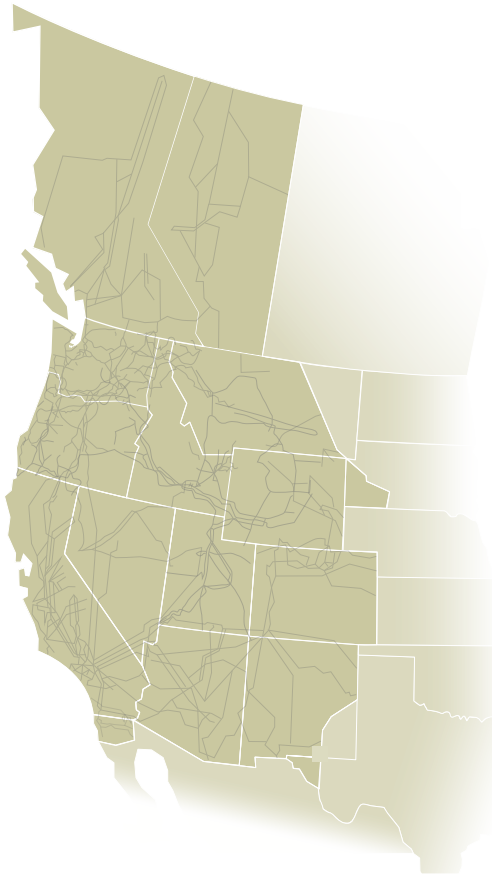
California ISO

FAST FACTS

Regional Energy Market



In compliance with Senate Bill 350 (2015), the California Independent System Operator (ISO) is exploring the benefits of a regional energy market to advance the state's ambitious clean energy goals and to reduce the cost of energy in the western United States. According to an extensive study required by SB 350, a regional energy grid will reduce carbon emissions in the West and is the most efficient, effective way to meet the ever-increasing demand for reliable, affordable and sustainable energy.

What is a regional energy market?

A regional energy market would allow entities from outside California to join the ISO power grid as full Participating Transmission Owners (PTOs). The market would create a coordinated electricity system across the West, using the ISO's infrastructure to develop one clean, reliable and efficient western states grid. This market would find the lowest-cost energy, typically renewable, through a larger geographic footprint with expanded resources.

How does a regional energy market work?

A regional energy market would take full advantage of the region's renewable resources. Integrating clean, renewable energy on a coordinated western grid more effectively uses resources and will reduce greenhouse gas emissions. This also allows for a broader mix of renewables across the western region and provides tangible economic benefits by allowing for the export of unused renewable power, like solar, throughout the region. A regional energy market also helps manage oversupply — the production of excess energy. In a regional energy market, any oversupply of low-cost solar power can be sold to other states.

Why is a regional energy market needed?

Studies show a regional energy market is the most cost-effective way to achieve California's 50-percent renewable portfolio standard (RPS). A regional grid also gives California the advantage of advanced planning, lower cost power purchasing, and increased situational awareness — critical elements to ensuring sufficient and affordable power supply for California businesses and residents. This will provide California with more energy resources at better prices with lower greenhouse gas emissions.

Which independent organizations have issued reports on the benefits of a regional energy market?

In addition to the ISO recently completing its SB 350 studies, a diverse mix of organizations have studied and identified the benefit of a regional power market in the West. These groups, who are committed to reducing carbon emissions, include the Energy Foundation; Hewlett Foundation; Union of Concerned Scientists; and Energy + Environmental Economics. Click here to see the studies.

What did the SB 350 study find?

The final study results show that by expanding the energy grid, California would reach its 50 percent renewable energy goal while saving consumers up to $1.5 billion annually by 2030, lowering greenhouse gas emissions and adding jobs in California.

