On-Peak Generation Deliverability Study Generation Dispatch Assumptions

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Instructions for raising your hand to ask a question

- If you are connected to audio through your computer or used the “call me” option, select the raise hand icon  located on the top right above the chat window. **Note**: #2 only works if you dialed into the meeting.
  - Please remember to state your name and affiliation before making your comment.
- If you need technical assistance during the meeting, please send a chat to the event producer.
- You may also send your question via chat to either Elizandra Casillas or to all panelists.

Introduction

- The ISO revised its deliverability methodology in 2019 and implemented those changes in 2020
  - The study assumptions were based on data from the 2018 summer assessment

- The ISO has reviewed its deliverability study dispatch assumptions based on updated information

Agenda

- A summary of the current study dispatch assumptions
- These dispatch assumptions are then discussed in comparison to more recent data:
  - 2022 summer assessment analysis
  - Changes in the ISO load shape from 2021 to 2030 during the peak load day
  - An analysis of three resource challenged days that occurred in 2021
  - ISO's 2026 and 2030 IRP resource portfolio analyses
- Recommended updates to the study dispatch assumptions

Current Deliverability Study Assumptions

HSN Scenario – Basis for Assumptions for Intermittent Generation

- Time window of high likelihood of capacity shortage
  - High net sale
  - Low solar output
  - Unloaded Capacity Margin < 6% or Loss of Load hours
- 20% exceedance level to ensure higher certainty of wind and solar being deliverable when capacity shortage risk is highest

Wind and Solar Output Percentile for HE18~22 & UCM<6% Hours

Exceedance		50%	40%	30%	20%	10%
wind	SDG&E	11.1%	16.3%	23.0%	33.7%	45.5%
	SCE	27.6%	36.9%	46.3%	55.7%	65.6%
	PG&E	29.8%	38.2%	52.5%	66.5%	78.2%
solar	SDG&E	0.0%	0.1%	1.7%	3.0%	7.6%
	SCE	1.9%	3.9%	7.0%	10.6%	14.8%
	PG&E	0.9%	4.1%	6.8%	10.0%	13.7%

Current Deliverability Study Assumptions

SSN Scenario – Basis for Assumptions for Intermittent Generation

- Time window of high gross load and high solar output
  - High gross load
  - High solar output
  - UCM < 6% or LOL hours
- 50% exceedance level due to mild risk of capacity shortage

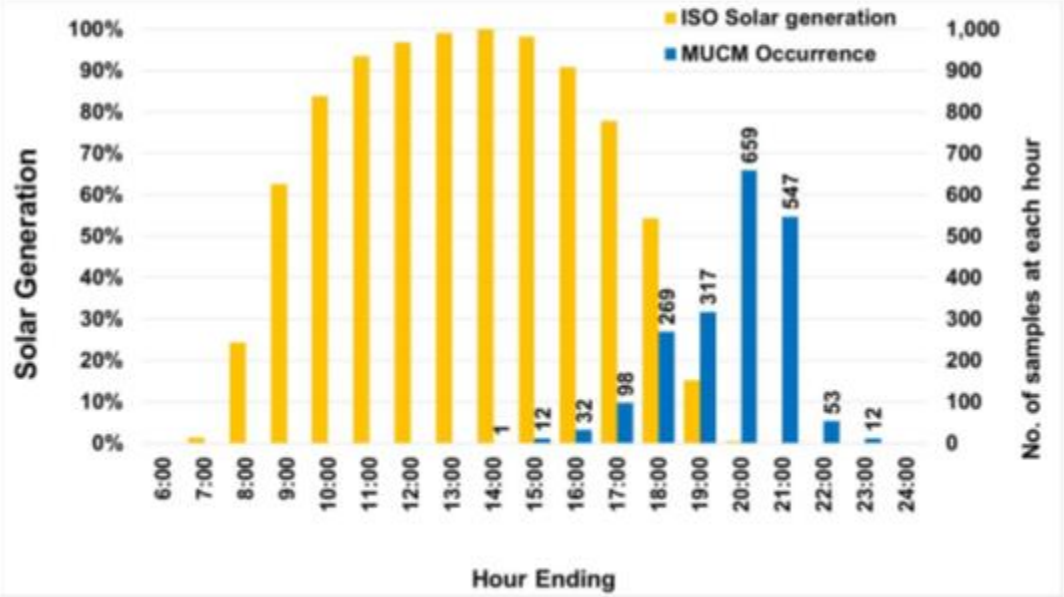
Wind and Solar Output Percentile for HE15~17 & UCM<6% Hours

