

# Wabash Valley Power Association, Inc.

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## 2023 Integrated Resource Plan Technical Appendix

May 2024

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## Appendix A

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<b>Capacity Plan (ICAP &amp; SAC Capacity)</b>	
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**Wabash Valley Power Association  
Winter SAC Capacity Plan  
2023 Integrated Resource Plan  
Model: Current Environment Plan**

Resource	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Gibson #5	86.6	86.6	86.6	86.6	86.6	86.6	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie State #1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	-	-	-	-
Prairie State #2	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0
Holland Combined Cycle	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0
WR Highland	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2
Vermillion CTs	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2
Lawrence CTs	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6
Duke 170/180 PPA	229.3	229.3	229.3	229.3	229.3	229.3	229.3	229.3	-	-	-	-	-	-	-	-	-	-	-
Duke 70 PPA	89.2	89.2	89.2	89.2	89.2	89.2	89.2	89.2	89.2	-	-	-	-	-	-	-	-	-	-
Duke 55 PPA	58.6	58.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEP Load Following Agreement	131.8	132.4	132.7	133.0	133.2	133.5	133.4	133.3	133.4	133.5	-	-	-	-	-	-	-	-	-
Henry County CTs	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Landfill Gas	16.3	16.3	16.3	16.3	16.3	8.0	8.0	3.2	3.2	3.2	3.2	-	-	-	-	-	-	-	-
Landfill Peakers	32.6	32.6	32.6	32.6	32.6	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9
AgriWind	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	-	-	-	-
Harvest Ridge Wind	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2
Pioneer Trail Wind	1.9	1.9	1.9	1.9	1.9	1.9	1.9	-	-	-	-	-	-	-	-	-	-	-	-
Meadow Lake V Wind	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	-	-	-	-	-
Meadow Lake VI Wind	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	-	-	-	-
County Line Landfill PPA	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	-	-	-
Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie State Solar	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dressor Plains Solar	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hallador Capacity	-	150.0	150.0	250.0	250.0	250.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie Wolf Capacity	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demand Response	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
<b>Total Owned &amp; Contracted Capacity</b>	<b>1,637.0</b>	<b>1,736.3</b>	<b>1,678.0</b>	<b>1,778.3</b>	<b>1,778.5</b>	<b>1,767.7</b>	<b>1,431.0</b>	<b>1,424.3</b>	<b>1,195.0</b>	<b>1,105.9</b>	<b>972.4</b>	<b>969.2</b>	<b>969.2</b>	<b>969.2</b>	<b>964.4</b>	<b>909.2</b>	<b>903.6</b>	<b>884.4</b>	<b>884.4</b>
<b>Planned Expansion</b>																			
Expansion C&I DR	-	-	-	-	-	-	-	-	2.6	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Expansion C&I EE	4.8	9.6	14.4	20.0	20.0	29.6	36.8	38.4	51.2	57.6	59.2	60.8	62.4	63.2	69.6	66.4	65.6	70.4	64.0
Expansion Intermittent Capacity Purchase	273.0	-	-	-	-	-	-	-	83.0	165.0	167.0	183.0	196.0	214.0	-	75.0	100.0	130.0	159.0
Expansion RES DR	-	-	-	-	-	-	-	-	4.3	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
Expansion RES EE	-	-	-	-	-	-	2.0	5.0	8.0	14.0	17.0	20.0	23.0	23.0	29.0	32.0	30.0	33.0	30.0
Expansion F-Frame Combined Cycle	-	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0
Expansion H-Frame Combined Cycle	-	-	-	-	-	-	-	-	-	-	180.0	180.0	180.0	180.0	405.0	405.0	405.0	405.0	405.0
Expansion Solar PPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Expansion Solar+Battery Hybrid PPA	-	-	-	-	-	-	-	-	112.1	112.1	112.1	112.1	112.1	112.1	112.1	112.1	112.1	112.1	112.1
Expansion Wind PPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Expansion Solar+Battery Hybrid	-	-	-	-	-	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2
<b>Total Planned Expansion</b>	<b>277.8</b>	<b>333.6</b>	<b>338.4</b>	<b>344.0</b>	<b>344.0</b>	<b>577.8</b>	<b>587.0</b>	<b>591.6</b>	<b>809.5</b>	<b>912.6</b>	<b>1,099.2</b>	<b>1,119.8</b>	<b>1,137.4</b>	<b>1,156.2</b>	<b>1,179.6</b>	<b>1,254.4</b>	<b>1,276.6</b>	<b>1,314.4</b>	<b>1,334.0</b>
<b>Total Winter SAC Capacity</b>	<b>1,914.8</b>	<b>2,069.9</b>	<b>2,016.4</b>	<b>2,122.3</b>	<b>2,122.5</b>	<b>2,345.5</b>	<b>2,018.0</b>	<b>2,015.9</b>	<b>2,004.5</b>	<b>2,018.5</b>	<b>2,071.6</b>	<b>2,089.0</b>	<b>2,106.6</b>	<b>2,125.4</b>	<b>2,144.0</b>	<b>2,163.6</b>	<b>2,180.2</b>	<b>2,198.8</b>	<b>2,218.4</b>
<b>WVPA</b>																			
WVPA	1,567.9	1,595.1	1,635.7	1,648.0	1,660.2	1,482.6	1,491.6	1,501.2	1,511.5	1,522.8	1,668.9	1,682.2	1,696.3	1,710.9	1,724.6	1,740.9	1,754.5	1,768.8	1,784.4
WVPA AEP LF	131.8	132.4	132.7	133.0	133.2	133.5	133.4	133.3	133.4	133.5	-	-	-	-	-	-	-	-	-
Curtable Load	(215.0)	(223.0)	(223.0)	(223.0)	(223.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)
<b>WVPA Total</b>	<b>1,484.7</b>	<b>1,504.4</b>	<b>1,545.3</b>	<b>1,557.9</b>	<b>1,570.3</b>	<b>1,561.0</b>	<b>1,569.9</b>	<b>1,579.4</b>	<b>1,589.8</b>	<b>1,601.3</b>	<b>1,613.8</b>	<b>1,627.2</b>	<b>1,641.3</b>	<b>1,655.9</b>	<b>1,669.5</b>	<b>1,685.9</b>	<b>1,699.5</b>	<b>1,713.8</b>	<b>1,729.3</b>
<b>Capacity Sales</b>																			
Reserve/Loss Requirements	429.6	437.1	448.2	451.5	454.9	406.2	408.7	411.3	414.2	417.3	457.3	460.9	464.8	468.8	472.5	477.0	480.7	484.7	488.9
<b>Total Power Supply Requirements</b>	<b>1,914.3</b>	<b>1,941.5</b>	<b>1,993.5</b>	<b>2,009.5</b>	<b>2,025.2</b>	<b>1,967.2</b>	<b>1,978.6</b>	<b>1,990.8</b>	<b>2,004.0</b>	<b>2,018.5</b>	<b>2,071.1</b>	<b>2,088.1</b>	<b>2,106.0</b>	<b>2,124.7</b>	<b>2,142.1</b>	<b>2,162.9</b>	<b>2,180.2</b>	<b>2,198.5</b>	<b>2,218.3</b>
<b>Total Wabash Valley Long(Short)</b>	<b>0.5</b>	<b>128.4</b>	<b>22.9</b>	<b>112.8</b>	<b>97.3</b>	<b>378.3</b>	<b>39.4</b>	<b>25.1</b>	<b>0.5</b>	<b>(0.0)</b>	<b>0.5</b>	<b>0.9</b>	<b>0.6</b>	<b>0.7</b>	<b>2.0</b>	<b>0.8</b>	<b>0.0</b>	<b>0.4</b>	<b>0.2</b>
<b>MISO Winter PRMR</b>																			
MISO Winter PRMR	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%
Plan Reserve Margin %	27.4%	35.4%	28.8%	34.2%	33.3%	52.9%	30.0%	29.1%	27.4%	27.4%	27.4%	27.5%	27.4%	27.4%	27.5%	27.4%	27.4%	27.4%	27.4%

## Wabash Valley Power Association Summer SAC Capacity Plan 2023 Integrated Resource Plan Model: Current Environment Plan

Resource	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Gibson #5	96.3	96.3	96.3	96.3	96.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie State #1	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	-	-	-	-	-
Prairie State #2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2
Holland Combined Cycle	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3
WR Highland	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2
Vermillion CTs	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7
Lawrence CTs	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8
Duke 170/180 PPA	196.2	196.2	196.2	196.2	196.2	196.2	196.2	196.2	-	-	-	-	-	-	-	-	-	-	-
Duke 70 PPA	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	-	-	-	-	-	-	-	-	-	-
Duke 55 PPA	60.0	60.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEP Load Following Agreement	133.9	134.5	134.8	135.2	135.5	135.8	135.8	135.9	136.2	136.5	-	-	-	-	-	-	-	-	-
Henry County CTs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Landfill Gas	16.3	16.3	16.3	16.3	16.3	8.0	8.0	3.2	3.2	3.2	3.2	-	-	-	-	-	-	-	-
Landfill Peakers	32.6	32.6	32.6	32.6	32.6	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9
AgriWind	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	-	-	-	-
Harvest Ridge Wind	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	-	-	-
Pioneer Trail Wind	0.7	0.7	0.7	0.7	0.7	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-
Meadow Lake V Wind	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	-	-	-	-	-
Meadow Lake VI Wind	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	-	-	-	-
County Line Landfill PPA	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	-	-	-
Solar	3.7	3.5	3.5	3.2	3.0	2.8	2.6	2.4	2.3	2.2	2.1	2.0	1.9	1.9	1.9	1.9	1.8	1.8	1.8
Prairie State Solar	61.8	58.1	57.9	53.8	50.1	46.3	42.7	40.0	38.3	36.8	35.3	34.0	32.1	31.7	31.3	31.3	30.7	30.0	29.4
Dressor Plains Solar	61.8	58.1	57.9	53.8	50.1	46.3	42.7	40.0	38.3	36.8	35.3	34.0	32.1	31.7	31.3	31.3	30.7	30.0	29.4
Hallador Capacity	150.0	150.0	250.0	250.0	250.0	250.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie Wolf Capacity	62.4	58.7	58.5	54.4	50.6	46.7	43.2	40.4	38.6	37.1	-	-	-	-	-	-	-	-	-
Demand Response	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7
<b>Total Owned &amp; Contracted Capacity</b>	<b>1,853.1</b>	<b>1,842.4</b>	<b>1,882.1</b>	<b>1,870.0</b>	<b>1,858.8</b>	<b>1,740.1</b>	<b>1,478.6</b>	<b>1,465.4</b>	<b>1,264.2</b>	<b>1,183.6</b>	<b>1,007.1</b>	<b>1,001.0</b>	<b>997.3</b>	<b>996.3</b>	<b>955.6</b>	<b>949.7</b>	<b>936.1</b>	<b>934.6</b>	<b>933.3</b>
<b>Planned Expansion</b>																			
Expansion C&I DR	-	-	-	-	-	-	-	-	3.2	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
Expansion C&I EE	6.0	12.0	18.0	25.0	25.0	37.0	46.0	48.0	64.0	72.0	74.0	76.0	78.0	79.0	87.0	83.0	82.0	88.0	80.0
Expansion Intermittent Capacity Purchase	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Expansion RES DR	-	-	-	-	-	-	-	-	5.4	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8
Expansion RES EE	-	-	-	-	-	-	1.9	4.9	7.8	13.6	16.5	19.4	22.3	22.3	28.1	31.0	29.1	32.0	29.1
Expansion F-Frame Combined Cycle	-	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0
Expansion H-Frame Combined Cycle	-	-	-	-	-	-	-	-	-	190.0	190.0	190.0	190.0	190.0	427.5	427.5	427.5	427.5	427.5
Expansion Solar PPA	-	-	-	-	-	-	-	-	-	-	68.6	64.9	64.0	205.8	205.4	201.9	227.5	222.7	222.7
Expansion Solar+Battery Hybrid PPA	-	-	-	-	-	-	-	134.6	133.1	131.6	130.2	128.4	127.9	127.6	127.5	127.0	126.3	125.6	125.6
Expansion Wind PPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Expansion Solar+Battery Hybrid	-	-	-	-	-	285.3	278.2	272.6	269.1	266.1	263.2	260.5	256.8	255.8	255.2	255.0	253.9	252.5	251.2
<b>Total Planned Expansion</b>	<b>6.0</b>	<b>354.0</b>	<b>360.0</b>	<b>367.0</b>	<b>367.0</b>	<b>664.3</b>	<b>668.1</b>	<b>667.5</b>	<b>826.1</b>	<b>846.2</b>	<b>1,036.8</b>	<b>1,106.2</b>	<b>1,101.8</b>	<b>1,100.4</b>	<b>1,492.6</b>	<b>1,491.0</b>	<b>1,482.8</b>	<b>1,515.2</b>	<b>1,497.6</b>
<b>Total Summer SAC Capacity</b>	<b>1,859.1</b>	<b>2,196.4</b>	<b>2,242.1</b>	<b>2,237.0</b>	<b>2,225.8</b>	<b>2,404.3</b>	<b>2,146.7</b>	<b>2,132.9</b>	<b>2,090.2</b>	<b>2,029.8</b>	<b>2,043.8</b>	<b>2,107.2</b>	<b>2,099.1</b>	<b>2,096.7</b>	<b>2,448.2</b>	<b>2,440.6</b>	<b>2,418.9</b>	<b>2,449.8</b>	<b>2,430.8</b>
WVPA	1,712.0	1,750.4	1,770.5	1,786.4	1,614.4	1,629.9	1,642.8	1,656.5	1,671.5	1,687.8	1,842.3	1,861.5	1,881.5	1,902.8	1,924.4	1,946.0	1,966.5	1,987.8	2,010.7
WVPA AEP LF	133.9	134.5	134.8	135.2	135.5	135.8	135.8	135.9	136.2	136.5	-	-	-	-	-	-	-	-	-
Curtable Load	(228.6)	(228.6)	(228.6)	(228.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)
	1,617.3	1,656.3	1,676.7	1,693.0	1,689.3	1,705.1	1,718.1	1,731.9	1,747.1	1,763.8	1,781.7	1,800.9	1,820.9	1,842.2	1,863.8	1,885.5	1,905.9	1,927.2	1,950.1
Capacity Sales																			
Reserve/Loss Requirements	154.1	157.5	159.3	160.8	145.3	146.7	147.9	149.1	150.4	151.9	165.8	167.5	169.3	171.2	173.2	175.1	177.0	178.9	181.0
Total Power Supply Requirements	1,771.4	1,813.8	1,836.1	1,853.8	1,834.6	1,851.8	1,865.9	1,881.0	1,897.5	1,915.7	1,947.5	1,968.4	1,990.2	2,013.4	2,037.0	2,060.6	2,082.9	2,106.1	2,131.0
Total Wabash Valley Long(Short)	87.7	382.6	406.1	383.3	391.2	552.6	280.7	251.9	192.7	114.1	96.3	138.8	108.9	83.3	411.2	380.0	336.0	343.7	299.8
MISO Summer PRMR	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
Plan Reserve Margin %	14.1%	30.9%	31.9%	30.5%	33.2%	42.9%	26.1%	24.2%	20.5%	15.8%	14.2%	16.5%	14.8%	13.4%	30.4%	28.5%	26.1%	26.3%	23.9%

**Wabash Valley Power Association  
Installed Capacity Plan  
2023 Integrated Resource Plan  
Model: Current Environment Plan**

Resource	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Gibson #5	156.0	156.0	156.0	156.0	156.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie State #1	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	-	-	-	-	-
Prairie State #2	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0
Holland Combined Cycle	280.0	280.0	280.0	280.0	307.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0
WR Highland	154.3	154.3	154.3	154.3	181.1	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3
Vermillion CTs	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0
Lawrence CTs	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0
Duke 170/180 PPA	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	-	-	-	-	-	-	-	-	-	-	-
Duke 70 PPA	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	-	-	-	-	-	-	-	-	-	-
Duke 55 PPA	55.0	55.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEP Load Following Agreement	131.8	132.4	132.7	133.0	133.2	133.5	133.4	133.3	133.4	133.5	-	-	-	-	-	-	-	-	-
Henry County CTs	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Landfill Gas	12.2	12.2	12.2	12.2	12.2	5.4	5.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Landfill Peakers	34.8	34.8	34.8	34.8	34.8	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
AgriWind	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	-	-	-	-
Harvest Ridge Wind	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	-	-
Pioneer Trail Wind	10.0	10.0	10.0	10.0	10.0	10.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Meadow Lake V Wind	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	-	-	-	-	-
Meadow Lake VI Wind	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	-	-	-	-
County Line Landfill PPA	5.6	5.6	5.6	5.6	5.6	5.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	-	-	-
Solar	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Prairie State Solar	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
Dressor Plains Solar	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
Hallador Capacity	150.0	150.0	250.0	250.0	250.0	250.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie Wolf Capacity	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	-	-	-	-	-	-	-	-
Demand Response	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
<b>Total Owned &amp; Contracted Capacity</b>	<b>2,315.3</b>	<b>2,265.9</b>	<b>2,311.2</b>	<b>2,311.5</b>	<b>2,365.5</b>	<b>2,146.4</b>	<b>1,888.3</b>	<b>1,885.2</b>	<b>1,705.3</b>	<b>1,635.4</b>	<b>1,401.9</b>	<b>1,399.5</b>	<b>1,399.5</b>	<b>1,399.5</b>	<b>1,332.5</b>	<b>1,248.7</b>	<b>1,141.1</b>	<b>1,141.1</b>	<b>1,141.1</b>
<b>Planned Expansion</b>																			
Expansion C&I DR	-	-	-	-	-	-	-	-	3.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Expansion C&I EE	6.0	12.0	18.0	25.0	25.0	37.0	46.0	48.0	64.0	72.0	74.0	76.0	78.0	79.0	87.0	83.0	82.0	88.0	80.0
Expansion RES DR	-	-	-	-	-	-	-	-	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Expansion RES EE	-	-	-	-	-	-	2.0	5.0	8.0	14.0	17.0	20.0	23.0	23.0	29.0	32.0	30.0	33.0	30.0
Expansion F-Frame Combined Cycle	-	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0
Expansion H-Frame Combined Cycle	-	-	-	-	-	-	-	-	-	-	200.0	200.0	200.0	200.0	450.0	450.0	450.0	450.0	450.0
Expansion Solar PPA	-	-	-	-	-	-	-	-	-	-	-	200.0	200.0	200.0	650.0	650.0	650.0	750.0	750.0
Expansion Solar+Battery Hybrid PPA	-	-	-	-	-	-	-	-	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Expansion Wind PPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Expansion Solar+Battery Hybrid	-	-	-	-	-	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
<b>Total Planned Expansion</b>	<b>6.0</b>	<b>372.0</b>	<b>378.0</b>	<b>385.0</b>	<b>385.0</b>	<b>597.0</b>	<b>608.0</b>	<b>613.0</b>	<b>740.0</b>	<b>764.0</b>	<b>969.0</b>	<b>1,174.0</b>	<b>1,179.0</b>	<b>1,180.0</b>	<b>1,894.0</b>	<b>1,893.0</b>	<b>1,890.0</b>	<b>1,999.0</b>	<b>1,988.0</b>
<b>Total Installed Capacity</b>	<b>2,321.3</b>	<b>2,637.9</b>	<b>2,689.2</b>	<b>2,696.5</b>	<b>2,750.5</b>	<b>2,743.4</b>	<b>2,496.3</b>	<b>2,498.2</b>	<b>2,445.3</b>	<b>2,399.4</b>	<b>2,370.9</b>	<b>2,573.5</b>	<b>2,578.5</b>	<b>2,579.5</b>	<b>3,226.5</b>	<b>3,141.7</b>	<b>3,031.1</b>	<b>3,140.1</b>	<b>3,129.1</b>

**Wabash Valley Power Association  
Winter SAC Capacity Plan  
2023 Integrated Resource Plan  
Model: Carbon Reduction Plan**

Resource	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Gibson #5	86.6	86.6	86.6	86.6	86.6	86.6	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie State #1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	-	-	-	-
Prairie State #2	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0
Holland Combined Cycle	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0
WR Highland	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2
Vermillion CTs	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2
Lawrence CTs	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6
Duke 170/180 PPA	229.3	229.3	229.3	229.3	229.3	229.3	229.3	229.3	-	-	-	-	-	-	-	-	-	-	-
Duke 70 PPA	89.2	89.2	89.2	89.2	89.2	89.2	89.2	89.2	89.2	-	-	-	-	-	-	-	-	-	-
Duke 55 PPA	58.6	58.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEP Load Following Agreement	131.8	132.4	132.7	133.0	133.2	133.5	133.4	133.3	133.4	133.5	-	-	-	-	-	-	-	-	-
Henry County CTs	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Landfill Gas	16.3	16.3	16.3	16.3	16.3	8.0	8.0	3.2	3.2	3.2	3.2	-	-	-	-	-	-	-	-
Landfill Peakers	32.6	32.6	32.6	32.6	32.6	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9
AgriWind	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	-	-	-	-
Harvest Ridge Wind	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2
Pioneer Trail Wind	1.9	1.9	1.9	1.9	1.9	1.9	1.9	-	-	-	-	-	-	-	-	-	-	-	-
Meadow Lake V Wind	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	-	-	-	-	-
Meadow Lake VI Wind	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	-	-	-	-
County Line Landfill PPA	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	-	-	-
Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie State Solar	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dressor Plains Solar	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hallador Capacity	-	150.0	150.0	250.0	250.0	250.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie Wolf Capacity	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demand Response	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
<b>Total Owned &amp; Contracted Capacity</b>	<b>1,637.0</b>	<b>1,736.3</b>	<b>1,678.0</b>	<b>1,778.3</b>	<b>1,778.5</b>	<b>1,767.7</b>	<b>1,431.0</b>	<b>1,424.3</b>	<b>1,195.0</b>	<b>1,105.9</b>	<b>972.4</b>	<b>969.2</b>	<b>969.2</b>	<b>969.2</b>	<b>964.4</b>	<b>909.2</b>	<b>903.6</b>	<b>884.4</b>	<b>884.4</b>
<b>Planned Expansion</b>																			
Expansion C&I DR	-	-	-	-	-	-	-	3.5	7.8	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2
Expansion C&I EE	4.8	9.6	14.4	20.0	20.0	32.0	32.0	39.2	52.8	60.8	64.0	67.2	70.4	72.8	80.8	76.8	84.8	85.6	80.0
Expansion Intermittent Capacity Purchase	273.0	-	-	-	-	-	-	-	-	-	66.0	-	-	-	-	-	-	-	-
Expansion RES DR	-	-	-	-	-	-	-	-	4.3	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
Expansion RES EE	-	-	-	-	-	-	-	-	-	8.0	8.0	16.0	30.0	33.0	51.0	51.0	69.0	75.0	78.0
Expansion F-Frame Combined Cycle	-	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0
Expansion H-Frame Combined Cycle	-	-	-	-	-	-	-	-	-	-	-	-	180.0	180.0	180.0	180.0	180.0	180.0	270.0
Expansion Solar PPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Expansion Solar+Battery Hybrid PPA	-	-	-	-	-	-	-	-	392.4	392.4	392.4	392.4	392.4	392.4	392.4	392.4	616.6	616.6	616.6
Expansion Wind PPA	-	-	-	-	-	-	-	-	-	-	-	76.8	76.8	76.8	144.0	144.0	144.0	144.0	144.0
Expansion Solar+Battery Hybrid	-	-	-	-	-	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2
<b>Total Planned Expansion</b>	<b>277.8</b>	<b>333.6</b>	<b>338.4</b>	<b>344.0</b>	<b>344.0</b>	<b>580.2</b>	<b>580.2</b>	<b>590.9</b>	<b>1,005.6</b>	<b>1,030.3</b>	<b>1,099.5</b>	<b>1,121.5</b>	<b>1,318.7</b>	<b>1,324.1</b>	<b>1,417.3</b>	<b>1,413.3</b>	<b>1,663.5</b>	<b>1,760.3</b>	<b>1,757.7</b>
<b>Total Winter SAC Capacity</b>	<b>1,914.8</b>	<b>2,069.9</b>	<b>2,016.4</b>	<b>2,122.3</b>	<b>2,122.5</b>	<b>2,347.9</b>	<b>2,011.2</b>	<b>2,015.2</b>	<b>2,200.6</b>	<b>2,136.2</b>	<b>2,071.9</b>	<b>2,090.7</b>	<b>2,287.9</b>	<b>2,293.3</b>	<b>2,381.7</b>	<b>2,322.5</b>	<b>2,567.1</b>	<b>2,644.7</b>	<b>2,642.1</b>
<b>WVPA</b>																			
WVPA	1,567.6	1,595.0	1,635.6	1,645.5	1,659.9	1,480.0	1,490.4	1,503.0	1,514.2	1,525.7	1,669.3	1,756.0	1,779.1	1,803.0	1,826.7	1,850.2	1,872.7	1,897.2	1,923.4
WVPA AEP LF	131.8	132.4	132.7	133.0	133.2	133.5	133.4	133.3	133.4	133.5	-	-	-	-	-	-	-	-	-
Curtable Load	(215.0)	(223.0)	(223.0)	(223.0)	(223.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)
<b>WVPA Total</b>	<b>1,484.3</b>	<b>1,504.4</b>	<b>1,545.3</b>	<b>1,555.4</b>	<b>1,570.1</b>	<b>1,558.4</b>	<b>1,568.7</b>	<b>1,581.3</b>	<b>1,592.5</b>	<b>1,604.1</b>	<b>1,614.3</b>	<b>1,701.0</b>	<b>1,724.0</b>	<b>1,747.9</b>	<b>1,771.7</b>	<b>1,795.2</b>	<b>1,817.6</b>	<b>1,842.1</b>	<b>1,868.4</b>
<b>Capacity Sales</b>																			
Reserve/Loss Requirements	429.5	437.0	448.1	450.9	454.8	405.5	408.4	411.8	414.9	418.0	457.4	481.1	487.5	494.0	500.5	507.0	513.1	519.8	527.0
Total Power Supply Requirements	1,913.9	1,941.4	1,993.4	2,006.3	2,024.9	1,963.9	1,977.0	1,993.1	2,007.4	2,022.2	2,071.6	2,182.1	2,211.5	2,241.9	2,272.2	2,302.2	2,330.7	2,362.0	2,395.4
Total Wabash Valley Long(Short)	0.9	128.5	23.0	116.0	97.6	384.0	34.2	22.0	193.1	114.0	0.3	(91.4)	76.4	51.4	109.5	20.4	236.4	282.8	246.7
<b>MISO Winter PRMR</b>																			
MISO Winter PRMR	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%
Plan Reserve Margin %	27.5%	35.5%	28.8%	34.5%	33.3%	53.3%	29.7%	28.9%	40.2%	34.9%	27.4%	22.2%	31.7%	30.2%	33.4%	28.5%	40.0%	42.3%	40.2%

**Wabash Valley Power Association  
Summer SAC Capacity Plan  
2023 Integrated Resource Plan  
Model: Carbon Reduction Plan**

Resource	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Gibson #5	96.3	96.3	96.3	96.3	96.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie State #1	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	-	-	-	-	-	-	-
Prairie State #2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	-	-	-	-	-	-	-
Holland Combined Cycle	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3
WR Highland	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2
Vermillion CTs	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7
Lawrence CTs	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8
Duke 170/180 PPA	196.2	196.2	196.2	196.2	196.2	196.2	196.2	196.2	-	-	-	-	-	-	-	-	-	-	-
Duke 70 PPA	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	-	-	-	-	-	-	-	-	-	-
Duke 55 PPA	60.0	60.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEP Load Following Agreement	133.9	134.5	134.8	135.2	135.5	135.8	135.8	135.9	136.2	136.5	-	-	-	-	-	-	-	-	-
Henry County CTs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Landfill Gas	16.3	16.3	16.3	16.3	16.3	8.0	8.0	3.2	3.2	3.2	3.2	-	-	-	-	-	-	-	-
Landfill Peakers	32.6	32.6	32.6	32.6	32.6	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9
AgriWind	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	-	-	-	-
Harvest Ridge Wind	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	-	-	-
Pioneer Trail Wind	0.7	0.7	0.7	0.7	0.7	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-
Meadow Lake V Wind	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	-	-	-	-	-
Meadow Lake VI Wind	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	-	-	-	-
County Line Landfill PPA	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	-	-	-
Solar	3.7	3.5	3.5	3.2	3.0	2.8	2.6	2.4	2.3	2.2	2.1	2.0	1.9	1.9	1.9	1.9	1.8	1.8	1.8
Prairie State Solar	61.8	58.1	57.9	53.8	50.1	46.3	42.7	40.0	38.3	36.8	35.3	34.0	32.1	31.7	31.3	31.3	30.7	30.0	29.4
Dressor Plains Solar	61.8	58.1	57.9	53.8	50.1	46.3	42.7	40.0	38.3	36.8	35.3	34.0	32.1	31.7	31.3	31.3	30.7	30.0	29.4
Hallador Capacity	150.0	150.0	250.0	250.0	250.0	250.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie Wolf Capacity	62.4	58.7	58.5	54.4	50.6	46.7	43.2	40.4	38.6	37.1	-	-	-	-	-	-	-	-	-
Demand Response	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7
<b>Total Owned &amp; Contracted Capacity</b>	<b>1,853.1</b>	<b>1,842.4</b>	<b>1,882.1</b>	<b>1,870.0</b>	<b>1,858.8</b>	<b>1,740.1</b>	<b>1,478.6</b>	<b>1,465.4</b>	<b>1,264.2</b>	<b>1,183.6</b>	<b>1,007.1</b>	<b>1,001.0</b>	<b>920.7</b>	<b>919.8</b>	<b>917.4</b>	<b>911.5</b>	<b>897.9</b>	<b>896.4</b>	<b>895.1</b>
<b>Planned Expansion</b>																			
Expansion C&I DR	-	-	-	-	-	-	-	4.3	9.7	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
Expansion C&I EE	6.0	12.0	18.0	25.0	25.0	40.0	40.0	49.0	66.0	76.0	80.0	84.0	88.0	91.0	101.0	96.0	106.0	107.0	100.0
Expansion Intermittent Capacity Purchase	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Expansion RES DR	-	-	-	-	-	-	-	-	5.4	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8
Expansion RES EE	-	-	-	-	-	-	-	-	7.8	7.8	15.5	29.1	32.0	49.5	49.5	66.9	72.8	75.7	-
Expansion F-Frame Combined Cycle	-	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0
Expansion H-Frame Combined Cycle	-	-	-	-	-	-	-	-	-	-	-	-	190.0	190.0	190.0	190.0	190.0	285.0	285.0
Expansion Solar PPA	-	-	-	-	-	-	-	-	154.6	148.5	267.7	257.4	243.5	239.9	237.5	237.0	232.9	227.5	222.7
Expansion Solar+Battery Hybrid PPA	-	-	-	-	-	-	-	-	471.0	465.7	460.7	455.8	449.4	447.7	446.6	446.3	698.4	694.4	690.9
Expansion Wind PPA	-	-	-	-	-	-	-	-	-	-	-	27.6	27.6	27.6	51.7	51.7	51.7	51.7	51.7
Expansion Solar+Battery Hybrid	-	-	-	-	-	285.3	278.2	272.6	269.1	266.1	263.2	260.5	256.8	255.8	255.2	255.0	253.9	252.5	251.2
<b>Total Planned Expansion</b>	<b>6.0</b>	<b>354.0</b>	<b>360.0</b>	<b>367.0</b>	<b>367.0</b>	<b>667.3</b>	<b>660.2</b>	<b>667.9</b>	<b>1,317.8</b>	<b>1,332.0</b>	<b>1,447.2</b>	<b>1,468.7</b>	<b>1,652.3</b>	<b>1,651.9</b>	<b>1,699.3</b>	<b>1,693.5</b>	<b>1,967.8</b>	<b>2,058.8</b>	<b>2,045.1</b>
<b>Total Summer SAC Capacity</b>	<b>1,859.1</b>	<b>2,196.4</b>	<b>2,242.1</b>	<b>2,237.0</b>	<b>2,225.8</b>	<b>2,407.3</b>	<b>2,138.7</b>	<b>2,133.4</b>	<b>2,581.9</b>	<b>2,515.6</b>	<b>2,454.3</b>	<b>2,469.7</b>	<b>2,573.0</b>	<b>2,571.7</b>	<b>2,616.7</b>	<b>2,605.0</b>	<b>2,865.6</b>	<b>2,955.2</b>	<b>2,940.2</b>
WVPA	1,710.8	1,749.3	1,766.7	1,781.5	1,608.7	1,626.7	1,645.1	1,667.5	1,679.3	1,699.3	1,857.5	1,882.4	1,905.5	1,931.6	1,957.4	1,982.4	2,009.6	2,037.3	2,082.6
WVPA AEP LF	133.9	134.5	134.8	135.2	135.5	135.8	135.8	135.9	136.2	136.5	-	-	-	-	-	-	-	-	-
Curtable Load	(228.6)	(228.6)	(228.6)	(228.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)
	1,616.1	1,655.2	1,672.9	1,688.1	1,683.6	1,702.0	1,720.3	1,742.9	1,754.8	1,775.2	1,796.9	1,821.8	1,844.9	1,871.0	1,896.8	1,921.9	1,949.0	1,976.7	2,022.0
Capacity Sales																			
Reserve/Loss Requirements	154.0	157.4	159.0	160.3	144.8	146.4	148.1	150.1	151.1	152.9	167.2	169.4	171.5	173.8	176.2	178.4	180.9	183.4	187.4
Total Power Supply Requirements	1,770.1	1,812.6	1,831.9	1,848.4	1,828.4	1,848.4	1,868.4	1,892.9	1,906.0	1,928.1	1,964.1	1,991.2	2,016.4	2,044.9	2,073.0	2,100.3	2,129.9	2,160.0	2,209.5
Total Wabash Valley Long(Short)	89.0	383.8	410.2	388.6	397.4	559.0	270.4	240.5	676.0	587.5	490.2	478.5	556.7	526.8	543.7	504.7	735.8	795.2	730.7
MISO Summer PRMR	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
Plan Reserve Margin %	14.2%	30.9%	32.2%	30.8%	33.7%	43.4%	25.4%	23.4%	49.3%	43.6%	35.4%	34.4%	38.2%	36.3%	36.8%	34.5%	45.6%	48.0%	44.1%

**Wabash Valley Power Association  
Installed Capacity Plan  
2023 Integrated Resource Plan  
Model: Carbon Reduction Plan**

Resource	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Gibson #5	156.0	156.0	156.0	156.0	156.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie State #1	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	-	-	-	-	-	-	-
Prairie State #2	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	-	-	-	-	-	-	-
Holland Combined Cycle	280.0	280.0	280.0	280.0	307.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0
WR Highland	154.3	154.3	154.3	154.3	181.1	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3
Vermillion CTs	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0
Lawrence CTs	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0
Duke 170/180 PPA	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	-	-	-	-	-	-	-	-	-	-	-
Duke 70 PPA	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	-	-	-	-	-	-	-	-	-	-
Duke 55 PPA	55.0	55.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEP Load Following Agreement	131.8	132.4	132.7	133.0	133.2	133.5	133.4	133.3	133.4	133.5	-	-	-	-	-	-	-	-	-
Henry County CTs	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Landfill Gas	12.2	12.2	12.2	12.2	12.2	5.4	5.4	2.4	2.4	2.4	2.4	2.4	-	-	-	-	-	-	-
Landfill Peakers	34.8	34.8	34.8	34.8	34.8	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
AgriWind	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	-	-	-	-
Harvest Ridge Wind	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	-	-
Pioneer Trail Wind	10.0	10.0	10.0	10.0	10.0	10.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Meadow Lake V Wind	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	-	-	-	-	-
Meadow Lake VI Wind	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	-	-	-	-
County Line Landfill PPA	5.6	5.6	5.6	5.6	5.6	5.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	-	-	-
Solar	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Prairie State Solar	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
Dressor Plains Solar	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
Hallador Capacity	150.0	150.0	250.0	250.0	250.0	250.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie Wolf Capacity	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	-	-	-	-	-	-	-	-
Demand Response	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
<b>Total Owned &amp; Contracted Capacity</b>	<b>2,315.3</b>	<b>2,265.9</b>	<b>2,311.2</b>	<b>2,311.5</b>	<b>2,365.5</b>	<b>2,146.4</b>	<b>1,888.3</b>	<b>1,885.2</b>	<b>1,705.3</b>	<b>1,635.4</b>	<b>1,401.9</b>	<b>1,399.5</b>	<b>1,316.5</b>	<b>1,316.5</b>	<b>1,291.5</b>	<b>1,207.7</b>	<b>1,100.1</b>	<b>1,100.1</b>	<b>1,100.1</b>
<b>Planned Expansion</b>																			
Expansion C&I DR	-	-	-	-	-	-	-	4.0	9.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Expansion C&I EE	6.0	12.0	18.0	25.0	25.0	40.0	40.0	49.0	66.0	76.0	80.0	84.0	88.0	91.0	101.0	96.0	106.0	107.0	100.0
Expansion RES DR	-	-	-	-	-	-	-	-	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Expansion RES EE	-	-	-	-	-	-	-	-	-	8.0	8.0	16.0	30.0	33.0	51.0	51.0	69.0	75.0	78.0
Expansion F-Frame Combined Cycle	-	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0
Expansion H-Frame Combined Cycle	-	-	-	-	-	-	-	-	-	-	-	-	200.0	200.0	200.0	200.0	200.0	300.0	300.0
Expansion Solar PPA	-	-	-	-	-	-	-	-	400.0	400.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0
Expansion Solar+Battery Hybrid PPA	-	-	-	-	-	-	-	-	350.0	350.0	350.0	350.0	350.0	350.0	350.0	350.0	550.0	550.0	550.0
Expansion Wind PPA	-	-	-	-	-	-	-	-	-	-	-	400.0	400.0	400.0	750.0	750.0	750.0	750.0	750.0
Expansion Solar+Battery Hybrid	-	-	-	-	-	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
<b>Total Planned Expansion</b>	<b>6.0</b>	<b>372.0</b>	<b>378.0</b>	<b>385.0</b>	<b>385.0</b>	<b>600.0</b>	<b>600.0</b>	<b>613.0</b>	<b>1,390.0</b>	<b>1,418.0</b>	<b>1,772.0</b>	<b>2,184.0</b>	<b>2,402.0</b>	<b>2,408.0</b>	<b>2,786.0</b>	<b>2,781.0</b>	<b>3,009.0</b>	<b>3,116.0</b>	<b>3,112.0</b>
<b>Total Installed Capacity</b>	<b>2,321.3</b>	<b>2,637.9</b>	<b>2,689.2</b>	<b>2,696.5</b>	<b>2,750.5</b>	<b>2,746.4</b>	<b>2,488.3</b>	<b>2,498.2</b>	<b>3,095.3</b>	<b>3,053.4</b>	<b>3,173.9</b>	<b>3,583.5</b>	<b>3,718.5</b>	<b>3,724.5</b>	<b>4,077.5</b>	<b>3,988.7</b>	<b>4,109.1</b>	<b>4,216.1</b>	<b>4,212.1</b>



**Wabash Valley Power Association  
Winter SAC Capacity Plan  
2023 Integrated Resource Plan  
Model: Load Reduction Plan**

Resource	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Gibson #5	86.6	86.6	86.6	86.6	86.6	86.6	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie State #1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	-	-	-	-
Prairie State #2	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0
Holland Combined Cycle	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0
WR Highland	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2
Vermillion CTs	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2
Lawrence CTs	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6
Duke 170/180 PPA	229.3	229.3	229.3	229.3	229.3	229.3	229.3	229.3	-	-	-	-	-	-	-	-	-	-	-
Duke 70 PPA	89.2	89.2	89.2	89.2	89.2	89.2	89.2	89.2	89.2	-	-	-	-	-	-	-	-	-	-
Duke 55 PPA	58.6	58.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEP Load Following Agreement	131.8	132.4	132.7	133.0	133.2	133.5	133.4	133.3	133.4	133.5	-	-	-	-	-	-	-	-	-
Henry County CTs	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Landfill Gas	16.3	16.3	16.3	16.3	16.3	8.0	8.0	3.2	3.2	3.2	3.2	-	-	-	-	-	-	-	-
Landfill Peakers	32.6	32.6	32.6	32.6	32.6	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9
AgriWind	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	-	-	-	-
Harvest Ridge Wind	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	-
Pioneer Trail Wind	1.9	1.9	1.9	1.9	1.9	1.9	1.9	-	-	-	-	-	-	-	-	-	-	-	-
Meadow Lake V Wind	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	-	-	-	-	-
Meadow Lake VI Wind	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	-	-	-	-
County Line Landfill PPA	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	-	-	-
Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie State Solar	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dressor Plains Solar	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hallador Capacity	-	150.0	150.0	250.0	250.0	250.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie Wolf Capacity	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demand Response	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
<b>Total Owned &amp; Contracted Capacity</b>	<b>1,637.0</b>	<b>1,736.3</b>	<b>1,678.0</b>	<b>1,778.3</b>	<b>1,778.5</b>	<b>1,767.7</b>	<b>1,431.0</b>	<b>1,424.3</b>	<b>1,195.0</b>	<b>1,105.9</b>	<b>972.4</b>	<b>969.2</b>	<b>969.2</b>	<b>969.2</b>	<b>964.4</b>	<b>909.2</b>	<b>903.6</b>	<b>884.4</b>	<b>884.4</b>
<b>Planned Expansion</b>																			
Expansion C&I DR	-	-	-	-	-	-	-	-	3.5	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
Expansion C&I EE	4.8	9.6	14.4	20.0	20.0	28.8	32.0	38.4	51.2	57.6	59.2	60.8	62.4	63.2	69.6	67.2	70.4	70.4	64.0
Expansion Intermittent Capacity Purchase	273.0	-	-	-	-	-	-	-	20.0	102.0	154.0	168.0	180.0	106.0	114.0	97.0	113.0	148.0	176.0
Expansion RES DR	-	-	-	-	-	-	-	-	4.3	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
Expansion RES EE	-	-	-	-	-	-	-	3.0	6.0	12.0	15.0	18.0	21.0	21.0	27.0	30.0	33.0	33.0	30.0
Expansion F-Frame Combined Cycle	-	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0
Expansion H-Frame Combined Cycle	-	-	-	-	-	-	-	-	-	-	-	-	-	90.0	90.0	180.0	180.0	180.0	180.0
Expansion Solar PPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Expansion Solar+Battery Hybrid PPA	-	-	-	-	-	-	-	-	-	-	112.1	112.1	112.1	112.1	112.1	112.1	112.1	112.1	112.1
Expansion Wind PPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Expansion Solar+Battery Hybrid	-	-	-	-	-	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2
<b>Total Planned Expansion</b>	<b>277.8</b>	<b>333.6</b>	<b>338.4</b>	<b>344.0</b>	<b>344.0</b>	<b>577.0</b>	<b>580.2</b>	<b>589.6</b>	<b>633.3</b>	<b>736.3</b>	<b>905.1</b>	<b>923.7</b>	<b>940.3</b>	<b>957.1</b>	<b>977.5</b>	<b>1,051.1</b>	<b>1,073.3</b>	<b>1,108.3</b>	<b>1,126.9</b>
<b>Total Winter SAC Capacity</b>	<b>1,914.8</b>	<b>2,069.9</b>	<b>2,016.4</b>	<b>2,122.3</b>	<b>2,122.5</b>	<b>2,344.7</b>	<b>2,011.2</b>	<b>2,013.9</b>	<b>1,828.2</b>	<b>1,842.3</b>	<b>1,877.5</b>	<b>1,892.9</b>	<b>1,909.5</b>	<b>1,926.3</b>	<b>1,941.9</b>	<b>1,960.3</b>	<b>1,976.9</b>	<b>1,992.7</b>	<b>2,011.3</b>
WVPA	1,567.9	1,595.1	1,635.7	1,648.0	1,660.2	1,482.6	1,355.4	1,364.1	1,373.5	1,383.8	1,516.5	1,528.6	1,541.4	1,554.7	1,567.1	1,582.0	1,594.3	1,607.3	1,621.5
WVPA AEP LF	131.8	132.4	132.7	133.0	133.2	133.5	133.4	133.3	133.4	133.5	-	-	-	-	-	-	-	-	-
Curtable Load	(215.0)	(223.0)	(223.0)	(223.0)	(223.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)
	1,484.7	1,504.4	1,545.3	1,557.9	1,570.3	1,561.0	1,433.7	1,442.4	1,451.8	1,462.2	1,461.4	1,473.6	1,486.4	1,499.7	1,512.1	1,526.9	1,539.3	1,552.3	1,566.4
Capacity Sales																			
Reserve/Loss Requirements	429.6	437.1	448.2	451.5	454.9	406.2	371.4	373.8	376.3	379.2	415.5	418.8	422.3	426.0	429.4	433.5	436.8	440.4	444.3
Total Power Supply Requirements	1,914.3	1,941.5	1,993.5	2,009.5	2,025.2	1,967.2	1,805.1	1,816.2	1,828.1	1,841.4	1,877.0	1,892.4	1,908.7	1,925.7	1,941.5	1,960.4	1,976.1	1,992.7	2,010.7
Total Wabash Valley Long(Short)	0.5	128.4	22.9	112.8	97.3	377.5	206.1	197.7	0.1	0.9	0.5	0.5	0.8	0.6	0.4	(0.1)	0.8	0.0	0.6
MISO Winter PRMR	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%
Plan Reserve Margin %	27.4%	35.4%	28.8%	34.2%	33.3%	52.9%	42.6%	41.9%	27.4%	27.5%	27.4%	27.4%	27.5%	27.4%	27.4%	27.4%	27.5%	27.4%	27.4%

