MICROGRID KNOWLEDGE

Virtual Conference

Protecting Communities & Vital Services with Smart Microgrids

Agenda

Moderator: Clark Wiedetz (Schneider Electric)
VP Marketing Energy as a Service

Speakers:

1. Arnela Smajlovic (Siemens Digital Grid) Product Manager of Microgrid Energy Management System
2. Rick Bolton (Compass Energy) CEO
3. Nathan Adams (ABB Power Grids) General Manager, North American Microgrids

Resources:

- Speaker Bios
- Ask the Experts: Q&A at End
- Microgrid Resources Library

How a Smart Microgrid Controller Quietly Averted a Big Problem for Blue Lake Rancheria during COVID-19

Arnela Smajlovic Djedovic, Siemens Digital Grid, Microgrid Management System Product Research and Development

Challenges:

With Blue Lake Rancheria business of Hotel and Casino shut down during COVID-19, the microgrid load dropped by almost 40%.

Blue Lake Rancheria had at least these three possible issues that they could encounter in such situation:

- Being disconnected of the main grid due to inadvertent export due to excessive Solar PV generation
- Losing Solar PV output due to curtailment, thus loosing out on it's investment
- Unreliable operation in islanded mode due too low load not suitable for conventional generation and not being able use the Solar PV

Unrestricted

Solutions

Look Ahead Microgrid Management System automatically adapted to the new situation with its sophisticated Forecasting and Optimization feature capability.

- The load forecast adapted quickly to the new reduced load profile
- The battery is optimally used to absorb excessive Solar PV production and return the energy back when it is most optimal (economical)
- The system is comfortably avoiding any back flow into the grid
- Maintain optimal reserve in energy storage to facilitate islanded operation

Use tertiary control solution to complement the real time control capabilities

Results / Recommendations

The BLR microgrid in fact had nothing to worry about.

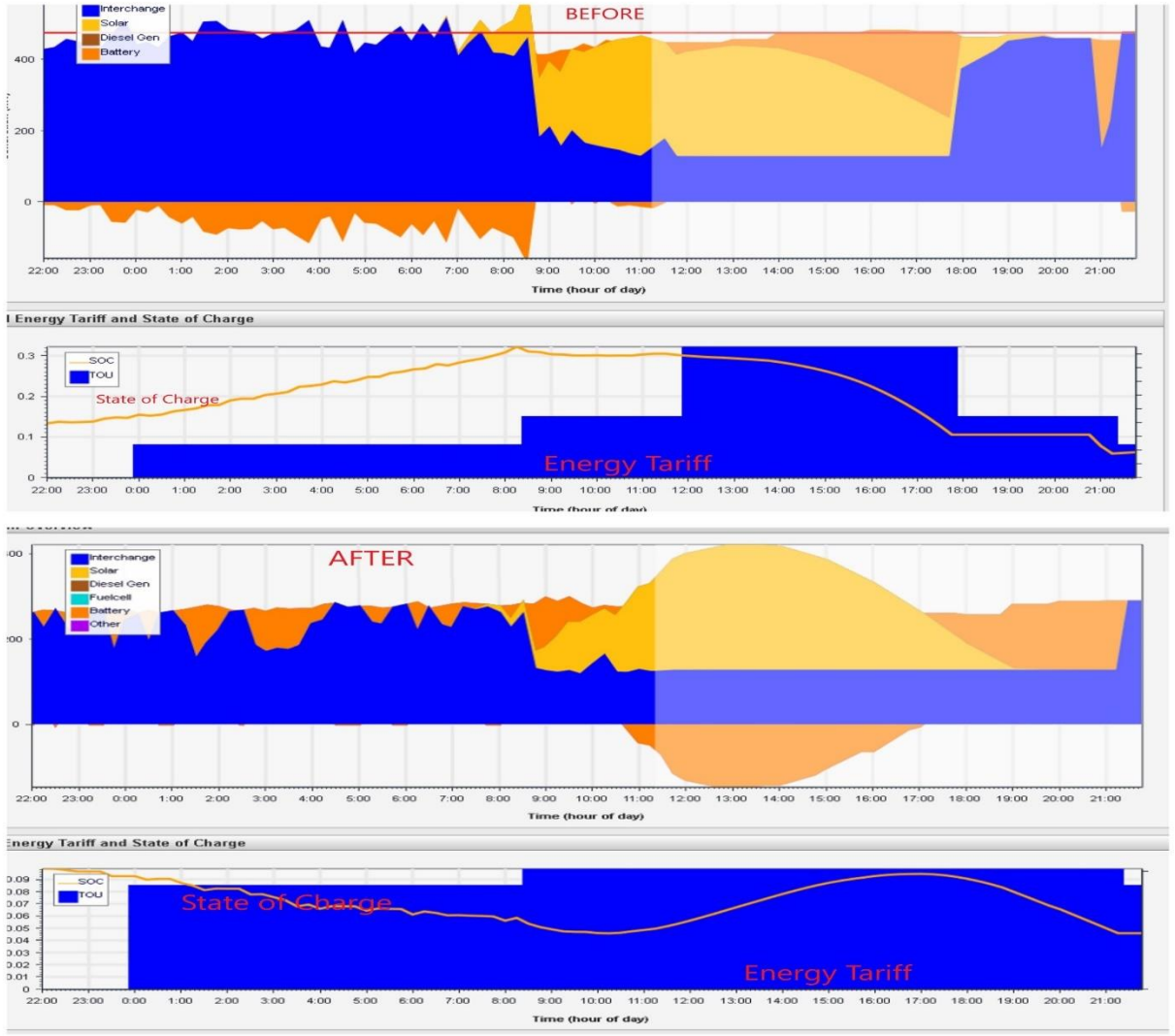
The microgrid control adapted to this new reality smoothly. The load prediction engine adapted to the new load profile quickly.

