

Integrated Distribution Plan (IDP)

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All Committee Meeting
February 13th, 2024

Agenda

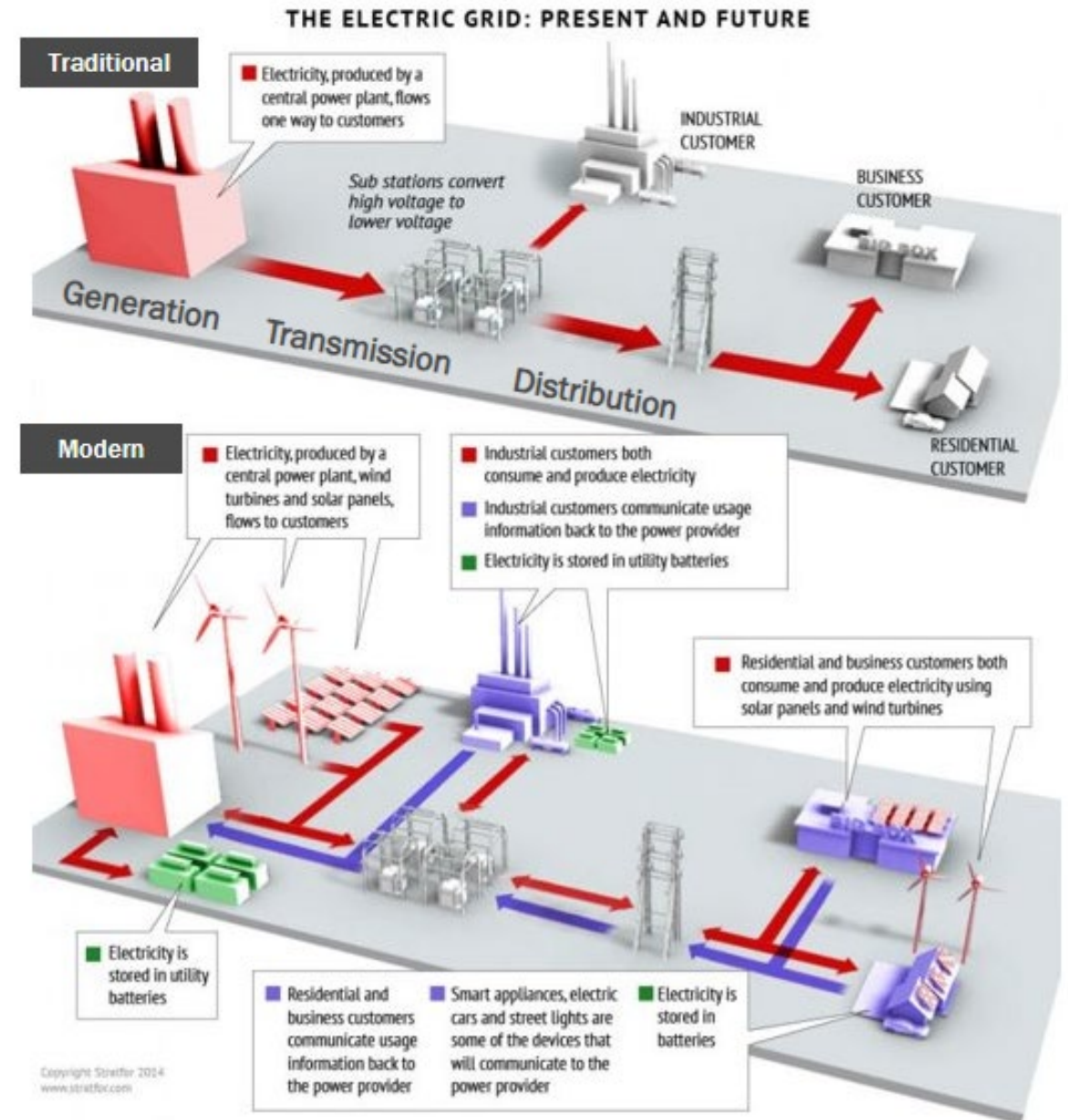
- Background
- Integrated Distributed Plan (IDP)
 - IDP Overview
 - IDP Phased Development
 - IDP Phase 1 Content Highlights
- Next Steps and Timeline

