

Follow Up on Historic Data for Discussion of the Regulation Requirement

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Economics

RMDSTF

September 20, 2022

- Requests from August RMDSTF
 - NERC Control Performance Metrics
 - Historic Saturation (Peg) in Minutes
 - Normalized Peg Frequency by Ramp Period
 - Peg vs. Generation Outage Trends

- Request: CPS1 and BAAL metrics reported by peer ISO/RTOs**

PJM	OC “System Operations” and SOS “Operations Summary” monthly reports include BAAL and CPS-1 metrics Each month July 2021 – July 2022, rolling 12-month CPS-1 ~ 137% and the BAAL goal was consistently met
ISO-NE	Does not appear to report control performance data
MISO	Monthly “Markets and Operations Report” contains CPS-1 metrics and a self-defined BAAL score For each month July 2021 – July 2022, rolling 12-month CPS-1 ~ 123%** and BAAL was reported as “excellent”
ERCOT	PDC Working Group reports on recent Frequency Control performance For each month July 2021 – July 2022, rolling 12-month CPS-1 ~ 172.5% and there were “no BAAL exceedences”
SPP	Most recent report is KPI Q2 2021 however CPS-1 is not reported From June 2020 – June 2021, no BAAL events lasted >= 30 minutes and only two exceeded 20 minutes
CAISO	Monthly Renewables Performance Report dashboard provides historic CPS-1 reporting through 2015 For each month July 2021 – July 2022, rolling 12-month CPS-1 ~ 152%
NYISO	“Operations Performance Metrics Monthly Report” includes CPS-1 and BAAL reporting For each month July 2021 – July 2022, rolling 12-month CPS-1 ~ 160% and no BAAL events >= 15 minutes

** Driven by one outlier month, otherwise would be 126-129%

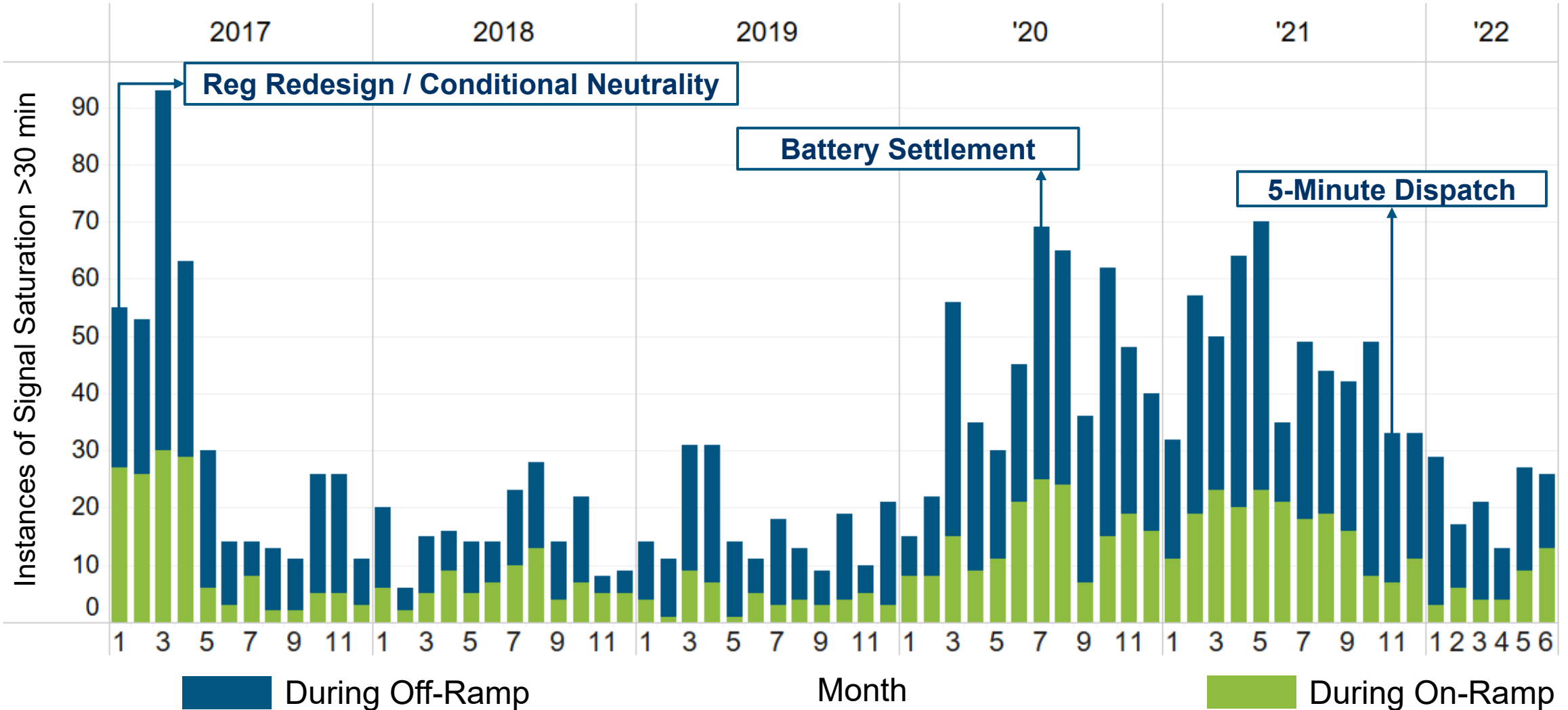
- **Request: Examine historic saturation by minutes instead of by number of pegs**
- Provide context on time spent in saturation for the period
- Replicated the August historic trends
 - A. ...in terms of minutes saturated
 - B. ...without the >30 minute filter



