Advice for States on 100% Clean Energy Planning

The Process for Producing a Plan

By Warren Leon,
Clean Energy States Alliance

Prepared for the 100% Clean Energy Collaborative

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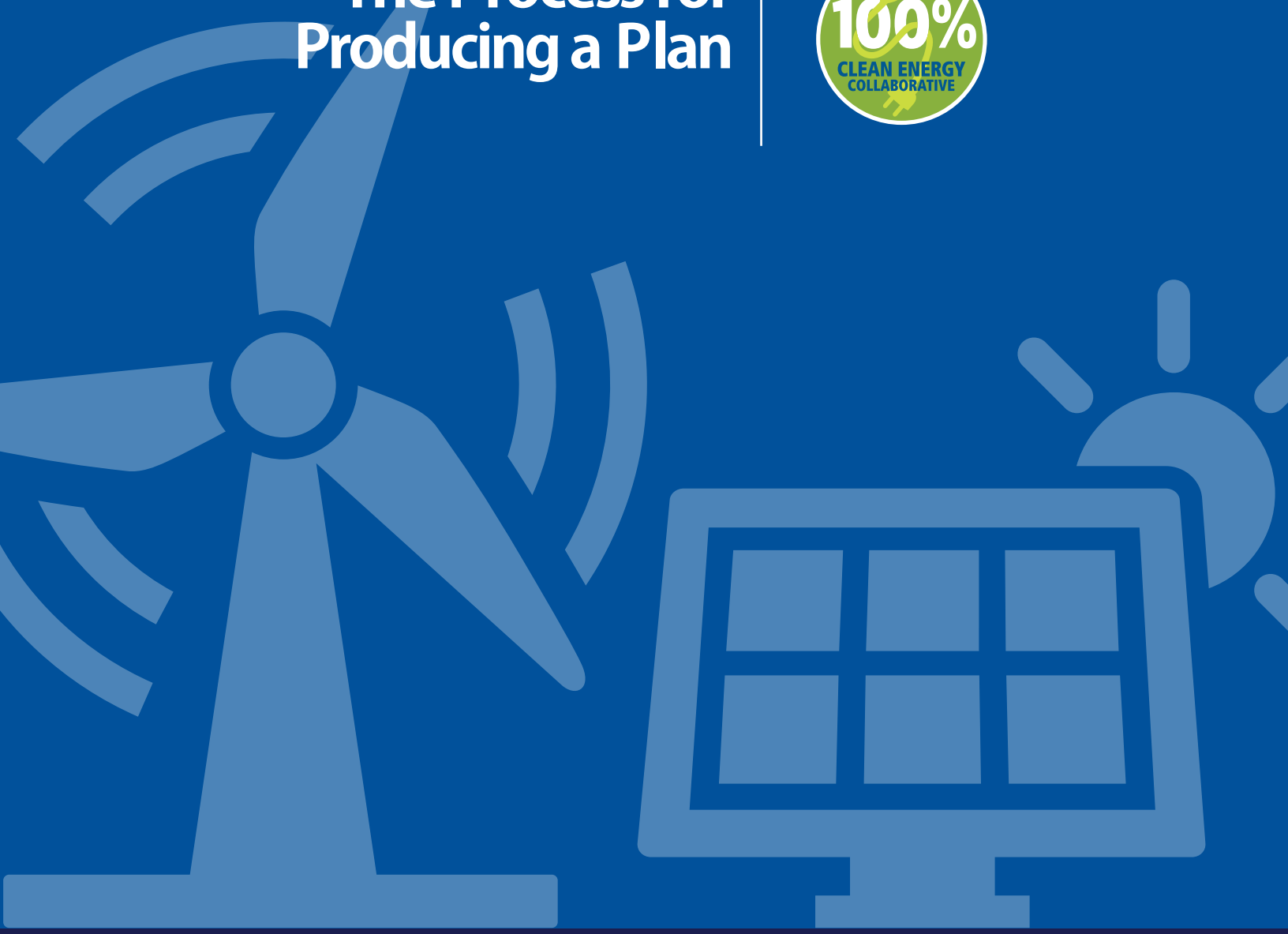

