BP-18 Rate Case Workshop: Southern Intertie Hourly Non-Firm Rate

April 20, 2016

Agenda

- Background
- Current Southern Intertie HNF rate design
- BPA staff's proposed Southern Intertie HNF rate design for BP-18 Initial Proposal
- Other Southern Intertie rate considerations
- Next steps

Background

- In the Southern Intertie Hourly Non-Firm Regional White Paper and public process, BPA explored how the CAISO Day Ahead Market (DAM) has eroded the product advantages and value of BPA Long Term Firm (LTF) transmission on the Southern Intertie.

- During the process, BPA developed a range of rate and non-rate alternatives designed to protect the value of LTF transmission on the Southern Intertie and encourage continued investment in the product.

- As a result of the White Paper findings and stakeholder feedback, BPA staff will propose a new methodology for the Southern Intertie Hourly Non-Firm (IS HNF) rate in the BP-18 Initial Proposal.

"In the BP-18 Initial Rate Proposal, BPA will propose a new methodology for the HNF IS rate. BPA's proposal will reflect that a range of 4-6 hours a day may be appropriate. In workshops preceding the BP-18 Rate Case, BPA will also explore possible seasonal and/or peak/off-peak HNF rates, etc." – *BPA Southern Intertie Hourly Non-Firm Regional White Paper*

Current IS HNF Rate Design (BP-16)

- On the Southern Intertie, the assumptions used to set the HNF rate are outdated.
- The majority of the markets served by the Southern Intertie do not trade in defined heavy load hour blocks (16 hour blocks). The number of high value hours in California has been reduced with the addition of a large amount of non-dispatchable resources. Therefore, 16 hours is not an appropriate denominator to calculate the HNF rate.
- The CAISO Day Ahead Market does not require firm transmission to bid into the market, so customers are able to bid into the Day Ahead Market without transmission and then procure HNF if they receive a day-ahead award.
- Because the factors that support the current HNF rate methodology do not exist on markets accessed by the Southern Intertie, BPA staff will propose to adjust this methodology to reflect the circumstances on the Southern Intertie.

$$\text{IS HNF New} = \text{IS LT} * \left(\frac{7}{?}\right) * \left(\frac{24}{?}\right)$$

