PUBLIC

Exhibit No. ___
Issue: Wind Farm Revenue Requirements,
         Market Protection Provision
Witness: David Holmes
Type of Exhibit: Surrebuttal Testimony
Sponsoring Party: The Empire District
Electric Company
Case No. EA-2019-0010
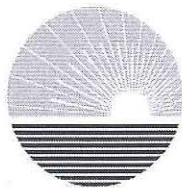Date Testimony Prepared: March 5, 2019

**Before the Public Service Commission
of the State of Missouri**

Surrebuttal Testimony

of

**David Holmes
March 5, 2019**

Liberty Utilities®
EMPIRE DISTRICT

TABLE OF CONTENTS

1 I. **INTRODUCTION**

2 Q. **PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is David Holmes and my address is 354 Davis Road, Oakville, Ontario ON L6J

4 2X1.

5 Q. **WHO IS YOUR EMPLOYER AND WHAT POSITION DO YOU HOLD?**

6 A. I am employed by Liberty Utilities (Canada) Corp. as the Director, Enterprise Asset

7 Management Strategy. I am responsible for Enterprise Asset Management, GIS, SCADA,

8 OMS and AMI systems for the Algonquin Power & Utilities Corp. family of businesses.

9 Q. **WHAT IS YOUR PROFESSIONAL BACKGROUND?**

10 A. In 2002, I graduated from Queens University with a BSc. Eng., Mechanical Engineering. I

11 am a Professional Engineer and am licensed by the Professional Engineers Ontario. I have

12 worked in the utility industry for the past thirteen years, and have extensive experience in

13 engineering, operations and asset management as it relates to renewable energy.

14 Q. **WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY IN THIS**

15 **CASE?**

16 A. The purpose of my testimony is to respond to Rebuttal Testimony filed by the Office of the

17 Public Counsel ("OPC") witness John S. Riley as it relates to his calculations of a revenue

18 requirement associated with the Wind Projects that are the subject of this proceeding. In

19 addition, I will describe the Company's proposed Market Protection Provision, in response

20 to the Report of the Staff of the Missouri Public Service Commission ("Staff Report").

21

1   **II.**   <u>**WIND REVENUE REQUIREMENT**</u>

2   **Q.**   **HAVE YOU REVIEWED OPC WITNESS RILEY'S CALCULATIONS OF A**

3   **REVENUE REQUIREMENT ASSOCIATED WITH THE COMPANY'S**

4   **PROPOSED WIND PROJECTS?**

5   **A.**   Yes, I have. In his testimony, Mr. Riley purports to calculate a revenue requirement

6   associated with the Wind Projects and includes in that analysis the amount of revenues that

7   he projects the Wind Projects will generate from sales of their output into the Southwest

8   Power Pool Integrated Marketplace ("SPP").

9   **Q.**   **DO YOU AGREE WITH MR. RILEY'S CALCULATIONS OF THE WIND**

10   **REVENUE REQUIREMENT?**

11   A   No, I do not. Mr. Riley presents his analysis in Schedule JSR-R-2, which he characterizes

12   as being "very similar to the exhibits presented by Empire and myself in case EO-2018-

13   0092 and the workpapers in this case." While there might be some similarities in column

14   headings or categories of information presented, in fact, Mr. Riley's analysis in Schedule

15   JSR-R-2 has material differences from Empire's prior analysis in Case No. EO-2018-0092

16   and the Company's view on how the revenue requirement for the Wind Projects should be

17   calculated.

18   **Q.**   **WHAT IS YOUR BASIS FOR THIS CONCLUSION?**

19   **A.**   While there are many differences in approach and one typo, the two most material problems

20   with Mr. Riley's analysis relate to the "Expected Revenue" line item and the "Add back

21   the Hedging costs" line item from JSR-R-2. The numbers that Mr. Riley uses in these two

22   categories are incorrect and as a result, his conclusions are erroneous.

1 Q. HAVE YOU PERFORMED AN ANALYSIS OF THE REVENUE REQUIREMENT

2 OF THE WIND FARMS?

3 A. Yes. Attached to my testimony as Schedule DH-S-1 is my calculation of the revenue

4 requirement associated with the Wind Projects. I derive the revenue requirement by

5 calculating the return on equity (row 21), interest expense (row 24), depreciation expense

6 (rows 11 through 15), income tax expense (row 27), property tax expense (row 30) from

7 the capital investments (rows 4 through 8) proposed by Empire then add in the fixed

8 operations and maintenance expense (row 35), the net payments to tax equity (row 37) to

9 calculate the total cost of the wind projects. I then compare that to the expected market

10 revenue (row 44) associated with the wind projects to calculate the net benefit from wind

11 (row 48).

12 Q. DO YOU AGREE WITH THE AMOUNT OF SPP REVENUES THAT MR. RILEY

13 INCLUDES IN SCHEDULE JSR-R-2?

14 A. No. Mr. Riley states in his testimony (p. 5, footnote 2) that he pulled the SPP revenues

15 from the "Annual Pro Forma" tab of the Kings Point, North Fork, and Neosho Ridge

16 workpapers [. While I am not able to find the data that he used to arrive at the $62.00

17 million that he shows in the 2021 column of the Expected revenue Row, it appears that he

18 was pulling the data from row 27 in the workpapers that was entitled "LCOE Revenue,"

19 which give a 2021 sum of $63.26 million ($31,722,155.54 for Neosho from cell J27,

20 $16,755,059.91 for Kings Point from cell J27 and $14,778,700.10 for North Fork from cell

21 J27). I make this assumption as there isn't any other row on the Annual Proforma tab that

22 discusses wind revenue.

23 Q. WHAT IS THE CONSEQUNCE OF USING THAT NUMBER?

1   A.   The effect of using the wrong number for expected SPP revenues is that Mr. Riley

2   understates the amount of SPP revenues that will be generated by the Wind Projects. What

3   Mr. Riley has done is taken the amount of assumed revenue used for sizing tax equity at

4   the Wind Project Co. level which is different than the amount of revenue generated from

5   the forecasted sales into the SPP Integrated Marketplace as shown in Case No. EO-2018-

6   0092 and in the Market Protection Provision. The assumed revenue at the Wind Project

7   Co. level used for sizing tax equity in the Empire Wind Project Co Workpapers reflects the

8   sum of the hedge net settlement revenue (from the Hedge Agreement) and a discounted

9   market price. The correct SPP revenue is shown in DH-S-1 in row 44.

10   Q.   WITHIN THIS ANALYSIS, WHAT ARE THE "HEDGE COSTS?

11   A.   The Hedge Costs are the cost paid from Empire to the Wind Project Cos for the difference

12   between the fixed hedge price and the floating SPP market price.

