CHAPTER 6

ENVIRONMENTAL ISSUES

SCC Environmental Responsibilities

Although it is not an environmental agency, the Virginia SCC does have certain statutory responsibilities toward the environment. For instance, §56-46.1 of the Code of Virginia states:

> *Whenever the Commission is required to approve the construction of any electrical utility facility, it shall give consideration to the effect of that facility on the environment and establish such conditions as may be desirable or necessary to minimize adverse environmental impact.*

In accordance with that language in the Code, environmental impacts are examined in hearings for certificates of public convenience and necessity related to the construction of certain transmission lines and all generating facilities. For the most part, the Commission Staff depends upon the expertise of state agencies devoted to environmental protection in analyzing environmental impacts. Reports prepared by these agencies on the environmental impacts of a proposed transmission line or power plant are presented as evidence and, if necessary, representatives of the agencies testify as expert witnesses. In particular the Department of Environmental Quality has participated in past cases, but other agencies have also been involved, including the Department of Conservation and Recreation, the Department of Historic Resources and the Marine Resources Commission.

Another Commission responsibility that has indirect environmental consequences can be found in §56-235.1. That Code section states, in part:

> *It shall be the duty of the Commission to investigate from time to time the acts, practices, rates or charges of public utilities so as to determine whether such acts, practices, rates or charges are reasonably calculated to promote the maximum effective conservation and use of energy and capital resources used by public utilities in rendering utility service.*

One method used by the Commission Staff to investigate the practices of electric utilities and the impact upon conservation and energy usage has been the requirement, since 1987, for investor owned electric utilities to prepare and file integrated resource plans (IRP). The basic function of an IRP is to estimate the change in demand for electricity over the forecast period, to project adjustments to that demand the utility may bring about through the use of demand side management (DSM), and to show how the remaining level of demand is expected to be met with capacity additions, transmission additions and/or purchased power.

The ability to use DSM to conserve resources and use energy efficiently has been studied carefully by the Commission. In Case No. PUE900070, the Commission directed its Staff to prepare a report analyzing conservation and load management (CLM), the primary components of DSM, and recommending specific rules or policies regarding such programs. After comments from interested parties and an oral argument, the Commission issued its order in PUE900070 on March 27, 1992. In that order it stated, " cost effective CLM programs are essential components of the balanced resource

portfolio that utilities must achieve to provide energy to Virginia customers at fair and reasonable rates." It also stated that " while we are encouraged about the role conservation can play in our future, we must move cautiously in an attempt to avoid promoting uneconomic programs, or those that are primarily designed to promote growth of load or market share without serving the public interest. Conservation at any cost is inappropriate...." That has been the fundamental SCC policy toward demand side management activities.

Air Quality Issues

Of all of the environmental issues related to electric industry restructuring, the impact upon air quality is probably the most critical. The magnitude of the electric industry's contribution to air-borne pollutants demands consideration. According to EPA estimates, the electric industry's share of sulfur dioxide emissions is 66%, of nitrogen oxide emissions is 29%, and of carbon dioxide emissions is 36%.

Significant strides have already been made in improving the quality of our air. The 1990 Clean Air Act Amendments set a cap upon emissions of sulfur dioxide (SO_2) and allowed allowance trading. This approach appears to have worked well, being more effective than the traditional " command and control" approach of regulating pollutants. Some do argue, however, that the SO_2 cap should be lowered.

Nitrogen oxides (NO_x) are a major contributor to ozone. There currently is not a cap and trade program for NO_x. If competition causes an increase in the use of coal-fired generating facilities, the emission rate of NO_x may rise. The EPA, however, is taking measures to reduce NO_x emissions. Last month it published a draft proposal calling for 22 Eastern states to make deep cuts in their NO_x emissions.

There is a wide range of opinions as to what effect retail electric competition may have upon the use of generating plants, in particular coal plants. Some argue that the demand for electricity will increase in general as a reaction to the lower prices that are predicted to result from competition, reduced reserve margins, and a reduced commitment to energy efficiency and conservation. It is also argued that with competition the use of coal-fired generation will increase even more rapidly than other types of generation because nuclear plants will be retired early, older coal plants will be given life extensions, and there will be increased transmission capacity to Midwest coal plants.

