Commonwealth of Virginia

State Corporation Commission

Report to the Commission on Electric Utility Restructuring of the Virginia General Assembly

And the Governor of the Commonwealth of Virginia

<u>Status Report: The Development of a Competitive Retail Market for Electric Generation within the Commonwealth of Virginia</u>

Pursuant to Section 56-596 of the Code of Virginia

August 29, 2003

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STATE CORPORATION COMMISSION

August 29, 2003

TO: The Honorable Mark R. Warner
Governor, Commonwealth of Virginia

The Honorable Thomas K. Norment, Jr.
Member, Senate of Virginia
Chairman, Commission on Electric Utility Restructuring
and
Members of the Commission on Electric Utility Restructuring

The State Corporation Commission is pleased to transmit its report regarding the advancement of competition in Virginia as required by Section 56-596 of the Virginia Electric Utility Restructuring Act.

This report, required annually by September 1, provides information on the status of competition in the Commonwealth, the status of the development of regional competitive markets, and the Commission's recommendations.

Respectfully submitted,

Hullihen Williams Moore
Commission Chairman

Clinton Miller
Commissioner

Theodore V. Morrison, Jr.
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Executive Summary and Overview

It has been over four years since the Virginia General Assembly passed the Virginia Electric Utility Restructuring Act[1] ("the Act"); less than four years remain until the mid-2007 end of the transition period set forth in the Act. Section 56-596 of the Act requires the Virginia State Corporation Commission ("SCC") to report to the Commission on Electric Utility Restructuring ("CEUR") and the Governor by September 1 of each year on the status of competition in the Commonwealth, the status of the development of regional competitive markets and the SCC's recommendations to facilitate effective competition in the Commonwealth as soon as practicable. This section of the statute also requires the SCC to report any recommendations of actions to be taken by the General Assembly, electric utilities, suppliers, generators, distributors, and regional transmission entities that the SCC considers to be in the public interest.

The SCC offers this Report pursuant to the requirements of the Act. We also note that on December 30, 2002, the SCC submitted an Addendum to its status report issued September 1, 2002, that addressed the Federal Energy Regulatory Commission's ("FERC") Notice of Proposed Rulemaking ("NOPR") on Standard Market Design ("SMD").[2] That Addendum, entitled "Review of FERC's Proposed Standard Market Design and Potential Risks to Electric Service in Virginia" raised several concerns we had regarding electric industry restructuring and its likely impact on Virginians. In the December 2002 Addendum, the SCC stated:

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1 Title 56, Chapter 23 of the Code of Virginia.

2 Remedying Undue Discrimination Through Open Access Transmission Service and Standard Electricity Market Design, Notice of Proposed Rulemaking, 67 Fed. Reg. 55452 (2002) (to be codified at 18 C.F.R. pt. 35) (proposed July 31, 2002).

> Only if the Commonwealth reverses the Act's requirement to unbundle rates and defers the Act's requirement that Virginia's utilities join an RTE [regional transmission entity] can Virginia preserve state jurisdiction. If rates remain unbundled or control of the transmission system is transferred to an RTE, then Virginia's choice will likely have been made. It will be difficult -- if not impossible -- to reverse that choice.

In the months since the SCC issued its December 2002 Addendum to the September 1, 2002, status report, industry events have not lessened our concerns nor cause us to alter our recommendation that the General Assembly take action to preserve Virginia's authority to ensure reliable electric service at just and reasonable rates. Industry, federal regulatory, and legislative uncertainty continue and Virginia's ability to ensure control over its restructured electric utility industry cannot be assured. Consequently, the SCC believes that it is in the public interest to suspend portions of the Act by re-bundling rates and continuing the moratorium on the transfer of control of Virginia's electric transmission systems to federally-regulated regional transmission entities. We note that such a suspension will leave in place rules, procedures and systems that enable retail access. The SCC recommends suspension only as a means to best preserve Virginia's jurisdiction and only as long as necessary to provide Virginia policy makers a reasonably clear view of the likely nature of the transformed industry.