## Wabash Valley Power Association Summer SAC Capacity Plan 2023 Integrated Resource Plan Model: Load Reduction Plan

Resource	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Gibson #5	96.3	96.3	96.3	96.3	96.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie State #1	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	-	-	-	-	-
Prairie State #2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2
Holland Combined Cycle	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3
WR Highland	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2
Vermillion CTs	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7
Lawrence CTs	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8
Duke 170/180 PPA	196.2	196.2	196.2	196.2	196.2	196.2	196.2	196.2	196.2	-	-	-	-	-	-	-	-	-	-
Duke 70 PPA	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	-	-	-	-	-	-	-	-	-	-
Duke 55 PPA	60.0	60.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEP Load Following Agreement	133.9	134.5	134.8	135.2	135.5	135.8	135.8	135.9	136.2	136.5	-	-	-	-	-	-	-	-	-
Henry County CTs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Landfill Gas	16.3	16.3	16.3	16.3	16.3	8.0	8.0	3.2	3.2	3.2	3.2	-	-	-	-	-	-	-	-
Landfill Peakers	32.6	32.6	32.6	32.6	32.6	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9
AgriWind	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	-	-	-	-
Harvest Ridge Wind	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	-	-	-
Pioneer Trail Wind	0.7	0.7	0.7	0.7	0.7	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-
Meadow Lake V Wind	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	-	-	-	-	-
Meadow Lake VI Wind	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	-	-	-	-
County Line Landfill PPA	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	-	-	-
Solar	3.7	3.5	3.5	3.2	3.0	2.8	2.6	2.4	2.3	2.2	2.1	2.0	1.9	1.9	1.9	1.9	1.8	1.8	1.8
Prairie State Solar	61.8	58.1	57.9	53.8	50.1	46.3	42.7	40.0	38.3	36.8	35.3	34.0	32.1	31.7	31.3	31.3	30.7	30.0	29.4
Dressor Plains Solar	61.8	58.1	57.9	53.8	50.1	46.3	42.7	40.0	38.3	36.8	35.3	34.0	32.1	31.7	31.3	31.3	30.7	30.0	29.4
Hallador Capacity	150.0	150.0	250.0	250.0	250.0	250.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie Wolf Capacity	62.4	58.7	58.5	54.4	50.6	46.7	43.2	40.4	38.6	37.1	-	-	-	-	-	-	-	-	-
Demand Response	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7
<b>Total Owned &amp; Contracted Capacity</b>	<b>1,853.1</b>	<b>1,842.4</b>	<b>1,882.1</b>	<b>1,870.0</b>	<b>1,858.8</b>	<b>1,740.1</b>	<b>1,478.6</b>	<b>1,465.4</b>	<b>1,264.2</b>	<b>1,183.6</b>	<b>1,007.1</b>	<b>1,001.0</b>	<b>997.3</b>	<b>996.3</b>	<b>955.6</b>	<b>949.7</b>	<b>936.1</b>	<b>934.6</b>	<b>933.3</b>
<b>Planned Expansion</b>																			
Expansion C&I DR	-	-	-	-	-	-	-	-	4.3	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7
Expansion C&I EE	6.0	12.0	18.0	25.0	25.0	36.0	40.0	48.0	64.0	72.0	74.0	76.0	78.0	79.0	87.0	84.0	88.0	88.0	80.0
Expansion Intermittent Capacity Purchase	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Expansion RES DR	-	-	-	-	-	-	-	-	5.4	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8
Expansion RES EE	-	-	-	-	-	-	-	2.9	5.8	11.6	14.6	17.5	20.4	20.4	26.2	29.1	32.0	32.0	29.1
Expansion F-Frame Combined Cycle	-	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0
Expansion H-Frame Combined Cycle	-	-	-	-	-	-	-	-	-	-	-	-	-	95.0	95.0	190.0	190.0	190.0	190.0
Expansion Solar PPA	-	-	-	-	-	-	-	-	-	-	-	103.0	97.4	96.0	237.5	237.0	232.9	227.5	222.7
Expansion Solar+Battery Hybrid PPA	-	-	-	-	-	-	-	-	-	-	131.6	130.2	128.4	127.9	127.6	127.5	127.0	126.3	125.6
Expansion Wind PPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Expansion Solar+Battery Hybrid	-	-	-	-	-	285.3	278.2	272.6	269.1	266.1	263.2	260.5	256.8	255.8	255.2	255.0	253.9	252.5	251.2
<b>Total Planned Expansion</b>	<b>6.0</b>	<b>354.0</b>	<b>360.0</b>	<b>367.0</b>	<b>367.0</b>	<b>663.3</b>	<b>660.2</b>	<b>665.5</b>	<b>690.7</b>	<b>712.2</b>	<b>845.9</b>	<b>949.6</b>	<b>943.5</b>	<b>1,036.6</b>	<b>1,190.9</b>	<b>1,285.2</b>	<b>1,286.3</b>	<b>1,278.8</b>	<b>1,261.1</b>
<b>Total Summer SAC Capacity</b>	<b>1,859.1</b>	<b>2,196.4</b>	<b>2,242.1</b>	<b>2,237.0</b>	<b>2,225.8</b>	<b>2,403.3</b>	<b>2,138.7</b>	<b>2,131.0</b>	<b>1,954.8</b>	<b>1,895.8</b>	<b>1,852.9</b>	<b>1,950.7</b>	<b>1,940.7</b>	<b>2,032.9</b>	<b>2,146.5</b>	<b>2,234.9</b>	<b>2,222.4</b>	<b>2,213.4</b>	<b>2,194.4</b>
WVPA	1,712.0	1,750.4	1,770.5	1,786.4	1,614.4	1,629.9	1,642.8	1,656.5	1,671.5	1,687.8	1,842.3	1,861.5	1,881.5	1,902.8	1,924.4	1,946.0	1,966.5	1,987.8	2,010.7
WVPA AEP LF	133.9	134.5	134.8	135.2	135.5	135.8	135.8	135.9	136.2	136.5	-	-	-	-	-	-	-	-	-
Curtable Load	(228.6)	(228.6)	(228.6)	(228.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)
	1,617.3	1,656.3	1,676.7	1,693.0	1,689.3	1,705.1	1,718.1	1,731.9	1,747.1	1,763.8	1,781.7	1,800.9	1,820.9	1,842.2	1,863.8	1,885.5	1,905.9	1,927.2	1,950.1
Capacity Sales																			
Reserve/Loss Requirements	154.1	157.5	159.3	160.8	145.3	146.7	147.9	149.1	150.4	151.9	165.8	167.5	169.3	171.2	173.2	175.1	177.0	178.9	181.0
<b>Total Power Supply Requirements</b>	<b>1,771.4</b>	<b>1,813.8</b>	<b>1,836.1</b>	<b>1,853.8</b>	<b>1,834.6</b>	<b>1,851.8</b>	<b>1,865.9</b>	<b>1,881.0</b>	<b>1,897.5</b>	<b>1,915.7</b>	<b>1,947.5</b>	<b>1,968.4</b>	<b>1,990.2</b>	<b>2,013.4</b>	<b>2,037.0</b>	<b>2,060.6</b>	<b>2,082.9</b>	<b>2,106.1</b>	<b>2,131.0</b>
<b>Total Wabash Valley Long(Short)</b>	<b>87.7</b>	<b>382.6</b>	<b>406.1</b>	<b>383.3</b>	<b>391.2</b>	<b>552.6</b>	<b>280.7</b>	<b>251.9</b>	<b>192.7</b>	<b>114.1</b>	<b>96.3</b>	<b>138.8</b>	<b>108.9</b>	<b>83.3</b>	<b>411.2</b>	<b>380.0</b>	<b>336.0</b>	<b>343.7</b>	<b>299.8</b>
MISO Summer PRMR	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
Plan Reserve Margin %	14.1%	30.9%	31.9%	30.5%	33.2%	42.9%	26.1%	24.2%	20.5%	15.8%	14.2%	16.5%	14.8%	13.4%	30.4%	28.5%	26.1%	26.3%	23.9%

**Wabash Valley Power Association  
Installed Capacity Plan  
2023 Integrated Resource Plan  
Model: Load Reduction Plan**

Resource	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Gibson #5	156.0	156.0	156.0	156.0	156.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie State #1	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	-	-	-	-	-
Prairie State #2	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0
Holland Combined Cycle	280.0	280.0	280.0	280.0	307.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0
WR Highland	154.3	154.3	154.3	154.3	181.1	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3
Vermillion CTs	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0
Lawrence CTs	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0
Duke 170/180 PPA	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	-	-	-	-	-	-	-	-	-	-	-
Duke 70 PPA	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	-	-	-	-	-	-	-	-	-	-
Duke 55 PPA	55.0	55.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEP Load Following Agreement	131.8	132.4	132.7	133.0	133.2	133.5	133.4	133.3	133.4	133.5	-	-	-	-	-	-	-	-	-
Henry County CTs	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Landfill Gas	12.2	12.2	12.2	12.2	12.2	5.4	5.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Landfill Peakers	34.8	34.8	34.8	34.8	34.8	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
AgriWind	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	-	-	-	-
Harvest Ridge Wind	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	-	-
Pioneer Trail Wind	10.0	10.0	10.0	10.0	10.0	10.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Meadow Lake V Wind	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	-	-	-	-	-
Meadow Lake VI Wind	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	-	-	-	-
County Line Landfill PPA	5.6	5.6	5.6	5.6	5.6	5.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	-	-	-
Solar	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Prairie State Solar	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
Dressor Plains Solar	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
Hallador Capacity	150.0	150.0	250.0	250.0	250.0	250.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie Wolf Capacity	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	-	-	-	-	-	-	-	-
Demand Response	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
<b>Total Owned &amp; Contracted Capacity</b>	<b>2,315.3</b>	<b>2,265.9</b>	<b>2,311.2</b>	<b>2,311.5</b>	<b>2,365.5</b>	<b>2,146.4</b>	<b>1,888.3</b>	<b>1,885.2</b>	<b>1,705.3</b>	<b>1,635.4</b>	<b>1,401.9</b>	<b>1,399.5</b>	<b>1,399.5</b>	<b>1,399.5</b>	<b>1,332.5</b>	<b>1,248.7</b>	<b>1,141.1</b>	<b>1,141.1</b>	<b>1,141.1</b>
<b>Planned Expansion</b>																			
Expansion C&I DR	-	-	-	-	-	-	-	-	4.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Expansion C&I EE	6.0	12.0	18.0	25.0	25.0	36.0	40.0	48.0	64.0	72.0	74.0	76.0	78.0	79.0	87.0	84.0	88.0	88.0	80.0
Expansion RES DR	-	-	-	-	-	-	-	-	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Expansion RES EE	-	-	-	-	-	-	-	3.0	6.0	12.0	15.0	18.0	21.0	21.0	27.0	30.0	33.0	33.0	30.0
Expansion F-Frame Combined Cycle	-	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0
Expansion H-Frame Combined Cycle	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	100.0	200.0	200.0	200.0	200.0
Expansion Solar PPA	-	-	-	-	-	-	-	-	-	-	-	300.0	300.0	300.0	750.0	750.0	750.0	750.0	750.0
Expansion Solar+Battery Hybrid PPA	-	-	-	-	-	-	-	-	-	-	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Expansion Wind PPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Expansion Solar+Battery Hybrid	-	-	-	-	-	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
<b>Total Planned Expansion</b>	<b>6.0</b>	<b>372.0</b>	<b>378.0</b>	<b>385.0</b>	<b>385.0</b>	<b>596.0</b>	<b>600.0</b>	<b>611.0</b>	<b>639.0</b>	<b>663.0</b>	<b>768.0</b>	<b>1,073.0</b>	<b>1,078.0</b>	<b>1,179.0</b>	<b>1,643.0</b>	<b>1,743.0</b>	<b>1,750.0</b>	<b>1,750.0</b>	<b>1,739.0</b>
<b>Total Installed Capacity</b>	<b>2,321.3</b>	<b>2,637.9</b>	<b>2,689.2</b>	<b>2,696.5</b>	<b>2,750.5</b>	<b>2,742.4</b>	<b>2,488.3</b>	<b>2,496.2</b>	<b>2,344.3</b>	<b>2,298.4</b>	<b>2,169.9</b>	<b>2,472.5</b>	<b>2,477.5</b>	<b>2,578.5</b>	<b>2,975.5</b>	<b>2,991.7</b>	<b>2,891.1</b>	<b>2,891.1</b>	<b>2,880.1</b>

### Wabash Valley Power Association Winter SAC Capacity Plan 2023 Integrated Resource Plan Model: Bold Economic Growth Plan

Resource	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Gibson #5	86.6	86.6	86.6	86.6	86.6	86.6	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie State #1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	-	-	-	-
Prairie State #2	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0
Holland Combined Cycle	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0	312.0
WR Highland	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2	142.2
Vermillion CTs	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2	249.2
Lawrence CTs	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6
Duke 170/180 PPA	229.3	229.3	229.3	229.3	229.3	229.3	229.3	229.3	-	-	-	-	-	-	-	-	-	-	-
Duke 70 PPA	89.2	89.2	89.2	89.2	89.2	89.2	89.2	89.2	89.2	-	-	-	-	-	-	-	-	-	-
Duke 55 PPA	58.6	58.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEP Load Following Agreement	131.8	132.4	132.7	133.0	133.2	133.5	133.4	133.3	133.4	133.5	-	-	-	-	-	-	-	-	-
Henry County CTs	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Landfill Gas	16.3	16.3	16.3	16.3	16.3	8.0	8.0	3.2	3.2	3.2	3.2	-	-	-	-	-	-	-	-
Landfill Peakers	32.6	32.6	32.6	32.6	32.6	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9
AgriWind	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	-	-	-	-
Harvest Ridge Wind	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	-
Pioneer Trail Wind	1.9	1.9	1.9	1.9	1.9	1.9	1.9	-	-	-	-	-	-	-	-	-	-	-	-
Meadow Lake V Wind	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	-	-	-	-	-
Meadow Lake VI Wind	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	-	-	-	-
County Line Landfill PPA	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	-	-	-
Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie State Solar	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dressor Plains Solar	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hallador Capacity	-	150.0	150.0	250.0	250.0	250.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie Wolf Capacity	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demand Response	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
<b>Total Owned &amp; Contracted Capacity</b>	<b>1,637.0</b>	<b>1,736.3</b>	<b>1,678.0</b>	<b>1,778.3</b>	<b>1,778.5</b>	<b>1,767.7</b>	<b>1,431.0</b>	<b>1,424.3</b>	<b>1,195.0</b>	<b>1,105.9</b>	<b>972.4</b>	<b>969.2</b>	<b>969.2</b>	<b>969.2</b>	<b>964.4</b>	<b>909.2</b>	<b>903.6</b>	<b>884.4</b>	<b>884.4</b>
<b>Planned Expansion</b>																			
Expansion C&I DR	-	-	-	-	-	-	-	-	2.6	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Expansion C&I EE	4.8	9.6	14.4	20.0	20.0	29.6	36.8	38.4	51.2	57.6	59.2	60.8	62.4	63.2	69.6	66.4	65.6	70.4	64.0
Expansion Intermittent Capacity Purchase	273.0	-	-	-	-	-	58.0	72.0	-	-	181.0	197.0	210.0	228.0	237.0	89.0	114.0	144.0	173.0
Expansion RES DR	-	-	-	-	-	-	-	-	4.3	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
Expansion RES EE	-	-	-	-	-	-	2.0	5.0	8.0	14.0	17.0	20.0	23.0	23.0	29.0	32.0	30.0	33.0	30.0
Expansion F-Frame Combined Cycle	-	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0
Expansion H-Frame Combined Cycle	-	-	-	540.0	540.0	540.0	540.0	540.0	1,440.0	1,440.0	1,440.0	1,440.0	1,440.0	1,440.0	1,440.0	1,665.0	1,665.0	1,665.0	1,665.0
Expansion Solar PPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Expansion Solar+Battery Hybrid PPA	-	-	-	-	-	-	-	-	112.1	112.1	112.1	112.1	112.1	112.1	112.1	112.1	112.1	112.1	112.1
Expansion Wind PPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Expansion Solar+Battery Hybrid	-	-	-	-	-	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2	224.2
<b>Total Planned Expansion</b>	<b>277.8</b>	<b>333.6</b>	<b>338.4</b>	<b>884.0</b>	<b>884.0</b>	<b>1,117.8</b>	<b>1,185.0</b>	<b>1,203.6</b>	<b>2,166.5</b>	<b>2,187.6</b>	<b>2,373.2</b>	<b>2,393.8</b>	<b>2,411.4</b>	<b>2,430.2</b>	<b>2,451.6</b>	<b>2,528.4</b>	<b>2,550.6</b>	<b>2,588.4</b>	<b>2,608.0</b>
<b>Total Winter SAC Capacity</b>	<b>1,914.8</b>	<b>2,069.9</b>	<b>2,016.4</b>	<b>2,662.3</b>	<b>2,662.5</b>	<b>2,885.5</b>	<b>2,616.0</b>	<b>2,627.9</b>	<b>3,361.5</b>	<b>3,293.5</b>	<b>3,345.6</b>	<b>3,363.0</b>	<b>3,380.6</b>	<b>3,399.4</b>	<b>3,416.0</b>	<b>3,437.6</b>	<b>3,454.2</b>	<b>3,472.8</b>	<b>3,492.4</b>
WVPA	1,567.9	1,595.1	1,635.7	1,648.0	2,160.2	1,982.6	1,991.6	2,001.2	2,511.5	2,522.8	2,668.9	2,682.2	2,696.3	2,710.9	2,724.6	2,740.9	2,754.5	2,768.8	2,784.4
WVPA AEP LF	131.8	132.4	132.7	133.0	133.2	133.5	133.4	133.3	133.4	133.5	-	-	-	-	-	-	-	-	-
Curtable Load	(215.0)	(223.0)	(223.0)	(223.0)	(223.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)	(55.0)
<b>1,484.7</b>	<b>1,504.4</b>	<b>1,545.3</b>	<b>1,557.9</b>	<b>2,070.3</b>	<b>2,061.0</b>	<b>2,069.9</b>	<b>2,079.4</b>	<b>2,589.8</b>	<b>2,601.3</b>	<b>2,613.8</b>	<b>2,627.2</b>	<b>2,641.3</b>	<b>2,655.9</b>	<b>2,669.5</b>	<b>2,685.9</b>	<b>2,699.5</b>	<b>2,713.8</b>	<b>2,729.3</b>	
Capacity Sales	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserve/Loss Requirements	429.6	437.1	448.2	451.5	591.9	543.2	545.7	548.3	688.2	691.3	731.3	734.9	738.8	742.8	746.5	751.0	754.7	758.7	762.9
<b>Total Power Supply Requirements</b>	<b>1,914.3</b>	<b>1,941.5</b>	<b>1,993.5</b>	<b>2,009.5</b>	<b>2,662.2</b>	<b>2,604.2</b>	<b>2,615.6</b>	<b>2,627.8</b>	<b>3,278.0</b>	<b>3,292.5</b>	<b>3,345.1</b>	<b>3,362.1</b>	<b>3,380.0</b>	<b>3,398.7</b>	<b>3,416.1</b>	<b>3,436.9</b>	<b>3,454.2</b>	<b>3,472.5</b>	<b>3,492.3</b>
<b>Total Wabash Valley Long(Short)</b>	<b>0.5</b>	<b>128.4</b>	<b>22.9</b>	<b>652.8</b>	<b>0.3</b>	<b>281.3</b>	<b>0.4</b>	<b>0.1</b>	<b>83.5</b>	<b>1.0</b>	<b>0.5</b>	<b>0.9</b>	<b>0.6</b>	<b>0.7</b>	<b>(0.0)</b>	<b>0.8</b>	<b>0.0</b>	<b>0.4</b>	<b>0.2</b>
MISO Winter PRMR	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%
Plan Reserve Margin %	27.4%	35.4%	28.8%	67.0%	27.4%	41.6%	27.4%	27.4%	30.7%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%	27.4%

### Wabash Valley Power Association Summer SAC Capacity Plan 2023 Integrated Resource Plan Model: Bold Economic Growth Plan

Resource	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Gibson #5	96.3	96.3	96.3	96.3	96.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie State #1	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	-	-	-	-	-
Prairie State #2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2	38.2
Holland Combined Cycle	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3	287.3
WR Highland	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2
Vermillion CTs	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7	215.7
Lawrence CTs	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8
Duke 170/180 PPA	196.2	196.2	196.2	196.2	196.2	196.2	196.2	196.2	-	-	-	-	-	-	-	-	-	-	-
Duke 70 PPA	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	-	-	-	-	-	-	-	-	-	-
Duke 55 PPA	60.0	60.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEP Load Following Agreement	133.9	134.5	134.8	135.2	135.5	135.8	135.8	135.9	136.2	136.5	-	-	-	-	-	-	-	-	-
Henry County CTs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Landfill Gas	16.3	16.3	16.3	16.3	16.3	8.0	8.0	3.2	3.2	3.2	3.2	-	-	-	-	-	-	-	-
Landfill Peakers	32.6	32.6	32.6	32.6	32.6	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9
AgriWind	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	-	-	-	-
Harvest Ridge Wind	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	-	-	-
Pioneer Trail Wind	0.7	0.7	0.7	0.7	0.7	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-
Meadow Lake V Wind	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	-	-	-	-	-
Meadow Lake VI Wind	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	-	-	-	-
County Line Landfill PPA	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	-	-	-
Solar	3.7	3.5	3.5	3.2	3.0	2.8	2.6	2.4	2.3	2.2	2.1	2.0	1.9	1.9	1.9	1.9	1.8	1.8	1.8
Prairie State Solar	61.8	58.1	57.9	53.8	50.1	46.3	42.7	40.0	38.3	36.8	35.3	34.0	32.1	31.7	31.3	31.3	30.7	30.0	29.4
Dressor Plains Solar	61.8	58.1	57.9	53.8	50.1	46.3	42.7	40.0	38.3	36.8	35.3	34.0	32.1	31.7	31.3	31.3	30.7	30.0	29.4
Hallador Capacity	150.0	150.0	250.0	250.0	250.0	250.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie Wolf Capacity	62.4	58.7	58.5	54.4	50.6	46.7	43.2	40.4	38.6	37.1	-	-	-	-	-	-	-	-	-
Demand Response	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7
<b>Total Owned &amp; Contracted Capacity</b>	<b>1,853.1</b>	<b>1,842.4</b>	<b>1,882.1</b>	<b>1,870.0</b>	<b>1,858.8</b>	<b>1,740.1</b>	<b>1,478.6</b>	<b>1,465.4</b>	<b>1,264.2</b>	<b>1,183.6</b>	<b>1,007.1</b>	<b>1,001.0</b>	<b>997.3</b>	<b>996.3</b>	<b>955.6</b>	<b>949.7</b>	<b>936.1</b>	<b>934.6</b>	<b>933.3</b>
<b>Planned Expansion</b>																			
Expansion C&I DR	-	-	-	-	-	-	-	-	3.2	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
Expansion C&I EE	6.0	12.0	18.0	25.0	25.0	37.0	46.0	48.0	64.0	72.0	74.0	76.0	78.0	79.0	87.0	83.0	82.0	88.0	80.0
Expansion Intermittent Capacity Purchase	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Expansion RES DR	-	-	-	-	-	-	-	-	5.4	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8
Expansion RES EE	-	-	-	-	-	-	1.9	4.9	7.8	13.6	16.5	19.4	22.3	22.3	28.1	31.0	29.1	32.0	29.1
Expansion F-Frame Combined Cycle	-	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0	342.0
Expansion H-Frame Combined Cycle	-	-	-	570.0	570.0	570.0	570.0	570.0	1,520.0	1,520.0	1,520.0	1,520.0	1,520.0	1,520.0	1,520.0	1,757.5	1,757.5	1,757.5	1,757.5
Expansion Solar PPA	-	-	-	-	-	-	-	-	-	-	-	68.6	64.9	64.0	205.8	205.4	201.9	227.5	222.7
Expansion Solar+Battery Hybrid PPA	-	-	-	-	-	-	-	-	134.6	133.1	131.6	130.2	128.4	127.9	127.6	127.5	127.0	126.3	125.6
Expansion Wind PPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Expansion Solar+Battery Hybrid	-	-	-	-	-	285.3	278.2	272.6	269.1	266.1	263.2	260.5	256.8	255.8	255.2	255.0	253.9	252.5	251.2
<b>Total Planned Expansion</b>	<b>6.0</b>	<b>354.0</b>	<b>360.0</b>	<b>937.0</b>	<b>937.0</b>	<b>1,234.3</b>	<b>1,238.1</b>	<b>1,237.5</b>	<b>2,346.1</b>	<b>2,366.2</b>	<b>2,366.8</b>	<b>2,436.2</b>	<b>2,431.8</b>	<b>2,430.4</b>	<b>2,585.1</b>	<b>2,821.0</b>	<b>2,812.8</b>	<b>2,845.2</b>	<b>2,827.6</b>
<b>Total Summer SAC Capacity</b>	<b>1,859.1</b>	<b>2,196.4</b>	<b>2,242.1</b>	<b>2,807.0</b>	<b>2,795.8</b>	<b>2,974.3</b>	<b>2,716.7</b>	<b>2,702.9</b>	<b>3,610.2</b>	<b>3,549.8</b>	<b>3,373.8</b>	<b>3,437.2</b>	<b>3,429.1</b>	<b>3,426.7</b>	<b>3,540.7</b>	<b>3,770.6</b>	<b>3,748.9</b>	<b>3,779.8</b>	<b>3,760.8</b>
WVPA	1,712.0	1,750.4	1,770.5	1,786.4	2,114.4	2,129.9	2,142.8	2,156.5	2,671.5	2,687.8	2,842.3	2,861.5	2,881.5	2,902.8	2,924.4	2,946.0	2,966.5	2,987.8	3,010.7
WVPA AEP LF	133.9	134.5	134.8	135.2	135.5	135.8	135.8	135.9	136.2	136.5	-	-	-	-	-	-	-	-	-
Curtable Load	(228.6)	(228.6)	(228.6)	(228.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)	(60.6)
	1,617.3	1,656.3	1,676.7	1,693.0	2,189.3	2,205.1	2,218.1	2,231.9	2,747.1	2,763.8	2,781.7	2,800.9	2,820.9	2,842.2	2,863.8	2,885.5	2,905.9	2,927.2	2,950.1
Capacity Sales																			
Reserve/Loss Requirements	154.1	157.5	159.3	160.8	190.3	191.7	192.9	194.1	240.4	241.9	255.8	257.5	259.3	261.2	263.2	265.1	267.0	268.9	271.0
Total Power Supply Requirements	1,771.4	1,813.8	1,836.1	1,853.8	2,379.6	2,396.8	2,410.9	2,426.0	2,987.5	3,005.7	3,037.5	3,058.4	3,080.2	3,103.4	3,127.0	3,150.6	3,172.9	3,196.1	3,221.0
Total Wabash Valley Long(Short)	87.7	382.6	406.1	953.3	416.2	577.6	305.7	276.9	622.7	544.1	336.3	378.8	348.9	323.3	413.7	620.0	576.0	583.7	539.8
MISO Summer PRMR	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
Plan Reserve Margin %	14.1%	30.9%	31.9%	62.4%	28.7%	36.1%	23.3%	21.8%	32.3%	29.2%	20.8%	22.2%	21.1%	20.1%	23.1%	30.0%	28.4%	28.5%	26.9%

**Wabash Valley Power Association  
Installed Capacity Plan  
2023 Integrated Resource Plan  
Model: Bold Economic Growth Plan**

Resource	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Gibson #5	156.0	156.0	156.0	156.0	156.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie State #1	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	-	-	-	-	-
Prairie State #2	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0
Holland Combined Cycle	280.0	280.0	280.0	280.0	307.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0	280.0
WR Highland	154.3	154.3	154.3	154.3	181.1	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3	154.3
Vermillion CTs	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0	267.0
Lawrence CTs	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0
Duke 170/180 PPA	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	-	-	-	-	-	-	-	-	-	-	-
Duke 70 PPA	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	-	-	-	-	-	-	-	-	-	-
Duke 55 PPA	55.0	55.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AEP Load Following Agreement	131.8	132.4	132.7	133.0	133.2	133.5	133.4	133.3	133.4	133.5	-	-	-	-	-	-	-	-	-
Henry County CTs	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Landfill Gas	12.2	12.2	12.2	12.2	12.2	5.4	5.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Landfill Peakers	34.8	34.8	34.8	34.8	34.8	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
AgriWind	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	-	-	-	-
Harvest Ridge Wind	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	-	-
Pioneer Trail Wind	10.0	10.0	10.0	10.0	10.0	10.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Meadow Lake V Wind	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	-	-	-	-	-
Meadow Lake VI Wind	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	-	-	-	-
County Line Landfill PPA	5.6	5.6	5.6	5.6	5.6	5.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	-	-	-
Solar	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Prairie State Solar	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
Dressor Plains Solar	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
Hallador Capacity	150.0	150.0	250.0	250.0	250.0	250.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Prairie Wolf Capacity	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	-	-	-	-	-	-	-	-
Demand Response	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
<b>Total Owned &amp; Contracted Capacity</b>	<b>2,315.3</b>	<b>2,265.9</b>	<b>2,311.2</b>	<b>2,311.5</b>	<b>2,365.5</b>	<b>2,146.4</b>	<b>1,888.3</b>	<b>1,885.2</b>	<b>1,705.3</b>	<b>1,635.4</b>	<b>1,401.9</b>	<b>1,399.5</b>	<b>1,399.5</b>	<b>1,399.5</b>	<b>1,332.5</b>	<b>1,248.7</b>	<b>1,141.1</b>	<b>1,141.1</b>	<b>1,141.1</b>
<b>Planned Expansion</b>																			
Expansion C&I DR	-	-	-	-	-	-	-	-	3.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Expansion C&I EE	6.0	12.0	18.0	25.0	25.0	37.0	46.0	48.0	64.0	72.0	74.0	76.0	78.0	79.0	87.0	83.0	82.0	88.0	80.0
Expansion RES DR	-	-	-	-	-	-	-	-	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Expansion RES EE	-	-	-	-	-	-	2.0	5.0	8.0	14.0	17.0	20.0	23.0	23.0	29.0	32.0	30.0	33.0	30.0
Expansion F-Frame Combined Cycle	-	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0	360.0
Expansion H-Frame Combined Cycle	-	-	-	600.0	600.0	600.0	600.0	600.0	1,600.0	1,600.0	1,600.0	1,600.0	1,600.0	1,600.0	1,600.0	1,850.0	1,850.0	1,850.0	1,850.0
Expansion Solar PPA	-	-	-	-	-	-	-	-	-	-	-	200.0	200.0	200.0	650.0	650.0	650.0	750.0	750.0
Expansion Solar+Battery Hybrid PPA	-	-	-	-	-	-	-	-	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Expansion Wind PPA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Expansion Solar+Battery Hybrid	-	-	-	-	-	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
<b>Total Planned Expansion</b>	<b>6.0</b>	<b>372.0</b>	<b>378.0</b>	<b>985.0</b>	<b>985.0</b>	<b>1,197.0</b>	<b>1,208.0</b>	<b>1,213.0</b>	<b>2,340.0</b>	<b>2,364.0</b>	<b>2,369.0</b>	<b>2,574.0</b>	<b>2,579.0</b>	<b>2,580.0</b>	<b>3,044.0</b>	<b>3,293.0</b>	<b>3,290.0</b>	<b>3,399.0</b>	<b>3,388.0</b>
<b>Total Installed Capacity</b>	<b>2,321.3</b>	<b>2,637.9</b>	<b>2,689.2</b>	<b>3,296.5</b>	<b>3,350.5</b>	<b>3,343.4</b>	<b>3,096.3</b>	<b>3,098.2</b>	<b>4,045.3</b>	<b>3,999.4</b>	<b>3,770.9</b>	<b>3,973.5</b>	<b>3,978.5</b>	<b>3,979.5</b>	<b>4,376.5</b>	<b>4,541.7</b>	<b>4,431.1</b>	<b>4,540.1</b>	<b>4,529.1</b>

## Appendix B

### Production Statistics

- Current Environment Plan

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**REDACTED**

## Appendix C

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<b>Market Price Assumptions</b>	
• Energy and Natural Gas	1
• Coal, Capacity, and Heat Rates	2

**REDACTED**



## Appendix D

	<b>Page No.</b>
<b>Wabash Valley Avoided Cost Calculation</b>	
• Discussion of Avoided Cost Calculation Methodology	<b>1</b>
• Peak Energy Cost Forecast	<b>2</b>
• Off-Peak Energy Cost Forecast	<b>3</b>
• Around the Clock Energy Cost Forecast	<b>4</b>
• Rate for Capacity Purchase	<b>5</b>

## **Avoided Cost Calculation Methodology**

### **Introduction**

Wabash Valley's avoided cost forecast consists of avoided energy and capacity components, as shown on Table 4-9. Prices for these components are developed by evaluating the marginal cost of serving an incremental load.

### **Avoided Energy Cost**

The avoided energy cost is calculated by adding a 10 MW incremental load to peak hours, off-peak hours, and all hours of the forecast year. Wabash Valley then dispatches this load (base load forecast plus the increment) against its portfolio of supply resources. Wabash Valley uses the PLEXOS® planning model to assess the production cost of two cases. The first case provides an estimated annual total production cost with the incremented load. The second case provides the estimated total annual production cost with a base forecast load. In each case, the PLEXOS® model dispatches resources, including wholesale market purchases, to serve every hour of load.

As shown on the following Tables 4-9 a-c, Wabash Valley calculates the annual marginal cost of serving the incremental peak, off-peak, and around the clock load. Since this modeling is done without adding new capacity resources to the model, the marginal cost reflects only the expected increase in energy cost to serve additional load.

### **Avoided Capacity Cost**

The avoided capacity cost is based on the best information Wabash Valley has regarding the incremental cost of peaking power resources. In this forecast, Wabash Valley used cost projections for construction of new peaking capacity. Wabash Valley notes that these cost projections are consistent with the National Renewable Energy Lab's (NREL) Annual Technology Baseline (ATB)<sup>1</sup>. Table 4-9d then provides a detailed example of the estimated monthly capacity cost using Wabash Valley's cost for capital, the unit service life and depreciation rate. Note that this calculation includes an adjustment for estimated 4.2% losses on peaking capacity.

The approach described above is then applied to an identical capacity purchase for each of the IRP forecast years, as shown on Table 4-9e. Wabash Valley assumes that the purchase cost of a typical peaking power unit increases with inflation, estimated at 2.5% annually for this forecast. This forecasted annual capacity cost includes estimates for fixed operating and maintenance costs. This includes all operations, maintenance, administrative, property tax, and insurance costs, which also escalate at the expected rate of inflation.

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<sup>1</sup> <https://atb.nrel.gov/electricity/2023/technologies>

**Table 4-4a Wabash Valley Avoided Cost  
Peak Energy Cost Forecast**

Year	Incremental Cost (\$000)	Incremental Energy (MWh)	Incremental Cost (\$/MWh)
2023	1,315	40,640	32.36
2024	1,692	40,960	41.30
2025	1,971	40,800	48.31
2026	1,996	40,960	48.73
2027	1,971	40,960	48.13
2028	1,791	40,800	43.90
2029	1,810	40,800	44.37
2030	1,796	40,800	44.02
2031	1,719	40,800	42.14
2032	1,702	41,120	41.38
2033	1,736	40,800	42.56
2034	1,736	40,640	42.71
2035	1,771	40,800	43.42
2036	1,829	40,960	44.66
2037	1,867	40,960	45.59
2038	1,906	40,960	46.53
2039	1,893	40,800	46.41
2040	1,917	40,800	46.99
2041	1,919	40,800	47.93
2042	1,935	40,800	48.89

Note: Base Scenario does not include any planned future generation

**Table 4-4b Wabash Valley Avoided Cost  
Off-Peak Energy Cost Forecast**

Year	Incremental Cost (\$000)	Incremental Energy (MWh)	Incremental Cost (\$/MWh)
2023	1,450	46,960	30.88
2024	1,810	46,880	38.62
2025	2,083	46,800	44.51
2026	2,107	46,640	45.17
2027	2,088	46,640	44.78
2028	1,928	47,040	40.99
2029	1,935	46,800	41.34
2030	1,932	46,800	41.28
2031	1,855	46,800	39.63
2032	1,841	46,720	39.40
2033	1,901	46,800	40.62
2034	1,924	46,960	40.98
2035	1,951	46,800	41.69
2036	1,988	46,880	42.41
2037	2,028	46,640	43.48
2038	2,082	46,640	44.64
2039	2,093	46,800	44.73
2040	2,138	47,040	45.44
2041	2,132	46,800	46.35
2042	2,135	46,800	47.28

Note: Base Scenario does not include any planned future generation

**Table 4-4c Wabash Valley Avoided Cost  
Around The Clock Energy Cost Forecast**

Year	Incremental Cost (\$000)	Incremental Energy (MWh)	Incremental Cost (\$/MWh)
2023	2,775	87,600	31.68
2024	3,492	87,840	39.75
2025	4,056	87,600	46.30
2026	4,103	87,600	46.84
2027	4,060	87,600	46.34
2028	3,722	87,840	42.37
2029	3,745	87,600	42.75
2030	3,729	87,600	42.56
2031	3,574	87,600	40.80
2032	3,543	87,840	40.33
2033	3,637	87,600	41.52
2034	3,660	87,600	41.78
2035	3,723	87,600	42.49
2036	3,817	87,840	43.46
2037	3,895	87,600	44.47
2038	3,988	87,600	45.52
2039	3,987	87,600	45.51
2040	4,055	87,840	46.16
2041	4,051	87,600	47.08
2042	4,071	87,600	48.03

Note: Base Scenario does not include any planned future generation

**Table 4-4d Wabash Valley Avoided Cost  
Rate For Capacity Purchase**

### Annual cost for investment

			Description
Plant Investment	V	\$ 1.045	\$/kW overnight capital cost of NG Combustion Turbine (F-Frame) (in 2023 \$)
Annual Capital Payment Factor	F	0.04505	See Supplemental Calculation
Plant Cost Inflation	ip	2.50%	Capital Cost Escalation. (WVPA Assumption)
PV of Carrying Charges	D	1.04804	See Supplemental Calculation
Contract Term	t	1	
Present Worth of Annual Capital Investment \$/kW	I	\$49.339	$D*V*F*(1+ip)^{(t-1)}$

### Annual O&M cost

O&M Cost Inflation	io	2.50%	O&M Cost Escalation. (WVPA Assumption)
O&M	O	\$ 25.00	Annual Fixed O&M \$/kW-Year (NREL Est; incl Tax & Insurance)
Contract Term	t	1	
Present Worth of Annual O&M \$/kW		\$25.625	$O*(1+io)*(1+io)^{(t-1)}$

### Total Annual Cost \$/kW

I+O&M \$74.964

Monthly Rate M \$6.247  $(I+O&M)/12$

Adjusted for losses I 4.20% Wabash Valley 2023 PRS

Rate for Capacity Purchase \$/kW-mo \$6.381  $M/(1-1/2)$

### Supplemental Calculations

		Description
Annual Capital Payment Factor	F	0.04505 $Fa/Fb$
Where:		
	Fa	0.0217 $((1-((1+ip)/(1+r))))$
	Fb	0.4817 $((1-((1+ip)/(1+r))^n))$
Cost of Capital	r	4.77% Based on CBO ten-year treasury note + 1.05% credit spread
Service Life	n	30
Plant Cost Inflation	ip	2.50% O&M Cost Escalation. (WVPA Assumption)

### Carrying Charge Rate

Cost of Capital	r	4.77%	Based on CBO ten-year treasury note + 1.05% credit spread
Property Tax Rate	A	0.00%	Included in Fixed Cost
Property Insurance Rate	P	0.00%	Included in Fixed Cost
Interest Rate of Deposit	Int.	3.72%	Based on CBO ten-year treasury bill
Sinking Fund Depreciation Rate	d	1.87%	$+int/(((1+int)^n)-1)$
Service Life	n	30	
Federal and State Income Tax	T	0.00%	
Depreciation Rate	Dep	NA	Only required if T is not 0
Interest rate on debt capital	b	NA	Only required if T is not 0
Debt Ratio	L	NA	Only required if T is not 0

Carrying Charge Rate CCR 6.64%  $r+A+P+d+[T/(1-T)*(r-d-Dep)*((r-b*L)/r)]$

Cumulative Present Worth Factor CPWF 15.7838  $((1+r)^n-1)/(r*(1+r)^n)$

Present Value of Carrying Charge D 1.04804  $CPWF*CCR$

**Table 4-4e Wabash Valley Avoided Cost  
Demand Cost Forecast  
(Excluding Transmission Service)**

Investment Year	Plant Investment (\$/kW)	Fixed O&M (\$/kW-year)	Carrying Charge on Annual Capital Investment \$/kW	Total Annual Fixed Cost (\$/kW)	Monthly Rate (\$/kW-month)	Monthly Rate Adjusted for Losses (\$/kW-month)
2023	1,045.0	25.625	49.339	74.964	6.247	6.381
2024	1,071.1	26.266	50.572	76.838	6.403	6.540
2025	1,097.9	26.922	51.837	78.759	6.563	6.704
2026	1,125.4	27.595	53.133	80.728	6.727	6.872
2027	1,153.5	28.285	54.461	82.746	6.896	7.043
2028	1,182.3	28.992	55.822	84.814	7.068	7.219
2029	1,211.9	29.717	57.218	86.935	7.245	7.400
2030	1,242.2	30.460	58.648	89.108	7.426	7.585
2031	1,273.2	31.222	60.115	91.337	7.611	7.775
2032	1,305.1	32.002	61.617	93.619	7.802	7.969
2033	1,337.7	32.802	63.158	95.960	7.997	8.168
2034	1,371.1	33.622	64.737	98.359	8.197	8.372
2035	1,405.4	34.463	66.355	100.818	8.401	8.582
2036	1,440.5	35.324	68.014	103.338	8.612	8.796
2037	1,476.6	36.207	69.714	105.921	8.827	9.016
2038	1,513.5	37.113	71.457	108.570	9.047	9.242
2039	1,551.3	38.040	73.244	111.284	9.274	9.473
2040	1,590.1	38.991	75.075	114.066	9.506	9.709
2041	1,629.8	39.966	76.952	116.918	9.743	9.952
2042	1,670.6	40.965	78.876	119.841	9.987	10.201

Escalation Rate      2.5%  
Loss Factor            4.2%

## Appendix E

### FERC Form No. 714

- 2022
- 2021

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## Annual Electric Balancing Authority Area and Planning Area Report

Utility Code:40211  
Utility Name:  
Wabash Valley Power Association,  
Inc.

**For the Year Ending December 31, 2022**

### Part III - Schedule 1. Electric Utilities That Compose the Planning Area

Enter the name of each entity, including the respondent, that forms the planning area for which this report is being prepared and their coincident summer and winter peak demands in megawatts. Refer to the Form 714 instructions for specific guidelines.

Line No. (a)	Electric Utility Name (b)	Electric Utility Coincident Peak Demand (MW) (MWh)	
		Summer (c)	Winter (d)
1	BOONE REMC	102	108
2	CARROLL WHITE REMC	83	62
3	CITIZENS ELECTRIC CORPORATION	269	221
4	CORN BELT ENERGY	153	132
5	ENERSTAR ELECTRIC COOPERATIVE	20	19
6	FULTON COUNTY REMC	24	26
7	HEARTLAND REMC	108	130
8	HENDRICKS POWER COOPERATIVE	194	213
9	JASPER COUNTY REMC	56	45
10	JAY COUNTY REMC	35	37
11	KANKAKEE VALLEY REMC	89	58
12	KOSCIUSKO REMC	90	77
13	LAGRANGE COUNTY REMC	20	19
14	MARSHALL COUNTY REMC	27	22
15	MIAMI-CASS REMC	26	37
16	MJM ELECTRIC COOPERATIVE	37	35
17	NEWTON COUNTY REMC	10	9
18	NINESTAR CONNECT	86	86
19	NOBLE REMC	39	44
20	PARKE COUNTY REMC	44	54
21	STEBEN COUNTY REMC	38	35
22	TIPMONT REMC	134	119
23	WARREN COUNTY REMC	24	21

## Annual Electric Balancing Authority Area and Planning Area Report

Utility Code:40211  
Utility Name:  
Wabash Valley Power Association,  
Inc.

**For the Year Ending December 31, 2022**

### Part III - Schedule 2. Planning Area Hourly Demand

Respondents must provide the following data: the planning area's actual hourly demand, in megawatts, for each hour of the year starting with 1 a.m. Janua column (b) indicate the time zone and the days for which daylight savings time was observed. This schedule will have 365 rows for the report year (366 row enter "0.00" and provide, as a footnote to those hours, an explanation describing the reason for the unavailability of the data.