13   Q.   DO YOU AGREE WITH THE AMOUNT OF HEDGE COSTS THAT MR. RILEY

14   INCLUDES IN SCHEDULE JSR-R-2?

15   A.   No. Mr. Riley has calculated the hedge cost as the hedge price less the discounted merchant

16   curve which results in a higher costs than he has shown. More importantly, there isn't any

17   line item that takes into account that the hedge is between the Wind Project Cos and

18   Empire, which means that if there is a hedge cost at the Empire level there will be an

19   offsetting hedge benefit at the Wind Project Co level. This cost and benefit are equal and

20   opposite and will offset each other upon financial consolidation. Based on this, the revenue

21   requirement of the wind projects can be shown without the hedge net settlement costs as

22   done in the first 48 rows of Schedule DH-S-1.

23   Q.   WHAT HAVE YOU DONE TO CORRECT THE HEDGE COSTS?

1   A.   To assist in showing that the "add back hedging costs" in Schedule JSR-R-2 should not be

2   included in the customer impact, I added additional detail to Schedule DH-S-1 to show

3   how the hedge will settle ("Hedge Net Settlement" in Schedule DH-S-1) at both the Wind

4   Project Co level and the Empire level. In this way it becomes clear that the "Hedge Costs"

5   that Mr. Riley refers to eliminates on consolidation.

6   Rows 95 through row 154 show the three Wind Projects. Using Neosho as an

7   example, Schedule DH-S-1 calculates the revenue and expense items down to an EBITDA

8   level. Row 99 shows the hedge quantity contemplated and the hedge rate is in row 100.

9   Row 101 shows how the hedge settles, where the difference between the hedge price in

10   row 100 and the SPP market price in row 104 are multiplied by the hedge quantity. This

11   either results in a payment to the Wind Project Co. or a payment to Empire from the Wind

12   Project Co. Rows 103 to 105 show the SPP wind revenue from the project's quantity

13   multiplied by the forecasted market price based on the ABB 600 MW wind study modelling

14   from the CSP. Note that all wind energy is sold into SPP and that the hedge is a financial

15   transaction so there is not a double count on energy sold. This SPP market rate is the

16   expected value without any discounting that was used for the purposes of sizing tax equity.

17   Row 108 shows the fixed operations and maintenance costs; row 110 shows the EBITDA

18   which is the project level revenue less the fixed costs. The EBITDA is the cash that is

19   available for distribution to Empire and the tax equity providers.

20   In rows 80 through 92, I show the consolidation of the three Wind Projects at the

21   Wind Hold Co. level. This shows the hedge and market revenues expected at the Wind

22   Project Co. level; the fixed O&M fees from the projects less the consolidated O&M savings

23   that arises from the efficiency from operating multiple projects in close proximity to each

5

1   other. Row 88 shows Hold Co's distributable cash and row 92 shows the amount of cash

2   distribution that are owed to Tax equity.

3   Rows 57 to 67 roll up the Wind Projects to Empire level. At the Empire level we

4   have in row 59, I have the costs that Empire pays to the Wind Project Co for the hedge. In

5   row 61, I have the cash distribution from Wind Hold Co to Empire which is calculated

6   from the distributable cash (row 88) in Wind Hold Co less the cash payments to tax equity

7   in row 92. It is imperative to note, that if the hedge net settlement costs are to be included

8   in a revenue requirement calculation you must have the hedge cost, the market costs and

9   the cash distributions from Wind Project Co. This was not done correctly in Schedule JSR-

10   R-2. In row 65, are the Paygo contributions from Tax Equity to Empire. The net Empire

11   cash position is shown in row 67 which is the sum of rows 56, 59, 61 and 65.

12   To show that the revenue requirement impact shown from rows 4 through 48 that

13   excludes the hedge is correct, in row 68, I compare the cash items from these rows, namely

14   rows 44 minus row 37 minus row 35 to row 67. As can be seen, the values are the same.

15   Mr. Riley should not be including the "add back in hedge costs" to his revenue requirement

16   calculation.

17   **III.**   **PROTECTIONS AGAINST ALLEGED CUSTOMER HARM**

18   **Q.**   **MR. RILEY'S VIEW IS THAT IF THE CCNS ARE GRANTED, "CUSTOMERS**

19   **COULD BE PROPERLY PROTECTED BY HARM" BY APPLYING A**

20   **CONDITION TO THE CCNS. DO YOU AGREE WITH HIS PROPOSED**

21   **CONDITION?**

22   **A.**   No. Mr. Riley concludes that the Wind Projects are unnecessary, but argues that if the

23   CCNs are granted by the Commission, that the Commission limit Empire's return on its

1   investment to the expected returns of the tax equity partners. He appears to use his

2   proposed revenue requirement to support this position. As described in Mr. Mooney's

3   Surrebuttal Testimony, Empire's return on its investment in the Wind Projects (which will

4   be included in Empire's rate base) is wholly separate from any return of the tax equity

5   partner and is an "apples to oranges" comparison.

6 Q. **DO YOU THINK THE WIND PROJECTS WILL RESULT IN HARM TO**

7   **CUSTOMERS?**

8 A. No, I do not. As demonstrated by Mr. McMahon's testimony in Case No. EO-2018-0092,

9   and in this docket, there are significant savings to customers over time associated with

10   ownership of the Wind Projects.

11 Q. **HAS THE COMMISSION EVER REQUIRED A UTILITY TO PROTECT**

12   **CUSTOMERS AGAINST ALL POTENTIAL EXPOSURE TO SPP MARKET**

13   **REVENUES IN ASSOCIATION WITH ACQUISITION OF A GENERATION**

14   **UNIT?**

15 A. While I am not a lawyer, I have been advised by counsel that the Commission has never

16   required a utility to provide a complete guarantee concerning the financial performance of

17   a generation unit on a year-to-year basis over the life of the unit.

18 Q. **WHAT DOES THE STAFF REPORT RECOMEMND IN REGARD TO**

19   **CUSTOMER PROTECTIONS FROM PRICE RISK?**

20 A. Staff proposes that the Commission impose the Market Protection Provision from the Non-

21   Unanimous Stipulation and Agreement in Case No. EO-2018-0092, without any cap

22   whatsoever.

1 Q. WAS THERE A CAP ON THE MARKET PROTECTION PROVISION

2 CONTAINED IN THE NON-UNANIMOUS STIPULATION IN CASE NO. EO-

3 2018-0092?

4 A. Yes. As the Commission may recall, Empire's shareholders agreed to provide up to $35

5 million in protection to Missouri customers through the Market Protection Provision.

