

STATE CORPORATION COMMISSION

AT RICHMOND, APRIL 14, 2008

APPLICATION OF

APPALACHIAN POWER COMPANY

CASE NO. PUE-2007-00068

For a rate adjustment clause
pursuant to § 56-585.1 A 6 of
the Code of Virginia

FINAL ORDER

On July 16, 2007, Appalachian Power Company ("APCo" or "Company") filed an application with the State Corporation Commission ("Commission") for "approval of a rate adjustment clause for recovery of allowable costs of a new, carbon capture compatible, clean coal powered generation facility" pursuant to § 56-585.1 A 6 of the Code of Virginia ("Code") ("Application").¹ APCo "file[d] this Application seeking to begin recovery of a return on, *i.e.*, the financial carrying costs of, construction work in progress ('CWIP'), including planning and development costs, of a proposed [629 MW] Integrated Gasification Combined Cycle ('IGCC') electric generating facility in Mason County, West Virginia [('IGCC Plant')], adjacent to APCo's Mountaineer Generating Station."² The Company stated that the projected cost of the IGCC Plant "is approximately \$2.23 billion, of which approximately \$1 billion will be allocated to Virginia jurisdictional customers whose rates are regulated by the Commission."³

Specifically, APCo requested the Commission: "(1) to approve the rate adjustment clause proposed herein; (2) to find that construction of the proposed IGCC facility by the

¹ Application at 1.

² *Id.* at 2. See also APCo's March 19, 2008 post-hearing brief at 43.

³ Application at 2.

Company is reasonable and prudent; and (3) to grant the Company further authority as may be necessary or appropriate."⁴

On August 9, 2007, the Commission issued an Order for Notice and Hearing that, among other things, required the Company to publish notice of its Application, established a procedural schedule for this matter, permitted the filing of written and electronic public comments, and scheduled a public hearing to commence on February 12, 2008, to receive testimony of public witnesses and evidence on the Application.

The Commission received over 2,300 written or electronic public comments on the Application. In addition, the following filed notices of participation in this matter: Old Dominion Committee For Fair Utility Rates ("Committee"); Wal-Mart Stores East, LP ("Wal-Mart"); VML/VACo/APCo Steering Committee ("VML/VACo"); Steel Dynamics, Inc.; and the Office of the Attorney General's Division of Consumer Counsel ("Attorney General").

The Commission held a public evidentiary hearing on February 12-15, 2008. The following participated at the hearing: APCo; Committee; Wal-Mart; VML/VACo; Attorney General; and the Commission's Staff ("Staff"). In addition, four public witnesses testified at the hearing.

On March 19, 2008, the following filed post-hearing briefs: APCo; Committee; Wal-Mart; VML/VACo; Attorney General; and Staff.⁵

NOW THE COMMISSION, having considered the record, the pleadings, and the applicable law, is of the opinion and finds that the Application is denied. We find that it is

⁴ *Id.* at 4-5.

⁵ On March 20, 2008, the Committee filed a Motion to File Public Version of Brief One Day Out of Time. The Committee also states that it has been advised by APCo that the Company does not object to the Commission granting the motion. We will grant such motion, and we find that no party is prejudiced thereby.

neither reasonable nor prudent for APCo to construct the proposed IGCC Plant based on the record before us. Accordingly, we do not approve the rate adjustment clause requested in this proceeding.

Code of Virginia

Section 56-585.1 A 6 of the Code states in part as follows:

To ensure a reliable and adequate supply of electricity, to meet the utility's projected native load obligations and to promote economic development, a utility may at any time, after the expiration or termination of capped rates, petition the Commission for approval of a rate adjustment clause for recovery on a timely and current basis from customers of the costs of . . . (ii) one or more other generation facilities. . . ; however, such a petition concerning . . . facilities described in clause (ii) that are coal-fueled and will be built by a Phase I utility . . . may also be filed before the expiration or termination of capped rates.

