



The State of Purchase Power

9/29/2020 Update

Portfolio

2020

CURRENT PORTFOLIO

Existing Generation Resources (2019)

Existing Generation Resources (2019)

Plant	CPP Capacity		2019 Generation	
	MW	% of Total	GWh	% of Total
Fremont - Natural Gas	79.1	25%	413.6	24%
Prairie State - Coal	24.9	8%	198.1	12%
AMP Hydro CSW	35.0	11%	137.4	8%
AMP Meldahl - Hydro	9.0	3%	41.3	2%
AMP Greenup - Hydro	6.0	2%	22.1	1%
Collinwood BioEnergy	1.3	0%	3.3	0%
Blue Creek - Wind	10.0	3%	25.6	2%
NYPA - Hydro	13.0	4%	103.1	6%
CV Kinsman - Solar	1.0	0%	0.9	0%
CPP Peaking Generation	24.4	8%	0.3	0%
Diesel Units	0.0	0%	0.3	0%
Brooklyn - Solar	4.0	1%	4.8	0%
Total Generation Resources	207.7	66%	950.8	56%
Purchased Energy Blocks	0.0	0%	800.1	47%
Purchased Capacity Blocks	109.0	34%	-	0%
Total Purchased Blocks	109.0	34%	800.1	47%
Net Market Purchases	0.0	0%	(59.2)	-3%
Total Purchases	109.0	34%	740.9	44%
Total Generation & Purchases	316.7	100%	1,691.7	100%
Total Power Supply	316.7	100%	1,692.0	100%