BPA Staff's Proposed IS HNF Rate Design for the BP-18 Initial Proposal

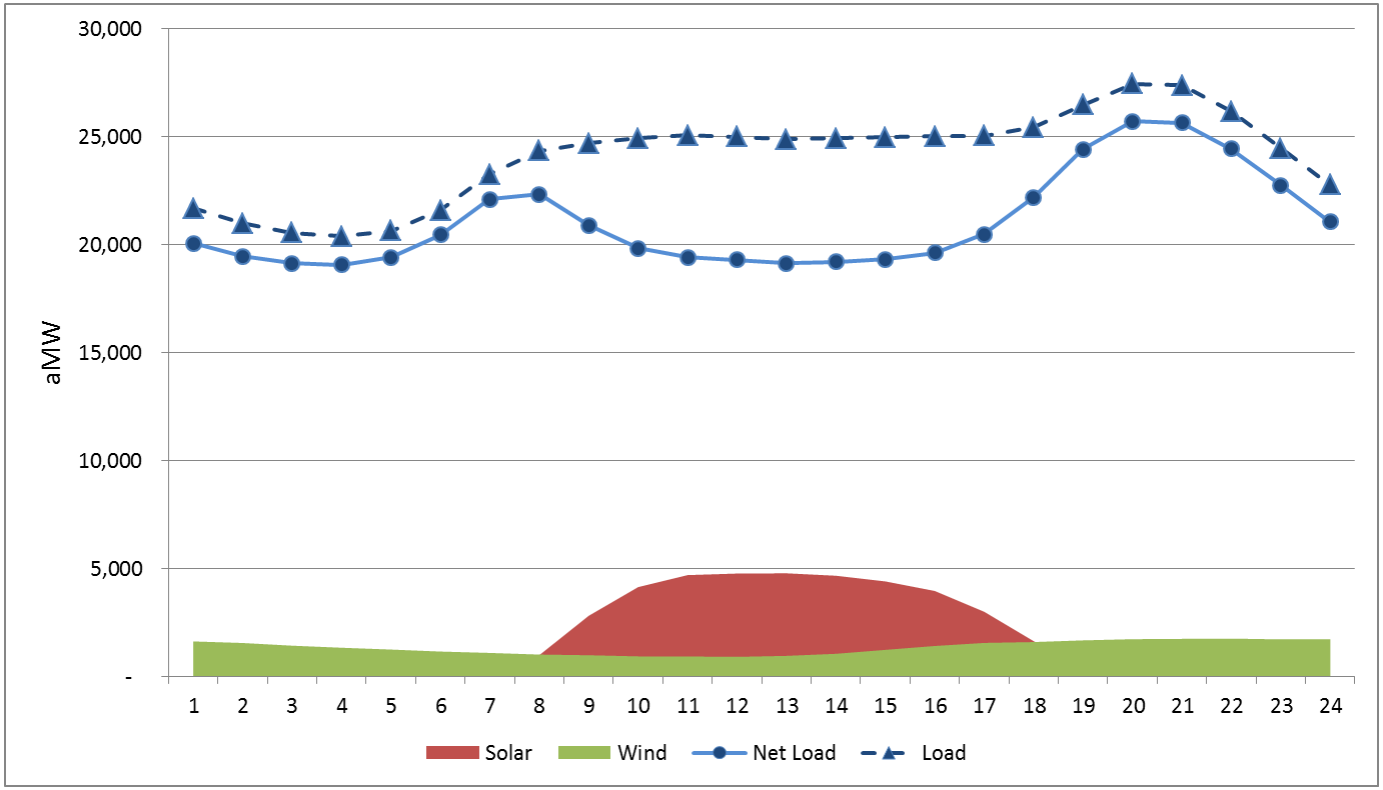
- Recent data indicates the most valuable hours in the day are when net load is the highest. This appears to be the 4-6 hours of the evening peak.

- BPA proposes to change the IS HNF rate so a customer reserving HNF transmission in the evening peak would pay the same as a customer reserving long term transmission.

Net Load

- Net Load has been defined as total load minus wind and solar generation. In the CAISO market, net load represents the demand CAISO must meet from internal dis-patchable resources and imports.

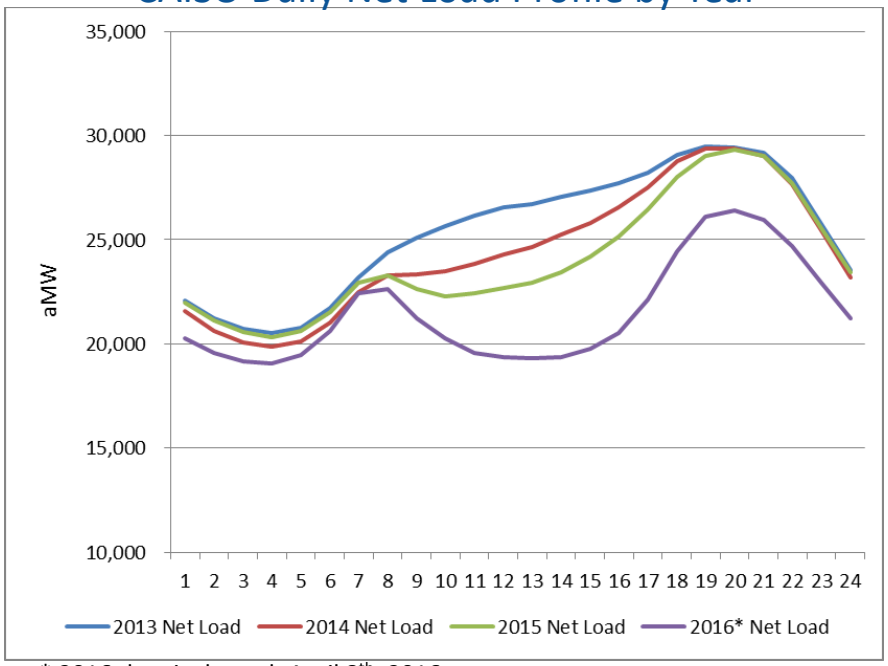
March 2016 Average CAISO Daily Net Load Profile



Net Load Cntd.

