

ONCOR VIEW OF ENERGY STORAGE, MICROGRIDS, SOLAR, AND ELECTRIC VEHICLES

Bill Muston, Oncor

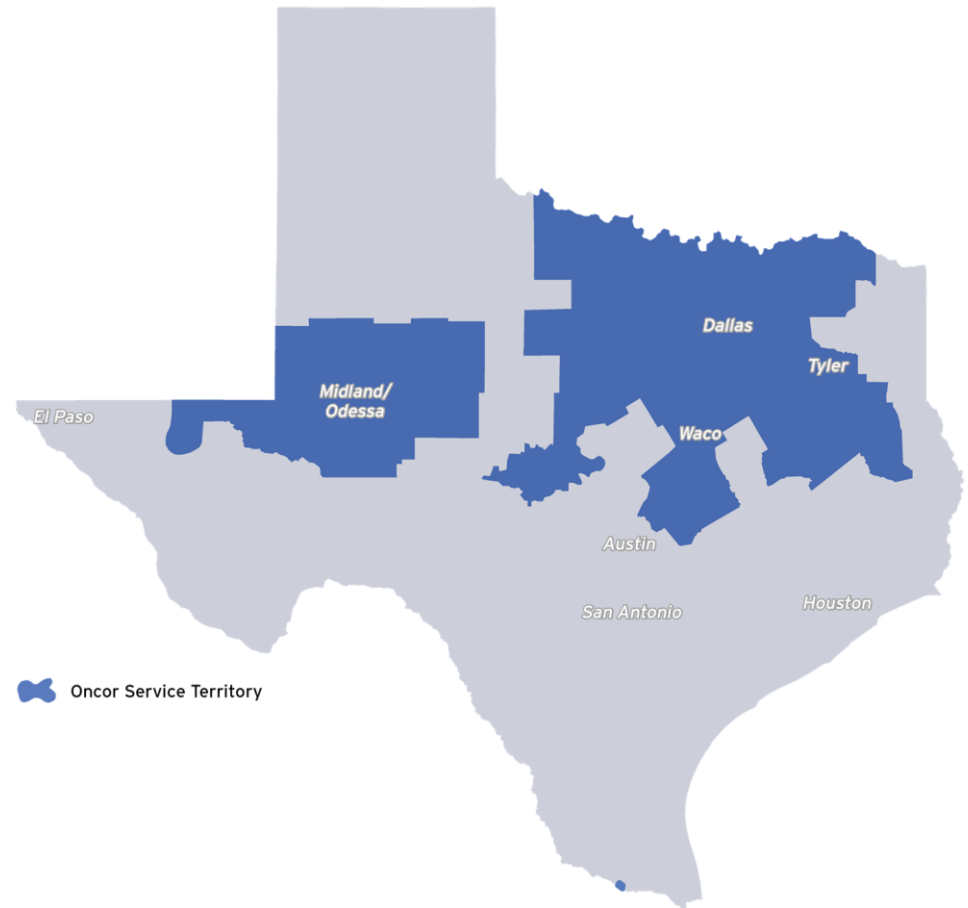
Greater Dallas Planning Council
Regional Climate Action Workshop
February 26, 2020

WE DELIVER.



