

ABOUT THE NEWSLETTER

Welcome to the first official newsletter of the U.S./India Clean Energy Leadership Group (CELG)—a partnership between U.S. and Indian states that are leading the way to decarbonized electric power systems.

Each month, CSIS will bring you updates on CELG activities and updates on participating states. This newsletter is a resource for member states to learn more about common challenges and opportunities faced by both U.S. and Indian states, and to provide insight from outside experts on U.S. and Indian states' collaboration.

We welcome your suggestions for featured experts, states, or issues in the upcoming newsletters. Please send feedback to njain@csis.org

EVENTS

Karnataka-California Dialogue on Decarbonization

CSIS hosted the first virtual private roundtable of the Clean Energy Leadership Group on September 22, 2020. The private roundtable brought together state energy officials from Karnataka and California to exchange ideas on the core elements of their respective states' clean energy and decarbonization strategies. The two states' representatives agreed to explore partnerships in the following areas:

- Retirement of redundant and ageing thermal assets
- Battery storage
- Optimal dispatch strategy—optimization of grid assets
- Demand forecasting
- Data analytics

Upcoming

November 2020, CSIS will also host the first virtual multi-state roundtable of the Clean Energy Leadership Forum. The forum will bring together multiple states to explore implications of shift in the traditional grid and exchange ideas on states' preparedness to support renewable energy integration.

EXPERT INSIGHTS

Innovations in State-Level Climate Policies: Shared Lessons for India and the United States

*by Peter Fox-Penner, Boston University Institute for
Sustainable Energy*



Climate change is a worldwide challenge that unquestionably requires strong international cooperation and sustained policy leadership at the national level. However, several U.S. states have demonstrated innovation and leadership that provide insights for actions that may be taken by other subnational units, including Indian states. These policies include:

- **Comprehensive policy and investment plans:** Several U.S. states engage in comprehensive energy and climate planning, charting a clear path to a carbon-free power sector and a decarbonized economy by 2050. These plans are invaluable for highlighting required policies and determining the balance between public and private investment in grid facilities, including storage and transmission lines.
- **Markets for flexible loads, excess rooftop solar, and other distributed energy resources:** New York, California, and several other U.S. states are establishing markets in which customers and private firms can trade their surplus self-generated power and other advanced energy services back to their state power utility. These service markets are important for financing distributed storage and encouraging load flexibility. They can also make the local power grid stronger and cleaner.
- **Financing methods for distributed energy resources and energy efficiency:** Capital for upgrading efficiency and converting fossil-fuel uses to clean electricity is often difficult to obtain. At least six U.S. states have established green banks, while about 30 states require

their power utilities to offer energy efficiency programs that reduce power costs by eight billion dollars a year and save 27 Terrawatt-hours of electricity.

- **Mandates and incentives for storage and electrification:**

Enabling transport and industry to utilize clean electricity is an essential part of the climate solution, and several states such as California, New York, and Massachusetts have enacted mandates and incentives that require electric conversion over time, especially in new construction.

One lesson India should not take from the U.S. is its reluctance to build power lines between states and regions. Many studies show that importing and exporting power between U.S. states can reduce costs considerably, and similar work by Johannes Urpelainen shows that this is true in India as well. For this reason, the Colorado Public Utilities Commission recently required its utilities to engage in regional trading.

Q&A WITH J. ANDREW MCALLISTER

Commissioner, California Energy Commission

Q: Describe your role. What about your work at the California Energy Commission (CEC) inspires you the most?

A: We try to do big things in California! We are a leader in energy efficiency and clean energy innovation with up to 500,000 jobs or around two percent of the state's employment tied to clean energy. Our innovation economy is well-suited to developing



decarbonization solutions. I oversee our energy efficiency efforts, including efficiency standards for buildings and appliances; energy analytics and forecasting; planning for high reliability as we transition to decarbonized energy systems; and our clean energy low-interest grant and loan programs.

Everyone at the CEC takes their responsibility extremely seriously. We have a long-term vision, supported by the voters and their elected officials – and the processes in place to pursue that vision responsibly and accountably. This also includes collaborating across all the other relevant agencies and jurisdictions: California Public Utilities Commission, California Air Resources Board, California Independent System Operator, many local governments, etc. Legitimacy of process makes all the difference: managing public processes takes a deftness that I had not fully appreciated before serving in the role of public decisionmaker.