Clean Energy States Alliance In Partnership with United States Climate Alliance

About the 100% Clean Energy Collaborative

The Clean Energy States Alliance (CESA) created the 100% Clean Energy Collaborative to assist states (and other entities) that have 100% clean energy goals by providing knowledge-sharing activities and analysis so that together they can address program challenges and opportunities. The primary participants in the 100% Clean Energy Collaborative are state agency officials with responsibilities for achieving their state's zero-carbon goals, as well as policymakers in other states that may consider establishing similar goals. Through the Collaborative, participants share program insights, engage with analysts who are studying solutions to technical challenges, and participate in Collaborative meetings. The Collaborative offers individualized technical assistance to the 100% states.

To ensure the success of the Collaborative, CESA has entered into a partnership with the U.S. Climate Alliance (USCA), a bipartisan coalition of governors committed to reducing greenhouse gas emissions consistent with the goals of the Paris Agreement. CESA and USCA are coordinating their respective activities to create synergies and avoid duplication.

About the Clean Energy States Alliance

CESA is a national, nonprofit coalition of public agencies and organizations working together to advance clean energy. CESA members— mostly state agencies—include many of the most innovative, successful, and influential public funders of clean energy initiatives in the country. CESA facilitates information sharing, provides technical assistance, coordinates multi-state collaborative projects, and communicates the views and achievements of its members.

About the Author

Warren Leon is executive director of CESA and project director for the 100% Clean Energy Collaborative.

Acknowledgements

CESA Research Associate Charles Hua analyzed the 100% clean energy plans and legislation of many states to identify lessons that could be incorporated into this report. Marian Swain of the Massachusetts Department of Energy Resources shared insights into the clean energy planning process that shaped a few of the report's recommendations. Several people reviewed a draft of the report and made suggestions that improved it: Andrew Sand of the US Climate Alliance, Ben Paulos of Paulos Analysis, and CESA staff members Maria Blais Costello, Wafa May Elamin, and Melanie Santiago-Mosier.

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Introduction: Purpose of this Paper

To successfully achieve a 100% clean energy goal, a state will need to develop and implement a sound plan of action. This paper provides advice for states on the planning process, the organization of a plan, and the presentation of results.

The Clean Energy States Alliance (CESA) has developed this paper based on an examination of the planning processes different states have used and the plans they have produced. We have also included insights shared by state participants in the 100% Clean Energy Collaborative. We welcome reactions to this report and additional suggestions so that we can modify this document over time to reflect lessons learned from the important work that states across the country are doing to decarbonize their electricity systems.

The advice in this paper can be useful to states at all stages of the 100% clean energy journey, whether they are currently focused on plan implementation, are working on modifying a plan, are developing a plan for the first time, or are considering whether to adopt a 100% clean energy goal. CESA wants to be helpful to all these states and is prepared to assist by providing technical assistance through the 100% Clean Energy Collaborative and to provide information on progress that is going on in different states. If you are a state official with a technical assistance request, email your request to 100CEC@cleanegroup.org.

The Challenge of 100% Clean Energy Planning

States that have established a 100% clean power goal for their electricity system have given themselves a difficult task.[1]

Although 100% clean power is eminently achievable, there are many daunting technical, economic, and policy issues that need to be addressed. The electric grid has been called the largest machine in the world and numerous detailed changes need to be made to move it away from carbon-emitting technologies. To understand all the relevant issues and identify the best route forward to achieving zero-carbon power, states need to undertake sophisticated, complex technical analysis, often involving engineering and economic models.