Section 56-585.1 A 6 of the Code also provides for cost recovery during construction and for an enhanced rate of return:

A utility that constructs any such facility shall have the right to recover the costs of the facility, as accrued against income, through its rates, including projected construction work in progress, and any associated allowance for funds used during construction, planning, development and construction costs, life-cycle costs, and costs of infrastructure associated therewith, plus, as an incentive to undertake such projects, an enhanced rate of return on common equity calculated as specified below. . . . The basis points to be added to the utility's general rate of return to calculate the enhanced rate of return on common equity, and the first portion of that facility's service life to which such enhanced rate of return shall be applied, shall vary by type of facility, as specified in the following table:

Type of Generation Facility	Basis Points	First Portion of Service Life
Nuclear-powered	200	Between 12 and 25 years
Carbon capture compatible, clean-coal powered	200	Between 10 and 20 years
Renewable powered	200	Between 5 and 15 years
Conventional coal or combined-cycle combustion turbine	100	Between 10 and 20 years

Section 56-585.1 D of the Code, however, preserves the Commission's authority to determine the reasonableness and prudence of any cost incurred or projected to be incurred:

Nothing in this section shall preclude the Commission from determining, during any proceeding authorized or required by this section, the *reasonableness or prudence of any cost incurred or projected to be incurred*, by a utility in connection with the subject of the proceeding. A determination of the Commission regarding the reasonableness or prudence of any such cost shall be consistent with the Commission's authority to determine the reasonableness or prudence of costs in proceedings pursuant to the provisions of Chapter 10 (§ 56-232 et seq.) of this title. (Emphasis added.)

Reasonableness or Prudence

Cost Estimate

We find that the Company's cost estimate is not credible. APCo's cost estimate of \$2.23 billion was prepared in the November 2006 time frame.⁶ The Company testified that the potential for cost increases for this facility is a significant concern.⁷ The Company, however, has

⁶ See, e.g., Exh. 17 (Jasper Direct) at 10; Tr. 984 (APCo witness Weaver); APCo's March 19, 2008 post-hearing brief at 53-54. The Company's \$2.23 billion projection does not include estimated financing costs of approximately \$717 million. See, e.g., Exh. 23 (Nelson Direct) at Sched. 2; Exh. 25P (Norwood Direct) at 9-10.

⁷ See, e.g., Exh. 17 (Jasper Direct) at 16 ("A significant Company concern with respect to the proposed IGCC facility is the rapidly escalating costs for commodities used in large construction projects. Company witness Renchek discusses in his testimony the rapid escalation of key commodity prices in the EPC industry. In such a situation, no contractor is willing to assume risk for a multi-year project. Even if a contractor was to do so, its estimated price for the project would reflect this risk and the resulting price estimate would be much higher.")

not updated its November 2006 cost estimate.⁸ Furthermore, APCo will not obtain actual or firm prices for components of the project until after receiving regulatory approval.⁹ Even if the Company obtains all regulatory approvals, it still may not construct the IGCC Plant if, after it obtains more firm pricing, it decides that the actual cost will be too high to warrant construction. That is, since the Company does not reasonably know the actual cost of the facility at this time, it will not decide whether to build this facility until it determines if the actual cost will exceed some undefined "breaking point."¹⁰

Indeed, APCo has no fixed price contract for any appreciable portion of the total construction costs; there are no meaningful price or performance guarantees or controls for this project at this time. This represents an extraordinary risk that we cannot allow the ratepayers of Virginia in APCo's service territory to assume. This risk is further compounded by the fact that, when APCo eventually attempts to obtain a turn-key contract with firm pricing, it likely will be a sole-source contract with one bidder. The Company explained that only one contractor "is willing to step up and provide a turn-key scope of work to conduct this work and guarantees of the full plant. . ." and "[t]hat's really been the basis for our selection of GE and Bechtel, their experience and their willingness to step up to the plate with this comprehensive deal."¹¹ Moreover, the Company questioned its ability to obtain more firm pricing for the IGCC Plant

⁸ See, e.g., Tr. 407-408 (APCo witness Jasper).

