

Decarbonization Policies in the National Energy Modeling System (NEMS)



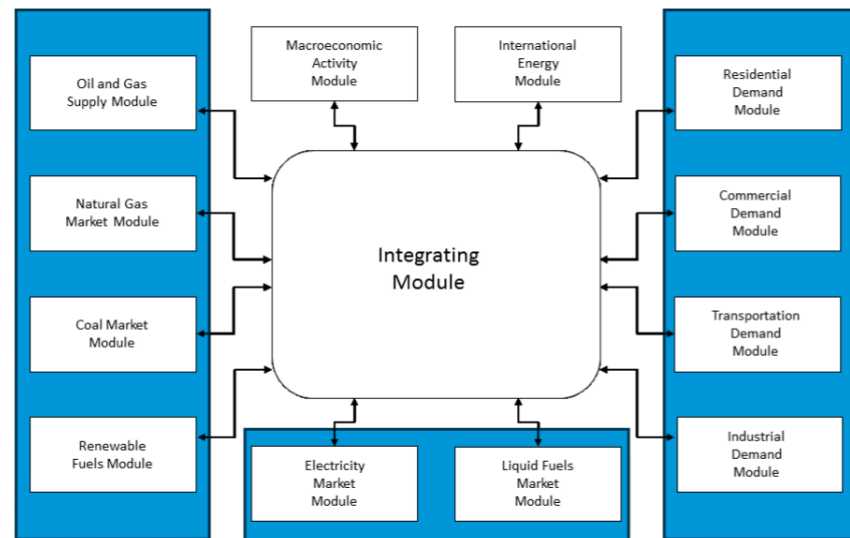
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NEMS decarbonization policies

- NEMS models numerous policies related to decarbonization
- Some policies span multiple sectors
- Other policies are more sector-specific
 - Electric power sector
 - Transportation sector
 - Industrial sector*
 - Residential and commercial sectors



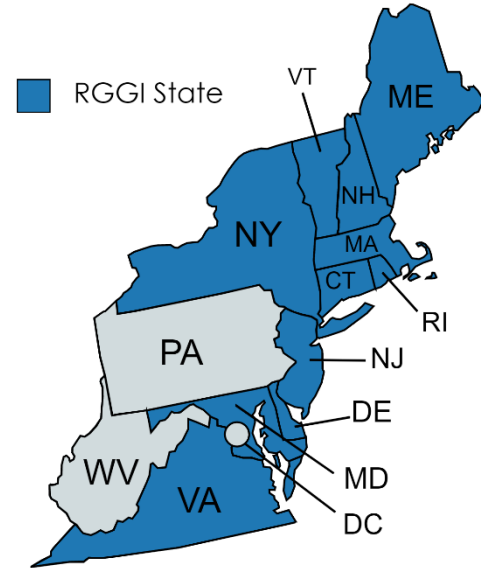
* The NEMS industrial module does not currently model sector-specific policies related to decarbonization

Cross-sector policies

- 45Q tax credit
 - Tax credit for sequestering CO₂ emissions (including EOR use)
 - Covered sectors: electric power, industrial
- California AB32
 - Bill requiring statewide reductions in greenhouse gas emissions
 - Covered sectors: electric power, industrial, transportation, residential, commercial

Electric power sector

- Percentage of electricity sales met by renewables
 - Currently used mostly for Renewable Portfolio Standards, but could be applied more generally to Clean Energy Standards
- Investment and production tax credits
 - Solar, wind, geothermal, hydroelectric, biomass, landfill gas, municipal solid waste
- Zero-emission credits
 - For select nuclear facilities in NY, IL, NJ, and OH
- Regional Greenhouse Gas Initiative (RGGI)



Transportation sector

- Corporate Average Fuel Economy (CAFE) regulations for light-duty vehicles
- Fuel efficiency standards for medium and heavy-duty trucks
- Zero-emission vehicle mandates
- Electric vehicle tax credits
- Renewable fuel standards
- California low-carbon fuel standards (LCFS)

Residential and commercial sectors

- Federal and utility energy efficiency rebates
- Building energy codes
- Appliance and equipment energy efficiency standards
- Investment tax credits
 - Solar photovoltaics and wind energy, natural gas fuel cells, other combined heat and power systems, ground-source heat pumps, solar water heaters, and biomass stoves

Potential economy-wide policies

- National carbon fee
- National cap and trade program for CO₂ emissions