The MGMS microgrid optimization subsequently adapted its dispatch to match by changing its battery usage profile to not lose any Solar PV energy and to not cause inadvertent export to the utility.

All of this was done automatically with no external assistance or human supervision.

Recommendation:

Deploy of advanced predictive tertiary control for microgrids to enable adaptive control strategies



Resilient EV Fleet Charging

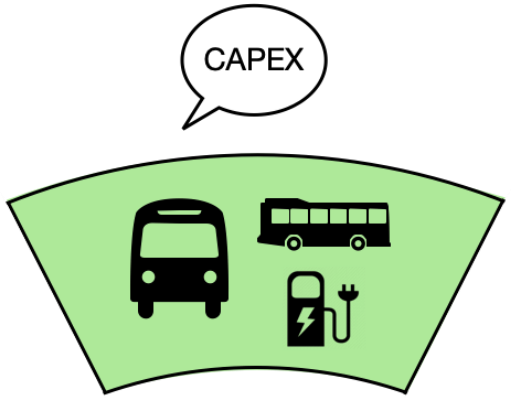
Rick Bolton, CEO, Compass Energy Platform

COMPASS Energy Platform

Charging Paradigms

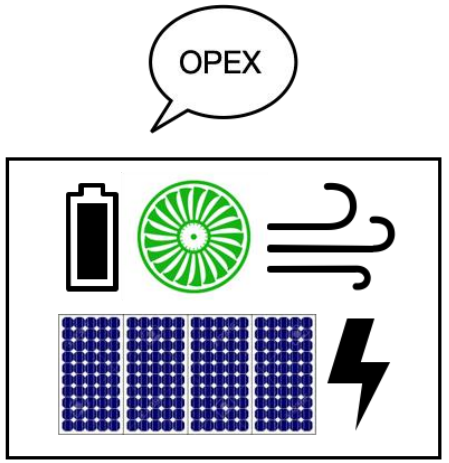
The prevailing approach to fleet charging addresses blue sky conditions only.

Once a fleet is electrified, it must also be resilient to continue operation in an emergency.



Standard Fleet Charging

- Single stakeholder
- Capital burden
- Single revenue source
- Modest environmental impact
- Blue sky operation only
- Utility dependent
- "Energy as a service" option



Resilient Charging

- Microgrid focused
- Multiple stakeholders
- Operating expense
- Multiple revenue streams
- Significant environmental impact
- Emergency & Blue Sky operation
- Utility independent
- "Resilience as a service"

