

# NORTHEAST POWER MARKETS ENERGY WATCH

Authors: Oliver Kleinbub, Julia Criscuolo, Paul Flemming

## Summary

April 2020

The Covid-19 pandemic is impacting electricity markets, natural gas markets, and emission allowance markets. Stay-at-home advisories have been put in place across most of the United States, impacting the demand for electricity, natural gas and emission allowances. Uncertainty persists as to when and to what extent businesses will resume “normal” operations. To provide guidance on demand, supply and prices of electricity and natural gas, ESAI developed outlooks for Northeast power and natural gas based on the assumption that stay-at-home orders will be gradually lifted this summer. ESAI bracketed the power and gas outlooks by upper and lower boundary cases—alternative recovery scenarios are plausible within the developed forecast envelopes.

As CO<sub>2</sub> emissions declined amid reduced economic activities, over-the-counter RGGI allowance prices dropped to \$4.75/ton in late March. However, prices have since recovered and are currently trading near \$5.70/ton.

March dry gas production declined slightly to 93.8 Bcf/d, and April production is slightly down to 93.4 Bcf/d.



### *In this Issue*

<b>9 Month Power &amp; Gas Price Forecast</b>	<b>2</b>	<b>Natural Gas</b>	<b>28</b>
<b><i>Northeast Power Markets</i></b>		<b>Appendix</b>	<b>35</b>
<b>PJM</b>	<b>3</b>		
<b>New England</b>	<b>11</b>		
<b>New York</b>	<b>18</b>		
<b>Emissions</b>	<b>26</b>		

**ESAI**  
POWER LLC

401 Edgewater Place  
Suite 640  
Wakefield, MA 01880  
Tel: 781.245.2036  
[www.esai.com](http://www.esai.com)

Note: No parts of the *Northeast Energy Watch* may be duplicated, transmitted or stored without ESAI Power LLC's written permission. ESAI Power LLC does not endorse any particular trading or business strategy and is not responsible for any outcomes from any decisions made or attributed to this report. The estimates, forecasts and analyses in this report are our judgment and are subject to change without notice. No warranty is made or implied.

ESAI Power LLC Office: 401 Edgewater Place Suite 640 Wakefield, MA, 01880.

# 9 MONTH PRICE FORECAST

<b>Fuel Price Expectations (\$/MMBtu)</b>									
<b>Natural Gas</b>	<b>Apr-20</b>	<b>May-20</b>	<b>Jun-20</b>	<b>Jul-20</b>	<b>Aug-20</b>	<b>Sep-20</b>	<b>Oct-20</b>	<b>Nov-20</b>	<b>Dec-20</b>
<i>Henry Hub Fwds*</i>	\$1.77	\$1.94	\$2.05	\$2.24	\$2.32	\$2.35	\$2.42	\$2.64	\$2.95
<i>Tetco-M3 Fwds</i>	\$1.48	\$1.62	\$1.73	\$1.96	\$1.96	\$1.75	\$1.80	\$2.49	\$3.75
<i>Dominion-South Fwds</i>	\$1.43	\$1.56	\$1.67	\$1.83	\$1.83	\$1.67	\$1.70	\$2.11	\$2.54
<i>Transco Zone 6 NY Fwds</i>	\$1.50	\$1.60	\$1.74	\$2.03	\$2.10	\$1.78	\$1.82	\$2.72	\$4.26
<i>Iroquois Zone 2 Fwds</i>	\$1.70	\$1.73	\$1.93	\$2.11	\$2.21	\$2.04	\$2.12	\$3.28	\$5.18
<i>Algonquin Citygate Fwds</i>	\$1.66	\$1.75	\$1.86	\$2.12	\$2.12	\$1.94	\$2.01	\$3.54	\$5.43
<b>Henry Hub ESAI</b>	<b>\$1.79</b>	<b>\$1.78</b>	<b>\$1.90</b>	<b>\$2.05</b>	<b>\$2.11</b>	<b>\$2.14</b>	<b>\$2.20</b>	<b>\$2.42</b>	<b>\$2.73</b>
<b>Tetco-M3 ESAI</b>	<b>\$1.48</b>	<b>\$1.49</b>	<b>\$1.58</b>	<b>\$1.78</b>	<b>\$1.78</b>	<b>\$1.55</b>	<b>\$1.62</b>	<b>\$2.29</b>	<b>\$3.33</b>
<b>Dominion-South ESAI</b>	<b>\$1.40</b>	<b>\$1.41</b>	<b>\$1.50</b>	<b>\$1.63</b>	<b>\$1.63</b>	<b>\$1.47</b>	<b>\$1.51</b>	<b>\$1.91</b>	<b>\$2.34</b>
<b>Transco Zone 6 NY ESAI</b>	<b>\$1.49</b>	<b>\$1.49</b>	<b>\$1.64</b>	<b>\$1.90</b>	<b>\$1.95</b>	<b>\$1.62</b>	<b>\$1.66</b>	<b>\$2.51</b>	<b>\$3.95</b>
<b>Iroquois Zone 2 ESAI</b>	<b>\$1.61</b>	<b>\$1.59</b>	<b>\$1.78</b>	<b>\$1.94</b>	<b>\$2.02</b>	<b>\$1.84</b>	<b>\$1.91</b>	<b>\$3.06</b>	<b>\$4.96</b>
<b>Algonquin Citygate ESAI</b>	<b>\$1.58</b>	<b>\$1.58</b>	<b>\$1.65</b>	<b>\$1.90</b>	<b>\$1.91</b>	<b>\$1.69</b>	<b>\$1.77</b>	<b>\$3.27</b>	<b>\$5.04</b>
<b>Fuel Oil</b>									
<i>#2 Heating Oil, NYH</i>	\$14.76	\$14.97	\$15.76	\$14.58	\$15.47	\$14.70	\$14.63	\$14.53	\$14.84
<i>#6 Oil 0.3% Sulfur</i>	\$13.37	\$13.10	\$13.89	\$12.91	\$14.10	\$13.14	\$13.24	\$13.11	\$12.95

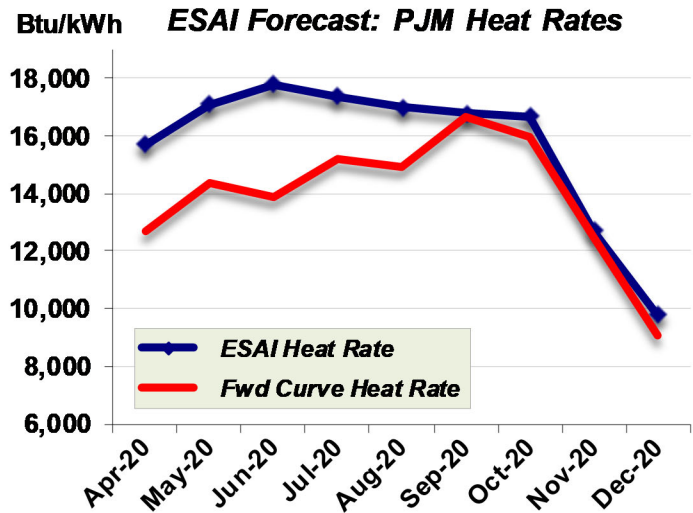
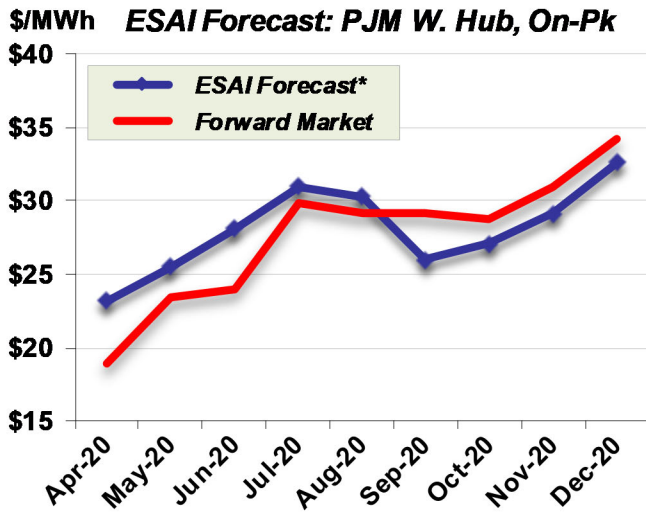
\*Forwards as of April 22, 2020. Apr-20 reflects recent history.

<b>ESAI Power Price Forecasts (\$/MWh)</b>									
<b>PJM</b>	<b>Apr-20</b>	<b>May-20</b>	<b>Jun-20</b>	<b>Jul-20</b>	<b>Aug-20</b>	<b>Sep-20</b>	<b>Oct-20</b>	<b>Nov-20</b>	<b>Dec-20</b>
<b>Western Hub</b>									
<b>ESAI Forecast*</b>	<b>\$23.20</b>	<b>\$25.50</b>	<b>\$28.10</b>	<b>\$31.00</b>	<b>\$30.30</b>	<b>\$26.00</b>	<b>\$27.10</b>	<b>\$29.10</b>	<b>\$32.60</b>
<b>Forward Market</b>	\$18.90	\$23.40	\$24.00	\$29.80	\$29.20	\$29.10	\$28.70	\$31.00	\$34.20
<i>PSEG spread</i>	-\$2.55	-\$2.90	-\$3.45	-\$2.25	-\$2.25	-\$3.60	-\$3.85	-\$2.70	-\$1.35
<i>AD Hub spread</i>	-\$0.10	\$0.15	\$0.45	\$0.70	\$0.70	\$0.65	\$0.50	\$0.10	-\$0.10
<b>New England</b>									
<b>Mass Hub</b>									
<b>ESAI Forecast*</b>	<b>\$19.10</b>	<b>\$19.00</b>	<b>\$22.10</b>	<b>\$25.80</b>	<b>\$23.50</b>	<b>\$21.10</b>	<b>\$21.40</b>	<b>\$34.00</b>	<b>\$47.90</b>
<b>Forward Market</b>	\$19.80	\$21.60	\$23.30	\$31.70	\$29.50	\$27.00	\$26.70	\$38.00	\$51.30
<i>NEMA spread</i>	\$0.15	\$0.15	\$0.20	\$0.35	\$0.35	\$0.15	\$0.15	\$0.15	\$0.20
<i>CT spread</i>	\$0.05	\$0.05	\$0.10	\$0.15	\$0.15	\$0.05	\$0.05	\$0.10	\$0.15
<b>New York</b>									
<b>Zone A</b>									
<b>ESAI Forecast*</b>	<b>\$18.00</b>	<b>\$19.10</b>	<b>\$30.80</b>	<b>\$36.50</b>	<b>\$31.90</b>	<b>\$27.30</b>	<b>\$21.50</b>	<b>\$25.00</b>	<b>\$31.00</b>
<b>Forward Market</b>	\$12.40	\$19.30	\$26.10	\$32.70	\$33.00	\$29.90	\$25.70	\$26.20	\$31.50
<b>Zone G</b>									
<b>ESAI Forecast*</b>	<b>\$20.40</b>	<b>\$21.50</b>	<b>\$26.50</b>	<b>\$31.60</b>	<b>\$27.10</b>	<b>\$22.80</b>	<b>\$24.30</b>	<b>\$30.60</b>	<b>\$44.10</b>
<b>Forward Market</b>	\$16.10	\$19.30	\$21.50	\$28.90	\$28.40	\$25.20	\$24.30	\$29.80	\$40.70
<b>Zone J</b>									
<b>ESAI Forecast*</b>	<b>\$20.60</b>	<b>\$21.60</b>	<b>\$27.10</b>	<b>\$35.00</b>	<b>\$28.10</b>	<b>\$23.20</b>	<b>\$24.60</b>	<b>\$31.40</b>	<b>\$45.80</b>
<b>Forward Market</b>	\$16.40	\$20.10	\$23.00	\$31.40	\$30.80	\$26.70	\$25.90	\$31.00	\$41.00
<b>Zone K</b>	<b>\$24.60</b>	<b>\$25.90</b>	<b>\$32.30</b>	<b>\$42.25</b>	<b>\$35.35</b>	<b>\$27.70</b>	<b>\$29.00</b>	<b>\$36.20</b>	<b>\$51.45</b>

\* ESAI power outlook reflects ESAI's natural gas outlook.

**What To Look For**

- On-peak power prices at the PJM Western Hub stayed flat at \$21.23/MWh in March as generator maintenance and increased congestion at the Hub offset price impacts of decreased demand and lower natural gas prices. ESAI's March projection of \$25.40/MWh and last month's March forwards of \$23.70/MWh were based on higher forecasted demand prior to the Covid-19 outbreak.
- Stay-at-home orders due to Covid-19 continue to subdue electric loads and power prices. Summer peak power prices in PJM are currently pegged near \$30/MWh, but will depend on the extent of Covid-19 responses and weather patterns.
- Tetco M3 forward gas prices for this summer increased along with a general increase in natural gas prices. The July and August contracts added approximately \$0.20/MMBtu since last month and are currently trading just below \$2.00/MMBtu.



<b>ESAI PJM Power Price Forecasts (\$/MWh), On-Peak DAM</b>									
<b>PJM Western Hub</b>	<b>Apr-20</b>	<b>May-20</b>	<b>Jun-20</b>	<b>Jul-20</b>	<b>Aug-20</b>	<b>Sep-20</b>	<b>Oct-20</b>	<b>Nov-20</b>	<b>Dec-20</b>
Gas, Tetco M3 Forward	\$1.48	\$1.62	\$1.73	\$1.96	\$1.96	\$1.75	\$1.80	\$2.49	\$3.75
Gas, Dom-So Forward	\$1.43	\$1.56	\$1.67	\$1.83	\$1.83	\$1.67	\$1.70	\$2.11	\$2.54
Gas, Tetco M3 ESAI	\$1.48	\$1.49	\$1.58	\$1.78	\$1.78	\$1.55	\$1.62	\$2.29	\$3.33
Gas, Dom-So ESAI	\$1.40	\$1.41	\$1.50	\$1.63	\$1.63	\$1.47	\$1.51	\$1.91	\$2.34
<b>ESAI Forecast*</b>	<b>\$23.20</b>	<b>\$25.50</b>	<b>\$28.10</b>	<b>\$31.00</b>	<b>\$30.30</b>	<b>\$26.00</b>	<b>\$27.10</b>	<b>\$29.10</b>	<b>\$32.60</b>
<b>ESAI Heat Rate</b>	<b>15,700</b>	<b>17,100</b>	<b>17,800</b>	<b>17,400</b>	<b>17,000</b>	<b>16,800</b>	<b>16,700</b>	<b>12,700</b>	<b>9,800</b>
<b>Forward Market</b>	<b>\$18.90</b>	<b>\$23.40</b>	<b>\$24.00</b>	<b>\$29.80</b>	<b>\$29.20</b>	<b>\$29.10</b>	<b>\$28.70</b>	<b>\$31.00</b>	<b>\$34.20</b>
<b>Fwd Curve Heat Rate</b>	<b>12,700</b>	<b>14,400</b>	<b>13,900</b>	<b>15,200</b>	<b>14,900</b>	<b>16,700</b>	<b>16,000</b>	<b>12,500</b>	<b>9,100</b>
PSEG spread	-\$2.55	-\$2.90	-\$3.45	-\$2.25	-\$2.25	-\$3.60	-\$3.85	-\$2.70	-\$1.35
AD Hub spread	-\$0.10	\$0.15	\$0.45	\$0.70	\$0.70	\$0.65	\$0.50	\$0.10	-\$0.10

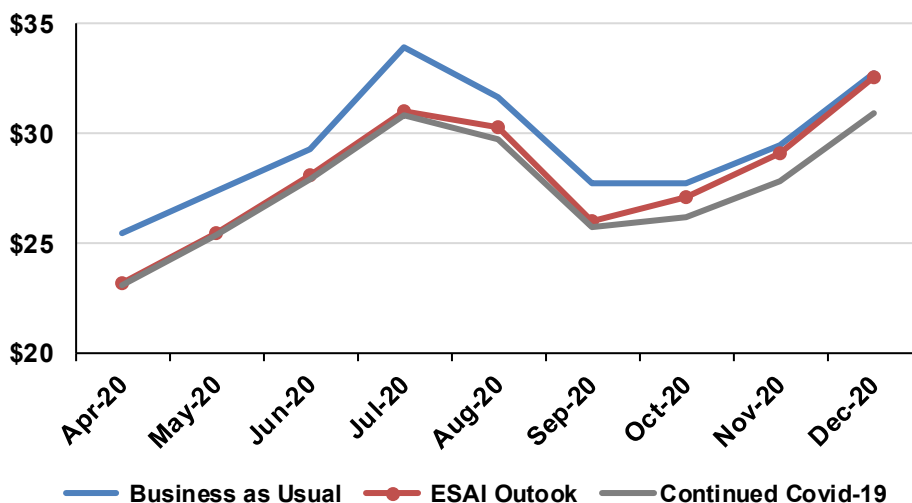
All forward prices as of April 22, 2020. Apr-20 reflects recent history.

