

ISSUE #29: HOURLY FIRM

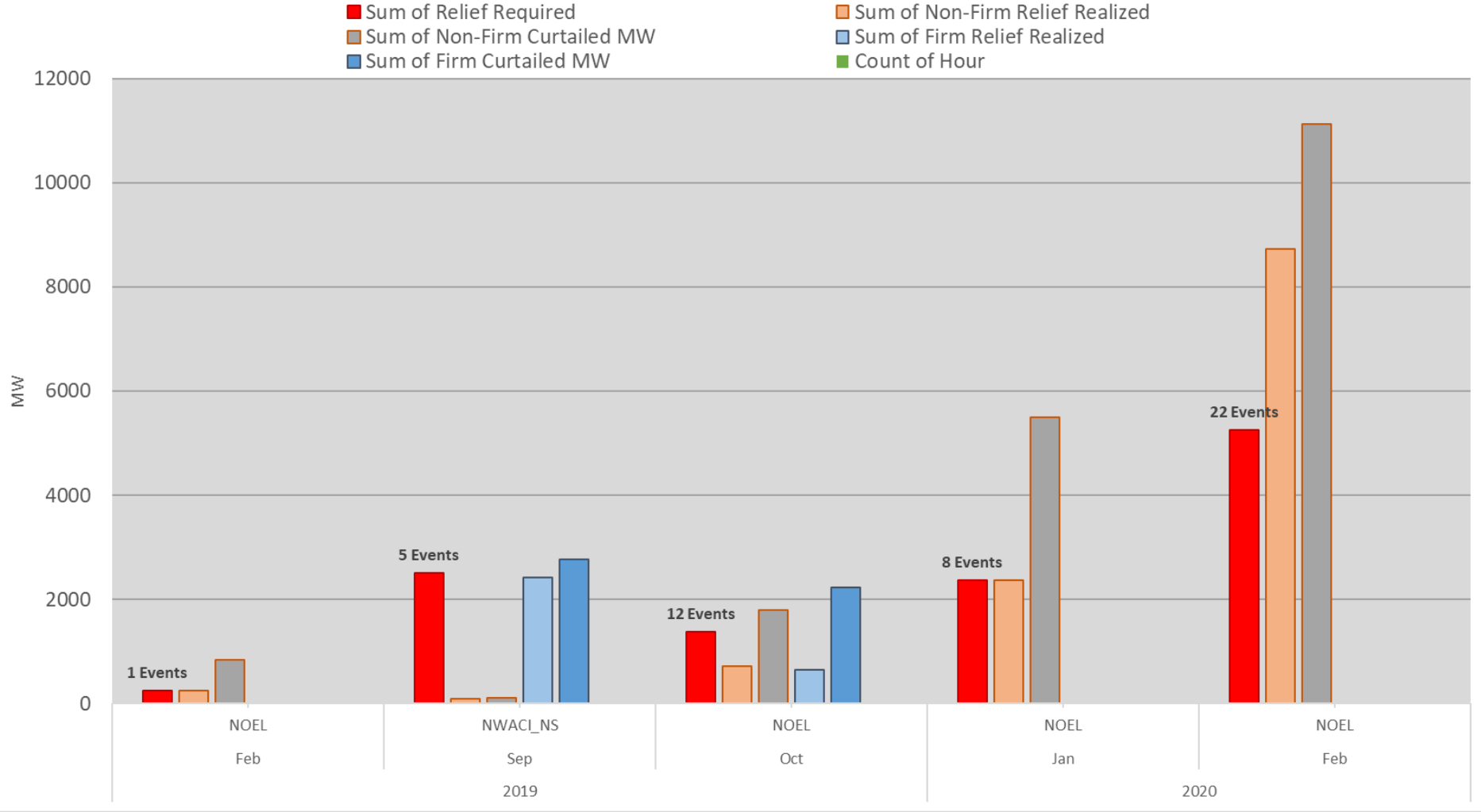
Today's Objective

As committed in the TC-20 settlement, BPA will provide an update and share results of the evaluation of Hourly Firm based on the [Monitoring and Evaluation Plan](#).

Overall Events

- **Curtailments:**
 - 32 events over 8 individual days (12/1 – 2/29)
- **TLR Avoidance Events:**
 - 46 events over 42 individual days (12/1 – 2/29)
- **Refused TSRs due to TLR Avoidance:**
 - 635 (626 on NOEL) (12/1 – 2/29)
- **Percentage of hours where actual flows were within 20% of TTC:**
 - 2.68% - System-wide (31.09% - NOEL only)

Curtailment Impact Summary - 1 Year

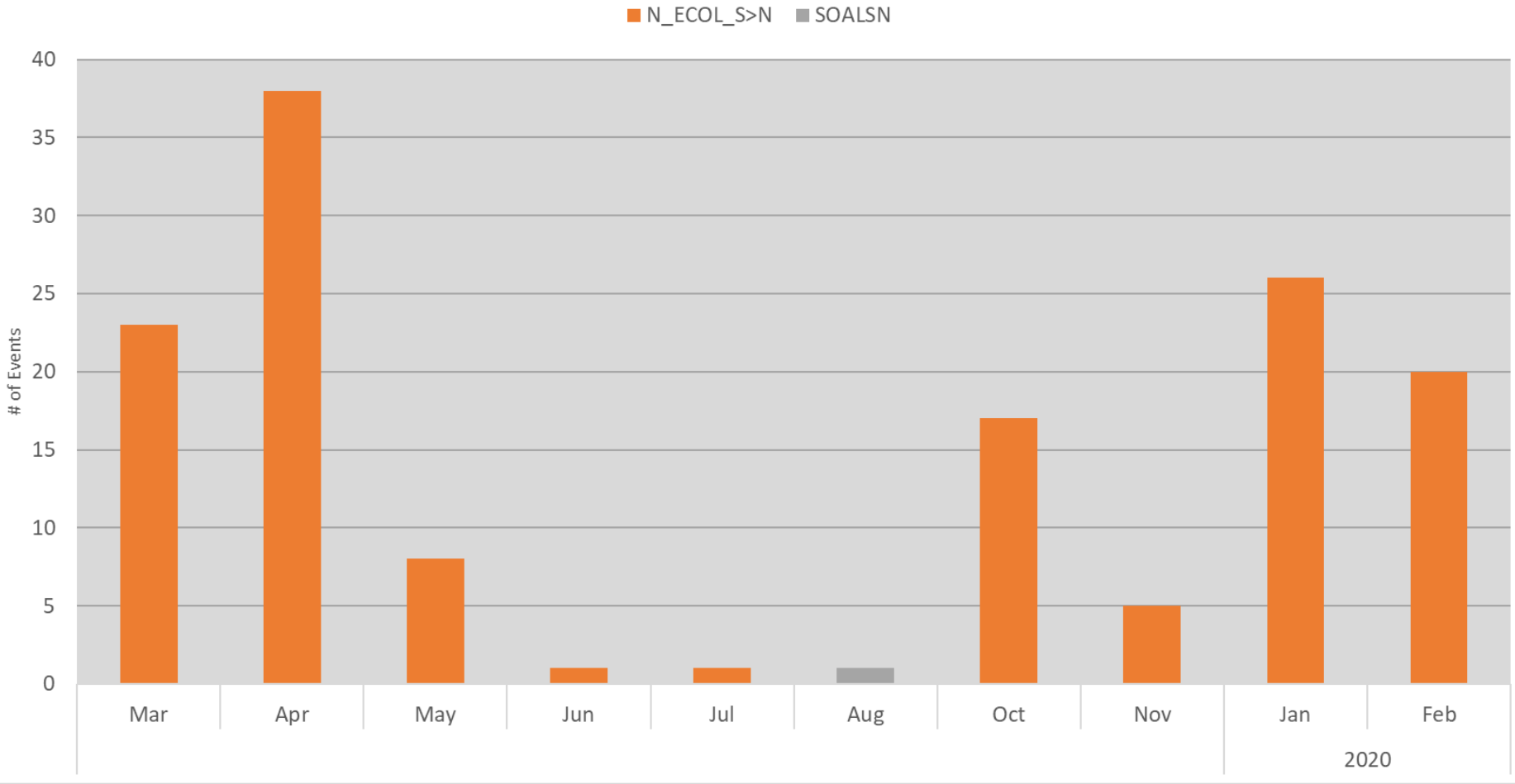


TLR Avoidance Events – March 2019-February 2020

Count of TLR Avoidance Events	Days/ Hours Impacted	Refused TSRs	Flowgate	Annotation	Initial Start	Final Instance
Total: 157	Total: 195/ 1798	Total: 139	-	-	2019-03-05 07:00:00 PS	2020-02-25 18:00:00 PS
134 Firm / 5 Non-Firm	177 / 1827	1222	N_ECOL_S>N	North of Echo Lake Mitigation	2019-03-05 07:00:00 PS	2020-02-25 18:00:00 PS
17 Firm	17/29	17	SOALSN	South of Allston Mitigation	2019-08-06 16:00:00 PD	2019-08-06 20:00:00 PD

*Days and Hours impacted count is not mutually exclusive.