6 Q. WHAT WAS THE BASIS FOR THE $35 MILLION CAP IN THE MARKET

7 PROTECTION PROVISION IN CASE NO. EO-2018-0092?

8 A. The rationale behind the cap was that the model showed that during the very early years of

9 the Wind Projects, the market revenues generated from the Wind Projects might not exceed

10 the revenue requirement associated with the Wind Projects. To address those concerns, the

11 Company and the settling parties formulated the Market Protection Provision to provide

12 financial protections to customers were that to occur.

13 Q. DID STAFF SUPPORT THE $35 MILLION CAP IN THE MARKET

14 PROTECTION PROVISION?

15 A. Yes. This was explicitly discussed at the final hearing in the docket when Staff witness

16 Dietrich responded to the following question from Judge Bushman:

17 Q Okay. Okay. Second question was, if a majority of the Commission ended up being
18 in favor of the amended plan that the company has put forward, in your opinion, what
19 do you think the worst case scenario would be for rate --ratepayers?
20
21 A. I think it depends on how you define worst case scenario. I think, from my knowledge
22 of the discussions that went into the customer protection plan that's part of the stip.,
23 the $35 million cap in terms of the shareholder risk, *I think, was pretty close to what we*
24 *considered to be a worst case scenario.*
25
26 *In other words, customers would be covered under that case. And that's not impossible,*
27 *obviously. But things could, I guess, be worse. But we -- we just don't see much of a*
28 *chance of that.*
29
30 Tr. Vol. V at 664 (emphasis added).

8

1 Q. IS THE COMPANY STILL AGREEABLE TO A MARKET PROTECTION

2   PROVISION?

3 A. Yes. The Company continues to remain agreeable to a Market Protection Provision, but

4   not one that is limitless, as Staff suggests.

5 Q. WHAT MARKET PROTECTION PROVISION DOES EMPIRE PROPOSE?

6 A. Attached as **Schedule DH-S-2** is Empire's proposed Market Protection Provision (MPP).

7 Q. HOW DOES THIS PROPOSED MARKET PROTECTION PROVISION RELATE

8   TO THE MARKET PROTECTION PROVISION FROM THE NON-UNANIMOUS

9   STIPULATION AND AGREEMENT IN CASE NO. EO-2018-0092?

10 A. It is very similar. However, Empire has changed:

11   - the Missouri jurisdictional cap to $25 million;

12   - Added in the capacity value of the wind projects;

13   - updated the fixed operation and maintenance expenses and the tax equity expense;

14   - updated the capital costs;

15   - updated the P50 production values;

16 Q. WHAT IS THE PURPOSE OF THE MARKET PROTECTION PROVISION?

17 A. The purpose of the Market Protection Provision is to provide customers with time limited

18   protection in the event of changing factors in the marketplace once the Wind Projects come

19   online.

20 Q. THERE   HAVE   BEEN   CONCERNS   EXPRESSED   IN   TERMS   OF

21   INTERCONNECITON COSTS, TAX EQUITY PARAMETERS, ONGOING

22   OPERATION AND MAINTENANCE COSTS, AND CURTAILMENT. DOES THE

1   MARKET PROTECTION MECHANISM ADDRESS THESE CONCERNS FOR

2   CUSTOMERS?

3 A. Yes.

4 Q. HOW?

5 A. Interconnection costs will be captured through the final capital costs inputted into the

6   Market Protection Provision on the Wind Data tab in the Transmission line under Capital

7   costs.

8   Tax equity cash distributions and Paygo contributions will be captured in the "Tax Equity

9   expense (credit) line.

10   Ongoing operation and maintenance costs will be captured in the "Fixed O&M" line.

11   Curtailment will be captured through the SPP market revenue line item.

12   By updating the actual value of these items we will calculate the actual impact of the Wind

13   Projects on customers over the 10 year period of the MPP. If there is a harm caused, there

14   is a sharing mechanism for the Company to reduce costs to customers while if the Wind

15   Projects perform better, customers retain 100% of the upside.

16 Q. WOULD YOU SUMMARIZE WHY THE MARKET PROTECTION PROVISION

17   IS A SIGNIFICANT BENEFIT TO EMPIRE'S CUSTOMERS AND ADDRESSES

18   MANY OF THE CONCERNS RAISED BY STAFF AND OPC?

19 A. The Market Price Protection manages the cost benefit risk associated with the Wind Project

20   in terms of the capital costs, operating costs, SPP prices and wind production. While it is

21   true that all variables could change over time, the Market Protection Provision includes all

22   of these factors and will update these factors based on actual values so customers do not

23   need to lock in future conditions based on today's assumptions. Again, this is

10

1   unprecedented in terms of generation additions even in the form proposed by Empire and

2   should provide significant comfort to the Commission.

3   Q.   **SPECIFICALLY, HOW WOULD THE MARKET PROTECTION PROVISION**

4   **WORK?**

5   A.   As set forth in the flow chart included as **Schedule DH-S-3** and **Schedule DH-S-4**, the

6   Market Price Protection mechanism goes into effect on the first day of the month after the

7   last Wind Project is placed into rates and remains in effect for 10 years following the

8   effective date of rates resulting from the first general rate case in which all Wind Projects

9   are included in rates. Described at a high level, the Market Protection Provision requires

10   that each year during that period, Empire compares the amount of revenue generated from

11   sales of energy from each Wind Project into the SPP Integrated Marketplace and the

12   capacity benefit of each Wind Project to the revenue requirement associated with the Wind

13   Projects (and to the value of replacing the energy from the Elk River and Meridian Way

14   PPAs once they have expired). The provision can be broken down into the following steps

15   and conditions:

16   (1) First, on an annual basis, calculate how sufficient/deficient were SPP IM sales
17   relative to the Wind Projects revenue requirement and the PPA replacement value
18   and the capacity value.
19   The formula is Annual Wind Value = Wind Revenue Requirement − SPP IM sales
20   + PPA Value + Capacity Value.
21
22   (2) Second, that amount (the Annual Wind Value) is subject to a $2 million
23   "deadband", meaning that if the amount is positive $2 million or negative $2
24   million ($4 million total range), the sharing mechanism for that year is not
25   implemented. However, if the Annual Wind Value is negative by more than $2
26   million, $2 million is subtracted from the Annual Wind Value, and that amount is
27   split equally, 50/50 between customers and Empire's shareholders. This is the
28   "Annual Sharing Value". If the Annual Wind Value is greater than the positive
29         $2 million deadband, Empire can use that greater difference to offset lower
30   amounts from prior years or future years Annual Sharing Value.
31

1   (3) Third, the annual over and under amounts are summed and, if the Annual
2   Sharing
3   Value is more than $2 million negative in total, a refund, if necessary will be
4   returned to customers in Empire's rate case cases during the ten year period. If
5   the Annual Sharing Value is positive, no customer refund is necessary.

