

**EXH. CAK-8  
DOCKETS UE-170033/UG-170034  
2017 PSE GENERAL RATE CASE  
WITNESS: CATHERINE A. KOCH**

**BEFORE THE  
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,**

**Complainant,**

**v.**

**PUGET SOUND ENERGY,**

**Respondent.**

**Docket UE-170033  
Docket UG-170034**

**FOURTH EXHIBIT (NONCONFIDENTIAL) TO THE  
PREFILED REBUTTAL TESTIMONY OF**

**CATHERINE A. KOCH**

**ON BEHALF OF PUGET SOUND ENERGY**

**AUGUST 9, 2017**

<b>Year</b>	<b>Brief</b>	<b>Significant Project Development</b>	<b>Reference</b>	<b>Cost Forecast + Actuals</b>
2006	Project Start	Planning developed initial scope and 10 Year Plan document. Based on information provided to Redmond and Bellevue for their Comprehensive Plans; new substation called Ardmore was noted on system maps in the Comp Plan documents. The Project Team began seeking suitable property for a substation that would be large enough and close to transmission and distribution. Three existing transmission lines would need to connect to the substation. The third line needs to be extended to connect 2 radial sections; this would also significantly improve reliability of the 3 substations served by the 2 radial sections.	10 Year Plans	
2006	Separate Transmission Line and Substation Projects	Due to separate permitting jurisdictions and different drivers/benefits, the third transmission line extension effort was removed from the Ardmore Substation project.	10 Year Plans dated 3/10/2006 and 7/6/2006	\$11,225,000
Nov. 2008	PCR #3	Project Change Request for Property Purchase. PSE had originally estimated property in the magnitude of \$1 MM in the 2005/2006 timeframe.	PCR #3	Limited to property purchase \$8,852,213
2008	Purchase Site D	PSE signed a Purchase and Sales agreement for a 1+ acre site (54,000 sq feet) on NE 24th, called site D, from Petrisor. Over 20 sites were vetted, with 6 sites reviewed more in-depth with PSE Engineering and Land Planning.	Site Analysis Spreadsheet Doc	Limited to property purchase \$8,000,000
2009-2012	Open Houses	PSE held multiple open house meetings to inform the local community about plans for the new substation.		
2008-2009	Community Opposition	Local community significantly opposed to PSE building a substation at site D - residential homes and an assisted living facility were adjacent to the site and doctors offices were on the site.		
2009	Site F Purchased	PSE approached the Bank of America on NE 24th and Bel-Red Rd to see if they might be induced to sell their 1.5 acre site (65,000 sq feet). PSE purchased site in October 2009 for \$7,300,000.		Limited to property purchase \$7,300,000
August 2009	Planning Document Update	Based on current information the Ardmore Substation planning document was updated.	Ardmore Substation Planning Document – 8/29/2009	\$19,825,000

Oct. 2009	PCR #4	Project Change Request #4	PCR #4	\$20,312,783
2010	Combine Interlaken with Ardmore Study	Partly at the request of the City of Redmond, PSE Planning and Project Team explored the possibility of combining the existing Interlaken Substation (located at NE 22nd and 152nd NE) with the new Ardmore Substation. Interlaken was not large enough for the new transformers needed for load growth, and was close to Ardmore. The equipment at Interlaken would need replacing within just a few years due to age. If Interlaken were left in service, an additional transmission line would be needed between Interlaken and Ardmore for reliability. The decision was made to combine the two substations.	White Paper on Interlaken-Ardmore Combination; Presentation on ARD-INT Combination	
2010	Economic Downturn	When the economy slumped in 2009-10, PSE deferred most system capacity projects. However, the Ardmore area system was already loaded beyond its ability to function reliability with a distribution line or substation transformer out of service, and the major business was still planning on expansion. Based on need, the decision was made to proceed with the project.	Risk summary for budget approval – May 2010	
June 2010	PCR #6	Project Change Request that now includes combining Interlaken Substation	PCR #6	\$23,940,057
August 2010	Project Plan	A Project Implementation Plan for Ardmore Substation was completed which included an updated cost estimate with engineering and permitting criteria at 30% design.	8/20/2010	\$23,975,000
2009-11	Redmond Permitting	PSE worked with the City of Redmond and a citizens' committee to design the new substation to meet community expectations. Unique features resulting from this collaboration included: *Green (growing) retaining wall * plaza outside the substation (Added Cost \$108,819) * trail meandering on the west side of the site to connect other planned trails * artistic <u>blue</u> transmission pole on east side of site (Added cost for art \$236,324). * substation wall around substation perimeter rather than chain-link fence	Nov. 2010 SEPA DNS document with description of project requirements from the City of Redmond.	

