Leading the Way We Power the Future

As a public power utility, OPPD engages stakeholders in important matters that support our mission to provide affordable, reliable and environmentally sensitive energy services to our customers.

OPPD is committed to providing stakeholders with important information and feedback opportunities – as a matter of fact, it's one of our strategic directives.

In early 2017, OPPD is required to submit an Integrated Resource Plan (IRP) to one of our energy partners, the Western Area Power Administration (WAPA). This plan is prepared every five years as part of our contractual commitment to WAPA for hydroelectric power.

This handout gives you an overview of OPPD's progress over the years and a comparative look at the four portfolios that were a result of our study when preparing the WAPA filing. Our research shows you trust us to make the right decisions – but it's also important to us that you are educated, understand the reasoning behind those decisions and are able to provide feedback.

What is an Integrated Resource Plan (IRP)?

The plan is a road map for meeting OPPD's mission. It helps us determine how we will generate power in the future. We utilize a comprehensive, forward-looking decision support tool for evaluating resource options to meet our objectives at the lowest cost. The process considers supply-and-demand resource options, risk and fuel, power and technology costs associated with various resource plan outcomes.

OPPD's Resource Planning Practices

The utility industry is experiencing dynamic change at an accelerated pace. For that reason, OPPD regularly reviews resource options (and will continue to do so). In addition, the IRP is conducted every five years as part of the formal filing with WAPA. All reviews are based on market conditions, load requirements, legislation, research and pace of value for our customers.

Since our last formal IRP, our regular review and planning resulted in the decisions below:

- In 2014, we added nearly 200 megawatts of wind (Prairie Breeze) and announced plans for an additional 400 megawatts of wind (Grand Prairie) to come online in 2017.
- In 2014, we announced plans to retire North Omaha Units 1-3 (our three oldest coal-generation units) and we refueled to natural gas in 2016. We also announced the addition of emission controls on North Omaha Units 4-5 and Nebraska City Unit 1.
- In 2016, we began the decommissioning of our Fort Calhoun Nuclear Station because it was no longer economically feasible to operate.

What's next?

As part of this year's planning, OPPD has several near-term decisions to make. We will be submitting a 5-year plan to WAPA, focusing on the short-term. We will revisit our options once we know the final legal status of the Clean Power Plan (CPP), a set of Federal regulations limiting carbon emissions and expected to be enacted in the coming years. For OPPD, planning and decisions for future years will be revisited once there is more clarity around those regulations.

Why change now?

Change takes time, preparation and years to implement. Doing nothing now will cost more in the long-run. OPPD must make changes to its portfolio to ensure compliance with the possible CPP regulations and to ensure long-term low rates.

Stakeholder Outreach

OPPD listens. As a customer-owner, your opinion matters and your feedback is welcome – 24/7 – at **OPPDListens.com**. This site also provides other content, such as frequently asked questions, open house schedules and more.

Thank you for helping us shape your future generation.

Where We've Been

	RENEWABLES	COAL	NUCLEAR	NATURAL GAS & OIL
2010	4%	65%	30%	1%
2015	13%	63%	23%	1%

Fuel source as a percent of total generation (rounded, based on full-year data)
Source: OPPD Production Engineering

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Omaha Public Power District

November 2016

Where We're Headed

Four portfolios were selected as a result of our study. As part of the modeling process, we applied some assumptions:

- **Ensure reliability**
  To maintain an adequate capacity margin, the Southwest Power Pool (SPP) requires a minimum reserve margin of 12 percent. SPP is comprised of several utilities, generators and transmission companies for the purpose of ensuring reliability across the region. OPPD has been a member of SPP since 2009.
- **Limit market exposure and operational risk**
  Total energy generation not to exceed 30 percent above OPPD's retail load.
- **Include renewables**
  OPPD is dedicated to renewable generation per our strategic directive. By 2018, OPPD expects approximately 30 percent of its retail sales to come from renewable energy – predominantly wind power with a small landfill gas operation.

Portfolio comparisons reflect a more restrictive regulatory environment than today, conservatively ensuring our compliance with the Clean Power Plan.