August RMDSTF REGA Signal Saturation Trends

January 1, 2017 - July 1, 2022

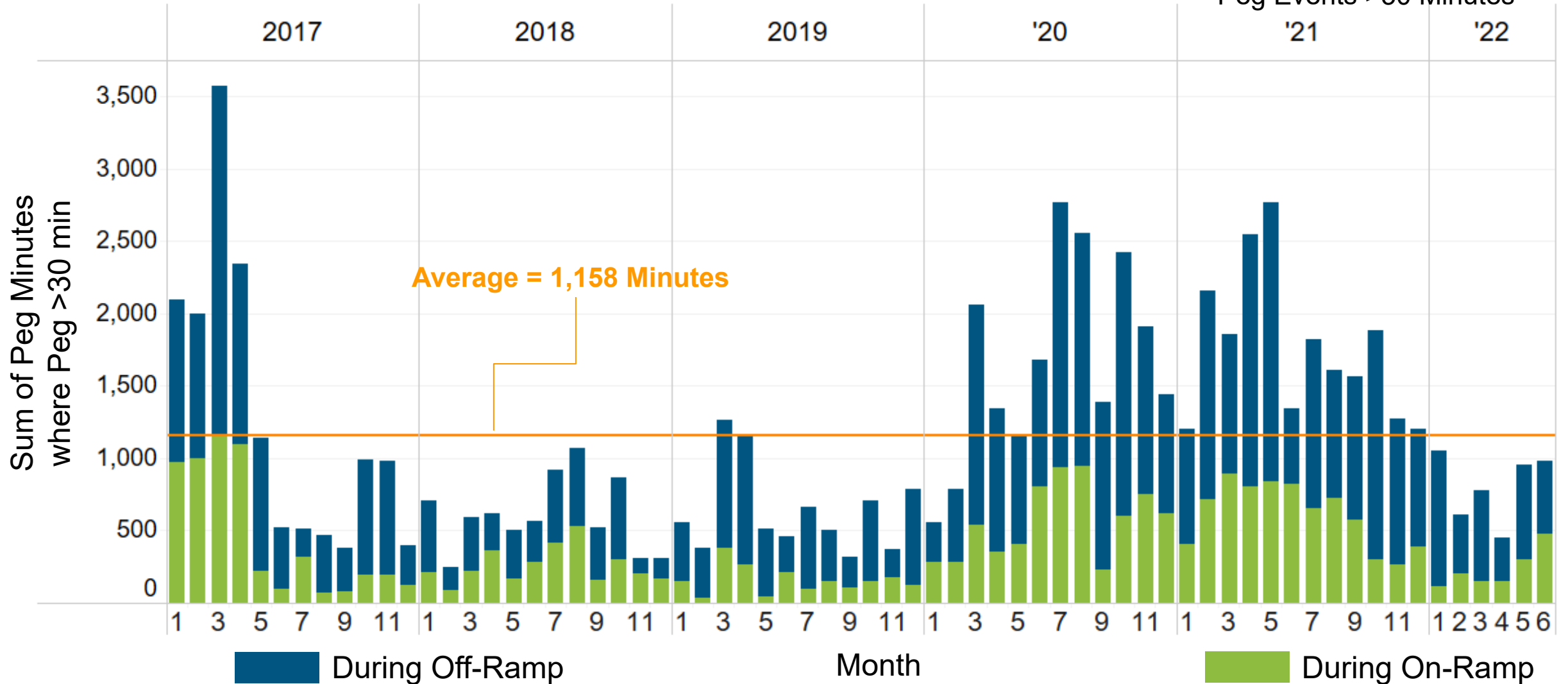
Peg Events >30 Minutes



A. REGA Signal Saturation Trends in Minutes

January 1, 2017 - July 1, 2022

Peg Events >30 Minutes