However, the transition to a 100% clean energy system has substantial social implications, so planning should not be viewed as simply a matter for technical specialists. A state plan should incorporate and reflect the preferences and perspectives of a wide range of policymakers and diverse stakeholders, most of whom are not technical experts on the intricacies of electricity system operations. This is especially true if 100% planning is to successfully address issues of social, economic, and environmental equity. Broad stakeholder participation can produce a stronger plan and also help ensure that the state's march towards clean energy retains widespread support from legislators and stakeholders.

The most effective planning will address multiple issues from multiple viewpoints.

Creating an Inclusive Planning Process

A state can take a range of actions to incorporate broad stakeholder participation in the development and implementation of a 100% clean energy plan. Specific steps can include the following:

[1] For a table of states with 100% clean power goals, along with summaries of the plans that some of them have produced, see CESA's *Guide to 100% Clean Energy States*, https://www.cesa.org/projects/100-clean-energy-collaborative/guide. This guide is regularly updated in response to new developments at the state level.

- *Write a strategy for how stakeholders with diverse perspectives will be included in developing the 100% clean energy plan*. A clear, agreed-upon document can serve as the foundation for active stakeholder participation.

- *Educate legislators and stakeholders*. Most legislators and stakeholders will not have a pre-existing understanding of all the issues and tradeoffs involved in transitioning the electricity system to carbon-free power. They will be able to participate more meaningfully in plan development if they are given opportunities to learn about some of those issues before they are asked to weigh in on specific decisions. This education can include documents on the state's website, optional educational meetings or webinars on specific topics, and referrals to useful materials produced by other organizations, such as CESA's Understanding Wholesale Markets Series.[2]

- *Make it easy for stakeholders to participate*. Meetings should be held in locations and at times that make it easy for people to participate. It is often desirable to offer meetings both during and outside 9-to-5 working hours to accommodate individuals with different schedules. Stakeholders should also be offered a range of ways to participate in addition to attending in-person meetings.

- *Let stakeholders know what they can influence and when*. To maximize the usefulness of stakeholder input and to avoid stakeholder frustration, there should be clarity about the aspects of a plan that stakeholders can potentially influence, as well as when they need to participate in order to weigh in most effectively. For example, stakeholder engagement early on can potentially span wide-ranging topics, because little has been decided at that point. In contrast, later engagement may not be able to change the plan's assumptions, modeling strategies, or overall approach, but can still influence specific recommendations and action strategies.

- *Track and report on participation by stakeholders*. Measuring participation shows that it is important, and it helps the state know if it is achieving active participation from a wide range of stakeholders.

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[2] For the first papers in the *Understanding Wholesale Markets Series*, go to https://www.cesa.org/resource-library/resource/how-wholesale-power-markets-work and https://www.cesa.org/resource-library/resource/the-governance-of-wholesale-power-markets.

Example: Rhode Island's report, *The Road to 100% Renewable Electricity by 2030 in Rhode Island,* includes an appendix with information on the number of people who attended listening sessions and workshops (543 people), as well as the number of people who responded to a survey (208 people). The survey asked respondents to indicate their race/ethnicity, age, income, gender, and sector, and those results are reported in the report's appendix.[3]

- *Tailor materials for varied audiences*. Different audiences have different needs, will be interested in different things, and have varied levels of technical background related to clean energy. (This topic is discussed more fully below in the section on "Design and Presentation of Reports and Plans.")

- *Demonstrate that stakeholder participation is valued*. Showing how the participation of stakeholders influenced and was included in plan development encourages people to continue to engage in the process of decarbonization. There are a variety of ways in which this can be done.

  Example: The *North Carolina Clean Energy Plan: Transitioning to a 21st Century Electricity System* includes a section that describes the stakeholder process, along with the results of stakeholder voting on questions related to personal values and the existing electricity system.[4]

  Example: Maine's climate action plan, *Maine Can't Wait*, includes interviews with and pull quotes from stakeholders, accompanied by their photos. A judicious amount of this can humanize a report and show that stakeholder input was heard.[5]

  Example: *The Road to 100% Renewable Electricity by 2030 in Rhode Island* features an appendix listing many of the stakeholder comments

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[3] Rhode Island Office of Energy Resources and The Brattle Group, *The Road to 100% Renewable Electricity by 2030 in Rhode Island* (Rhode Island Office of Energy Resources, December 2020), pp. 77-80, http://www.energy.ri.gov/documents/renewable/The%20Road%20to%20100%20Percent%20Renewable%20Electricity%20-%20Brattle%2004Feb2021.pdf.

