

US EPA ARCHIVE DOCUMENT

D. Utility Planning Approaches and Requirements

Description

Some public utility commissions require utilities to conduct portfolio management or integrated resource planning (IRP) to ensure the supply of least cost and stable electric service to customers over the long term. Portfolio management refers to energy resource planning that incorporates a variety of energy resources, including supply-side (e.g., traditional and renewable energy sources) and demand-side (e.g., energy efficiency) options. The term "portfolio management" typically describes resource planning and procurement in states that have restructured their electric industry and may be required for default service providers (the backup electric service provider in areas open to competition). IRP is generally used by vertically integrated utilities and is a long-range planning process to meet forecasted demand for energy within a defined geographic area through a combination of supply-side resources and demand-side resources and considering a broad range of perspectives. The goal of an IRP is

¹²⁸ "Summary Tables" (Database of State Incentives for Renewables & Efficiency), accessed March 10, 2016. Available at: <http://programs.dsireusa.org/system/program/tables>.

¹²⁹ "Summary Tables" (Database of State Incentives for Renewables & Efficiency), accessed March 10, 2016. Available at: <http://programs.dsireusa.org/system/program?type=13&>.

¹³⁰ Net metering policies allow solar installation owners to receive a credit on their utility bill for the excess electricity generated by solar panels that is fed back into the grid.

¹³¹ Solar Energy Industries Association, "New Jersey Ranks 3rd in U.S. in Total Solar Capacity" (*seia.org*, March 17, 2015). Available at: <http://www.seia.org/news/new-jersey-ranks-3rd-us-total-solar-capacity>.

¹³² "Open PV State Rankings," National Renewable Energy Laboratory, accessed March 10, 2016. Available at: <https://openpv.nrel.gov/rankings>.

to identify the mix of resources that will minimize future energy system costs while ensuring safe and reliable operation of the system.

In addition to energy resource planning, two states have policies or requirements for utilities to specifically factor pollution reduction requirements into their planning. In Colorado, the Clean Air Clean Jobs Act (CACJA), signed into law on April 19, 2010, requires utilities to submit a plan to the PUC showing how they would meet EPA standards for a variety of pollutants.¹³³ The law was passed because the state was out of compliance with the national Ambient Air Quality Standard for Ozone, and the EPA threatened to propose more stringent standards for the state.

In 2001, Minnesota enacted Minnesota Statute 216B.1692, which encourages utilities to make voluntary emissions reductions and provides them with a mechanism to recover the costs through customer rate increases outside of the normal rate review cycle.¹³⁴

Policy Mechanics

Design

- Portfolio Management and IRP – Portfolio management emphasizes diversity in fuels, technologies, and power supply contract durations. Portfolio management includes energy efficiency and renewable generation as key strategic components. Portfolio management typically involves a multi-step process of forecasting, resource identification, scenario analysis, and resource procurement.

Several states and vertically integrated utilities rely on an IRP process for long-term planning. Since these utilities own generation assets, they use their IRPs to evaluate a broad range of options for meeting electricity demand over a 20- or 30-year time frame. The IRP considers new supply-side options (including renewable resources) and demand-side options, and purchased power (including transmission considerations). A broad range of plans are considered, reflecting a range of objectives and capturing key uncertainties. Plans are evaluated against established criteria (e.g., costs, rate impacts, emissions, diversity, etc.) and are ranked. The IRPs detail fuel and electricity price information, customer demand forecasts, existing plant performance, other plant additions in the region, and legislative decisions. The following examples show how various states have designed their programs:

¹³³ Regulatory Assistance Project, *Addressing the Effects of Environmental Regulations: Market Factors, Integrated Analyses, and Administrative Processes* (RAP, 2013). Available at: www.raponline.org/document/download/id/6455.

¹³⁴ Minnesota PUC, *Report To The Legislature On Emissions Reduction Projects Under Minnesota Statutes 216B.1692* (Minnesota Public Utilities Commission, March 2008). Available at: http://mn.gov/puc/documents/pdf_files/000661.pdf.