Others argue, however, that retail competition will not have a significant impact upon generating plant emissions. Allegheny Power claims:

> *National emissions of sulfur dioxides are capped under Title IV. Likewise, regional emissions of nitrogen oxides are currently being addressed by the EPA and likely to be capped in the near future. Therefore, any shifts in generation due to retail competition should not result in an overall increase of either sulfur or nitrogen oxide emissions.*

As time-of-use electric meters become more widely available and with new technologies that may develop, customers may use energy more wisely than in the past. If electric rates become more volatile due to market forces, as compared to the stability of rates under traditional regulation, customers may become more aware of their consumption patterns. Competition may provide incentives to generators to operate their plants more efficiently. If the demand for electricity should increase with competition, it may be served by clean sources of energy, such as new gas plants or Canadian hydro-power.

How stranded cost recovery is handled may affect the demand for electricity and, hence, the potential for increased emissions. If stranded cost recovery approaches 100% of stranded assets, there would be less opportunity for rates to be reduced. Therefore, the growth in demand that can be attributed to competition may be minimal until those stranded costs are recovered.[41]

Within the structure of the Clean Air Act, generating plants have different emission standards because of their fuel type, age or location. In particular, plants built before 1978 have less stringent pollution control requirements than new plants. The regulations were developed with the assumption that older plants would be retired soon anyway, so requiring the addition of pollution control equipment would

be uneconomical. According to the Natural Resources Defense Council, only 20% of our existing fleet of power plants have been built since 1978.

Some fear that with competition and an emphasis upon low prices, the difference in environmental standards may provide an incentive not to retire older, higher-emitting coal plants, preventing the construction of new generating facilities. The solution that some advocate is to create a " level playing field" so that older plants are required to meet the same environmental standards as new plants.

It appears that the sides are chosen by many in the level playing field debate not based upon a concern for the environment, but because of economic and political reasons. For instance, electric companies that have a significant investment in older coal plants don’t want the standards to change. They argue that those older plants meet the pollution requirements of federal law and that SO_2 caps provide a limit on the total amount of pollution that is unaffected by restructuring. Competing utilities that either have already added pollution control equipment or do not have a significant capital investment in older coal plants, argue for increasing the standards for pre-1978 plants because it will drive the cost of generation up for their competitors.

The pollution debate is becoming regional in nature. Neighboring states with a common interest are banding together. Some Northeastern states have proposed that no electricity be allowed to be sold into their region from a supplier located in a state that does not commit to the same standards they have adopted.

No suggestions have been offered as to how the SCC or the General Assembly can rectify inequities created by different emission standards within the Clean Air Act; federal legislation would probably be required.[42] There are, however, several options suggested by various parties as methods available for state regulatory agencies or legislatures to help improve the environment.

One option, similar to the proposal by some Northeastern states mentioned above, would be the setting of emissions standards for all electricity sold in the state. This option would require that all suppliers of electricity verify the fuel mix and emission rates of the power they sell in Virginia. A monitoring system would have to be developed to assure compliance with the standards set. It is unclear whether a state has the authority to mandate such standards for out-of-state suppliers; it could be challenged constitutionally under the Commerce Clause.

Another option being explored by some states is a renewables portfolio standard. This would be similar to the emissions standard discussed above, except the requirement would be that a certain percentage of renewables must be used in the generation of electricity to be sold in the state, perhaps with an allowance trading structure similar to the one created for SO_2.

A third option that may be considered is an environmental disclosure rule for suppliers. This option would not mandate emission rates or renewable usage, but would provide customers with information about the fuel mix and emission rates of electricity available for sale so they could purchase their energy more wisely.

It is impossible to determine what the effect of retail competition upon air quality will be. There are many assumptions involved with the arguments for either positive or negative impacts. One often quoted study that was prepared for the Citizens for a Sound Economy concludes that the deregulation of generation will provide significant reductions in the price of electricity, a corresponding increase in electric consumption, and that usage of existing generating units will increase to meet the new levels of demand. If the assumptions of this study were to come true, there would undoubtably be an increase in emissions as dirtier, less efficient coal units were run more frequently. The SO_2 caps of the Clean Air Act would still be in effect, but those caps would be reached sooner than under a scenario without retail competition. The increase in NO_x emissions, which do not now have a cap, could be more significant.