This Report consists of three parts. Part I is a description of evolving regional retail and wholesale markets prepared by Dr. Kenneth Rose, Senior Fellow, Institute of Public Utilities at Michigan State University. Part II reports on the status of retail access and competition in the Commonwealth. Part III presents and discusses recommendations to facilitate effective competition in Virginia that were raised by stakeholders responding to an annual SCC solicitation of potential recommendations. Part III also contains and discusses the SCC's recommendation that the Virginia General Assembly take action to preserve Virginia's jurisdiction relating to its electric utility industry by suspending elements of the Act.

Part I of this Report contains detailed data and information on restructured wholesale and retail electricity markets around the United States. The economic health of these markets is questionable. Three major generating companies have filed for bankruptcy protection thus far in 2003 and other generation providers face substantial financial difficulties. The industry credit crunch continues as does fallout from securities and trading scandals. At the same time that generating companies are facing these difficult financial conditions, Dr. Rose reports that there continues to be strong evidence that significant market power is being exercised in all wholesale markets that have been independently analyzed. The coincidence of these two phenomena -- the alleged exercise of market power that serves to increase market prices and thus the returns to generators, coupled with the widespread financial distress in the industry which should be alleviated by the exercise of market power -- is puzzling. These two coincident results, taken together, illustrate the difficulty of fashioning electricity markets that ensures both the provision of safe and reliable service and the vigorous competition needed to forestall any exercise of market power.

Dr. Rose's Part I also provides extensive descriptions of retail markets on a state-by-state basis. He reports that 16 states and the District of Columbia continue to allow retail access. Several states have decided to delay retail access, restrict retail access to only larger customers or otherwise curtailed their retail access efforts. Of the 17 jurisdictions that allow retail access, there is little, if any, effective retail competition for electric service in the residential and small commercial market. Although some states have significant switching for larger customers, except for Texas no state has substantial state-wide competitive penetration in markets for residential or small commercial accounts. Even here, switching rates average around 11% and 17% for residential and small commercial customers, respectively.

Texas market penetration is explained by requirements that customers not choosing to take service from a non-affiliated retail electric provider ("REP") were automatically transferred to their utility's affiliated REP. Smaller customers so transferred are charged a regulated rate known in Texas as the "price-to-beat." This regulated rate at one point reflected a 6% decrease from pre-restructuring regulated rates. Importantly, Texas purposely set the price-to-beat with some "headroom" allowing non-affiliated competitors to offer service at prices that both saved customers money and allowed the non-affiliated REPs to make a profit on the sale. The price-to-beat is adjusted as energy prices change. The Texas PUC has the tools to ensure that non-affiliated REPs can continue to serve profitably customers in significant numbers. This comes, however, at the cost of higher regulated charges if a customer chooses to remain with an affiliated REP.

Increased switching in Texas has led to claims about the ultimate test of the efficacy of the Texas restructuring: customer savings. The picture is quite muddled and turns on forecasts of what regulated rates would be in the absence of the restructuring, the years chosen as the basis for comparison and the impact of mandated rate reductions and changes in regulated fuel charges. It should also be noted that utilities have yet to finalize their stranded cost determinations and are required to do so in 2004 through a market valuation of assets.

Ohio is witnessing substantial retail residential market penetration but only in the FirstEnergy service territory. This is explained by widespread “opt-out” municipal aggregation. There is little penetration in the service territories of Ohio’s other distribution utilities where prices are lower.

On the basis of the extensive information submitted by Dr. Rose in Part I of this Report, the SCC concludes that, while retail access is widely available in many jurisdictions, vigorous retail competition has yet to develop. This national result, when combined with results obtained here in the Commonwealth as detailed in Part II of this Report, leave us with substantial doubt as to the ability of retail electric competition to provide, at the present time, lower prices for Virginians than would have been charged under the traditional regulation of the industry.

