



North Anna 3 Nuclear Project
Issues Raised before the State Corporation Commission
by Office of the Attorney General's
Division of Consumer Counsel

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Division of Consumer Counsel



- In 1970 the General Assembly created within the Office of the Attorney General the Division of Consumer Counsel to “represent the interests of the people as consumers.” Va. Code § 2.2-517 A.
- Consumer Counsel’s statutory duties are to:

“Appear before governmental commissions, agencies and departments, including the State Corporation Commission, to represent and be heard on behalf of consumers' interests, and investigate such matters relating to such appearance.”

“Make such studies related to enforcing consumer laws of the Commonwealth as deemed necessary to protect the interests of the consumer and recommend to the Governor and General Assembly the enactment of such legislation deemed necessary to promote and protect the interests of the people as consumers.” Va. Code § 2.2-517 B.

North Anna 3 Unit



- Currently planned to be approximately 1,450 MW Nuclear Unit.
- To be constructed on same site as North Anna Units 1 & 2 (Louisa County).
- Dominion Virginia Power's selected technology for North Anna 3 is a General Electric-Hitachi Economic Simplified Boiling Water Reactor. This design was certified by the Nuclear Regulatory Commission for use in the United States in 2014.
- Earliest completion date is estimated to be September of 2028.

North Anna 3 Approval Process



- DVP pursuing a Combined Operating License (“COL”) from the U.S. Nuclear Regulatory Commission (“NRC”); expects to obtain approval in 2017.
- In addition to the NRC, DVP will need regulatory approval of North Anna Unit 3 from the Virginia State Corporation Commission (“SCC”).
- SCC may approve electric generation projects that are “required by the public convenience and necessity” and “not contrary to the public interest.” § 56-580(D). Also may consider “reasonableness and prudence of costs.” § 56-585.1(D).

North Anna 3 Development Costs



- Currently, no commitment by DVP to seek SCC-approval to construct facility until after the NRC license is received. DVP' position is that it has not yet decided whether it will construct the new nuclear unit.
- As of the time of September 2015 development costs were known to have reached \$580 million.
- \$302 million charged to Virginia jurisdictional customers (SCC regulated) in 2015 biennial review case, as directed by 2014 Senate Bill 459.
- \$1.87 billion in projected development costs by time SCC could act on certificate application in 2018.

Expected Capital Cost of North Anna 3



- \$19.3 billion, including conservative financing costs, estimate as of SCC's 2015 Integrated Resource Plan case.
- In 2015, DVP forecasted that the capital cost of North Anna 3 would approach \$14.8 billion, excluding financing costs during construction.

Expected Capital Cost of North Anna 3



DVP's Forecast of NA 3 Capital Costs (\$1000s)

<u>Year</u>	<u>Annual Capital</u>	<u>Est. Interest, 5%</u>	<u>Total Cumulative</u>
Before 2011	\$191,562	\$9,578	\$201,140
2011	\$154,126	\$13,431	\$368,698
2012	\$20,076	\$17,786	\$406,560
2013	\$98,335	\$20,747	\$525,642
2014	-\$232,267	\$17,398	\$310,773
2015	\$73,627	\$13,432	\$397,833
2016	\$178,618	\$19,738	\$596,189
2017	\$403,897	\$34,301	\$1,034,388
2018	\$774,432	\$63,760	\$1,872,579
2019	\$1,434,434	\$118,981	\$3,425,994
2020	\$1,675,612	\$196,732	\$5,298,339
2021	\$2,185,152	\$293,251	\$7,776,742
2022	\$2,426,547	\$408,544	\$10,611,833
2023	\$2,012,787	\$519,527	\$13,144,147
2024	\$1,849,149	\$616,076	\$15,609,371
2025	\$1,103,593	\$689,894	\$17,402,859
2026	\$337,850	\$725,930	\$18,466,639
2027	<u>\$89,736</u>	<u>\$736,620</u>	\$19,292,995
Total	\$14,777,266	\$4,515,728	

Expected Capital Cost of North Anna 3



- Forecasted capital cost (excluding interest costs during construction) increased by more than 55% (from \$5,542/kW up to \$8,593/kW) since 2011.

Expected Capital Cost of North Anna 3 (Cont.)



Results of DVP's IRP Analyses of NA 3

<u>IRP Year</u>	<u>COD Year</u>	<u>NA 3 Cost Est. (\$/kW)</u>	<u>Over/(Under) Least Cost Plan</u>
2008	2017	\$5,495	N/A
2009	2018	\$6,000	-0.21%
2010	2019	\$5,568	-0.03%
2011	2022	\$5,542	-1.12%
2012	2024	\$5,963	3.53%
2013	2025	\$8,205	10.12%
2014	2028	\$8,442	7.73%
2015	2028	\$8,593	9.70%

Expected Capital Cost of North Anna 3 (Cont.)



- Since 2008, the estimates for the capital costs of North Anna Unit 3 have been rapidly increasing. This increase, along with forecasted decline in natural gas and market energy prices, has made resource plans with North Anna 3 significantly more costly than plans without it. With construction interest costs included, the current forecasted capital cost of North Anna 3 (\$13,283/kW) is nearly ten times the estimated capital cost of DVP's new Brunswick gas-fired combined cycle generating plant.