⁹ See, e.g., Tr. 398-408 (APCo witness Jasper).

¹⁰ See, e.g., Tr. 406-408 (APCo witness Jasper).

¹¹ Tr. 402, 405-406 (APCo witness Jasper).

without paying an "exorbitant risk premium" due to, among other things, the complexity and long duration of this project.¹²

In addition, as noted by the Attorney General, even under APCo's November 2006 estimate the capital cost for the IGCC Plant "is significantly higher than reported costs for other coal-fired units, including the costs of units that recently have been cancelled and the cost of [American Electric Power's] recent IGCC bid in Oklahoma."¹³ For example, depending on the facility, Attorney General witness Norwood estimated that the capital cost for the IGCC Plant – based on non-updated November 2006 projections – may be roughly 40%-105% higher than other coal-fired plants.¹⁴

Moreover, and as discussed further below, the Company highlighted that the unique value of this particular facility is its "potential" to capture and sequester CO₂.¹⁵ The Company's \$2.23 billion projection, though, does not include estimated costs to modify the plant to allow for carbon capture and sequestration. APCo projected the cost for carbon capture at \$200-300 million, and Attorney General witness Norwood estimated it at \$300-500 million.¹⁶ Both of these estimates, however, have limited value; no party knows for certain the specific commercially available technology that will be used for carbon capture and sequestration – if

¹² Tr. 398 (APCo witness Jasper) ("[M]oreover they [(i.e., the suppliers of IGCC technology)] are very unwilling and really unable to fix the price of a complex project like this with a somewhat uncertain start date and a long duration for the execution of that plant. In my estimation if a party were willing to do that, that that party would extract from the client an exorbitant risk premium that would not be in the best interests of APCo or its customers.") On brief, APCo asserts "that GE/Bechtel are willing to *consider* guarantees of the performance of this plant *after* it begins operation." APCo's March 19, 2008 post-hearing brief at 52 (emphasis added). The Company, however, presents no reasonable cost estimate for any such potential performance guarantees.

¹³ Exh. 25P (Norwood Direct) at 24.

¹⁴ Exhs. 25P and 25C (Norwood Direct) at 22-24.

¹⁵ See, e.g., Exh. 8 (Sigmon Supp. Direct (adopting Rencheck Direct) at 16.

¹⁶ See, e.g., Tr. 1045 (APCo witness Chodak); Tr. 534 (Attorney General witness Norwood).

such is determined to be economically efficient to comply with subsequent federal or other mandate. Indeed, as explained by APCo, the ultimate capital costs for carbon capture technology will "be driven by the economics of the CO₂ legislation and policy *that is yet to come*."¹⁷

Further, and as also discussed below, the Company did not identify any commercial generation facility that has implemented carbon sequestration.¹⁸ The record in this case indicates an absence of commercial deployment of carbon sequestration in generation plants such as the one proposed herein,¹⁹ and the issues surrounding where the "captured" carbon will be stored remain unresolved.²⁰ Yet carbon capture alone, without the sequestration problem resolved, does not answer the question of what is to be done with the "captured" carbon, and at what price. So it is literally impossible to develop a credible cost estimate for a future retrofit of this plant with both carbon capture *and* sequestration capability, making it likewise impossible to quantify the claimed benefits associated with IGCC technology for purposes of this Application.

The Attorney General also provided an illustration of the cost impact of even a 10%-15% cost escalation. Specifically, the Attorney General noted that if costs increase 10%-15% above APCo's November 2006 estimate (which includes a limited contingency and escalation factor of \$250 million),²¹ and taking into account financing costs and estimated costs for carbon capture, the capital costs could reach \$3.5 billion or more.²² When this figure is compared to APCo's

¹⁷ Tr. 1045 (APCo witness Chodak) (emphasis added).

¹⁸ See, e.g., Tr. 153-154 (APCo witness Waldo); APCo's March 19, 2008 post-hearing brief at 50-51.