The SCC’s concerns are shared by others around the country. For instance, in Ohio the Dayton Daily News reported on May 13, 2003 that "*some critics urge that Ohio abandon deregulation as an experiment that isn't working. After two years and four months, no outside electricity marketers have become competitors as DP&L [Dayton Power & Light] hoped. This is attributed to DP&L's relatively low rates ...Some critics complain that electricity deregulation is a failed experiment with little chance of meeting the goal of lowering consumer prices.*" Ellis Jacobs, an attorney for the Community Action Partnership, said "*the Ohio General Assembly should consider abandoning deregulation. Other states are moving in that direction. Seven states without deregulation have now put that on the back burner. A number of states that deregulated, Nevada,* *Oklahoma, and California among them, have reversed course*." David Hughes, executive director of Citizen Power, a regional utility watchdog organization, also believes "*The [Ohio] General Assembly should reinstitute regulation of electric generation prices and supply before the MDP ends. PUCO keeps glazing over the real story which is that there is virtually no competition in the electricity generation market*."

New Jersey Citizen Action, a consumer advocacy group, states "*We don't see competition on the horizon and from the beginning citizens have said we don't want deregulation for the sake of deregulation. It's the worst of both worlds, we'll have higher rates and unregulated monopolies*." On July 23, 2003, Electric Power Alert reported that "*They point to a recent decision by state utility regulators to increase rates for the state's largest utility – with other utilities soon to follow – along with an end to price controls in August under the state's deregulation law, as the reason consumers will see electric rates increase by 15 percent*."

The Ashbury Park Press reported on June 26, 2003, that in New Jersey, "*There still are practically no alternative electricity suppliers looking to pick up residential customers. But regulators and advocates hope that a growing market of suppliers vying for the state's largest electricity consumers – industrial, commercial and institutional users – will eventually trickle down so homeowners can find good deals*." Effective August 1, 2003, under a program adopted by the New Jersey Board of Public Utilities, large electricity users will be subject to electricity prices that change hourly and are influenced by market fluctuations. Hal Bozarth, Executive Director of the Chemistry Council of New Jersey, states "*Come August 1, the world as we knew it under the (electric) monopolies is over, and there will be rate shock of significant proportion*."

As rate caps expire in Maryland, market observers warn that residents should expect to begin paying more for electricity. Mark Travieso, a state advocate for residential utility customers, said "*that consumers cannot expect to see a true competitive market that makes it worthwhile to switch energy providers*."

Electric Power Alert reported on June 11, 2003, that "*The Connecticut legislature voted to permit consumer rates to increase and fees to be collected for utilities administering billions of dollars in energy contracts – in a move to keep the lights on and the possibility of retail electricity competition open in the future despite disappointing results thus far. The transition period for restructuring the state's market is set to end with contracts and price caps expiring in December. Lawmakers devised a plan to strike a balance between the cost increases and reliability, because competition just hasn't occurred. The legislation increases the amount ratepayers will pay by four to six percent – on top of an eight percent increase incurred from New England's standard market design charges – and ensures reliability through creating a system of procurement fees that allows the default server, Connecticut Light & Power, to charge customers for its management of contract bidding.*"

Part II of the Report focuses on activities in Virginia related to retail access and resulting competition in the electricity market over the past year. It also reviews the SCC's efforts to develop a proper infrastructure to accommodate competition and to prepare Virginians for consumer choice for generation, as directed by the Act.

During the past year the SCC has continued to implement the Restructuring Act. At the present time, about 2.9 million electricity customers in Virginia have the right to choose an alternative supplier of electricity. By January 1, 2004, when an additional

168,500 customers will gain the right to choose, nearly all of the customers of Virginia's investor-owned utilities and electric cooperatives will have the right to switch to a competitive supplier. The exception is the approximately 29,400 customers in the southwestern part of the Commonwealth exempted from the Act by legislation enacted by the General Assembly in 2003 and approximately 7,000 customers served by Powell Valley Electric Cooperative.

As we reported last year, the right to choose has not yet evolved into the ability to choose. While it is clear that the SCC, the utilities and the various stakeholders have effectively enabled almost universal retail access in Virginia, there is little competitive activity in the Commonwealth. We understand that many suppliers still perceive little economic incentive to enter the Virginia retail market. No competitive service provider is offering energy priced so that switching customers may save money. Currently, one supplier continues to serve about 2,300 residential customers and 22 small commercial customers in northern Virginia with an environmentally-friendly "green" power offer. This service is more expensive than Dominion Virginia Power's price-to-compare. Again, as detailed in Part I, this lack of activity is not unique to the Commonwealth; in other states currently offering retail access, few customers have the option to purchase power at a price lower than their incumbent's price to compare.