Proposed Generation Additions (5 year)

In 2014, OPPD held a robust stakeholder process regarding our generation portfolio. That portfolio is in effect today and the proposed additions are listed below.

Portfolio Blue

This is the "Rebalanced Portfolio" identified during the recent Fort Calhoun Station analysis. It is the most economical and includes up to 50% renewables.*

- **Wind:** 426 MW

Portfolio Yellow

Includes up to 50% renewables* and expands the rebalanced portfolio to include 10 MW of battery storage. As technology cost improves, this option would enable us to better understand how batteries could be used.

- **Battery Storage:** 10 MW
- **Wind:** 426 MW

Portfolio Orange

Expands the rebalanced portfolio by evaluating the economics of 100 MW of utility-grade solar. Like Blue and Yellow, it also includes up to 50% renewables.*

- **Solar:** 100 MW
- **Wind:** 326 MW

Portfolio Pink

In comparison to the rebalanced portfolio, this portfolio caps renewable energy at 40%* and also allows a more moderated inclusion of renewables.

- **Wind:** 160 MW

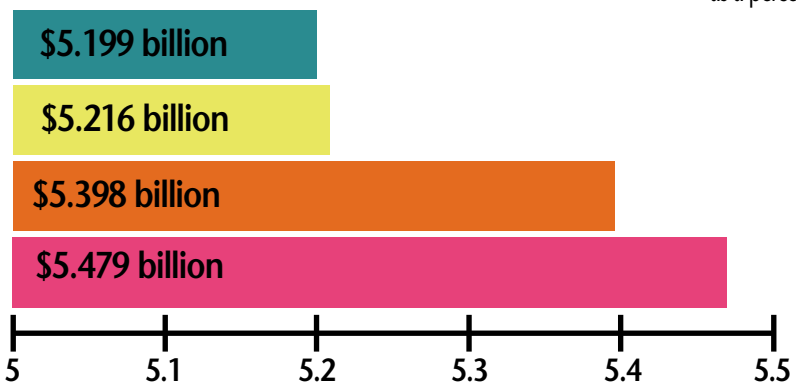
*as a percent of retail sales

Economics

Remember, OPPD has committed to no general rate increase through 2021.

Amounts are compared on a Net Present Value basis over a 20-year period.

Portfolio Blue	**Baseline**
Portfolio Yellow	**$ 17 M** ↑
Portfolio Orange	**$199 M** ↑
Portfolio Pink	**$280 M** ↑

