

MOTIVATION

The United States' return to the Paris Agreement and the introduction of the American Jobs Plan emphasized the **employment opportunities** of investing in **clean energy** and **resilient infrastructure**. Reports have shown the overall job creation potential of national net zero transition pathways, with varying employment outlooks across different states. Several questions remain:

- How does the composition of the **future workforce** compare to today? Will different **skills and education** be required?
- What are our **skill gaps** from a low carbon workforce? How can workers **transition** across industries and skillsets?
- For states vulnerable to job losses, what **alternative pathways** can they adopt to continue to decarbonize?

POLICY LANDSCAPE

Renewable Investment Tax Credit (ITC)

- Offshore wind (30%), solar PV (26%), small wind (26%), geothermal (10%)

Clean Coal Tax Credits (Energy Policy Act of 2005)

- **Section 48A**: 30% investment credit on advanced coal and IGCC
- **Section 45Q**: CO₂ sequestration credit (\$50/ton for geological storage, \$35/ton for enhanced oil recovery) with **new amendments** including:
 - **Carbon Capture Utilization and Storage Act** - \$120/ton for DAC
 - **End Polluter Welfare Act** - terminate 48A and 45Q

Decarbonization Scenarios

Scenario	C target	Technology	Optimization	Tax Credit
NetZero	2050	All	Min TSC	No
45Q	2050	All	Min TSC	45Q