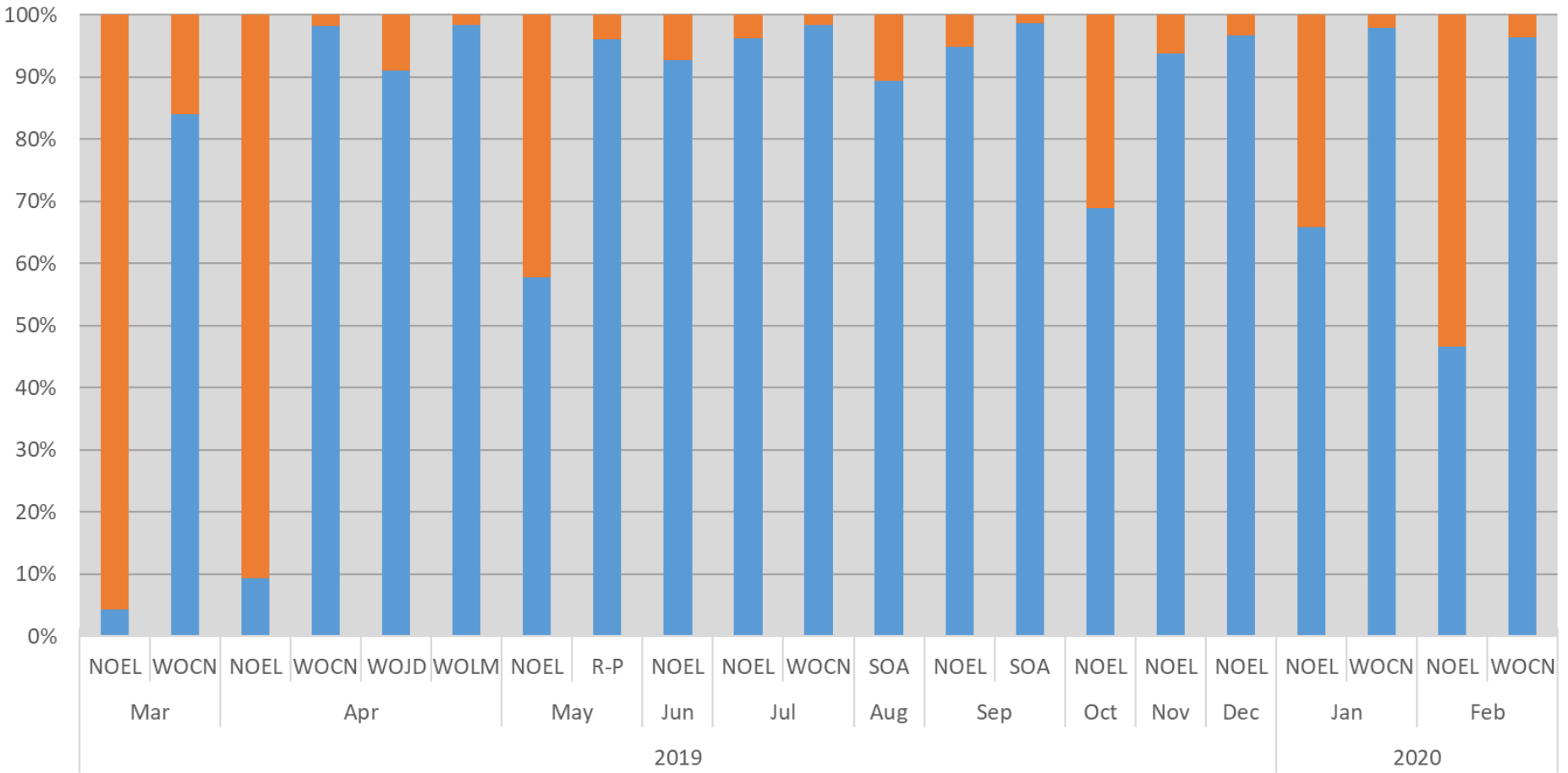
TLR Avoidance Events (03/01/2019 - 02/29/2020)



*Chart includes information for flowgates with greater one percent of hours where actual flows were within 20% of TTC.

Flows within 20% of TTC

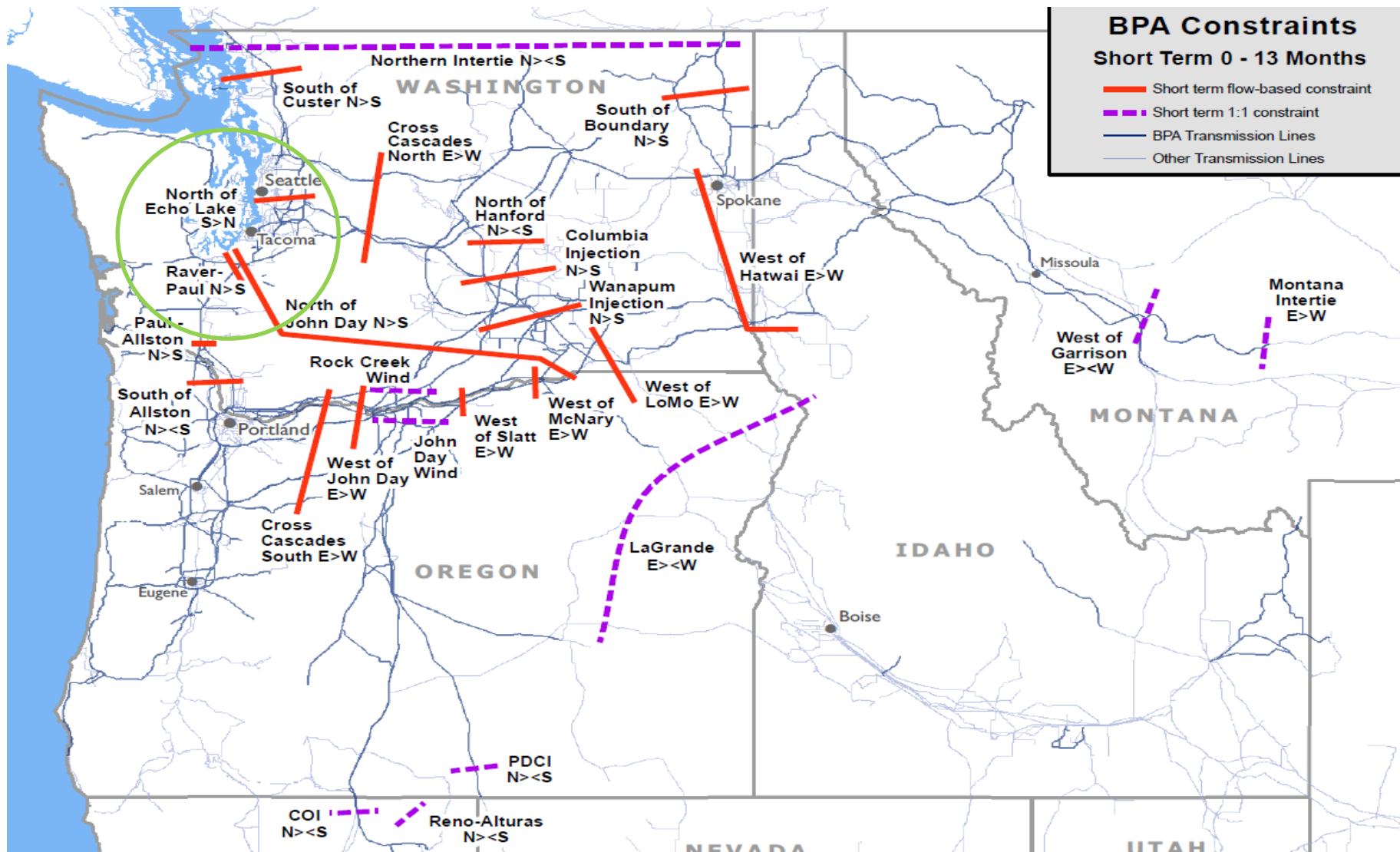
■ Percent Below 20% ■ Percent Within 20%



DEEP DIVE

FEBRUARY 2020
NORTH OF ECHO LAKE

ATC Short Term Constraints



Deep Dive Conditions

- Timeframes – Event 1: February 5-7, 2020
Event 2: February 16 – 18, 2020
Event 3: February 22 -24, 2020
- Curtailment Events – 11
- TLR Avoidance Events (February 2020) – 20 (20 individual days)
- Planned Outages – (detailed on following slide)
- February 5 , 2020 was 59° the warmest on record