Another critical assumption related to the impact of competition on air quality is the future price of natural gas. If the price should stay low, gas-fired generating capacity may dominate the market for new generating capacity. If gas prices increase significantly relative to coal, however, coal plants may increase their market share of energy sold.

Another factor to be considered is that there are limitations on the amount of transmission capacity from west to east which will restrict the amount of energy from Midwest coal plants that can be used to serve the East. Additional transmission lines may be constructed, but they will be controversial and will take a long time. The Southern Environmental Law Center (SELC) claims:

> *Virginia's willingness to increase west-to-east import capacity into Virginia should be conditioned on federal actions to reduce the adverse impacts Midwest power are having on Virginia's environment.*

The most likely impact of competition upon the environment will be negative because an electric industry subject to competitive forces will face increased economic pressure to use low cost generation regardless of environmental consequences. The " invisible hand" of market forces historically has not performed well in conserving our natural resources and maintaining a long-run view toward preservation of the environment.

However, the magnitude of the impact of competition upon the environment will be tempered by existing environmental control laws. In addition, more stringent pollution control laws may be passed in the future. New pollution standards, if developed, will have an affect upon the competitive process, but control standards should be set with the goal of a clean and healthy environment, not as a means to promote or hinder competition.

Because pollution knows no boundaries, states are limited in effective options for mitigating the impact of electricity production upon their quality of air. National legislation has been and may continue to be required, probably with continued implementation by state environmental agencies.

The decision to impose emission standards, renewable standards or environmental disclosures should be

made by the General Assembly. The Staff recommends that these options not be adopted. In particular, the emissions standards and renewable standards would be difficult to enforce. If a system can be developed for a timely and meaningful disclosure of suppliers' fuel mix and emission rates that can provide customers information on their energy choices, it may be valuable. Some states are attempting to develop such a system. The Staff will investigate the progress in this area, but we do not recommend environmental disclosure for all energy sources at this time.

There is one form of environmental disclosure we do recommend, however. It is likely that with retail choice some suppliers will market energy for sale that is generated in a manner claimed to be friendly to the environment. This is often referred to as " green power." There have been problems with false or misleading advertising of "green power" by suppliers participating in retail wheeling experiments in other states. Staff suggests that the SCC or some other state agency monitor and verify the claims of suppliers of green power.

Demand Side Management Issues

For several years during the late 1980s and early 1990s, many state regulatory commissions and electric utilities aggressively pursued DSM activities. Virginia took a conservative approach toward DSM, encouraging the development of programs but insisting they be cost effective. A series of tests is used in Virginia to determine whether a particular DSM proposal appears to be cost effective. A critical factor in those cost/benefit tests is the costs a utility may be able to avoid through the use of DSM by reducing the need for additional transmission, distribution or generation facilities.

Industry changes have reduced the ability for DSM programs to help utilities avoid costs. For one reason, new technologies in gas-fired generation have lessened the cost to build such facilities and correspondingly decreased the possible generation costs that could be avoided. In addition, utilities began to look at a much shorter investment horizon. Traditionally it was not unusual for an electric company to plan for 15 to 20 years and make capital commitments to meet those plans. That planning horizon has shrunk drastically; now utilities are reluctant to commit capital until it is perceived to be absolutely necessary. This shorter planning horizon has decreased the payback period for DSM programs, which make such programs harder to cost justify.