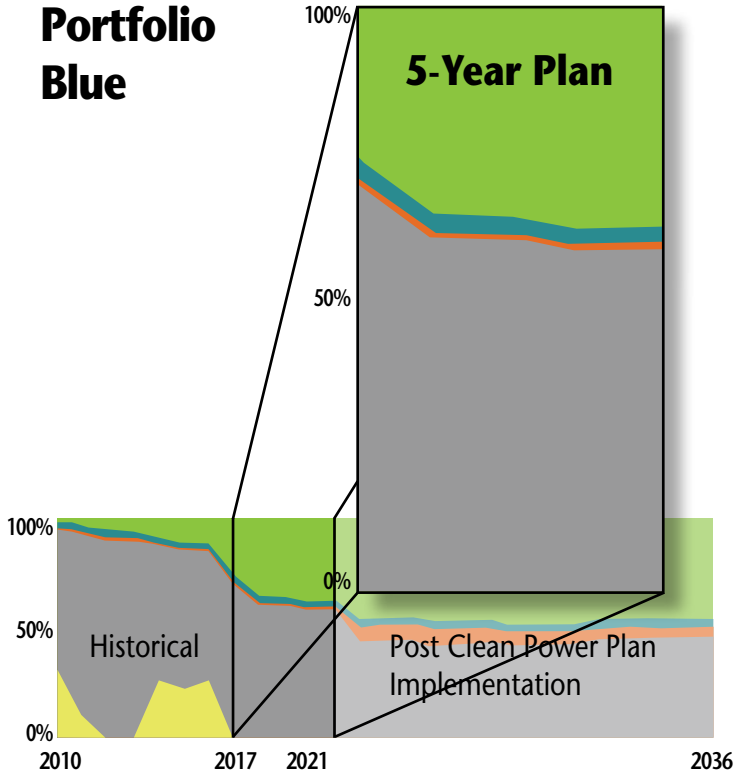


Generation Diversity

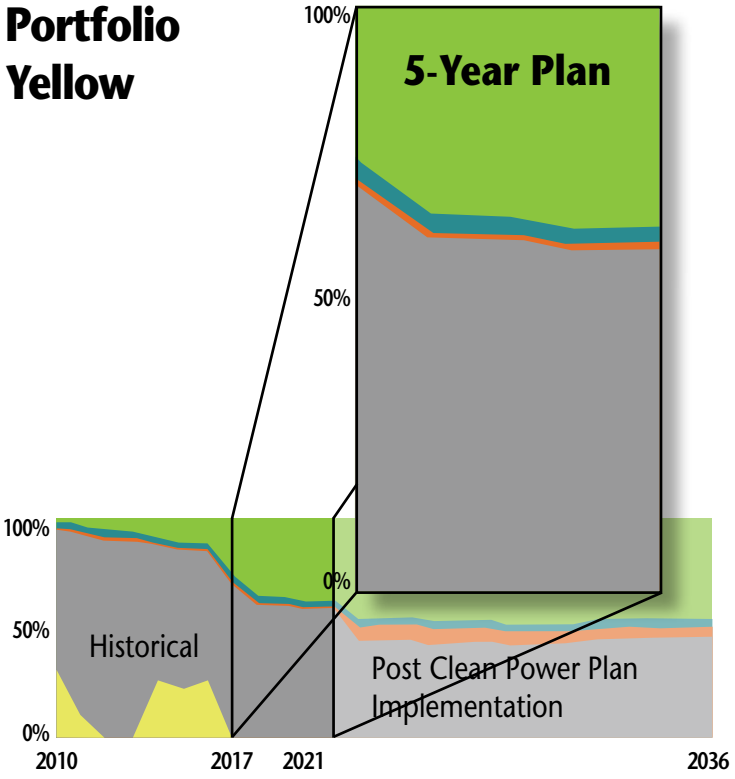
Hydro | Nuclear | Coal | Natural Gas & Oil | Wind | Solar

This IRP primarily focuses on 2017–2021. OPPD plans to continually revisit generation options as technology matures and as we learn more about the Clean Power Plan (CPP).

