BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO

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IN THE MATTER OF THE APPLICATION OF	**)**	
PUBLIC SERVICE COMPANY OF COLORADO	**)**	**DOCKET NO. 11A-869E**
FOR APPROVAL OF ITS 2011 ELECTRIC	**)**	
RESOURCE PLAN	**)**	

REBUTTAL TESTIMONY OF JOHN WELCH

ON

BEHALF OF

PUBLIC SERVICE COMPANY OF COLORADO

July 16, 2012

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REBUTTAL TESTIMONY OF JOHN WELCH

I. INTRODUCTION AND PURPOSE OF TESTIMONY

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is John Welch. My business address is 1800 Larimer Street, Suite 1000, Denver, Colorado 80202.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Xcel Energy Services Inc. ("XES"), the service company subsidiary of Xcel Energy Inc., the holding company parent of Public Service Company of Colorado ("Public Service" or "Company"). My title is Director, Power Operations.

Q. DID YOU FILE SUPPLEMENTAL DIRECT TESTIMONY IN THIS DOCKET?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. I respond to recommendations made by Staff witness Mr. Stephen Brown regarding the Winter Generation Adequacy Study we filed on February 13, 2012. I then address Mr. Cox's contention that the Company has not

taken the necessary steps to economically integrate variable energy resources.

II. THE WINTER GENERATION ADEQUACY STUDY

Q. PLEASE EXPLAIN THE GENESIS OF THE WINTER GENERATION ADEQUACY STUDY THAT WAS FILED IN FEBRUARY 2012.

A. As the Commission is aware, Public Service regularly studies various issues affecting system reliability during the summer and winter peak load seasons in the normal course of its business. In August 2011 the Federal Energy Regulatory Commission ("FERC") and the North American Electric Reliability Corporation ("NERC") issued a joint report in response to certain outage events that had occurred in the Southwest region during the winter of 2011 in which they recommended greater focus on the issues of winter generation adequacy and reliability.

In light of this report from the FERC and NERC Staffs and in recognition of the interdependency of our electric and natural gas systems and the limitation that can be imposed on the adequacy of our generation supply if natural gas fuel supplies are at all constrained, in the fall of 2011 we decided to undertake a study to specifically evaluate the level of firm fuel resources required to reliably serve our winter peak electric demand ("Winter Generation Adequacy Study"). Our intent was then to supplement our 2011 ERP filed in October of 2011 with the results of this study once completed. The Winter Generation Adequacy Study that I submitted in February was the result of this analysis.

Q. HOW WAS THE WINTER GENERATION ADEQUACY REPORT RECEIVED BY THE INTERVENORS IN THIS PROCEEDING?

A. Staff was the only party that addressed the study in their Answer Testimony. Staff witness, Stephen Clif Brown, raised the concern that the study may not have been sufficiently comprehensive and assessed all of the alternative means available to the Company to address the shortfall in winter generation capacity that the study found to exist after 2017.

Q. WHAT IS THE COMPANY'S RESPONSE TO THE CONCERNS THAT HAVE BEEN RAISED BY MR. BROWN?

A. Having reviewed Mr. Brown's specific criticisms of the study we presented, we realize now that our study report may not have described fully the various alternatives we considered in evaluating the adequacy of our generation system through 2018. We also believe that the probabilistic approach suggested by Mr. Brown may produce similar or perhaps better results to the deterministic approach that was necessarily adopted in this case in order to be able to complete a review of our winter generation adequacy in time for the 2011 ERP. As such, we agree with Mr. Brown that we should take the time to assess whether an alternative approach to assessing winter generation adequacy would be more appropriate.

Q. DOES PUBLIC SERVICE CONTINUE TO BELIEVE THAT THE COMMISSION NEEDS TO TAKE THE WINTER GENERATION ADEQUACY STUDY FILED IN FEBRUARY INTO ACCOUNT AS PART THIS ERP?

A. No. Having reviewed the alternative suggestions made by Mr. Brown as to how we might approach assessing winter generation adequacy, and recognizing that we have ample time between now and 2018 to address factors, such as firm fuel supply, that may be affecting the adequacy of generation resources in 2018, we believe that the better course of action is to take time now to consider revisions to the methodology we used in the recent study and to file a new study sufficiently in advance of our next resource plan filing to allow for input by interested parties at that time.

In essence upon further consideration of the RAP for this case, we believe that sufficient firm winter generation resources exist in the near term to ensure reliable electric system operation and that there is sufficient time before winter generation adequacy becomes an issue to determine the appropriate approach to address any winter resource need we may have to ensure future reliable electric system operation.

Q. MR. BROWN AT PAGE 27 OF HIS ANSWER TESTIMONY RECOMMENDS THAT THE COMMISSION SHOULD ORDER THE COMPANY TO CONVENE A TECHNICAL REVIEW COMMITTEE FOR THE INVESTIGATION OF WINTER GENERATION RESOURCE ADEQUACY. DOES PUBIC SERVICE SUPPORT THIS RECOMMENDATION?

A. No. We believe it is premature to convene a technical review committee with respect to a study of winter generation adequacy. Instead, we commit to conducting additional analysis of winter generation adequacy

and, as Mr. Brown has suggested, to investigate alternative ways of addressing any shortfall in the level of firm winter generation resources. We also commit to describing more clearly as part of the study report, the methodology we use and all the alternatives considered in assessing the adequacy of our winter generation capacity. We will then file the revised study with the Commission sufficiently in advance of our next electric resource plan filing to allow Staff and other interested stakeholders to provide feedback regarding the results of our revised generation adequacy study. Once we have completed a revised study, it would then be appropriate for the Commission to consider how best to take the comments of interested parties regarding the study results into account.