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Resilient EV Fleet Charging

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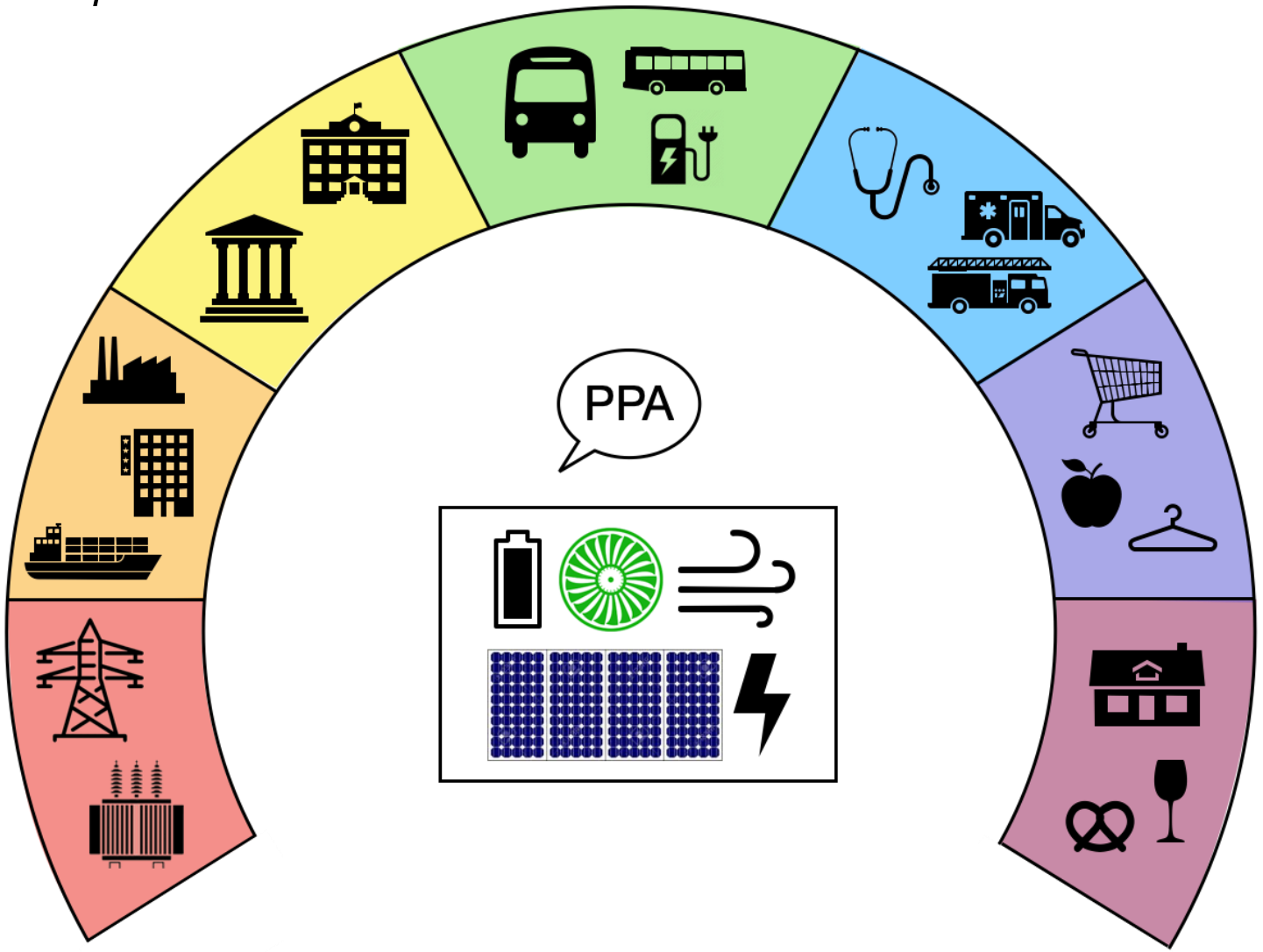
Energy Districts

The resilient charging depot best functions as the cornerstone of a larger microgrid energy district.

This district can serve multiple off-take customers and provide multiple revenue streams.

A project of this nature is best achieved through independent third-party project development and financing (P3).



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Resilient EV Fleet Charging

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Team Approach

At scale, the resilient charging depot requires a DBOOM team approach.
However, this multiple-asset team-focused development approach does not fit well into standard procurement practices.

The procurement issues are simplified if the outcome is defined as a PPA rather than an asset.

