

# Delaware's Electricity Future: Re-Regulation Options and Impacts

A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

Presented to the  
Office of Management and Budget and the Controller General

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May 2007

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

Acknowledgments

The author wishes to acknowledge the editorial assistance and comments of Dr. John Stutz of the Tellus Institute, Bert Scoglietti of the Delaware Office of Management and Budget, Jennifer Cohan of the Delaware Office of the Comptroller General, Bruce Burcat of the Delaware Public Service Commission, Serine Steakley and Ann Stewart. All errors and omissions are my own.

Delaware’s Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

**TABLE OF CONTENTS**

1	INTRODUCTION .....	4
1.1	No More Free Lunch --- So, No Going Back .....	4
1.2	A Search For Solutions .....	5
1.3	What Exactly is Re-Regulation?.....	7
1.4	The Effects of Re-Regulation Will Depend on the Choices .....	9
2	BACKGROUND: THE END OF A GOLDEN AGE.....	11
2.1	The Good Old Days: Distributing Benefits, Not Problems .....	11
2.2	Problems Every Where You Looked .....	11
2.3	Markets Can Fix Anything.....	13
2.4	Delaware Takes the Plunge.....	14
2.5	Retail Competition: Unable to Deliver .....	15
2.5.1	Early Experience – the California Meltdown .....	16
2.5.2	Promises Unfulfilled .....	18
2.5.3	Back to the Drawing Board.....	23
3	ELECTRICITY TODAY: ALLOCATING PAIN, NOT GAIN?.....	24
3.1	The same problems as before deregulation (and then some).....	24
3.1.1	Natural Gas Prices: Higher, Going Higher, and Volatile.....	24
3.1.2	Increased Security Concerns.....	27
3.1.3	Global Climate Meltdown - A Growing Concern.....	27
3.1.4	Plant Construction Costs on the Rise.....	27
3.2	Delaware relies heavily on imports from other states.....	27
3.2.1	Transmission Links to Cheaper Generation: Still Waiting .....	29
3.2.2	Delaware Loads Are Growing About 2% Per Year.....	29
3.2.3	Delaware Could Benefit From New In-State Resources .....	30
3.3	Summary of Resource Options – No Silver Bullets?.....	30
3.3.1	Wind.....	31
3.3.2	Solar Photovoltaic (PV Solar).....	31
3.3.3	Nuclear .....	32
3.3.4	Greenhouse Gas Mitigation Costs Uncertain.....	32
3.3.5	The Best Single Resource Option - Efficiency .....	33
3.4	Summary of Technology Challenges.....	37
4	WHAT HAS BEEN DONE OR PROPOSED IN OTHER STATES?.....	38
4.1	Phase-In Post-Transition Rate Hikes .....	39
4.2	Use Laddered Procurements .....	39
4.3	Permit/Require Utility To Enter Into Long-Term Contracts .....	39
4.4	Allow Utility To Build Plants/Return to Cost-of-Service Regulation .....	40
4.5	Empower State Agency To Produce/Procure Power .....	40

Delaware’s Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

4.6	Reinstate Least-Cost/All-Resource Planning.....	40
4.7	Limit Retail Choice – Core/Non-Core.....	41
4.8	Impose Excess Profits Tax.....	41
4.9	Promote Retail Competition .....	42
4.10	Cap Retail Rates.....	42
5	RECOMMENDATIONS.....	43
5.1	Recommendation 1: Delaware Should Periodically Develop Electricity Priorities In A Democratic Process.....	43
5.1.1	Debating and Deciding Delaware’s Electricity Priorities.....	43
5.1.2	Coming Together to Agree on a Forecast.....	46
5.2	Recommendation 2: Delaware Should Adopt A Portfolio Approach To Meeting Electricity Resource Needs.....	47
5.2.1	Choosing a Portfolio Manager .....	48
5.2.2	The Portfolio Manager’s Mandate.....	50
5.2.3	Portfolios and Deregulation .....	53
5.2.4	Delaware Halfway There Already .....	55
5.3	Recommendation 3: Delaware Should Create A State Power Authority To Increase The Options For Cost-Based Power. ....	55
5.4	Recommendation 4: Delaware Should Consider Limiting Retail Choice. ....	57
5.5	Recommendation 5: Delaware should set up the processes and institutions for its electricity future within this coming year, and begin to implement them in the years following.....	60
	SUMMARY.....	62

**Appendix I**

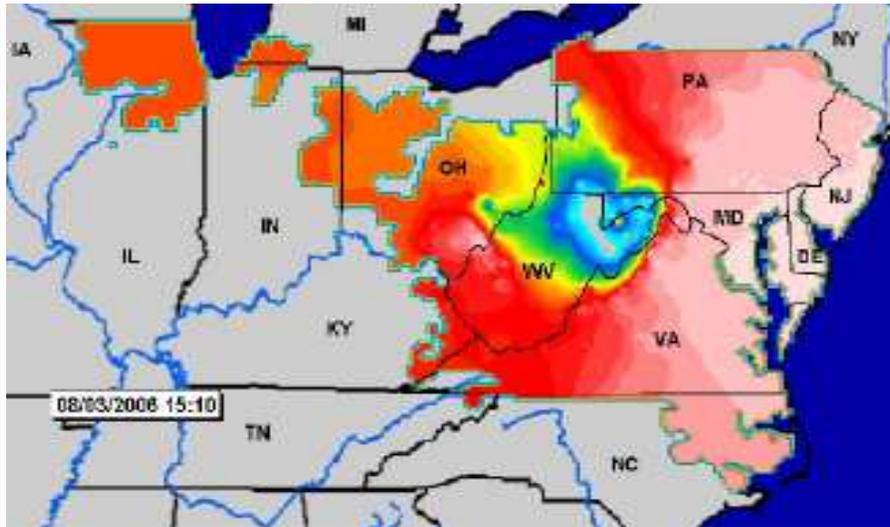
**State Responses To Deregulation Problems,  
Adopted By April 30, 2007**

**Appendix II**

**Further Proposed State Responses**

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

**Delaware:  
On the Wrong Side of the Interface, and At the End of the Line**



## 1 INTRODUCTION

### 1.1 NO MORE FREE LUNCH --- SO, NO GOING BACK

Delaware, like all states, faces an uncertain energy future. Fuel prices are going up. Environmental costs are hitting the pocketbook. No source of electric generation can yet claim to be low-cost, highly reliable *and* environmentally benign at the same time.

**It is no longer clear who is responsible for anticipating the need for electricity and taking the steps needed to meet that need.**

The deregulation of the electric industry in Delaware and surrounding states has made these problems more severe. It is no longer clear who is responsible for anticipating the need for electricity and taking the steps needed to meet that need. It is not obvious what to do, and it is not clear who should do it.

**No source of electric generation can yet claim to be low-cost, highly reliable *and* environmentally benign at the same time.**

There are practical reasons why Delaware cannot simply snap its legislative fingers and recreate the situation before 1999. These are noted in the next subsection. A more fundamental challenge faces Delaware and other states seeking a new direction after the failure of deregulation. To understand this challenge, it is useful to consider the roles of utilities and regulators in the pre-restructuring era.

Regulation worked well enough for 100 years because the choices facing utilities were limited, and were broadly aligned with the interests of consumers. A utility had incentives to grow and expand, and to build larger and larger plants. All of these impulses resulted in lower prices for electricity. With expansion, plant costs were spread over a larger and larger customer base, lowering unit costs. Even after electricity had been extended virtually everywhere people lived and worked, utilities could reap economies of scale by building ever larger and more efficient plants.

In this happy circumstance, the chief job of the regulator was to prevent abuse of a utility's monopoly position, and to ensure rates were fairly assessed among customers, without discrimination. The regulator's job was to hold the company back, not spur it to action. Except in times of crisis like the Great Depression, or in sparsely-settled areas, the typical utility was ready, willing, and able to build in the public interest. The regulator rarely needed to push an unwilling utility to take a specific action over its objections. When those situations arose, regulation typically performed less well. As in

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

the case of electrification of rural America, if utilities were unwilling to act, the government often needed to take up the job to get it done. But these situations were the exception, not the rule.

Regulation is much better at restraining a ready, willing and able utility, than at pushing an unwilling utility to take on a responsibility with no easy solutions.

As this report will explain, this match of utility intention and regulatory capability has broken down as economies of scale have been exhausted, new environmental risks have been recognized, and the costs of fuel and other inputs have become volatile and expensive. Now, risks face the electricity planner in every dimension of the job.

Some utilities are trying to avoid taking back their historic obligation to serve customers, afraid perhaps they will be held responsible for risky choices that do not turn out well. Others are demanding unusual protections against the consequences of their decisions, as a precondition for resuming the obligation to serve. Others still are pushing for extraordinary profit margins.

But taking care of a utility's reluctance to resume the obligation to serve customers as part of re-regulation does not address the more fundamental challenge of the electricity industry today. In a situation with no obvious paths to low-cost, reliable, sustainable and environmentally-benign electricity, trade-offs must be made. Every decision comes at a cost. No longer can utility management be expected to choose between alternatives without direction from the public --- because at bottom, the public itself must choose what risk it is willing to take on, in the hopes of obtaining some goal it values more highly.

**In the end, the public *itself* must choose between the uncertain options facing the electricity industry. It must express its preference for this risk over that risk, this possibility over that possibility. These preferences must guide investment and operational choices.**

Until and unless technology breaks through some of the constraints that bind electricity planners today, there will be no free or even low-cost lunch. And that in turn means that Delaware cannot simply turn the clock back to pre-1999, and try to reinstate regulation. Rather, new institutions are needed to identify the public's "risk preferences" and to implement them, consistent with the public's determinations.

## 1.2 A SEARCH FOR SOLUTIONS

This report was commissioned by the Legislature in response to the crisis in power rates for customers of Delmarva Power & Light (DP&L). In May 2006, rate caps for

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

customers of DP&L were due to be lifted. The rate caps, which included a 7.5% reduction in supply rates, were first imposed in October 1999,<sup>1</sup> and extended in 2002 until May 2006.<sup>2</sup> The idea was that most customers would be getting their power from competitive suppliers by the time the rate caps were lifted. But retail competition did not emerge, and by then DP&L had sold or transferred all its power plants.

To serve its non-shopping customers, who were the vast majority, DP&L went out to buy power on the open wholesale market. As a result of the high prices in that market, DP&L retail rates were going to jump by 50% for residential customers, 67% for small commercial customers, and as much as 118% for the largest customers of the utility.

Facing this crisis, the Legislature responded, implementing a phase-in of the new prices, and significantly revising the Delaware approach to electricity markets. In addition to taking immediate steps to deal with the crisis, the Legislature sought this analysis, to better understand the consequences of moving further in the direction of re-imposing state control over the electric industry. Discussing the study, SS1 to SJR 3 of the 143<sup>rd</sup> General Assembly provides as follows:

...WHEREAS it is of extreme importance for the State of Delaware to examine and implement a strategy to re-regulate the supply and sale of electricity for the physical and economic well-being of its citizens;

NOW THEREFORE:

...

BE IT RESOLVED ... that the ...Office of Management and Budget and the Controller General ... hire an Independent Consultant to present a study explaining the effects of the re-regulation of electric power in Delaware; and

BE IT FURTHER RESOLVED that such study ... outline and explore the potential benefits and shortcomings to the citizens of the State and the electric power industry as a result of any re-regulation; and

BE IT FURTHER RESOLVED that such study completely examine the economic costs to the State and the electric power industry as a result of any re-regulation of electric power; and

BE IT FURTHER RESOLVED that such study consider all reasonable aspects of implementation and recommend a detailed plan of action to implement the process of re-regulation of electric power in the State of Delaware in a manner which protects its citizens and takes into consideration all circumstances.

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<sup>1</sup> Delaware PSC Order No. 1523, 1999.

<sup>2</sup> Delaware PSC Order No. 5941, April 22, 2002.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

...

This report is prepared in response to the mandate of SS1 to SJR 3.

### **1.3 WHAT EXACTLY IS RE-REGULATION?**

To begin the analysis requested by the legislature, the first step is to define “re-regulation.” In turn, this requires a look back at the structure of the electric industry in Delaware before de-regulation in 1999, when “the Public Service Commission had regulatory authority over the electric generation business of Delmarva Power & Light Company (“Delmarva”) and the Delaware Electric Cooperative (DEC) in the state of Delaware.”<sup>3</sup>

For most of the 20<sup>th</sup> century, electricity in Delaware was provided by vertically-integrated regulated monopolies. In the case of Delmarva Power & Light (Delmarva), the same company owned the generating plants, the transmission lines to move the power around the state, and the poles and wires used to distribute it to individual customers. Delmarva was a monopoly; no one but Delmarva could supply power to customers in its service area. Similarly, in the DEC distribution area, DEC had the exclusive right to sell power to its customers. In both cases, customers might generate their own power, but they could not buy it from anyone other than their franchised monopoly utility.

As monopolists, the utilities could have exacted very high prices from customers if their rates were not regulated. They could have played favorites among their customers, to maximize their revenues. Delaware, like almost all other states, created a state agency, known as the Public Service Commission, which could limit the rates charged by the utility. The Commission was charged with ensuring that the utility's rates were just and reasonable, and that its service was adequate.

Under de-regulation, Delmarva's generation was sold off, and the utility's vertical integration was dismantled.<sup>4</sup> Customers were given the legal right to buy power from suppliers other than their distribution utility. Why that was done, and what problems have emerged in trying to make de-regulation work, are discussed below. For now, the key issue is what industry structure would be implied by the term “re-regulation.”

At face value, it would be reasonable to believe that the legislature was looking for a study of the benefits and drawbacks of returning to the pre-1999 industry structure, in which Delmarva owned or had contractual rights to the output of a number of plants in Delaware and elsewhere, and customers of Delmarva and DEC bought their power

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<sup>3</sup> From the first Whereas clause of SS1 to SJR3.

<sup>4</sup> DEC was and is an all-requirements customer of its wholesale provider, Old Dominion Electric Cooperative (ODEC). As such, it had no generation of its own to divest.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

exclusively from their distribution utility. This path is not realistic, at least in the case of Delmarva, at least in the short term. That is because Delmarva would have to build up a portfolio of generation to serve its customers from scratch.

If Delmarva tried to buy back the plants it sold or transferred, it would likely *have to* pay market prices. If it tried instead to contract for substitute power, it would have to pay market prices. And if it tried to rebuild its own plants, it would have to get the sites and pay for the construction at today's prices. As a practical matter, Delmarva cannot simply recreate its portfolio of resources from 1998. So re-regulation will have to mean something different from immediately reversing the clock in the Delmarva service area, and returning to pre-1999 days.

For DEC, it is somewhat easier to go back, since the only change that took place in the DEC service area was the opening of the retail market to choice. Since little or no shopping has occurred in the DEC area, the monopoly could be restored to DEC legally with no practical consequences, and from the perspective of DEC's customers, re-regulation would be complete.<sup>5</sup>

But in the case of Delmarva, not only must the state decide what end-state is optimal for this investor-owned utility and its customers, it must decide how to get from here to there. HB 6, the 2006 statute instituting protections for customers in light of the anticipated rate spikes, took the first step in the definition of the end-state:

§1003. Retail competition General Rule. Except as otherwise expressly provided for in this chapter, on and after May 1, 2006 the generation, supply and sale of electricity, including all related facilities and assets, used to serve Standard Offer Service and Returning Customer Service, shall be treated as a public utility service or function.

By treating the generation, supply and sale of electricity as a public utility service or function, Delaware has reasserted control over electric generation. As will be discussed, the State has exercised that control already in a variety of ways. More work must be done to ensure that over time, Delaware has an adequate supply of electricity that reflects the preferences of the public regarding the myriad risks that confront an electricity resource planner today.

