

Washington State Energy Strategy – Sector Framing Questions

This document presents the key questions and issues to be addressed in the development of the Department of Commerce’s 2021. These “framing questions” will guide the research, identification, and assessment of policies and actions for the electricity, buildings, transportation, and industrial sectors, to put Washington on the pathway to achieve greenhouse gas (GHG) emission reduction targets and a just, equitable transition to a sustainable clean energy economy.

This July 16th, 2020 version of the framing questions reflects feedback from Advisory Committee members and the State. Importantly, the questions represent a starting point for the technical work being undertaken by the Clean Energy Transition Institute and are subject to revision as the process unfolds. Please note that cross-cutting and cross-sectoral issues, such as workforce development, equity, competitiveness, and economic impacts, will be considered holistically as well as within each sector.

ELECTRICITY SECTOR FRAMING QUESTIONS

The focus for the **Electricity Sector Energy Strategy** will be on developing policies and actions to enable the transition to 100% carbon-free electricity while meeting economy-wide electrification targets, via a mix of resources, including renewables, hydrogen, biofuels, and demand-side management; determining the role of gas as part of the supply mix; addressing reliability and affordability; grid modernization and integration; and expanded transmission.

The CETA policy framework requires carbon-neutral electricity by 2030, and 100% carbon-free electricity by 2045 and drives the key issues and critical questions that the electricity sector must address in the coming decade. A key overarching question is:

- What are the most effective, efficient, and equitable ways to decarbonize the electricity sector, considering both supply and demand side solutions, with a focus on policies, investments and other actions needed in the coming decade to meet CETA mandates?

In addition, key issues to address in the SES are:

1. **Markets:** How to establish a market framework that facilitates and accelerates the transition in the electricity sector, enabling the efficient use of existing resources and providing price signals for new resources and solutions to address capacity, reliability, and non-wire alternatives?
2. **Equity:** How to meet the legislature findings (RCW 19.405.010) that the public interest includes the equitable distribution of energy benefits and reduction of burdens to vulnerable populations and highly impacted communities and builds on the comprehensive equity work now underway at the Utilities and Transportation Commission (UTC)?
 - How to ensure energy sufficiency for all energy users tailored to need?

- How to provide affordable clean electricity and electricity services (including electrification) to the full spectrum of utility customers, meeting the needs of low-income and marginalized communities (including addressing cost relative to ability to pay), consistent with CETA's equitable distribution requirements?
3. **Generation Resources:** What new generation (energy and capacity) resources will be needed to meet expected demand in a low-carbon future, taking into account expected impacts of efficiency gains and increased demand associated with electrification?¹ What barriers and constraints might limit achieving these levels and types of low-carbon resource builds and acquisitions? How can they be overcome? What are the potential roles of distributed vs. centralized resources, and new technologies, including micro-grids and district energy systems? How can existing resources and infrastructure be used more efficiently to contribute to achieving GHG reductions?
 4. **Electrification:** How to accelerate electrification and address energy and capacity issues associated with electrification? What role can/must utilities play? What changes are needed in utility rate structures and/or operating practices, investments, etc.?
 5. **Demand management and storage:** What barriers and constraints might limit adoption of demand management and storage options and how might they be overcome? What incentives would encourage adoption of demand management to increase grid reliability and resource adequacy? How might advances and aggressive demand management change expectations of demand?
 6. **Reliability and Resource Adequacy:** How do we maintain grid reliability and resource adequacy in this transition, including, in the near term, dealing with the impending retirement of coal resources and, over the longer term, adapting to a likely ever-increasing reliance on intermittent renewable and distributed energy resources?² How might our definitions and expectations of reliability and adequacy shift to balance all outcomes and align with new sources of generation?
 7. **Grid Modernization and Resilience:** How to modernize the transmission and distribution systems to increasingly: 1) integrate renewables; 2) enable demand response, management, and other distributed energy resources; 3) cost-effectively and efficiently electrify other sectors of the economy; and 4) maximize grid efficiency and resilience? What strategies should the state adopt to direct or support accelerated grid modernization consistent with meeting CETA targets?
 8. **Regional Grid Integration:** How to better/fully integrate the regional western grid, including potentially adding new transmission capacity and market mechanisms to maximize the value and benefit of diverse resources (e.g., solar in CA and other Southwest states and wind in MT, ID and WY), thereby minimizing the total cost of the transition.

¹ Estimates of new generation requirements will be based on results of the DDP modeling conducted for the State Energy Strategy technical process, as well as review of existing studies and projections.

² The DDP modeling will provide an estimate of resources needed to meet resource adequacy and reliability requirements. The results of other existing studies done by organizations, including the NW Power Pool, will also be considered in formulating recommendations to ensure resource adequacy and reliability.

9. **Siting and permitting:** How to facilitate the siting and permitting of any required new generation and transmission facilities in a socially and environmentally responsible and just manner? What distributive issues need to be addressed in resource siting and permitting?
10. **New Technologies:** How to lay the groundwork for the future development and deployment of new technologies, potentially including, but not limited to, renewable gas, liquid fuels produced from hydrogen, and carbon capture to meet energy demand and maximize capacity factors in the electricity sector?