¹⁹ See, e.g., *id.*

²⁰ See, e.g., Tr. 337, 1068-1072 (APCo witness Chodak); Tr. 64 (APCo witness Waldo); VML/VACo's March 19, 2008 post-hearing brief at 11 (explaining, for example, that "it is not known if the CO₂ sequestration will even be available to meet possible future regulations").

²¹ See APCo's March 19, 2008 post-hearing brief at 56.

²² See Attorney General's March 19, 2008 post-hearing brief at 8; Tr. 534 (Attorney General witness Norwood).

525 MW estimate of the plant's dependable capacity after being retrofitted for carbon capture, the final installed cost estimate is approximately \$6,667/kW.²³ The Attorney General noted that this cost is not only significantly higher than cost estimates for other coal-fired generation alternatives, it is comparable to the cost per kW of a new nuclear facility.²⁴ Moreover, the Attorney General showed that, even using APCo's own data and its 2006 estimates, the cost of the plant with carbon capture can be estimated at approximately \$4,845/kW, which again is significantly higher than other coal-fired generation projects and approaches estimates for a nuclear facility.²⁵

The Committee further illustrated the potential uncertainty of APCo's capital cost estimates by pointing out that in mid-2006 the Company's cost estimate of a generic IGCC unit was \$2,861 per kW, whereas its most recent estimate – prepared just months later in November 2006 – is more than \$3,500 per kW.²⁶ Furthermore, the Committee noted that the "uncertainty concerning capital costs is greater for the IGCC option because of its higher capital cost and longer construction and permitting time," and, "[t]hus, the potential cost of uncertainty related to a plant of the size and projected capital cost of the proposed IGCC unit, with its untested track record, is considerably greater than for other options."²⁷

²³ See Attorney General's March 19, 2008 post-hearing brief at 8.

²⁴ See *id.*; Tr. 534-535 (Attorney General witness Norwood).

²⁵ See Attorney General's March 19, 2008 post-hearing brief at 10 n.52; Tr. 534-535 (Attorney General witness Norwood). Moreover, this cost estimate excludes an allowance for funds used during construction ("AFUDC"), which would increase the ultimate costs to consumers.

²⁶ Committee's March 19, 2008 post-hearing brief at 19. The Committee explains that both cost estimates were before carbon capture and without AFUDC. Further in this regard, the Committee emphasizes "that the exclusion of AFUDC from these increased amounts masks the impact on customers . . . and ignores a considerable portion of the impact of such increases." *Id.* at 20-21 (*italics omitted*).

²⁷ *Id.* at 19 (*citation omitted*).

These cost uncertainties are particularly relevant because, as discussed by Staff, "Company witnesses Waldo and Jasper were exceptionally frank in outlining the undefined, open-ended financial commitment to this project the Company is expecting from Virginia ratepayers under § 56-585.1 A 6 [of the Code]."²⁸ Staff continued:

Specifically, both witnesses readily conceded that the project lacks hard numbers; they testified that none of the major suppliers of IGCC plant generation components would commit to firm pricing. Thus, in response to questions . . . about how the Company will ultimately get prices for plant components (as and when the Company obtains regulatory approvals from the Virginia and West Virginia Commissions), Company witness Jasper simply stated that the Company would 'go out and re-bid that major equipment.'²⁹

Staff further emphasized that APCo witness Jasper "admitted that the Company had not 'refreshed' or updated [its estimate] on the basis that 'it's a laborious process to go back and do a really bona fide estimate,'" that "Mr. Jasper indicated that he would personally foresee difficulties with the Commission capping the Company's recovery of project costs at the \$2.23 billion estimate," and that "Mr. Jasper also suggested on cross-examination that the 'risk premium' likely associated with guaranteeing the costs of plant components would be 'intolerable.'³⁰

Thus, we do not realistically have the option of approving this project at a firm cost cap of \$2.23 billion, nor do we have any firm contract or guarantee for any significant part of the total costs of this facility. Rather, APCo by its own testimony has indicated that a cost cap is not

²⁸ Staff's March 19, 2008 post-hearing brief at 19.