In addition to lower avoided generation costs and a reduced investment horizon, other competitive pressures caused utilities to rethink their position on DSM. In its 1993 IRP filing with the SCC, Appalachian Power stated:

> *Conservation activities and expanded use of high-efficiency equipment need to be fostered within the marketplace. Pro-active programs are required. Customers, builders, dealers, and contractors must be educated as to the merits of conservation and high efficiency. To be effective, programs must be tailored to meet local and regional needs and customer characteristics.*

Two years later, APCO’s tone had changed. In its 1995 IRP it made the following statement:

> *While there has always been a great deal of uncertainty over projections of DSM impacts, within the past few months the future of DSM has become even more uncertain. The impending likelihood of electric utility competition for retail customers has created new pressures for cost minimization. The Company anticipates that, while energy efficiency*

> *assistance will continue to be provided to its customers for the foreseeable future, special programs aimed at entire classes of customers might no longer be appropriate. With these factors in mind, the Company is projecting no new recruitment of DSM conservation program participants beyond a 10-year planning horizon.*

Other electric utilities expressed similar sentiments. Allegheny Power made the following statement regarding DSM activities:

> *In a traditional regulated electric market, mandated DSM programs were valid because captive customers were required to pay for new sources of power generation to meet increased load demand in the captive service territory. However, this is not the case in a competitive electric market. As such, in a competitive market the customers will receive no benefit from mandated DSM programs within their service territory.*

In its 1993 IRP, Virginia Power projected that by 2005 its DSM programs would decrease its summer peak demand by 963 megawatts. In its 1996 IRP, the projected DSM reduction of summer peak demand for the year 2005 was 224 megawatts.

Even states and utilities that had been more aggressive than Virginia about DSM activities have seen a reduced emphasis upon such programs. Many expect further reductions as competition continues to develop. If true, declining conservation and energy efficiency programs may have a detrimental affect upon the environment.

Some argue that DSM faces market barriers that will not allow such programs to compete effectively against supply side resources. SELC states:

> *... pervasive market barriers have limited consumer interest in their products and resulted in historical under-investment in cost-effective energy efficiency improvements. Introducing greater competition, in itself,*
>
> *will do nothing to address the market barriers that have thwarted the commercialization of energy efficient products to date.*

An option that some advocate to promote DSM is a system benefit charge, or a wires charge, that would be added to all sales through the regulated distribution system. A system benefit charge could be used to fund activities such as DSM, low income energy subsidies, renewable energy technologies, research and development, or other objectives. A similar option would be to add a charge directly to the energy supplier rather than to the customer.

An argument can be made that competition will promote DSM. An often cited benefit of competition is the development of new technologies and new services that would not arise through a regulated industry. Some of these technologies and services may be directed toward energy efficiency and conservation. Competitive companies should have a desire to satisfy their customers. The advent of real-time pricing should not only send better pricing signals to consumers but may provide opportunities to

serve customers with energy efficiency measures. Old Dominion Electric Cooperative claims:

> *Energy efficiency and conservation programs will more likely be bundled under marketing strategies to attract future loads and retain existing customers. The objective will no longer be to defer future system expansion.*

Historically, electric utilities in Virginia have been provided adequate incentives to pursue a package of DSM programs that provide the utility and its customers benefits, but the insistence upon a cost/benefit analysis has mitigated cross-subsidies between customers that can be a characteristic of some DSM programs. There is no doubt that competitive pressures have made it harder to cost justify DSM programs. However, as the electric industry becomes more competitive, this is not the time to begin mandating DSM expenditures.

Staff does not agree with the statement by Allegheny Power, quoted above, that in a competitive market customers will receive no benefit from DSM programs. There may be opportunities in the future for the SCC to encourage energy efficiency. The Virginia Committee for Fair Utility Rates (VCFUR) states:

> *...the SCC should work with regulated utilities (eventually, the distribution utilities) to help promote and publicize specific techniques for cost-effective conservation. Programs targeted at residential and smaller commercial customers who are less likely to have in-house know-how are in the public interest as long as their costs are held within reasonable boundaries.*

The SELC believes utilities will still have an obligation to explore efficient means of providing energy. It states:

> *...a distribution utility should not simply build and upgrade wires to meet demand; instead, it should evaluate the capability of targeted DSM programs to avoid the need for distribution investments and be rewarded for pursuing cost-effective DSM alternatives. A utility's rate of return should be adjusted according to how well it performs its planning functions, and a utility should be rewarded -- not penalized -- for pursuing efficiency programs.*

A system benefit charge is essentially a tax. As such, the public policy decision whether or not to institute a system benefit charge should be made by Congress or the General Assembly. The Staff does not recommend a system benefit charge at this time. It seems advisable to see how competition develops and how the market reacts to such things as energy efficiency or research and development.