Q: What are some significant challenges you have faced as commissioner in the decarbonization of California's energy sector?

A: The effects of climate change are clearly upon us; we see this fact most urgently with the recent tremendous heat waves and ever more severe fire seasons. This reality means that both continued mitigation and climate adaptation must happen concurrently – a challenge for planning and investment.

Energy is core to the functions of our society, and our citizens expect us to make good decisions, be transparent, and act accountably – AND to move quickly! Our energy systems must be reliable first and foremost. As we transition fully to carbon-free energy, many developments must take place in tight coordination over time in order to keep the systems optimized and reliable. rs whom I have served, legislative leaders and colleagues across the state agencies. It's a team effort.

Equity concerns are central: additional resources are needed for our citizens and residents of modest means. And we need to find pathways to upgrade California's roughly 15 million existing buildings: most of the buildings that will be here in 2045 - when we've set a goal for carbon neutrality - are already here today. Our collective enterprise is inherently interdisciplinary and requires diverse stakeholders and large investments. Balancing these varied interests can be challenging! But overall, we have the support of Californians, both governors whom I have served, legislative leaders and colleagues across the state agencies. It's a team effort.

Q: What are two major policies that California has pursued in decarbonizing the energy sector?

A: Energy Efficiency! California elevated energy efficiency as a discipline and has made it central to our energy policy approach since the 1970s. As energy systems continue to decarbonize, efficiency helps to reduce a priori energy usage and associated greenhouse gas (GHG) emissions. Moreover, efficiency Standards for buildings and appliances have saved California's economy more than \$100 Billion since 1990, demonstrating that it is possible to grow a robust economy while keeping overall energy usage relatively constant.

Another key decarbonization policy has been the aggressive pursuit of clean energy generation within the state. California's Renewables Portfolio Standard (RPS), through its compliance framework and target setting, has steadily increased procurement of renewable resources since 2002. Subsequent laws updating the goals continue to drive projects and investments, such as the enactment of Senate Bill 100 in 2018 which requires 100% carbon-free resources by 2045. California is already at around 60% carbon-free, well on its way to meeting the 2045 goal. Other GHG reduction mechanisms like the state's Cap-and-Trade program have also encouraged the energy sector to emit less.

Q: What do you think are the three most important priorities for California as it moves to Governor Jerry Brown's goal for economy-wide carbon neutrality by 2045, especially as it pertains to the energy sector?

A:

- 100 percent carbon free electricity
- Building decarbonization
- Electrification of transportation
- A higher price on carbon which is needed to drive investment into alternative, lower-carbon systems and approaches.

Q: What advice do you have for policymakers, regulators, and other actors pursuing deep decarbonization in Indian states?

A:

- Urgency: Climate change is upon us – we have to act!
 - Process: Rely on a well-defined process to create a record from which decisions can be made based science and other reliable information, true dialogue and accountability. Listen, reflect and act with transparency. People notice this and will develop trust in the system over time.
 - Communication: It is critical to get the message out to key stakeholders and the public. The policies and broader societal changes needed to drive deep decarbonization require broad-based support.
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IN THE NEWS

IEEFA

[Maharashtra to build no new coal plants](#)

E&E NEWS

[New York unveils grid plan to reach 100 percent clean energy](#)

WASHINGTON POST

[California to phase out sales of new gas-powered cars by 2035](#)

SPOTLIGHT ON KARNATAKA

15.2 GW

[Installed renewables](#) capacity in Karnataka

<15%

[Grid distribution losses](#) as of 2020, compared to the national average of [21 percent](#).

100%

[Feeder segregation](#) in Karnataka, as of 2020. Karnataka has achieved this along with five other Indian states.

388 MW

Installed solar photovoltaic rooftop in Karnataka

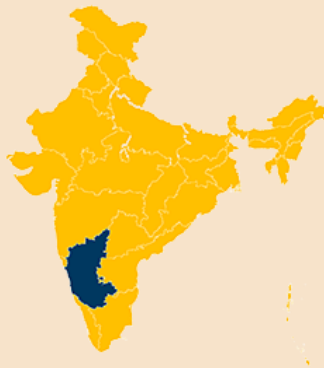
Innovative Policies

- The state is home to one of the [largest solar parks](#) in the world, at a capacity of 2,050 MW. The park is built on a unique land-lease framework, that creates additional income for farmers.

