

# *Trends and Highlights from Recent Comprehensive State Energy Plans*

## **Acknowledgements**

The National Association of State Energy Officials (NASEO) prepared this document to assist states in their efforts to plan, develop, establish, and maintain robust state energy plans. The primary author of this report was Dylan Tucker of NASEO. NASEO would like to thank the State Energy Directors and State Energy Office staff that contributed to the development of this report and established some of the foundational planning elements presented. The author would also like to thank the following NASEO contributors: Cassie Powers, Sam Cramer, and David Terry. This report was authored in 2022.

## Introduction

NASEO developed this brief on comprehensive state energy planning trends to support State Energy Offices and their partners as they engage in comprehensive energy planning processes. Comprehensive energy planning helps states take a holistic view of their energy sector covering key concerns around energy supplies, economic development, end-use sectors such as transportation or buildings, and overarching goals like energy equity and resiliency. This brief illustrates the approach and scope of several recent state planning efforts, identifies trends among these comprehensive energy plans, and highlights key issues. NASEO reviewed four comprehensive energy plans prepared since 2019. Results from NASEO's 2020 Member Survey were leveraged to identify recently updated plans and provide summary statistics where appropriate. The four states examined – New Jersey, Florida, Washington, and Oklahoma – are diverse geographically, demographically, and politically, and approached their planning processes in a variety of ways. However, some key trends and highlights emerged from an analysis and review of these plans:

- State Energy Offices have engaged stakeholders such as partner agencies, consumer advocates and community organizations, and industry representatives, and used public comment processes to encourage broader participation in the planning process. When plan implementation extends beyond the authority of State Energy Offices, this public and interagency stakeholder process is more formal, to encourage external investment in the decision-making process and execution of plan goals.
- All four plans address both environmental and climate goals, as well as economic development and workforce goals. All four states also leverage data to provide a detailed overview of their energy sector and inform energy goals and success metrics for their state.
- Two plans used the same two models to produce simulations, identifying low-cost pathways to achieve state pollution reduction targets.
- Three plans directly address energy equity and environmental justice, identifying strategies to support communities that have been traditionally underserved or overburdened by the energy sector.

## Highlights from State Comprehensive Energy Plans

*Oklahoma's support for electric vehicle (EV) charging stations has made it the number one state in the country for charging stations per capita.*

*New Jersey has already made awards to support over 2.5 GW of offshore wind farms, advancing the state target of 7.5 GW installed by 2030.*

*Florida has enhanced energy resiliency for extreme weather events by installing on-site generation at schools to act as emergency shelters, and supporting EV charging infrastructure on key evacuation routes.*

*Washington developed a statewide decarbonization strategy that does not increase energy sector spending, just diverts funds from fuel imports to local infrastructure and equipment investments.*

## Initiating the Planning Process and Engaging Stakeholders

The four plans examined in this paper – [2019 New Jersey Energy Master Plan](#): Pathway to 2050; [Florida Energy and Climate Plan](#): Powering Change; [Washington 2021 State Energy Strategy](#): Transitioning to an Equitable Clean Energy Future; and the [Oklahoma State Energy & Environment Plan 2021](#) – utilized different approaches to their planning processes and engaged stakeholders in a variety of ways. The New Jersey and Washington plans both develop pathways to meet net zero greenhouse gas reduction targets in response to formal targets set by their states. The plans from Florida and Oklahoma are authorized by the executive branch to update their state energy office's strategy with new energy and environmental goals. Both New Jersey and Washington State have deep decarbonization targets for 2050, set by their Governor and Legislature, respectively. Each state tasked their State Energy Offices with developing a compliance plan for their energy sector, examining strategies and pollution reduction throughout their economy to efficiently achieve net zero targets. With the wide scope of these plans for the states' economies, each planning process included engaging a larger advisory board. In New Jersey, the process was led by the Division of Clean Energy within the Board of Public Utilities, with other agencies included in the process and planning: the Department of Environmental Protection, the Department of Transportation, the Department of Community Affairs, the Department of Labor and Workforce Development, the Economic Development Authority, and NJ Transit. A draft plan was also released months before the final plan, providing an opportunity for public comment. The Washington Department of Commerce convened a 27-member advisory committee, including legislators, government officials, civic organizations, energy and utility businesses, and public interest advocates. The State Energy Office also set up mechanisms for members of the public to directly provide feedback. This

engagement helped with buy-in from other stakeholders, including them in the development of their own climate goals, key recommendations, and next steps.