- Montana is a deregulated state that has established least cost planning rules and policy guidelines for default electricity suppliers. These rules and guidelines target long-term electricity supply and are slightly different for vertically integrated utilities and restructured utilities. Vertically integrated utilities are required to submit electric supply resource plans every two years with the aim of providing a balanced, environmentally responsible electricity portfolio. Meanwhile, restructured utilities must file updates to their portfolio action plans every three years.¹³⁵ These plans must include supply-side and demand-side resources, and they must address the need to supply power in a way that minimizes the environmental cost by estimating the cost to the environment of alternatives. In addition, utilities must account for the costs of complying with existing and future environmental regulations. When considering various resource options, Montana requires a competitive solicitation process, allowing resource operators and developers to submit their proposals to the default electricity supplier for consideration. Montana also requires the portfolio management plans to be subject to an advisory committee review and a public review.¹³⁶
- Oregon electric utilities submit IRPs every two years, covering a 20-year timeframe. The goal of these plans is to consider the acquisition of resources at least cost while keeping the public interest in mind. Potential risk factors must be considered, including price volatility, weather, and the cost of meeting existing and future federal environmental regulations. Quantifiable environmental externalities are included, as are less quantifiable developments such as changes in market structure and the establishment of a renewable portfolio standard. As for energy efficiency requirements during the planning process, Oregon determines these on a utility-by-utility basis.¹³⁷
- Multi-Pollutant Utility Planning – Two states, Minnesota and Colorado, have worked collaboratively with their investor-owned utilities to develop multi-pollutant emissions reduction plans on a utility-wide basis. This multi-pollutant, collaborative approach

¹³⁵ Rachel Wilson and Bruce Biewald, *Best Practices in Electric Utility Integrated Resource Planning* (RAP, 2013). Available at: <http://www.raonline.org/document/download/id/6608>.

¹³⁶ U.S. EPA, *Clean Energy-Environment Guide to Action* (U.S. Environmental Protection Agency, 2015), accessed March 10, 2016. Available at: <http://epa.gov/statelocalclimate/resources/action-guide.html>.

¹³⁷ Ibid.

enables utilities to determine the least cost way to meet long-term and comprehensive energy and environmental goals.

- The Colorado CACJA requires investor-owned utilities (IOUs) with coal plants to submit a multi-pollutant plan to the PUC to meet the EPA standards for NO_x, SO₂, particulates, mercury, and CO₂. Utilities were not required to adopt a specific plan set by the state, but had to meet with Colorado Department of Public Health and Environment (CDPHE) and PUC approval. Xcel Energy's plan was submitted and approved in 2010.¹³⁸
- The Minnesota Emissions-Reductions Rider allows utilities to submit plans for projects that reduce emissions and go beyond federal requirements outside of a general rate case. It allows them to recover the costs of those actions as an incentive.¹³⁹ The specific design and process of the projects vary by utility, but typically involve installing additional pollution control equipment at coal-fired power plants, or repowering them with natural gas.

Authority

State utility commissioners oversee utilities' and default service providers' procurement practices in their states. Typically, the commissions solicit comments and input as they develop portfolio management practices from a wide variety of stakeholders. The utility regulator may also play a role in reviewing and approving utilities' planning procedures, selection criteria, and/or their competition solicitation processes.

Obligated Parties

Vertically integrated utilities are often obligated under integrated resource planning, while in restructured markets, the default utility service provider may be obligated to conduct portfolio management.

For multi-pollutant planning, Colorado IOUs, Xcel Energy and Black Hills Energy were required to file plans with the Department of Public Health and Environment and the PUC in order to be compliant with the CACJA. Plans needed to meet the National Ambient Air Quality Standards for a number of air pollutants.

¹³⁸ Regulatory Assistance Project, *Addressing the Effects of Environmental Regulations: Market Factors, Integrated Analyses, and Administrative Processes* (RAP, 2013). Available at: www.raponline.org/document/download/id/6455.

¹³⁹ Minnesota Office of Revisor of Statutes, 2013 Minnesota Statutes, §216B.1692 Emissions-Reduction Rider, 2013, accessed March 10, 2016. Available at: <https://www.revisor.mn.gov/statutes/?id=216B.1692>.

As the Minnesota multi-pollutant legislation is voluntary for state utilities, there is neither compliance nor reporting requirements.

Measurement and Verification

Regulatory oversight aims to ensure utilities are following through with their plans. Regulators often require utilities to submit portfolio management plans and progress reports at regular intervals. These plans and reports describe in detail the assumptions used, the opportunities assessed, and the decisions made when developing resource portfolios. Regulators then carefully review these plans and either approve them or reject them and recommend changes needed for approval. California, for example, requires utilities to submit biennial IRPs and quarterly reports on their plans.