Background



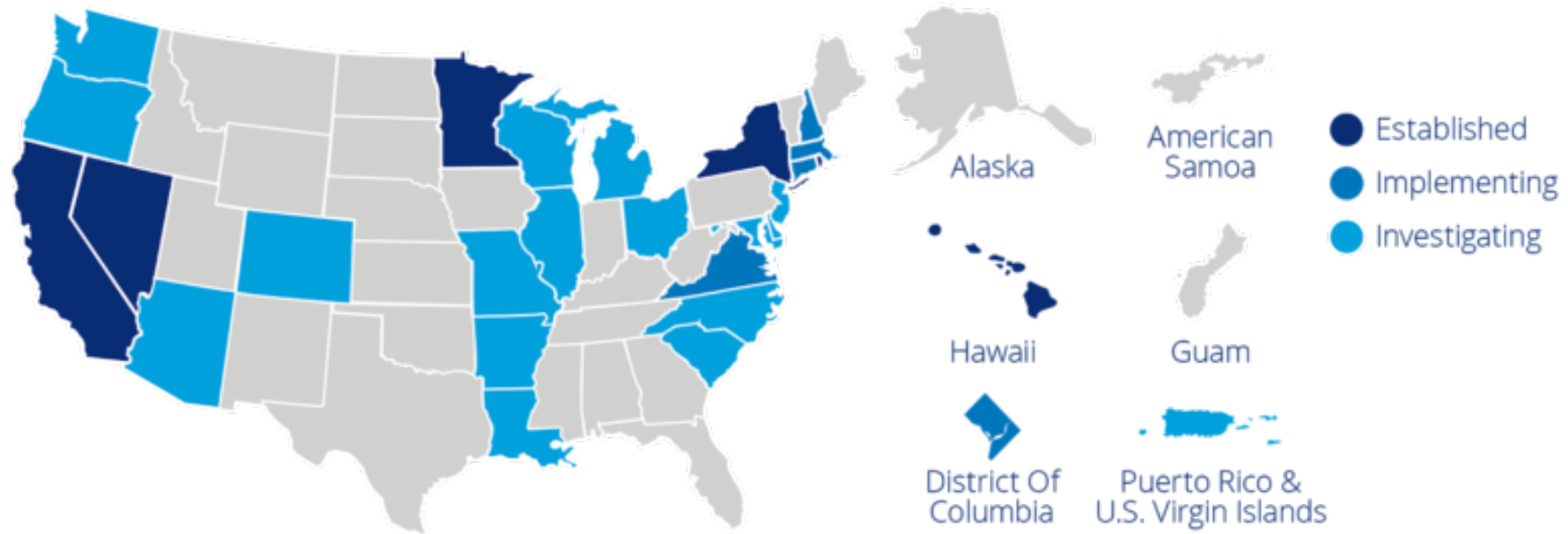
Power System Evolution

- Traditional Power System
 - One-way power flow
 - Separate systems with limited integration
- Modern Power System
 - Evolving grid and customer technology
 - Two-way power flows and communication
 - Integrated systems
- Integrated System Planning
 - OPPD's Systems Transformation Business Unit
 - Recent focus on Bulk Generation & Transmission Planning integration
 - Launching effort on Integrated Distribution Planning (IDP)



Integrated Distribution Planning Nationwide

Figure 1: State Integrated Distribution Planning Activities



Source: SEPA, EPRI, LBNL, 2020.¹⁷

IDP Overview



Integrated Distribution Planning

VALUE PROPOSITION

Developing an Integrated Distribution Plan will enable OPPD to evolve from traditional planning methodologies to processes and systems that help enable OPPD's Powering the Future 2050 goals of perfect power, customer freedom and cleaner world.

1 Problem Statement

Growing Distributed Energy Resource (DER) adoption and electrification such as electric vehicles (EV) and a wealth of data and opportunities that will be created by Advanced Metering Infrastructure (AMI) and modernized grid devices are driving the need to evolve traditional distribution planning priorities, objectives, and approaches.

2 Background

Transformations such as AMI, grid device modernization, electrification and DER adoption necessitate OPPD developing a comprehensive plan for what the future of distribution grid will look like and how we will orient the organization to that reality.