The planning processes in Florida and Oklahoma were initiated as a regular update to their state's energy plan. Florida's plan is designed to highlight key energy and climate issues in the state, provide a platform to engage stakeholders on these topics, and act as a guide of action for their State Energy Office. Oklahoma's Governor Stitt requested a plan that "highlights our great history and future with traditional energy, but more importantly charge a path as a premier 'all of the above' energy producer for many years to come."<sup>1</sup> He noted that the energy sector has always been a major driver for Oklahoma's economy: "innovations like the shale revolution were started by Oklahoma companies. We continue the tradition of industry modernization by developing new technologies for the oil & gas industry and embracing new sources like wind, solar, hydrogen, and battery storage. Additionally, implementing sustainable initiatives like carbon capture utilization and storage (CCUS), renewable natural gas and water recycling show our state's ability to evolve with the industry." Oklahoma also released two other reports in the same year, taking a deeper dive into energy resiliency through the [Oklahoma Energy Assurance Plan](#), and opportunities for hydrogen development, through the [Hydrogen Production, Infrastructure, and Production Task Force and Road Map](#). The comprehensive energy plans for Oklahoma and Florida are about 70 pages long, while New Jersey's and Washington's statewide climate plans around about double the length, addressing the state's economy as a whole.

### **Environmental and Economic Planning**

The four energy plans NASEO analyzed have strong environmental and climate elements and include strategies to leverage energy development to support economic and workforce goals. For comparison, of NASEO's 56 State, Territory, and District of Columbia Energy Office members, 47 have comprehensive energy plans. Of these 47 plans, 70 percent address economic development and workforce planning, and 60 percent address climate planning.<sup>2</sup> In Oklahoma's plan, the Secretary of Energy and Environment states that "sound energy policy cannot exist without a plan for the environmental impacts, and likewise, sensible environmental policy is not possible without a common understanding of a plan to power the state."<sup>3</sup> The economic impact of the energy sector is also clear throughout the plan, with stated goals to ensure Oklahoma remains in the "Top 5" states for producing fossil fuels and wind