Other potential effects of a regional energy market include:

- Creation of 9,900 to 19,400 new jobs in the state by 2030, primarily as a result of lower energy rates;
- An increase in the state's household net income of $300 to $550 on average by 2030;
- Increased investment in low-cost clean energy generation, including new wind and solar resources to meet the state's renewable energy targets;
- Reduced emissions of carbon dioxide, nitrous oxide, sulfur dioxide and hazardous particulate matter in California and across the western states;
- Economic benefits to disadvantaged communities, including stimulating job growth and increasing incomes;
- Lower energy costs due to load diversity that results in smaller operating reserves requirements;
- Better real-time visibility of system conditions in the larger geographic footprint and enhanced management of regional power flows; and
- Increased integration of renewables and reduced need for curtailment of renewable resources by offering excess energy across the West.

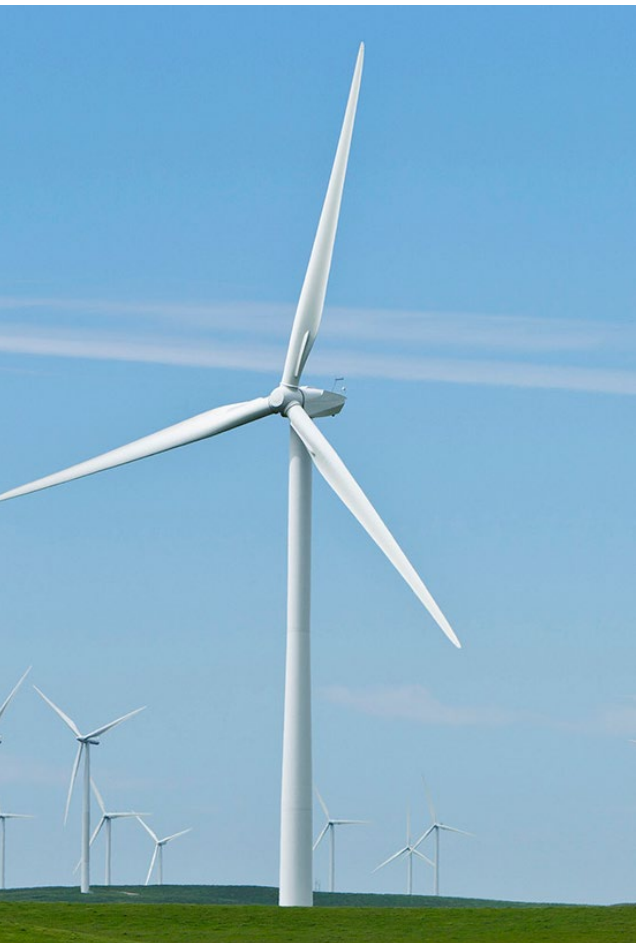
What steps did the ISO take to ensure the SB 350 study process was transparent and inclusive?

Since the beginning of the study process, the ISO has been committed to hosting a robust, open and inclusive process. All meeting notices, documents and comments received were sent directly to stakeholders through public market notices as well as posted on the ISO's public website. The ISO has been active in encouraging stakeholders, consumer and environmental groups and everyday consumers to engage with us to ask questions, seek information and provide comments verbally and in writing. Some other important information to note:

- Over 1,400 stakeholders have participated in the process;
- The ISO has taken public feedback into consideration in crafting our governance proposal;
- The ISO discussed the framework, analysis and data with stakeholders prior to launching the study;
- The ISO made publicly available its preliminary results, and conducted a two-day workshop to solicit public input; and
- The final report, nearly 700 pages, provides significant details in the six areas of analysis.

Here are some more facts on how a regional energy market will help create a cleaner, more reliable and affordable grid in the West:

- A regional approach to energy is already proving to be successful—the ISO is currently coordinating with other grid operators in the West in the 5- and 15-minute markets through the Energy Imbalance Market (EIM), which was created in 2014 to manage short-term fluctuations in energy supply.
- The ISO's EIM demonstrates that by expanding the ISO's territory, California and participating entities benefit from lower costs and reduced emissions. The EIM dispatches from the least expensive option first. Because coal-generated energy has costly carbon fees added to the price, the market will tend to favor cheaper renewable energy rather than coal resources from out of state. The EIM is already creating a cleaner, more reliable grid with reduced costs. The EIM's monthly benefits reports are posted here.