Date (a)	Time Zone (b)	0100 (c)	0200 (d)	0300 (e)	0400 (f)	0500 (g)	0600 (h)	0700 (i)	0800 (j)	0900 (k)	1000 (l)	1100 (m)	1200 (n)	1300 (o)	1400 (p)	1500 (q)	1600 (r)
2022-01-01	EST	722	696	674	665	670	683	699	726	764	806	852	892	909	912	912	915
2022-01-02	EST	861	845	839	844	857	874	901	942	984	1,020	1,047	1,057	1,054	1,043	1,036	1,034
2022-01-03	EST	957	946	942	951	967	1,008	1,071	1,123	1,148	1,146	1,117	1,094	1,077	1,060	1,044	1,030
2022-01-04	EST	999	986	977	978	998	1,043	1,112	1,162	1,162	1,146	1,122	1,095	1,077	1,046	1,032	1,031
2022-01-05	EST	975	955	941	937	953	992	1,060	1,115	1,131	1,133	1,136	1,137	1,124	1,110	1,113	1,128
2022-01-06	EST	1,117	1,100	1,091	1,087	1,102	1,136	1,201	1,249	1,259	1,255	1,252	1,247	1,239	1,226	1,221	1,214
2022-01-07	EST	1,189	1,182	1,176	1,181	1,201	1,246	1,313	1,366	1,375	1,348	1,318	1,281	1,244	1,205	1,174	1,146
2022-01-08	EST	1,111	1,092	1,083	1,083	1,094	1,113	1,142	1,182	1,206	1,206	1,200	1,196	1,181	1,170	1,135	1,122
2022-01-09	EST	886	855	836	822	821	827	848	885	933	973	999	1,007	1,009	1,006	1,006	1,005
2022-01-10	EST	1,028	1,024	1,025	1,030	1,050	1,093	1,164	1,215	1,218	1,206	1,171	1,135	1,106	1,087	1,072	1,061
2022-01-11	EST	1,069	1,062	1,061	1,066	1,086	1,129	1,196	1,245	1,242	1,198	1,159	1,128	1,104	1,071	1,048	1,031
2022-01-12	EST	961	942	922	914	926	959	1,023	1,076	1,073	1,054	1,037	1,016	1,000	983	967	960
2022-01-13	EST	880	869	868	876	897	934	1,008	1,062	1,066	1,050	1,039	1,015	985	952	931	934
2022-01-14	EST	932	917	911	908	932	963	1,032	1,088	1,084	1,078	1,081	1,064	1,043	1,030	1,027	1,027
2022-01-15	EST	942	924	920	920	930	950	988	1,032	1,064	1,092	1,095	1,083	1,058	1,040	1,029	1,027
2022-01-16	EST	1,017	1,007	999	1,004	1,011	1,029	1,056	1,096	1,130	1,125	1,100	1,072	1,039	1,008	984	977
2022-01-17	EST	967	960	959	964	979	1,017	1,071	1,121	1,150	1,170	1,180	1,182	1,177	1,167	1,150	1,144
2022-01-18	EST	993	979	975	977	998	1,041	1,109	1,167	1,176	1,166	1,143	1,118	1,094	1,073	1,045	1,022
2022-01-19	EST	926	906	888	881	892	929	998	1,050	1,063	1,058	1,048	1,047	1,048	1,054	1,070	1,083

2022-01-20	EST	1,077	1,075	1,077	1,086	1,111	1,162	1,240	1,297	1,299	1,275	1,243	1,216	1,191	1,170	1,163	1,163
2022-01-21	EST	1,091	1,082	1,078	1,079	1,097	1,136	1,209	1,260	1,263	1,236	1,209	1,171	1,141	1,107	1,085	1,065
2022-01-22	EST	1,077	1,064	1,058	1,057	1,063	1,074	1,102	1,135	1,164	1,181	1,178	1,156	1,125	1,090	1,059	1,041
2022-01-23	EST	964	945	934	935	940	951	971	1,007	1,039	1,063	1,070	1,072	1,064	1,049	1,039	1,029
2022-01-24	EST	1,019	1,006	1,001	1,004	1,023	1,063	1,138	1,189	1,191	1,182	1,169	1,153	1,136	1,117	1,098	1,082
2022-01-25	EST	1,034	1,030	1,034	1,052	1,083	1,139	1,224	1,284	1,288	1,243	1,198	1,169	1,157	1,139	1,122	1,111
2022-01-26	EST	1,190	1,189	1,191	1,199	1,218	1,263	1,331	1,393	1,407	1,365	1,321	1,275	1,233	1,193	1,164	1,140
2022-01-27	EST	1,164	1,162	1,155	1,151	1,162	1,190	1,249	1,291	1,281	1,252	1,232	1,211	1,194	1,173	1,162	1,158
2022-01-28	EST	1,017	1,001	994	997	1,016	1,060	1,129	1,186	1,202	1,203	1,200	1,196	1,180	1,159	1,144	1,136
2022-01-29	EST	1,169	1,164	1,162	1,166	1,174	1,193	1,230	1,275	1,301	1,293	1,251	1,202	1,157	1,114	1,083	1,073
2022-01-30	EST	1,030	1,014	1,005	1,000	995	1,006	1,034	1,080	1,115	1,099	1,060	1,029	1,005	981	965	956
2022-01-31	EST	980	975	976	1,001	1,038	1,089	1,173	1,235	1,232	1,199	1,159	1,119	1,081	1,050	1,033	1,013
2022-02-01	EST	992	975	965	965	984	1,022	1,090	1,139	1,132	1,094	1,056	1,024	1,003	984	975	959
2022-02-02	EST	874	857	851	854	873	915	982	1,035	1,064	1,077	1,095	1,113	1,116	1,108	1,109	1,115
2022-02-03	EST	1,004	995	990	992	1,007	1,034	1,075	1,120	1,156	1,187	1,206	1,210	1,206	1,192	1,182	1,176
2022-02-04	EST	1,053	1,041	1,041	1,049	1,066	1,098	1,145	1,195	1,223	1,222	1,193	1,162	1,125	1,095	1,074	1,061
2022-02-05	EST	1,088	1,078	1,078	1,087	1,102	1,127	1,166	1,210	1,234	1,225	1,197	1,164	1,127	1,092	1,063	1,049
2022-02-06	EST	1,079	1,064	1,056	1,057	1,057	1,067	1,091	1,130	1,148	1,123	1,086	1,053	1,025	997	972	962
2022-02-07	EST	983	977	976	982	1,002	1,042	1,129	1,195	1,201	1,176	1,159	1,147	1,129	1,111	1,097	1,085
2022-02-08	EST	1,043	1,045	1,049	1,055	1,077	1,117	1,186	1,232	1,207	1,164	1,117	1,072	1,044	1,013	991	972
2022-02-09	EST	935	916	904	901	918	952	1,023	1,080	1,071	1,032	1,003	978	959	955	948	952
2022-02-10	EST	928	916	911	918	940	981	1,056	1,117	1,122	1,111	1,103	1,092	1,074	1,057	1,046	1,034
2022-02-11	EST	980	957	946	942	953	981	1,042	1,089	1,087	1,083	1,077	1,059	1,040	1,032	1,016	1,002
2022-02-12	EST	974	963	958	963	977	999	1,038	1,085	1,118	1,144	1,148	1,137	1,121	1,099	1,087	1,085
2022-02-13	EST	1,045	1,028	1,017	1,014	1,018	1,033	1,062	1,106	1,139	1,137	1,122	1,101	1,085	1,072	1,064	1,070

2022-02-14	EST	1,082	1,076	1,067	1,075	1,095	1,136	1,201	1,251	1,243	1,209	1,168	1,127	1,097	1,075	1,048	1,023
2022-02-15	EST	1,032	1,028	1,036	1,057	1,075	1,117	1,192	1,249	1,226	1,159	1,113	1,072	1,038	1,008	985	972
2022-02-16	EST	917	894	881	876	889	922	994	1,040	1,032	1,003	986	974	963	955	948	945
2022-02-17	EST	825	809	798	797	815	856	929	987	1,003	1,019	1,040	1,057	1,074	1,088	1,103	1,111
2022-02-18	EST	1,052	1,046	1,039	1,051	1,075	1,113	1,177	1,229	1,239	1,204	1,163	1,135	1,112	1,088	1,063	1,048
2022-02-19	EST	1,025	1,001	989	990	1,007	1,036	1,079	1,125	1,157	1,160	1,146	1,119	1,089	1,054	1,026	1,008
2022-02-20	EST	1,043	1,028	1,020	1,015	1,016	1,023	1,044	1,069	1,077	1,050	1,013	982	954	923	896	882
2022-02-21	EST	855	846	845	854	875	917	976	1,023	1,027	994	968	949	929	923	911	906
2022-02-22	EST	806	786	771	770	782	820	895	949	952	954	953	949	943	941	934	936
2022-02-23	EST	974	968	971	980	1,005	1,048	1,130	1,187	1,194	1,186	1,178	1,168	1,162	1,155	1,150	1,149
2022-02-24	EST	1,024	1,000	998	994	1,007	1,048	1,119	1,161	1,164	1,156	1,153	1,137	1,132	1,124	1,130	1,135
2022-02-25	EST	1,002	978	966	972	998	1,038	1,103	1,145	1,169	1,160	1,147	1,131	1,119	1,115	1,114	1,104
2022-02-26	EST	1,009	988	973	975	985	1,004	1,034	1,078	1,097	1,085	1,055	1,033	1,002	978	950	935
2022-02-27	EST	957	941	935	935	940	952	980	1,012	1,026	1,007	975	951	929	911	884	874
2022-02-28	EST	918	921	926	936	968	1,012	1,095	1,139	1,113	1,070	1,022	993	972	948	937	917
2022-03-01	EST	892	881	871	872	885	925	997	1,041	1,031	1,000	974	942	918	902	885	872
2022-03-02	EST	844	834	832	837	867	913	996	1,045	1,030	989	953	924	900	887	871	863
2022-03-03	EST	816	810	808	823	847	897	985	1,041	1,048	1,032	1,022	1,006	991	981	974	957
2022-03-04	EST	926	914	909	912	928	968	1,047	1,101	1,085	1,046	1,009	982	955	942	931	924
2022-03-05	EST	839	814	800	797	802	816	850	883	903	891	872	850	828	809	792	782
2022-03-06	EST	687	663	645	642	647	662	687	727	774	802	801	796	794	784	773	768
2022-03-07	EST	762	756	761	764	782	827	909	965	984	999	1,004	1,008	1,009	1,008	1,002	997
2022-03-08	EST	887	874	867	868	883	925	1,002	1,049	1,048	1,039	1,022	1,005	986	959	940	921
2022-03-09	EST	881	863	853	852	869	913	991	1,036	1,022	980	947	922	895	880	865	847
2022-03-10	EST	853	847	847	857	879	929	1,010	1,053	1,044	1,006	973	937	920	902	884	870

2022-03-11	EST	863	854	851	857	879	921	996	1,044	1,058	1,051	1,041	1,034	1,021	1,008	1,009	1,002
2022-03-12	EST	983	972	970	976	986	1,009	1,048	1,083	1,105	1,109	1,103	1,087	1,063	1,037	1,012	996
2022-03-13	EDT	965	946	941	935	931	936	948	970	994	1,000	987	962	930	897	858	829
2022-03-14	EDT	789	777	776	784	807	850	922	977	983	959	927	899	881	856	834	813
2022-03-15	EDT	742	726	720	722	739	780	855	914	917	903	886	867	844	822	803	786
2022-03-16	EDT	717	704	693	700	725	769	850	913	919	888	862	838	821	809	800	789
2022-03-17	EDT	688	669	663	667	688	734	811	877	879	857	840	826	818	807	799	789
2022-03-18	EDT	685	665	653	651	667	706	776	835	856	851	851	849	854	841	835	826
2022-03-19	EDT	705	682	667	660	665	682	712	758	804	845	869	877	874	864	854	846
2022-03-20	EDT	748	731	723	720	724	741	767	808	840	832	807	791	762	741	721	710
2022-03-21	EDT	687	676	676	686	711	755	824	877	884	861	838	822	806	795	791	774
2022-03-22	EDT	680	665	656	658	673	709	773	832	858	865	868	867	863	865	858	853
2022-03-23	EDT	747	729	714	706	717	748	807	856	868	853	849	846	843	832	823	807
2022-03-24	EDT	744	733	726	728	750	789	858	914	929	927	928	922	918	911	905	895
2022-03-25	EDT	801	781	767	766	784	817	878	932	951	958	959	958	940	897	871	861
2022-03-26	EDT	815	794	780	782	789	805	836	877	913	937	949	948	937	926	918	915
2022-03-27	EDT	838	822	816	817	824	836	862	903	930	935	927	918	907	891	874	861
2022-03-28	EDT	862	859	863	874	899	947	1,017	1,072	1,065	1,029	1,002	983	958	928	908	877
2022-03-29	EDT	856	844	839	840	858	893	959	1,011	1,019	1,014	1,007	999	988	970	959	945
2022-03-30	EDT	826	808	791	787	797	828	889	935	932	922	908	893	885	867	851	832
2022-03-31	EDT	712	688	676	679	698	749	836	911	937	942	949	957	962	953	948	943
2022-04-01	EDT	842	826	815	817	833	873	941	1,000	1,010	996	987	976	959	939	915	894
2022-04-02	EDT	835	819	810	812	820	839	873	907	935	943	942	928	893	863	841	830
2022-04-03	EDT	797	778	773	772	776	790	812	847	874	869	847	824	801	780	763	758
2022-04-04	EDT	738	725	724	732	753	799	869	928	945	933	924	906	881	861	847	832

2022-04-05	EDT	781	776	773	776	795	838	910	956	961	941	915	894	879	866	859	848
2022-04-06	EDT	750	731	721	725	745	786	856	908	923	921	922	916	904	900	890	868
2022-04-07	EDT	785	775	769	771	789	833	912	970	975	953	940	941	938	933	930	922
2022-04-08	EDT	858	841	831	828	844	880	941	996	1,010	1,006	996	980	964	954	944	935
2022-04-09	EDT	868	849	836	832	816	836	882	928	966	981	974	964	948	932	913	899
2022-04-10	EDT	821	808	807	809	817	835	863	896	913	899	870	847	829	806	787	778
2022-04-11	EDT	721	703	695	694	704	745	820	872	872	873	872	883	877	874	872	864
2022-04-12	EDT	760	744	737	740	761	803	883	933	928	901	887	866	859	851	842	836
2022-04-13	EDT	731	707	689	685	691	726	800	852	867	850	847	854	860	859	860	853
2022-04-14	EDT	738	725	720	729	753	810	903	960	958	921	901	891	880	865	855	838
2022-04-15	EDT	790	773	761	762	773	807	874	916	924	914	895	881	865	851	839	831
2022-04-16	EDT	736	717	706	706	714	733	770	818	859	874	862	845	824	804	788	778
2022-04-17	EDT	753	739	736	740	755	774	811	853	886	892	878	862	837	798	772	757
2022-04-18	EDT	760	752	748	758	781	832	912	966	990	1,006	1,002	996	997	984	968	960
2022-04-19	EDT	857	843	838	841	859	904	985	1,031	1,025	1,004	979	956	939	918	901	884
2022-04-20	EDT	809	795	789	792	805	848	925	975	981	957	942	939	927	909	896	880
2022-04-21	EDT	771	750	742	740	756	793	867	916	922	916	910	901	888	877	862	848
2022-04-22	EDT	746	722	708	714	730	771	844	893	904	904	902	903	895	883	879	872
2022-04-23	EDT	716	694	677	675	674	687	714	748	784	807	817	823	824	825	832	842
2022-04-24	EDT	731	689	662	644	636	636	657	688	735	773	803	822	839	850	859	866
2022-04-25	EDT	725	696	680	672	679	714	784	841	860	863	871	867	867	865	860	848
2022-04-26	EDT	753	738	733	733	758	809	890	948	952	936	928	916	898	884	862	849
2022-04-27	EDT	785	773	764	773	792	839	923	970	964	930	902	882	871	868	856	845
2022-04-28	EDT	774	759	746	746	765	809	887	936	940	931	922	915	899	879	880	869
2022-04-29	EDT	780	757	749	746	756	794	869	919	930	928	919	902	878	860	856	850

2022-04-30	EDT	732	694	678	670	674	690	720	756	797	811	807	806	797	788	780	787
2022-05-01	EDT	693	665	647	633	636	642	663	695	741	771	779	782	784	780	772	772
2022-05-02	EDT	689	673	669	677	700	744	821	877	884	874	870	863	858	848	837	827
2022-05-03	EDT	715	694	683	679	694	733	811	866	887	896	895	889	884	882	876	866
2022-05-04	EDT	739	720	702	701	717	755	829	880	889	885	880	868	858	845	837	826
2022-05-05	EDT	722	703	691	689	704	740	816	868	876	878	882	887	885	882	883	882
2022-05-06	EDT	768	745	732	725	736	771	838	879	895	901	910	908	899	892	887	880
2022-05-07	EDT	756	730	714	705	707	723	753	787	817	824	814	799	784	771	760	753
2022-05-08	EDT	692	668	657	655	660	674	692	727	762	774	768	760	750	739	736	740
2022-05-09	EDT	694	672	664	668	686	731	797	850	864	869	870	873	886	895	906	918
2022-05-10	EDT	797	756	727	715	722	746	817	878	905	916	935	966	999	1,038	1,082	1,120
2022-05-11	EDT	925	865	812	789	792	816	882	940	987	1,035	1,086	1,152	1,219	1,270	1,310	1,345
2022-05-12	EDT	972	900	844	802	789	811	868	918	958	1,000	1,048	1,103	1,151	1,189	1,228	1,260
2022-05-13	EDT	881	815	771	746	745	770	826	885	927	961	1,004	1,056	1,111	1,165	1,214	1,254
2022-05-14	EDT	884	809	762	737	726	728	741	780	847	914	977	1,013	1,063	1,106	1,104	1,089
2022-05-15	EDT	760	717	689	672	664	664	675	709	772	814	848	896	954	1,001	1,042	1,073
2022-05-16	EDT	725	694	675	672	682	714	779	831	859	872	887	912	933	961	973	990
2022-05-17	EDT	771	732	708	700	705	739	803	856	879	880	894	917	938	959	979	999
2022-05-18	EDT	776	740	710	700	705	739	809	856	875	879	885	897	904	907	912	911
2022-05-19	EDT	771	743	722	709	717	747	809	864	884	889	905	935	970	999	1,040	1,070
2022-05-20	EDT	848	805	771	756	757	783	845	906	953	989	1,035	1,082	1,123	1,163	1,204	1,238
2022-05-21	EDT	898	833	789	759	745	738	751	772	805	848	873	889	909	914	901	877
2022-05-22	EDT	693	668	648	632	637	640	652	676	721	757	770	767	771	771	770	774
2022-05-23	EDT	694	674	665	665	678	716	779	828	850	857	856	862	862	858	858	855
2022-05-24	EDT	738	711	697	691	701	741	806	855	870	860	857	863	872	876	890	902

2022-05-25	EDT	778	746	722	712	721	752	817	870	901	917	933	952	969	993	1,028	1,052
2022-05-26	EDT	850	811	774	758	759	783	843	899	931	951	956	958	956	949	949	961
2022-05-27	EDT	801	756	727	711	717	740	787	837	878	899	907	920	924	929	933	929
2022-05-28	EDT	735	699	677	667	661	666	682	717	762	796	814	820	817	826	836	861
2022-05-29	EDT	733	700	676	661	654	656	664	701	757	805	839	871	904	939	974	1,012
2022-05-30	EDT	823	768	732	712	700	698	700	740	821	908	988	1,054	1,097	1,124	1,153	1,190
2022-05-31	EDT	893	833	793	771	768	794	838	906	977	1,045	1,114	1,181	1,242	1,285	1,318	1,333
2022-06-01	EDT	935	873	826	804	797	816	861	914	966	1,002	1,032	1,076	1,114	1,142	1,164	1,171
2022-06-02	EDT	824	774	737	718	723	743	791	834	867	891	918	944	971	996	1,025	1,045
2022-06-03	EDT	776	733	706	694	690	710	748	803	849	877	906	935	979	1,012	1,040	1,080
2022-06-04	EDT	793	734	697	679	672	680	694	736	785	827	866	901	929	950	983	1,018
2022-06-05	EDT	767	712	681	665	655	655	663	694	749	799	854	909	965	1,014	1,049	1,084
2022-06-06	EDT	837	784	751	737	738	765	811	867	918	961	1,005	1,048	1,088	1,118	1,146	1,151
2022-06-07	EDT	853	806	777	759	759	785	834	884	917	931	941	959	987	1,019	1,044	1,060
2022-06-08	EDT	797	752	727	712	711	736	781	830	860	879	888	913	935	955	963	959
2022-06-09	EDT	779	741	711	700	707	731	775	828	860	853	867	890	916	956	991	1,019
2022-06-10	EDT	801	756	727	714	720	743	782	834	879	911	936	955	976	991	1,019	1,035
2022-06-11	EDT	778	733	704	686	679	685	701	738	790	834	869	900	930	958	978	997
2022-06-12	EDT	809	764	734	714	705	704	716	757	821	882	929	977	1,017	1,044	1,066	1,102
2022-06-13	EDT	947	888	851	835	831	853	903	972	1,045	1,120	1,200	1,286	1,366	1,439	1,480	1,478
2022-06-14	EDT	1,082	1,031	985	964	957	980	1,019	1,075	1,157	1,235	1,325	1,412	1,472	1,536	1,584	1,612
2022-06-15	EDT	1,247	1,168	1,105	1,057	1,027	1,037	1,064	1,128	1,210	1,287	1,363	1,432	1,499	1,556	1,596	1,616
2022-06-16	EDT	1,226	1,150	1,098	1,061	1,046	1,053	1,087	1,142	1,201	1,256	1,322	1,394	1,451	1,503	1,545	1,581
2022-06-17	EDT	1,171	1,082	1,011	966	943	946	969	1,032	1,072	1,097	1,133	1,185	1,240	1,289	1,335	1,377
2022-06-18	EDT	934	855	806	769	749	744	745	789	851	900	934	960	985	1,009	1,035	1,067



2022-06-19	EDT	792	742	710	693	683	682	679	710	772	822	857	898	931	964	1,006	1,059
2022-06-20	EDT	849	794	756	744	744	771	815	871	933	988	1,052	1,111	1,173	1,247	1,312	1,377
2022-06-21	EDT	1,011	935	883	803	788	805	849	926	1,009	1,084	1,174	1,267	1,353	1,430	1,497	1,551
2022-06-22	EDT	1,176	1,096	1,036	999	988	1,000	1,029	1,092	1,172	1,237	1,302	1,378	1,435	1,474	1,497	1,509
2022-06-23	EDT	1,008	932	878	852	846	860	893	952	1,013	1,065	1,127	1,177	1,232	1,281	1,334	1,388
2022-06-24	EDT	981	906	856	830	820	833	867	930	992	1,047	1,115	1,188	1,256	1,327	1,387	1,436
2022-06-25	EDT	995	907	850	815	794	793	798	838	895	961	1,024	1,079	1,112	1,143	1,150	1,155
2022-06-26	EDT	970	917	881	856	838	831	834	861	920	984	1,030	1,073	1,099	1,123	1,149	1,181
2022-06-27	EDT	861	803	772	756	758	781	816	870	925	958	994	1,026	1,049	1,073	1,109	1,135
2022-06-28	EDT	848	796	762	746	748	773	813	862	907	924	950	991	1,037	1,079	1,135	1,181
2022-06-29	EDT	907	845	802	778	775	797	839	892	945	986	1,035	1,090	1,150	1,222	1,293	1,352
2022-06-30	EDT	1,027	948	895	859	845	858	892	957	1,030	1,100	1,170	1,243	1,306	1,366	1,426	1,474
2022-07-01	EDT	1,083	1,004	948	914	902	913	945	1,016	1,097	1,177	1,255	1,332	1,396	1,435	1,449	1,429
2022-07-02	EDT	1,002	926	880	848	826	815	812	845	916	1,004	1,075	1,138	1,187	1,226	1,254	1,270
2022-07-03	EDT	902	837	798	768	750	742	740	775	847	937	1,010	1,080	1,149	1,209	1,265	1,316
2022-07-04	EDT	957	877	823	788	777	769	766	804	898	1,008	1,115	1,219	1,300	1,357	1,401	1,431
2022-07-05	EDT	1,078	1,015	974	952	929	936	966	1,021	1,099	1,184	1,278	1,366	1,454	1,538	1,601	1,642
2022-07-06	EDT	1,259	1,187	1,120	1,063	1,031	1,029	1,051	1,083	1,132	1,181	1,241	1,289	1,356	1,418	1,464	1,495
2022-07-07	EDT	1,071	998	944	910	899	909	938	990	1,052	1,103	1,156	1,212	1,271	1,331	1,379	1,388
2022-07-08	EDT	1,034	973	924	903	904	925	961	1,004	1,044	1,065	1,090	1,109	1,120	1,120	1,122	1,142
2022-07-09	EDT	914	860	817	791	781	775	787	820	876	935	989	1,041	1,083	1,126	1,160	1,194
2022-07-10	EDT	852	789	747	721	705	701	701	734	799	860	916	977	1,036	1,091	1,142	1,196
2022-07-11	EDT	883	816	777	757	757	783	818	871	937	991	1,051	1,117	1,180	1,252	1,320	1,377
2022-07-12	EDT	1,101	1,032	975	933	918	923	952	1,006	1,077	1,132	1,176	1,220	1,260	1,296	1,330	1,358
2022-07-13	EDT	982	910	863	838	829	850	889	945	1,010	1,070	1,135	1,201	1,263	1,317	1,364	1,397

2022-07-14	EDT	979	911	862	835	832	848	883	931	995	1,052	1,108	1,168	1,222	1,276	1,320	1,365
2022-07-15	EDT	999	927	878	853	843	855	888	939	999	1,039	1,080	1,116	1,142	1,149	1,152	1,135
2022-07-16	EDT	897	848	815	797	786	790	808	840	907	988	1,069	1,146	1,218	1,274	1,323	1,361
2022-07-17	EDT	1,026	950	884	849	825	816	824	840	885	930	970	1,002	1,034	1,057	1,069	1,076
2022-07-18	EDT	881	829	798	791	799	833	884	929	982	1,026	1,085	1,148	1,214	1,277	1,332	1,376
2022-07-19	EDT	998	921	869	838	828	845	894	949	1,020	1,096	1,169	1,250	1,326	1,387	1,446	1,487
2022-07-20	EDT	1,097	1,025	973	938	932	945	989	1,052	1,132	1,212	1,302	1,386	1,460	1,523	1,573	1,601
2022-07-21	EDT	1,118	1,040	973	928	908	911	938	995	1,064	1,133	1,206	1,284	1,362	1,422	1,477	1,524
2022-07-22	EDT	1,134	1,057	998	958	941	944	975	1,027	1,104	1,177	1,241	1,311	1,382	1,449	1,503	1,547
2022-07-23	EDT	1,116	1,032	973	938	919	916	933	948	953	988	1,025	1,065	1,102	1,129	1,162	1,185
2022-07-24	EDT	960	908	874	861	851	854	871	902	967	1,028	1,079	1,117	1,157	1,176	1,198	1,230
2022-07-25	EDT	977	918	876	852	837	849	891	938	1,005	1,036	1,076	1,116	1,169	1,207	1,241	1,256
2022-07-26	EDT	916	860	826	808	805	830	873	915	949	964	994	1,026	1,064	1,104	1,140	1,161
2022-07-27	EDT	958	904	867	846	850	878	936	982	1,015	1,038	1,068	1,109	1,149	1,200	1,254	1,303
2022-07-28	EDT	998	938	889	863	853	869	914	957	1,015	1,057	1,105	1,157	1,216	1,270	1,318	1,359
2022-07-29	EDT	950	890	844	811	804	818	856	896	952	1,008	1,064	1,116	1,160	1,196	1,230	1,260
2022-07-30	EDT	882	819	776	751	743	743	753	778	832	897	960	1,023	1,081	1,131	1,173	1,212
2022-07-31	EDT	899	837	798	772	759	753	757	779	849	930	1,005	1,074	1,132	1,187	1,235	1,277
2022-08-01	EDT	965	913	882	869	873	904	962	1,020	1,061	1,090	1,145	1,208	1,278	1,341	1,402	1,446
2022-08-02	EDT	1,071	1,003	953	921	908	919	960	1,007	1,068	1,107	1,153	1,205	1,242	1,272	1,300	1,335
2022-08-03	EDT	1,035	966	916	892	885	910	969	1,029	1,107	1,188	1,281	1,376	1,474	1,552	1,604	1,619
2022-08-04	EDT	1,023	965	918	899	896	915	970	1,010	1,045	1,073	1,105	1,146	1,191	1,238	1,298	1,346
2022-08-05	EDT	1,048	984	936	909	905	924	977	1,024	1,078	1,124	1,175	1,241	1,305	1,371	1,444	1,496
2022-08-06	EDT	1,076	997	947	912	893	891	906	930	995	1,077	1,160	1,248	1,330	1,396	1,453	1,499
2022-08-07	EDT	1,128	1,054	999	959	930	914	908	925	1,006	1,101	1,196	1,294	1,363	1,412	1,440	1,428

2022-08-08	EDT	1,079	1,028	995	980	981	1,006	1,067	1,115	1,155	1,200	1,271	1,360	1,427	1,474	1,512	1,549
2022-08-09	EDT	1,029	961	918	892	888	901	949	984	1,009	1,033	1,059	1,076	1,098	1,118	1,129	1,149
2022-08-10	EDT	889	844	811	794	793	823	892	941	970	1,007	1,045	1,088	1,133	1,186	1,236	1,281
2022-08-11	EDT	920	859	807	790	793	816	878	920	963	1,000	1,052	1,097	1,152	1,210	1,256	1,281
2022-08-12	EDT	888	834	797	778	778	799	855	894	934	966	1,001	1,039	1,081	1,115	1,148	1,175
2022-08-13	EDT	852	794	759	738	728	732	748	770	818	866	902	943	977	1,011	1,047	1,070
2022-08-14	EDT	845	798	770	755	745	743	756	779	830	884	938	985	1,026	1,051	1,060	1,065
2022-08-15	EDT	860	823	797	775	772	804	874	923	948	959	990	1,034	1,084	1,127	1,171	1,200
2022-08-16	EDT	878	824	790	774	774	801	869	908	943	983	1,018	1,055	1,101	1,152	1,191	1,223
2022-08-17	EDT	865	815	781	765	769	797	863	904	935	968	1,016	1,058	1,103	1,151	1,195	1,233
2022-08-18	EDT	880	826	793	778	774	797	860	901	937	970	1,014	1,056	1,108	1,164	1,224	1,268
2022-08-19	EDT	883	828	791	775	776	800	864	907	947	1,004	1,067	1,128	1,186	1,241	1,294	1,334
2022-08-20	EDT	929	864	825	800	785	784	805	828	879	927	974	1,014	1,056	1,086	1,125	1,152
2022-08-21	EDT	863	810	780	763	748	745	759	782	827	895	940	986	1,031	1,076	1,109	1,150
2022-08-22	EDT	861	806	777	763	767	804	879	929	948	972	1,002	1,042	1,097	1,152	1,199	1,245
2022-08-23	EDT	903	850	817	795	792	819	881	924	948	980	1,024	1,072	1,123	1,169	1,225	1,263
2022-08-24	EDT	908	859	823	803	801	828	893	938	964	999	1,053	1,111	1,174	1,223	1,266	1,308
2022-08-25	EDT	942	886	840	816	811	832	896	941	965	991	1,032	1,086	1,134	1,176	1,212	1,231
2022-08-26	EDT	952	899	863	841	840	863	927	974	1,008	1,050	1,100	1,156	1,211	1,254	1,292	1,317
2022-08-27	EDT	916	856	809	783	768	769	782	807	857	920	982	1,050	1,114	1,172	1,226	1,268
2022-08-28	EDT	900	847	812	787	774	770	782	802	874	964	1,057	1,161	1,257	1,339	1,397	1,435
2022-08-29	EDT	1,014	958	914	891	887	917	986	1,041	1,083	1,138	1,213	1,311	1,394	1,459	1,499	1,470
2022-08-30	EDT	915	865	839	819	813	841	909	952	969	1,010	1,064	1,110	1,161	1,201	1,238	1,260
2022-08-31	EDT	853	804	767	748	746	775	839	882	909	946	992	1,030	1,071	1,117	1,168	1,215
2022-09-01	EDT	888	835	795	779	779	811	876	927	961	997	1,056	1,116	1,182	1,252	1,319	1,361

2022-09-02	EDT	965	913	867	841	836	856	916	962	995	1,016	1,069	1,128	1,197	1,263	1,314	1,344
2022-09-03	EDT	967	890	838	811	799	797	810	839	891	954	1,018	1,078	1,129	1,170	1,207	1,237
2022-09-04	EDT	913	859	824	804	790	789	797	826	877	937	978	1,008	1,043	1,081	1,115	1,148
2022-09-05	EDT	876	831	798	777	773	766	778	797	840	902	961	1,002	1,031	1,045	1,058	1,073
2022-09-06	EDT	849	812	791	779	786	820	893	950	971	986	1,016	1,062	1,110	1,154	1,193	1,223
2022-09-07	EDT	885	840	804	792	799	828	893	935	953	981	1,023	1,069	1,117	1,157	1,194	1,227
2022-09-08	EDT	864	820	784	768	754	792	862	905	921	944	980	1,016	1,057	1,114	1,172	1,215
2022-09-09	EDT	872	827	795	775	776	802	860	906	925	958	999	1,043	1,088	1,136	1,181	1,228
2022-09-10	EDT	891	836	801	778	767	768	787	819	861	917	978	1,045	1,119	1,185	1,239	1,278
2022-09-11	EDT	897	843	815	795	777	774	786	813	857	903	934	963	978	978	979	994
2022-09-12	EDT	779	749	730	724	733	766	836	887	902	896	898	908	915	919	913	909
2022-09-13	EDT	771	745	726	718	729	754	821	870	881	888	892	902	909	919	936	941
2022-09-14	EDT	804	773	752	741	751	782	844	896	914	927	947	976	1,010	1,043	1,081	1,122
2022-09-15	EDT	834	793	759	745	745	774	841	895	905	901	930	965	1,013	1,066	1,122	1,172
2022-09-16	EDT	853	802	771	757	757	779	844	897	912	938	976	1,017	1,071	1,123	1,168	1,210
2022-09-17	EDT	849	797	756	736	727	730	751	786	828	877	929	989	1,056	1,112	1,150	1,186
2022-09-18	EDT	835	786	751	730	718	716	729	757	807	863	908	958	1,014	1,067	1,121	1,189
2022-09-19	EDT	908	861	835	822	823	847	919	979	998	1,020	1,057	1,106	1,155	1,200	1,242	1,282
2022-09-20	EDT	893	849	815	792	791	817	882	934	952	980	1,018	1,074	1,149	1,224	1,297	1,348
2022-09-21	EDT	1,006	950	907	885	881	908	973	1,034	1,056	1,079	1,138	1,212	1,293	1,366	1,424	1,453
2022-09-22	EDT	944	878	824	793	777	784	843	890	896	900	919	925	928	927	930	931
2022-09-23	EDT	759	731	716	708	717	746	814	866	879	890	901	901	897	893	897	889
2022-09-24	EDT	766	733	707	696	695	701	724	763	800	828	841	843	846	853	867	891
2022-09-25	EDT	762	732	702	688	676	675	690	715	759	799	820	837	848	851	856	866
2022-09-26	EDT	711	694	684	671	683	719	789	849	862	869	876	882	892	892	893	889

2022-09-27	EDT	741	719	701	695	707	744	817	879	885	888	889	894	894	888	885	881
2022-09-28	EDT	755	736	721	715	727	765	843	903	912	907	905	905	902	892	887	879
2022-09-29	EDT	759	738	723	719	733	774	852	910	920	907	892	892	892	885	884	882
2022-09-30	EDT	776	757	746	742	748	789	867	931	943	935	936	929	923	914	915	913
2022-10-01	EDT	775	746	728	723	723	736	769	815	853	871	874	869	863	859	862	864
2022-10-02	EDT	742	718	703	696	695	702	722	763	802	831	837	839	844	849	853	864
2022-10-03	EDT	742	724	718	720	739	777	848	917	927	925	923	922	924	923	925	922
2022-10-04	EDT	782	766	732	722	733	769	849	915	921	907	907	904	899	899	911	917
2022-10-05	EDT	781	761	748	745	763	802	882	942	943	929	923	919	930	944	944	949
2022-10-06	EDT	789	767	745	738	748	788	865	925	932	924	930	933	937	934	942	948
2022-10-07	EDT	785	760	736	731	742	777	843	904	923	930	930	924	917	913	911	906
2022-10-08	EDT	807	787	776	769	780	797	833	881	920	936	923	902	888	866	852	847
2022-10-09	EDT	784	766	755	752	757	768	794	833	874	888	879	866	853	843	833	833
2022-10-10	EDT	738	724	719	722	739	777	852	918	937	930	923	919	917	921	935	938
2022-10-11	EDT	776	754	741	739	752	787	847	904	911	899	905	909	913	922	927	921
2022-10-12	EDT	780	758	744	740	746	777	840	901	920	921	924	933	934	929	926	919
2022-10-13	EDT	776	757	739	738	751	790	857	919	926	926	915	907	900	897	900	894
2022-10-14	EDT	845	820	810	805	822	855	924	994	1,009	987	967	951	932	928	928	917
2022-10-15	EDT	805	767	749	748	754	775	808	856	902	919	915	906	892	875	856	849
2022-10-16	EDT	787	765	754	748	746	755	779	820	857	874	866	857	840	831	825	823
2022-10-17	EDT	777	772	772	780	802	846	919	990	1,012	1,007	1,013	1,000	996	1,003	1,005	1,003
2022-10-18	EDT	903	883	874	873	892	929	998	1,060	1,073	1,067	1,052	1,043	1,034	1,022	1,014	1,005
2022-10-19	EDT	889	873	863	865	881	918	988	1,052	1,072	1,061	1,046	1,020	999	978	960	945
2022-10-20	EDT	909	893	882	877	899	938	1,009	1,070	1,087	1,082	1,065	1,035	1,008	977	963	945
2022-10-21	EDT	865	844	834	832	844	876	940	1,002	1,019	1,008	989	964	954	944	935	929

2022-10-22	EDT	793	765	744	735	739	751	781	822	856	872	880	878	871	868	867	871
2022-10-23	EDT	753	724	707	697	693	699	718	756	795	826	844	857	873	885	893	905
2022-10-24	EDT	780	754	738	733	744	779	848	911	921	910	921	938	946	960	966	958
2022-10-25	EDT	773	747	730	716	720	753	824	885	904	904	906	909	906	903	901	889
2022-10-26	EDT	748	725	714	709	725	761	837	909	930	930	938	937	932	924	912	906
2022-10-27	EDT	835	821	817	820	840	883	966	1,038	1,046	1,018	989	966	954	941	935	923
2022-10-28	EDT	870	845	835	836	849	887	961	1,024	1,036	1,018	996	972	953	933	930	923
2022-10-29	EDT	836	814	803	801	807	824	858	900	944	959	953	939	912	883	865	860
2022-10-30	EDT	766	748	739	737	737	745	770	806	847	871	865	862	871	853	846	854
2022-10-31	EDT	738	712	704	704	717	758	831	893	920	922	925	930	929	930	920	913
2022-11-01	EDT	768	753	742	737	750	788	862	924	942	935	928	924	925	923	919	921
2022-11-02	EDT	794	778	769	766	782	823	898	963	974	956	951	939	937	932	930	926
2022-11-03	EDT	799	778	765	760	775	815	891	956	964	946	925	915	912	912	921	924
2022-11-04	EDT	794	770	759	755	766	801	874	936	954	951	954	948	942	941	941	939
2022-11-05	EDT	774	730	712	702	699	705	729	766	804	831	848	859	855	846	836	823
2022-11-06	EST	726	701	697	695	701	720	755	805	845	853	843	830	817	812	815	824
2022-11-07	EST	748	740	741	747	767	817	906	965	969	948	944	945	945	935	928	922
2022-11-08	EST	844	829	820	820	840	886	964	1,013	1,004	963	944	932	925	913	910	913
2022-11-09	EST	836	821	812	811	824	865	939	990	983	960	943	934	925	922	921	921
2022-11-10	EST	783	766	750	747	762	800	875	929	929	919	912	910	911	920	917	912
2022-11-11	EST	774	751	740	742	756	792	867	931	948	948	946	943	940	938	946	944
2022-11-12	EST	898	882	872	871	879	897	928	974	1,020	1,052	1,059	1,055	1,039	1,025	1,020	1,021
2022-11-13	EST	898	880	871	866	869	883	903	941	973	980	969	960	961	954	948	952
2022-11-14	EST	949	946	949	955	976	1,026	1,108	1,163	1,148	1,101	1,073	1,057	1,042	1,026	1,015	1,015
2022-11-15	EST	936	919	909	903	921	963	1,039	1,094	1,095	1,092	1,087	1,079	1,084	1,084	1,074	1,072

2022-11-16	EST	940	927	918	915	935	976	1,051	1,107	1,114	1,108	1,103	1,100	1,101	1,100	1,097	1,097
2022-11-17	EST	997	978	966	961	973	1,016	1,093	1,152	1,155	1,143	1,128	1,120	1,110	1,093	1,083	1,082
2022-11-18	EST	976	963	958	960	979	1,024	1,104	1,164	1,173	1,160	1,158	1,156	1,155	1,159	1,160	1,154
2022-11-19	EST	1,037	1,020	1,010	1,011	1,022	1,043	1,081	1,123	1,130	1,122	1,113	1,096	1,073	1,064	1,064	1,068
2022-11-20	EST	1,023	1,012	1,009	1,013	1,019	1,036	1,069	1,112	1,133	1,117	1,083	1,061	1,038	1,009	981	981
2022-11-21	EST	1,010	1,005	1,004	1,008	1,027	1,069	1,150	1,203	1,188	1,146	1,106	1,079	1,055	1,034	1,020	1,003
2022-11-22	EST	971	955	946	946	967	1,005	1,087	1,139	1,130	1,090	1,053	1,023	992	965	949	933
2022-11-23	EST	924	908	902	898	916	956	1,019	1,075	1,088	1,055	1,021	991	963	945	924	910
2022-11-24	EST	838	814	801	800	798	802	832	874	916	951	968	957	905	849	815	797
2022-11-25	EST	702	686	679	681	685	703	733	776	814	840	852	841	819	795	778	771
2022-11-26	EST	809	794	790	788	799	821	864	910	940	941	923	905	874	852	835	834
2022-11-27	EST	783	758	745	737	735	741	764	799	836	867	884	902	911	909	913	916
2022-11-28	EST	805	792	788	790	811	859	946	1,007	1,014	1,017	1,012	1,006	995	980	971	971
2022-11-29	EST	871	852	840	837	854	896	970	1,026	1,019	997	977	961	954	943	939	939
2022-11-30	EST	817	806	811	833	871	939	1,036	1,112	1,118	1,102	1,089	1,079	1,065	1,050	1,050	1,055
2022-12-01	EST	1,027	1,015	1,008	1,013	1,037	1,080	1,156	1,209	1,195	1,140	1,112	1,089	1,064	1,037	1,024	1,013
2022-12-02	EST	946	923	910	900	916	951	1,019	1,068	1,067	1,048	1,028	1,021	1,000	978	965	958
2022-12-03	EST	787	755	735	730	737	765	823	889	941	967	970	964	946	924	904	899
2022-12-04	EST	917	901	896	895	906	924	950	994	1,022	1,017	990	966	943	921	906	899
2022-12-05	EST	895	884	881	890	910	955	1,029	1,089	1,086	1,066	1,052	1,034	1,019	1,012	1,005	994
2022-12-06	EST	855	833	827	828	844	880	952	1,012	1,012	1,009	995	986	977	975	972	968
2022-12-07	EST	848	831	825	813	833	870	945	1,004	1,012	1,011	1,009	1,004	998	984	973	961
2022-12-08	EST	887	866	857	853	870	909	988	1,043	1,051	1,048	1,047	1,042	1,028	1,019	1,012	1,008
2022-12-09	EST	910	890	880	878	892	929	1,005	1,059	1,070	1,061	1,057	1,048	1,033	1,027	1,021	1,019
2022-12-10	EST	894	869	857	852	859	874	902	943	986	1,014	1,025	1,027	1,017	1,004	993	992

2022-12-11	EST	855	828	816	811	814	825	850	891	934	958	967	975	978	975	971	974
2022-12-12	EST	904	884	880	879	901	940	1,013	1,075	1,082	1,061	1,049	1,045	1,038	1,026	1,018	1,021
2022-12-13	EST	951	935	924	924	942	978	1,052	1,109	1,107	1,098	1,084	1,078	1,070	1,057	1,047	1,043
2022-12-14	EST	928	906	891	887	898	936	1,008	1,062	1,066	1,043	1,033	1,016	1,002	990	990	988
2022-12-15	EST	897	877	877	876	896	940	1,022	1,082	1,092	1,086	1,080	1,079	1,082	1,084	1,085	1,081
2022-12-16	EST	981	960	950	947	960	998	1,072	1,131	1,146	1,142	1,139	1,137	1,134	1,130	1,132	1,126
2022-12-17	EST	1,007	975	958	953	958	975	1,008	1,051	1,091	1,123	1,129	1,119	1,104	1,097	1,091	1,097
2022-12-18	EST	1,027	1,004	1,000	997	1,002	1,016	1,045	1,091	1,134	1,149	1,140	1,126	1,101	1,074	1,067	1,066
2022-12-19	EST	1,077	1,065	1,060	1,064	1,087	1,132	1,208	1,267	1,283	1,276	1,249	1,230	1,204	1,183	1,164	1,150
2022-12-20	EST	1,052	1,030	1,012	1,013	1,022	1,064	1,137	1,190	1,195	1,172	1,147	1,105	1,073	1,046	1,027	1,027
2022-12-21	EST	1,037	1,019	1,012	1,016	1,036	1,076	1,143	1,193	1,206	1,190	1,168	1,152	1,126	1,110	1,097	1,091
2022-12-22	EST	1,008	982	969	964	976	1,005	1,059	1,108	1,135	1,143	1,151	1,152	1,155	1,157	1,163	1,173
2022-12-23	EST	1,315	1,325	1,331	1,336	1,334	1,357	1,395	1,443	1,483	1,523	1,548	1,556	1,553	1,540	1,530	1,526
2022-12-24	EST	1,380	1,346	1,333	1,325	1,313	1,310	1,320	1,351	1,389	1,413	1,404	1,385	1,348	1,308	1,278	1,260
2022-12-25	EST	1,210	1,193	1,184	1,179	1,183	1,200	1,226	1,267	1,304	1,300	1,269	1,233	1,194	1,149	1,119	1,102
2022-12-26	EST	1,077	1,048	1,028	1,018	1,020	1,031	1,056	1,090	1,123	1,156	1,187	1,189	1,181	1,165	1,154	1,150
2022-12-27	EST	1,056	1,031	1,025	1,025	1,051	1,080	1,129	1,182	1,211	1,222	1,216	1,198	1,174	1,156	1,151	1,152
2022-12-28	EST	1,085	1,061	1,047	1,045	1,054	1,078	1,122	1,165	1,178	1,145	1,104	1,072	1,046	1,037	1,024	1,013
2022-12-29	EST	928	903	885	876	881	906	934	978	994	998	999	996	982	973	966	963
2022-12-30	EST	808	776	749	746	759	780	822	869	894	923	945	955	953	950	951	954
2022-12-31	EST	843	816	807	806	807	821	846	878	918	959	983	980	964	941	924	920



**Annual Electric Balancing Authority Area and  
Planning  
Area Report**

**For the Year Ending December 31, 2022**

**Part III - Schedule 2. Forecast Summer and Winter Peak Demand and Annual Net Energy for Load**

Provide the planning area's forecast summer and winter peak demand, in megawatts, and annual net energy for load, in megawatthours, for the next ten years.

<b>Line No. (a)</b>	<b>Year (b)</b>	<b>Summer Forecast (MW) (c)</b>	<b>Winter Forecast (MW) (d)</b>	<b>Forecast of Annual Net Energy for Load (MWh) (e)</b>
1	2023	1,670	1,445	8,549,115
2	2024	1,692	1,461	8,680,871
3	2025	1,701	1,479	8,732,887
4	2026	1,710	1,488	8,773,241
5	2027	1,720	1,497	8,817,616
6	2028	1,731	1,508	8,891,317
7	2029	1,744	1,519	8,922,878
8	2030	1,753	1,525	8,954,725
9	2031	1,764	1,534	8,995,950
10	2032	1,776	1,544	9,068,443

## Annual Electric Balancing Authority Area and Planning Area Report

Utility Code:40211  
Utility Name:  
Wabash Valley Power Association,  
Inc.

**For the Year Ending December 31, 2021**

### Part III - Schedule 1. Electric Utilities That Compose the Planning Area

Enter the name of each entity, including the respondent, that forms the planning area for which this report is being prepared and their coincident summer and winter peak demands in megawatts. Refer to the Form 714 instructions for specific guidelines.