3 Goals

- Organizational alignment & public awareness
- Standards and valuation framework for EVs and DERs
- Repeatable, granular long-range spatial distribution load forecast
- Modernized distributed device deployment strategy
- Updated long-range distribution expansion plan

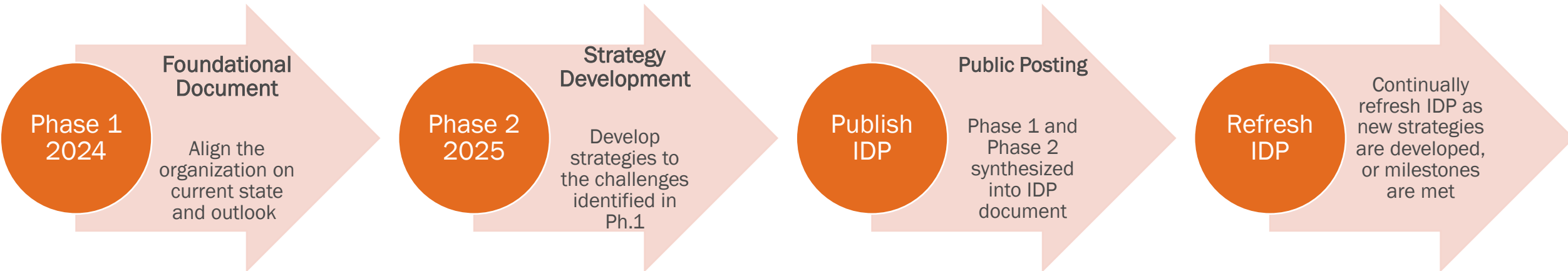
4 Enterprise-Wide Effort

- Systems Transformation (Lead)
- Support from Utility Operations, Financial Services, Technology Services, Customer Service & Public Affairs

IDP Phased Development



IDP Phased Development



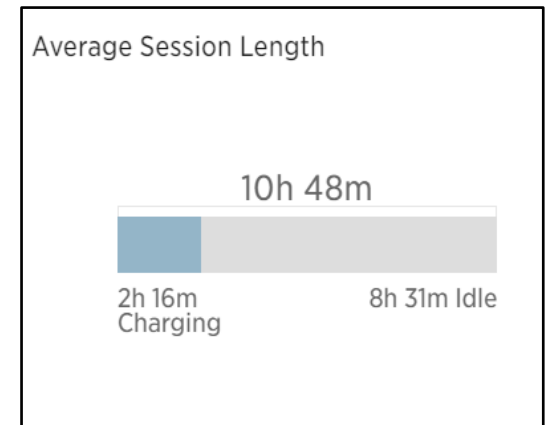
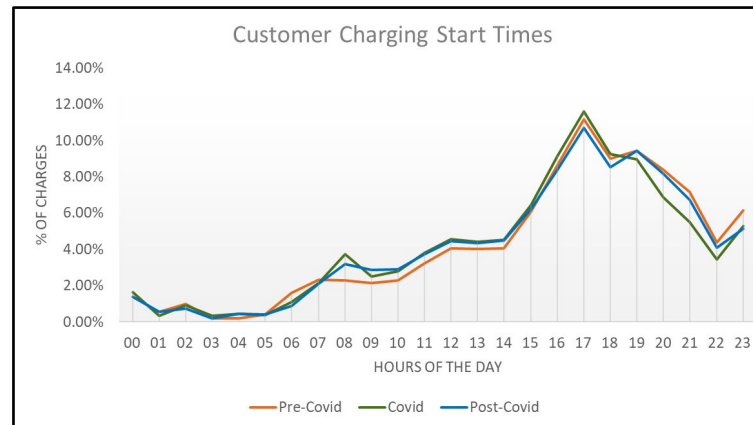
IDP Phase 1 Content Highlights



