



Generation and Other Assets Committee Meeting

2:00 PM, May 14, 2020
REMOTE VIA PHONE/WEBEX

CALL IN NUMBER: 1-773-231-9226
MEETING ID: 802 244 7678#
<https://meetings.ringcentral.com/j/8022447678>

Directors

Reg Beliveau, Swanton	Mike Sullivan, Hardwick	
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Agenda

Allotted number of minutes set forth in bold type after each item

1. Call to Order (**1**)
2. Consideration of changes/modifications to agenda (**2**)
3. Public comment (**2**)
4. Review of Draft Committee Meeting Minutes March 12, 2020 (**5**)
5. Project #10 (**30**)
 - a. HMI Replacement
 - b. 2019 Budget to Actuals
 - c. Market Revenues
 - d. General Performance
6. Load Reducing Resources (**5**)
 - a. Valuation Report Summary
7. Project Updates (**5**)
 - a. VPPSA Solar Projects in queue
 - b. Potential New Projects
8. SHEI Update (**15**)
9. Coronavirus effects on load (**15**)
10. Other Business

CC:

Vacant, Barton	Tin Barton Caplin, Barton	Jonathan Elwell, Enosburg
Gary Denton, Enosburg	Mac Butova, Jacksonville	Meredith Birkett, Johnson
Pam Moore, Jacksonville	Thomas Petraska, Ludlow	Deb Keller, Ludlow
Phil Wilson, Johnson	Clay Bailey, Lyndonville	Penny Jones, Morrisville
Bill Humphrey, Lyndonville	Jeff Schulz, Northfield	John Morley III, Orleans
Stephen Fitzhugh, Northfield	Marilyn Prue, Orleans	Lynn Paradis, Swanton



Generation and Other Assets Meeting Minutes

November 13, 2019

Committee Directors:

P	Reginald Beliveau, Swanton	P	Mike Sullivan, Hardwick
P	Craig Myotte, Morrisville		

Other Directors present:

X	Bill Humphrey, Lyndonville	X	Thomas Petraska, Ludlow
X	John Morley, Orleans		

X indicates attendance in person, P indicates attendance by phone.

Others present:

Ken Nolan, VPPSA	Shawn Enterline, VPPSA (phone)	James Gibbons, BED
Heather D'Arcy, VPPSA		

Numbers in bold type correspond with agenda item numbers:

- 1.** Call to Order: The meeting was called to order at 2:13 PM.
- 2.** Consideration of changes/modifications to agenda: There were no changes to the agenda.
- 3.** Public comment: No members of the public were present.
- 4.** Director Myotte made a motion to accept the minutes of the September 11, 2019 Committee meeting. The motion was seconded by Director Humphry. The motion was approved.
- 5.** Director Myotte made a motion to accept the minutes of the November 13, 2019 Committee meeting. The motion was seconded by Director Humphry. The motion was approved.
- 6.** Project 10 Update
 - a. 2019 Reserve & Contingency True-Up: A summary of the 2019 Reserve & Contingency True-up was provided to the Board. The total cost of capital improvements for 2019 totaled \$41,342. This represents costs for the installation of a bathroom at the site and transmission upgrades that were started in 2019. After payment related to the capital improvements, there remains excess participant contributions of \$53,482. The Resolution recommends that the excess funds be transferred to the Reserve fund. The committee agreed that VPPSA should make this recommendation to the board.
 - b. 2019 Budget to Actuals: Ms. D'Arcy reviewed the budget to actuals for calendar year 2019 and reviewed the revenue streams that were higher than budgeted and those that were lower. Mr. Nolan asked what caused the variance in capacity revenue. Ms. D'Arcy will