Over the past twelve months, the SCC, aided by the incumbent utilities and interested stakeholders, continued to make strides in preparing the Commonwealth for the arrival of competition for the generation component of electric service. Various work groups coordinated by the Staff have been assisting the SCC to provide the foundation for retail access by examining many issues, including competitive metering, supplier billing, default service, energy infrastructure, stranded costs, and regional transmission organizations ("RTO"). The SCC appreciates the time and effort of the respondents that have participated with these work groups.

The SCC has issued orders during the past year relating to issues such as competitive metering, supplier billing, market price/wires charge determination, regional transmission organizations, and several access programs within electric cooperative territories. In addition to the September 1 reports on the status of competition and the December 2002 Addendum, the SCC has issued reports addressing energy infrastructure information and stranded costs. Slow development of competitive activity and statewide budget constraints have caused the SCC to suspend its consumer education efforts for the present.

Part III of the Report consists of two sections. The first section includes a discussion of recommendations advanced by various stakeholders as means of facilitating effective competition in the Commonwealth as soon as practicable. The second section of Part III discusses the SCC's recommendation that a suspension of the Act is in the public interest because delaying implementation of the Act is a prerequisite to the preservation of Virginia's jurisdiction.

To assist development of a comprehensive list of recommendations to foster effective competition, the Staff sent a letter to over 70 interested stakeholders seeking their suggestions. In a letter dated April 16, 2003, Staff posed eight questions designed to stimulate respondents' thoughts on specific restructuring issues. Although the Staff's mailing list targeted stakeholders thought most affected by electric restructuring issues, responses were received from just twelve stakeholders. In a similar survey conducted in

2002, the SCC received sixteen responses. The twelve 2003 responses are included as Appendix III-A to this Report.

Generally, most of the comments received are similar to those expressed in last year's report and reiterated during the past year via various forums such as work group discussions. Respondents' recommendations, while discussed in detail in Part III, do not provide new ideas; the recommendations presented have already been considered by the SCC and the CEUR. Many of the twelve respondents continue to believe that the major obstacles to effective competition in Virginia include:

- The existence of low, capped rates of the incumbent utilities,
- The existence and method of determining wires charges,
- The recovery of yet-to-be-quantified stranded costs,
- The lack of a functional RTO, and
- The lack of effective customer demand response programs.

SCC Recommendation

Section 56-596 of the Act requires the SCC to report its recommendations to facilitate effective competition in the Commonwealth as soon as practicable, which shall include any recommendations of actions to be taken by the General Assembly, the SCC, electric utilities, suppliers, generators, distributors, and regional transmission entities it considers to be in the public interest. This year, the SCC has one recommendation, and it is not new.

Our concerns with the bedrock issues of electric service adequacy and electric service prices likely to be available to Virginians prompted the SCC to issue its December 2002 Addendum. In the December 2002 Addendum, we described the many serious problems likely to result from implementation of the FERC's proposed rules on Standard Market Design. These problems include the elimination of native load preferences, the questionable ability of FERC to oversee market monitoring efforts, the potential exercise of market power by wholesale suppliers, increased costs resulting from the use of locational market pricing in transmission-constrained areas, and regional resource adequacy requirements.

We were and continue to be particularly troubled by the potential loss of the ability of Virginia's electric utilities to provide priority transmission service to Virginia customers under a FERC designed and regulated wholesale power market platform. FERC believes that long-standing practices whereby local utilities favor local customers constitutes undue discrimination. Currently in Virginia, "native load" has priority. This means that if a Virginia electric utility has sufficient generation and transmission to serve its control area or native load customers (including certain wholesale customers such as cooperatives and municipals), the utility may use excess transmission capacity to facilitate other transactions. However, service to native load customers in its control area will be the priority in the event that service interruptions are required to maintain system integrity. Under the current system, wholesale transactions --- serving non-Virginia loads --- are curtailed first because native load customers have paid for that utility's transmission system in retail rates over time. Virginians are protected to a great extent.