²⁹ *Id.* (citing Tr. 405 (APCo witness Jasper)).

³⁰ *Id.* at 19-20 (citing Tr. 407-408, 413 (APCo witness Jasper)). Thus, Staff concluded that "the costs projected for the proposed IGCC facility are so imprecise, and the cost exposure of the Company's Virginia ratepayers is so enormous that the Commission simply cannot find as a matter of fact or law, that the costs for which rate treatment is sought herein are either reasonable or prudent." Staff's March 19, 2008 post-hearing brief at 24.

acceptable and that the actual cost must really be left to be determined in the future. The Company, however, provides very little assurance that the ultimate cost of the proposed facility, for its intended purpose, will be limited to anywhere near the \$2.23 billion estimate.

Nonetheless, the Company requests the Commission to approve – now, as part of this Application – specific cost recovery for, and the eventual construction of, the IGCC Plant. Indeed, during the evidentiary hearing the Company's counsel explained, in plain language, the breadth of the approval that APCo seeks at this moment:

That's the determination we're asking you to make in this case; as a general proposition, it's okay for us to go forward with this type of plant. We'll prove the details of the costs later. But we don't want to go forward if you're going to tell us next year, on second thought, IGCC is not a very good idea as a concept.³¹

In effect, APCo asks the Commission to make a finding of reasonableness and prudence based on the Company's November 2006 estimate, and without any price or performance guarantees or protections. In stark contrast, as explained above APCo will wait until it gets more accurate and firm cost figures before it decides whether to construct the facility. As a result, if we grant APCo's request based on the Application before us, we will have approved a blank check for this plant, upon which APCo subsequently can either (i) insert the amount payable by ratepayers or, alternatively, (ii) unilaterally decide that the cost of construction will be too high and tear up the check. This we will not do. The Commission has the statutory obligation to determine reasonableness or prudence, and the Company has not established, based on the record developed in this case, that construction of its proposed IGCC Plant is reasonable or prudent.

³¹ Tr. 866 (APCo counsel Tripp).

IGCC Technology

The absence of a credible cost estimate is compounded by the uncertainty as to whether IGCC represents a mature, proven technology for the specific commercial purposes and at the scale proposed by APCo. Indeed, APCo's proposed IGCC Plant would be the largest of its kind constructed to date.³² As summarized by Attorney General witness Norwood:

[T]here currently are only two commercial-size coal-based IGCC demonstration plants in the United States and both of those plants were supported by DOE funding. (Rencheck direct, page 19.) The existing IGCC units are far smaller than the IGCC project proposed by Appalachian. The most recent IGCC project is Tampa Electric Company's 250 MW Polk Power Station, which entered commercial operations in 1996. (Rencheck direct, page 20.)³³

The Company confirmed that there are only two IGCC power plants operating in the United States and both plants are "[l]ess than half" the size of APCo's proposed IGCC Plant.³⁴

Moreover, the two existing facilities have been operating for only a fraction of the 40-year life that APCo projects for its proposed IGCC Plant.³⁵

In addition, the benefits of the IGCC Plant will depend on, among other things, the capacity factor at which the facility operates. Although various cost analyses performed by APCo assumed that the IGCC Plant could run at an 80% capacity factor or greater,³⁶ there is no

³² See Exh. 25P (Norwood Direct) at 6. Although APCo noted that the Indiana Utility Regulatory Commission provided Duke Energy with "authorization to construct and operate a similar 630 MW IGCC plant" last November, the Company does not assert that the Indiana project has been constructed and placed in service. APCo's March 19, 2008 post-hearing brief at 52. Moreover, in contrast to APCo's proposed IGCC Plant, the Indiana plant will receive \$460 million in tax subsidies to defray the cost to ratepayers. See Attorney General's March 19, 2008 post-hearing brief at 11-12.

