



Board Action

BOARD OF DIRECTORS

September 20, 2022

ITEM

SD-9: Integrated System Planning Monitoring Report

PURPOSE

To ensure full Board review, discussion and acceptance of SD-9: Integrated System Planning Monitoring Report

FACTS

- a. The Board confirmed the Corporate Governance Initiative Charter in December 2014, in order to assess and refine OPPD's corporate governance infrastructure.
- b. The first set of Board policies was approved by the Board on July 16, 2015. A second set of Board policies was approved by the Board on October 15, 2015.
- c. Each policy was evaluated and assigned to the appropriate Board Committee for oversight of the monitoring process.
- d. The System Management and Nuclear Oversight Committee is responsible for evaluating Board Policy SD-9: Integrated System Planning on an annual basis.
- e. The Board approved revisions to SD-9 on August 18, 2022 and renamed the strategic directive from SD-9: Resource Planning to SD-9: Integrated System Planning.
- f. The System Management and Nuclear Oversight Committee has reviewed SD-9: Integrated System Planning Monitoring Report as outlined in Exhibit A and is recommending that OPPD be found to be sufficiently in compliance with the policy that was in effect prior to the August 18, 2022 policy revisions.

ACTION

The System Management and Nuclear Oversight Committee recommends Board approval of SD-9: Integrated System Planning Monitoring Report.

RECOMMENDED:

DocuSigned by:

Bradley R. Underwood

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Bradley R. Underwood
Vice President – Systems Transformation

APPROVED FOR BOARD CONSIDERATION

DocuSigned by:

L. Javier Fernandez

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L. Javier Fernandez
President and Chief Executive Officer

Attachment: Exhibit A – Monitoring Report
Resolution



Exhibit A

Monitoring Report SD-9: Integrated System Planning

Brad Underwood
Vice President - Systems Transformation
September 20, 2022

SD-9 Integrated System Planning

Strategic Directive

Significant revisions were approved to SD-9: Resource Planning on August 18, 2022 including renaming the SD to SD-9: Integrated System Planning. The revisions:

- Elevate the importance of integrated planning across supply-side, demand-side, transmission, and distribution planning in the context of a rapidly transforming electric industry
- Elevate the importance of system reliability and resiliency in the context of system planning
 - Ensure year-round compliance with regional balancing authority requirements
 - Ensure compliance with all North American Electric Reliability Corporation Reliability Standards including consideration of Essential Reliability Services
 - Ensure planning considers extreme weather events and their impacts on system reliability and the output of variable energy resources
- Establish quantitative monitoring of the ability for OPPD's resources to meet OPPD's electric demand on a continuous basis, also known as resource adequacy.

These modifications focus planning efforts on the most significant challenges facing the electric industry. As such, OPPD has also adapted its organizational structure, co-locating resource planning, transmission and distribution planning, and alternative energy, and decarbonization functions within the Systems Transformation Business Unit.

The 2022 Monitoring Report reflects SD-9: Resource Planning prior to the August 2022 policy revision.

SD-9 Integrated System Planning

Strategic Directive

SD-9 Version Prior to August 2022 Revision

The Board of Directors recognizes that the District will have to adapt to the rapidly changing electric utility business environment. The OPPD resource planning process will provide the resources and analytical capability to adequately assess OPPD's Integrated Resource Portfolio (or Supply and Demand Portfolio) to ensure reliable, competitive, cost-effective and environmentally sensitive service for our customers.

To attain this goal, OPPD shall:

- Periodically assess, for strategic and integrated resource plans, OPPD's mix of generation assets, demand-side management programs, purchased power agreements and renewable energy resources.
- Utilize multiple scenarios to properly evaluate the range of risks posed by varying future assumptions such as, but not limited to fuel costs, economic growth, regulations and emerging technologies.
- Ensure all integrated resource strategic plans support and align with OPPD's Strategic Directives.

SD-9 Integrated System Planning

Strategic Directive

SD-9 Version Prior to August 2022 Revision

The Board of Directors recognizes that the District will have to adapt to the rapidly changing electric utility business environment. The OPPD resource planning process will provide the resources and analytical capability to adequately assess OPPD's Integrated Resource Portfolio (or Supply and Demand Portfolio) to ensure reliable, competitive, cost-effective and environmentally sensitive service for our customers.

