

Clear, consistent market redesign is the sturdy framework for a fair and open power system. A healthy energy marketplace leads to innovation and impartiality. It is the heart of this hub for electricity — the California Independent System Operator (California ISO).

## Who is the California ISO?

The California ISO is a not-for-profit public benefit corporation established in 1996. It began operating the bulk of high-voltage, long-distance transmission lines in California in March 1998. The ISO is dedicated to:

- Managing the safe and reliable flow of electricity on California's high-voltage power grid.
- Ensuring fair and open access to the transmission grid for all qualified users.
- Providing market and grid information with integrity and impartiality.

## How Does the California ISO Do Its Job?

As guardian of open access to the grid, the California ISO acts as the impartial link between power plants and the utilities that provide electricity to customers. This provides a fair and level playing field for energy companies that want to use the 25,000-circuit mile wholesale transmission network. The California ISO is the gatekeeper to more than two-dozen pathways of power connecting California with neighboring states as well as Mexico and British Columbia. Charged with ensuring safe and reliable operation of the grid or "keeping the lights on," the California ISO is a traffic controller of sorts, managing bottlenecks that could overload key components and stop the flow of electricity.

The ISO also matches the demand for electricity the instant it is needed with just the right amount of megawatts. Because electricity cannot be stored, the ISO forecasts how much power customers will need at any given time and makes sure that standby power plants are available in case something goes awry.

What is more important; generation or transmission? Both are critical, as evidenced during the energy crisis of 2000/2001. Essentially, you can't have one without the other. More than 10,000 megawatts of new power plants were built in California between 2000-2003, but the power lines that make up the grid are often overcrowded, limiting where power generation can come from and where it can go. (For context, one megawatt is enough electricity to power approximately 750 homes).

## Open Access

The ISO addresses crowded power lines via an electronic transmission market that allocates limited space for transmitting electricity. This market is conducted a day before and an hour before the electricity is due to be delivered. Energy suppliers participate in the transmission market by offering to reduce their usage of an overcrowded line or by offering to increase deliveries on another line that can feed the same zone without adding to the congestion. However, sometimes the financial solution of the auction doesn't completely meet the needs of the physical reality of grid reliability. The ISO provides the grease in the gearbox that safely and reliably smoothes over any discrepancies between the auction system that determines which entity gets access to an overbooked power line and the physical world of power-flow engineering.

## Redesign for Reliability

Energizing the electricity market in California are two parallel programs: 1) Reliability and Market Improvements to assure grid reliability and 2) Technology and Infrastructure Upgrades to strengthen the computer systems that run the ISO power grid. These programs have been merged into one initiative called Market Redesign & Technology Upgrade (MRTU). The benefits of MRTU include:

- Reduced dependency on the ISO Real-Time Market; stabilizing costs and enhancing reliability.
- Elimination of certain opportunities for market manipulation and gaming.
- Updated control room computer systems that replace aging infrastructure and take advantage of technological advances made in past five years.
- Efficient and least-cost approaches in the operation of the transmission system.
- Wholesale price signals to help guide appropriate investment in California's electricity supply.