Exceedance		50%	40%	30%	20%	10%
wind	SDG&E	11.2%	16.6%	26.5%	40.8%	47.9%
	SCE	20.8%	24.8%	34.9%	57.4%	64.8%
	PG&E	16.3%	21.4%	44.7%	69.7%	76.8%
solar	SDG&E	35.9%	44.7%	58.0%	72.1%	75.4%
	SCE	42.7%	49.6%	51.8%	61.9%	86.3%
	PG&E	55.6%	61.6%	63.2%	74.6%	75.9%

IssuePaper-GenerationDeliverabilityAssessment.pdf (caiso.com)
Deliverability Assessment Methodology Revisions (caiso.com)

2018 Summer Assessment Data

Critical Conditions per Review of Minimum Unloaded Capacity Margin Hours from 2018 Summer Assessment



Source: http://www.caiso.com/Documents/2018SummerLoadsandResourcesAssessment.pdf

Current Deliverability Study Assumptions

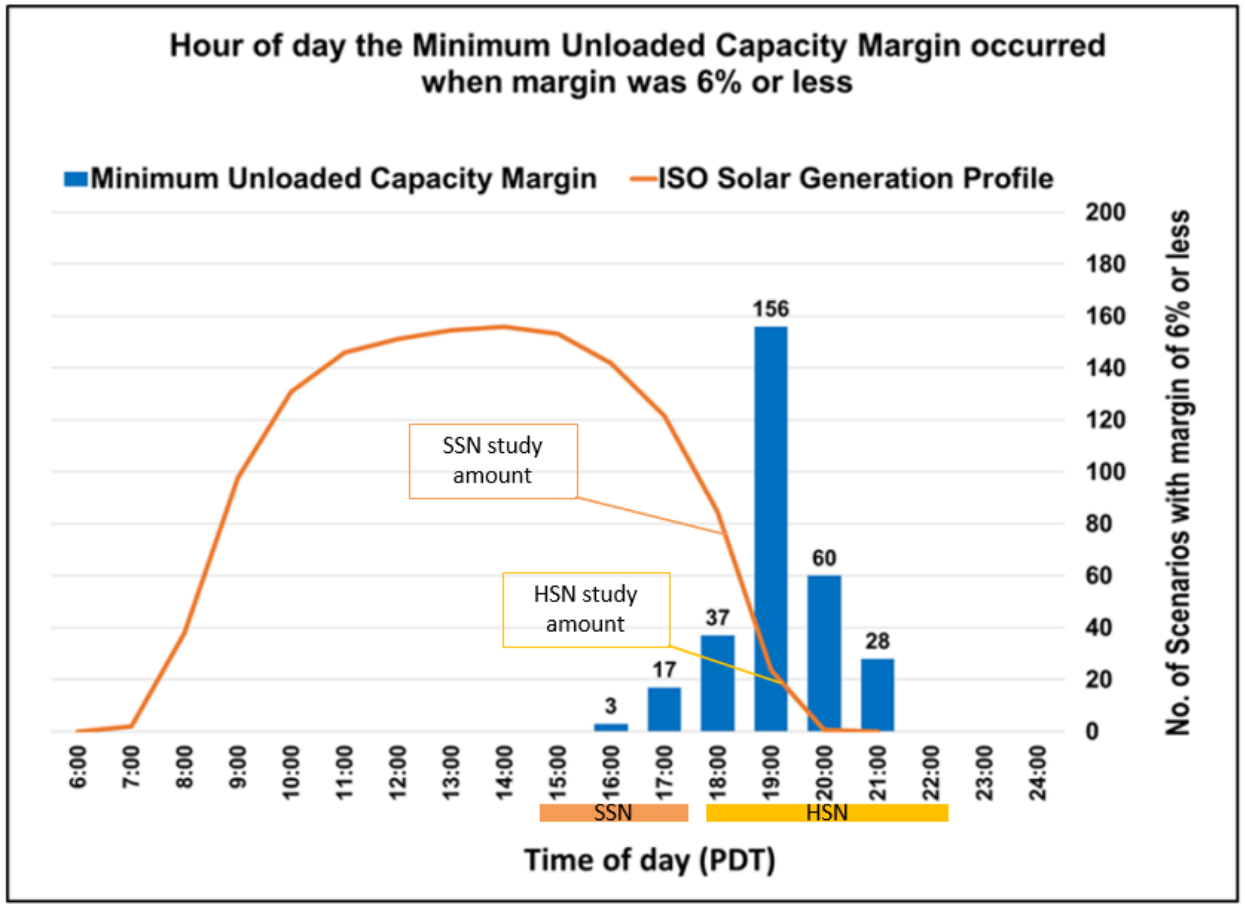
- As more BTM solar has been added and will continue to be added, do the HSN and SSN study assumptions need to be updated?
- Given that the HSN solar study assumptions are already very minimal at 10.6 % are less, the SSN study assumptions are the primary focus of this investigation.

