

OPPD Pathways to Decarbonization

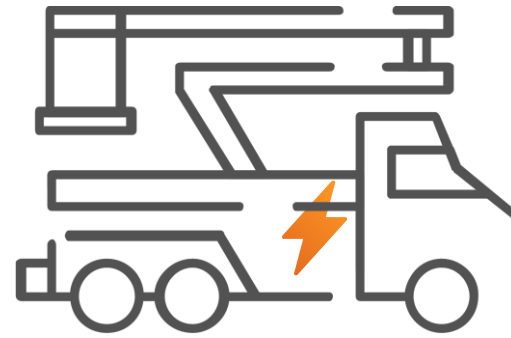
September 7, 2021

**NET-ZERO CARBON
PRODUCTION
BY 2050**

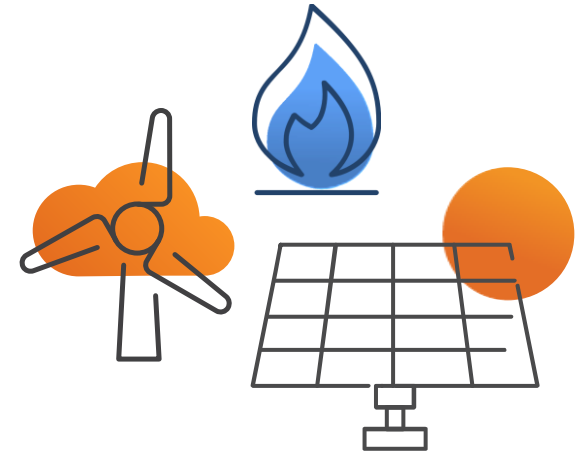


Agenda

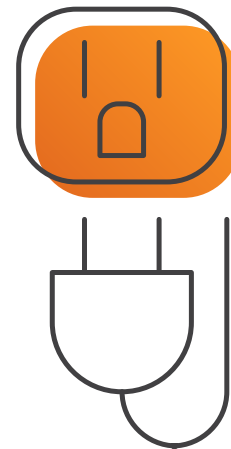
- Background Review
- Energy Portfolio Project Update
- Customer Project Update
- Community Project Update
- Internal Operations Project Update
- Stakeholder Outreach Update



Internal Operations



Energy Portfolio



Customer
Products & Services



Community Partner

Need for a Strategic Initiative (“SI”)



**Board Resolution 6347
November 14, 2019, revised
Strategic Directive 7 (SD-7)
Environmental Stewardship.**

Therefore, OPPD shall. . .

Conduct all of its operations (including operations such as building services and transportation) in a manner that strives for the goal of net zero carbon production by 2050.

Engage customers and stakeholders to promote energy conservation and efficiency and minimize environmental impact.

Advocate and educate local state and federal governments to protect and advance OPPD’s environmental interests.