One of the arguments in favor of retail choice is the discrepancy of rates between utilities and regions. For this reason, if a system benefit charge is implemented in the future, perhaps it should be at a national level. If states implement varying system benefit charges, rate discrepancies may be maintained. At the state level, perhaps legislative mandates of stricter building codes and appliance efficiency standards are the most effective methods for promoting conservation and energy efficiency in a competitive electric market.

Planning Issues

Historically, long-range planning has been a critical component of the successful operation of an electric utility. Because of the long lead times needed to get necessary environmental and regulatory approvals and then to construct a generating facility or transmission line, electric utility plans traditionally have covered a forecast period of fifteen to twenty years.

During the 1980s, utility plans began to receive increasing scrutiny from regulators. The planning process became more sophisticated. One significant improvement was the inclusion of conservation and load management as an option to reduce demand growth rather than strictly depending upon new generation to meet future needs. Plans that balanced demand side resources with supply side resources (generating units and purchased power) are referred to as integrated resource plans. IRPs have been a significant mechanism for assuring that conservation and energy efficiency measures were given adequate review and consideration.

The use of IRPs has undergone a change with wholesale electric competition and the threat of retail competition. With competitive generation, traditional integrated planning becomes less feasible since capacity additions will not necessarily be added by the utility. If the use and importance of IRP declines, it could prove detrimental to programs that are environmentally favorable.

The Commission Staff has already begun to tailor its IRP filing requirements to recognize changes within the electric industry. A forecast covering a twenty year period used to be required, but recently was reduced to ten years. As discussed in the previous section on DSM issues, the utilities' planning horizon has shrunk. The last ten years of data in a twenty year forecast had become meaningless.

It is important that utilities continue to be conscientious in developing resource plans as guides to the future to assure that all available options receive adequate consideration. Recognizing that in the future only transmission and distribution may be regulated, the SELC states:

> *The SCC should continue to require all regulated entities to engage in integrated resource planning and to pursue DSM programs, in order to ensure that all investments capable of meeting transmission and distribution requirements are examined on an equal footing, and that cost-effective alternatives are pursued.*

As the electric industry continues to change and as regulatory responsibilities evolve, planning requirements must adapt. In the future, the focus of utility plans may be upon the distribution system. Where possible, plans should continue to have conservation and energy efficiency measures as an option.

Siting Issues

Historically, generating units in Virginia have been constructed by an electric utility to meet its needs or by an independent power producer that had a contract with a Virginia utility for the purchase of its energy. Code §56-265.2 makes it unlawful for any public utility " to construct, enlarge or acquire...any facilities for use in public utility service, except ordinary extensions or improvements in the usual course of business, without first having obtained a certificate from the Commission that the public convenience and necessity require the exercise of such right or privilege." Code §265.1 broadly defines " public utility" as any company that owns or operates facilities in Virginia for the " generation, transmission or

distribution of electric energy for sale."

In a hearing for a certificate of public convenience and necessity (CPCN), the Commission is required by Code §56-234.3 to " determine whether the proposed improvements are necessary to enable the public utility to furnish reasonably adequate service and facilities at reasonable and just rates."

In the future, " merchant" plants may be constructed to sell electricity into the spot market. It may be difficult to attribute the output of such a generating unit to Virginia's electric needs. Is the proof of need essential to obtain a CPCN, and if so, whose need?

