



From: LaFave, Bleau <Bleau.LaFave@northwestern.com>
Sent: Tuesday, April 05, 2016 1:15 PM
Subject: RE: Follow up to Juhl NWE Telecon
Attachments: South Dakota Rate Calculation April 1 - Juhl Wind.xlsx; South Dakota QF Power Purchase Agreement - JUHL redline_122115 (Brule).docx

Corey,

In preparation for our discussions today I have attached the last PPA and the latest rate calculation.

The last time the PPA was discussed was in January. After those high level discussions, it was tabled until there was clarity on the avoided cost. I wanted to put this out for a follow up discussion.

I have also included the newly calculated avoided cost. The table below reflects the avoided cost for energy for NorthWestern Energy that would be offered for output from the Juhl wind farms. The forecasted market prices has been updated to reflect the existing forward curve for as long as it is forecasted and then escalated by the escalation rate of natural gas as a marginal resource at 4.23% in accordance with the 2015 EIA-AEO. The market forecast used in this calculation, as of December 9, 2015, for the first year "2017" is \$20.57 per MWh. (This price has dropped since we began discussions.) As we discussed and I walked through, the attached spreadsheet provides the calculations and the appropriate deductions and additions for the total avoided cost.

NorthWestern	
Avoided Cost (w/Recs)	
Average Avoided Cost (\$/MWh) With RECS	
\$	14.59
\$	15.73
\$	17.74
\$	18.87
\$	20.05
\$	21.14
\$	22.05
\$	24.05
\$	25.35
\$	26.24
\$	27.52
\$	29.04
\$	30.65
\$	31.59
\$	32.95
\$	34.55
\$	36.21
\$	37.95
\$	40.05
\$	41.74

In addition, the table below represents the avoided cost for capacity. Since wind is an intermittent resource, the capacity credited to a wind facility is calculated every year after the third years in accordance with the SPP tariff. NorthWestern's capacity need begins in 2019.

Nameplate Capacity	60			Avoided Cost:	
			Credited	Each Project	
Capacity Value	Yearly Price/MW	Capacity Per Project	Per year	3 Projects	
2017	\$ 42,000	0.60	NA	NA	
2018	\$ 42,000	0.60	NA	NA	
2019	\$ 42,850	0.60	\$ 25,704	\$ 77,112	
2020	\$ 43,697	TBD	TBD	TBD	
2021	\$ 44,571	TBD	TBD	TBD	
2022	\$ 45,462	TBD	TBD	TBD	
2023	\$ 46,371	TBD	TBD	TBD	
2024	\$ 47,299	TBD	TBD	TBD	
2025	\$ 48,245	TBD	TBD	TBD	
2026	\$ 49,210	TBD	TBD	TBD	
2027	\$ 50,194	TBD	TBD	TBD	
2028	\$ 51,198	TBD	TBD	TBD	
2029	\$ 52,222	TBD	TBD	TBD	
2030	\$ 53,266	TBD	TBD	TBD	
2031	\$ 54,331	TBD	TBD	TBD	
2032	\$ 55,418	TBD	TBD	TBD	
2033	\$ 56,526	TBD	TBD	TBD	
2034	\$ 57,657	TBD	TBD	TBD	
2035	\$ 58,810	TBD	TBD	TBD	
2036	\$ 59,986	TBD	TBD	TBD	

I look forward to our discussions today.

Thanks

Bleau LaFave
 Director Long Term Resources
 605-978-2897

From: John Brown [mailto:jbrown@juhlenergy.com]
Sent: Tuesday, March 29, 2016 3:53 PM
To: LaFave, Bleau
Cc: Hansen, Luke; Corey Juhl
Subject: Follow up to Juhl NWE Telecon

Hi Bleau -

Per our conversation last week, below are follow up comments and answers as well as our latest proposed PPA schedule to provide Energy, Capacity and Environmental attributes (including carbon) ,to NWE in South Dakota starting in the last half of 2017 for the three 20MW wind projects.

As our consultant Roger Schiffman shared with you during the phone call, the Ventyx Forecast and Model produced a Leveled Cost of Energy of \$47.29 exclusive of Carbon. Mr. Schiffman's additional analysis indicates pricing for Carbon ranging from \$8.27/MWh to \$16.50/MWh (Levelized).