- follow-up with additional information. Mr. Nolan stated that P10 revenue for capacity will reduce but the members' overall cost will also reduce because their cost for capacity will decrease.
- c. Market Revenue Update: Ms. D'Arcy reviewed the charges versus credits. Mr. Gibbons noted that revenue is largely from capacity which is some of the highest seen and it will continue to decrease.
 - d. General Performance: Ms. D'Arcy explained the table shown in the powerpoint presentation. Mr. Gibbons further explained the weighted average of the claim 10/30 process.
- 7.** Load Reducing Resources: Ms. D'Arcy provided an updated on the value received for load reducing hydro facilities. She reiterated that capacity revenues will be reduced through May of 2020 due to lack of water during capacity peak in 2019. Transmission value varies month to month based on coincident output. She also provided a summary of capacity and transmission value for January 2020.
- 8.** Project Updates:
- a. VPPSA Solar Projects: Ms. D'Arcy provided a summary of the current solar projects underway. Mr. Nolan explained the metering issue with Trombley Hill and noted that Bill Ellis suggests we settle and amend the contract. We're currently trying to get the amendment in place. Mr. Nolan also provided additional context for the Bone Hill project because the current economic analysis shows a slight loss; however, it is being used as a hedge against Tier II REC markets. He also noted that the two Standard Offer Projects were required to have testimony because of the litigation from Allco. The PUC is proactively trying to protect the Standard Offer Program from this litigation.
 - b. New Projects: Ms. D'Arcy provided an update for potential future solar projects. Mr. Nolan explained why the provider block pricing wasn't increased for this year.
New Projects:
- 9.** SHEI Update: Ms. D'Arcy reviewed the annual summary of congestion costs from 2016 through 2019 showing that costs have dropped significantly since 2017. Mr. Nolan explained that the DPS is getting pressure from the Governor's office to open up the northern part of the state for renewable energy generation. VELCO hired a consultant to do an analysis on transmission updates and what economic value that might bring to the state. VPPSA is monitoring this effort closely to make sure it accurately describes any upgrade as being valuable to developers but not necessarily Vermont consumers.
- 10.**Phase I Transmission Update: Mr. Nolan discussed the lease transaction hold as well as the upcoming potential for forward movement.

11.Other Business: NONE

The meeting was adjourned at 3.30 p.m.

Respectfully submitted,

Heather D'Arcy

Heather D'Arcy
Acting Committee Secretary

Memorandum

To: Board of Directors (Generation & Other Assets Committee)
From: Ken St. Amour and Dave Gagne
Date: May 14, 2020
Subject: **Agenda #5a**-Project 10 Human-Machine Interface (HMI Systems Upgrade)

VPPSA staff has solicited bids to replace the aging computers that run the HMI control systems at Project 10. The existing technology are Windows 2003 servers and Windows XP client operating system-based hardware. The systems to be replaced:

- a. EWS workstation: Runs Citect HMI software to control the balance of plant functions. Runs Rockwell Automation Suite for programming the PLCs that run the control network.
- b. HIGHGATE workstation: Redundant copy of EWS workstation, capable of running The plant in the absence of the EWS workstation. Also functions as the HMI station at Swanton's Orman Croft Hydro Facility. The operators there are the Designated Entity for Project 10 within ISO-NE.
- c. TCS1 workstation: Runs Citect HMI software to control Unit 1 turbine and generator.
- d. TCS2 workstation: Runs Citect HMI software to control Unit 2 turbine and generator. Both TCS1 and TCS2 provide redundancy by switching from one unit to the other.
- e. PI Server: Server-based hardware that runs the PI Historian database for storage of all quantities and statuses associated with running the plant.
- f. Security Server: Serves as the Domain Controller and runs all of the software necessary for NERC CIP compliance.
- g. Citect Systems HMI software license fees for EWS, HIGHGATE, TCS1 and TCS2.

While these systems are functionally still capable of supporting the operation of the plant, from a security and reliability perspective, we need to upgrade to more supportable equipment.

We asked for bids from three vendors:

1. EthosEnergy - the vendor that built the control systems and continues to maintain and provide service support for the environment.
2. Hallam Associates/ICS - a local (South Burlington) control systems integrator who has worked primarily in manufacturing control systems (IBM-Global Foundries) among other facilities.

3. Casco Systems - a control systems designer and integrator based in Cumberland, Maine. They currently support the RTU at Project 10 which communicates with the control room at ISO-NE.

We received two bids. Casco Systems, after initially showing interest, and visiting the plant, did not submit a bid for the project.

We are currently evaluating the two bids and are prepared to discuss during this meeting. We plan to make a decision in the next month to enable preparations for the on-site installation and testing during the Fall, 2020 outage period.