Line No. (a)	Electric Utility Name (b)	Electric Utility Coincident Peak Demand (MW) (MWh)	
		Summer (c)	Winter (d)
1	BOONE REMC	95	80
2	CARROLL WHITE REMC	80	60
3	CITIZENS ELECTRIC CORPORATION	251	237
4	CORN BELT ENERGY	146	118
5	ENERSTAR ELECTRIC COOPERATIVE	19	16
6	FULTON COUNTY REMC	27	19
7	HEARTLAND REMC	123	106
8	HENDRICKS POWER COOPERATIVE	184	163
9	JASPER COUNTY REMC	53	36
10	JAY COUNTY REMC	29	28
11	KANKAKEE VALLEY REMC	93	47
12	KOSCIUSKO REMC	95	72
13	LAGRANGE COUNTY REMC	26	16
14	MARSHALL COUNTY REMC	28	18
15	MIAMI-CASS REMC	27	24
16	MJM ELECTRIC COOPERATIVE	33	31
17	NEWTON COUNTY REMC	11	8
18	NINESTAR CONNECT	79	64
19	NOBLE REMC	45	39
20	PARKE COUNTY REMC	39	43
21	STEUBEN COUNTY REMC	43	30
22	TIPMONT REMC	129	96
23	WARREN COUNTY REMC	23	17

## Annual Electric Balancing Authority Area and Planning Area Report

Utility Code:40211  
Utility Name:  
Wabash Valley Power Association,  
Inc.

For the Year Ending December 31, 2021

### Part III - Schedule 2. Planning Area Hourly Demand

Respondents must provide the following data: the planning area's actual hourly demand, in megawatts, for each hour of the year starting with 1 a.m. Janua column (b) indicate the time zone and the days for which daylight savings time was observed. This schedule will have 365 rows for the report year (366 row enter "0.00" and provide, as a footnote to those hours, an explanation describing the reason for the unavailability of the data.

Date (a)	Time Zone (b)	0100 (c)	0200 (d)	0300 (e)	0400 (f)	0500 (g)	0600 (h)	0700 (i)	0800 (j)	0900 (k)	1000 (l)	1100 (m)	1200 (n)	1300 (o)	1400 (p)	1500 (q)	1600 (r)
2021-01-01	EST	930	910	891	878	875	882	896	917	940	970	1,004	1,029	1,033	1,017	998	983
2021-01-02	EST	847	809	795	786	791	807	833	867	903	938	961	967	966	957	948	940
2021-01-03	EST	837	814	806	804	808	818	842	869	900	930	946	960	964	958	954	955
2021-01-04	EST	887	871	865	874	902	946	1,009	1,060	1,078	1,071	1,050	1,032	1,011	987	970	958
2021-01-05	EST	894	878	873	874	897	934	1,006	1,060	1,073	1,064	1,050	1,044	1,033	1,023	1,004	996
2021-01-06	EST	911	890	881	880	900	936	1,003	1,054	1,066	1,058	1,047	1,035	1,022	1,003	985	974
2021-01-07	EST	909	889	878	878	890	927	999	1,056	1,066	1,067	1,063	1,057	1,049	1,042	1,042	1,041
2021-01-08	EST	929	912	903	904	920	959	1,028	1,083	1,093	1,088	1,088	1,085	1,082	1,074	1,069	1,066
2021-01-09	EST	953	931	921	920	925	941	971	1,012	1,053	1,080	1,092	1,086	1,068	1,037	1,014	1,005
2021-01-10	EST	945	920	907	902	901	907	926	958	998	1,032	1,040	1,056	1,059	1,056	1,052	1,052
2021-01-11	EST	937	907	894	901	930	979	1,051	1,109	1,124	1,131	1,139	1,140	1,141	1,138	1,129	1,115
2021-01-12	EST	994	979	974	975	994	1,029	1,096	1,150	1,156	1,140	1,107	1,072	1,037	1,006	972	957
2021-01-13	EST	925	909	902	904	925	964	1,040	1,095	1,096	1,079	1,057	1,029	1,001	981	966	958
2021-01-14	EST	871	854	846	849	872	916	990	1,047	1,058	1,041	1,024	1,015	996	983	979	971
2021-01-15	EST	867	851	841	845	857	899	969	1,027	1,043	1,029	1,017	1,005	997	998	995	987
2021-01-16	EST	891	855	845	853	853	871	904	946	973	998	1,007	1,010	1,005	1,000	996	994
2021-01-17	EST	856	838	827	822	825	827	848	886	923	950	965	979	990	973	968	965
2021-01-18	EST	884	871	867	869	886	918	981	1,037	1,062	1,074	1,068	1,062	1,056	1,043	1,037	1,038
2021-01-19	EST	919	906	901	906	932	981	1,065	1,126	1,128	1,089	1,067	1,046	1,025	1,011	1,000	994

2021-01-20	EST	938	929	926	930	953	995	1,068	1,130	1,138	1,119	1,089	1,070	1,047	1,024	1,006	997
2021-01-21	EST	936	916	904	901	915	955	1,028	1,084	1,086	1,050	1,015	989	966	944	933	920
2021-01-22	EST	900	889	882	882	905	954	1,030	1,093	1,104	1,088	1,074	1,058	1,034	1,008	995	986
2021-01-23	EST	1,006	993	989	1,000	1,013	1,034	1,072	1,124	1,155	1,146	1,111	1,080	1,038	1,007	980	969
2021-01-24	EST	912	892	879	872	874	881	907	946	987	1,025	1,045	1,060	1,061	1,047	1,034	1,021
2021-01-25	EST	893	882	874	872	889	933	1,012	1,071	1,091	1,094	1,104	1,104	1,092	1,079	1,069	1,063
2021-01-26	EST	896	879	871	872	891	922	981	1,034	1,050	1,048	1,060	1,073	1,065	1,049	1,051	1,048
2021-01-27	EST	932	917	912	915	935	983	1,055	1,113	1,122	1,122	1,121	1,117	1,109	1,092	1,080	1,077
2021-01-28	EST	996	982	976	979	992	1,036	1,112	1,168	1,168	1,122	1,086	1,058	1,049	1,030	1,020	1,006
2021-01-29	EST	1,021	1,008	1,003	1,004	1,019	1,057	1,126	1,180	1,181	1,152	1,115	1,080	1,049	1,016	990	956
2021-01-30	EST	937	920	911	908	915	928	956	998	1,038	1,066	1,075	1,069	1,059	1,041	1,032	1,031
2021-01-31	EST	904	878	860	851	852	858	877	915	951	985	1,004	1,014	1,023	1,016	1,007	1,009
2021-02-01	EST	929	921	918	922	940	979	1,044	1,103	1,124	1,106	1,095	1,087	1,070	1,049	1,041	1,028
2021-02-02	EST	958	941	934	934	955	998	1,071	1,123	1,132	1,099	1,061	1,036	1,013	999	995	992
2021-02-03	EST	945	932	932	940	965	1,014	1,092	1,147	1,144	1,091	1,048	1,016	993	965	942	924
2021-02-04	EST	925	909	901	900	919	959	1,030	1,079	1,076	1,072	1,064	1,050	1,044	1,045	1,036	1,031
2021-02-05	EST	996	989	984	981	998	1,037	1,106	1,161	1,172	1,150	1,133	1,113	1,096	1,079	1,062	1,044
2021-02-06	EST	993	989	984	987	1,001	1,025	1,064	1,109	1,135	1,126	1,092	1,064	1,026	996	983	979
2021-02-07	EST	1,004	998	1,014	1,026	1,046	1,072	1,109	1,160	1,194	1,191	1,170	1,161	1,148	1,127	1,108	1,106
2021-02-08	EST	1,107	1,095	1,086	1,086	1,102	1,138	1,207	1,253	1,256	1,248	1,239	1,223	1,215	1,193	1,178	1,167
2021-02-09	EST	1,049	1,040	1,038	1,045	1,067	1,115	1,185	1,237	1,243	1,220	1,202	1,177	1,149	1,124	1,107	1,107
2021-02-10	EST	1,081	1,062	1,056	1,060	1,078	1,116	1,188	1,231	1,228	1,224	1,212	1,193	1,170	1,160	1,155	1,156
2021-02-11	EST	1,086	1,074	1,071	1,070	1,084	1,120	1,187	1,240	1,250	1,237	1,220	1,197	1,173	1,148	1,130	1,140
2021-02-12	EST	1,088	1,074	1,071	1,071	1,086	1,117	1,180	1,229	1,236	1,222	1,195	1,165	1,137	1,115	1,110	1,110
2021-02-13	EST	1,065	1,051	1,044	1,044	1,050	1,064	1,093	1,136	1,174	1,194	1,187	1,168	1,146	1,120	1,103	1,103

2021-02-14	EST	1,100	1,093	1,094	1,102	1,117	1,135	1,162	1,205	1,238	1,245	1,236	1,214	1,186	1,163	1,147	1,148
2021-02-15	EST	1,153	1,146	1,146	1,156	1,168	1,200	1,248	1,287	1,309	1,320	1,321	1,317	1,303	1,295	1,293	1,299
2021-02-16	EST	1,156	1,133	1,120	1,116	1,123	1,141	1,175	1,212	1,229	1,221	1,191	1,160	1,127	1,100	1,078	1,063
2021-02-17	EST	1,114	1,112	1,118	1,132	1,156	1,201	1,266	1,312	1,315	1,280	1,243	1,214	1,178	1,144	1,121	1,113
2021-02-18	EST	1,049	1,035	1,030	1,035	1,050	1,089	1,151	1,198	1,203	1,188	1,160	1,120	1,093	1,072	1,060	1,061
2021-02-19	EST	1,048	1,041	1,043	1,053	1,075	1,120	1,195	1,254	1,249	1,197	1,147	1,112	1,082	1,055	1,035	1,029
2021-02-20	EST	1,028	1,009	1,001	999	1,009	1,028	1,063	1,113	1,141	1,123	1,086	1,045	1,007	975	955	941
2021-02-21	EST	985	970	966	970	977	989	1,012	1,047	1,079	1,081	1,061	1,029	1,000	961	946	952
2021-02-22	EST	896	882	877	876	904	951	1,023	1,081	1,098	1,095	1,088	1,075	1,058	1,035	1,009	985
2021-02-23	EST	904	884	870	867	881	914	979	1,023	1,003	970	941	916	894	873	859	843
2021-02-24	EST	844	831	825	826	842	881	953	996	979	943	923	904	888	874	865	863
2021-02-25	EST	880	876	877	884	910	958	1,038	1,088	1,077	1,038	994	961	938	916	898	888
2021-02-26	EST	908	901	897	905	929	973	1,046	1,096	1,103	1,079	1,050	1,008	971	940	929	922
2021-02-27	EST	848	821	809	803	810	824	855	895	931	941	928	905	873	844	821	807
2021-02-28	EST	763	742	731	723	723	727	745	779	818	844	847	837	826	811	803	809
2021-03-01	EST	791	789	792	802	830	885	974	1,034	1,030	1,000	978	958	953	950	939	930
2021-03-02	EST	915	909	910	916	937	984	1,067	1,112	1,092	1,045	1,010	988	964	935	909	885
2021-03-03	EST	855	844	839	842	862	904	980	1,021	998	951	916	897	871	843	826	811
2021-03-04	EST	781	775	780	792	816	870	956	1,007	998	975	950	932	912	886	870	855
2021-03-05	EST	864	854	855	863	884	934	1,015	1,060	1,047	1,017	988	960	931	898	879	862
2021-03-06	EST	852	839	837	842	849	871	909	947	963	947	923	893	860	829	806	791
2021-03-07	EST	806	798	797	798	809	827	864	902	921	911	888	863	835	799	771	753
2021-03-08	EST	766	762	764	775	794	840	924	964	952	911	883	858	839	823	807	791
2021-03-09	EST	710	699	699	708	730	775	856	904	903	875	846	828	809	789	776	760
2021-03-10	EST	692	677	673	673	688	730	807	853	858	845	827	814	809	800	795	786

2021-03-11	EST	660	640	631	627	646	686	759	809	823	819	822	822	814	801	798	790
2021-03-12	EST	710	702	700	708	729	776	855	898	894	877	853	832	813	801	798	788
2021-03-13	EST	721	702	698	702	711	731	767	805	834	841	828	809	781	759	738	724
2021-03-14	EDT	694	683	686	688	693	701	723	750	779	801	814	815	811	798	782	774
2021-03-15	EDT	737	729	732	746	777	829	908	971	997	1,005	1,014	1,025	1,032	1,022	996	967
2021-03-16	EDT	814	796	784	761	767	800	869	920	927	923	911	901	886	866	849	838
2021-03-17	EDT	734	718	711	710	729	771	843	903	915	905	894	879	854	836	820	809
2021-03-18	EDT	713	695	687	683	704	750	834	902	934	946	961	969	969	963	957	954
2021-03-19	EDT	846	830	824	831	851	895	966	1,023	1,026	1,002	975	949	924	897	875	848
2021-03-20	EDT	807	790	784	787	799	818	852	893	915	913	884	848	813	778	750	732
2021-03-21	EDT	707	692	690	694	704	722	751	794	825	821	793	769	745	723	704	689
2021-03-22	EDT	673	666	668	679	708	754	821	882	896	879	852	835	824	810	801	785
2021-03-23	EDT	675	656	648	649	667	706	770	825	838	839	835	827	820	810	805	800
2021-03-24	EDT	678	659	648	647	664	699	763	817	828	822	818	820	811	799	792	783
2021-03-25	EDT	669	655	645	649	676	718	787	850	864	867	865	853	845	834	827	819
2021-03-26	EDT	701	686	686	690	702	738	799	857	882	889	894	886	867	842	827	816
2021-03-27	EDT	725	702	693	691	702	720	748	788	819	825	810	788	763	743	731	724
2021-03-28	EDT	647	621	611	608	611	623	652	700	753	800	830	848	860	860	851	843
2021-03-29	EDT	785	776	779	790	815	862	936	998	998	960	930	899	867	850	833	813
2021-03-30	EDT	741	724	718	726	741	776	848	899	892	861	851	843	829	818	817	805
2021-03-31	EDT	709	694	691	694	721	765	844	907	917	908	899	890	884	870	859	850
2021-04-01	EDT	842	831	829	831	846	891	967	1,028	1,038	1,024	1,016	1,006	992	982	970	948
2021-04-02	EDT	881	865	863	869	885	917	980	1,036	1,041	1,003	960	924	890	857	832	810
2021-04-03	EDT	787	768	763	765	773	791	823	866	896	898	882	853	821	790	763	747
2021-04-04	EDT	681	660	651	647	655	676	707	748	788	798	790	783	766	737	721	715

2021-04-05	EDT	649	632	625	626	647	688	758	814	835	837	833	835	836	840	841	838
2021-04-06	EDT	701	668	655	651	663	697	764	813	828	823	825	831	838	842	845	847
2021-04-07	EDT	711	685	670	660	664	700	766	819	834	838	848	849	856	861	868	865
2021-04-08	EDT	726	692	674	669	676	706	773	825	843	844	848	845	852	852	851	837
2021-04-09	EDT	706	681	670	670	684	719	784	837	855	859	857	852	842	835	834	827
2021-04-10	EDT	684	647	633	622	620	626	652	691	733	765	779	783	781	777	770	760
2021-04-11	EDT	665	646	636	632	631	642	669	707	752	784	798	807	811	802	790	788
2021-04-12	EDT	707	691	686	689	707	752	829	887	897	878	866	859	854	845	836	823
2021-04-13	EDT	712	693	687	693	710	751	826	881	888	863	848	838	841	832	823	810
2021-04-14	EDT	727	709	699	700	720	766	843	895	897	880	863	850	849	839	827	815
2021-04-15	EDT	758	744	738	742	756	802	876	928	933	919	906	894	879	870	854	842
2021-04-16	EDT	775	763	759	762	781	822	894	943	946	920	894	872	857	845	833	815
2021-04-17	EDT	727	702	697	695	702	721	754	798	840	866	856	832	805	781	762	751
2021-04-18	EDT	705	694	691	699	709	727	756	787	818	820	810	792	776	762	746	745
2021-04-19	EDT	700	687	689	692	716	766	849	900	905	880	865	859	857	851	847	840
2021-04-20	EDT	765	750	747	751	766	811	893	949	967	963	958	957	957	953	948	950
2021-04-21	EDT	871	855	852	858	869	904	977	1,016	1,005	976	960	952	941	930	914	899
2021-04-22	EDT	841	831	825	828	846	890	967	1,010	1,005	973	946	935	923	904	883	864
2021-04-23	EDT	792	777	775	781	796	834	905	955	962	949	926	906	885	864	845	829
2021-04-24	EDT	712	690	678	679	691	692	719	761	806	844	854	847	835	821	803	792
2021-04-25	EDT	717	698	690	688	693	708	731	765	801	817	810	804	790	774	759	749
2021-04-26	EDT	729	716	716	726	738	784	876	927	928	909	893	871	840	833	818	815
2021-04-27	EDT	715	690	676	674	683	718	793	838	852	856	861	873	881	890	902	914
2021-04-28	EDT	762	722	699	689	695	725	794	845	862	856	861	879	880	880	880	875
2021-04-29	EDT	713	685	669	665	676	709	781	836	857	865	869	870	863	852	850	839

2021-04-30	EDT	712	680	670	670	684	725	793	844	858	854	843	837	829	824	813	802
2021-05-01	EDT	715	690	675	664	670	688	719	759	794	805	798	789	777	758	748	751
2021-05-02	EDT	662	625	604	594	591	596	614	650	698	732	753	772	781	787	798	810
2021-05-03	EDT	684	659	647	643	657	696	760	813	838	851	863	866	874	870	869	868
2021-05-04	EDT	715	684	665	658	666	698	763	813	830	831	837	838	840	835	827	821
2021-05-05	EDT	712	690	677	676	694	733	805	854	861	851	843	841	836	827	818	809
2021-05-06	EDT	727	709	703	708	723	760	833	881	890	878	866	868	867	860	856	847
2021-05-07	EDT	773	754	742	744	760	803	873	918	921	902	890	878	862	853	845	831
2021-05-08	EDT	747	720	707	705	712	733	766	800	830	833	822	807	786	767	753	743
2021-05-09	EDT	690	672	664	664	670	685	714	756	812	842	873	883	879	867	854	843
2021-05-10	EDT	767	752	755	765	783	831	906	948	942	918	901	887	880	874	864	858
2021-05-11	EDT	739	715	707	708	725	769	847	897	898	879	864	854	843	838	825	817
2021-05-12	EDT	744	712	709	720	744	790	864	907	904	883	861	853	841	828	819	809
2021-05-13	EDT	724	706	701	709	734	785	863	910	902	889	878	861	855	846	837	821
2021-05-14	EDT	717	695	687	691	710	756	829	878	882	869	855	850	841	833	830	826
2021-05-15	EDT	699	668	653	652	658	669	696	738	776	796	796	791	784	777	772	762
2021-05-16	EDT	664	638	623	616	614	621	639	672	719	749	757	762	768	769	771	782
2021-05-17	EDT	692	664	648	639	654	692	764	823	847	857	872	883	883	882	872	864
2021-05-18	EDT	711	684	669	665	672	706	778	835	857	868	877	888	893	895	894	892
2021-05-19	EDT	751	714	695	688	698	731	797	852	875	885	899	919	929	939	949	951
2021-05-20	EDT	795	754	727	716	712	739	803	859	895	925	960	993	1,031	1,064	1,089	1,103
2021-05-21	EDT	862	804	766	746	744	769	824	884	932	967	1,000	1,038	1,071	1,102	1,131	1,153
2021-05-22	EDT	831	766	725	704	692	693	712	748	805	850	889	928	969	1,012	1,052	1,090
2021-05-23	EDT	809	749	707	666	646	641	645	683	754	813	867	929	986	1,029	1,055	1,074
2021-05-24	EDT	833	782	754	737	737	767	828	883	930	979	1,039	1,108	1,166	1,204	1,242	1,271



2021-05-25	EDT	895	830	788	760	748	772	828	891	942	984	1,041	1,103	1,163	1,199	1,219	1,228
2021-05-26	EDT	891	835	798	777	773	794	850	891	914	932	952	981	1,012	1,050	1,087	1,118
2021-05-27	EDT	813	759	719	702	705	732	783	839	871	888	903	932	966	1,016	1,050	1,062
2021-05-28	EDT	794	750	722	708	711	731	784	832	870	887	899	902	904	905	897	883
2021-05-29	EDT	735	700	682	670	669	680	701	735	778	800	804	798	787	773	760	753
2021-05-30	EDT	656	632	620	621	623	633	647	680	718	736	742	745	739	729	725	729
2021-05-31	EDT	648	624	616	603	593	599	612	639	682	729	755	771	774	771	770	775
2021-06-01	EDT	671	641	627	623	635	672	727	781	822	844	862	888	916	925	934	938
2021-06-02	EDT	763	724	697	693	700	726	774	820	857	877	891	906	915	919	923	916
2021-06-03	EDT	768	732	710	698	701	725	766	821	858	886	908	934	960	983	1,013	1,040
2021-06-04	EDT	837	783	748	729	731	756	800	856	908	940	980	1,023	1,074	1,133	1,184	1,219
2021-06-05	EDT	894	823	772	743	728	725	733	782	860	939	1,004	1,062	1,108	1,147	1,181	1,213
2021-06-06	EDT	888	815	769	738	719	711	708	752	829	913	981	1,046	1,107	1,146	1,170	1,188
2021-06-07	EDT	911	856	822	804	803	830	881	931	974	996	1,024	1,059	1,096	1,136	1,174	1,196
2021-06-08	EDT	901	846	810	792	794	817	864	918	972	1,010	1,059	1,116	1,162	1,202	1,237	1,258
2021-06-09	EDT	924	861	816	791	789	814	863	922	980	1,028	1,075	1,123	1,155	1,192	1,223	1,249
2021-06-10	EDT	939	875	835	813	804	828	876	944	1,008	1,054	1,114	1,171	1,226	1,266	1,299	1,324
2021-06-11	EDT	1,006	932	879	846	835	850	886	953	1,037	1,119	1,198	1,276	1,340	1,391	1,432	1,458
2021-06-12	EDT	1,019	929	867	821	794	784	790	843	940	1,051	1,156	1,249	1,322	1,379	1,423	1,450
2021-06-13	EDT	980	904	847	808	778	762	748	798	897	988	1,059	1,126	1,179	1,217	1,244	1,270
2021-06-14	EDT	862	788	754	736	738	767	815	881	950	1,013	1,078	1,136	1,182	1,217	1,242	1,265
2021-06-15	EDT	848	789	750	729	724	746	788	841	891	924	963	1,003	1,044	1,085	1,120	1,147
2021-06-16	EDT	820	762	727	705	697	721	760	811	862	900	936	974	1,010	1,053	1,100	1,136
2021-06-17	EDT	814	761	728	700	697	722	765	822	874	918	977	1,039	1,087	1,144	1,203	1,264
2021-06-18	EDT	981	914	872	850	853	875	921	968	1,014	1,054	1,113	1,195	1,287	1,353	1,401	1,427

2021-06-19	EDT	1,028	940	883	845	827	819	822	835	876	945	995	1,034	1,076	1,112	1,153	1,189
2021-06-20	EDT	923	858	815	789	771	761	763	812	891	979	1,058	1,135	1,205	1,262	1,311	1,351
2021-06-21	EDT	1,034	978	929	881	859	877	917	968	1,018	1,028	1,033	1,052	1,065	1,069	1,067	1,053
2021-06-22	EDT	760	716	692	684	685	714	752	798	837	858	874	893	910	929	941	953
2021-06-23	EDT	785	741	716	704	710	733	778	824	858	871	882	901	921	938	963	979
2021-06-24	EDT	812	760	716	703	706	733	777	831	883	914	956	1,003	1,039	1,060	1,068	1,068
2021-06-25	EDT	857	811	785	774	777	803	856	908	947	982	1,011	1,037	1,053	1,064	1,077	1,098
2021-06-26	EDT	947	896	859	837	820	819	839	875	939	1,012	1,077	1,134	1,182	1,221	1,253	1,274
2021-06-27	EDT	944	884	846	823	806	802	807	845	914	976	1,028	1,085	1,148	1,205	1,253	1,290
2021-06-28	EDT	962	901	861	838	832	856	900	968	1,048	1,118	1,198	1,276	1,345	1,393	1,421	1,439
2021-06-29	EDT	1,033	959	913	884	876	894	932	999	1,084	1,166	1,255	1,329	1,403	1,452	1,473	1,471
2021-06-30	EDT	1,027	962	910	882	880	899	938	981	1,024	1,058	1,092	1,125	1,146	1,164	1,177	1,192
2021-07-01	EDT	941	880	847	827	823	838	882	942	991	1,033	1,066	1,115	1,171	1,218	1,264	1,290
2021-07-02	EDT	850	790	751	730	726	739	768	820	872	904	939	974	995	1,021	1,052	1,077
2021-07-03	EDT	788	735	695	665	659	661	664	691	742	797	839	872	905	943	986	1,031
2021-07-04	EDT	836	776	740	711	674	662	661	693	769	860	943	1,031	1,104	1,164	1,215	1,260
2021-07-05	EDT	922	839	781	743	719	716	726	759	839	942	1,062	1,171	1,253	1,313	1,366	1,403
2021-07-06	EDT	1,027	951	899	864	853	867	906	956	1,011	1,077	1,173	1,265	1,344	1,402	1,438	1,469
2021-07-07	EDT	1,068	987	933	898	885	897	939	992	1,058	1,128	1,214	1,295	1,367	1,415	1,434	1,434
2021-07-08	EDT	1,003	932	881	857	850	864	908	952	989	1,017	1,048	1,074	1,117	1,161	1,197	1,194
2021-07-09	EDT	861	810	772	745	738	758	795	839	887	915	940	966	999	1,020	1,040	1,059
2021-07-10	EDT	851	791	753	727	719	721	732	760	811	852	891	928	969	995	1,009	1,017
2021-07-11	EDT	818	767	736	717	707	704	713	734	778	831	869	905	936	951	967	985
2021-07-12	EDT	827	784	759	747	755	784	839	890	937	970	1,001	1,041	1,092	1,135	1,171	1,201
2021-07-13	EDT	897	844	811	793	794	815	864	908	953	983	1,019	1,057	1,093	1,128	1,163	1,184

2021-07-14	EDT	901	840	804	784	780	800	850	895	948	1,002	1,077	1,154	1,223	1,278	1,327	1,357
2021-07-15	EDT	992	928	879	857	852	870	916	964	1,020	1,074	1,147	1,226	1,297	1,351	1,375	1,381
2021-07-16	EDT	942	886	848	828	827	846	888	929	971	1,004	1,028	1,053	1,068	1,090	1,121	1,125
2021-07-17	EDT	884	834	799	769	752	753	770	794	842	892	937	978	1,018	1,057	1,097	1,139
2021-07-18	EDT	863	806	756	724	702	706	716	743	809	878	944	1,010	1,070	1,120	1,163	1,203
2021-07-19	EDT	887	826	785	763	765	788	833	880	940	1,000	1,068	1,127	1,181	1,241	1,290	1,320
2021-07-20	EDT	911	844	795	761	744	760	805	848	894	946	1,019	1,089	1,157	1,218	1,270	1,308
2021-07-21	EDT	923	852	805	778	769	788	832	874	921	961	1,004	1,064	1,122	1,179	1,231	1,264
2021-07-22	EDT	885	820	775	751	748	772	812	854	901	953	1,019	1,092	1,169	1,237	1,294	1,325
2021-07-23	EDT	980	911	862	833	825	841	885	935	1,001	1,058	1,127	1,209	1,287	1,348	1,401	1,434
2021-07-24	EDT	1,009	927	873	836	814	806	812	844	920	1,020	1,119	1,207	1,278	1,333	1,370	1,403
2021-07-25	EDT	985	906	851	815	789	776	772	791	872	974	1,062	1,146	1,220	1,274	1,320	1,353
2021-07-26	EDT	928	860	813	782	774	792	831	882	957	1,032	1,115	1,198	1,272	1,337	1,383	1,417
2021-07-27	EDT	976	899	844	815	803	817	855	908	971	1,033	1,117	1,208	1,294	1,360	1,418	1,453
2021-07-28	EDT	1,024	950	898	861	849	868	904	954	1,008	1,069	1,149	1,246	1,330	1,404	1,465	1,501
2021-07-29	EDT	1,090	1,016	968	940	933	950	998	1,042	1,082	1,121	1,179	1,255	1,323	1,379	1,425	1,457
2021-07-30	EDT	1,022	943	886	849	835	844	883	917	953	995	1,038	1,080	1,126	1,163	1,187	1,214
2021-07-31	EDT	865	810	774	751	737	737	752	777	828	882	927	963	980	988	999	1,020
2021-08-01	EDT	802	752	719	703	694	691	700	724	777	836	888	939	988	1,035	1,074	1,102
2021-08-02	EDT	807	761	733	718	725	748	799	841	893	939	972	1,007	1,045	1,080	1,119	1,150
2021-08-03	EDT	845	791	757	738	740	769	812	846	892	933	976	1,025	1,066	1,106	1,141	1,173
2021-08-04	EDT	854	791	756	738	738	756	807	848	889	929	979	1,035	1,090	1,140	1,188	1,230
2021-08-05	EDT	884	824	785	761	759	781	836	875	919	972	1,029	1,089	1,148	1,206	1,258	1,292
2021-08-06	EDT	909	837	800	777	774	793	842	885	927	969	1,021	1,084	1,146	1,209	1,270	1,306
2021-08-07	EDT	935	867	817	784	759	755	766	790	854	926	996	1,080	1,163	1,236	1,287	1,333

2021-08-08	EDT	958	888	837	803	780	769	770	790	864	960	1,050	1,143	1,233	1,300	1,348	1,383
2021-08-09	EDT	965	903	864	844	842	870	925	970	1,019	1,063	1,108	1,144	1,173	1,205	1,233	1,278
2021-08-10	EDT	1,030	976	934	918	918	946	1,012	1,057	1,104	1,161	1,234	1,318	1,403	1,458	1,531	1,571
2021-08-11	EDT	1,122	1,037	981	948	939	962	1,024	1,069	1,117	1,179	1,253	1,330	1,372	1,356	1,356	1,387
2021-08-12	EDT	1,148	1,094	1,048	1,023	1,009	1,018	1,051	1,074	1,096	1,118	1,170	1,226	1,283	1,306	1,327	1,325
2021-08-13	EDT	903	855	819	799	799	824	888	932	972	1,014	1,052	1,109	1,176	1,210	1,241	1,257
2021-08-14	EDT	897	835	795	767	753	750	762	780	837	902	966	1,015	1,061	1,101	1,136	1,162
2021-08-15	EDT	797	743	708	686	672	668	682	701	759	814	860	911	957	999	1,037	1,076
2021-08-16	EDT	820	776	749	738	743	776	843	886	920	961	1,011	1,072	1,126	1,167	1,190	1,211
2021-08-17	EDT	903	851	813	793	787	811	882	926	960	997	1,034	1,085	1,152	1,221	1,276	1,319
2021-08-18	EDT	977	916	871	850	843	872	936	983	1,017	1,061	1,131	1,220	1,291	1,353	1,402	1,425
2021-08-19	EDT	1,016	949	901	868	861	886	944	991	1,033	1,081	1,149	1,231	1,308	1,373	1,430	1,460
2021-08-20	EDT	1,032	963	913	886	879	902	964	1,009	1,059	1,124	1,205	1,289	1,368	1,427	1,471	1,498
2021-08-21	EDT	1,042	964	908	868	850	846	858	883	958	1,050	1,142	1,228	1,283	1,338	1,391	1,421
2021-08-22	EDT	984	917	868	834	811	799	805	824	905	1,008	1,106	1,203	1,289	1,361	1,409	1,447
2021-08-23	EDT	1,027	959	912	883	875	897	957	1,002	1,052	1,122	1,207	1,292	1,373	1,444	1,497	1,528
2021-08-24	EDT	1,045	980	931	903	900	926	993	1,045	1,092	1,159	1,256	1,359	1,456	1,536	1,593	1,631
2021-08-25	EDT	1,147	1,062	1,007	971	956	973	1,026	1,063	1,091	1,137	1,201	1,268	1,333	1,388	1,441	1,476
2021-08-26	EDT	1,069	1,003	957	922	914	933	993	1,039	1,063	1,104	1,155	1,220	1,295	1,361	1,413	1,446
2021-08-27	EDT	997	938	894	869	865	893	956	998	1,038	1,088	1,164	1,258	1,356	1,441	1,509	1,552
2021-08-28	EDT	1,076	992	933	893	864	856	870	896	963	1,054	1,152	1,256	1,348	1,417	1,465	1,495
2021-08-29	EDT	1,041	968	919	886	869	858	863	886	963	1,069	1,176	1,275	1,356	1,409	1,439	1,467
2021-08-30	EDT	1,020	963	923	898	899	927	985	1,028	1,065	1,110	1,154	1,218	1,279	1,345	1,383	1,384
2021-08-31	EDT	935	880	843	820	813	837	905	948	974	1,003	1,048	1,103	1,162	1,212	1,258	1,286
2021-09-01	EDT	931	883	847	825	822	849	910	953	978	1,000	1,035	1,072	1,117	1,154	1,184	1,211

2021-09-02	EDT	846	801	768	750	751	779	838	882	904	925	954	985	1,023	1,060	1,101	1,129
2021-09-03	EDT	823	781	754	739	746	771	828	872	899	930	967	1,001	1,031	1,069	1,094	1,108
2021-09-04	EDT	838	785	755	733	723	724	739	767	814	861	894	916	931	935	927	927
2021-09-05	EDT	804	766	742	723	710	707	716	739	793	855	907	952	996	1,028	1,054	1,076
2021-09-06	EDT	781	734	700	685	681	683	700	716	764	830	898	961	1,019	1,069	1,115	1,158
2021-09-07	EDT	816	769	741	727	731	761	831	883	912	956	1,013	1,085	1,153	1,218	1,275	1,304
2021-09-08	EDT	864	819	790	770	768	794	856	901	924	947	985	1,023	1,070	1,103	1,122	1,138
2021-09-09	EDT	800	755	719	707	708	735	804	843	859	877	901	927	959	986	1,011	1,032
2021-09-10	EDT	774	734	712	700	705	735	800	847	860	868	892	920	946	980	1,023	1,055
2021-09-11	EDT	792	746	718	701	697	705	731	769	812	857	904	952	1,002	1,062	1,124	1,178
2021-09-12	EDT	902	848	810	788	771	766	772	795	848	918	986	1,060	1,134	1,200	1,257	1,302
2021-09-13	EDT	900	852	818	799	801	832	897	951	974	1,003	1,057	1,126	1,205	1,284	1,353	1,395
2021-09-14	EDT	950	896	860	838	831	861	933	996	1,029	1,080	1,142	1,223	1,309	1,375	1,421	1,440
2021-09-15	EDT	934	876	832	809	804	828	893	942	951	965	975	1,008	1,043	1,074	1,111	1,145
2021-09-16	EDT	822	783	748	729	731	761	824	878	890	909	945	985	1,030	1,078	1,127	1,177
2021-09-17	EDT	873	826	799	780	784	811	878	929	953	993	1,053	1,131	1,203	1,262	1,320	1,366
2021-09-18	EDT	943	879	837	807	790	788	806	841	893	960	1,041	1,118	1,200	1,279	1,337	1,372
2021-09-19	EDT	879	817	778	756	739	729	740	764	818	898	974	1,075	1,163	1,232	1,296	1,344
2021-09-20	EDT	940	894	863	849	854	884	952	1,017	1,036	1,045	1,068	1,105	1,134	1,158	1,194	1,217
2021-09-21	EDT	939	891	855	837	831	854	919	976	991	1,000	1,018	1,037	1,048	1,051	1,051	1,044
2021-09-22	EDT	787	755	736	727	732	759	827	881	891	892	898	908	911	911	910	905
2021-09-23	EDT	761	741	727	720	727	760	827	886	897	902	909	909	908	904	907	904
2021-09-24	EDT	766	738	722	715	721	752	822	870	881	883	882	890	892	905	919	927
2021-09-25	EDT	775	738	714	698	695	701	725	763	804	839	858	864	865	854	859	876
2021-09-26	EDT	727	699	680	667	663	670	689	720	763	801	820	835	851	868	884	910

2021-09-27	EDT	774	744	728	725	729	768	840	902	920	940	973	1,014	1,059	1,102	1,146	1,188
2021-09-28	EDT	898	836	780	750	742	764	828	878	890	909	937	976	1,022	1,064	1,116	1,163
2021-09-29	EDT	798	753	725	711	714	744	813	866	881	896	930	970	1,013	1,064	1,114	1,161
2021-09-30	EDT	818	774	743	727	730	760	828	882	891	903	930	969	1,016	1,057	1,088	1,111
2021-10-01	EDT	807	763	729	714	718	746	810	862	873	889	912	947	985	1,031	1,081	1,120
2021-10-02	EDT	828	781	746	728	719	720	740	782	822	856	878	897	907	917	920	926
2021-10-03	EDT	793	761	734	718	713	718	732	765	808	859	894	925	956	981	1,000	1,008
2021-10-04	EDT	780	749	736	732	742	779	852	917	933	947	962	977	994	1,009	1,019	1,020
2021-10-05	EDT	818	786	762	754	761	792	862	926	939	941	953	967	984	995	1,019	1,039
2021-10-06	EDT	838	803	779	769	771	805	875	939	952	960	976	992	1,003	1,009	1,019	1,025
2021-10-07	EDT	840	805	778	767	770	804	875	939	942	943	963	988	1,017	1,035	1,049	1,055
2021-10-08	EDT	789	748	721	708	713	738	799	861	879	892	920	955	987	1,013	1,042	1,053
2021-10-09	EDT	796	748	719	700	696	701	728	767	811	864	906	945	991	1,039	1,081	1,111
2021-10-10	EDT	831	785	757	738	728	726	739	772	811	859	908	963	1,025	1,078	1,118	1,159
2021-10-11	EDT	852	809	782	768	773	804	867	927	951	973	1,004	1,038	1,067	1,096	1,126	1,141
2021-10-12	EDT	796	756	727	711	712	738	799	861	878	881	887	892	898	904	914	913
2021-10-13	EDT	756	729	710	707	721	755	813	876	887	890	906	929	945	963	975	980
2021-10-14	EDT	822	789	763	757	764	798	867	932	953	964	980	1,006	1,028	1,043	1,058	1,058
2021-10-15	EDT	812	770	746	736	742	768	823	881	909	921	933	942	945	945	940	928
2021-10-16	EDT	746	710	690	680	680	690	709	749	790	827	842	844	836	829	823	821
2021-10-17	EDT	737	716	705	702	703	713	739	781	821	846	844	839	834	822	816	819
2021-10-18	EDT	754	740	733	739	755	793	863	930	953	948	946	943	941	933	935	934
2021-10-19	EDT	786	763	744	738	749	776	843	908	917	912	912	912	911	909	906	905
2021-10-20	EDT	766	747	728	723	735	770	839	898	914	904	907	908	908	917	923	921
2021-10-21	EDT	762	737	721	712	720	751	818	879	892	879	879	890	897	903	902	897

2021-10-22	EDT	782	757	737	731	744	772	836	899	918	914	926	930	931	923	909	896
2021-10-23	EDT	784	755	737	726	729	746	775	815	857	885	892	885	879	869	861	856
2021-10-24	EDT	749	723	710	703	700	706	724	760	801	831	847	863	870	867	859	858
2021-10-25	EDT	718	695	693	697	719	757	822	884	903	903	916	922	925	921	912	903
2021-10-26	EDT	798	777	765	763	774	814	889	950	964	952	934	915	904	894	884	876
2021-10-27	EDT	804	789	778	785	805	846	925	988	995	966	942	927	911	902	893	884
2021-10-28	EDT	784	770	755	751	761	799	868	929	935	926	922	917	913	910	915	906
2021-10-29	EDT	764	742	726	721	732	768	836	893	916	918	922	919	913	906	894	887
2021-10-30	EDT	756	724	701	694	698	709	733	772	813	843	863	860	855	843	832	821
2021-10-31	EDT	733	707	699	696	697	707	734	771	812	834	837	834	835	833	834	833
2021-11-01	EDT	779	768	768	778	799	849	936	1,006	1,019	1,017	1,009	998	987	973	965	959
2021-11-02	EDT	877	862	852	849	858	902	981	1,043	1,056	1,034	1,011	993	978	962	958	944
2021-11-03	EDT	908	892	883	886	906	950	1,024	1,091	1,101	1,078	1,043	1,009	990	973	961	950
2021-11-04	EDT	937	924	917	918	937	980	1,062	1,126	1,135	1,110	1,074	1,044	1,019	1,000	985	970
2021-11-05	EDT	933	923	915	910	923	964	1,040	1,101	1,110	1,086	1,054	1,020	984	960	945	934
2021-11-06	EDT	896	878	868	867	878	899	937	988	1,032	1,040	1,010	981	947	916	896	879
2021-11-07	EST	827	813	800	801	806	827	863	902	929	922	892	872	859	850	841	839
2021-11-08	EST	783	775	776	786	811	864	951	1,004	996	970	950	936	929	924	920	915
2021-11-09	EST	800	783	773	769	777	819	905	958	961	941	927	918	913	904	896	891
2021-11-10	EST	773	759	751	750	770	813	891	941	951	934	912	901	891	885	876	866
2021-11-11	EST	740	723	710	707	718	758	834	887	894	889	885	883	882	867	868	867
2021-11-12	EST	794	781	774	776	797	840	920	978	986	977	972	972	972	973	979	978
2021-11-13	EST	880	856	838	833	839	857	881	917	952	983	992	989	981	973	963	963
2021-11-14	EST	849	832	824	823	829	846	870	909	952	981	988	992	999	990	989	997
2021-11-15	EST	893	883	880	884	909	955	1,031	1,088	1,089	1,071	1,059	1,054	1,044	1,042	1,037	1,030

2021-11-16	EST	907	894	886	889	905	949	1,023	1,077	1,074	1,040	1,011	980	956	935	926	922
2021-11-17	EST	821	799	779	772	781	817	889	941	946	937	931	945	941	934	929	926
2021-11-18	EST	815	804	800	802	820	871	960	1,019	1,012	998	985	977	971	966	974	990
2021-11-19	EST	940	925	914	910	925	967	1,043	1,099	1,097	1,072	1,045	1,012	994	980	968	957
2021-11-20	EST	916	893	878	871	875	888	919	959	992	1,013	1,012	1,001	970	934	903	887
2021-11-21	EST	804	783	770	760	760	776	801	837	877	904	919	921	914	900	887	878
2021-11-22	EST	864	862	865	877	903	955	1,039	1,102	1,103	1,093	1,072	1,048	1,033	1,023	1,012	1,007
2021-11-23	EST	986	972	963	960	978	1,023	1,107	1,163	1,153	1,107	1,073	1,042	1,015	995	983	974
2021-11-24	EST	949	929	911	909	922	946	1,001	1,057	1,071	1,055	1,050	1,041	1,024	997	980	981
2021-11-25	EST	801	770	746	736	738	753	783	830	889	950	992	1,005	971	925	903	893
2021-11-26	EST	868	860	857	866	885	912	953	998	1,028	1,041	1,035	1,023	1,000	979	972	972
2021-11-27	EST	898	875	863	859	863	875	901	943	978	996	1,001	992	974	955	943	936
2021-11-28	EST	852	835	824	819	827	839	870	912	949	956	947	946	947	939	932	936
2021-11-29	EST	933	927	923	929	949	997	1,074	1,133	1,131	1,109	1,085	1,065	1,053	1,039	1,025	1,018
2021-11-30	EST	906	887	873	872	882	922	1,001	1,059	1,052	1,020	990	965	946	930	914	902
2021-12-01	EST	891	878	872	869	882	921	991	1,044	1,044	1,034	1,023	1,006	989	977	962	958
2021-12-02	EST	840	819	806	804	815	854	928	982	980	967	946	928	905	886	877	872
2021-12-03	EST	843	826	817	821	839	880	953	1,014	1,010	981	962	940	916	904	888	874
2021-12-04	EST	837	817	808	807	819	843	885	934	970	974	965	940	913	888	875	870
2021-12-05	EST	860	838	825	823	827	840	867	906	947	970	978	980	983	976	967	955
2021-12-06	EST	776	758	756	770	802	865	965	1,045	1,069	1,070	1,074	1,071	1,059	1,050	1,037	1,030
2021-12-07	EST	1,025	1,012	1,004	1,009	1,028	1,064	1,141	1,196	1,194	1,178	1,168	1,157	1,145	1,133	1,126	1,116
2021-12-08	EST	1,015	994	981	981	1,000	1,041	1,114	1,170	1,160	1,128	1,098	1,072	1,051	1,039	1,027	1,018
2021-12-09	EST	977	966	959	954	962	1,002	1,075	1,132	1,126	1,103	1,083	1,067	1,044	1,015	1,005	995
2021-12-10	EST	868	850	833	828	844	878	942	999	1,011	1,003	982	984	969	959	944	938



2021-12-11	EST	751	720	705	698	708	730	774	832	894	947	971	991	996	1,015	989	977
2021-12-12	EST	911	888	875	871	876	890	917	954	986	984	964	943	922	895	877	874
2021-12-13	EST	893	878	871	878	901	950	1,027	1,090	1,087	1,058	1,030	1,002	981	955	939	929
2021-12-14	EST	910	895	887	879	893	933	1,010	1,067	1,061	1,020	987	969	954	938	930	926
2021-12-15	EST	824	802	788	784	794	830	903	961	966	950	942	932	920	914	908	901
2021-12-16	EST	785	761	745	737	745	781	857	917	930	920	919	918	912	899	894	892
2021-12-17	EST	904	892	884	887	914	957	1,032	1,096	1,095	1,080	1,049	1,035	1,026	1,019	1,014	1,016
2021-12-18	EST	900	868	845	835	838	852	884	926	962	994	1,016	1,020	1,016	1,007	1,002	1,003
2021-12-19	EST	909	884	864	860	859	873	900	939	971	997	998	993	983	964	946	945
2021-12-20	EST	950	939	931	930	951	997	1,061	1,125	1,139	1,106	1,082	1,057	1,028	1,004	983	971
2021-12-21	EST	955	940	933	938	952	990	1,058	1,114	1,125	1,101	1,061	1,020	992	991	972	969
2021-12-22	EST	953	937	927	932	955	997	1,066	1,124	1,142	1,125	1,106	1,078	1,057	1,038	1,022	1,014
2021-12-23	EST	982	960	944	939	950	977	1,025	1,073	1,095	1,102	1,079	1,048	1,023	1,009	1,001	992
2021-12-24	EST	828	789	768	758	757	769	793	828	867	900	923	917	902	885	877	872
2021-12-25	EST	711	673	647	637	633	641	649	692	742	784	803	812	805	788	769	757
2021-12-26	EST	726	706	698	698	707	727	759	802	841	876	883	873	857	840	827	825
2021-12-27	EST	781	755	742	735	742	761	800	841	868	882	891	898	896	881	874	869
2021-12-28	EST	805	783	770	770	789	815	868	917	955	975	992	1,004	1,011	1,013	1,007	1,002
2021-12-29	EST	829	802	784	777	788	815	863	909	942	963	976	979	977	968	966	965
2021-12-30	EST	845	822	810	802	816	837	882	926	955	964	972	981	968	956	941	932
2021-12-31	EST	798	774	756	748	753	769	791	822	852	875	893	894	884	864	851	849

**Annual Electric Balancing Authority Area and  
Planning  
Area Report**

Utility Code:40211  
Utility Name:  
Wabash Valley Power Association,  
Inc.