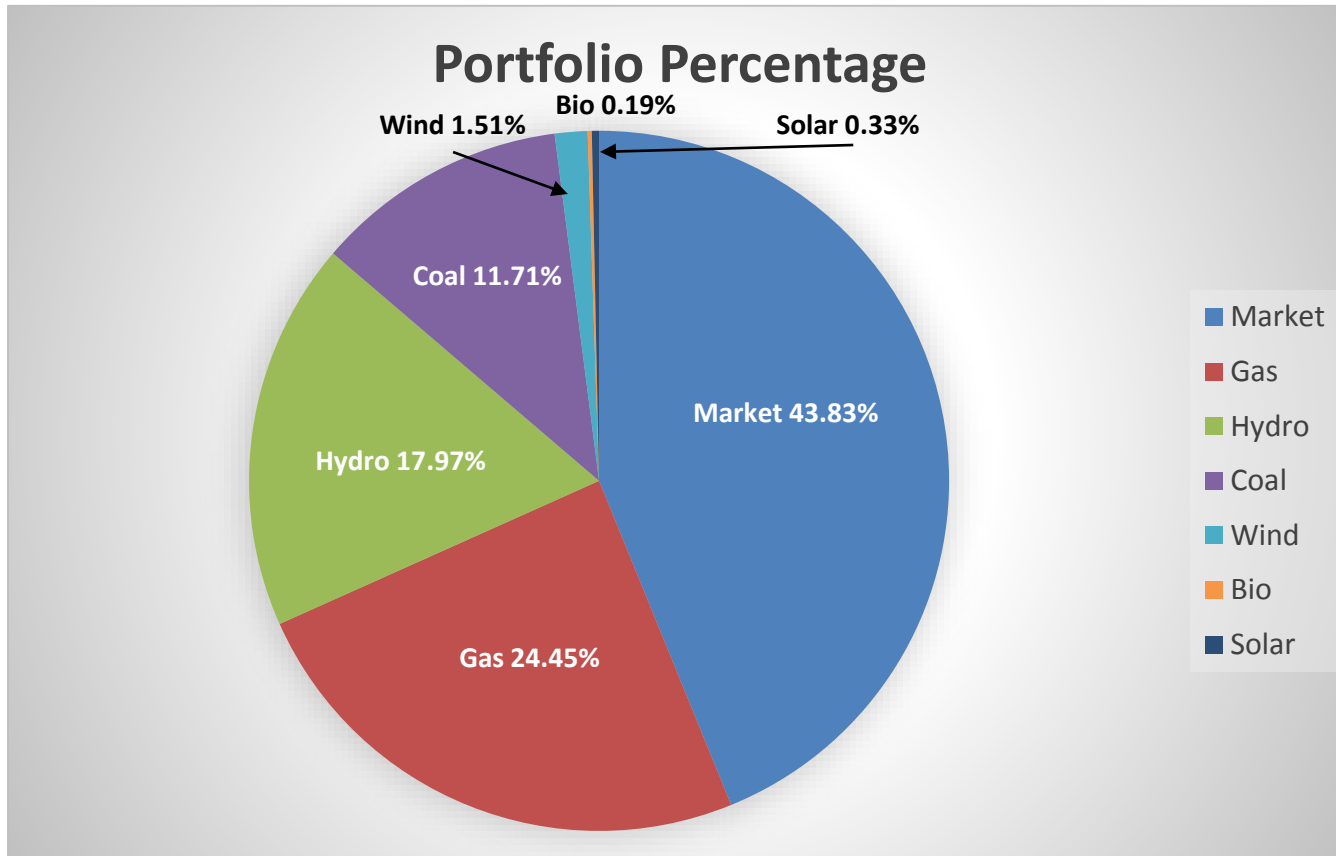
Renewable Resources

- The City adopted a Renewable Energy Portfolio Standard providing the following goals for CPP:
 - ▶ 15% renewable energy by 2015
 - ▶ 20% renewable energy by 2020
 - ▶ 25% renewable energy by 2025

