Grid
- **High Renewable Content** – 60% to 100% vs. 10%
- **Safer** – Innovative Protection for people / forrests
- **Resilient** – Critical DOD/DOE Assets – Robustness, Redundancy, Resourcefulness, Response, Recovery
- **Cyber Secure** – built in with SNL CRADA PTS
- **Underserved Communities / Equity** – Rural, Indian Nation, Capital
- **Work Force Development** – Certificate Level Techs / "On-Ramps"
- **Developing Countries Strategy** – The big NEXT problem
- **Standardization** – all equipment same / rule of aggregation
- **Scalable Biz Model** – Utilizes existing infrastructure
- **Building on decades of experience** – SNL DETL, PSEL, SSM, Storage
- **Collaboration** – DOE/DOD/Universities/Utilities/Legislature
- **Credible** – SNL/AF
- **Interoperable** – Grid Edge implementation

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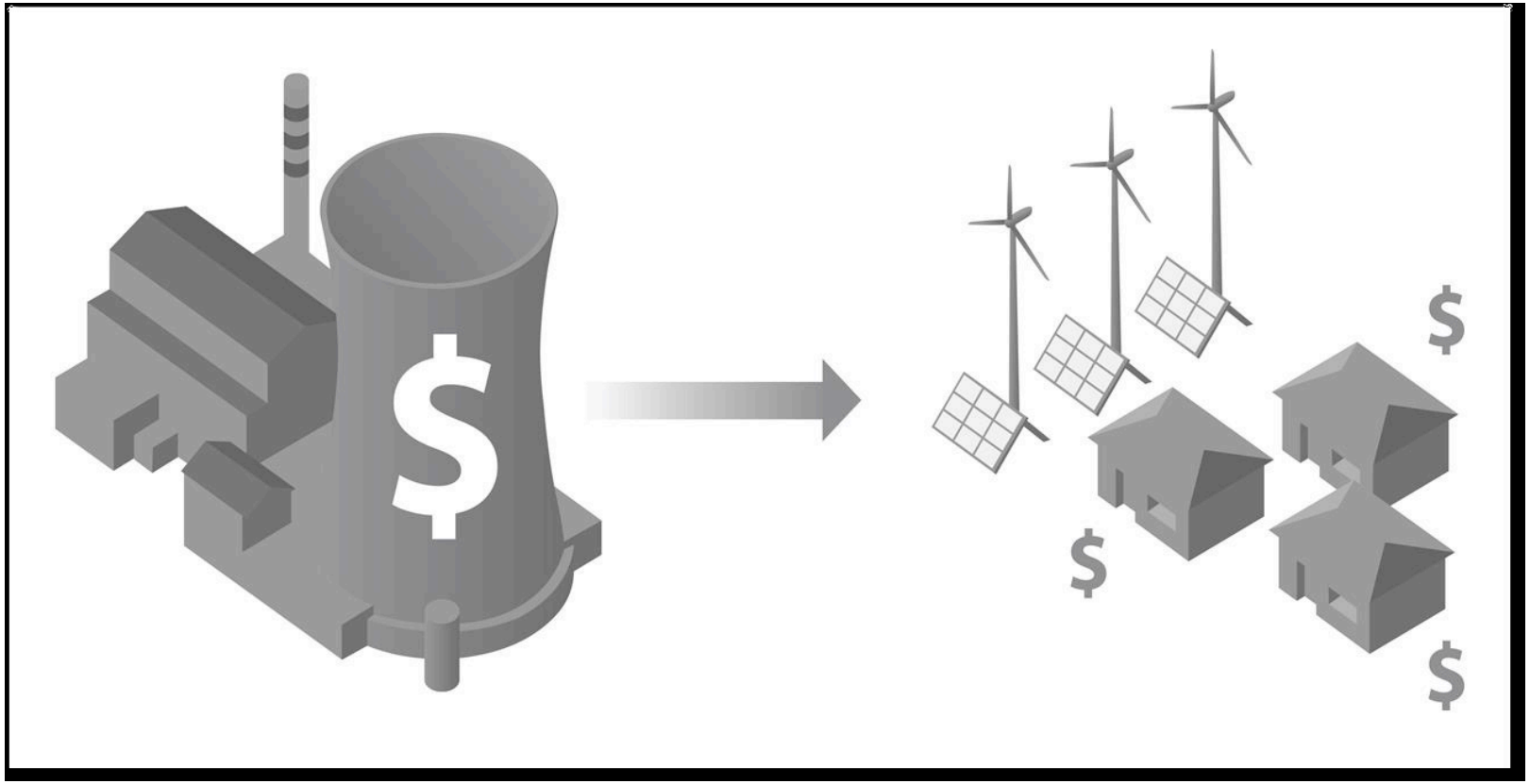
Differentiation