Growing Adoption of Technologies - EVs

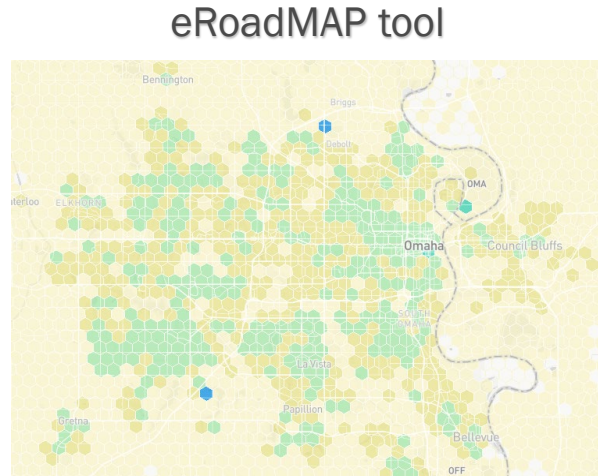
ChargePoint Program

- While EV's account for less than 1% of all light duty vehicles in the service territory, we need to remain focused on planning for the future even though today's impacts are negligible, tomorrow's impacts will grow
- Offered rebates on ChargePoint Home Charging Station in exchange for granting OPPD access to usage data
- Over 450 chargers installed
- Rebate program has ended but data continues to provide value
 - Average charging vs plugged-in time
 - Session start times
 - How often customer charge per week



Growing Adoption of Technologies - EVs

Industry Participation



Fleet Research



Amazon Fleet: ~100 Rivian electric delivery vans

OPPD is monitoring the charging impact using advanced meters with interval data

Working with several internal customer groups to monitor potential future fleet conversions



E-mobility Task Force

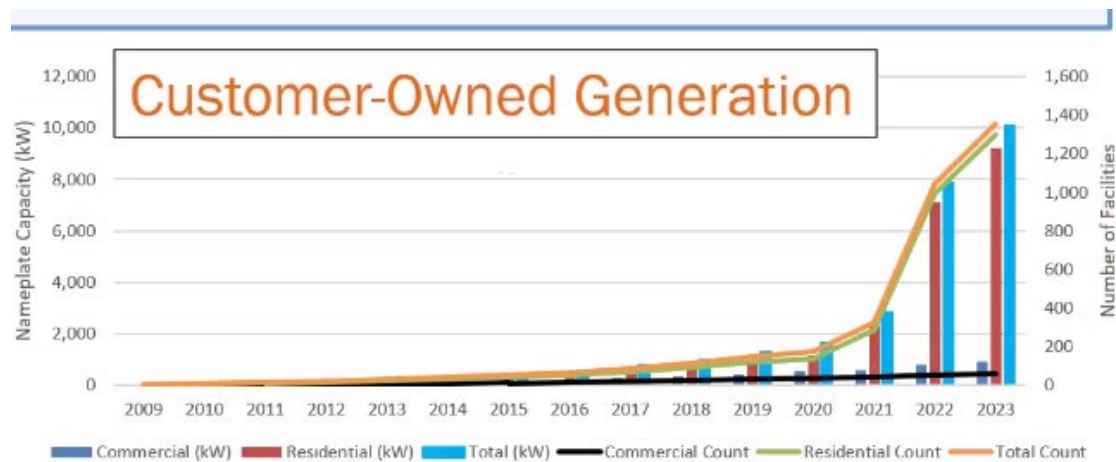
Subcommittees

- Cost Recovery, Rate Design, and Pricing Models
- Fueling, Grid Infrastructure & Load Management
- Policy and Regulation & Economic Development
 - Customer and Stakeholder Engagement

Growing Adoption of Technologies – DER, DSM

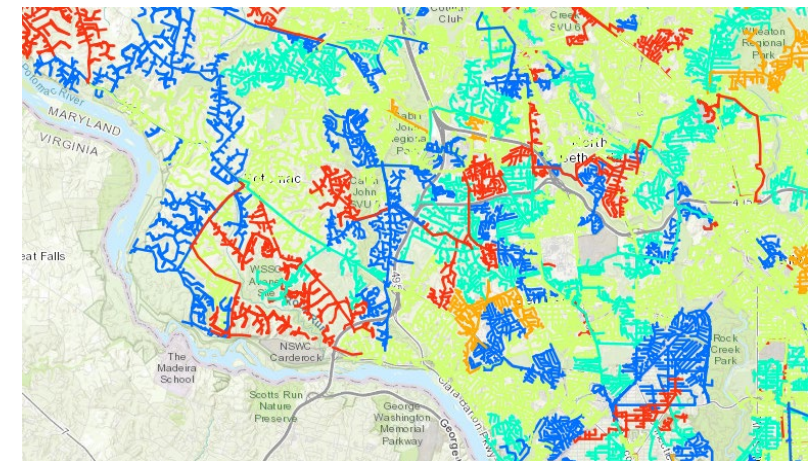
Distributed Energy Resources (DER)