Dispatcher Actions

Event 1: Bypassed series capacitors from 1200 to 1600 PST

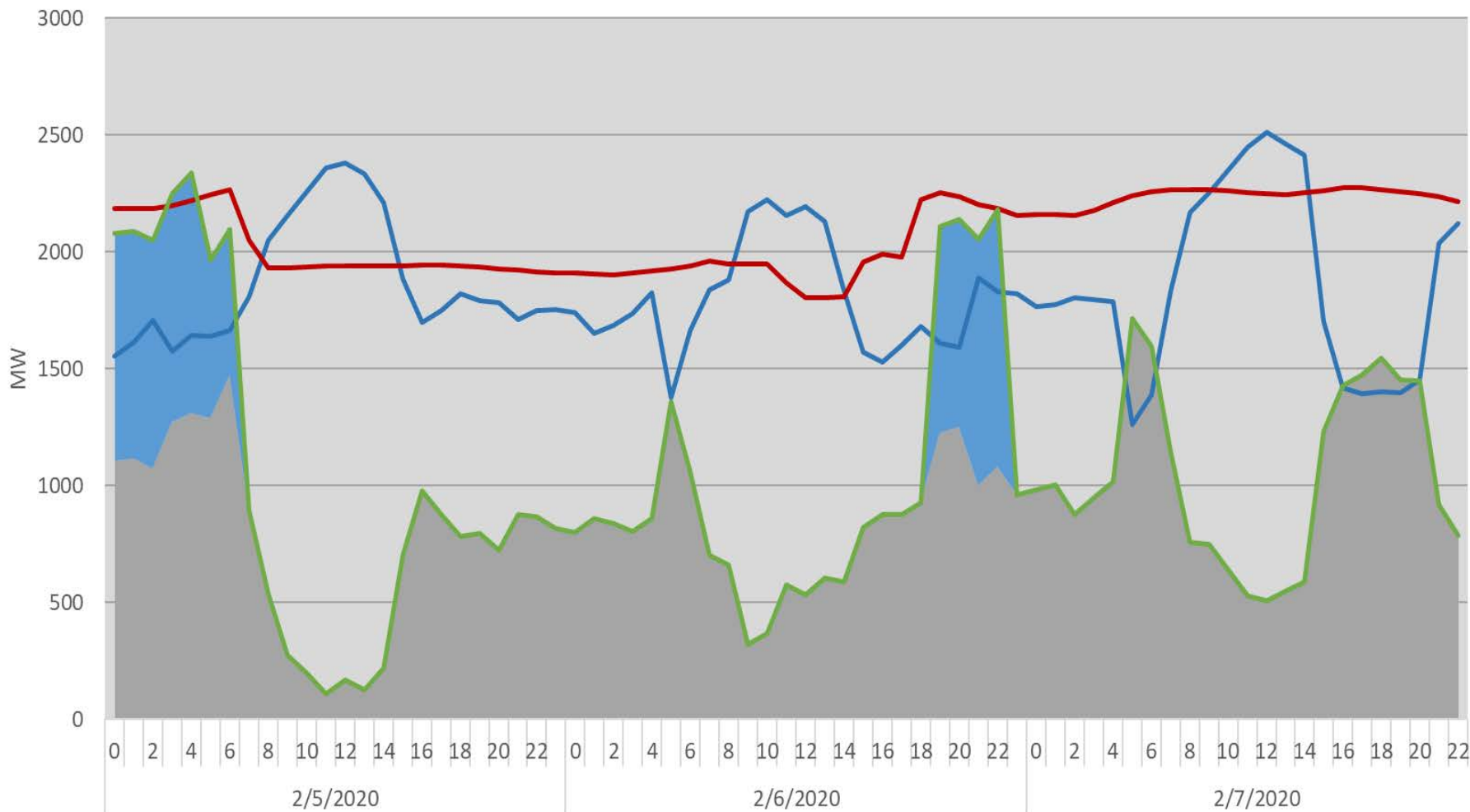
Key NOEL Outage Summary

N_ECOL_S>N

Event (from previous slide)	Annotation	Start (order by start)	Stop
1	SCL- EAST PINE-DENNY 115kV CABLE & EAST PINE BANK 95 (SLIM 636)	2020-02-05 08:00:00 PS	2020-02-06 20:00:00 PS
2	BPA - MONROE 500kV NORTH BUS INCLUDING CHIEF JO-MONROE 1 500kV LINE (STUDY 637 R2)	2020-02-17 07:00:00 PS	2020-02-22 17:00:00 PS
3	BPA-CHIEF JOSEPH-MONROE 1 500kV LINE (SLIM 641 R3)	2020-02-22 17:00:00 PS	2020-03-13 17:00:00 PD