NEBRASKA

Nebraska utility bets on technological advances to meet carbon-cutting goals

- Energy News Network, December 5, 2019

Omaha Public Power District Commits To Net Zero Carbon By 2050

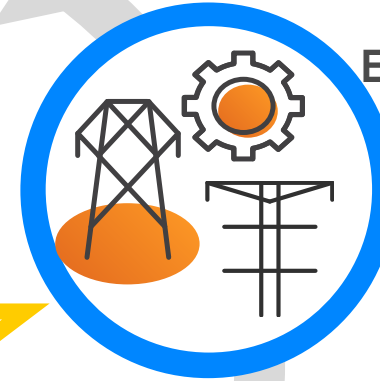
- NET News, January 6, 2020

Leading the Way

Pathways to
Decarbonization

We Power the Future

Technology
Platform



Electric System Evaluation
& Modernization

Powering the
Future
2050

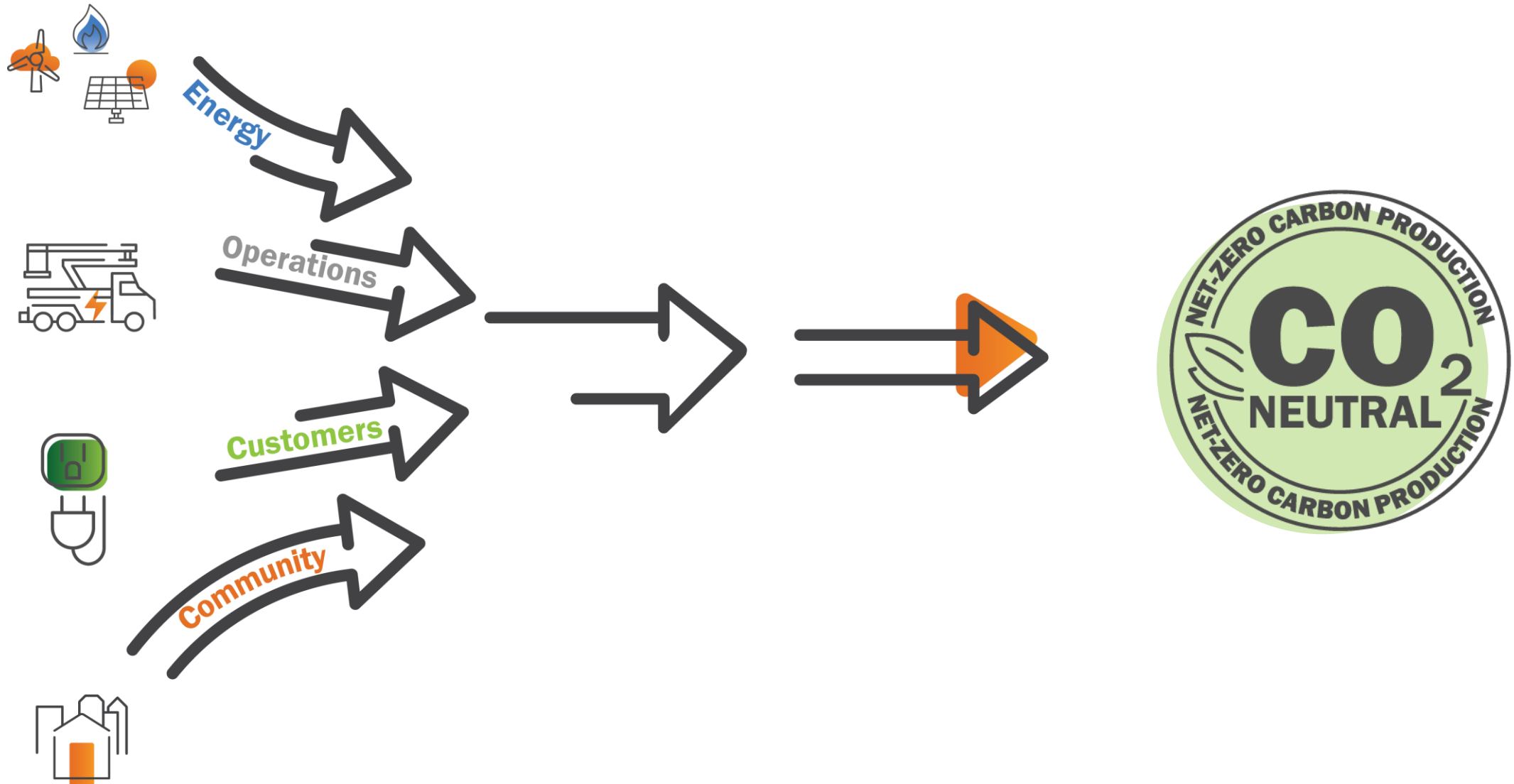
Workforce
Transformation



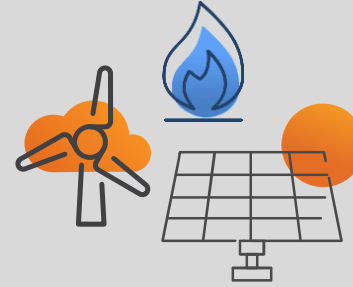
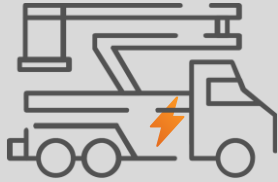
Customer Engagement
for the Future



Pathways to Decarbonization



Pathways to Decarbonization Program



Internal Operations

Develop an inventory of carbon emissions across OPPD and identify means to decarbonize OPPD's non-generation footprint.

- Identification and quantification of OPPD's carbon footprint
- Development of standardized carbon accounting framework

Customer

Identify products and programs which can help OPPD customers reduce their own carbon footprint.

- Identification of carbon footprint reduction across potential demand-side programs
- Prioritization of specific demand-side programs

Energy Portfolio

Study pathways to eliminate or significantly reduce greenhouse gas (GHG) emissions from OPPD energy portfolio, while balancing impacts on reliability, resiliency, and affordability

- Identification of electrification impacts on electric demand
- Optimization of supply, demand, and storage resources to minimize cost and risk
- Modeling and evaluation of bulk electric system to ensure reliability and resilience

Community

Develop partnerships to reduce the carbon footprint of the communities that OPPD serves.

- Provide information and leadership about decarbonization goals
- Advocate and partner together to support community initiatives

Energy Portfolio

- The Energy Portfolio Project will study actionable pathways to eliminate or significantly reduce greenhouse gas (GHG) emissions from OPPD energy portfolio, while balancing impacts on reliability, resilience, and affordability



Energy Portfolio Teams



Technology Exploration & Assessment

Explore a universe of technologies, options, and practices to enable OPPD to achieve its decarbonization goals.



System Reliability & Resiliency

Define, quantify, and model necessary reliability and resiliency attributes of OPPD's system.