- Pace of customer-owned generation installations is rising but still less than 1% of our customer base today
- Negligible system impacts today but preparing for the future
- Strategizing *Hosting Capacity Analysis* tool to estimate availability of distribution capacity for increasing volume of DER requests



Demand Side Management (DSM)

- Strategizing how Demand Side Management products can be valued by Distribution Planning
- 467L rate rider, Cool Smart, Smart Thermostat
- Considering how FERC Order 2222 allowing aggregation in energy markets will affect the distribution system



Example Hosting Capacity map from peer utility

Digital Transformation Plan - AMI

	 esri [™]	 osi	 SEW	 IBM maximo	 SEW	 Landis+Gyr manage energy better
	Geographic Information System	Outage Management System	Field Service Management	Enterprise Asset Management	Customer Platform	AMI Meters & MDMS
Vendor	ESRI	OSI	SEW	Maximo	SEW	Landis & Gyr
Initial Deployment	2024	2025	2025	2025	2025	2025--2028
						

Distribution Grid-side Technologies

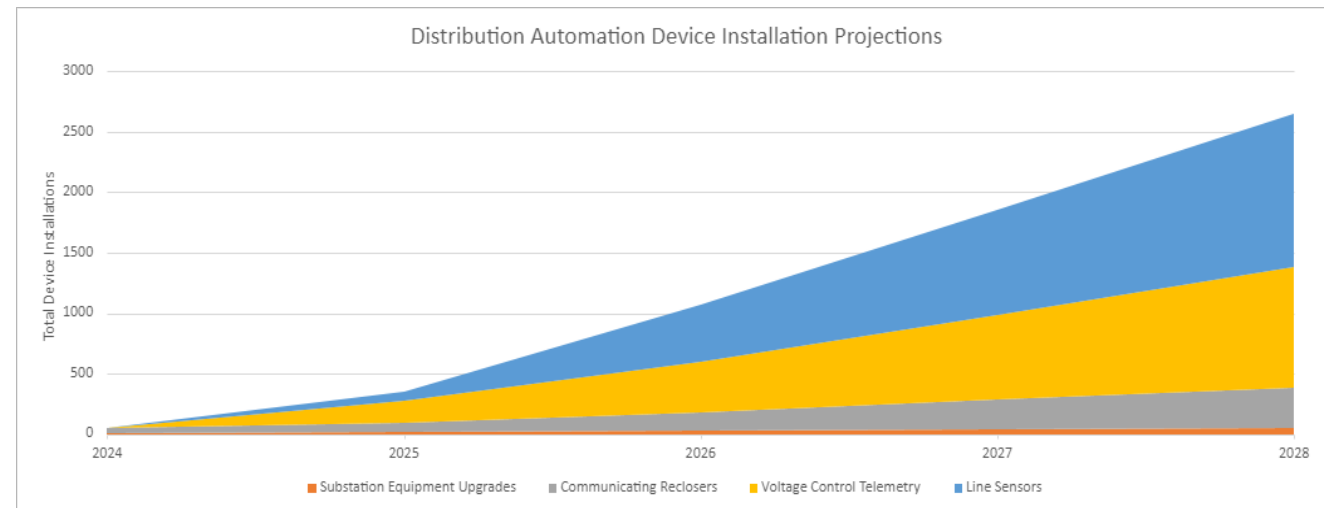
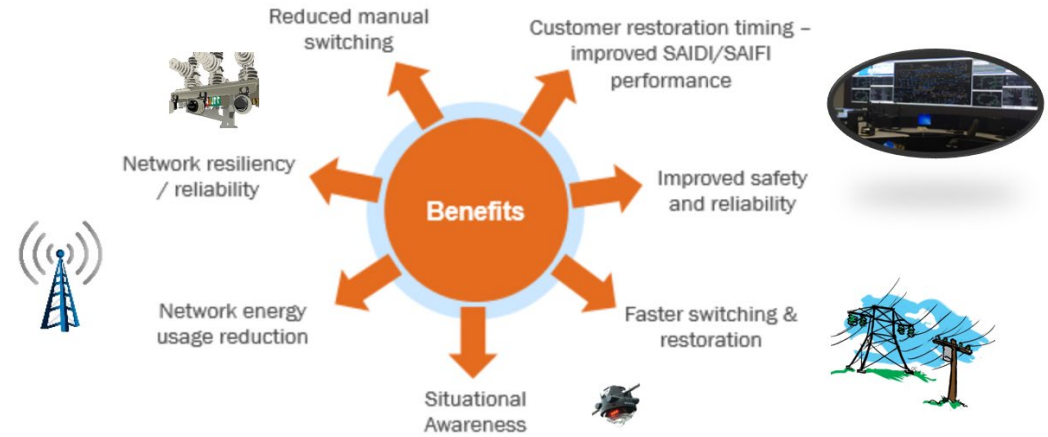
- **Distribution Grid Scale Resources**