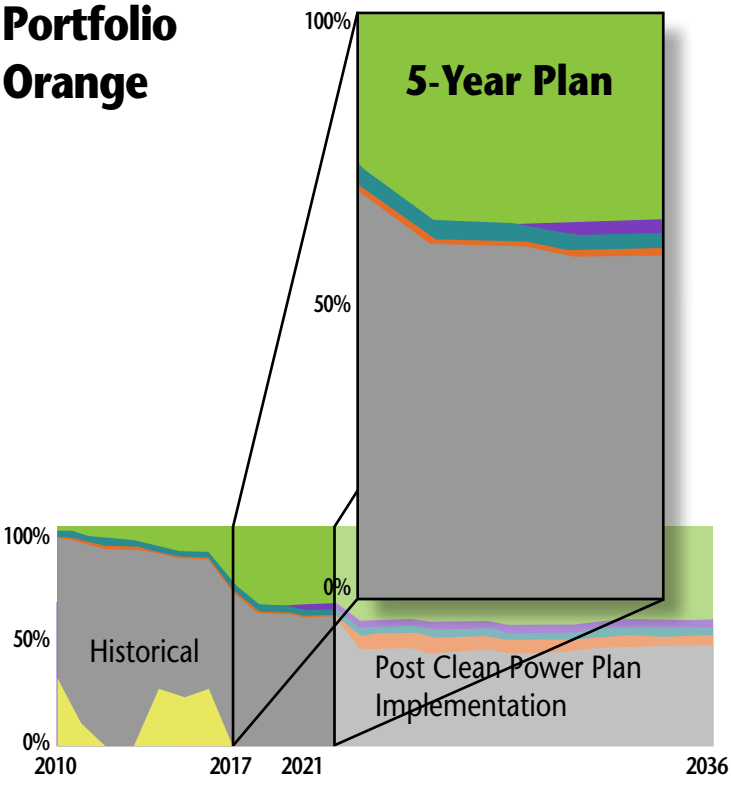
Portfolio Blue



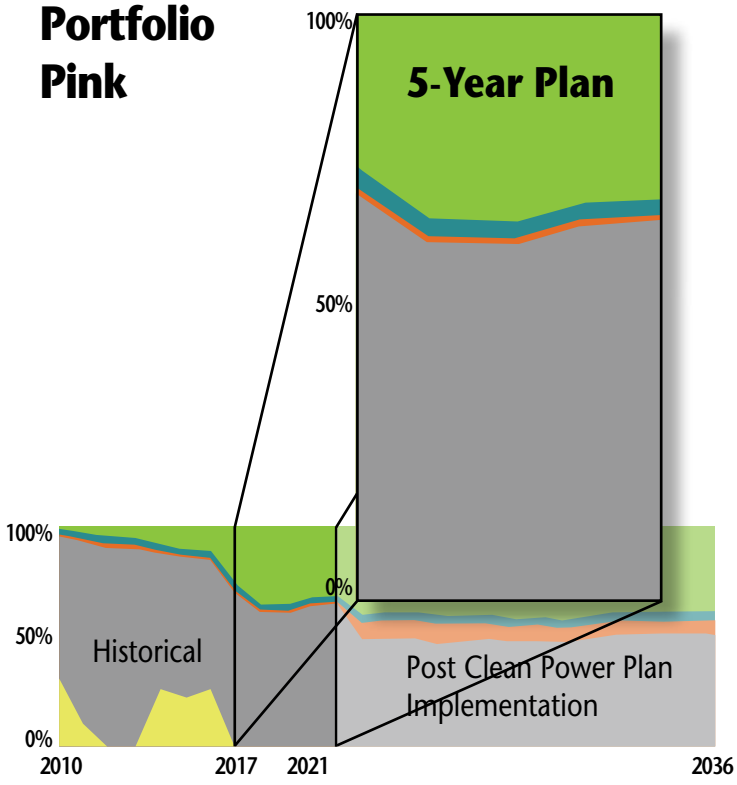
Portfolio Yellow



Portfolio Orange



Portfolio Pink



Source: OPPD Corporate Operating Plan

Emission Timelines

At right, you will notice that emission reductions are comparable across the portfolios. OPPD continues to proactively protect the environment and meet or exceed all regulatory requirements. The installation and operation of emission controls in 2015 at North Omaha Units 4 & 5 and Nebraska City Unit 1 has resulted in dramatic reductions in mercury emissions. The conversion of three coal units to natural gas will also continue to reduce emissions. Depiction of emissions is based on CPP requirements.

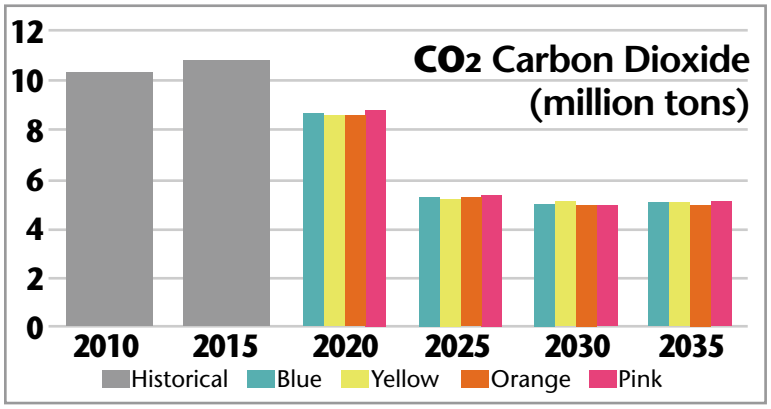
Source: OPPD Environmental Affairs.

