

STATE OF NORTH DAKOTA  
BEFORE THE  
PUBLIC SERVICE COMMISSION

Otter Tail Power Company  
Advance Prudence – Astoria Gas  
Application

Case No. PU-17-

DIRECT TESTIMONY  
OF  
RANDY SYNSTELIEN  
ON BEHALF OF  
OTTER TAIL POWER COMPANY

**Economic Analysis Testimony**

April 10, 2017

- 47 PU-17-143 Filed 10/06/2017 Pages: 9  
Exhibit OTP-5 - Direct Testimony of Randy Synstelien - Public  
Otter Tail Power Company
- 43 PU-17-141 Filed 10/06/2017 Pages: 9  
Exhibit OTP-5 - Direct Testimony of Randy Synstelien - Public  
Otter Tail Power Company
- 38 PU-17-140 Filed 10/06/2017 Pages: 9  
Exhibit OTP-5 - Direct Testimony of Randy Synstelien - Public  
Otter Tail Power Company

## TABLE OF CONTENTS

	<b>Page</b>
I. INTRODUCTION AND QUALIFICATIONS .....	1
II. PROJECT DESCRIPTION.....	1
III. INTEGRATED RESOURCE PLANNING.....	2
IV. ECONOMIC IMPACT OF THE RESOURCE ADDITION.....	4
V. CONCLUSION.....	6



1 **III. INTEGRATED RESOURCE PLANNING**

2  
3 Q. PLEASE DESCRIBE OTTER TAIL'S RESOURCE PLANNING APPROACH?

4 A. The Company's integrated resource planning (IRP) process utilizes generic demand-side  
5 and supply-side resources (e.g., energy efficiency/conservation and generation from  
6 wind, solar, natural gas, or coal) that are identified as potential components of the  
7 Company's preferred resource plan. Once a resource is identified as a part of the  
8 preferred plan in the IRP process, Otter Tail then seeks to identify the most cost-effective  
9 individual components for the preferred plan.

10  
11 Q. HOW DOES OTTER TAIL UNDERTAKE ITS IRP PROCESS?

12 A. Otter Tail uses resource planning software called Strategist to aid in the resource  
13 planning process. The goal of the resource planning process is to develop a single  
14 preferred plan, on an integrated system basis, which reliably and economically meets the  
15 capacity and energy needs of customers in the three states we serve, while complying  
16 with all legal and regulatory obligations and adequately addressing risk. Otter Tail  
17 provides service in three states on an integrated system basis, which affords significant  
18 benefits to customers due to the economies of scale achieved from planning and  
19 integrating generation assets on a larger scale. The resource planning process  
20 incorporates the full complement of the Company's existing fleet of generation, bilateral  
21 transactions, and demand-side management (DSM) programs, as well as evaluating new  
22 resource alternatives to meet customer demand, expiring bilateral transactions, and the  
23 anticipated retirement of existing generation resources. The preferred plan is considered  
24 under numerous scenarios relating to forecasted fuel prices (i.e., coal and natural gas),  
25 market energy prices, market capacity prices, load growth, and resource costs (including  
26 both capital and O&M).

27  
28 Q. IS THE PROPOSED PROJECT A RESULT OF OTTER TAIL'S IRP PROCESS?

29 A. Yes. In both our 2013 and 2016 IRP processes, we analyzed the impact of simple cycle  
30 generation to meet Otter Tail's anticipated energy needs.

1 Q. WHAT WERE THE RESULTS OF THE 2013 IRP PROCESS?

2 A. Our 2013 IRP process indicated that adding simple cycle gas generation would meet the  
3 capacity needs Otter Tail anticipated in the 2021 time frame. Mr. Draxten discusses these  
4 needs further in his Testimony.

5  
6 The Company's 2013 IRP process sought to determine the optimal capacity resource to  
7 meet Otter Tail's future needs. To do so, several different generic resource additions  
8 were provided to Strategist for selection. These included three different size simple cycle  
9 generators; a small combined cycle generator; and repowering of Hoot Lake Plant with  
10 natural gas. A simple cycle generator was selected in 76 of the 78 scenarios analyzed,  
11 indicating that the selection of a simple cycle generator was likely to be the most  
12 economic capacity addition.