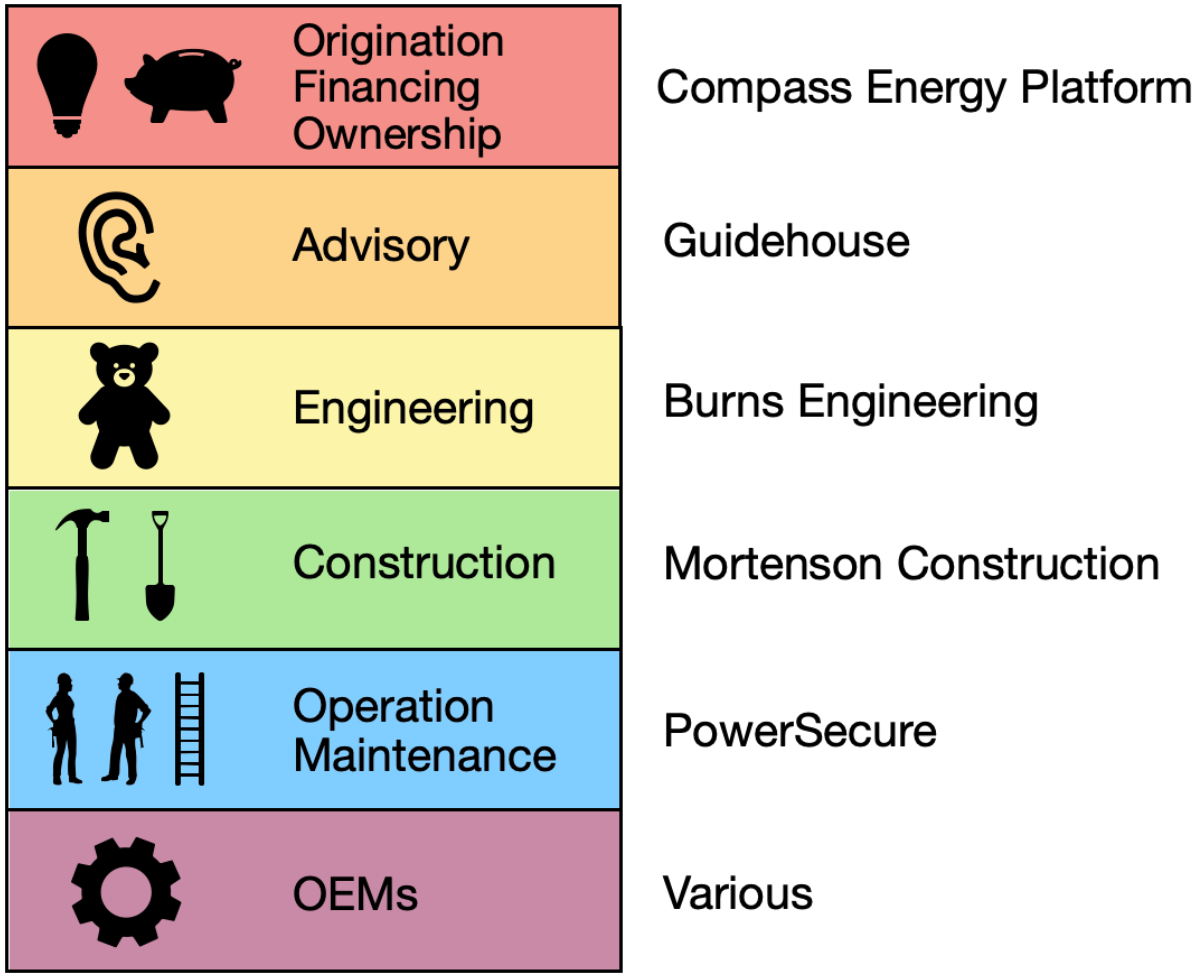

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ABB Grid Edge Solutions
Microgrids for Environmental Resilience

