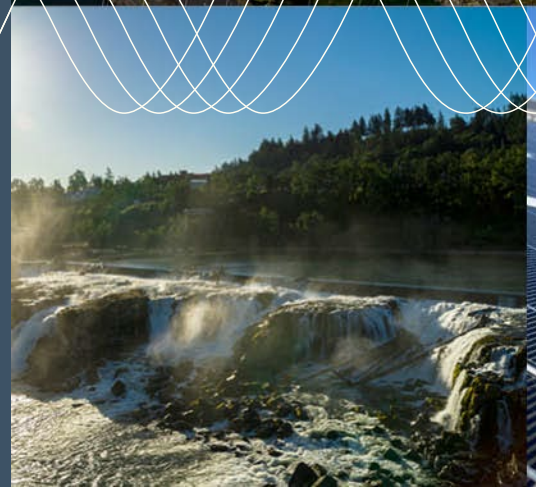
Community Partnership and Resiliency Planning

Darren Murtaugh, Grid Edge Solutions Senior Manager
Brooke Brownlee, Government Affairs Senior Manager

February 3, 2023



PGE An Oregon kind of energy.℠

What is a Microgrid?

"A group of **interconnected loads** and **distributed energy resources** within clearly defined electrical boundaries that acts as a single **controllable** entity with respect to the grid.

A microgrid can connect and disconnect from the grid to enable it to operate in both grid-connected or **island mode.**"*

*US DOE definition of a microgrid

Types of Microgrids

Single-Unit

- Designed to keep a **single building** energized
- **On-Premise**
- **Operational** at Beaverton Public Safety Center

Multi-Unit

- Designed to keep **multiple buildings** energized
- **Distribution-sited**
- **Proposed** potential demonstration at Salem Smart Power Center

Typical Features

- Energy generation & energy storage are located onsite
- Locally-based back-up to provide direct support to a community
- Utilize sophisticated system controls
- Capable of operating independent of the grid

PGE

Critical Facility Backup vs Resilience Hubs

Two potential approaches to increasing community resilience at a single site.

Critical Facility Backup

✓ Microgrid designed to keep a single building energized during a wider outage

✓ Single building is a critical facility that enables the community to recover more effectively from an outage, likely not open to the public.

Examples of critical facilities:

- Wastewater Treatment plants
- Hospitals
- Emergency Services (Fire & Police)

Resilience Hub

✓ Microgrid designed to keep a single building energized during a wider outage

✓ Single building is a community resource center that is open to the public, providing service to the community during an outage.

Examples of Resilience Hub locations:

- Schools
- Community Centers / Gathering Locations
- Places of Worship

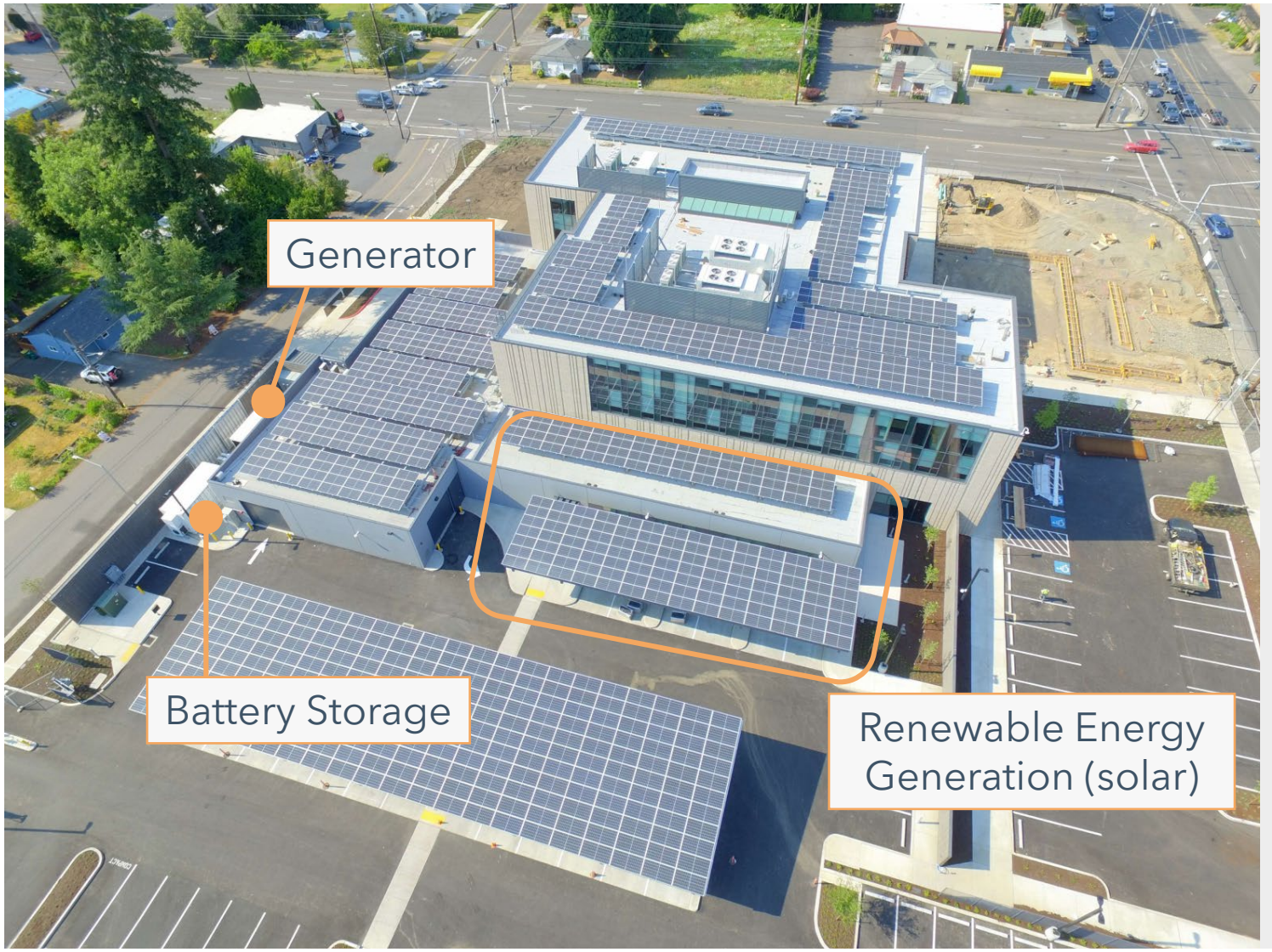
Single-Unit Critical Facility Backup

Beaverton Public Safety Center

"As a police facility, we're operating 24/7, and so we need to make sure we have power all the time.

The battery storage gives us a green option as a backup so we're able to continue providing services to the community if there's a power outage."