[4] North Carolina Department of Environmental Quality, *North Carolina Clean Energy Plan: Transitioning to a 21st Century Electricity System* (North Carolina Department of Environmental Quality, October 2019), pp. 45-49, https://www.cesa.org/projects/100-clean-energy-collaborative/guide/state-summaries.

[5] Maine Climate Council, *Maine Can't Wait: A Four-Year Plan for Climate Action* (Maine Climate Council, December 2020), https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/MaineWontWait_December2020.pdf.

received, along with the report authors' responses to those comments. This back-and-forth highlights some of the key thoughts and topics on stakeholders' minds.[6]

- *Provide opportunities for ongoing input*. Reports and websites can make clear that the state welcomes and encourages stakeholder input and engagement, even after a roadmap is released.

  Example: The Maine Climate Council was charged with tracking plan implementation and progress. The *Maine Won't Wait* report encourages readers to provide comments on the plan and to "invite the Council to speak to your group, organization or class, sign up for the Council email list, or ...follow the Council on social media." The website prominently features the ways in which the public can connect with the Council.[7]

Addressing Equity

Having an inclusive process, as described above, will contribute towards ensuring that the perspectives of frontline communities are considered during the development and implementation of a 100% clean energy plan. But additional, more focused actions should be taken to address equity.

Designing an Equitable Process

The most important initial step is to ensure that frontline communities and environmental justice organizations are actively prioritized for stakeholder outreach, education, and participation. Because of the limited financial resources of many such communities and organizations, this can require the state to provide participation stipends, travel assistance, and/or other special accommodations.

Participation goals for these communities should be set at the beginning of the planning process and measured over time. If participation is insufficient, remedial steps should be taken, such as extending the period for stakeholder input, conducting additional outreach, and/or offering additional accommodations and incentives to enable broader participation.

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[6] *The Road to 100% Renewable Electricity by 2030 in Rhode Island,* pp. 71-80.

[7] *Maine Can't Wait*, p. 108.

In *Justice in 100 Scorecard: Evaluating Equity in 100% Renewable Energy or 100% Clean Energy Laws,*[8] the Initiative for Energy Justice included more detailed suggestions for how to assess whether a policymaking process has enabled marginalized communities to participate meaningfully. Although the Scorecard was primarily designed to assess laws, the criteria identified can be readily adapted to the process for developing a zero-carbon plan, regulations, or other policies.

An Ongoing Advisory Committee

One way to ensure that frontline communities play an active role in stakeholder engagement is to create an ongoing advisory committee that can provide input into the structure of the stakeholder engagement process and provide suggestions for people to participate in decarbonization planning. There should be diversity within the committee, including members with varying levels of clean energy experience and representing different frontline communities. The advisory committee's purview and responsibilities need not be limited to 100% clean energy planning.

> **Example:** Michigan established the Michigan Advisory Council on Environmental Justice that works in conjunction with the state's Office of Environmental Justice Public Advocate within the Department of Environment, Great Lakes, and Energy.[9]

> **Example:** California has a Disadvantaged Communities Advisory Group that works in conjunction with the Office of the Public Advisor at the California Energy Commission.[10]

The Value of Benchmarking

States can better address equity and design their programs when they have good data on the scope and nature of the problems they seek to address. It is useful for states to collect

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[8] Cecelia Bolon et al., *Justice in 100 Scorecard: Evaluating Equity in 100% Renewable Energy or 100% Clean Energy Laws* (Institute for Energy Justice, January 2021), https://iejusa.org/wp-content/uploads/2021/09/Justice-in-100-Scorecard-Interactive-PDF-Final-Version.pdf. A webinar for the 100% Clean Energy Collaborative featured the Scorecard. See https://www.cesa.org/event/justice-in-100-scorecard.