In sum, while we support stakeholders' providing insightful, well considered advice and ideas regarding an issue as important as reliability, the Company has the ultimate responsibility for ensuring the reliability of its system and cannot compromise its approach to managing reliability to accommodate the interests of stakeholders whose perspectives may differ from the Company's on questions of reliability. Because the Technical Review Committee ("TRC") process is one that generally involves compromise, we believe it is an inappropriate forum for addressing the methodology for assessing generation system adequacy. The Company has the responsibility to maintain system reliability and believes input on our next study to be filed in advance of the next ERP is appropriate. This would give parties an opportunity to thoroughly review and comment on

our next study in advance of the ERP and achieve similar results as convening a TRC.

III. PUBLIC SERVICE'S ACTIONS CONCERNING THE ECONOMIC INTEGRATION OF VARIABLE GENERATION

Q. MR. COX ASSERTS AT PAGE 14 OF HIS ANSWER TESTIMONY THAT PUBLIC SERVICE IS FOLLOWING ONLY A SMALL PORTION OF THE NINE WAYS THAT WESTERN STATES COULD REDUCE RATEPAYER COSTS FOR INTEGRATING WIND AND SOLAR AS CAPTURED IN THE WESTERN GOVERNORS' ASSOCIATION DRAFT REPORT "MEETING RENEWABLE ENERGY TARGETS IN THE WEST AT LEAST COST: THE INTEGRATION CHALLENGE." IS MR. COX'S ASSERTION CORRECT?

A. No. Mr. Cox is either misinformed or unaware of all actions that Public Service has taken in this regard. Public Service has been very active in promoting transmission service practices, reliability standards and market operations expansion to help reduce the costs of integrating renewable energy into its system. We are very active in trying to find ways to improve the reliable and economic integration of variable resources into our system. Examples of our industry-leading efforts include:

1) **Expanding sub-hourly dispatch and intra-hour scheduling.** Public Service is a utility participant along with numerous other western utilities in an effort called the Joint Initiatives ("JI"). The JI utilities have developed common transmission tariff language to

establish consistent expectations and practices around intra-hour interchange scheduling. Public Service was developing its FERC transmission tariff filing to include provisions for intra-hourly scheduling when, independent of these actions, FERC issued Order 764 which requires transmission service providers to provide all transmission customers the option of scheduling power transfers at 15-minute intervals. Public Service will file a revised transmission tariff with FERC to include provisions for sub-hourly dispatch and intra-hour scheduling as is now required.

2) **Facilitating dynamic transfers between balancing authorities.** Public Service participated in JI efforts to develop a tool called the Dynamic Scheduling System ("DSS"). The DSS recently became operational and Public Service has the ability to use the tool when bilateral markets and available transmission capability permit.

3) **Implementing an Energy Imbalance Market ("EIM").** Public Service personnel have led the discussion and development of an EIM in the Western Interconnection. Beginning with the Western Electricity Coordinating Council and continuing with the Public Utilities Commission Energy Imbalance Market group, we believe Public Service has done more than any other regulated utility in the United States to promote this concept in the Western Interconnection.

4) **Improving variable generation forecasting.** Public Service has taken significant and valuable steps to improve the Company's variable generation forecasting. Even Mr. Cox appears to recognize these efforts.[1]

5) **Diversifying the geographic location of variable generation resources.** Public Service studied geographic diversity in both the 2 GW and 3 GW Wind Integration Cost Study (Attachment 2.13-1 in Volume II of the 2011 ERP) and the 2011 Wind Limits Study (Attachment 2.14-1 in Volume II of the 2011 ERP). The 2 GW and 3 GW Wind Integration Cost Study determined the economic benefit of diversifying the wind resource portfolio and the 2011 Wind Limit Study discusses the 30-Minute Wind Reserve Guideline for which geographic location is a prime determinant. The Company has achieved increasing geographic diversity in its wind resources in its past few resource acquisitions.

6) **Improving reserves management.** Public Service has spearheaded an initiative with its contingency reserve sharing group, the Rocky Mountain Reserve Group, to allow activation of contingency reserves for loss of wind resource due to high-speed cutout. We agree that contingency reserve practices could be further improved by access to contingency reserve resource due to extreme ramp events not related to high-speed cutout conditions. Public Service has also been active with the North American

[1] Answer Testimony of Craig Cox at Page 16.

Electric Reliability Corporation in order to promote new, and revise existing, reliability standards that address operating reserve issues associated with variable energy resource such as wind and solar.

7) **Retooling demand response to complement variable generation**. As part of an overall Xcel Energy effort Public service is presently kicking off a review of its demand response programs. In addition, the Company recognizes that encouraging the shift of electrical demand to off-peak hours could help mitigate system minimum conditions which can pose an impediment to renewable resource integration.

8) **Accessing greater flexibility in the dispatch of existing generating plants.** Public Service has done many things to access greater flexibility in the dispatch of existing generating plants. This work includes working with Energy Supply to increase plant cycling capability and working to install set-point controls on wind farms to more precisely control their output when necessary.

9) **Focus on flexibility for new generating plants.** Public Service has vast experience with the operating challenges that variable generation pose and has fully considered the new resource flexibility required to reliably and economically manage the system. Public Service business units Commercial Operations, Energy Supply and Purchase Power are coordinating to help establish design specifications for new facilities. Public Service

demonstrated in the 2011 Wind Limits Study that it has the required amount of flexible generation necessary to properly manage the system requirements even considering the integration of an additional 400 MWs of wind before the end of 2012.

Q. DOES THIS CONCLUDE YOUR ANSWER TESTIMONY?

A. Yes.