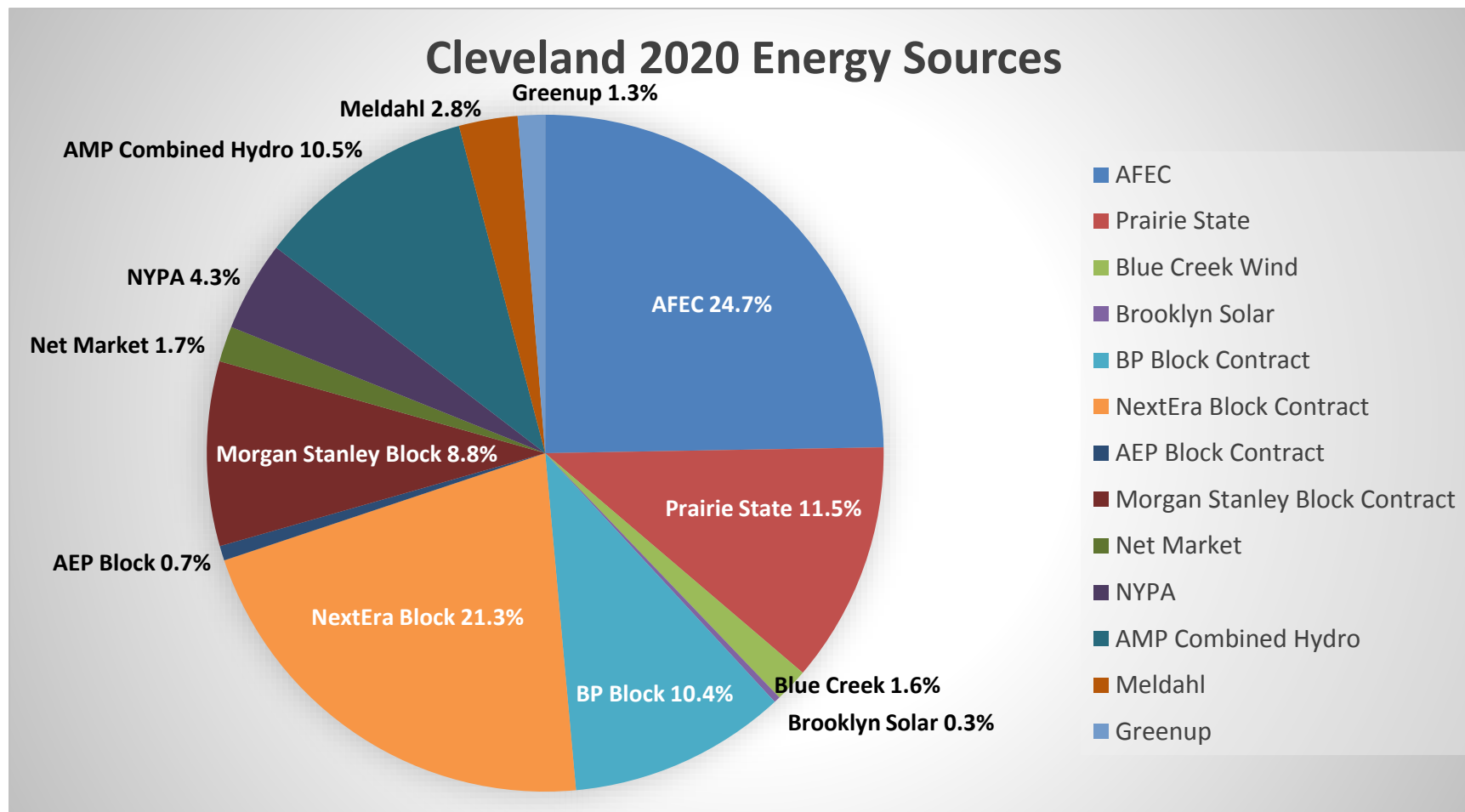
Energy Efficiency Programs

- CPP has offered its customers Energy Efficiency and Conservation Programs in the past through internal programs and through American Municipal Power
- CPP currently has a mobile application "My CPP" that offers power saving strategies to customers