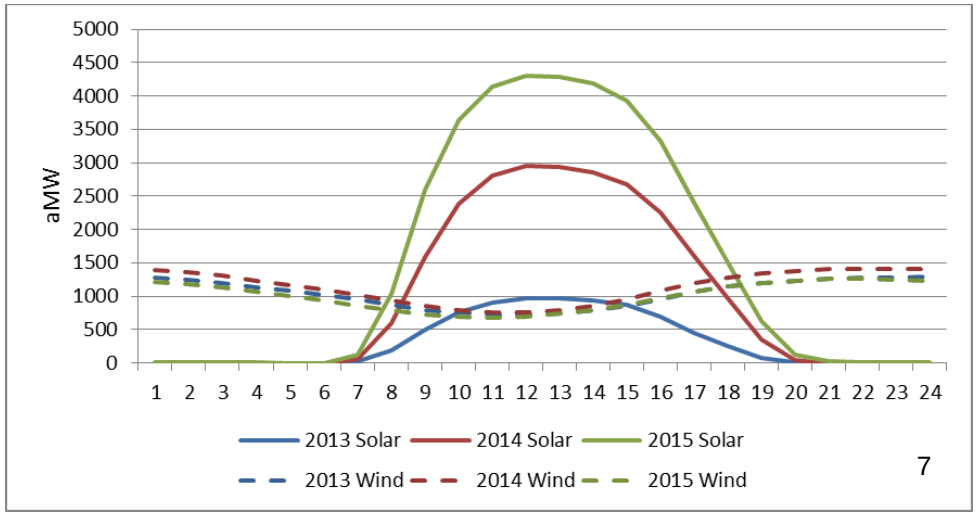
- The net load in the hours in the middle of the day, which were included in the traditionally defined "heavy load hours," has trended significantly downward as renewable generation has increased.
- This is consistent with much of the industry literature on the "Duck Curve".
- This shift in the daily net load profile has been reflected in California Power Prices and demand for imports. See appendix for examples.
- The CAISO's Time of Use proposed "on-peak" definition (from March 12, 2015) reflects this changing net load profile. The proposal identified 5 hours a day, 7 days a week as "on-peak" .

CAISO Daily Net Load Profile by Year



* 2016 data is through April 8th, 2016.

CAISO Daily Renewable Generation Profile by Year



Other Rate Change Considerations

- Should the Hourly Firm rate on the Southern Intertie be changed?
- Should the SCD rate on the Southern Intertie be set differently?
- Should the Days 1-5 rate on the Southern Intertie be set differently?
- Should the IS HNF rate be set directionally?
- Should the IS HNF rate have seasonal or on-peak/off-peak attributes?

Hourly Firm Rate

- Currently, BPA uses the same methodology for calculating the Hourly Firm and the Hourly Non Firm transmission rates for its Point-to-Point (PTP) services.

Hourly Firm Rate - Alternatives

Alternatives for the Southern Intertie Hourly Firm rate:

1. Continue to use the same methodology for calculating Hourly Firm and HNF
2. Adopt different methodologies for calculating the Hourly Firm and the HNF rates on the Southern Intertie

Hourly Firm Rate – Staff Leaning

- BPA staff leaning: Alternative 1 - Use the same methodology for calculating Hourly Firm and HNF
- The change to hourly markets will impact the demand for Hourly Firm in the same way HNF is impacted. This change means that customers relying on hourly products to conduct business are likely to purchase the products in fewer hours.
- Additionally, Hourly Firm is a superior product than HNF and should not be provided at a lower price.

SCD Rate

- Currently, BPA charges the same Scheduling Control and Dispatch (SCD) rate for Point-to-Point (PTP) service on the Network, Southern Intertie and Montana Intertie. The SCD rates for short-term firm and non-firm service are derived from the long-term rate using the same factors that are used to calculate the short term PTP rates. The hourly rate is calculated using a divisor of 5 days per week, 16 hours per day.

