Peaks for November 2019

- **29,818 MW**
  - Peak demand
  - November 18
  - Previous month: 33,487 MW

- **4,013 MW**
  - Peak served by renewables
  - November 25
  - Previous month: 7,564 MW

- **9,083 MW**
  - Solar peak
  - November 1
  - Previous month: 10,504 MW

- **4,275 MW**
  - Wind peak
  - November 25
  - Previous month: 4,677 MW

Historical stats & records

- **11,473 MW**
  - Solar peak
  - July 2, 2019 at 12:53 P.M.
  - Previous record: 11,435 MW on July 1, 2019

- **5,309 MW**
  - Wind peak
  - May 8, 2019 at 3:21 P.M.
  - Previous record: 5,193 MW on June 8, 2018

- **78%**
  - Demand served by renewables
  - April 20, 2019 at 12:40 P.M.
  - Previous record: 73.9% on May 26, 2018

- **50,270 MW**
  - Peak demand
  - July 24, 2006 at 2:44 P.M.
  - Next highest: 50,116 MW on September 1, 2017

- **15,639 MW**
  - Steepest ramp over 3-hour period
  - January 1, 2019 at 2:25 P.M.
  - Next steepest: 15,070 MW on March 17, 2019 at 4:07 p.m.

Western Energy Imbalance Market (EIM) benefits

Read ISO EIM Benefits Report Q3 here

**ECONOMIC**

- **2019 Q3 benefits:** $64.81 million
- **Total benefits:** $801.07 million
  - since 2014 launch

**ENVIRONMENTAL**

- **Q3 avoided curtailments:** 33,843 MWh
- **Total ISO GHG savings:** 418,031 mTCO₂
  - from avoided curtailment since 2014
- **Q3 ISO GHG savings:** 14,485 mTCO₂
- **Equivalent to removing emissions from:** 87,889 passenger cars
Demand & resources (as of 12/01/2019)

Resource adequacy net qualifying capacity (NQC) = 46,308 MW
Does not include current outages

Renewable resources (as of 12/01/2019)

- Solar: 53.9%
- Wind: 28.9%
- Geothermal: 7.6%
- Small hydro: 5.3%
- Biofuels: 3.7%
- Storage battery: 0.6%
- Renewables breakdown

Megawatts

- Solar: 12,697
- Wind: 6,796
- Geothermal: 1,785
- Small hydro: 1,244
- Biofuels: 880
- Storage battery*: 136

TOTAL: 23,538

See Today’s Outlook

NOTE — Only fully commercial units are counted, not partials or test energy, as reported via the Master Generating File and captured in the Master Control Area Generating Capability List found on OASIS under “Atlas Reference”. *Includes stand-alone and hybrid units.

Wind and solar curtailment totals

For more on oversupply, visit here.

November = 69,758 MWh

Installed solar growth

Solar capacity growth in the California ISO balancing area. Stay informed on how we are greening the grid here.
**2018 Energy use (as percentage of total resources available)**

- **Natural gas** = 30%
  - Up 2% from previous year
- **Net imports** = 22%
  - Unchanged from previous year
- **Nuclear** = 10%
  - Unchanged from previous year
- **Total hydro** = 10%
  - Down 7% from previous year
- **Non-hydro renewables** = 26%
  - Up 3% from previous year
- **Solar** = 12%
  - Up 9% from previous year
- **Wind** = 7%
  - Up 19% from previous year
- **Geothermal** = 4%
  - Down 2% from previous year
- **Biofuels** = 2%, a slight increase from previous year

**Other facts**

- 30 million consumers
- Serve ~80% of California demand
- Serve ~33% of WECC demand
- MWh of load served for 2018 = 232.9 million
- Total estimated wholesale cost of serving demand in 2018 = $10.8 billion or about $50/MWh*
- Total estimated wholesale cost of serving demand in 2017 = $9.4 billion or about $42/MWh*
- 1 MW serves about 750-1,000 homes (1 MWh = 1 million watts used for one hour)
- 18 participating transmission owners
- 25,715 (or about 26,000) circuit miles of transmission
- 217 market participants
- MWh of market transactions for 2018 = 32,635 (2017 = 31,208)
  - Daily average electricity delivered for 2018 = 222.8M MWh
- 9,696 pricing nodes for ISO & all EIM entities as of Apr. 4, 2018. ISO has 4,119 pricing nodes
- Western EIM has 9 active participants serving customers in 8 states
- RC West is the reliability coordinator for 41 entities across 14 western states and northern Mexico

*Note higher cost mostly due to higher natural gas prices. After normalizing for natural gas prices and greenhouse gas compliance costs, total wholesale energy costs increased by about 4 percent.