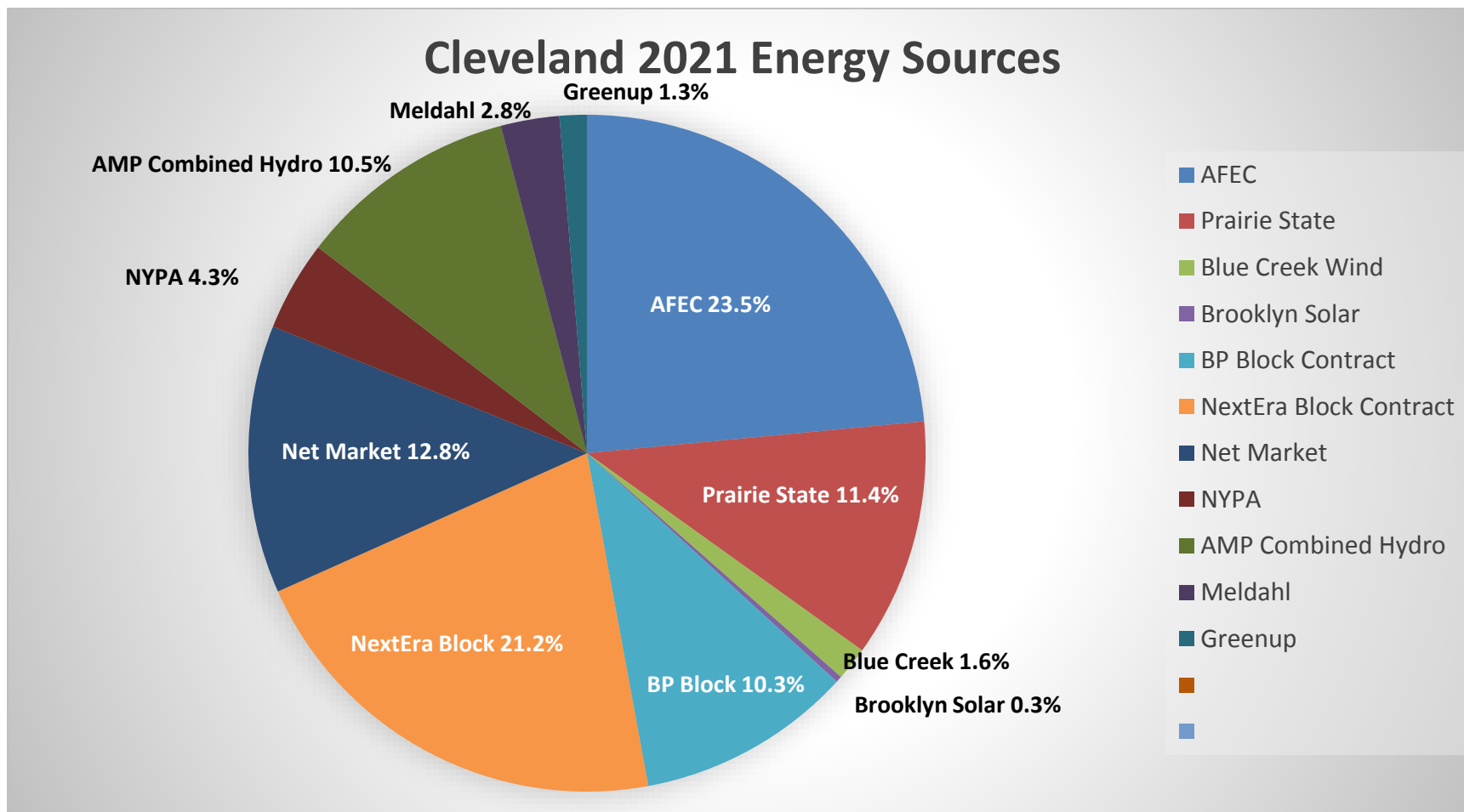
2019 Generation Resources



Projected 2020 Energy Sources



Projected 2021 Energy Sources



Power Supply Details

Power Supply

CPP has developed a diverse mix of power supply resources

- CPP obtains a significant portion of its power through short-term, intermediate-term, and long-term contracts with a variety of wholesale market-based suppliers
- CPP has significantly reduced its reliance on the wholesale power market through participation in several AMP generation projects, which include:
 - ▶ Prairie State Energy Campus coal-fired project
 - ▶ AMP Hydro Projects
 - ▶ AMP Fremont Energy Center
 - ▶ Blue Creek Wind project
- As a member of PJM, CPP is responsible for meeting its capacity obligation. CPP bids its generation interests into the PJM capacity market through AMP, realizing credits that significantly offset CPP's capacity expenditures
- CPP owns three (3) 16.2 MW combustion turbine generators and leases six (6) 1.825 MW diesel generating units, all of which are used for peak load and emergency purposes

