EFI California Energy Study Outlines Agenda to Maintain Global Leadership

The Energy Futures Initiative, founded in 2017 by former U.S. Secretary of Energy Ernest J. Moniz and colleagues, has released its full report on pathways for meeting California’s aggressive 2030 low-carbon energy goals and the innovation agenda needed for mid-century deep decarbonization.

WASHINGTON, D.C (May 2, 2019) : The Energy Futures Initiative, Inc. (EFI), a not-for-profit think tank dedicated to driving innovation in energy technology, policy, and business models, published the full findings of a study outlining how the state of California can maintain its global leadership in forging a low-carbon energy economy.

The study, Optionality, Flexibility & Innovation: Pathways for Deep Decarbonization in California, examines 33 clean energy pathways and technology options that California policymakers must consider as it plans and executes an unprecedented transformation of its energy system.

The full report, Summary for Policymakers, and Fact Sheet are all available for download at www.energyfuturesinitiative.org.

California has committed to reducing its greenhouse gas emissions to 80 percent or more below 1990 levels by 2050, with an ambitious interim target of 40 percent below 1990 levels by 2030. The high-level outcome of the study is that California can indeed meet its aggressive 2030 and mid-century targets. However, doing so will require success across multiple sectors of the economy, with multiple technologies contributing to each. Meeting the goals and managing costs will require a strong focus on innovation and maximum optionality.

“To get to 80 percent cuts and beyond, breakthrough innovation will be needed,” said Alex Kizer, EFI’s Director of Strategic Research. “At the same time, the innovation pathways must minimize the disruptions to the state’s existing energy sector and find ways to accelerate the development of clean energy technologies, which potentially can provide hundreds of thousands more new jobs.”

EFI explored two separate but overlapping policy streams: a pathway to achieve the 2030 intermediate decarbonization goal as well a major effort to achieve deep decarbonization by mid-century, in line with California’s 2018 SB 100 legislation, which mandates net-zero emissions in Electricity by 2045.
The 2030 pathways are established by sector: Agriculture, Buildings, Electricity, Industry, and Transportation. It further identifies key policies and technologies that currently contribute to the state’s ability to meet its 2030 goals and where technology innovation and policies need support. It also sets forth an innovation-centered approach to meeting the 2050 goal.

The report team, led by EFI founder and CEO Ernest J. Moniz, conducted a modeling-informed analysis that included a top-down assessment of California’s deep decarbonization, as well as multiple bottom-up models that approximated how various technologies can contribute to the reduction of emissions. Professor Moniz, who served as the 13th U.S. Secretary of Energy, is also an Emerson Collective Distinguished Fellow.

“California is a world leader in setting its economy on a path to low carbon, with ambitious goals for both 2030 and 2050,” said Moniz. “As Governor Gavin Newsom noted in his inaugural State of the State address, policymakers must craft innovative, longer term solutions for California’s energy future. We hope that our report is a starting point for action.”

The report notes that Transportation is the single biggest emitting sector in the state and requires transformational change by 2030, and a range of energy innovations by 2050 to reduce emissions not only from light-duty vehicles but also from heavy-duty vehicles, aviation, marine, and rail. For 2030, adherence to the planned CAFE standards has a larger impact than the shift to battery vehicles or to lower carbon fuels, but all three are essential for meeting the reduced emissions targets.

“More than 950,000 Californians are employed in energy jobs, making the sector a key part of the state’s economy,” said EFI Principal Melanie Kenderdine. “The state’s workforce expertise, robust scientific and technological capacity, and forward-looking political leadership positions it to be a first mover in the path to low carbon.”

The study identified multiple technological innovations domains that need to be aggressively pursued in order to successfully meet deep decarbonization targets, including:

- Renewable Generation Technologies
- Energy Efficiency
- Hydrogen
- Carbon Management (Direct Air Capture & CCUS)
- Advanced Storage
- Renewable Natural Gas/Biogas
- Electrification & Fuel Switching
- Smart Systems & Other Platform Technologies
The California study is the ninth report issued by EFI since its inception in 2017. All of EFI’s analyses are independent and available to the public at no charge. Report sponsors have no control over analytic content.

**About the Energy Futures Initiative (EFI):**
The Energy Futures Initiative was established in 2017 by former Energy Secretary Ernest J. Moniz to provide policymakers, industry executives, NGOs, and other leaders options on how to advance a cleaner, safer, more affordable, and secure energy future. Find out more at www.energyfuturesinitiative.org.

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