Resource Planning

- OPPD maintains a dedicated staff who monitor market and technology trends and facilitate both short and long-term planning resource portfolio planning efforts
 - **Short Term:** Used to derive near-term (usually 5 years) worth of expected load, fuel budgets, generation volumes, off system sales as well as fuel and purchase power. Rarely, if ever, are long term resource decisions made during this short term planning as the outputs are used primarily for the annual Corporate Operating Plan
 - **Long Term:** Used to derive the same outputs as the Short Term version but on a much longer duration and usually involve longer term resource recommendations.
- OPPD uses sophisticated industry standard tools and processes to support resource decisions and load forecasting (PSS/E, AURORA, ITRON, PROMOD, etc.)
- Study system specific reliability attributes relative to Grid Stability and Inertia (seconds), Reserves & Regulation (minutes), Thermal Capacity, Voltage and Loss of Load probability (hours and days) throughout the year
- Processes incorporate robust supply and demand side evaluations to ensure reliable, competitive, cost-effective, and environmentally sensitive outcomes

SD-9 Integrated System Planning

Strategic Directive

SD-9 Version Prior to August 2022 Revision

Periodically assess, for strategic and integrated resource plans, OPPD's mix of generation assets, demand-side management programs, purchased power agreements and renewable energy resources.

Short Term Planning

OPPD conducts quarterly and annual short term planning efforts that:

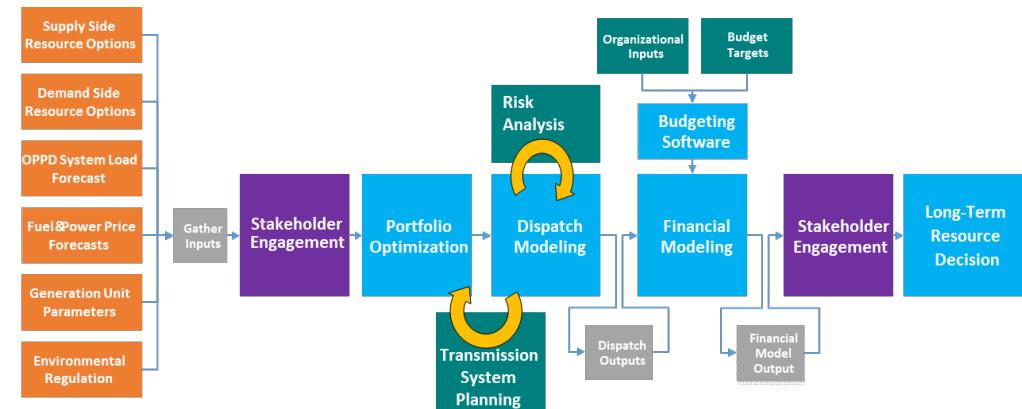
- Update market outlooks including commodity and power price trends
- Incorporates load forecast updates from customers or events
- Simulates OPPD's energy portfolio over a 5-year horizon

Long Term Planning

Long term resource planning can be triggered by a variety of diverse circumstances, including but not limited to:

- Western Area Power Administration IRP filings due every 5-Years
- Meaningful changes to Southwest Power Pool accreditation policy or reserve requirements
- Alterations of current environmental regulations and proposed new environmental regulations
- Bulk Electric System reliability/resiliency changes
- Significant OPPD load changes
- Combination of some or all of the above

IRP Planning Process



SD-9 Integrated System Planning

Strategic Directive

SD-9 Version Prior to August 2022 Revision

Periodically assess, for strategic and integrated resource plans, OPPD's mix of generation assets, demand-side management programs, purchased power agreements and renewable energy resources.