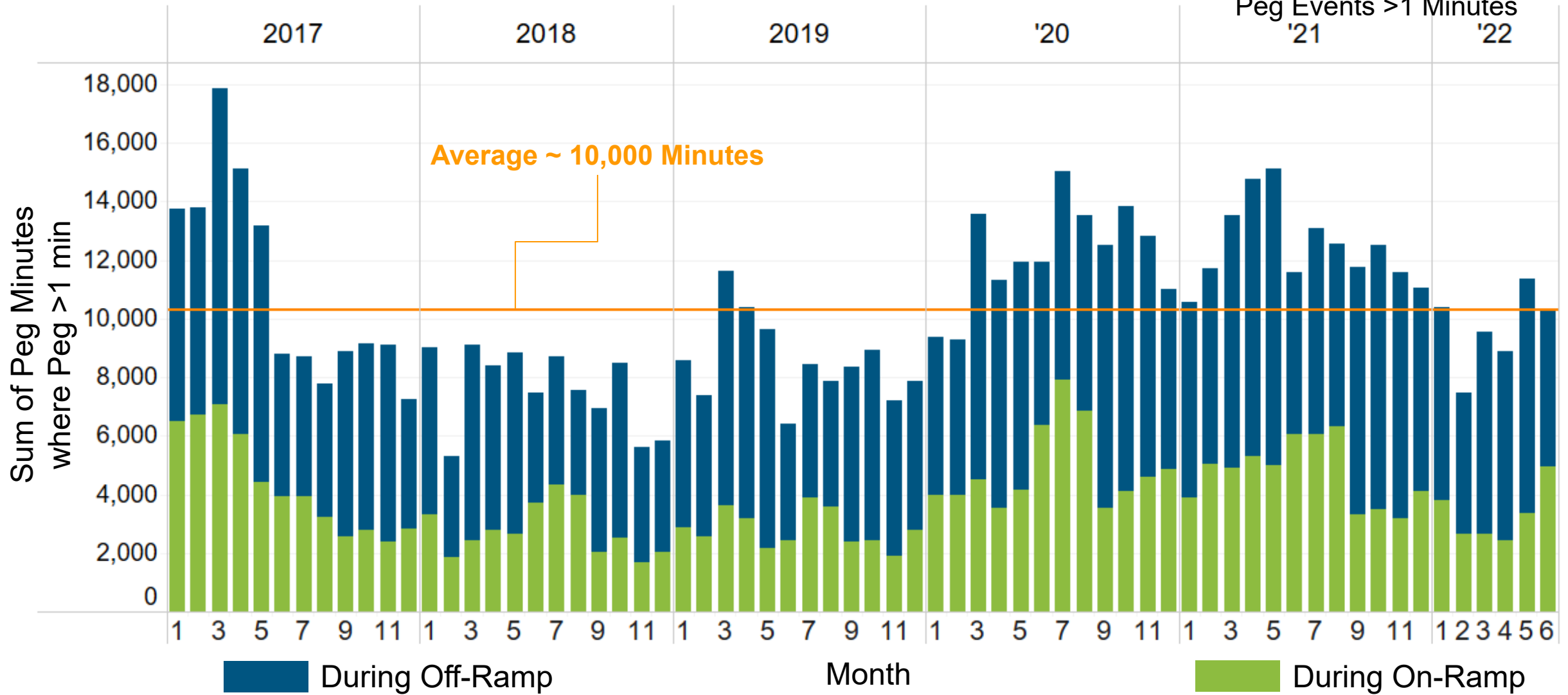




B. REGA Signal Saturation Trends in Minutes

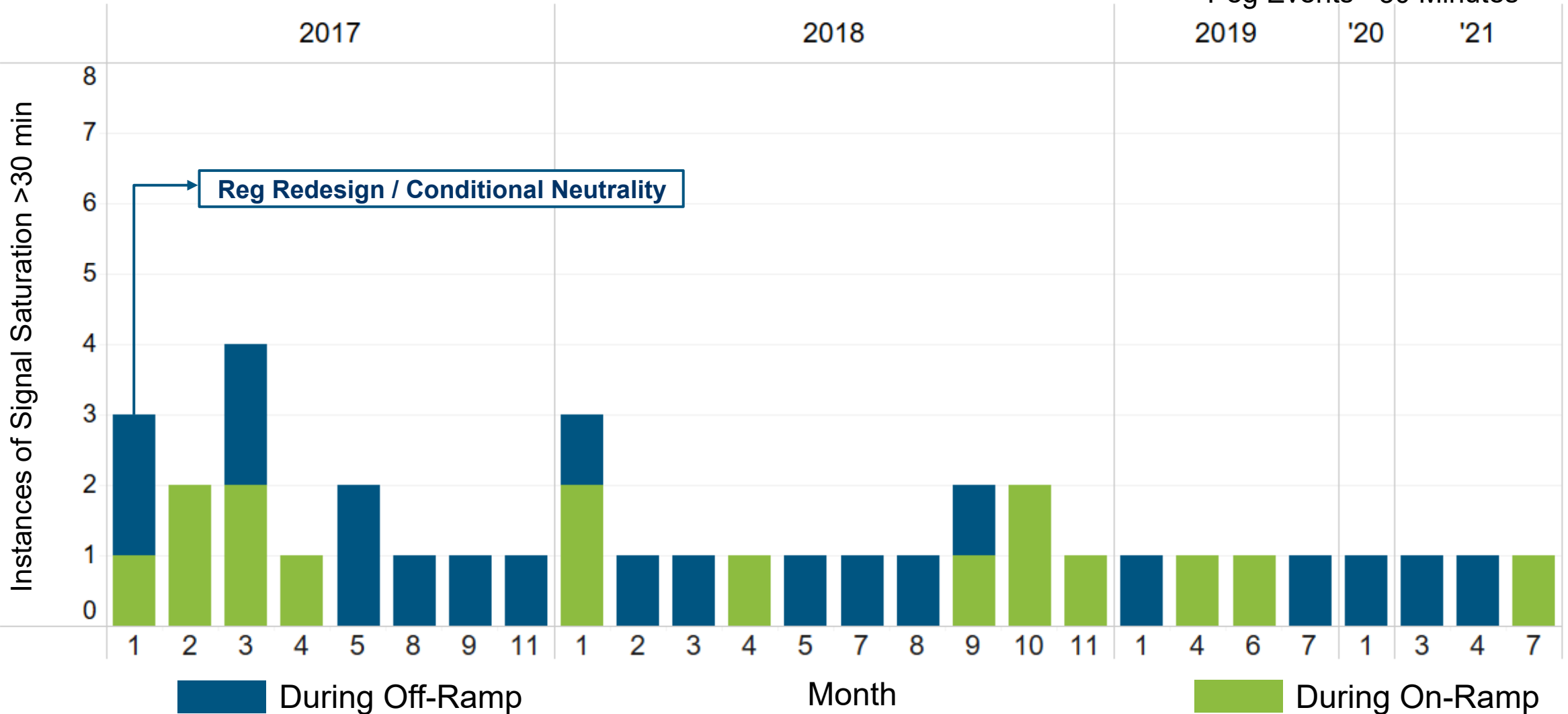
January 1, 2017 - July 1, 2022

Peg Events >1 Minutes



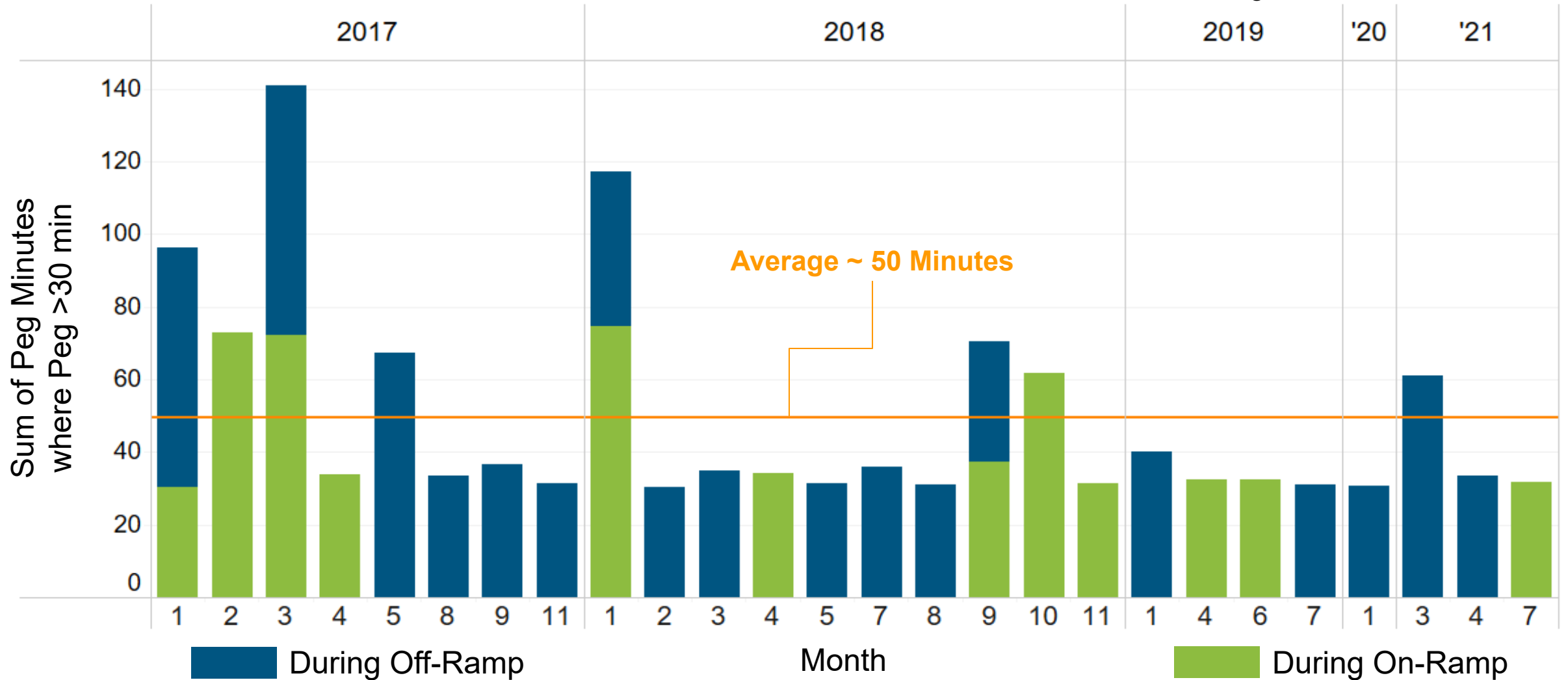
August RMDSTF REGD Signal Saturation Trend