- DC vs AC
- Decentralized vs Centralized
- Modular/Standardized vs Custom
- Front of the Meter vs Behind the Meter
- Networked vs Non-Networked
- New DERs Easy vs New DERs Hard
- Utilize Existing Infrastructure

Current and Future **Trends**



Disruption: Decarbonization, Digitalization, Decentralization

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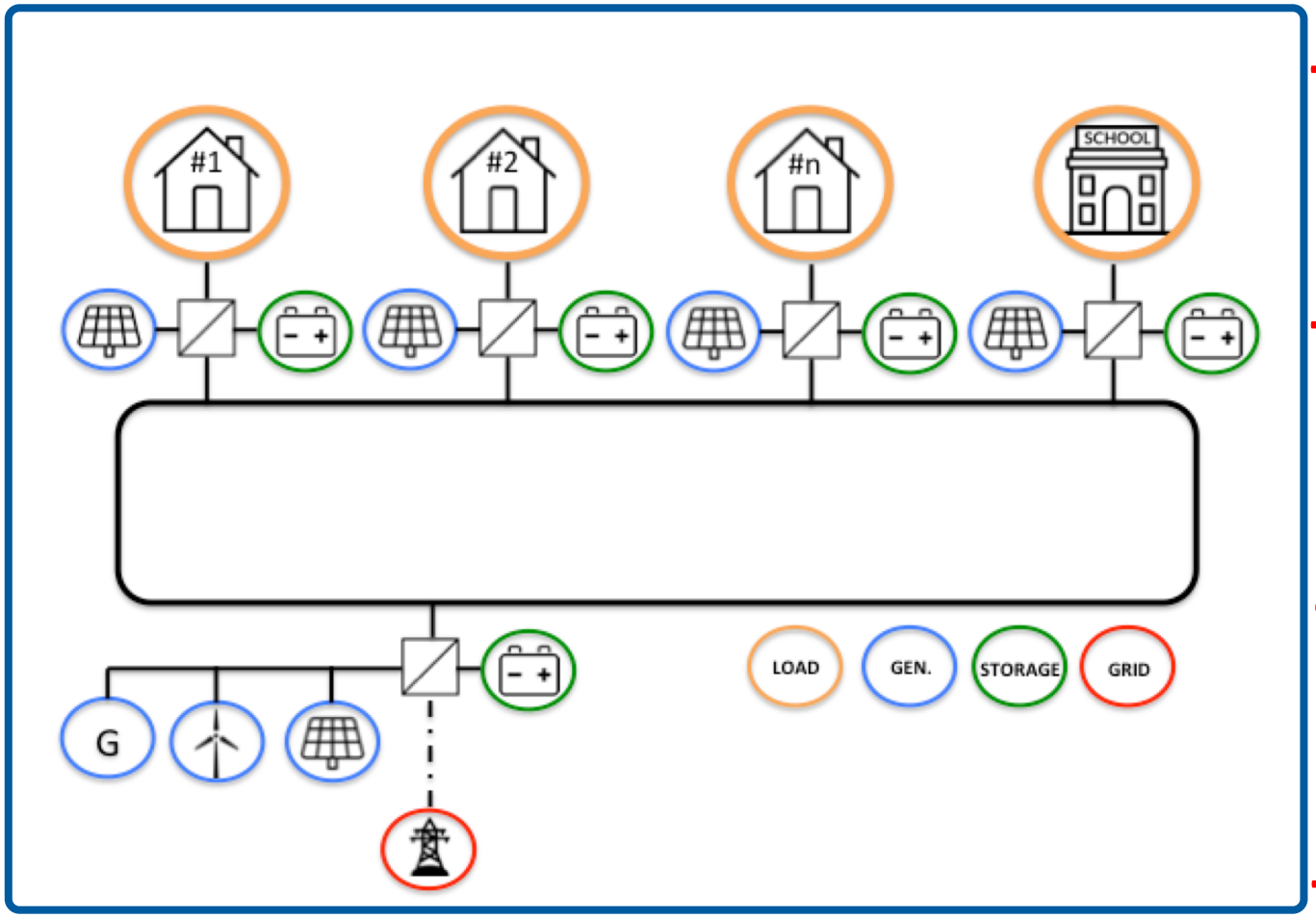
Digital Energy Platform