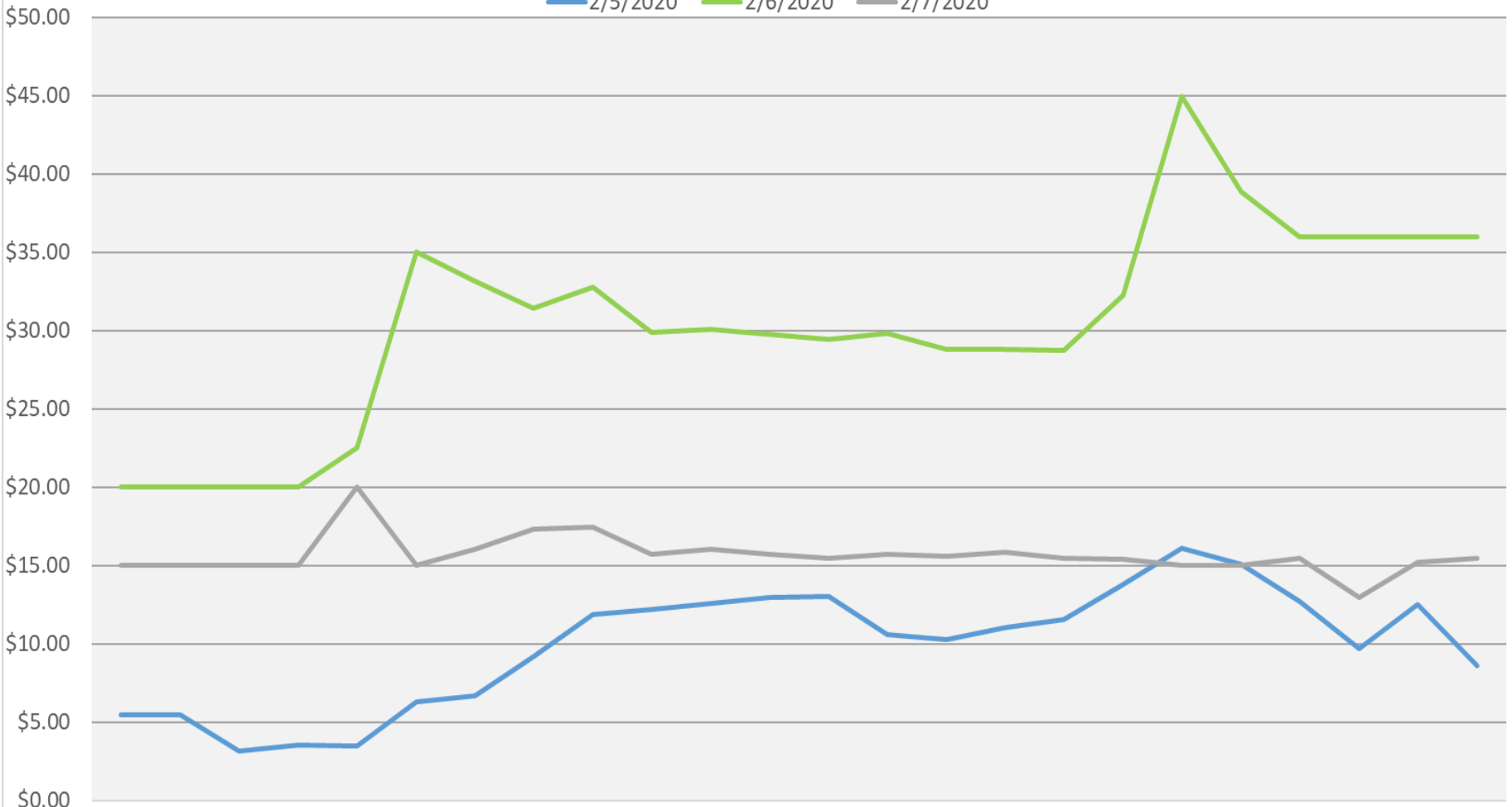
Short-Term ATC - 02/5/2020-02/7/2020

■ Non-Firm ATC ■ Firm ATC — Actual Flow — TTC — Total ATC

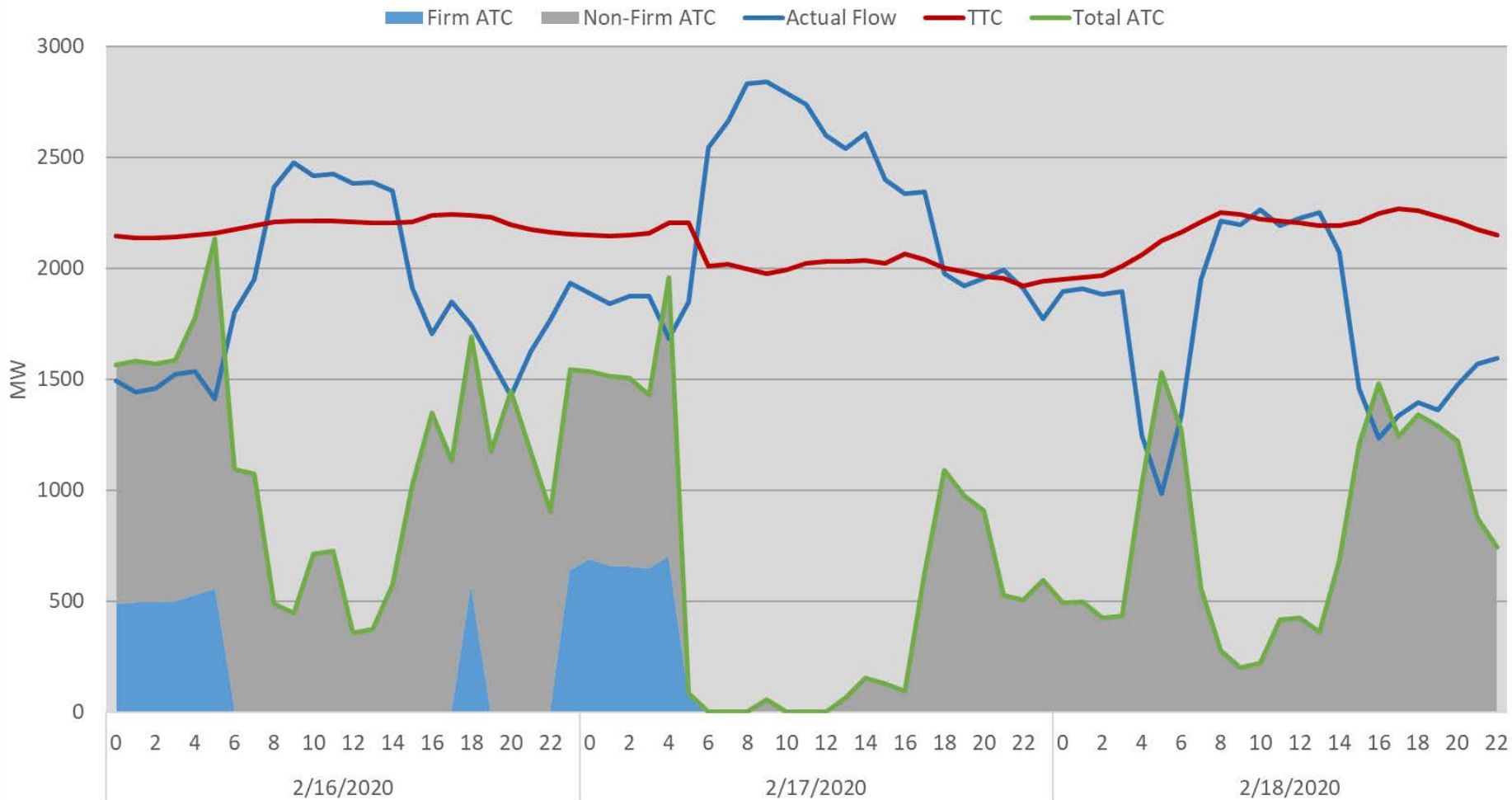


Mid-C Market Prices

— 2/5/2020 — 2/6/2020 — 2/7/2020

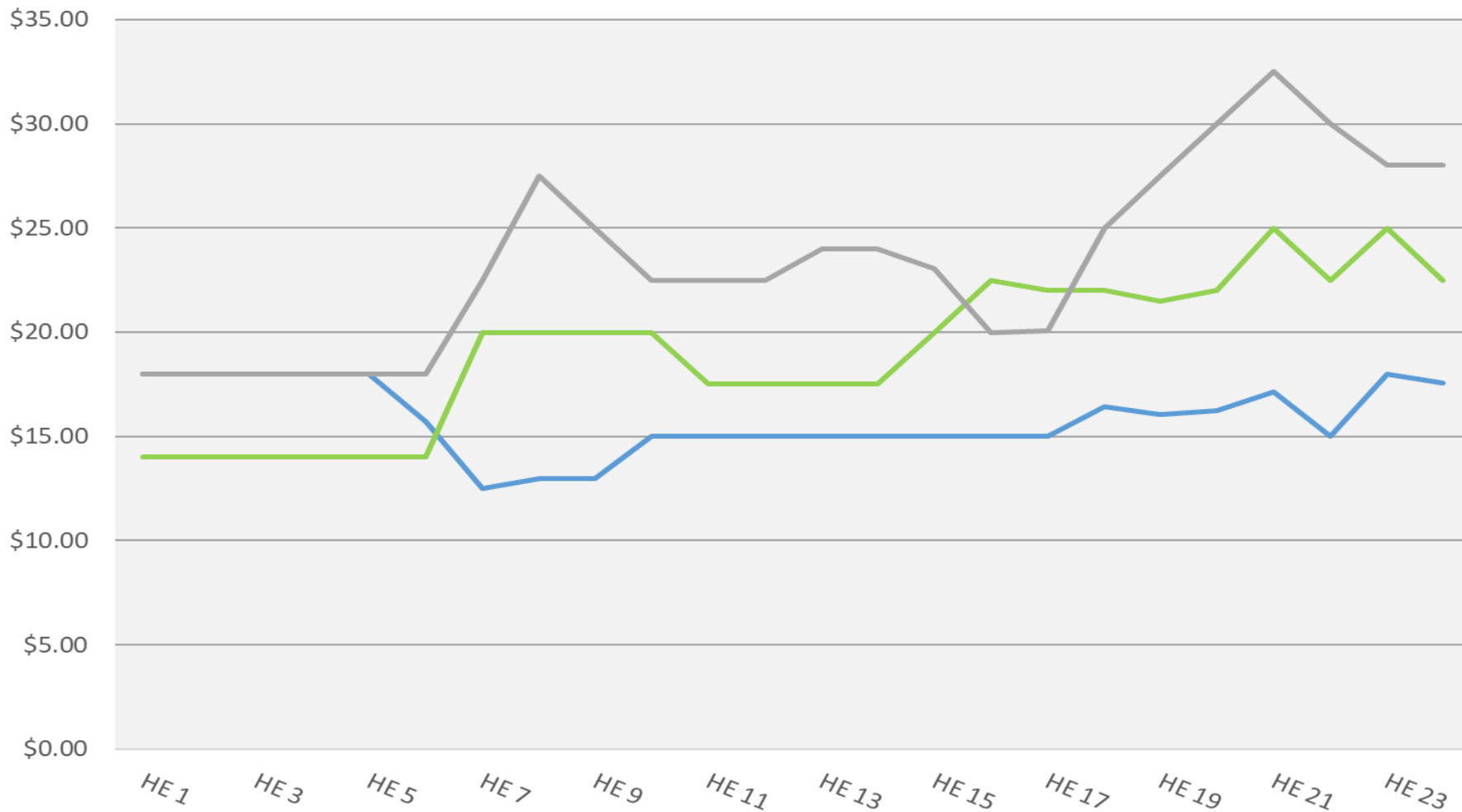