13  
14 The 2013 IRP process also analyzed the potential addition of wind resources to meet  
15 Otter Tail's energy needs. At the then-prevailing wind pricing, which predated the  
16 extension of the federal production tax credit (PTC), Strategist did not select wind as a  
17 least cost addition. However, our analysis indicated that if wind prices were at or below  
18 \$30/MWh, acquiring wind was least-cost and prudent.

19  
20 Q. WHAT WERE THE RESULTS OF THE 2016 IRP PROCESS?

21 A. Our 2016 IRP process confirmed the results of the 2013 IRP analyses. Strategist  
22 continued to select approximately 250 MW of simple cycle gas generation. Importantly,  
23 since the 2013 IRP process had identified simple cycle generation as the most cost  
24 effective way to meet Otter Tail's needs, the Company had been working toward  
25 developing a simple cycle plant. Consequently, we included a simple cycle option for  
26 Strategist to select with the costs and operating characteristics of Astoria Station, in  
27 addition to a different generic simple cycle plant, combined cycle plants, and other  
28 options. The simple cycle generator with Astoria Station's characteristics was selected in  
29 every scenario analyzed. This confirmed the prudence of moving forward with the  
30 Project.

31

1 Q. ARE THERE OTHER RELEVANT RESULTS OF THE 2016 IRP PROCESS?

2 A. Yes. Our 2016 IRP process also indicated that it would be economic to meet Otter Tail's  
3 energy needs with wind generation if it was priced at or below \$30/MWh, confirming the  
4 results of the 2013 IRP process.

5  
6 **IV. ECONOMIC IMPACT OF THE RESOURCE ADDITION**

7  
8 Q. HAS OTTER TAIL ANALYZED THE IMPACT OF THE PROJECT?

9 A. Yes. We analyzed the addition of Astoria Station as compared to the base case, and also  
10 analyzed the addition of Astoria Station and the Merricourt Project as compared to the  
11 base case.

12  
13 Q. WHAT WERE THE RESULTS OF OTTER TAIL'S ANALYSIS?

14 A. The addition of Astoria Station, both alone and with the Merricourt Project, lowered  
15 overall system costs when compared to the base case.

16  
17 Q. HOW WAS THE BASE CASE ESTABLISHED?

18 A. To assess impacts, Otter Tail established a baseline that assumes the retirement of Hoot  
19 Lake Plant in 2021, the expiration of bilateral capacity and energy purchases that the  
20 Company currently utilizes, and the addition of no new resources. The resulting plan has  
21 a considerable amount of energy and capacity purchased at forecasted market prices.

22  
23 Q. PLEASE SUMMARIZE THE RESULTS OF THE COMPANY'S ANALYSIS.