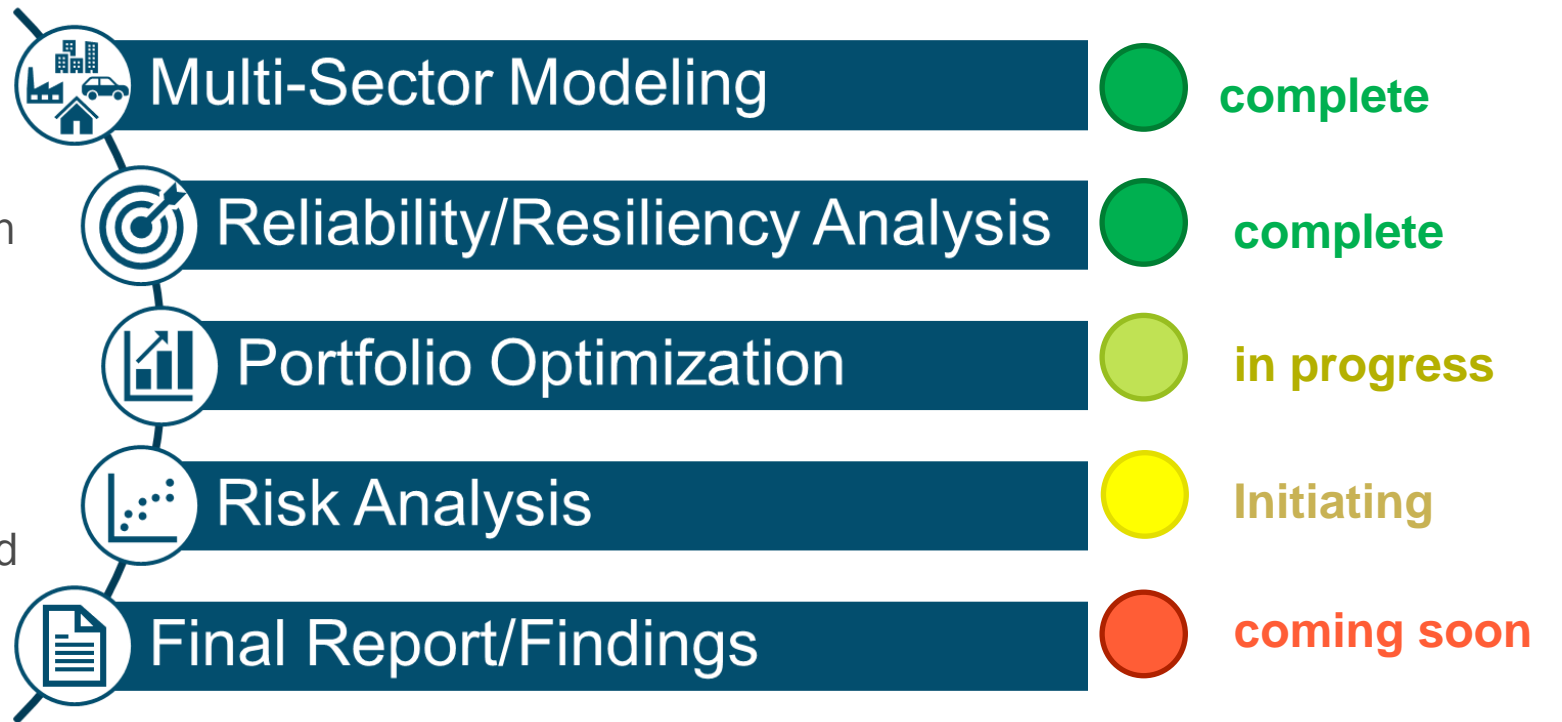
Integrated Modeling & Data Visualization

Design and develop modeling approach and assumptions. Execute modeling to support pathways identification.

Project Status

- Progress

- Multi-sector modeling gives a clear view of future energy demand
- A robust modeling framework will ensure a broad and deep evaluation of alternatives
 - Broad set of technologies
 - Robust resource adequacy analysis
 - Holistic integrated market analysis
- Stakeholder voices have been heard and incorporated throughout
 - Questions have been answered
 - New scenarios have been added

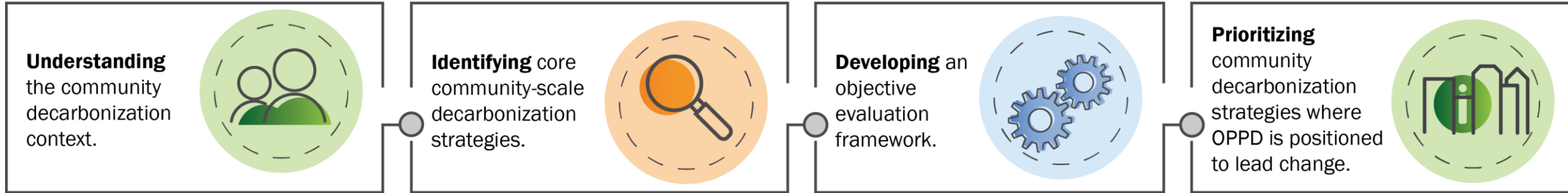




PATHWAY: **COMMUNITY**

- provide information & leadership about decarbonization goals
- advocate & partner together to support community initiatives

Community Decarbonization Approach & Objectives



- **Consider another vantage point**, encompassing community-scale decarbonization strategies that reach beyond those traditionally considered by electric utilities.
- Prioritize **areas of focus** and identify potential partners to make meaningful impacts across service territory communities.
- **Position OPPD to lead community initiatives** in the transition towards a low-carbon future.

Selected Climate Action Plans

- **Regionally relevant**, targeting communities located primarily in the Midwest.
- **Recent Climate Action Plans**; varying level of detail for GHG mitigation measures.
- 4 of 6 communities declared a **climate emergency** in 2019.
- Connection to **peer utilities**, allowing benchmarking.