CLEAN

AFFORDABLE

SAFE

ALWAYS ON

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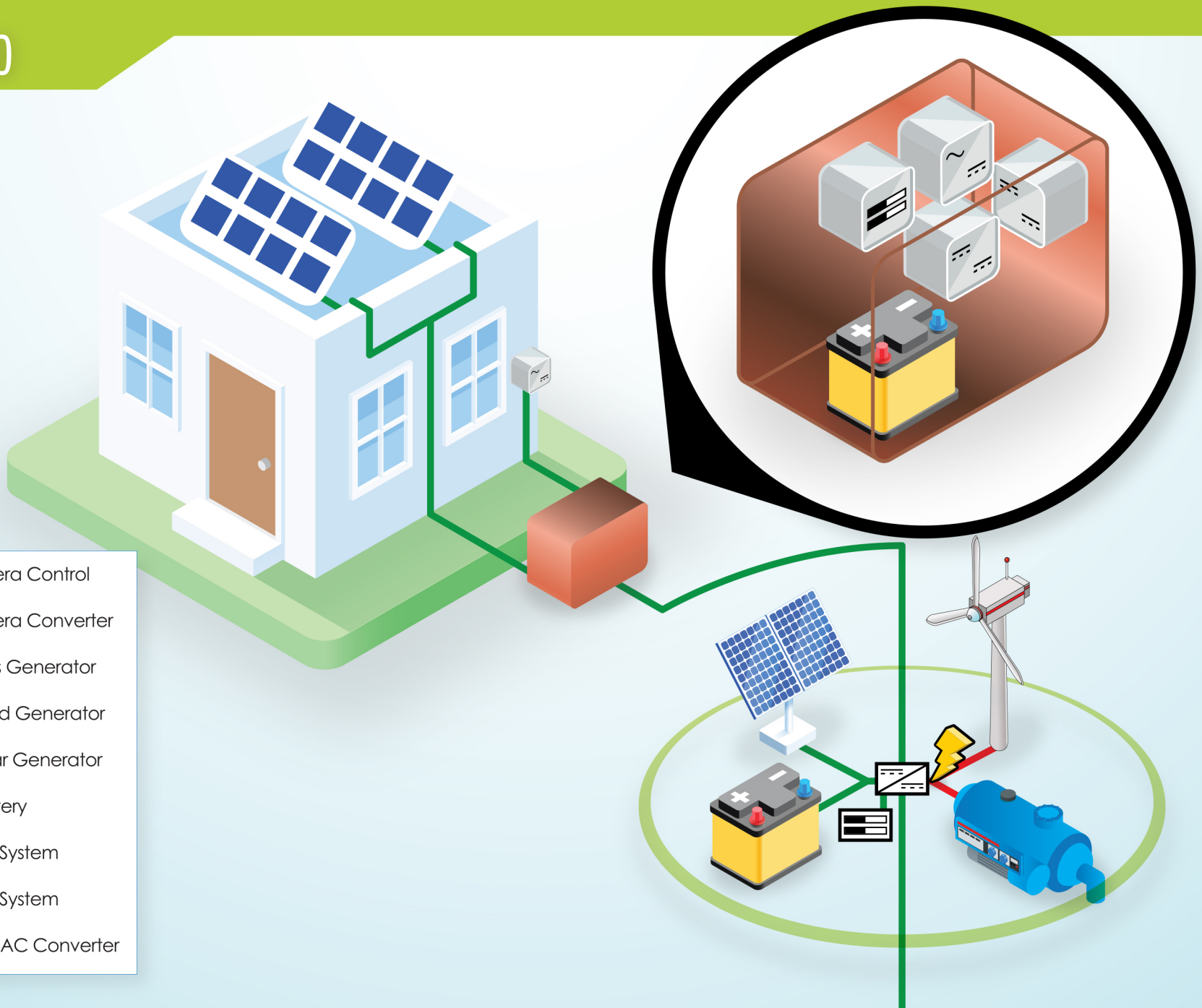
EMERA NANOGRID