**For the Year Ending December 31, 2021**

**Part III - Schedule 2. Forecast Summer and Winter Peak Demand and Annual Net Energy for Load**

Provide the planning area's forecast summer and winter peak demand, in megawatts, and annual net energy for load, in megawatthours, for the next ten years.

<b>Line No. (a)</b>	<b>Year (b)</b>	<b>Summer Forecast (MW) (c)</b>	<b>Winter Forecast (MW) (d)</b>	<b>Forecast of Annual Net Energy for Load (MWh) (e)</b>
1	2022	1,652	1,421	8,401,816
2	2023	1,666	1,435	8,487,887
3	2024	1,689	1,455	8,638,111
4	2025	1,698	1,473	8,688,054
5	2026	1,707	1,481	8,728,266
6	2027	1,717	1,491	8,772,498
7	2028	1,728	1,501	8,846,053
8	2029	1,740	1,512	8,877,465
9	2030	1,750	1,519	8,909,161
10	2031	1,760	1,527	8,950,230

## Appendix F

**EIA-861 (2022)**

**Page No.**  
**1-28**

**SCHEDULE 1. IDENTIFICATION**

**SURVEY CONTACTS:** Persons to contact with question about this form

**RESPONSE DUE DATE: Please submit by April 30th following the close of calendar year**

**Contact** Denise Sewell  
 Title: Accounting Supervisor

REPORT FOR: Wabash Valley Power Assn, Inc 40211  
 REPORTING PERIOD: 2022

Phone: (317) 481-2863 FAX: Email: denises@wvpa.com

**Supervisor** Theresa Young  
 Title: Chief Financial Officer

Logged By / Date:  
 Logged In:  Receipt Date (mm/dd/yyyy):

Phone: (317) 481-2827 FAX: (317) 243-6416 Email: theresay@wvpa.com

1	Legal Name of Industry Participant	Wabash Valley Power Assn, Inc	<b>Submission Status/Date:</b>	<input type="text" value="Not Submitted"/>	<input type="text"/>
2	Current Address of Principal Business Office	6702 Intech Boulevard  Indianapolis IN 46278			
3	Preparer's Legal Name Operator (if different than line 1)				
4	Current Address of Preparer's Office (if different than line 2)				
5	Respondent Type (Check One)	<input type="checkbox"/> Federal <input type="checkbox"/> Political Subdivision <input type="checkbox"/> Municipal Marketing Authority <input checked="" type="checkbox"/> Cooperative <input type="checkbox"/> Independent Power Producer or Qualifying Facility	<input type="checkbox"/> State <input type="checkbox"/> Municipal <input type="checkbox"/> Investor-Owned <input type="checkbox"/> Retail Power Marketer (or Energy Service Provider) <input type="checkbox"/> Community Choice Aggregator	<input type="checkbox"/> Transmission <input type="checkbox"/> Behind the Meter <input type="checkbox"/> Wholesale Power Marketer <input type="checkbox"/> DSM Administrator	

For questions or additional information about the Form EIA-861 contact the Survey Manager: Fax: (202) 287 - 1938 Email: EIA-861@eia.gov  
**Stephen Scott** Phone: (202) 586-5140 Email: stephen.scott@eia.gov

REPORT FOR: Wabash Valley Power Assn, Inc 40211  
REPORT PERIOD ENDING: 2022

**SCHEDULE 2. PART A. GENERAL INFORMATION**

LINE NO.			
1	Regional North American Electric Reliability Council (Not applicable for power marketers)	<input type="checkbox"/> TRE (formerly ERCOT) <input type="checkbox"/> FRCC <input type="checkbox"/> MRO	<input type="checkbox"/> NPCC <input checked="" type="checkbox"/> RFC (formerly ECAR, MAIN. MAAC) <input checked="" type="checkbox"/> SERC
2	Name of RTO or ISO	<input type="checkbox"/> California ISO <input type="checkbox"/> Electric Reliability Council of Texas <input checked="" type="checkbox"/> PJM Interconnection <input type="checkbox"/> New York ISO	<input type="checkbox"/> Southwest Power Pool <input checked="" type="checkbox"/> Midwest ISO <input type="checkbox"/> ISO New England <input type="checkbox"/> None
3	(For EIA Use Only) Identify the North American Electric Reliability Council where you are physically located	RFC	
4	Did Your Company Operate Generating Plants(s)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
5	Identify The Activities Your Company Was Engaged In During The Year (Check appropriate activities)	<input checked="" type="checkbox"/> Generation from company owned plant <input checked="" type="checkbox"/> Transmission <input checked="" type="checkbox"/> Buying transmission services on other electrical system <input type="checkbox"/> Distribution using owned/leased electric wires	<input type="checkbox"/> Buying distribution on other electrical system <input checked="" type="checkbox"/> Wholesale power marketing <input type="checkbox"/> Retail power marketing <input type="checkbox"/> Bundled Services (electricity plus other services such as gas, water, etc. in addition to electric service))
6	Highest Hourly Electrical Peak System Demand	Summer (Megawatts) 1,708.0 Winter (Megawatts) 1,407.0	Prior Year 1,678.0 Prior Year 1,368.0
7	Did Your Company Operate Alternative-Fueled Vehicles During the Year? Does Your Company Plan to Operate Such Vehicles During the Coming Year?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> No
If "Yes", Please Provide Additional Contact Information		Name: Joan Soller Title: Director, Grid Innovation Telephone: 317 - 481 - 2903 Fax: 317 - 481 - 6416 Email: j_soller@wvpa.com	

REPORT FOR: Wabash Valley Power Assn, Inc

40211

REPORT PERIOD ENDING: 2022

**SCHEDULE 2. PART B. ENERGY SOURCES AND DISPOSITION**

	SOURCE OF ENERGY	MEGAWATTHOURS		DISPOSITION OF ENERGY	MEGAWATTHOURS
1	Net Generation	2,661,850	11	Sales to Ultimate Consumers	
2	Purchases from Electricity Suppliers	9,166,609	12	Sales For Resale	11,593,290
3	Exchanged Received (In)		13	Energy Furnished Without Charge	
4	Exchanged Delivered (Out)		14	Energy Consumed By Respondent Without Charge	
5	Exchanged Net				
6	Wheeled Received (In)				
7	Wheeled Delivered (Out)		15	Total Energy Losses (positive number)	
8	Wheeled Net				
9	Transmission by Others Losses (Negative Number)	-235,169			
10	Total Sources (sum of lines 1, 2, 5, 8 & 9)	11,593,290	16	Total Disposition (sum of lines 11, 12, 13, 14, & 15)	11,593,290

REPORT FOR: Wabash Valley Power Assn, Inc

40211

REPORT PERIOD ENDING: 2022

**SCHEDULE 2. PART C. ELECTRIC OPERATING REVENUE**

LINE NO.	TYPE OF OPERATING REVENUE		(THOUSAND DOLLARS to the nearest 0.1)
1	Electrical Operating Revenue From Sales to Ultimate Customers (Schedule 4: Parts A, B, and D)	\$	
2	Revenue From Unbundled (Delivery) Customers (Schedule 4: Part C)	\$	
3	Electric Operating Revenue from Sales for Resale	\$	893,685.8
4	Electric Credits/Other Adjustments	\$	
5	Revenue from Transmission	\$	13,906.0
6	Other Electric Operating Revenue	\$	3,324.2
7	Total Electric Operating Revenue (sum of lines 1, 2, 3, 4, 5 and 6)	\$	910,916.0

REPORT FOR: Wabash Valley Power Assn, Inc

REPORT PERIOD ENDING:

**SCHEDULE 3. PART A.  
DISTRIBUTION SYSTEM RELIABILITY DATA**

INSTRUCTIONS: For the purpose of this schedule, a distribution circuit is any circuit with a voltage of 34kV or below that emanate from a substation and that serves end use customers.

**State/Territory**

1	Total Number of Distribution Circuits	
2	Number of Distribution Circuits that employ voltage/VAR optimization (VVO)	



REPORT FOR: Wabash Valley Power Assn, Inc

REPORT PERIOD ENDING:

**SCHEDULE 3. PART B.**  
**DISTRIBUTION SYSTEM RELIABILITY DATA**

**Who is required to complete this schedule?**

This schedule collects System Average Interruption Frequency Index (SAIFI) and System Average Interruption Duration Index (SAIDI) statistics. If your organization does not compute these indexes, answer 'no' to Question 1 and then skip to Schedule 4A. You do not have to complete any other part of this schedule 3B or 3C.

**Should you complete Part B or Part C?**

If your organization computes the SAIFI and SAIDI indexes and determines Major Event Days using the IEEE 1366-2003 or the IEEE 1366-2012 standard, answer 'YES' to Questions 1 and 2, and complete Part B. Then skip to Schedule 4A. (You do not complete Schedule 3, Part C.)

If your organization does not use the IEEE 1366-2003 or the IEEE 1366-2012 standard but calculates SAIDI and SAIFI indexes via other method, answer 'yes' to question 1 and 'no' to question 2 and complete Part C. Then go to Schedule 4A.

- 1 Do you calculate SAIDI and SAIFI by any method? If Yes, go to Question 2. If No, go to Schedule 4, Part A.  Yes  No
- 2 Do you calculate SAIDI and SAIFI and determine Major Event Days using the IEEE1366-2003 standard or IEEE-2012 standard? If Yes, complete Part B. If No, go to complete Part C.  Yes  No

**Part B: SAIDI and SAIFI in accordance with IEEE 1366-2003 standard or IEEE 1366-2012 standard**

State

3a. SAIDI value including Major Event days

3b. SAIDI value excluding Major Event days

4 SAIDI value including Major Event days minus loss of supply

5a. SAIFI value including Major Event days

5b. SAIFI value excluding Major Event days

6. SAIFI value including Major Event days minus loss of supply

7. Total number of customers used in these calculations

8. What is the highest voltage that you consider part of the distribution system, as opposed to the supply system? (kV)

9. Do you receive information about a customer outage in advance of a customer reporting it?  Yes  No

Thank You for completing this part. Skip Part C and go directly to Schedule 4 Part A.

REPORT FOR: Wabash Valley Power Assn, Inc

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REPORT PERIOD ENDING: 2022

**Part C: SAIDI and SAIFI calculated by other methods**

State

10a. SAIDI value including Major Events

10b. SAIDI value excluding Major Events

11a. SAIFI value including Major Events

11b. SAIFI value excluding Major Events

12. Total number of customers used in these calculations

13. Do you include inactive accounts?

Yes

No

14. How do you define momentary interruptions

Less than 1 min.

Less than 5 min.

Other

15. What is the highest voltage that you consider part of the distribution system, as opposed to the supply system?

kv

16. Is information about customer outages recorded automatically?

Yes

No

REPORT FOR: Wabash Valley Power Assn, Inc  
 REPORT PERIOD ENDING: 2022

40211

**SCHEDULE 4. PART A. SALES TO ULTIMATE CUSTOMERS. FULL SERVICE - ENERGY AND DELIVERY SERVICE (BUNDLED)**

	RESIDENTIAL (a)	COMMERCIAL (b)	INDUSTRIAL (c)	TRANSPORTATION (d)	TOTAL (e)
<b>State</b>					
<b>Balancing Authority</b>					
Revenue (thousand dollars)					
Megawatthours					
Number of Customers					
Are your rates decoupled?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
If the answer is YES, is the revenue adjustment automatic or does it require a rate-making proceeding?	<input type="checkbox"/> N automatic	<input type="checkbox"/> N automatic	<input type="checkbox"/> N automatic	<input type="checkbox"/> N automatic	
	<input type="checkbox"/> N proceeding	<input type="checkbox"/> N proceeding	<input type="checkbox"/> N proceeding	<input type="checkbox"/> N proceeding	

Cents/Kwh					
<b>State</b>					
Revenue (thousand dollars)					
Megawatthours					
Number of Customers					
Are your rates decoupled?					
If the answer is YES, is the revenue adjustment automatic or does it require a rate-making proceeding?					
Cents/Kwh					

<b>Total</b>
Revenue (thousand dollars)
Megawatthours
Number of Customers

REPORT FOR: Wabash Valley Power Assn, Inc 40211

REPORT PERIOD ENDING: 2022

**SCHEDULE 4. PART B. SALES TO ULTIMATE CUSTOMERS. ENERGY -- ONLY SERVICE (WITHOUT DELIVERY SERVICE )**

	RESIDENTIAL (a)	COMMERCIAL (b)	INDUSTRIAL (c)	TRANSPORTATION (d)	TOTAL (e)
<b>State</b>	<b>Balancing Authority</b>				
Revenue (thousand dollars)					
Megawatthours					
Number of Customers					
Cents/Kwh					
<b>State</b>					
Revenue (thousand dollars)					
Megawatthours					
Number of Customers					
Cents/Kwh					

<b>Total</b>
Revenue (thousand dollars)
Megawatthours
Number of Customers

REPORT FOR: Wabash Valley Power Assn, Inc

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REPORT PERIOD ENDING: 2022

**SCHEDULE 4. PART C. SALES TO ULTIMATE CUSTOMERS. DELIVERY -- ONLY SERVICE (AND OTHER RELATED CHARGES)**

	RESIDENTIAL (a)	COMMERCIAL (b)	INDUSTRIAL (c)	TRANSPORTATION (d)	TOTAL (e)
<b>State</b>	<b>Balancing Authority</b>				
Revenue (thousand dollars)					
Megawatthours					
Number of Customers					
Cents/Kwh					
<b>State</b>					
Revenue (thousand dollars)					
Megawatthours					
Number of Customers					
Cents/Kwh					

<b>Total</b>
Revenue (thousand dollars)
Megawatthours
Number of Customers

REPORT FOR: Wabash Valley Power Assn, Inc

40211

REPORT PERIOD ENDING: 2022

**SCHEDULE 4. PART D. BUNDLED SERVICE BY RETAIL ENERGY PROVIDERS AND POWER MARKETERS**

	RESIDENTIAL (a)	COMMERCIAL (b)	INDUSTRIAL (c)	TRANSPORTATION (d)	TOTAL (e)
<b>State</b>	<b>Balancing Authority</b>				
Revenue (thousand dollars)					
Megawatthours					
Number of Customers					
Cents/Kwh					
<b>State</b>					
Revenue (thousand dollars)					
Megawatthours					
Number of Customers					
Cents/Kwh					

<b>Total</b>
Revenue (thousand dollars)
Megawatthours
Number of Customers

REPORT FOR: Wabash Valley Power Assn, Inc 40211

REPORTING PERIOD ENDING: 2022

**SCHEDULE 5. MERGERS and/or ACQUISITIONS**

**Mergers and/or acquisitions during the reporting month**

**If Yes, Provide:**

**Date of Merger or Acquisition**

**Company merged with or acquired**

**Name of new parent company**

**Address**

**City**

**State, Zip**

**New Contact Name**

**Telephone No.**

**Email address**

REPORT FOR: Wabash Valley Power Assn, Inc

40211

REPORT PERIOD ENDING: 2022

**SCHEDULE 6. PART A. ENERGY EFFICIENCY PROGRAMS**  
**Adjusted Gross Energy and Demand Savings -- Energy Efficiency**

If you have a non utility DSM administrator that reports your DSM activity for you please select them from the list

State/Territory	IL	Balancing Authority				Total
		RESIDENTIAL	COMMERCIAL	INDUSTRIAL	TRANS	
		(a)	(b)	(c)	(d)	(e)
<b>Reporting Year Incremental Annual Savings</b>						
1	Energy Savings (MWh)	234.593	1,629.000	523.000		2,386.593
2	Peak Demand Savings (MW)	0.021	0.111	0.092		0.224
<b>Increment Life Cycle Savings</b>						
3	Energy Savings (MWh)	5510.950	23,671.340	7,133.780		36,316.070
4	Peake Demand Savings (MW)	0.021	0.111	0.092		0.224
<b>Reporting Year Incremental Costs</b>						
5	Customer Incentives	27.350	121.586	37.580		186.516
6	All other costs	8.107	67.528	67.528		143.163
<b>Incremental Life Cycle Costs</b>						
7	Customer Incentives	27.350	121.586	37.580		186.516
8	All other costs	8.107	67.528	67.528		143.163
<b>Weighted Average Life for Portfolio (Years) - Use Spreadsheet to Calculate</b>						
9	Weighted Average Life	23.492	14.528	13.631		52.000

Please provide website address to your energy efficiency program reports:



REPORT FOR: Wabash Valley Power Assn, Inc

40211

REPORT PERIOD ENDING: 2022

**SCHEDULE 6. PART A. ENERGY EFFICIENCY PROGRAMS**  
**Adjusted Gross Energy and Demand Savings -- Energy Efficiency**

State/Territory	IN	Balancing Authority				Total
		RESIDENTIAL	COMMERCIAL	INDUSTRIAL	TRANS	
		(a)	(b)	(c)	(d)	(e)
<b>Reporting Year Incremental Annual Savings</b>						
1	Energy Savings (MWh)	277.000	366.000	1,994.000		2,637.000
2	Peak Demand Savings (MW)	0.016	0.070	0.175		0.261
<b>Increment Life Cycle Savings</b>						
3	Energy Savings (MWh)	6533.100	5,194.920	27,968.990		39,697.010
4	Peake Demand Savings (MW)	0.016	0.070	0.175		0.261
<b>Reporting Year Incremental Costs</b>						
5	Customer Incentives	47.950	26.092	132.135		206.177
6	All other costs	5.170	43.061	43.061		91.292
<b>Incremental Life Cycle Costs</b>						
7	Customer Incentives	47.950	26.092	132.135		206.177
8	All other costs	5.170	43.061	43.061		91.292
<b>Weighted Average Life for Portfolio (Years) - Use Spreadsheet to Calculate</b>						
9	Weighted Average Life	23.545	14.196	14.026		52.000

Please provide website address to your energy efficiency program reports:

REPORT FOR: Wabash Valley Power Assn, Inc

40211

REPORT PERIOD ENDING: 2022

**SCHEDULE 6. PART A. ENERGY EFFICIENCY PROGRAMS**  
**Adjusted Gross Energy and Demand Savings -- Energy Efficiency**

State/Territory	IN	Balancing Authority				Total
		RESIDENTIAL	COMMERCIAL	INDUSTRIAL	TRANS	
		(a)	(b)	(c)	(d)	(e)
<b>Reporting Year Incremental Annual Savings</b>						
1	Energy Savings (MWh)	1,031.720	15,238.000	5,275.000		21,544.720
2	Peak Demand Savings (MW)	0.091	1.872	0.668		2.631
<b>Increment Life Cycle Savings</b>						
3	Energy Savings (MWh)	24380.150	199,964.090	69,066.980		293,411.220
4	Peake Demand Savings (MW)	0.091	1.872	0.668		2.631
<b>Reporting Year Incremental Costs</b>						
5	Customer Incentives	193.450	856.164	471.475		1,521.089
6	All other costs	30.117	231.102	231.102		492.321
<b>Incremental Life Cycle Costs</b>						
7	Customer Incentives	193.450	856.164	471.475		1,521.089
8	All other costs	30.117	231.102	231.102		492.321
<b>Weighted Average Life for Portfolio (Years) - Use Spreadsheet to Calculate</b>						
9	Weighted Average Life	23.631	13.123	13.094		50.000

Please provide website address to your energy efficiency program reports:

REPORT FOR: Wabash Valley Power Assn, Inc

40211

REPORT PERIOD ENDING: 2022

**SCHEDULE 6. PART A. ENERGY EFFICIENCY PROGRAMS**  
**Adjusted Gross Energy and Demand Savings -- Energy Efficiency**

State/Territory	MO	Balancing Authority				Total
		RESIDENTIAL	COMMERCIAL	INDUSTRIAL	TRANS	
		(a)	(b)	(c)	(d)	(e)
<b>Reporting Year Incremental Annual Savings</b>						
1	Energy Savings (MWh)	238.000	726.000	1,202.000		2,166.000
2	Peak Demand Savings (MW)	0.026	0.106	0.176		0.308
<b>Increment Life Cycle Savings</b>						
3	Energy Savings (MWh)	5582.970	9,899.220	16,690.760		32,172.950
4	Peake Demand Savings (MW)	0.026	0.106	0.176		0.308
<b>Reporting Year Incremental Costs</b>						
5	Customer Incentives	46.350	82.965	65.261		194.576
6	All other costs	4.347	36.211	36.211		76.769
<b>Incremental Life Cycle Costs</b>						
7	Customer Incentives	46.350	82.965	65.261		194.576
8	All other costs	4.347	36.211	36.211		76.769
<b>Weighted Average Life for Portfolio (Years) - Use Spreadsheet to Calculate</b>						
9	Weighted Average Life	23.492	13.631	13.884		51.000

Please provide website address to your energy efficiency program reports:

REPORT FOR: Wabash Valley Power Assn, Inc

40211

REPORT PERIOD ENDING: 2022

**SCHEDULE 6. PART A. ENERGY EFFICIENCY PROGRAMS**

DMS Administration only. List all utilities that you provide service for.

State

Utility Name

REPORT FOR: Wabash Valley Power Assn, Inc

40211

REPORT PERIOD ENDING: 2022

**Schedule 6. Part B. Yearly Energy and Demand Savings - Demand Response**

**Reporting Year Savings**

State/Territory	IL	Balancing Authority	56669	(a) Residential	(b) Commercial	(c) Industrial	(d) Transportation	(e) Total
1	Number of Customers Enrolled			4,535		2		4,537
2	Energy Savings (Mwh)							
3	Potential Peak Demand Savings (MW)			8.937		0.080		9.017
4	Actual Peak Demand Savings (MW)			3.700		0.070		3.770

**Schedule 6. Part B. Program Cost -- Demand Response (Thousand Dollars)**

**Reporting Year Costs**

5	Customer Incentives			557.020		4.650		561.670
6	All other costs			4.860				4.860
7	If you have a demand side management (DMS) program for grid-interactive water heaters (as defined by DOE), how many grid interactive water heaters were added to your program this year?							

REPORT FOR: Wabash Valley Power Assn, Inc

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REPORT PERIOD ENDING: 2022

**Schedule 6. Part B. Yearly Energy and Demand Savings - Demand Response**

**Reporting Year Savings**

State/Territory	IN	Balancing Authority	14725	(a)	(b)	(c)	(d)	(e)
				Residential	Commercial	Industrial	Transportation	Total
1	Number of Customers Enrolled			50		98		148
2	Energy Savings (Mwh)							
3	Potential Peak Demand Savings (MW)			0.029		3.301		3.330
4	Actual Peak Demand Savings (MW)							

**Schedule 6. Part B. Program Cost -- Demand Response (Thousand Dollars)**

**Reporting Year Costs**

5	Customer Incentives			2.640		187.050		189.690
6	All other costs			1.650				1.650
7	If you have a demand side management (DMS) program for grid-interactive water heaters (as defined by DOE), how many grid interactive water heaters were added to your program this year?							

REPORT FOR: Wabash Valley Power Assn, Inc

40211

REPORT PERIOD ENDING: 2022

**Schedule 6. Part B. Yearly Energy and Demand Savings - Demand Response**

**Reporting Year Savings**

State/Territory	IN	Balancing Authority	56669	(a)	(b)	(c)	(d)	(e)
				Residential	Commercial	Industrial	Transportation	Total
1	Number of Customers Enrolled			17,185	9	776		17,970
2	Energy Savings (Mwh)							
3	Potential Peak Demand Savings (MW)			12.370	3.098	45.910		61.378
4	Actual Peak Demand Savings (MW)			0.600	3.098	16.032		19.730

**Schedule 6. Part B. Program Cost -- Demand Response (Thousand Dollars)**

**Reporting Year Costs**

5	Customer Incentives			840.010	150.870	2,499.960		3,490.840
6	All other costs			13.190		0.610		13.800
7	If you have a demand side management (DMS) program for grid-interactive water heaters (as defined by DOE), how many grid interactive water heaters were added to your program this year?							

REPORT FOR: Wabash Valley Power Assn, Inc

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REPORT PERIOD ENDING: 2022

**Schedule 6. Part B. Yearly Energy and Demand Savings - Demand Response**

**Reporting Year Savings**

State/Territory	MO	Balancing Authority	56669	(a) Residential	(b) Commercial	(c) Industrial	(d) Transportation	(e) Total
1	Number of Customers Enrolled			4,381		3		4,384
2	Energy Savings (Mwh)							
3	Potential Peak Demand Savings (MW)			8.797		0.125		8.922
4	Actual Peak Demand Savings (MW)			7.918		0.112		8.030

**Schedule 6. Part B. Program Cost -- Demand Response (Thousand Dollars)**

**Reporting Year Costs**

5	Customer Incentives			491.634		6.731		498.365
6	All other costs							
7	If you have a demand side management (DMS) program for grid-interactive water heaters (as defined by DOE), how many grid interactive water heaters were added to your program this year?							



REPORT FOR: Wabash Valley Power Assn, Inc

REPORT PERIOD ENDING:

**SCHEDULE 6. PART C. DYNAMIC PRICING PROGRAMS**

**Number of Customers**

INSTRUCTIONS: Report the number of customers participating in dynamic pricing programs, e.g. Time-of-Use-Pricing, Real-Time-Pricing, Variable Peak Pricing, Critical Peak Pricing Programs.

**State/Territory**

**Balancing Authority**

Residential  
(a)

Commercial  
(b)

Industrial  
(c)

Transportatio  
(d)

Total  
(e)

1 Number of Customers enrolled in dynamic pricing programs, by customer class

**Types of Dynamic Pricing Programs**

INSTRUCTIONS: For each customer class, mark the types of dynamic pricing programs in which the customers are participating.

Residential  
(a)

Commercial  
(b)

Industrial  
(c)

Transportatio  
(d)

2 Time-of-Use Pricing  Yes  No  Yes  No  Yes  No  Yes  No

3 Real-Time Pricing  Yes  No  Yes  No  Yes  No  Yes  No

4 Variable Peak Pricing  Yes  No  Yes  No  Yes  No  Yes  No

5 Critical Peak Pricing  Yes  No  Yes  No  Yes  No  Yes  No

6 Critical Peak Rebate  Yes  No  Yes  No  Yes  No  Yes  No

REPORT FOR: Wabash Valley Power Assn, Inc

REPORT PERIOD ENDING:

**SCHEDULE 6. PART D. ADVANCED METERING**

Only customers from schedule 4A and 4C need to be reported on this schedule.  
 AMR- data transmitted one-way, to the utility.  
 AMI- data transmitted in both directions, to the utility and customer

State	Balancing Authority	Residential	Commercial	Industrial	Transportation	Total
		(a)	(b)	(c)	(d)	(e)
	1	Number of AMR Meters				
	2	Number of AMI Meters				
	3	Number of AMI Meters with home area network (HAN) gateway enabled				
	4	Number of non AMR/AMI Meters				
	5	Total Number of Meters (All Types), line 1+2+4				
	6	Energy Served Through AMI				
	7	Number of Customers able to access daily energy usage through a webportal or other electronic means				
	8	Number of customers with direct load control				

REPORT FOR: Wabash Valley Power Assn, Inc

REPORT PERIOD ENDING:

**SCHEDULE 7. PART A. NET METERING**

**Net Metering** programs allow customers to sell excess power they generated back to the electrical grid to offset consumption. Provide the information about programs by State balancing authority, customer class, and technology for all net metering applications.

State	Balancing Authority	Residential (a)	Commercial (b)	Industrial (c)	Transportation (d)	Total (e)
	Net Metering Installed Capacity (MW)					
	Net Metering Installations					
	Storage Installed Capacity (MW)					
	Storage Installations					
<b>Photovoltaic</b>	Virtual NM Installed Capacity (1 MW and greater)					
	Virtual NM Customers (1 MW and greater)					
	Virtual NM Installed Capacity (less than 1MW)					
	Virtual NM Customers (less than 1MW)					
	If Available, Enter the Electric Energy Sold Back to the Utility (MWh)					
	Installed Net Metering Capacity (MW)					
<b>Wind</b>	Number of Net Metering Customers					
	If Available, Enter the Electric Energy Sold Back to the Utility (MWh)					
	Installed Net Metering Capacity (MW)					
<b>Other</b>	Number of Net Metering Customers					
	If Available, Enter the Electric Energy Sold Back to the Utility (MWh)					
	Installed Net Metering Capacity (MW)					
<b>Total</b>	Number of Net Metering Customers					
	If Available, Enter the Electric Energy Sold Back to the Utility (MWh)					
<b>Grand Total All States</b>	<b>Net Metering Installed Capacity (MW)</b>					
	<b>Net Metering Installations/customers</b>					
	<b>If Available, Enter the Electric Energy Sold Back to the Utility (MWh)</b>					

REPORT FOR Wabash Valley Power Assn, Inc

REPORT PERIOD ENDING:

**SCHEDULE 7. PART B. NON NET-METERED DISTRIBUTED GENERATORS**

If your company owns and/or operates a distribution system, please report information on known distributed generation (grid connected/synchronized) capacity on the system. Such capacity must be utility or customer-owned

**NUMBER AND CAPACITY**

State	Balancing Authority	< 1MW
-------	---------------------	-------

- |                                 |  |
|---------------------------------|--|
| 1. Number of generators         | 3. Capacity that consists of backup-only units |
| 2. Total combined capacity (MW) | 4. Capacity owned by respondent                |

**Capacity by Technology and Sector (MW)**

	Residential	Commercial	Industrial	Transportation	Direct Connected	Total
5. Internal combustion						
6. Combustion turbine(s)						
7. Steam turbine(s)						
8. Fuel Cell(s)						
9. Hydroelectric						
10. Photovoltaic						
11. Storage						
12. Wind turbine(s)						
13. Other						
14. Total						

REPORT FOR: Wabash Valley Power Assn, Inc

40211

REPORT PERIOD ENDING: 2022

**SCHEDULE 8. DISTRIBUTION SYSTEM INFORMATION**

**If your company owns a distribution system, please identify the names of the counties (parish, etc.) by State in which the electric wire/equipment are located.**

LINE NO.	STATE (US Postal Abbreviation) (a)	COUNTY (Parish, Etc.) (b)	LINE NO.	STATE (US Postal Abbreviation) (a)	COUNTY (Parish, Etc.) (b)
1	-				

REPORT FOR: Wabash Valley Power Assn, Inc

40211

REPORT PERIOD ENDING: 2022

**SCHEDULE 9. COMMENTS**

SCHEDULE	PART	LINE NO.	COLUMN	NOTES
(a)	(b)	(c)	(d)	(e)

REPORT FOR: Wabash Valley Power Assn, Inc

40211

REPORT PERIOD ENDING: 2022

**EIA861 ERROR LOG**

Part	State	BA ID	Error No.	Error Description/Override Comment	Type	Override
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## Appendix G

### Electronic Format Files

- MetrixND Load Files
- Plexos Files - Expansion Modeling and Avoided Cost
- Plexos Files - Expansion Plans Defined
- Plexos Files - Current Environment (Preferred) Plan Scenarios
- Plexos Files - Carbon Reduction Plan Scenarios
- Plexos Files - Load Reduction Plan Scenarios
- Plexos Files - Bold Economic Growth Plan Scenarios
- Plexos Files - Stochastic
- Market Price and Expansion Assumptions
- Revenue Requirements for Four Futures and Scenarios
- Stochastic Result Files

**REDACTED**



## Appendix H

**Skytop EE/DR Review**

**Page No.  
1-8**

## Introduction

Wabash Valley Power Alliance (WVPA) hired a third party, Skytop Consulting and Anchor Blue Consulting, to review its Energy Efficiency (EE) and Demand Response (DR) programs and create an Excel based EE/DR Planning Tool in 2023. WVPA’s Retail Programs and Services (RP&S) Working Group, comprised of WVPA and Co-op Members’ personnel from IL, MO, and IN, worked closely with Skytop on portfolio design. Many of the RP&S working group members are energy advisors who interface directly with retail program participants which was especially helpful.

Both residential and commercial and industrial (C&I) portfolios branded under PowerMoves for EE and PowerShift for DR were included as well as potential new programs, including an analysis of the DR economic benefits in both MISO and PJM footprints.<sup>1</sup>

Five standard Demand Side Management (DSM) tests were employed for EE analysis and two tests were used for DR analysis as listed in Table A. Results of metrics over 1.0 indicate benefits outweigh costs based on the specific test categories of inputs.

**Table A- DSM Benefit-Cost Tests**


<b>Standard Metric</b>	<b>EE</b>	<b>DR</b>
Utility Cost Test (UCT)	X	X
Total Resource Cost Test (TRC)	X	x
Societal Cost Test (SCT)	X	
Participant Cost Test (PCT)	X	
Ratepayer Impact Measure Test (RIM)	X	

## Energy Efficiency

Energy Efficiency (EE) programs were reviewed first which formed the basis for the benefit cost analysis tool. The team started by gathering current internal cost estimates and recent program experience described in Table B.

<sup>1</sup> For more information, see: <https://www.powermoves.com/>

**Table B – Potential WVPA EE Programs**

		
	<b>Program</b>	<b>Description</b>
<b>Res</b>	HVAC - Existing Homes	Heating Ventilation and Air Conditioning (HVAC) replacement equipment incentives
	HVAC - New Construction	New home HVAC units
	Heat Pump Water Heater	New or existing home water heater incentives
	Pool Pump	New or existing pool pump incentives
	PowerMoves Home Program	New home construction incentives including shell measures, insulation, windows, doors, HVAC, etc.
	Yard Equipment - Beneficial Electrification	Electric lawn mowers, trimmers, chain saws, etc.
	Wi-Fi Thermostat	Incentives for smart programmable thermostats
<b>C&amp;I</b>	C&I Prescriptive	Includes HVAC, chillers, compressors, lighting, variable frequency drives, refrigeration, etc.
	Business NC	New Construction (NC) measures
	C&I Custom	Any measures not included in prescriptive

The following inputs are used for the EE Planning tool:

1. Measure inputs which include energy savings, program costs, applicable tax credits, incentives, and participation. The energy savings are shown with seasonal peak demand impacts for distribution, transmission, and production components calculated by load shape.
2. Carbon valuation if desired
3. Capacity benefits for MISO and PJM areas by selecting one the avoided cost options:
  - a. Cost of New Entry (CONE)

- b. MISO Capacity Auction Seasonal results
- c. PJM Capacity Contract Cost

4. Hourly shaped avoided energy costs are in nominal dollars and were calculated by combining the following data sources:

- Hourly load and savings shapes from the National Renewable Energy Lab (NREL) for the residential and commercial sector and additional load shapes for the industrial and agricultural sectors developed by the Northwest Power and Conservation Council.
- Forward on- and off-peak prices for the Indiana hub, provided by WVPA.
- The hourly estimates of load or energy savings was grouped into on- and off-peak categories by month and combined with the price forecast. The prices shown here reflect a weighted average price across the year, based on the expected prices and the share of energy savings occurring in each time period and month.

5. Peak Factors

- Calculated peak factors (kW/kWh) by month and season are applied to the kWh savings in the measure input tabs for seasonal peak kW savings
- These peak factors are in units of kW per annual kWh and were calculated by combining the following data sources:
  - Hourly load and savings shapes from the NREL for the residential and commercial sector and additional load shapes for the industrial and agricultural sectors developed by the Northwest Power and Conservation Council.
  - The seasonal resource adequacy hours identified by month and season provided by WVPA.
- The hourly energy savings for each load profile were weighted by the number of times each given hour was identified as a seasonal resource adequacy hour. The weighted contributions were combined across months and seasons to produce the factors here. This aligns with how the capacity contributions were calculated in the SAC workbook.

6. Other cost inputs include discount rates, line loss factors, capacity reserve margins, retail costs of energy, and assumed growth rates.

7.

The tool produces the following outputs:

- Three-year Measure Summary which includes the measure level and total impacts, costs, benefits and participation and
- Cost effectiveness in each year for each measure for all tests
- Portfolio Program Forecast with annual savings and costs by sector
- Portfolio Annual Forecast by program and sector, annually and over the 3-year planning period

The EE test results are summarized in Table C below.

**Table C –WVPA Energy Efficiency Base Planning Scenario Benefit-Cost Results for 2024-2026**



<b>OUTPUTS</b>					
<b>Benefit Cost Ratios</b>					
	<b>Utility Cost Test (UCT)</b>	<b>Total Resource Cost Test (TRC)</b>	<b>Societal Cost Test (SCT)</b>	<b>Participant Cost Test (PCT)</b>	<b>Ratepayer Cost Test (RIM)</b>
<i>Residential Beneficial Electrification</i>	-1.64	0.46	0.51	0.25	0.85
<i>Residential Energy Efficiency</i>	1.82	0.94	1.83	2.34	0.56
<b>Total Residential Programs</b>	<b>0.92</b>	<b>0.78</b>	<b>1.39</b>	<b>1.61</b>	<b>0.48</b>
<i>C&amp;I Beneficial Electrification</i>	NA	NA	NA	NA	NA
<i>C&amp;I Energy Efficiency</i>	3.69	1.38	2.71	2.20	0.76
<b>Total C&amp;I Programs</b>	<b>3.69</b>	<b>1.38</b>	<b>2.71</b>	<b>2.20</b>	<b>0.76</b>
Other Portfolio Costs	NA	NA	NA	NA	NA
<b>Portfolio Total</b>	<b>3.03</b>	<b>1.24</b>	<b>2.41</b>	<b>2.06</b>	<b>0.73</b>

The impacts in terms of energy and demand savings are shown in Table D.

**Table D – WVPA Energy Efficiency Impacts 2022-2026**

2022-2026 Program Summary		Energy Savings (MWh)	Summer Peak Demand Savings (MW)	Fall Peak Demand Savings (MW)	Winter Peak Demand Savings (MW)	Spring Peak Demand Savings (MW)	Carbon Reduced (Metric Tons)
Residential Sector	2022	774	0.23	0.00	0.00	0.00	n/a
	2023	852	0.25	0.00	0.00	0.00	n/a
	2024	1,495	0.29	0.05	0.41	0.05	1,742
	2025	1,573	0.31	0.05	0.43	0.05	1,832
	2026	1,655	0.32	0.05	0.46	0.06	1,926
	<b>Subtotal</b>	<b>5,575</b>	<b>1.17</b>	<b>0.15</b>	<b>1.30</b>	<b>0.16</b>	<b>5,499</b>
Commercial Sector	2022	25,157	4.17	0.00	0.00	0.00	n/a
	2023	27,673	4.58	0.00	0.00	0.00	n/a
	2024	21,461	3.83	3.77	3.74	3.77	16,287
	2025	22,548	4.03	3.96	3.93	3.96	17,111
	2026	23,691	4.23	4.16	4.13	4.16	17,982
	<b>Subtotal</b>	<b>95,373</b>	<b>16.68</b>	<b>11.89</b>	<b>11.79</b>	<b>11.89</b>	<b>51,380</b>
Total Annual Portfolio Forecast	2022	25,931	4.39	0.00	0.00	0.00	n/a
	2023	28,525	4.83	0.00	0.00	0.00	n/a
	2024	22,956	4.13	3.82	4.15	3.82	18,028
	2025	24,121	4.33	4.01	4.36	4.01	18,943
	2026	25,346	4.55	4.21	4.58	4.22	19,908
	<b>Total</b>	<b>100,948</b>	<b>17.85</b>	<b>12.04</b>	<b>13.09</b>	<b>12.05</b>	<b>56,879</b>

The DR programs considered are described in Table E.

**Table E – WVPA Potential Demand Response Programs**

<b>PowerShift<sup>®</sup></b>		
	<b>Program</b>	<b>Description</b>
<b>Res</b>	Residential DLC - A/C, water heaters, pool pumps	Direct Load Control (DLC) via Advanced Metering Infrastructure (AMI) for Air conditioners, water heaters and pool pumps
	Residential Wi-Fi T-Stats	Centralized control of smart thermostats as Load Modifying Resources (LMRs)
	Residential Battery Storage	Centralized control of home energy storage systems as LMRs
	Residential Whole Home	Centralized control of whole home generators as LMRs
<b>C&amp;I</b>	C&I DLC - grain dryer, field irrigation, ditch pumps	Direct Load Control (DLC) via Advanced Metering Infrastructure (AMI) for Air conditioners, water heaters and pool pumps
	C&I Contracts	Retail members agree to reduce load with 2-hour notification as LMRs. Legacy participants are summer only with year round expansion.

The following inputs are used for the DR Planning tool:

1. Measure inputs which include measure life, demand savings, program costs, software licensing fees, incentives, participation, and growth and attrition rates.
2. Capacity benefits for MISO and PJM areas by selecting one the avoided cost options:
  - a. Cost of New Entry (CONE)
  - b. MISO Capacity Auction Seasonal results
  - c. PJM Capacity Contract Cost

The tool produces the following outputs:

- Three-year DR Summary includes the total impacts, costs, benefits and participation
- Cost effectiveness in each year for each program for all tests
- Portfolio Program Forecast with annual savings and costs by sector
- Portfolio Annual Forecast by program and sector, annually and over the 3-year planning period

The DR impacts in terms of seasonal demand reductions and portfolio cost-benefit results over 1.0 for UCT and TRC are shown in Table F.

**Table F – WVPA Demand Response Seasonal Impacts**



**Base Planning Scenario 2024-2026**

**OUTPUTS**

**Demand Reductions**

	ISO	Summer Peak Demand (MW)	Fall Peak Demand (MW)	Winter Peak Demand (MW)	Spring Peak Demand (MW)	Utility Cost Test	Total Resource Cost Test
<b>Residential</b>	MISO	19.27	12.81	14.67	14.23	1.15	1.01
	PJM	0.11	0.03	0.00	0.03	2.91	1.37
	<b>Total</b>	<b>19.38</b>	<b>12.84</b>	<b>14.67</b>	<b>14.26</b>	<b>1.15</b>	<b>1.02</b>
<b>C&amp;I</b>	MISO	55.26	11.61	0.94	21.86	1.79	1.79
	PJM	3.69	1.26	0.00	2.48	2.88	2.88
	<b>Total</b>	<b>58.95</b>	<b>12.87</b>	<b>0.94</b>	<b>24.34</b>	<b>1.85</b>	<b>1.85</b>
<b>MISO Total</b>	MISO	74.53	24.42	15.61	36.09	1.56	1.49
<b>PJM Total</b>	PJM	3.79	1.29	0.00	2.51	2.88	2.81
<b>WVPA Total</b>	<b>All WVPA</b>	<b>78.32</b>	<b>25.71</b>	<b>15.61</b>	<b>38.60</b>	<b>1.62</b>	<b>1.55</b>

The resultant EE and DR offerings for program years 2024 through 2026 are summarized in Table G below.

**Table G – WVPA EE and DR Programs**



**Residential**

- Dual Fuel Heat Pumps
- Air Source Heat Pumps
- Geothermal Heat Pumps
- Heat Pump Water Heaters
- Wi-Fi Thermostats
- New Home Construction Program

**C&I**

- Prescriptive Lighting
- Prescriptive Non-Lighting
- Custom Measures
- Business New Construction



**Residential**

- Water Heaters
- Air Conditioners
- Pool pumps

**C&I**

- Field Irrigation & Ditch Pumps
- Grain Dryers
- Load curtailment contracts
  - HVAC, crypto currency, manufacturing, etc.



**Conclusion**

The RP&S Working Group provided meaningful feedback to the team and is committed to continuing this process.. Actual EE and DR program results may be analyzed to measure success and consider new proposed programs.

**Appendix I**

**Page No.**

**Skytop EE/DR Forecast**

**1-38**



**FINAL**

# **Energy Efficiency and Demand Response 2024-2043 Potential Savings Scenarios for Wabash Valley Power Alliance's Integrated Resource Plan (IRP) Savings Projections**

April 10, 2024

**Prepared on behalf of:**



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**ANCHOR BLUE, LLC**  
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## **Disclaimer**

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## 1. Executive Summary

WVPA engaged with Skytop Consulting to provide a set of 20-year energy efficiency and demand response savings scenario forecasts for use in their IRP. These forecasts are meant to provide a set of potential savings scenarios that could be achieved over the 20-year forecast timeline based on extrapolations of low, medium, and high growth scenarios as informed by secondary research of several potential studies completed near WVPA's service territory.

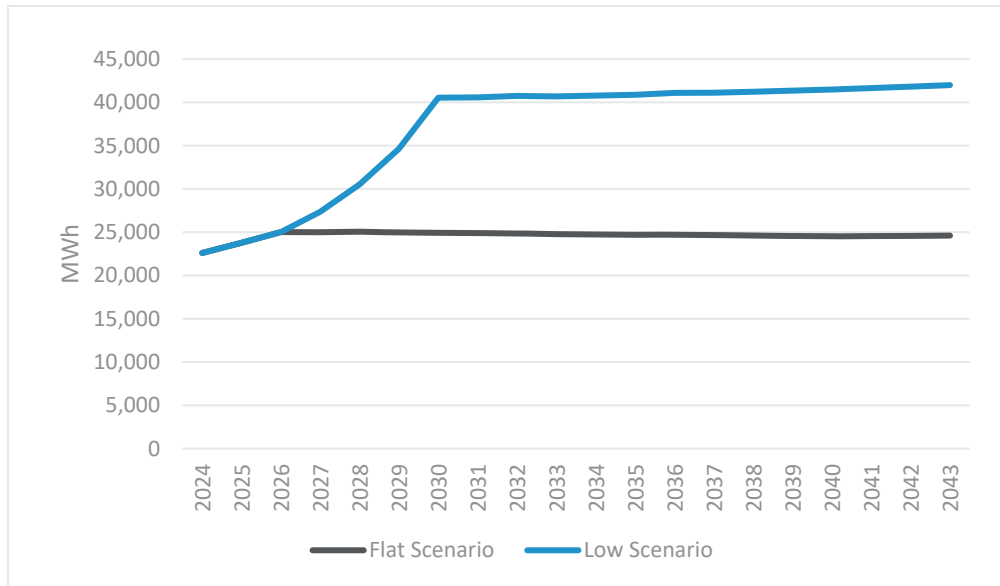
Skytop recently completed a three-year planning forecast update for WVPA's energy efficiency (EE) and demand response (DR) programs, WVPA 2024-2026 Plan, which serves as the basis for the starting point of each scenario. WVPA leveraged the three year planning work recently completed for WVPA and benchmarking other recently completed EE and DR potential studies in the region to inform potential WVPA EE/DR savings. This benchmarking work informed the trajectory of the remaining years of the 20-year forecast to determine a base, low, medium, and high growth scenario.