- OPPD completed its Pathways to Decarbonization: Energy Portfolio work and 2021 Integrated Resource Planning activities in late 2021 and early 2022
 - OPPD submitted its 2021 IRP in February of 2022, incorporating findings of the Pathways to Decarbonization study results and stakeholder feedback
- The Pathways to Decarbonization Study evaluated a wide range of supply and demand side resources within the integrated market to optimally achieve OPPD's mission and strategic directives.
- OPPD received significant positive feedback on its stakeholder process, which included a total of 8 workshops that were offered both internally to OPPD employees and externally to public stakeholders

Stakeholder Workshops



SD-9 Integrated System Planning

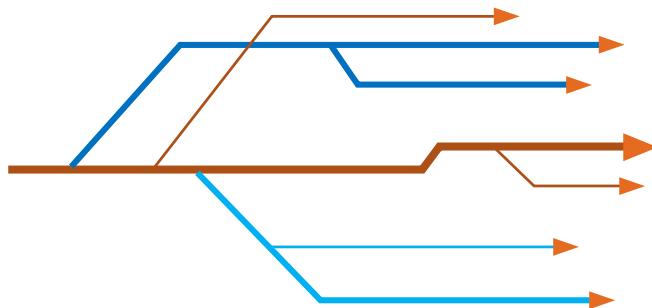
Strategic Directive

SD-9 Version Prior to August 2022 Revision

Utilize multiple scenarios to properly evaluate the range of risks posed by varying future assumptions such as, but not limited to fuel costs, economic growth, regulations and emerging technologies.

Evaluating Multiple Scenarios

OPPD's Pathways to Decarbonization: Energy Portfolio modeling developed a spectrum of input assumptions to understand OPPD's direction in across a range of potential futures



Economy-Wide Scenarios

- Reference Load Forecast
- Moderate Decarbonization
- High Electrification
- High Net Zero Fuel Scenario

Pace of Decarbonization

- Straight-line by 2050
- Accelerated by 2050
- Moderated by 2050
- Net Zero by 2035

Carbon Policy

- Net Zero carbon
- Absolute Zero carbon

Emerging Technologies

- Mature-Only Technologies
- Hydrogen Technologies
- Emerging Technologies

Technology Costs

- Current Projections
- Break-through Costs

Reliability & Resiliency

- Transmission
- Reliability metrics

SD-9 Integrated System Planning

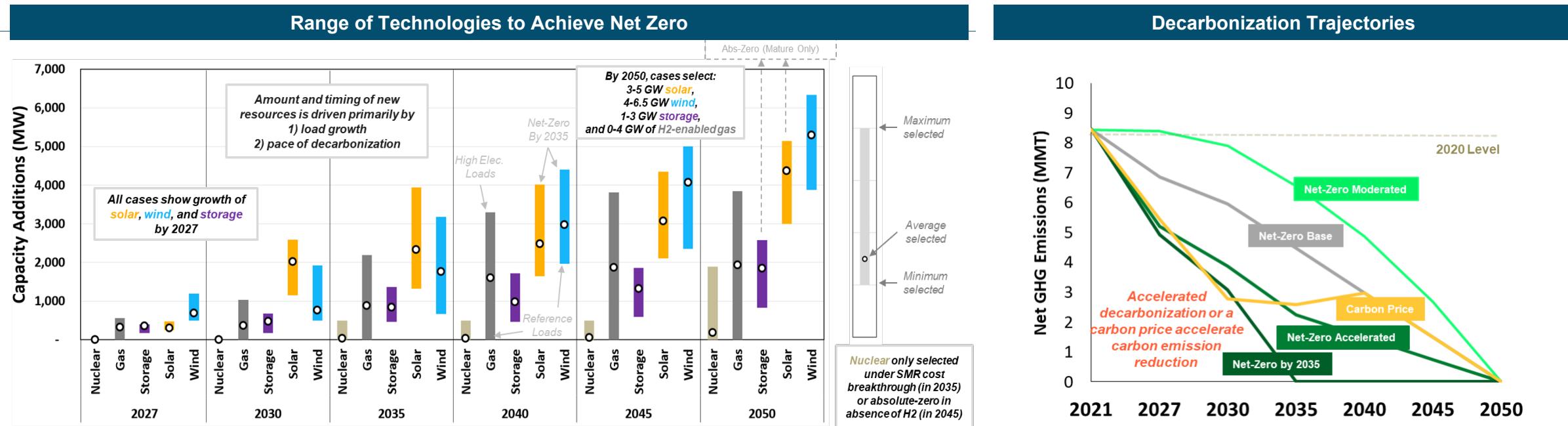
Strategic Directive

SD-9 Version Prior to August 2022 Revision

Utilize multiple scenarios to properly evaluate the range of risks posed by varying future assumptions such as, but not limited to fuel costs, economic growth, regulations and emerging technologies.