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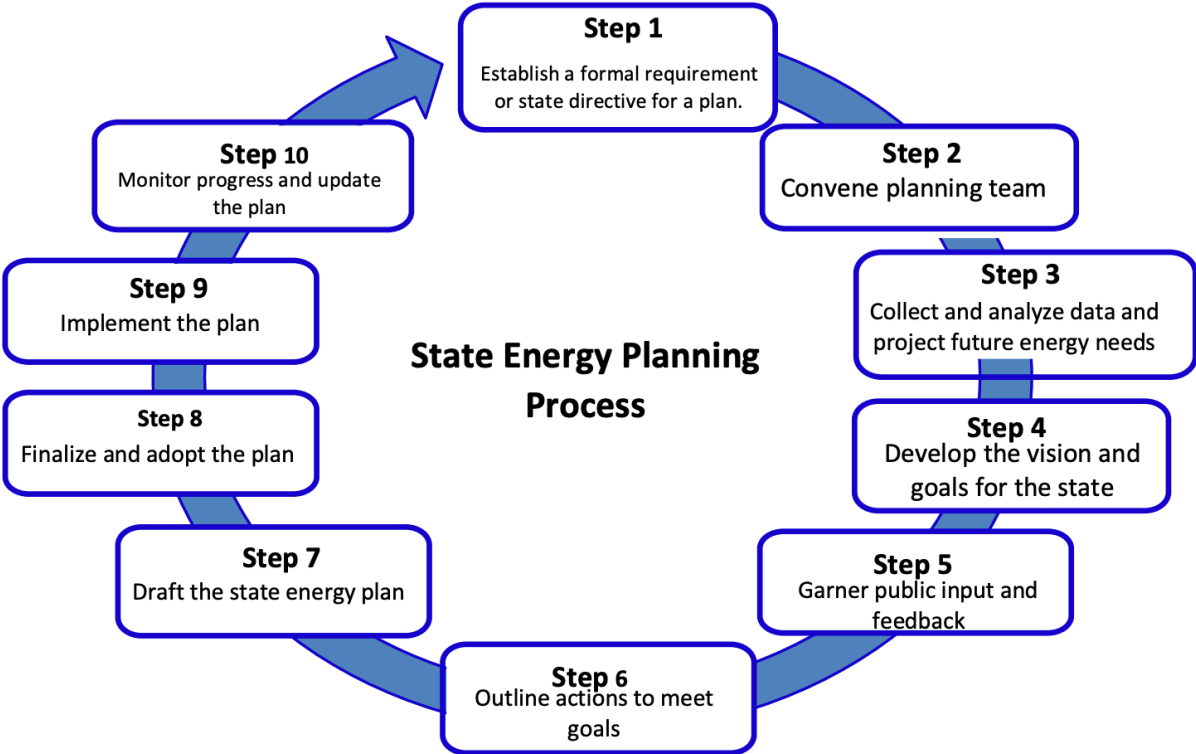
<sup>1</sup> Oklahoma Secretary of Energy and Environment. "Oklahoma State Energy and Environment Plan 2021." Page 4.

<sup>2</sup> NASEO 2020 Member Survey.

<sup>3</sup> Oklahoma Plan, Page 5.

energy, enhance solar development to become a “Top 5” state, and maintain the lowest electricity prices in the country.<sup>4</sup>

New Jersey’s and Washington’s plans were both initiated in response to state decarbonization targets, and thus have a clear goal to chart a path to net zero emissions. Both plans go beyond potential environmental impacts and examine how their state’s clean energy transition can support economic development in an equitable manner, create local jobs, and support energy innovation. New Jersey’s Energy Master Plan states that “in embracing this climate challenge, New Jersey is also poised to take advantage of a profound opportunity to expand the clean energy innovation economy, support New Jersey families, and create new long-term jobs,” while also being “sensitive to the potential for rising costs, and be aggressive in limiting these costs wherever possible.”<sup>5</sup>



**Figure 1:** Steps in Comprehensive Energy Planning, from NASEO’s [State Energy Planning Guidelines](#). Several states are electing to begin public engagement and feedback (Step 5 above) earlier in the process to solicit public input before developing visions and goals (Step 4 above).

In Washington, the legislature defined three goals for their plan centered around the economic and environmental impacts of the energy sector: 1) maintain competitive energy prices; 2)

<sup>4</sup> Oklahoma Plan, Page 7.

<sup>5</sup> New Jersey Board of Public Utilities. “Energy Master Plan: Pathway to 2050.” 2019. Page 12.

foster the clean energy economy and jobs through business and workforce development; and 3) meet the state’s obligations to reduce greenhouse gas emissions.<sup>6</sup> With these goals defining the process, the State Energy Office worked to identify the lowest-cost pathway to net zero emissions.

### Developing Strategies and Recommendations

After establishing the goals and scope of comprehensive energy plans, states used several approaches to organize their plans and present recommendations. Both Florida and New Jersey organized their plans around key strategies related to energy issue areas (included below). In Florida, for each of the nine strategies, a set of recommendations is provided for the Office of Energy, and additional recommendations are made by defining “Collaborative Actions” with other stakeholders, proposed legislative actions, and finally questions for future engagement. For each of New Jersey’s seven strategies (listed below), the Energy Master Plan defines specific goals. For example, for Strategy 2: Accelerate Deployment of Renewable Energy and Distributed Energy Resources, there are three primary goals along with more specific goals, covering topics from developing offshore wind and new community solar installments, to streamlining the permitting and siting process for new generation. Overall, the plan includes 95 of these goals and each contains a larger discussion and data to support findings and goal development. As a summary, a description of each goal is provided, as well as associated commitments and timelines, the baseline policy, and the agencies in charge of achieving these goals.