EXPLORE 66 SHARED DECARBONIZATION & ADAPTATION STRATEGIES



ADAPTATION



BUILDINGS



ENERGY



FOOD



LAND USE



LEADERSHIP

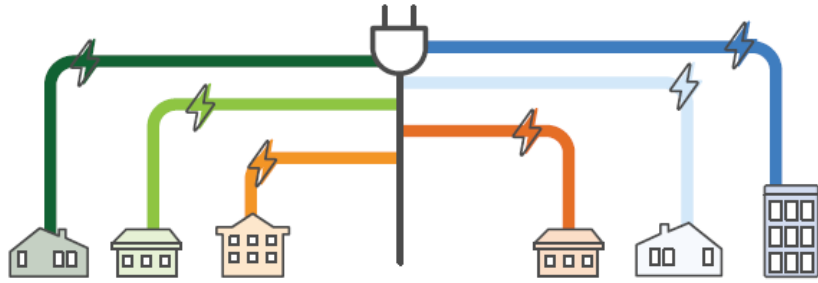


TRANSPORTATION



WASTE & RESOURCE
MANAGEMENT

Exploring Opportunity Areas



Advocating for Advanced Energy Codes and Green Building Standards



Accelerate the EV Transition



Addressing the Energy-Water Nexus

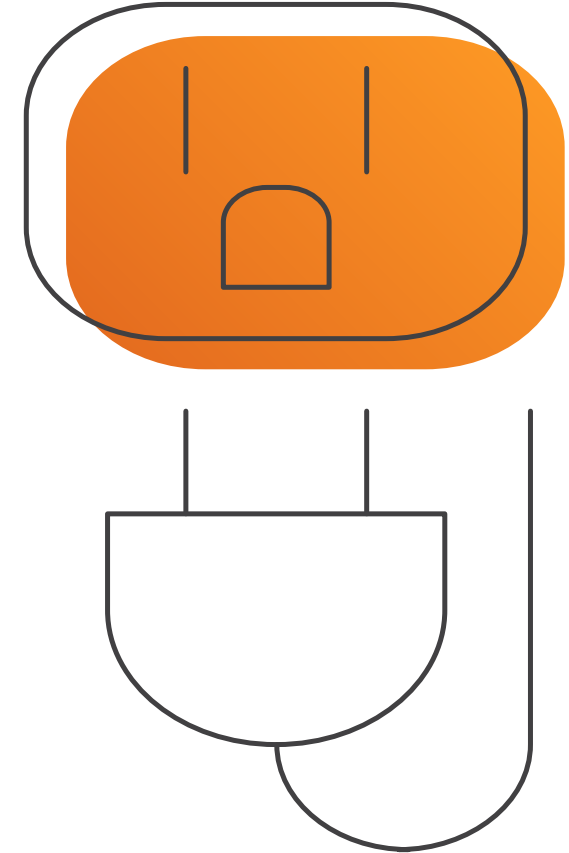


Supporting Distributed Generation

Customer

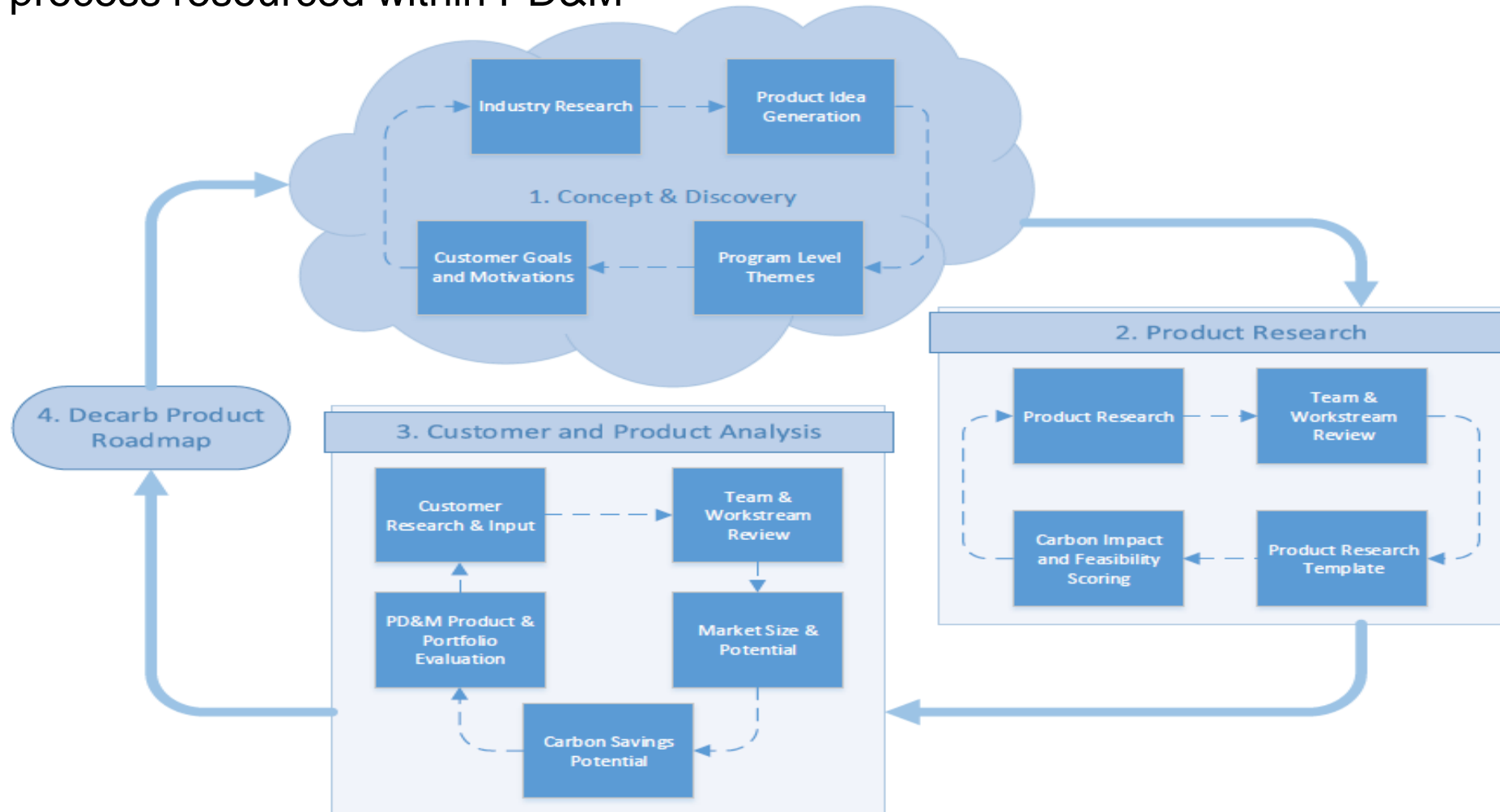
This project will create and own a product strategy with the aim of a partnership between customer desire and OPPD's decarbonization goals.