This issue of " need" for the granting of a CPCN was addressed in an application by Patowmack Power Partners, L.P. to construct a merchant plant (PUE910081). The Commission order in that case, issued October 17, 1995 stated, in part:

> *The Commission is unable to find that the public convenience and necessity require the construction of this plant. The plant is clearly being built, and for the foreseeable future will be primarily operated for a private purpose, though its operation affects the public interest. Virginia Power has no present need for the capacity of the plant. No other prospective purchaser has contracted for its output. The Commission cannot find that the power to be produced by the plant is presently needed... It would be pure speculation to determine that the public convenience and necessity require the construction of this plant to meet future needs.*
>
> *...The parties agreed that Code §56-46.1 requires the balancing of the public's need for the facility against the environmental impact caused by the facility. In the instant case, the public need evidence is scant and adverse impacts would be likely.*
>
> *Applying the plain meaning of the statutes, the Commission is unable to grant the requested application. The Commission recognizes that the statutes that it is called upon by this application to construe date back, in some cases, at least 45 years and may not adequately address the needs of an evolving and increasingly competitive electricity market.*

Statutory changes may be necessary to permit the construction of merchant power plants, and the ability to construct such plants may be necessary for a competitive generation market to fully develop. The issue of need will certainly have to be clarified.

Similar issues may arise with the construction of transmission lines. Most models being examined for a restructured electric industry envision a transmission system that continues to be owned by an electric utility and regulated at the federal and state level. However, to prevent abuses of monopoly power, independent operators are expected to control access to the transmission system and to determine when and where new transmission lines are needed.

It is unclear how the SCC's responsibility for issuing a CPCN for transmission lines will be affected. As is evidenced by a current application of AEP to construct a 765 kilovolt line, Virginians remain very interested in the necessity of constructing transmission lines and the impact of the lines upon our environment. Some parties have complained that the AEP line will be used to sell power generated by

polluting, Midwest coal plants.

No matter what changes may occur on a national level for the electric industry, it is important that local environmental considerations should remain the responsibility of Virginia agencies. The current system of requiring a CPCN approval from the Commission for construction of a generating unit or transmission line has worked well and should be continued. The Commission depends upon the advice and expertise of DEQ and other state agencies on environmental issues, but the SCC approval process acts as a focal point for hearings and debate.

Eminent Domain

A competitive electric industry may cause the General Assembly to reconsider the right of eminent domain. Public utilities have been conferred by statute the ability to acquire by exercise of the right of eminent domain the land or rights-of-way necessary for the facilities needed to provide service. When the right of eminent domain was added to the Code, most likely the General Assembly did not envision multiple public utilities possessing such power within a service area.

If merchant power plants are allowed, they must be able to build the necessary transmission facilities to access the grid. No one would invest in a merchant plant without the ability to get the power to the market. Will these companies be allowed to exercise the right of eminent domain? If independent system operators, regional regulators or FERC are allowed to determine where transmission lines are to be built, will they also be able to confer the right of eminent domain?

Conclusions

On issues related to competition’s impact upon the environment, the Staff offers the following recommendations, each of which has been discussed in this section of the report:

- Policy on air quality issues should be set by Congress and federal and state environmental agencies.
- Renewable resources standards, emission standards and environmental disclosures for all suppliers should not be adopted. However, the SCC or another state agency should monitor and audit energy suppliers’ claims of " green power" and correct abusive or misleading claims.
- The SCC policy of encouraging cost effective DSM programs does not need to change.
- The General Assembly or Congress should make the decision whether a system benefit charge is appropriate; the Staff recommends that such a charge not be adopted.
- The requirements for utility resource plans must continue to adapt as the electric industry changes; it would be difficult to determine now the appropriate format for future planning requirements.
- The sections of the Virginia Code related to the siting of generating units and transmission lines should be reviewed to determine if changes are necessary to accommodate competition.
- The SCC and other state agencies should retain their authority to evaluate the environmental

impact of transmission lines and generating facilities and should continue to use hearings for certificates of public convenience and necessity to assert that authority.

Research is needed to determine what entities in a competitive electric market may need the right of eminent domain and what problems may ensue.

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[41]If stranded costs are to be recovered, there are disagreements as to how the recovery mechanism should be structured. The Southern Environmental Law Center and Natural Resources Defense Council argue that stranded costs should be collected on a per kilowatt hour basis to provide incentives to reduce usage of electricity. The Virginia Committee for Fair Utility Rates, however, prefers a fixed charge recovery mechanism. The Committee argues that a per kwh recovery unfairly shifts costs to high load-factor customers.

[42] The Southern Environmental Law Center suggests that the Commission support federal legislation to remove current inequities in the Clean Air Act.