#### Key Strategies Defining Sections of Comprehensive Energy Plans

##### *Florida*

- Energy efficiency and renewables
- Resiliency of infrastructure
- Clean, safe, sustainable transportation
- Energy-Water Nexus
- Education, Training, and Workforce
- Research, Development, Demonstration, and Deployment
- Electric industry infrastructure
- Agriculture
- Decrease Energy Burden for Low Income Communities

##### *New Jersey*

- Reduce energy and emissions from Transportation
- Renewables and Distributed Energy Resources deployment
- Energy efficiency and reduce peak demand
- Reduce energy and emissions from buildings
- Decarbonize and Modernize Energy System
- Support Community Energy Planning (encouraging participation from low-income and environmental justice communities)
- Expand Clean Energy Innovation Economy

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<sup>6</sup> Washington State Department of Commerce, State Energy Office. “Washington 2021 State Energy Strategy.” Page 11.

Oklahoma’s plan has major sections covering Energy, the Environment, Power Generation, and Technology. Each section provides an overview of the current state of the market in Oklahoma, and concludes with a “Vision” section, defining key goals in that sector for the future. The Energy Section focuses on the supply side, broken down by fuel, detailing market data, infrastructure, and key stakeholders. The Power Section has an infrastructure focus, examining transmission lines and pipelines to help expand energy production in state and ensure access to other markets, particularly in the Southwest Power Pool. The Power and Environment Sections also reference additional planning documents which to go into deeper depth, such as Oklahoma’s Water for 2060 Plan, the Oklahoma Transmission Capacity Report, and the Oklahoma Energy Assurance Plan. Finally, the Technology Section takes a forward look at future technologies, how they could impact the sector, and how Oklahoma can position the state to take advantage of the economic development around researching these technologies and bringing them to market: battery storage, carbon capture utilization and storage, and hydrogen.

In Washington, the strategy is organized by end-use sectors of the economy. Initial sections address equity in the clean energy economy, and deep decarbonization modeling to help establish targets for each end-use sector: transportation, buildings, industry, and electricity. Communities is the final section, to help maximize the economic impact of decarbonization for state’s residents, support community engagement in the process, and ensure equity for communities with a particular emphasis on highly impacted communities, Tribes, rural areas, and low-income households. Several “Key Actions” are then defined for each of these five areas. These recommendations extend beyond the authority of the State Energy Office. The upfront stakeholder engagement with other key actors helped build awareness and buy-in from partner organizations as the State Energy Office developed the plan.

In addition to the sectoral recommendations, Washington’s State Energy Office identified seven cross-cutting issues which impact several sectors and can help achieve lower-cost emissions reductions. These cover technologies, such as hydrogen to support energy storage and clean transportation, but also policy mechanisms such as comprehensive pricing mechanisms which can account for market externalities and encourage a shift to cleaner energy production.

### **Leveraging Data for Advanced Planning**

All four states leveraged data to provide a detailed overview of their energy sector and inform energy goals for their state. Florida’s plan includes key statistics about each of the nine focus areas in their plan. These provide sectoral context for planning needs, but also include performance metrics for existing programs in their state, how funds are spent, and the tangible impacts of these programs. For example, in the energy efficiency section, data on the number of residents, businesses, farms, and tourists, as well as energy used are included. Forecasts are also provided to set future expectations in this section and largely rely on ten-year utility plans required by the Florida Public Service Commission. Then, the plan displays performance metrics over time, such as building square footage, utility costs for buildings, and the impacts of efficiency programs to reduce demand. The plan uses similar performance metrics in other sectors, such as government investments in transportation programs compared to fuel savings



or new vehicles deployed. Additional metrics show the economic impacts of these investments, such as jobs created, impact to state GDP, and average wages.