- Conduct market analysis, technology exploration, and industry and non-industry benchmarking.
- Review the Product Development and Marketing's (PDM) product prioritization framework and model to ensure proper value is assigned to decarbonization product efforts.
- Deliver a product strategy and roadmap to meet both customer and OPPD decarbonization goals, including an acceleration plan.
- Ensure tracking and reporting of carbon reduction as a result of implemented products.



Decarb Product Evaluation Framework

The decarb product roadmap deliverable isn't a one and done exercise, but a continuous ongoing process resourced within PD&M



Phase I & II Research & Scoring Highlights

Phase I (228 Concepts Scored)

- High-level research, focus on successful product designs and successes within the Industry
- Focus on ensuring a wide range of ideas covering all customer segments and product areas
- Sample of product concepts explored:
 - Net Zero Construction
 - Heat Pump Water Heaters
 - Commercial Refrigeration
 - White Roof Conversions
 - Variable Frequency Drive Rebates
 - Fuel Cells
 - Mass Transit EV Adoption
 - Customer Owned Solar
 - Composting
 - Home Energy Rating Report/High Bill Alerts
 - Solar Coins (BitCoin for EE)
 - Residential Wind
 - Neighborhood Solar
 - Battery Storage
 - Plastic, Metal and Glass Recycling
 - BioEnergy with Carbon Capture
 - Native American Support Programs
 - Heat Recovery (Heat Exhaust Generation)

Phase II (26 Concepts Scored)

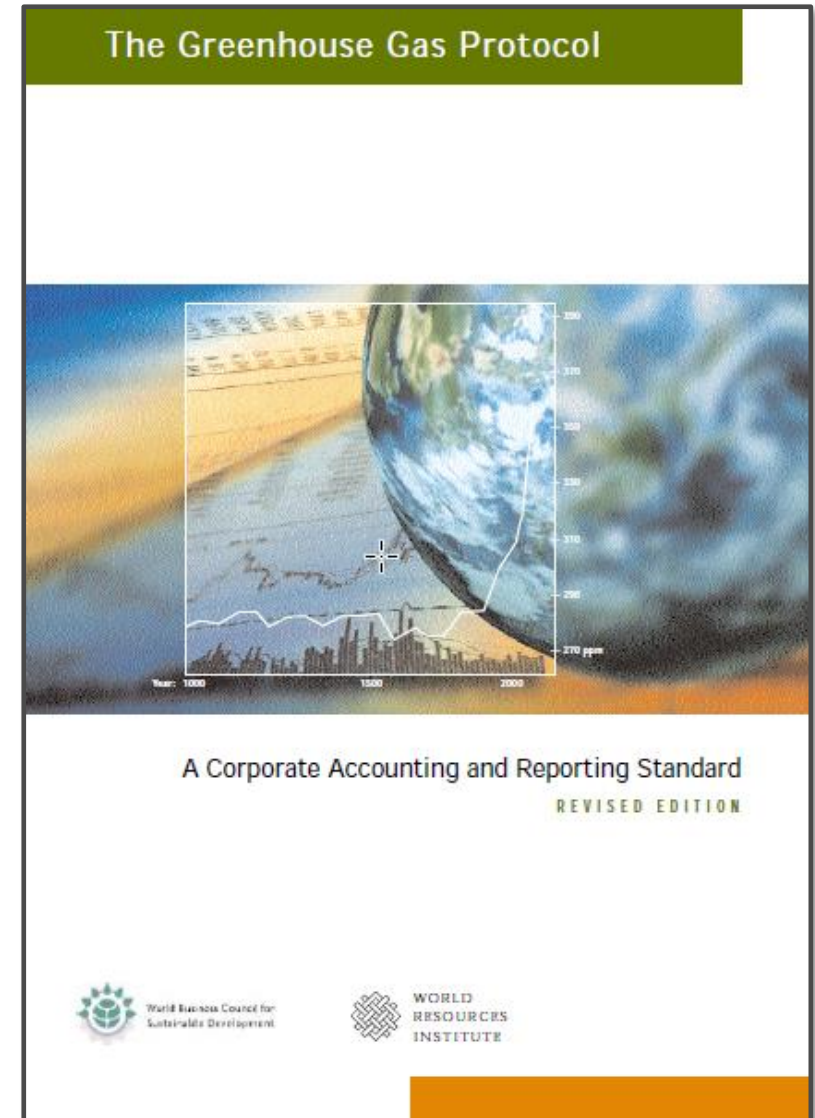
- Benchmarking of other utilities programs (scale/growth, budget, GHG savings)
- Final roadmap prioritization, based upon team scoring and OPPD Market Research
- Top 10 scoring product concepts (no particular order):
 - C&I Community Solar
 - Energy Star Appliance Rebates
 - Commercial Outdoor Lighting & Controls
 - Residential Shade Trees
 - Commercial Food Service Equipment
 - Residential Lighting & Controls
 - Electric Yard Equipment Program
 - Community Solar Expansion
 - Residential Weatherization
 - Commercial EV Fleet Adoption



