



COAL TO NUCLEAR  
**ENERGY COMMUNITY TRANSITIONS**



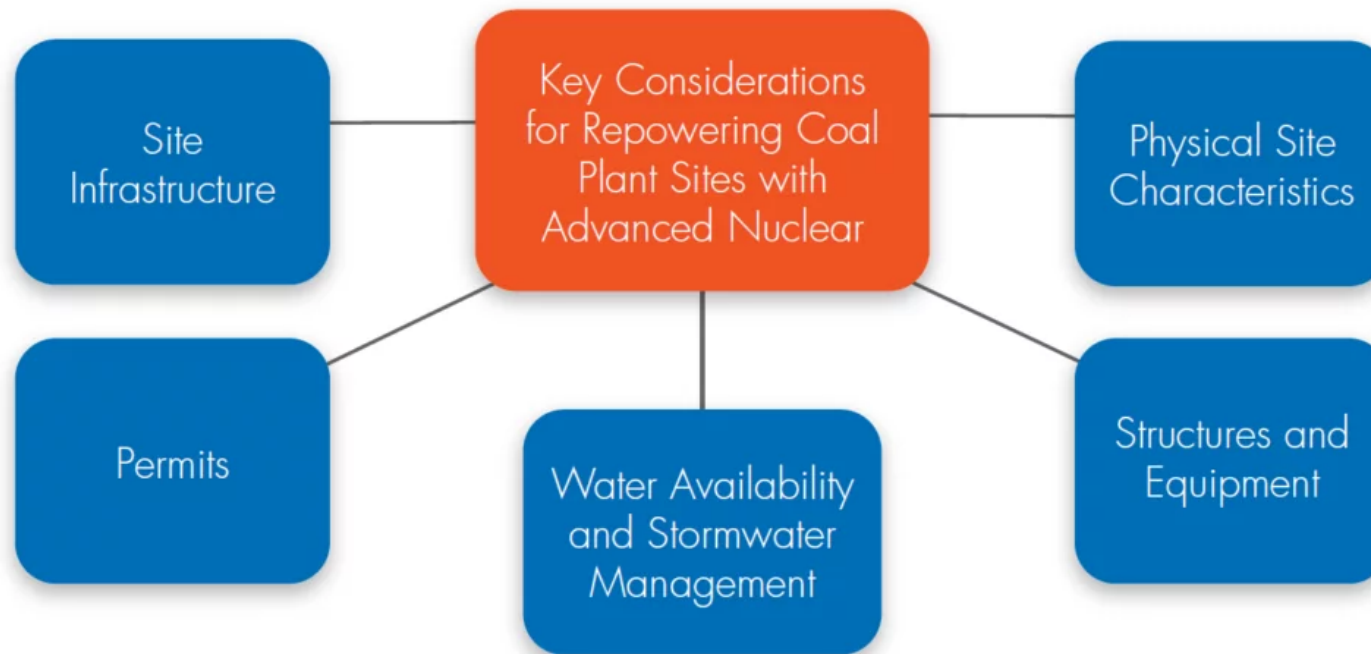
**Christine King, INL**  
**Director Gateway for Accelerated Innovation in Nuclear**