The benchmarking research detailed savings percentages of sales (by residential and C&I sectors) and cost estimates (\$/MWh or \$/MW saved by residential and C&I in real 2024 dollars) for energy efficiency and demand response as reported in other potential studies. Each scenario has a target percentage of sales, and associated costs, from the benchmarking that the current WVPA programs ramp up to over the timeline of the IRP. The resulting scenarios provide a range of potential EE and DR savings that could be achieved by WVPA depending on level of funding.

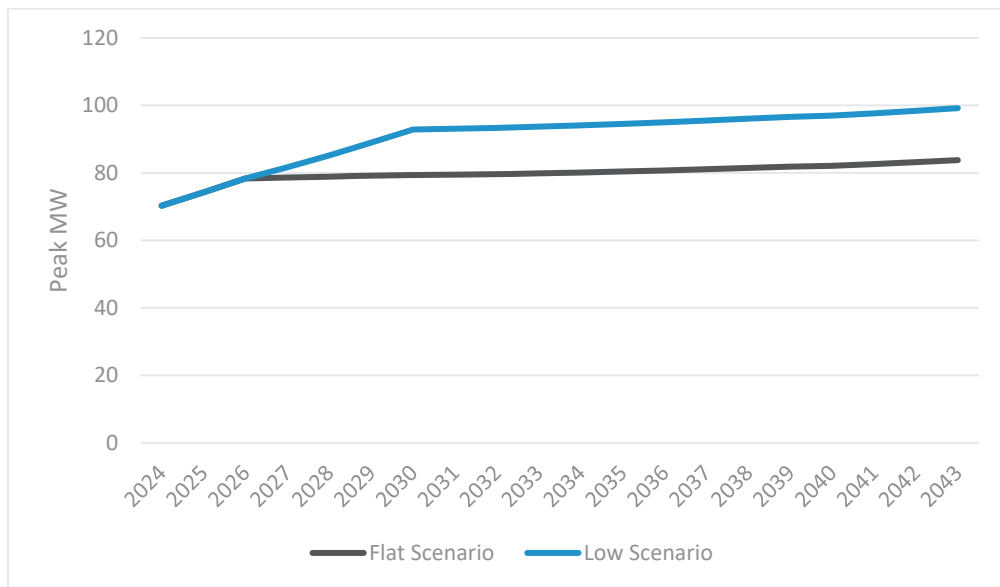
WVPA selected the low EE and DR growth scenarios into the IRP as their base scenario. This scenario represents what WVPA believes could possibly be achieved from EE and DR with moderately more funding and expansion in the 20-year forecast. WVPA decided to use the low growth scenario to represent that there are potential growth opportunities for EE and DR to expand but is not excessively higher than current program levels. The results assume that a certain percentage of sales for EE and of peak demand for DR will be achieved and ramped up to over the forecast, then that percentage of sales remains the same for the future years. This is illustrated in Figure 1 – 3, which compare the low growth scenario to the flat scenario, which keeps current program levels constant into the future. The low growth forecast results are also summarized in Table 1, which shows the annual potential over the 20-year forecast for energy efficiency (in MWh) and both summer and winter demand response (in peak MWs). Energy efficiency cumulates over time, as the average lifetime of the EE measures is about 10 years, while Demand Response measures have a 1-year measure life, since the DR initiatives must be 'purchased' by incentives each year. Because of this one-year measures life, the numbers for DR are the cumulative annual available DR resources to call each year.



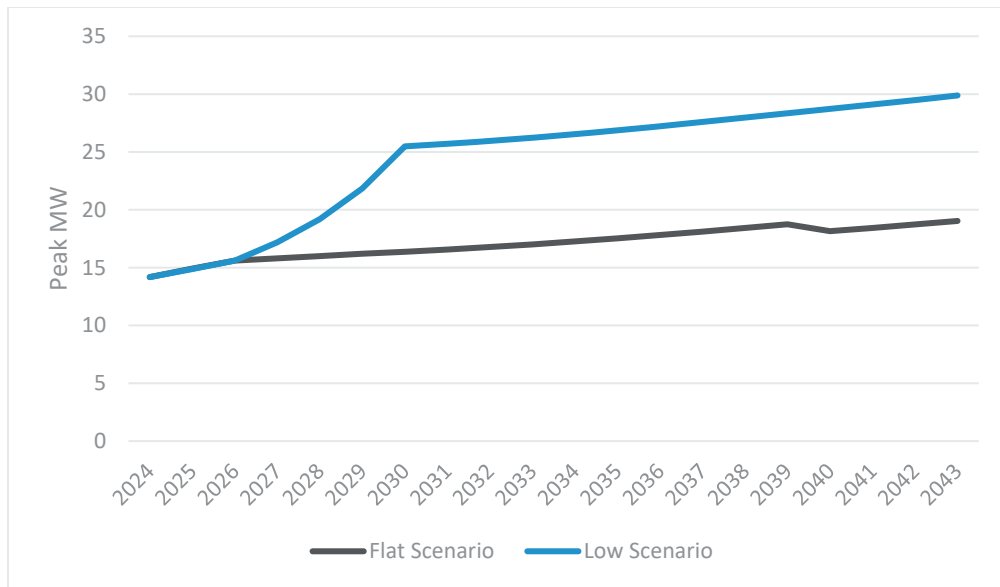
**Figure 1. WVPA EE Low Scenario Potential Compared to Flat (current savings levels) (Annual MWh)**



**Figure 2. WVPA Summer DR Low Scenario Potential Compared to Flat (current savings levels) (Cumulative Annual Peak MW)**



**Figure 3. WVPA Winter DR Low Scenario Potential Compared to Flat (current savings levels)**



**Table 1. Low Growth Scenario Annual 20-Year Forecast for EE and DR**

Forecast Year	Energy Efficiency Annual MWh)	Summer Demand Response (Cumulative Annual Peak MW)	Winter Demand Response (Cumulative Annual Peak MW)
2024	22,604	70.3	14.2
2025	23,778	74.2	14.9
2026	25,012	78.3	15.6
2027	27,363	81.6	17.2
2028	30,524	85.2	19.2
2029	34,657	89.0	21.8
2030	40,552	92.9	25.5
2031	40,577	93.1	25.7
2032	40,744	93.4	26.0
2033	40,699	93.7	26.2
2034	40,782	94.1	26.5
2035	40,885	94.5	26.9
2036	41,105	95.0	27.2
2037	41,113	95.5	27.6
2038	41,228	96.1	28.0
2039	41,351	96.6	28.3
2040	41,491	97.0	28.7
2041	41,657	97.7	29.1
2042	41,824	98.4	29.5
2043	41,994	99.2	29.9





## 1.1 EE & DR IRP Forecasting Methodology and Results

---

Skytop completed a meta-analysis of other recently completed EE/DR potential studies and normalized and extrapolated to forecast WVPA energy efficiency (EE) and demand response (DR) savings potential estimates and costs. The analysis leveraged findings from several nearby utility and co-op recently completed potential studies by normalized savings as a percent of sales to the WVPA residential and commercial sectors. As such, the team utilized the average savings as a percent of sales trends, found in other potential studies, and made them comparable to WVPA's residential and commercial sector sales forecasts. Additionally, Skytop benchmarked the projected costs to achieve EE and DR savings in the other studies, by sector, and applied cost trend estimates over the 20-year time frame to WVPA's projected program costs.

The Skytop team's benchmarking research reviewed five other utility and/or co-ops recently completed EE and DR potential studies. The purpose of this research is to inform how WVPA's programs currently align with savings achieved in other jurisdictions and provide targets for what WVPA programs could achieve with higher levels of spending. Additionally, the research informs what the cost of future EE and DR programs could be. Skytop reviewed recently completed potential studies by the following utilities and co-ops:

1. Hoosier Energy 2023 DSM Potential Study, GDS Associates, 2023.
2. NIPSCO Demand Side Management Market Potential Study, GDS Associates, 2021
3. AES Indiana 2022 Potential Study, GDS Associates, 2022.
4. Indiana Michigan Power Company 2021 Potential Study, GDS Associates, 2021.
5. Michigan Energy Waste Reduction Statewide Potential Study (2021-2040), Guidehouse, 2021.

Skytop calculated four specific savings and cost scenarios for consideration in the IRP. The three main input metrics for each scenario that were derived from the benchmarking study are:

- **Target Percent of Sales/Demand:** The defined target percent of sales or peak demand for each scenario, informed by benchmarking research and calibrated to current WVPA percentages of sales. For example, WVPA's projected 2024 EE residential percentage of sales is 0.04% of residential sales, while the benchmarking results shows a minimum of 0.88%. This would be an unrealistic increase in savings for a low growth scenario, so the target low growth percentage for residential was 'calibrated' from 0.88% target from the benchmarking results to 0.25% after a ramp up period of six years.
- **Year Achieved:** The input year that the savings percentage target will be achieved by. The same percentage of sales is held constant after this year at the target percent.
- **Cost Change:** Defined cost increases or decreases for each scenario. Cost changes are due to changes observed in the benchmarking to cost measures in the future for EE. DR costs include program startup costs and annual incentives. All cost estimates in this effort are in real 2024 \$.

WVPA decided to utilize the low growth scenario within the main IRP. Table 2 below compares the flat scenario, which is essentially WVPA's current program savings held constant, and the low grow scenario input metrics comparison. Details of all scenarios can be found in the main body of the report.



**Table 2. Flat and Low Growth Scenario Input Metrics Comparison**

		Scenario 1 - Flat Growth		Scenario 2 - Low Growth	
	Metric	RES	C&I	RES	C&I
Energy Efficiency	Target Percent	0.04%	0.79%	0.25%	1.00%
	Year Achieved	NA	NA	2030	2030
	Cost Change	None	None	Low Increase	Low Increase
Summer Demand Response	Target Percent	2.14%	9.17%	3.00%	10.00%
	Year Achieved	NA	NA	2030	2030
	Cost Change	None	None	Low Decrease	None
Winter Demand Response	Target Percent	1.62%	0.15%	2.00%	1.00%
	Year Achieved	NA	NA	2030	2030
	Cost Change	None	None	Low Decrease	None

Low Growth Scenario narrative:

- Energy Efficiency – Low Growth:** Residential target percentage of sales is set to 0.25% and C&I to 1% of sales. This is a low increase for both programs, so it is anticipated that this target can be achieved by 2030. A low increase in cost to achieve savings is expected in this scenario, with residential increasing by 0.25% year over year from 2027 on and C&I increasing by 0.5% year over year also from 2027 on.
- Summer Demand Response - Low Growth:** Residential target percentage of sales is set to 3% and C&I to 10% of sales. This is a low increase for both programs, so it is anticipated that this target can be achieved by 2030. Benchmarking indicates that as residential programs mature, costs decrease rather significantly, so the residential costs decrease by 1% year over year from 2027 on. Benchmarking shows that C&I costs increase as more programs come in, but given the small increase in potential, no new programs are expected in this scenario, just higher participation, so costs do not change for C&I.
- Winter Peak Demand Response – Low Growth:** Residential target percentage of sales is set to 2% and C&I to 1% of sales. This is a low increase for both programs, so it is anticipated that this target can be achieved by 2030. Less programs are available in the winter, especially for C&I, which is why the starting and benchmarking targets are lower than summer DR. Benchmarking indicates that as residential programs mature, costs decrease rather significantly, so the residential costs decrease by 1% year over year from 2027 on. Benchmarking shows that C&I costs increase as more programs come in, but given the small increase in potential, no new programs are expected in this scenario, just higher participation, so costs on a \$/kW do not change for C&I.

## 1.2 Energy Efficiency 8760 Demand and Bundling

WVPA’s IRP planning tool requires an 8760 hourly forecast of the demand savings to be achieved from energy efficiency. All measures were bundled by sector for simplicity purposes in the IRP model. Skytop utilized extrapolated annual savings by sector (residential vs. C&I) and applied a sector level 8760 hourly loadshape profile to report out 8760 load impacts from EE. The loadshapes report the percent of annual energy used in each hour of the year for each sector and are sourced from the National Renewable Energy Lab (NREL)<sup>1</sup>, which are the same loadshapes used in WVPA’s 2024-2026 planning tool. The Residential loadshape selected was an HVAC loadshape since most residential measures are HVAC. The C&I measure mix is much more diverse, so the team selected an overall average C&I Loadshape.

<sup>1</sup> National Renewable Energy Lab (NREL) - <https://www.nrel.gov/buildings/end-use-load-profiles.html>



Demand Response for both winter and summer are available resources to meet peak load in the optimization model and also include a \$/MW saved cost assumption that changes year over year.



## 2. Introduction

This report presents the approach, methodology, and potential savings and cost estimates for energy efficiency and demand response savings believed to be achievable by Wabash Valley Power Alliance (WVPA) over the timeframe of 2023-2042.

WVPA engaged with Skytop Consulting to provide a set of 20-year energy efficiency and demand response savings scenario forecasts for use in their IRP. These forecasts are meant to provide a set of potential savings scenarios that could be achieved over the 20-year forecast timeline based on extrapolations of low, medium, and high growth scenarios as informed by secondary research of several potential studies completed near WVPA's service territory.

Skytop recently completed a three-year planning forecast update for WVPA's energy efficiency and demand response programs, WVPA 2024-2026 Plan, which serves as the basis for the starting point of each scenario.

The remaining years of the 20-year forecast are derived from the benchmarking of other potential studies to determine a base, low, medium, and high growth scenario. The benchmarking research detailed savings percentages of sales (by residential and C&I sectors) and cost estimates (\$/MWh or \$/MW saved by residential and C&I in real 2024 dollars) for energy efficiency and demand response as reported in other potential studies. Each scenario has a target percentage of sales, and associated costs, from the benchmarking that the current WVPA programs ramp up to over the timeline of the IRP. The resulting scenarios provide a range of potential energy efficiency savings that could be achieved by WVPA depending on funding of energy efficiency and demand response programs.



## 3. EE & DR IRP Forecast Methodology

### 3.1 Overview

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Skytop used a high-level extrapolation method to forecast WVPA energy efficiency (EE) and demand response (DR) savings potential estimates. Our analysis leveraged findings from several nearby utility and co-op recently completed potential studies by normalized savings as a percent of sales to the WVPA residential and commercial sectors. As such, we used the average savings as a percent of sales trends, found in other potential studies, and made them comparable to WVPA's residential and commercial sector sales forecasts.

### 3.2 Benchmarking Research

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The Skytop team's benchmarking research reviewed five other utility and/or co-ops recently completed EE and DR potential studies. The purpose of this research is to inform how WVPA's programs currently align with savings achieved in other jurisdictions and provide targets for what WVPA programs could achieve with higher levels of spending. Additionally, the research informs what the cost of future EE and DR programs could be. Skytop reviewed recently completed potential studies by the following utilities and co-ops:

6. Hoosier Energy 2023 DSM Potential Study, GDS Associates, 2023.
7. NIPSCO Demand Side Management Market Potential Study, GDS Associates, 2021
8. AES Indiana 2022 Potential Study, GDS Associates, 2022.
9. Indiana Michigan Power Company 2021 Potential Study, GDS Associates, 2021.
10. Michigan Energy Waste Reduction Statewide Potential Study (2021-2040), Guidehouse, 2021.

From this research, the Skytop team summarized achievable potential findings and extrapolated EE and DR savings and cost scenarios for 2023-2042. The team summarized values by the residential sector and commercial and industrial combined. The key metrics utilized in the scenario analysis are:

- a) EE savings as a percent of annual sales by sector
- b) DR savings as a percent of annual summer peak demand savings by sector
- c) Cost per first year kWh savings by sector for energy efficiency
- d) Cost per kW savings by sector for demand response

### 3.3 Extrapolation, Scaling and Savings Scenarios

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Based on benchmarking research, Skytop extrapolated savings and cost projections for EE and DR savings for 2023-2042 by sector (Residential vs. C&I) for WVPA. For each scenario, years 2024 to 2026 were anchored to the results of WVPA's plan for 2024-2025. Years 2027 and beyond are extrapolated based on the savings percentage and cost benchmarking research. The extrapolations are based on percentages of sales to scale the results to WVPA specific energy and demand sales by sector.

The benchmarked data is used to inform target percentages of sales for WVPA to achieve over the IRP forecast, with strong consideration given to the current percent of sales achieved by WVPA's 2024-2026 plan. For residential, WVPA's current EE percent of sales is relatively low compared to the benchmarked utilities and this was considered when setting the target percent of sales relative to the benchmarked data. Table 3 below shows WVPA's EE and DR planned achievements as a percentage of sales by sector:



**Table 3. WVPA Current 3-year Plan EE and DR Savings as a % of Sector Sales/Peak Demand**

	Planning Year	Residential	C&I
<b>Energy Efficiency</b> (% of Energy Sales – kWh)	2024	0.03%	0.71%
	2025	0.03%	0.75%
	2026	0.04%	0.79%
<b>Summer Demand Response</b> (% of Peak kW Demand)	2024	1.92%	8.41%
	2025	2.03%	8.77%
	2026	2.14%	9.17%
<b>Winter Demand Response</b> (% of Peak kW Demand)	2024	1.52%	0.14%
	2025	1.57%	0.14%
	2026	1.62%	0.15%

Skytop calculated four specific savings and cost scenarios for consideration in the IRP. Table 2 below provides a comparison of all four scenario input metrics for EE and DR. Each scenario is described with a narrative after the table. The three main input metrics for each scenario are:

- **Target Percent of Sales/Demand:** The defined target percent of sales or peak demand for each scenario, informed by benchmarking research and calibrated to current WVPA percentages of sales. For example, WVPA’s EE residential percentage of sales is only 0.04% of residential sales, while the benchmarking results shows a minimum of 0.88%. This would be an unrealistic increase in savings for a low growth scenario, so the target low growth percentage for residential was ‘calibrated’ from 0.88% target from the benchmarking results to 0.25%, with 1.0% of residential sales the target in the high growth scenario.
- **Year Achieved:** The input year that the savings percentage target will be achieved by. The same percentage of sales is held constant after this year at the target percent.
- **Cost Change:** Defined cost increases or decreases for each scenario. Cost changes are due to changes observed in the benchmarking to cost measures in the future for EE. DR costs include program startup costs and annual incentives. All cost estimates in this effort are in real 2024 \$.

Table 4 presents Skytop’s suggested EE/DR scenario targets, which scale across four scenarios, ranging from flat growth, to high growth, based on the findings from the potential study benchmarking review.

**Table 4. IRP EE and DR Scenario Comparisons**

		Scenario 1 - Flat Growth		Scenario 2 - Low Growth		Scenario 3 - Medium Growth		Scenario 4 - High Growth	
Metric		RES	C&I	RES	C&I	RES	C&I	RES	C&I
<b>Energy Efficiency</b>	Target Percent	0.04%	0.79%	0.25%	1.00%	0.75%	1.25%	1.00%	1.50%
	Year Achieved	NA	NA	2030	2030	2033	2033	2033	2033
	Cost Change	None	None	Low Increase	Low Increase	Med. Increase	Med. Increase	High Increase	High Increase
<b>Summer Demand Response</b>	Target Percent	2.14%	9.17%	3.00%	10.00%	5.00%	12.50%	10.00%	15.00%
	Year Achieved	NA	NA	2030	2030	2033	2033	2033	2033
	Cost Change	None	None	Low Decrease	None	Low Decrease	Low Increase	High Decrease	Low Increase
<b>Winter Demand Response</b>	Target Percent	1.62%	0.15%	2.00%	1.00%	3.00%	2.00%	5.00%	3.00%
	Year Achieved	NA	NA	2030	2030	2033	2033	2033	2033
	Cost Change	None	None	Low Decrease	None	Low Decrease	Low Increase	High Decrease	Low Increase



Narratives for each scenario are listed below for EE, Summer DR and Winter DR. Target percentages of sales are calibrated to current WVPA achievements and what is reasonable to expect in terms of increases. The cost changes are derived the benchmarking work as well, looking at program cost changes year over year and developing average cost increase of programs. **All cost values are presented as 2024 real dollars.**

- **Scenario 1- Flat Potential**

- EE and DR: Res and C&I are set to 2026 percentage of sales from the existing 2024-2026 plan. This results in a small increase in potential for both EE and DR as sales forecasts increase, but no additional expansion of programs is included in this scenario. There is no dollar per kWh or per peak kW escalation.

- **Scenario 2 – Low Achievable Potential**

- **Energy Efficiency – Low Growth:** Residential target percentage of sales is set to 0.25% and C&I to 1% of sales. This is a low increase for both programs, so it is anticipated that this target can be achieved by 2030. A low increase in cost to achieve savings is expected in this scenario, with residential increasing by 0.25% year over year and C&I increasing by 0.5% year over year.
- **Summer Demand Response - Low Growth:** Residential target percentage of sales is set to 3% and C&I to 10% of sales. This is a low increase for both programs, so it is anticipated that this target can be achieved by 2030. Benchmarking indicates that as residential programs mature, costs decrease rather significantly, so the residential costs decrease by 1% year over year. Benchmarking shows that C&I costs increase as more programs come in, but given the small increase in potential, no new programs are expected in this scenario, just higher participation, so costs do not change for C&I.
- **Winter Peak Demand Response – Low Growth:** Residential target percentage of sales is set to 2% and C&I to 1% of sales. This is a low increase for both programs, so it is anticipated that this target can be achieved by 2030. Less programs are available in the winter, especially for C&I, which is why the starting and benchmarking targets are lower than summer DR. Benchmarking indicates that as residential programs mature, costs decrease rather significantly, so the residential costs decrease by 1% year over year. Benchmarking shows that C&I costs increase as more programs come in, but given the small increase in potential, no new programs are expected in this scenario, just higher participation, so costs on a \$/kW do not change for C&I.

- **Scenario 3 – Medium Achievable Potential**

- **Energy Efficiency – Medium Growth:** Residential target percentage of sales is set to 0.75% and C&I to 1.25% of sales. This residential percentage of sales is more aligned with the low end found in the benchmarking but was used for the mid case instead of low given the low current percentage of sales WVPA achieves. With these higher targets, it is anticipated that this target can be achieved by 2033, a few years later than the low scenario. A moderate increase in cost is expected in this scenario to expand programs, with residential increasing by 0.5% year over year and C&I increasing by 1% year over year.
- **Summer Demand Response – Medium Growth:** Residential target percentage of sales is set to 5% and C&I to 12.5% of sales and are expected to be achieved by 2033. Benchmarking indicates that as residential programs mature, costs decrease rather significantly, so the residential costs decrease by 2% year over year since these savings



are expected from established programs. Benchmarking shows that C&I costs increase as more programs come in and to achieve the savings in this scenario, there is an assumed 1% increase in \$/kW year over year costs for C&I.

- **Winter Demand Response – Medium Growth:** Residential target percentage of sales is set to 3% and C&I to 2% of sale and are expected to be achieved by 2033. Cost change assumptions are the same as Summer Demand Response.
- **Scenario 4 – High Achievable Potential**
  - **Energy Efficiency – High Growth:** Residential target percentage of sales is set to 1% and C&I to 1.5% of sales. This residential percentage of sales is on the low end of benchmarked results, but is exponentially higher than the current percentage of sales WVPA achieves. With these higher targets, it is anticipated that this target can be achieved by 2033, a few years later than the low scenario. A high increase in cost is expected in this scenario to expand programs, with residential increasing by 1% year over year and C&I increasing by 1.5% year over year.
  - **Summer Demand Response – High Growth:** Residential target percentage of sales is set to 10% and C&I to 15% of sales and are expected to be achieved by 2033. Benchmarking indicates that as residential programs mature, costs decrease rather significantly, so the residential costs decrease by 3% year over year since these savings are expected from established programs. Benchmarking shows that C&I costs increase as more programs come in and to achieve the savings in this scenario, there is an assumed 2% increase in \$/kW year over year costs for C&I.
  - **Winter Demand Response – High Growth:** Residential target percentage of sales is set to 5% and C&I to 3% of sale and are expected to be achieved by 2033. Cost change assumptions are the same as Summer Demand Response.

### 3.4 IRP Input Development and Bundling

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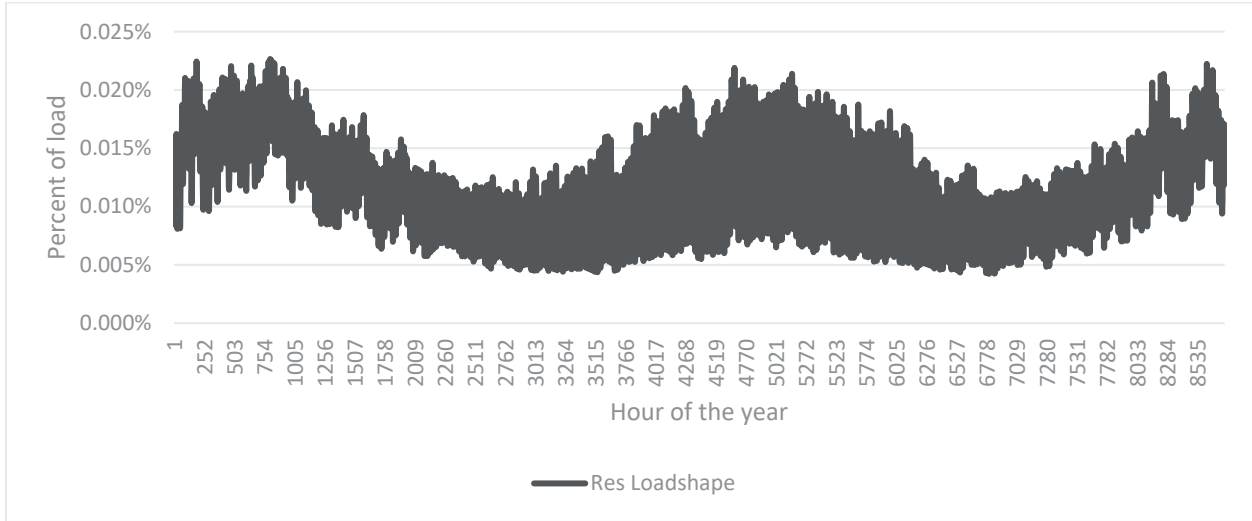
WVPA's IRP planning tool requires an 8760 hourly forecast of the demand savings to be achieved from energy efficiency. All measures were bundled by sector for simplicity purposes in the IRP model. Skytop utilized extrapolated annual savings by sector (residential vs. C&I) and applied a sector level 8760 hourly loadshape profile to report out 8760 load impacts from EE. The loadshapes report the percent of annual energy used in each hour of the year for each sector and are sourced from the National Renewable Energy Lab (NREL)<sup>2</sup>, which are the same loadshapes used in WVPA's 2024-2026 planning tool. The Residential loadshape selected was an HVAC loadshape since most residential measures are HVAC. The C&I measure mix is much more diverse, so the team selected an overall average C&I Loadshape. Figure 1 below shows the loadshapes graphically.

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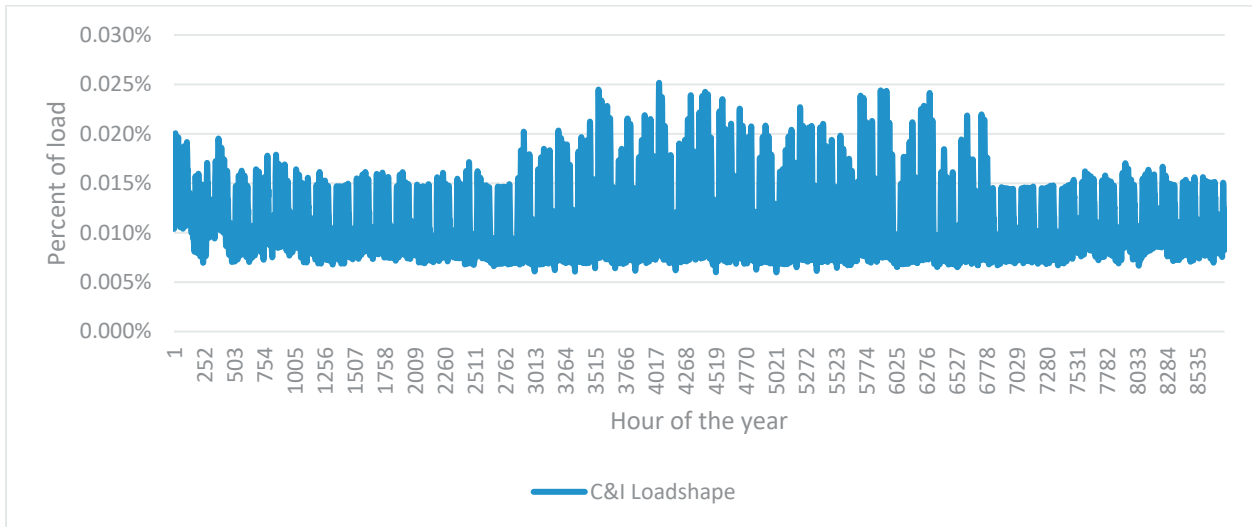
<sup>2</sup> National Renewable Energy Lab (NREL) - <https://www.nrel.gov/buildings/end-use-load-profiles.html>



**Figure 4. Residential Loadshape for EE Results**



**Figure 5. C&I Loadshape for EE Results**





## 4. Benchmarking Results

This section presents the benchmarking results for the five utilities reviewed (Hoosier, NIPSCO, AES IN, I&M IN, Michigan Statewide) for energy efficiency and demand response by sector (residential vs C&I). Wabash results are also presented for comparison. Wabash EE results are lower than the median values while DR results are higher than the median values for C&I but lower for residential.

Data presented includes:

- The number of years covered in the potential study
- The starting annual savings as a percent of sales (year 1 of the study)
- The ending annual percent of sales (last year of the study)
- The average annual savings as a percent of sales
- The average annual savings as a percent of sales growth rate
- The cumulative savings as a percent of sales
- The cumulative to simple cumulative ratio – this metric was used to help determine an appropriate degradation factor for cumulative savings due to measures reaching the end of their measure life.
- The annual cost of savings for year 1 (either \$/kWh or \$/kW) in real 2024 dollars
- Annual cost growth rate

All of the above data described and shown in the results tables below helped to inform the savings forecast scenarios detailed in Section 2. In some cases, benchmarked results were significantly higher than current WVPA programs, such as in the residential energy efficiency results. In these cases, scenario targets were roughly calibrated to the WVPA current savings percentages. For example, WVPA's EE residential percentage of sales is only 0.04% of residential sales, while the benchmarking results shows a minimum of 0.88%. This would be an unrealistic increase in savings for a low growth scenario, so the target low growth percentage for residential was 'calibrated' from 0.88% target from the benchmarking results to 0.25%, with 1.0% of residential sales the target in the high growth scenario.

### 4.1 Energy Efficiency Benchmarking Results

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Table 5 presents the energy efficiency savings benchmarking results for the residential sector. Table 6 presents the energy efficiency savings benchmarking results for the C&I sector. All costs are presented in real 2024 dollars.



**Table 5. Energy Efficiency Benchmarking for Residential Sector Savings as a Percent of Residential Sales**

Residential									
Study	Study # of Years	Starting Annual Savings % of Sales	Ending Annual Savings % of Sales	Average Annual Savings % of Sales	Average Annual % of Sales Growth Rate	Cumulative Savings % of Sales	Cumulative to Simple Cumulative ratio	Annual Cost of Savings (\$/kWh Real 2024 \$) YEAR 1	Annual Cost Growth Rate
<i>Wabash</i>	3	0.03%	0.04%	0.03%	4.41%	NA	NA	\$0.36	NA
<i>Hoosier</i>	20	0.88%	1.57%	1.26%	3.09%	13.13%	51.96%	\$0.05	-2.44%
<i>NIPSCO</i>	20	1.40%	3.10%	2.49%	4.27%	14.91%	29.98%	\$0.21	2.47%
<i>AES IN</i>	19	1.32%	2.00%	1.83%	2.33%	18.37%	52.93%	\$0.41	-0.04%
<i>I&amp;M IN</i>	20	1.21%	1.96%	1.86%	2.58%	15.69%	42.08%	\$0.14	1.10%
<i>MI Statewide</i>	20	1.65%	1.07%	1.20%	-2.26%	15.49%	64.32%	\$0.33	4.93%
<b>Average</b>	<b>20</b>	<b>1.29%</b>	<b>1.94%</b>	<b>1.73%</b>	<b>2.16%</b>	<b>15.52%</b>	<b>44.88%</b>	<b>\$0.23</b>	<b>1.20%</b>
<b>Median</b>	<b>20</b>	<b>1.32%</b>	<b>1.96%</b>	<b>1.83%</b>	<b>2.58%</b>	<b>15.49%</b>	<b>51.96%</b>	<b>\$0.21</b>	<b>1.10%</b>
<b>Maximum</b>	<b>20</b>	<b>1.65%</b>	<b>3.10%</b>	<b>2.49%</b>	<b>4.27%</b>	<b>18.37%</b>	<b>64.32%</b>	<b>\$0.41</b>	<b>4.93%</b>
<b>Minimum</b>	<b>20</b>	<b>0.88%</b>	<b>1.07%</b>	<b>1.20%</b>	<b>-2.26%</b>	<b>13.13%</b>	<b>29.98%</b>	<b>\$0.05</b>	<b>-2.44%</b>

**Table 6. Energy Efficiency Benchmarking for C&I Sector Savings as a Percent of C&I Sales**

Commercial and Industrial Savings as Percent of C&I Sales									
Study	Study # of Years	Starting Annual Savings % of Sales	Ending Annual Savings % of Sales	Average Annual Savings % of Sales	Average Annual % of Sales Growth Rate	Cumulative Savings % of Sales	Cumulative to Simple Cumulative ratio	Annual Cost of Savings (\$/kWh - Real \$2024) YEAR 1	Annual Cost Growth Rate
<i>Wabash</i>	3	0.71%	0.79%	0.75%	5.38%	NA	NA	\$0.15	NA
<i>Hoosier</i>	20	0.22%	0.56%	0.48%	4.96%	7.03%	73.18%	\$0.10	-4.88%
<i>NIPSCO</i>	20	1.73%	1.97%	1.84%	0.68%	16.33%	44.38%	\$0.16	0.85%
<i>AES IN</i>	19	1.74%	1.14%	1.40%	-2.34%	12.41%	46.55%	\$0.14	2.00%
<i>I&amp;M IN</i>	20	2.49%	3.56%	2.89%	1.91%	27.91%	48.29%	\$0.12	0.40%
<i>MI Statewide</i>	20	2.07%	0.27%	1.05%	-10.25%	20.07%	95.73%	\$0.39	3.86%
<b>Average</b>	<b>20</b>	<b>1.65%</b>	<b>1.50%</b>	<b>1.53%</b>	<b>-0.51%</b>	<b>16.75%</b>	<b>54.66%</b>	<b>\$0.18</b>	<b>0.45%</b>
<b>Median</b>	<b>20</b>	<b>1.74%</b>	<b>1.14%</b>	<b>1.40%</b>	<b>0.68%</b>	<b>16.33%</b>	<b>48.29%</b>	<b>\$0.14</b>	<b>0.85%</b>
<b>Maximum</b>	<b>20</b>	<b>2.49%</b>	<b>3.56%</b>	<b>2.89%</b>	<b>4.96%</b>	<b>27.91%</b>	<b>95.73%</b>	<b>\$0.39</b>	<b>3.86%</b>
<b>Minimum</b>	<b>20</b>	<b>0.22%</b>	<b>0.27%</b>	<b>0.48%</b>	<b>-10.25%</b>	<b>7.03%</b>	<b>44.38%</b>	<b>\$0.10</b>	<b>-4.88%</b>



## 4.2 Demand Response Benchmarking Results

Table 7 presents the demand response benchmarking results for the residential sector. Table 8 presents the demand response benchmarking results for the commercial and industrial sectors. All cost values are presented in real 2024 dollars.

**Table 7. Residential Demand Response: Demand Savings as a Percent of Residential Demand**

Residential Demand Response										
Study	Study # of Years	Starting Annual Savings % of Sales	Ending Annual Savings % of Sales	Average Annual Savings % of Sales	Average Annual Savings % of Sales Growth Rate	Cumulative % of Sales	Cumulative to Simple Cumulative Ratio	Annual Cost of Savings (\$/kWh - Real \$2024) YEAR 1	Annual Cost of Savings (\$/kWh - Real \$2024) YEAR 10	Annual Cost Growth Rate
<i>Wabash</i>	3	1.92%	2.14%	2.03%	5.70%	NA	NA	\$49.77		NA
<i>Hoosier</i>	20	0.81%	6.29%	5.90%	11.41%	23.03%	19.52%	\$122.44	\$18.13	-19.12%
<i>NIPSCO</i>	20	0.11%	0.48%	0.32%	8.08%	4.82%	74.50%	NA	NA	NA
<i>AES IN</i>	19	1.28%	9.04%	5.35%	11.49%	33.62%	33.09%	\$116.29	\$54.01	-8.17%
<i>I&amp;M IN</i>	20	0.12%	1.37%	1.00%	13.45%	11.55%	58.01%	NA	NA	NA
<i>MI Statewide</i>	20	1.17%	6.04%	5.25%	9.02%	29.53%	28.12%	\$395.26	\$111.41	-13.13%
<b>Average</b>	<b>20</b>	<b>0.70%</b>	<b>4.65%</b>	<b>3.56%</b>	<b>10.49%</b>	<b>20.51%</b>	<b>28.78%</b>	<b>\$211.33</b>	<b>\$61.18</b>	<b>-13.47%</b>
<b>Median</b>	<b>20</b>	<b>0.81%</b>	<b>6.04%</b>	<b>5.25%</b>	<b>11.41%</b>	<b>23.03%</b>	<b>33.09%</b>	<b>\$122.44</b>	<b>\$54.01</b>	<b>-13.13%</b>
<b>Maximum</b>	<b>20</b>	<b>1.28%</b>	<b>9.04%</b>	<b>5.90%</b>	<b>13.45%</b>	<b>33.62%</b>	<b>74.50%</b>	<b>\$395.26</b>	<b>\$111.41</b>	<b>-8.17%</b>
<b>Minimum</b>	<b>20</b>	<b>0.11%</b>	<b>0.48%</b>	<b>0.32%</b>	<b>8.08%</b>	<b>4.82%</b>	<b>19.52%</b>	<b>\$116.29</b>	<b>\$18.13</b>	<b>-19.12%</b>

**Table 8. C&I Demand Response: Demand Savings as a Percent of C&I Demand**

Commercial and Industrial Demand Response Savings										
Study	Study # of Years	Starting Annual Savings % of Sales	Ending Annual Savings % of Sales	Average Annual Savings % of Sales	Average Annual Savings % of Sales Growth Rate	Cumulative Savings % of Sales	Cumulative to Simple Cumulative Ratio	Annual Cost of Savings (\$/kWh - Real \$2024) YEAR 1	Annual Cost of Savings (\$/kWh - Real \$2024) YEAR 10	Annual Cost Growth Rate
<i>Wabash</i>	3	8.41%	9.17%	8.78%	4.40%	NA	NA	\$49.74		NA
<i>Hoosier</i>	20	0.11%	0.81%	0.80%	11.03%	3.73%	23.22%	\$68.63	\$27.74	-10.70%
<i>NIPSCO</i>	20	0.39%	0.96%	0.88%	4.94%	6.56%	37.24%	NA	NA	NA
<i>AES IN</i>	19	0.08%	4.02%	2.94%	24.74%	11.10%	19.85%	\$116.29	\$54.01	-9.14%
<i>I&amp;M IN</i>	20	0.01%	0.67%	0.42%	26.72%	6.78%	80.94%	NA	NA	NA
<i>MI Statewide</i>	20	0.50%	3.67%	3.29%	11.07%	17.42%	26.46%	\$60.87	\$61.79	0.19%
<b>Average</b>	<b>20</b>	<b>0.22%</b>	<b>2.03%</b>	<b>1.67%</b>	<b>12.52%</b>	<b>9.12%</b>	<b>27.34%</b>	<b>\$73.88</b>	<b>\$47.85</b>	<b>-6.55%</b>
<b>Median</b>	<b>20</b>	<b>0.11%</b>	<b>0.96%</b>	<b>0.88%</b>	<b>11.07%</b>	<b>6.78%</b>	<b>26.46%</b>	<b>\$68.63</b>	<b>\$54.01</b>	<b>-9.14%</b>
<b>Maximum</b>	<b>20</b>	<b>0.50%</b>	<b>4.02%</b>	<b>3.29%</b>	<b>26.72%</b>	<b>17.42%</b>	<b>80.94%</b>	<b>\$116.29</b>	<b>\$61.79</b>	<b>0.19%</b>
<b>Minimum</b>	<b>20</b>	<b>0.01%</b>	<b>0.67%</b>	<b>0.42%</b>	<b>4.94%</b>	<b>3.73%</b>	<b>19.85%</b>	<b>\$60.87</b>	<b>\$27.74</b>	<b>-10.70%</b>



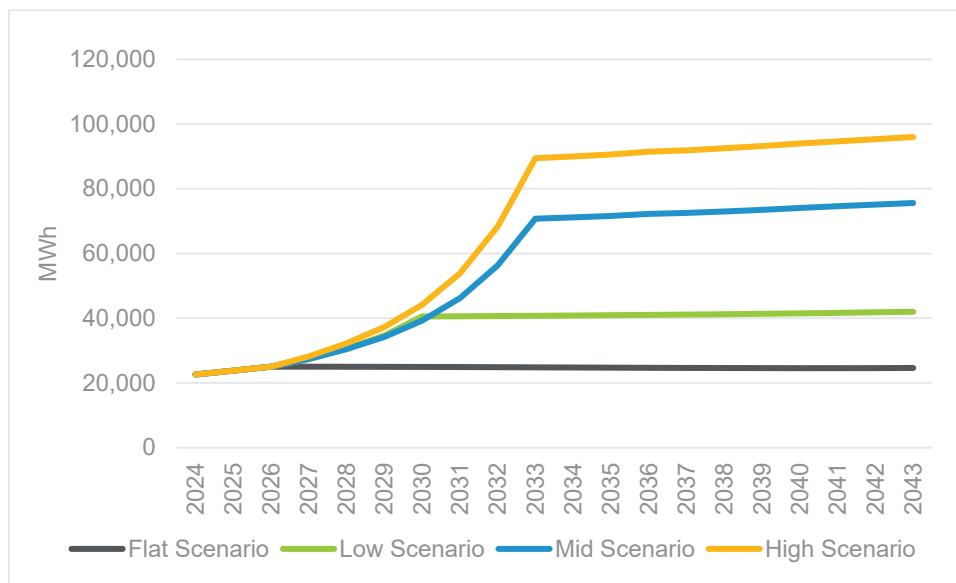
## 5. Scenario Comparisons for WVPA

This section presents the savings scenario results and comparisons for energy efficiency in addition to summer and winter demand response.

### 5.1 WVPA Energy Efficiency Savings Scenarios

Energy Efficiency scenario results estimated for WVPA are shown in Figure 6 and Table 9 for WVPA overall. Sector level results are presented next, with residential results shown in Figure 7 and Table 10. C&I results are presented in Figure 8 and Table 11. Note that the C&I results go down slightly in outer years because the load forecast shows lower consumption over the forecast. Additionally, Skytop presents the detailed savings results by scenario in Appendix A.