5a. HMI Replacement

Systems to be Replaced

- EWS Workstation: control balance of plant functions
- Highgate Workstation: redundant copy of EWS workstation
- TCS1 Workstation: Unit 1 turbine and generator. Redundancy for unit 2
- TCS2 Workstation: Unit 1 turbine and generator. Redundancy for unit 1
- PI Server: database storage of quantities and statuses associated with running the plant
- Security Server: domain controller and runs all software for NERC CIP compliance

Bidding Vendors

- EthoseEnergy: built control systems and provides service.
- Hallam Associates/ICS: control systems integrator, works primarily with manufacturing

5b. P10 Budget to Actuals Revenues (YTD)

Capacity

- 102% of budget

Reserves

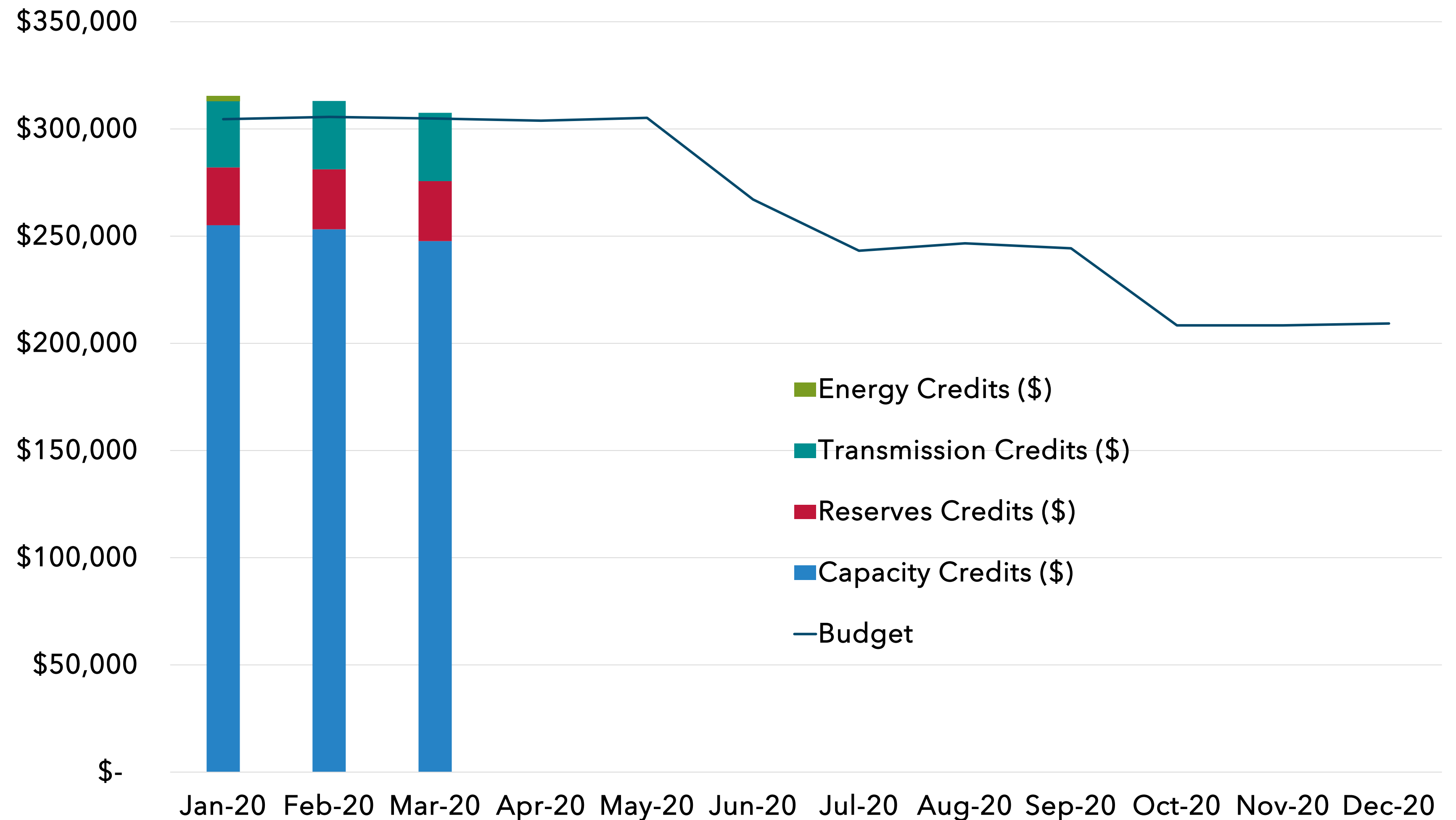
- 100% of budget

Blackstart

- 112% of budget

Overall

- 102% of budget



5c. P10 Market Revenues (YTD)