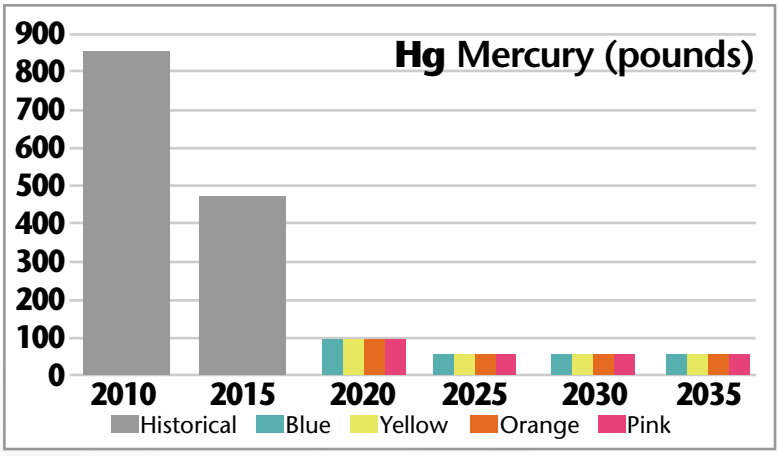
Demand-Side Management (DSM) and Energy Efficiency

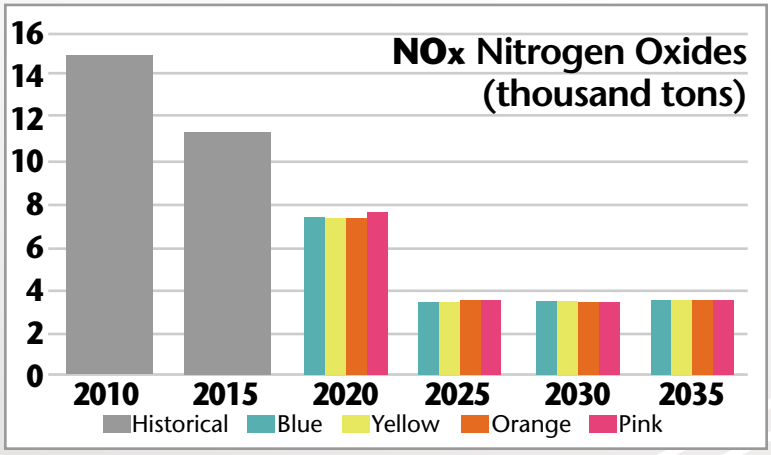
Demand-side management programs are designed to reduce energy consumption and/or peak load by incenting customers to invest in energy-efficient equipment or incenting customers to reduce their usage during periods of high electricity demand.

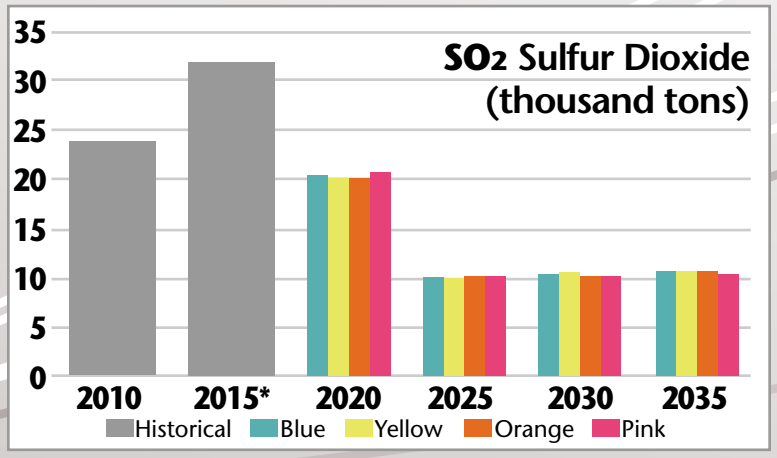
All four portfolios concluded that 46 MW of the planned 300 MW DSM programs are uneconomical and should be re-evaluated at this time. The DSM megawatt reduction was solely related to a planned commercial demand-response program not yet implemented.

OPPD's intent is to continue with existing commercial and residential programs, which promote demand response and energy efficiency. In addition to existing programs, OPPD will continue to seek innovative and cost effective demand side management programs that can provide sustainable alternatives.









*SO_2 emissions were increased in 2015 because of extended outage on Nebraska City Unit 2 (OPPD's lowest emission unit), which required temporary increased usage of higher emitting units.

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