Short-Term ATC - 02/16/2020-02/18/2020

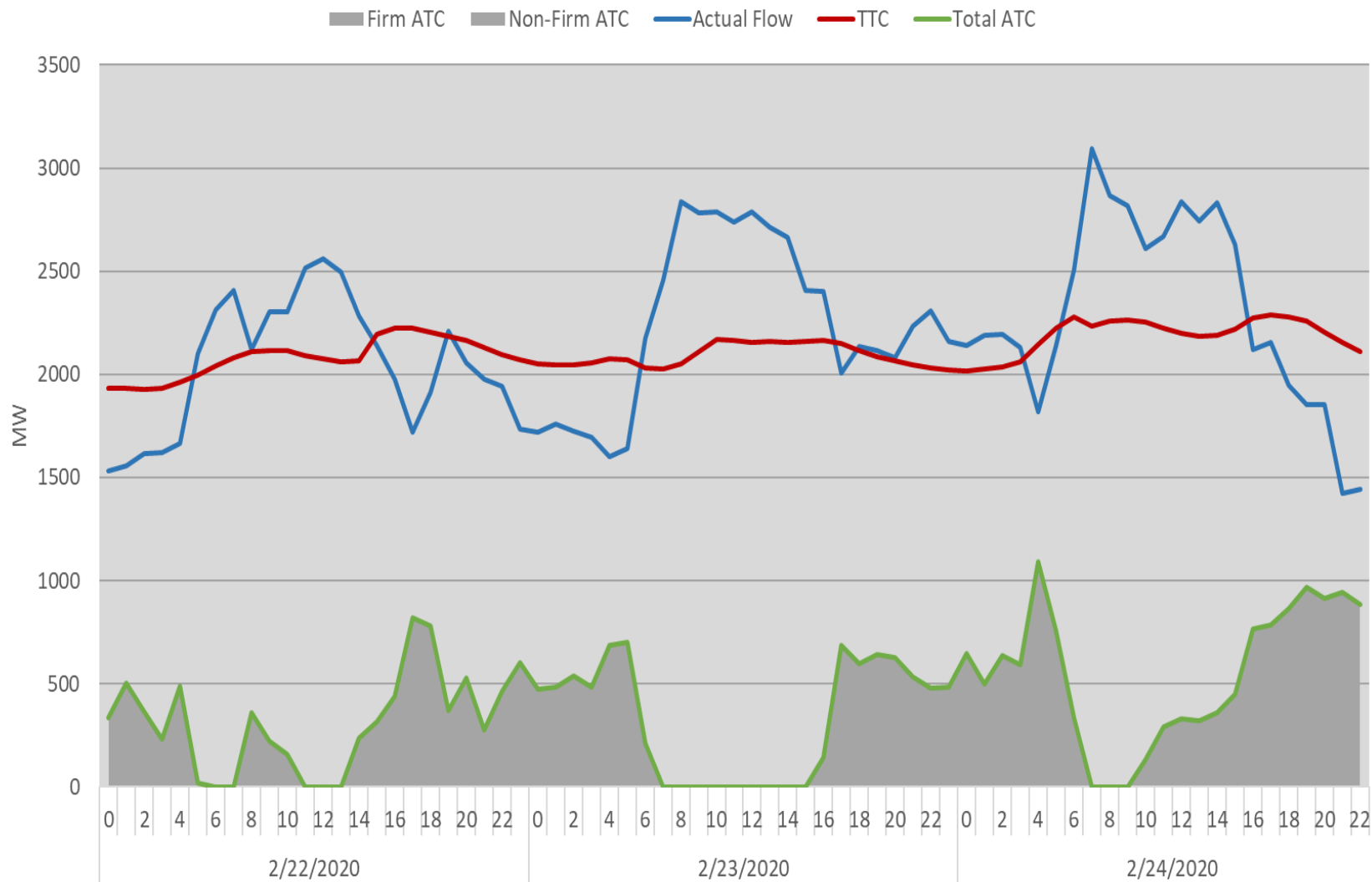


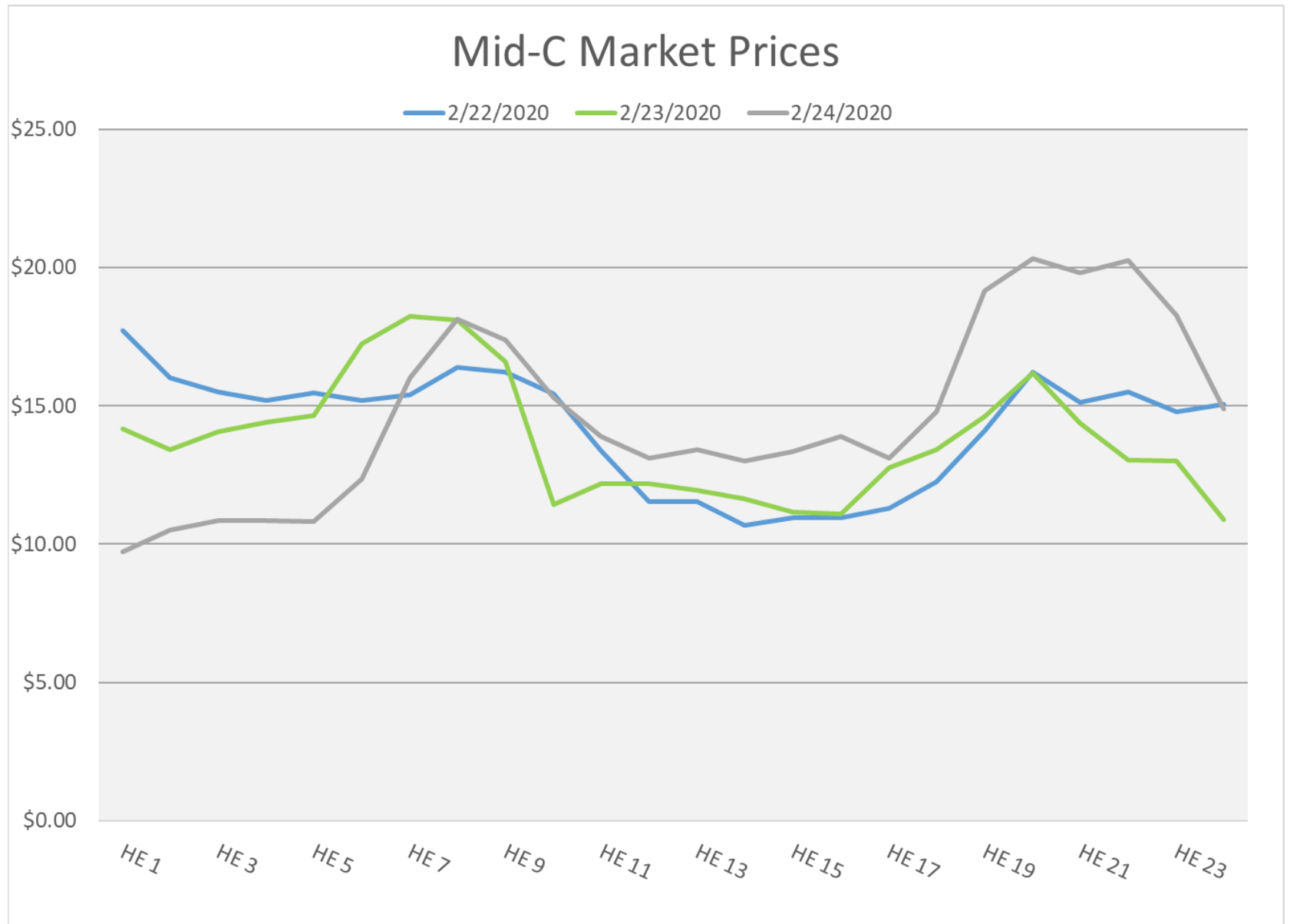
Mid -C Market Prices

2/16/2020 2/17/2020 2/18/2020



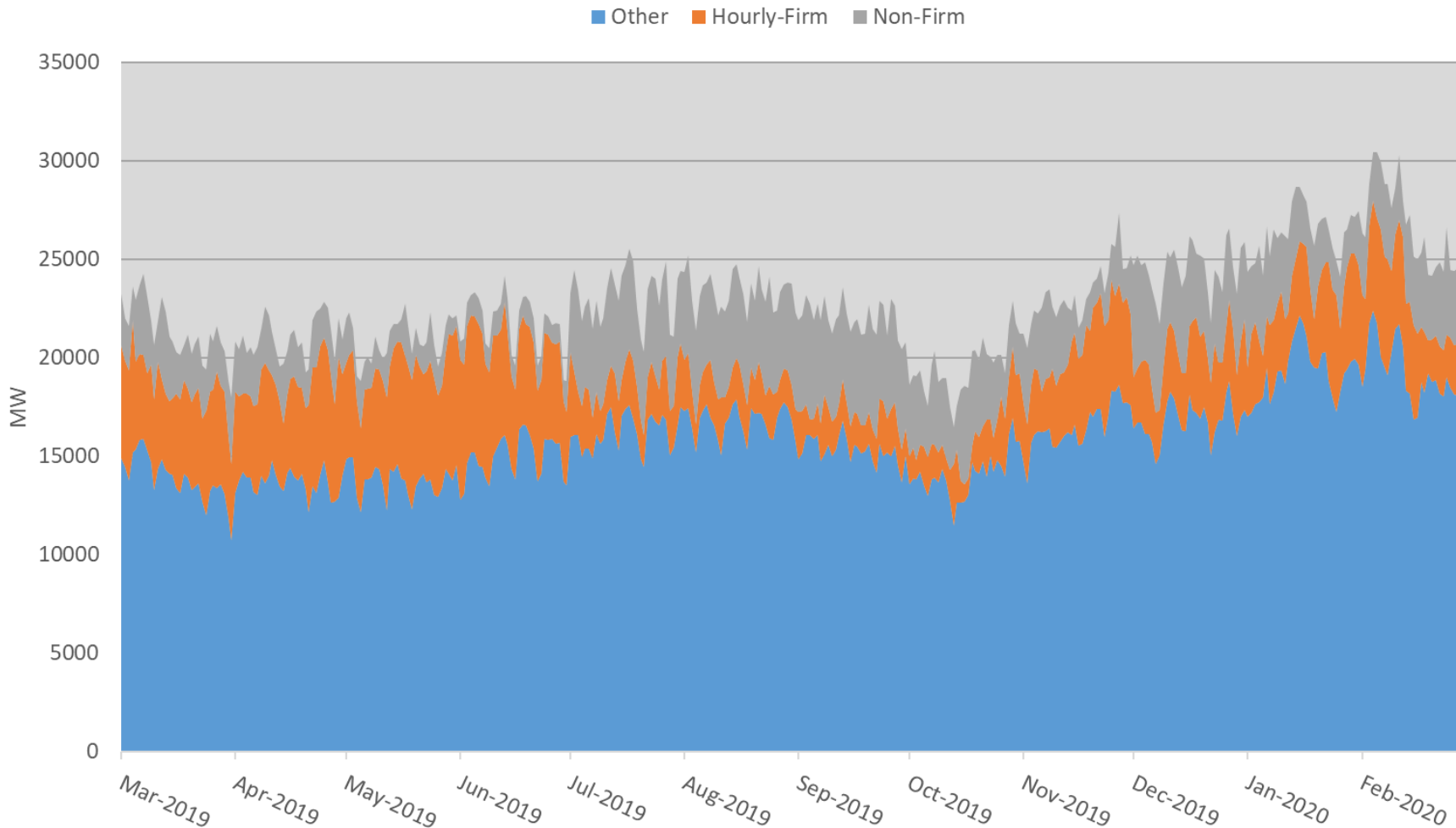
Short-Term ATC - 02/22/2020-02/24/2020





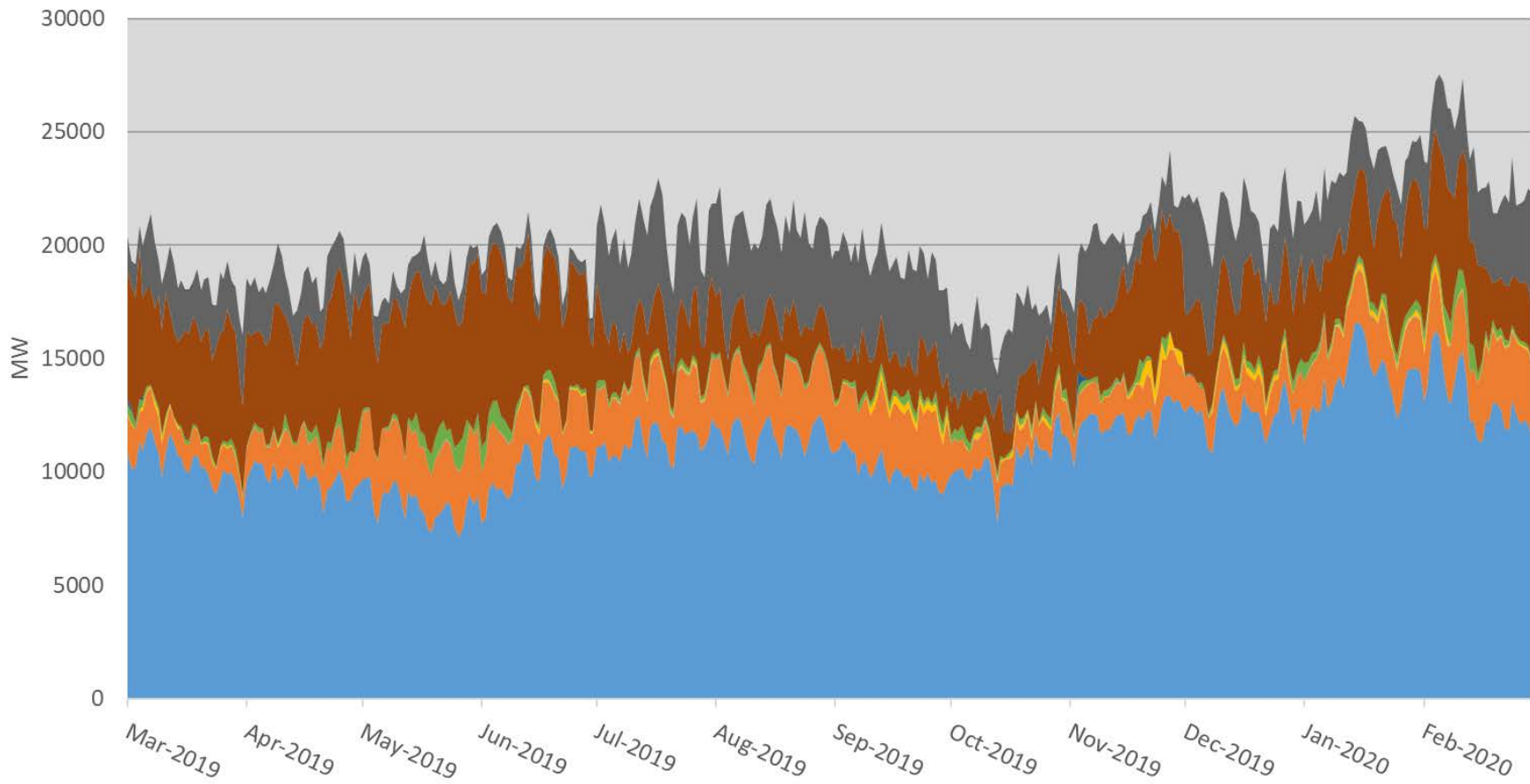