Revenues

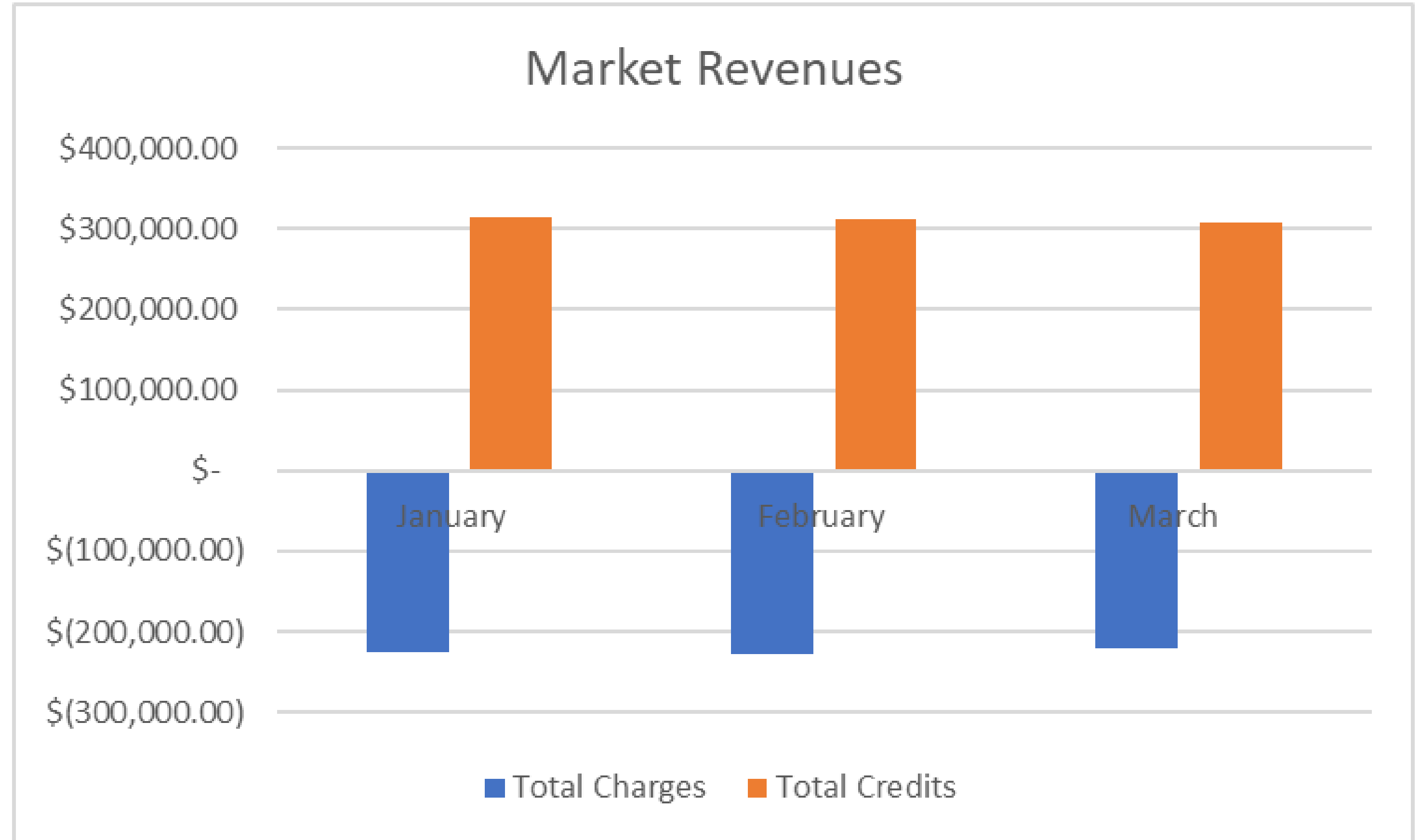
- Approx \$300,000/month

Expenses

- Approx \$225,000/month

Net Benefit

- Approx \$75,000/month



5d. P10 General Performance Update

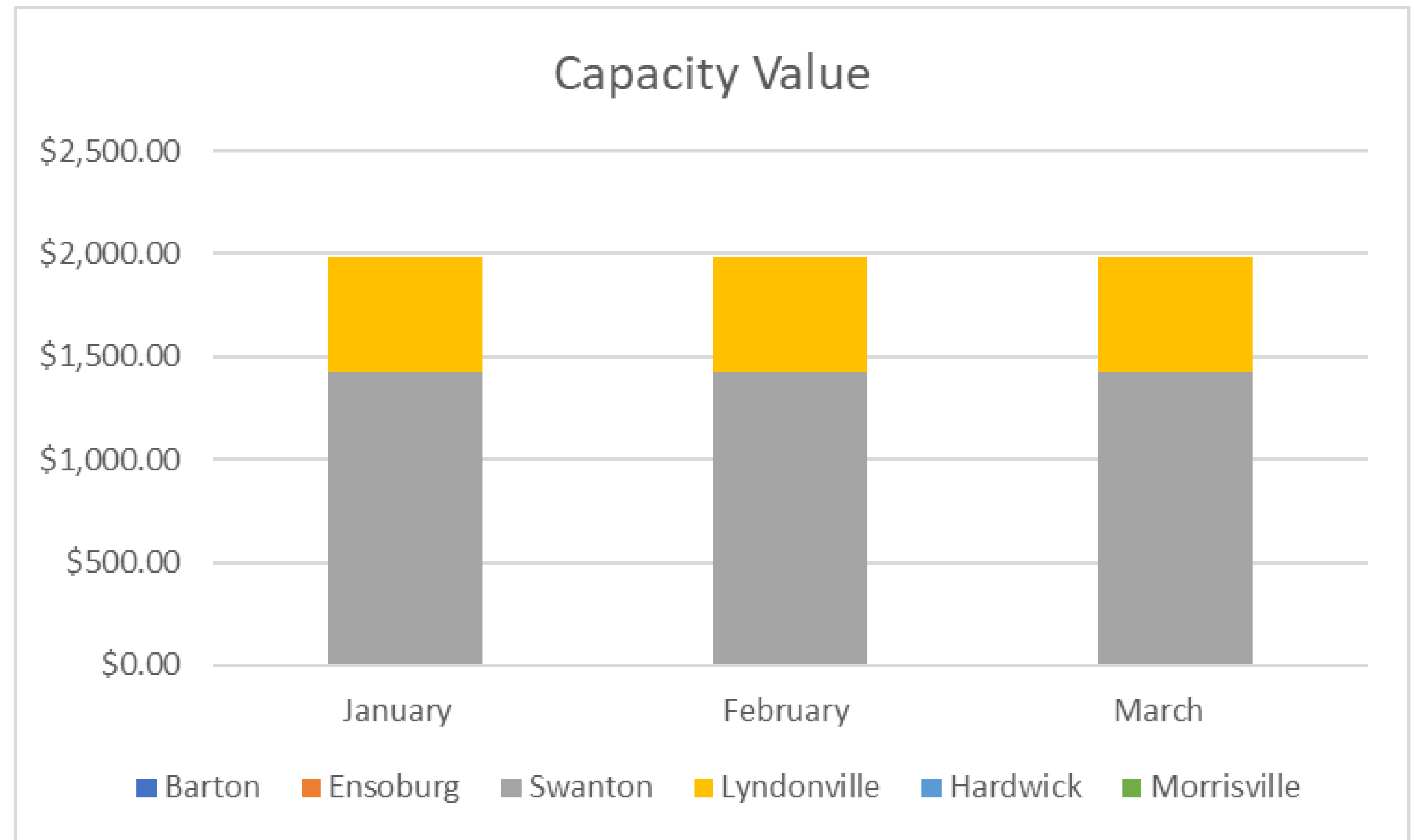
- P10 had a successful start on Saturday April 18th.
- As a result, P10 is producing a surplus of 10 & 30 minute reserves.
- Even if P10 has a failed start in the future, the reserve position will be stable.