7   (4) Fourth, during the ten year period, the maximum amount to be paid by Empire
8   shareholders would be capped to a specified amount (Empire proposes $25
9   million as the Missouri jurisdictional amount).

11   (5) Fifth, during the ten years, Empire can "make up" any losses (prior customer
12   refunds) if the aggregate sum of the Annual Wind Value is higher than it was
13   during the prior rate case refunds. For example, if the Annual Wind Values
14   totaled negative $30 million, the Wind Projects must earn back the $5 million
15   negative increment before it can recoup any of the $25 million negative Annual
16   Wind Value.

18   Q.   CAN YOU PROVIDE AN EXAMPLE OF HOW THIS WORKS?

20   A.   Yes. **Schedule DH-S-2** provides examples of this calculation – one in a High market case,

21   one in Base market case, and one in a Low market case. The intent of these three

22   calculations are to show the extent to which the market protection mechanism protects

23   customers under different market prices scenarios. Finally, a fourth scenario is also

24   reflected which captures a low market case and a low wind production scenario.

25   Q.   **WHY DID YOU ADD IN A CAPACITY VALUE TO THE ANNUAL WIND**

26   **VALUE ASSOCIATED WITH THE WIND PROJECTS?**

27   A.   Wind projects in SPP qualify for capacity benefits to help serve load. These Wind

28   Projects will receive SPP accredited capacity which will help to offset future Empire

29   capacity needs. This is a tangible benefit which should be included in the value that is

30   created by the Wind Projects.

31   Q.   **HOW DID YOU DETERMINE THE VALUE OF THE CAPACITY?**

32   A.   Based on Empire's experience and from the performance of other wind farms, Empire

33   conservatively estimates that 15% of the nameplate capacity will qualify for capacity

1   with SPP. The value of the capacity to Empire is shown in Schedule DH-S-4 in Exhibit C

2   and is based on calculations performed by Charles River Associates as part of the 2019

3   IRP and is an average between the avoided cost of Empire's current units and the ABB

4   forecasted capacity value in SPP.

5 Q. **WHAT WILL HAPPEN IF THE ACTUAL CAPACITY IS LESS THAN**

6   **ESTIMATED IN SCHEDULE DH-S-2?**

7 A. The capacity value achieved by the Wind Projects will be entered into the Market

8   Protection Provision such that only the actual capacity created will be given credit.

9 Q. **YOU STATE ABOVE THAT EMPIRE IS PROPOSING A $25 MILLION**

10   **MISSOURI JURISDICTIONAL CAP. WHY ISN'T EMPIRE PROPOSING THE**

11   **$35 MILLION CAP AS IT DID IN CASE NO. EO-2018-0092?**

12 A. Since the time of the Non-Unanimous Stipulation and Agreement, there is more certainty

13   about the economics of the Wind Projects. As Mr. Mooney described in his Direct

14   Testimony, the Levelized Cost of Energy for the three Wind Projects *came in lower* than

15   the costs that were projected in Case No. EO-2018-0092. In addition, during the course of

16   the past year, Empire has collected more wind data that further confirms that wind projects

17   in Southwest Missouri are not only viable, but will be important contributors to the

18   economics of Empire's fleet. Also, the $35 million covered the maximum foreseeable

19   exposure based on a low wind and low market condition. With the updates to the Market

20   Protection Provision, the cap can be reduced to $25 million and still provide protection in

21   the low wind low market scenario. This can be seen in the low market case and low wind

22   example in Exhibit D of Schedule DH-S-4 where the total regulatory liability remains

23   lower than the cap. As a result, Empire believes that $25 million is more than ample

13

1   protection for Empire's customers against any fluctuations in SPP market prices during the

2   first ten years of the Wind Projects.

3   **Q.**   **WOULD YOU EXPLAIN FROM A PROBABILITY STANDOINT THE**

4   **PROTECTION PROVIDED TO CUSTOMERS BY EMPIRE'S PROPOSED CAP?**

5   **A.**   The proposed $25 million cap will limit the Company's sharing of risk in scenarios with

6   less than the P95 level of wind together with Low market prices. The P95 wind level is the

7   amount of wind which will be exceeded 95% of the time. The Low market prices are ABB's

8   view of the prices that have a 10% probability of occurrence. Therefore, the probability of

9   the cap being exceeded is only 0.5% over the 10 year period.
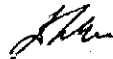
10   **Q.**   **DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

11   **A.**   Yes, it does.

AFFIDAVIT OF DAVID HOLMES
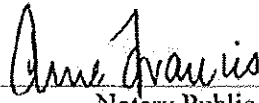
PROVINCE OF ONTARIO)
)ss
CANADA)

On the _____5th_____ day of March, 2019, before me appeared David Holmes, to me personally known, who, being by me first duly sworn, states that he is Director, Enterprise Asset Management Strategy at Liberty Utilities (Canada) Corp, and acknowledged that he has read the above and foregoing document and believes that the statements therein are true and correct to the best of his information, knowledge and belief.

_____
David Holmes

Subscribed and sworn before me this 5# day of ___ March 2019.

_____
Notary Public

Anne Patricia Francis, Notary Public.

Regional Municipality of Halton,
Limited to the Attestation of Instruments
and the Taking of Affidavits for
Algonquin Power & Utilities Corp.
and its Subsidiaries.
Expires: January 5, 2020

1

SCHEDULE DH-S-1

HAS BEEN MARKED

HIGHLY CONFIDENTIAL

IN ITS

ENTIRETY

SCHEDULE DH-S-2

HAS BEEN MARKED

HIGHLY CONFIDENTIAL

IN ITS

ENTIRETY

Start Calculation

Definitions
SPPS = Southwest Power Pool revenues for the Wind Projects
WRR = Wind Revenue Requirement = operation and maintenance, labor, tax
equity payments / (credits), property taxes, return on and of, income taxes
PPA_Replacement + Capacity value = value associated with replacing the existing
wind PPAs during the period of the guarantee + the SPP accredited capacity of
the Wind Projects, as shown on Exhibit C.
AWV = Annual Wind Value (row 16 of excel)
UDB = Upper Dead Band = $2,000,000
LDB = Lower Dead Band = -$2,000,000
AWV_Net = Annual Wind Value outside of dead band (row 25 excel)
Sharing Percentage = 50% (cell B9)
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)
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)
Reg_inputs = amount added to a regulatory liability (negative number) or the
amount added to a regulatory asset (positive number) (row 46 excel)
Guarantee = maximum exposure to the negative that the Company is exposed
over the life of the guarantee. The Guarantee will be stated as a positive value. =
$29,411,765 gross with $25,000,000 Missouri jurisdictional (cells B8 and B7)
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)