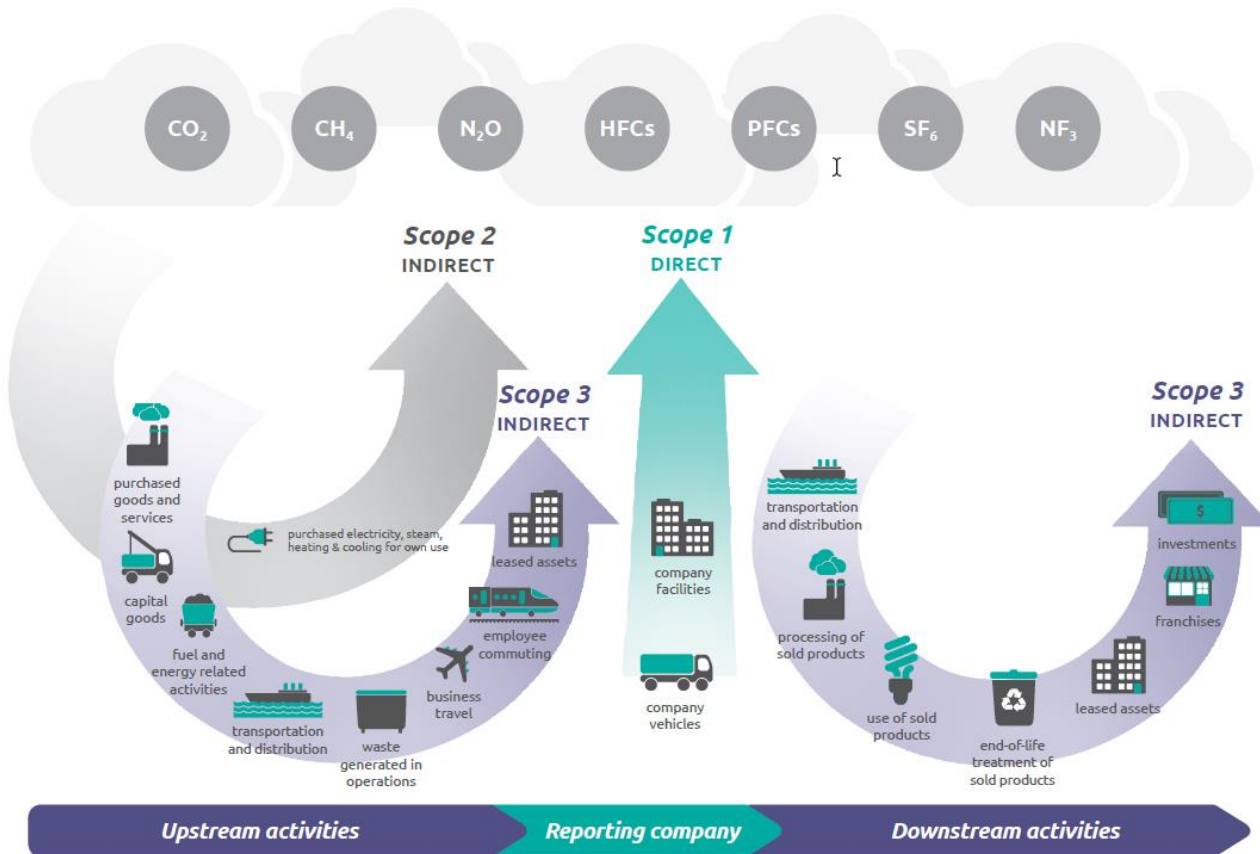
Internal Operations

This project will create a base year greenhouse gas inventory for OPPD to form basis for monitoring progress towards net-zero carbon.

- GHG Protocol Corporate Accounting and Reporting Standard.
- Transition inventory and reporting to business to ensure repeatable and certifiable yearly.
- Initial scoping and characterization of projects to reduce OPPD's largest non-generation emission sources.
- Partner with business to build/revise current business processes to reflect OPPD's prioritization of reducing carbon impact.