2022 Summer Assessment Data

- The 2022 Summer Assessment data provides more current data for determining the hours of exposure to resource shortages during the peak load day

- This data has been assessed for purposes of updating the resource production assumptions in the deliverability assessment

2022 Summer Assessment Data



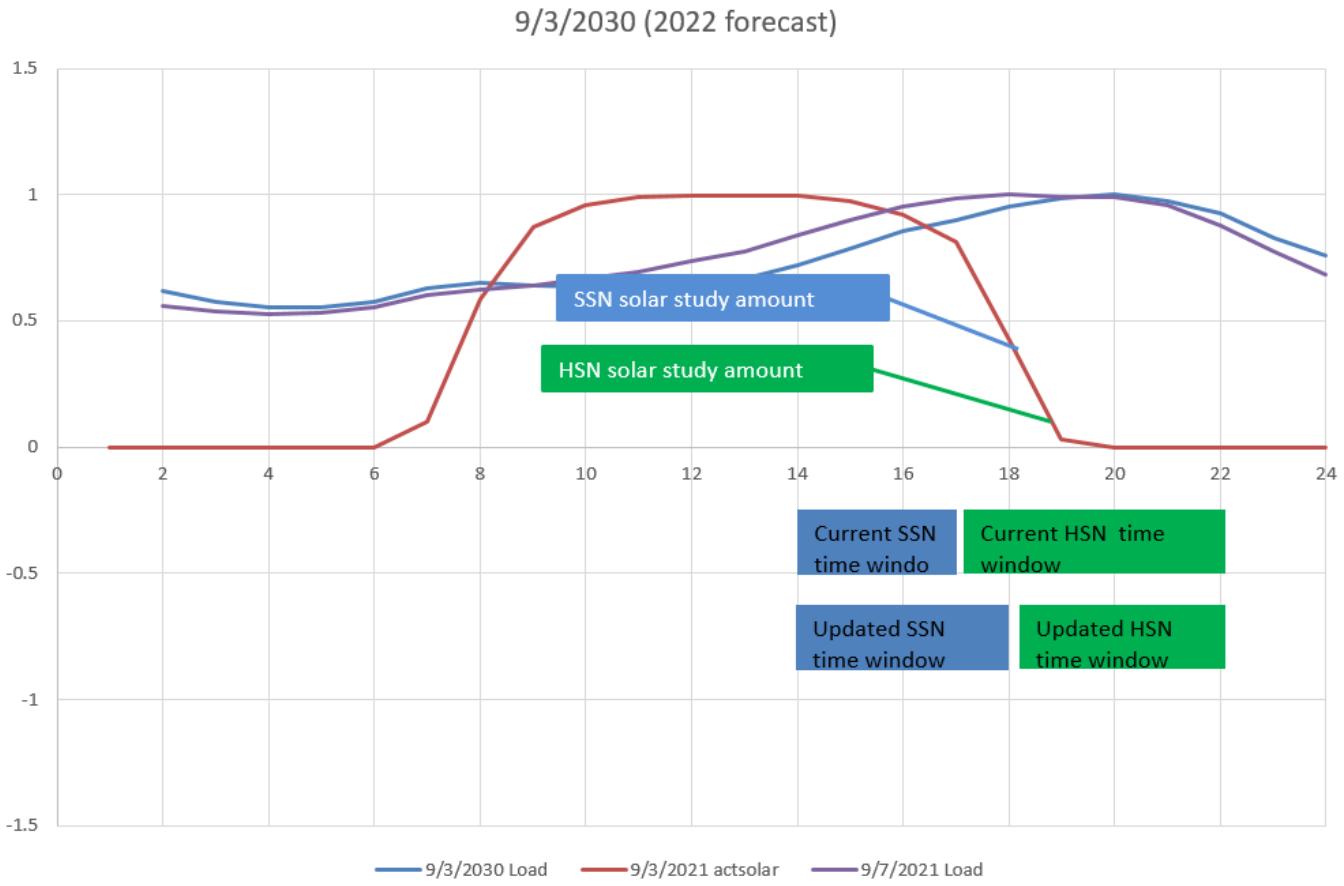
[2022-Summer-Loads-and-Resources-Assessment.pdf (caiso.com)]