[9] Michigan Advisory Council on Environmental Justice webpage, https://www.michigan.gov/environmentaljustice/0,9615,7-400-98505_98667---,00.html.

[10] Disadvantaged Communities Advisory Group webpage, https://www.energy.ca.gov/about/campaigns/equity-and-diversity/disadvantaged-communities-advisory-group.

quantifiable data that illuminates pollution exposures, energy burden, and other factors across income, ethnic, and geographic groups within a state, as well as the extent to which different groups already benefit from clean energy in terms of jobs, reduced energy costs, improved public health, and community benefits. The quantitative data can be supplemented with qualitative information collected from frontline communities and other sources.

A state might consider producing a report on energy equity, and then update it at some regular interval.

> **Example:** The California Energy Commission has taken an expansive approach to this task and produced an online Energy Equity Indicators report. An interactive map focuses on disadvantaged and low-income communities, showing solar capacity per capita, energy efficiency investments, clean vehicle rebates, asthma emergency room visits, and older housing stock.[11]

Smaller states without large research budgets can start by collecting state-specific information that has been compiled by other research organizations—such as Lawrence Berkeley National Laboratory's *Income Trends of Residential PV Adopters*, the US. Department of Energy's Low-Income Energy Affordability Data (LEAD) tool, the National Renewable Energy Laboratory's Solar for All map, the Stanford University DeepSolar Project, and the Solar Foundation's National Solar Jobs Census—and then supplement it with narrowly focused additional research.[12] A state can also start with findings from national studies, such as the 2019 article on "Disparities in Rooftop Photovoltaics

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[11] California Energy Commission, Energy Equity Indicators web page, https://www.energy.ca.gov/rules-and-regulations/energy-suppliers-reporting/clean-energy-and-pollution-reduction-act-sb-350-3.

[12] Galen Barbose et al., *Income Trends of Residential PV Adopters: An Analysis of Household-Level Income Estimates* (Lawrence Berkeley National Laboratory, April 2018), https://emp.lbl.gov/news/new-berkeley-lab-study-offers-insights-income; US Department of Energy, Low-Income Energy Affordability Data (LEAD) Tool web page, https://openei.org/doe-opendata/dataset/celica-data; National Renewable Energy Laboratory, Solar for All Map web page, https://maps.nrel.gov/solar-for-all/?aL=6m-d90%255Bv%255D%3Dt&bL=clight&cE=0&lR =0&mC=38.870832155646326%2C-98.34521484375001&zL=5; Stanford Engineering, The DeepSolar Project web page, http://web.stanford.edu/group/deepsolar/home.html; The Solar Foundation, *National Solar Jobs Census 2018* (The Solar Foundation, 2018), https://www.thesolarfoundation.org/national.

Deployment in the United States by Race and Ethnicity," and then gather state-specific data to see how the state compares to the national trend.[13]

Another useful building block for benchmarking is environmental justice mapping. According to a useful survey of environmental justice mapping tools by David Konisky and colleagues at Indiana University, there are such tools for 18 states, most developed by state governments but a few by academic institutions or nonprofits. All the mapping tools incorporate demographic indicators, such as the income, racial/ethnic, and age composition of communities. Most also include environmental indicators related to air quality, water quality, community health, and other environmental factors.[14] In addition, the US Environmental Protection Agency has an environmental justice mapping and screening tool, called EJSCREEN, that covers the entire country.[15]

Over time, as a state implements its decarbonization plans, it will be important to measure progress towards equity.

