Market Protection Provision

1. *Introduction*

The Market Protection Provision will allow for a creation of a regulatory liability or asset as required to compensate customers for any harm created by the Wind Projects during the Guarantee Period. The amortization or deprecation of the regulatory asset or liability during Empire's rate cases will adjust Empire's rates to flow money in the appropriate direction. This document will discuss how to calculate the regulatory asset or liability.

2. *Definitions*

ASV = Annual Sharing Value = AWV_Net * Sharing Percentage (row 27 excel)

ASV_Sum = sum of all prior years ASV inclusive of current year (row 29 excel)

AWV = Annual Wind Value (row 16 of excel)

AWV_Net = Annual Wind Value outside of dead band (row 25 excel)

Guarantee = maximum exposure to the negative that the Company is exposed over the life of the guarantee. The Guarantee will be a fixed positive value of $35,000,000 Missouri jurisdictional in cell B7 excel which will be converted to a Company level guarantee in cell B7 excel using the Missouri Jurisdictional Factor in cell C7 excel.

Guarantee Period = Begins at the first day of the month after the first Wind Project is placed into rates and will run until the end of the 10th full year (120 months) after the last Wind Project is entered into rates.

LDB = Lower Dead Band = -$2,000,000 (cell B11 excel)

Missouri Reg_Input = the jurisdictional percentage of the Reg_Input amount. The actual percentage will be based on the prior rate case's jurisdictional allocation ratios. (row 48 excel)

PPA_Replacement = value associated with replacing the existing wind PPAs during the period of the guarantee, as shown on Exhibit C (row 15 excel)

Reg_Inputs = amount added to a regulatory liability (negative number) or the amount added to a regulatory asset (positive number) (row 46 excel)

Reg_Input pre-limit = the calculated Reg_Input before the upper limit is placed on it to prevent an overpayment to the Company (row 41 excel)

Sharing Percentage = 50% (cell B16)

SPP$ = Southwest Power Pool revenues for the Wind Projects (row 13 excel)

UDB = Upper Dead Band = $2,000,000 (cell B10)

Wind Projects = the up to 600 MW of new wind projects procured by Empire.

WRR = Wind Revenue Requirement = sum of operation and maintenance, labor, tax equity payments / (credits), property taxes, return on and of, income taxes for the new Wind Projects (row 14 excel, as calculated in Exhibit B).

3. *Calculations*

Exhibit A – Market Protection Provision Flow Chart can be used to help walk through the calculations required to determine the amount of the regulatory asset or liability. Exhibit B – Wind Data spreadsheet shows an example for calculation of the wind costs (WRR). Exhibit C – PPA Replacement value, shows the amount of benefit associated by year with the existing wind power purchase agreements. Exhibit D – Regulatory Asset Example spreadsheet, shows one example of the calculations for the regulatory asset.

Calculate AWV:

On an annual basis, the Annual Wind Value (AWV) will be calculated based on the SPP market revenues earned by the Wind Projects (SSP$) less the Wind Projects costs (WRR) plus the value associated with avoiding the replacement of the existing wind power purchase agreements (PPA_Replacement). This is shown in Exhibit D row 16.

The SPP Revenue is based on the SPP invoice for total revenue earned by the Wind Projects.

The Wind Revenue Requirement is calculated by:

i) Adding the total labor, operation and maintenance costs required to operate the Wind Projects.
ii) Adding the payments to tax equity, less the payments received from tax equity.
iii) Adding the proforma calculation costs for the Wind Projects based on the methodology in Exhibit B for the following:
    a. Enter the actual net capital cost for the Wind Projects, inclusive of transmission costs.
    b. Calculate the straight line deprecation based on the listed schedules for each capital expenditure.
    c. Calculate the accumulated deprecation
    d. Calculate the net rate base amount.
    e. Calculate the Return on Equity by multiplying the authorized equity capital percentage by the net rate base and by the authorized equity return percentage.
    f. Calculate the cost of debt by multiplying the authorized debt capital percentage by the net rate base and by the debt cost percentage.
    g. Calculate the Income tax payable for the Wind Projects by dividing the return on equity amount in dollars by one minus the composite tax rate then multiple that quotient by the return on equity in dollars.
    h. Calculate the property taxes as 0.86% multiplied by the net rate base amount.
iv) The depreciation, return on equity, cost of debt, income tax payable and property tax proforma calculations will be added to the totals in i) and ii) to produce the Wind Revenue Requirement.