October 2010	Planning Document Update	The Ardmore Substation planning document was updated with current information.	Ardmore Substation Planning Document – 10/7/2010	\$25,900,000
Dec. 2010	PCR #7	Project Change Request #7 to document revised cost estimates during the permitting and design process post SEPA DNS and direction from the City of Redmond.		\$26,554,024
2011	Kenilworth Transformer Replaced	In June 2011, the Kenilworth transformer was replaced due to age-related problems with the automatic tap-changer, which keeps the voltage within required limits. During the time that the Kenilworth transformer was being replaced, a transmission transformer at the Sammamish Substation failed, causing an outage of the Evergreen and Spiritbrook Substations north of Ardmore. <i>While this is not a direct correlation to the Ardmore project, it points to the need for redundant transmission feeds to prevent outages and the clear prudence to continue with the Ardmore project.</i>		
2011	Redmond Permit Received	Conditional Use Permit was received from the City of Redmond for the substation on March 15,2011, PSE proceeds with substation construction.		
May 2011	PCR #8	Project Change Request #8 to document higher than estimated costs following additional substation design, material procurement and the Notice of Final Decision from the City of Redmond, CUP and SEPA requirements.	PCR #8	\$30,999,308
2011	System Monitoring	PSE continued to evaluate system performance and health with additional infra-red inspections on the heavily loaded transformers in the area the shifting of load off the most heavily loaded transformers.		

2011-12	Distribution Feeders in City Streets	To construct the distribution feeders needed to energize the new substation and transfer the existing feeder circuits from Interlaken to Ardmore, it was necessary to trench in several directions from the new substation on existing city streets. Due to the well-developed streets, sidewalks and underground utilities, as well as City permit requirements this was a complex construction process.		
June 2011	PCR #9	Project Change Request to proceed with civil construction of the substation through construction. This PCR did not include revised distribution costs. A separate preliminary PCR #10 document was prepared which included revised distribution costs.	PCR #9	\$29,404,838
June 2011	PCR # 10	A PCR #10 was routed and approved . This included the estimated final costs for construction of distribution facilities. The cost for the underground distribution work outside the substation totaled \$8,950,442 which was higher than typical due to numerous undocumented utility conflicts and 24" thick pavement which was not known at the beginning of the project.	PCR #10	\$35,323,838
2011-12	Substation Construction	Civil work commenced in August 2011. Substation assembly, wiring, and commissioning was completed in 2012.		
Dec. 2011	Presentation to Management	December 2011 update briefing for management with details on scope, schedule and budget.	Dec. 2011 Presentation	\$39,243,000
2012	Substation Energized, Lawsuit Initiated for Transmission	When the substation was energized on June 6, 2012, PSE did not yet have the transmission easements needed under the City of Redmond deadline. PSE proceeded to file a lawsuit to obtain needed rights under condemnation laws. Redmond extended required deadline while PSE resolved the easement.		
2013	Rights Obtained for Transmission	PSE and property owner came to settlement through legal process. PSE proceeded to build the double-circuit second and third lines to the substation, energizing on June 30, 2014. Transmission line easements cost \$1,089,331 and the material and installation costs totaled \$1,341,887 largely due to permitting		\$2.4 MM added cost to complete remaining transmission work.

		requirements for pole material types and configurations.		
Dec 2013	Project Plan	Project Implementation Plan Update provided	12/18/2013	\$39,223,330
Feb. 2014	PCR #11	Project Change Request to document lifetime cost and 2014 budget.	PCR #11	\$39,223,500
April 2014	PCR #12	Project Change Request to document the remaining cost to complete and current lifetime forecast.	PCR #12	\$39,096,500
July 2015	Property Sale	Interlaken substation property sold to JLW 152 <sup>nd</sup> Avenue Investments, LLC	Settlement Statement dated 7/30/2015	\$3,616,746 to general revenue, not credited to project.

*\*Project Change Requests # 1, 2, and 5 were documented for partial funding requests for initiation and planning efforts.*