### **Data Sources, Models, Data Analysis Tools used by State Energy Offices**

- [EnergyPATHWAYS](#): an open-source modeling platform, using demand-side forecasts to support planning towards long-term energy transition. Developed by E3;
- Regional Investment and Operations ([RIO](#)) Platform: A supply-side model aimed at forecasting the high penetration of renewable onto the grid while maintaining system reliability;
- U.S. Energy Information Administration – [State Energy Data System](#);
- President’s Council on Environmental Quality – [Climate and Economic Justice Screening Tool](#);
- U.S. Department of Energy’s [SLOPE](#) Platform – State and Local Planning for Energy;
- Additional information on plan development, data management, and energy efficiency can be found in the U.S. DOE’s *Guide for Incorporating Energy Efficiency into State Energy Plans*.

The New Jersey and Washington plans use thorough datasets to catalogue energy use and greenhouse gas emissions in their state, and chart the least-cost path to net zero emissions. Both State Energy Offices contracted consultants to conduct modeling simulations and ended up leveraging the same two models: the EnergyPATHWAYS model, a demand-side model examining various energy strategies for different end-use customer sectors, and the Regional Investment and Operations (RIO) model, a supply-side model used to simulate electricity power systems and account for the introduction of novel technologies. New Jersey’s Technical Appendix describes the process of how these models were leveraged together to produce results.<sup>7</sup> The least-cost analysis helped states compare their proposed actions to existing spending in the energy sector. Washington’s plan found that “the state can make this transition to clean energy and still maintain its economic vitality. The total amount spent on energy is within the historical range – 5-7% of gross state product – but the money is spent on equipment and infrastructure instead of imported fossil fuels.”<sup>8</sup>

### **Equity and Community Impacts of Energy Planning**

Three of the four states examined also worked to ensure that their comprehensive energy plans were supporting local communities through enhanced engagement in planning and identifying communities overburdened by the energy system, especially historically underserved communities. In Florida and New Jersey, support for low- to moderate-income communities is a key strategy in the state’s plan (shown above). Florida’s focus is on consumer education strategies to ensure that existing programs are reducing the energy burden for low-income Floridians while simultaneously reaching audiences that remain unaware of existing avenues for support. The New Jersey Plan provides recommendations for enhanced LMI community support, while also emphasizing the need for enhanced education and outreach to engage underserved communities in the state. Additionally, strategies from both plans include targeted

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<sup>7</sup> Evolved Energy Research. “New Jersey 2019 Integrated Energy Plan 2019: Technical Appendix.” November 29, 2019. <[https://nj.gov/emp/pdf/New\\_Jersey\\_2019\\_IEP\\_Technical\\_Appendix.pdf](https://nj.gov/emp/pdf/New_Jersey_2019_IEP_Technical_Appendix.pdf)>.

<sup>8</sup> Washington State Energy Strategy, page 16.

interventions to reduce energy use and associated pollution within environmental justice communities, and state support for community energy planning to ensure new voices are included in decision-making and local and municipal plans align with the State’s Energy Master Plan. The statewide goals for this strategy cover topics such as community solar investments, workforce development and trainings, clean fleet investments, and environmental justice community inclusion in siting processes as more clean energy investments are made throughout the state.