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<sup>5</sup> DEC customers have since chosen to self-regulate, rather than be regulated in their prices by the Public Service Commission. Presumably this choice was available to them before 1999.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

#### **1.4 THE EFFECTS OF RE-REGULATION WILL DEPEND ON THE CHOICES**

While it is clear what re-regulation is not, it is less clear what re-regulation is, or should be. Indeed, Delaware has a number of options for re-asserting control over electricity resources for its citizens. The effects of each of these options will be different. For this reason, it makes sense to recast the legislature's questions so that the answers in turn determine which approach to re-regulation makes the most sense:

1. Which type of re-regulation will have the optimum effects in Delaware?
2. What are the potential benefits and shortcomings to the citizens of the State and the electric power industry of the various approaches to re-regulation? Which approach has the greatest benefits and the fewest shortcomings?
3. What are the economic costs to the State and the electric power industry as a result of the various approaches to re-regulation? Which approach will impose the least economic cost, and offer the greatest economic benefit?
4. What approach to re-regulation should be adopted in Delaware, and how should this approach be implemented?

This report will attempt to answer these questions. In order to do so, a number of issues must be explored:

- How will Delaware choose between different risks and opportunities?
  - What risks does Delaware want to avoid, and what will it take in trade for some other opportunity?
    - E.g., is short-term price impact more important than long-term cost and greenhouse gas mitigation?
    - E.g., is a promise of low generation costs more important than the risk of spikes in natural gas prices?
- What is the best mix of resources to meet Delaware's needs?
  - Should Delaware consumers' electricity needs be met by short-term procurement or longer-term entitlements, or some mix?
  - Owned generation, purchased power or efficiency and load management? These or those environmental qualities?
  - In-state or anywhere?
  - Other preferences?
- Who should be responsible for anticipating consumer needs for electricity? For anticipating potential resources?

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

- Who's in charge of these decisions and implementation?
  - Who decides what the mix will be?
  - Who should be responsible for ensuring adequate electricity supply for Delaware?
  - Who should be responsible, if anyone, for building new plant to serve Delaware consumer needs?
  - Who should be responsible, if anyone, for procuring power from the market?
  - Who should operate the plants, and oversee the purchased power contracts?
  
- What should be the consequence of decisions if the future turns out to be different from the forecasts made to justify the commitments?
  - Who should bear the consequences of these outcomes?
  
- How do we get from here to there?

The answer to these questions will require understanding the effects of various approaches to re-regulation. In turn, they will lead to a set of recommendations for Delaware to consider as it charts its course to assure its citizens safe, reliable, and reasonably priced electricity, conforming with the State's environmental goals.

## 2 BACKGROUND: THE END OF A GOLDEN AGE

*The demand for electricity and the supply of electricity must be balanced every few minutes. Someone has to forecast the demand, and make sure enough resources are available right when actual demand occurs. For 100 years, meeting that requirement kept getting easier and cheaper. Then, starting in the 1970's, it got harder and more expensive to do this.*

### 2.1 THE GOOD OLD DAYS: DISTRIBUTING BENEFITS, NOT PROBLEMS

From the late 1800s up through the early 1970's, there may have been uncertainty in the electricity business, but the system worked reasonably well. Throughout the first three quarters of the century, the real price of electricity kept coming down.<sup>6</sup> With some help from the federal government in rural areas, by the 1950's virtually all Americans had electricity. Bigger and bigger generating plants were more and more efficient, and fuel prices stayed within reason.

Because of the increasing economies in generating and delivering electricity, utilities and states could make long-term commitments to new generation with some assurance that they would still benefit from the investment, even if the forecasts of need or costs did not pan out exactly. But where there were such robust benefits from further investment, the utility had little practical risk that an investment would be rejected when presented for inclusion in utility rates. Utilities were happy to expand their business and their rate base. And the public had little reason to look closely for signs of waste or inefficiency, when their electricity prices were going down and reliability was going up.

In these circumstances, the political decision to rely mainly on monopoly, regulated investor-owned utilities (IOUs) to make resource choices, with some public check at the tail end, worked reasonably well. For the most part, the public was satisfied with the resulting supply reliability and prices.

### 2.2 PROBLEMS EVERY WHERE YOU LOOKED

Since the early 1970's, all that has turned upside down. Uncertainties about fuel prices, generation costs and environmental impacts began to loom larger than the benefits we

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<sup>6</sup> Joskow, Paul: "Markets for Power in the United States: An Interim Assessment," *Energy Journal*, January 2006; a public version, although earlier (2005), is at <http://tisiphone.mit.edu/RePEc/mee/wpaper/2005-012.pdf>. Joskow puts the breakpoint at 1972.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

could have confidence in. Every resource choice now seemed fraught with risk. Decisions made under the old paradigm stopped producing the happy results of the past.<sup>7</sup>

Some utilities, believing there were still economies in larger plants, and believing consumers would keep up with the torrid pace of growing electricity use of the 1960's,<sup>8</sup> gambled huge sums of money on nuclear plants. But customers *did* respond to higher prices by cutting back or finding alternatives to electric use. And building larger and larger nuclear plants did not bring greater economies. Between delays and crushing interest rates, and the need for modifications to respond to new problems identified with the Three Mile Island crisis, larger nuclear plants were more expensive than the earlier, smaller ones.

"It's tough to make predictions, especially about the future." Yogi Berra
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When the legacy-paradigm investments did not succeed, the public began to feel it could not trust the IOU's to make the decisions. At the same time, the public's environmental awareness was growing rapidly. Policy makers sought ways to introduce more sustainable power sources, and energy efficiency, into the planning mix. To meet these challenges, many states, like Delaware, tried bringing the public into the decision-making through integrated resource planning (IRP). Policy makers also tried to open the wholesale grid to new (greener) suppliers through PURPA.<sup>9</sup> But each decision to seek contracts from PURPA-qualified facilities (QFs) or other independent power producers, faced an administrative tangle of due process requirements. And some states over-purchased QF power, or overpaid for non-utility generation. Other states underused these competitive alternatives.

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<sup>7</sup> Real prices of electricity in the U.S., averaging all prices, dropped quickly from 1960 to the early 1970's, and from there rapidly increased to peak around 1983. Since then, average prices gradually eased back part way, as a result of lower fuel prices and interest rates. Since about 2000, they've been creeping back up again, with an uptick in 2001 as a result of the spike in gas prices. Annual data on electricity prices, broken out by class of customer and state, is available at <<http://www.eia.doe.gov/emeu/aer/elect.html>>.

<sup>8</sup> Growth rates in the 1960s were about 7% per year, which meant a doubling of the demand for electricity in a decade. To meet this projected growth, at one time utilities had plans to construct over 30 new 1100 mW nuclear power plants up and down the Atlantic seaboard from the Mid-Atlantic to Maine (before that time, the largest nuclear plant was about 800 mW). When early efforts to build this newer generation of plants ran into schedule and budget problems, and as customers cut back their electricity demand in response to the oil price spikes and electricity price increases of the 1970's, most of these plans were scrapped. Customers in some cases were left having to pay all or part of the cost of abandoned and partially-built plants, further raising rates.

<sup>9</sup> The Public Utilities Regulatory Policy Act of 1978 <<http://uscode.house.gov/download/pls/16C12.txt>> known as PURPA, required all investor-owned utilities of a certain size to buy power at their own avoidable cost from non-utility generators whose facilities were qualified as meeting limitations on the use of fossil fuel. The contracts signed under PURPA and state equivalents were later criticized as being too expensive and raising customers' rates.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

Policy makers began to experiment with a variety of responses on the demand side of the meter, encouraging conservation and load management. Some utilities joined the effort, although utilities often opposed spending ratepayer dollars on measures that would cut into their sales. Meanwhile, utilities in a number of states sought greater protection for their investments, through pre-approval by state regulators of the plans to build new plant. Consumers, seeing the overhang of uneconomic past investments they were already paying for, balked at providing guarantees of rate recovery in advance.

Thus, early results of these efforts to address the new realities were uneven and not immediately satisfactory. The IRP approach, which involved extensive public input and government oversight of business decisions, was abandoned in the deregulation of the electric industry. It remained hard to see who should make the decisions and how to avoid the risks. In this climate of uncertainty, a growing consensus urged that competition between prospective generators should provide greater innovation and more value to consumers.<sup>10</sup>

### **2.3 MARKETS CAN FIX ANYTHING**

Policy makers in high-price states were ready for an entirely new approach to the electricity industry. By the 1990's, the idea that markets were better at just about everything was at its zenith. America had deregulated the airlines, banks and telecommunications, and the public seemed generally pleased with the results. So, when independent electricity generators and marketers made promises of lower costs and other benefits of retail competition, it seemed to make sense.

Deregulation proponents pointed out that natural gas prices were low (\$2-\$3/mmbtu). They argued that the new, combined cycle gas-burning generators could come in and undercut the old, "dirty" utility power plants (be they coal or nuclear) and lower prices for consumers (while cleaning up the environment). It was not immediately clear why the utilities could not also build such plants, and market proponents brushed aside the concern that gas prices could increase, or that utilities would demand to be paid for the costs they had incurred under the current regulatory system.

During this period, federal policy makers pushed the competitive model as well. As noted, the Public Utilities Regulatory Policy Act of 1978, that required large investor-owned distribution utilities (like DP&L) to buy the output of certain types of non-utility generation. In 1992, the Energy Policy Act went further, creating a category of generators called "exempt wholesale generators" who were not subject to state regulation. The Federal Energy Regulatory Commission (FERC) also took a number of steps to ensure that non-utility generators could have access to the utilities' monopoly

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<sup>10</sup> See *Restructuring the Electric Industry in Delaware: A Report to the House of Representatives of the 139<sup>th</sup> General Assembly From the Delaware Public Service Commission*, Order No. 4704, PSC Docket 97-229, Appendix A at 24 (January 27, 1998).

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

transmission grids, so they could reach their customers.<sup>11</sup> The PJM Interconnection, the longest-operating power pool in the country, added the responsibility of operating a spot market for the buying and selling of power.<sup>12</sup>

Policy-makers in about half the states embraced retail electricity competition. The hope was that we could rid ourselves of the set of not-very-good choices fraught with risk, and the increasing responsibility of the state to make or at least endorse these decisions with major financial and environmental consequences. We could transfer those burdens to the private market (within a framework of environmental standards, of course). The market would take the risk and produce the best choices, without the need for the government to pick winners or put consumers' money at risk. The burden of increasing rate cases would also be lifted from the state.<sup>13</sup>

## 2.4 DELAWARE TAKES THE PLUNGE

Thus, in 1999, Delaware joined its sister states in opening its retail electricity markets to competition.<sup>14</sup> Poles & wires (delivery) remained a regulated monopoly. Generation service (supply) was opened to competition. Customers could choose a different supplier from their distribution utility, and the distribution utility would deliver the power to the customer. Rates were “unbundled” so that a customer could see how much she was paying for the delivery of power, and the power itself.

In recognition that not all customers could or would shop around, and that electricity is a necessity of modern life, the restructuring legislation provided that customers with no competitive supplier would get Standard Offer Service through their distribution utility. Meanwhile, DP&L got itself out of the business of generation. Under its restructuring settlement, it won the right to sell its plants or transfer them to an unregulated affiliate.

Under the restructuring settlement, DP&L rates were lowered 7.5%, and capped for a transition period expected to end in 2003 for residential customers.<sup>15</sup> Per the statute, non-

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<sup>11</sup> FERC Order 888, *Promoting Wholesale Competition Through Open Access and Nondiscriminatory Transmission Services by Public Utilities* (May 1996), is at <<http://www.ferc.gov/legal/maj-ord-reg/land-docs/order888.asp>>.

<sup>12</sup> PJM opened its market in 1997.

<sup>13</sup> In 1998, in light of the increasing frequency of rate cases, Staff sought amendments to the Filing Requirements utilities had to follow when seeking a rate adjustment. In Order No. 5051, in Docket No. R-4 (March 23, 1999), the Commission adopted revised Filing Requirements to expedite the processing of rate cases.

<sup>14</sup> The legislative history and final version of House Bill No. 10 (“Electric Utility Restructuring Act of 1999”) is at <<http://www.legis.state.de.us/LIS/LIS140.NSF/vwLegislation/HB%2010?Opendocument>>.

<sup>15</sup> The transition period was to end on September 30, 2002 for non-residential customers. Order No. 1523, in PSC Docket No. 99-163. See also <<http://delcode.delaware.gov/title26/c010/index.shtml#TopOfPage>>. The DP&L rate cap was extended until May 1, 2006, as part of the approval of Delmarva Power & Light's merger with PEPco. Order No. 5941, PSC Docket No. 01-194 (April 16, 2002).

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

residential customers had access to the retail market as of October 1, 1999, and residential retail markets were opened the following year.

Delaware Electric Cooperative, the second largest supplier of electricity in the state, was required to open its system to retail choice as well. Under the restructuring statute, DEC customers with peak loads of 1000 kW or greater were eligible to choose an alternative supplier on April 1, 2000. Those with peak loads of 300 kW or greater could shop as of July 1, 2000. All remaining customers were eligible to shop as of April 1, 2001.<sup>16</sup> The transition period was to end on March 31, 2005 for all DEC customers.<sup>17</sup>

Throughout the transition period, DEC continued to get its power from Old Dominion Cooperative at cost. Until March 1, 2007, its residential customers saw no change in rates. On that date, the DEC<sup>18</sup> raised its rates 5.5%. There have been three different rate adjustments after one on March 1, 2007. The PSC in Docket No. 05-146 increased rates approximately 5.8% effective June 6, 2005 via a Power Cost Adjustment Clause ("PCA").<sup>19</sup> In PSC Docket No. 06-13, rates were increased twice; once for about 3.75% on February 1, 2006<sup>20</sup> and again on May 1, 2006, for approximately 4.3%<sup>21</sup>, both times under the PCA.

However, even in total the percentage of the various DEC rate increases has been far less than the one DP&L customers received at the end of their rate cap.

## 2.5 RETAIL COMPETITION: UNABLE TO DELIVER

*California markets melted down. Further deregulation stopped. Prices went up where caps came off. Reliability became a worry. Competition did not force old dirty plants to shut down. Market abuse became a worry.*

<sup>16</sup> See, Order No. 5424 in Docket No. 99-457 (April 25, 2000).

<sup>17</sup> 72 Del. Laws, c. 10, § 3. On July 30, 2004, Delaware Electric Cooperative (DEC) filed a cost-of-service study and proposal to reset its rates pursuant to Electric Utility Restructuring Act (PSC Docket No. 04-288). This docket was consolidated Docket No. 04-202 (set up for the purpose of analyzing the proposed changes in DEC's depreciation rates). On March 22, 2005, the PSC approved a revenue-neutral settlement under which residential customers saw an increase in supply rates of approximately 14.5 percent and a decrease in distribution rates of approximately 24 percent, for an overall rate impact of approximately zero.

<sup>18</sup> Members voted for member-regulation in 2006, so the Board sets the rates without DPSC oversight. According to its web site, the reasons for the rate increase were as follows: (a) meet its financial requirements, (b) build new and rebuild existing lines and substations, and (c) continue providing reliable electric service.

<sup>19</sup> PSC Order No. 6643.

<sup>20</sup> PSC Order No. 6827.