- Eric Oathes, Captain, Beaverton Police



Beaverton Public Safety Center

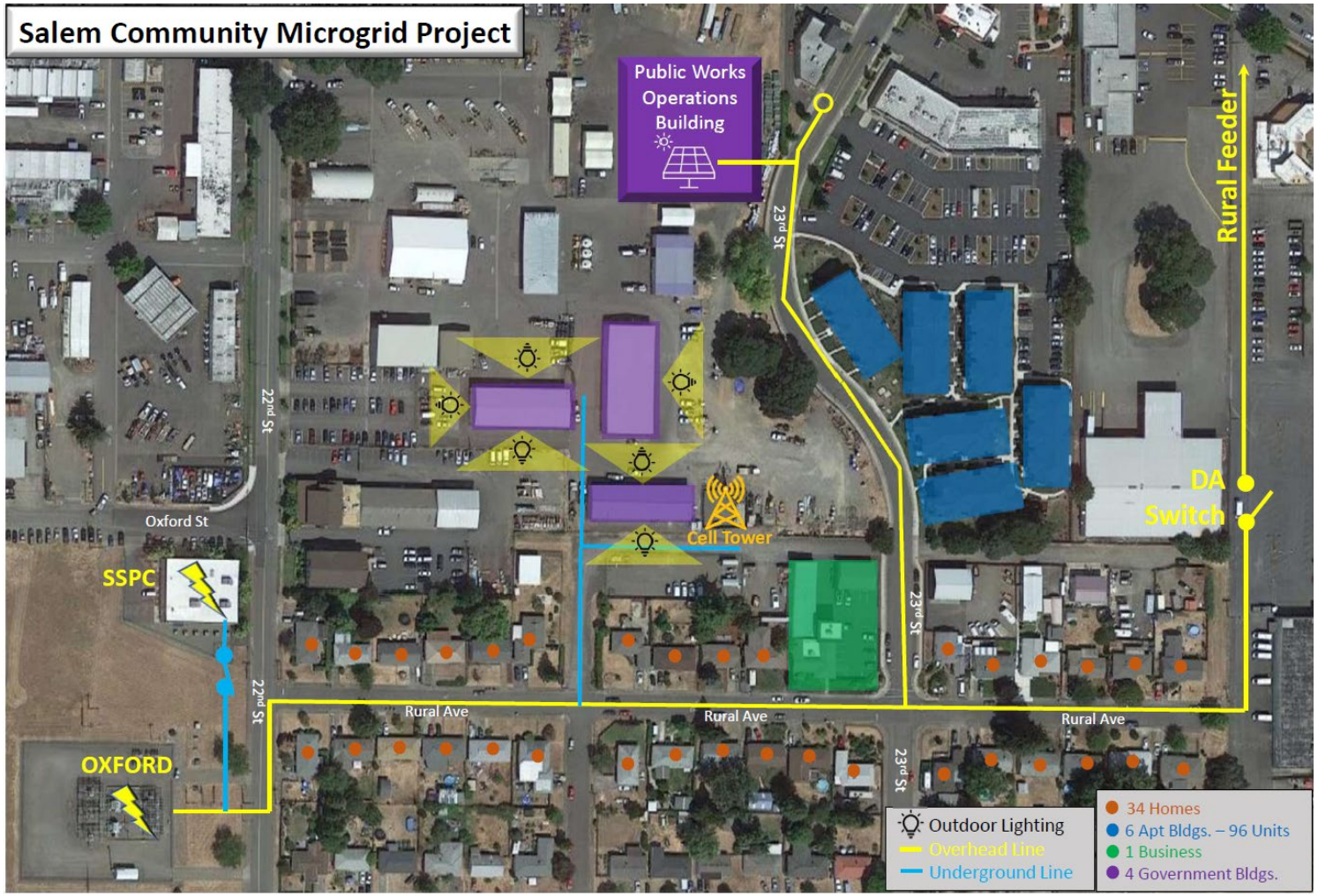
- New Construction (74,000 sf)
- Designed for emergency management
- Partnership between PGE and City of Beaverton
- PGE contributed $1.5 million through the PGE Renewable Development Fund
- City of Beaverton owns:
  - 330 kW Solar
  - 1 MW Generator
- PGE owns:
  - Microgrid Controller
  - 250 kW / 1 MWh Battery

Multi-Unit Demonstration

Salem Community Microgrid Project

"Our hope is that this battery will be able to help people do the basic things, like keep the refrigerator on or operate their home medical equipment that they need to survive…so that way they can stay in their homes for a little bit longer."

- Trevor Smith,
Public Information Office, City of Salem



Salem Smart Power Center and Community Microgrid

- Partnership between PGE and City of Salem
- SSPC - an energy storage resource designed to provide backup power to the microgrid and grid services during normal operation
- City of Salem is contributing the use of its existing 124kW solar PV source to the microgrid
- PGE will own the distribution automation system

Investing in resiliency projects to improve community preparedness for disasters

SB 784 (2021) with the -4 amendment which incorporated the feedback from stakeholders

- Enables electric utilities to work with local governments and communities on projects that keep critical facilities operating when disaster strikes, like local generation, storage, and microgrids, that also benefit the broader grid on a normal day.
    - Prioritizes projects that support the resiliency of essential or centrally located community facilities like 911 centers and community centers
- Includes customer-owned or third party-owned facilities, and ensures customers benefit from these investments.

Investing in resiliency projects to improve community preparedness for disasters

Enables the OPUC to approve resiliency measures that provide one or more of the following:

- Increases the ability of a public facility or public service that is critical to the public welfare to continue to operate in some capacity during a loss of grid-supplied power (e.g. fire station, public safety location, water facility, emergency community gathering location)
- Provides distribution system efficiencies and grid services such as flexible load, demand management, or dispatchable standby capacity that operate to serve customers during normal service and can be used to assist utility operations during emergencies
- Provides electricity or other utility service during emergencies in microgrids or at other centrally located community facilities
- Seeks to address the needs of potentially affected communities, including low-income customers