- Ft. Calhoun 5MW Community Solar Farm
- BRIGHT Battery Storage 1MW pilot
- OPPD-Douglas Co. Landfill Solar (SOLUS)

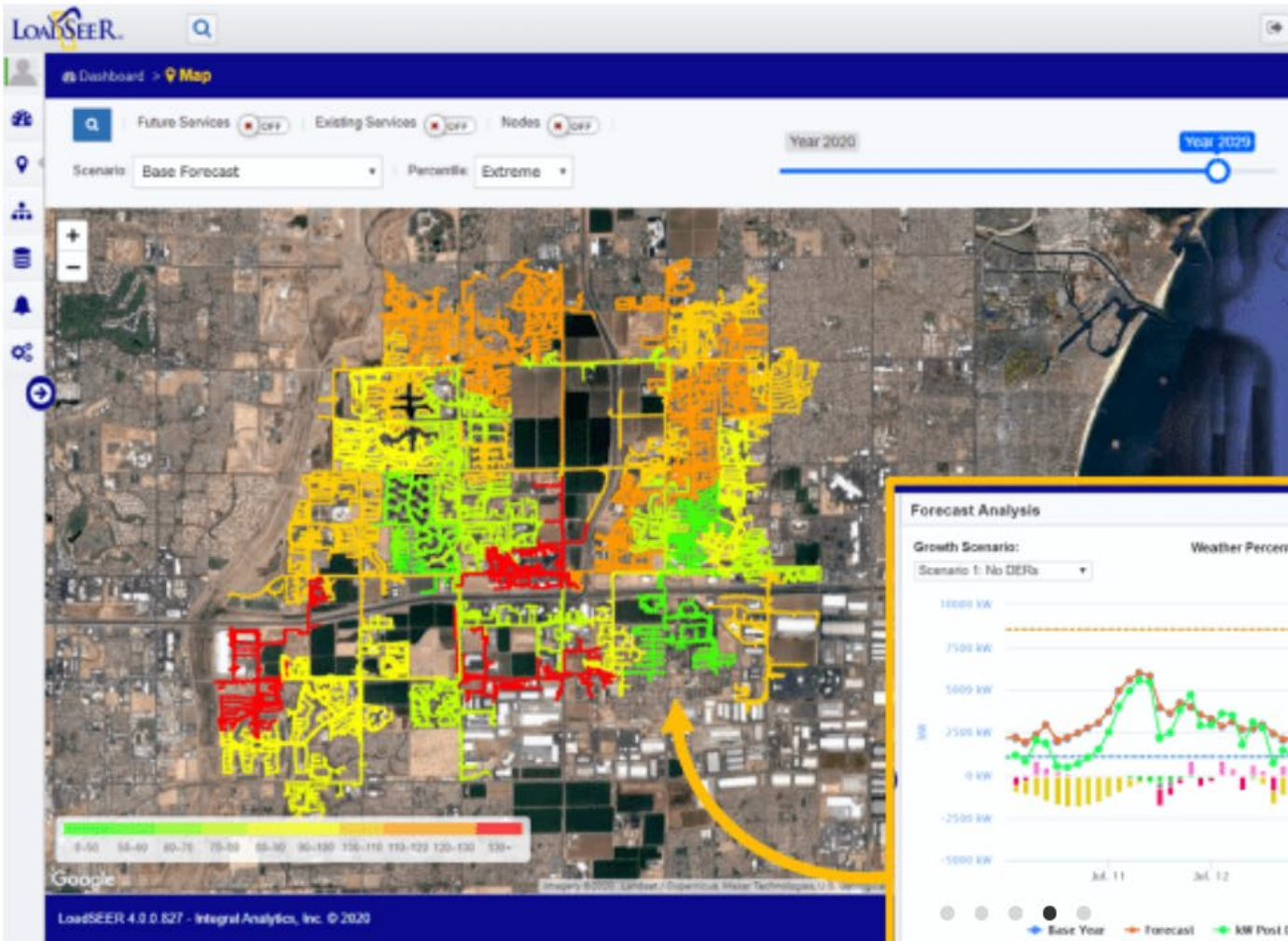
- **Distribution Automation (DA)**

- ‘Smart Grid’ DA Pilot (Northeast Omaha)
- Deployed 30 communicating line reclosers
- Rural Substation Telemetry Upgrade complete
- Developing Distribution Automation philosophy and deployment roadmap