<sup>21</sup> PSC Order No. 6901.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

### 2.5.1 Early Experience – the California Meltdown

California was one of the first that moved to deregulation, but it experienced a massive meltdown early on. In the late summer of 1999, the first price caps came off, for San Diego Power & Light customers. By August 2000, SDP&L prices had tripled. Customers were demonstrating in the streets and demanding relief from the legislature. Retail price “caps” were re-imposed that fall, although they were in fact merely deferrals for later recovery from ratepayers.<sup>22</sup>

But the crisis deepened, as wholesale prices in the California market increased sharply. The two major utilities still had price caps in effect as part of the restructuring deal, and they found themselves buying energy to meet their customers' needs at prices far higher than they could pass on in rates. There are ongoing disputes about who is to blame for this situation.<sup>23</sup> High prices combined with ongoing rate caps squeezed the California utilities.

In mid-January 2001, the California ISO ordered rolling blackouts, because power available to the utilities did not cover the needs of consumers. Governor Davis signed an emergency order allowing the state Department of Water Resources (DWR) to buy power as part of a plan prevent the bankruptcies of Southern California Edison and Pacific Gas & Electric, as well as prevent blackouts.

In March, the California grid operator was forced to institute statewide rolling blackouts to prevent the whole grid from collapsing. More emergency rate hikes were ordered, but by April 6, 2001, Pacific Gas & Electric filed for bankruptcy. By mid-May, the Federal Energy Regulatory Commission finally answered California's repeated calls for some form of wholesale price caps. The crisis eased, albeit at a cost to California in the billions of dollars of excessive power costs, not to mention a winter of frequent

**California and the Western Markets – A Cautionary Tale:**

The 5<sup>th</sup> largest economy in the world brought to its knees – rolling blackouts become common. Aluminum smelters in the Northwest shut down, making more money selling precious power than operating their facilities. An Enron trader laughs with a colleague about “poor Granny” without lights, while manipulating the Western markets. California claims marketers overcharged by as much as \$12 billion. After a number of lawsuits, FERC eventually supervises settlements, crediting Western consumers several billion dollars, but less than the claimed impacts of market abuse.

<sup>22</sup> AB265, signed into law in September 2000, capped the energy cost at 6.5¢ per kWh for all customers of SDG&E except large C&I customers. The cap was retroactive to June 1, 2000 and remained in effect through 2002.

<sup>23</sup> Competition proponents argue that the CPUC refused to let the utilities enter into long-term contracts to serve their non-shopping customers. In fact, the CPUC said it would reserve the power to review the contracts for prudence, and the utilities were not willing to proceed without pre-approval. Further, the financial crisis of California utilities did not become insurmountable until the FERC lifted wholesale price caps on December 8, 2000.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

blackouts. Eventually, the Federal Energy Regulatory Commission, with some prompting from the courts, ordered refunds of large sums from marketers to California, as massive market abuses by Enron and other marketers were established.

The rest of the nation took notice, and the march to deregulation halted. States that had been moving towards deregulation suspended further action, or even repealed restructuring schemes on the books. The Federal Energy Regulatory Commission continued to press for a standard market design and regional transmission organizations.<sup>24</sup> Some states such as New York and to a lesser extent Pennsylvania are still actively promoting greater retail competition. But after California, no further retail deregulation emerged around the country.

<b>STATES THAT PULLED BACK FROM DEREGULATION AFTER THE WESTERN MARKET MELTDOWN<sup>25</sup></b>	
<b>STATE</b>	<b>Action to Repeal or Suspend Choice</b>
<b>Arizona</b>	PSC suspended progress towards deregulation in August, 2002. <a href="http://www2.azcc.gov/divisions/admin/news/pr08-28-02.htm">http://www2.azcc.gov/divisions/admin/news/pr08-28-02.htm</a> .
<b>Arkansas</b>	Legislature repealed restructuring on February 21, 2003, <a href="#">Act 204 of 2003</a> , repealing the 1999 restructuring statute. The legislature had previously suspended restructuring. <a href="http://www.nprb.state.ne.us/report_2003/chapter5.PDF">http://www.nprb.state.ne.us/report_2003/chapter5.PDF</a>
<b>California</b>	PUC suspended retail choice on September 20, 2001, in Decision 01-09-060. Efforts to restore choice have not been successful, although neither have efforts to restore the pre-restructuring regulatory scheme.
<b>Montana</b>	PSC delayed choice until July 2004. Order No. 6314, December 21, 2000. In May 2001, legislation delayed choice to July 2007, and created a state power authority. HB 474. This statute was repealed by voter initiative in the fall of 2001. IR-117 May 2003 legislation delayed mandatory retail choice until July 2027. (April 2007 legislature passed HB 25 to allow utility plant construction.)
<b>Nevada</b>	Legislature passed emergency legislation repealing its deregulation statutes on April 18, 2001. AB 369. In July 2001 it also passed AB 661, allowing certain large customers to continue to shop, subject to PSC approval: a form of "core/non-core" system
<b>New Mexico</b>	Legislature passed SB-718 in 2003, repealing retail choice.
<b>Oklahoma</b>	In April 2001, the state legislature passed an emergency bill to delay restructuring until it could be studied further. SB 440 The bill also required passage of enabling legislation to restart restructuring. No such legislation has since passed.
<b>West Virginia</b>	Originally choice was to be introduced as of January 1, 2001. HB 4277 (1998). The necessary confirming legislative resolution was never enacted.

<sup>24</sup> See FERC Order 2000 at <<http://www.ferc.gov/legal/maj-ord-reg/land-docs/RM99-2A.pdf>>.

<sup>25</sup> In addition, New Hampshire, in the wake of the California debacle, directed that the largest electric utility hold on to its non-nuclear power plants until at least 2006, and even then only divest them if it was found to be in the economic interest of consumers. See Statutes 2003, Chapter 21:4, eff. April 23, 2003 at <<http://www.gencourt.state.nh.us/rsa/html/XXXIV/369-B/369-B-3-a.htm>>.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

## 2.5.2 Promises Unfulfilled

### 2.5.2.1 Prices Up and Up

Opening markets was supposed to produce robust competition. In turn, competition was supposed to lower prices, both at wholesale and at retail. Competitors were supposed to be more efficient. And competitors were supposed to pass on their savings to consumers, in order to retain market share. However, prices in the states with no competition (or which capped prices) have gone up on average faster than in states with competition (or deregulated but without price caps).<sup>26</sup> In a March 1, 2007 study, Tellus Institute determined that the sales-weighted average retail price of electricity in deregulated states grew half again as fast between 2002 and 2006 as the prices in rate-regulated states.<sup>27</sup>

Prices in all the restructured states except Maine went up higher than the national average during his period.<sup>28</sup> For example, Massachusetts prices went up 23% between 2002 and 2005. In the same period, prices in Rhode Island went up 35%.<sup>29</sup> The situation has only gotten worse since price caps started to come off. In Pike County, Pennsylvania, when new market-based rates came in on January 1, 2006, average rates shot up over 75%.<sup>30</sup>

Customers of Baltimore Gas & Electric faced rate increases of as between 40% and 80% in 2006.<sup>31</sup> In Connecticut, prices for customers of Connecticut Light & Power rose 22% on January 1, 2006.<sup>32</sup> When rate caps came off in 2007, CL&P rates went up another 8% for most residential customers. United Illuminating's residential rates will go up 50% by summer 2007.

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<sup>26</sup> See <<http://www.takebackthepower.net/tbtp/docs/showalter.pdf>>. Deregulated states started with higher prices. But these prices grew faster than the average prices in states that maintained traditional regulation (or that capped prices) in the period since 1996, when states began opening their markets.

<sup>27</sup> Rosen, Richard, Marjorie Kelly and John Stutz: *A Failed Experiment: Why Retail Competition Did Not Work and Could Not Work* <[http://www.tellus.org/publications/A\\_Failed\\_Experiment.pdf](http://www.tellus.org/publications/A_Failed_Experiment.pdf)>.

<sup>28</sup> Ibid.

<sup>29</sup> Rose, Kenneth and Karl Meeusen, *2006 Performance Review of Electric Power Markets: Review Conducted for the Virginia State Corporation Commission*, August 27, 2006, at 27, <[http://www.scc.virginia.gov/caseinfo/reports/2006\\_rose\\_1.pdf](http://www.scc.virginia.gov/caseinfo/reports/2006_rose_1.pdf)>.

<sup>30</sup> Testimony of Sonny Popowsky, Consumer Advocate, Before the Pennsylvania House Consumer Affairs Committee, Harrisburg, PA, March 15, 2007 <<http://www.oca.state.pa.us/tmony/S.%20Popowsky%20--%20Senate%20Testimony%20for%20March%2015,%202007-%20Electric%20Utilities.PDF>>.

<sup>31</sup> The PUC's order is at

<[http://webapp.psc.state.md.us/Intranet/Casenum/NewIndex3\\_VOpenFile.cfm?ServerFilePath=C:\CaseNum\9000-9099\9052\055.pdf](http://webapp.psc.state.md.us/Intranet/Casenum/NewIndex3_VOpenFile.cfm?ServerFilePath=C:\CaseNum\9000-9099\9052\055.pdf)>. The state is still grappling with how to deal with these huge increases.

<sup>32</sup> All Connecticut price information is from State Representative Vickie Nardello in *Deregulation – The Connecticut Experience*, a presentation to the Take Back the Power Conference, Washington, D.C., February 2007; <<http://www.takebackthepower.net/tbtp/docs/nardello.pdf>>.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

In Illinois, when rate caps came off for Commonwealth Edison customers January 2007, average residential rates went up 22%.<sup>33</sup> In southern Illinois, Ameren bills rose by as much as 170 percent.<sup>34</sup>

After January 2002, incumbent utilities in Texas received increases in the “price to beat”<sup>35</sup> between 67% and 114% (depending on the territory). In 2005, Price to Beat rates increased sharply, from 8-9 ¢/kWh in 2002-3 to 14¢/kWh in 2006; utilities did not lower prices when high 2005 gas prices fell back.

These facts do not settle the question of whether deregulation caused the prices to go up faster than in states that protected consumers through regulation or price caps.<sup>36</sup> But it suggests the need to look hard at claims that deregulation has produced price benefits.

There are a number of studies that have attempted to analyze the extent to which wholesale markets have produced savings relative to the regulatory model they have superseded. Some of these claim to show robust savings, despite the overall increases in wholesale prices since the opening of markets.<sup>37</sup> However, a “meta-study” performed of these individual studies shows that a number of those claiming price benefits from wholesale markets were incomplete, or used invalid methods.<sup>38</sup> As a result, they cannot be relied on to prove that wholesale competition has worked.<sup>39</sup>

In addition, a December 2005 review of benefit-cost studies of regional transmission organizations (like PJM) argues that studies to that date neglected a number of key issues, and do not give a complete picture.<sup>40</sup> Closer to home, economists working under contract to the Virginia State Corporation Commission<sup>41</sup> have concluded that there are reasons to doubt whether wholesale competitive markets have provided any benefits relative to the status quo before the push to competition.

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<sup>33</sup> <<http://www.exeloncorp.com/news/pressrelease/comed/091506A.htm>> (20%).

<sup>34</sup> Ameren chose the date when market-based pricing was introduced to eliminate a subsidy it had given to electric heat customers.

<sup>35</sup> A form of standard offer service.

<sup>36</sup> Showalter acknowledges that this observation alone cannot provide a causal link between deregulation and particular outcomes. See slide 15.

<sup>37</sup> Champions of deregulation often point to rising gas costs as a factor beyond their control driving up prices. In the PJM system, natural gas is not a predominant fuel. According to the PJM Market Monitoring Unit, the three types of fuels for plants that set the clearing price are coal, oil and natural gas, and natural gas represents the market clearing unit only 24% of the time. PJM Energy Prices – 2005, at 8.

<sup>38</sup> For example, many of the studies count the price caps as a benefit of deregulation, and stop their analysis before the price caps were lifted. There is no recognition of the fact that the caps would come off, and the market might not produce prices as low.

<sup>39</sup> Kwoka, John. “*Restructuring the U.S. Electric Power Sector: A Review of Recent Studies*”, Report prepared for the American Public Power Association, November 2006; <<http://www.appanet.org/files/PDFs/RestructuringStudyKwoka1.pdf>>.

<sup>40</sup> Eto, Joseph H. and Bernard C. Lesieutre. *A Review of Recent RTO Benefit-Cost Studies: Toward More Comprehensive Assessments of FERC Electricity Restructuring Policies*, Office of Electricity Delivery and Energy Reliability, LBNL-58027. December 2005; <<http://certs.lbl.gov/pdf/58027.pdf>>.

<sup>41</sup> The Virginia equivalent of the Public Service Commission.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

2.5.2.2 Market Power Concerns

Also, there are persistent concerns about wholesale market power. California provided a dramatic example of abuses of market power (think of “Get Shorty,” “Death Star” and other Enron names for schemes to reap undeserved profits). Some of the loopholes that allowed marketers to abuse the Western markets in 2000-2001 have been closed. But there remain perverse incentives in the market to keep supplies tight.

For example, a firm can withhold the production of one of its plants and tighten the supplies for the market. This in turn may allow a plant with high running costs to compete and set the market clearing price. If the firm that withheld one plant from the market sells the output of its other plants into that higher-priced market, it can make enough more money on the output of its remaining plants to more than make up for the fact that it held back on production from the one plant.

Even after the revelations about market abuse in the Western market meltdown, and reform efforts in response, there have been complaints about persistent market power problems with organized wholesale markets. Most recently, the Attorney General of Illinois has filed a complaint with the Federal Energy Regulatory Commission, charging that electricity suppliers engaged in price manipulation in the auction that ComEdison and Ameren held in September 2006 to procure market-based power for the end of the transition period on January 1, 2007.<sup>42</sup> Affidavits she filed with the complaint allegedly show that the prices produced by the auction were 40% higher than prices in wholesale electricity markets, and approximately double the actual cost of generating electricity to serve ComEd and Ameren customers.

Also in March, 2007, the Independent Market Monitor of the ERCOT markets and the staff of the Texas Public Utility Commission released their report, finding that TXU, a major utility in the state, had manipulated markets in the summer of 2005.<sup>43</sup> The Commissioners proposed fines of over \$215 million. According to their determination, TXU's market abuse had raised spot market prices by 15.5%, and cost consumers \$70 million in excessive charges.<sup>44</sup> Two former traders for TXU have sued the company for wrongful dismissal, claiming that they were fired either for engaging in practices the company long encouraged or for disclosing the company's practices to investigators.<sup>45</sup>

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<sup>42</sup> <[http://www.ag.state.il.us/pressroom/2007\\_03/20070315.html](http://www.ag.state.il.us/pressroom/2007_03/20070315.html)>

<sup>43</sup> <[http://www.puc.state.tx.us/about/reports/2005\\_TXU\\_Investigation\\_IMM\\_Cover.pdf](http://www.puc.state.tx.us/about/reports/2005_TXU_Investigation_IMM_Cover.pdf)>

<sup>44</sup> Ibid.

<sup>45</sup> *Kara Sidman, Plaintiff v. TXU Portfolio Management, Defendant*. District Court, Dallas County, Texas. No. 07-01008. Filed Feb 5, 2007. *Tyson Loos, Plaintiff v. TXU Portfolio Management, Defendant*. District Court, Dallas County, Texas. No. 07-03450. Filed Apr 16, 2007. Copies available on request.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

In 2006, the proposed \$7 billion merger of Exelon and PSE&G foundered, in part because of concerns raised that the combined firm would have excessive market power.<sup>46</sup>

Even proponents of markets call for continued market monitoring, because of the risk of anti-competitive behavior in markets so susceptible to artificial shortages and other pricing strategies.<sup>47</sup>

### 2.5.2.3 Boom and Bust, Not Reliability

Markets were also expected to ensure reliability. Private entrepreneurs were going to see the need for more generation capacity, and the ability to take market share by meeting it, and so build new generation where it was needed. This has not happened. Indeed, capacity margins are being worked off, as demand increases. In its 2006 Market Efficiency Analysis, PJM stated that it expects system-wide generation supplies will fall below the level needed to maintain a safe reserve by 2012, unless demand response lowers demand, or new supplies are added, or both.<sup>48</sup>

Yet for some time, there has been little new plant construction in any of the areas served by regional wholesale markets. Generators complain that they cannot recover the cost of new construction through receipts in the organized markets. Indeed, in the period 2001 to 2003, a number of merchant traders and suppliers went bankrupt. Capital understandably tightened up in the wake of this financial collapse.