BLOCK Home Infrastructure

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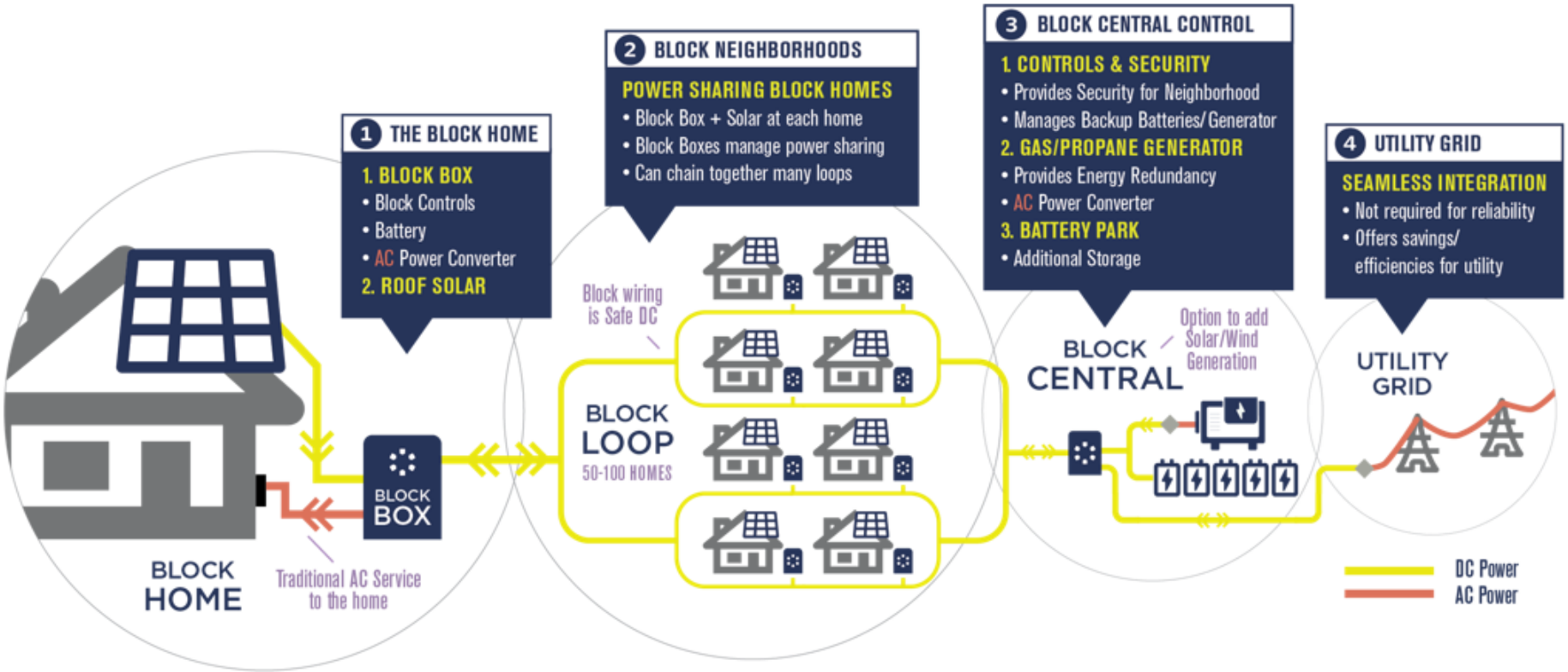
BLOCK: Distributed Power System



All Block Elements can be rate-based assets located in front of the meter.