**Figure 6 Scenario Comparison for Total Energy Efficiency Savings (MWh) for All Sectors**

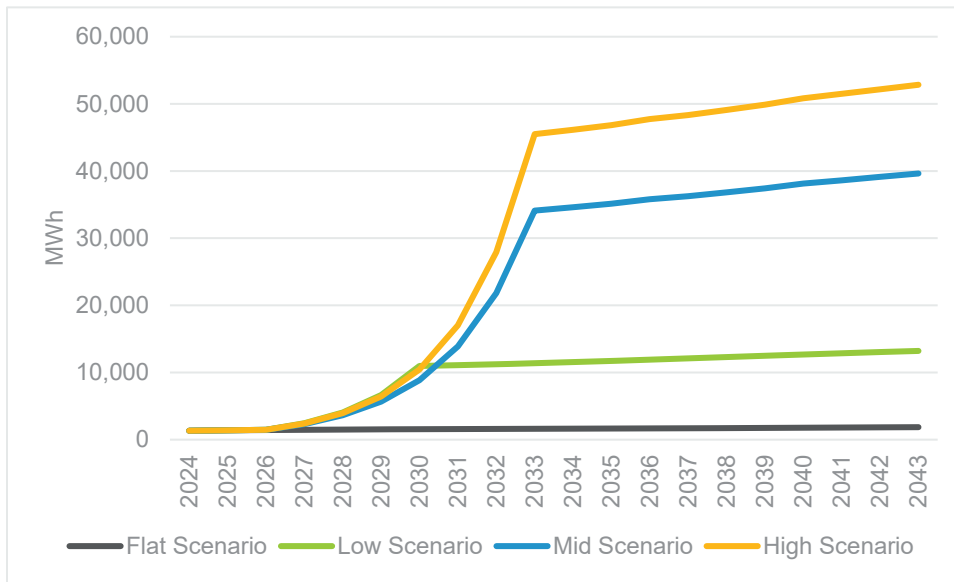


**Table 9. Scenario Comparison for Total Energy Efficiency Savings (MWh) for All Sectors**

Total Energy Savings (MWh)				
	Flat Scenario	Low Scenario	Mid Scenario	High Scenario
2024	22,604	22,604	22,604	22,604
2025	23,778	23,778	23,778	23,778
2026	25,012	25,012	25,012	25,012
2027	24,995	27,363	27,403	28,162
2028	25,061	30,524	30,471	32,217
2029	25,003	34,657	34,240	37,306
2030	24,926	40,552	39,248	44,168
2031	24,866	40,577	46,209	53,872
2032	24,884	40,744	56,334	68,274
2033	24,775	40,699	70,775	89,479
2034	24,735	40,782	71,168	90,016

2035	24,703	40,885	71,598	90,601
2036	24,733	41,105	72,260	91,485
2037	24,643	41,113	72,532	91,870
2038	24,609	41,228	73,013	92,525
2039	24,578	41,351	73,511	93,201
2040	24,534	41,491	74,105	94,009
2041	24,557	41,657	74,600	94,670
2042	24,580	41,824	75,102	95,339
2043	24,604	41,994	75,611	96,018

**Figure 7 Scenario Comparison for Energy Efficiency Savings (MWh) for Residential Sector**

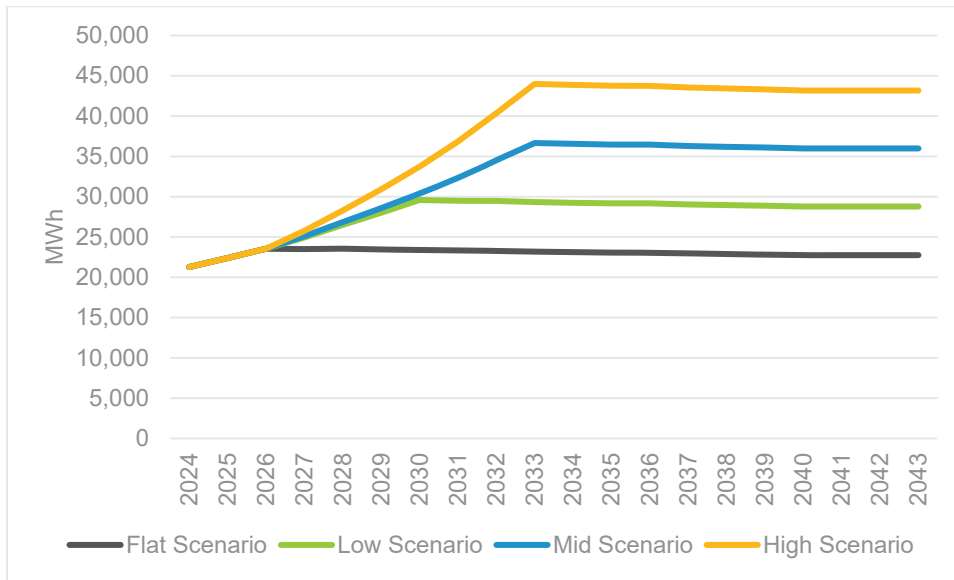


**Table 10. Scenario Comparison for Energy Efficiency Savings (MWh) for Residential Sector**

RESIDENTIAL ONLY (MWh)				
	Flat Scenario	Low Scenario	Mid Scenario	High Scenario
2024	1,330	1,330	1,330	1,330
2025	1,400	1,400	1,400	1,400
2026	1,474	1,474	1,474	1,474
2027	1,490	2,433	2,307	2,404
2028	1,513	4,035	3,627	3,938
2029	1,527	6,648	5,667	6,411
2030	1,541	10,962	8,859	10,442
2031	1,559	11,084	13,871	17,035
2032	1,583	11,260	21,816	27,917
2033	1,599	11,372	34,117	45,489
2034	1,622	11,537	34,611	46,148
2035	1,647	11,710	35,129	46,839

2036	1,678	11,931	35,794	47,725
2037	1,699	12,081	36,242	48,322
2038	1,726	12,273	36,818	49,091
2039	1,753	12,470	37,410	49,879
2040	1,787	12,709	38,126	50,835
2041	1,810	12,874	38,622	51,496
2042	1,834	13,041	39,124	52,165
2043	1,858	13,211	39,633	52,844

**Figure 8 Scenario Comparison for Energy Efficiency Savings (MWh) for C&I Sector**



**Table 11. Scenario Comparison for Energy Efficiency Savings (MWh) for C&I Sector**

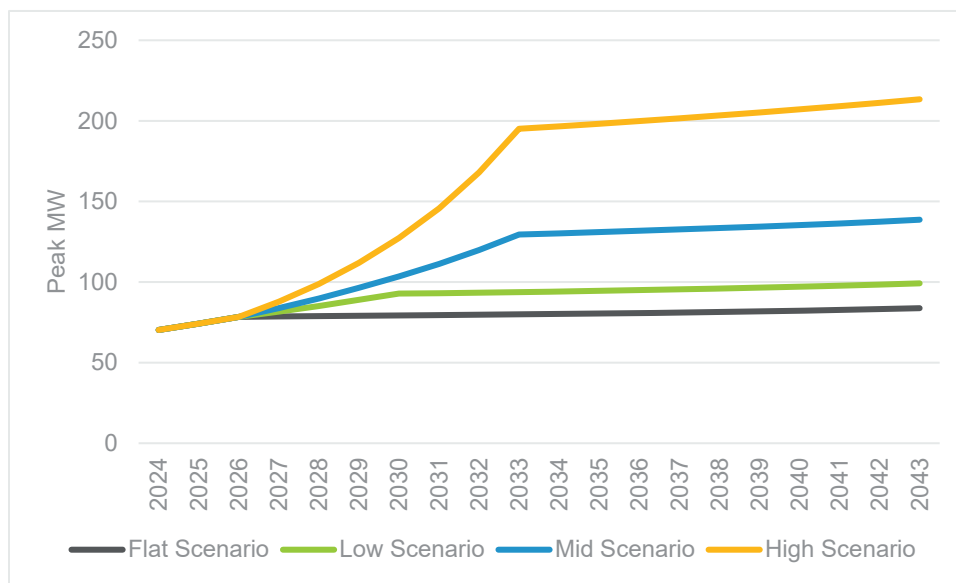
COMMERCIAL & INDUSTRIAL ONLY (MWh)				
	Flat Scenario	Low Scenario	Mid Scenario	High Scenario
2024	21,274	21,274	21,274	21,274
2025	22,378	22,378	22,378	22,378
2026	23,538	23,538	23,538	23,538
2027	23,505	24,929	25,096	25,758
2028	23,548	26,489	26,844	28,280
2029	23,476	28,008	28,573	30,896
2030	23,385	29,590	30,389	33,726
2031	23,307	29,492	32,339	36,837
2032	23,301	29,484	34,518	40,357
2033	23,176	29,326	36,658	43,989
2034	23,112	29,245	36,557	43,868
2035	23,057	29,175	36,469	43,763
2036	23,055	29,173	36,467	43,760

2037	22,944	29,032	36,290	43,548
2038	22,883	28,955	36,194	43,433
2039	22,824	28,881	36,101	43,322
2040	22,747	28,783	35,978	43,174
2041	22,747	28,783	35,978	43,174
2042	22,747	28,783	35,978	43,174
2043	22,747	28,783	35,978	43,174

## 5.2 WVPA Summer Demand Response Scenarios

Next, summer demand response is shown for WVPA. Figure 9 along with Table 12 shows the summer demand response (MW) savings scenario comparison for all of WVPA. Following that, Figure 10 and Table 13 break out the residential sector only and Figure 11 and Table 14 show the C&I sector only. Skytop presents the detailed results by scenario in Appendix A.

**Figure 9 Scenario Comparison for Summer Demand Response Savings (MW) for All Sectors**



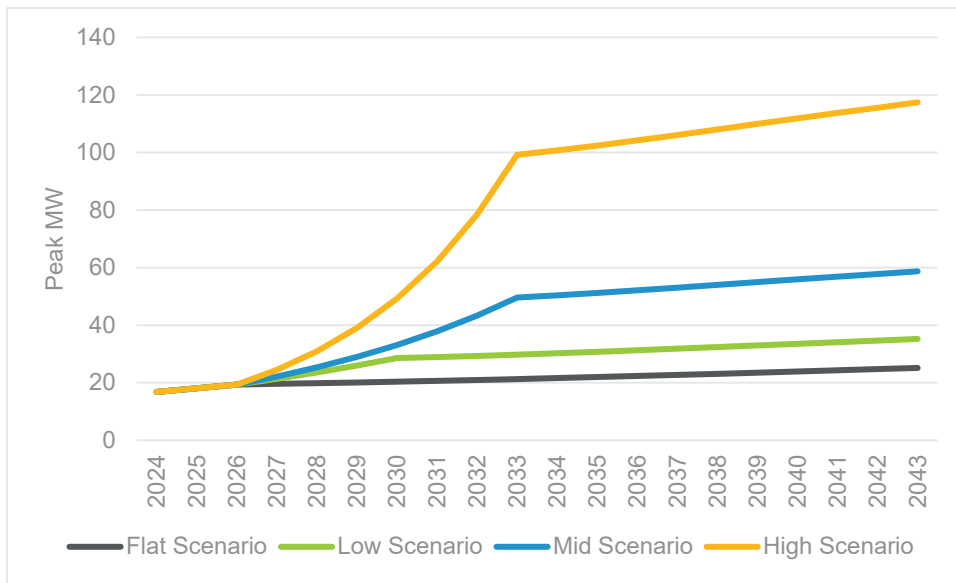
**Table 12. Scenario Comparison for Summer Demand Response Savings for All Sectors**

Total Demand Response Savings (MW)				
	Flat Scenario	Low Scenario	Mid Scenario	High Scenario
2024	70	70	70	70
2025	74	74	74	74
2026	78	78	78	78
2027	79	82	84	88
2028	79	85	90	99
2029	79	89	96	112
2030	79	93	103	127



2031	79	93	111	146
2032	80	93	120	168
2033	80	94	130	195
2034	80	94	130	197
2035	80	95	131	198
2036	81	95	132	200
2037	81	96	133	202
2038	81	96	134	203
2039	82	97	135	205
2040	82	97	135	207
2041	83	98	136	209
2042	83	98	137	211
2043	84	99	139	213

**Figure 10 Scenario Comparison for Summer Demand Response Savings (MW) for Residential Sector**



**Table 13. Scenario Comparison for Summer Demand Response Savings (MW) for Residential Sector**

RESIDENTIAL ONLY (MW)				
	Flat Scenario	Low Scenario	Mid Scenario	High Scenario
2024	17	17	17	17
2025	18	18	18	18
2026	19	19	19	19
2027	20	21	22	24
2028	20	24	25	31
2029	20	26	29	39
2030	20	29	33	49

2031	21	29	38	62
2032	21	29	43	78
2033	21	30	50	99
2034	22	30	50	101
2035	22	31	51	102
2036	22	31	52	104
2037	23	32	53	106
2038	23	32	54	108
2039	24	33	55	110
2040	24	34	56	112
2041	24	34	57	114
2042	25	35	58	116
2043	25	35	59	117

**Figure 11 Scenario Comparison for Summer Demand Response Savings (MW) for C&I Sector**



**Table 14. Scenario Comparison for Summer Demand Response Savings (MW) for C&I Sector**

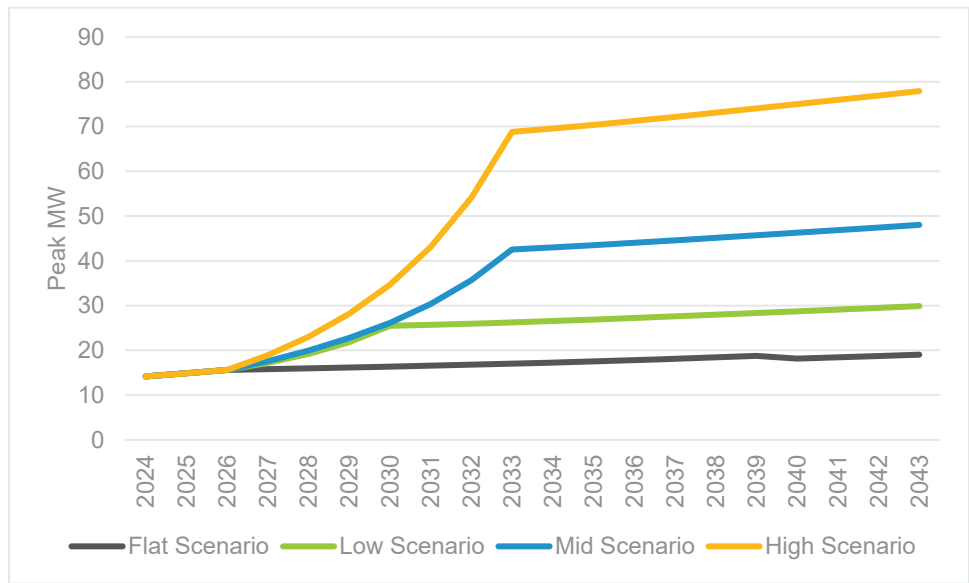
COMMERCIAL & INDUSTRIAL ONLY (MW)				
	Flat Scenario	Low Scenario	Mid Scenario	High Scenario
2024	53	53	53	53
2025	56	56	56	56
2026	59	59	59	59
2027	59	60	62	63
2028	59	62	64	68
2029	59	63	67	73
2030	59	64	70	78
2031	59	64	73	84

2032	59	64	77	90
2033	59	64	80	96
2034	59	64	80	96
2035	58	64	80	96
2036	58	64	80	96
2037	58	64	80	96
2038	58	64	80	96
2039	58	64	80	95
2040	58	63	79	95
2041	58	64	79	95
2042	58	64	80	96
2043	59	64	80	96

### 5.3 WVPA Winter Demand Response Scenarios

This section presents winter demand response savings scenarios for WVPA. Figure 12 and Table 15 shows the winter demand response (MW) savings scenario comparison. Then Figure 13 and Table 16 break out the residential sector only and Figure 14 and Table 17 show the C&I sector only. Skytop presents the detailed results by scenario in Appendix A.

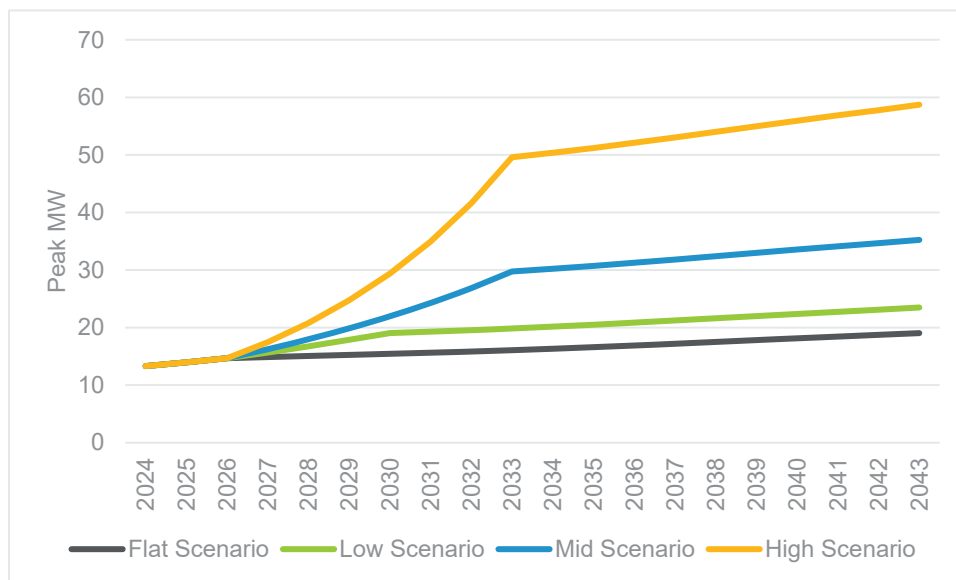
**Figure 12 Scenario Comparison for Winter Demand Response Savings (MW) for All Sectors**



**Table 15. Scenario Comparison for Winter Demand Response Savings for All Sectors**

Total Demand Response Savings (MW)				
	Flat Scenario	Low Scenario	Mid Scenario	High Scenario
2024	14	14	14	14
2025	15	15	15	15
2026	16	16	16	16
2027	16	17	18	19
2028	16	19	20	23
2029	16	22	23	28
2030	16	25	26	35
2031	17	26	30	43
2032	17	26	36	54
2033	17	26	43	69
2034	17	27	43	70
2035	18	27	43	70
2036	18	27	44	71
2037	18	28	45	72
2038	18	28	45	73
2039	19	28	46	74
2040	18	29	46	75
2041	18	29	47	76
2042	19	29	47	77
2043	19	30	48	78

**Figure 13 Scenario Comparison for Winter Demand Response Savings (MW) for Residential Sector**

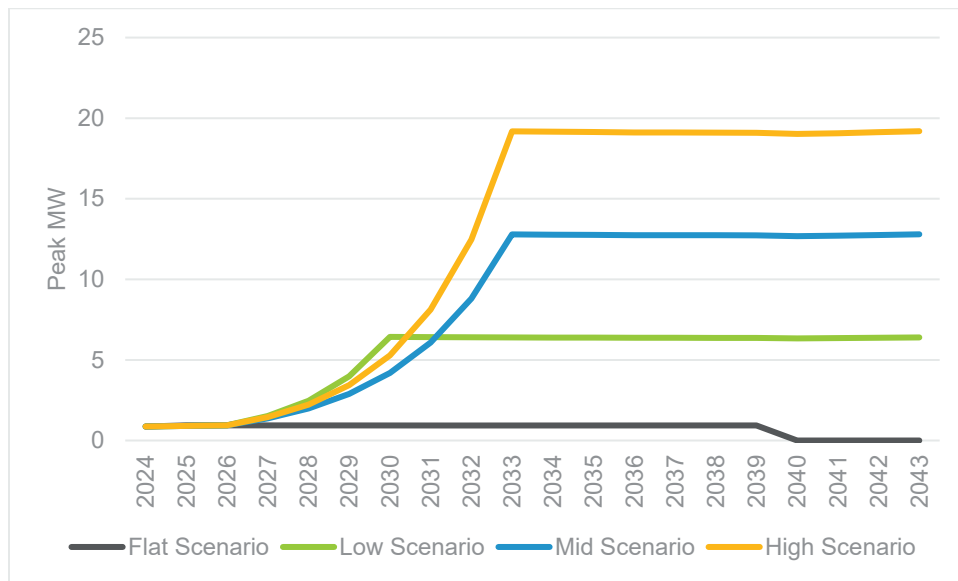




**Table 16. Scenario Comparison for Winter Demand Response Savings (MW) for Residential Sector**

RESIDENTIAL ONLY (MW)				
	Flat Scenario	Low Scenario	Mid Scenario	High Scenario
2024	13	13	13	13
2025	14	14	14	14
2026	15	15	15	15
2027	15	16	16	17
2028	15	17	18	21
2029	15	18	20	25
2030	15	19	22	29
2031	16	19	24	35
2032	16	20	27	42
2033	16	20	30	50
2034	16	20	30	50
2035	17	20	31	51
2036	17	21	31	52
2037	17	21	32	53
2038	17	22	32	54
2039	18	22	33	55
2040	18	22	34	56
2041	18	23	34	57
2042	19	23	35	58
2043	19	23	35	59

**Figure 14 Scenario Comparison for Winter Demand Response Savings (MW) for C&I Sector**



**Table 17. Scenario Comparison for Winter Demand Response Savings (MW) for C&I Sector**

COMMERCIAL & INDUSTRIAL ONLY (MW)				
	Flat Scenario	Low Scenario	Mid Scenario	High Scenario
2024	1	1	1	1
2025	1	1	1	1
2026	1	1	1	1
2027	1	2	1	1
2028	1	2	2	2
2029	1	4	3	3
2030	1	6	4	5
2031	1	6	6	8
2032	1	6	9	12
2033	1	6	13	19
2034	1	6	13	19
2035	1	6	13	19
2036	1	6	13	19
2037	1	6	13	19
2038	1	6	13	19
2039	1	6	13	19
2040	0	6	13	19
2041	0	6	13	19
2042	0	6	13	19
2043	0	6	13	19



## 6. WVPA Load Forecast

The WVPA load forecast is a crucial input for this analysis as all the forecasted scenarios use a percentage of sales or peak demand to estimate future savings. The load forecast data was provided directly to Skytop by WVPA. Table 18 presents the 20-year WVPA sales forecast (MWh) by sector used for the analysis.

**Table 18. WVPA 20-year Sales Forecast (MWh) by Sector**

20-YR Sales Forecasts by Sector (MWh)			
Year	RES	C&I	TOTAL
2024	4,124,707	2,989,362	7,114,070
2025	4,148,102	2,983,857	7,131,958
2026	4,192,084	2,978,380	7,170,464
2027	4,238,627	2,974,193	7,212,820
2028	4,303,568	2,979,712	7,283,280
2029	4,342,792	2,970,553	7,313,345
2030	4,384,673	2,959,001	7,343,673
2031	4,433,769	2,949,214	7,382,983
2032	4,503,861	2,948,393	7,452,254
2033	4,548,940	2,932,631	7,481,570
2034	4,614,809	2,924,546	7,539,355
2035	4,683,864	2,917,512	7,601,376
2036	4,772,496	2,917,332	7,689,828
2037	4,832,205	2,903,213	7,735,417
2038	4,909,128	2,895,549	7,804,677
2039	4,987,939	2,888,119	7,876,058
2040	5,083,515	2,878,258	7,961,773
2041	5,149,601	2,878,259	8,027,859
2042	5,216,545	2,878,260	8,094,805
2043	5,284,360	2,878,261	8,162,621
2044	5,353,057	2,878,262	8,231,319

Table 19 presents the WVPA 20-year sales forecast for summer peak demand (MW) by sector used for the analysis. WVPA provided a system wide peak demand and Skytop shared out the residential and C&I sectors based on the kWh load forecast share by sector. Skytop requested peak demand by sector, but WVPA only forecasts at the system level. The share out is imperfect, but the results would be the same regardless, just different percentages of sales would have been used.



**Table 19. WVPA 20-year Sales Forecast for Summer Peak Demand (MW) by Sector**

20-YR Peak Demand Forecast by Sector (MW)			
Year	RES	C&I	TOTAL
2024	877.2	635.7	1,513
2025	890.0	640.2	1,530
2026	905.1	643.1	1,548
2027	917.0	643.5	1,561
2028	929.4	643.5	1,573
2029	941.6	644.1	1,586
2030	952.6	642.9	1,595
2031	964.5	641.6	1,606
2032	977.9	640.2	1,618
2033	992.0	639.5	1,631
2034	1,007.7	638.6	1,646
2035	1,024.3	638.0	1,662
2036	1,042.3	637.1	1,679
2037	1,060.5	637.2	1,698
2038	1,079.6	636.8	1,716
2039	1,099.1	636.4	1,735
2040	1,119.6	633.9	1,754
2041	1,136.9	635.5	1,772
2042	1,155.5	637.6	1,793
2043	1,174.4	639.7	1,814
2044	1,193.5	641.7	1,835





# Appendix A: WVPA Detailed Results by Scenario

**Table 20 Energy Efficiency Flat Potential Savings Scenario**

All dollar values are in Real 2024 dollars

## Wabash- 2023 Potential Savings - Energy Efficiency

Flat Potential Savings Scenario

Res and C&I set to 2026 % of sales from 24-26 Plan - no \$/kWh Escalation

Parameters	Res	C&I	
Max Sector % of Sales	0.03%	0.71%	
By Year	2026	2026	
Growth Type (Exp. or Lin)	Linear	Linear	
Average Exp. Growth Rate	NA	NA	Calculated
Linear Growth (Additional Annual)	NA	NA	
Annual \$/kWh Escalator	0.00%	0.00%	

Cumulation Factors	
10	Average Measure Life
5%	Annual Degredation Factor after Measure Life

Fuel Type: Electricity	Energy Savings Potential (% of Forecast Sales)			Annual Achievable Energy Savings (MWh)			Cumulative Energy Efficiency Savings (MWh)			
	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL	Cumulative % of Sales
2024	0.03%	0.71%	0.32%	1,330	21,274	22,604	1,330	21,274	22,604	0.32%
2025	0.03%	0.75%	0.33%	1,400	22,378	23,778	2,730	43,651	46,381	0.65%
2026	0.04%	0.79%	0.35%	1,474	23,538	25,012	4,204	67,189	71,393	1.00%
2027	0.04%	0.79%	0.35%	1,490	23,505	24,995	5,694	90,694	96,388	1.34%
2028	0.04%	0.79%	0.34%	1,513	23,548	25,061	7,207	114,242	121,449	1.67%
2029	0.04%	0.79%	0.34%	1,527	23,476	25,003	8,734	137,718	146,452	2.00%
2030	0.04%	0.79%	0.34%	1,541	23,385	24,926	10,275	161,103	171,378	2.33%
2031	0.04%	0.79%	0.34%	1,559	23,307	24,866	11,834	184,410	196,244	2.66%
2032	0.04%	0.79%	0.33%	1,583	23,301	24,884	13,417	207,711	221,128	2.97%
2033	0.04%	0.79%	0.33%	1,599	23,176	24,775	15,016	230,887	245,903	3.29%
2034	0.04%	0.79%	0.33%	1,622	23,112	24,735	16,740	253,389	270,129	3.55%
2035	0.04%	0.79%	0.32%	1,647	23,057	24,703	18,400	273,530	291,930	3.77%
2036	0.04%	0.79%	0.32%	1,678	23,055	24,733	19,206	282,737	301,943	3.87%
2037	0.04%	0.79%	0.32%	1,726	22,883	24,609	19,999	291,424	311,424	3.95%
2038	0.04%	0.79%	0.31%	1,787	22,747	24,534	20,786	299,600	320,386	4.02%
2039	0.04%	0.79%	0.31%	1,810	22,747	24,557	21,557	307,366	328,924	4.10%
2040	0.04%	0.79%	0.30%	1,834	22,747	24,580	22,313	314,744	337,058	4.16%
2041	0.04%	0.79%	0.30%	1,858	22,747	24,604	23,055	321,754	344,809	4.22%

Fuel Type: Electricity	Annual Cost of Savings (\$/kWh - Real 2023\$)			Levelized Cost over Program Lifetime (\$/kWh - Real 2023\$)			Annual Budget (2023 \$)		
	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL
2024	\$0.36	\$0.16	\$0.17	\$0.05	\$0.02	\$0.02	\$478,804	\$3,403,792	\$ 3,882,596
2025	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$504,077	\$3,356,635	\$ 3,860,713
2026	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$530,536	\$3,530,670	\$ 4,061,205
2027	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$536,426	\$3,525,707	\$ 4,062,133
2028	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$544,645	\$3,532,249	\$ 4,076,894
2029	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$549,609	\$3,521,391	\$ 4,071,000
2030	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$554,909	\$3,507,697	\$ 4,062,606
2031	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$561,123	\$3,496,096	\$ 4,057,219
2032	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$569,993	\$3,495,122	\$ 4,065,115
2033	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$575,698	\$3,476,437	\$ 4,052,135
2034	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$584,035	\$3,466,853	\$ 4,050,888
2035	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$592,774	\$3,458,514	\$ 4,051,288
2036	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$603,991	\$3,458,301	\$ 4,062,292
2037	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$611,547	\$3,441,564	\$ 4,053,112
2038	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$621,283	\$3,432,479	\$ 4,053,762
2039	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$631,257	\$3,423,671	\$ 4,054,928
2040	\$0.36	\$0.15	\$0.17	\$0.05	\$0.02	\$0.02	\$643,352	\$3,411,982	\$ 4,055,334
2041	\$0.36	\$0.15	\$0.17	\$0.05	\$0.02	\$0.02	\$651,716	\$3,411,983	\$ 4,063,699
2042	\$0.36	\$0.15	\$0.17	\$0.05	\$0.02	\$0.02	\$660,188	\$3,411,984	\$ 4,072,172
2043	\$0.36	\$0.15	\$0.17	\$0.05	\$0.02	\$0.02	\$668,771	\$3,411,985	\$ 4,080,756



**Table 21 Summer Demand Response Flat Potential Savings Scenario**

All dollar values are in Real 2024 dollars

**Wabash- 2023 Potential Savings - Summer Demand Response Flat Potential Savings Scenario**

Res and C&I set to 2026 % of sales from 24-26 Plan - no \$/kW Escalation

Parameters	Res	C&I	
Max Sector % of Sales	2.14%	9.17%	
By Year	2026	2026	
Growth Type (Exp. or Lin)	Linear	Linear	
Average Exp. Growth Rate	NA	NA	Calculated
Linear Growth (Additional Annual	NA	NA	
Annual \$/kW Escalator	0.00%	0.00%	

Fuel Type: Electricity	Summer DR Savings Potential (% of Forecast Sales)			Annual Summer DR Savings (MW)			Annual Cost of DR Savings (\$/kW - Real 2023\$)			Annual DR Budget (2023 \$)		
	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL
2024	1.92%	8.41%	4.65%	17	53	70	\$49.77	\$49.74	\$49.74	\$836,637	\$2,659,363	\$3,495,999
2025	2.03%	8.77%	4.85%	18	56	74	\$51.84	\$49.78	\$50.28	\$936,794	\$2,795,196	\$3,731,990
2026	2.14%	9.17%	5.06%	19	59	78	\$54.06	\$49.82	\$50.87	\$1,047,591	\$2,937,155	\$3,984,746
2027	2.14%	9.17%	5.04%	20	59	79	\$54.06	\$49.82	\$50.88	\$1,061,412	\$2,939,089	\$4,000,501
2028	2.14%	9.17%	5.02%	20	59	79	\$54.06	\$49.82	\$50.89	\$1,075,721	\$2,939,207	\$4,014,929
2029	2.14%	9.17%	5.00%	20	59	79	\$54.06	\$49.82	\$50.90	\$1,089,806	\$2,941,725	\$4,031,531
2030	2.14%	9.17%	4.97%	20	59	79	\$54.06	\$49.82	\$50.91	\$1,102,563	\$2,936,271	\$4,038,834
2031	2.14%	9.17%	4.95%	21	59	79	\$54.06	\$49.82	\$50.92	\$1,116,352	\$2,930,349	\$4,046,701
2032	2.14%	9.17%	4.92%	21	59	80	\$54.06	\$49.82	\$50.94	\$1,131,854	\$2,923,987	\$4,055,841
2033	2.14%	9.17%	4.90%	21	59	80	\$54.06	\$49.82	\$50.95	\$1,148,149	\$2,920,990	\$4,069,138
2034	2.14%	9.17%	4.87%	22	59	80	\$54.06	\$49.82	\$50.96	\$1,166,345	\$2,916,867	\$4,083,212
2035	2.14%	9.17%	4.84%	22	58	80	\$54.06	\$49.82	\$50.98	\$1,185,607	\$2,914,297	\$4,099,904
2036	2.14%	9.17%	4.81%	22	58	81	\$54.06	\$49.82	\$50.99	\$1,206,383	\$2,910,116	\$4,116,499
2037	2.14%	9.17%	4.78%	23	58	81	\$54.06	\$49.82	\$51.01	\$1,227,474	\$2,910,253	\$4,137,727
2038	2.14%	9.17%	4.75%	23	58	81	\$54.06	\$49.82	\$51.02	\$1,249,618	\$2,908,631	\$4,158,250
2039	2.14%	9.17%	4.72%	24	58	82	\$54.06	\$49.82	\$51.04	\$1,272,109	\$2,906,717	\$4,178,826
2040	2.14%	9.17%	4.68%	24	58	82	\$54.06	\$49.82	\$51.06	\$1,295,915	\$2,895,521	\$4,191,436
2041	2.14%	9.17%	4.66%	24	58	83	\$54.06	\$49.82	\$51.07	\$1,315,936	\$2,902,524	\$4,218,460
2042	2.14%	9.17%	4.64%	25	58	83	\$54.06	\$49.82	\$51.08	\$1,337,465	\$2,912,153	\$4,249,619
2043	2.14%	9.17%	4.62%	25	59	84	\$54.06	\$49.82	\$51.09	\$1,359,295	\$2,921,703	\$4,280,998

**Table 22 Winter Demand Response Flat Potential Savings Scenario**

All dollar values are in Real 2024 dollars

**Wabash- 2023 Potential Savings - Winter Demand Response Flat Potential Savings Scenario**

Res and C&I set to 2026 % of sales from 24-26 Plan - no \$/kW Escalation

Parameters	Res	C&I	
Max Sector % of Sales	1.52%	0.14%	
By Year	2026	2026	
Growth Type (Exp. or Lin)	Linear	Linear	
Average Exp. Growth Rate	NA	NA	Calculated
Linear Growth (Additional Annual	NA	NA	
Annual \$/kW Escalator	0.00%	0.00%	

**Cumulation Factors**

10	Average Measure Life
5%	Annual Degredation Factor after Measure Life

Fuel Type: Electricity	Winter DR Savings Potential (% of Forecast Sales)			Winter Summer DR Savings (MW)			Annual Cost of DR Savings (\$/kW - Real 2023\$)			Annual DR Budget (2023 \$)		
	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL
2024	1.52%	0.14%	0.94%	13.31	0.87	14	\$41.19	\$25.07	\$40.20	\$548,284	\$21,812	\$570,096
2025	1.57%	0.14%	0.97%	13.97	0.91	15	\$42.26	\$25.09	\$41.21	\$590,310	\$22,834	\$613,144
2026	1.62%	0.15%	1.01%	14.67	0.94	16	\$43.50	\$25.11	\$42.39	\$638,095	\$23,606	\$661,701
2027	1.62%	0.15%	1.01%	15	1	16	\$43.50	\$25.11	\$42.40	\$646,513	\$23,622	\$670,135
2028	1.62%	0.15%	1.02%	15	1	16	\$43.50	\$25.11	\$42.42	\$655,229	\$23,623	\$678,852
2029	1.62%	0.15%	1.02%	15	1	16	\$43.50	\$25.11	\$42.43	\$663,808	\$23,643	\$687,451
2030	1.62%	0.15%	1.03%	15	1	16	\$43.50	\$25.11	\$42.44	\$671,579	\$23,599	\$695,178
2031	1.62%	0.15%	1.03%	16	1	17	\$43.50	\$25.11	\$42.46	\$679,978	\$23,551	\$703,529
2032	1.62%	0.15%	1.04%	16	1	17	\$43.50	\$25.11	\$42.47	\$689,420	\$23,500	\$712,920
2033	1.62%	0.15%	1.04%	16	1	17	\$43.50	\$25.11	\$42.49	\$699,345	\$23,476	\$722,821
2034	1.62%	0.15%	1.05%	16	1	17	\$43.50	\$25.11	\$42.50	\$710,429	\$23,443	\$733,872
2035	1.62%	0.15%	1.05%	17	1	18	\$43.50	\$25.11	\$42.52	\$722,161	\$23,422	\$745,584
2036	1.62%	0.15%	1.06%	17	1	18	\$43.50	\$25.11	\$42.54	\$734,816	\$23,389	\$758,205
2037	1.62%	0.15%	1.07%	17	1	18	\$43.50	\$25.11	\$42.55	\$747,663	\$23,390	\$771,053
2038	1.62%	0.15%	1.07%	17	1	18	\$43.50	\$25.11	\$42.57	\$761,151	\$23,377	\$784,528
2039	1.62%	0.15%	1.08%	18	1	19	\$43.50	\$25.11	\$42.58	\$774,850	\$23,361	\$798,212
2040	1.62%	0.15%	1.09%	18	1	19	\$43.50	\$25.11	\$42.60	\$789,351	\$23,272	\$812,622
2041	1.62%	0.15%	1.09%	18	1	19	\$43.50	\$25.11	\$42.61	\$801,546	\$23,328	\$824,874
2042	1.62%	0.15%	1.10%	19	1	20	\$43.50	\$25.11	\$42.63	\$814,659	\$23,405	\$838,065
2043	1.62%	0.15%	1.10%	19	1	20	\$43.50	\$25.11	\$42.64	\$827,956	\$23,482	\$851,438



**Table 23 Energy Efficiency Low Potential Savings Scenario**

All dollar values are in Real 2024 dollars

**Wabash- 2023 Potential Savings - Energy Efficiency**

Low Potential Savings Scenario

Res to 0.25% of Sales, C&I to 1%, Low price escalation

Parameters	Res	C&I	
Max Sector % of Sales	0.25%	1.00%	
By Year	2030	2030	CHANGE YEAR HERE TO SLOW OR SPEED RAMP
Growth Type (Exp. or Lin)	Exponential	Exponential	
Average Exp. Growth Rate	63.30%	6.06%	Calculated
Linear Growth (Additional Annual)	0.05%	0.05%	
Annual \$/kWh Escalator	0.25%	0.50%	

**Cumulation Factors**

10	Average Measure Life
5%	Annual Degredation Factor after Measure Life

Fuel Type: Electricity	Energy Savings Potential (% of Forecast Sales)			Annual Achievable Energy Savings (MWh)			Cumulative Energy Efficiency Savings (MWh)			
	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL	Cumulative % of Sales
2024	0.03%	0.71%	0.32%	1,330	21,274	22,604	1,330	21,274	22,604	0.32%
2025	0.03%	0.75%	0.33%	1,400	22,378	23,778	2,730	43,651	46,381	0.65%
2026	0.04%	0.79%	0.35%	1,474	23,538	25,012	4,204	67,189	71,393	1.00%
2027	0.06%	0.84%	0.38%	2,433	24,929	27,363	6,637	92,118	98,756	1.37%
2028	0.09%	0.89%	0.42%	4,035	26,489	30,524	10,672	118,607	129,279	1.78%
2029	0.15%	0.94%	0.47%	6,648	28,008	34,657	17,320	146,615	163,936	2.24%
2030	0.25%	1.00%	0.55%	10,962	29,590	40,552	28,282	176,205	204,487	2.78%
2031	0.25%	1.00%	0.55%	11,084	29,492	40,577	39,366	205,698	245,064	3.32%
2032	0.25%	1.00%	0.55%	11,260	29,484	40,744	50,626	235,182	285,807	3.84%
2033	0.25%	1.00%	0.54%	11,372	29,326	40,699	61,998	264,508	326,506	4.36%
2034	0.25%	1.00%	0.54%	11,537	29,245	40,782	70,435	280,528	350,963	4.66%
2035	0.25%	1.00%	0.54%	11,710	29,175	40,885	78,623	295,677	374,300	4.92%
2036	0.25%	1.00%	0.53%	11,931	29,173	41,105	86,623	310,066	396,689	5.16%
2037	0.25%	1.00%	0.53%	12,081	29,032	41,113	94,373	323,595	417,968	5.40%
2038	0.25%	1.00%	0.53%	12,273	28,955	41,228	101,927	336,371	438,298	5.62%
2039	0.25%	1.00%	0.53%	12,470	28,881	41,351	109,300	348,433	457,734	5.81%
2040	0.25%	1.00%	0.52%	12,709	28,783	41,491	116,544	359,794	476,338	5.98%
2041	0.25%	1.00%	0.52%	12,874	28,783	41,657	123,591	370,587	494,178	6.16%
2042	0.25%	1.00%	0.52%	13,041	28,783	41,824	130,453	380,840	511,293	6.32%
2043	0.25%	1.00%	0.51%	13,211	28,783	41,994	137,141	390,581	527,722	6.47%

Fuel Type: Electricity	Annual Cost of Savings (\$/kWh - Real 2023\$)			Levelized Cost over Program Lifetime (\$/kWh - Real 2023\$)			Annual Budget (2023 \$)		
	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL
2024	\$0.36	\$0.16	\$0.17	\$0.05	\$0.02	\$0.02	\$478,804	\$3,403,792	\$ 3,882,596
2025	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$504,077	\$3,356,635	\$ 3,860,713
2026	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$530,536	\$3,530,670	\$ 4,061,205
2027	\$0.36	\$0.15	\$0.17	\$0.05	\$0.02	\$0.02	\$878,181	\$3,758,078	\$ 4,636,259
2028	\$0.36	\$0.15	\$0.18	\$0.05	\$0.02	\$0.02	\$1,459,691	\$4,013,198	\$ 5,472,889
2029	\$0.36	\$0.15	\$0.19	\$0.05	\$0.02	\$0.02	\$2,411,434	\$4,264,549	\$ 6,675,983
2030	\$0.36	\$0.15	\$0.21	\$0.05	\$0.02	\$0.03	\$3,985,816	\$4,527,939	\$ 8,513,755
2031	\$0.36	\$0.15	\$0.21	\$0.05	\$0.02	\$0.03	\$4,040,522	\$4,535,529	\$ 8,576,051
2032	\$0.37	\$0.15	\$0.21	\$0.05	\$0.02	\$0.03	\$4,114,658	\$4,556,936	\$ 8,671,594
2033	\$0.37	\$0.16	\$0.21	\$0.05	\$0.02	\$0.03	\$4,166,231	\$4,555,238	\$ 8,721,469
2034	\$0.37	\$0.16	\$0.22	\$0.05	\$0.02	\$0.03	\$4,237,125	\$4,565,394	\$ 8,802,519
2035	\$0.37	\$0.16	\$0.22	\$0.05	\$0.02	\$0.03	\$4,311,280	\$4,577,184	\$ 8,888,465
2036	\$0.37	\$0.16	\$0.22	\$0.05	\$0.02	\$0.03	\$4,403,844	\$4,599,786	\$ 9,003,630
2037	\$0.37	\$0.16	\$0.22	\$0.05	\$0.02	\$0.03	\$4,470,087	\$4,600,413	\$ 9,070,500
2038	\$0.37	\$0.16	\$0.22	\$0.05	\$0.02	\$0.03	\$4,552,600	\$4,611,210	\$ 9,163,810
2039	\$0.37	\$0.16	\$0.22	\$0.05	\$0.02	\$0.03	\$4,637,251	\$4,622,374	\$ 9,259,625
2040	\$0.37	\$0.16	\$0.23	\$0.05	\$0.02	\$0.03	\$4,737,922	\$4,629,625	\$ 9,367,547
2041	\$0.37	\$0.16	\$0.23	\$0.05	\$0.02	\$0.03	\$4,811,514	\$4,652,775	\$ 9,464,289
2042	\$0.37	\$0.16	\$0.23	\$0.05	\$0.02	\$0.03	\$4,886,249	\$4,676,040	\$ 9,562,289
2043	\$0.38	\$0.16	\$0.23	\$0.05	\$0.02	\$0.03	\$4,962,145	\$4,699,422	\$ 9,661,567



### Table 24 Summer Demand Response Low Potential Savings Scenario

All dollar values are in Real 2024 dollars

#### Wabash- 2023 Potential Savings - Summer Demand Response

Low Potential Savings Scenario

Res to 3% of Sales, C&I to 10%, Low price escalation

Parameters	Res	C&I	
Max Sector % of Sales	3.00%	10.00%	
By Year	2030	2030	
Growth Type (Exp. or Lin)	Exponential	Exponential	
Average Exp. Growth Rate	8.80%	2.20%	Calculated
Linear Growth (Additional Annual)	0.21%	0.21%	
Annual \$/kWh Escalator	-1.00%	0.00%	Kept C&I Flat since Wabash Cost is already low compared to Meta Study for C&I

Fuel Type: Electricity	Summer DR Savings Potential (% of Forecast Sales)			Annual Summer DR Savings (MW)				Annual Cost of DR Savings (\$/kW - Real 2023\$)			Annual DR Budget (2023 \$)		
	Study Year	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL
2024	1.92%	8.41%	4.65%	17	53	70	\$49.77	\$49.74	\$49.74	\$836,637	\$2,659,363	\$ 3,495,999	
2025	2.03%	8.77%	4.85%	18	56	74	\$51.84	\$49.78	\$50.28	\$936,794	\$2,795,196	\$ 3,731,990	
2026	2.14%	9.17%	5.06%	19	59	78	\$54.06	\$49.82	\$50.87	\$1,047,591	\$2,937,155	\$ 3,984,746	
2027	2.33%	9.37%	5.23%	21	60	82	\$53.51	\$49.82	\$50.79	\$1,143,233	\$3,003,675	\$ 4,146,908	
2028	2.53%	9.57%	5.41%	24	62	85	\$52.98	\$49.82	\$50.70	\$1,247,962	\$3,069,804	\$ 4,317,766	
2029	2.76%	9.78%	5.61%	26	63	89	\$52.45	\$49.82	\$50.59	\$1,361,762	\$3,139,950	\$ 4,501,713	
2030	3.00%	10.00%	5.82%	29	64	93	\$51.93	\$49.82	\$50.47	\$1,483,906	\$3,203,001	\$ 4,686,907	
2031	3.00%	10.00%	5.80%	29	64	93	\$51.41	\$49.82	\$50.32	\$1,487,440	\$3,196,541	\$ 4,683,981	
2032	3.00%	10.00%	5.77%	29	64	93	\$50.89	\$49.82	\$50.16	\$1,493,013	\$3,189,601	\$ 4,682,614	
2033	3.00%	10.00%	5.74%	30	64	94	\$50.38	\$49.82	\$50.00	\$1,499,362	\$3,186,332	\$ 4,685,694	
2034	3.00%	10.00%	5.72%	30	64	94	\$49.88	\$49.82	\$49.84	\$1,507,894	\$3,181,834	\$ 4,689,728	
2035	3.00%	10.00%	5.69%	31	64	95	\$49.38	\$49.82	\$49.68	\$1,517,468	\$3,179,031	\$ 4,696,499	
2036	3.00%	10.00%	5.66%	31	64	95	\$48.89	\$49.82	\$49.52	\$1,528,620	\$3,174,470	\$ 4,703,090	
2037	3.00%	10.00%	5.63%	32	64	96	\$48.40	\$49.82	\$49.35	\$1,539,791	\$3,174,619	\$ 4,714,410	
2038	3.00%	10.00%	5.60%	32	64	96	\$47.91	\$49.82	\$49.18	\$1,551,893	\$3,172,851	\$ 4,724,744	
2039	3.00%	10.00%	5.57%	33	64	97	\$47.43	\$49.82	\$49.01	\$1,564,026	\$3,170,762	\$ 4,734,788	
2040	3.00%	10.00%	5.53%	34	63	97	\$46.96	\$49.82	\$48.83	\$1,577,362	\$3,158,550	\$ 4,735,912	
2041	3.00%	10.00%	5.51%	34	64	98	\$46.49	\$49.82	\$48.66	\$1,585,714	\$3,166,189	\$ 4,751,903	
2042	3.00%	10.00%	5.49%	35	64	98	\$46.03	\$49.82	\$48.49	\$1,595,540	\$3,176,693	\$ 4,772,233	
2043	3.00%	10.00%	5.47%	35	64	99	\$45.57	\$49.82	\$48.31	\$1,605,366	\$3,187,110	\$ 4,792,476	