As a result of the failure of generation to be built without guaranteed cost recoveries, in recent years all the regional transmission organizations (except the Midwest ISO) have moved towards adopting so-called "capacity markets" to provide a stream of financial support for generators, in the hopes that the payments will incent construction of capacity.<sup>49</sup> The ability of markets that provide only short-term support to incent construction of new capacity is still uncertain.

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<sup>46</sup> <[http://usatoday.printthis.clickability.com/pt/cpt?action=cpt&title=USATODAY.com+-+Largest+ever+utility+merger+is+off%3A+Exelon+and+PSEG+won%27t+get+together&expire=&urlID=19491924&fb=Y&url=http%3A%2F%2Fwww.usatoday.com%2Fmoney%2Findustries%2Fenergy%2F2006-09-14-exelon-pseg-off\\_x.htm&partnerID=1661](http://usatoday.printthis.clickability.com/pt/cpt?action=cpt&title=USATODAY.com+-+Largest+ever+utility+merger+is+off%3A+Exelon+and+PSEG+won%27t+get+together&expire=&urlID=19491924&fb=Y&url=http%3A%2F%2Fwww.usatoday.com%2Fmoney%2Findustries%2Fenergy%2F2006-09-14-exelon-pseg-off_x.htm&partnerID=1661)>.

<sup>47</sup> See, e.g., Wolak, Frank. "Managing Unilateral Market Power in Electricity", a presentation to the Harvard Electricity Policy Group, March 2006; <[http://www.ksg.harvard.edu/hepg/Papers/Wolak\\_Monitor\\_0306.pdf](http://www.ksg.harvard.edu/hepg/Papers/Wolak_Monitor_0306.pdf)>.

<sup>48</sup> <<http://www.pjm.com/committees/teac/downloads/20061030-market-efficiency-analysis-assumptions.pdf>> According to PJM, there are plants in the queue for addition to the PJM grid, but under the base case, assuming only those plants that had an Interconnection Services Agreement, 2012 was the cross-over date when loads and required reserves exceeded available generation. This estimate is consistent with the April 4, 2007 Interim Report on Delmarva Power IRP in Relation to IRP, in PSC Docket No. 06-241, at p. 18, showing the cross-over point between 2010 and 2015.

<sup>49</sup> In PJM, the capacity market (called the Reliability Pricing Model, or RPM) is not yet in place, although it has been conditionally approved by the FERC. See, *PJM Interconnection LLC*, Docket No. ER05-1410, EL05-148, Order Denying Rehearing and Approving Settlement Subject to Conditions, 117 FERC ¶61,331 (2006).

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

Market proponents assumed that the transmission system would be operated reliably under competition. However, the transmission system is operated as one large machine, including the generators that must be turned on and off, ramped up and down, as needed to keep the system in near perfect balance. The massive 2003 blackout in the Midwest and northeast revealed weaknesses in those assumptions. Although much of the blame was ultimately laid at the feet of First Energy, operator of the system in the greater Cleveland area, the final report on the causes of the blackout noted that the grid operator failed to notice and warn of the growing weakness on the system.<sup>50</sup> There were also reports of difficulty coordinating schedules with merchant generators at the time.

#### 2.5.2.4 Just As Much Regulatory Red Tape

Similarly markets were supposed to lower regulatory burdens. But regulatory burdens have increased. States must not only manage their own utilities, and take responsibility for planning issues once left to utilities, they must participate in regional and federal processes to ensure their consumers' interests are protected. On top of the transaction costs to unbundle retail rates, and to establish ownership of various components of the formerly-integrated system, there have been additional costs for the operation of wholesale markets. PJM now has over 400 employees. Partly in response to complaints about the rising cost of supporting the PJM Interconnection, PJM in 2006 moved to a fixed rate per mWh to cover its administrative expenses.<sup>51</sup>

#### 2.5.2.5 Loss of Control

Another byproduct of restructuring has been Delaware's loss of control of its electricity future. Now, the extent of generation and transmission available to Delaware is in the hands of transmission utilities regulated by the Federal government, unregulated generators, PJM Interconnection, and the federal government, which controls the price of wholesale transactions, and the structure of wholesale markets. Given the federal constitution's Commerce Clause powers, and laws enacted under them, a state can only play a direct role in the generation plans and pricing of vertically integrated utilities, cooperatives and public power authorities.

#### 2.5.2.6 Retail Choice? What Retail Choice?

Individual consumers and businesses were supposed to have a wealth of options for power from electricity retailers. But retail markets never developed in Delaware for any but the largest customers. According to the PSC web site, only 1% of residential customers (all in the DP&L area) use a competitive supplier. This represents only 15%

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<sup>50</sup> U.S.-Canada Power System Outage Task Force, *Final Report of the August 14, 2003 Blackout*, April 2004; < <https://reports.energy.gov/BlackoutFinal-Web.pdf>>.

<sup>51</sup> <<http://www.pjmcurrently.com/Virginia/va-spring-2006-market.htm>>

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

of the peak load of DP&L residential customers. Only one competitive vendor serves residential customers in Delaware today.

The picture is only slightly more encouraging in the non-residential (business) sector. There, 15% of DP&L non-residential customers use a competitive electricity supplier. Their load represents 50% of the peak demand of the utility's non-residential customers. Still, overall, only 2.5% of all DP&L customers are shopping today, there's almost no shopping among the utility's residential customers, more than six years after the market opened for them. Similarly, in the DEC service area, markets opened in 2000, but no one has offered to sell to any DEC customers, and no DEC customer is shopping today.<sup>52</sup>

*“You can't make it up on volume”*

In the end, retail competition has not worked because it cannot not “work,” at least not without raising default rates. The costs to market to, sell to, supply and service small customers exceed the cost to a utility of passing through wholesale prices.<sup>53</sup> Only those retailing to the largest customers can beat the standard offer rates. Even there, the benefits of shopping have not been evident to industrial customers. ELCON, a national industrial consumers organization, has recently called for a return to a regulated monopoly system, if markets cannot be made to work.<sup>54</sup>

### **2.5.3 Back to the Drawing Board**

In the end, the risks of making a choice that does not turn out well cannot be eliminated. The private market could not survive without putting the risk back on the consumer, through higher energy prices (to produce returns sufficient to attract capital), through systems of boom and bust that produced great price volatility, and ultimately through capacity prices mandated by FERC. This is because the private market faces the same set of unhappy choices the monopoly-owned IOU did, and the IRP state planners did (and do). While private entrepreneurs can be more nimble than regulated monopolists, and may be more efficient, these advantages do not overcome the fact that meeting consumers' electric needs is an activity fraught with risk.

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<sup>52</sup> On April 26, 2006, Reliant Energy announced it would enter the retail market in Delaware, with plans to serve “a broad class of commercial, industrial and institutional customers” in the Delmarva utility area. [http://phx.corporate-ir.net/phoenix.zhtml?c=124294&p=irol-newsArticle\\_print&ID=991720&highlight=](http://phx.corporate-ir.net/phoenix.zhtml?c=124294&p=irol-newsArticle_print&ID=991720&highlight=)

<sup>53</sup> Testimony before the New Hampshire Public Utilities Commission in Docket 99-099, considering the settlement of PSNH's restructuring proposal, was to the effect that the retail margin was anywhere between half a cent to 1.5 cents per kWh. Even if these costs could be brought down, they would significantly burden the price to customers; <<http://www.puc.state.nh.us/Regulatory/Orders/1999ords/23346e.pdf>>.

<sup>54</sup> “*Restructured Electric Markets: A Train Wreck Waiting to Happen?*”, ELCON, December 5, 2006; <<http://www.elcon.org/Documents/Publications/12-4OppositiontoRestructuring.PDF>>.

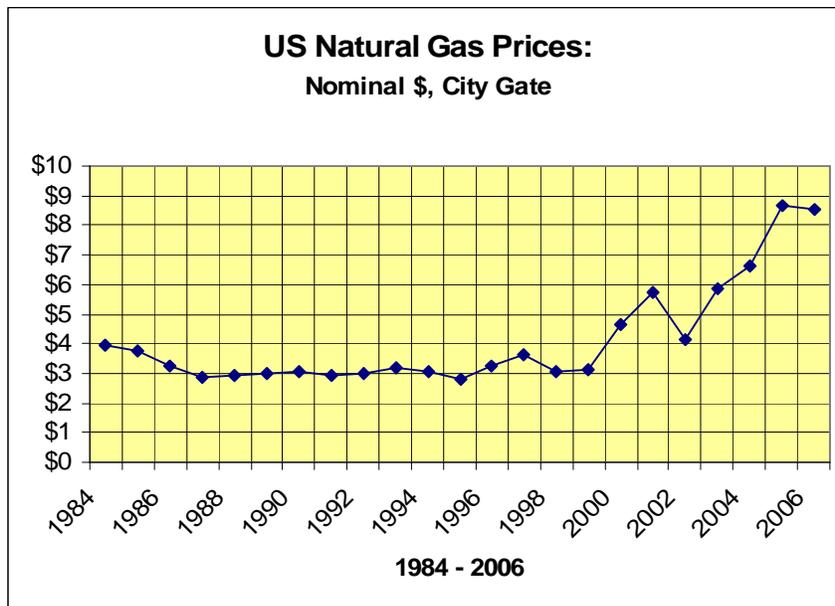
### 3 ELECTRICITY TODAY: ALLOCATING PAIN, NOT GAIN?

#### 3.1 THE SAME PROBLEMS AS BEFORE DEREGULATION (AND THEN SOME).

Less than a decade after opening its retail markets to competition, Delaware confronts many of the same resource dilemmas that made retail competition seem attractive, plus additional problems we had not anticipated in 1999.

- Gas prices up and volatile
- Security concerns after 9/11
- Global warming awareness
- Fossil fuel production peaks?
- Generation construction prices up
- Boom/bust in dereg capacity markets
- Allegations of market power abuse

##### 3.1.1 Natural Gas Prices: Higher, Going Higher, and Volatile



Natural gas prices<sup>55</sup> have doubled and tripled from their low point in the late 1980's and 1990's. This is not the first time gas prices have gone up suddenly. Natural gas prices

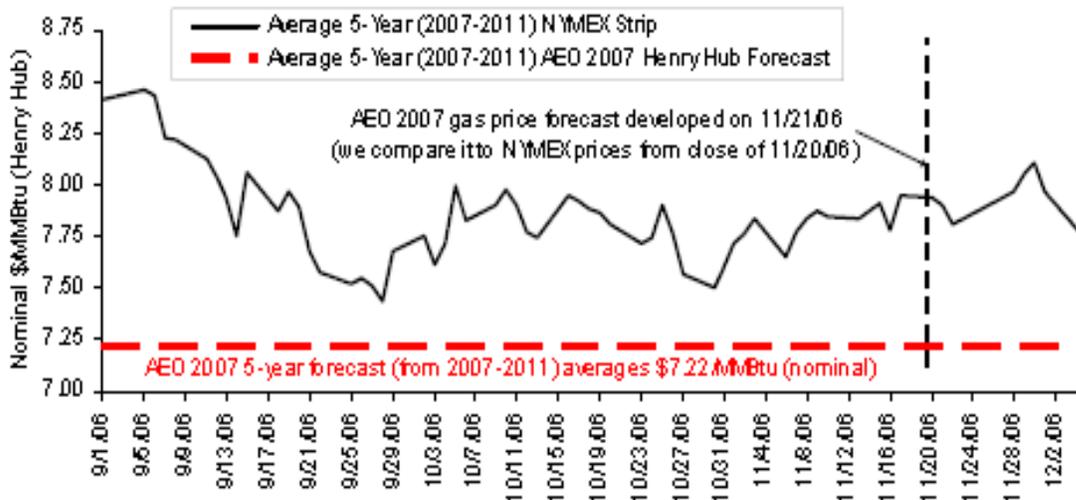
<sup>55</sup> Source: Energy Information Administration. <http://tonto.eia.doe.gov/dnav/ng/hist/n3050us3A.htm>

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

spiked in the 1970's, too. Worries about gas supply adequacy caused sharp price increases late in the decade.<sup>56</sup>

Looking towards the future, the U.S. Department of Energy, Energy Information Administration, forecasts that natural gas prices paid by electric generators will ease off from 2005 levels as of 2015, but will then turn upwards. In its 2007 Annual Energy Outlook, EIA forecasts are relatively optimistic, expecting gas prices for electricity generators to ease down (in 2005 prices) as of 2015, and to be under \$7 (2005\$) out through 2030.<sup>57</sup>

But the Energy Information Administration tends to underestimate gas prices. The Lawrence Berkeley National Laboratories in late 2006<sup>58</sup> compared the average 5-year futures price on the NYMEX exchange with the average 5-year forecast by EIA in its Annual Energy Outlooks for the same period (2007-2011). As the chart below shows, EIA's forecasts were consistently, and considerably, lower than the price demanded in the marketplace for these futures:



**Figure 7: Average NYMEX Strip vs. Average AEO 2007 Forecast (2007-2011)**

### EIA Forecasts Tend to Underestimate Gas Prices<sup>59</sup>

<sup>56</sup> U.S. Energy Information Administration, *U.S. Natural Gas Markets: Mid-Term Prospects for Natural Gas Supply*, June 2002; <<http://www.eia.doe.gov/oiaf/servicrpt/natgas/chapter4.html>>.

<sup>57</sup> Note that the EIA forecast is used as a reference price for natural gas in the evaluations of the three proposals before Delaware in the DP&L RFP, now being considered.

<sup>58</sup> Bolinger, Mark, and Ryan Wiser. *Comparison of AEO 2007 Natural Gas Price Forecast to NYMEX Futures Prices*, Lawrence Berkeley Laboratories Memorandum, December 6, 2006; <[http://eetd.lbl.gov/ea/emp/reports/53587\\_memo.pdf](http://eetd.lbl.gov/ea/emp/reports/53587_memo.pdf)>.

<sup>59</sup> Note that 1 MMBTU is roughly equal to 1000 cubic feet of natural gas.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

In addition, EIA forecasts have missed price spikes that have caused severe dislocation for natural gas users. Since 1975 there have been two major spikes in real natural gas prices. From 1999 to 2001, gas prices nearly doubled from about \$3/Mcf at the city gate, to just under \$6/Mcf.<sup>60</sup> Between 2002 and 2005, gas prices shot up from about \$4/Mcf to almost \$9 an Mcf on average for the year. Monthly gyrations were even more volatile, with prices reaching double-digits from time to time.<sup>61</sup> Neither of these spikes was predicted by the EIA. We can follow the EIA, but if we do we are vulnerable to additional disruptive spikes in the fuel that fires our generation.

Over time, the picture is no less worrisome. There are two new factors that threaten to drive up natural gas costs going forward. One is the risk that gas-producing nations, such as Russia, will decide to form an OPEC-style cartel, and push up (and manipulate) the world price of natural gas.<sup>62</sup> Russian President Putin has surfaced this idea again as recently as February 2007.