\* ESAI power forecast reflects ESAI's natural gas outlook

## PJM ENERGY OUTLOOK

Measures to combat the Covid-19 pandemic remain in effect across PJM states, and economic activity remains subdued, pressuring electricity demand and power prices across the RTO. Uncertainty around the timing of when stay-at-home orders may be relaxed and the trajectory of an economic recovery persist. Given the uncertainty over the timing and extent of recovery, ESAI developed scenarios that are meant to bracket possible market outcomes over the next nine months. The “Business as Usual” scenario assumes no demand reduction due to Covid-19 measures and reflects full recovery to pre-Covid-19 conditions without any lasting economic impact. The “Covid-19” scenario was established by assuming that the current stay-at-home advisories continue through the end of 2020. This scenario provides the starting point for any economic recovery from the time when businesses begin to reopen. As shown in Figure 1, ESAI’s energy outlook assumes that transition from the “Covid-19” scenario begins in June and that “Business as Usual” is reached at the end of 2020. ESAI’s scenarios reflect the impact of stay-at-home advisories only. Lasting economic impacts will likely result in less favorable outcomes.

**Figure 1 - Outlook for PJM Western Hub On-Peak LMP (\$/MWh)**

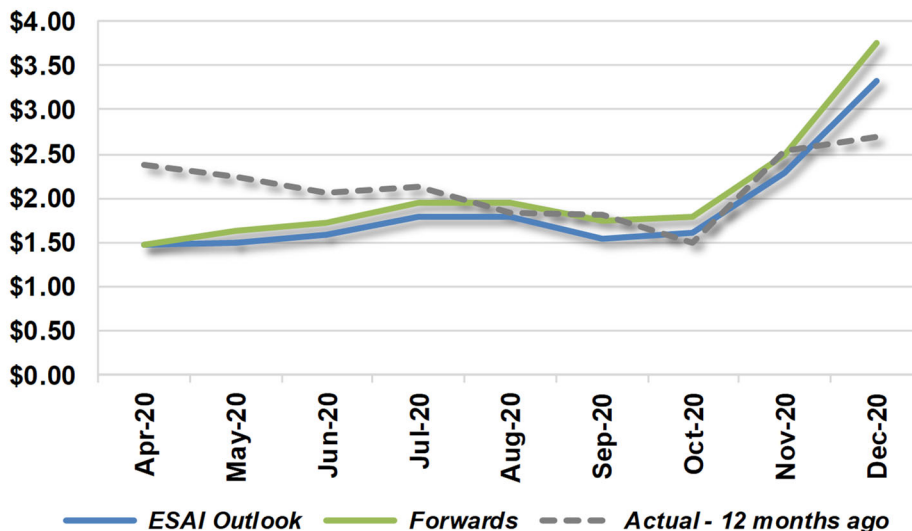


Although Covid-19 measures continue to suppress electric loads, power prices in May are projected to increase to \$25.50/MWh as cooling demand in PJM trends upwards amid warmer weather. As cooling demand increases further in the midst of summer, ESAI projects PJM power prices to surpass \$30/MWh in July. However, power prices remain subdued compared to the “Business as Usual” expectation near \$34/MWh. Power prices retreat towards \$26/MWh in late summer amid decreasing loads. Power prices this fall are expected to remain above spring prices, however, as firmer natural gas prices should lend some support. As the assumed recovery gathers speed, power prices are expected to trend towards the pre-Covid-19 trajectory, and by November power prices are projected at \$29.10/MWh, approaching levels projected under the “Business as Usual” scenario.

### “Business as Usual” (BAU) - No Covid-19

The BAU scenario assumes loads consistent with PJM’s 2020 Load Report and reflects ESAI’s most recent natural gas outlook. Forward gas prices have trended higher in April and are currently assessed slightly above ESAI’s outlook, as shown in Figure 2 on the next page. Gas price expectations for delivery points in PJM are roughly in line with last year’s prices through the summer and into the fall.

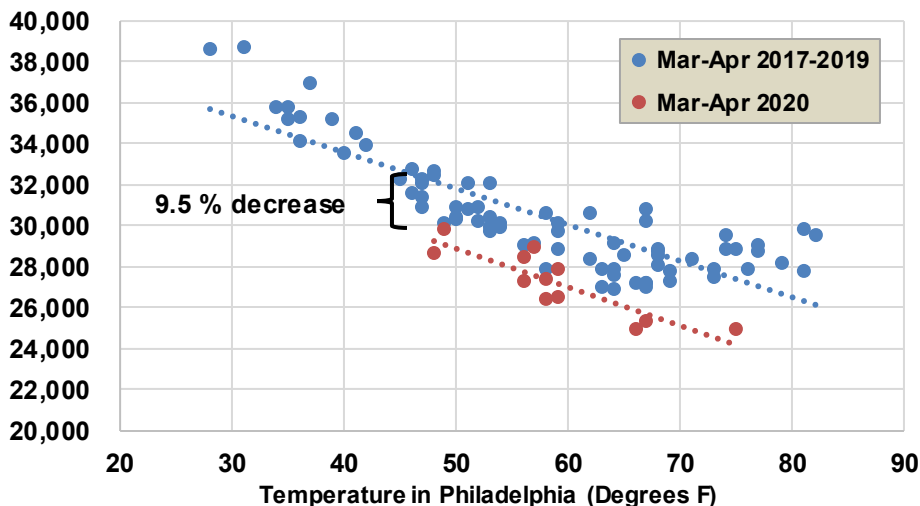
**Figure 2 - Natural Gas Expectations for Tetco M3 (\$/MMBtu)**



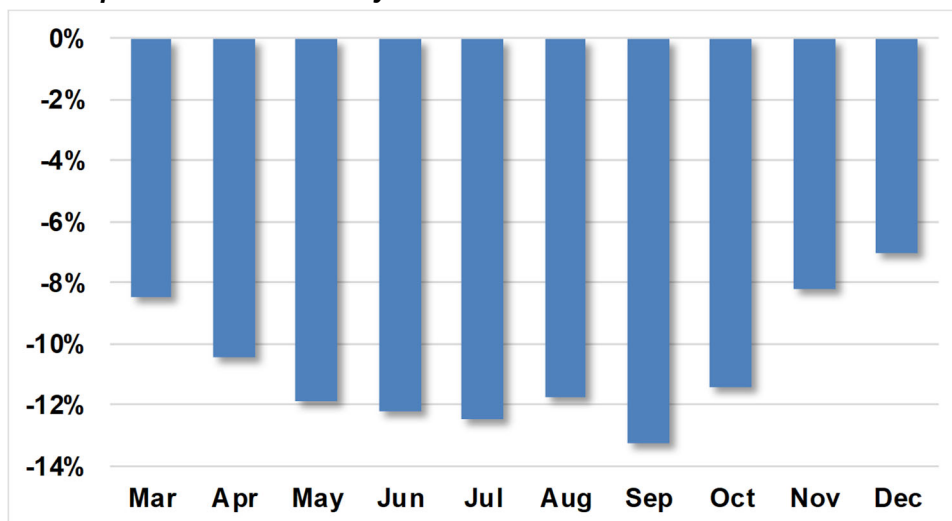
**“Continued Covid-19” Scenario - Stay-at-Home Orders Continue**

ESAI developed the “Covid-19” scenario by estimating reductions in electricity demand due to the impact of stay-at-home directives. Comparing PJM demand data between mid-March and mid-April to historical demand data for 2017-2019 suggests a decrease in Mid-Atlantic demand of approximately 9.5 percent during on-peak hours. Load reductions during weekends are somewhat lower, at approximately 9.0 percent. We note that demand reductions vary significantly throughout the PJM footprint. For example, our analysis for PJM South (Dominion) indicated that demand only decreased by approximately 1.0 percent. ESAI’s estimates of demand reductions for this summer were based on the demand decreases during March-April 2020, and the differences between weekday and weekend demand as a rough proxy for lower commercial/industrial cooling load. Figure 4 shows ESAI’s estimates of the impact of persistent stay-at-home advisories on monthly Mid-Atlantic energy demand during on-peak hours.

**Figure 3 - Average Daily PJM Mid-Atlantic Loads during On-Peak Hours (MW)**



**Figure 4 - Impact of Persistent Stay-At-Home Orders on Mid-Atlantic On-Peak Demand**

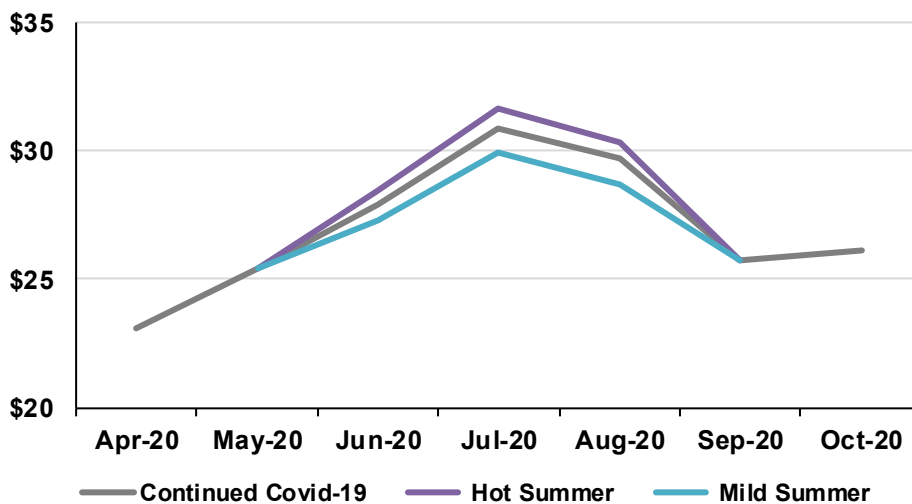


**ESAI Outlook - Expected Scenario**

ESAI’s outlook for PJM power prices assumes that stay-at-home orders remain in effect through the end of May. Beginning in June, economic activities are assumed to slowly recover, resulting in a 25-percent recovery in “lost” electricity demand by August. Recovery is assumed to speed up later during the year, so that ESAI’s price projections returns to the BAU trajectory at the end of 2020.

Summer prices in PJM will be largely dependent on prevailing weather patterns that drive cooling demand. Figure 5 shows the expected price impacts during hot summer weather and mild summer weather. The hot summer scenario was modeled after the 2018 summer. PJM loads during the 2018 summer were approximately 4 percent above the 3-year average. Cooler temperatures during the 2017 summer resulted in a 4-percent decrease in loads. Lower electricity demand due to stay-at-home advisories will dampen the price impact of hot temperatures and will reduce price volatility this summer.

**Figure 5 - PJM Western Hub On-Peak Power Prices under Covid-19 Measures (\$/MWh)**



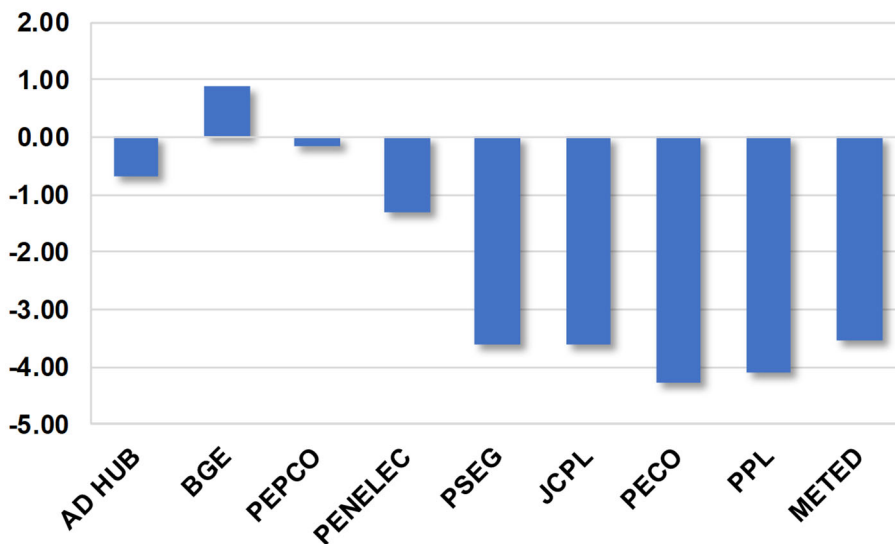
### POWER PRICES IN MARCH

Despite lower electricity demand (as a result of both milder weather and “stay at home” orders in response to the current Covid-19 crisis) and softer natural gas prices, average PJM power prices in March stayed flat at \$21.23/MWh, supported by increased generator maintenance and congestion. Delivered natural gas prices at Tetco M3 declined from \$1.78/MMBtu in February to \$1.47/MMBtu in March, a 17-percent decline. Gas prices at Dominion-South decreased by 14 percent, from \$1.61/MMBtu in February to \$1.38/MMBtu in March. As social distancing directives and “stay at home” orders in response to the Covid-19 outbreak expanded across the entire Northeast region, loads in Eastern PJM declined significantly by the third week of March. Daily peak loads in the PJM Mid-Atlantic region averaged near 30,800 MW during March on-peak hours, down almost 4,000 MW compared to the February average of 34,700 MW. Generator outages in eastern PJM increased from 5,600 MW to 10,800 MW during March, supporting higher market heat rates and power prices. However, compared to prior maintenance seasons, PJM appears to have scaled back scheduled outages in March, presumably as a result of the Covid-19 pandemic.

Overall congestion across PJM remained subdued in March, although transmission constraints impacted pricing at the PJM Western Hub. Aggravated by the planned outage of the Keystone-Juniata 500 kV line during the third week of March, strong congestion along the 115 kV system in PENELEC elevated power prices at the PJM Western Hub. Average on-peak power prices in PEPCO cleared slightly below the PJM Western Hub, and price discounts in eastern zones widened. March power prices in PSEG and JCPL cleared at a discount of \$3.62/MWh to the PJM Western Hub, while prices in PECO and PPL averaged \$4.11-4.26/MWh below. Average on-peak power prices in BGE cleared \$0.88/MWh above the PJM Western Hub in March.

Transmission constraints along the PA-Central interface continue to negatively affect pricing in the Sunbury-Susquehanna-Lackawanna area. These constraints are mostly driven by the ongoing transmission outage at Alburdis-Breinigsville, which is scheduled to be completed by June 2020.

Figure 6 - March On-Peak LMP Spreads to PJM Western Hub (\$/MWh)



**Table 1 - PJM Generation Additions (April 2020 - March 2021)**

Unit	Nameplate Capacity, MW	Unit Type	Month	Year	Location	Update Since March 2020
<b>PJM Additions</b>						
Hickory Run Energy Station	1,072	Nat Gas	Apr	2020	ATSI	N/A
Shell Chemical Appalachia Cogen	91	Nat Gas	Apr	2020	DUQ	N/A
Renewables (2020)	<u>1,246</u>					
<b>Total (Next 12 Months)</b>	<b>2,409</b>					

**Table 2 - PJM Generation Retirements (April 2020 - March 2021)**

Unit	Nameplate Capacity, MW	Unit Type	Month	Year	Location	Update Since March 2020
<b>PJM Retirements</b>						
BC Landfill (Units 1-5)	8	Landfill Gas	Apr	2020	PSEG	N/A
Salem County LF	2	Landfill Gas	Apr	2020	AECO	N/A
Sussex County LF (Units 1 and 2)	3	Landfill Gas	Apr	2020	JCPL	N/A
Conesville (Unit 4)	842	Coal	Jun	2020	AEP	N/A
W.H. Sammis (Units 1-4)	762	Coal	May	2020	ATSI	N/A
Keystone Recovery (Units 1-7)	6	Landfill Gas	May	2020	PPL	Added to list.
Wagner (Unit 2)	136	Coal	Jun	2020	BGE	N/A
Elmer Smith (Unit 2); Pseudo-tied MISO to PJM	282	Coal	Jun	2020	MISO (Big Rivers)	N/A
Westport GT5	122	Nat Gas	Jun	2020	BGE	N/A
Fairless Hills (Units A & B)	60	Landfill Gas	Jun	2020	PECO	N/A
Pennsbury (Units 1 & 2)	6	Landfill Gas	Jun	2020	PECO	N/A
Colver Power Project	118	Waste Coal	Sep	2020	PENELEC	N/A
Edgecombe NUG (Units 1 & 2)	115	Coal	Nov	2020	DOM	N/A
Spruance NUG (Unit 1)	<u>57</u>	Coal	Jan	2021	DOM	N/A
<b>Total (Next 12 Months)</b>	<b>2,517</b>					



**Table 3 - Gas Pipeline Projects in PJM (April 2020 - March 2021)**

Project Name	Pipeline	States	Sink	Capacity (MMcf/d)	Online Date	Current Status	Update Since Mar 2020
Eastern Panhandle Expansion Project	Columbia	PA, WV	PJM	48	TBD	On Hold	N/A
Supply Header	Dominion	WV, PA, VA, NC	PJM / South	1,511	Nov-20	Under Construction	N/A
TriState Corridor Pipeline Project (Brooke County Access Project)	EQT Corporation	PA, WV	PJM	140	Nov-20	Permitting	N/A
Adelphia Gateway	Texas Eastern / Columbia	PA, DE	PJM	250	May-21	Approved	N/A
Southeastern Trail Project	Transco	VA, GA, LA	PJM / South	296	Jun-21	Construction	N/A
Midwest Markets Access Project	ANR Pipeline	MI, IN	PJM	548	TBD	Announced	N/A
Northeast Supply Enhancement	Transco	PA, NY	NY	400	Nov-21	Approved/On Hold (NJ water quality denied - application refiled)	N/A
Del-Mar Energy Pathway Project	Eastern Shore Natural Gas Co	PA, MD, DE	PA	14	Dec-21	Under Construction	Eastern Shore online date - Q4/2021
Mountain Valley Pipeline	Transco	WV, VA	PJM / South	2,000	Jun-22	Construction 99% complete / Delayed by US-ACE permit suspension	N/A