Dead Band:

Apply the dead band to the AWV on an annual basis (rows 20 – 25 of Exhibit D) to determine the Annual Wind Value net of dead band (AWV_Net).

Sharing Provision:

Apply the 50% sharing factor to the AWV_Net to determine the Annual Sharing Value (ASV).

Adjustment periods:

At each rate case, after all Wind Projects have been placed into rates, and at the end of the Guarantee Period, the accumulated value of the Wind Projects will be looked at to determine if a regulatory asset or liability need to be created.

The ASV will be summed for all years from the start of the Guarantee to the end of the current period to calculate the Annual Sharing Value Sum (ASV_Sum, row 33 of Exhibit D). The ASV_Sum will be adjusted to account for all prior values that created a regulatory asset or liability (ASV_Sum – all prior Reg Inputs, row 35 of Exhibit D). This will then be compared against the maximum Guarantee to ensure that the Guarantee is not exceeded. This will determine the amount of the regulatory liability prior to the upper limit (Reg_Input pre-limit, row 41 in Exhibit D). If the amount of the Reg_Input pre-limit would result in an overpayment to Empire, then it will be reduced to ensure that Empire can dig out of a regulatory liability but not be ahead over the entire period. This value is the Reg_Input, shown in row 46 of Exhibit D.

The last step is to apply the Missouri jurisdictional adjustment to the Reg_Input to determine the amount that will apply in the Missouri rate adjustments.

Non-Adjustment Periods:

In years where there is not an adjustment period, then the ASV is recorded and no further action is required until the following year.

Exhibit A – Market Protection Provision Flow Chart

(see atatched)

Exhibit B – Wind Data Spreadsheet

			Q4 only										
			2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Capital Costs	$												
Transmission			81										
Wind Projects			429										
Tax Equity Buy Out													
Maintenance Capital													
Maintenance Capital													
Deprecation	$	years											
Transmission		40	1	2	2	2	2	2	2	2	2	2	2
Wind Projects		30	4	14	14	14	14	14	14	14	14	14	14
Maintenance Capital		20											
Maintenance Capital		17											
Maintenance Capital		12											
Accumulated Deprecation	$		4	20	37	53	69	86	102	118	135	151	167
Rate Base	$		506	489	473	457	440	424	408	391	375	359	343
Return on Equity	%equity	rate	6	25	24	23	22	22	21	20	19	18	17
	51%	10%											
Cost of Debt	%debt	rate	2	10	9	9	9	8	8	8	7	7	7
	49%	4%											
Income Tax Payable	tax rate		2	8	8	7	7	7	7	6	6	6	5
	23.90%												
Property Tax Estimate	rate		1	4	4	4	4	4	4	3	3	3	3
	0.86%												
Carrying Charge			16	63	61	60	58	57	55	54	52	50	49

Fixed O&M	$		2	14	14	21	22	25	27	28	29	30	33
Tax Equity expense (credit)	$		0	(2)	(13)	(13)	(13)	(12)	(7)	(8)	(8)	(8)	(10)
TOTAL WIND REVENUE REQUIREMENT			**18**	**75**	**63**	**68**	**67**	**70**	**75**	**74**	**74**	**73**	**72**
Guarantee Years				1	2	3	4	5	6	7	8	9	10

Exhibit C – PPA Replacement Value

				2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Elk River		GWh		560	563	565	566	539	0	0	0	0	0
Meridian Way		GWh		308	311	312	313	311	309	308	304	0	0
Guarantee Period				1	2	3	4	5	6	7	8	9	10
Number of PPA replacement GWh replaced by New Wind during Guarantee Period													
	3,415	GWh											
Allocated Benefit of PPA replacement GWh				0	0	0	0	0	563	564	568	872	872
Reduction in Revenue Requirement from PPA replacement													
				0	0	0	0	0	17,092,657	16,847,739	16,768,478	25,584,936	25,288,474