### Table 25 Winter Demand Response Low Potential Savings Scenario

All dollar values are in Real 2024 dollars

#### Wabash- 2023 Potential Savings - Winter Demand Response

Low Potential Savings Scenario

Res to 2% of Sales, C&I to 1%, Low price escalation

Parameters	Res	C&I	
Max Sector % of Sales	2.00%	1.00%	
By Year	2030	2030	
Growth Type (Exp. or Lin)	Exponential	Exponential	
Average Exp. Growth Rate	5.40%	61.73%	Calculated
Linear Growth (Additional Annual)	0.09%	0.21%	
Annual \$/kW Escalator	-1.00%	0.00%	Kept C&I Flat since Wabash Cost is already low compared to Meta Study for C&I

Fuel Type: Electricity	Winter DR Savings Potential (% of Forecast Sales)			Annual Winter DR Savings (MW)			Annual Cost of DR Savings (\$/kW - Real 2023\$)			Annual DR Budget (2023 \$)		
	Study Year	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I
2024	1.52%	0.14%	0.94%	13.31	0.87	14	\$41.19	\$25.07	\$40.20	\$548,284	\$21,812	\$ 570,096
2025	1.57%	0.14%	0.97%	13.97	0.91	15	\$42.26	\$25.09	\$41.21	\$590,310	\$22,834	\$ 613,144
2026	1.62%	0.15%	1.01%	14.67	0.94	16	\$43.50	\$25.11	\$42.39	\$638,095	\$23,606	\$ 661,701
2027	1.71%	0.24%	1.10%	16	2	17	\$43.06	\$25.11	\$41.47	\$674,584	\$38,202	\$ 712,787
2028	1.80%	0.38%	1.22%	17	2	19	\$42.63	\$25.11	\$40.39	\$713,364	\$61,785	\$ 775,149
2029	1.90%	0.62%	1.38%	18	4	22	\$42.20	\$25.11	\$39.09	\$754,083	\$100,009	\$ 854,092
2030	2.00%	1.00%	1.60%	19	6	25	\$41.78	\$25.11	\$37.58	\$796,035	\$161,440	\$ 957,475
2031	2.00%	1.00%	1.60%	19	6	26	\$41.36	\$25.11	\$37.31	\$797,931	\$161,114	\$ 959,045
2032	2.00%	1.00%	1.60%	20	6	26	\$40.95	\$25.11	\$37.05	\$800,921	\$160,764	\$ 961,685
2033	2.00%	1.00%	1.61%	20	6	26	\$40.54	\$25.11	\$36.78	\$804,327	\$160,600	\$ 964,926
2034	2.00%	1.00%	1.61%	20	6	27	\$40.14	\$25.11	\$36.52	\$808,904	\$160,373	\$ 969,277
2035	2.00%	1.00%	1.62%	20	6	27	\$39.73	\$25.11	\$36.26	\$814,040	\$160,232	\$ 974,271
2036	2.00%	1.00%	1.62%	21	6	27	\$39.34	\$25.11	\$36.01	\$820,022	\$160,002	\$ 980,023
2037	2.00%	1.00%	1.62%	21	6	28	\$38.94	\$25.11	\$35.75	\$826,014	\$160,009	\$ 986,024
2038	2.00%	1.00%	1.63%	22	6	28	\$38.55	\$25.11	\$35.49	\$832,507	\$159,920	\$ 992,427
2039	2.00%	1.00%	1.63%	22	6	28	\$38.17	\$25.11	\$35.24	\$839,015	\$159,815	\$ 998,830
2040	2.00%	1.00%	1.64%	22	6	29	\$37.79	\$25.11	\$34.99	\$846,169	\$159,199	\$ 1,005,369
2041	2.00%	1.00%	1.64%	23	6	29	\$37.41	\$25.11	\$34.72	\$850,650	\$159,584	\$ 1,010,234
2042	2.00%	1.00%	1.64%	23	6	29	\$37.04	\$25.11	\$34.46	\$855,921	\$160,114	\$ 1,016,035
2043	2.00%	1.00%	1.65%	23	6	30	\$36.67	\$25.11	\$34.19	\$861,192	\$160,639	\$ 1,021,831



**Table 26 Energy Efficiency Mid Potential Savings Scenario**

All dollar values are in Real 2024 dollars

**Wabash- 2023 Potential Savings - Energy Efficiency**

Mid Potential Savings Scenario

Res to .5% of Sales, C&I to 1.25%, moderate price escalation

Parameters	Res	C&I	
Max Sector % of Sales	0.75%	1.25%	
By Year	2033	2033	CHANGE YEAR HERE TO SLOW OR SPEED RAMP
Growth Type (Exp. or Lin)	Exponential	Exponential	
Average Exp. Growth Rate	54.83%	6.77%	Calculated
Linear Growth (Additional Annual)	0.10%	0.07%	
Annual \$/kWh Escalator	0.50%	1.00%	

**Cumulation Factors**

10	Average Measure Life
5%	Annual Degredation Factor after Measure Life

Fuel Type: Electricity	Energy Savings Potential (% of Forecast Sales)			Annual Achievable Energy Savings (MWh)			Cumulative Energy Efficiency Savings (MWh)			
	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL	Cumulative % of Sales
2024	0.03%	0.71%	0.32%	1,330	21,274	22,604	1,330	21,274	22,604	0.32%
2025	0.03%	0.75%	0.33%	1,400	22,378	23,778	2,730	43,651	46,381	0.65%
2026	0.04%	0.79%	0.35%	1,474	23,538	25,012	4,204	67,189	71,393	1.00%
2027	0.05%	0.84%	0.38%	2,307	25,096	27,403	6,511	92,285	98,796	1.37%
2028	0.08%	0.90%	0.42%	3,627	26,844	30,471	10,138	119,129	129,267	1.77%
2029	0.13%	0.96%	0.47%	5,667	28,573	34,240	15,805	147,703	163,508	2.24%
2030	0.20%	1.03%	0.53%	8,859	30,389	39,248	24,664	178,092	202,756	2.76%
2031	0.31%	1.10%	0.63%	13,871	32,339	46,209	38,535	210,430	248,965	3.37%
2032	0.48%	1.17%	0.76%	21,816	34,518	56,334	60,351	244,949	305,300	4.10%
2033	0.75%	1.25%	0.95%	34,117	36,658	70,775	94,468	281,607	376,075	5.03%
2034	0.75%	1.25%	0.94%	34,611	36,557	71,168	124,356	304,083	428,439	5.68%
2035	0.75%	1.25%	0.94%	35,129	36,469	71,598	153,267	325,348	478,615	6.30%
2036	0.75%	1.25%	0.94%	35,794	36,467	72,260	181,397	345,547	526,944	6.85%
2037	0.75%	1.25%	0.94%	36,242	36,290	72,532	208,569	364,560	573,129	7.41%
2038	0.75%	1.25%	0.94%	36,818	36,194	73,013	234,959	382,526	617,485	7.91%
2039	0.75%	1.25%	0.93%	37,410	36,101	73,511	260,621	399,501	660,122	8.38%
2040	0.75%	1.25%	0.93%	38,126	35,978	74,105	285,716	415,505	701,221	8.81%
2041	0.75%	1.25%	0.93%	38,622	35,978	74,600	310,052	430,708	740,760	9.23%
2042	0.75%	1.25%	0.93%	39,124	35,978	75,102	333,674	445,150	778,824	9.62%
2043	0.75%	1.25%	0.93%	39,633	35,978	75,611	356,623	458,871	815,494	9.99%

Fuel Type: Electricity	Annual Cost of Savings (\$/kWh - Real 2023\$)			Levelized Cost over Program Lifetime (\$/kWh - Real 2023\$)			Annual Budget (2023 \$)			Levelized Cost (\$/MWh)		
	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL
2024	\$0.36	\$0.16	\$0.17	\$0.05	\$0.02	\$0.02	\$478,804	\$3,403,792	\$ 3,882,596	\$49	\$22	\$23
2025	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$504,077	\$3,356,635	\$ 3,860,713	\$49	\$20	\$22
2026	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$530,536	\$3,530,670	\$ 4,061,205	\$49	\$20	\$22
2027	\$0.36	\$0.15	\$0.17	\$0.05	\$0.02	\$0.02	\$834,727	\$3,802,016	\$ 4,636,743	\$49	\$21	\$23
2028	\$0.36	\$0.15	\$0.18	\$0.05	\$0.02	\$0.02	\$1,318,811	\$4,107,586	\$ 5,426,397	\$49	\$21	\$24
2029	\$0.37	\$0.15	\$0.19	\$0.05	\$0.02	\$0.02	\$2,070,892	\$4,415,881	\$ 6,486,772	\$50	\$21	\$26
2030	\$0.37	\$0.16	\$0.20	\$0.05	\$0.02	\$0.02	\$3,253,568	\$4,743,434	\$ 7,997,002	\$50	\$21	\$28
2031	\$0.37	\$0.16	\$0.22	\$0.05	\$0.02	\$0.02	\$5,119,532	\$5,098,258	\$ 10,217,791	\$50	\$21	\$30
2032	\$0.37	\$0.16	\$0.24	\$0.05	\$0.02	\$0.02	\$8,092,388	\$5,496,275	\$ 13,588,664	\$50	\$22	\$33
2033	\$0.37	\$0.16	\$0.26	\$0.05	\$0.02	\$0.02	\$12,718,514	\$5,895,332	\$ 18,613,846	\$51	\$22	\$36
2034	\$0.37	\$0.16	\$0.27	\$0.05	\$0.02	\$0.02	\$12,967,194	\$5,937,871	\$ 18,905,065	\$51	\$22	\$36
2035	\$0.38	\$0.16	\$0.27	\$0.05	\$0.02	\$0.02	\$13,227,038	\$5,982,824	\$ 19,209,863	\$51	\$22	\$36
2036	\$0.38	\$0.17	\$0.27	\$0.05	\$0.02	\$0.02	\$13,544,718	\$6,042,279	\$ 19,586,997	\$51	\$23	\$37
2037	\$0.38	\$0.17	\$0.27	\$0.05	\$0.02	\$0.02	\$13,782,746	\$6,073,168	\$ 19,855,914	\$52	\$23	\$37
2038	\$0.38	\$0.17	\$0.28	\$0.05	\$0.02	\$0.02	\$14,072,164	\$6,117,707	\$ 20,189,871	\$52	\$23	\$38
2039	\$0.38	\$0.17	\$0.28	\$0.05	\$0.02	\$0.02	\$14,369,569	\$6,163,028	\$ 20,532,597	\$52	\$23	\$38
2040	\$0.39	\$0.17	\$0.28	\$0.05	\$0.02	\$0.02	\$14,718,133	\$6,203,406	\$ 20,921,539	\$52	\$23	\$38
2041	\$0.39	\$0.17	\$0.28	\$0.05	\$0.02	\$0.02	\$14,984,016	\$6,265,442	\$ 21,249,458	\$53	\$24	\$39
2042	\$0.39	\$0.18	\$0.29	\$0.05	\$0.02	\$0.02	\$15,254,702	\$6,328,099	\$ 21,582,801	\$53	\$24	\$39
2043	\$0.39	\$0.18	\$0.29	\$0.05	\$0.02	\$0.02	\$15,530,279	\$6,391,382	\$ 21,921,661	\$53	\$24	\$39



**Table 27 Summer Demand Response Mid Potential Savings Scenario**

All dollar values are in Real 2024 dollars

**Wabash- 2023 Potential Savings - Summer Demand Response**  
Mid Potential Savings Scenario

Res to 5% of Sales, C&I to 12.5%, moderate price change (decline for Res from meta data)

Parameters	Res	C&I	
Max Sector % of Sales	5.00%	12.50%	
By Year	2033	2033	
Growth Type (Exp. or Lin)	Exponential	Exponential	
Average Exp. Growth Rate	12.88%	4.53%	Calculated
Linear Growth (Additional Annual	0.41%	0.48%	
Annual \$/kW Escalator	-2.00%	1.00%	

Fuel Type: Electricity	Summer DR Savings Potential (% of Forecast Sales)			Annual Summer DR Savings (MW)			Annual Cost of DR Savings (\$/kW - Real 2023\$)			Annual DR Budget (2023 \$)		
	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL
2024	1.92%	8.41%	4.65%	16.81	53.47	70	\$49.77	\$49.74	\$49.74	\$836,637	\$2,659,363	\$ 3,495,999
2025	2.03%	8.77%	4.85%	18.07	56.15	74	\$51.84	\$49.78	\$50.28	\$936,794	\$2,795,196	\$ 3,731,990
2026	2.14%	9.17%	5.06%	19.38	58.95	78	\$54.06	\$49.82	\$50.87	\$1,047,591	\$2,937,155	\$ 3,984,746
2027	2.42%	9.58%	5.37%	22	62	84	\$52.97	\$50.32	\$51.02	\$1,174,156	\$3,102,936	\$ 4,277,092
2028	2.73%	10.02%	5.71%	25	64	90	\$51.91	\$50.83	\$51.13	\$1,316,387	\$3,276,049	\$ 4,592,436
2029	3.08%	10.47%	6.08%	29	67	96	\$50.88	\$51.33	\$51.20	\$1,475,282	\$3,461,643	\$ 4,936,925
2030	3.48%	10.94%	6.49%	33	70	103	\$49.86	\$51.85	\$51.21	\$1,651,092	\$3,647,846	\$ 5,298,938
2031	3.92%	11.44%	6.93%	38	73	111	\$48.86	\$52.37	\$51.17	\$1,849,315	\$3,843,437	\$ 5,692,752
2032	4.43%	11.96%	7.41%	43	77	120	\$47.88	\$52.89	\$51.08	\$2,074,158	\$4,048,889	\$ 6,123,047
2033	5.00%	12.50%	7.94%	50	80	130	\$46.93	\$53.42	\$50.93	\$2,327,510	\$4,270,223	\$ 6,597,733
2034	5.00%	12.50%	7.91%	50	80	130	\$45.99	\$53.95	\$50.87	\$2,317,110	\$4,306,838	\$ 6,623,948
2035	5.00%	12.50%	7.88%	51	80	131	\$45.07	\$54.49	\$50.81	\$2,308,268	\$4,346,074	\$ 6,654,342
2036	5.00%	12.50%	7.85%	52	80	132	\$44.17	\$55.04	\$50.74	\$2,301,744	\$4,383,237	\$ 6,684,981
2037	5.00%	12.50%	7.81%	53	80	133	\$43.28	\$55.59	\$50.67	\$2,295,145	\$4,427,278	\$ 6,722,423
2038	5.00%	12.50%	7.78%	54	80	134	\$42.42	\$56.14	\$50.60	\$2,289,819	\$4,469,059	\$ 6,758,878
2039	5.00%	12.50%	7.75%	55	80	135	\$41.57	\$56.70	\$50.52	\$2,284,410	\$4,510,779	\$ 6,795,189
2040	5.00%	12.50%	7.71%	56	79	135	\$40.74	\$57.27	\$50.43	\$2,280,617	\$4,538,340	\$ 6,818,957
2041	5.00%	12.50%	7.69%	57	79	136	\$39.92	\$57.84	\$50.37	\$2,269,535	\$4,594,808	\$ 6,864,343
2042	5.00%	12.50%	7.67%	58	80	137	\$39.13	\$58.42	\$50.31	\$2,260,532	\$4,656,153	\$ 6,916,684
2043	5.00%	12.50%	7.64%	59	80	139	\$38.34	\$59.01	\$50.26	\$2,251,479	\$4,718,135	\$ 6,969,614

**Table 28 Winter Demand Response Mid Potential Savings Scenario**

All dollar values are in Real 2024 dollars

**Wabash- 2023 Potential Savings - Winter Demand Response**

Mid Potential Savings Scenario

Res to 3% of Sales, C&I to 2%, moderate price change (decline for Res from meta data)

Parameters	Res	C&I	
Max Sector % of Sales	3.00%	2.00%	
By Year	2033	2033	
Growth Type (Exp. or Lin)	Exponential	Exponential	
Average Exp. Growth Rate	9.19%	45.31%	Calculated
Linear Growth (Additional Annual	0.20%	0.26%	
Annual \$/kW Escalator	-1.00%	1.00%	

Fuel Type: Electricity	Winter DR Savings Potential (% of Forecast Sales)			Winter Summer DR Savings (MW)			Annual Cost of DR Savings (\$/kW - Real 2023\$)			Annual DR Budget (2023 \$)		
	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL
2024	1.52%	0.14%	0.94%	13.31	0.87	14	\$41.19	\$25.07	\$40.20	\$548,284	\$21,812	\$ 570,096
2025	1.57%	0.14%	0.97%	13.97	0.91	15	\$42.26	\$25.09	\$41.21	\$590,310	\$22,834	\$ 613,144
2026	1.62%	0.15%	1.01%	14.67	0.94	16	\$43.50	\$25.11	\$42.39	\$638,095	\$23,606	\$ 661,701
2027	1.77%	0.21%	1.13%	16	1	18	\$43.06	\$25.36	\$41.69	\$698,893	\$34,669	\$ 733,562
2028	1.93%	0.31%	1.27%	18	2	20	\$42.63	\$25.62	\$40.94	\$765,702	\$50,884	\$ 816,586
2029	2.11%	0.45%	1.44%	20	3	23	\$42.20	\$25.87	\$40.13	\$838,575	\$74,745	\$ 913,321
2030	2.30%	0.65%	1.64%	22	4	26	\$41.78	\$26.13	\$39.27	\$917,127	\$109,498	\$ 1,026,625
2031	2.52%	0.95%	1.89%	24	6	30	\$41.36	\$26.39	\$38.37	\$1,003,831	\$160,383	\$ 1,164,214
2032	2.75%	1.38%	2.20%	27	9	36	\$40.95	\$26.66	\$37.42	\$1,100,228	\$234,878	\$ 1,335,106
2033	3.00%	2.00%	2.61%	30	13	43	\$40.54	\$26.92	\$36.45	\$1,206,490	\$344,369	\$ 1,550,859
2034	3.00%	2.00%	2.61%	30	13	43	\$40.14	\$27.19	\$36.29	\$1,213,355	\$347,322	\$ 1,560,677
2035	3.00%	2.00%	2.62%	31	13	43	\$39.73	\$27.47	\$36.13	\$1,221,059	\$350,486	\$ 1,571,545
2036	3.00%	2.00%	2.62%	31	13	44	\$39.34	\$27.74	\$35.98	\$1,230,032	\$353,483	\$ 1,583,516
2037	3.00%	2.00%	2.62%	32	13	45	\$38.94	\$28.02	\$35.82	\$1,239,021	\$357,035	\$ 1,596,056
2038	3.00%	2.00%	2.63%	32	13	45	\$38.55	\$28.30	\$35.66	\$1,248,760	\$360,404	\$ 1,609,164
2039	3.00%	2.00%	2.63%	33	13	46	\$38.17	\$28.58	\$35.50	\$1,258,523	\$363,769	\$ 1,622,291
2040	3.00%	2.00%	2.64%	34	13	46	\$37.79	\$28.87	\$35.34	\$1,269,254	\$365,991	\$ 1,635,245
2041	3.00%	2.00%	2.64%	34	13	47	\$37.41	\$29.16	\$35.17	\$1,275,975	\$370,545	\$ 1,646,520
2042	3.00%	2.00%	2.64%	35	13	47	\$37.04	\$29.45	\$34.99	\$1,283,881	\$375,492	\$ 1,659,374
2043	3.00%	2.00%	2.65%	35	13	48	\$36.67	\$29.74	\$34.82	\$1,291,788	\$380,491	\$ 1,672,279



**Table 29 Energy Efficiency High Potential Savings Scenario**

All dollar values are in Real 2024 dollars

**Wabash- 2023 Potential Savings - Energy Efficiency**

High Potential Savings Scenario

Res to 1% of Sales, C&I to 1.5%, higher price escalation

Parameters	Res	C&I	
Max Sector % of Sales	1.00%	1.50%	
By Year	2033	2033	CHANGE YEAR HERE TO SLOW OR SPEED RAMP
Growth Type (Exp. or Lin)	Exponential	Exponential	
Average Exp. Growth Rate	61.33%	9.59%	Calculated
Linear Growth (Additional Annual)	0.14%	0.10%	
Annual \$/kWh Escalator	1.00%	1.50%	

Cumulation Factors	
10	Average Measure Life
5%	Annual Degredation Factor after Measure Life

Fuel Type: Electricity	Energy Savings Potential (% of Forecast Sales)			Annual Achievable Energy Savings (MWh)			Cumulative Energy Efficiency Savings (MWh)			
	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL	Cumulative % of Sales
2024	0.03%	0.71%	0.32%	1,330	21,274	22,604	1,330	21,274	22,604	0.32%
2025	0.03%	0.75%	0.33%	1,400	22,378	23,778	2,730	43,651	46,381	0.65%
2026	0.04%	0.79%	0.35%	1,474	23,538	25,012	4,204	67,189	71,393	1.00%
2027	0.06%	0.87%	0.39%	2,404	25,758	28,162	6,608	92,947	99,555	1.38%
2028	0.09%	0.95%	0.44%	3,938	28,280	32,217	10,546	121,227	131,772	1.81%
2029	0.15%	1.04%	0.51%	6,411	30,896	37,306	16,956	152,122	169,079	2.31%
2030	0.24%	1.14%	0.60%	10,442	33,726	44,168	27,398	185,848	213,247	2.90%
2031	0.38%	1.25%	0.73%	17,035	36,837	53,872	44,433	222,685	267,118	3.62%
2032	0.62%	1.37%	0.92%	27,917	40,357	68,274	72,350	263,042	335,392	4.50%
2033	1.00%	1.50%	1.20%	45,489	43,989	89,479	117,840	307,032	424,871	5.68%
2034	1.00%	1.50%	1.19%	46,148	43,868	90,016	158,096	335,548	493,644	6.55%
2035	1.00%	1.50%	1.19%	46,839	43,763	90,601	197,030	362,533	559,563	7.36%
2036	1.00%	1.50%	1.19%	47,725	43,760	91,485	234,903	388,167	623,070	8.10%
2037	1.00%	1.50%	1.19%	48,322	43,548	91,870	271,480	412,307	683,787	8.84%
2038	1.00%	1.50%	1.19%	49,091	43,433	92,525	306,997	435,124	742,122	9.51%
2039	1.00%	1.50%	1.18%	49,879	43,322	93,201	341,527	456,690	798,217	10.13%
2040	1.00%	1.50%	1.18%	50,835	43,174	94,009	375,286	477,029	852,315	10.71%
2041	1.00%	1.50%	1.18%	51,496	43,174	94,670	408,017	496,352	904,369	11.27%
2042	1.00%	1.50%	1.18%	52,165	43,174	95,339	439,782	514,708	954,490	11.79%
2043	1.00%	1.50%	1.18%	52,844	43,174	96,018	470,636	532,147	1,002,783	12.29%

Fuel Type: Electricity	Annual Cost of Savings (\$/kWh - Real 2023\$)			Levelized Cost over Program Lifetime (\$/kWh - Real 2023\$)			Annual Budget (2023 \$)		
	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL
2024	\$0.36	\$0.16	\$0.17	\$0.05	\$0.02	\$0.02	\$478,804	\$3,403,792	\$ 3,882,596
2025	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$504,077	\$3,356,635	\$ 3,860,713
2026	\$0.36	\$0.15	\$0.16	\$0.05	\$0.02	\$0.02	\$530,536	\$3,530,670	\$ 4,061,205
2027	\$0.36	\$0.15	\$0.17	\$0.05	\$0.02	\$0.02	\$874,074	\$3,921,662	\$ 4,795,736
2028	\$0.37	\$0.15	\$0.18	\$0.05	\$0.02	\$0.02	\$1,446,072	\$4,370,179	\$ 5,816,251
2029	\$0.37	\$0.16	\$0.19	\$0.05	\$0.02	\$0.02	\$2,377,762	\$4,846,031	\$ 7,223,793
2030	\$0.37	\$0.16	\$0.21	\$0.05	\$0.02	\$0.03	\$3,911,783	\$5,369,304	\$ 9,281,087
2031	\$0.38	\$0.16	\$0.23	\$0.05	\$0.02	\$0.03	\$6,445,384	\$5,952,552	\$ 12,397,937
2032	\$0.38	\$0.16	\$0.25	\$0.05	\$0.02	\$0.03	\$10,668,391	\$6,619,210	\$ 17,287,601
2033	\$0.39	\$0.17	\$0.28	\$0.05	\$0.02	\$0.04	\$17,557,484	\$7,323,222	\$ 24,880,706
2034	\$0.39	\$0.17	\$0.28	\$0.05	\$0.02	\$0.04	\$17,989,837	\$7,412,579	\$ 25,402,416
2035	\$0.39	\$0.17	\$0.29	\$0.05	\$0.02	\$0.04	\$18,441,624	\$7,505,671	\$ 25,947,295
2036	\$0.40	\$0.17	\$0.29	\$0.05	\$0.02	\$0.04	\$18,978,497	\$7,617,785	\$ 26,596,282
2037	\$0.40	\$0.18	\$0.30	\$0.05	\$0.02	\$0.04	\$19,408,096	\$7,694,632	\$ 27,102,728
2038	\$0.41	\$0.18	\$0.30	\$0.05	\$0.02	\$0.04	\$19,914,222	\$7,789,435	\$ 27,703,657
2039	\$0.41	\$0.18	\$0.30	\$0.05	\$0.02	\$0.04	\$20,436,265	\$7,885,987	\$ 28,322,252
2040	\$0.41	\$0.18	\$0.31	\$0.05	\$0.02	\$0.04	\$21,036,129	\$7,976,949	\$ 29,013,078
2041	\$0.42	\$0.19	\$0.31	\$0.05	\$0.02	\$0.04	\$21,522,695	\$8,096,606	\$ 29,619,301
2042	\$0.42	\$0.19	\$0.32	\$0.05	\$0.02	\$0.04	\$22,020,515	\$8,218,058	\$ 30,238,573
2043	\$0.43	\$0.19	\$0.32	\$0.05	\$0.02	\$0.04	\$22,529,849	\$8,341,331	\$ 30,871,181



**Table 30 Summer Demand Response High Potential Savings Scenario**

All dollar values are in Real 2024 dollars

**Wabash- 2023 Potential Savings - Summer Demand Response**

High Potential Savings Scenario

Res to 10% of Sales, C&I to 15%, higher price escalation (res declin

Parameters	Res	C&I	
Max Sector % of Sales	10.00%	15.00%	
By Year	2033	2033	
Growth Type (Exp. or Lin)	Exponential	Exponential	
Average Exp. Growth Rate	24.63%	7.29%	Calculated
Linear Growth (Additional Annual	-1.12%	0.83%	
Annual \$/kWh Escalator	-3.00%	2.00%	

Fuel Type: Electricity	Summer DR Savings Potential (% of Forecast Sales)			Annual Summer DR Savings (MW)			Annual Cost of DR Savings (\$/kW - Real 2023\$)			Annual DR Budget (2023 \$)		
	Study Year	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I
2024	1.92%	8.41%	4.65%	16.81	53.47	70.28	\$49.77	\$49.74	\$49.74	\$836,637	\$2,659,363	\$ 3,495,999
2025	2.03%	8.77%	4.85%	18.07	56.15	74.22	\$51.84	\$49.78	\$50.28	\$936,794	\$2,795,196	\$ 3,731,990
2026	2.14%	9.17%	5.06%	19.38	58.95	78.33	\$54.06	\$49.82	\$50.87	\$1,047,591	\$2,937,155	\$ 3,984,746
2027	2.67%	9.84%	5.62%	24	63	88	\$52.43	\$50.82	\$51.27	\$1,283,145	\$3,216,349	\$ 4,499,494
2028	3.33%	10.55%	6.28%	31	68	99	\$50.86	\$51.84	\$51.53	\$1,572,112	\$3,519,907	\$ 5,092,019
2029	4.14%	11.32%	7.06%	39	73	112	\$49.33	\$52.87	\$51.64	\$1,925,417	\$3,855,259	\$ 5,780,675
2030	5.17%	12.15%	7.98%	49	78	127	\$47.85	\$53.93	\$51.58	\$2,354,892	\$4,211,125	\$ 6,566,016
2031	6.44%	13.03%	9.07%	62	84	146	\$46.42	\$55.01	\$51.35	\$2,882,442	\$4,599,089	\$ 7,481,531
2032	8.02%	13.98%	10.38%	78	90	168	\$45.03	\$56.11	\$50.93	\$3,532,983	\$5,022,019	\$ 8,555,002
2033	10.00%	15.00%	11.96%	99	96	195	\$43.68	\$57.23	\$50.34	\$4,332,525	\$5,490,140	\$ 9,822,665
2034	10.00%	15.00%	11.94%	101	96	197	\$42.37	\$58.38	\$50.17	\$4,269,155	\$5,592,039	\$ 9,861,194
2035	10.00%	15.00%	11.92%	102	96	198	\$41.09	\$59.54	\$50.01	\$4,209,468	\$5,698,854	\$ 9,908,322
2036	10.00%	15.00%	11.90%	104	96	200	\$39.86	\$60.74	\$49.85	\$4,154,737	\$5,804,492	\$ 9,959,229
2037	10.00%	15.00%	11.88%	106	96	202	\$38.67	\$61.95	\$49.70	\$4,100,552	\$5,920,860	\$ 10,021,412
2038	10.00%	15.00%	11.86%	108	96	203	\$37.51	\$63.19	\$49.56	\$4,049,292	\$6,035,913	\$ 10,085,204
2039	10.00%	15.00%	11.83%	110	95	205	\$36.38	\$64.45	\$49.43	\$3,998,505	\$6,152,579	\$ 10,151,084
2040	10.00%	15.00%	11.81%	112	95	207	\$35.29	\$65.74	\$49.27	\$3,951,133	\$6,251,459	\$ 10,202,592
2041	10.00%	15.00%	11.79%	114	95	209	\$34.23	\$67.06	\$49.20	\$3,891,811	\$6,391,909	\$ 10,283,720
2042	10.00%	15.00%	11.78%	116	96	211	\$33.20	\$68.40	\$49.14	\$3,836,818	\$6,541,378	\$ 10,378,195
2043	10.00%	15.00%	11.76%	117	96	213	\$32.21	\$69.77	\$49.10	\$3,782,457	\$6,694,085	\$ 10,476,542

**Table 31 Winter Demand Response High Potential Savings Scenario**

All dollar values are in Real 2024 dollars

**Wabash- 2023 Potential Savings - Winter Demand Response**

High Potential Savings Scenario

Res to 5% of Sales, C&I to 3%, higher price escalation (res declines

Parameters	Res	C&I	
Max Sector % of Sales	5.00%	3.00%	
By Year	2033	2033	
Growth Type (Exp. or Lin)	Exponential	Exponential	
Average Exp. Growth Rate	17.46%	53.98%	Calculated
Linear Growth (Additional Annual	0.48%	0.41%	
Annual \$/kWh Escalator	-3.00%	2.00%	C&I Costs up since new programs will have to start; res goes down like the meta data

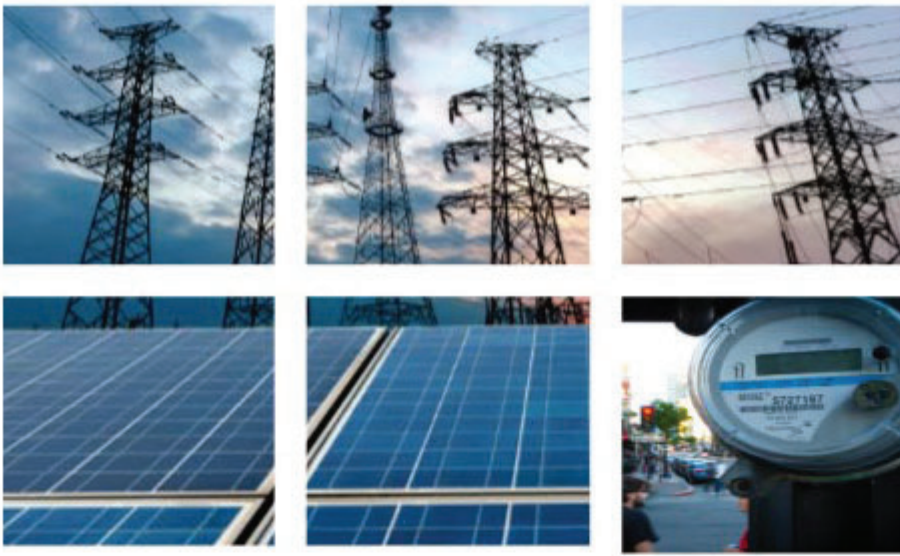
Fuel Type: Electricity	Winter DR Savings Potential (% of Forecast Sales)			Annual Winter DR Savings (MW)			Annual Cost of DR Savings (\$/kW - Real 2023\$)			Annual DR Budget (2023 \$)		
	Study Year	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I	TOTAL	RES	C&I
2024	1.52%	0.14%	0.94%	13.31	0.87	14.18	\$41.19	\$25.07	\$40.20	\$548,284	\$21,812	\$ 570,096
2025	1.57%	0.14%	0.97%	13.97	0.91	14.88	\$42.26	\$25.09	\$41.21	\$590,310	\$22,834	\$ 613,144
2026	1.62%	0.15%	1.01%	14.67	0.94	15.61	\$43.50	\$25.11	\$42.39	\$638,095	\$23,606	\$ 661,701
2027	1.90%	0.23%	1.21%	17	1	19	\$42.19	\$25.62	\$40.92	\$736,614	\$37,100	\$ 773,714
2028	2.24%	0.35%	1.46%	21	2	23	\$40.93	\$26.13	\$39.49	\$850,586	\$58,271	\$ 908,857
2029	2.63%	0.53%	1.78%	25	3	28	\$39.70	\$26.65	\$38.11	\$981,815	\$91,598	\$ 1,073,414
2030	3.09%	0.82%	2.17%	29	5	35	\$38.51	\$27.18	\$36.78	\$1,131,740	\$143,597	\$ 1,275,337
2031	3.62%	1.27%	2.68%	35	8	43	\$37.35	\$27.73	\$35.54	\$1,305,590	\$225,077	\$ 1,530,667
2032	4.26%	1.95%	3.34%	42	12	54	\$36.23	\$28.28	\$34.40	\$1,508,197	\$352,736	\$ 1,860,933
2033	5.00%	3.00%	4.22%	50	19	69	\$35.14	\$28.85	\$33.39	\$1,743,124	\$553,436	\$ 2,296,559
2034	5.00%	3.00%	4.22%	50	19	70	\$34.09	\$29.42	\$32.80	\$1,717,628	\$563,708	\$ 2,281,335
2035	5.00%	3.00%	4.23%	51	19	70	\$33.07	\$30.01	\$32.24	\$1,693,614	\$574,475	\$ 2,268,089
2036	5.00%	3.00%	4.24%	52	19	71	\$32.08	\$30.61	\$31.68	\$1,671,594	\$585,124	\$ 2,256,718
2037	5.00%	3.00%	4.25%	53	19	72	\$31.11	\$31.22	\$31.14	\$1,649,793	\$596,855	\$ 2,246,648
2038	5.00%	3.00%	4.26%	54	19	73	\$30.18	\$31.85	\$30.62	\$1,629,169	\$608,452	\$ 2,237,622
2039	5.00%	3.00%	4.27%	55	19	74	\$29.27	\$32.49	\$30.10	\$1,608,736	\$620,213	\$ 2,228,949
2040	5.00%	3.00%	4.28%	56	19	75	\$28.40	\$33.14	\$29.60	\$1,589,677	\$630,181	\$ 2,219,857
2041	5.00%	3.00%	4.28%	57	19	76	\$27.54	\$33.80	\$29.11	\$1,565,809	\$644,339	\$ 2,210,148
2042	5.00%	3.00%	4.29%	58	19	77	\$26.72	\$34.47	\$28.65	\$1,543,684	\$659,406	\$ 2,203,090
2043	5.00%	3.00%	4.29%	59	19	78	\$25.92	\$35.16	\$28.19	\$1,521,813	\$674,800	\$ 2,196,612



## Appendix J

**Itron DER Forecast**

**Page No.**  
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# WABASH VALLEY POWER ALLIANCE

## Long-Term DER Energy and Demand Forecast

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# 1 OVERVIEW

Itron, Inc. was contracted by Wabash Valley Power Alliance (WVPA) to assist in the development of a long-term distributed energy resource (DER) forecast. This includes electric vehicles and behind the meter solar forecasts, with the goal of incorporating these components into their long-term load forecast. A mid or, reference case, DER forecast was generated, in addition to a high and low case. This document describes the process of developing the DER forecasts and calculating their energy and demand impacts on the WVPA load forecast. The long-term DER forecast leverages a combination of WVPA specific data sources as well as federal and other public projections regarding electric vehicle and solar adoption.

## 2 ELECTRIC VEHICLES

### 2.1 ELECTRIC VEHICLE FORECAST

Using county level vehicle registration data, WVPA estimates there are approximately 2,213 electric vehicles served by their members as of 2023. The Energy Information Administration (EIA) Annual Energy Outlook and BloombergNEF are two commonly referenced sources for electric vehicle forecasts. WVPA's EV forecast uses a consensus forecast, averaging the EIA and Bloomberg forecasts to calculate the share of registered light-duty vehicles which are electric. We rely on the EIA's assumption of total light-duty vehicles per household. Using this data, we calculate the average number of cars per household and projected electric vehicle share.

Total member vehicles are calculated as the product of forecasted customers multiplied by EIA projected vehicles per household:

$$Total\ Member\ Vehicles = Member\ Customers_{yr} \times EIA\ Vehicle\ Per\ HH_{yr}$$

The number of EVs are calculated by applying consensus projected EV vehicle share to the member total vehicle forecast. A calibration step is first taken to adjust to the known number of registered EV served by WVPA's members as of 2023. The share of electric vehicles is projected to increase from 1% to 25% by 2042. This process generates the mid, or reference, case EV forecast. The High case forecast is generated in a similar manner but based solely on the BloombergNEF forecasted share of electric vehicles. The low case forecast is generated in a similar manner but based solely on the EIA Annual Energy Outlook forecasted share of electric vehicles. Table 1 shows the three electric vehicle forecasts on an incremental new as of 2024 basis. The impact of current registered vehicles is captured in historical load data.

**TABLE 1: NEW REGISTERED ELECTRIC VEHICLE FORECAST**

Year	Low	Mid	High
2024	1,180	1,223	1,265
2025	2,990	3,122	3,254
2026	5,765	6,072	6,379
2027	10,019	10,655	11,290
2028	16,543	17,776	19,010
2029	19,833	25,488	31,142
2030	23,312	36,762	50,211
2031	26,801	45,230	63,659
2032	30,335	54,245	78,154
2033	33,823	63,865	93,907
2034	37,271	73,987	110,703
2035	40,675	84,457	128,239
2036	44,018	94,786	145,553
2037	47,229	104,868	162,506
2038	50,295	114,677	179,058
2039	53,207	124,160	195,112
2040	55,917	134,322	212,726
2041	58,448	145,219	231,990
2042	60,823	156,968	253,113

Electric vehicles' load impact depends on the amount of energy a vehicle consumes. An EV weighted annual kWh use is calculated based on the current mix of registered EV models served by WVPA members. EV usage is derived from manufacturers' reported fuel efficiency to the federal government ([www.fueleconomy.gov](http://www.fueleconomy.gov)). The average annual kWh for the current mix of EVs served by WVPA members is 3,481 kWh, based on 12,000 annual miles. The annual EV MWh consumption forecast is the product of the electric vehicle forecast and the assumed kWh per vehicle. Table 2 shows the electric vehicles energy consumption forecasts.

**TABLE 2: NEW ELECTRIC VEHICLE CONSUMPTION FORECAST (MWH)**

Year	Low	Mid	High
2024	4,109	4,256	4,404
2025	10,409	10,867	11,326
2026	20,068	21,137	22,205
2027	34,880	37,092	39,304
2028	57,590	61,884	66,178
2029	69,043	88,729	108,414
2030	81,155	127,976	174,796
2031	93,301	157,456	221,612
2032	105,603	188,838	272,073
2033	117,746	222,329	326,913
2034	129,749	257,566	385,384
2035	141,599	294,015	446,431
2036	153,237	329,971	506,705
2037	164,415	365,069	565,722
2038	175,089	399,216	623,344
2039	185,226	432,229	679,231
2040	194,660	467,605	740,550
2041	203,471	505,542	807,613
2042	211,739	546,443	881,147

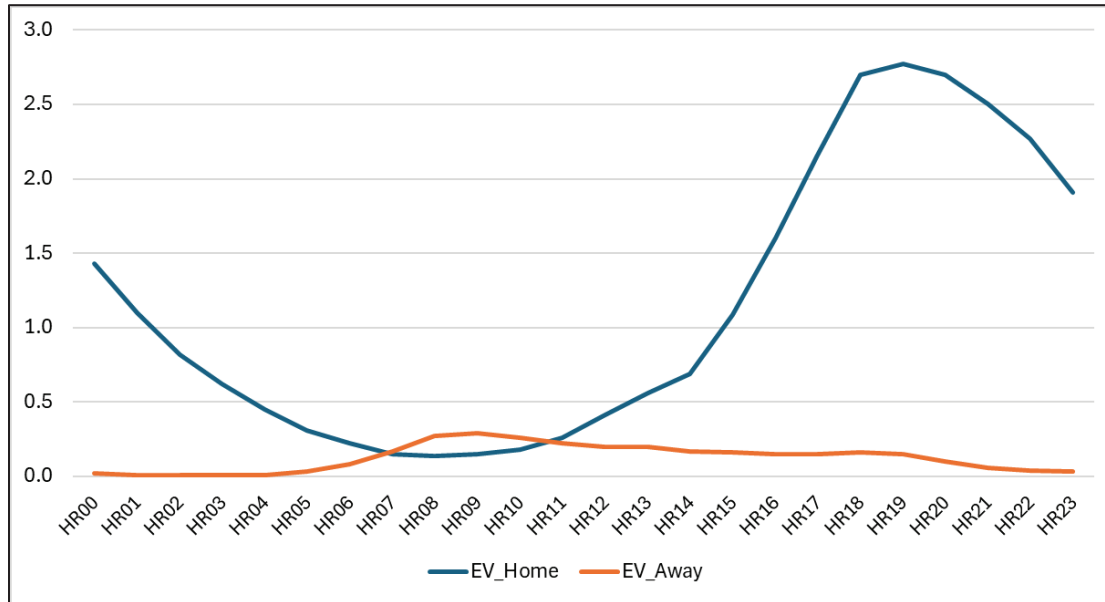
## **2.2 ELECTRIC VEHICLE CHARGING PROFILE**

Electric vehicles' impact on peak demand depends on when and where EVs are charged. Charging profiles are derived from the National Renewable Energy Laboratory's (NREL) EVI-Pro Lite tool. This is a publicly available on-line tool used to generate EV charging profiles. The tool generates typical weekday and weekend 15-minute profiles for following charging types:

- Home Level 1
- Home Level 2
- Work Level 1
- Work Level 2
- Public Level 2
- Public Level 3 (DC fast)

Using these 6 charging profiles, an average home and away from home profile is created for use in WVPA's electric vehicle forecast. The assumption is made that 90% of vehicle charging will occur at home and 10% away from home. Figure 1 shows the timing of the average weekday profiles.

**FIGURE 1: EV CHARGING PROFILES**



### 3 BEHIND THE METER SOLAR

#### 3.1 SOLAR CAPACITY FORECAST

WVPA estimates there is currently 46.8 MW of installed solar capacity in the regions served by its members. Future capacity is forecasted based on the EIA growth rates of solar capacity for the East North Central census region. The EIA forecasts 10-20% year-over-year growth in capacity over the next ten years. Using this approach, the WVPA solar capacity increases to 168 MW by 2034 and 276 MW by 2042. The impact of existing solar capacity is embedded in historical load data; only incremental new capacity as of 2024 will be used to adjust the load forecast. Alternate high and low solar forecasts were not generated.

#### 3.2 SOLAR GENERATION & HOURLY PROFILE

The capacity forecast (MW) is translated into solar generation (MWh) forecast by applying monthly solar load factors to the capacity forecast. Monthly load factors are derived from a typical solar load profile for Lafayette, IN. Factors range from a summer high of 22% to a winter low of 9%. The solar profile is from the National Renewable Energy Laboratory’s (NREL) PV Watts tool and represents a typical meteorological year (TMY). This is a publicly available on-line tool used to generate solar profiles. An example of the monthly generation estimates for June 2035, with a new installed capacity of 73.5 MW, would be as follows:

$$73.5MW_{june} \times 0.221LdFct_{june} \times 720hrs_{june} = 11,695 MWh_{june}$$

Table 3 shows the incremental new solar capacity and generation forecasts.

**TABLE 3: NEW SOLAR CAPACITY & GENERATION FORECAST**

<b>Year</b>	<b>July Capacity (MW)</b>	<b>Annual Generation (MWh)</b>
2024	9.1	12,991
2025	17.8	25,744
2026	28.4	41,462
2027	38.0	55,967
2028	46.5	68,651
2029	60.5	88,695
2030	74.4	109,868
2031	85.7	126,523
2032	96.9	143,612
2033	108.6	160,556
2034	124.9	184,327
2035	139.6	206,709
2036	153.6	227,619
2037	166.7	246,952
2038	178.5	264,327
2039	192.9	285,595
2040	207.7	308,332
2041	221.1	327,625
2042	232.8	345,260

The impact of solar generation on system peak demand is a function of the timing between solar load generation and system hourly demand. Solar output peaks during the midday while system peaks later in the afternoon.

## **4 CALCULATING LOAD IMPACTS OF DER**

### **4.1 HOURLY LOAD SHAPES**

Calculating the DER impacts on WVPA total system load first begins with a forecast of the baseline hourly loads. This baseline forecast captures the impact of economic and customer growth, federal efficiency standards, and regional estimates of changing saturations of end-use technologies, such as air conditioning and electric water heating. This forecast does not capture the impact of solar or EV adoption.

The solar and EV MWh forecasts are combined with hourly profiles to generate hourly forecasts, which are consistent with the annual MWh forecasts. These scaled hourly forecasts are then layered on top of the baseline WVPA system forecast to calculate a system forecast which has been adjusted for the impact of future solar and EV adoption. This occurs in Itron’s long-term hourly forecasting software, MetrixLT. This hourly approach allows the impact of EV and solar to change over time as the timing of the system peak changes. In the case of WVPA, this timing shift does not occur under the current assumptions of EV and solar adoption rates. Figure 2 shows a summer peak day in 2035.

On the summer peak day in 2035 the baseline forecast shows the peak occurring at 6 p.m. with a value of 1,662 MW. At 6 p.m., solar is generating 19 MW, EV home charging is consuming 73 MW, and EV away from home charging is consuming 4 MW. This results in an adjusted peak forecast of 1,720 MW.

**FIGURE 2: SUMMER PEAK DAY SYSTEM LOAD**