Projected Power Costs

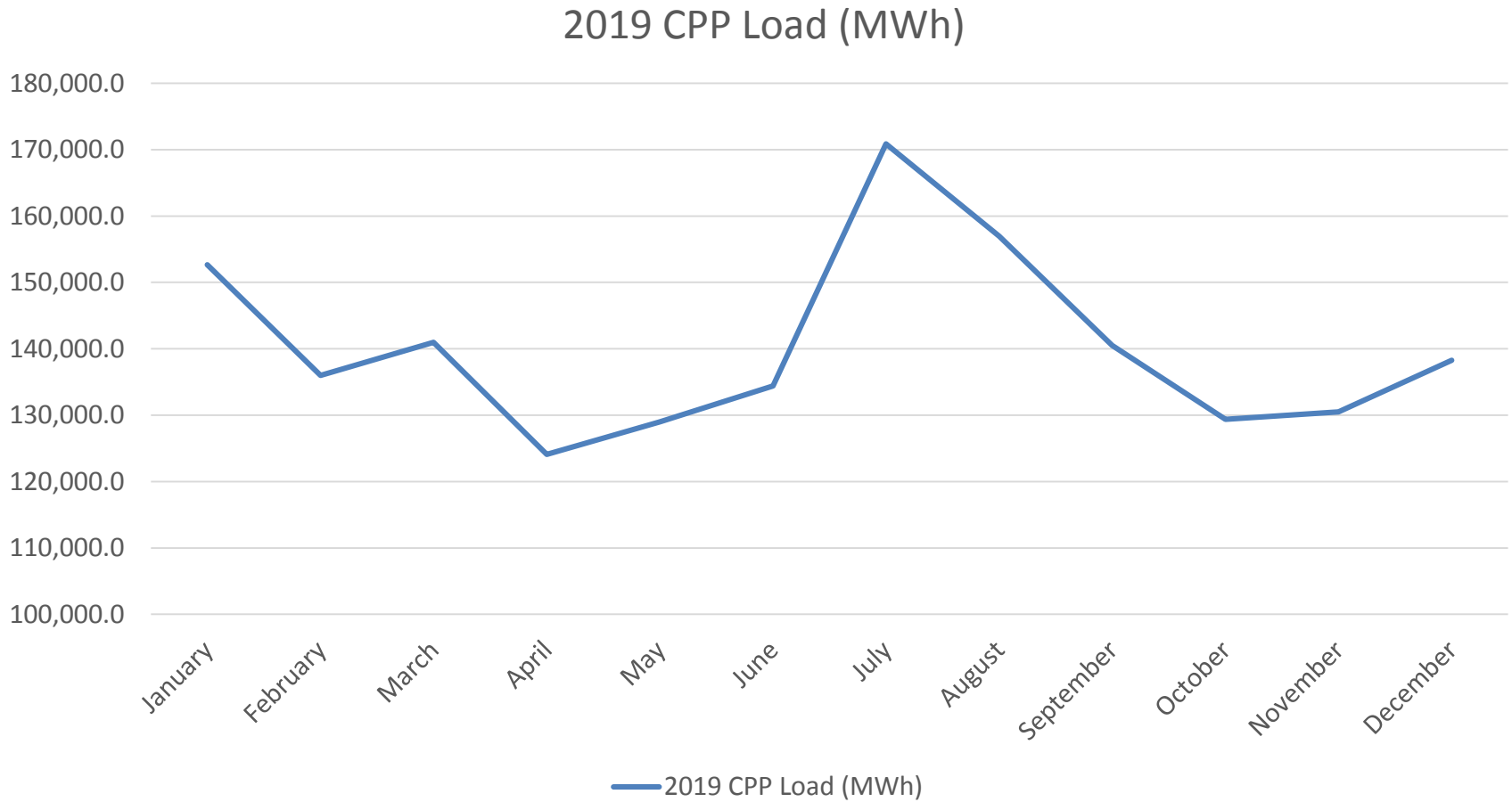
- Projected purchases are dictated by the market and CPP is evaluating any potential impact from participation in LEEDCO.

Projected Power Costs

CPP generation interests and market purchase strategy will help stabilize power supply costs

- CPP's interests in the AMP hydro projects, Prairie State, and the Fremont Energy Center will provide stable and predictable power supply costs for a significant portion of CPP's requirements
- CPP continues to replace expiring power contracts with less costly market purchases that are now available
 - ▶ An example is the 17 MW Morgan Stanley contract priced at \$62.95 expiring in 2020

2019 CPP Monthly Load



AMP Fremont Energy Center

- AMP Natural Gas Generator located in Fremont, Ohio
- CPP has an 11.72% ownership stake amongst the 89 member community participation pool
- Potential hourly capacity of 79.1 MW



AFEC Rates

AFEC	Demand Rate	Energy Rate	Congestion/Losses	Capacity Credit	Effective Rate
	\$/KW	\$/MWh	\$/MWh	\$/KW	\$/MWh
2021	\$ 8.82	\$ 29.31	\$ 2.89	\$ (3.94)	\$ 45.06
2022	\$ 9.00	\$ 27.54	\$ 2.90	\$ (4.56)	\$ 42.12
2023	\$ 9.58	\$ 25.93	\$ 2.90	\$ (4.01)	\$ 43.69
2024	\$ 9.73	\$ 24.36	\$ 2.91	\$ (4.03)	\$ 43.21
2025	\$ 9.76	\$ 23.78	\$ 2.91	\$ (4.05)	\$ 42.50