³³ Exh. 25P (Norwood Direct) at 9.

³⁴ Tr. 204, 215 (APCo witness Sigmon).

³⁵ See, e.g., Attorney General's March 19, 2008 post-hearing brief at 12-13.

³⁶ See, e.g., Tr. 369 (APCo witness Chodak); Tr. 538-539 (Attorney General witness Norwood).

evidence of an IGCC plant of this size – even without being retrofitted for carbon capture and sequestration – operating at such a high capacity level over an extended period of time. Indeed, the Company admitted that it "is not aware of any operating IGCC generating units that have achieved an 80 percent or greater capacity factor for a sustained number of years."³⁷ For example, Attorney General witness Norwood testified that, for the "Polk unit, which is what APCo's unit is sort of based on, for the first 11 years of its operation the average availability has been about 63 percent in the gasification mode," and that "if you throw in the times when they were burning oil or natural gas in the combustion turbine, that goes up . . . [a]nd certainly the economics change at that point."³⁸ In other words, as concluded by Staff, "a more realistic capacity factor assumption would increase the costs of the IGCC unit in comparison to the other generating alternatives."³⁹

The record in this case indicates that there is no proven track record for the development and implementation of large-scale IGCC generation plants like the one proposed by APCo. Evidence in this case also raises concerns whether large-scale IGCC generation plants are characterized by, among other things, (1) complexities attendant to a technology for which there is no proven track record for power plants of this size, (2) high initial capital costs compared to other coal-fired units, and (3) uncertainty surrounding performance and operating costs.⁴⁰ Indeed, the costs and uncertainty surrounding the development and implementation of this

³⁷ Tr. 215 (APCo witness Sigmon); Exh. 9 (Attorney General's Interrogatory Request 2-040). *See also* Attorney General's March 19, 2008 post-hearing brief at 13-15.

³⁸ Tr. 539 (Attorney General witness Norwood).

³⁹ Staff's March 19, 2008 post-hearing brief at 15 (footnote omitted).

⁴⁰ *See, e.g.*, Exh. 25P (Norwood Direct) at 9 ("The major disadvantages of IGCC technology are that the performance and operating costs are relatively uncertain and that the initial capital costs of such facilities are normally significantly higher than costs of conventional pulverized coal-fired generating units. (Renchek direct, page 17.) These disadvantages have prevented the widescale commercialization of IGCC technology to date.").

technology, on this scale, for this purpose, appears to be a significant factor in APCo's failure to obtain any reasonable firm pricing, construction, or performance guarantees at this time.⁴¹

Carbon Capture and Sequestration

The asserted value of APCo's proposed IGCC Plant – to overcome the high and unknown capital costs, unproven track record, and general uncertainty involving an IGCC generation project of this size – is its potential cost effectiveness in capturing and sequestering CO₂. Specifically, APCo stated that "[w]hat clearly sets IGCC technology apart from others is its *potential* to separate and sequester CO₂ emissions from the process at a significantly lower cost than conventional technologies . . . [and it] is anticipated that environmental regulations will require the removal of CO₂ at some point in the future."⁴² Indeed, APCo witness Chodak succinctly explained why the Company is proposing this plant at this time: "This is about CO₂. This is about us recognizing that the forecast is for rain and so we are going to bring an umbrella. That is what this is about."⁴³

APCo acknowledged, however, that (i) there are no federal or state carbon capture and sequestration regulations that need to be complied with at this time for its generation plants located in West Virginia, (ii) it is speculating on the requirements of any future regulations, and,

⁴¹ For example, in explaining why only one contractor has indicated a willingness to offer a turn-key package for this plant, APCo explained as follows: "I think a combination of a few things. One, it certainly is [because it's] an IGCC plant. It's not something that chemical plant contractors do routinely. In the power business where you're talking about largely a boiler, a steam turbine, an air quality control system for coal-fire plants, let's say, those are things that are done in multiples. So it's relatively a better known quantity, what you're dealing with, than it is with IGCC. So that's one factor, it's an IGCC plant." Tr. 403 (APCo witness Jasper). APCo further compared the IGCC Plant to other generation projects, which have a shorter duration and well-known technology: "And both of those are not the case [with the IGCC Plant]. Neither of those are the case. This is a very long-duration project and one with which contractors are not familiar." Tr. 404 (APCo witness Jasper).