In an effort to arrive at a rate schedule mutually acceptable to both NWE and Juhl, we have attached a schedule intended to be an "all in" price, inclusive of energy, capacity and environmental attributes, and also of any additional reductions for network upgrades etc... While this price does NOT represent the "Carbon Inclusive" Avoided Cost number as determined by the Ventyx forecast, it does represent our desire to to quickly reach agreement with NWE now and avoid further delays in this process.

Per our telecon last week:

- 1) The Ventyx forecast relies on the October, 2015 forecast for natural gas.
- 2) The average 20 year real escalator for gas prices is 3.99%.
- 3) Assuming we reach agreement with NWE by April 30, 2015, we anticipate the in service date for all three projects to occur in the last half of 2017.
- 4) The attached XLS sheet reflects our latest offer for energy, capacity and all environmental attributes based on a 25 years agreement. Note we started with a levelized cost of \$55.75/MWh (\$47.29 plus the low case Carbon), then adjusted the start price to reflect a number we believe will be acceptable to NWE. We arrived at a starting rate of \$38.0 for energy delivered in 2017, and then escalated by 2.75% on January 1 of each year thereafter. Alternatively we would also accept a flat rate contract for \$55.75.

Our expectation is that NWE will need a week to consider this additional information. Therefore we would like to schedule a follow up call with you on Tuesday April 5th, for you to inform us if NWE will accept the proposed schedule, and we can then determine appropriate next steps.

Please let us know if 2PM Central Time on Tuesday, April 5th works for you, and if have any additional comments or questions.

Regards,

John

John M. Brown
Juhl Energy Inc.
2305 Canyon Blvd
Suite 200
Boulder, Colorado
303.818.2703 m
507.562.8091 f
www.juhlenergy.com

This message is for the named person's use only. It may contain confidential, proprietary or legally privileged information. No confidentiality or privilege is waived or lost by any mistransmission. If you receive this message in error, please immediately delete it and all copies of it from your system, destroy any hard copies of it and notify the sender. You must not, directly or indirectly, use, disclose, distribute, print, or copy any part of this message if you are not the intended recipient. NorthWestern Corporation and its subsidiaries each reserve the right to monitor all e-mail communications through its network.

From: LaFave, Bleau <Bleau.LaFave@northwestern.com>
Sent: Tuesday, April 05, 2016 2:20 PM
Subject: RE: Follow up to Juhl NWE Telecon
Attachments: South Dakota Rate Calculation April 1 - Juhl Wind.xlsx

Cory – we found one calculation error in a reference cell. It did not change the avoided cost calculation or the information below, but I wanted to get you the most updated file.

Thanks

Bleau LaFave
Director Long Term Resources
605-978-2897

From: LaFave, Bleau
Sent: Tuesday, April 05, 2016 1:15 PM
To: Corey Juhl
Cc: Hansen, Luke; 'John Brown'; Oostra, Jon
Subject: RE: Follow up to Juhl NWE Telecon

Corey,

In preparation for our discussions today I have attached the last PPA and the latest rate calculation.

The last time the PPA was discussed was in January. After those high level discussions, it was tabled until there was clarity on the avoided cost. I wanted to put this out for a follow up discussion.

I have also included the newly calculated avoided cost. The table below reflects the avoided cost for energy for NorthWestern Energy that would be offered for output from the Juhl wind farms. The forecasted market prices has been updated to reflect the existing forward curve for as long as it is forecasted and then escalated by the escalation rate of natural gas as a marginal resource at 4.23% in accordance with the 2015 EIA-AEO. The market forecast used in this calculation, as of December 9, 2015, for the first year "2017" is \$20.57 per MWh. (This price has dropped since we began discussions.) As we discussed and I walked through, the attached spreadsheet provides the calculations and the appropriate deductions and additions for the total avoided cost.

NorthWestern	
Avoided Cost (w/Recs)	
Average Avoided Cost (\$/MWh) With RECs	
\$	14.59
\$	15.73
\$	17.74
\$	18.87
\$	20.05
\$	21.14
\$	22.05
\$	24.08
\$	25.36
\$	26.24
\$	27.52
\$	29.04
\$	30.45
\$	31.59
\$	32.96
\$	34.55
\$	36.21
\$	37.96
\$	40.03
\$	41.74

In addition, the table below represents the avoided cost for capacity. Since wind is an intermittent resource, the capacity credited to a wind facility is calculated every year after the third years in accordance with the SPP tariff. NorthWestern’s capacity need begins in 2019.