P10 CLAIM 10/30 POSITION ANALYSIS							
FRM POSITION	UNIT	Status Quo		1 More Good Start		1 More Bad Start	
		10 MIN	30 MIN	ADJ 10 MIN	ADJ 30 MIN	ADJ 10 MIN	ADJ 30 MIN
	SWC1	20.5	20.5	20.7	20.6	16.9	16.8
	SWC2	19.4	23.3	20.3	23.3	16.1	19.0
	Total	39.9	43.8	41.0	43.9	33.0	35.8
	FRM Obligation	34.0	4.0	34.0	4.0	34.0	4.0
	Surplus/(Deficit)	5.9	39.8	7.0	39.9	-1.0	31.8

6. Load Reducing Hydro: Capacity Value

Capacity Value

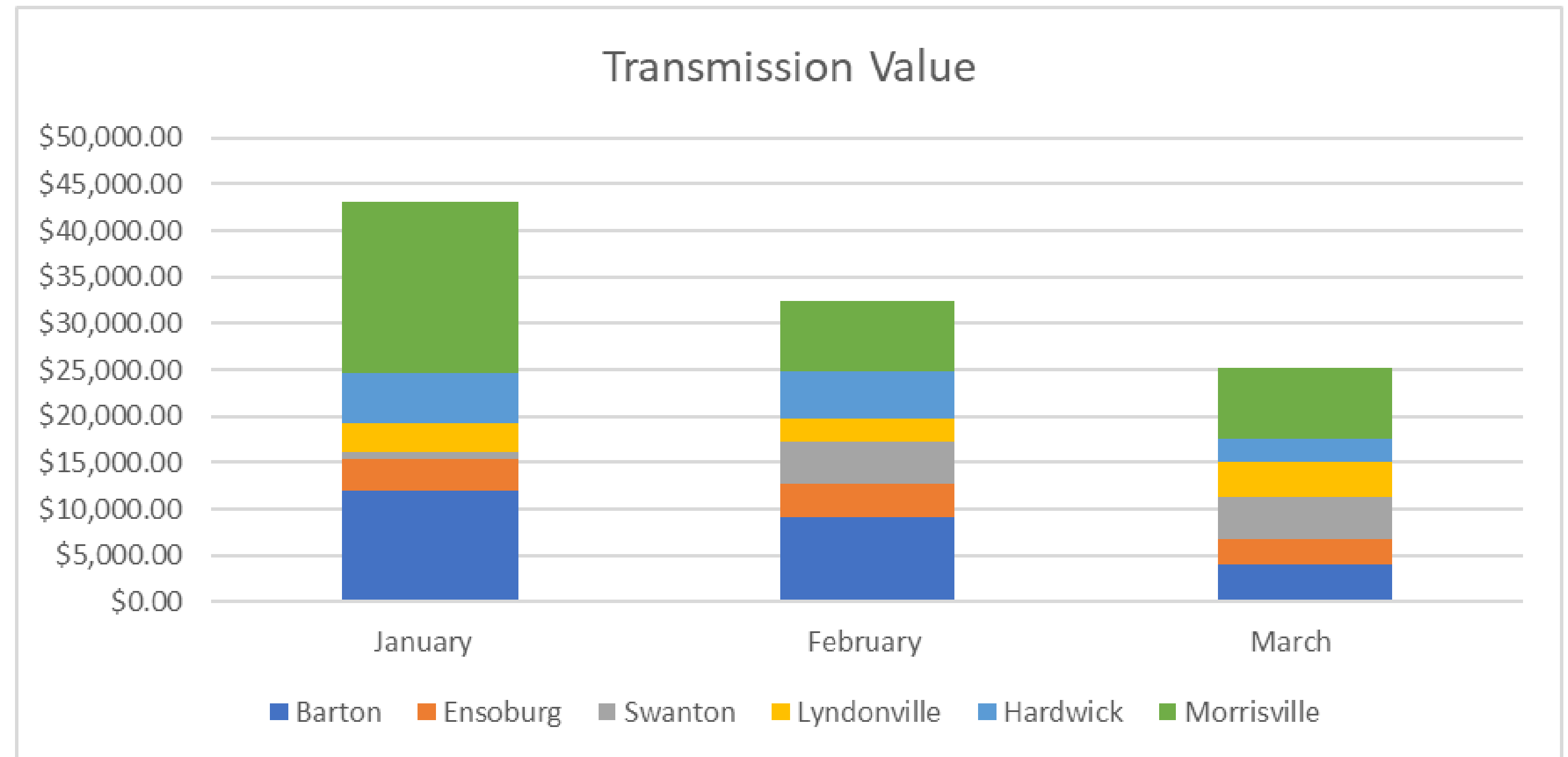
- Very little capacity value due to low and/or no generation at the ISO coincident peak