Exhibit D – Regulatory Asset Example

Row Number												
3	Changes related to Wind Value											
4	P75	Wind Production										
5	Low	Market Prices										
6												
7	35,000,000	85%	Missouri Portion									
8	41,176,471	million	Guarantee Cap									
9	50%		Sharing outside of Dead Band - (dead band adjusted on the Wind Guarantee)									
10	2,000,000	annually	Upper Dead Band									
11	(2,000,000)	annually	Lower Dead Band									
12			**Years**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
13			SPP Market Revenue	52,712,415	56,002,898	58,097,183	60,537,390	62,416,997	64,520,656	66,699,312	69,042,961	70,576,645	73,523,080
14			Wind Revenue Requirement	74,767,542	63,620,934	68,953,533	67,684,336	70,466,254	75,825,853	74,730,280	74,129,562	73,157,485	72,673,847
15			PPA Replacement Value	0	0	0	0	0	17,092,657	16,847,739	16,768,478	25,584,936	25,288,474
16			**Annual Wind Value (AWV)**	(22,055,127)	(7,618,036)	(10,856,350)	(7,146,946)	(8,049,257)	5,787,460	8,816,770	11,681,877	23,004,096	26,137,708
17													
18			Accumulative (AWV)	(22,055,127)	(29,673,163)	(40,529,513)	(47,676,459)	(55,725,716)	(49,938,257)	(41,121,486)	(29,439,609)	(6,435,513)	19,702,194
19													
20			Is AWV inside of Dead Band?	No	No	No	No	No	No	No	No	No	No
21			If Yes										
22			if no and greater than 0						3,787,460	6,816,770	9,681,877	21,004,096	24,137,708
23			if no and less than 0	(20,055,127)	(5,618,036)	(8,856,350)	(5,146,946)	(6,049,257)					
24													
25			AWV_Net	(20,055,127)	(5,618,036)	(8,856,350)	(5,146,946)	(6,049,257)	3,787,460	6,816,770	9,681,877	21,004,096	24,137,708
26													
27			Annual Sharing Value (ASV)	(10,027,563)	(2,809,018)	(4,428,175)	(2,573,473)	(3,024,629)	1,893,730	3,408,385	4,840,938	10,502,048	12,068,854
28													
29			ASV_Sum	(10,027,563)	(12,836,581)	(17,264,756)	(19,838,229)	(22,862,858)	(20,969,128)	(17,560,743)	(12,719,805)	(2,217,757)	9,851,097
30													
31			Year of Rate Case	0	0	0	1	0	0	1	0	0	1
32													
33			ASV_Sum				(19,838,229)			(17,560,743)			9,851,097
34													
35			ASV_Sum - all prior Reg Inputs				(19,838,229)			2,277,486			27,411,840
36													
37			Is ASV_Sum < -Guarantee				No			No			No
38			if yes; Guarantee - all prior Reg Inputs										
39			if no; ASV_Sum - all prior Reg Inputs				(19,838,229)			2,277,486			27,411,840
40													
41			Reg_Input pre-limit	0	0	0	(19,838,229)	0	0	2,277,486	0	0	27,411,840
42													
43			Is Reg_Input too high?	No	No	No	No	No	No	No	No	No	Yes
44			if Yes, Reg_Input =										17,560,743
45			if No, Reg_Input =	0	0	0	(19,838,229)	0	0	2,277,486	0	0	
46			Reg_Input	0	0	0	(19,838,229)	0	0	2,277,486	0	0	17,560,743
47													
48			**Missouri Reg_Input**	**0**	**0**	**0**	**(16,862,495)**	**0**	**0**	**1,935,863**	**0**	**0**	**14,926,632**