BLOCK is a neighborhood energy system that combines ***high levels of renewables*** *and* ***superior reliability*** with ***proprietary technology**** to deliver and ***share energy*** within communities of any size.

** ETL has filed several patent applications for its system.*

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Kirtland Air Force Demonstration Project

Status

Our first Demonstration Project is fully integrated into the Kirtland Air Force Base, Sandia National Laboratories DETL and Department of Energy Solar Test Facilities

- Start-up and Commissioning Testing of first nanogrids has commenced
- Anticipate connection of first nanogrids to central box in coming few weeks
- Fully commissioned by end of year

Kirtland Air Force Base National Devolution Housing (secure housing in case of national disaster) also used as military temporary housing

Sandia National Lab Distributed Energy Test Lab

Sandia National Lab PV System Evaluation Lab

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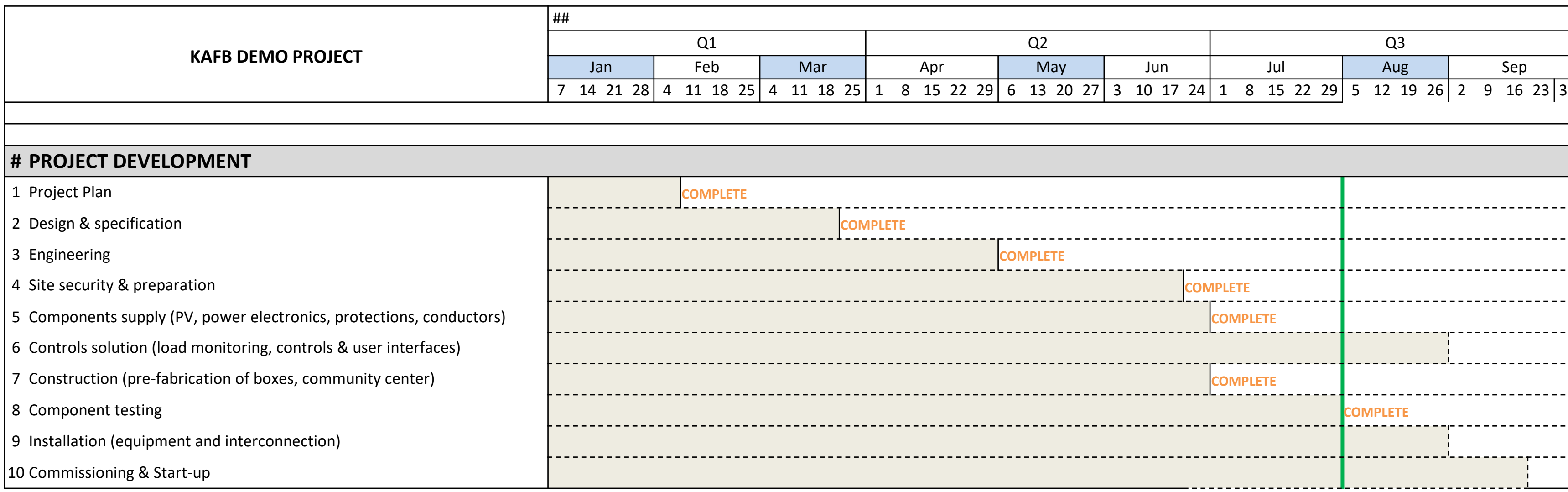
Project Timeline



