



# Metering Requirements Review - Hybrid Resources Phase 2B

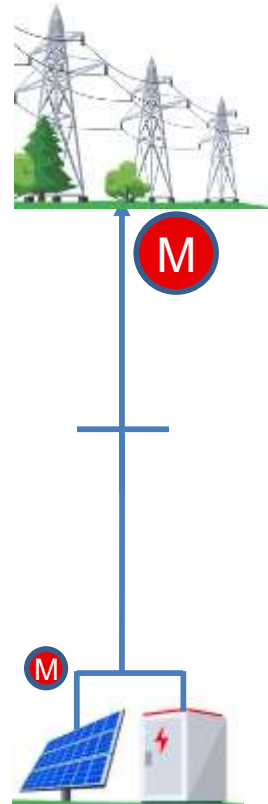
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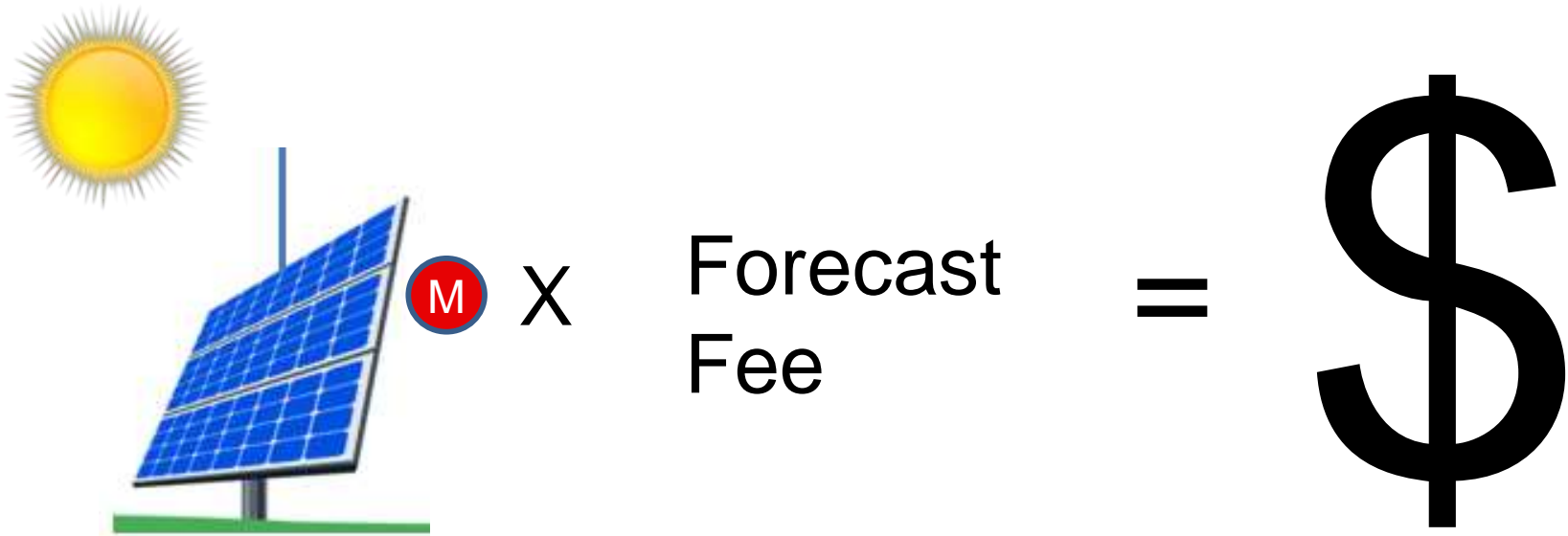
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Hybrid resources are required to have revenue quality meters for all VER components of their resources.



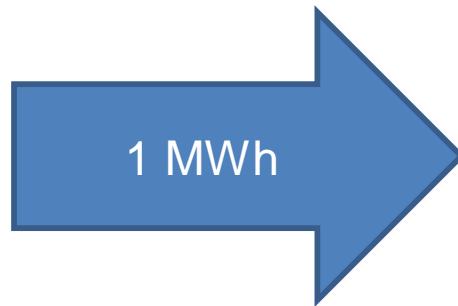
# Why is component level metering and telemetry required?