Nameplate Capacity	60	Avoided Cost			
		Yearly Price/MWh	Capacity Per Project	Each Project	3 Projects
Capacity Value	2017	\$ 42,000	0.60	NA	NA
	2018	\$ 42,000	0.60	NA	NA
	2019	\$ 42,840	0.60	\$ 25,704	\$ 77,112
	2020	\$ 43,697	TBD	TBD	TBD
	2021	\$ 44,571	TBD	TBD	TBD
	2022	\$ 45,462	TBD	TBD	TBD
	2023	\$ 46,371	TBD	TBD	TBD
	2024	\$ 47,299	TBD	TBD	TBD
	2025	\$ 48,245	TBD	TBD	TBD
	2026	\$ 49,210	TBD	TBD	TBD
	2027	\$ 50,194	TBD	TBD	TBD
	2028	\$ 51,198	TBD	TBD	TBD
	2029	\$ 52,222	TBD	TBD	TBD
	2030	\$ 53,266	TBD	TBD	TBD
	2031	\$ 54,331	TBD	TBD	TBD
	2032	\$ 55,418	TBD	TBD	TBD
	2033	\$ 56,526	TBD	TBD	TBD
	2034	\$ 57,657	TBD	TBD	TBD
	2035	\$ 58,810	TBD	TBD	TBD
	2036	\$ 59,986	TBD	TBD	TBD

I look forward to our discussions today.

Thanks

Bleau LaFave
 Director Long Term Resources
 605-978-2897

From: John Brown [<mailto:jbrown@juhlenergy.com>]
Sent: Tuesday, March 29, 2016 3:53 PM
To: LaFave, Bleau
Cc: Hansen, Luke; Corey Juhl
Subject: Follow up to Juhl NWE Telecon

Hi Bleau -

Per our conversation last week, below are follow up comments and answers as well as our latest proposed PPA schedule to provide Energy, Capacity and Environmental attributes (including carbon) ,to NWE in South Dakota starting in the last half of 2017 for the three 20MW wind projects.

As our consultant Roger Schiffman shared with you during the phone call, the Ventyx Forecast and Model produced a Leveled Cost of Energy of \$47.29 exclusive of Carbon. Mr. Schiffman's additional analysis indicates pricing for Carbon ranging from \$8.27/MWh to \$16.50/MWh (Levelized).

In an effort to arrive at a rate schedule mutually acceptable to both NWE and Juhl, we have attached a schedule intended to be an "all in" price, inclusive of energy, capacity and environmental attributes, and also of any additional reductions for network upgrades etc... While this price does NOT represent the "Carbon Inclusive" Avoided Cost number as determined by the Ventyx forecast, it does represent our desire to to quickly reach agreement with NWE now and avoid further delays in this process.

Per our telecon last week:

- 1) The Ventyx forecast relies on the October, 2015 forecast for natural gas.
- 2) The average 20 year real escalator for gas prices is 3.99%.
- 3) Assuming we reach agreement with NWE by April 30, 2015, we anticipate the in service date for all three projects to occur in the last half of 2017.
- 4) The attached XLS sheet reflects our latest offer for energy, capacity and all environmental attributes based on a 25 years agreement. Note we started with a levelized cost of \$55.75/MWh (\$47.29 plus the low case Carbon), then adjusted the start price to reflect a number we believe will be acceptable to NWE. We arrived at a starting rate of \$38.0 for energy delivered in 2017, and then escalated by 2.75% on January 1 of each year thereafter. Alternatively we would also accept a flat rate contract for \$55.75.

Our expectation is that NWE will need a week to consider this additional information. Therefore we would like to schedule a follow up call with you on Tuesday April 5th, for you to inform us if NWE will accept the proposed schedule, and we can then determine appropriate next steps.

Please let us know if 2PM Central Time on Tuesday, April 5th works for you, and if have any additional comments or questions.

Regards,

John

John M. Brown
Juhl Energy Inc.
2305 Canyon Blvd
Suite 200

Boulder, Colorado
303.818.2703 m
507.562.8091 f
www.juhleenergy.com

This message is for the named person's use only. It may contain confidential, proprietary or legally privileged information. No confidentiality or privilege is waived or lost by any mistransmission. If you receive this message in error, please immediately delete it and all copies of it from your system, destroy any hard copies of it and notify the sender. You must not, directly or indirectly, use, disclose, distribute, print, or copy any part of this message if you are not the intended recipient. NorthWestern Corporation and its subsidiaries each reserve the right to monitor all e-mail communications through its network.