24 A. The table below identifies the PVRR impacts of the scenarios analyzed.

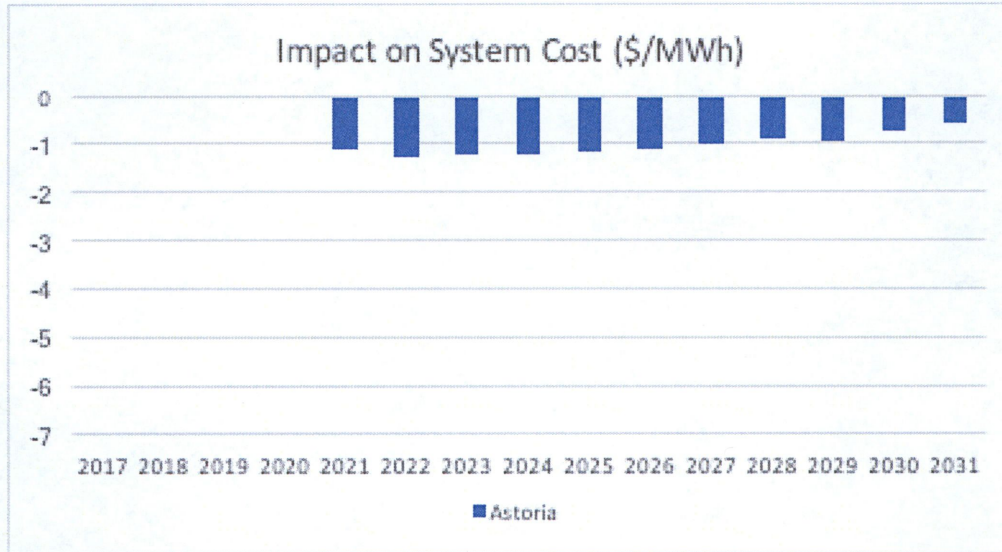
25

Scenario	Present Value Utility Costs (000)	Difference from Base
Base Case (Market energy and capacity purchases)	2,375,341.80	
Base plus Astoria	2,338,913.80	-36,428.00
Base plus Astoria and Merricourt	2,238,187.50	-137,154.30

26  
27

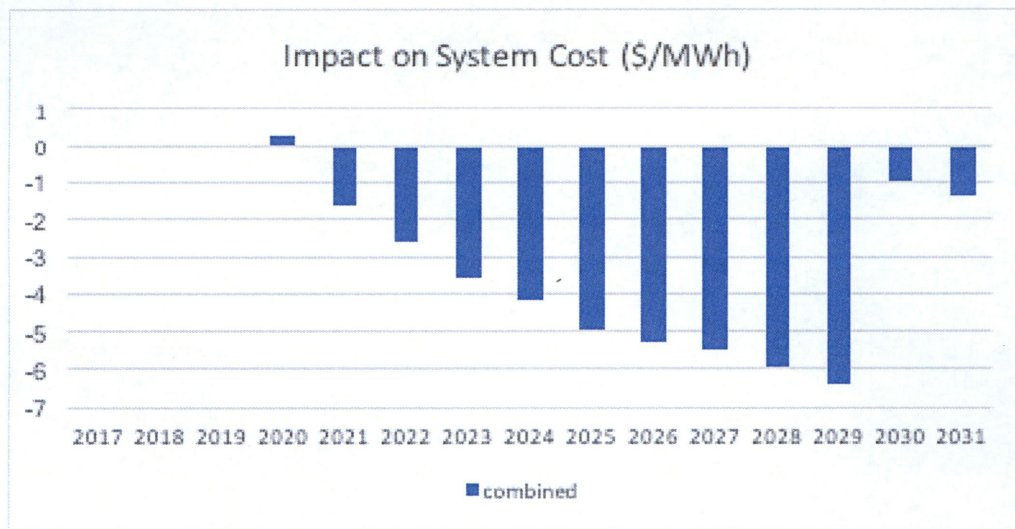
28 Q. DO THE IMPACTS OF THE PROJECT CHANGE OVER TIME?

1 A. Yes. The nature of Company ownership of Astoria Station means that the impact to  
 2 customers will vary over time. However, Astoria Station is expected to produce cost  
 3 savings compared to the base case upon commencement of commercial operation. The  
 4 chart below demonstrates the annual cost impact of the Astoria Project.