**“The United States gas market is becoming increasingly dependent on LNG imports to fill the growing gap between demand and local (US and Canadian) supply.”<sup>63</sup>**

The other risk factor is the growing dependence of the United States on imported natural gas, specifically in the form of Liquefied Natural Gas (LNG). To import larger quantities of LNG, the United States will have to build additional terminals.

Both of these new concerns arise because the United States' own natural gas production has peaked or is likely to peak soon.<sup>64</sup> We now must increasingly depend on imports. New production in the United States will be increasingly expensive, as it costs more money to get the gas out of harder-to-reach sites.

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<sup>60</sup> In 2000, the wellhead price of natural gas in the United States went up 400%.

<sup>61</sup> On December 13, 2000, the US gas price (at Henry Hub) closed at **\$15.40** /MMBtu.

<sup>62</sup> Associated Press. “OPEC-style natural-gas cartel eyed: Reserves rich countries seek ways to influence global market.” Feb 12, 2007; <<http://www.msnbc.msn.com/id/17116262/>>.

<sup>63</sup> Taken from the front page of the Website of the British Gas Group (BG Group) <<http://www.bg-group.com/international/usa.htm>>.

<sup>64</sup> It is not possible to know if production has peaked until after the fact. The concept of peak production was first applied to the oil industry by “King” Hubbard, a petroleum engineer who in the 1950's predicted that U.S. oil production would peak around 1970. Although his analysis had many detractors, it became clear after the fact that indeed U.S. oil production had peaked as predicted in the early 1970's. The American Gas Association does not use the concept of “peak gas,” but their February 2006 Energy Analysis does describe a scenario that suggests they consider gas production to be peaking in the United States: they forecast the need to tap sources of gas that are less rich with resources and more expensive to extract. These conditions are typical of the downhill slope of extraction, after the easier-to-extract supplies are tapped, and all that is left are the more expensive-to-obtain resources. See AGA, *Evaluating U.S. Natural Gas Production*, AGA Report EA-2006-02, February 6, 2006; <[http://www.aga.org/Template.cfm?Section=Stats\\_and\\_Studies&template=/ContentManagement/ContentDisplay.cfm&ContentID=18895](http://www.aga.org/Template.cfm?Section=Stats_and_Studies&template=/ContentManagement/ContentDisplay.cfm&ContentID=18895)>.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

### 3.1.2 Increased Security Concerns

The attacks on the Pentagon and the World Trade Center on September 11, 2001, made the United States alert to the risk of attacks on our critical infrastructure. The cost of identifying security risks, and taking steps to reduce them, must now be factored into the cost of resource alternatives.

### 3.1.3 Global Climate Meltdown - A Growing Concern

After years of being a fringe issue for devoted environmental advocates, global warming has now been acknowledged as a risk by a majority of the public. Many states and now the Congress have begun taking steps to reign in carbon dioxide output, as this gas is a major contributor to global climate change. In turn, the generation of electricity using coal, or even natural gas, produces large amounts of CO<sub>2</sub>. Below, in a discussion of the role of coal in future generation planning, the current state of efforts to mitigate this impact of generation is discussed.

### 3.1.4 Plant Construction Costs on the Rise

Generation costs going up. As a result of economic growth in China and elsewhere, commodity prices, engineering costs, and construction costs have increased much faster than inflation since 2004. Construction-cost-related increases have driven up the capital cost of new generation as much as 25% to 30% in the last three years.

“Recent global economic growth, including China’s rapid growth, have driven up commodity prices, engineering costs, and construction costs much higher than the CPI increase in the last three years. **These construction cost related increases have driven increases in the capital cost...of from 25 to 30% from 2004 levels...**”

MIT, The Future of Coal, Chapter 3 Appendices, p. 131 (emphasis supplied)..

## 3.2 DELAWARE RELIES HEAVILY ON IMPORTS FROM OTHER STATES

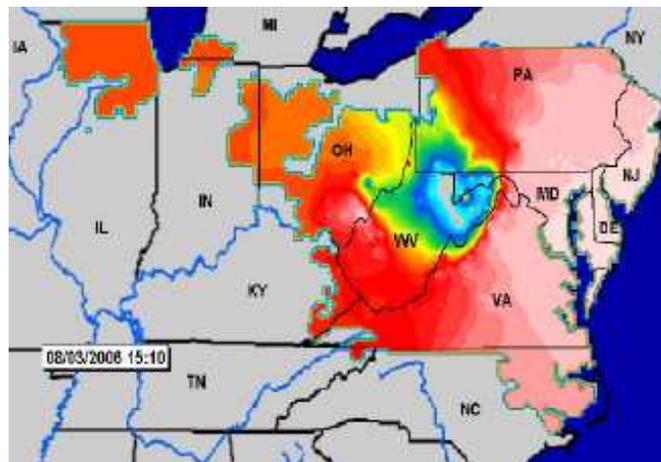
Delaware is in a “load pocket” – that is, it does not have enough generation in the state to meet all the electricity needs of the state. Most of Delaware’s generation comes from West Virginia and Pennsylvania, brought to the state by the interconnected grid operated by PJM Interconnection, Ltd.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

<i>Delaware imports 37% of needed generation<sup>65</sup></i>				
State	Retail Sales after Line Losses	Net Generation	Imports	% Imported
D.C	12,624	235	12,389	98.1%
<b>Delaware</b>	<b>12,823</b>	<b>8,129</b>	<b>4,694</b>	<b>36.6%</b>
Virginia	115,377	78,879	36,498	31.6%
Maryland	72,639	52,662	19,977	27.5%
New Jersey	80,727	59,252	21,475	26.6%

The chart below shows the area served by PJM, on August 3, 2006, at 3:10 P.M..<sup>66</sup> Late afternoons in late summer are typical peak periods. The pink and red areas have highest costs in that hour. This is because they lack sufficient local generation, and must import power at high costs from areas with sufficient generation. The areas with cooler colors have additional power to sell to Delaware and other net importers.

PJM rules cause prices in importing regions to increase, as an effort to send “correct price signals,” and (theoretically) to incent generators to locate in the areas needing more supply.



***Blue is Supply Source/Pink and Red are Supply Sinks***

<sup>65</sup> Source: PSC of Maryland, *Electric Supply Adequacy Report of 2007*, January 2007, Table III.E.1. All generation and sales figures are in MWh;

<[http://www.psc.state.md.us/psc/Reports/2007SupplyAdequacyReport\\_01172007.pdf](http://www.psc.state.md.us/psc/Reports/2007SupplyAdequacyReport_01172007.pdf)>.

<sup>66</sup> PJM; also Ibid.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

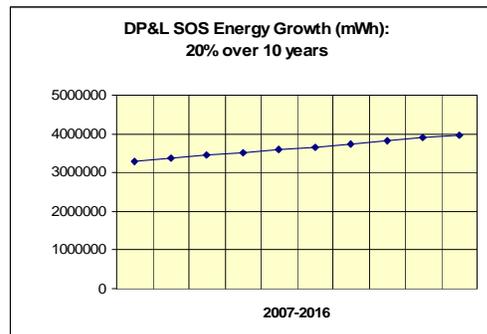
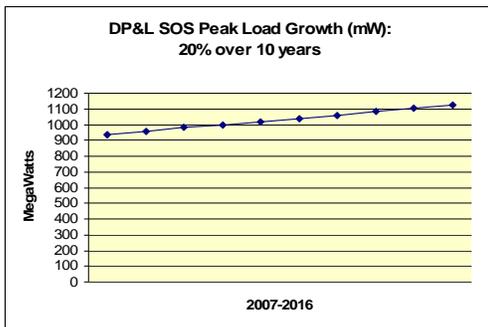
### 3.2.1 Transmission Links to Cheaper Generation: Still Waiting

For some time, the Delaware Public Service Commission has been pressing within PJM and at the FERC for additional transmission into the Delmarva Peninsula. More links to the west could bring in less expensive power, and relieve upcoming capacity constraints. On the drawing boards now is a new line, the so-called "MAPP" line, that would considerably relieve constraints on bringing power into Delmarva.<sup>67</sup>

But MAPP is not due to be in service before at least 2014.<sup>68</sup> And, as with any transmission proposal, the process of approval is fraught with snags. The Not In My Backyard syndrome operates very powerfully in transmission siting. Because of problems siting transmission projects, the Congress in 2005 gave FERC the power to preempt local opposition and approve a transmission route, where the state did not or could not act quickly enough to site the project.<sup>69</sup> However, FERC has so far not used this power yet. Finally, MAPP will not completely eliminate Delaware's status as a high-priced load pocket.<sup>70</sup>

### 3.2.2 Delaware Loads Are Growing About 2% Per Year

According to Delmarva, if Delaware does *nothing*, electric needs will grow at 2%/year, or more than 20% over 10 years. This long-term prediction is consistent with PJM's 1.9% forecast of expected load growth in the Delmarva territory by 2017.<sup>71</sup>



<sup>67</sup> Delmarva Power & Light Company, RFP Bid Evaluation Report, February 21, 2007, at 4, 20.

<sup>68</sup> Inclusion of the MAPP area as part of the draft Mid-Atlantic National Transmission Corridor does not directly change the line's chances of being constructed when forecast. See, U.S. Department of Energy, Draft National Transmission Corridor Designations, Frequently Asked Questions, April 26, 2007, Question 8. [http://nietc.anl.gov/documents/docs/FAQ\\_Nat\\_Corridor\\_Designation.pdf](http://nietc.anl.gov/documents/docs/FAQ_Nat_Corridor_Designation.pdf).

<sup>69</sup> Energy Policy Act of 2005, Section 1221; the full text is at <[http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109\\_cong\\_public\\_laws&docid=f:publ058.109](http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109_cong_public_laws&docid=f:publ058.109)>.

<sup>70</sup> For a more detailed discussion of the MAPP project and its impact on Delaware resource needs and costs, see the Interim Report on Delmarva IRP, April 4, 2007, Section IV.B.

<sup>71</sup> <http://www.pjm.com/planning/res-adequacy/downloads/2007-load-report.pdf>, p. 2.

### 3.2.3 Delaware Could Benefit From New In-State Resources

Given the litany of problems Delaware must contend with because of its reliance on PJM and out-of-state resources, it is not hard to conclude that Delaware could benefit from some new in-state resources. These could be on the demand side, or on the supply side, or both. Having tools to lower demand or increase supply within the state could help Delaware in a number of ways.

***BENEFITS OF NEW IN-STATE RESOURCES:***

- Avoid costs of PJM capacity/peak energy markets
- Ensure reliability
- Take back control from federal government
  - over costs and rates
  - over timing of resources
- Ensure that Delaware values are respected

We turn next, then, to some of the resource options available to Delaware, should it wish to pursue more resource development within the state.

### 3.3 SUMMARY OF RESOURCE OPTIONS – NO SILVER BULLETS?

This report does not attempt to provide advice about what generation resources Delaware should choose. It does not try to set out the detailed arguments for and against any particular resource. It does not try to resolve debates over capacity factor, price forecasts, fuel price forecasts, and the like. Rather, this section gives enough of an overview of the resources available today to demonstrate the key argument of this report – the main job facing Delaware and any other state in a similar situation is to manage great uncertainty.

Like all states, Delaware will have to engage in aggressive risk acceptance, because doing nothing leaves the state as open to volatile forces as any other choice would. This report *will* advise an aggressive effort to harvest all cost-effective energy efficiency. Beyond, that policy, the main recommendations will center around processes for managing the risks described briefly here.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

### 3.3.1 Wind

Wind has wonderful environmental features. Windmills emit nothing into the air. The newer models have greatly reduced the damage to birds. Once built, they require no fuel, fossil or otherwise. And the costs have been coming down. However, wind generation is still relatively expensive. The largest installations can produce power for about 7¢/kWh.

But wind generators only operate when there is wind. They cannot be relied on to be available and produce a set amount exactly when the system's needs for energy are at their peak. In fact, they produce a greater amount in the cooler, off-peak months, when there is more wind. Their capacity factors<sup>72</sup> have run between 20% and 40%. By contrast, a baseload coal plant can reach a capacity factor of over 80%.<sup>73</sup> In other words, it would take two to four wind plants to produce the same amount of power over a year that one coal plant of the same size could produce in the same time.

If capacity for meeting peak needs is important, wind can be part of the portfolio, but is not likely to be the least cost approach. In order to put the capacity cost of a coal plant and a wind plant on an apples to apples price basis, then, it would be reasonable to multiply the price of the energy output of the wind generator by two to four times.

In addition, wind power is not "dispatchable." That is, wind generators produce wind when the wind blows, and do not produce wind when the wind does not blow. The plant operator cannot affect the timing of this "fuel" availability, and so cannot match the output of the plant to the system needs as surely as can be done with other power generation technologies. This is a limitation on the value of the output.<sup>74</sup>

### 3.3.2 Solar Photovoltaic (PV Solar)

Like wind, solar photovoltaic energy (PV Solar) has great environmental features. As with wind, its costs have been coming down. But it is still the most expensive way to generate electricity. PV Solar's cost of energy ranges from 31 cents/kWh to over 44 cents/kWh.<sup>75</sup> This is five or six times as expensive as coal generation.

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<sup>72</sup> The capacity factor of a generator is the amount of energy delivered over a year, divided by the total energy the plant could produce if it ran flat-out for all 8760 hours of the year.

<sup>73</sup> The proponent of the Bluewater wind farm <<http://www.bluewaterwind.com>> has publicly stated that its capacity factors will approach 90%; <<http://www.salon.com/news/feature/2007/03/28/wind>>. By contrast, DP&L records the Bluewater project as having a capacity factor below 50%. See DP&L's bid evaluation, Table 2.2.8. This report will not attempt to determine which estimate is superior.

<sup>74</sup> Although not by any means a reason to significantly discount wind's value, as some wind opponents would have it. It is possible to model the contribution of a wind generator to the system, and analyze its benefits, which can be significant, even if limited in some ways as noted here.

<sup>75</sup> (including a 10% investment tax credit). Tables 13, 3 from the National Renewable Energy Laboratories, *Increased Use of Renewable Energy in Virginia*, a study for the Virginia Center for Coal and Energy Research, November 11, 2005; <[http://www.energy.vt.edu/Publications/Incr\\_Use\\_Renew\\_Energy\\_VA\\_rev1.pdf](http://www.energy.vt.edu/Publications/Incr_Use_Renew_Energy_VA_rev1.pdf)>.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

Also, PV Solar only produces power when the sun allows. It cannot generate power at all after the sun sets. As a result, PV Solar has a very low capacity factor, ranging from about 11% to 24%.<sup>76</sup> Like wind, then, PV Solar is not a cost-effective resource to meet peak capacity requirements.<sup>77</sup>

### 3.3.3 Nuclear

Nuclear has low greenhouse gas impacts. However, there is still no solution of the waste disposal problem. In addition, the terrorist acts of 9/11 have brought to the fore the risk that nuclear generators could be targets for terrorists, and that the fuel cycle (including spent fuel) could be sought after by terrorists or rogue states.

The Nuclear Regulatory Commission (NRC) has issued regulations to speed the licensing of new plants with new specifications, and Congress has voted subsidies for a limited number of new plants. Despite these efforts to reduce the barriers to nuclear generation, nuclear power remains an expensive and controversial form of generation.

Future costs of nuclear power are unknown and potentially huge. Many analyses of nuclear power costs look only at the running costs of the plants, and ignore the construction costs. A recent, and more comprehensive, analysis of new nuclear resources pegs the cost of such energy as high as 11 cents per kWh.<sup>78</sup>

### 3.3.4 Greenhouse Gas Mitigation Costs Uncertain

For some years there have been efforts to develop alternatives for avoiding or offsetting the carbon dioxide emissions of electric generators. The Chicago Climate Exchange runs a voluntary market in carbon dioxide credits. The Chicago market is not a good predictor of future CO<sub>2</sub> costs, because there is no limit today on carbon dioxide emission in the United States, except in a small number of states. Only with a limit will the market value of credits start to approach the level it will approach when full greenhouse gas limits are imposed.