PRODUCT USAGE

Hourly Firm Limitation Impact - 1 Year



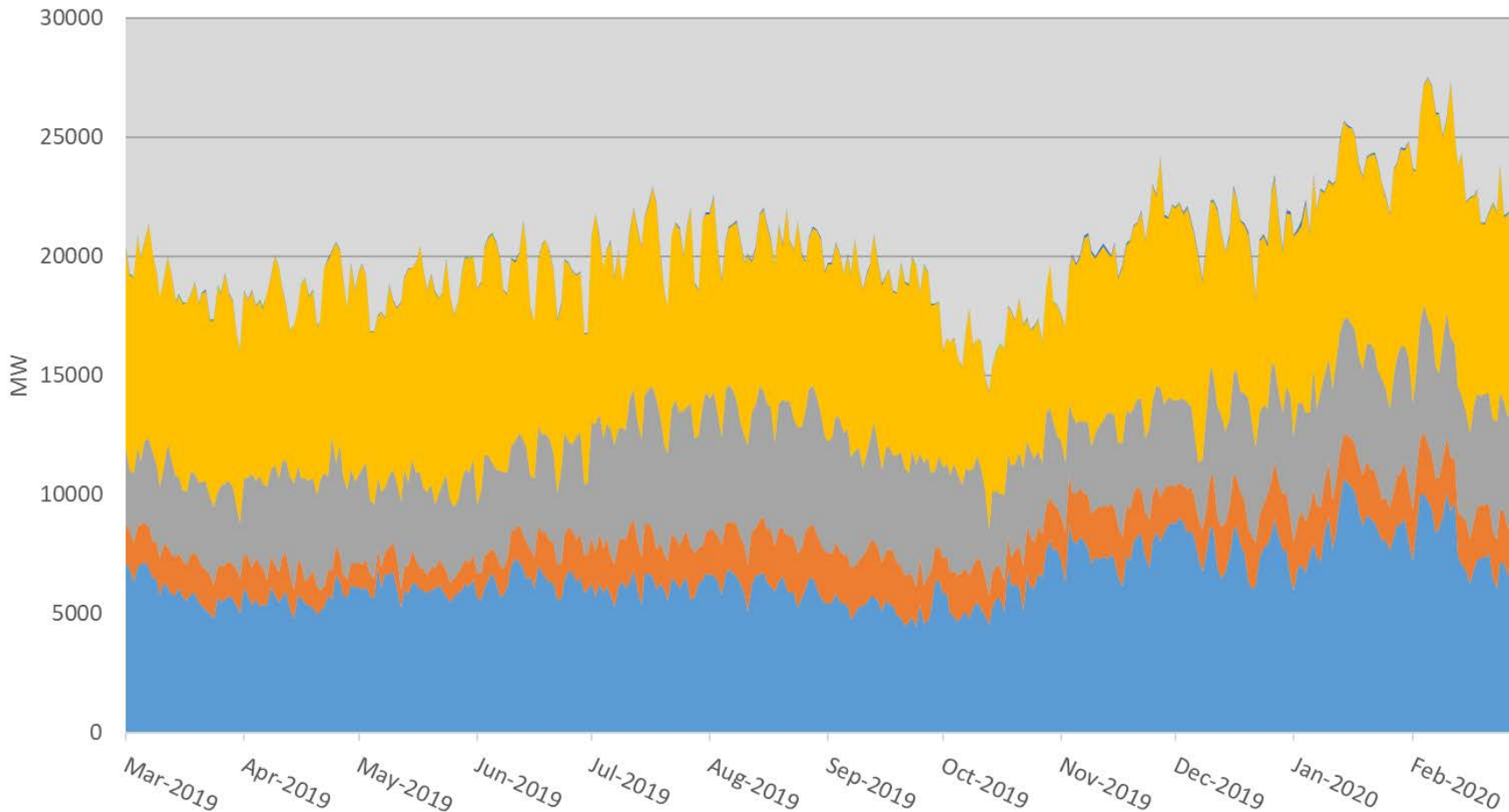
Product Mix - PTP - 1 year

- Yearly-Firm
- Monthly-Firm
- Monthly-Non-Firm
- Weekly-Firm
- Weekly-Non-Firm
- Daily-Firm
- Daily-Non-Firm
- Hourly-Firm
- Hourly-Non-Firm