Reason 1 – Meter data enables the ISO to properly calculate the forecasting fee.

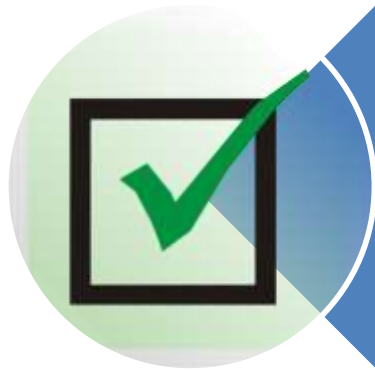


Reason 2 – The ISO is required to report renewable's meter data to WECC.

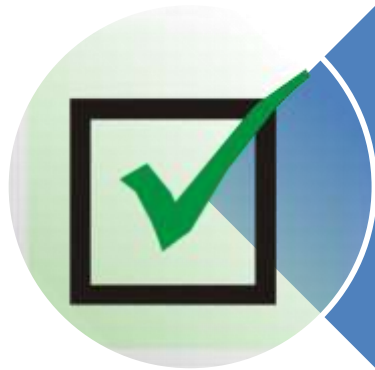
The Western Renewable Energy Generation Information System (WREGIS) issues and tracks Renewable Energy Certificates (RECs)



Reason 3 – Telemetry provides visibility into actual operations and the ISO's ability to meet all NERC real-time control standards.



Energy

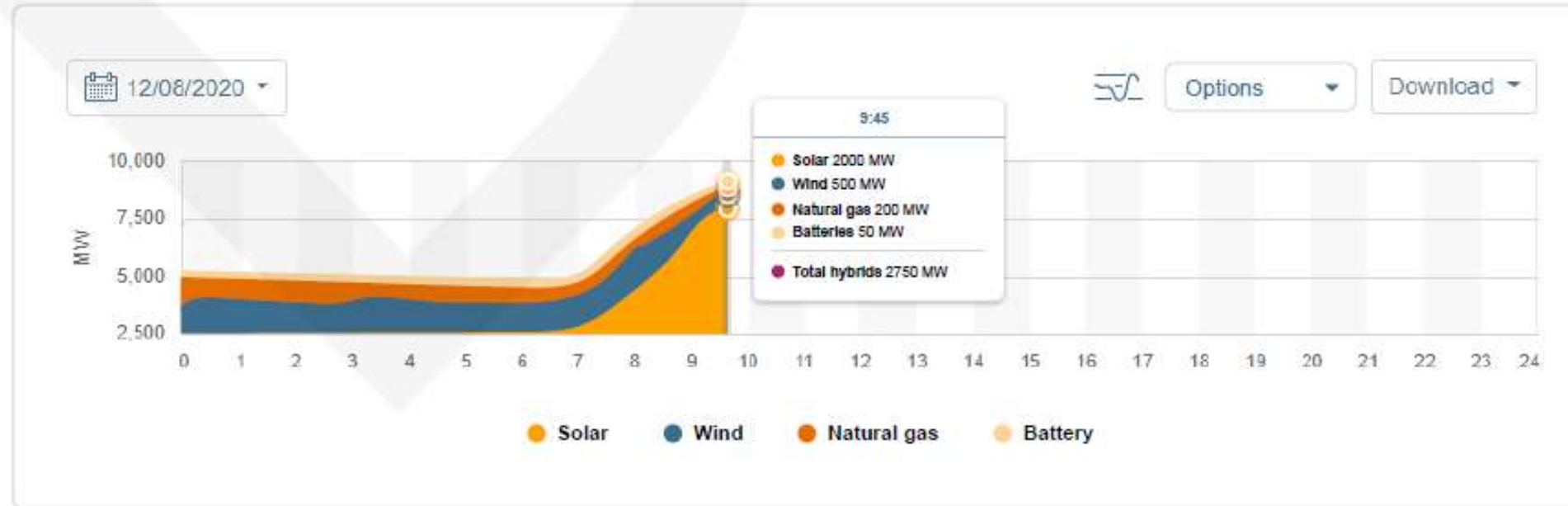


Ancillary  
Services

# Reason 4 – Telemetry allows the ISO to provide public data for load served by renewables in real-time.

## Hybrids trend

Amount of energy in megawatts broken down by hybrid resource in five-minute increments.