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<sup>76</sup> Apt, Jay, "Controlling Carbon in the U.S. Electricity Sector", a presentation at NARUC, Washington, D.C., February 2007. Slide 17 is at <http://www.naruc.org/associations/1773/files/pdf/winter07/Apt.Controlling.Carbon.in.the.US.Electricity.Sector.pdf>.

<sup>77</sup> There continue to be efforts to produce cheaper ways to store electricity, which would help both wind and PV solar reach greater potential. As of yet, cost-effective means are not widely available.

<sup>78</sup> Harding, Jim, "Seven Myths of the Nuclear Renaissance", a presentation at the 50th Anniversary Conference of the Euratom Treaty, Brussels, March 2007; <http://www.nirs.org/nukerelapse/neconomics/jimharding382007.pdf>.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

The European Union has a cap and trade system, whereby producers of CO<sub>2</sub> who exceed their allotment must buy credits or offsets. The European Union GHG market also shows the difficulties of getting a market up and running. Member countries were allowed to set their own allotments, and in 2005, it was revealed that a number of countries had over-allotted credits. This revelation suddenly devalued all the carbon credits in the market.<sup>79</sup> Only when monitoring and evaluation of the underlying credit allotment scheme is solid will the market valuation begin to approach the underlying fundamentals of carbon dioxide mitigation.

As for the direct costs of removing carbon dioxide from the emissions of coal and natural gas plants, the future is likewise uncertain. Carbon capture technologies have not been implemented on a wide spread basis, at the scale necessary to hold out hope for pulling the CO<sub>2</sub> out of the coal or its emissions. Even if the carbon could be captured, it would have to be isolated from the atmosphere practically permanently. At present, the greatest hope is for sequestration technology – but the technologies for this part of the job are experimental at best:

“We have confidence that large-scale CO<sub>2</sub> injection projects can be operated safely, **however no CO<sub>2</sub> storage project that is currently operating...has the necessary modeling, monitoring and verification...capability to resolve outstanding technical issues, at scale.**”

MIT Study on the Future of Coal, March 14, 2007, at xii.

### 3.3.5 The Best Single Resource Option - Efficiency

Energy efficiency is the least expensive single resource available to help balance demand and supply of electricity. Many studies have shown that there is a technical potential to reduce usage by 20 to 30% percent. If loads were reduced by 20%, that alone would offset the entire projection of load growth for Delaware for the next 20 years.

#### 3.3.5.1 California Has Saved Billions Through Efficiency

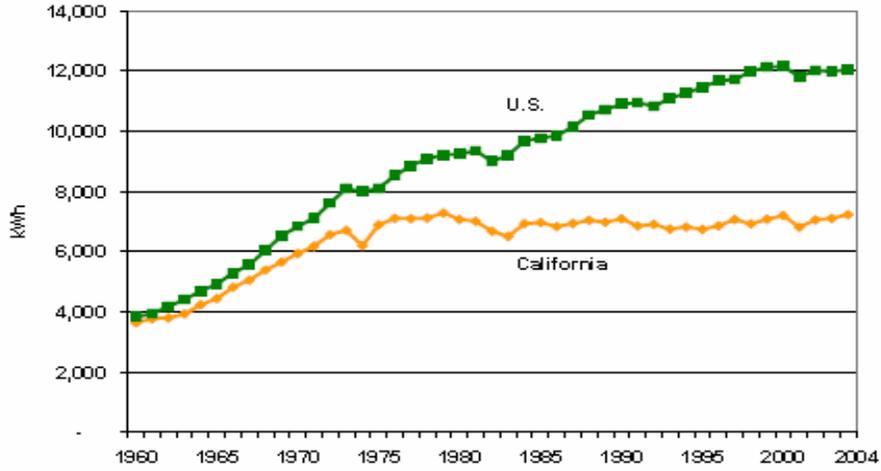
The state of California has held its per capita consumption of electricity level since the early 1970's, while the United States as a whole has kept up a steady growth in per capita usage. California's aggressive pursuit of demand-side savings has enabled it to avoid the equivalent of 22 nuclear power plants:

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<sup>79</sup> Another problem with the credit system in Europe is that, to the extent the credits were given to the generators, not to the government or the public, generators kept the benefit of those credits, and were not forced by competition to pass them through to consumers in lower prices.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

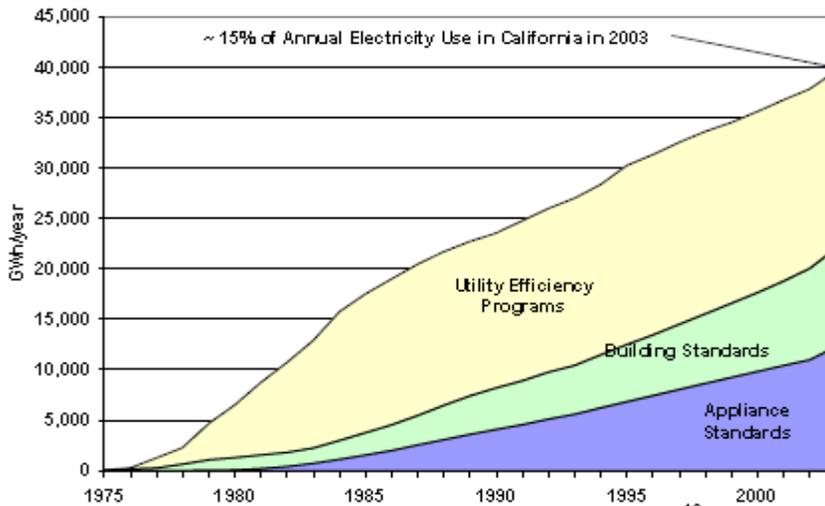
**Comparison of Per Capita Electricity Consumption in U.S. and California**



Source: California Energy Commission, 2005.<sup>10</sup>

California has achieved this level of efficiency using three tools: building efficiency standards, appliance efficiency codes, and demand-side management programs:

**Annual Energy Savings from Efficiency Programs and Standards**



Source: California Energy Commission, 2005.<sup>13</sup>

Delaware has pursued energy efficiency and demand management, but not with the level of effort that has marked the California approach. Delaware then has many efficiency opportunities ripe for exploitation.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

### 3.3.5.2 Codes and Standards: Closet Thing to a Silver Bullet

Building codes and appliance standards are the closest thing to a silver bullet in all the resource options available today. They do not require transfer payments or ratepayer-backed investments. They typically require investments that pay for themselves out of savings on utility bills. They directly target the policy issue – increasing the efficiency of energy use. They can be updated as technology and societal development permit more stringent controls without harmful effects on cost and quality of life. The chief downside of codes and standards is that they must be enforced. In addition, it is useful to have ongoing educational efforts for builders and vendors and the public, to assist in making clear the need for, and the benefits of the standards, as well as to assist the public in compliance.

### 3.3.5.3 Rebate Programs/Budgets/Administrator

The standard, traditional utility energy efficiency program addresses the market barriers to customer adoption of energy efficiency by buying down the up-front cost, typically through a rebate. This financial incentive may be augmented with education and technical assistance, as for example in the form of free or low-cost energy audits.

In addition to the administrative costs of such a program, the program requires funds for the rebates themselves. The percentage of revenues collected for utility efficiency programs varies from state to state. The American Council for an Energy Efficient Economy (ACEEE) reported that in 2004, the nationwide average for electric energy efficiency program spending as a percentage of total utility revenues was 0.52%. Thirteen states exceeded 1% by this measure, and the highest (Vermont) was 3.0%. Twenty-three states spent less than 0.1%.<sup>80</sup>

A number of states have given the job of administering utility- or ratepayer-funded efficiency programs over to an independent entity. In New York, the New York State Energy Research and Development Authority (NYSERDA) fields efficiency programs. In Vermont, a so-called Energy Efficiency Utility has operated the utility efficiency programs for several years under contract with the Public Service Commission; in 2007, it is likely that the role of the Vermont EEU will be made permanent.<sup>81</sup> Wisconsin has long used a non-utility administrator. In Maine and New Jersey, the utility regulatory commission operates the programs, via contracts.

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<sup>80</sup> York, Dan, Marty Kushler. ACEEE 3rd National Scorecard on Utility and Public Benefits Energy Efficiency Programs: A National Review and Update of State-Level Activity, Report U054, October 2005; Delaware was one of 8 states recorded as having zero utility DSM spending. <<http://www.aceee.org/pubs/u054.pdf>>.

<sup>81</sup> S.94 (Vermont) creates a franchised energy efficiency utility, to be funded from efficiency charges on utility bills; the full text is at <<http://www.leg.state.vt.us/docs/legdoc.cfm?URL=/docs/2008/bills/senate/S-094.HTM>>.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

The idea behind these various institutions is to separate the utility from the administration of efficiency programs. The rationale is that efficiency programs by their nature are devoted to lowering sales, whereas a utility has a financial interest in expanding sales.

#### 3.3.5.4 Innovations in Overcoming Market Barriers.

The ACEEE in February 2007 issued a report on the reasons why consumers do not choose energy efficient appliances, building materials and the like, despite the savings they could get over time.<sup>82</sup> The report identifies 3 major “market barriers” that continue to prevent customers from acting in what appears to be their self-interest:

- Principal/Agent barriers,
- Information/transaction barriers, and
- Externality cost barriers

The Principal/Agent problem occurs when one person (the Agent) makes the decisions about end-uses (e.g. what light bulbs to buy, what level of insulation to put in the house, what size and rating of motor to use in the business), whereas someone else (the Principal) lives with the consequences.

ACEEE estimates that almost half of residential space-heating energy use, up to 77% of residential hot water usage, and up to 90% of commercial leased-space energy use is subject to market barriers. In the United States, 73% of residential energy consumption is used on space heating, water heating, refrigeration, and lighting. Of this, 50% faces Principal/Agent barrier. In other words, about 38% of U.S. residential energy consumption is blocked from full efficiency because the Principal/Agent problem distorts decision-making in the market.

Efficiency experts have been working to remove these and other market barriers. Merely bringing down up-front costs is not likely to address all these market barriers. It might be done by making all such efficiency measures free or practically free. However, there are approaches to overcoming such market barriers that do not require such an intensive level of subsidy. Pay As You Save® is one approach. It is addressed to the first two barriers identified by ACEEE, Principal/Agent and Information/Transaction barriers.<sup>83</sup> Rebates from ratepayer funds can be used if desirable to expand the types of measures that qualify for PAYS® treatment.

Other innovations, such as smart meters, are being studied now by the Delaware PSC. A number of states are running pilots to experiment with different forms of real-time pricing or other demand-response made possible by the costly new metering technology.

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<sup>82</sup> “Quantifying the Effects of Market Failures in the End-Use of Energy”, ACEEE Report No. E071 (final draft report prepared for IEA), February, 2007; <<http://www.aceee.org/energy/IEAMarketBarriers.pdf>>.

<sup>83</sup> See <<http://www.paysamerica.org>>.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

Delaware can learn a great deal about the cost-effectiveness of these initiatives by waiting to see how these pilots come out, and need not plunge ahead right now to require investment in more costly meters for residential customers.

### 3.4 SUMMARY OF TECHNOLOGY CHALLENGES

As we have seen, the task of meeting electricity resource needs continues to be fraught with uncertainties. Some have been confronting utility planners and policy makers for decades, and others have emerged recently:

- Fuel Costs (When will/has the world oil and gas production peak/ed, and so what if/when it does? Will Putin succeed in putting together a natural gas OPEC?)
- Environmental Constraints (maybe the Democratically-controlled Congress will not pass a carbon cap this year or next, but what will happen if a Democrat takes the White House in 2008?)
- Siting Problems (NIMBYism is stronger and stronger, and the FERC has just begun to experiment with overriding local decisions about LNG terminals and the like)
- The Cost of Alternatives (when and how will solar PV costs come down from many times the cost of an old dirty coal plant?) and
- The Cost/Feasibility of CO<sub>2</sub> Mitigation (if you DID want to capture and sequester CO<sub>2</sub> from a coal plant, how realistic are the forecasts of costs for this at best immature technology? What will it really cost in 10 years to produce cellulosic ethanol?).

These are just a few of the major technological uncertainties facing anyone who takes responsibility for making choices about future electric resource needs today.

*"One path leads to despair and utter hopelessness, the other to total extinction. Let us pray that we have the wisdom to **choose** correctly." -- **Woody Allen***

So, the main question is how to manage these risks. Who should have the responsibility? What tools should they use to spread and lower risks? How should the public's preference regarding trade-offs between different alternatives be determined and incorporated into planning? Can traditional regulation work in a context where no choice (except perhaps lowered sales) is the obvious one? Where choices must arise out of the decisions of the people, not the profit motive of the utility? The balance of this report will attempt an answer to these questions.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

#### 4 WHAT HAS BEEN DONE OR PROPOSED IN OTHER STATES?

All the states that pursued deregulation are debating where to go from here. For the most part, states are building in devices to dampen wholesale price volatility and to ensure supply reliability. All states, regardless of whether they restructured their electricity markets, are considering increases in energy efficiency and other alternative resources. Since 2001, only a couple of additional restructured states have suspended retail competition or proposed to return to a structure of vertically-integrated retail utility monopoly. No single model of a post-deregulation electricity industry has emerged to dominate in states that tried deregulation and are not finding the results palatable. And the specific proposals are a moving target, as restructured states grapple with how to restore state control over spiraling costs and meet environmental challenges.

<b>Policies<sup>84</sup></b>	<b>Adopted</b>	<b>Being Considered</b>
Adopt Portfolio Approach to Power Procurement		NJ
Permit or Require Utility to Enter into Long Term Contracts at least in some circumstances	CA, CT, DE, ME, MT, NH, RI, VA	NJ <sup>85</sup>
Procure (all or most) SOS via Short-Term (up to 3 year) Contracts	CT, DC, DE, IL, MD, MA, ME, NJ, PA	PA
State Agency or Authority to Produce and/or Procure Power	CA (not used) NY	CT, IN, IL, RI
Limit Retail Choice	CA, MT, VA	IL
Restore/Retain Utility Obligation to Serve at least in some circumstances	CA, MI, MT, OH, PA, VA	CT, IL
Guarantee or Pre-Approve Utility Recovery of Plant Costs/Profits	MT, OH (preliminary), VA	
Begin/Continue to Implement Integrated Resource Planning	CA, DE, ME, NH, NJ, OR, RI	
Phase-in Rate Increases via Deferral	CA, DE, IL, MD, OH, PA, RI	IL
Municipalize/Create Cooperative	PA	PA
Impose Excess Profits Tax		CT

<sup>84</sup> This chart is accurate as of April 30, 2007.

<sup>85</sup> New Jersey's Basic Generation Service procurement auction for small customers (like an SOS auction) already goes out for three-year contracts for one-third of the load each year. New Jersey's Board of Public Utilities is considering a portfolio approach, in which longer-term contracts would be used.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

#### **4.1 PHASE-IN POST-TRANSITION RATE HIKES**

If a state believes the transition off of rate caps is going to be jolting, a phase-in of post-transition rate hikes may be helpful to consumers. Many states have adopted some form of phase-in, including California, Delaware, Illinois, Maryland, Ohio, Pennsylvania, and Rhode Island. Massachusetts used a “virtual” phase-in, because it did not cap electric rates for any length of time after introducing competition. Similarly, New Hampshire has just allowed rates to follow the markets.<sup>86</sup>

#### **4.2 USE LADDERED PROCUREMENTS**

Many states have adopted laddered procurements for their equivalent of Standard Offer Supply (at least for residential consumers). States using laddered short-term procurements today include, for example, the Delaware, the District of Columbia, Maine, Massachusetts (NStar), and New Jersey. Other states, including Pennsylvania, are considering implementing a laddering approach, to smooth out the impact on SOS rates of the volatility of year to year fluctuations in energy markets.