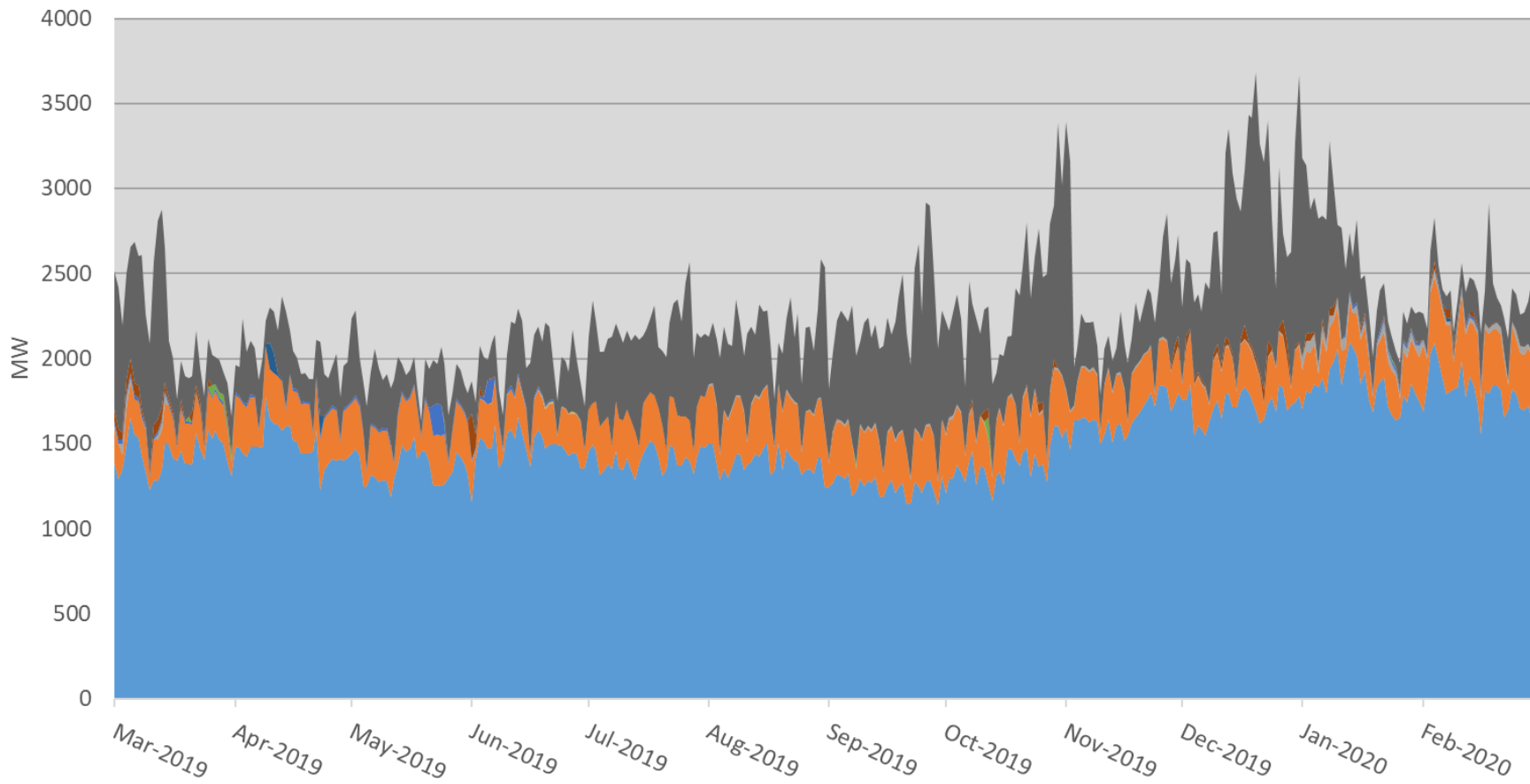
Product Usage - PTP - 1 Year

ORIGINAL RENEWAL RESALE TO SELF REDIRECT RESALE FROM MARKET DEFERRAL

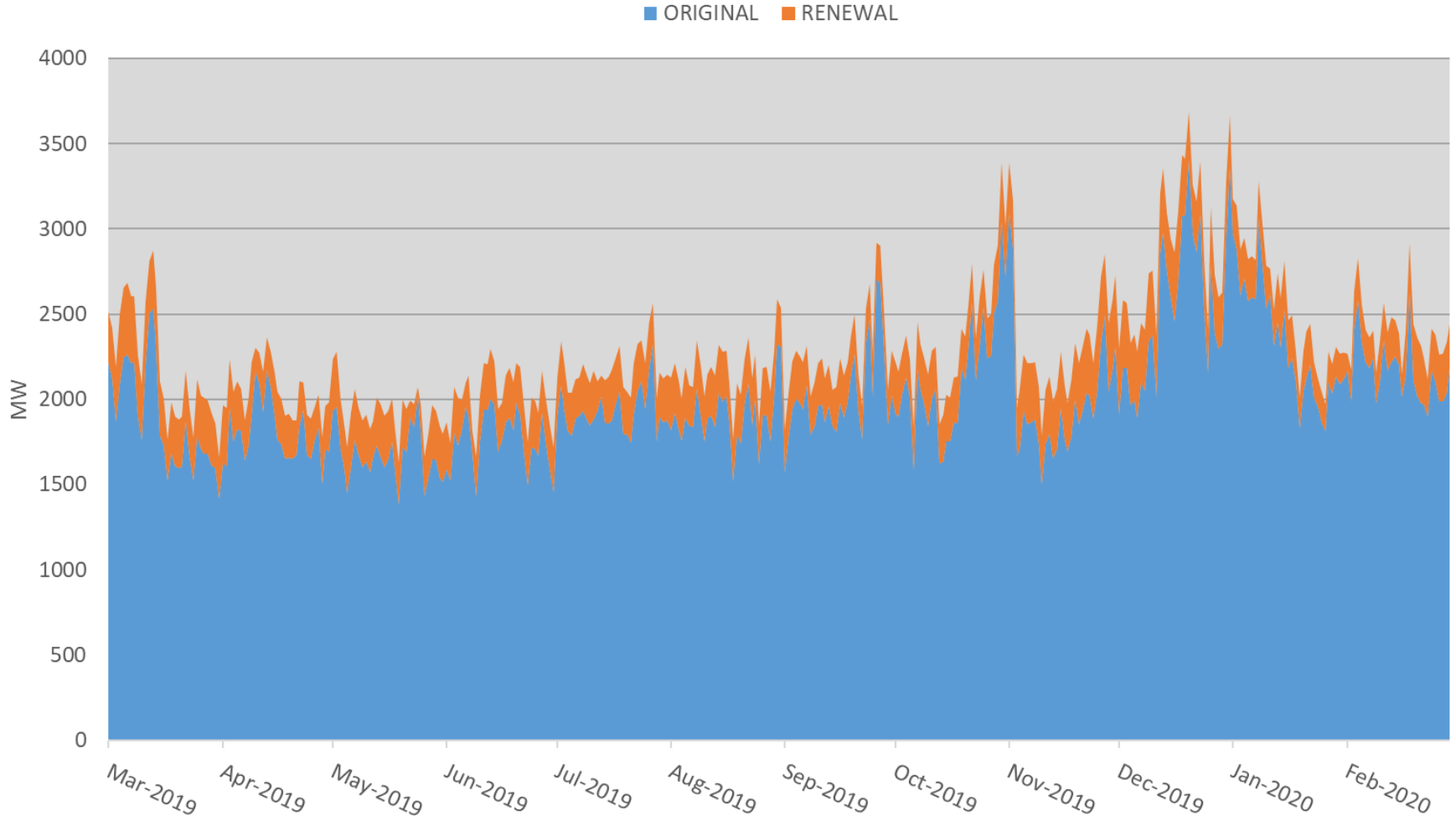


Product Mix - NT - 1 year

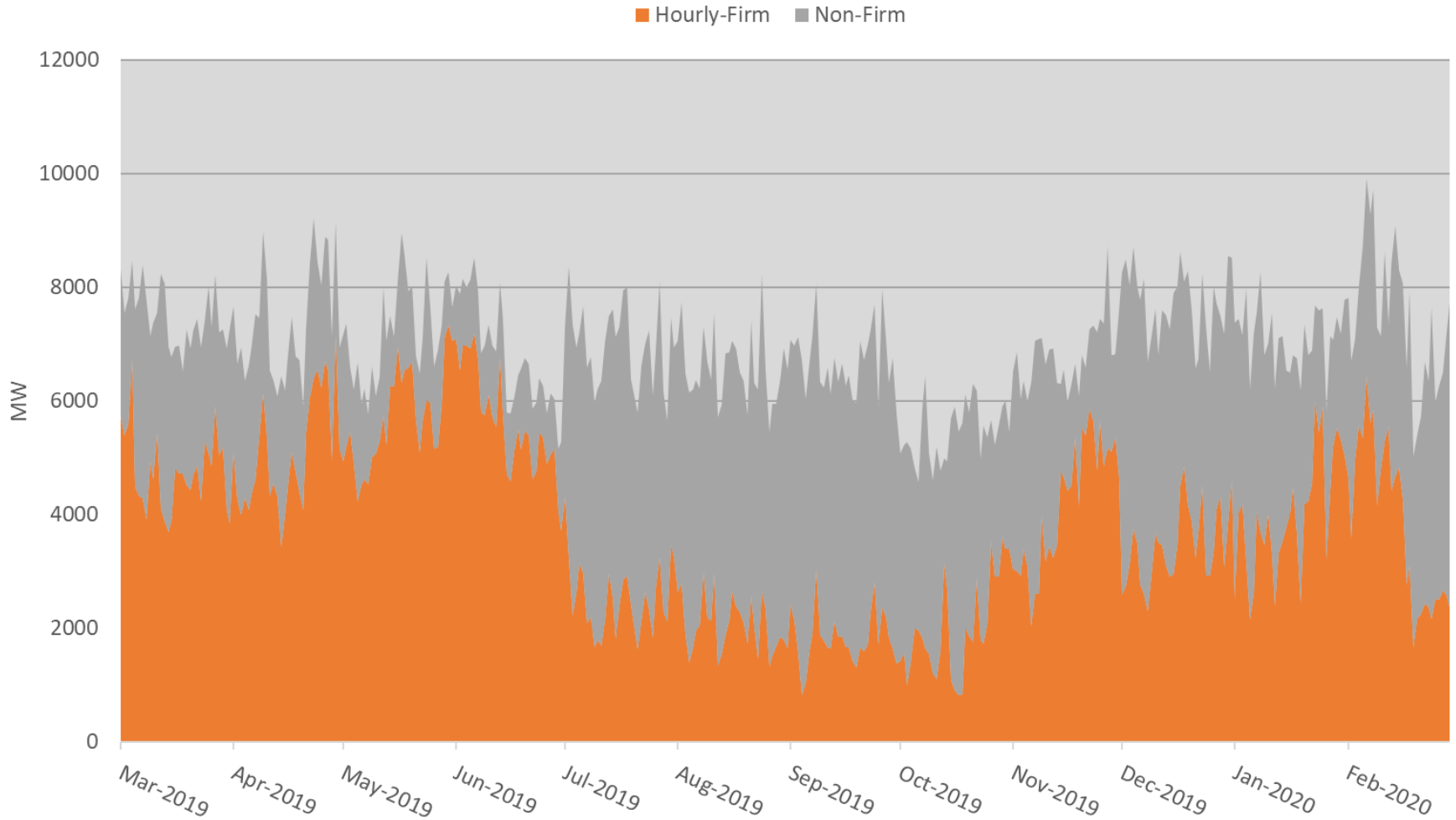
- Yearly-Firm
- Monthly-Firm
- Monthly-Non-Firm
- Weekly-Firm
- Weekly-Non-Firm
- Daily-Firm
- Daily-Non-Firm
- Hourly-Firm
- Hourly-Non-Firm