In response to criticism levied by Virginia and other jurisdictions, on April 28, 2003, the FERC issued a "White Paper" entitled "Wholesale Market Platform." The FERC White Paper has been carefully studied by the SCC. In our opinion, the FERC White Paper neither clarifies nor alleviates our concerns with the SMD NOPR.

As outlined in this Report, the problems that are impeding the development of retail competition in Virginia and other regional markets continue unabated. Events in

2003 deepen our concern that problems are becoming increasingly complex and their implications irreversible. We face the likelihood that staying on the current path may cause such distress that the development of an effective competitive market at a future date will be foreclosed.

The continued lack of current and expected market activity leads directly to our recommendation that the Act be suspended in order to preserve Virginia's authority. It is in the public interest to avoid ceding jurisdiction over transmission, generation, reliability and, ultimately, the cost of power, to federal regulators and regional entities. The likelihood that increased prices may be required to foster competition and uncertainty regarding Federal direction with regard to RTOs poses additional uncertainty as to what will occur when capped rates end on July 1, 2007.

For these reasons, we renew our recommendation that the General Assembly suspend the Act. Suspension of the Act would require rebundling the components of retail electricity rates and continuing a moratorium on transfers of control over transmission assets to RTOs. However, the General Assembly could allow other aspects of the Act to continue to evolve while these two elements of the Act are temporarily suspended.

Pausing in the implementation of the Act is the best course if we are to preserve Virginia's ability to protect its citizens from the problems that are likely to result from the ceding of regulatory authority to FERC and regional transmission entities. The potential costs of adhering to a perceived schedule for the sake of implementing change outweigh the risks of delay. It is possible that any future benefit of retail access could be affected by a delay of retail access. However, we currently have the basic rules, systems, and procedures in place to harmonize retail access. If Virginia delays full implementation now and retail access proves successful elsewhere, we will be in position to implement retail choice quickly and effectively. This ability to respond quickly should minimize any loss to Virginians with a delay at this time.

In summary, the status of competition is not encouraging. There has been little change in market conditions around the country or in Virginia since we submitted the December 2002 Addendum. Though there are isolated instances in other jurisdictions of competitive activity among larger commercial and industrial customers, retail choice is not yet providing meaningful benefits or yielding sustained savings anywhere in the country. Even more distressing than the absence of sought-after competitive activity is the likelihood that the implications of the SMD NOPR will be detrimental to Virginia's electricity consumers.

A Note on the Northeast Blackout of 2003

If history is any guide, the Northeast Blackout of 2003 will be a watershed event in the evolution of the North American electric utility industry. As this Report is prepared, certain aspects relating to the proximate cause of the blackout are known; the root causes and long-term policy implications have yet to be determined. This has not deterred many restructuring debate partisans from drawing conclusions about the event's deeper meaning. At this juncture it is clear that a full and thorough investigation is required. Also, logic and prudence dictate that before one makes any conclusions about what is happening in real time, one should at least have a full understanding about past related events. What follows is a brief history of the 1965 Northeast Blackout and the ConEdison Blackout of 1977 and explanation of how that history relates to the current state of the industry.

Prior to the 1965 Northeast Blackout, the real cost of electric power had continually declined for about four decades. This trend was aided by the regulatory regime of price and entry regulation, technological improvements and the continued capture of scale economies. The capture of these scale economies was aided, in large part, by steadily expanding system integration. Just as individual power systems benefit from tying increasing loads to ever expanding power generation, the power systems themselves eventually interconnected with their surrounding neighbors. This allowed for integrated planning and operations on a multi-system basis through various types of power pooling arrangements and operating agreements.

By November of 1965 the U.S. electric utility industry had reached its apogee ---- things were going very well. The industry, by pursuing a strategy of growth and intersystem coordination subject to rate of return regulation, compiled an amazing set of statistics: Consumption of power leaped ahead at a 12% annual rate from 1900 to 1920; from 1920 to 1965, it grew at about 7% per year.[1] Such rapid rates of electricity consumption exceeded the growth rate for all energy sources together by a factor of 4 to 5 times. As consumption increased, the price of power declined: in 1965 cents, power used by residential customers dropped from about 90 cents per kWh in 1892 to a little more than 2 cents in 1965.[2]