SCD Rate – Alternatives

Alternatives for the SCD rate for HNF on the Southern Intertie:

1. Continue to charge the same SCD rate for IS HNF service as for other hourly Point-to Point services.
2. Develop a separate SCD rate for IS HNF service, using to same divisor used to calculate the IS HNF transmission rate. This would result in an SCD rate for IS HNF service that is significantly higher than for other services.

SCD Rate – Staff Leaning

- BPA staff leaning: Alternative 1
- BPA does not allocate SCD costs among the segments, so the rate is the same across all segments, including the Southern Intertie. The cost of providing SCD service for IS HNF is not higher than for other hourly SCD on other segments.

Daily Block 1 Rate Change

- The daily divisor in the HNF rate is the same as the divisor used in the Daily Block 1 (service up to 5 days) rate. If BPA changes the daily denominator in the HNF rate, it should consider also changing the daily denominator in the Daily Block 1 rate.

Daily Block 1 - Alternatives

- Alternatives for the Daily Block 1 rate on the Southern Intertie:
  1. Continue to use a divisor of 5 days in both the HNF and Daily Block 1 products.
  2. Change the divisor in the Daily Block 1 and HNF products to 6 or 7 days. This would effectively lower the Daily Block 1 rate.

Directional Rate

- Currently, the HNF and Hourly Firm rates are the same for north to south reservations and south to north reservations. The market factors that support changing the HNF rate exist only in the north to south direction. A high south to north rate may discourage utilization of the Southern Intertie when California has excess renewable generation.

- A lower S>N rate could allow customers to purchase Hourly Firm S>N and redirect to N>S HNF.

Directional Rate - Alternatives

- Directional Rate Alternatives:
  1. Raise the HNF and Hourly Firm rates in both S>N and N>S directions.
  2. Maintain the current HNF rate methodology for reservations in the S>N direction.
  3. Raise the HNF and Hourly Firm rate in both directions and discount in the S>N direction. The discount would not apply if customers redirected to N>S.

Seasonal or On/Off Peak Rate

- There are times of the year where the Southern Intertie is not regularly fully utilized.
- Should BPA consider different IS HNF rates during certain seasons?
- Should BPA consider different IS HNF rates during different times of the day?

Next Steps

By May 4, 2016:

- We are seeking customer feedback on BPA's proposed HNF methodology for the Southern Intertie and other rate considerations.
- Please send all feedback to BPA's Tech Forum at techforum@bpa.gov
- Please use "BP-18 IS HNF" as the subject line.

Future BP-18 Workshop Dates

Month	Date	Potential Topics
May	• 5/6 (F) • **5/24 (T)**	Load and Planning; Segmentation SDD; **HNF** (more discussion on data)
June	• 6/8 (W) • **6/29 (W)**	Hold **HNF**
July	• 7/13 (W) • 7/27 (W)	Load forecast; LGIA; Sales Revenue Requirement
August	• 8/10 (W) • 8/24 (W)	Risk; Rate models; wrap-up Hold
September	• 9/14 (W)	Hold

