

## POLICY BRIEF

# NEW APPROACHES TOWARDS CLEAN ENERGY INNOVATION THROUGH COORDINATED REGIONAL POLICY

- A new report on **Regional Clean Energy Innovation** analyzes how state-level policy efforts to accelerate local clean energy technology innovation can complement federal activity on climate and energy while creating local economic development opportunities.
- The report identifies a multi-step pathway for state-level policymakers to advance clean energy innovation.
- New metrics illustrate the differences in regional clean energy innovation among the 50 states.
- Two case studies—Colorado and Maryland—identify best practices to align local resources and industry strengths with innovation in climate mitigation technologies.

Clean energy innovation activity involves a diverse set of stakeholders that open up new opportunities to develop regional innovation systems, especially in states. While the federal government, especially the US Department of Energy (DOE) and its national laboratories, play a critical and prominent role, other stakeholders include industrial research laboratories, around 7,000 innovative clean energy or ‘cleantech’ companies; thousands of state and local government units; over 400 research universities; and around 3,000 public and private utilities. Regional actors can harness these other stakeholders to complement federal action while accelerating innovation to meet climate mitigation goals—from states to cities to counties.

Regional and state-level policymakers have multiple reasons to support clean energy innovation – as an economic development opportunity to grow in-state RD&D and manufacturing firms, to reduce the cost of electricity for consumers through new technologies, and as an environmental priority for clean air, clean water, and climate change. However, our analysis finds a striking disparity in policy at the state-level which results in conflicting priorities among clean energy research, development, and demonstration (RD&D) and deployment. State agencies and their stakeholders must align under a unified clean energy definition with a broad set of goals across all of RD&D and deployment.

**This report identifies a multi-step pathway for state-level policymakers to strategically advance clean energy innovation, based on the evidence from 50 states and case studies of Colorado and Maryland.** The analysis and case studies can be found in detail in the report.

**First, regional policymakers need to apply a broad definition to clean energy.** This strategic approach is necessary to identify new opportunities for climate mitigation that align with other regional priorities. For example, while wind, solar, geothermal, and biofuels are common clean energy technologies, a broader definition could also include other significant technologies for decarbonization such as low-carbon agriculture or low-carbon materials that may already have a regional presence. Integrating the dominant regional industry and resource bases with decarbonization goals provides a pathway towards new opportunities.

**Second, regional policymakers need to identify local technology strengths and track progress in key areas through well-defined metrics.** Factors to consider include the broad drivers of innovation in the state, its universities, federal research infrastructures or resources, the presence of private investors, or the demand created by its clean energy policies. Combining an understanding of local drivers with different metrics of clean energy innovation, such as startups, patents, or federal funding in strategically defined technology areas, can help pinpoint local strengths or bottlenecks.

**Third, regional policymakers and local agencies need to integrate multiple clean energy goals for clean energy and economic development.** State economic development and energy agencies both enact policies on clean energy technologies but with different goals. The economic development-oriented approaches tend to focus on in-state clean energy RD&D, startups, and businesses, while efficiency and environment-oriented approaches focus on deployment, which may not reflect in-state manufacturing or related employment. A disconnection between these two perspectives fails to deliver the full potential of coordinated in-state research, development, demonstration, and deployment.

**Fourth, regional policymakers need to offer targeted support for clean energy RD&D and deployment, both through direct financial support such as small seed grants and through non-financial, developmental support such as incubators.** State agencies should invest at the early stage of clean energy innovation and in cleantech firms to complement available funding from the federal government and the private sector. States can also support emerging innovators and companies through local incubators or accelerators and facilitate clean energy-specific research collaborations or consortia. Simultaneously, state policymakers can create a friendly environment for the private sector by introducing appropriate incentive programs, such as tax incentives, for mobilizing local private investment in clean energy.

**Fifth, a local organization dedicated to advancing clean energy can be instrumental for ensuring coordination among various stakeholders.** States must designate an entity to coordinate across public and private regional stakeholders and support the development of regional consortia or research collaborations. This is critical for strengthening networks with local supply chain partners or with potential investors.

**And finally, regional policymakers need to develop monitoring and evaluation approaches to ensure that clean energy policies result in the intended, combined innovation outcomes of RD&D and deployment.** Examples include, over time, the number and health of local clean energy startups, the clean energy technologies they develop and commercialize, the investments they bring in, the employment they generate, and the use of these local technologies in meeting state deployment goals.

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