ESAI Zonal 9-month On Peak Energy Price Forecasts for PJM									
	On Peak Electricity Price Forecast (LMP)					Fuel Price Forward Curves			
	PJM WH	AD HUB	PSEG	PEPCO	PEN-ELEC	Henry Hub Natgas	Tetco M3	Dom-South	1% Fuel Oil (NY Harbor)
Oct-18	\$38.33	\$41.20	\$36.74	\$41.85	\$39.04	\$3.26	\$2.70	\$2.53	\$11.20
Nov-18	\$42.04	\$42.62	\$38.09	\$44.75	\$41.35	\$4.06	\$4.04	\$3.71	\$9.92
Dec-18	\$37.84	\$36.48	\$37.55	\$37.22	\$41.37	\$4.11	\$4.13	\$3.76	\$8.62
Jan-19	\$38.70	\$35.60	\$44.76	\$39.51	\$38.20	\$3.09	\$4.18	\$2.85	\$8.92
Feb-19	\$29.44	\$28.97	\$27.52	\$30.80	\$29.06	\$2.70	\$2.78	\$2.52	\$10.25
Mar-19	\$33.23	\$33.11	\$30.77	\$35.45	\$32.68	\$2.94	\$2.92	\$2.71	\$10.25
Apr-19	\$29.51	\$30.79	\$27.35	\$31.04	\$28.89	\$2.65	\$2.37	\$2.29	\$10.57
May-19	\$29.33	\$28.87	\$23.21	\$31.53	\$27.44	\$2.64	\$2.25	\$2.19	\$9.82
Jun-19	\$26.78	\$26.86	\$23.21	\$29.07	\$25.31	\$2.40	\$2.07	\$2.00	\$8.82
Jul-19	\$32.83	\$33.96	\$30.20	\$34.85	\$31.77	\$2.36	\$2.13	\$2.04	\$9.33
Aug-19	\$29.33	\$29.87	\$25.86	\$31.23	\$28.27	\$2.22	\$1.83	\$1.76	\$7.40
Sep-19	\$31.36	\$33.08	\$22.44	\$35.48	\$28.19	\$2.57	\$1.81	\$1.77	\$8.02
Oct-19	\$29.73	\$31.53	\$21.91	\$32.82	\$27.25	\$2.31	\$1.51	\$1.52	\$6.90
Nov-19	\$33.29	\$33.04	\$26.75	\$34.48	\$31.09	\$2.66	\$2.54	\$2.12	\$5.88
Dec-19	\$26.65	\$26.25	\$25.39	\$28.27	\$25.46	\$2.24	\$2.70	\$1.82	\$6.42
Jan-20	\$24.54	\$24.61	\$23.69	\$25.81	\$23.43	\$2.03	\$1.95	\$1.65	\$6.86
Feb-20	\$21.65	\$21.95	\$19.45	\$22.17	\$21.20	\$1.92	\$1.78	\$1.61	\$7.01
Mar-20	\$21.23	\$20.54	\$17.62	\$21.09	\$19.93	\$1.79	\$1.47	\$1.38	\$3.89
Apr-20	\$23.20	\$23.10	\$20.65	\$24.40	\$22.60	\$1.77	\$1.48	\$1.43	\$11.12
May-20	\$25.50	\$25.65	\$22.60	\$27.55	\$24.65	\$1.94	\$1.62	\$1.56	\$11.48
Jun-20	\$28.10	\$28.55	\$24.65	\$30.70	\$26.85	\$2.05	\$1.73	\$1.67	\$12.29
Jul-20	\$31.00	\$31.70	\$28.75	\$34.30	\$29.60	\$2.24	\$1.96	\$1.83	\$11.52
Aug-20	\$30.30	\$31.00	\$28.05	\$33.60	\$28.90	\$2.32	\$1.96	\$1.83	\$12.22
Sep-20	\$26.00	\$26.65	\$22.40	\$28.70	\$24.80	\$2.35	\$1.75	\$1.67	\$11.43
Oct-20	\$27.10	\$27.60	\$23.25	\$29.50	\$26.00	\$2.42	\$1.80	\$1.70	\$11.38
Nov-20	\$29.10	\$29.20	\$26.40	\$31.60	\$28.05	\$2.64	\$2.49	\$2.11	\$11.11
Dec-20	\$32.60	\$32.50	\$31.25	\$35.15	\$31.60	\$2.95	\$3.75	\$2.54	\$11.17

**PJM Zonal Price Forecast  
Power Flow Model**

The table above presents ESAI’s six-month outlook — based on ESAI’s Power Flow model— for power prices in selected PJM zones. The prices incorporate the generation and transmission characteristics of the pool to provide nodal pricing outputs which reflect energy pricing and congestion. Interface constraints, bidding characteristics, and outages are included in the model inputs. Contingencies are added to provide a full security constrained dispatch which provides a more accurate reflection of the ISO DAM modeling.

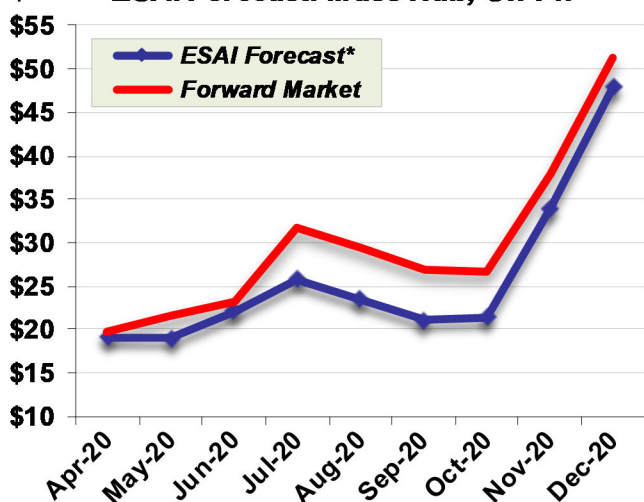
As these models are not easily applied to an 8760 style analysis, runs are made in 1,000 MW increments of load and the results are weighted against expected monthly load characteristics to develop an accurate composite price forecast. Those generator costs are based on ESAI’s proprietary natural gas, oil, and coal forecasts. Also included are ESAI’s assessment of new capacity to be installed and retired in the period, and ESAI’s assessment of transfers into and out of each region.

This table presents a six-month view of energy prices. A one-week view is available in the *ESAI Northeast Next-Week Outlook* (released on Thursdays) and the *ESAI Northeast Bal-Week Outlook* (released on Mondays). Ten-year outlooks are reviewed each month in the *ESAI Long-Term Power Price Forecast* as well as the *ESAI Northeast Energy Watch Quarterly*. In addition, ESAI issues a *Congestion Watch* report each month which provides a review of likely congestion effects in the next calendar month. *Congestion Watch* is explicitly aimed at providing an analysis of congestion for those involved in FTR markets.

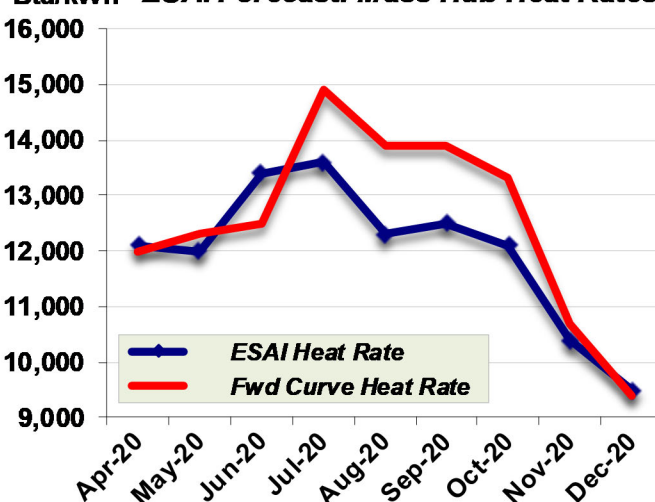
## What To Look For

- Power prices in New England dropped to \$19.17/MWh in March as natural gas prices decreased and electric loads were suppressed by mild weather and the impact of Covid-19 responses. ESAI's March projections of \$24.90/MWh and last month's March forwards of \$25.20/MWh were higher due to stronger pre-Covid-19 load expectations.
- Stay-at-home orders continue to suppress New England electricity demand and power prices. ESAI's projects power prices of \$25.80/MWh in June with some limited recovery of demand. Current power forwards imply a full recovery by this summer, calling for power prices and implied spark spreads to return to last year's levels by June.
- Forward gas prices at Algonquin Citygate added approximately \$0.20/MMBtu in the summer and are currently trading at \$2.12/MMBtu in July and August.

**\$/MWh ESAI Forecast: Mass Hub, On-Pk**



**Btu/kWh ESAI Forecast: Mass Hub Heat Rates**



**Mass Hub ESAI Power Price Forecasts (\$/MWh), On-Peak DAM**

NEW ENGLAND	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Gas, Alg C.G. Forward	\$1.66	\$1.75	\$1.86	\$2.12	\$2.12	\$1.94	\$2.01	\$3.54	\$5.43
Gas, Alg C.G. ESAI	\$1.58	\$1.58	\$1.65	\$1.90	\$1.91	\$1.69	\$1.77	\$3.27	\$5.04
<b>ESAI Forecast*</b>	<b>\$19.10</b>	<b>\$19.00</b>	<b>\$22.10</b>	<b>\$25.80</b>	<b>\$23.50</b>	<b>\$21.10</b>	<b>\$21.40</b>	<b>\$34.00</b>	<b>\$47.90</b>
ESAI Heat Rate	12,100	12,000	13,400	13,600	12,300	12,500	12,100	10,400	9,500
Forward Market	\$19.80	\$21.60	\$23.30	\$31.70	\$29.50	\$27.00	\$26.70	\$38.00	\$51.30
Fwd Curve Heat Rate	12,000	12,300	12,500	14,900	13,900	13,900	13,300	10,700	9,400
NEMA spread	\$0.15	\$0.15	\$0.20	\$0.35	\$0.35	\$0.15	\$0.15	\$0.15	\$0.20
CT spread	\$0.05	\$0.05	\$0.10	\$0.15	\$0.15	\$0.05	\$0.05	\$0.10	\$0.15

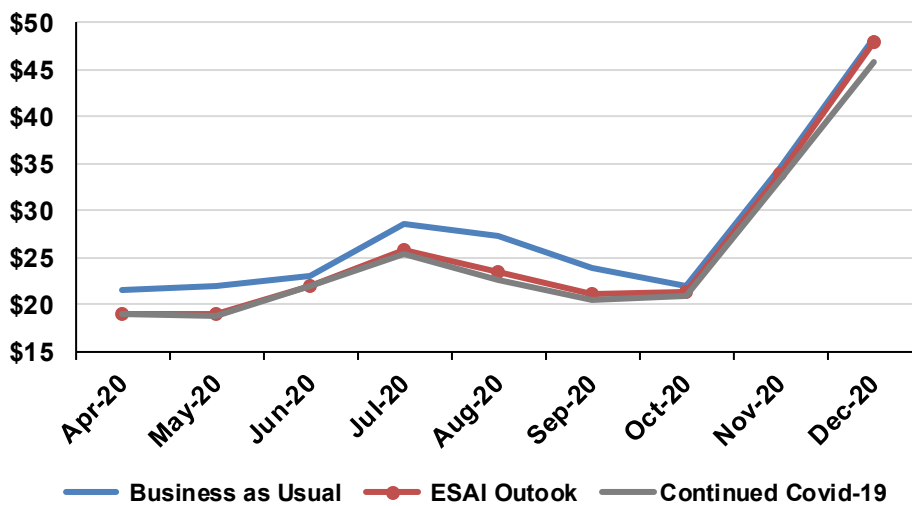
All forward prices as of April 22, 2020. Apr-20 reflects recent history.

\* ESAI power forecast reflects ESAI's natural gas outlook

### NEW ENGLAND ENERGY OUTLOOK

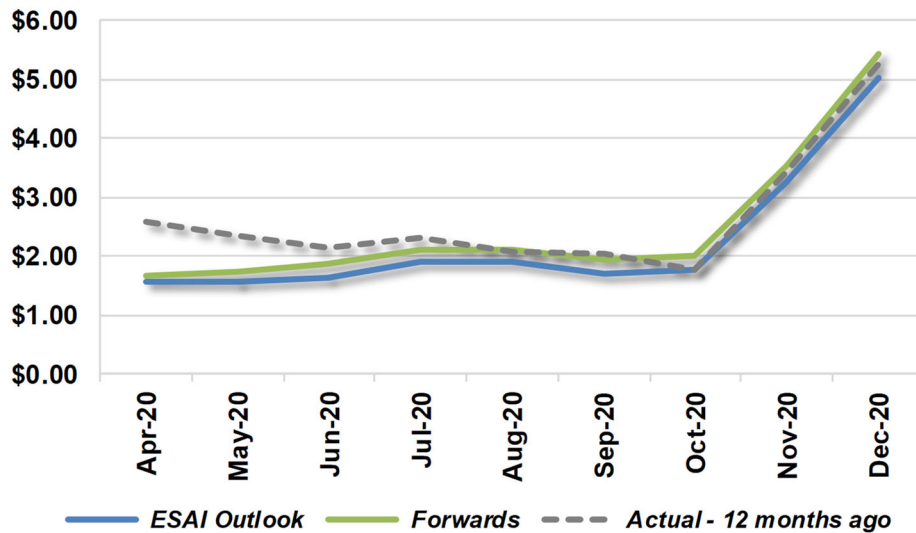
As Covid-19 measures continue to affect the New England economy and energy markets, and uncertainty remains regarding the length of the economic downturn and the recovery from it, ESAI took a scenario-based approach to develop a power price outlook. In developing bookend scenarios that vary the impact of stay-at-home directives on electricity demand, ESAI defined a relatively narrow range of price outcomes that a recovery trajectory will likely fall into. We note that additional uncertainties due to lasting economic impacts, weather patterns or natural gas prices were not included in the scenario analysis. ESAI projected New England power prices in a “Business as Usual” scenario that reflects full economic recovery and assumes electricity demand remains unchanged from pre-Covid-19 expectations. Price projections under a “Continued Covid-19 Response”, which assumes the perpetuation of the current stay-at-home directives in New England, represent a case of possible lower power prices outcomes. As shown in Figure 1, ESAI’s power outlook falls in between both scenarios and assumes that electricity demand will begin to recover in June with full recovery achieved by the end of this year.

**Figure 1 - Outlook for New England On-Peak Power Prices (\$/MWh)**



Soft natural gas prices and suppressed loads due to stay-at-home orders are expected to keep New England power prices below \$20/MWh in April and May. Additionally, current generator maintenance levels appear lower than usual, contributing to subdued power price levels. As warmer temperatures increase cooling demand and delivered natural gas prices are expected to increase, New England power prices are projected to trend towards \$25/MWh. Although loads are assumed to slowly recover by June, loads are expected to remain sufficiently suppressed to limit exposure to the steep part of New England’s generation stack. As a result, ESAI’s power price outlook remains close to “Covid-19” scenario through the summer. During this fall, higher natural gas prices are expected to keep power prices supported near \$21/MWh as loads continue to recover. ESAI projects that New England spark spreads recover to last year’s level by December. We note that current power forwards appear to reflect a much stronger rebound, with implied New England spark spreads reaching last year’s levels already by June.

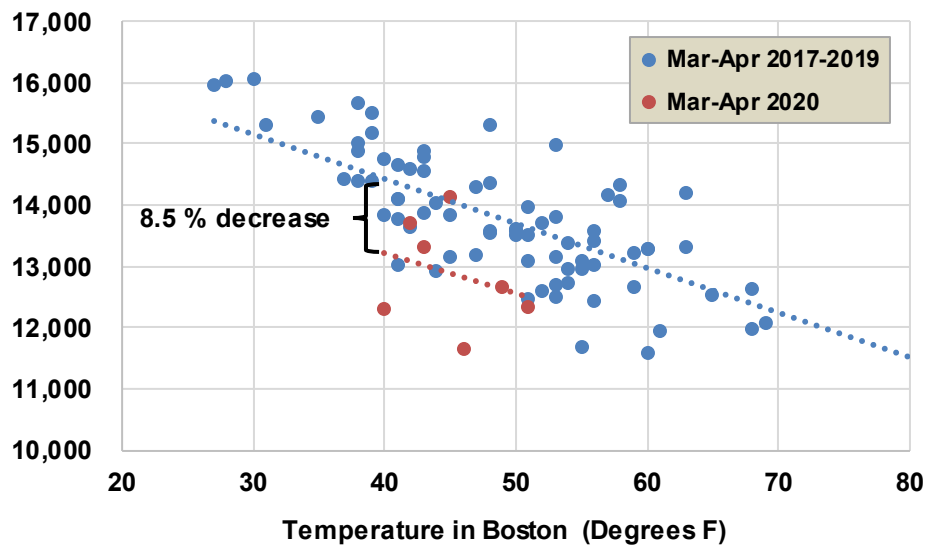
**Figure 2 - Natural Gas Price Expectations for Algonquin Citygate (\$/MMBtu)**



**“Business as Usual” (BAU) Scenario - No Covid-19**

The BAU scenario assumes electricity demand according to the 2019 CELT forecast from last April. No load adjustments for Covid-19 impacts have been made. Natural gas prices reflect ESAI’s current natural gas outlook, which is slightly below the current forward curve, as shown in Figure 2. Summer power prices under the BAU scenario are lower than last year’s market outcomes, largely due to lower natural gas price expectations. Current power forwards track last year’s actual power prices very closely and seem to heavily discount any Covid-19 impacts this summer.