AFEC Notes

- The Gas Turbine Optimization Program was completed in 2019
- This will slightly increase the power output and decrease the heat rate, making AFEC more efficient

Prairie State

- AMP Coal Generator located in Marissa, IL
- CPP has a 6.76% ownership stake amongst the 68 member community participation pool
- Potential hourly capacity of 24.88 MW



Prairie State Rates

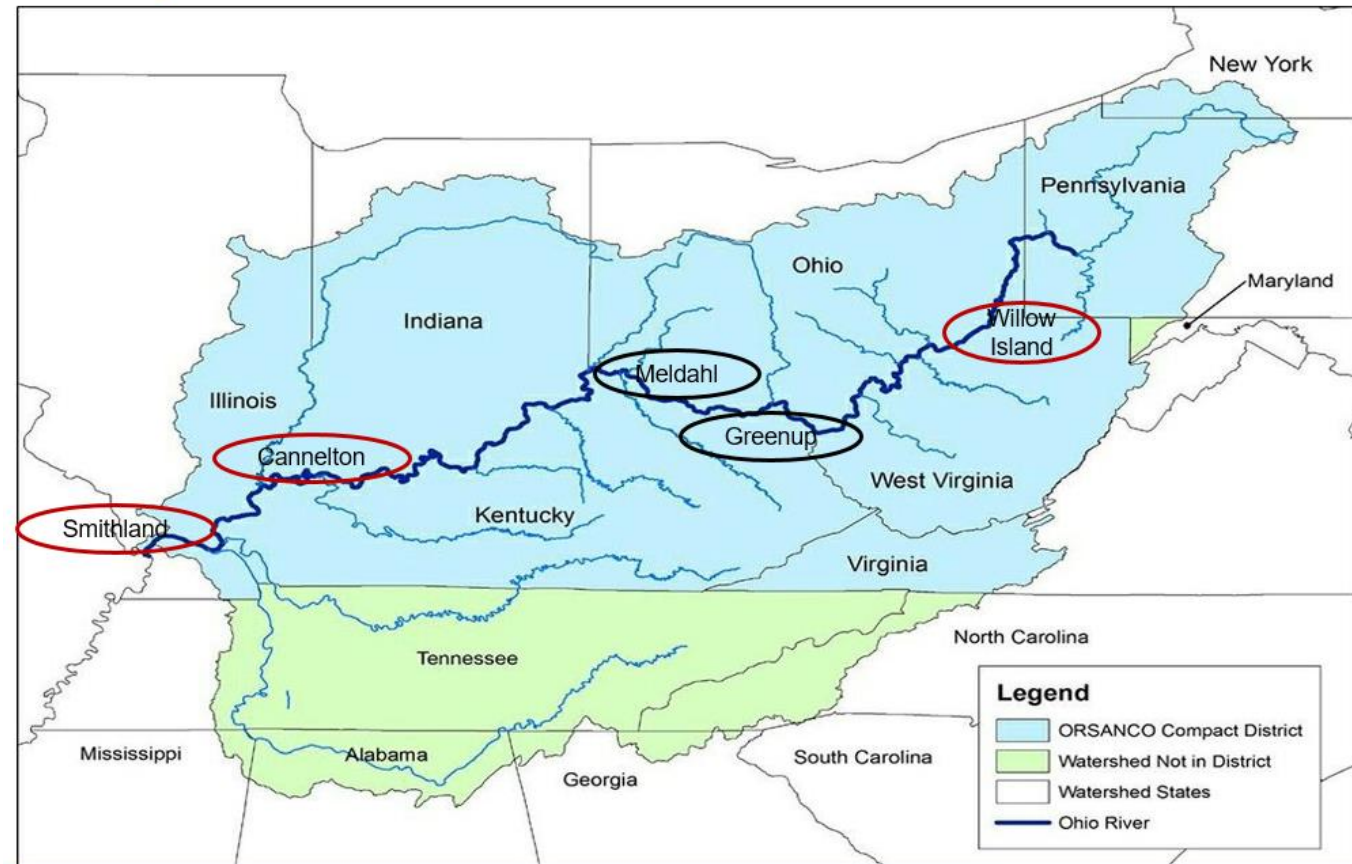
Prairie State	Demand Rate	Energy Rate	Congestion/Losses	Capacity Credit	Effective Rate
	\$/KW	\$/MWh	\$/MWh	\$/KW	\$/MWh
2021	\$ 35.00	\$ 10.47	\$ 3.70	\$ (3.16)	\$ 64.29
2022	\$ 35.33	\$ 9.58	\$ 3.76	\$ (3.88)	\$ 61.85
2023	\$ 35.49	\$ 9.53	\$ 3.70	\$ (3.78)	\$ 62.02
2024	\$ 35.53	\$ 9.15	\$ 3.76	\$ (3.80)	\$ 61.63
2025	\$ 35.63	\$ 8.90	\$ 3.71	\$ (3.82)	\$ 61.33