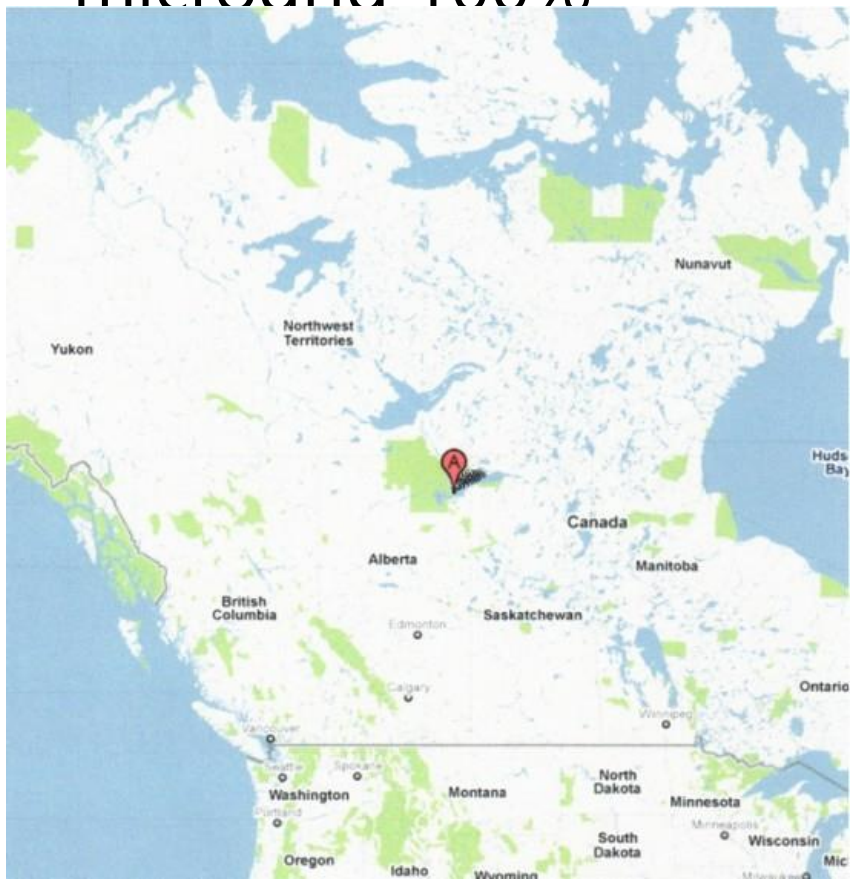
JUNE 1, 2020

Nathan Adams, Director of Technology and Business Development,
ABB's Grid Edge Solutions group

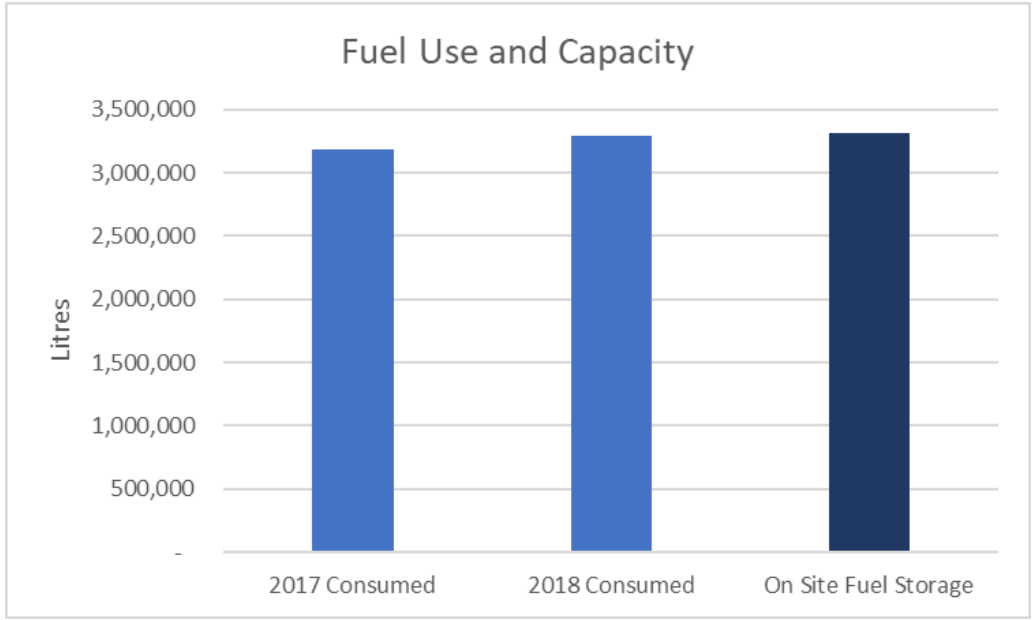
The Challenge

Fort Chipewyan, Alberta Canada

- Disconnected microgrid 100%



- Fuel delivered each winter by ice road truck
- Trucks run around the clock to deliver enough for a full year
- Ice road timing and duration becoming erratic
- If tank is not filled, fuel must be airlifted
- Electricity consumption also increasing



