2016 Vectren Public IRP Stakeholder Meeting #2
July 22, 2016
Portfolio Exercise Summary

During Vectren's public IRP stakeholder meeting on Friday, July 22nd Vectren held a portfolio development workshop to gain input from stakeholders on additional portfolios to be considered within the IRP analysis. A portfolio is a mix of future resources to meet expected future demand for electricity. Those present divided into 4 tables, listed as groups 1-4 in the tables below, and were asked to provide Vectren with their preferred mix of coal, gas, wind, solar, storage, and energy efficiency resources by 2025.

At the end of the session, Vectren collected the results (7 individuals' worksheets and 4 group worksheets) from each table. Preferences were grouped by year where available (2025, 2030, 2035). The percentages that were most often stated were used to develop general guidelines for developing a stakeholder portfolio.

The general consensus among the 17 participants was that Vectren should develop a diversified portfolio that moves away from a significant amount of coal by 2025 while renewables and energy efficiency increase. Over the long term, all coal should be retired while renewables and energy efficiency further increase.

Vectren will work to develop a stakeholder portfolio that fits the general profile in the table below. This portfolio will be modeled and evaluated along with other portfolios within the IRP analysis. Note that current and future generation options have specific sizes; therefore, the stakeholder portfolio will not exactly match the percentages below. Additionally, the market potential for gas combined heat and power and energy efficiency may limit the amount that of each resource that can reasonably be considered. Combined heat and power is a combined cycle gas turbine that is sited at a customer location. Typical candidates for CHP require a high steam load to determine the feasibility of siting this resource at their facility. Also, energy efficiency has technical and achievable limits.

	Stakeholder Portfolio		
Stakeholder Portfolio	2025	2030	2035
Coal	40%	15%	0%
Gas Combined Cycle	10%	15%	15%
Gas Combustion Turbine	0%	0%	0%
Gas Combined Heat and Power	10%	10%	10%
Wind	10%	10%	10%
Solar	10%	15%	25%
Storage	0%	10%	10%
Energy Efficiency/Demand Response	20%	25%	30%
Total	100%	100%	100%

Below is a summary of the portfolios that were mentioned at each table and some stakeholder commentary on each.

Group 1 developed two scenarios for two different time frames (2025 and 2050). They stated that their ultimate goal is to transition away from fossil fuels completely. Group one had a desire to generate electricity as close as possible to the source; therefore, solar accounts for a higher percentage of capacity in their portfolio than wind in Southern Indiana. Additionally, there was a preference to conserve as much energy as possible.

	Group 1	
	2025	2050
Coal	5%	0%
Gas Combined Cycle	15%	0%
Gas Combustion Turbine	15%	0%
Gas Combined Heat & Power	10%	0%
Wind	10%	20%
Solar	25%	50%
Storage	0%	0%
Energy Efficiency/Demand Response	20%	30%
Total	100%	100%

Group 2 also provided guidance beyond 2025 as shown in the table below. This group chose not to include any gas combusting turbines because they are inefficient. This group stated a desire to increase energy efficiency while decreasing the use of coal.

	Group 2		
	2025	2030	2035
Coal	40%	15%	0%
Gas Combined Cycle	10%	15%	15%
Gas Combustion Turbine	0%	0%	0%
Gas Combined Heat & Power	10%	10%	10%
Wind	10%	10%	15%
Solar	10%	15%	20%
Storage	0%	10%	10%
Energy Efficiency/Demand Response	20%	25%	30%
Total	100%	100%	100%

Group 3 provided two possible resource mixes by 2025.

	Group 3	
	2025	2025*
Coal	40%	40%
Gas Combined Cycle	30%	20%
Gas Combustion Turbine	0%	0%
Gas Combined Heat & Power	0%	0%
Wind	15%	15%
Solar	5%	15%
Storage	0%	
Energy Efficiency/Demand Response	10%	10%
Total	100%	100%

*Group 3 also indicated that 10% of capacity should be allocated to storage under option 2

Group 4 felt that we should consider how climate change would affect each form of generation in terms of efficiency. This group indicated that their preference was option 1; however, they provided two additional options for consideration. The second option shuts down Culley 2 and distributes the capacity over renewable options, while the third portfolio shuts down Culley 2 and Brown 1, and converts Brown 2 to gas.

	Group 4		
	2025	2025	2025
Coal		85%	45%
Gas Combined Cycle			25%
Gas Combustion Turbine			0%
Gas Combined Heat & Power			0%
Wind	30%	5%	6%
Solar	55%	7%	20%
Storage	10%	1%	1%
Energy Efficiency/Demand Response	5%	2%	3%
Total	100%	100%	100%