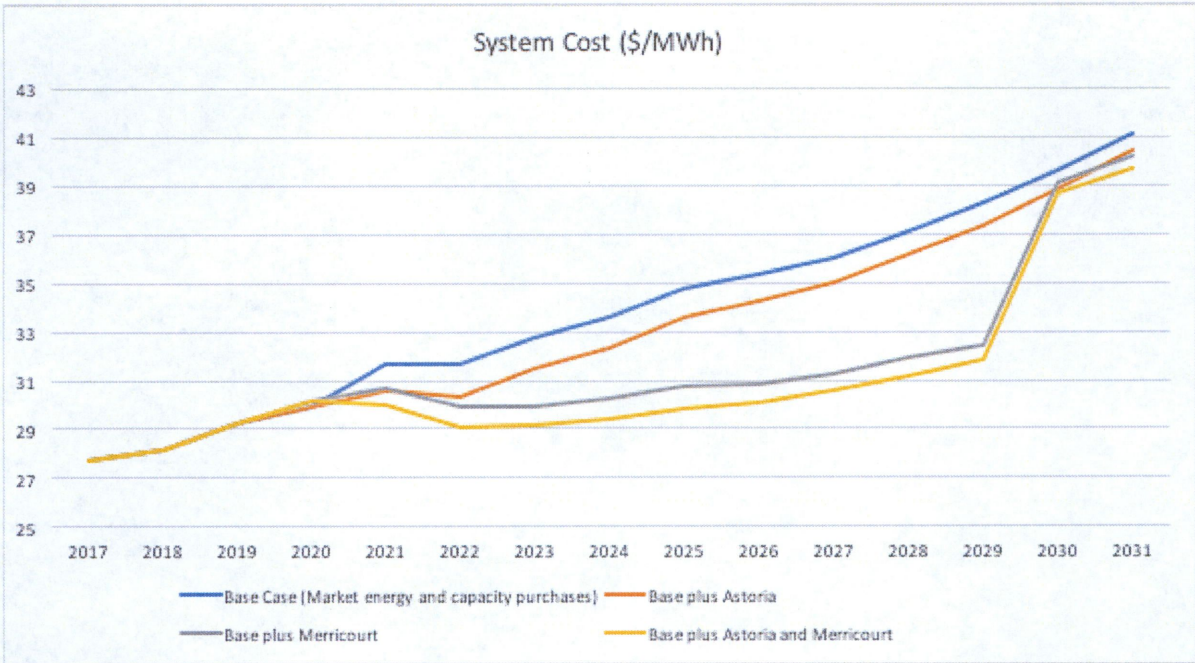
6  
 7  
 8 Q. HAS OTTER TAIL ANALYZED THE ANNUAL COST IMPACT FOR ITS TWO-  
 9 PART PLAN?

10 A. Yes. The chart below shows the cost savings on an annual basis for the combined  
 11 addition of Astoria Station and the Merricourt Project when compared to the base case.



13

1 The chart below illustrates the cost impact of each scenario analyzed on an annual basis  
2 when compared to the base case.



4  
5  
6 Q. WHAT DO YOU CONCLUDE BASED ON THESE ANALYSES?  
7 A. I conclude that Astoria Station on its own – and as part of the Company’s two-part plan –  
8 is least-cost in all scenarios analyzed.

9  
10 **V. CONCLUSION**

11  
12 Q. DOES THIS CONCLUDE YOUR TESTIMONY?  
13 A. Yes, it does.

14

STATE OF NORTH DAKOTA  
PUBLIC SERVICE COMMISSION

**Otter Tail Power Company  
Advance Prudence – Astoria Gas  
Application**

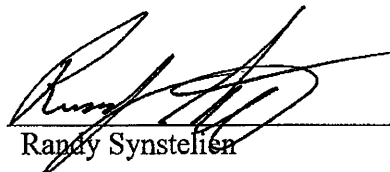
Case No. PU-17-\_\_\_

VERIFICATION

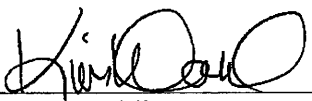
STATE OF MINNESOTA            )  
  ) ss.  
COUNTY OF OTTER TAIL        )

Randy Synstelien, being first duly sworn on oath, deposes and says that he is the Principal Resource Planner for Applicant Otter Tail Power Company; that the testimony and schedules submitted in the above-captioned matter under his name were prepared under his direction; and that he knows and verifies the contents thereof, and that the same is true and correct to the best of his knowledge and belief.

Dated this 10<sup>th</sup> day of April, 2017

  
\_\_\_\_\_  
Randy Synstelien

Subscribed and sworn to before  
me on this 10 day of April, 2017.

  
\_\_\_\_\_  
Notary Public  
My Commission expires 1-31-22