⁴² Exh. 8 (Sigmon Supp. Direct (adopting Rencheck Direct) at 16) (emphasis added). *See also* Exh. 25P (Norwood Direct) at 9 ("However, the technology has received renewed interest over the last few years due to the superior environmental performance of IGCC units and their ability to capture CO₂ emissions linked to global warming at a lower cost than conventional generating technologies. (Rencheck direct, pages 16-17.)").

⁴³ Tr. 1067 (APCo witness Chodak). *See also* Exh. 2 (Waldo Direct) at 7-8; Exh. 6 (McManus Direct) at 13.

thus (iii) it does not know the exact equipment, or cost therefor, that may be required to comply with currently non-existing regulations.⁴⁴ The Company further stated that, depending on the exact form of potential future regulations and the cost-effective alternatives stemming therefrom, it may not need to install *any* carbon capture and sequestration equipment on the proposed IGCC Plant.⁴⁵ Accordingly, the unknown nature of potential future regulations driving APCo's Application herein makes it impossible to determine, at this time, the specific carbon capture and sequestration retrofit that may be needed in the future – or, moreover, whether it will *ever* be cost efficient to retrofit the proposed IGCC Plant for carbon capture and sequestration.⁴⁶

APCo also did not identify any commercial generation facility – IGCC or otherwise – in which carbon capture and sequestration is being, or ever has been, utilized.⁴⁷ Although APCo testified that the technology has been used in the petrochemical field and that "we are ready to go from a technical perspective," the Company also recognized that, in "terms of the size of the facility, [the IGCC Plant] is a much bigger facility" in relation to the amount of carbon that would need to be captured and sequestered.⁴⁸ Moreover, with respect to this specific facility,

⁴⁴ Tr. 171-173 (APCo witness McManus). Wal-Mart further discussed this as follows: "Specifically, answers to questions are still outstanding regarding the type of equipment that utilities may need to install or the process that utilities may need to adopt as a result of future legislation requiring carbon emission reductions. For example, if future legislation requires carbon emission reductions, such legislation may exempt existing plants, or plants being developed prior to the date of enactment of such legislation, making certain anticipated coal-plant retirements unnecessary." Wal-Mart's March 19, 2008 post-hearing brief at 4 (citation omitted).

⁴⁵ Tr. 174-176 (APCo witness McManus). APCo witness Chodak further explained as follows: "I can't put a date on when we are going to do CO₂ capture and sequestration at all. All of that has to come together. You have to get the policy and the regulatory framework that asks you to do it." Tr. 1070 (APCo witness Chodak).

⁴⁶ APCo's President also discussed additional risks associated with new carbon requirements: "The manner in which the investment community and financial markets will deal with the CO₂ capture and sequestration issue for fossil generation plants is yet to be determined as these new [Carbon] Principles are implemented and evolve. This uncertainty creates, and indeed highlights, one of the significant 'risks involved in the development of the facility' as set forth in the statute." Exh. 2 (Waldo Supp. Direct) at 4.

⁴⁷ See, e.g., Tr. 153-154 (APCo witness Waldo); APCo's March 19, 2008 post-hearing brief at 50-51.

⁴⁸ See Tr. 1048, 1050 (APCo witness Chodak). See also Attorney General's March 19, 2008 post-hearing brief at 16.