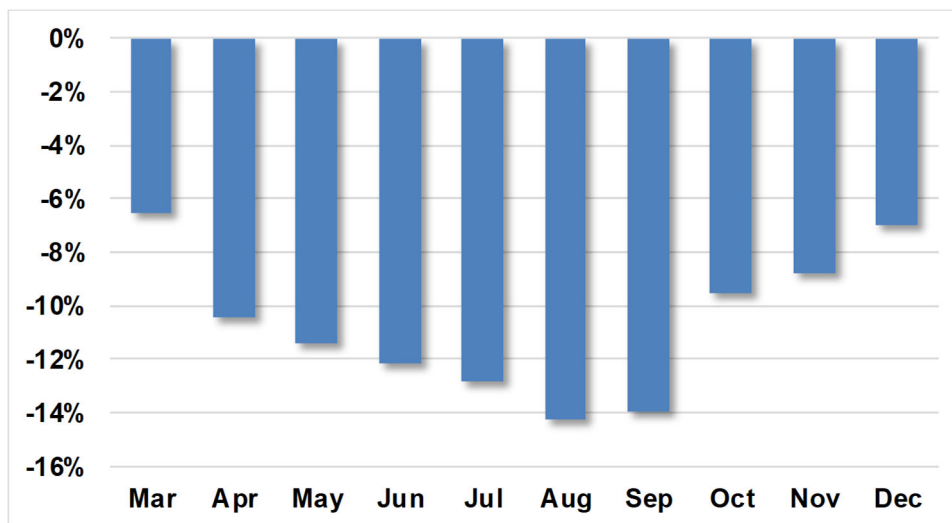
**Figure 3 - Average Daily New England Loads during On-Peak Hours (MW)**



**Continued Covid-19 Scenario - Stay-at-Home Directives Persist**

The “Covid-19” scenario was developed as a lower power price bound and reflects the continuation of the current Covid-19 response measures. Stay-at-home orders in New England are estimated to result in a load decrease of approximately 8.5 percent during on-peak hours, when compared to similar loads during 2017-2019. Figure 3 on the previous page shows ESAI’s estimate of load reductions in March-April 2020. ESAI estimated the Covid-19 load impact through the end of this year based on the March-April load decrease and a proxy for weather-driven commercial/industrial demand. This demand proxy was developed by comparing weekday loads to loads during weekends. Figure 4 shows ESAI’s estimated impact of ongoing Covid-19 responses on New England on-peak energy demand.

**Figure 4 - Impact of Continued Covid-19 Response on New England On-Peak Demand**

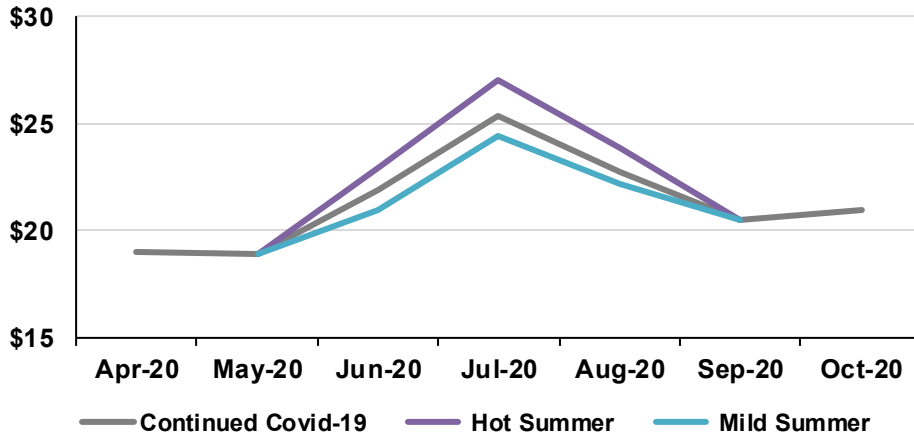


**ESAI Outlook - Expected Scenario**

ESAI’s New England outlook was developed assuming the continuation of stay-at-home advisories through May and a subsequent easing of social restrictions. Consequently, ESAI’s power price outlook follows the “Covid-19” scenario through May. Beginning in June, electricity demand is expected to recover as businesses resume operations. However, recovery during the initial months is expected to be limited before the rate of recovery increased later this year and full recovery is assumed by the end of 2020. We note that the current Covid-19 situation remains in flux and alternative recovery scenarios are plausible.

Along with the recovery path, temperature patterns will determine actual loads and power prices this summer. ESAI analyzed the sensitivity of summer prices to higher and lower load levels. Higher summer loads during hot weather were modeled after the 2018 summer, when New England loads were approximately 6 percent higher than the three-year average. Milder summer loads were based on the 2017 summer, when loads were 4 percent below the three-year average. Figure 5 on the following page shows the expected price impacts as a result of hot and mild summer weather. Compared to our BAU scenario, lower electricity demand due to Covid-19 responses is expected to subdue the extent of weather-driven price impacts and will dampen price volatility this summer.

**Figure 5 - Mass Hub On-Peak LMP - Summer Sensitivities (\$/MWh)**

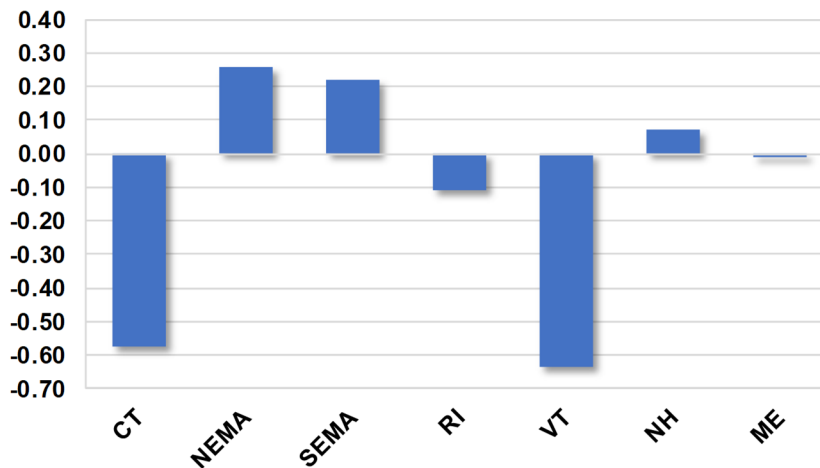


**POWER PRICES IN MARCH**

New England power prices dropped in March, as delivered natural gas prices declined further and electricity demand was driven lower by both milder temperatures and measures taken to address the Covid-19 outbreak. On-peak power prices at the Mass Hub dropped more than \$5/MWh, from \$25.05/MWh in February to \$19.17/MWh in March. Natural gas prices at Algonquin Citygate averaged \$1.58/MMBtu in March, down more than 30 percent from the February average of \$2.33/MMBtu. Average daily peak loads in New England dropped from 16,000 MW in February to 14,400 MW in March, partly due to the end of the winter season and partly due to the closure of offices and businesses in response to Covid-19 directives.

Transmission congestion across New England was very limited in March. Constraints at Bunker Hill 115 kV depressed CT prices on March 23 and 26, and on-peak power prices in CT cleared \$0.57/MWh below the Mass Hub. Power prices in NEMA and SEMA cleared at slight premiums of \$0.26/MWh and \$0.22/MWh to the Mass Hub, respectively. Power prices in ME and NH priced near the Mass Hub, while VT priced \$0.63/MWh below.

**Figure 6 - March On-Peak LMP Spreads to the Mass Hub (\$/MWh)**



**Table 1 - Generation Changes in New England (April 2020 - March 2021)**

Unit	Capacity, MW	Unit Type	Month	Year	Location	Update Since March 2020
<b>New England Additions</b>						
Newington Energy Center (ST), Uprate	38	Nat gas	Jun	2020	NH	N/A
Renewables (2020)	<u>54</u>					
<b>Total (Next 12-Months)</b>	<b>92</b>					
<b>New England Retirements</b>						
Front Street Diesels	8	Oil		2019	WMA	Unknown status.
L Street Jet	<u>18.6</u>	Oil	June	2020	NEMA	N/A
<b>Total (Next 12-Months)</b>	<b>27</b>					

**Table 2 - Gas Pipeline Projects in New England (April 2020 - March 2021)**

Project Name	Pipeline	States	Sink	Capacity (MMcf/d)	Online Date	Status	Update Since Mar 2020
Atlantic Bridge (Phase II)	Maritimes and Algonquin	NJ, NY, MA, Canada	NE, Canada	93	Jan-21	Partially In-Service	N/A



ESAI Zonal 9-month On-Peak Energy Price Forecasts for New England							
On-Peak Electricity Price Forecast (LMP)					Fuel Price Forward Curves		
	Mass Hub	Maine	NEMA	CT	Henry Hub Natgas	Algonquin City Gate	0.3% Fuel Oil
Oct-18	\$ 43.02	\$ 42.15	\$ 43.47	\$ 42.37	\$ 3.26	\$ 3.30	\$ 13.80
Nov-18	\$ 63.51	\$ 63.26	\$ 64.25	\$ 61.92	\$ 4.06	\$ 5.85	\$ 12.70
Dec-18	\$ 56.02	\$ 56.71	\$ 56.74	\$ 54.17	\$ 4.11	\$ 6.47	\$ 11.09
Jan-19	\$ 63.15	\$ 61.71	\$ 63.55	\$ 62.17	\$ 3.09	\$ 6.58	\$ 11.32
Feb-19	\$ 38.39	\$ 37.96	\$ 38.71	\$ 37.76	\$ 2.70	\$ 4.14	\$ 12.40
Mar-19	\$ 40.67	\$ 39.95	\$ 40.83	\$ 40.42	\$ 2.94	\$ 4.12	\$ 12.57
Apr-19	\$ 29.50	\$ 28.87	\$ 29.54	\$ 29.46	\$ 2.65	\$ 2.60	\$ 13.02
May-19	\$ 26.76	\$ 26.40	\$ 27.05	\$ 26.38	\$ 2.64	\$ 2.35	\$ 12.61
Jun-19	\$ 25.19	\$ 25.17	\$ 25.42	\$ 25.18	\$ 2.40	\$ 2.14	\$ 12.26
Jul-19	\$ 33.97	\$ 33.45	\$ 35.15	\$ 33.45	\$ 2.36	\$ 2.30	\$ 12.13
Aug-19	\$ 30.53	\$ 30.85	\$ 31.07	\$ 29.95	\$ 2.22	\$ 2.06	\$ 11.31
Sep-19	\$ 24.04	\$ 24.07	\$ 24.32	\$ 23.63	\$ 2.57	\$ 2.03	\$ 12.28
Oct-19	\$ 23.62	\$ 24.24	\$ 23.86	\$ 23.29	\$ 2.31	\$ 1.76	\$ 12.61
Nov-19	\$ 36.63	\$ 35.76	\$ 36.94	\$ 35.71	\$ 2.66	\$ 3.43	\$ 12.04
Dec-19	\$ 46.18	\$ 45.25	\$ 46.39	\$ 45.13	\$ 2.24	\$ 5.26	\$ 13.30
Jan-20	\$ 29.60	\$ 29.58	\$ 29.84	\$ 28.66	\$ 2.03	\$ 2.85	\$ 13.38
Feb-20	\$ 25.05	\$ 25.21	\$ 25.36	\$ 24.24	\$ 1.92	\$ 2.33	\$ 10.99
Mar-20	\$ 19.17	\$ 19.16	\$ 19.42	\$ 18.59	\$ 1.79	\$ 1.58	\$ 6.55
Apr-20	\$ 19.10	\$ 18.30	\$ 19.25	\$ 19.15	\$ 1.77	\$ 1.66	\$ 13.37
May-20	\$ 19.00	\$ 18.20	\$ 19.15	\$ 19.05	\$ 1.94	\$ 1.75	\$ 13.10
Jun-20	\$ 22.10	\$ 21.15	\$ 22.30	\$ 22.20	\$ 2.05	\$ 1.86	\$ 13.89
Jul-20	\$ 25.80	\$ 24.75	\$ 26.15	\$ 25.95	\$ 2.24	\$ 2.12	\$ 12.91
Aug-20	\$ 23.50	\$ 22.45	\$ 23.85	\$ 23.65	\$ 2.32	\$ 2.12	\$ 14.10
Sep-20	\$ 21.10	\$ 20.20	\$ 21.25	\$ 21.15	\$ 2.35	\$ 1.94	\$ 13.14
Oct-20	\$ 21.40	\$ 20.70	\$ 21.55	\$ 21.45	\$ 2.42	\$ 2.01	\$ 13.24
Nov-20	\$ 34.00	\$ 33.35	\$ 34.15	\$ 34.10	\$ 2.64	\$ 3.54	\$ 13.11
Dec-20	\$ 47.90	\$ 46.90	\$ 48.10	\$ 48.05	\$ 2.95	\$ 5.43	\$ 12.95

**ISO-NE Zonal Price Forecast**

**Power Flow Model**

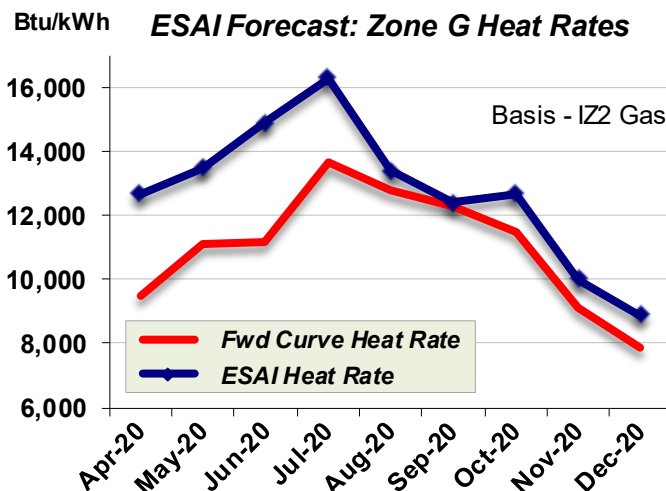
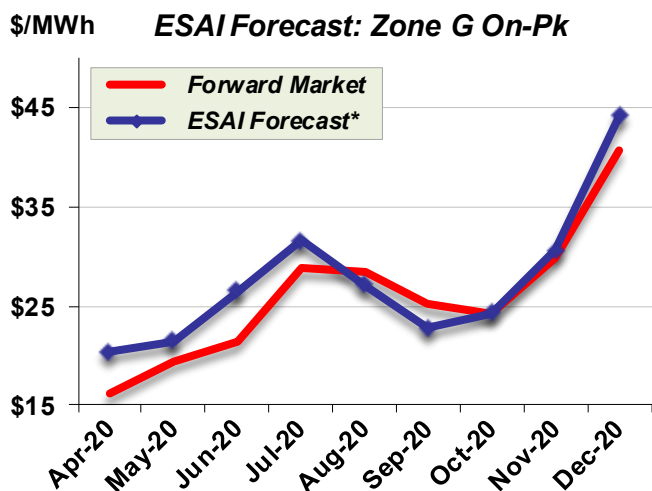
The table above presents ESAI’s six-month outlook — based on ESAI’s Power Flow model— for power prices in selected ISO-NE zones. The prices incorporate the generation and transmission characteristics of the pool to provide nodal pricing outputs which reflect energy pricing and congestion. Interface constraints, bidding characteristics, and outages are included in the model inputs. Contingencies are added to provide a full security constrained dispatch which provides a more accurate reflection of the ISO DAM modeling.

As these models are not easily applied to an 8760 style analysis, runs are made in 1,000 MW increments of load and the results are weighted against expected monthly load characteristics to develop an accurate composite price forecast. Those generator costs are based on ESAI’s proprietary natural gas, oil, and coal forecasts. Also included are ESAI’s assessment of new capacity to be installed and retired in the period, and ESAI’s assessment of transfers into and out of each region.

This table presents a six-month view of energy prices. A one-week view is available in the *ESAI Northeast Next-Week Outlook* (released on Thursdays) and the *ESAI Northeast Bal-Week Outlook* (released on Mondays). Ten-year outlooks are reviewed in the *ESAI Northeast Energy Watch Quarterly*. In addition, ESAI issues a *Congestion Watch* report each month which provides a review of likely congestion effects in the next calendar month. *Congestion Watch* is explicitly aimed at providing an analysis of congestion for those involved in FTR markets.

### What To Look For

- On-peak power prices in Zones J and G dropped to \$18.71/MWh and \$18.17/MWh in March, respectively, as delivered natural gas prices declined and Covid-19 measures suppressed electric loads. ESAI's March outlook and last month's forwards for March were above \$20/MWh based on stronger pre-Covid-19 load expectations.
- New York's Covid-19 response continues to suppress electric loads and power prices. Assuming that recovery begins this summer, ESAI projects summer power prices in New York at \$31.60/MWh in Zone G and \$35.00/MWh in Zone J.
- Transco Zone 6 (NY) gas prices for this summer increased \$0.12-\$0.18/MMBtu. July and August are currently trading at \$2.03/MMBtu and \$2.10/MMBtu, respectively.