January 1, 2017 - July 1, 2022
Peg Events >30 Minutes



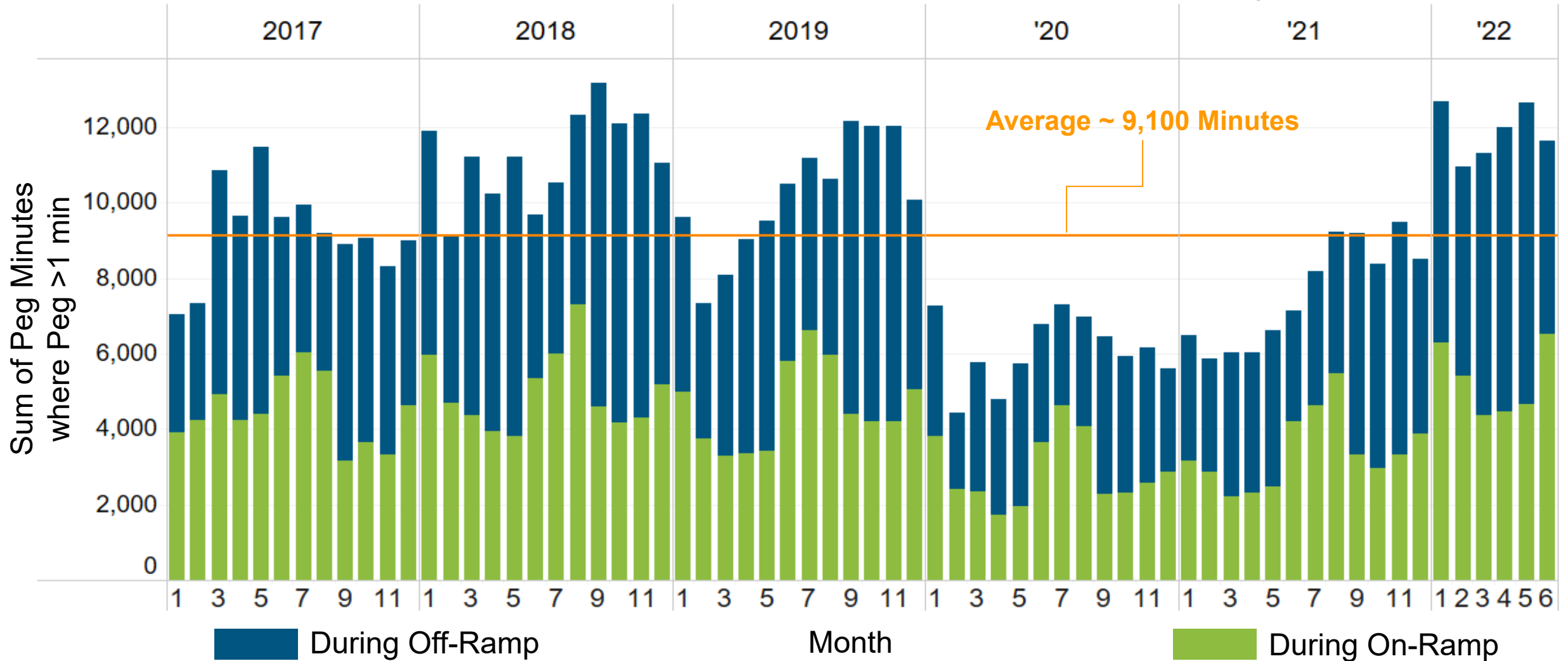
A. REGD Signal Saturation Trend in Minutes

January 1, 2017 - July 1, 2022
Peg Events >30 Minutes



B. REGD Signal Saturation Trend in Minutes

January 1, 2017 - July 1, 2022
Peg Events >1 Minutes



- **Request: Revise On vs. Off Ramp graphics to account for difference in number of On vs. Off Ramp hours**
- More chances to peg during the longer of the two periods
- Replicated the August On/Off Ramp breakdowns
 - A. ... using daily percentages of minutes pegged
 - B. ... without the >30 minute filter
 - C. ... both using daily percentages and without the >30 minute filter

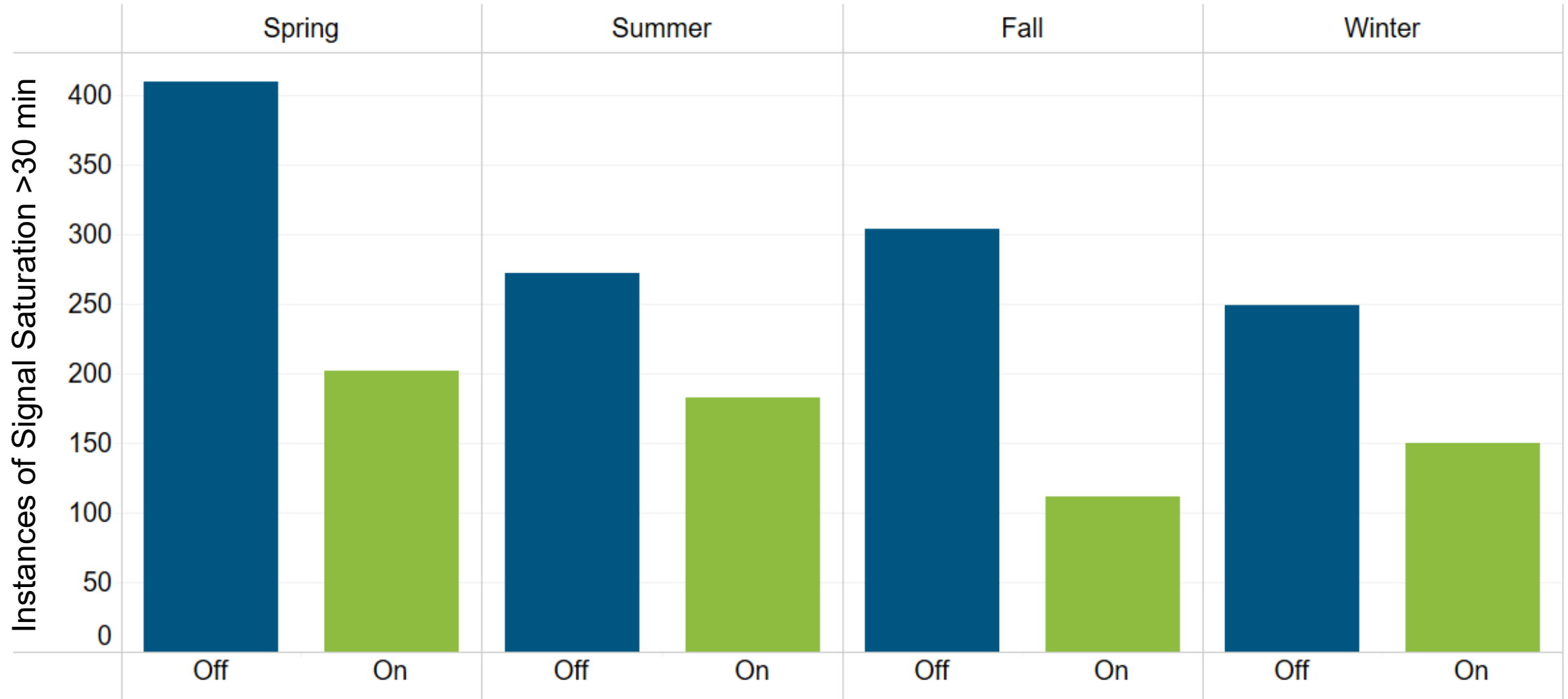
- For reference:

	Off Hours	On Hours	%Off	%On
Fall	14	10	58%	42%
Spring	14	10	58%	42%
Summer	9	15	38%	63%
Winter	11	13	46%	54%