Calculate AWV =
SPPS - WRR +
PPA_Replacement +
Capacity Value
(row 16)

```
                                              ┌──────────────────┐
                                              │                  │
                                              ▼                  │
                         ┌─────────────┐              ┌──────────────────┐
                         │             │     No       │                  │      Yes
                         │  Is AWV > 0 │◄─────────────│  Is UDB>AWV>LDB   │─────────►
                         │             │              │    (row 20)       │
                         └─────────────┘              └──────────────────┘
                    Yes        │ No
                     │         │
                     ▼         ▼
          ┌───────────────┐  ┌───────────────┐              ┌───────────────┐
          │  AWV_Net =    │  │  AWV_Net =    │              │  AWV_Net = $0 │
          │  AWV – UDB    │  │  AWV – LDB    │              │    (row21)    │
          │   (row 22)    │  │   (row 23)    │              │               │
          └───────────────┘  └───────────────┘              └───────────────┘
```

Is AWV > 0

Is UDB>AWV>LDB
(row 20)

No

Yes

Yes

No

AWV_Net =
AWV – UDB
(row 22)

AWV_Net =
AWV – LDB
(row 23)

AWV_Net = $0
(row21)

Record
AWV_Net
(row 25)

ASV = Sharing
Percentage *
AWV_Net
(row 27)

Calculate ASV_Sum =
sum of ASV_Net from
year 1 through
current year
(row 29)

```
                              ┌─────────────┐
                              │ Is there a  │
                              │ rate case   │
         Yes ◄────────────────┤ or end of   ├────────► No
          │                   │ year 10?    │          │
          │                   │ (row 31)    │          │
          ▼                   └─────────────┘          ▼
   ┌──────────────┐                            ┌──────────────┐
   │   Record     │                            │  End Year –  │
   │  ASV_Sum     │                            │ continue to  │
   │  (row 33)    │                            │  next year   │
   └──────┬───────┘                            └──────────────┘
          │
          ▼
   ┌──────────────┐
   │  Calculate   │
   │ ASV_Sum – sum│
   │ of Reg_Inputs│
   │ for all prior│
   │    years     │
   │  (row 35)    │
   └──────┬───────┘
          │
          ▼
```

Reg_Input =
Guarantee –
sum of all prior
Reg_Inputs
(row 38)

← Yes —

Is ASV_Sum
< -Guarantee
(row 37)

— No →

Reg_Input =
ASV_Sum – sum
of all prior
Reg_Inputs
Row (39)

Record
Reg_Input
pre-limit
(row 41)

Is Reg_Input too High?
Reg_Input pre-limit + sum of
prior years Reg_Input >0
(row 43)

Yes

No

Reg_Input = -sum of prior
year Reg_Inputs
(row 44)

Reg_Input = Reg_Input pre-limit
(row 45)

Record
Reg_Input
(row 46)

Apply Missouri
Jurisdictional factor
= Reg_input * 85%
(row 48)