### ESAI New York Power Price Forecasts (\$/MWh), On-Peak DAM

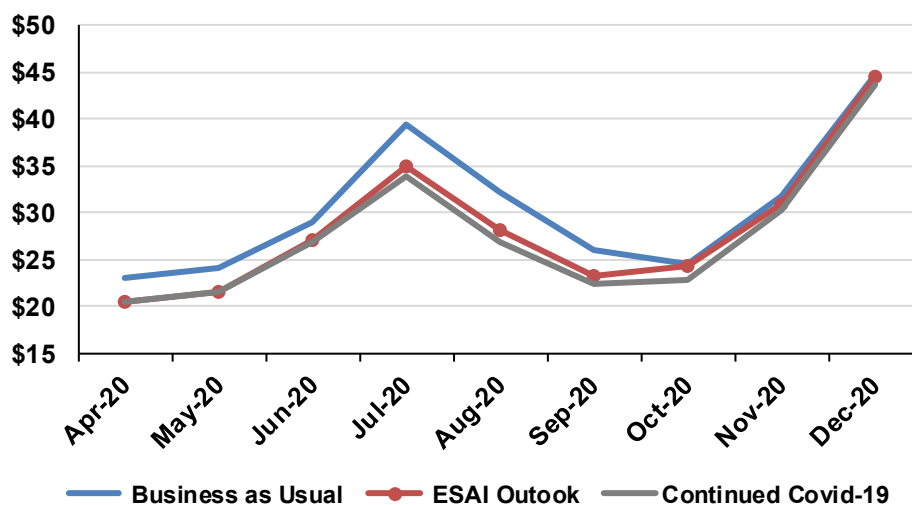
NEW YORK	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Gas, TZ6 NY Forward	\$1.50	\$1.60	\$1.74	\$2.03	\$2.10	\$1.78	\$1.82	\$2.72	\$4.26
Gas, IZ2 Forward	\$1.70	\$1.73	\$1.93	\$2.11	\$2.21	\$2.04	\$2.12	\$3.28	\$5.18
Gas, TZ6 NY ESAI	<b>\$1.49</b>	<b>\$1.49</b>	<b>\$1.64</b>	<b>\$1.90</b>	<b>\$1.95</b>	<b>\$1.62</b>	<b>\$1.66</b>	<b>\$2.51</b>	<b>\$3.95</b>
Gas, IZ2 ESAI	<b>\$1.61</b>	<b>\$1.59</b>	<b>\$1.78</b>	<b>\$1.94</b>	<b>\$2.02</b>	<b>\$1.84</b>	<b>\$1.91</b>	<b>\$3.06</b>	<b>\$4.96</b>
<b>Zone A</b>									
ESAI Forecast*	<b>\$18.00</b>	<b>\$19.10</b>	<b>\$30.80</b>	<b>\$36.50</b>	<b>\$31.90</b>	<b>\$27.30</b>	<b>\$21.50</b>	<b>\$25.00</b>	<b>\$31.00</b>
Forward Market	\$12.40	\$19.30	\$26.10	\$32.70	\$33.00	\$29.90	\$25.70	\$26.20	\$31.50
<b>Zone G</b>									
ESAI Forecast*	<b>\$20.40</b>	<b>\$21.50</b>	<b>\$26.50</b>	<b>\$31.60</b>	<b>\$27.10</b>	<b>\$22.80</b>	<b>\$24.30</b>	<b>\$30.60</b>	<b>\$44.10</b>
ESAI Heat Rate	<b>12,700</b>	<b>13,500</b>	<b>14,900</b>	<b>16,300</b>	<b>13,400</b>	<b>12,400</b>	<b>12,700</b>	<b>10,000</b>	<b>8,900</b>
Forward Market	\$16.10	\$19.30	\$21.50	\$28.90	\$28.40	\$25.20	\$24.30	\$29.80	\$40.70
Fwd Curve Heat Rate	9,500	11,100	11,200	13,700	12,800	12,300	11,500	9,100	7,900
<b>Zone J</b>									
ESAI Forecast*	<b>\$20.60</b>	<b>\$21.60</b>	<b>\$27.10</b>	<b>\$35.00</b>	<b>\$28.10</b>	<b>\$23.20</b>	<b>\$24.60</b>	<b>\$31.40</b>	<b>\$45.80</b>
ESAI Heat Rate	<b>13,800</b>	<b>14,500</b>	<b>16,500</b>	<b>18,400</b>	<b>14,400</b>	<b>14,300</b>	<b>14,800</b>	<b>12,500</b>	<b>11,600</b>
Forward Market	\$16.40	\$20.10	\$23.00	\$31.40	\$30.80	\$26.70	\$25.90	\$31.00	\$41.00
Fwd Curve Heat Rate	10,900	12,500	13,200	15,500	14,600	15,000	14,200	11,400	9,600
<b>Zone K</b>									
ESAI Forecast*	<b>\$24.60</b>	<b>\$25.90</b>	<b>\$32.30</b>	<b>\$42.25</b>	<b>\$35.35</b>	<b>\$27.70</b>	<b>\$29.00</b>	<b>\$36.20</b>	<b>\$51.45</b>

All forward prices as of April 22, 2020. Apr-20 reflects recent history. \* reflects ESAI natural gas outlook

## NEW YORK ENERGY OUTLOOK

Stay-at-home directives in response to the Covid-19 pandemic continue in New York, limiting business activities and suppressing electricity demand and power prices. To address the uncertainty around the timing and stages of resuming “normal” life, ESAI developed an energy outlook based on bookend scenarios that are meant to bracket the impact of Covid-19 responses over the next nine months. ESAI’s “Business as Usual” scenario assumes in particular that electric loads are unaffected by any Covid-19 response. Price outcomes under this scenario reflect a full recovery of the economy and return to pre-Covid-19 consumption patterns. In addition, ESAI developed a “Covid-19” scenario that assumes the continued suppression of electricity demand due the Covid-19 measures through the end of our forecast horizon. Figure 1 and 2 shows ESAI’s energy outlook for New York Zones J and G. Our outlook assumes that stay-at-home orders in New York are being phased out beginning in June and that the economy and electricity demand fully recovers by the end of 2020.

**Figure 1 - Outlook for NY Zone J On-Peak LBMP (\$/MWh)**

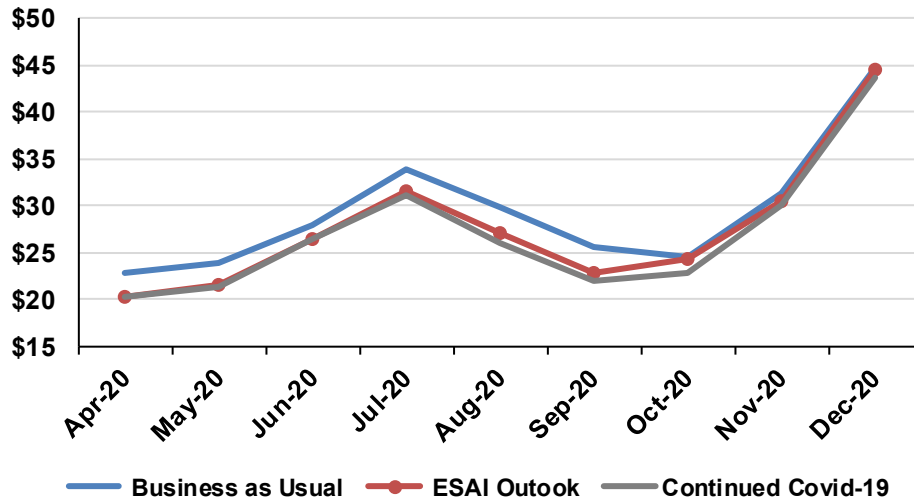


ESAI projects power prices in Zones J and G near \$25.50/MWh in May. Lower-than-usual levels of generator maintenance are expected to contribute to lower power prices this spring. As electric loads in New York City remain significantly subdued, congestion into Zone J is expected to be limited. Amid higher summer temperatures and increasing cooling demand, power prices in New York are expected to trend higher. July power prices are projected at \$31.60/MWh in Zone G and \$35.00/MWh in Zone J. Although economic activity is assumed to begin to recover by June, the initial load and price impacts are expected to be limited. As overall electricity consumption declines in the fall, power prices are projected near \$23-\$24.50/MWh in September and October. Recovering demand and higher expectations for natural gas prices will keep New York power prices above the current price levels. Winter prices in Zones J and G are projected in the mid-\$40s, supported by higher delivered natural gas prices and full economic recovery at the end of the year.

### “Business as Usual” (BAU) - No Covid-19

The BAU scenario reflects no load impacts from the Covid-19 response and electricity demand assumptions are consistent with NYISO’s 2020 Long Term Forecast. Fuel prices under

**Figure 2 - Outlook for NY Zone G On-Peak LBMP (\$/MWh)**

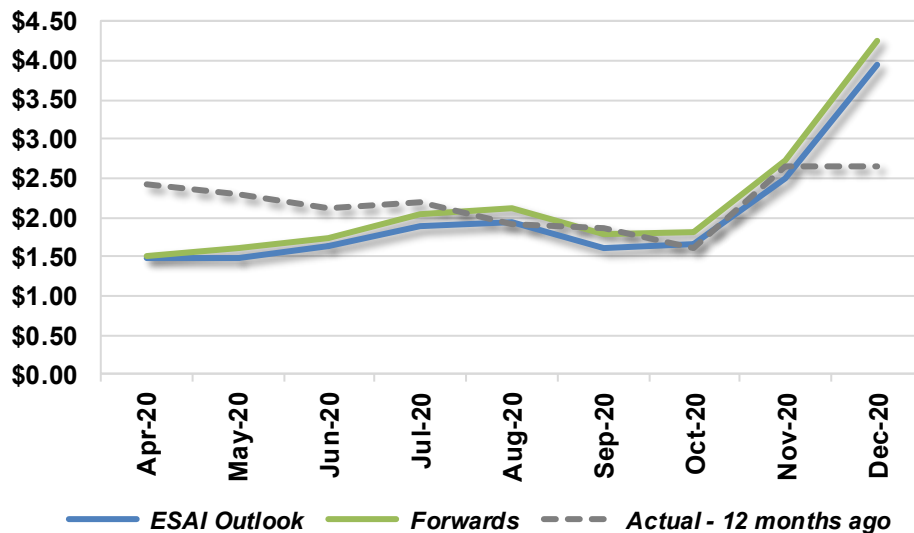


this scenario are based on ESAI’s current natural gas outlook. Forward gas prices have trended higher in April, and ESAI’s natural gas projections for Transco Zone 6 (NY) are now slightly lower than current forwards, as shown in Figure 3 below. Gas price expectations for this summer and fall are roughly in line with last year’s price levels.

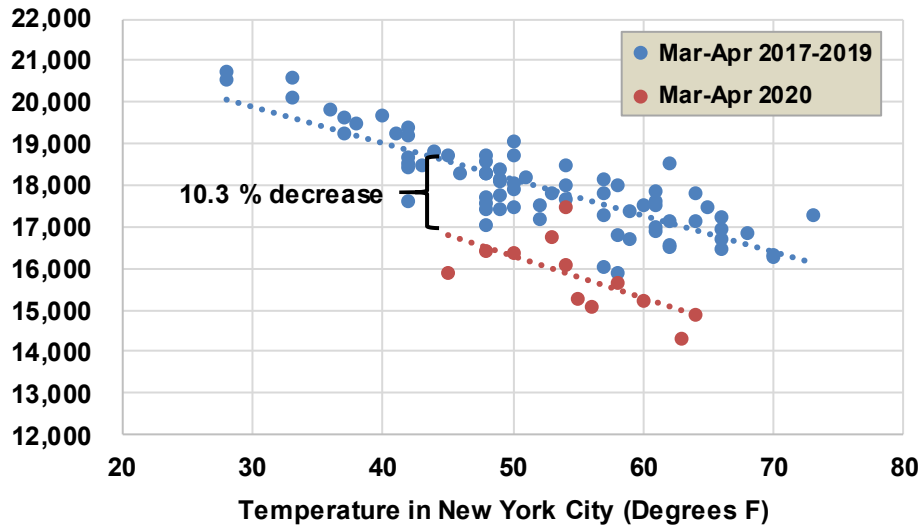
**“Continued Covid-19” Scenario- Stay-at-Home Directives Persist**

ESAI’s “Covid-19” scenario assumes that currently implemented Covid-19 measures remain in effect, suppressing electricity demand throughout the forecast horizon. As shown in Figure 4 on the following page, ESAI analysis indicates that on-peak electricity demand during March and April was suppressed by approximately 10.3 percent compared to similar time periods in 2017-2019. Load suppression due to the Covid-19 response is not distributed equally across New York, and demand reductions in New York City have been much larger than in up-

**Figure 3 - Natural Gas Price Expectations at Transco Zone 6 NY (\$/MMBtu)**

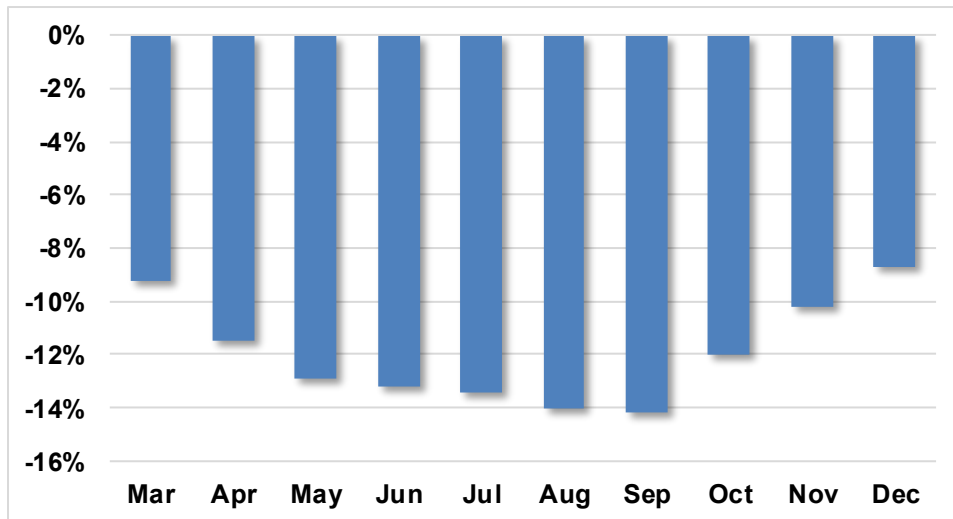


**Figure 4 - Average Daily New York Loads during On-Peak Hours (MW)**



state New York. While electricity demand in Zone J decreased by approximately 14.8 percent during on-peak hours, loads in Zone F only decreased by approximately 5.8 percent. To estimate load reductions during the summer months, ESAI used the differences between electricity demand on weekdays and weekend demand as a proxy for commercial/industrial air conditioning demand, and accounted for the level of demand decreases this spring. Figure 5 shows ESAI’s estimate for the impact of continued Covid-19 measures on monthly on-peak electricity demand in New York.

**Figure 5 - Impact of Continuous Covid-19 Measures on New York On-Peak Demand**

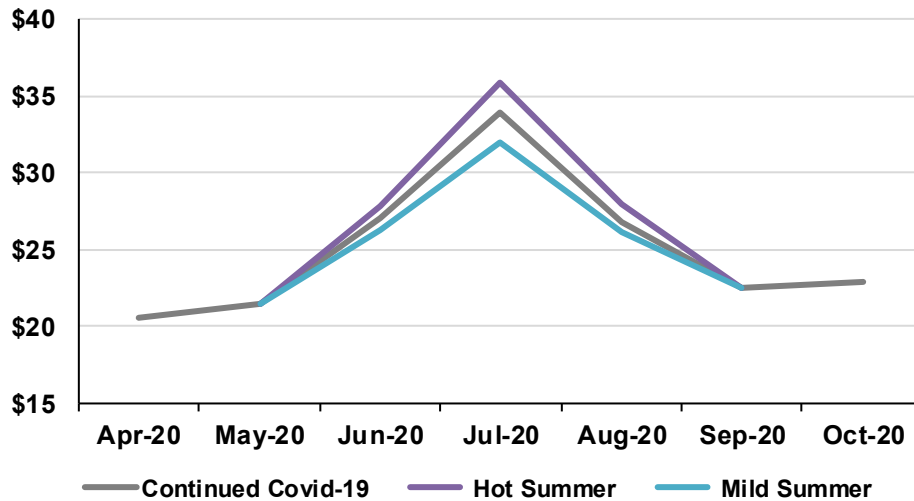


**ESAI Outlook - Expected Scenario**

ESAI’s energy outlook for New York assumes that stay-at-home orders remain in place through May, followed by a gradual relaxation. Businesses are assumed to begin to reopen in

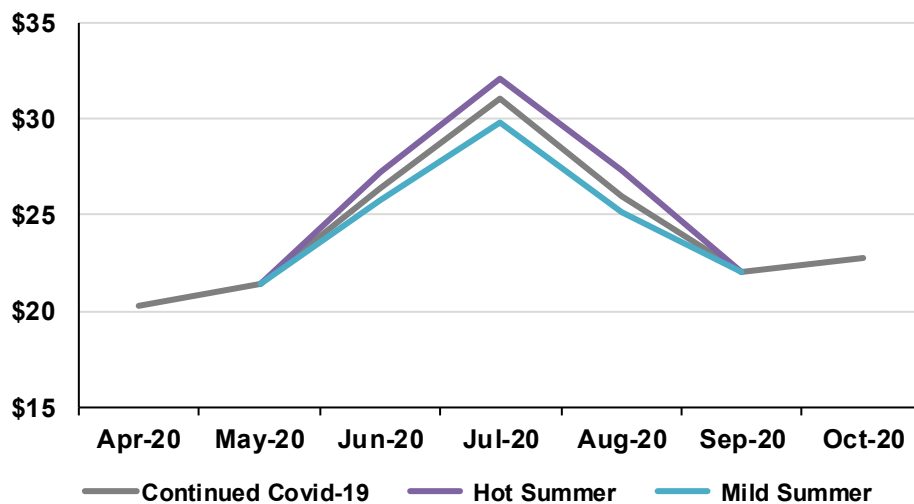
June and by August approximately 25 percent of demand reduction has been recovered. Full recovery is assumed by the end of the year.