**Battelle Innovation in Climate Resilience**  
**March 29, 2023**  
**Session B4**

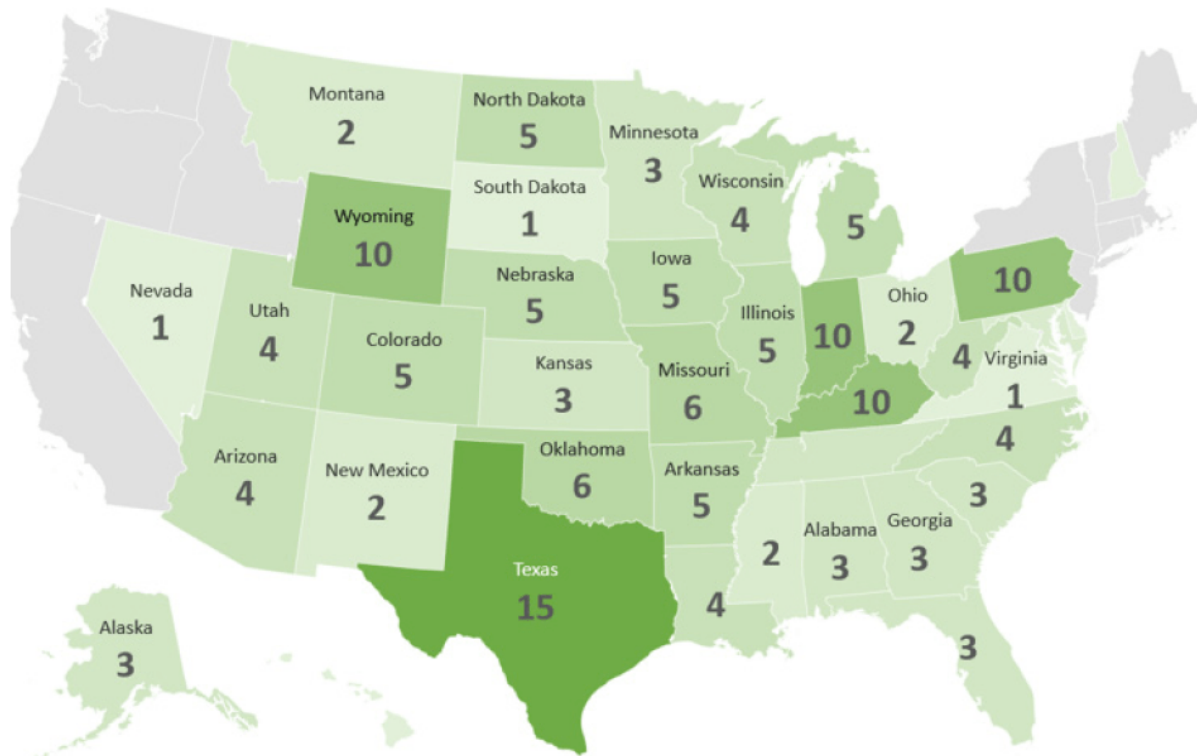


## *What does Repowering Coal mean?*

- Greenfield Project
- Reuse Site, Electrical, Admin Buildings
- Indirect Coupling to Steam Cycle Equipment
- Direct Couple to Steam Cycle Equipment



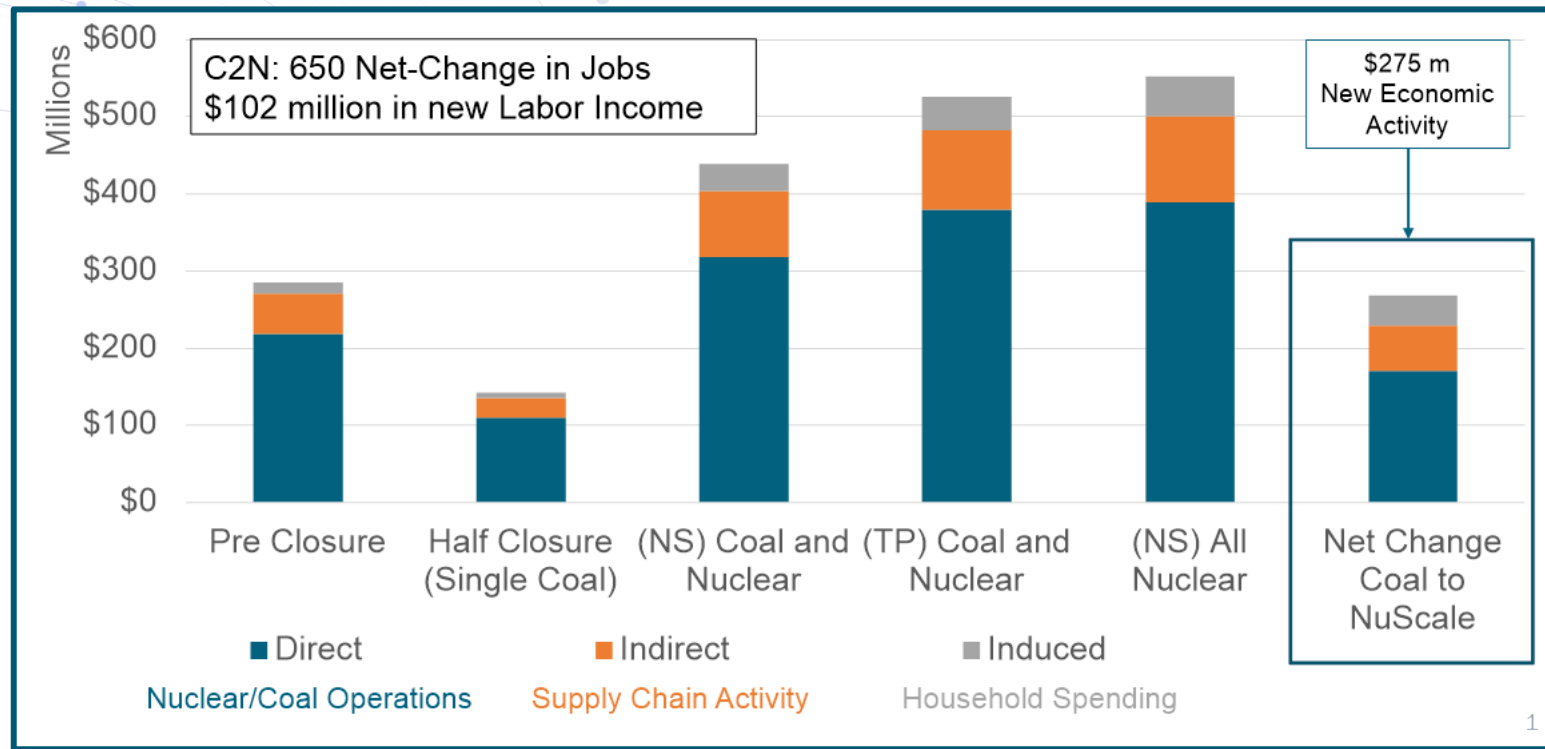
# 80% of Evaluated Coal Sites Suitable for SMR