Range of Outcomes

The study identified optimized resource needs across a variety of scenarios. The commonalities across these scenarios help OPPD to understand low-risk/ least-regret components of OPPD's future resource mix.



SD-9 Integrated System Planning

Strategic Directive

SD-9 Version Prior to August 2022 Revision

Utilize multiple scenarios to properly evaluate the range of risks posed by varying future assumptions such as, but not limited to fuel costs, economic growth, regulations and emerging technologies.

Key Findings:

OPPD's study identified several key findings for the next 28 years to guide as we navigate safely and reliably to achieve Net Zero Carbon by 2050. These findings were incorporated into OPPD's 2022 Integrated Resource Plan. The IRP also identified advanced technical studies that will be required to develop specific plans to achieve a safe, reliable and affordable decarbonization.

- OPPD can achieve Net Zero while balancing affordability and reliability
- Cessation of coal generation and reduced use of fossil generation
- A mix of new low-carbon resources including renewable energy, energy storage, and community-wide energy efficiency will be required
- Firm Generation is needed to maintain resource adequacy
- Resources are consistent across a variety of pathways
- Accelerating decarbonization reduces cumulative emissions at a relatively low incremental cost, but poses implementation and integration challenges
- The changing resource mix will pose new resiliency challenges that must be evaluated, understood, and mitigated
- Absolute Zero emissions scenarios are substantially higher cost and very dependent on future technology development

SD-9 Integrated System Planning

Strategic Directive

SD-9 Version Prior to August 2022 Revision

Ensure all integrated resource strategic plans support and align with OPPD's Strategic Directives.

The planning process considers the diverse and unique requirements of the following Strategic Directives and embraces the competing interests and tradeoffs that must be made when making resource decisions:

- SD-2: Rates
- SD-4: Reliability
- SD-5: Customer Satisfaction
- SD-7: Environmental Stewardship
- SD-9: Resource Planning
- SD-11: Economic Development
- SD-13: Stakeholder Outreach and Engagement
- SD-15: Enterprise Risk Management