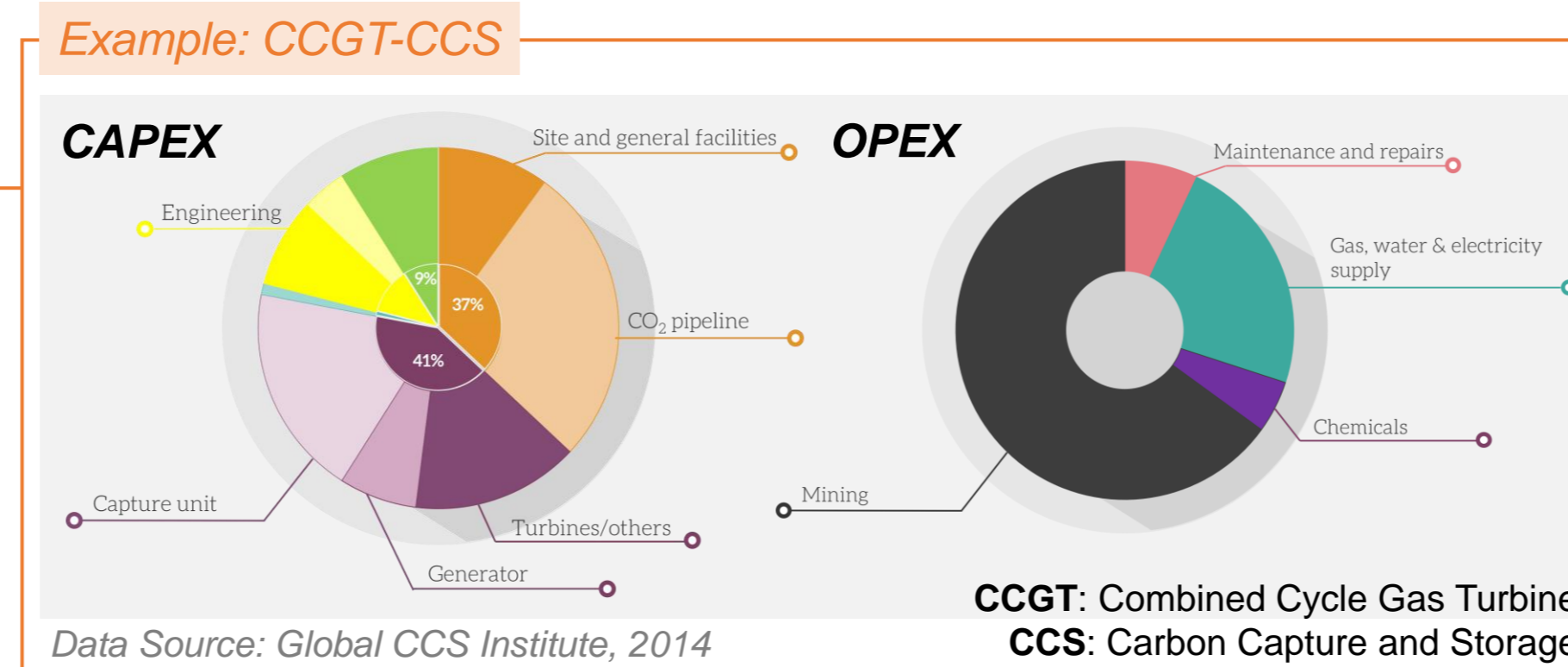
ECONOMIC STRUCTURE



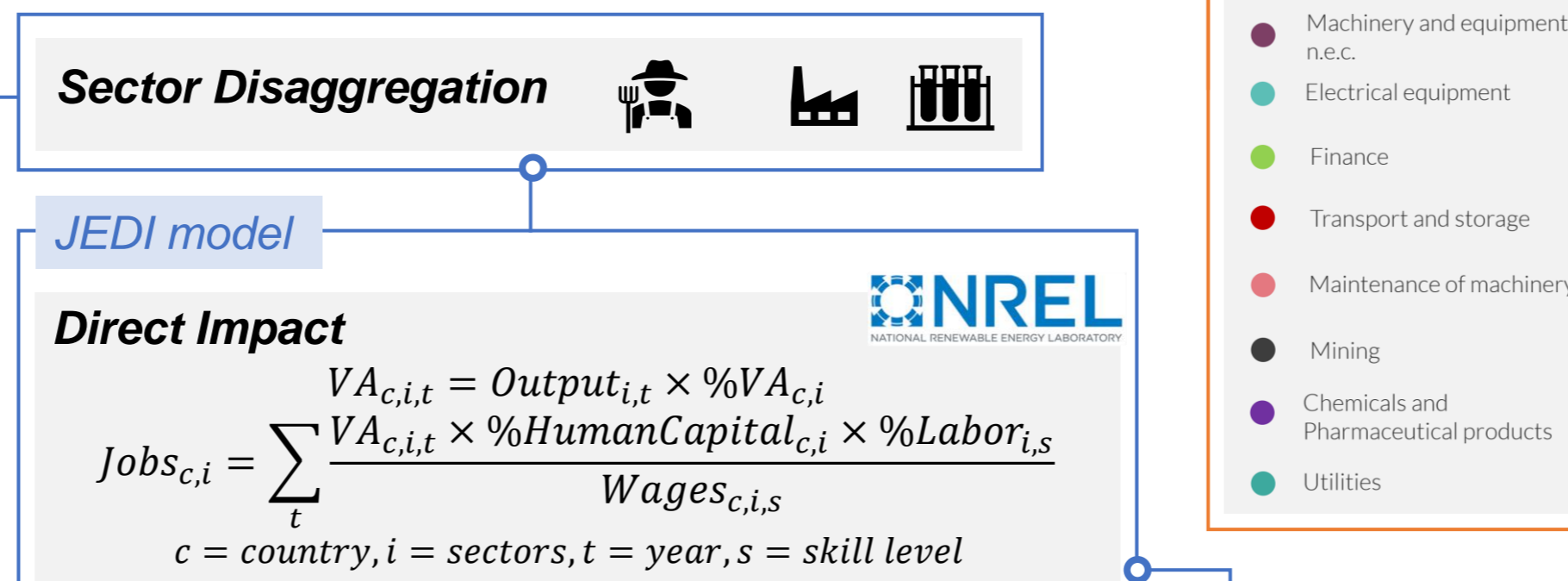
Gross Value Added from Output
 Data disaggregated from Bureau of Economic Analysis 2019