Row Number												
3	Changes related to Wind Value											
4	P50	Wind Production										
5	Mid	Market Prices										
6												
7	35,000,000	85%	Missouri Portion									
8	41,176,471	million	Guarantee Cap									
9	50%		Sharing outside of Dead Band - (dead band adjusted on the Wind Guarantee)									
10	2,000,000	annually	Upper Dead Band									
11	(2,000,000)	annually	Lower Dead Band									
12			**Years**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
13			SPP Market Revenue	64,847,000	69,950,000	73,165,000	76,639,000	79,532,000	82,182,000	85,920,000	89,759,000	92,944,000	97,510,000
14			Wind Revenue Requirement	74,614,505	62,819,416	68,151,327	66,855,238	69,723,149	75,372,060	74,250,970	73,656,881	72,665,792	72,064,703
15			PPA Replacement Value	0	0	0	0	0	17,092,657	16,847,739	16,768,478	25,584,936	25,288,474
16			**Annual Wind Value (AWV)**	(9,767,505)	7,130,584	5,013,673	9,783,762	9,808,851	23,902,597	28,516,768	32,870,596	45,863,144	50,733,771
17													
18			Accumulative (AWV)	(9,767,505)	(2,636,921)	2,376,752	12,160,514	21,969,365	45,871,962	74,388,730	107,259,327	153,122,470	203,856,241
19													
20			Is AWV inside of Dead Band?	No	No	No	No	No	No	No	No	No	No
21			If Yes										
22			if no and greater than 0		5,130,584	3,013,673	7,783,762	7,808,851	21,902,597	26,516,768	30,870,596	43,863,144	48,733,771
23			if no and less than 0	(7,767,505)									
24													
25			AWV_Net	(7,767,505)	5,130,584	3,013,673	7,783,762	7,808,851	21,902,597	26,516,768	30,870,596	43,863,144	48,733,771
26													
27			Annual Sharing Value (ASV)	(3,883,753)	2,565,292	1,506,836	3,891,881	3,904,426	10,951,299	13,258,384	15,435,298	21,931,572	24,366,885
28													
29			ASV_Sum	(3,883,753)	(1,318,461)	188,376	4,080,257	7,984,682	18,935,981	32,194,365	47,629,663	69,561,235	93,928,121
30													
31			Year of Rate Case	0	1	0	0	0	1	0	0	0	1
32													
33			ASV_Sum		(1,318,461)				18,935,981				93,928,121
34													
35			ASV_Sum - all prior Reg Inputs		(1,318,461)				20,254,442				93,928,121
36													
37			Is ASV_Sum < -Guarantee		No				No				No
38			if yes; Guarantee - all prior Reg Inputs										
39			if no; ASV_Sum - all prior Reg Inputs		(1,318,461)				20,254,442				93,928,121
40													
41			Reg_Input pre-limit	0	(1,318,461)	0	0	0	20,254,442	0	0	0	93,928,121
42													
43			Is Reg_Input too high?	No	No	No	No	No	Yes	No	No	No	Yes
44			if Yes, Reg_Input =						1,318,461				0
45			if No, Reg_Input =	0	(1,318,461)	0	0	0		0	0	0	
46			Reg_Input	0	(1,318,461)	0	0	0	1,318,461	0	0	0	0
47													
48			**Missouri Reg_Input**	**0**	**(1,120,692)**	**0**	**0**	**0**	**1,120,692**	**0**	**0**	**0**	**0**