**TABLE 1. SEVEN-STEP PROCESS FOR BUILDING EQUITY INTO CLEAN ENERGY POLICIES<sup>22</sup>**

| Equitable Policy Design   | Highlights and Priorities  |
|---|--|
| <b>1. Ensure equitable access to economic benefits and opportunity by empowering communities.</b>                   | Support participatory processes, direct funding, removal of barriers to autonomy and independence and greater access to processes and decisions.   |
| <b>2. Ensure universal and equitable access to affordable remote service options.</b>                               | Efforts must be expanded to develop affordable, quality broadband, including in rural and under-resourced areas.   |
| <b>3. Center program design on reduction of energy cost burdens.</b>  | Reduce home energy and transportation costs for highly impacted populations by focusing on cost burden as a metric in planning.  |
| <b>4. Incorporate health disparity metrics into energy planning.</b>  | Improve health and safety, safeguard against health and safety risks and improve access to the physical, service and social conditions linked to health and well-being by operationalizing a health disparity metric in energy planning. <sup>23</sup>           |
| <b>5. Increase resilience and energy sovereignty for Tribes and energy independence for vulnerable communities.</b> | Support the efforts of communities especially prone to instability from climate change and other natural disasters, such as communities located in the Cascadia Subduction Zone and wildfire prone areas and communities impacted by fossil fuels. <sup>24</sup> |
| <b>6. Address procedural inequities in program design and prioritize equitable development.</b>                     | Perhaps the most significant combined equity-and-energy gains can be made through planning. The state has an opportunity to help guide clean and equitable development of programs and funding that support development.   |
| <b>7. Address nexus issues of affordable housing, livable communities and displacement in energy policy.</b>        | Work with housing policy experts to address unhoused and displaced communities through energy policy design, especially focusing on cost burdens.  |

Source: Washington State Department of Commerce

<sup>22</sup> Kuharic, Stroble, and Binder, "King County 2020 Strategy Climate Plan," p. 173.

<sup>23</sup> "How Do Neighborhood Conditions Shape Health? An Excerpt from Making the Case for Linking Community Development and Health" (Center on Social Disparities in Health, Build Healthy Places Network, Robert Wood Johnson Foundation, 2015), <https://www.buildhealthyplaces.org/content/uploads/2015/09/How-Do-Neighborhood-Conditions-Shape-Health.pdf>.

<sup>24</sup> "Resilient Washington Subcabinet Report" (Washington Military Department’s Emergency Management Division, 2017), <https://mil.wa.gov/asset/5ba420648fb16>.

In Washington’s plan, communities are defined as a key end-use sector alongside transportation, electricity, buildings, and industry. Furthermore, equity and environmental justice are included as cross-cutting issues impacting each major sector. The State Energy Office makes clear the need for community engagement, linking environmental harms in highly-impacted communities, Tribes, rural areas, and low-income households to heightened impacts of the COVID-19 pandemic. They determine that “absent deliberate and committed efforts, the

envisioned clean energy transformation could easily leave these communities worse off.”<sup>9</sup> The Strategy also discusses how best to define energy equity, and explores different definitions and gaps in viewpoints, expands on the notion that equal access does not mean equity, and that historically underserved voices must be intentionally sought out and included during the planning stage. After examining what equity means in energy planning, the State Energy Office defined a seven-step process for building equity into clean energy policies, meant to be applied to strategy development at all levels of government planning:

## **Conclusion**

State Energy Offices take different approaches to State Energy Planning. While the scope of the plan largely depends on how and why the plan was initiated, the linkages between energy goals, economic goals, climate goals, and equitable policy and program development are evident across plans. States are leveraging the planning process to help make clear the economic and climate related energy benefits of energy planning and investment, and in the cases demonstrated above, provide data to back up recommendations and targets in their plan. States are also examining ways that the energy sector has historically underserved and/or overburdened some communities and are exploring ways to better serve those communities and systematically incorporate them into the planning process. Finally, as the scale and goals of comprehensive energy plans grow, State Energy Offices are formally engaging and including additional stakeholders in the process who are responsible for carrying out elements of the plan. This up-front engagement ensures they are partners in developing their own targets, creating ownership over the results and ensuring that State Energy Office partners stay engaged as the Energy Offices enact their plans.

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<sup>9</sup> Washington State Energy Strategy, Page 19.

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This material is based upon work supported by the U.S. Department of Energy under award number DE-EE0004556.

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