SD-9 Integrated System Planning

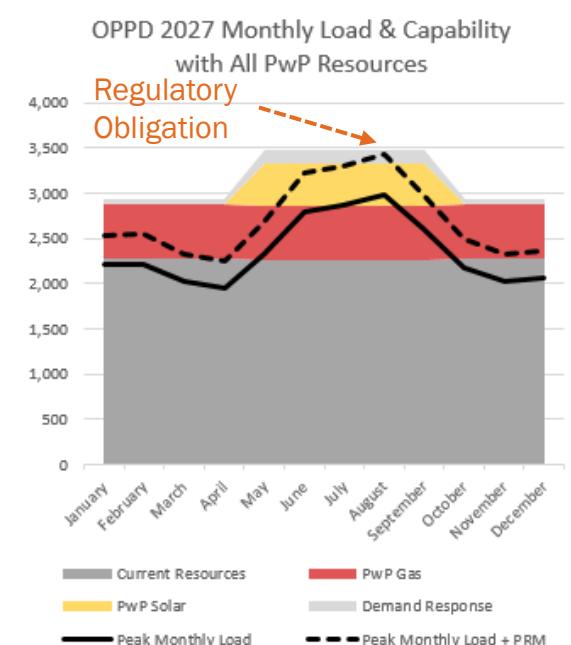
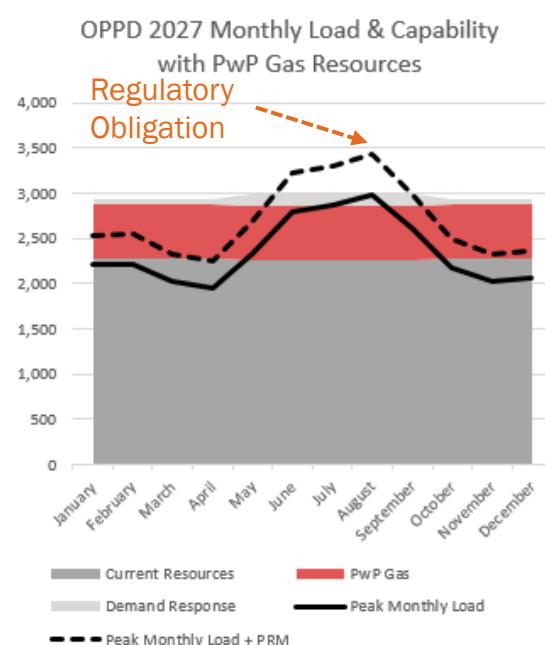
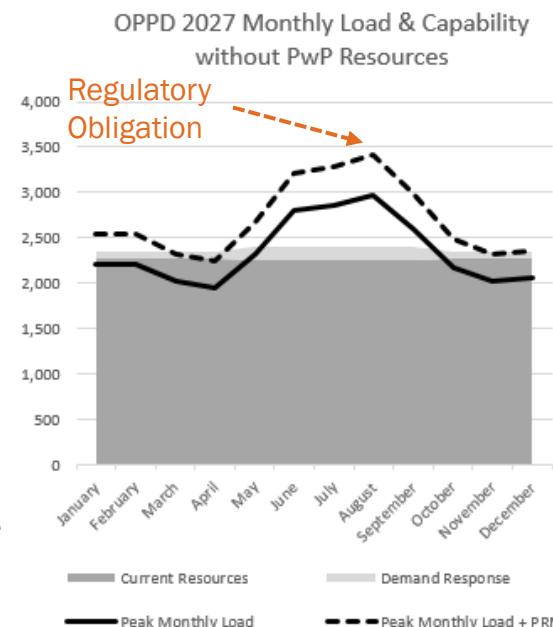
Power with Purpose Update

SD-9 Version Prior to August 2022 Revision

Periodically assess, for strategic and integrated resource plans, OPPD's mix of generation assets, demand-side management programs, purchased power agreements and renewable energy resources.

OPPD's Power with Purpose (PwP) project identified the need for 600MW of solar and 600MW of natural gas generation to support OPPD's growing customer demand.

- Outstanding PwP resources were identified three years ago to provide critical 'on-peak' summer capacity and energy when the system reaches its highest demand.
- Incremental solar is critical to solve our growing financial and operational risk associated with resource deficiencies when the bulk electric system experiences considerable strain.
- Natural gas provides sufficient system wide dispatchable generation, including quick ramp.
- The combined solution remains a critical optimization for affordable, reliable and environmentally sensitive energy services.



Recommendation

- The System Management Committee has reviewed and accepted this Monitoring Report for SD-9 and recommends that the Board find OPPD to be sufficiently in compliance with the Board Policy SD-9 that was in effect prior to the August 18, 2022 policy revision.

**Any additional reflections on
what has been
accomplished ... or
challenges or gaps**





Williams/Underwood

DRAFT
RESOLUTION NO. 65xx

WHEREAS, the Board of the Directors has determined it is in the best interest of the District, its employees, and its customer-owners to establish written policies that describe and document OPPD's corporate governance principles and procedures; and

WHEREAS, each policy was evaluated and assigned to the appropriate Board Committee for oversight of the monitoring process; and

WHEREAS, the Board's System Management and Nuclear Oversight Committee (the "Committee") is responsible for evaluating Board Policy SD-9: Integrated System Planning on an annual basis. The Committee has reviewed the SD-9: Integrated System Planning monitoring report and finds OPPD to be sufficiently in compliance with the policy as stated prior to the August 18, 2022 revisions to SD-9, including changing the name of the policy from SD-9: Resource Planning to SD-9: Integrated System Planning.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Omaha Public Power District accepts the monitoring report for SD-9: Integrated System Planning, in the form as set forth on Exhibit A attached hereto and made a part hereof, and finds OPPD to be sufficiently in compliance with the policy as stated prior to the August 18, 2022 revision and renaming.