Row Number												
3	Changes related to Wind Value											
4	P75	Wind Production										
5	High	Market Prices										
6												
7	35,000,000	85%	Missouri Portion									
8	41,176,471	million	Guarantee Cap									
9	50%		Sharing outside of Dead Band - (dead band adjusted on the Wind Guarantee)									
10	2,000,000	annually	Upper Dead Band									
11	(2,000,000)	annually	Lower Dead Band									
12			**Years**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
13			SPP Market Revenue	73,484,644	79,237,834	83,166,727	87,959,020	91,654,486	96,556,462	100,739,407	106,471,972	112,801,699	119,909,518
14			Wind Revenue Requirement	74,767,542	63,620,934	68,953,533	67,684,336	70,466,254	75,825,853	74,730,280	74,129,562	73,157,485	72,673,847
15			PPA Replacement Value	0	0	0	0	0	17,092,657	16,847,739	16,768,478	25,584,936	25,288,474
16			**Annual Wind Value (AWV)**	(1,282,897)	15,616,900	14,213,194	20,274,684	21,188,232	37,823,266	42,856,865	49,110,888	65,229,151	72,524,145
17													
18			Accumulative (AWV)	(1,282,897)	14,334,003	28,547,197	48,821,881	70,010,113	107,833,379	150,690,244	199,801,133	265,030,283	337,554,428
19													
20			Is AWV inside of Dead Band?	Yes	No	No	No	No	No	No	No	No	No
21			If Yes	0									
22			if no and greater than 0		13,616,900	12,213,194	18,274,684	19,188,232	35,823,266	40,856,865	47,110,888	63,229,151	70,524,145
23			if no and less than 0										
24													
25			AWV_Net	0	13,616,900	12,213,194	18,274,684	19,188,232	35,823,266	40,856,865	47,110,888	63,229,151	70,524,145
26													
27			Annual Sharing Value (ASV)	0	6,808,450	6,106,597	9,137,342	9,594,116	17,911,633	20,428,433	23,555,444	31,614,575	35,262,073
28													
29			ASV_Sum	0	6,808,450	12,915,047	22,052,389	31,646,505	49,558,138	69,986,571	93,542,015	125,156,590	160,418,663
30													
31			Year of Rate Case	0	1	0	0	0	1	0	0	0	1
32													
33			ASV_Sum		6,808,450				49,558,138				160,418,663
34													
35			ASV_Sum - all prior Reg Inputs		6,808,450				49,558,138				160,418,663
36													
37			Is ASV_Sum < -Guarantee		No				No				No
38			if yes; Guarantee - all prior Reg Inputs										
39			if no; ASV_Sum - all prior Reg Inputs		6,808,450				49,558,138				160,418,663
40													
41			Reg_Input pre-limit	0	6,808,450	0	0	0	49,558,138	0	0	0	160,418,663
42													
43			Is Reg_Input too high?	No	Yes	No	No	No	Yes	No	No	No	Yes
44			if Yes, Reg_Input =		0				0				0
45			if No, Reg_Input =	0		0	0	0		0	0	0	
46			Reg_Input	0	0	0	0	0	0	0	0	0	0
47													
48			**Missouri Reg_Input**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Row Number												
3	Changes related to Wind Value											
4	P95	Wind Production										
5	Low	Market Prices										
6												
7	35,000,000	85%	Missouri Portion									
8	41,176,471	million	Guarantee Cap									
9	50%		Sharing outside of Dead Band - (dead band adjusted on the Wind Guarantee)									
10	2,000,000	annually	Upper Dead Band									
11	(2,000,000)	annually	Lower Dead Band									
12			**Years**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
13			SPP Market Revenue	47,647,909	50,622,249	52,515,319	54,721,076	56,420,094	58,321,637	60,290,972	62,409,448	63,795,779	66,459,126
14			Wind Revenue Requirement	74,905,659	64,344,313	69,677,533	68,432,607	71,136,915	76,235,406	75,162,863	74,556,161	73,601,243	73,223,606
15			PPA Replacement Value	0	0	0	0	0	17,092,657	16,847,739	16,768,478	25,584,936	25,288,474
16			**Annual Wind Value (AWV)**	(27,257,750)	(13,722,064)	(17,162,214)	(13,711,531)	(14,716,821)	(821,112)	1,975,848	4,621,765	15,779,472	18,523,995
17													
18			Accumulative (AWV)	(27,257,750)	(40,979,813)	(58,142,027)	(71,853,557)	(86,570,379)	(87,391,491)	(85,415,642)	(80,793,877)	(65,014,406)	(46,490,411)
19													
20			Is AWV inside of Dead Band?	No	No	No	No	No	Yes	Yes	No	No	No
21			If Yes						0	0			
22			if no and greater than 0								2,621,765	13,779,472	16,523,995
23			if no and less than 0	(25,257,750)	(11,722,064)	(15,162,214)	(11,711,531)	(12,716,821)					
24													
25			AWV_Net	(25,257,750)	(11,722,064)	(15,162,214)	(11,711,531)	(12,716,821)	0	0	2,621,765	13,779,472	16,523,995
26													
27			Annual Sharing Value (ASV)	(12,628,875)	(5,861,032)	(7,581,107)	(5,855,765)	(6,358,411)	0	0	1,310,882	6,889,736	8,261,997
28													
29			ASV_Sum	(12,628,875)	(18,489,907)	(26,071,013)	(31,926,779)	(38,285,189)	(38,285,189)	(38,285,189)	(36,974,307)	(30,084,571)	(21,822,574)
30													
31			Year of Rate Case	0	1	0	0	0	1	0	0	0	1
32													
33			ASV_Sum		(18,489,907)				(38,285,189)				(21,822,574)
34													
35			ASV_Sum - all prior Reg Inputs		(18,489,907)				(19,795,283)				16,462,616
36													
37			Is ASV_Sum < -Guarantee		No				No				No
38			if yes; Guarantee - all prior Reg Inputs										
39			if no; ASV_Sum - all prior Reg Inputs		(18,489,907)				(19,795,283)				16,462,616
40													
41			Reg_Input pre-limit	0	(18,489,907)	0	0	0	(19,795,283)	0	0	0	16,462,616
42													
43			Is Reg_Input too high?	No	No	No	No	No	No	No	No	No	No
44			if Yes, Reg_Input =										
45			if No, Reg_Input =	0	(18,489,907)	0	0	0	(19,795,283)	0	0	0	16,462,616
46			Reg_Input	0	(18,489,907)	0	0	0	(19,795,283)	0	0	0	16,462,616
47													
48			**Missouri Reg_Input**	**0**	**(15,716,421)**	**0**	**0**	**0**	**(16,825,990)**	**0**	**0**	**0**	**13,993,223**