- Karnataka has [exempted](#) solar power producers from a number of surcharges over the 10 years since commissioning, resulting in an increase in private power production.
- Since 2019, the state has encouraged [third-party developers](#) and investors to own and operate rooftop solar power systems.

Key Achievements

- Karnataka is [ranked first](#) in the Ministry of New & Renewable Energy's [State Rooftop Solar Attractiveness Index](#), 2019.
- Karnataka is ranked [among the top three states](#) in the Bureau of Energy Efficiency' [State Energy Efficiency Index](#), 2019.
- Karnataka's Raichur district is home to India's [first large-scale hybrid wind and solar power plant](#).



Challenges Ahead

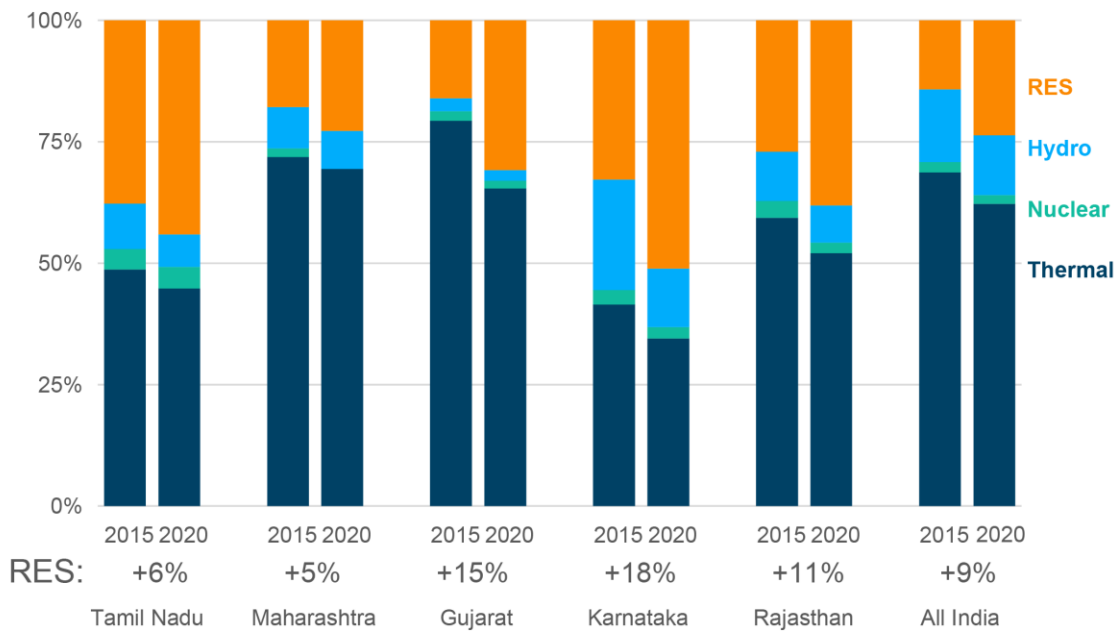
- The state had the [highest renewable energy \(RE\) curtailment](#) as a percent of total electricity generation in financial year 2020.
- Karnataka has the [lowest percentage ratio](#) of renewable energy to total generation.

Source: [Indian Express](#)
In detail: [Ministry Notification](#)

DATA IN FOCUS

Top Five States in India in Installed Renewable Energy Capacity, 2015 vs. 2020

Percentage of Total Installed Capacity



Source: Compiled by CSIS staff and data from Central Electricity Authority's All India Installed Capacity (in MW) of Power Stations July 2020 Report.

The Indian government has an ambitious target of installing [175 GW](#) of renewable energy (RE) capacity by 2022. Since 2015, the share of installed RE in total capacity has grown by nine percentage points (See Figure 1). The [top five states](#) in installed RE capacity are Tamil Nadu, Maharashtra, Gujarat,

Karnataka, and Rajasthan. Among these, Karnataka and Gujarat have overseen the highest percentage growth in RE capacity in the last five years.

CSIS PUBLICATIONS

[Energy Transition Strategies: Gujarat's Low-Carbon Development Pathway](#)

by Nikos Tsafos, Lachlan Carey

CLEAN ENERGY LEADERSHIP GROUP





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The Clean Energy Leadership Group (CELG) is a collaborative initiative between the CSIS Wadhvani Chair in U.S.-India Studies and the CSIS Energy Security and Climate Change Program.

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