Including Equity in a 100% Plan

A state 100% clean energy plan should go beyond symbolic invocations of the term "equity." It is not sufficient to mention the topic in vague references at the beginning and end of a report. Rather, there should be concrete evidence of how concerns about equity actually shaped the development of the plan and how the strategies in the plan will specifically advance equity.

Among the ways to meaningfully address equity in a plan are the following:

- The components of "equity" or "justice" should be clearly defined in concrete and measurable terms. These definitions should draw on existing research and include the input of affected communities.[16]

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[13] Deborah A. Sunter et al., *Disparities in Rooftop Photovoltaics Deployment in the United States by Race and Ethnicity* (Nature Sustainability, January 10, 2019), pp. 71–76, https://www.nature.com/articles/s41893-018-0204-z.

[14] David Kinisky et al., *Mapping for Environmental Justice: An Analysis of State-Level Tools* (Indiana University, July 2021), https://eri.iu.edu/research/ej-mapping-tools-report.pdf.

[15] US Environmental Protection Agency, EJSCREEN website, https://www.epa.gov/ejscreen.

[16] See for example, Shalanda Baker, *Revolutionary Power: An Activist's Guide to the Energy Transition* (Island Press, 2021), https://islandpress.org/books/revolutionary-power.

Example: The *Washington 2021 State Energy Strategy* includes a section on how the state defines "equity" for the purpose of energy planning and the ways in which it is measuring progress towards equity.[17]

- A plan should include guidelines and strategies that incorporate equitable and inclusive stakeholder engagement in all phases of 100% planning.

- Research for a 100% clean energy plan can identify specific ways in which frontline communities have suffered from past energy policies and how these communities have not benefited proportionately from clean energy development. The plan can then identify specific strategies for addressing those imbalances.

- A plan can describe the specific concerns, needs, and recommendations that frontline community representatives discussed as part of the stakeholder engagement process.

- If a plan is going to be based in part on modeling, equity can be incorporated into the modeling. Standard energy system modeling does not include equity-related metrics, but such metrics can be introduced as constraints in a model, or a model can be optimized not just for least-cost pathways but also for equity-maximizing ones. For example, early retirement of fossil fuel plants in frontline communities can be included as a constraint, as could clean energy jobs accessible to those communities. If alternative scenarios are to be modeled, one of them can be an equity-focused scenario. Because some equity-related metrics like reduced mortality in environmental justice communities or job creation would require additional analysis and potentially additional consultants, it is Important to consider these metrics early when scoping out a modeling project.

- A plan can identify specific strategies and policies that will need to be implemented to advance equity. When discussing those strategies and policies, the plan can identify the desired impacts for frontline communities that are expected to be achieved.

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[17] Washington State Department of Commerce, *Washington 2021 State Energy Strategy: Transitioning to an Equitable Clean Energy Future* (Washington State Department of Commerce, December 2020), pp. 23-26, https://www.commerce.wa.gov/growing-the-economy/energy/2021-state-energy-strategy.

- A plan should include clear quantitative indicators of how success in achieving equity will be measured, and processes can be put in place for data to be collected to determine whether those success indicators are being met. There can also be an explanation for how accountability will be ensured.

Among the specific policies and strategies that the Initiative for Energy Justice highlights in the *Justice in 100 Scorecard* are:

- Policies to empower local communities in energy siting decisions.
- Mandates for "paid job training, apprenticeships, and other job accessibility programs, particularly for women and workers from other marginalized communities."
- Prioritization of hiring workers from frontline communities.
- Establishment of concrete public health goals for frontline communities.
- A "community benefits framework", which ensures "that impacted communities have input in, benefit from, and are not negatively impacted by renewable energy development."[18]

CESA plans to produce a more detailed report in 2022 on the equity dimensions of 100% clean energy planning.

Design and Presentation of Reports and Plans

State 100% plans or reports should be presented in ways that meet the needs of different audiences. A plan can be presented as a whole, as well as broken up into multiple documents, with each document or component tailored to a specific audience.