6. Load Reducing Hydro: Transmission Value (YTD)

Transmission Value

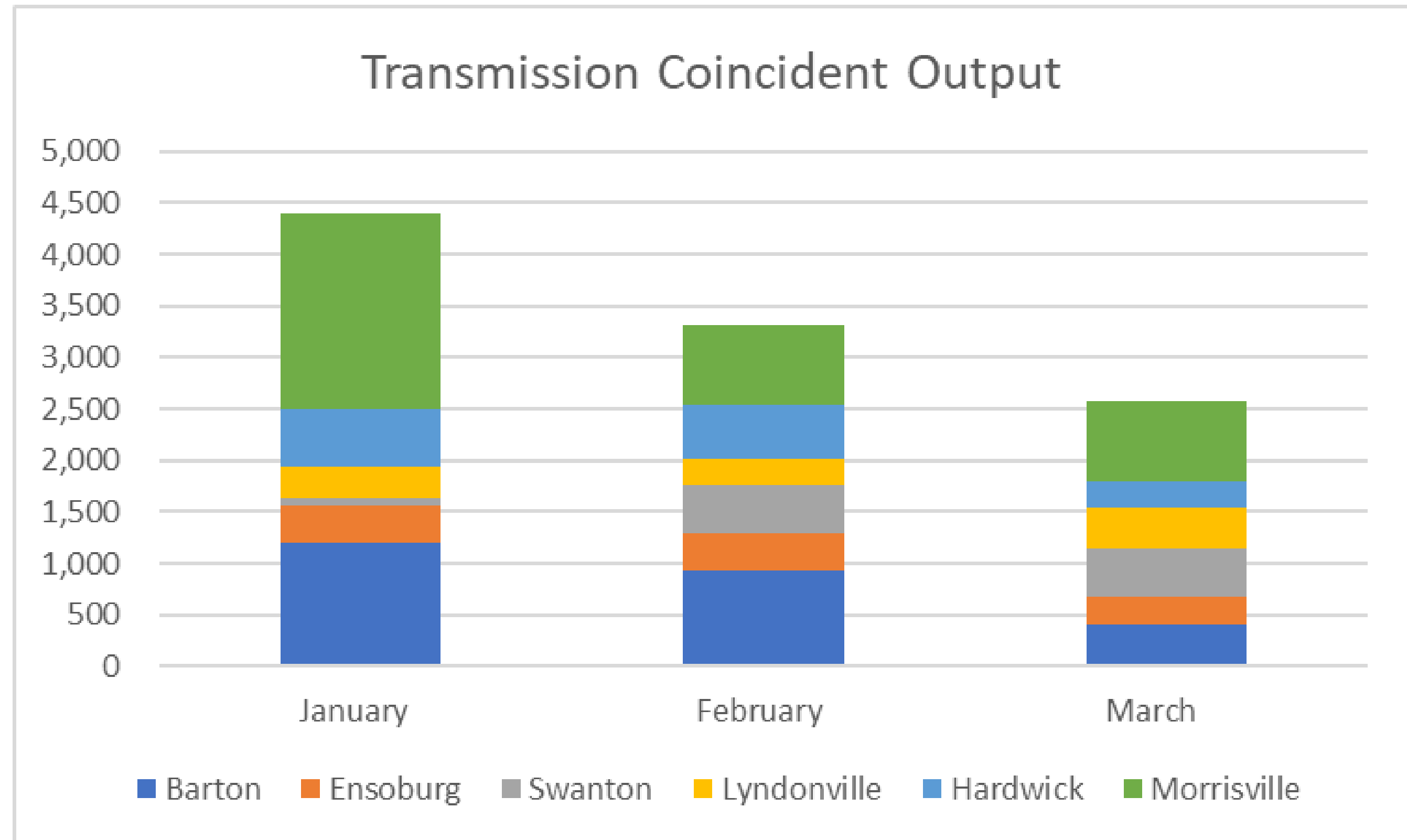
- Transmission value exceeds capacity value by a wide margin.
- We expect this to continue for years.