**Figure 6 - Zone J On-Peak Power Prices under Covid-19 Measures (\$/MWh)**



As air conditioning demand increases, hot summer weather will have a significant impact on overall electricity demand and power prices in New York. ESAI conducted sensitivity analysis to determine the price impact of hot summer weather and mild summer weather this year. Hot summer loads were modeled after the 2018 summer, when electricity demand was approximately 4 percent higher than the 3-year average. Mild summer loads correspond to the 2017 summer, when electric loads were 4 percent lower than the 3-year average. Figures 6 and 7 show the expected price impacts of summer weather on power prices in Zones J and G, respectively. Subdued electric loads under ESAI’s outlook scenario will moderate the impact of hot summer weather this year and are also expected to dampen price volatility during this summer.

**Figure 7 - Zone G On-Peak Power Prices under Covid-19 Measures (\$/MWh)**

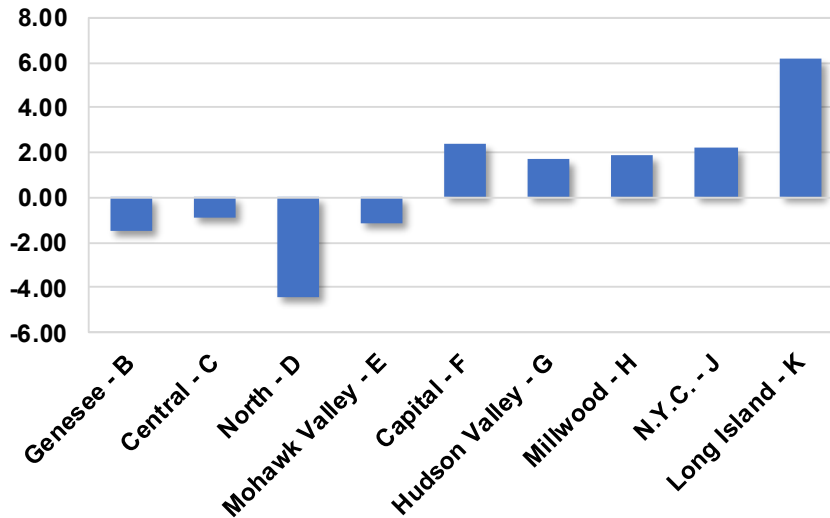


**POWER PRICES IN MARCH**

Average monthly on-peak power prices in New York dropped below \$20/MWh in March, pushed lower by very soft natural gas prices, lower electricity demand, and subdued generator maintenance levels this spring. “Stay at home” orders were issued in New York on March 20, significantly suppressing electric loads, particularly in New York City. Daily peak loads in New York averaged 17,800 MW in March, down from 20,000 MW in February. Natural gas prices at Transco Zone 6 (NY) continued to slide in March, decreasing to \$1.49/MWh. Gas prices at Iroquois Zone 2 averaged \$1.63/MMBtu in March, down more than 20 percent from \$2.13/MMBtu in February. Average monthly on-peak power prices in Zone J cleared at \$18.71/MWh in March, down from \$23.81/MWh in February. On-peak prices in Zone G declined from \$21.29/MWh in February to \$18.17/MWh in March, a decrease of 15 percent.

Transmission congestion across the New York power system was moderate in March. Low Zone A congestion continued throughout March, and Zone A on-peak power prices cleared at a \$1.68/MWh discount to Zone G. Strong congestion across the Central-East interface elevated Zone F power prices throughout the first half of March. However, Central-East congestion collapsed once loads decreased amid New York’s “stay at home” order. For all of March, Zone F on-peak power prices averaged \$0.69/MWh higher than Zone G prices and \$0.15/MWh higher than prices in Zone J. Congestion into New York City was minimal for all of March, and Zone J power prices cleared only \$0.54/MWh higher than Zone G power prices.

**Figure 8 - March On-Peak LBMP Spreads vs. Zone A (\$/MWh)**



**Table 1 - Generator Changes in New York (April 2020 - March 2021)**

Unit	Capacity, MW	Unit Type	Month	Year	Location	Update Since March 2020
<b>New York Additions</b>						
Cricket Valley Energy Center	1,100	Nat Gas	Apr	2020	ROS	<b>Status:</b> Entered Service in mid-April.
Renewables (2020)	<u>589</u>					
<b>Total (Next 12-Months)</b>	<b>1,689</b>					
<b>New York Retirements</b>						
Somerset	655.1	Coal	Feb	2020	ROS	<b>Status:</b> Deactivated March 31.
Indian Point (Unit 2)	1,299.0	Nuclear	Apr	2020	LHV	N/A
West Babylon IC (Unit 4)	52.4	Oil	Dec	2020	LI	N/A
Glenwood GT Unit 1	<u>16.0</u>	Oil	Feb	2021	LI	<b>Status:</b> Submitted deactivation request in Mar 2020 to retire in Feb 2021.
<b>Total (Next 12-Months)</b>	<b>1,299</b>					

**Table 2 - Gas Pipeline Projects in New York (April 2020 - March 2021)**

Project Name	Pipeline	States	Sink	Capacity (MMcf/d)	Online Date	Status	Update Since Mar 2020
Atlantic Bridge (Phase II)	Maritimes and Algonquin	NJ, NY, MA, Canada	NE, Canada	93	Jan-21	Partially In-Service	N/A



ESAI Zonal 9-month On-Peak Energy Price Forecasts for New York									
On-Peak Electricity Price Forecast (LMP)					Fuel Price Forward Curves				
	Zone J	Zone K	Zone G	Zone A	Henry Hub Natgas	TZ6 NY	IZ2	0.3% Fuel Oil	
Oct-18	\$ 41.10	\$ 48.55	\$ 39.09	\$ 36.43	\$ 3.26	\$ 2.98	\$ 3.40	\$ 13.80	
Nov-18	\$ 44.67	\$ 64.04	\$ 43.33	\$ 40.09	\$ 4.06	\$ 4.09	\$ 4.78	\$ 12.70	
Dec-18	\$ 44.89	\$ 57.49	\$ 43.43	\$ 37.29	\$ 4.11	\$ 4.26	\$ 4.55	\$ 11.09	
Jan-19	\$ 56.81	\$ 64.53	\$ 53.68	\$ 45.29	\$ 3.09	\$ 4.48	\$ 6.25	\$ 11.32	
Feb-19	\$ 37.42	\$ 42.39	\$ 34.27	\$ 28.92	\$ 2.70	\$ 2.86	\$ 3.76	\$ 12.40	
Mar-19	\$ 41.24	\$ 44.73	\$ 37.35	\$ 31.59	\$ 2.94	\$ 2.95	\$ 3.93	\$ 12.57	
Apr-19	\$ 33.51	\$ 33.93	\$ 29.76	\$ 27.55	\$ 2.65	\$ 2.42	\$ 2.53	\$ 13.02	
May-19	\$ 27.91	\$ 31.45	\$ 23.16	\$ 33.28	\$ 2.64	\$ 2.29	\$ 2.33	\$ 12.61	
Jun-19	\$ 27.15	\$ 30.30	\$ 24.11	\$ 39.39	\$ 2.40	\$ 2.12	\$ 2.19	\$ 12.26	
Jul-19	\$ 36.27	\$ 38.58	\$ 31.29	\$ 42.64	\$ 2.36	\$ 2.20	\$ 2.27	\$ 12.13	
Aug-19	\$ 32.00	\$ 33.98	\$ 29.07	\$ 30.43	\$ 2.22	\$ 1.92	\$ 2.11	\$ 11.31	
Sep-19	\$ 25.12	\$ 28.24	\$ 22.92	\$ 29.33	\$ 2.57	\$ 1.86	\$ 2.19	\$ 12.28	
Oct-19	\$ 23.55	\$ 26.76	\$ 21.68	\$ 28.22	\$ 2.31	\$ 1.61	\$ 1.88	\$ 12.61	
Nov-19	\$ 29.99	\$ 35.25	\$ 29.00	\$ 27.66	\$ 2.66	\$ 2.65	\$ 3.06	\$ 12.04	
Dec-19	\$ 33.78	\$ 43.92	\$ 30.45	\$ 23.80	\$ 2.24	\$ 2.64	\$ 4.38	\$ 13.30	
Jan-20	\$ 28.96	\$ 31.91	\$ 26.00	\$ 20.84	\$ 2.03	\$ 2.08	\$ 2.58	\$ 13.38	
Feb-20	\$ 23.81	\$ 26.66	\$ 21.29	\$ 18.57	\$ 1.92	\$ 1.88	\$ 2.13	\$ 10.99	
Mar-20	\$ 18.71	\$ 22.67	\$ 18.17	\$ 16.49	\$ 1.79	\$ 1.49	\$ 1.63	\$ 6.55	
Apr-20	\$ 20.60	\$ 24.60	\$ 20.40	\$ 18.00	\$ 1.77	\$ 1.50	\$ 1.70	\$ 13.37	
May-20	\$ 21.60	\$ 25.90	\$ 21.50	\$ 19.10	\$ 1.94	\$ 1.60	\$ 1.73	\$ 13.10	
Jun-20	\$ 27.10	\$ 32.30	\$ 26.50	\$ 30.80	\$ 2.05	\$ 1.74	\$ 1.93	\$ 13.89	
Jul-20	\$ 35.00	\$ 42.25	\$ 31.60	\$ 36.50	\$ 2.24	\$ 2.03	\$ 2.11	\$ 12.91	
Aug-20	\$ 28.10	\$ 35.35	\$ 27.10	\$ 31.90	\$ 2.32	\$ 2.10	\$ 2.21	\$ 14.10	
Sep-20	\$ 23.20	\$ 27.70	\$ 22.80	\$ 27.30	\$ 2.35	\$ 1.78	\$ 2.04	\$ 13.14	
Oct-20	\$ 24.60	\$ 29.00	\$ 24.30	\$ 21.50	\$ 2.42	\$ 1.82	\$ 2.12	\$ 13.24	
Nov-20	\$ 31.40	\$ 36.20	\$ 30.60	\$ 25.00	\$ 2.64	\$ 2.72	\$ 3.28	\$ 13.11	
Dec-20	\$ 45.80	\$ 51.45	\$ 44.10	\$ 31.00	\$ 2.95	\$ 4.26	\$ 5.18	\$ 12.95	

**New York Zonal Price Forecast**

**Power Flow Model**

The table above presents ESAI’s six-month outlook — based on ESAI’s Power Flow model— for power prices in selected New York zones. The prices incorporate the generation and transmission characteristics of the pool to provide nodal pricing outputs which reflect energy pricing and congestion. Interface constraints, bidding characteristics, and outages are included in the model inputs. Contingencies are added to provide a full security constrained dispatch which provides a more accurate reflection of the ISO DAM modeling.

As these models are not easily applied to an 8760 style analysis, runs are made in 1,000 MW increments of load and the results are weighted against expected monthly load characteristics to develop an accurate composite price forecast. Those generator costs are based on ESAI’s proprietary natural gas, oil, and coal forecasts. Separate runs are made using the fuel forward curve values. Also included are ESAI’s assessment of new capacity to be installed and retired in the period, and ESAI’s assessment of transfers into and out of each region.

This table presents a six-month view of energy prices. A one-week view is available in the *ESAI Northeast Next-Week Outlook (released on Thursdays)* and the *ESAI Northeast Bal-Week Outlook (released on Mondays)*. Ten-year outlooks are reviewed in the *ESAI Northeast Energy Watch Quarterly*. In addition, ESAI issues a *Congestion Watch* report each month which provides a review of likely congestion effects in the next calendar month. *Congestion Watch* is aimed at providing congestion analysis for those involved in TCC markets.

## What To Look For

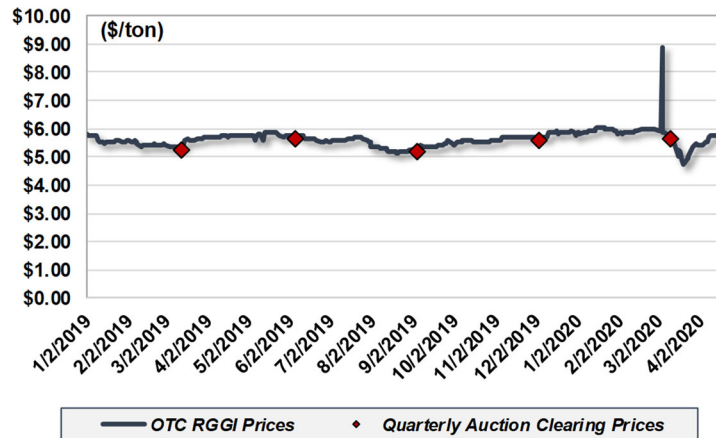
- RGGI OTC prices are currently trading at \$5.70/ton (April 21).
- ESAI currently projects CO<sub>2</sub> emissions at 72.2 million tons in 2020 and 77.5 million tons in 2021. If Virginia joins in 2021, ESAI projects emissions at 104.22 million tons.

## RGGI UPDATE

### OTC Prices

As shown in Figure 1 below, over-the-counter (OTC) RGGI allowance prices have dropped from approximately \$5.75/ton in mid-March to \$4.75/ton on March 20. Since then, OTC prices have rebounded back to the price levels seen in mid-March. As of April 21, OTC prices were trading at \$5.70/ton.

**Figure 1: RGGI OTC Prices & Recent RGGI Auction Prices**



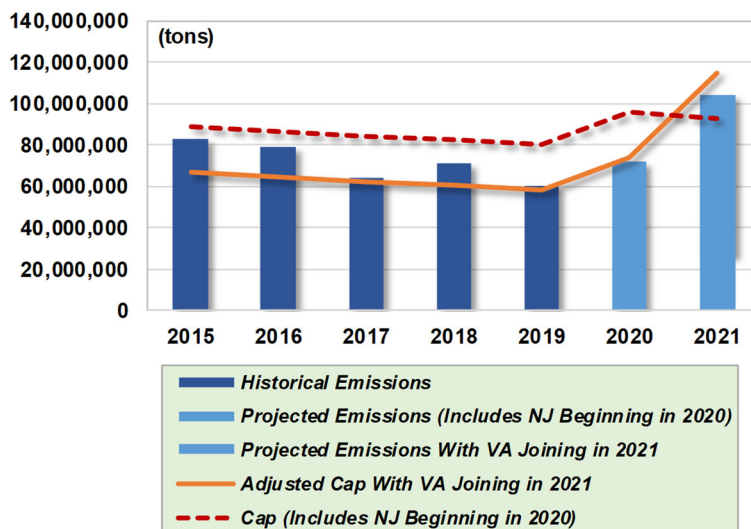
### ESAI RGGI Price Expectations

Looking ahead, ESAI expects 2020 RGGI allowance prices to average \$5.69/ton before escalating to the Emissions Containment Reserve (ECR) by 2021 (\$6.00/ton). After 2021, ESAI expects RGGI prices to remain at the ECR through 2030 (the ECR escalates annually at 7 percent).

## EMISSIONS

Figure 2 shows actual annual emissions between 2015 and the third quarter of 2019. ESAI projects emissions for 2020 and 2021. New Jersey joined RGGI on January 1, 2020. Figure 2 also shows actual and projected emissions relative to the cap and the adjusted cap through 2021.

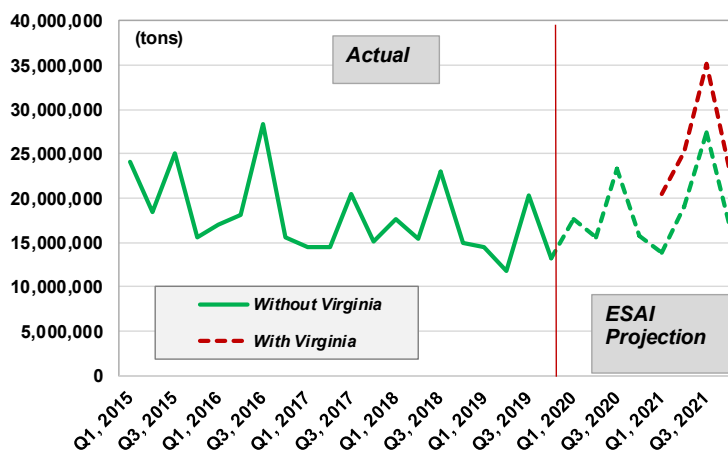
**Figure 2: Annual Actual and Projected RGGI Emissions**



**ESAI RGGI CO<sub>2</sub> Emissions Projections**

Figure 3 below shows historical RGGI CO<sub>2</sub> emissions data, and ESAI’s projections through 2021. ESAI’s current emissions projections are 72.2 million tons in 2020 and 77.5 million tons in 2021. Compared to last month’s 2020 projection, ESAI’s 2020 forecast is 6.3 million tons lower due to reduced demand for electricity attributed to COVID-19. ESAI’s Base Case assumes emissions return to normal levels by 2021. Should Virginia join RGGI in 2021, emissions projections increase to 104.22 million tons.