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[18] Bolon, *Justice in 100 Scorecard*, pp. 14-16, 35-36. Some of these ideas are drawn from *Comprehensive Building Blocks for a Regenerative & Just 100% Policy* (The 100% Network, January 2020), https://www.justsolutionscollective.org/blog-posts/regenerative-just-100-policy-building-blocks-released-by-experts-from-impacted-communities.

The starting point for effective plan presentation is to identify the specific audiences that the state seeks to reach, along with each audience's educational needs and the best approaches for meeting those needs. Audiences might include state policymakers, technical experts, participants in the energy industry, organizations representing different communities, and state residents. Strategies can then be developed for reaching those different audiences and all can be incorporated into a well-integrated website.

> **Example:** A 100% plan website that features an effective multi-audience structure was produced for the city of Los Angeles by the National Renewable Energy Laboratory and the Los Angeles Department of Water and Power. The website for *LA100: Los Angeles 100% Renewable Energy Study* offers information at a range of levels from short introductory videos (e.g., "What makes getting to 100% renewable energy so complex?") and brief answers to frequently asked questions to a data viewer where technically oriented users can change numerous parameters to display customized graphs, maps, and tables. The website, LA100.org, gives viewers guidance to help them navigate the site. For example, a person who goes to the page on "Key Findings" sees the following information in large type: "New to LA100? Start here, with the executive summary."

Here are a few specific suggestions for packaging and presenting information about a 100% clean energy plan:

- A 100% clean energy plan and decarbonization initiative deserves an engaging, well-organized website or webpage. This not only signals that the state is giving significant attention to 100% clean energy, but it shows that the state wants stakeholders to learn about its activities. A well-designed, easily accessible website will increase interest in the 100% clean energy enterprise.

  > **Example:** The State of Nevada Climate Initiative website is attractive, clearly organized, and easy-to-navigate. It includes plan documents broken up into components, extensive links to educational materials, and a sign-up for an email newsletter.[19]

[19] State of Nevada Climate Initiative website, https://climateaction.nv.gov/our-strategy.

- For non-technical audiences and individuals who are not experts in the intricacies of energy modeling or electricity system operations, produce a stand-alone executive summary accessible to these stakeholders. Make the executive summary—and anything else you want to reach non-technical audiences—visually appealing. It may make sense to also produce a separate, more technical executive summary.

- For technical experts, produce separate documents (or chapters) on the modeling methodology and with the detailed results of that modeling. Technical audiences will not be satisfied if the state's methodology, data, and modeling results are not available for scrutiny. Also, it is important to coordinate with a range of state agencies to integrate data resulting from the analysis into existing state modeling frameworks and datasets, so that the state can continue to work with the data that consultants produce for a 100% clean energy plan.

  Example: For the *Massachusetts 2050 Decarbonization Roadmap*, the Commonwealth produced six stand-alone, supporting, technical reports on the building and transportation sectors, economic and health impacts, land impacts, non-energy sectors, and a technical report on modeling.[20]

- Give careful attention to how a plan or report's recommendations are presented. Most 100% plans include a large number of recommendations, and it is easy for readers to get overwhelmed by long lists spread over multiple pages. A clear numbering scheme with main recommendations and sub-recommendations can help. There should be one place in the report where the reader can see all the recommendations, ideally in an easily decipherable table.

  Example: New Jersey's *2019 Energy Master Plan: Pathway to 2050* is unusually comprehensive, covering many topics, but all the goals, strategies, and sub-strategies are included in a clearly organized numbered list at the beginning of the plan.[21]

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[20] The six technical reports are available on the *Massachusetts 2050 Decarbonization Roadmap* webpage, https://www.mass.gov/info-details/ma-decarbonization-roadmap.

[21] New Jersey Board of Public Utilities et al., *2019 Energy Master Plan: Pathway to 2050* (New Jersey Board of Public Utilities, January 2020), pp. 2-9, https://nj.gov/bpu/pdf/publicnotice/NJBPU_EMP.pdf.

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