BUILDINGS SECTOR FRAMING QUESTIONS

The focus for the **Buildings Sector Energy Strategy** is on developing policies and actions to enable a transition to a highly efficient, carbon neutral building stock by 2050. Meeting Washington's long-term climate targets will require deep energy efficiency and decarbonization in the buildings sector. Policies and actions to achieve both will focus on building codes and standards, market development, utility programs, and the role of gas in space and water heating for new and existing buildings. The overarching question to address is:

- What are the most effective, efficient, and equitable ways to decarbonize the building sector, addressing both rural and urban housing stock, rental and owned residences, and commercial and publicly owned property?

In addition to this baseline question, key buildings issues to consider in the SES are:

1. **Decarbonization:** What new mandates or policies for decarbonization should the State adopt by 2030 to meet its long-term climate goals? What levels of efficiency improvements should the state implement by 2030 (new, existing, appliances) to meet its long-term climate goals? What are the best policy tools to support achieving these levels (codes, standards, incentives, voluntary programs, market development, investments, etc.)? What are their relative strengths? What key barriers to implementation need to be overcome? Specifically,
 - **Energy Code and Building Performance Standards:** How can we ensure that high-leverage policies, such as current and future energy codes and building performance standards, drive substantial and measurable reductions in energy and GHG reductions across all sizes and vintages? What structural changes or complementary strategies are required?
 - **Utilities:** How can we ensure that utility programs, policies, and rate structures operate most effectively to advance decarbonization? How can utilities and utility regulation adapt to this new context that seeks to reconcile energy efficiency, electrification, demand response, and on-site renewables under a broader umbrella of deep decarbonization and energy optimization? How can the current natural gas system and corresponding investment be utilized to decarbonize the building sector?
2. **Embodied Carbon:** What requirements, standards, and or incentives for reducing embodied carbon in building materials and refrigerants should Washington State consider adopting?
3. **Occupancy:** What requirements, standards, and or incentives should Washington State consider adopting that increase the efficiency of the built environment; for example, housing size, duplicative office and work from home spaces, and flex use, etc.?
4. **Clean Fuels:** What policies and actions should the State pursue to convert the fuels used for space heating, water heating, and cooking from fossil fuels practically and economically to low- or zero-carbon fuels?
5. **Funding Mechanisms:** What are the opportunities for private and public sector entities to fund the research, planning, policies, programs, market development, coordination, and reporting

required to sustain a highly effective building decarbonization policy framework? How can tax policy, utility regulation, and incentives best be aligned to accelerate energy efficiency and the use of electricity in new and existing buildings? What are the most effective financing options for the residential and commercial sectors?

6. **Local Governments:** How can state policies and agencies best support, complement, and align with local government building sector climate policies?
7. **Equity and Economic Opportunity:** How can building strategies, including retrofit programs, energy efficiency, and codes support high labor standards, workforce readiness goals, and efforts to improve employment conditions for Washington workers? How can programs be designed to ensure they respond to the needs of low-income workers, communities, and neighborhoods? How can they improve indoor air quality, comfort, and health among residents most vulnerable and where conditions are the worst?

TRANSPORTATION SECTOR FRAMING QUESTIONS

The focus for the **Transportation Sector Energy Strategy** is on developing policies and actions to enable a transition to accessible, affordable, zero-carbon mobility and transportation options for Washington State. No single policy or approach – by its own – is likely to be feasible for driving emissions to zero; an “all of the above” strategy will be required. General approaches for the transportation sector can be distilled into four categories sometimes expressed by the shorthand acronym “ASIF”:

- **Avoid.** Can the need for motorized travel be avoided altogether, e.g., through urban planning, improved logistics, or telecommuting?
- **Shift.** Can travel be shifted to modes that use less energy per passenger, like walking, cycling, multi-occupancy vehicles, and mass transit?
- **Improve.** Can fuel economy be improved so that less energy is used per vehicle-mile traveled?
- **Fuel-switch.** Can low- or zero-carbon energy be used to power transportation instead of fossil fuels? This could involve electrification and/or use of low- or zero-carbon liquid fuels.

A key overarching question is:

For each segment of the transportation sector – passenger, freight, marine, and aviation - what are **appropriate goals for each “ASIF” strategy**, and what are **the most effective, efficient, and equitable policies and actions to achieve those goals**?