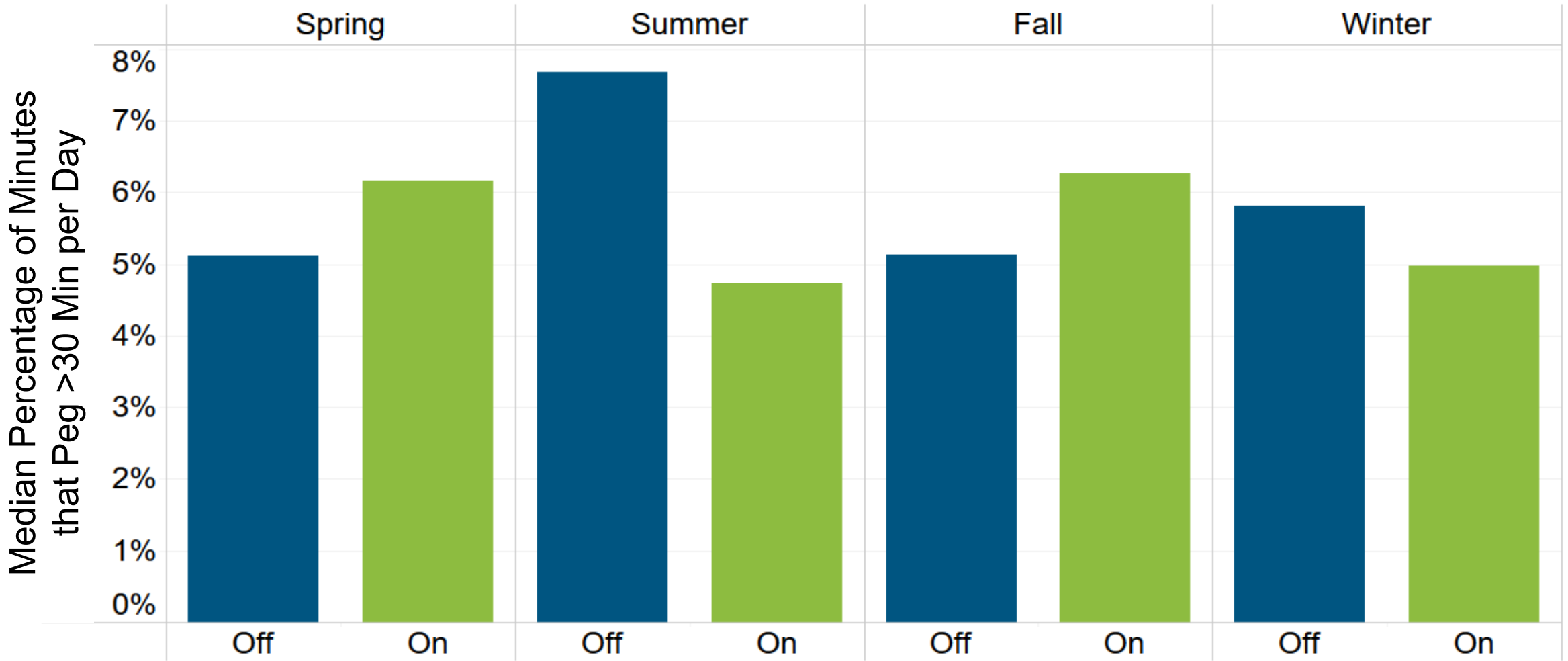
August RMDSTF REGA Signal Saturation by Season and Ramp Hour

January 1, 2017 - January 1, 2022
Peg Events >30 Minutes



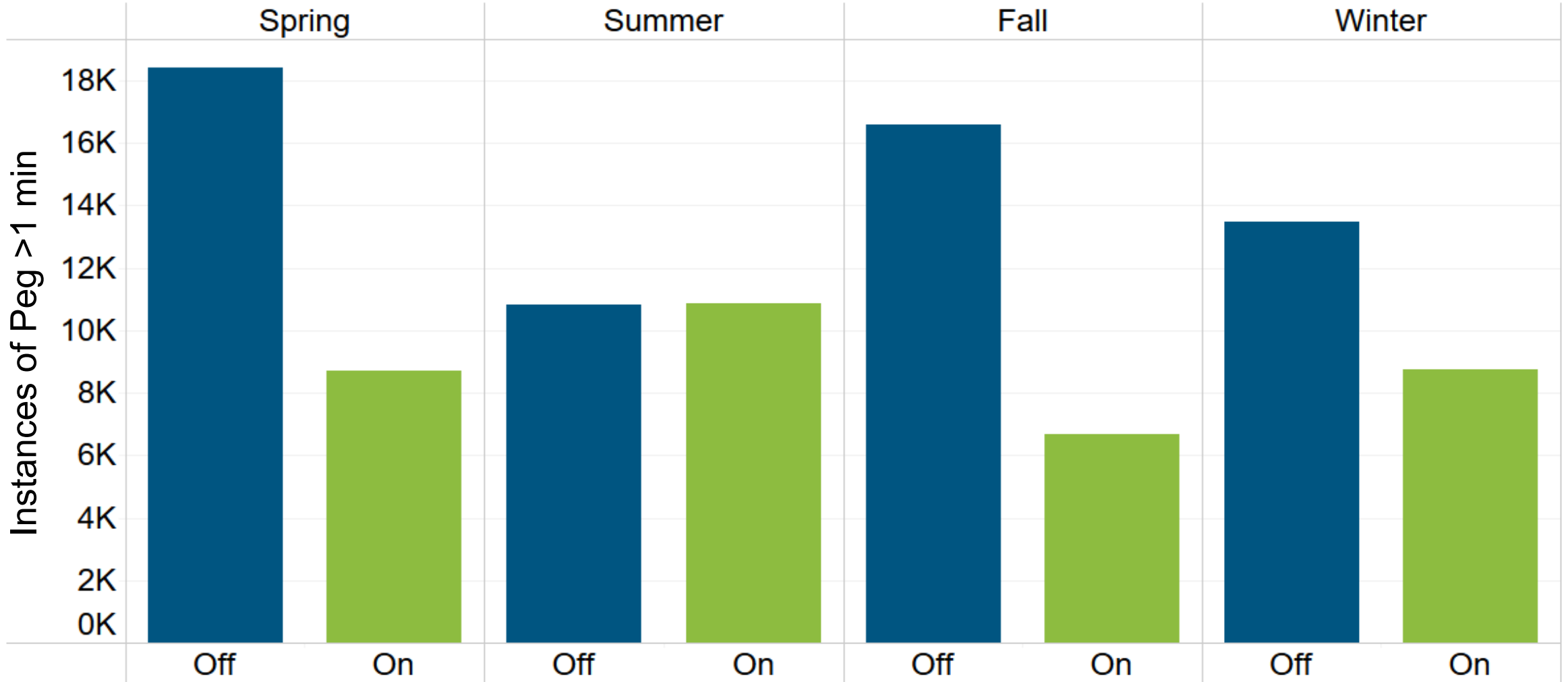
A. REGA Signal Saturation by Season and Ramp Hour