Appendix

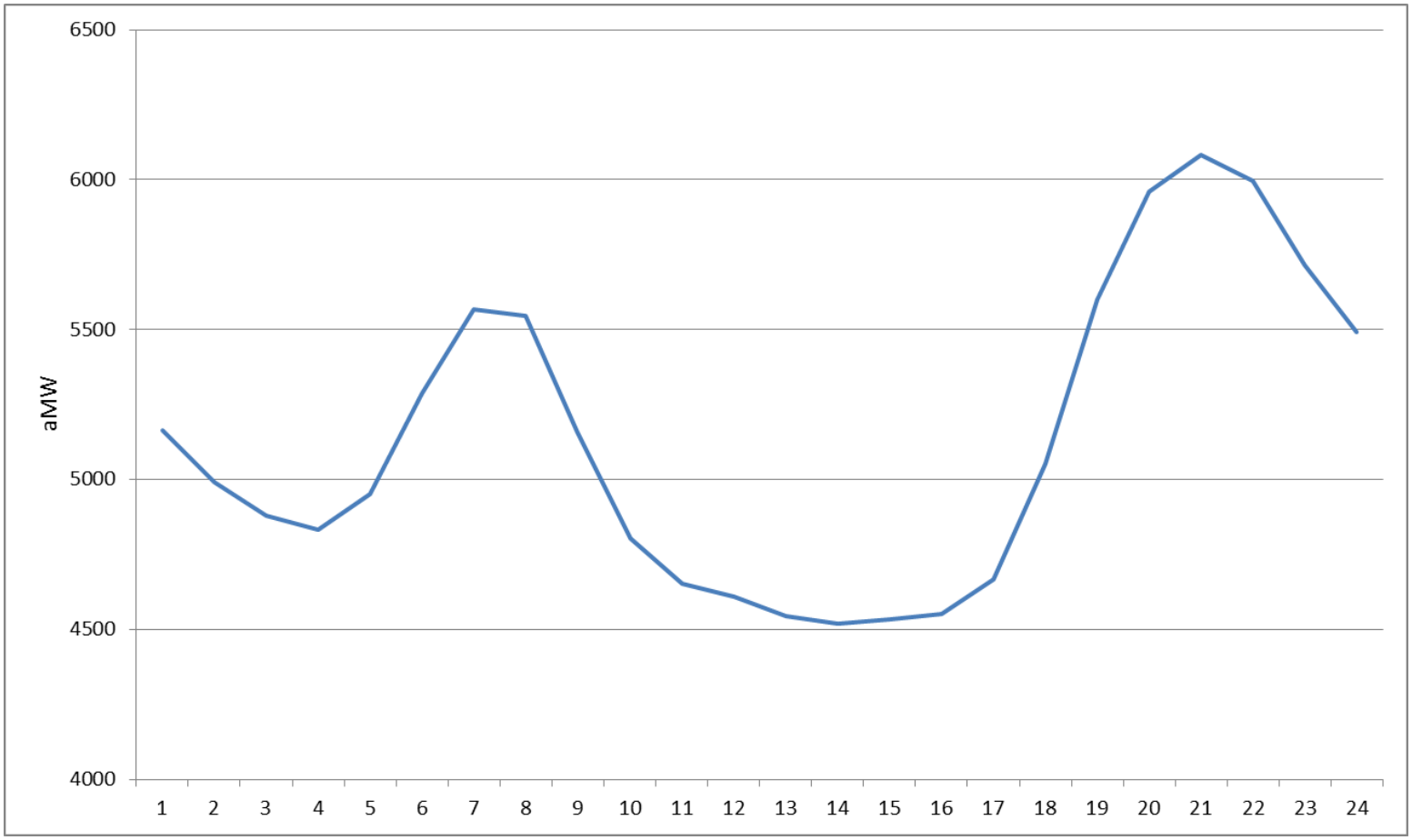
BPA's Current Hourly Non-Firm Southern Intertie Rate Design

- The current IS HNF rate is calculated by multiplying the long term rate by 7/5 (seven days in a week divided by five weekdays) and by 24/16 (24 hours a day over 16 heavy load hours based on traditional industry definitions).

$$\text{IS HNF Current} = \text{IS LT} * \left(\frac{7}{5}\right) * \left(\frac{24}{16}\right) = \text{IS LT} * \left(\frac{168}{80}\right)$$