Prairie State Notes

- Chosen to participate in a Carbon Capture Retrofit Study by the US Department of Energy
- \$15M Department of Energy study to design a carbon capture system for Prairie State led by the University of Illinois

AMP Hydro Projects

Hydro Plants and Ohio River Watershed



AMP Combined Hydro

- AMP Combined Hydro project includes Smithland, Cannelton, and Willow Island Hydro plants
- CPP has a 16.83% ownership stake amongst the 80 member community participation pool
- Potential hourly capacity of 35 MW

AMP Combined Hydro Rates

AMP Combined Hydro	Demand Rate	Energy Rate	Congestion/Losses	Capacity Credit	Effective Rate
	\$/KW	\$/MWh	\$/MWh	\$/KW	\$/MWh
2021	\$ 55.35	\$ 27.00	\$ 3.69	\$ (1.09)	\$ 179.69
2022	\$ 54.79	\$ 26.00	\$ 3.69	\$ (1.85)	\$ 154.73
2023	\$ 53.86	\$ 26.00	\$ 3.69	\$ (2.39)	\$ 151.25
2024	\$ 54.31	\$ 26.00	\$ 3.69	\$ (2.81)	\$ 153.32
2025	\$ 56.15	\$ 26.00	\$ 3.69	\$ (3.00)	\$ 157.22

Meldahl Hydro

- Meldahl Hydro project is located in Foster, KY along the Ohio River
- CPP has an 8.57% ownership stake amongst the 48 member community participation pool
- Potential hourly capacity of 9 MW

Meldahl Rates

Meldahl	Demand Rate	Energy Rate	Congestion/Losses	Capacity Credit	Effective Rate
	\$/KW	\$/MWh	\$/MWh	\$/KW	\$/MWh
2021	\$ 31.79	\$ 27.00	\$ 1.52	\$ (4.11)	\$ 104.34
2022	\$ 32.00	\$ 26.00	\$ 1.52	\$ (4.20)	\$ 90.56
2023	\$ 32.16	\$ 26.00	\$ 1.52	\$ (4.06)	\$ 91.26
2024	\$ 32.28	\$ 26.00	\$ 1.52	\$ (4.07)	\$ 93.49
2025	\$ 31.26	\$ 26.00	\$ 1.52	\$ (4.10)	\$ 91.13

Greenup Hydro

- Greenup Hydro project is located in Franklin Furnace, OH along the Ohio River
- CPP has an 8.57% ownership stake amongst the 48 member community participation pool
- Potential hourly capacity of 6 MW

Greenup Rates

Greenup	Demand Rate	Energy Rate	Congestion/Losses	Capacity Credit	Effective Rate
	\$/KW	\$/MWh	\$/MWh	\$/KW	\$/MWh
2021	\$ 26.10	\$ 9.00	\$ 0.80	\$ (2.67)	\$ 99.13
2022	\$ 26.58	\$ 9.00	\$ 0.80	\$ (3.34)	\$ 86.76
2023	\$ 26.82	\$ 9.00	\$ 0.80	\$ (3.16)	\$ 88.14
2024	\$ 27.06	\$ 9.00	\$ 0.80	\$ (3.17)	\$ 90.89
2025	\$ 29.31	\$ 9.00	\$ 0.80	\$ (3.19)	\$ 98.28