Changes in the ISO load shape from 2021 to 2030 during the peak load day

- The ISO system load shape during the peak load day, based on the CEC load forecast data, was compared for the years 2021 and 2030

- The focus of the analysis was on the changes in the load shape during the SSN and HSN study time frames

2030 Load Forecast Data



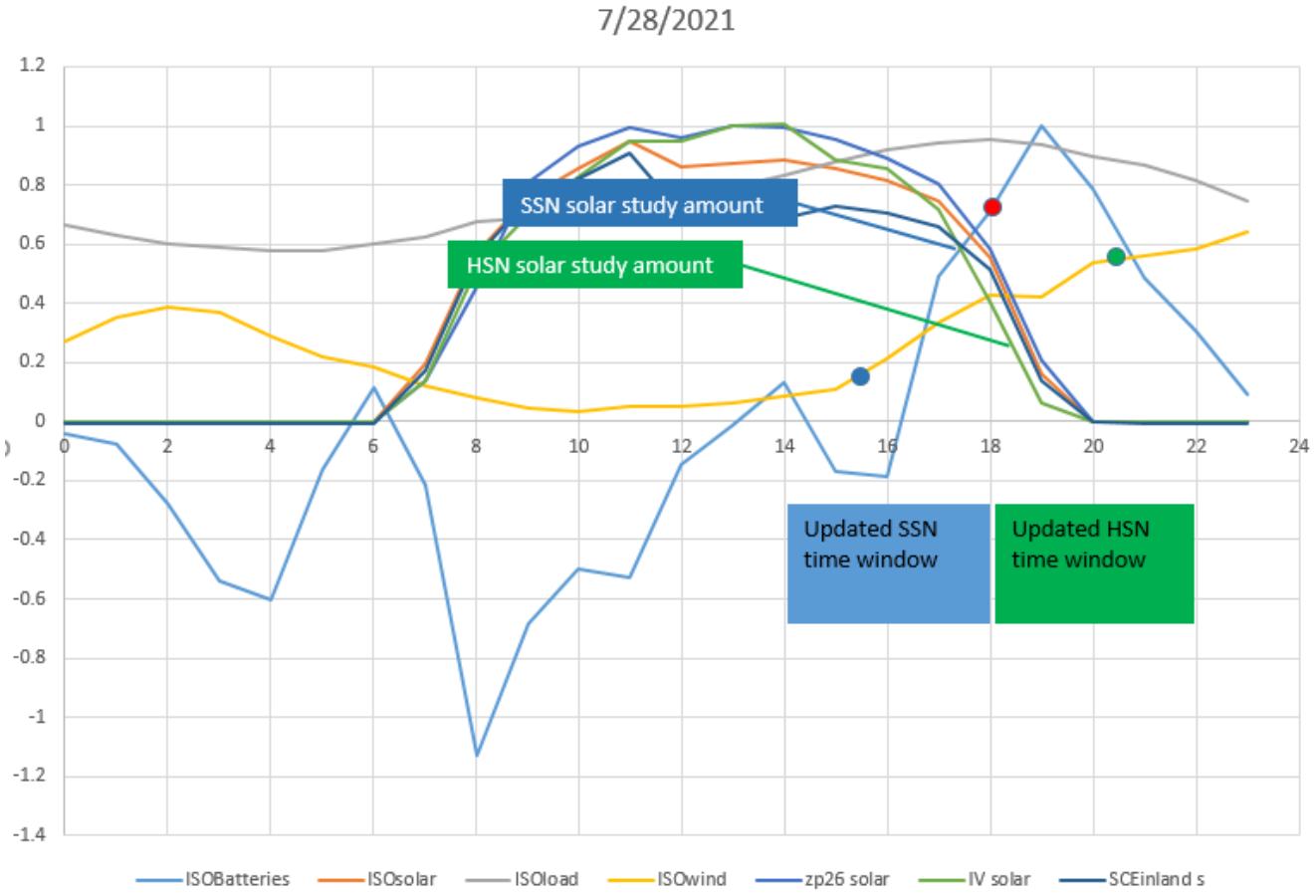
Resource production analysis of three capacity challenged days in 2021

- The hourly solar, wind, and storage resource production on July 9, 28, and 29, 2021 was analyzed .
  - Based on market information these three days were selected as days where resource supply was scarce