The 5 Rs of Resiliency

- Robustness
- Redundancy
- Resourcefulness

Event

- Response
- Recovery

First Three Commercial MicroGrids

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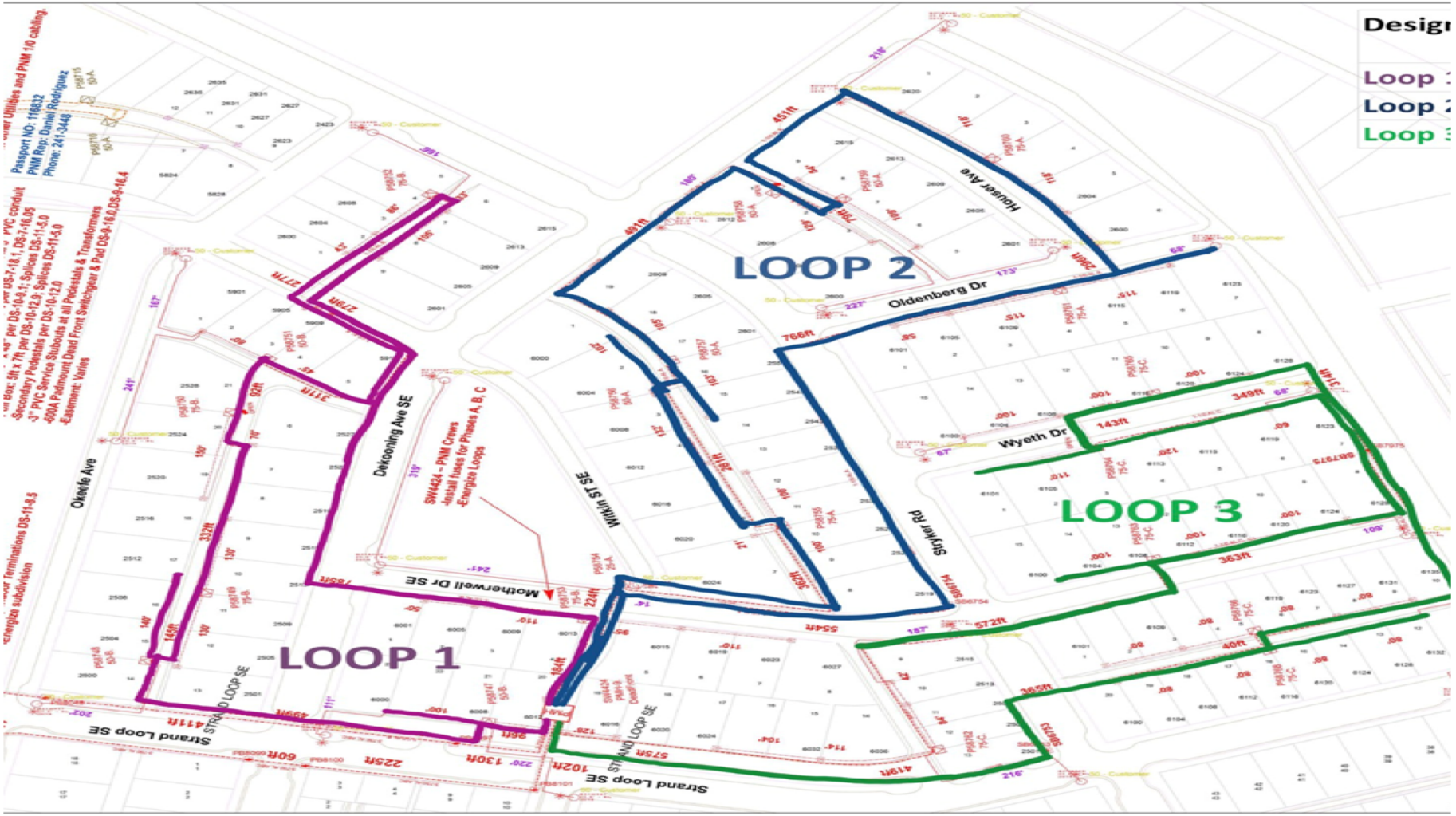
First Three Commercial MicroGrids