- A regional energy market would adhere to California's cap-and-trade laws on energy entering the state.
- A regional grid lets operators see more generators and transmission lines over a greater area, allowing better coordination and integration of renewables and leveraging of technology.
- According to an initial ISO assessment, a fully functional western grid under a 50-percent California renewable requirement could lower greenhouse gas emissions by nearly 2.6 million metric tons every year — the equivalent of removing more than 230,000 cars from the road annually.

What needs to happen to create a regional energy market with participating transmission owners (PTOs) in other states?

Creating a day-ahead market with full PTOs from other states will require the state Legislature and Governor to pass and sign legislation to update the ISO's governance structure so out-of-state utilities can join the ISO. For more information click here to visit the California Energy Commission's SB 350 overview page.

If the regional energy market is created, would California cede its control of its energy grid to the Federal Energy Regulatory Commission (FERC)?

No. The ISO is already under FERC's jurisdiction, and that would not change with a regional energy market. The ISO would remain subject to the grid standards established by the North American Electric Reliability Corporation (NERC). Under a regional grid, the Legislature, the California Public Utilities Commission, and local regulatory bodies will continue to maintain the authority to make procurement decisions for the state's utilities as it does today.

What is the current timeline on this effort?

As required by SB 350, the ISO completed two tasks before the end of 2017, including conducting studies on the environmental and economic impacts of a regional grid; and submit a proposal to the governor for the expanded ISO governance design. The ISO released the final study results on July 12, 2016 and submitted them to the Governor's office on Sept. 15, 2016. The ISO also drafted initial and revised proposals for governance structure, which is needed for other states to have a voice in policy-making for the new energy market. The governance proposals included input from hundreds of stakeholders in and out of California. On August 8, 2016 Governor Edmund G. Brown, Jr. announced his support for a regional grid operator. While the ISO had originally envisioned legislation in 2016, many stakeholders commented they needed time to fully understand the governance piece, and that there were some areas in the proposal that would benefit from more stakeholder input. The Governor responded to those concerns, and the ISO and regional grid supporters are looking forward to developing a strong proposal for consideration by the Legislature in 2018. The new market is seen as critical to California reaching its 50-percent renewable goal, and there is potential market competition from other grid operators in the Midwest to expand into western states which brings a sense of urgency to California. Opening the door to a multi-state electric system.

Who would govern the ISO if it becomes a full-time, day ahead regional energy market?

As envisioned in the ISO's latest revised proposal, the ISO would be governed by an independent board that would be selected in a process determined by participating western states and stakeholders. The ISO proposed a set of principles for regional ISO governance after many months of consideration of various white papers and testimony from state energy leadership and a broad range of stakeholders from California and across the West. The ISO presented this proposal at two public workshops in Sacramento and Denver, on June 16 and June 20, 2016 respectively, with 42 sets of comments submitted. The ISO considered the feedback and presented a revised proposal at a joint state agency workshop on July 26, 2016. Click here to visit the California Energy Commission's webpage dedicated to this effort, and sign up to receive docket notices.

Why is a governance change necessary when out-of-state utilities are already buying and selling power through the ISO's Energy Imbalance Market (EIM)?

A full-service day-ahead regional energy market offers more comprehensive benefits, as the ISO would have full visibility of markets and networks, and could optimize all the available transmission capacity and generation – across a wider geographic area and using an expanded resource pool. It also would allow the ISO to better plan for regional transmission projects and the efficient interconnection of renewable resources and avoid what a utility might have to provide for if it were to stand alone. Changes to the ISO governance structure will allow non-California utilities to enter into a Transmission Control Agreement with the ISO.

How can the ISO assure that the regional energy market won't support the transmission of coal generation into California?

Regional coordination will displace coal and carbon generation for two main reasons: California's policy adds a fee to carbon coming into the state; and the market is designed to dispatch the lowest-cost resource. These two factors working together mean coal resources will be at a price disadvantage in the market, automatically reducing or eliminating coal from the market. Over time, that will decrease coal output, as the business model will not be sustainable.

To read more on the ISO's regional grid study, visit the ISO website at www.caiso.com and select Regional Energy Market found under the Stay Informed tab.