Penalties for Noncompliance

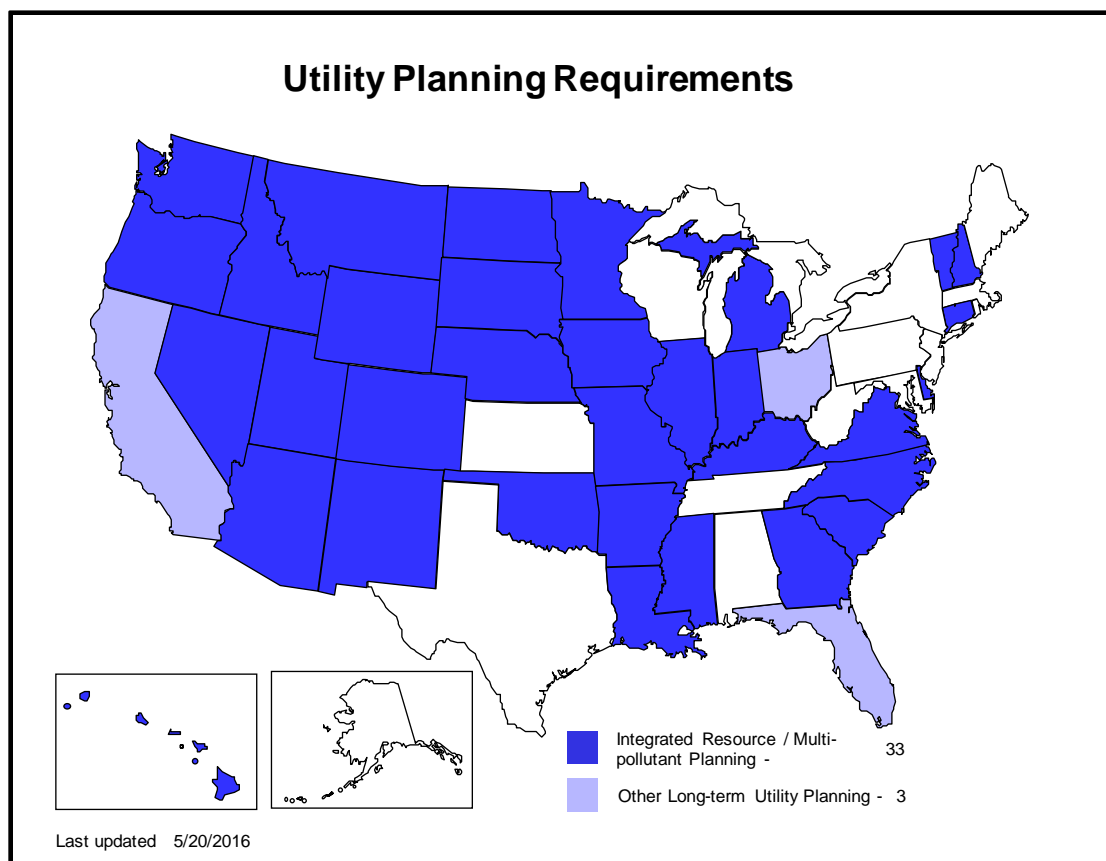
There are no penalties for noncompliance, however there is usually significant interaction with the regulator during the planning and implementation process as is described above.

Implementation Status

As of 2015, more than two-thirds of the states have integrated resource or other long-term planning requirements,¹⁴⁰ while Minnesota and Colorado have multi-pollutant planning policies or requirements (see Figure 9).

¹⁴⁰ Wilson, Rachel and Bruce Biewald, *Best Practices in Electric Utility Integrated Resource Planning* (RAP, June 2013). Available at: <http://www.raonline.org/document/download/id/6608>.

Figure 9: States with Integrated Resource Planning or Similar Processes



Primary source: *Clean Energy-Environment Guide to Action* (U.S. Environmental Protection Agency, 2015), accessed May 20, 2016. Available at: <http://epa.gov/statelocalclimate/resources/action-guide.html>.¹⁴¹

In Missouri, for example, Ameren’s 2014 Integrated Resource Plan Update calls for:

- Spending \$148 million from 2016-2018 to achieve 426 GWh of energy savings and 114 MW of peak demand savings.
- Installing 400 MW of wind power, 45 MW of solar power, 20 MW of hydroelectric power, and 5 MW of landfill gas capacity by 2034.
- Installing 600 MW of combined-cycle natural gas capacity by 2034.
- Retiring one-third of coal-fired generating capacity by 2034.
- Planning for a 12 percent increase in energy consumption, 8 percent increase in peak demand, and 0.59 percent annual retail sales increase by 2034.
- Incorporating a carbon price of between \$23 and \$53/ton beginning in 2025.

¹⁴¹ Additional sources for other long-term planning requirements include: California Office of Ratepayer Advocates, *Long Term Procurement Planning: 2014 – 2024*, accessed May 20, 2016. Available at: <http://www.ora.ca.gov/ltp.asp>. Florida Public Service Commission, *Ten-Year Site Plans*, accessed May 20, 2016. Available at: <http://www.psc.state.fl.us/ElectricNaturalGas/TenYearSitePlans>. LAWriter Ohio Laws and Rules, *4901:5-5-06 Resource plans*, accessed May 20, 2016. Available at: <http://codes.ohio.gov/oac/4901%3A5-5-06>.