End Year —
continue to next
year

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 stated as a positive value. = $29,411,765 gross with $25,000,000 Missouri jurisdictional (cell B8 and B7 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 + Capacity Value = 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)
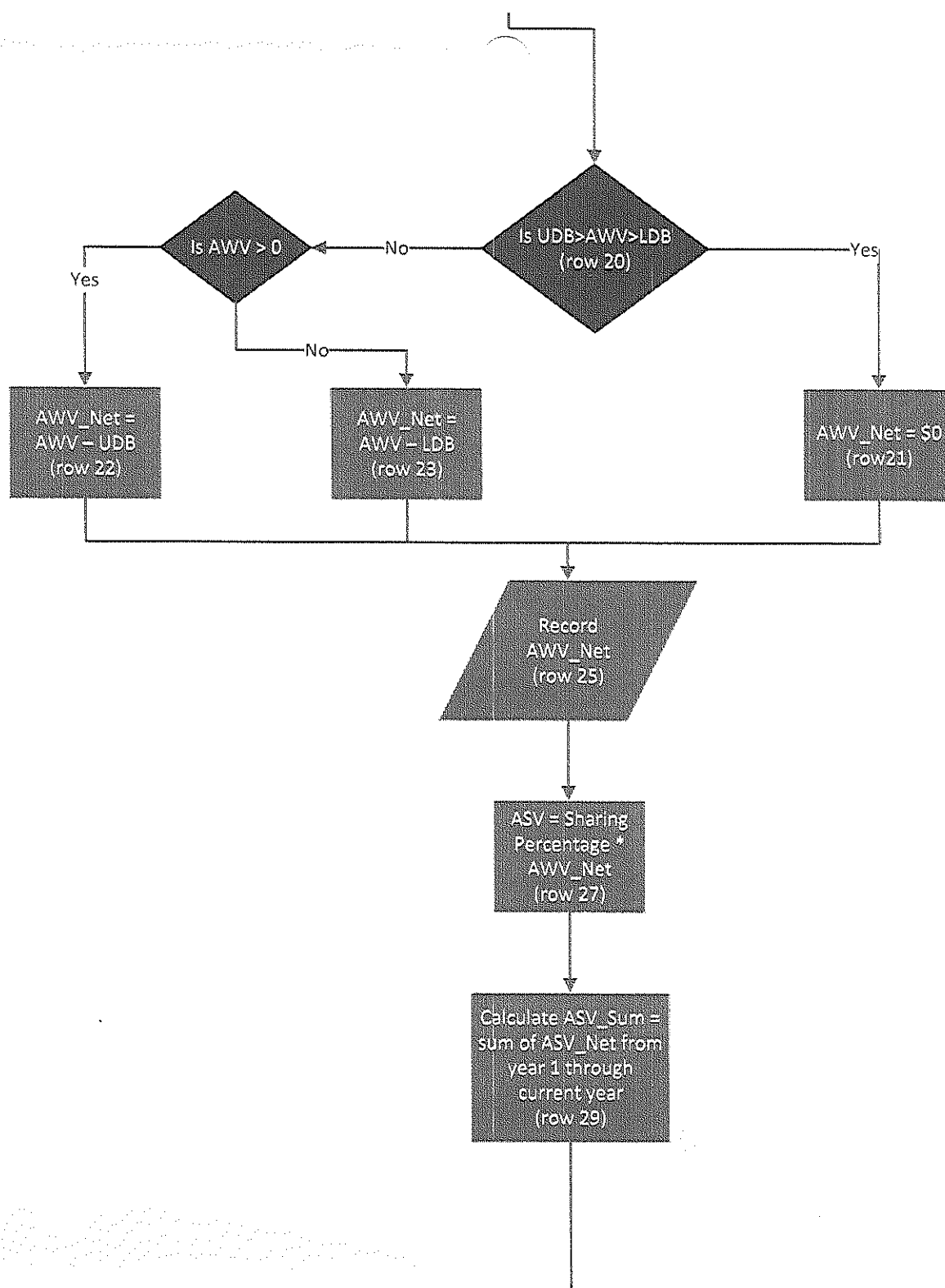
Reg_Input pre-limit = the calculated Reg_Input before the upper limit is placed on it to prevent an overpayment to the Company (row 41 excel)
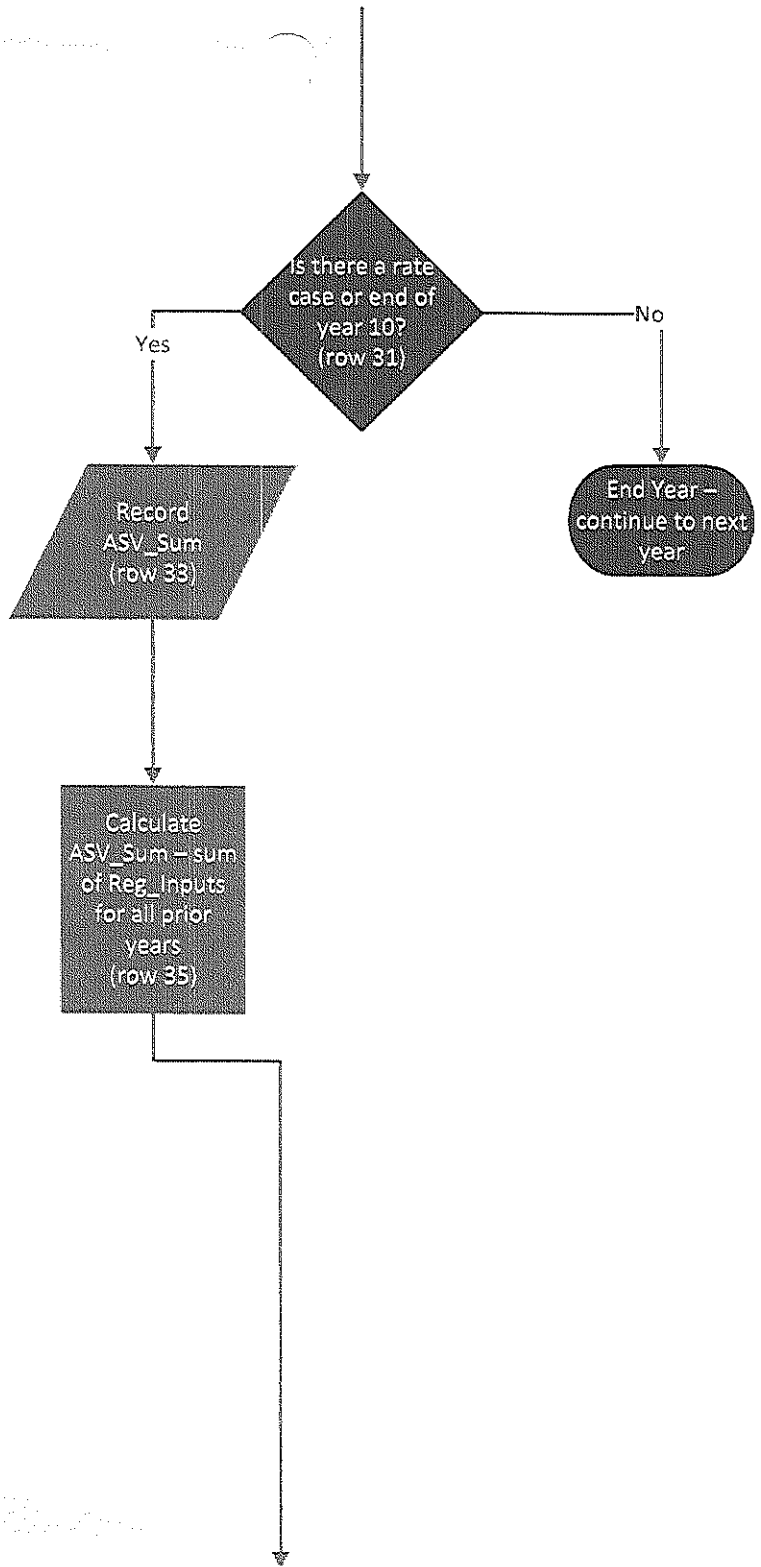
Sharing Percentage = 50% (cell B9)

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 plus the capacity value of the Wind Projects (PPA_Replacement + Capacity Value). 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 based on FERC codes [NTD need to fill in].

ii) Adding the payments to tax equity, less the payments received from tax equity as per FERC codes [NTD need to identify].

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 pdf)

Exhibit B – Wind Data Spreadsheet

	CONFIDENTIAL			2018	2019	Q4 only 2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Capital Costs	$															
Transmission						28										
Wind Projects						493										
Tax Equity Buy Out																
Maintenance Capital																
Maintenance Capital																
Deprecation	$	years														
Transmission			40			0	1	1	1	1	1	1	1	1	1	1
Wind Projects			30			4	16	16	16	16	16	16	16	16	16	16
Maintenance Capital			20													
Maintenance Capital			17													
Maintenance Capital			12													
Accumulated Deprecation	$					4	21	39	56	73	90	107	124	141	158	176
Rate Base	$					517	499	482	465	448	431	414	397	380	362	345
Return on Equity	%equity	rate				7	25	25	24	23	22	21	20	19	18	18
	51%	10%														
Cost of Debt	%debt	rate				3	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	6
	23.90%															
Property Tax Estimate	rate					1	4	4	4	4	4	4	3	3	3	3
	0.86%															
Carrying Charge						17	65	63	61	60	58	57	55	53	52	50
Fixed O&M	$					2	16	16	20	20	21	21	22	22	23	24
Tax Equity expense (credit)	$					0	(1)	(6)	(6)	(7)	(5)	5	4	5	4	3
TOTAL WIND REVENUE REQUIREMENT						19	79	73	75	73	73	83	81	80	79	77
Guarantee Years							1	2	3	4	5	6	7	8	9	10
Mid Modeled SPP Revenue	$					7	64	69	73	76	79	82	85	89	93	97
P50 Modeled Wind Energy	(GWh)					319	2,472	2,472	2,472	2,472	2,472	2,472	2,472	2,472	2,472	2,472

Exhibit C – PPA Replacement Value + Capacity 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

CAPACITY VALUE

The value of the capacity produced by the wind projects shall equal the accredited SPP capacity (or RA) multiplied by the Empire avoided capacity cost as per Empire's 2019 IRP work.