6. Load Reducing Hydro: RNS Coincident Output (YTD)

Hydro Output

- Coincident with VELCO Peak



6. Load Reducing Hydro: Summary (YTD)

Transmission Value

- Transmission value exceeds capacity value by a wide margin.
- We expect this to continue for years.

	Capacity Coincident Output	Capacity Value	RNS Coincident Output (Ave.)	RNS Value
Barton	0	\$0	848	\$25,107
Ensoburg	0	\$0	328	\$9,702
Swanton	142	\$4,291	337	\$9,797
Lyndonville	55	\$1,662	324	\$9,427
Hardwick	0	\$0	438	\$13,124
Morrisville	0	\$0	1,155	\$33,565
TOTAL	197	\$5,953	3,430	\$100,722

7. Project Updates Solar

VPPSA Solar:

- Trombley Hill (Morrisville): Working with Goldman Sachs to make changes to the contract regarding billing point.
- Lawrence Brook (Morrisville): equipment en route to site. Work start scheduled for week of May 18
- Bone Hill (Northfield): final contracts completed. Encore is coordinating final interconnect scope with NED.
- Billings Road (Hardwick): Expecting CPG over next couple weeks. Final engineering in process.

Standard Offer Solar:

- Salvage Yard Hess (Morrisville, 2019 Award): Supplemental testimony drafted
- Center Road Davis (Hardwick, 2019 Award): Supplemental testimony submitted

7. Project Updates Solar

Future Projects:

- PPAs: VPPSA directed Encore to look for other site for PPAs for members with Tier II gap. Those members are:
 - Jacksonville
 - Ludlow
 - Lyndonville
 - Orleans
- Standard Offer Program: Potential for working in WEC territory. Discussed with Patty but need sites. Delayed due to Coronavirus.












8. SHEI Updates

Congestion costs remain low.

Year	Coventry DA	Coventry RT	Sheffield RT	Total
2016	\$29,490	\$227	\$80,072	\$109,788
2017	\$60,657	-\$1,912	\$119,575	\$178,320
2018	\$22,630	-\$2,243	\$77,251	\$97,638
2019	\$16,574	-\$6	\$40,467	\$57,035
2020	\$3,158	\$315	\$7,083	\$10,556
Total	\$132,509	-\$3,620	\$324,447	\$453,336

9. Coronavirus Effects on Load

Change in Loads Compared to 2019

Week #	Barton	Enosburg Falls	Hardwick	Jacksonville	Johnson	Ludlow	Lyndonville	Morrisville	Northfield	Orleans	Swanton
April Week 1	1.37%	-10.01%	-8.56%	-6.93%	-15.59%	-25.04%	-11.94%	-5.13%	-19.92%	-41.79%	-6.38%
April Week 2	2.42%	-20.01%	-4.99%	-7.50%	-12.47%	-22.84%	-8.96%	-2.98%	-20.45%	-45.98%	-4.52%
April Week 3	3.18%	-17.95%	-6.88%	2.35%	-17.11%	-18.57%	-7.76%	-3.90%	-18.66%	-39.46%	-4.51%
April Week 4	8.15%	-6.50%	-1.20%	3.45%	-15.34%	-20.46%	-7.42%	-2.59%	-18.54%	-45.23%	-1.57%
April Week 5	-0.37%	-6.32%	-8.07%	-1.35%	-17.23%	-22.20%	-7.64%	-1.53%	-19.28%	-56.33%	-3.40%
April Total	3.42%	-13.52%	-5.68%	-2.36%	-15.27%	-21.83%	-8.99%	-3.52%	-19.40%	-44.20%	-4.25%
Trend Line											

- The first (and perhaps only) full month of quarantine resulted in lower loads for all systems except Barton.
- Systems with large customers were most impacted.