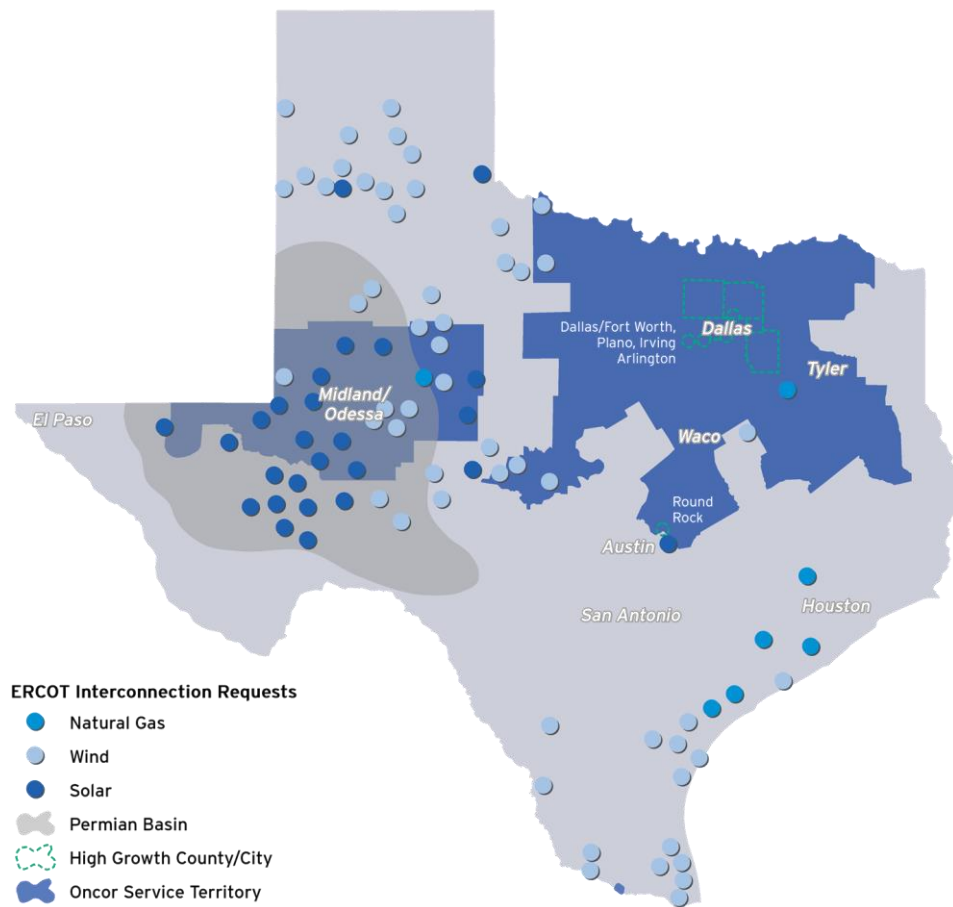
ONCOR

- 3.6+ M Customers
- Serving ~10 Million people
- Population Growth
- 2% premise growth; 1.5% load growth;
- Texas growing by 1,000 people per day
- Dallas | Ft. Worth is the largest growing metropolitan area in the nation
- Oncor serves 4 of top 10 fastest growing counties in the U.S.; and 6 of the top fastest growing cities in the U.S.



ONCOR

- **Distribution**
- **Transmission**
 - Move energy to distributors
 - Serve distributors growth
 - Open access
- **Interconnections**
- **Metering**
 - Wholesale
 - Retail