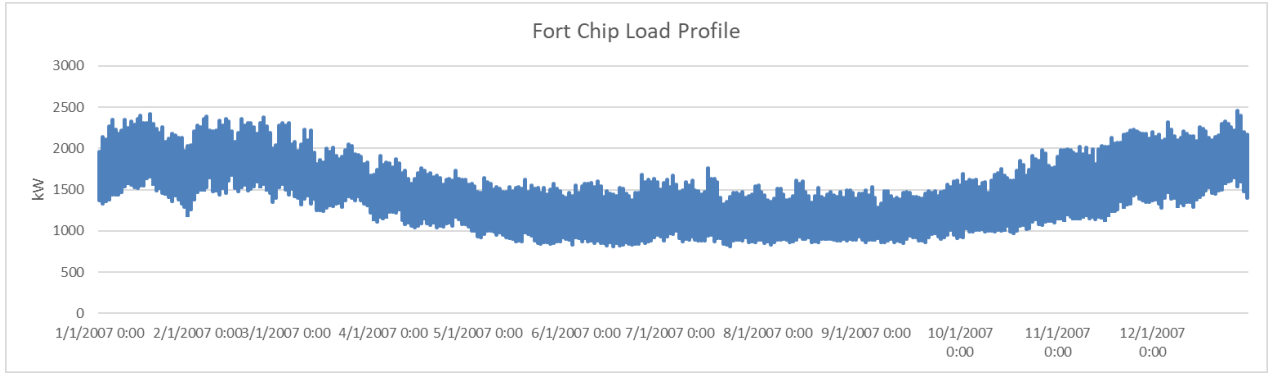
The Solution

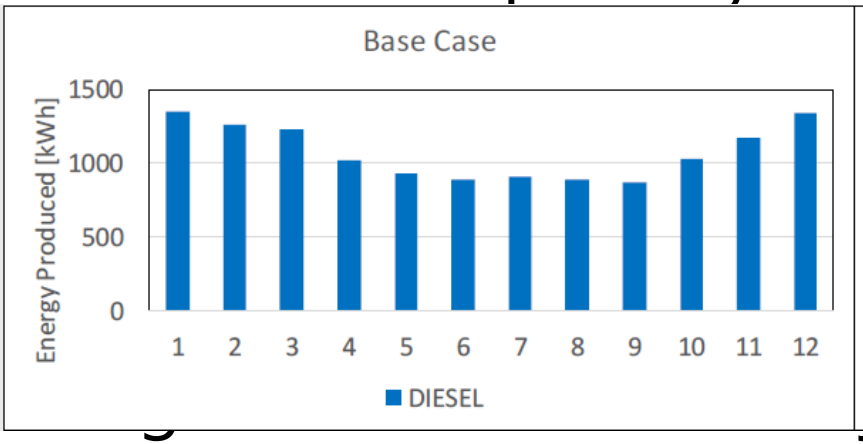
Solar/Storage/Diesel Microgrid System

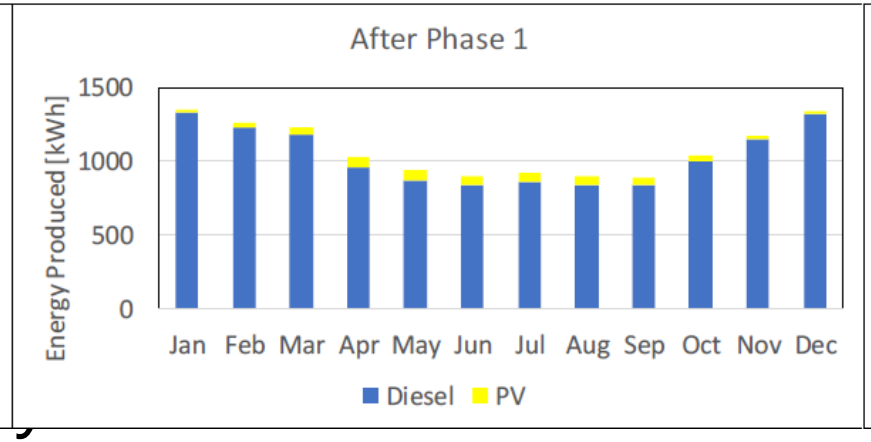
- ABB 1600kVa/1600kWh Battery Energy Storage System
- 600kW Solar PV existing
- 2400kW Solar PV additional
- ABB e-mesh microgrid control system to integrate all assets with existing generators
- All equipment rated to -50C