As would soon be evident, the benefits of regional integration of power systems came at a cost. At 5:16:11 P.M. EST on the moonlit evening of November 9, 1965, a protective relay at the Sir Adam Beck Station of the Hydro-Electric Power Commission of Ontario caused a circuit breaker to operate, opening (disconnecting) one of five transmission circuits carrying power north toward Toronto. There was no electrical fault; the relay had been set in 1963 at a level too low to carry the load it needed to carry in 1965. The breaker operation quickly overloaded the remaining four 230 kV transmission lines running from Beck Station. Those lines opened, triggering an electrical disturbance that would, within four seconds, "island" four large sections of what was then known as the Canada-United States Eastern Interconnection. Eventually, the blackout affected 30 million people over an 80,000 square mile territory in about 20 major utility control areas. Some utilities, with limited "blackstart" capabilities and damaged equipment, needed more than 13 hours to restore service. Clearly, interconnection of systems had allowed the Beck disturbance to spread from one utility control area to another.

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[1] See Richard F. Hirsh, The Electric Utility Industry in 1965: At the Pinnacle of Success before the Blackout. Available at http://blackout.gmu.edu/archive/essays/hirsh_1999.html

[2] See Richard F. Hirsh, The Electric Utility Industry in 1965: At the Pinnacle of Success before the Blackout. Available at http://blackout.gmu.edu/archive/essays/hirsh_1999.html

The 1965 Northeast blackout was watershed event for the industry. By 1967, the Federal Power Commission produced a voluminous Report to the President entitled "Prevention of Power Failures".[3] The 12 recommendations called for greater coordination among interconnected power systems, including but not limited to, "early action … to strengthen transmission systems serving the Northeast" and "to the extent they do not now [1967] exist, strong regional organizations be established throughout the nation, for coordinating the planning, construction, operation and maintenance of individual bulk power supply system".[4] The end result of this was the formation of the North American Electric Reliability Council ("NERC"), the various regional reliability councils and the formation of the New York ("NYPOOL") and New England ("NEPOOL") power pools. It should be noted that utilities in Pennsylvania, New Jersey and Maryland recognized the economic and operational benefits of interconnection long ago. PJM was formed in 1927 and operated as an integrated system until its recent transformation into an RTO enabling the transition to restructured electricity markets in its control area in the late 1990's.

Twelve years after the Northeast blackout, on the hot and muggy evening of July 13, 1977, a series of thunderstorms led to the eventual collapse of the Con Edison system serving metropolitan New York City. The differences between the 1977 blackout and the

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[3] *See* U.S. Federal Power Commission. July 1967a. Prevention of Power Failures. Vol. I--Report of the Commission. Washington, DC: U.S. Government Printing Office.
U.S. Federal Power Commission. June 1967b. Prevention of Power Failures. Vol. II--Advisory Committee Report: Reliability of Electric Bulk Power Supply. Washington, DC: U.S. Government Printing Office.
U.S. Federal Power Commission. June 1967c. Prevention of Power Failures. Vol. II--Studies of the Task Groups on the Northeast Power Interruption. Washington, DC: U.S. Government Printing Office.
Available at http://blackout.gmu.edu/archive/a_1965.html

[4] *See* U.S. Federal Power Commission. July 1967a. Prevention of Power Failures. Vol. I--Report of the Commission. Washington, DC: U.S. Government Printing Office, page 4.

1965 disturbance described above are many.[5] The 1965 Northeast blackout affected a much larger area and was caused by a much more benign condition --- exceeding the Beck station relay setting that had been set in 1963. In 1977, a moderately loaded ConEd system sustained several lighting strikes that tripped generation and disabled interconnections with a neighboring utility. These events overloaded remaining ties before in-city load could be shed or generation increased. The ConEd system became completely separated from its neighbors and collapsed.