# Reason 5 – High quality telemetry data is needed to ensure forecasts are of good quality.

California ISO Customer Market Results Interface

Day-Ahead Real-Time Post-Market Default Bids Convergence Bidding **Forecast** Reference LSE Energy Imbalance Market

Trade Date:  Entity:  Resource: All item(s) Forecast Type:

### Variable Energy Resource Forecast

1 - 14 of ??? GO

Forecast Type	Trade Date	SC ID	Resource	HE01 [MW]	HE02 [MW]	HE03 [MW]	HE04 [MW]	HE05 [MW]
Day-Ahead				0.00	0.00	0.00	0.00	0.00
Day-Ahead				4.22	4.29	4.35	4.56	4.5
Day-Ahead				0.00	0.00	0.00	0.00	0.00
Day-Ahead				4.21	4.00	3.83	3.51	3.22
Day-Ahead				0.00	0.00	0.00	0.00	0.0
Day-Ahead				1.67	1.48	1.32	1.22	1.09
Day-Ahead				0.00	0.00	0.00	0.00	0.00
Day-Ahead				2.46	2.41	2.27	2.15	1.8
Day-Ahead				0.00	0.00	0.00	0.00	0.00
Day-Ahead				2.78	2.73	2.61	2.52	2.32
Day-Ahead				0.00	0.00	0.00	0.00	0.0
Day-Ahead				2.02	1.94	1.81	1.68	1.53
Day-Ahead				0.00	0.00	0.00	0.00	0.00
Day-Ahead				0.89	0.88	0.8	0.81	0.7



Reason 6 – Telemetry at the component level provides aggregate information to the CEC and CPUC to measure progress toward the state’s energy and environmental goals.



# Discussion



**Thank you for your participation!**

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Or send an email to:  
CustomerTraining@caiso.com

# Resources

## Tariff Section 4.18 Hybrid Resources

In addition to the rights and obligations of this section, Hybrid Resources are Generating Units subject to Section 4.6. Scheduling Coordinators for Hybrid Resources will provide data regarding the capacity and the operating characteristics of their components as may be reasonably requested from time to time by the CAISO. All information provided to the CAISO regarding the operational and technical constraints in the Master File must be an accurate reflection of the design capabilities of the Hybrid Resources and their constituent equipment when operating at maximum sustainable performance over Minimum Run Time, recognizing that performance may degrade over time. Hybrid Resources are not Variable Energy Resources or Eligible Intermittent Resources; however, consistent with Section 4.8.2, Hybrid Resources that include a variable component must provide the CAISO with the data for that component that would be required by Appendix Q. **Hybrid Resources with a variable or intermittent component also must provide the CAISO with telemetry and Meter Data on the variable components in addition to the Generating Facility's metering requirements under Section 10.** Hybrid Resources' telemetry must include the High Sustainable Limit. Hybrid Resources that include an energy storage component must provide the CAISO with telemetry on the energy storage component's State of Charge.

# PRR 1448 - Metering BPM Section 9.5 regarding Hybrid Resources

Hybrid Resources with a variable or intermittent component must provide the CAISO with Meter Data on each component in addition to the Generating Facility's metering requirements under Section 10. **CAISO Metered Entity Hybrid resources are required to install ISO certified meters at the component level. Scheduling Coordinator Metered Entity Hybrid Resources also must submit the component level Meter data to CAISO.** The Scheduling Coordinator must submit Estimated or Actual Settlement Quality Meter Data relating to the Scheduling Coordinator Metered Entities they represent to the CAISO by the given Meter Data submission deadlines referenced in the CAISO Payments Calendar. Scheduling Coordinators of Hybrid Resources must adhere to applicable metering requirements at both the resource level and component level