Related to this question, key issues to address in the SES are:

On-Road Passenger and Freight Transportation:

11. **Reducing vehicle miles traveled (VMT).** For passenger transport, what are the most effective, equitable, and efficient policies and actions for reducing VMT, e.g., in the areas of urban planning and accessibility; transit; commute-trip reductions; active transportation (walking and biking)? What options are available for reducing freight VMT, both local and long-haul, e.g., improved logistics, mode shifting to rail or water, etc.? How can the State support VMT reductions and GHG savings through local land use and housing policy? What should be the roles of state vs. local governments across all VMT-reduction measures? How should priorities differ for urban vs. rural areas? What are the options for inter-urban transit modes (rail, bus, other)? What is the role of and opportunity for the private sector to reduce VMT independent of government action (passenger and freight)?
12. **Vehicle efficiency.** What role can the State play in improving the efficiency of vehicles purchased and driven in the state? How should the private sector be motivated to contribute to achieving efficiency goals?
13. **Vehicle electrification.** What levels of vehicle electrification would be consistent with meeting the State’s climate targets, taking into account the cost and availability of vehicles and supporting infrastructure? What are the most effective policy tools and approaches for achieving these levels? Should the State set explicit electric vehicle (EV) penetration goals for different vehicle classes? What are the strengths and weaknesses of incentives vs. mandates vs. informational approaches in increasing market penetration and affordability? How should the

state support expanded access to EVs and charging infrastructure, including in less advantaged rural and urban communities? What should be the roles of state vs. county and local governments in promoting and developing EVs and infrastructure?

14. **Clean fuels.** Are there particular fuels or technologies that should be supported for market development (e.g., renewable natural gas, hydrogen, biofuels, Direct Air Capture (DAC)-to-fuel technologies³)? Should the State promote general market innovation and development, or expressly promote certain nascent technologies (and if so, how)?

Marine Transportation and Aviation:

15. **Decarbonizing shipping and marine transport.** Are there feasible options for reducing marine travel demand? What potential is there for efficiency improvements and what policies can be used to improve efficiency? What goals should the State set for both electrification and low- or zero-carbon fuels, and what policies would be most effective for each? What efforts are needed to decarbonize Washington State ferries?
16. **Decarbonizing aviation.** What can the State do to help decarbonize this sector, including with respect to each “ASIF” element? Given that aviation may be uniquely dependent on liquid fuels, what can the State do to promote low and zero-carbon fuels for aviation?

All Transportation Sectors:

1. **Equity.** How might considerations about the distribution of jobs, accessibility, and affordable mobility for urban, suburban, and rural communities; considerations about local health and air and water pollution impacts; and considerations about workers interests, resilience and safety, and environmental justice inform answers to the above questions?
2. **Revenue and finance.** How can cost barriers be overcome, so that all Washingtonians, and especially low-income communities, can benefit from the shift to low-emissions fuels and technologies? How will greater adoption of electric and other non-petroleum-fueled vehicles affect state transportation funding? What approaches can be used to fill the gaps and integrate EVs and low- or zero-carbon fuel vehicles into highway and transit funding mechanisms? How can public and private finance enable low-carbon transport infrastructure to be built at the pace and scale needed? How can revenue mechanisms be designed to not fall disproportionately on low income residents, workers, and small business; reduce emissions; and provide flexibility and consistency?

³DAC = direct air capture of carbon, which [can be used to produce fuel that is burnable in conventional internal combustion engines.](#)

INDUSTRIAL SECTOR FRAMING QUESTIONS

The focus for the **Industrial Sector Energy Strategy** is on surveying the wide variety of opportunities and challenges experienced in different industries and discovering common themes that can be addressed with state-level policy. Using economic or energy data to characterize the portfolio of industries most deeply tied into Washington's energy system will be a part of the effort, providing a foundation to identify meaningful clusters or collaborations.

A key overarching question is:

- How will the industrial sector balance the multiple goals of state energy policy: deploy energy efficiency, develop clean energy technologies, provide clean energy jobs, and meet the state's GHG reduction targets?

Related to this question, key issues to address in the SES are:

1. **Efficiency, electrification, and low- or zero-carbon fuels:** Which existing technologies can reduce industry energy consumption, costs, or emissions over the next 10 years? Why aren't these things being done and what policies would increase their application?
2. **Innovation:** What new technologies can reduce industry energy consumption, costs, or emissions over the next 10 years?
3. **Economic Development:** Does Washington have the potential to host important clean energy manufacturing or R&D clusters? If so, which ones?
4. **Industry retention:** What strategically important, Washington industries are currently at risk? What policies or support can be provided to retain them? How will we balance preserving current jobs versus creating new ones?
5. **Jobs Creation, Workforce Development, and Retraining:** Are there clean energy technologies that could expand employment in a Washington industry? What types of training will workers need to meet future demands? Can uniform training standards support them? What are the best protections for workers impacted by changes (retraining? just transition? relocation?)
6. **Utility Role:** What roles can utilities, or other energy suppliers, play in helping industry achieve its energy goals?
7. **Energy-intensive trade-exposed (EITE) industries:** What specific opportunities do the cement, metals, refinery and other EITE industries have to decarbonize their production processes or increase energy efficiency? What efforts could the state take to work across state lines, regionally and nationally, to address competitiveness and emissions reduction? How can we avoid jobs leakage across state lines?
8. **Funding:** What funding mechanisms can be used to support the research, product development, and market development required to sustain a highly effective decarbonization framework in industry?
9. **Equity:** How can environmental and economic justice be increased while forming answers to all of the above questions?