January 1, 2017 - January 1, 2022
Peg Events >30 Minutes



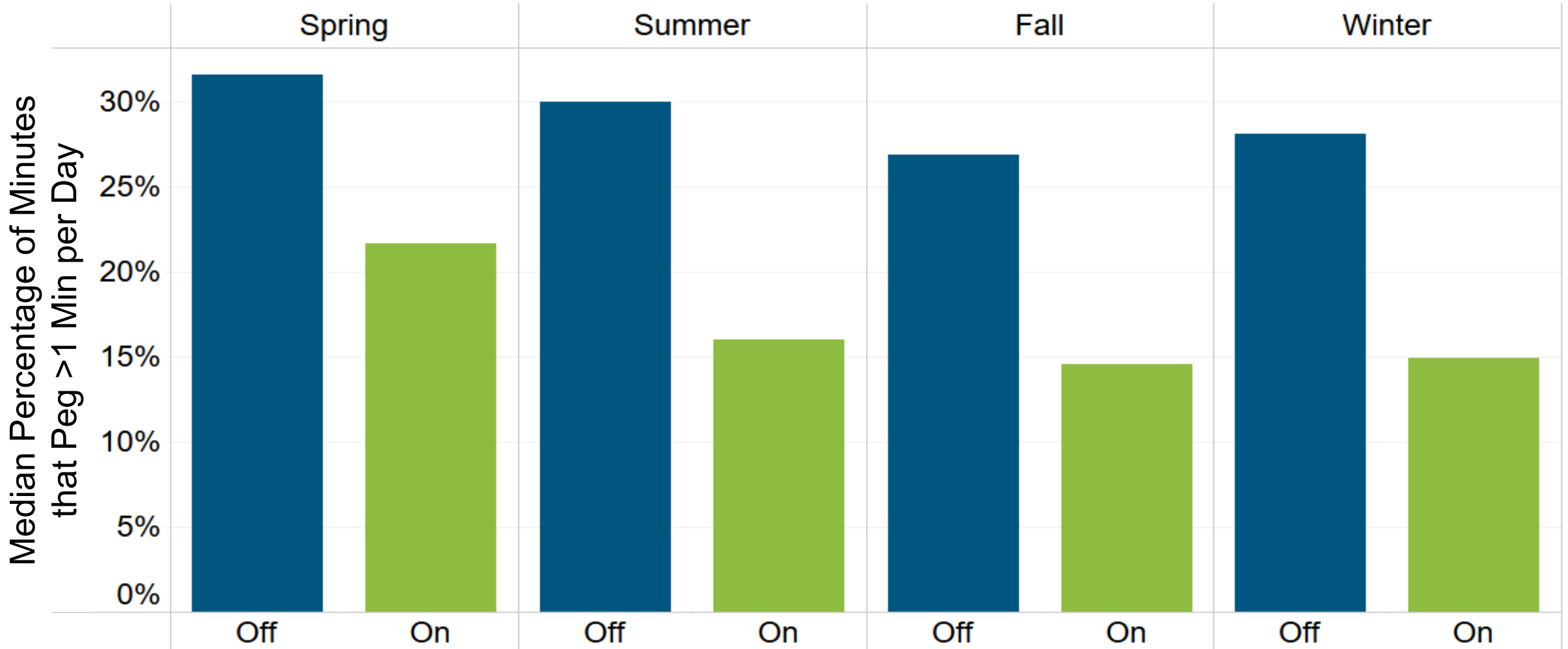
B. REGA Signal Saturation by Season and Ramp Hour

January 1, 2017 - January 1, 2022
 Peg Events >1 Minutes



C. REGA Median Percent of Ramp Minutes that Peg

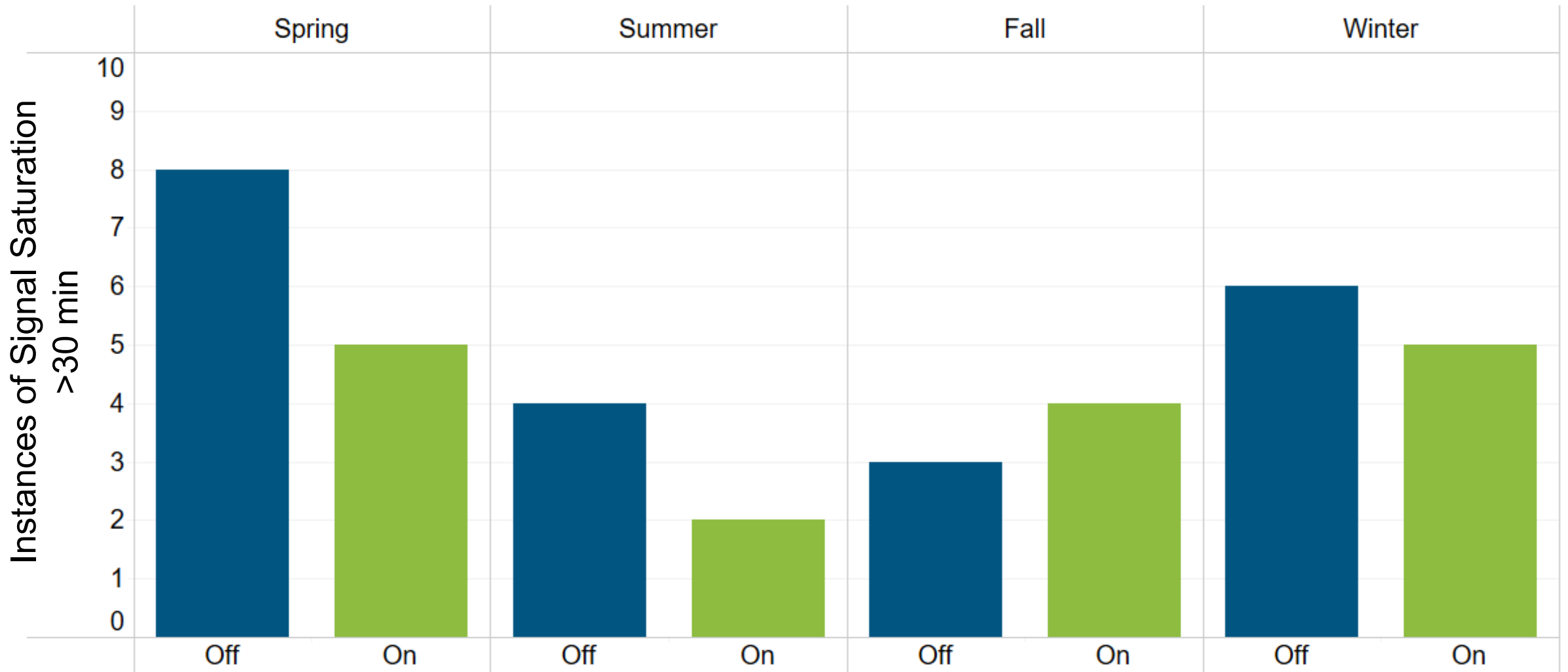
January 1, 2017 - January 1, 2022
Peg Events >1 Minutes