AMP Hydro Project Notes

- All AMP hydro projects are now mostly demand charge driven rates, meaning the output will affect the overall average rate
- Higher output will mean lower average costs



Blue Creek

- Wind Generator located in Van Wert, OH
- CPP has a 19.2% ownership stake amongst the 49 member community participation pool
- Potential hourly capacity of 10 MW



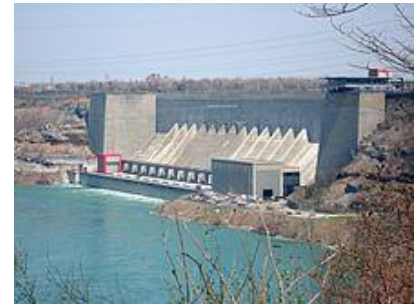
Blue Creek Rates

Blue Creek	Demand Rate	Energy Rate	Congestion/Losses	Capacity Credit	Effective Rate
	\$/KW	\$/MWh	\$/MWh	\$/KW	\$/MWh
2021	\$ -	\$ 48.71	\$ 1.80	\$ (0.99)	\$ 46.04
2022	\$ -	\$ 54.14	\$ 1.93	\$ (1.02)	\$ 51.99

Blue Creek Wind Notes

- Contract with AMP ends June 30, 2022
- Affords CPP the opportunity to identify a more affordable replacement source of power, if available
- Opportunity to find a consistent renewable source in order to serve peak demand

NYPA Hydro Notes



- St. Lawrence PPA valid until April 30, 2032
- Niagara PPA valid until September 1, 2025
- Niagara costs will be going up due to Life Extension, Modernization & Controls Upgrade Program costs
- Future participation may cause a reallocation amongst the Neighboring States and within the Ohio share of the NYPA power splits

Collinwood Bio Energy Notes

- Collinwood purchase power agreement valid until August 17, 2031
- Collinwood is a local project and a CPP customer



CV Kinsman Notes

- A solar array of approximately 1 MW capacity and 4,256 Schuco MPE-PS09 235 Watt modules located at 8120 Kinsman Road in Cleveland
- Partnership with Cleveland Metropolitan Housing Authority (CMHA)
- CPP is obligated to purchase the solar output
- Contract ends November 7, 2031



Next Era Block Purchase

- MEDCo's current contract expires at the end of 2024
- The block supporting MEDCo was purchased at \$31.20 and is delivered at the CPP Aggregate, thus avoiding any applicable congestion and losses associated with delivery

BP Block Purchase

- The new Capacity Expansion 20 MW 7x24 block started in 2020, lasting until December 31, 2027
- The block supporting Capacity Expansion was purchased at \$31.89 and is delivered at the CPP Aggregate, thus avoiding any applicable congestion and losses associated with delivery
- An extension of this block starts in 2028 and goes through June 30, 2031 priced at \$31.17, allowing the Sales team to have cost certainty for capacity expansion contracts through that term duration

Other Block Purchases

- CPP has a 17 MW 7x24 block priced at \$64.89 that is falling off at the end of 2020
- CPP also purchases a variable block contract that covers anticipated summer and winter peaks priced at \$40.35 and is falling off at the end of 2020

PJM and Installed Capacity

PJM's main concern is to keep the lights on

PJM capacity auction runs each May (August in 2019)

- Pays generators to be available for emergency performance
- Sets price for load 3 years into future

Members receive capacity credit for:

- Generation Resources (Ownership or Power Purchase)
- Peak Shaving / Demand Response

2020 Transmission Rates

- CPP's 2020 Transmission Rate is \$5.07/KW-month
- Transmission Rates are assumed to increase 10% annually through 2021 and then settle around 2.3% annually as FirstEnergy continues to spend on their transmission assets with the costs being passed on to Load Serving Entities like CPP

Questions