Expected Capital Cost of North Anna 3 (Cont.)



- Reported capital costs for the three other nuclear projects being constructed in U.S. are lower than the current capital cost estimate for North Anna 3.

Expected Capital Cost of North Anna 3 (Cont.)



U.S. Nuclear Generating Units Under Construction

	Rated Capacity <u>MW</u>	Cost Estimate <u>\$Billions</u>	Cost Estimate <u>\$/kW</u>	<u>Owners</u>	Ownership <u>Share</u>	Owner Cost <u>\$Billions</u>
VC Summer Units 2 and 3	2,500	\$11.0	\$4,400	Santee Cooper	45.0%	\$4.95
				SCG&E	55.0%	\$6.05
Vogtle Units 3 and 4	2,500	\$14.0	\$5,600	Georgia Power	45.7%	\$6.40
				Oglethorpe PC	30.0%	\$4.20
				MEAG	22.7%	\$3.18
				City of Dalton	1.6%	\$0.22
Watts Bar Unit 2	1,150	\$4.2	\$3,652	TVA	100.0%	\$4.2
North Anna 3	1,543	\$19.3	\$12,508	DVP	100.0%	\$19.3

Source: World Nuclear Association; <http://www.world-nuclear.org>.

Impact on DVP Rate Base



- DVP's 2014 Virginia jurisdictional Generation rate base is approximately \$8.2 billion.
- Total Virginia jurisdictional rate base is approximately \$15.1 billion.
- Virginia jurisdictional share of the estimated \$19.3 billion North Anna 3 capital investment (approximately \$15.4 billion) would increase DVP's Virginia jurisdictional average Generation rate base by approximately 188%, and would increase total Virginia jurisdictional rate base by approximately 100%.

Potential Customer Rate Impacts



- First year revenue requirement for North Ann 3 (including related replacement fuel cost savings), assuming current construction costs stay firm, estimated to be almost \$2.4 billion.
- Consumer Counsel's expert has estimated an average rate increase of approximately 25.7% over current Virginia retail residential rates.
- Virginia SCC: "The Virginia jurisdictional share of this estimated \$19.3 billion capital investment would increase the total rate base for the Virginia jurisdiction by approximately 100%, and would obviously, if it were recoverable, represent a large enough increase in electric bills for residential and business customers to impact Virginia's economic climate." (SCC 12/30/15 IRP Order, Case No. PUE-2015-00035)

Consumer Counsel Positions before the SCC



- Continued spending for development of the North Anna 3 nuclear project is of concern considering that the Company's own studies demonstrate that the cost of the project is far higher than the lowest reasonable cost alternatives.
- Analysis presented in DVP's 2015 IRP Report shows that the North Anna 3 project is more costly than the "Least Cost Plan" in all 19 scenarios evaluated by the Company in its 2015 IRP, and is not the lowest cost option for complying with the EPA's Clean Power Plan.
- Forecasted capital cost of North Anna 3 is far higher than U.S. Energy Information Administration's generic cost estimate for nuclear generating units.

Consumer Counsel Positions before the SCC



- The Office of the Attorney General has not recommended that DVP stop development of North Anna 3.
- Consumer Counsel has raised concerns regarding the significant costs that are rapidly being incurred without DVP having applied for, or received, SCC approval to construct the facility.
- Given that DVP considers such costs as recoverable from ratepayers, Consumer Counsel recommended that the SCC establish a proceeding to review the reasonableness of North Anna 3 development costs to protect ratepayers from being further exposed to increasing costs while the Company defers making a decision on whether it will ever seek SCC approval to construct the facility.



SCC 2015 IRP Order

- “Dominion is incurring its North Anna 3 costs purely at its stockholders' risk, and should have no expectation of future recovery from customers without an approved CPCN and/or RAC.”
- As part of DVP’s 2016 IRP filing, the DVP is required to address the following questions:
 1. “[W]hat authority does Dominion believe that the costs it plans to incur for North Anna 3 before receiving a [Certificate or Rate Adjustment Clause] are recoverable from its customers?”
 2. “Is there a dollar limit on how much Dominion intends to spend on North Anna 3 before applying to this Commission for a Certificate and/or Rate Adjustment Clause[]?”



SCC 2015 IRP Order

3. “Without a guarantee of cost recovery, what is the limit on the amount of costs Dominion can incur, prior to obtaining a Certificate, without negatively affecting (i) the Company's fiscal soundness, and (ii) the Company's cost of capital?”
4. “Why are expenditures continuing to be made? Solely for NRC approval? Why in the Company's view is it necessary to spend at projected rates, specifically when the Company has not decided to proceed and does not have Commission approval?”
5. Commission is requiring Dominion to “update the timing analysis that it performed in this proceeding, and, in that timing analysis, quantify the trade-off between operating cost risks that may be increased and the cost savings that may be realized by delaying the construction of North Anna 3.”