August RMDSTF REGD Signal Saturation by Season and Ramp Hour

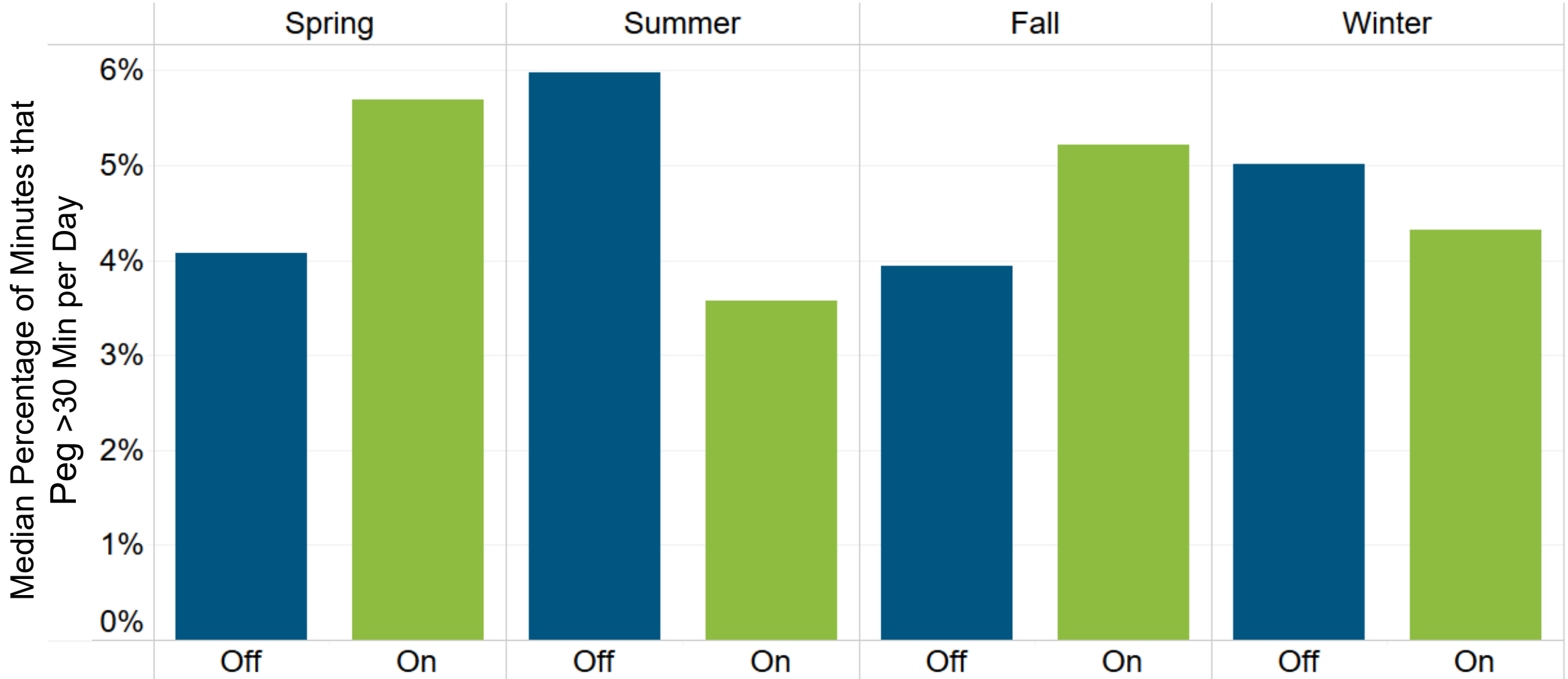
January 1, 2017 - January 1, 2022
Peg Events >30 Minutes