***Regulated, investor-owned, utilities in ERCOT
– do not generate or sell electricity –
– but deliver it –***

LITHIUM ION BATTERIES

RAPID EVOLUTION

- PRODUCTION, CAPABILITIES, COSTS

PHONES & LAPTOPS & TABLETS

ELECTRIC VEHICLES



2008



2011

Oncor & Regional Timeline

2009 -- NCTCOG 1st EV Workshop Oct 29

2010 – GM Volt introduced State Fair of Texas

2011 – Acquire GM Volts & Nissan Leafs

2011



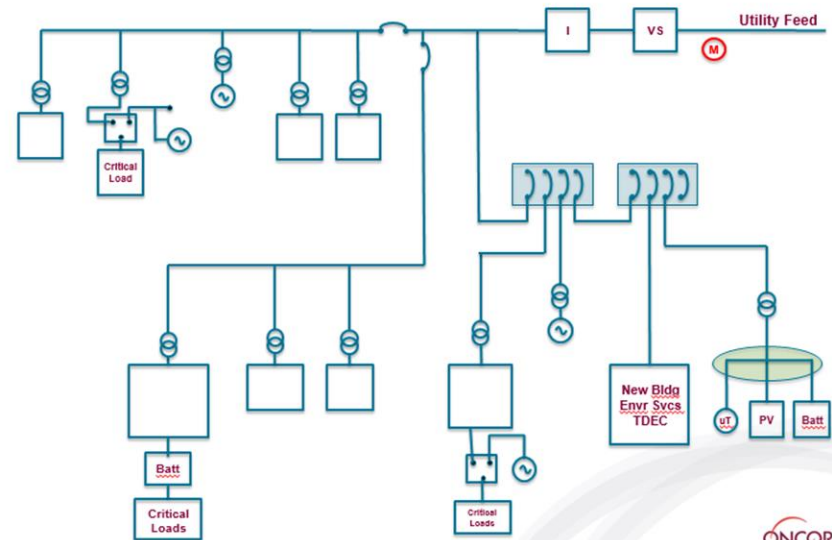
ENERGY STORAGE



Oncor Timeline

- 2014 Neighborhood Storage Reliability Initiative – begun
- 2014 Began planning a microgrid
- 2015 Commission operational microgrid at an Oncor site with energy storage & distribution automation

SITE WITH MICROGRID & NEW BUILDING



NEIGHBORHOOD STORAGE RELIABILITY INITIATIVE

- Six battery systems installed in Dallas in 2014
- Small scale, designed to support groups of homes or smaller commercial facilities
- Automatically switch to battery when normal Oncor source is off
- Units have saved over 8,400 customer outage minutes



STORAGE TO ANCHOR A MICROGRID

- Demonstrate capability of storage to anchor a distributed microgrid **DURING LOSS OF UPSTREAM GRID POWER**
- **Type: Utility feeder segment anchored by storage**
 - Customer loads
 - Distribution automation equipment to reconfigure feeder segments
 - Solar by customers & 3rd-parties
 - Dispatchable natural gas generation by 3rd-parties & customers

Vision: Become a key evolutionary reliability capability for electric utilities

- **Type: Behind-the-meter microgrid for Oncor's internal operations**

MICROGRID SITE SELECTION

Implement at an Oncor location that is controlled by Oncor entirely

Has Oncor distribution line on site

Gain experience with functionalities that Oncor will see on its grid, including customer and 3rd-party solar & energy storage & gas-fueled generation



RELIABILITY & RESILIENCE FOR A KEY OPERATIONAL SITE

- 100-acre industrial-campus site with key operations for meter testing, transformer testing and refurbishment, communications, and environmental labs and compliance
- During major grid outages, site takes on 24x7 roles for restoration and environmental management