MODEL FRAMEWORK: ESO-JEDI

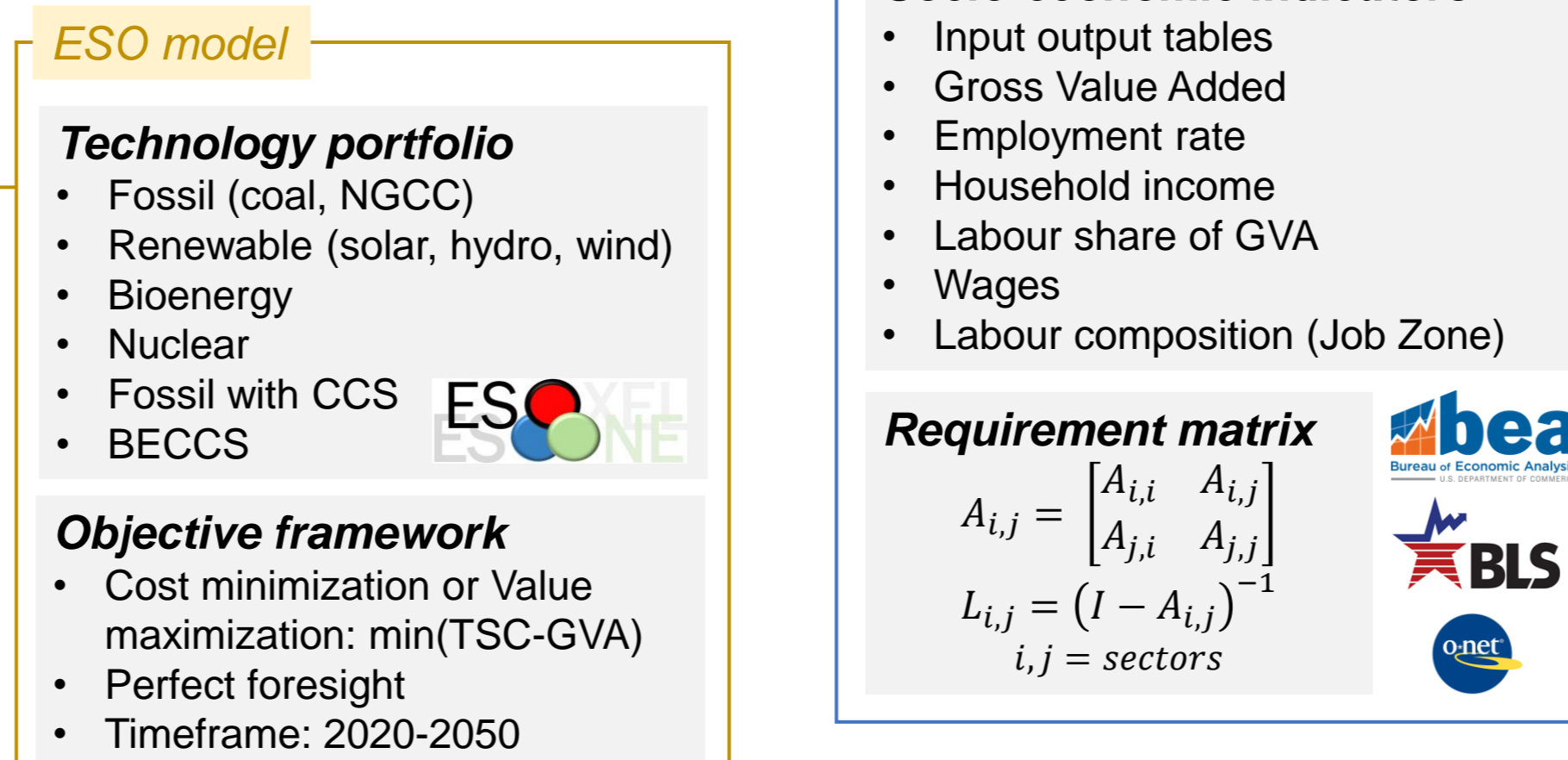
1. Value Chain Mapping



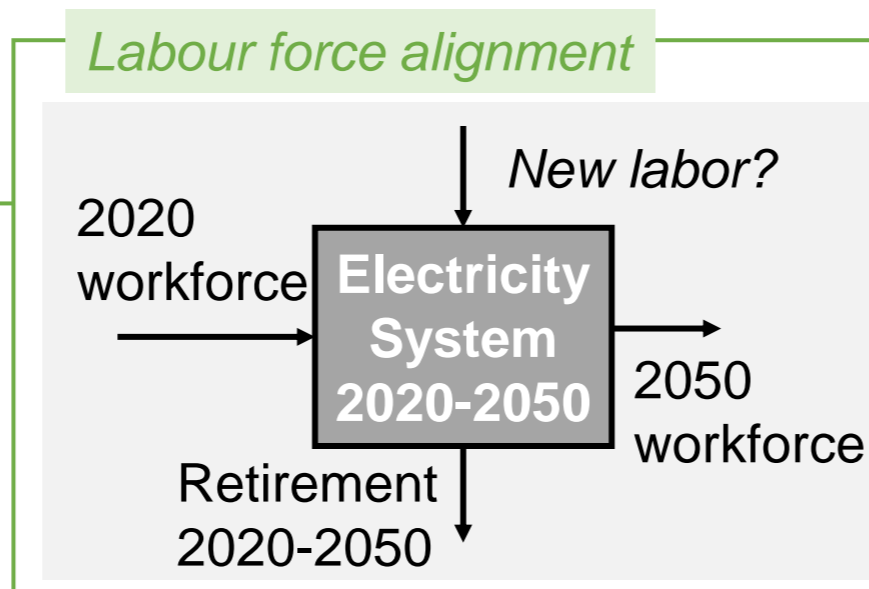
2. Socio-economic Analysis



3. Electricity Systems Optimisation (ESO)

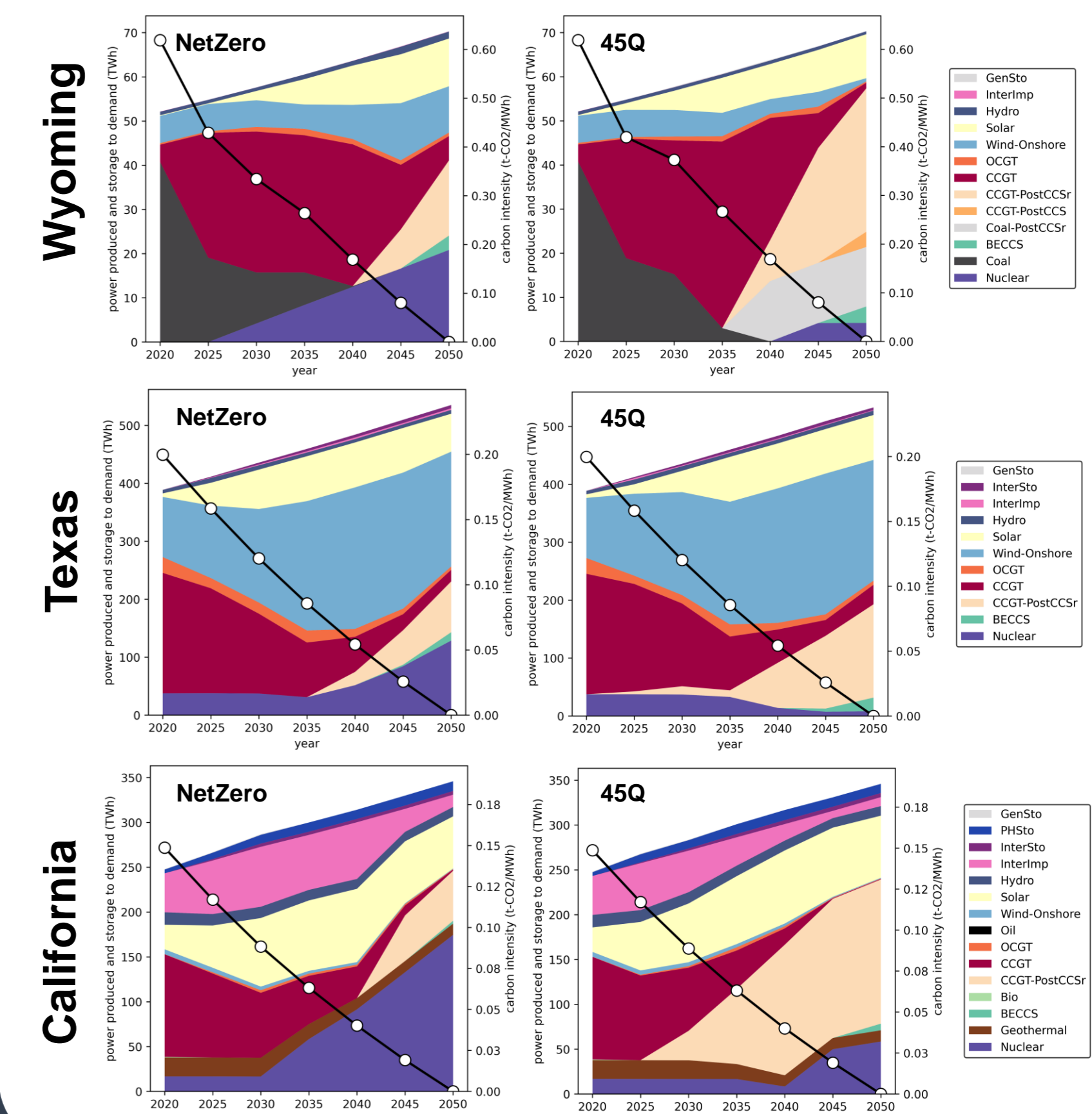


4. Impact Assessment

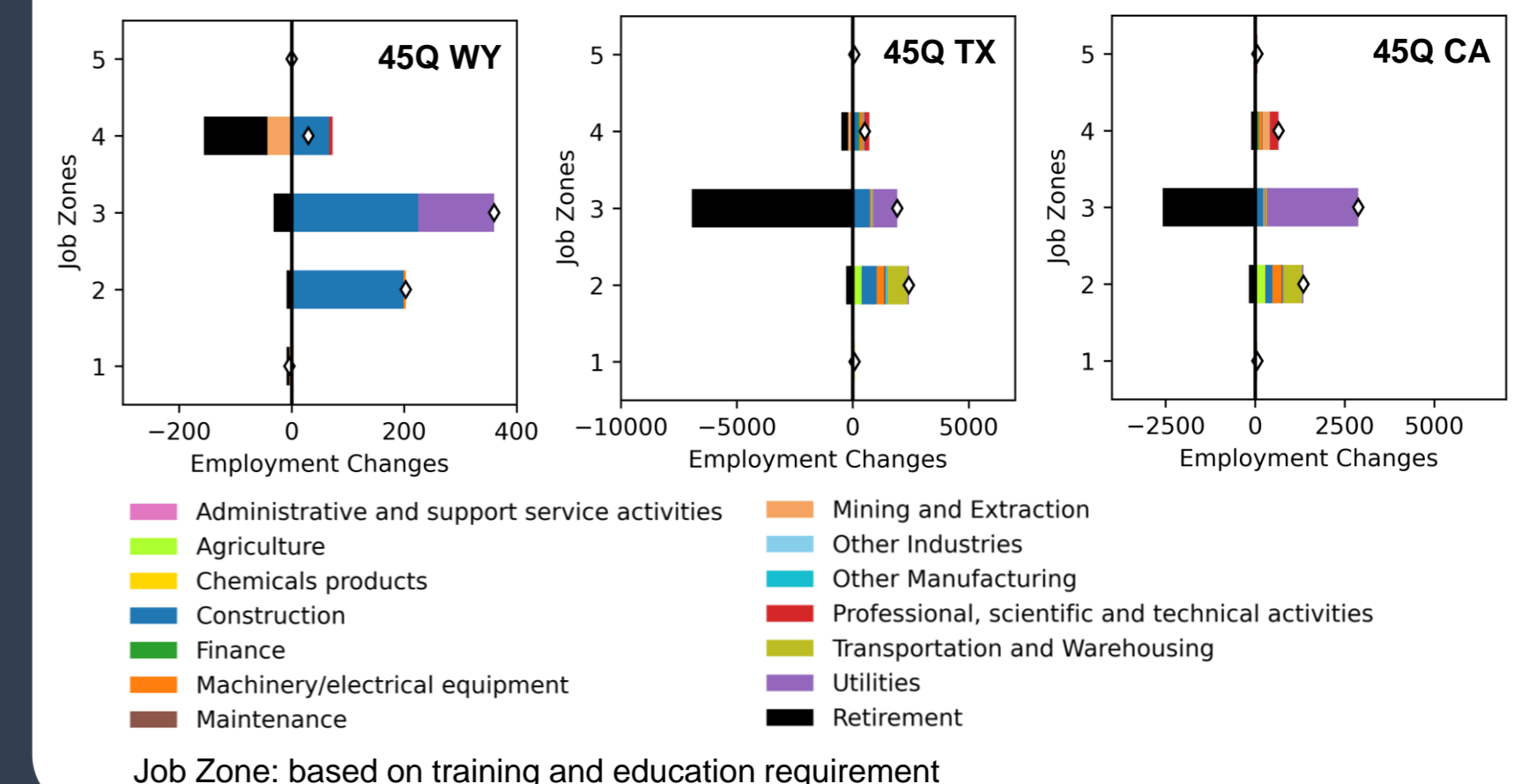


- Questions:
- How would the different clean coal tax credit proposals impact the socio-economic outcome of decarbonization in Wyoming, Texas and California?
 - How much transition would be required for the current workforce in a decarbonized 2050?
 - How effective is the tax credit across the states?

NET ZERO PATHWAYS



EMPLOYMENT TRANSITION



PRELIMINARY CONCLUSION

- The 45Q tax credit encourages decarbonization pathways with less nuclear and more CCS early
- CCS would only be used for removal the residual emissions in the late terms when no 45Q tax credit is imposed
- Under a continued 45Q tax credit, the current power sector workforce could align themselves differently across states:
 - WY: Some mining workers would transition to construction
 - TX: Opportunities spread out across sectors
 - CA: More opportunities in the utilities sector