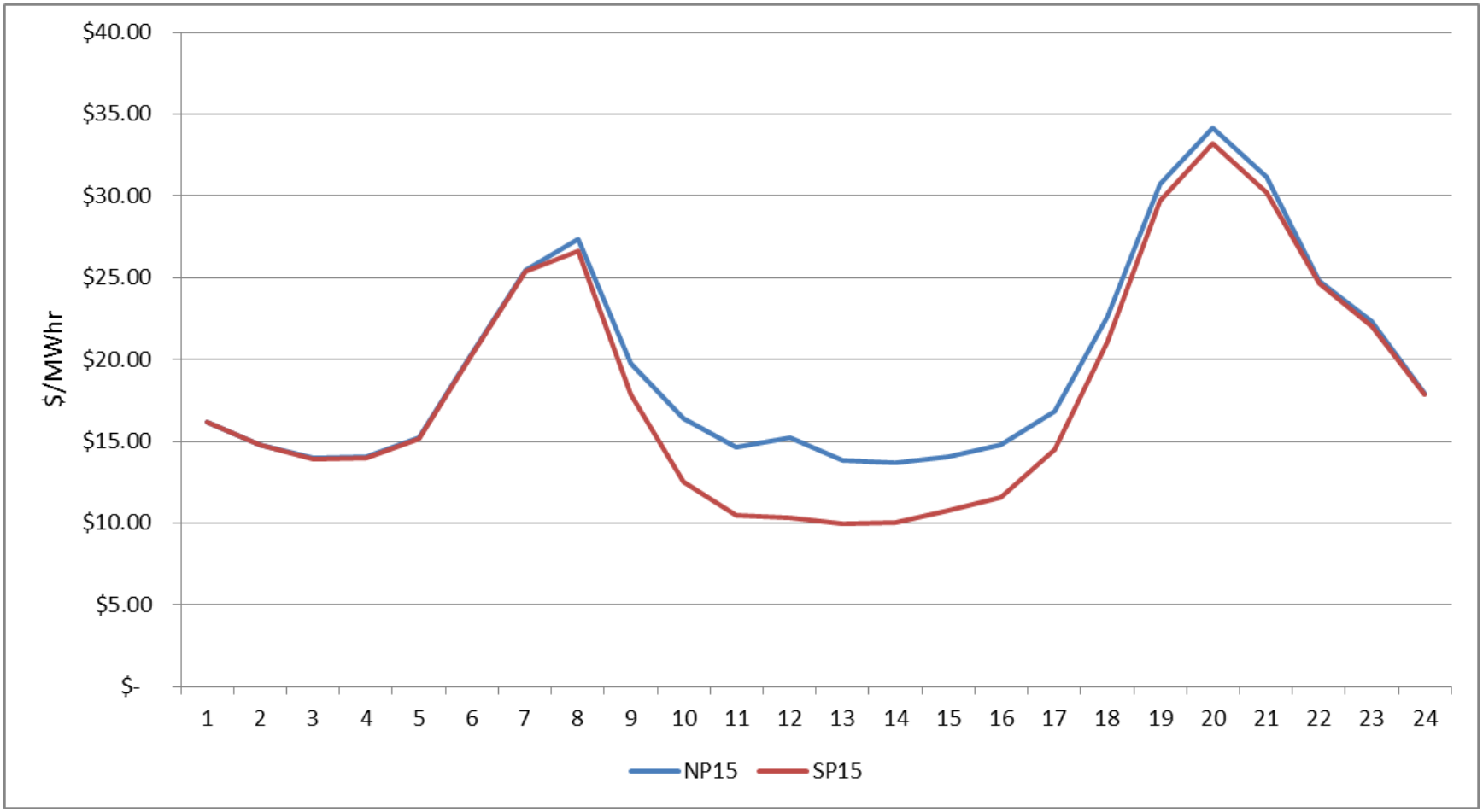
- The effective result of using this ratio is that a customer reserving hourly transmission on all the traditional "heavy load hours" for five days a week would pay the same as a customer with long term transmission.
- This ratio provides an economic incentive for a customer to choose long term transmission over HNF if they anticipate making a reservation during the typical heavy load hours.
- Long term transmission subscription helps ensure BPA has predictable and stable cost recovery during rate periods.

Average COI + PDCI Daily Flows by Hour Ending (March 2016)