VML/VACo further noted that the Company has not yet determined whether it can meet requirements for sequestration at the proposed location, and that "APCo admits that the sequestration plan will result in CO₂ migrating underground to property not owned by APCo including land under the Ohio River."⁴⁹

Due to these various uncertainties, Wal-Mart stated as follows: "Without such carbon emission reduction rules, [APCo's] request is imprudent because it not only requires costly expenditures for untested and unproven technology, but also requires expenditures that may potentially prove unnecessary or contrary to such future carbon emission reduction rules."⁵⁰

Staff witness Walker further discussed these related cost risks:

The installation of carbon capture equipment may also increase the construction price risk of the proposed unit. There is very little experience with regard to the actual cost of such equipment. In fact there is no experience with respect to a unit of the size proposed by the Company. Absent such experience, there is considerable uncertainty with respect to the ultimate cost of the proposed unit.⁵¹

As an illustration of these regulatory and cost uncertainties, the Attorney General noted that such issues played a key role in the recent deferral of a previously proposed IGCC unit:

Tampa Electric owns the Polk unit, one of the two currently operating IGCC facilities in the United States. It had plans to construct a second IGCC facility to meet its generation needs in 2013, but in October 2007 it announced that it was deferring the proposed unit as 'the timing is not right to utilize [IGCC] for a baseload facility needed by 2013.' . . . It also stated that '[p]rimary drivers of the decision announced today include continued uncertainty related to carbon dioxide (CO₂) regulations,

⁴⁹ VML/VACo's March 19, 2008 post-hearing brief at 11 (citing Tr. 1068-1071 (APCo witness Chodak)).

⁵⁰ Wal-Mart's March 19, 2008 post-hearing brief at 4 (citation omitted).

⁵¹ Exh. 36P (Walker Direct) at 16.

particularly capture and sequestration issues, and the potential for projected cost increases.⁵²

The Company asserted that the value of this project is directly related to: (1) potential future legal requirements for carbon capture and sequestration; and (2) the proposed IGCC Plant's potential ability to comply cost effectively with any such requirements. Both of these factors, however, are unknown at this time and do not overcome the other infirmities in the Application. The legal necessity of, and the capability of, cost-effective carbon capture and sequestration in this particular IGCC Plant, at this time, has not been sufficiently established to render APCo's Application reasonable or prudent under the Virginia statute we must follow.

Need and Other Statutory Requirements

Having found that it is neither reasonable nor prudent under Virginia law for APCo to construct the proposed IGCC Plant based on the record before us, we need not make findings related to the other statutory requirements attendant to this Application, including the need for additional capacity.⁵³

We understand and appreciate, however, APCo's good-faith desire to prepare for what it believes is the likelihood of a federal carbon capture and sequestration mandate for coal-fired plants. Yet neither APCo nor anyone else knows how such a future mandate may be structured, how it will affect existing plants, precisely how carbon sequestration technology and storage capacity on a massive scale will ultimately develop for large-scale generation plants, or whether it could be applied cost-effectively through a retrofit to this plant. Importantly, the Company also has not, at this time, provided a credible cost estimate for the proposed plant *absent* carbon

⁵² Attorney General's March 19, 2008 post-hearing brief at 17 (citations omitted).

⁵³ For example, the Attorney General, the Committee, VML/VACO, Wal-Mart, and Staff questioned the need for this specific facility at this particular time.

capture and sequestration. We cannot ask Virginia ratepayers to bear the enormous risks – and potential huge costs – of these uncertainties in the context of the specific Application before us.

Accordingly, IT IS HEREBY ORDERED THAT:

(1) The July 16, 2007 Application of Appalachian Power Company for a rate adjustment clause pursuant to § 56-585.1 A 6 of the Code of Virginia is denied.

(2) The March 20, 2008 Motion to File Public Version of Brief One Day Out of Time filed by the Old Dominion Committee for Fair Utility Rates is granted.

(3) This case is dismissed.

AN ATTESTED COPY hereof shall be sent by the Clerk of the Commission to all persons on the official Service List in this matter. The Service List is available from the Clerk of the State Corporation Commission, c/o Document Control Center, 1300 East Main Street, First Floor, Tyler Building, Richmond, Virginia 23219.