

Wind and Solar Curtailment June 21, 2017

This report is produced daily to provide a detailed accounting of the wind and solar renewable generation that was curtailed and the reasons why¹. This report should be read in the context of the Renewables Watch report for a more complete understanding of both renewable curtailment and generation².

Wind and solar curtailments are grouped into the following categories:

- 1. Economic Local: Market dispatch of generators with economic bids to mitigate local congestion³.
- Economic System: Market dispatch of generators with economic bids to mitigate systemwide oversupply⁴.
- 3. SelfSchCut Local: Market dispatch of self-schedules to mitigate local congestion.
- SelfSchCut System: Market dispatch of self-schedules to mitigate system-wide oversupply.
- 5. ExDispatch Local: Exceptional dispatch to mitigate local congestion.
- 6. ExDispatch System: Exceptional dispatch to mitigate system-wide oversupply.

Note: Amounts smaller than 1 MW are filtered out for simplicity. Such small curtailments are occasionally observed when forecasts are lower than Pmin when market will de-commit the unit and send the 0 MW dispatch.

¹Only wind and solar resources can be reported in this manner because these resources have a forecast. Curtailment is defined as the difference between actual production and the forecast when actual production is less than the forecast.

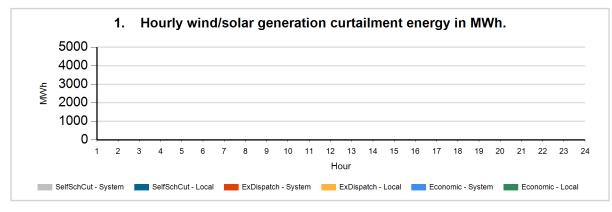
²The Renewables Watch report provides daily actual renewable production within the ISO grid. It is available at: <u>http://www.caiso.com/green/renewableswatch.html</u>.

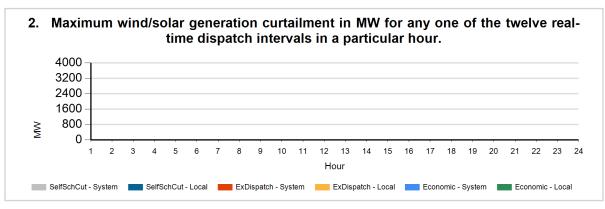
³Congestion occurs when available, least-cost energy cannot be delivered to some loads because transmission facilities do not have sufficient capacity to deliver the energy.

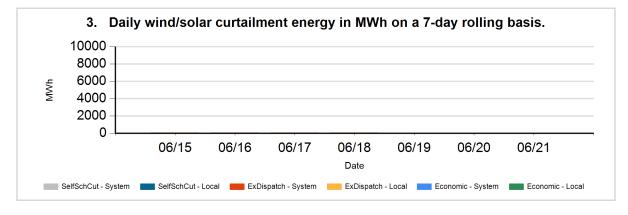
⁴For more information on oversupply conditions, please see: <u>https://www.caiso.com/Documents/FlexibleResourcesHelpRenewables_FastFacts.pdf</u>

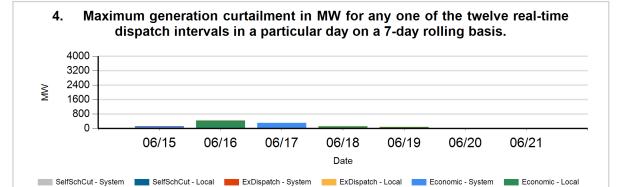


The following charts show the daily and 7-day rolling wind and solar curtailment by category, if any.



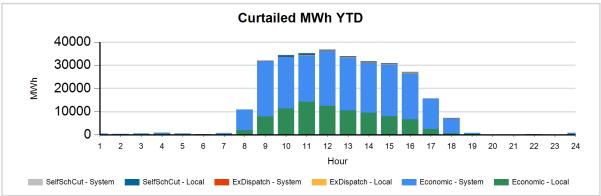




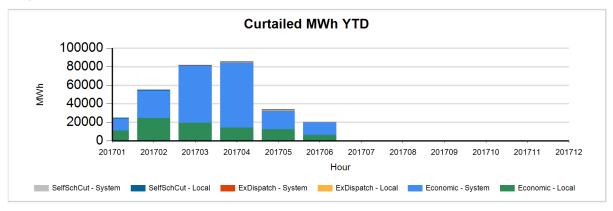




The following charts show hourly year to date wind and solar curtailment by category, if any.



The following charts show monthly year to date wind and solar curtailment by category, if any.



TYPE	YTD CURTAILED MWH
LocalEconomic	87,982
LocalExDispatch	1,303
LocalSelfSchCut	3,677
SystemEconomic	208,556
SystemExDispatch	429
SystemSelfSchCut	828
TOTAL	302,776



DATE	HOU R	CURT TYPE	REASON	FUEL TYPE	CURTAILED MWH	CURTAILED MW
06/21	4	Economic	Local	WIND	1	9
06/21	5	Economic	Local	WIND	2	17
06/21	8	Economic	Local	SOLR	1	6
06/21	9	ExDispatch	Local	SOLR	0	0
06/21	10	ExDispatch	Local	SOLR	0	
06/21	10	ExDispatch	System	SOLR	0	0
06/21	11	ExDispatch	Local	SOLR	1	2
06/21	11	ExDispatch	System	SOLR	1	
06/21	12	ExDispatch	Local	SOLR	2	3
06/21	12	ExDispatch	System	SOLR	0	
06/21	13	ExDispatch	Local	SOLR	1	
06/21	13	ExDispatch	System	SOLR	0	1
06/21	14	ExDispatch	Local	SOLR	0	1
06/21	14	ExDispatch	System	SOLR	0	
06/21	15	ExDispatch	Local	SOLR	0	
06/21	15	ExDispatch	System	SOLR	0	0

Data used to produce hourly chart

The information contained in this report is preliminary and subject to change without notice. No inference, decision or conclusion should be made based on the information in this report or any series of these reports. All values are hourly average unless otherwise stated. Questions about this report should be directed to Hong Zhou at hzhou@caiso.com.