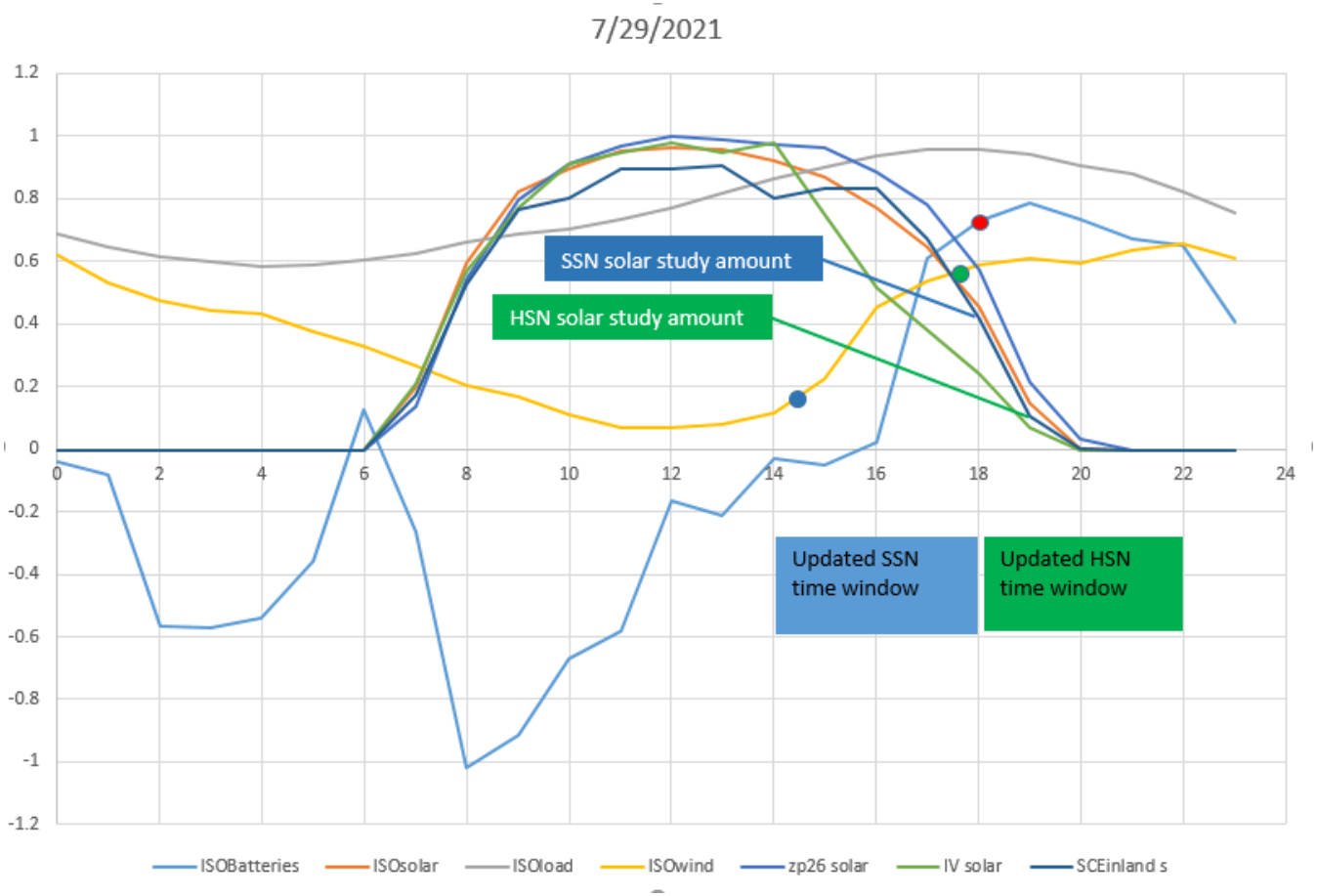
- The focus of the analysis was on the production of these resources during the SSN and HSN study time frames

http://www.caiso.com/Documents/2021-Third-Quarter-Report-on-Market-Issues-and-Performance-Dec-9-2021.pdf