- Planning for a natural gas price increase of between \$4-6/MMBtu by 2034.¹⁴²

In Virginia and North Carolina, Dominion Resources filed an updated integrated resource plan in April 2016. Key highlights from the report include:

- Five detailed “Study Plans” (including solar, co-fire, nuclear, and wind). The company’s integrated resource plans prior to 2015 included either a preferred plan or a recommended path forward. The 2016 integrated resource plan does not have a preferred plan or a recommended path forward, as Dominion did not have enough time to analyze a future in which either the Clean Power Plan implementation is delayed or a different form of carbon dioxide regulation is promulgated. Instead, Dominion intends to study these five plans that represent plausible future paths for meeting electricity needs while responding to changing regulatory requirements.
- All of the studied plans include:
 - 400 MW of utility-scale solar phased in from 2016-2020
 - 600 MW of solar generation from non-utility generators by 2017
 - 7 MW of solar from its “Solar Partnership Program”
 - 12 MW from the Virginia Offshore Wind Technology Advancement Project (VOWTAP) as early as 2018
 - Demand-side resources of 304 MW by 2031
 - 20-year extensions of four nuclear reactors by 2038
 - 1,585 MW of additional natural gas combined cycle capacity by 2019
- To show how the various plans can diverge from the previous year’s plan, if Dominion were to adopt the most solar-focused plan, this plan projects 7,000 MW of additional solar resources by 2029, an increase of 3,500 MW over the solar-focused 2015 plan.¹⁴³

To meet Colorado’s multi-pollutant planning requirement, Xcel Energy submitted a plan that was approved by the Colorado PUC on December 9, 2010. Implementation of the plan will reduce NO_x levels 86 percent and CO₂ levels 28 percent relative to 2008 levels by 2018.¹⁴⁴ Black Hills Energy has also filed its electric resource plan (ERP). This plan includes the retirement of a coal-fired power plant and two older natural gas-fired gas units, as well as a proposal to build a 40 MW natural gas turbine. It plans to add 100 MW of capacity by 2017, and use competitive

¹⁴² Ameren Missouri, *2014 Integrated Resource Plan* (Ameren Missouri, 2014). Available at: <https://www.ameren.com/missouri/environment/renewables/ameren-missouri-irp>.

¹⁴³ Dominion, *Dominion Virginia Power’s and Dominion North Carolina Power’s Report of its Integrated Resource Plan* (Dominion, April 2016). Available at: <https://www.dom.com/corporate/what-we-do/electricity/generation/2016-integrated-resource-planning>.

¹⁴⁴ Xcel Energy, *Xcel Energy-Emissions Reduction Plan*, (Xcel Energy, 2011). Available at: https://www.xcelenergy.com/staticfiles/xcel/Corporate/Environment/10-12-303_CACJ-6E_FS.pdf.

bidding to meet the remaining 60 MW.¹⁴⁵ Work is well underway to implement Xcel Energy's emissions reduction plan under Colorado's Clean Air-Clean Jobs Act. Three coal units have been retired and new emissions controls finished in August 2014 have kept emissions rates below new permit levels.¹⁴⁶

In Minnesota, projects currently implemented under the multi-pollutant legislation include the Minnesota Power's Arrowhead Regional Emissions Abatement (AREA) Project, Minnesota Power's Boswell 3 Emissions Reduction Plan, Xcel Energy's Mercury Reduction Plan, and Xcel Energy's Metropolitan Emissions Reduction Proposal (MERP). MERP, authorized in 2002, has shown an annual 93 percent reduction in SO₂, 91 percent reduction in NO_x, 81 percent reduction in mercury, 55 percent reduction in particulates, and 21 percent reduction in CO₂ from 2002 levels during the 2007 to 2009 time period.¹⁴⁷

¹⁴⁵ Black Hills Energy, "Black Hills Energy Files Plan for Ongoing Reliable, Cost-effective Energy for Years to Come in Colorado." Available at: <http://www.blackhillsenergy.com/node/34671#.UzHkulXYht>.

¹⁴⁶ Xcel Energy, *Colorado Clean Air-Clean Jobs Plan*. Available at: http://www.xcelenergy.com/Environment/Programs/Colorado_Clean_Air-Clean_Jobs_Plan.

¹⁴⁷ Xcel Energy, "Minnesota Metro Emissions Reduction Project – Environmental Benefits." Available at: http://www.xcelenergy.com/Environment/Programs/Minnesota_Metro_Emissions_Reduction_Project.



EPA 430-S-16-001
AUGUST 2016
WWW.EPA.GOV/STATELOCALCLIMATE