Nameplate Wind Capacity	599.8 MW
expected % of accredited capacity	15%
Installed Capacity Benefit	**89.97 MW**

Guarantee Period	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Avoided cost of capacity based on Empire2019 IRP ($/kW-yr)	28.32	28.84	29.45	30.15	39.51	48.88	58.24	67.61	69.70	71.85
Actual accredited capacity value (MW)	89.97	89.97	89.97	89.97	89.97	89.97	89.97	89.97	89.97	89.97
Annual Wind Capacity Value	2,547,599	2,595,091	2,650,043	2,712,437	3,554,999	4,397,561	5,240,123	6,082,685	6,271,114	6,464,071

Exhibit D – Regulatory Asset Examples

Market Protection Provision - Base Market Case Example   CONFIDENTIAL

Row Number			
3	Changes related to Wind Value		
4	P50	Wind Production	
5	Mid	Market Prices	
6			
7	25,000,000	85%	Missouri Portion
8	29,411,765 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

Row	Years	1	2	3	4	5	6	7	8	9	10
13	SPP Market Revenue	64,471,600	69,448,182	72,576,623	76,390,854	79,237,197	81,804,765	85,422,609	88,921,482	92,717,430	96,947,113
14	Wind Revenue Requirement	79,450,096	73,039,349	75,127,484	73,479,569	73,358,679	82,513,078	80,900,583	79,975,732	78,809,234	76,810,531
15	PPA Replacement Value + Capacity Value	2,547,599	2,595,091	2,650,043	2,712,437	3,554,999	23,195,926	23,703,561	24,461,176	34,086,905	33,574,417
16	**Annual Wind Value (AWV)**	(12,430,897)	(996,077)	99,182	5,623,722	9,433,517	22,487,614	28,225,587	33,406,927	47,995,101	53,710,999
17											
18	Accumulative AWV	(12,430,897)	(13,426,974)	(13,327,791)	(7,704,069)	1,729,448	24,217,062	52,442,648	85,849,575	133,844,676	187,555,675
19											
20	Is AWV inside of Dead Band?	No	Yes	Yes	No	No	No	No	No	No	No
21	If Yes		0	0							
22	if no and greater than 0				3,623,722	7,433,517	20,487,614	26,225,587	31,406,927	45,995,101	51,710,999
23	if no and less than 0	(10,430,897)									
24											
25	AWV_Net	(10,430,897)	0	0	3,623,722	7,433,517	20,487,614	26,225,587	31,406,927	45,995,101	51,710,999
26											
27	Annual Sharing Value (ASV)	(5,215,448)	0	0	1,811,861	3,716,758	10,243,807	13,112,793	15,703,463	22,997,550	25,855,499
28											
29	ASV_Sum	(5,215,448)	(5,215,448)	(5,215,448)	(3,403,587)	313,171	10,556,978	23,669,771	39,373,235	62,370,785	88,226,284
30											
31	Year of Rate Case	0	1	0	0	0	1	0	0	0	1
32											
33	ASV_Sum		(5,215,448)				10,556,978				88,226,284
34											
35	ASV_Sum - all prior Reg Inputs		(5,215,448)				15,772,426				88,226,284
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		(5,215,448)				15,772,426				88,226,284
40											
41	Reg_Input pre-limit	0	(5,215,448)	0	0	0	15,772,426	0	0	0	88,226,284
42											
43	Is Reg_Input too high?	No	No	No	No	No	Yes	No	No	No	Yes
44	if Yes, Reg_Input =						5,215,448				0
45	if No, Reg_Input =	0	(5,215,448)	0	0	0		0	0	0	
46	Reg_Input	0	(5,215,448)	0	0	0	5,215,448	0	0	0	0
47											
48	**Missouri Reg_Input**	0	(4,433,131)	0	0	0	4,433,131	0	0	0	0

Market Protection Provision - High Market Case Example   CONFIDENTIAL

Row Number												
3	Changes related to Wind Value											
4	P50	Wind Production										
5	High	Market Prices										
6												
7	25,000,000	85% Missouri Portion										
8	29,411,765 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										

Row	Years	1	2	3	4	5	6	7	8	9	10
13	SPP Market Revenue	77,933,217	83,917,628	88,001,574	93,523,202	97,406,597	102,525,215	106,837,913	112,515,262	120,033,678	127,170,631
14	Wind Revenue Requirement	79,450,096	73,039,349	75,127,484	73,479,569	73,358,679	82,513,078	80,900,583	79,975,732	78,809,234	76,810,531
15	PPA Replacement Value + Capacity Value	2,547,599	2,595,091	2,650,043	2,712,437	3,554,999	23,195,926	23,703,561	24,461,176	34,086,905	33,574,417
16	**Annual Wind Value (AWV)**	1,030,720	13,473,370	15,524,133	22,756,070	27,602,917	43,208,064	49,640,891	57,000,706	75,311,349	83,934,517
17											
18	Accumulative AWV	1,030,720	14,504,090	30,028,223	52,784,293	80,387,210	123,595,273	173,236,165	230,236,871	305,548,220	389,482,737
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		11,473,370	13,524,133	20,756,070	25,602,917	41,208,064	47,640,891	55,000,706	73,311,349	81,934,517
23	if no and less than 0										
24											
25	AWV_Net	0	11,473,370	13,524,133	20,756,070	25,602,917	41,208,064	47,640,891	55,000,706	73,311,349	81,934,517
26											
27	Annual Sharing Value (ASV)	0	5,736,685	6,762,066	10,378,035	12,801,459	20,604,032	23,820,446	27,500,353	36,655,675	40,967,259
28											
29	ASV_Sum	0	5,736,685	12,498,751	22,876,786	35,678,245	56,282,277	80,102,722	107,603,075	144,258,750	185,226,009
30											
31	Year of Rate Case	0	1	0	0	0	1	0	0	0	1
32											
33	ASV_Sum		5,736,685				56,282,277				185,226,009
34											
35	ASV_Sum - all prior Reg Inputs		5,736,685				56,282,277				185,226,009
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		5,736,685				56,282,277				185,226,009
40											
41	Reg_Input pre-limit	0	5,736,685	0	0	0	56,282,277	0	0	0	185,226,009
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**