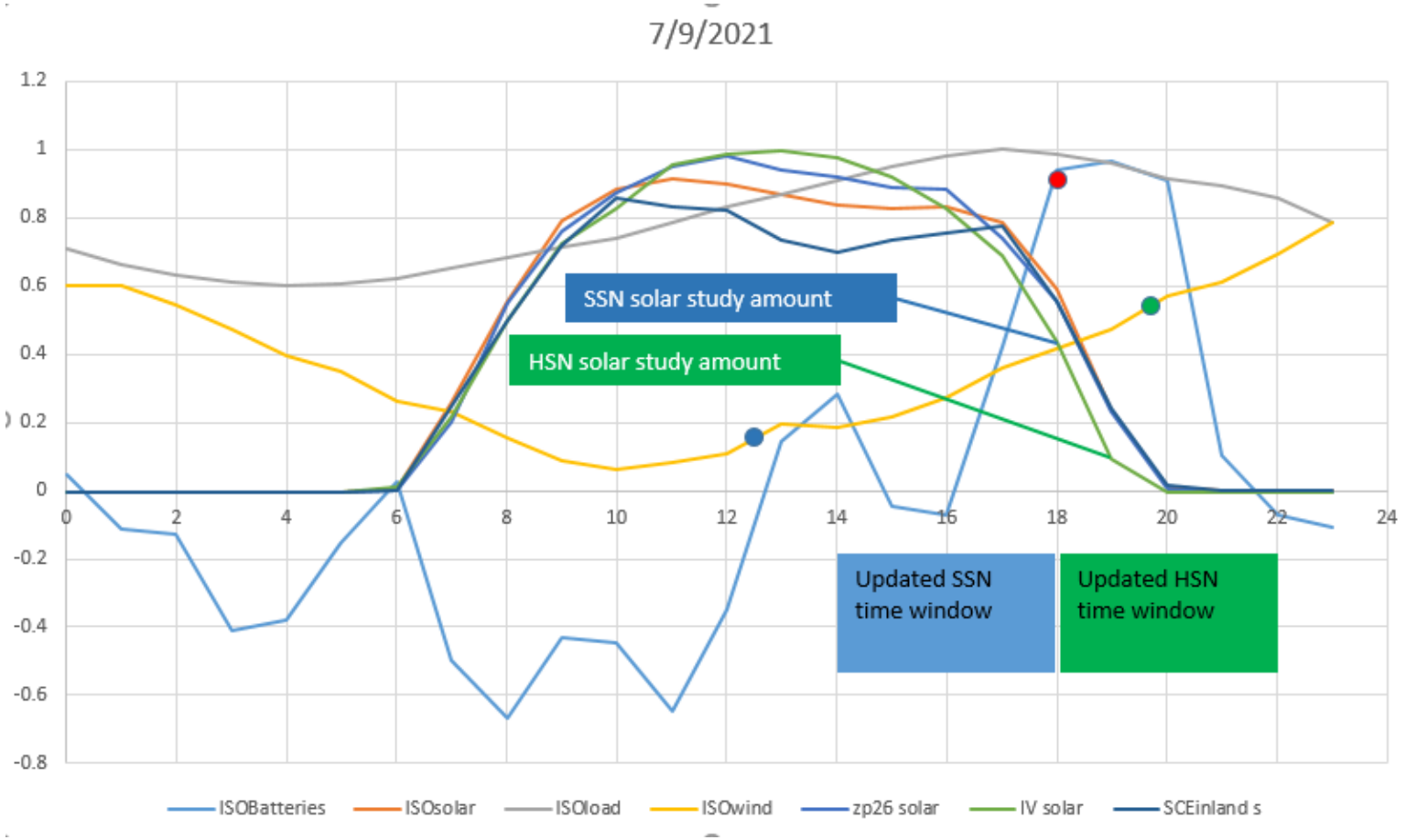
Data from 2021 Capacity Challenged Days



Data from 2021 Capacity Challenged Days



Data from 2021 Capacity Challenged Days



Data from 2021 Capacity Challenged Days

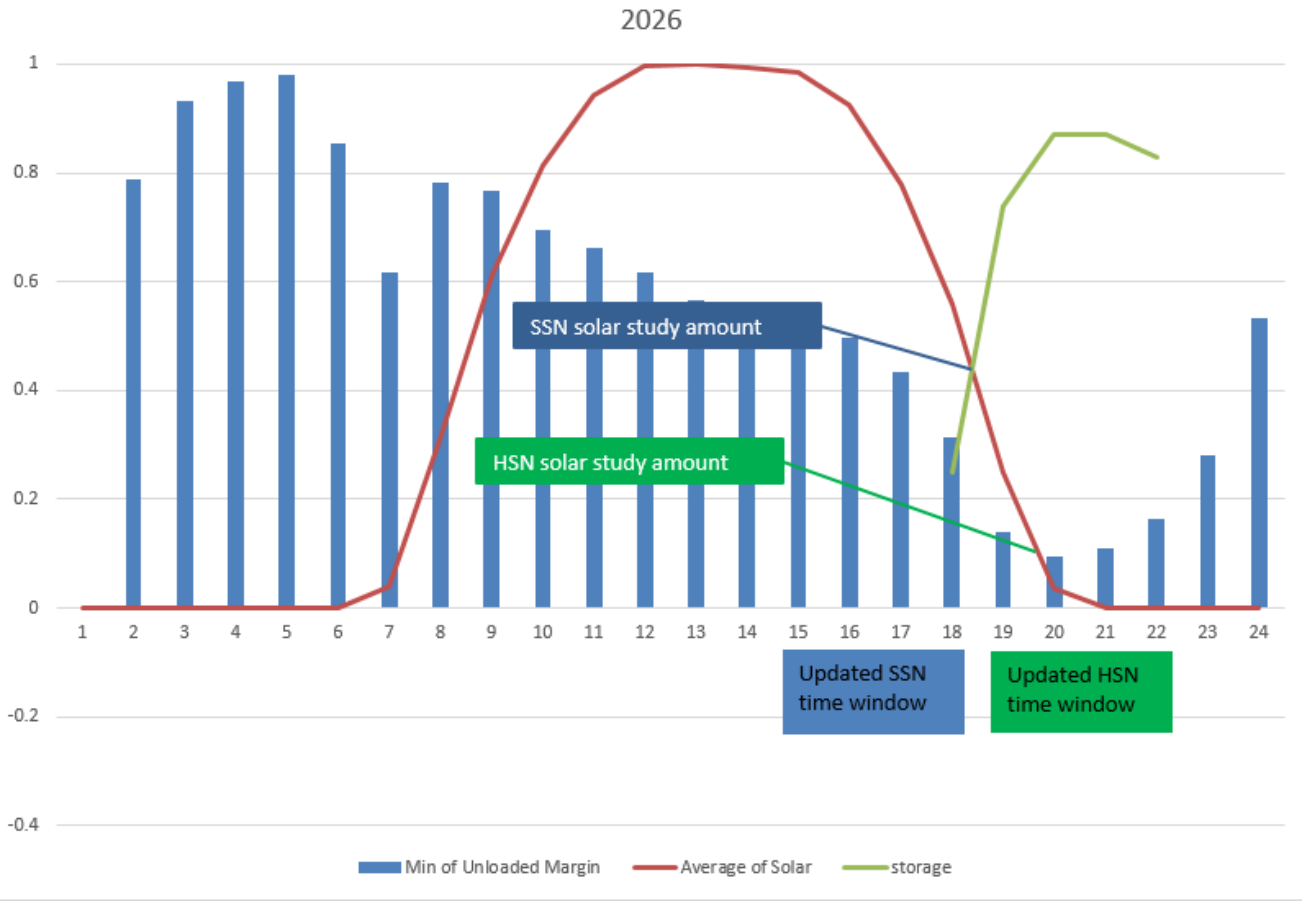
- For the three days, the maximum storage production level during the SSN time window ranges from 70% to 90% of the peak storage output level
- The typical solar production level during the updated SSN time window is consistent with the current SSN solar study amounts.
- In general the current SSN and HSN wind generation study amounts are consistent with the production amounts during the SSN and HSN study windows.
- This data, analysis, and observations support the continued use of the current SSN solar study amounts.
- It is also reasonable to continue to use the same SSN wind resource study assumptions.
- However, the current storage study amount for the SSN study should be reduced from 100% of the maximum storage capability to 80% of the maximum storage capability, for near-term deliverability studies.

Resource production analysis of data from the ISO's 2026 and 2030 IRP resource portfolio analyses