A. REGD Median Percent of Ramp Minutes that Peg

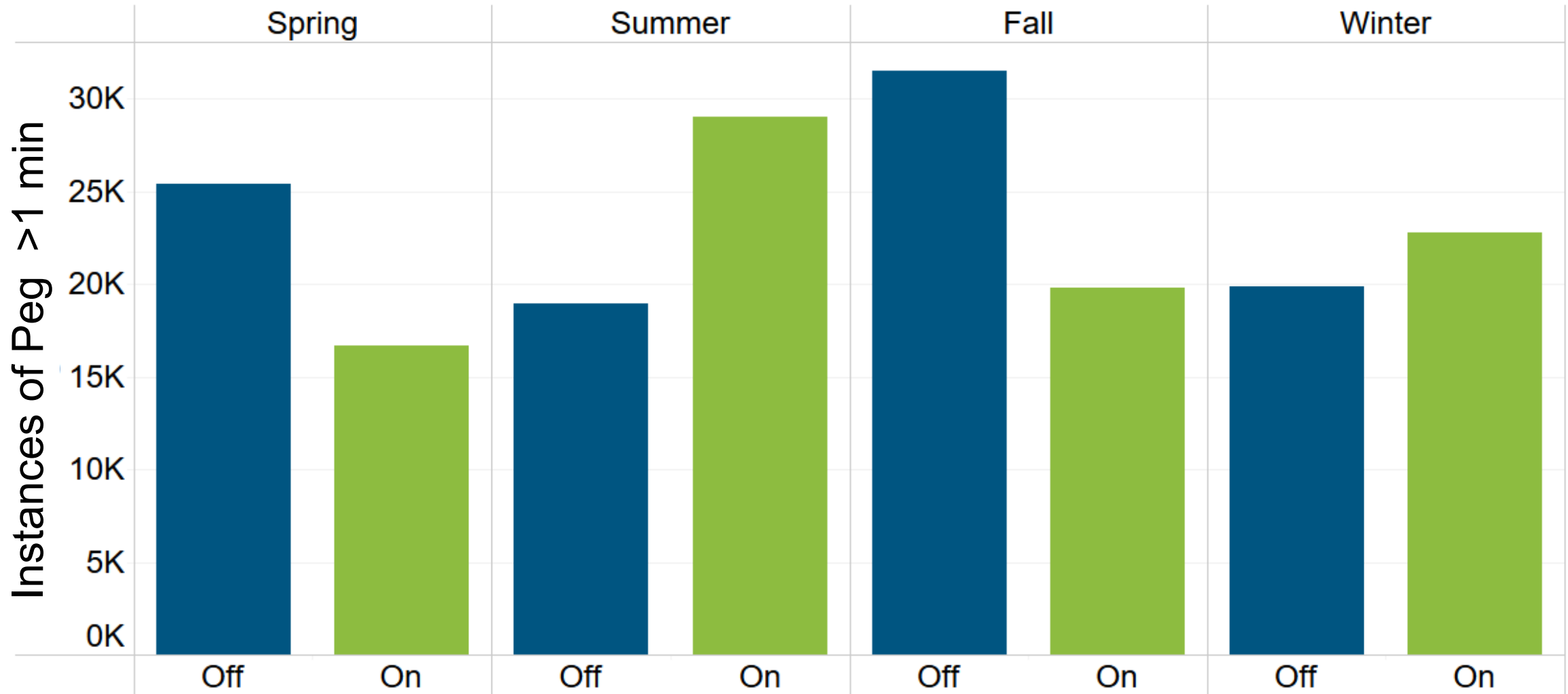
January 1, 2017 - January 1, 2022

Peg Events >30 Minutes



B. REGD Signal Saturation by Season and Ramp Hour

January 1, 2017 - January 1, 2022
 Peg Events >1 Minutes

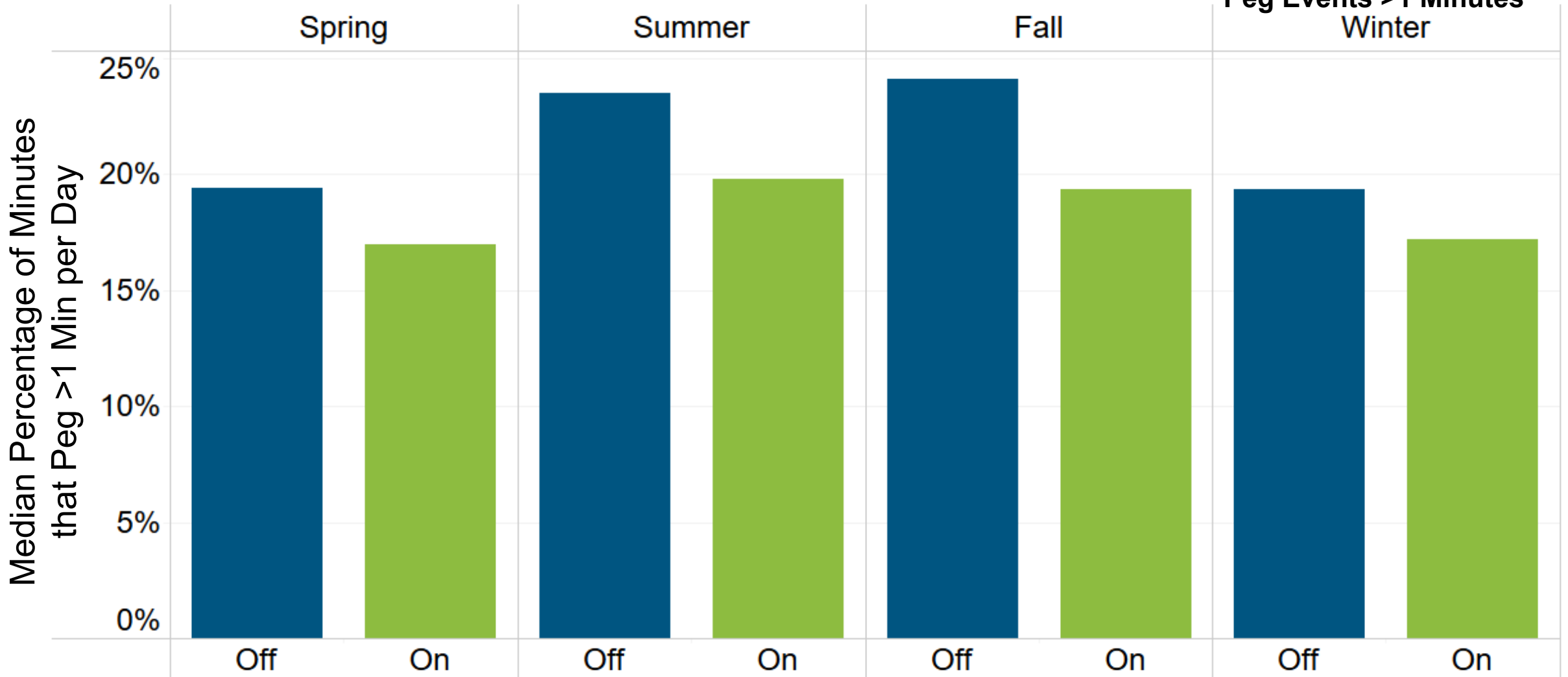




C. REGD Median Percent of Ramp Minutes that Peg

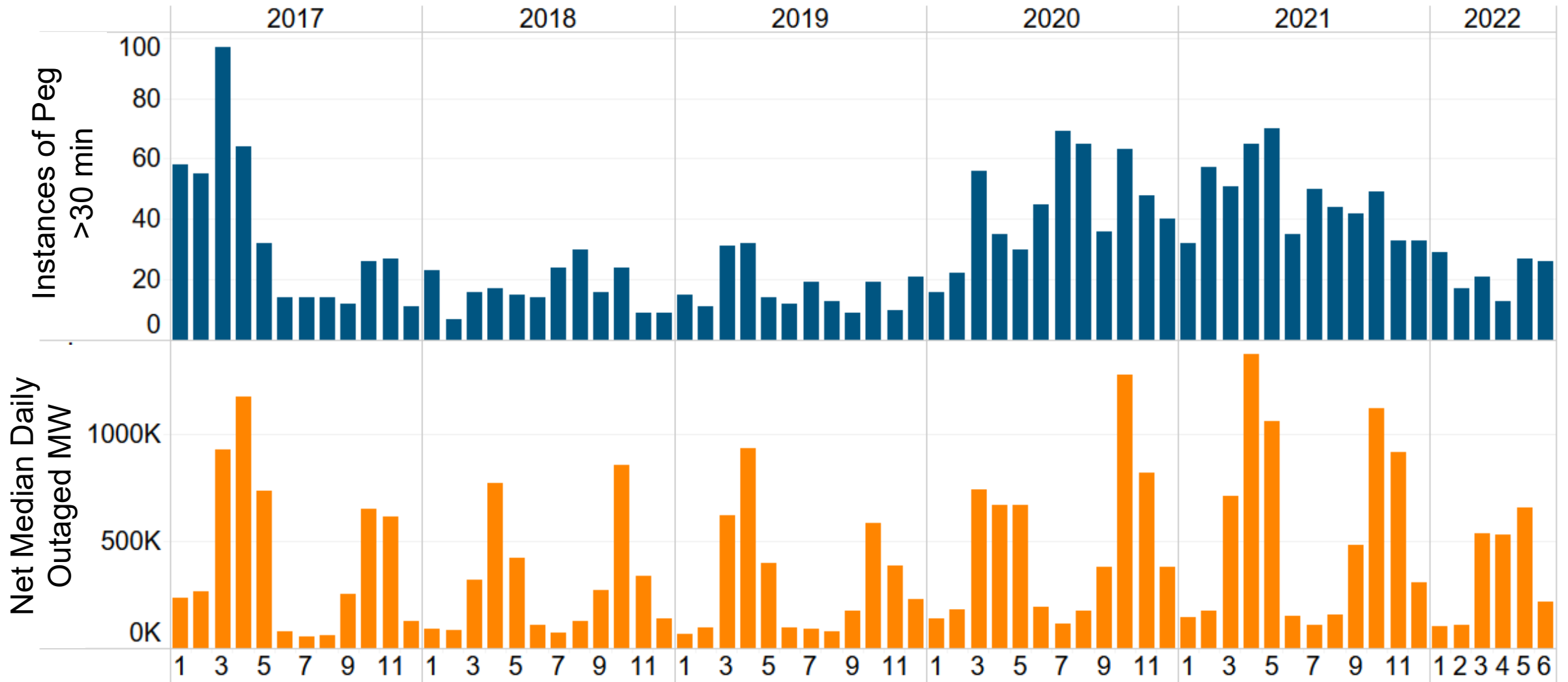
January 1, 2017 - January 1, 2022

Peg Events >1 Minutes



- **Request: Review coincidence of generation outages and regulation peg**
- Examining Maintenance Outages and Planned Outages only as they are relatively seasonal/predictable factors
- Daily median used a metric used to determine the general volume of outages each day

Net Monthly Outages vs. Sum of Peg Events >30 Min



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**Follow Up on Historic Data for
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