Perhaps partially in response to the belief that actions taken after 1965 would prevent such a blackout and perhaps because of large scale rioting in New York City, the investigations into the 1977 event appear to have taken a different tone compared to that of the 1965 investigations. ConEdison was determined to have committed "operator error".[6] Like 1965, there were recommendations that called for greater ties to and coordination with neighboring electric utilities. There were also recommendations that applied specifically to ConEdison operating and control procedures. For example, at the hour of the 1977 blackout, ConEd was importing a historically large proportion of its electricity requirements due to economic circumstances brought on by the end of cheap oil following the oil embargo of 1973-1974. As a result of the 1977 event, operational changes were recommended to commence with the approach of thunderstorms. Such a

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5 May include a discussion about how new post oil embargo dispatch economics causes heavy power flows into Con Ed that evening. Oral history suggests that control room technologies and personnel were not equipped to manage the power system given these new economy based power flows. This is still an issue today as FERC is currently working a NYISO matter regarding how the extra costs associated with "thunderstorm alerts" in NYC will be allocated among LSEs serving customers in the Con Ed CA.

6 U.S. Department of Energy. Federal Energy Regulatory Commission. June 1978. "The Con Edison Power Failure of July 13 and 14, 1977." Washington, DC: U.S. Government Printing Office. (Document 2 of 4.) Chapter VII, Conclusions and Recommendations. Available at: http://blackout.gmu.edu/archive/pdf/usdept051_100.pdf

protocol, which exists to this day, unloads tie-lines with neighboring systems by increasing in-city generation even though imported power would be cheaper.

What can we learn from this brief history and what are the implications of this history as they relate to the 2003 Blackout? Even though this is written before the likely massive inquiries are complete, certain questions --- not answers --- are apparent. Before stating those questions one thing is very clear. The events of Thursday afternoon, August 14, 2003 resemble some key aspects of both the 1965 and the 1977 events, even though those two prior blackouts were very different.

Both the 1977 blackout and the 2003 event occurred on the afternoon of a hot and humid summer day. Such conditions cause higher electrical loads and also reduce the capacity of the system to deal with such loads. Electrical systems can carry more load in cooler weather --- other things being equal. The 1965 blackout occurred in November in mild weather with relatively light system loads. But, the 1977 blackout was contained to the Con Edison system serving metropolitan New York. There was no cascading of the 1977 event throughout the Eastern United States and Canada.

The 2003 event, like the 1965 event, was a cascading blackout. This major common characteristic is very unsettling, to say the least. Given this crucial similarity, it appears that the 2003 event may have been more like the 1965 blackout. Thus, while steps taken between 1965 and 1977 appeared to have prevented a cascading blackout in 1977, the real question that must be answered is whether policies and industry changes that have been put into effect or occurred since 1977 have returned the Eastern United States and Canada to pre-1965 levels of system reliability. Also, since there were no notable major blackouts in the Northeast for many years after 1977, one should logically focus inquiry on the recent major changes experienced by the electric industry in the Northeast.

After both the 1965 and 1977 blackouts numerous and extensive investigations where undertaken that provided many answers to key questions raised by those two events. Answers were eventually produced and procedural changes were implemented that endure to the present day.

In simplest of terms the SCC notes that cascading electrical failures were impossible in the industry's earliest days because systems were not interconnected. As time progressed utilities began to take advantage of interconnection at the margin. Utilities realized that interconnection with a neighboring utility system could decrease costs and increase each system's individual reliability or at least a modeled calculation of that reliability. With the Northeast Blackout of 1965 it became apparent to many that interconnection also had reliability risks. Note that even the then existing relatively weaker ties built to deliver the benefits of integration at the margin allowed for a cascading failure to impact multiple systems. As a result of the 1965 event, actions were taken to enhance inter-utility coordination and minimize reliability risks. By 1977, these actions may have prevented the ConEdison Blackout of 1977 from spreading to other systems.

The objective of the restructuring of the industry over the last 10 years has been to improve the performance of the electric system by separating production (generation) from transport (transmission). Proponents believe that generation can be made to be competitive and, as a result, prohibitions against entry into the generation sector have been removed. There is also a belief that the existing transmission system has been and continues to be run in an inefficient manner. Restructuring proponents claim that utility reliance on local, affiliated generation is discriminatory and inefficient even though this operating strategy has reliability implications as such practices serve to unload the ties between systems. This reliance on local sources served to reduce the need to transmit power over long distances and instead required that utilities provide preference to transmission service needed to serve native load customers from local generating stations. Transmission among utility systems over long distances was put in second place behind transmission service for native load customers.