Internal Operations Project



- **Scope 1**
 - Stationary Combustion
 - Transportation fleet (SC/FSBU)
- **Scope 2**
 - Building consumption: elec, gas, other (BTBS)
 - Transmission and distribution losses (ED)
- **Scope 3**
 - Business travel (SC/FSBU)
 - Employee commute (HC,BTBS)
 - Purchased goods (SC/FSBU)
 - Upstream transportation (Programs/EPND)
 - Purchased power to end-users (FSBU/EM&T)

Source: Figure 1.1 of Scope 3 Standard.

Required: Scope 1 and Scope 2

Scope 1 Emission Sources:

- Stationary Combustion Sources – 98%
 - Fossil Generation
 - Internal Combustion Engines: Emergency Engines, Auxboilers
- Mobile Combustion Sources – 0.09%
 - Vehicle Fleet
 - Equipment Propane
 - Coal Handling Equipment
- Process/Fugitive Sources – 0.05%
 - Refrigerants (facilities and transportation)
 - Coal Pile
 - T&D SF6 Leaks
 - Natural Gas Pipeline
 - Welding-Acetylene
 - Fire Suppression Systems

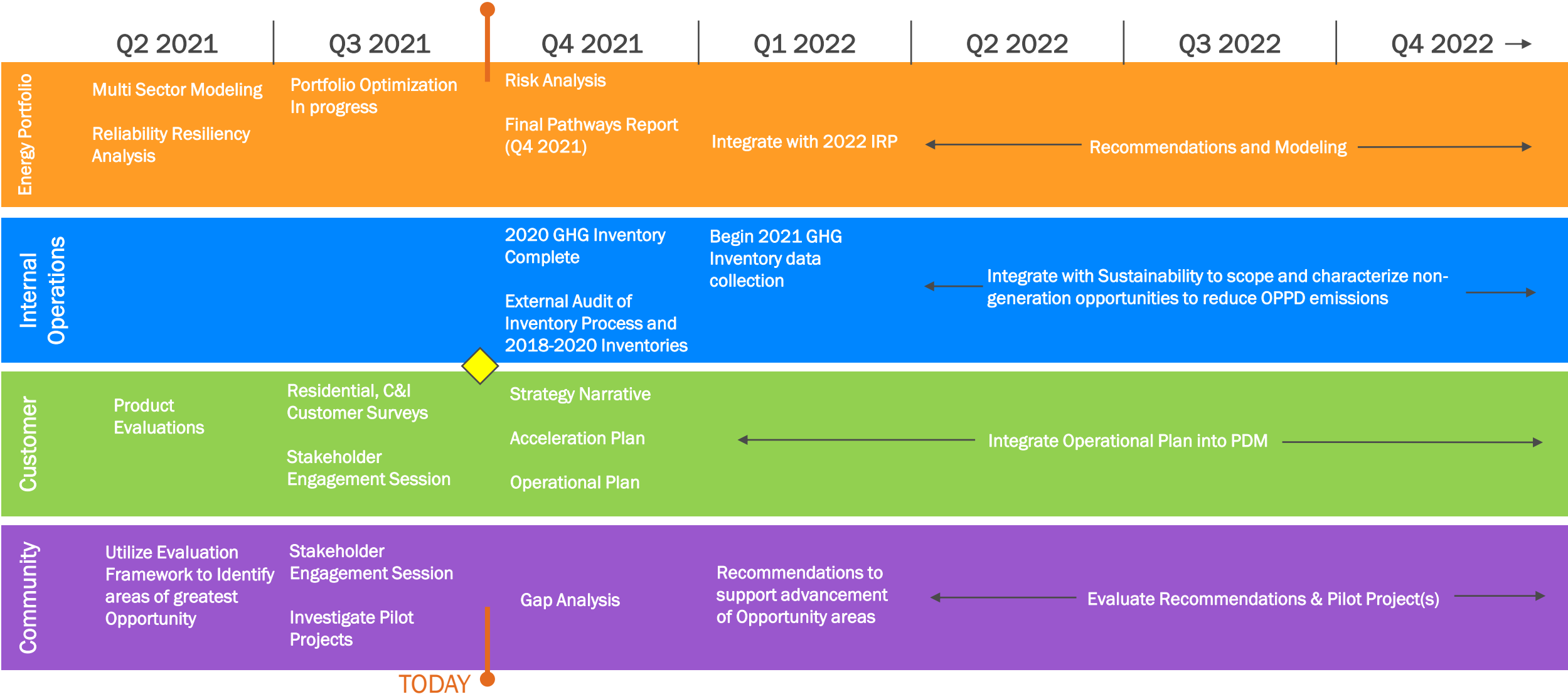
Scope 2 Emission Sources:

- Purchased and Consumed Electricity - 98%
- T&D Losses – 2%

Scope 3 Emission Sources:

- Purchased Goods and Services – 9%
- Energy and Fuel Related Activities - 90%
 - Coal Purchases
 - Coal Rail Transportation
 - Purchased Power Delivered to End-Users
 - Natural Gas Purchases
- Business Travel – 0.01%
- Employee Commute – 0.27%
- Waste – 0.65%