Product Usage - NT - 1 Year

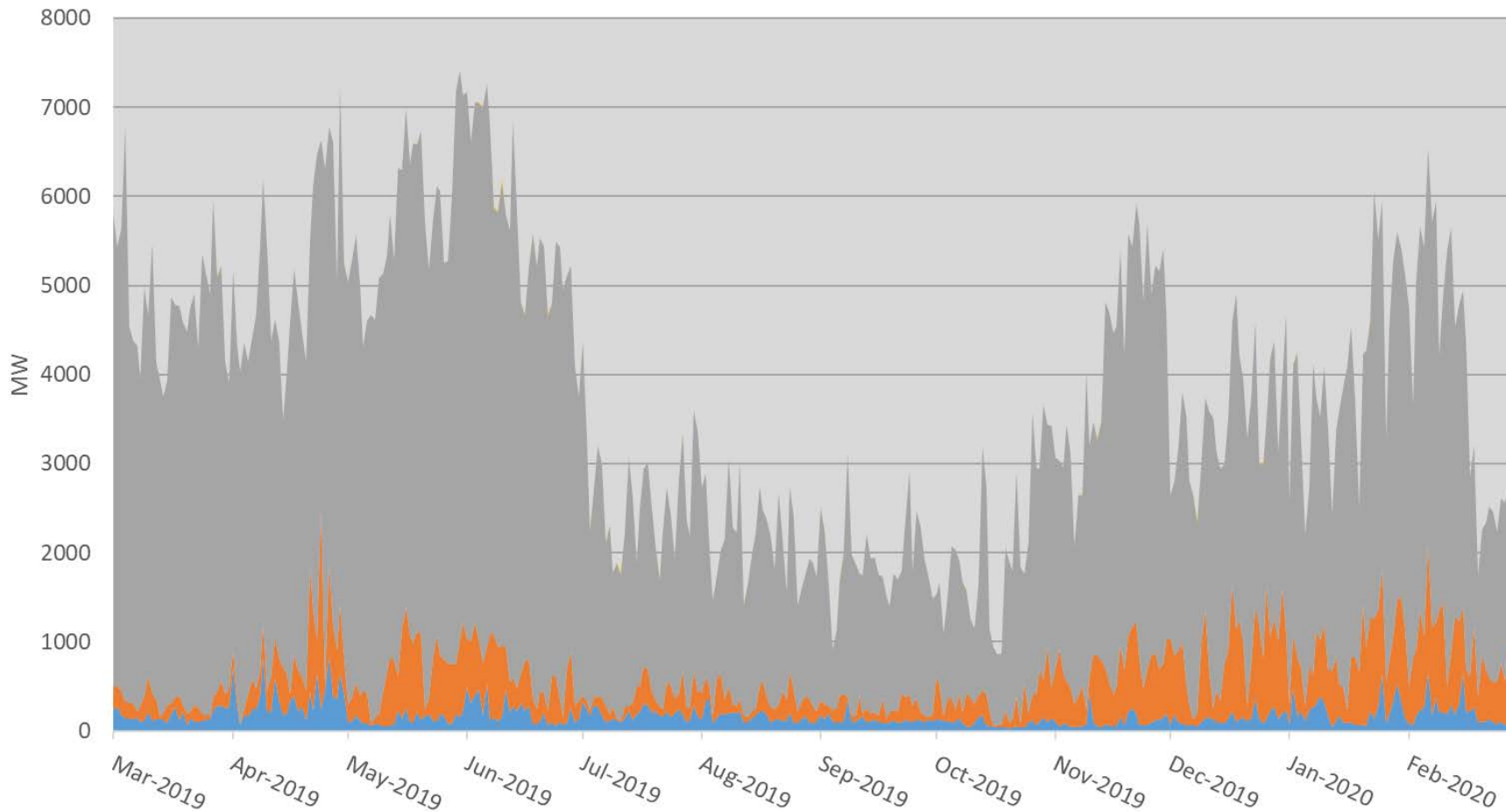


Hourly Firm/ Non-Firm Review - 1 Year



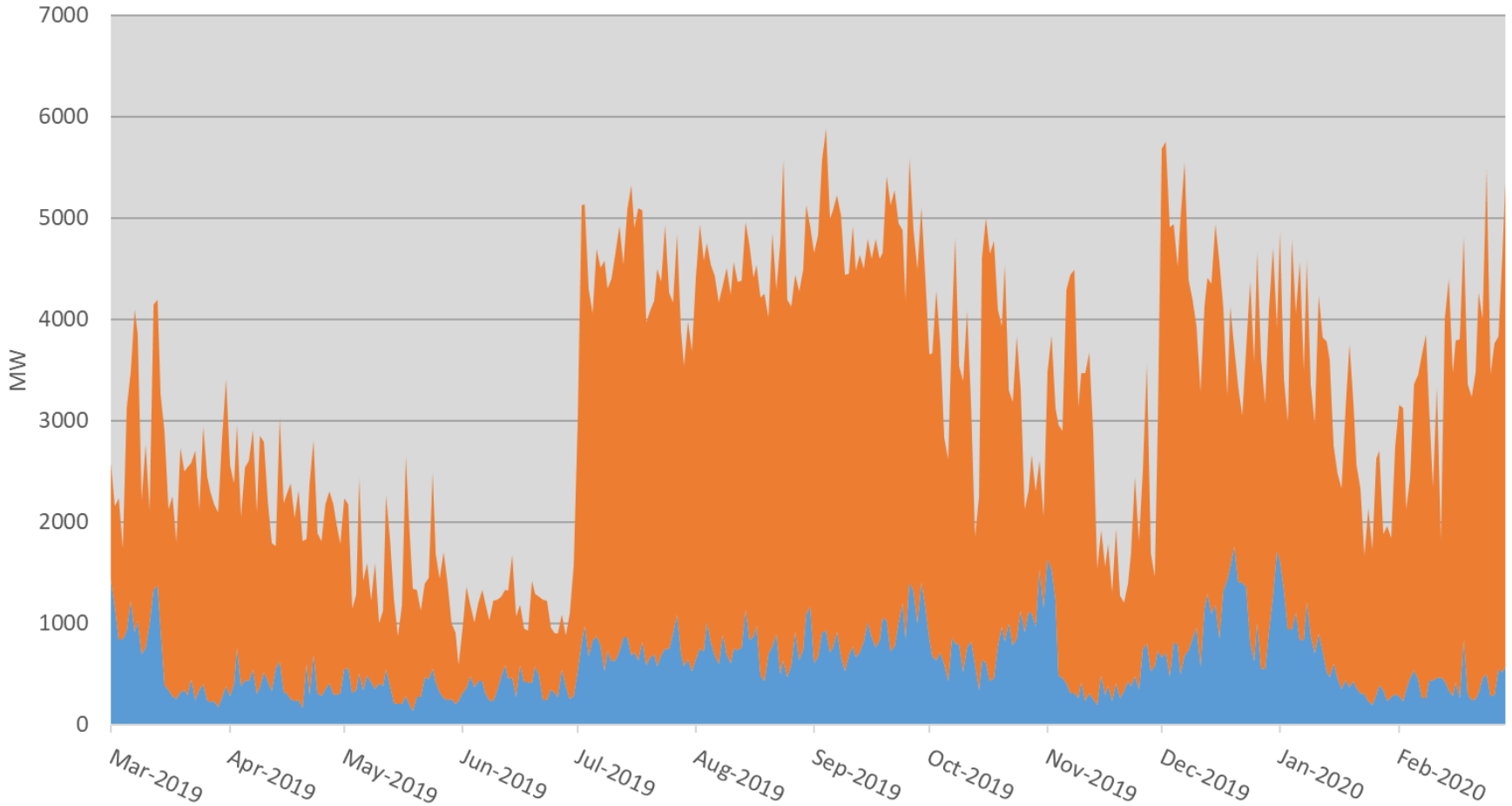
Hourly Firm Usage - 1 Year

■ ORIGINAL ■ RESALE TO SELF ■ REDIRECT ■ RESALE FROM MARKET



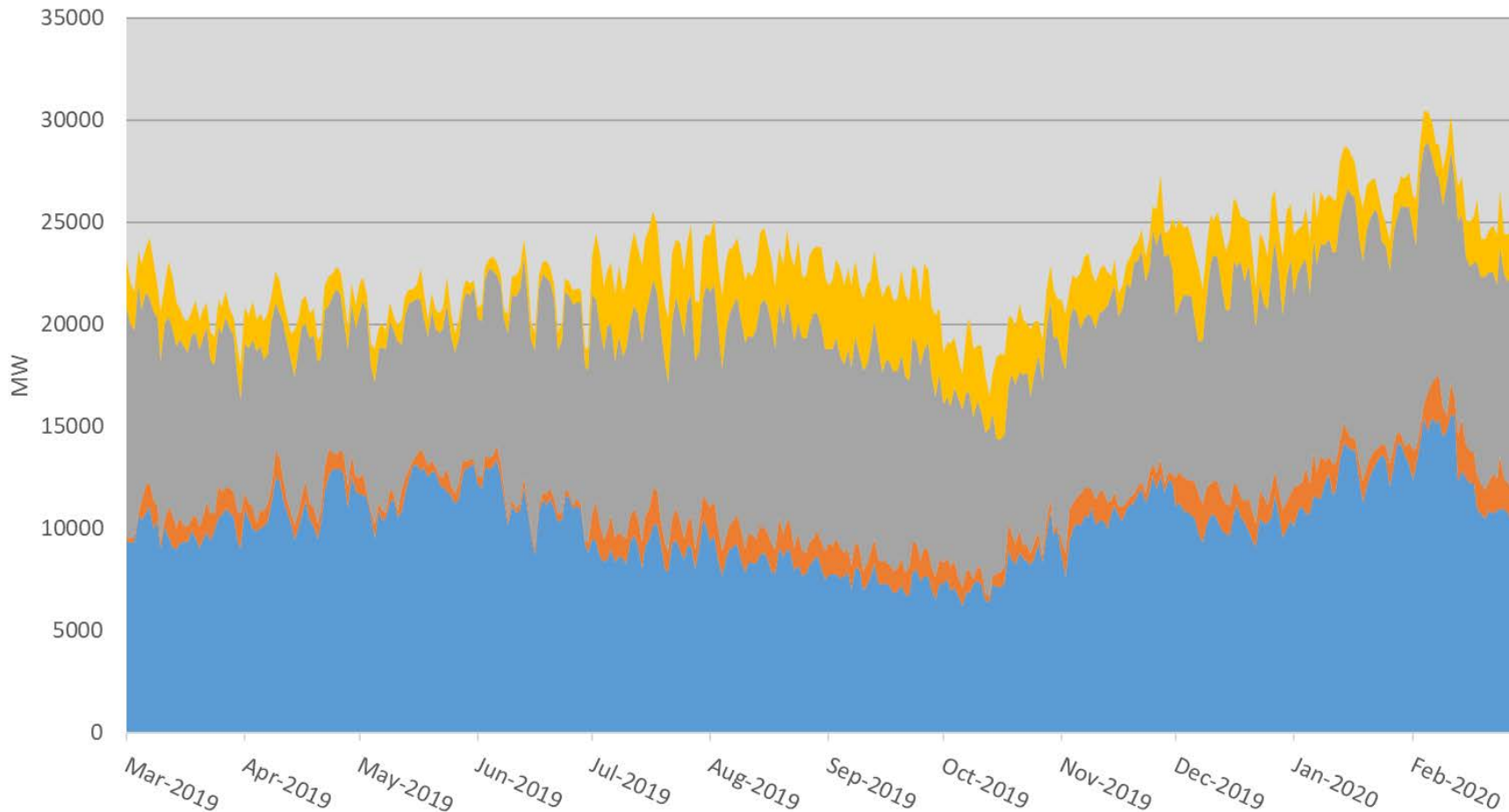
Non-Firm Usage - 1 Year

ORIGINAL REDIRECT



Source Analysis - 1 Year

FCRPS-Firm FCRPS-Non-Firm NonFCRPS-Firm NonFCRPS-Non-Firm



Information Availability

- Reports and raw data will be generated per the Hourly Firm Monitoring and Evaluation Plan
- Post the updated and generated reports on a quarterly basis on BPA's external website
- Estimated availability - June 23, 2020:
<https://www.bpa.gov/transmission/Reports/Pages/Data-Monitoring-and-Repository.aspx>

Proposed Timeline & Next Steps

1. Quarterly Monitoring and Evaluation Plan Updates:
– June 24, 2020
2. Comments on the Hourly Firm information discussed today are due March 31, 2020