Distribution Automation Benefits



Advanced Spatial Forecasting Tool



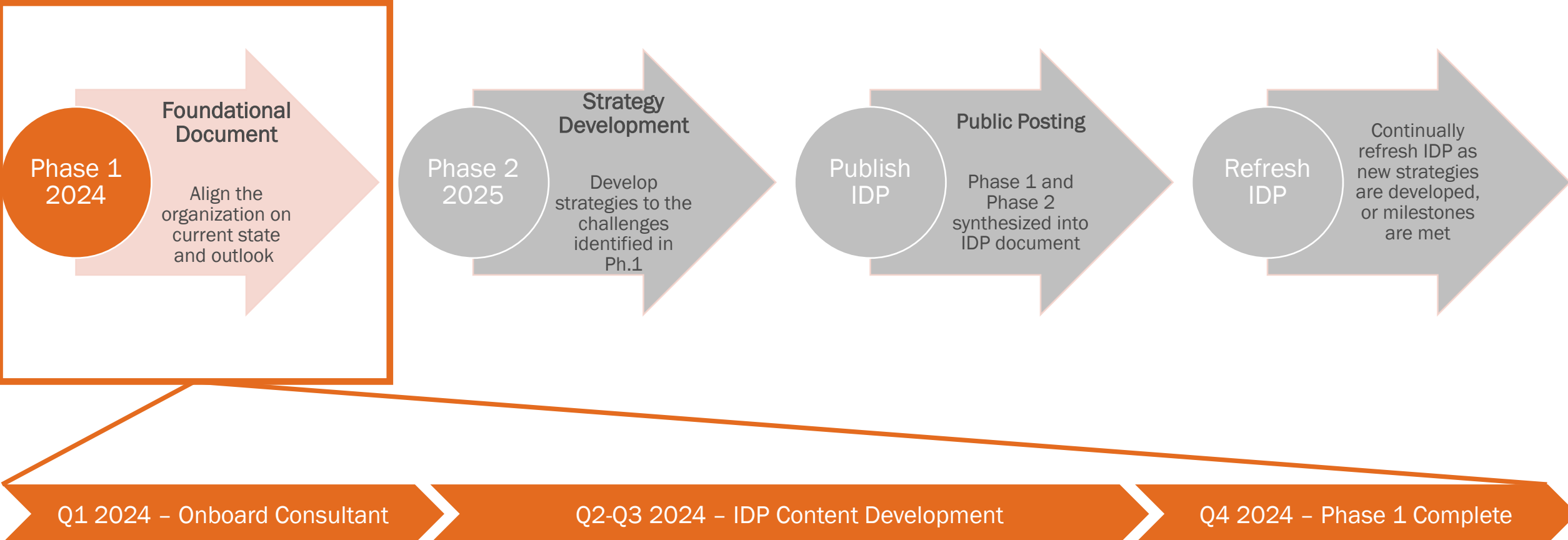
- Develop a granular, spatial load forecast inclusive of EV and DER adoption probabilities
- Ensure consistency with system-wide forecast
- Advanced Load Forecasting Software vendor selected
- Will aid in long-range T&D expansion planning



Next Steps and Timeline



IDP Phase 1 - 2024



Questions