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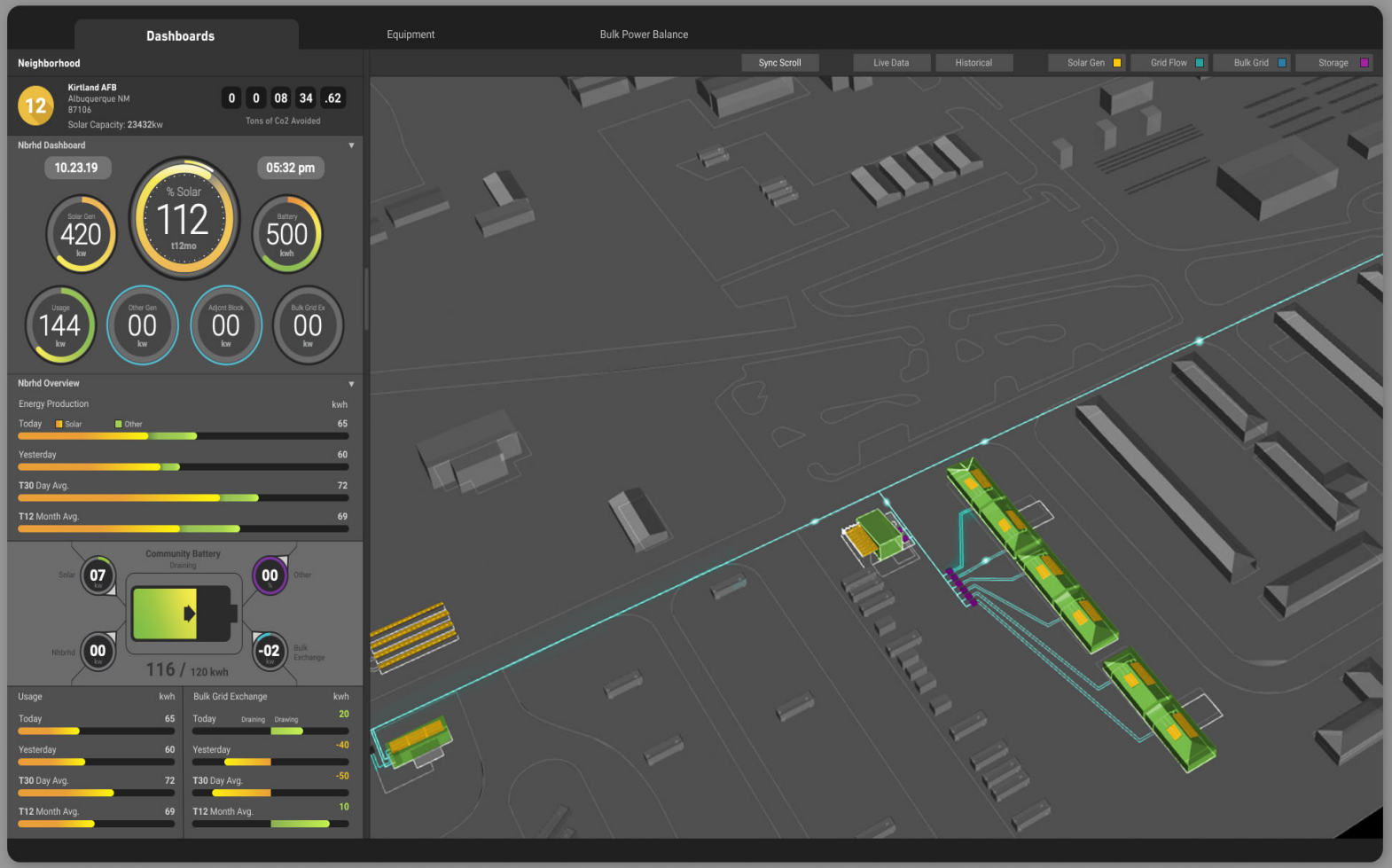
UI/UX



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GARY OPPEDAHL

Vice President, Emerging Technologies

Gary.Oppedahl@EmeraTechnologies.com

@OGary