Project type	Total Project Overnight Cost
	\$/kW
Baseline	\$4,572
Scenario 1	\$4,799
Scenario 2	\$3,598
Scenario 3	\$3,951
Scenario 4	\$3,398

Estimates on cost savings from repurposing viable coal infrastructure range from 15% to 35%

# Regional Economic and Environmental Impacts (Modeled Results)



Impact Type	Scenario	Kg/Year	Kg/Year	Sq Meters	Kg/Year	Kg/Year	Kg/Year	Kg/Year	Cubic Meters
		Criteria Pollutants	Greenhouse Gases	Land Use	Mineral Use	Nitrogen and Phosphorus Release to Water	Pesticide Emissions	Toxic Chemical Releases	Water Use
Direct	Pre-Closure	5.4m	2.6b	1.8m	0	36.7k	0	29k	297m
	Nuclear	4m	8m	1.4m	0	27k	0	21k	220m
Total	Pre-Closure	6m	2.7b	3.2m	775k	136k	5	32k	335m
	Nuclear	4.8m	157m	2m	677k	129k	7	25k	258m



## ***Coronado Generating Station***

**Primary Objective: Assess the feasibility of transitioning from coal to nuclear; Learnings will help 6 other coal units within commuting distance**

Partnered with Salt River Project and St Johns Mayor's Office  
Plant is in same county as Navajo Nation



Owned/Operated by Louisville Gas and Electric  
Company and Kentucky Utilities Company  
Located in Carroll County, KY

## ***Ghent Generating Station***

**Primary Objective: Assess the feasibility of transitioning from coal to nuclear to support nearby industrial customers**

Station retirement is planned in 2040s.

# COAL TO NUCLEAR ENERGY COMMUNITY TRANSITIONS



## Coal to Nuclear Research Group

Each group is leading important projects associated with potential repurposing coal sites with nuclear technology. Use group discussions to align our individual efforts to make the most of this opportunity for the broader industry. In addition, get constructive feedback on GAIN case study pilot project.



# ***JOIN US to dive in WHY: 4:30 P.M. - 5:30 P.M. Battelle South Energy Communities: Repurposing Coal with Nuclear***

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Strategist

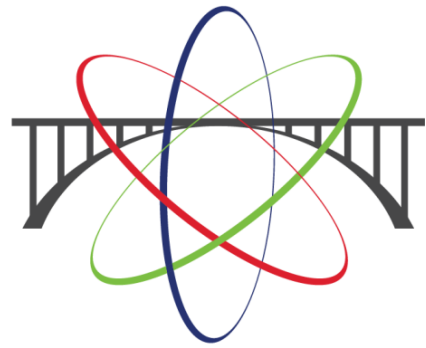


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# GAIN

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