The FERC's current vision of a restructured wholesale electricity market implies an operating mode that seeks to minimize electricity costs over vast interconnected regions requiring more power flows than the current bulk transmission system was designed to handle. In contrast to the industry's historical integration at the margin, the FERC's vision is one of complete system integration. This means that electrical ties between and among regions will be more heavily loaded than in the past. Indeed, since ties are more likely to be loaded under a variety of operating conditions, heavily loaded ties may possibly have played a part in the 2003 event.

In response to the 2003 Blackout, there have been increased calls for greater investment in the bulk transmission system. Interconnection at the margin has benefits and it has costs. The amount of transmission plant and the kind of interconnection required to fully and reliably integrate large parts of the North American electric system has a different set of costs and benefits. This level of integration requires a bulk transmission system that is often characterized as being analogous to this nation's interstate highway system. It is nearly ubiquitous and very expensive. The key question is whether the costs and risks of constructing and operating such infrastructure will produce benefits in the form of operating economies sufficient to cover the costs of network development. This question should be fully evaluated as part of a reasoned response to the events on August 2003.

ACRONYMS

ACC	Arizona Corporation Commission
AEI	American Energy Institute
AEP-VA	American Electric Power- Virginia
AP	Allegheny Power
BG&E	Baltimore Gas and Electric
BGS	basic generation service
BHE	Bangor Hydro-electric Company
CGV	Columbia Gas of Virginia
CMP	Central Maine Power Company
CSP	competitive service provider
CTC	competitive transition charge
DEDS	Dominion Energy Direct Sales
DEQ	Department of Environmental Quality
DVP	Dominion Virginia Power
ECN	Energy Cooperative of New York
EDI	electronic data interchange
ESCO	energy service company
FERC	Federal Energy Regulatory Commission
FREDI	First Regional Electronic Data Interchange
GISB	Gas Industry Standards Board
ICAP	installed capacity market of PJM
ICC	Illinois Commerce Commission
IEEE	Institute for Electrical and Electronic Engineers
KU	Kentucky Utilities
KW	kilowatt
LDC	local distribution company
LMP	locational marginal price
LTTF	Legislative Transition Task Force
MMU	Market Monitoring Unit of PJM
MPC	Montana Power Company
MPS	Maine Public Service Company
MPSC	Maryland Public Service Commission
MW	megawatt
NAESB	North American Energy Standards Board
NARUC	National Association of Regulatory Utility Commissioners
NEM	National Energy Marketers Association
NMPC	Niagra Mohawk Power Corporation
NOPEC	North East Ohio Public Energy Council
NOPR	Notice of proposed rulemaking
NOVEL	Northern Virginia Electric Cooperative
NU	Northeast Utilities
NYSEG	New York State Electric and Gas
O&R	Orange and Rockland

ODEC	Old Dominion Electric Cooperative
ODP	Old Dominion Power
PES	Pepco Energy Services
PE	Potomac Edison
PJM	Pennsylvania-New Jersey-Maryland Interconnection
PMW	Power Markets Week
POLR	provider of last resort
PSE&G	Public Service Electric and Gas Company
PUCO	Public Utilities Commission of Ohio
PUCT	Public Utility Commission of Texas
REC	Rappahannock Electric Cooperative
REP	retail electric provider
RG&E	Rochester Gas and Electric
ROA	retail open access
RTE	regional transmission entity
RTO	regional transmission organization
S&P	Standard & Poor's Ratings Service
SCC	State Corporation Commission
SERC	Southeastern Reliability Council
SOS	standard offer service
SPP	Southwest Power Pool
SWEPCO	Southwestern Electric Power Company
T&D	transmission and distribution
UBP	Uniform Business Practices
UHR	UHR Technologies
UCAP	unforced capacity market of PJM
VCCC	Virginia Citizens Consumer Council
VCFUR	Virginia Committee for Fair Utility Rates
VEC	Virginia Energy Choice
VEPA	Virginia Energy Providers Association
VIPP	Virginia Independent Power Producers
WGES	Washington Gas Energy Services
WGL	Washington Gas Light
WTU	West Texas Utilities