#### **4.3 PERMIT/REQUIRE UTILITY TO ENTER INTO LONG-TERM CONTRACTS**

A number of states allow utilities to procure SOS-type power using contracts longer than the one to three years typical in SOS auctions. These include California, Connecticut, Maine, New Hampshire and Rhode Island. But note that these longer-term procurements are not without restrictions.

California utilities may only conduct procurements consistent with an approved least cost plan. Connecticut's RFP was issued to secure capacity in constrained areas facing high rates from the locational marginal pricing introduced at the wholesale level.<sup>87</sup> In Maine, the Commission has interpreted the legislation permitting longer-term obligations to allow only such contracts as are needed to avoid the capacity payments that otherwise would have to be made to the regional transmission system operator, ISO-NE.

To maintain some of the benefits of competition in resource procurement, states are requiring that long-term contracts be pursued only by way of an RFP open to the market. In Connecticut and Maine, the RFPs are administered directly by the utility regulator.

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<sup>86</sup> However, most New Hampshire consumers get their power from Public Service of New Hampshire, which has kept its fossil fuel plants, and thus continues to provide service to its non-shopping customers at cost plus a reasonable return. This fact enables PSNH rates to remain below market rates. See Section 4.4.

<sup>87</sup> Docket No. 05-07-14PH02.

#### **4.4 ALLOW UTILITY TO BUILD PLANTS/RETURN TO COST-OF-SERVICE REGULATION**

Soon after the California market meltdown, New Hampshire amended its restructuring legislation, to ensure that the largest New Hampshire utility would retain all but its nuclear generation resources until 2006, and then only divest them if the Commission found it to be in the public interest. California did not push divestiture past the plants that had been sold or transferred as of the crisis.

Some states never did require divestiture. Michigan, for example, points to its legislature's decision not to require divestiture as a reason why its electricity rates are among the lowest of the large industrial states.<sup>88</sup> New Hampshire allowed its major electric utility to retain its non-nuclear plants, and customers of that utility have enjoyed lower-than-average power prices.

More recently, Connecticut Light & Power has called for a return to vertical integration, proposing that it be permitted once again to build power plants. Ameren, parent of utilities in Southern Illinois who have suffered huge rate increases, has also called for a return to vertical integration. Dominion, the dominant electric utility in Virginia, has won passage of a comprehensive reregulation statute that, even as amended by the Governor, would provide extraordinary guarantees of profitability for Dominion's operations in that state. The Montana legislature has passed legislation that would re-impose a regulated monopoly for electricity.

#### **4.5 EMPOWER STATE AGENCY TO PRODUCE/PROCURE POWER**

A number of states are considering the implementation of state power authorities, such as those that exist in New York, and (at least on paper) in California. Legislation to create a Rhode Island Energy Authority has been introduced in Rhode Island. Recently in Illinois the Speaker of the Illinois House called for the creation of an Illinois Power Authority. The Attorney General of Connecticut has a plan to create a Connecticut Energy Authority.

#### **4.6 REINSTATE LEAST-COST/ALL-RESOURCE PLANNING**

Integrated Resource Planning is a name given in the 1990's to a process whereby a utility forecast its resource needs, identified all reasonable resources to meet those needs (including demand-side resources and distributed generation), and through comparing a number of scenarios of possible plans to meet the needs, determined the plan that was most likely to meet the needs at the least cost, consistent with any non-price criteria (such

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<sup>88</sup> 2006 Michigan Public Service Commission Restructuring Report to Legislature, February 2007; all annual reports (since 2000) are at <<http://www.dleg.state.mi.us/mpsc/electric/restruct/status.htm>>.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

as low price volatility, or meeting certain environmental goals). A number of states are brushing off their IRP procedures and developing long-term resource plans for their electricity industry. Utilities must file least cost plans in California, Delaware, Maine, New Hampshire, Oregon and Rhode Island. Typically, there is an opportunity for public and stakeholder input into the forecasts of needs, identification of resources, modeling of scenarios and specification of evaluation criteria. In a number of states, standards are set out for the types of resources that must be included in portfolios.<sup>89</sup>

Other methods have been developed to engage in least-cost long term planning with public input. In New Jersey, the Governor has appointed the Board of Public Utilities to head a state-wide effort to develop an Energy Master Plan for the state. This Master Plan will cover all energy uses in the state, including the home heating and transportation sectors. Goals are set for increased efficiency, and the Plan includes policy recommendations to achieve pricing, reliability, environmental and other goals.

#### **4.7 LIMIT RETAIL CHOICE – CORE/NON-CORE**

Very few states have gone the direction of limiting retail choice. California suspended retail choice for all customers during the market crisis in 2000-2001. Virginia's legislature and Governor have recently agreed on the essential terms of a bill that would restore a regulatory monopoly. Ameren, with retail utilities in Illinois, has proposed to restore a monopoly in exchange for the legislature dropping proposals to freeze rates. The Montana legislature has recently approved a return to monopoly provision of electricity service.

More common is the idea of continuing retail choice for large customers, but eliminating choice for small customers. This model is commonly known as "core/non-core," after the practice for many states with respect to gas competition. In California, core/non-core has been considered a possible model for reopening retail markets to competition.

#### **4.8 IMPOSE EXCESS PROFITS TAX**

The Attorney General of Connecticut has proposed that the state impose an excess profits tax on all profits from power plants in the state that exceed a rate of 20%.

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<sup>89</sup> In addition to renewable portfolio standards, some states are allowing or requiring the inclusion of efficiency in the resource portfolio. For information on efficiency standards in utility portfolios, see, "Energy Efficiency Savings Standards Around the U.S. and the World," fact sheet from the American Council for an Energy-Efficient Economy, July 2005, available at <http://www.aceee.org/energy/eesavings.htm>.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

#### **4.9 PROMOTE RETAIL COMPETITION**

Some states are looking for ways to salvage and promote retail competition. In New York, the Public Service Commission has approved various Power/Switch programs, under which customers who try a retail competitor's services receive two months of discounted power. This is an incentive for the customers to experience taking service from a competitive supplier.

In Pennsylvania, the Commission has recently issued a set of proposals for dealing with post-transition rate shocks. Among the proposals is a step-up in education for consumers, giving them information about the potential benefits of shopping for power from competitive suppliers.

In California, leadership of the Commission has since at least 2004 promoted the return to retail power markets. Most recently, a coalition of many market participants and others filed a request with the Commission to open markets again. The Commission has the matter under advisement.

#### **4.10 CAP RETAIL RATES**

In Illinois, many policy makers have called for an extension of the price caps that had been implemented with retail competition. These proposals do not contemplate deferral and later recovery of the difference between the capped rate and the prices charged by SOS providers who won recent auctions for supply. Proponents point to the high profits that parent companies of Illinois distribution utilities have earned, and call the results of the 2006 SOS solicitations unfair and excessively high. In reply, the utilities argue that the auction for SOS power was fair, and that they must recover the entire amount they are charged by suppliers who won those auctions, or else be caught in the same kind of price squeeze that drove one California utility to bankruptcy and another to financial peril in 2000 and 2001.<sup>90</sup>

In other states where some propose to cap rates, the proposals are actually for deferrals with later recovery.

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<sup>90</sup> Most recently, bills to cap the rates just of Ameren, the major provider in Southern Illinois, have failed in the Illinois legislature, and bills to cap rates both for Ameren and ComEd, the major provider in the northern part of the state, have been blocked by the Senate President, a long-time ally of ComEd. Meanwhile, ComEd has offered a package of low-income and other targeted benefits if the rate cap idea is dropped.

## **5 RECOMMENDATIONS**

There are two essential sides to the provision of electricity resources: the demand consumers put on the system, and the resources brought forward to meet that demand. The task for the state is to ensure that there are institutions able to make demand and resources match in real time. In the age of traditional regulation, bigger was better, and regulators did not need to know much more than that about loads and resources. Today, bigger is often not better, and many other technological and political concerns swirl around every resource choice.

Ideally, the institutions approved or established by the state will be organized and operated so that there is the best chance to create this match with the highest standards of reliability, at the least cost, and the greatest fidelity to articulated societal values such as environmental protection, access by all to affordable electricity, economic development, and the like. As noted, there is always uncertainty when planning for the future, and never more so than today in the electric industry.

The institutional actors must face the correct incentives, and more than ever must be given public guidance. The traditional regulated monopoly utility industry, as discussed below, does not fully meet these modern industry needs. So Delaware may want to create new processes and institutions to meet today's electricity challenges.

### **5.1 RECOMMENDATION 1: DELAWARE SHOULD PERIODICALLY DEVELOP ELECTRICITY PRIORITIES IN A DEMOCRATIC PROCESS**

#### **5.1.1 Debating and Deciding Delaware's Electricity Priorities**

There are many reasons why it makes sense to undertake periodic public debates about the values Delaware considers most important in its electric system. As discussed above, given the present state of electricity technology, there are major necessary trade-offs. For example, in theory, Delaware could decide that eliminating greenhouse gas emissions in the state is the highest priority. This would likely clash with price goals. Alternatively, Delaware could decide that it wants to maximize use of brownfields, or develop as much renewable power as is technologically possible in the state, or reduce demand as much as physically possible. There are a myriad of choices to be made.

Thus, to accomplish its goals, the state needs to understand the its priorities for the electricity system. All of them come with different levels of uncertainty, based often on whether the techniques to achieve them are tried and tested, and whether the price and availability of the inputs are within Delaware's control.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

Delaware has already taken significant steps in the direction of debating its priorities and figuring out how to manage the uncertainties, through HR 6 etc. and the IRP/RFP and DSM initiatives kicked off by that and other legislation. Through oversight of the RFP process, legislation has engaged the PSC, the Controller General, the Director of the Office of Management and Budget and the Energy Office in the process of determining these priorities. The matrix of criteria for the RFP issued on behalf of DP&L is an example of a set of priorities that the State could adopt to guide its resource choices. Considering this then leads us to our first Recommendation.

The need to engage the public in this process follows from the fact that the entire state is profoundly affected by the choices of decision makers regarding the electricity industry. This report does not suggest a particular form of public engagement.

The legislative process is one. Consideration of a utility's Integrated Resource Plan by the Public Service Commission is another. However, as Delaware has seen, if the utility is not itself interested in implementing certain resource plans, reliance on the utility to conduct the planning exercise can require considerable outside oversight, to ensure that the scenarios selected for analysis represent the complete range of reasonable futures against which plans must be developed.

Whatever the process, public input will be crucial for the outcome to be widely understood and earn maximum credibility. Well-understood tools of public policy can be used, such as public hearings and liberal opportunities to write letters and comment. Modern tools such as surveys and focus groups could also be useful.<sup>91</sup> Another option to take public input is the deliberative poll.<sup>92</sup> These could be conducted in various venues around the state.

There is at least one existing model of a process that combines state agency decision-makers with interested parties and the public generally, leading to a set of goals for energy policy and specific policy choices to implement those goals. In New Jersey, the Governor has established a multi-agency, multi-stakeholder process led by the Governor and an agency designated by him. Within the overall goals announced by the Governor, the planners and stakeholders are charged with developing, costing and designing specific

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<sup>91</sup> The author observed a focus group conducted for the New Hampshire Public Utilities Commission on the topic of whether to introduce retail choice in the gas industry. The results were eye-opening, as to the various preferences of different customers, and their level of understanding of the issues involved. Similarly, baseline surveys and follow-up surveys of electric customers about electricity restructuring helped the New Hampshire Commission fashion its policies in that area.

<sup>92</sup> A "deliberative poll" is a form of public opinion research in which a representative group of people is brought together, say over a weekend, and starts by answering detailed questions regarding their opinion of the facts and priorities under discussion. Modern technology allows this stage to be performed by electronic/radio signals from hand-held opinion recorders, and instantly collated to show trends among the participants. This stage is followed by extensive information sharing, with experts and proponents of different perspectives. Finally, the poll is taken again. Such a mechanism was used successfully by Central and Southwest, a Texas energy firm.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

policy options. The public is given a number of opportunities to comment on the developing plan. In the end, the Governor, with the guidance of the lead agency, will decide among competing proposals, and where legislation is needed, the legislature will come into the process at this point. The product of this process will be the New Jersey Energy Master Plan.

A similar model could be adopted in Delaware. Delaware is not without experience in this type of initiative.<sup>93</sup> The State could decide which agencies have a leading responsibility for various parts of any plan that would emerge from the priority-setting process. In New Jersey, for example, the Energy Master Plan will include consideration of energy use in transportation and housing. Appropriate agencies with jurisdiction over such issues are included in the planning process. Alternatively, Delaware could decide to focus on environmental priorities, giving leadership to its environmental agencies in the process. Or, Delaware could focus more specifically on the electricity issues facing the state, giving the lead to the Public Service Commission in that case, and restricting debate to questions of electricity policy.

Any entity charged with an obligation to serve or a role in implementing electricity policy in the state would be expected to follow the Energy Master Plan. This Plan would reflect the risk preferences and the trade-offs made by the state with input not only from experts and interest groups, but the public at large.

The need to engage such a planning exercise on a periodic basis follows from the fact that circumstances change, and public priorities change with them. There is a need for certainty about policy, at least for a given period of time, so that investments can be made against a known set of priorities. Balancing this need for planning certainty against the need for flexibility to meet changed circumstances, this report recommends that the state's priorities be revisited and reestablished at least every 5 years, and perhaps as often as every 3 years.

The key is to establish a forum for periodic public debate and determination of the "matrix" of electricity priorities. In the end, the issue is making decisions in a situation of great uncertainty, and thus risk.

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<sup>93</sup> Title 28, Section 80.53(c)(7) provides for the development of a State Energy Plan every 5 years, under the facilitation of the administrator of the State Energy Office. Section 80.55 provides for a Governor's Energy Advisory Council, which has responsibilities to foster the implementation of the Plan, and to spearhead the development of the revised Plans every 5 years. The Plan specified in Section 80.53(c)(7) is less comprehensive in scope than the Energy Master Plan proposed here, but has some elements in common, including promotion of maximum energy efficiency in the state.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

### 5.1.2 Coming Together to Agree on a Forecast

There are some analyses and decisions that do not involve trade-offs between potentially competing values. Thus, forecasting need for electricity and identifying available and potentially available resources to meet those needs should be objective exercises, not swayed by wishful thinking or interest-group politics. A different model from the energy master plan can be used to meet these needs.

For this type of baseline assumption determination, Delaware has had successful experience with a charrette model, whereby experts and knowledgeable persons with interest in the subject matter are brought together and charged with the job of developing a consensus on some aspect of the planning process. Since 1977, Delaware's public officials have been able to rely on a bipartisan estimate of the State's economic situation, including revenue forecasts, prepared by the Delaware Economic Financial Advisory Council (DEFAC).

Under the DEFAC process, the Governor appoints a committee of 25 persons who "broadly represent both the public and private sectors of the State's economy."<sup>94</sup> This Council meets at least 6 times per year, and produces estimates of Delaware's current and projected economic conditions and trends. It provides bimonthly estimates of the General Fund and Transportation Fund revenue by major categories for the current fiscal year and the two succeeding fiscal years. Annually, for use in the Governor's budget preparation and consideration of the budget by the legislature, DEFAC estimates General Fund and Transportation Fund revenues by major categories for the current fiscal year and the four succeeding fiscal years.