Market Protection Provision - Low Market Case Example   CONFIDENTIAL

Row Number

Row			
3	Changes related to Wind Value		
4	P50	Wind Production	
5	Low	Market Prices	
6			
7	25,000,000	85%	Missouri Portion
8	29,411,765 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

Row		1	2	3	4	5	6	7	8	9	10
12	Years	1	2	3	4	5	6	7	8	9	10
13	SPP Market Revenue	55,903,490	59,310,435	61,474,627	64,366,912	66,334,203	68,509,077	70,737,118	72,961,801	75,101,477	77,975,266
14	Wind Revenue Requirement	79,450,096	73,039,349	75,127,484	73,479,569	73,358,679	82,513,078	80,900,583	79,975,732	78,809,234	76,810,531
15	PPA Replacement Value + Capacity Value	2,547,599	2,595,091	2,650,043	2,712,437	3,554,999	23,195,926	23,703,561	24,461,176	34,086,905	33,574,417
16	**Annual Wind Value (AWV)**	(20,999,007)	(11,133,824)	(11,002,814)	(6,400,220)	(3,469,478)	9,191,926	13,540,096	17,447,245	30,379,148	34,739,152
17											
18	Accumulative AWV	(20,999,007)	(32,132,831)	(43,135,645)	(49,535,864)	(53,005,342)	(43,813,416)	(30,273,320)	(12,826,075)	17,553,073	52,292,225
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						7,191,926	11,540,096	15,447,245	28,379,148	32,739,152
23	if no and less than 0	(18,999,007)	(9,133,824)	(9,002,814)	(4,400,220)	(1,469,478)					
24											
25	AWV_Net	(18,999,007)	(9,133,824)	(9,002,814)	(4,400,220)	(1,469,478)	7,191,926	11,540,096	15,447,245	28,379,148	32,739,152
26											
27	Annual Sharing Value (ASV)	(9,499,504)	(4,566,912)	(4,501,407)	(2,200,110)	(734,739)	3,595,963	5,770,048	7,723,622	14,189,574	16,369,576
28											
29	ASV_Sum	(9,499,504)	(14,066,415)	(18,567,822)	(20,767,932)	(21,502,671)	(17,906,708)	(12,136,660)	(4,413,038)	9,776,536	26,146,112
30											
31	Year of Rate Case	0	1	0	0	0	1	0	0	0	1
32											
33	ASV_Sum		(14,066,415)				(17,906,708)				26,146,112
34											
35	ASV_Sum - all prior Reg Inputs		(14,066,415)				(3,840,293)				44,052,820
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		(14,066,415)				(3,840,293)				44,052,820
40											
41	Reg_Input pre-limit	0	(14,066,415)	0		0	(3,840,293)	0	0	0	44,052,820
42											
43	Is Reg_Input too high?	No	No	No	No	No	No	No	No	No	Yes
44	if Yes, Reg_Input =										17,906,708
45	if No, Reg_Input =	0	(14,066,415)	0	0	0	(3,840,293)	0	0	0	
46	Reg_Input	0	(14,066,415)	0	0	0	(3,840,293)	0	0	0	17,906,708
47											
48	**Missouri Reg_Input**	0	(11,956,453)	0	0	0	(3,264,249)	0	0	0	15,220,702

Market Protection Provision - Low Market Case and Low Wind Example

Row Number														
3	Changes related to Wind Value													
4	P95	Wind Production												
5	Low	Market Prices												
6														
7	25,000,000	85% Missouri Portion												
8	29,411,765 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												

Row		Years	1	2	3	4	5	6	7	8	9	10
13		SPP Market Revenue	47,372,075	50,259,087	52,093,003	54,543,897	56,210,960	58,053,927	59,941,948	61,827,122	63,640,263	66,075,484
14		Wind Revenue Requirement	79,544,102	73,796,343	75,884,477	74,265,678	74,007,582	81,971,555	80,373,142	79,433,441	78,282,198	76,466,228
15		PPA Replacement Value + Capacity Value	2,547,599	2,595,091	2,650,043	2,712,437	3,554,999	23,195,926	23,703,561	24,461,176	34,086,905	33,574,417
16		**Annual Wind Value (AWV)**	(29,624,428)	(20,942,165)	(21,141,432)	(17,009,344)	(14,241,623)	(721,702)	3,272,367	6,854,857	19,444,971	23,183,673
17												
18		Accumulative AWV	(29,624,428)	(50,566,593)	(71,708,025)	(88,717,368)	##########	##########	##########	(93,553,468)	(74,108,498)	(50,924,825)
19												
20		Is AWV inside of Dead Band?	No	No	No	No	No	Yes	No	No	No	No
21		If Yes						0				
22		if no and greater than 0							1,272,367	4,854,857	17,444,971	21,183,673
23		if no and less than 0	(27,624,428)	(18,942,165)	(19,141,432)	(15,009,344)	(12,241,623)					
24												
25		AWV_Net	(27,624,428)	(18,942,165)	(19,141,432)	(15,009,344)	(12,241,623)	0	1,272,367	4,854,857	17,444,971	21,183,673
26												
27		Annual Sharing Value (ASV)	(13,812,214)	(9,471,082)	(9,570,716)	(7,504,672)	(6,120,811)	0	636,184	2,427,429	8,722,485	10,591,836
28												
29		ASV_Sum	(13,812,214)	(23,283,296)	(32,854,012)	(40,358,684)	(46,479,495)	(46,479,495)	(45,843,312)	(43,415,883)	(34,693,398)	(24,101,561)
30												
31		Year of Rate Case	0	1	0	0	0	1	0	0	0	1
32												
33		ASV_Sum		(23,283,296)				(46,479,495)				(24,101,561)
34												
35		ASV_Sum - all prior Reg Inputs		(23,283,296)				(23,196,199)				5,310,203
36												
37		Is ASV_Sum < -Guarantee		No				Yes				No
38		if yes; Guarantee - all prior Reg Inputs						(6,128,468)				
39		if no; ASV_Sum - all prior Reg Inputs		(23,283,296)								5,310,203
40												
41		Reg_Input pre-limit	0	(23,283,296)	0	0	0	(6,128,468)	0	0	0	5,310,203
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	(23,283,296)	0	0	0	(6,128,468)	0	0	0	5,310,203
46		Reg_Input	0	(23,283,296)	0	0	0	(6,128,468)	0	0	0	5,310,203
47												
48		**Missouri Reg_Input**	0	(19,790,802)	0	0	0	(5,209,198)	0	0	0	4,513,673