**Figure 3: Historical Quarterly CO<sub>2</sub> Emissions and ESAI Projections (RGGI)**



**Note:** Includes New Jersey beginning in 2020. Virginia is expected to join in 2021.

Month	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Henry Hub	1.79	1.78	1.90	2.05	2.11	2.14	2.20	2.42	2.73
Dom South	1.39	1.38	1.50	1.60	1.66	1.74	1.80	2.02	2.33

### What To Look For

- The Baker Hughes natural gas rig count has dropped to 85, down from 110 in early March. Northeast rig counts have dropped to 43; with Marcellus declining from 38 to 32 and Utica dropping from 11 to 9.
- As of April 17, inventories are at 2.14 Tcf, approximately 365 Bcf above the 5-yr average and about 800 Bcf above levels one year ago.
- February production was adjusted downward from 94.7 to 94.0 Bcf/d. March production averaged 93.8 Bcf/d and April production is down only slightly to 93.4 Bcf/d. March Marcellus/Utica production was up slightly to 32.2 Bcf/d; April should average higher at 32.5 Bcf/d.

## **DRY GAS PRODUCTION HOLDS IN MARCH, SLIPPING IN APRIL**

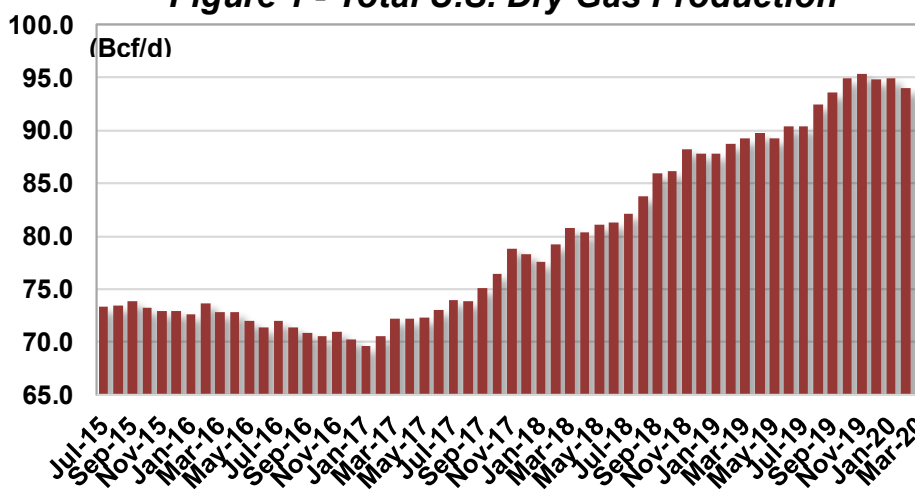
U.S. dry gas production in February was revised downward from 94.7 Bcf/d to 94.0 Bcf/d. As a result, March production at 93.8 Bcf/d is relatively steady, despite Henry Hub futures prices testing long time lows near \$1.60/MMBtu. Peak production was reached in November at 95.3 Bcf/d (see Figure 1) and had fallen to 93.8 Bcf/d in March, essentially pre-Covid-19. April production should average 93.4 Bcf/d although late April production is down slightly at approximately 93.0 Bcf/d.

Rig counts for natural gas were at 110 in the beginning of March but have since fallen to 85 as of April 24. Note that from March to July 2019, production held steady at near 90 Bcf/d despite rig counts ranging from 193 in March to 170 in July. Since July, rig counts have dropped steadily but production peaked at 95.3 Bcf/d in November. With rig counts dropping to 85 currently, production declines have been very light relative to total rig counts. As noted last month, production declines are slowed by the exploitation of DUCs, a focus on high production locations for new wells and slower decline rates at high production new wells (due in part to throttling).

Marcellus/Utica production is down from its peak of 33.3 Bcf/d in November, with production averaging 32.2 Bcf/d in March - up slightly from 32.0 Bcf/d in February. Marcellus/Utica production for April is holding steady at slightly higher levels of 32.5 Bcf/d.

ESAI expects that any Marcellus declines will be temporary as declines in associated gas production are likely to be offset by increases in Marcellus dry gas production. Given the mid-April collapse in oil prices, Permian associated gas production will be impacted as well as wet gas production in

**Figure 1 - Total U.S. Dry Gas Production**



the Northeast, primarily in locations such as southwest Marcellus and Utica.

Due to the massive decline in crude oil prices, crude oil production is expected to decline at a greater rate than outlined in our recent quarterly issue of Energy Watch. To date however, declines in associated gas production have not materialized to a great degree. We maintain our expectation of 1.5 - 2.5 Bcf/d of associated gas production declines but note that a decline of 3.0 - 4.0 Bcf/d is possible. In that event, natural gas prices would signal for higher production in other regions such as Marcellus to offset declines.

The following section provides a summary of three supply and demand scenarios for US natural gas over the coming two years that are reflective of COVID-19 outcomes.

### **COVID-19 SUPPLY & DEMAND SCENARIOS**

ESAI has examined three scenarios that could develop as a function of COVID-19 outcomes as well as considering the impacts of the recent collapse in oil prices. The three scenarios are described briefly below:

- **Expected Scenario - Balanced:**

In this case, the expected demand impacts from COVID-19 are included in the demand outlooks through end-2021 (demand impacts should be negligible starting in January 2021). Production declines from associated gas are included and are offset by moderate increases in other basins such as Marcellus. LNG demand is unchanged at 90 percent utilization in each scenario (although this could reduce demand further if exports diminish).

- **High Price Scenario - Low COVID-19 Demand Impacts:**

In this scenario, COVID-19 impacts on demand are moderated while production falls at a slightly greater pace than in the expected scenario.

- **Low Price Scenario - High COVID-19 Demand Impacts:**

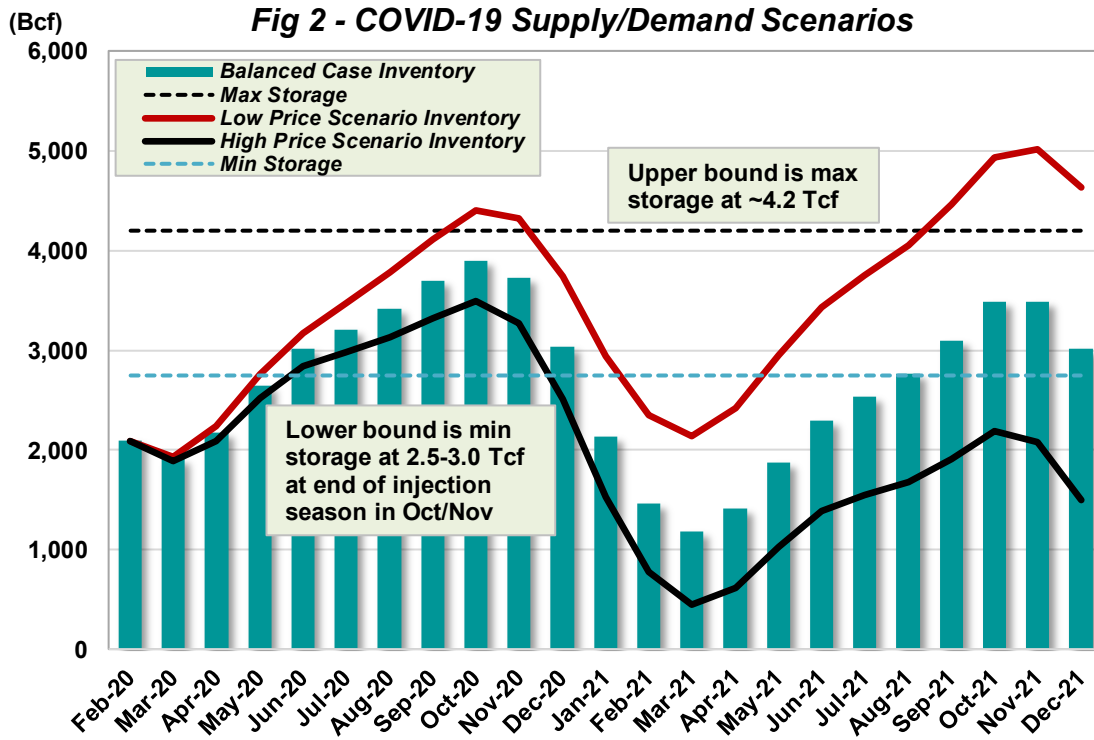
In this case, the demand destruction impacts from COVID-19 are increased while gas production falls at a similar pace to the expected case, but recovers at a faster rate.

Figure 2 on the following page shows the supply and demand outcomes of these three scenarios in terms of inventory.

The expected case shows that lower demand due to COVID-19 and a lagged response in production declines will result in high inventories of near 3.9 Tcf in November 2020. With a return of demand to near normal starting in January 2021 pushing price signals higher, the increased production response is also lagged and results in a tighter supply and demand balance in 2021 as indicated by ending inventories at about 3.5 Tcf.

The high price scenario shows that lighter demand destruction from COVID-19 but greater production cuts result in end of season inventories in 2020 that are adequate at 3.5 Tcf, but would be very short in 2021. A projected 2021 end-of-season inventory of 2.2 Tcf would be below a practical minimum of 2.75 Tcf (very tight) and thus would provoke a price and production response to meet end-of-season inventory needs.

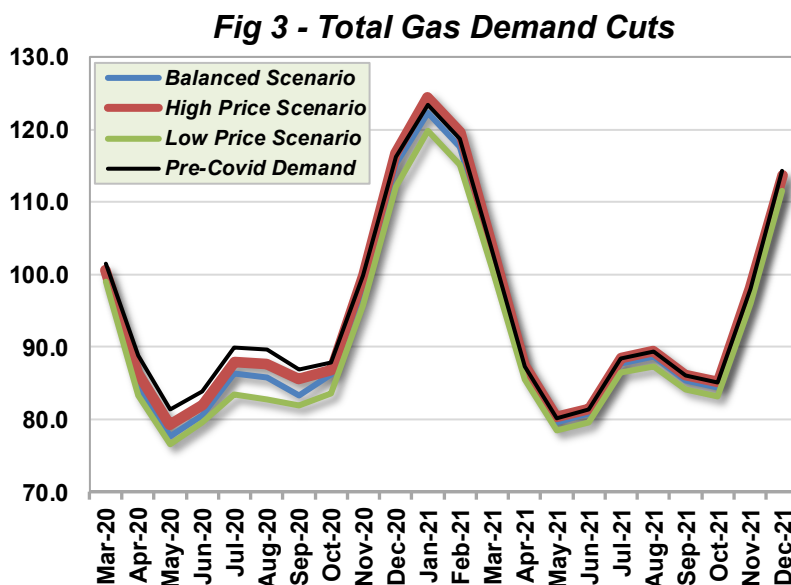
The low price scenario provides for a greater level of demand destruction due to COVID-19 while production remains higher than in the expected case. This scenario would result in maximum end-of-season inventories in both 2020 and 2021 and would require cutbacks in production (as these projections imply inventory levels above the maximum). Any cutbacks in production would elicit a lower price response.



Total demand variations by scenario are shown in Figure 3. Most of the demand destruction is in the April to November 2020 time frame. The low price scenario extends demand declines into 2021 where the other scenarios show demand recovery by the first quarter of 2021.

Note that in the high price scenario demand in the winter of 2021 is slightly higher than pre-COVID-19 demand. This is because commercial spaces that are empty still require heating, although at lower levels, and residential demand is likely to be higher due to continued high levels of employees working from home. Note that in this case, office buildings will have some employee attendance that will require normal heating, while employees working from home will result in higher residential demand that more than offsets small declines in commercial demand.

Details of demand cuts by sector and total production profiles for each scenario are provided at the end of this section.

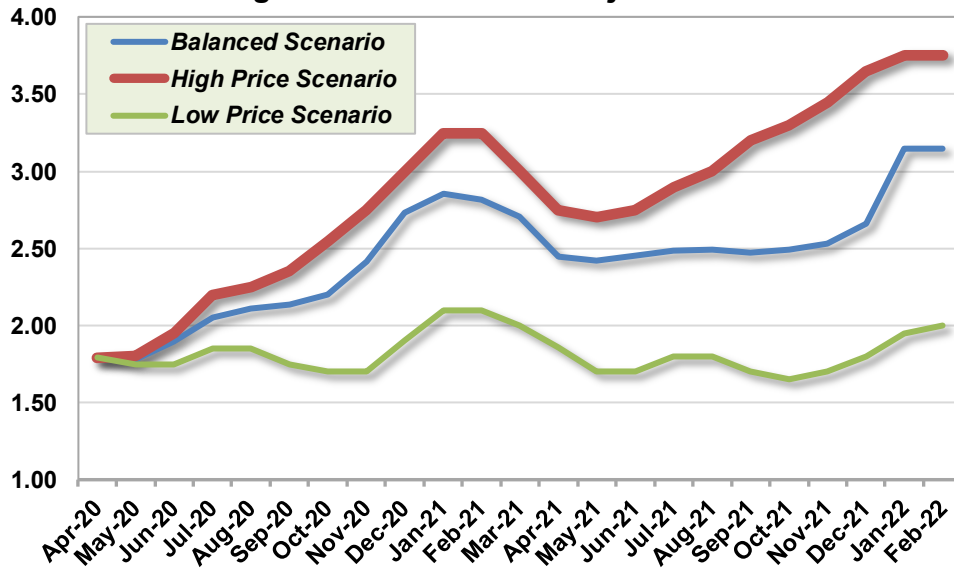


**Scenario Pricing Impacts**

Figure 4 provides estimates of the pricing impacts of the three supply and demand scenarios assessed in this analysis. ESAI’s projections for the expected case are largely in line with the forward curve, with prices near \$3.00/MMBtu for this coming winter and slightly above \$3.00 for the following winter.

The high priced scenario results in higher prices through February 2022 in order to attract additional production to meet end-of-season inventory needs. The low price scenarios perpetuates recent pricing patterns for an oversupplied market.

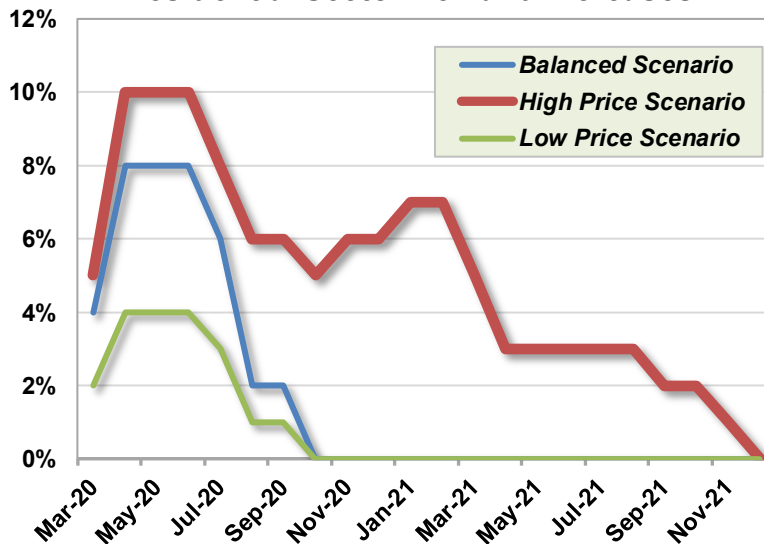
**Fig 4 - Scenario Price Projections**

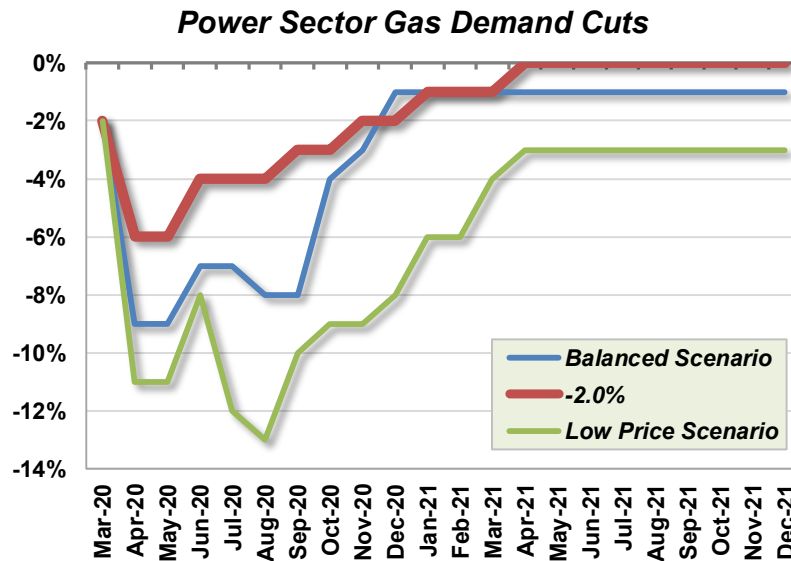
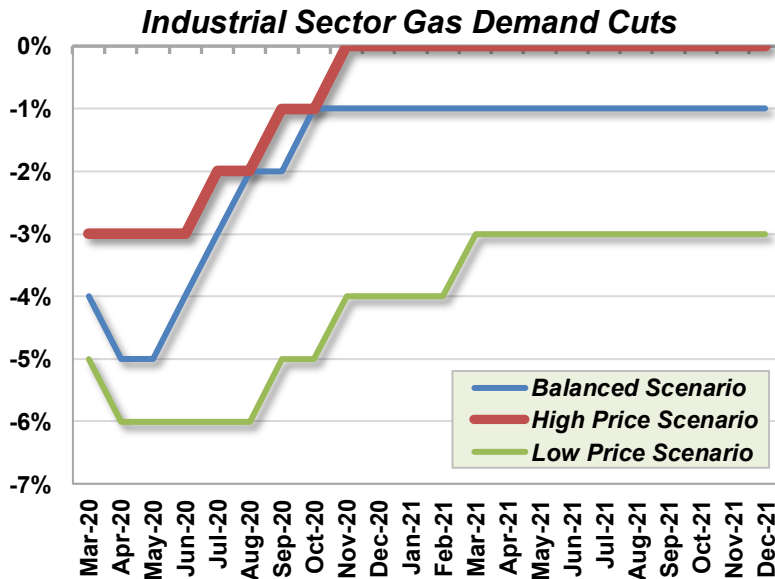
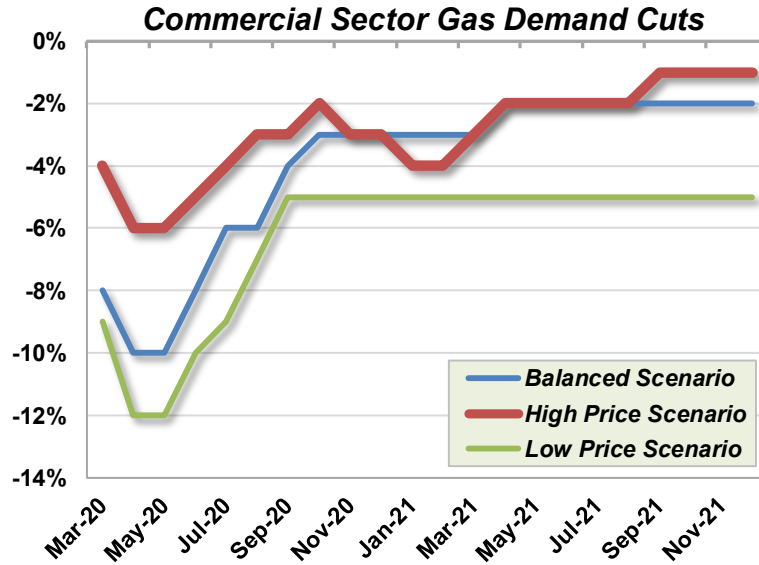