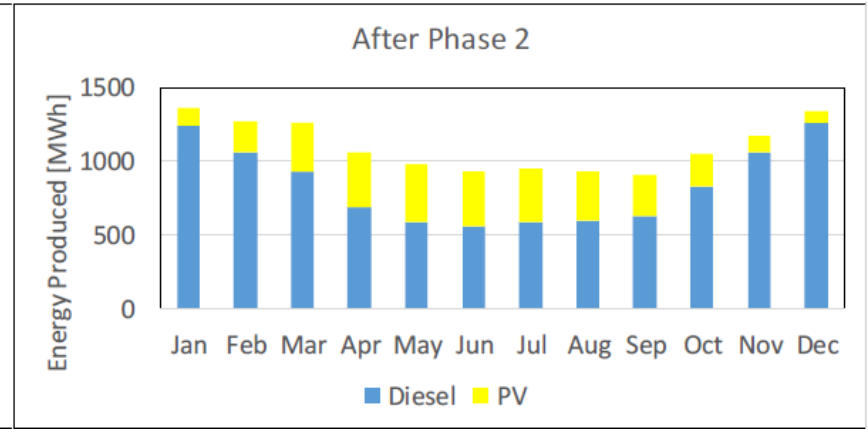
The Result

- Addition of storage and solar will create ~25% reduction in fuel consumption
- Solar PV is primary driver









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Ask the Experts: Q&A Session

Type your questions in to the Q&A box

#MicrogridVirtual

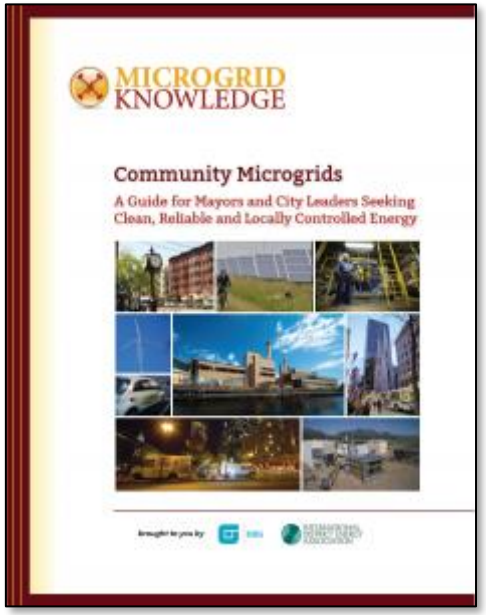
Microgrid Knowledge Virtual Conference Resource Library

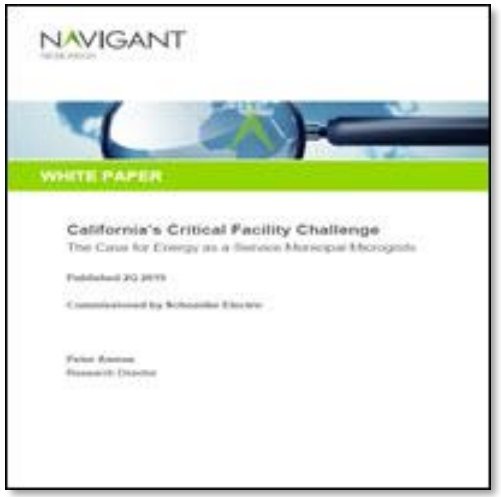
Recommended Resources

Microgrid Resource Library

- Visit ThinkMicrogrid.com

Network with the MGK Community on LinkedIn





Save the Date : Microgrid 2020 Conference Nov. 18-20 - Philadelphia, PA

Community Session: *Keeping it Local: How Microgrid Help Communities Achieve Goals and Secure Energy*

- Plus 90 speakers in 30+ sessions on best practices
- 35 exhibitors
- Networking opportunities

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Thank You!

Next Session: *Preparing the Next Generation: Microgrids as an Energy and Educational Resource for Universities @ 1 PM Eastern*

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