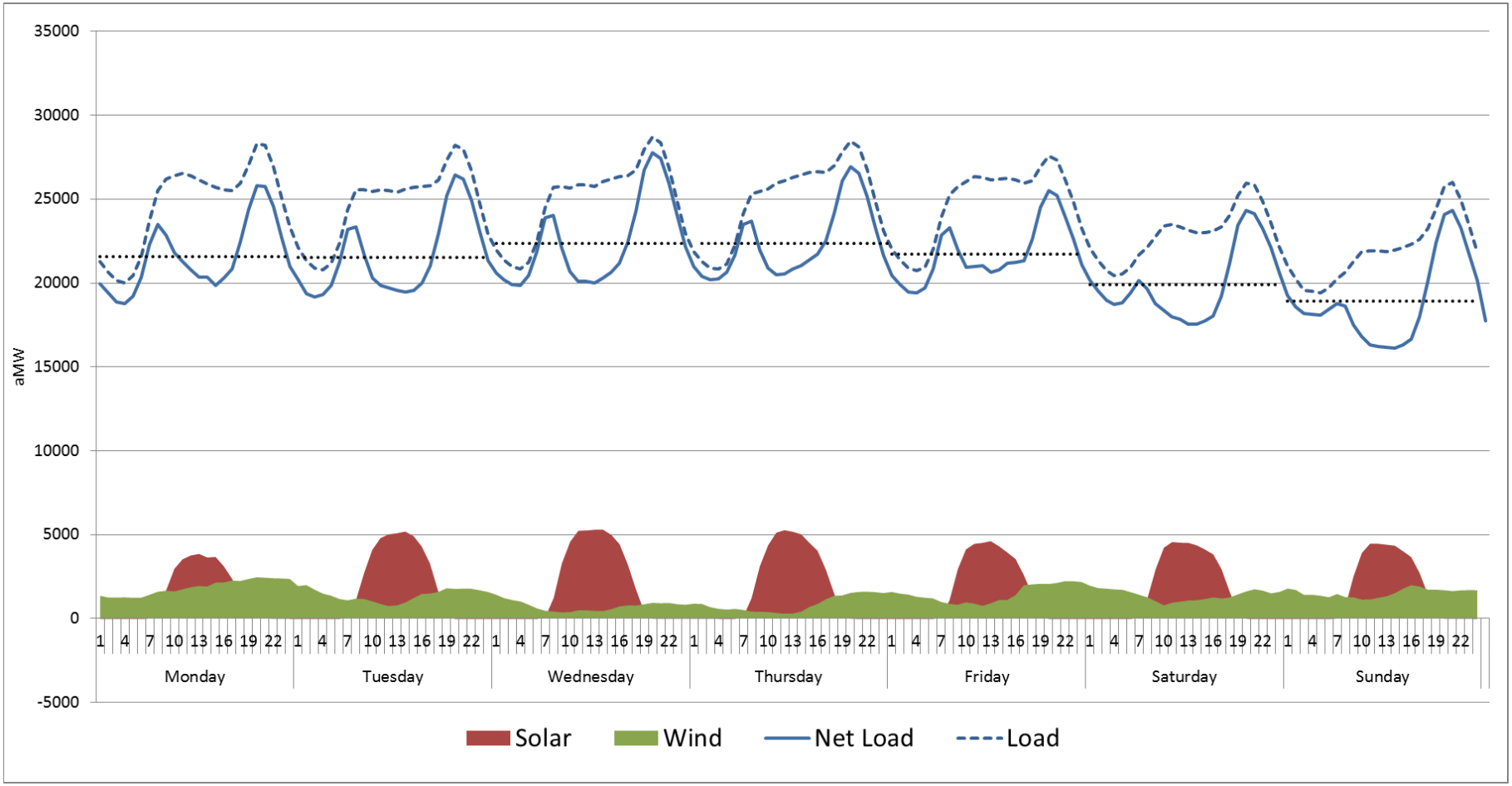
Graph illustrates recent data and may not reflect seasonal effects

Average CAISO Day-Ahead Prices by Hour Ending (March 2016)



Graph illustrates recent data and may not reflect seasonal effects

Average CAISO Daily Net Load Profile by Weekday (March 2016)



Graph illustrates recent data and may not reflect seasonal effects

Data Sources

CAISO historical price, load and renewable generation

http://oasis.caiso.com/mrioasis/logon.do

Southern Intertie Loadings

http://transmission.bpa.gov/Business/Operations/Paths/default.aspx

CAISO Daily Renewables and Net Load Summary

http://www.caiso.com/market/Pages/ReportsBulletins/DailyRenewablesWatch.aspx

CAISO TOU Proposal

http://www.caiso.com/Documents/CaliforniaISO_Time_UsePeriodAnalysis.pdf