**Demand Reductions By Sector and Production for each Scenario**

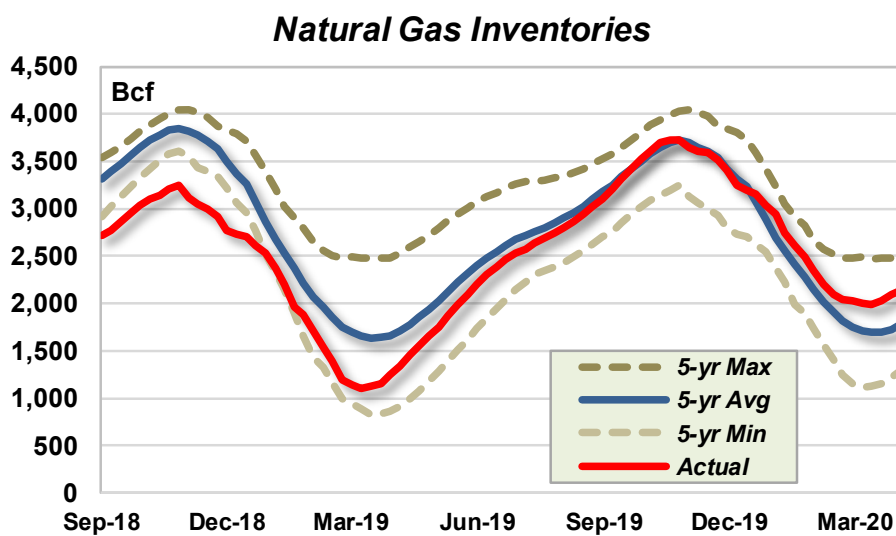
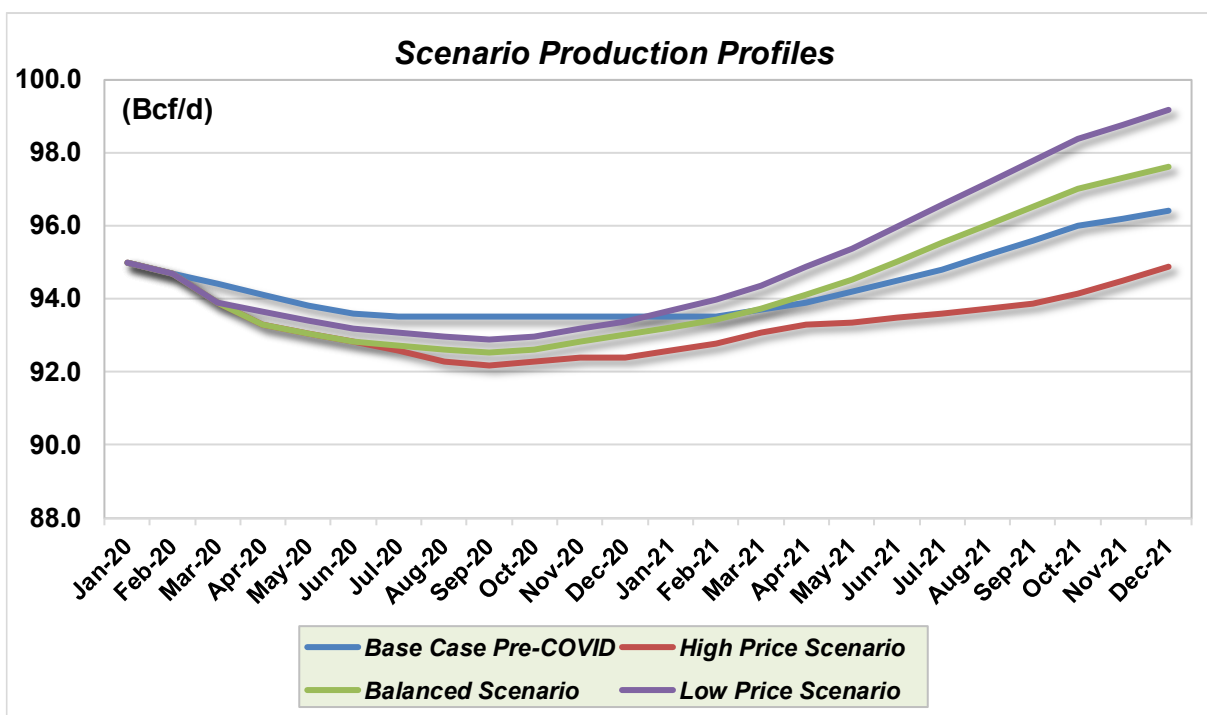
The charts below show demand reductions by sector as percent reductions from the pre-COVID-19 assumptions. Production comparisons are based on total production in Bcf/d.

**Residential Sector Demand Increases**







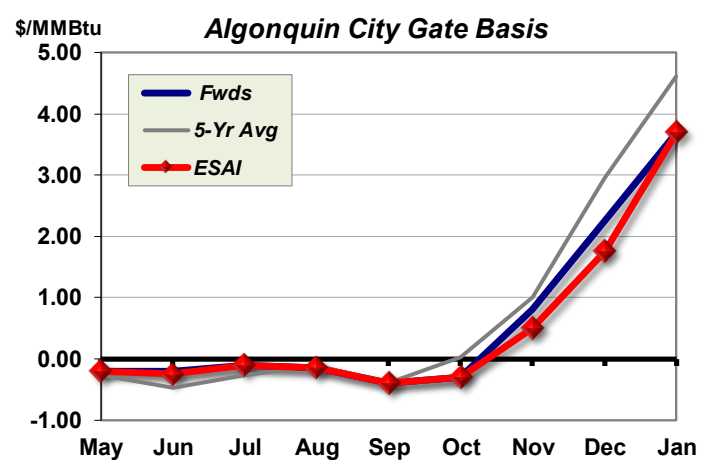
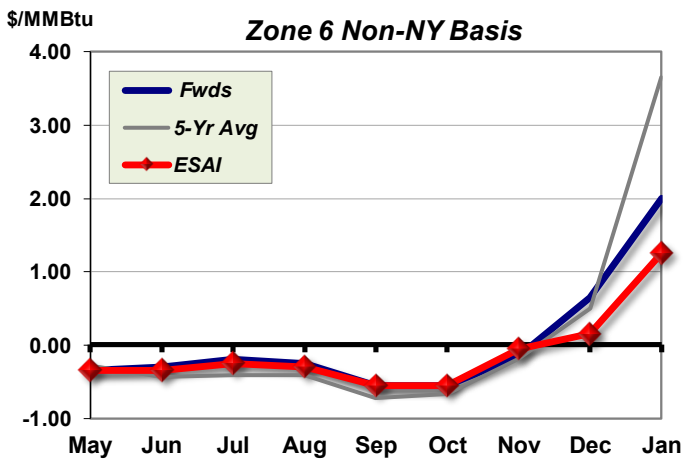
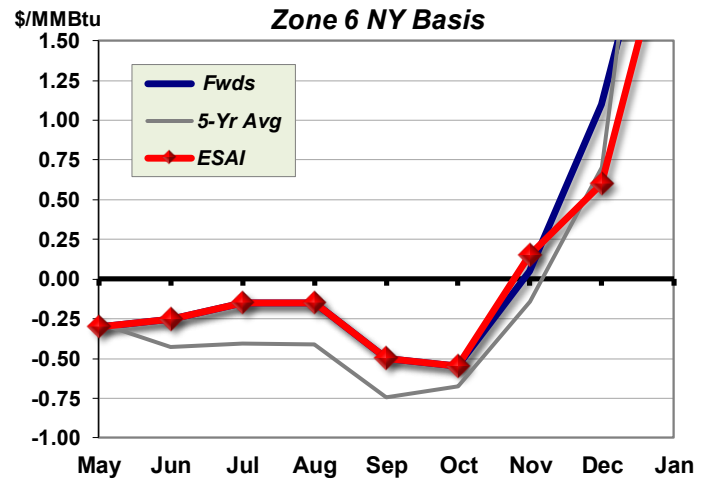
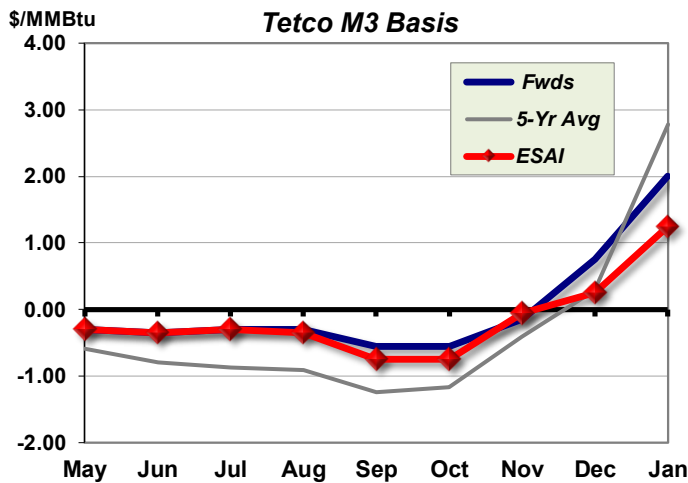


**Average Monthly Cash Spreads to the Henry Hub**

TETCO M3											TRANSCO Z6 NY										
	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan		May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan		
2015	-1.22	-1.33	-1.55	-1.37	-1.32	-0.98	-0.76	-0.75	0.01	2015	-0.23	-0.40	-0.84	-0.39	-0.55	-0.11	-0.30	-0.30	1.45		
2016	-0.41	-0.79	-1.29	-1.42	-1.85	-1.95	-0.44	-0.07	0.15	2016	-0.35	-0.69	-0.65	-0.75	-1.61	-1.81	-0.37	0.87	0.52		
2017	-0.36	-0.94	-0.94	-1.11	-1.63	-1.53	-0.61	1.95	12.92	2017	-0.30	-0.60	-0.48	-0.65	-0.58	-0.44	0.03	2.61	17.79		
2018	-0.56	-0.56	-0.38	-0.24	-0.61	-0.53	-0.06	-0.08	0.89	2018	-0.18	-0.15	0.10	0.06	-0.23	-0.29	-0.01	0.01	1.13		
2019	-0.39	-0.34	-0.23	-0.41	-0.77	-0.83	-0.17	0.37	-0.05	2019	-0.34	-0.29	-0.16	-0.32	-0.75	-0.72	-0.06	0.33	0.06		
<b>5-Yr Avg</b>	<b>-0.59</b>	<b>-0.79</b>	<b>-0.88</b>	<b>-0.91</b>	<b>-1.24</b>	<b>-1.16</b>	<b>-0.41</b>	<b>0.28</b>	<b>2.78</b>	<b>5-Yr Avg</b>	<b>-0.28</b>	<b>-0.43</b>	<b>-0.41</b>	<b>-0.41</b>	<b>-0.75</b>	<b>-0.68</b>	<b>-0.14</b>	<b>0.70</b>	<b>4.19</b>		
<b>ESAI</b>	<b>-0.30</b>	<b>-0.35</b>	<b>-0.30</b>	<b>-0.35</b>	<b>-0.75</b>	<b>-0.75</b>	<b>-0.05</b>	<b>0.25</b>	<b>1.25</b>	<b>ESAI</b>	<b>-0.30</b>	<b>-0.25</b>	<b>-0.15</b>	<b>-0.15</b>	<b>-0.50</b>	<b>-0.55</b>	<b>0.15</b>	<b>0.60</b>	<b>2.35</b>		
<b>Fwds</b>	<b>-0.30</b>	<b>-0.35</b>	<b>-0.30</b>	<b>-0.30</b>	<b>-0.55</b>	<b>-0.55</b>	<b>-0.15</b>	<b>0.75</b>	<b>2.00</b>	<b>Fwds</b>	<b>-0.30</b>	<b>-0.25</b>	<b>-0.15</b>	<b>-0.15</b>	<b>-0.50</b>	<b>-0.55</b>	<b>0.05</b>	<b>1.10</b>	<b>2.85</b>		

TRANSCO Z6 Non-NY											Algonquin City-Gate										
	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan		May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan		
2015	-0.24	-0.38	-0.82	-0.39	-0.51	-0.10	-0.29	-0.30	0.90	2015	-0.97	-1.07	-0.86	-0.40	0.18	1.39	1.23	0.33	2.37		
2016	-0.34	-0.69	-0.63	-0.76	-1.61	-1.81	-0.36	0.52	0.26	2016	0.24	-0.21	-0.01	0.31	-0.42	-0.67	0.08	3.31	1.77		
2017	-0.28	-0.61	-0.49	-0.65	-0.55	-0.43	-0.12	2.08	16.29	2017	0.02	-0.51	-0.43	-0.53	-1.06	-0.04	0.54	6.39	14.40		
2018	-0.19	-0.18	0.07	0.06	-0.20	-0.30	-0.05	-0.02	0.80	2018	-0.36	-0.31	0.02	0.26	-0.10	0.01	2.41	1.79	3.50		
2019	-0.36	-0.30	-0.18	-0.33	-0.77	-0.72	-0.10	0.20	0.04	2019	-0.29	-0.28	-0.06	-0.19	-0.56	-0.54	0.77	2.93	1.05		
<b>5-Yr Avg</b>	<b>-0.28</b>	<b>-0.43</b>	<b>-0.41</b>	<b>-0.41</b>	<b>-0.73</b>	<b>-0.67</b>	<b>-0.19</b>	<b>0.50</b>	<b>3.66</b>	<b>5-Yr Avg</b>	<b>-0.27</b>	<b>-0.48</b>	<b>-0.27</b>	<b>-0.11</b>	<b>-0.39</b>	<b>0.03</b>	<b>1.01</b>	<b>2.95</b>	<b>4.62</b>		
<b>ESAI</b>	<b>-0.35</b>	<b>-0.35</b>	<b>-0.25</b>	<b>-0.30</b>	<b>-0.55</b>	<b>-0.55</b>	<b>-0.05</b>	<b>0.15</b>	<b>1.25</b>	<b>ESAI</b>	<b>-0.20</b>	<b>-0.25</b>	<b>-0.10</b>	<b>-0.15</b>	<b>-0.40</b>	<b>-0.30</b>	<b>0.50</b>	<b>1.75</b>	<b>3.70</b>		
<b>Fwds</b>	<b>-0.35</b>	<b>-0.30</b>	<b>-0.20</b>	<b>-0.25</b>	<b>-0.55</b>	<b>-0.55</b>	<b>-0.15</b>	<b>0.65</b>	<b>2.00</b>	<b>Fwds</b>	<b>-0.20</b>	<b>-0.20</b>	<b>-0.10</b>	<b>-0.15</b>	<b>-0.40</b>	<b>-0.30</b>	<b>0.80</b>	<b>2.25</b>	<b>3.70</b>		



## Weather Outlook

### Northeast Control Areas

For May, the National Weather Service (NWS) is forecasting normal to above normal temperatures across the Northeast. For the three month period between May and July, the NWS expects above normal temperatures across the Northeast.

The Canadian Weather service is forecasting above normal temperatures in Quebec, Ontario, and the Maritimes for the three month period between May and July.