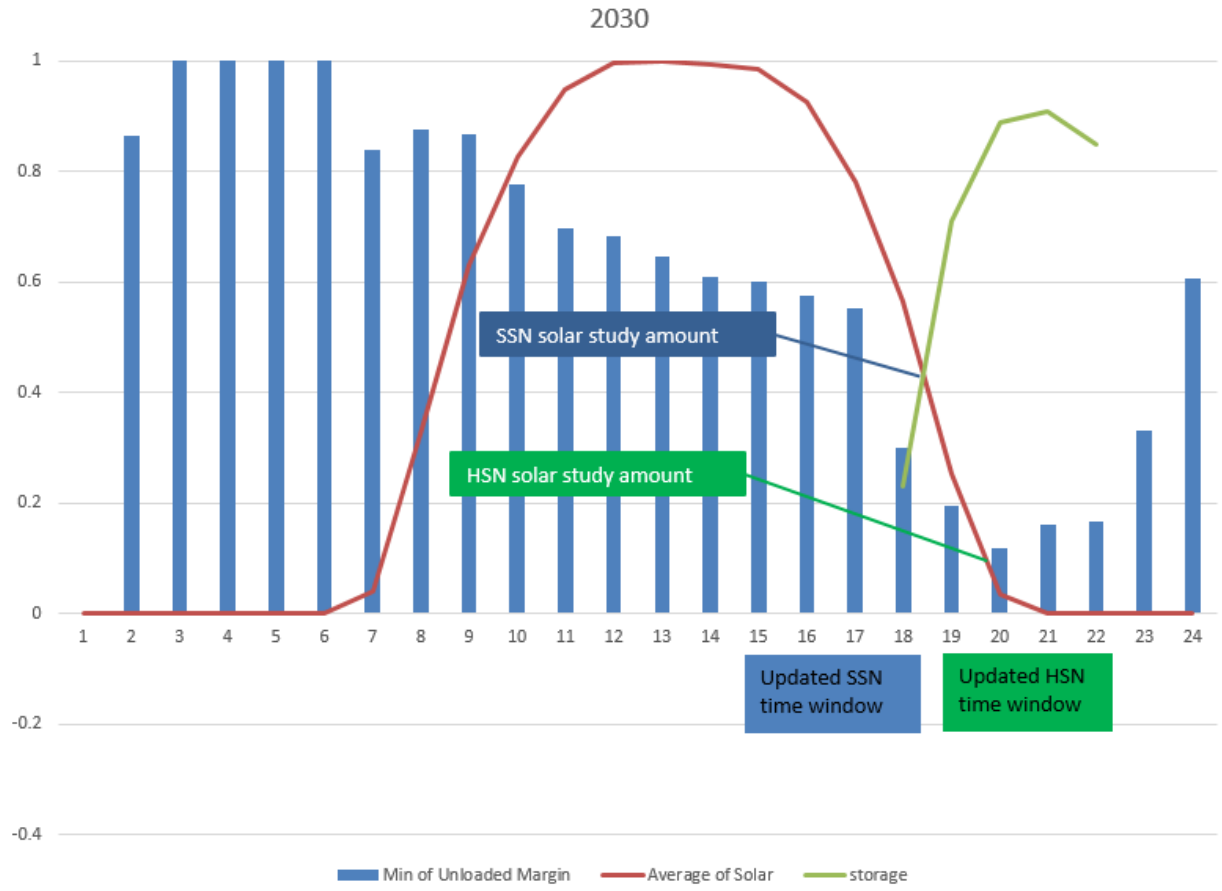
- The hourly solar, wind, and storage resource production in the ISO's 2026 and 2030 IRP resource portfolio analysis was examined

- The focus of the analysis was on the production of these resources during the SSN and HSN study time frames

Data from the ISO's 2026 and 2030 IRP resource portfolio analyses



Data from the ISO's 2026 and 2030 IRP resource portfolio analyses



Storage Study Level for Long Term Deliverability Assessments in the SSN Study

- The storage production level is about 25% of available capacity
- The 2021 IRP resource portfolios have a surplus of resources
  - Assuming this surplus is made up of additional storage resources, then the production level of the storage as a percentage of available capacity during a resource shortage condition is underrepresented
  - If the resource portfolio did not have a surplus, then the normalized production levels of the storage would be higher
- The storage is producing at almost 50% of the available capacity when the storage is at the SSN study level
- Therefore for long-term deliverability studies storage should be studied at 50% of installed capacity in the SSN study

Recommendations for the SSN Study

- The 2021, 2026, and 2030 analysis, and observations support the continued use of the current SSN solar study amounts
- However, for deliverability studies the current storage study amount for the SSN study should be reduced
- For short-term deliverability assessments, in the SSN study, storage should be studied at 80% of installed capacity
- For mid and long-term deliverability assessments, in the SSN study, storage should be studied at 50% of installed capacity

Comments

- Please submit written comments on the meeting discussion to regionaltransmission@caiso.com by end of day, June 20, 2022

- Visit the Miscellaneous Stakeholder Meetings webpage for more information.

- If you have any questions, please contact isostakeholderaffairs@caiso.com

- The ISO is pleased to be hosting the Stakeholder Symposium in-person at the Safe Credit Union Convention Center in downtown Sacramento on Nov. 9 – 10, 2022
- Registration will be open in June
  - Public notice will be issued once the site is available
- Additional information is available on the Stakeholder Symposium page on ISO's website at: http://www.caiso.com/informed/Pages/MeetingsEvents/StakeholderSymposium/Default.aspx
- Please direct questions to symposiumreg@caiso.com