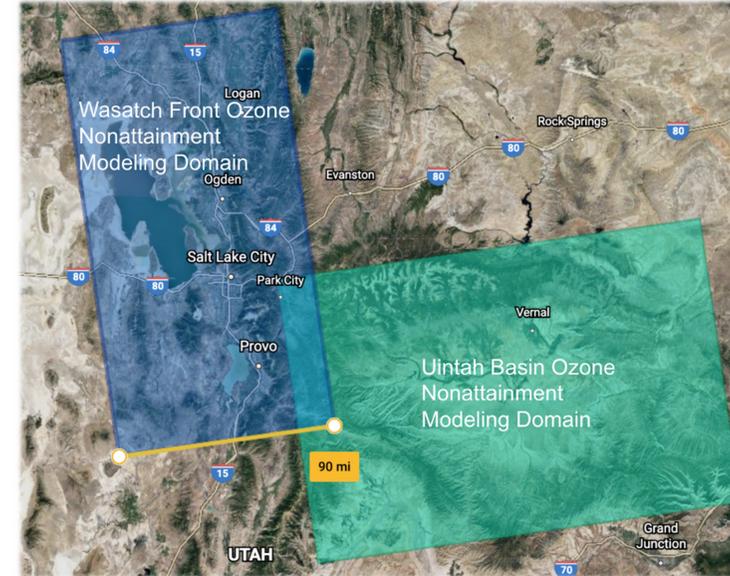


How a new program housed at the University of Utah is making a difference in the ongoing effort to improve Utah's air quality through energy efficiency

M. Loredo-Perez, M. Henning, K. Kelly

Motivation

- Industries are the largest consumer of energy
- Utah's Wasatch Front and Uintah basin struggle to meet National Ambient Air Quality Standards
- Energy consumption and air quality are tightly linked
- The Intermountain Industrial Center sends teams of students to perform free energy assessments
- The assessments provide an opportunity to save energy, reduce air emissions, and identify renewable natural gas and hydrogen opportunities



Objectives

- Identify energy saving opportunities at Utah organizations
- Quantify associated emission changes



Methods

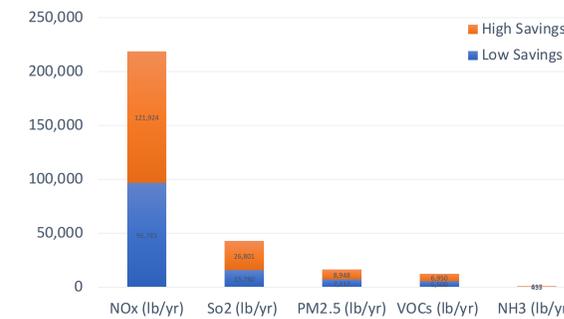
- Students visit facilities to identify energy savings strategies
- Common recommendations
 - Lower setpoints on compressors
 - Boiler heat recovery
 - Boiler tune up
 - Install a variable frequency drive (VFD) on pumps to vary the frequency and voltage of the power supply
 - Repair compressed air leaks
- Students quantify associated air emissions savings
 - Direct combustion of natural gas, gasoline, diesel using AP-42 and literature emission factors
 - Electricity emissions from e-Grid and AVERT provide a range of electricity emission factors

Results

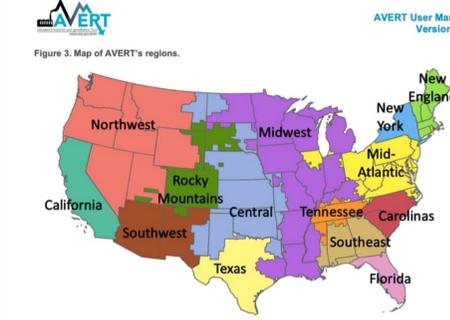
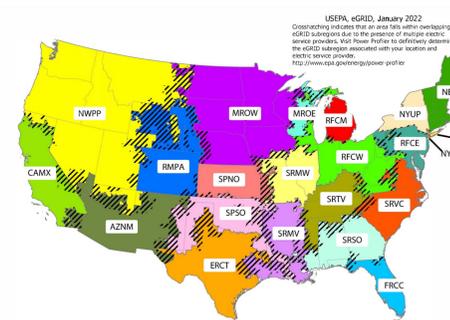
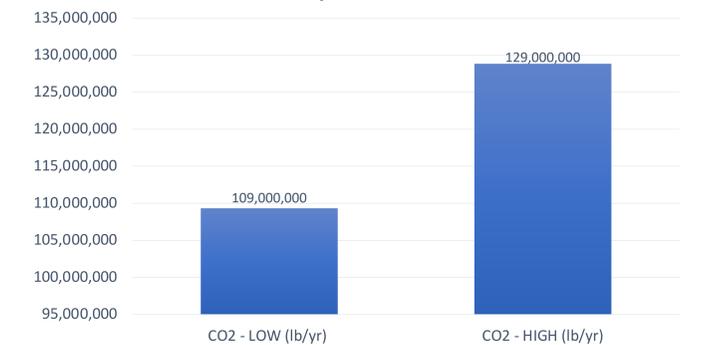
2021 Energy Efficiency Assessments

Number of Assessments	Number of Recommendations	Gas Savings (MMBTU/yr)	Electric Savings (kWh/yr)	Annual Cost Savings	Incremental Project Costs	Average Payback Period (yr)
36	207	922,526	36,404,791	\$40,517,960	\$78,573,190	3.63

Total Criteria Pollutant Emission Savings if Recommendations are Implemented



CO_{2,e} Savings if 2021 Recommendations are Implemented



Emission Factors From eGrid and AVERT

Area	NOx (lb/MWh)	Equivalent CO2 (lb/MWh)	SO2 (lb/MWh)	PM2.5 (lb/MWh)	VOC (lb/MWh)	NH3 (lb/MWh)
NWPP from eGrid	0.64	719.873	0.419	0.037	0.0727	0.0119
Northwest from AVERT	1.091	1576	0.721	0.084	0.033	0.018

Acknowledgement

Dominion Energy has partnered with the University of Utah to conduct energy efficiency audits and identify opportunities, technologies, and practices to help Dominion Energy customers adopt improved, energy strategies that benefit the customer, their employees, and Utah's air quality. Contact us today to learn more about the program: 801-581-4847

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