Program Milestone Timeline



TODAY

Stakeholder Engagement



OPPDCommunityConnect.com

Launched July 2020

Engagement Platform Objective:

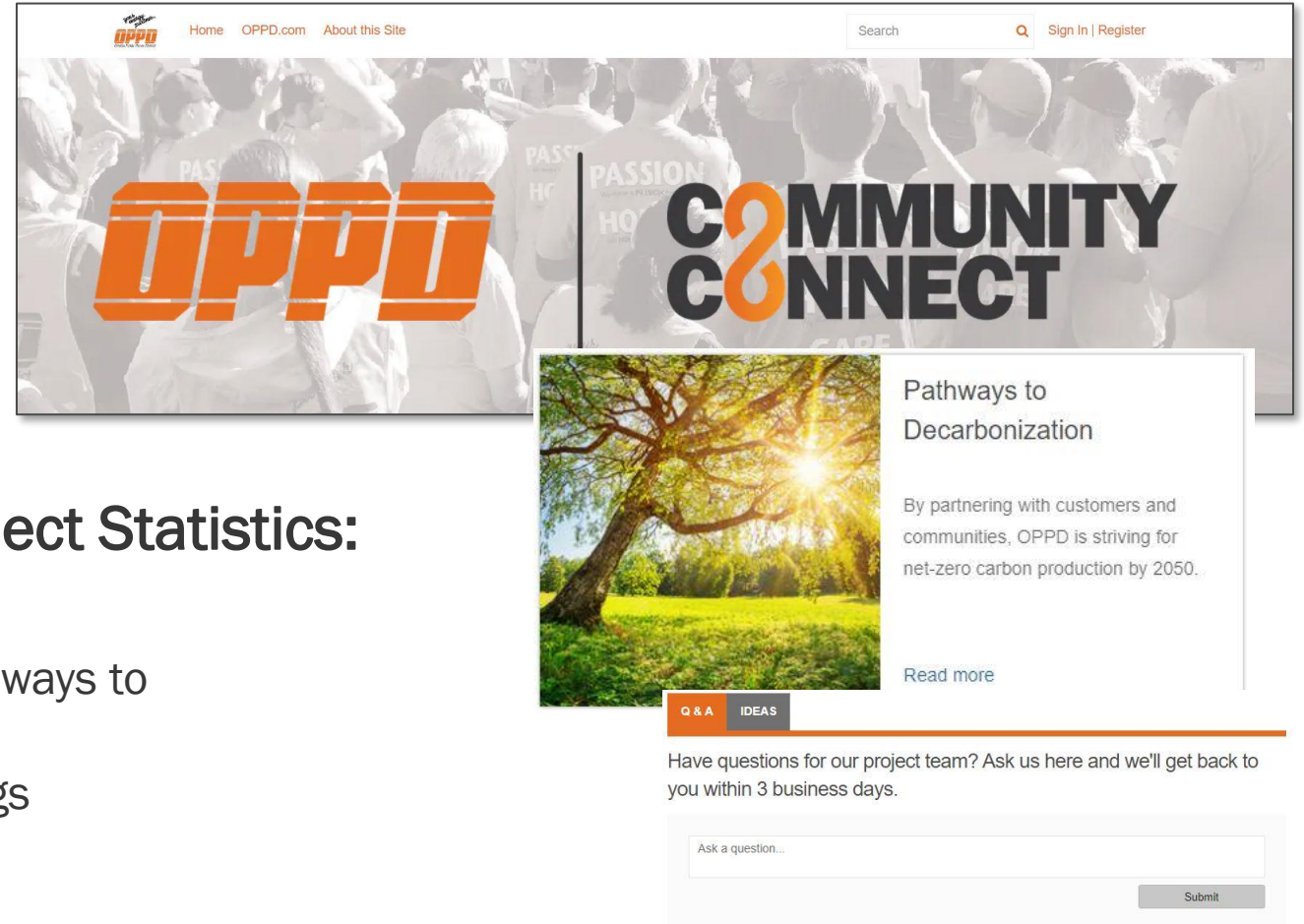
To lead the way; be the first and best source of Information and increase interaction

Decarb Engagement Tools:

Q & A, Comments, Ideas, Quick Polls, Surveys

Decarbonization OPPDCommunityConnect Statistics:

- Projects
 - 8 project pages created associated with Pathways to Decarbonization
 - Included workshop information and recordings
- Visitors to Decarbonization project pages
 - 7,700 between July 2020 thru Sept. 2021 (approximately 47,000 total site visitors)



Decarbonization – Energy Portfolio Workshops

Approximately 100 people have
attended one or more workshop

Many attended multiple
workshops within the series

April 7	Pathways Planning 101
April 28	Multi-Sectoral Modeling
May 12	Developing Key Assumptions & Scenarios
May 26	Developing Modeling Approach
Aug. 4	Interim Modeling Update
Sep. 2	Customer & Community Update
Oct. 27	Initial Results
Dec. 9	Final Results

Speakers Bureau Engagement

- MAPA – Natural Resources Committee
- Green Bellevue
- Sierra Club

Thank you!

OPPDCommunityConnect.com



Pathways to Decarbonization

By partnering with customers and communities, OPPD is striving for net-zero carbon production by 2050.

[Read more](#)