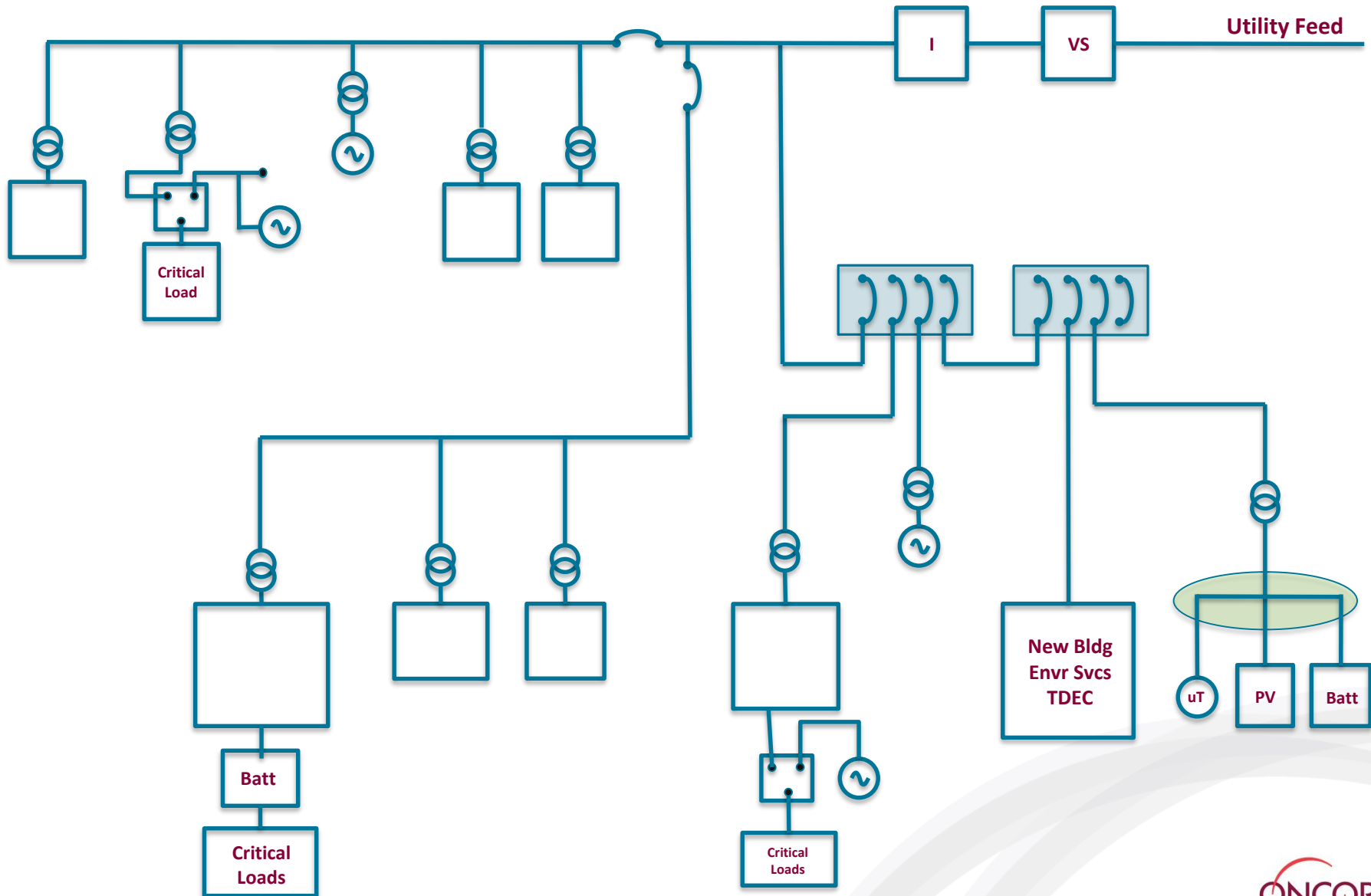
Original site: 10 metered services, UPS & 3 emergency gensets, with limited site operations during local grid outages

Project objective: reconfigure to single primary-metered point of service, site-wide microgrid, adaptable to a variety of situations & learning

MICROGRID



SITE WITH MICROGRID & NEW BUILDING



ENERGY STORAGE UNDER SOLAR CARPORT



COMING CHALLENGE – GROWTH OF EV'S

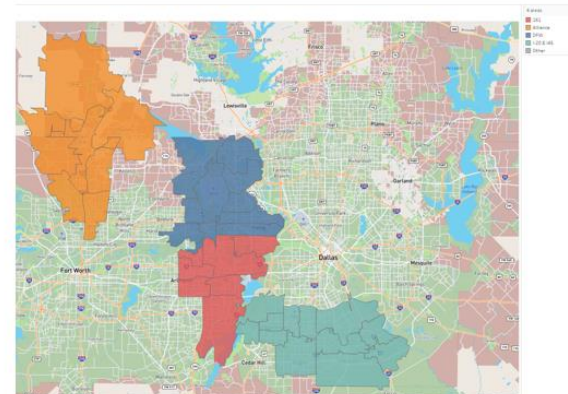
Integrating EV's into DFW area – EV charging station siting, how and when EV's are charged, how that affects the grid



Passenger
Logistics Center /
Distribution Warehouses
Transit Buses
School Buses

Logistics Clusters in DFW Area

D/FW has four pockets of high concentrations of logistics and distribution centers, all proximate to the interstates and/ or DFW or Alliance airports.



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