While the economic conditions and trends of the state, and resulting estimated revenues, are subjects that lend themselves to political posturing by interest groups desiring to promote their budget preferences, the bipartisan nature of DEFAC and its long history of fact-based projections, has evidently resulted in general trust in and reliance on the DEFAC estimates. One can imagine certain aspects of utility planning lending themselves to a DEFAC-like process.

For example, a "Delaware Electricity Forecast and Resource Advisory Council" ("DEFAC") could be convened periodically, and tasked to develop (a) forecasts of electricity usage and peak demand for Delmarva, DEC and Delaware, with and without forecast energy efficiency resources, over each of the next 12 months, and over one, five, ten, fifteen and twenty year intervals, and (b) estimates of resources available to Delaware over the same periods, including in-state generation and generation available through PJM. The annual or periodic resource estimates could be quite detailed,

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<sup>94</sup> Executive Order 5, Recommissioning the Delaware Economic & Financial Advisory Council, available at [http://governor.delaware.gov/orders/eo\\_5.shtml](http://governor.delaware.gov/orders/eo_5.shtml).

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

reflecting estimates of likely available transmission capacity, and the like. Membership could be similar to the membership of the Governor's Energy Advisory Council, albeit with a more targeted scope of responsibility.<sup>95</sup>

As part of such a "DEFAC" process, or in addition, Delaware could develop estimates of the technical and economic potential in Delaware for energy efficiency and load reduction. Similarly, Delaware could develop periodic estimates of the technical potential for renewable resources, as well as emerging nuclear and coal technologies, and the potential for transmission relief. Such studies can undergird sound public policy development, and resolve fruitless debates not informed by good data.

## **5.2 RECOMMENDATION 2: DELAWARE SHOULD ADOPT A PORTFOLIO APPROACH TO MEETING ELECTRICITY RESOURCE NEEDS.**

If this report has one theme, it is that there is uncertainty in practically every aspect of electricity forecasting, planning, construction, production and operation. Uncertainty brings risk. The best way to moderate the impact of risk is to spread it. A portfolio of different types of resources, using different fuels, procured for different periods and with different levels of ratepayer obligation, will spread the risk that any one or more of the choices turns out to have been less effective and less cost-effective than projected.<sup>96</sup>

DP&L has no diversified supply portfolio at this time. It was permitted to divest itself of all of its generation. Its non-shopping customers receive all their power from the wholesale market, under relatively short-term procurements. Non-shopping DP&L customers have no resources committed to supplying them at set prices beyond 3 years.<sup>97</sup> DP&L's Standard Offer Service portfolio consists entirely of short-term contracts. This exposes DP&L customers to the volatility of the wholesale markets.

In HB6 and proceedings under its mandate, Delaware has been moving in the direction of a greater diversity of resources. The idea of having a portfolio of resources is straightforward. The more difficult questions involve who should put it together, and on what basis.

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<sup>95</sup> Title 29, Section 80.55.

<sup>96</sup> For groundbreaking work on the concept of Portfolio Management, see Cheryl Harrington, et al. "Portfolio Management: Looking After the Interests of Ordinary Customers in an Electric Market That Isn't Working Very Well," Gardiner, ME. July 2002. Available at [http://www.raonline.org/showpdf.asp?PDF\\_URL='Pubs/PortfolioManagement/PortfolioMgmtReport%2Epdf](http://www.raonline.org/showpdf.asp?PDF_URL='Pubs/PortfolioManagement/PortfolioMgmtReport%2Epdf)

<sup>97</sup> See In the Matter of the Provision of Standard Offer Supply to Retail Customers in the Service Territory of Delmarva Power & Light Company after May 1, 2006, Docket No. 04-391, Hearing Examiner's Report, September 15, 2006. Laddered three-year contracts each for one-third of the SOS load are now used.

## 5.2.1 Choosing a Portfolio Manager

The first task is to designate a portfolio manager. There must be some institution charged with the responsibility for amassing the portfolio. Some care ought to go into finding that entity or individual. So the key to this recommendation would be to put effort and thought into how Delaware wants to get a manager and what type of manager to get. Whoever has this job must be a professional, or be able to hire professionals. The manager must have deep and broad knowledge of the markets, the electricity needs of Delaware and its economy, the PJM regional transmission organization and its effects on Delaware, options for meeting electricity needs, contract management, finance, and the like.<sup>98</sup>

### 5.2.1.1 The Utility As Portfolio Manager?

Historically, of course, that institution was the utility. And in theory, a utility could play this role again. If the utility were chosen as the responsible portfolio manager, this would come close to restoring traditional regulatory roles.

In the case of DEC, it has a professional portfolio manager in its supplier, Old Dominion Electric Cooperative. There is no particular need to force DEC to choose another portfolio manager, if it and its members are satisfied with the present arrangement.

Delmarva has indicated in a number of ways that it is not interested in resuming the role of actual power provider, or for that matter, of portfolio manager. Managing a procurement that simply rides with the short-term prices on the wholesale market is not the management of a portfolio. But the choice of Delmarva as portfolio manager, without close oversight, would amount to a decision to ride the wholesale markets using relatively short-term procurements to meet the needs of Delmarva's customers. This approach is inconsistent with the idea of a portfolio – spreading risk by procuring power from a variety of sources under a variety of terms.

In theory, Delmarva could be given the job of amassing and managing the portfolio, subject to specific instructions as to its contents. However, that would defeat at least part of the purpose of designating a portfolio manager - finding an entity that is ready, willing and able to put together and maintain over time a package of resources that spreads risk in a way acceptable to the public in Delaware. It would likely have the practical effect of moving the ultimate responsibility up the line, to some entity in state government.

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<sup>98</sup> It should be noted that some resource choices require specialized management, and deep pockets. This is true of nuclear power and IGCC coal plants, in both cases because of the need for extraordinary amounts of capital, and for highly specialized technical expertise. Unless Delaware were to buy only a slice of such a plant or of its output, the choice of such technologies would caution the use of a well-capitalized, expert industry player, most likely a utility.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

### 5.2.1.2 Can Willingness Be Bought?

In Virginia, the utility itself stepped forward to resume the portfolio management tasks implicit in the “obligation to serve” of regulated monopoly. However, Dominion, the electric company for much of the state, proposed and negotiated the legislation that will give it extraordinary benefits and protections, not previously granted to utilities for undertaking the obligation to serve.

In effect, Dominion has said that it only wants the obligation to serve customers (with the attendant responsibility to plan and to build plant), if it gets special treatment in the form of guaranteed and higher profits. But under traditional utility regulation, utilities were allowed recovery of prudently-incurred costs. Despite the complaints of utilities, only very rarely did regulators disallow investments, and even then typically the amounts disallowed have been modest in comparison to the extent of uneconomic investment. Absent proof that Wall Street will not accept the traditional regulatory “compact” and will not advance funds to monopoly utilities subject to prudence reviews, the Virginia approach appears to be a give-away to the utility.

Another reason this “deal” would not be advisable for Delaware is that putting the responsibility in the hands of a utility with an assured return on plant investment will practically guarantee that the utility will build plant, whether the particular plant is the best choice for Delaware.

The Montana legislature responded to this problem by requiring that new plant meet certain tough new environmental standards. In Montana, as of mid-April 2007, the Governor is contemplating whether to sign the bill passed by the legislature that would restore the utility's monopoly and its obligation to anticipate and fulfill electricity resource needs.

The Montana legislation does not go as far as Virginia to guarantee profits, but it would give the utility protections greater than those enjoyed by most utilities under traditional regulation. To protect the utility from the risk of making a resource choice later repudiated as imprudent or uneconomic, Montana's HB 25 would allow a utility to obtain pre-approval of the decision to build a new plant. If the approval is given, then the utility may recover the costs of the investment in rates once the plant is in service, with no review of whether the decision to build that plant was a prudent one.

The Montana legislation thus explicitly puts many risks of long-term decisions on consumers. The Virginia legislation goes further and guarantees arbitrarily high returns to the utility. It should not be necessary to go as far as the Virginia legislation to incent a utility to resume the obligation to serve. The price Virginia consumers will pay for this benefit is arguably much higher than the benefit.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

There is yet another reason not to reward a utility in exchange for its willingness to undertake the obligation to plan for and meet resource needs. The guarantee of plant investment recovery does not turn the utility into a willing player, identifying all potential resources and studying all reasonable options, and then creatively meeting the myriad risks in the electric industry.

The problems with having a utility perform the portfolio management role have to do with the difference between the utility's incentives and those of its customers. Under traditional regulation, building and building more was not only in the utility's interest, it was in the public interest. It brought economies of scale, lower prices, and the universal distribution of electricity.

In today's industry climate, and given the uncertainties and risks of every step in any direction, there is no easy way to ask private capital to act in its own interest, and expect that the result will be consistent with the public interest, requiring only restraint from excess. Rather, the public must express its risk preferences directly, and specify the path it wishes to take in meeting the uncertainties surrounding electricity resource choices.

#### 5.2.1.3 The Alternatives: Implementation By or For the State

The alternative to the utility performing portfolio management is for the state to take on the job. A supervising agency such as the PSC could hire a professional manager from among the firms with experience in assisting with electricity procurement activities.<sup>99</sup> Alternatively, a state agency could take on the job using in-house staff,<sup>100</sup> or the newly-formed Delaware Energy Authority (see Recommendation III) could do the job.

Whoever supervises any procurements and oversees any building, operation, or contracting, should have in-depth experience in the utility industry. Preferably, the firm(s) or agency (or both working together), would be devoted to Delaware's electricity needs on a full time basis.

### 5.2.2 The Portfolio Manager's Mandate

The second main requirement of successful portfolio management is the need to be clear about what types of resources the portfolio should contain. Whether portfolio management is performed by the utility, a state agency, or a professional firm hired by a state agency, it needs to operate under a very clear mandate. The process outlined in Recommendation I, above, should lead to clear instructions as to the purpose of the

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<sup>99</sup> As noted above, a professional adviser will not have a stake in the outcome (other than to avoid blame), and will thus have a different set of incentives coloring its advice.

<sup>100</sup> At present, there are no state agencies, including the PSC, with sufficient staff to undertake the Portfolio Management role directly. This could be remedied by authorizing the additional staff.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

Portfolio, and boundaries on the choices the Manager has available, consistent with the risk-preferences of the state.

A successful portfolio should identify the basic resources that fit the risk preferences of the state. Presumably these would be “smart deals” - resources with the best non-price criteria at a reasonably low price. This could be almost any types of resource. So, for example, if the state believed DSM was the cheapest source of resource to meet electricity needs, it could ensure that a significant amount of DSM was included in the portfolio. On the supply side, presumably the manager would similarly be on the lookout for resource options that combine low cost and reasonable risk.

The portfolio manager will have to understand what fraction of the portfolio for Delmarva customers should be firm commitments. Firm commitments for longer periods contain the risk that the market will drop relative to the price agreed, and the consumers will be stuck with the responsibility for paying over-market prices. On the other hand, they protect against price spikes, and help assure reliability at reasonable cost.

These basic sources of power might at first be procured in amounts sufficient to supply around 200 mW of load. This is the amount of capacity Delmarva's SOS customers need at all hours – its baseload requirement.<sup>101</sup> The amount procured under longer-term contracts might start low, and build up over time. Ultimately, the package of contracts will permit the manager to meet the great majority of demands from Delmarva SOS customers in the least cost way, consistent with Delaware environmental and risk preferences.

The portfolio manager must make sure the lights stay on. The priority-setting process from Recommendation I will undoubtedly produce a high preference for such reliability. So, in addition to a basic portfolio of contracts, the portfolio manager would arrange for procurement of load-following<sup>102</sup> supplies, to fill in the gaps and match loads to resources at the margin precisely. This is the residual demand of the system. These load-following contracts could eventually be merely a small percentage of the total annual loads, procured on a short-term basis.

In theory, the portfolio manager could simply ride the wholesale markets for this balancing function. However, this would expose the system to more volatility than is likely to be necessary to obtain a reasonable price. Instead, laddered short-term all-requirements contracts have proven to be quite valuable in filling out portfolios and matching the volatile marginal loads with supply. New Jersey's BGS process, for

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<sup>101</sup> In 2005, DP&L's SOS customers used fewer than 200 mW during only 2% of the 8760 hours in the year. Their average usage was 400 MWhr.

<sup>102</sup> Load-following supplies are supplies that vary with the need, so that the supplier must bring enough power to the system at every moment to meet the needs that are not otherwise met. A utility under vertical integration had the quintessential load-following obligation, and typically met it by a combination of owned generation, contracts of various terms, and short-term purchases (or sales) in the market.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

example, uses short-term procurement for all its residual purchases. The main differences between the New Jersey process and this proposal are: (a) New Jersey has only some clean energy procurement in its base, so the “residual” now amounts to almost all its requirements, and (b) New Jersey uses a declining price timed auction, which is not necessary in order to procure short-term power. Other states successfully use RFPs for this purpose, such as Maine and Connecticut.

Thus, some form of fairly standardized, simple tranche procurement mechanism would enable the portfolio manager to fill out the marginal needs of the system. As noted, states have had success with a system whereby 1/3 of the residual load is procured every three years.

The priority-setting process suggested in Recommendation I could identify some fraction of the anticipated need that would be secured from efficiency investments, from preferred supply-side options, and from the market. Whatever is left would be divided into tranches, and bid out to obtain laddered contracts. Because this load is a residual, there is no specific level of demand procured – the load-following nature of the procurement means you always get only what you need.

Suppliers may say they require a premium because such residual loads are uncertain. The underlying “smart deals” acquired by the portfolio manager can take into account the impact on prices of the uncertainty in the residual load. Initially, most of the power procured for Delmarva SOS customers would likely be in this residual.<sup>103</sup> The non-residual will initially be quite small, and could change reasonably slowly over time, so as not to scare away potential suppliers. By the time the basic portfolio is fully populated with the “smart deals,” the residual should be quite small. However, this should not mean Delaware cannot obtain reasonable bids to serve this load. Consider Rhode Island, where utilities bid out their so-called Last Resort Service every six months. This amounts to less than 5% of Rhode Island's load, but there have always been enough bids for this service to be competitive.

Making sure that Delaware electricity customers get their resources from a well-balanced portfolio of resources can be done within the framework of a number of different industry structures. For now, the key point is that instead of relying solely on relatively short-term procurements from the wholesale market, Delaware's electricity demand should be obtained from a well-balanced portfolio that spreads the risks more broadly than the Standard Offer Service procurements of today.

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<sup>103</sup> Unless the state approves one of the proposals in the RFP for a larger commitment.

### 5.2.3 Portfolios and Deregulation

The premise of deregulation was that consumers would no longer bear the risk that plant investments by utilities would turn out to be unneeded and uneconomic. The risk of adverse outcomes from long term plans was supposed to shift to the entrepreneurs, the unregulated generators. Consumers would be free from the obligation to pay for uneconomic plant. If they don't like the result of one supplier's resource mix, they could simply turn to a competitor.<sup>104</sup>

By moving to a portfolio management approach, regardless of who puts together the portfolio, the state would be re-obligating consumers to pay for at least some longer-term resource choices. The portfolio would have resources with a mix of terms, some of them quite long (e.g. 10-20 years, and up to "life of unit" – which could be 40 or 50 years in some cases). Some of these will prove uneconomic or undesirable in the future, as technology changes, as risks materialize, and as other factors change over time. The question is whether moving to a Portfolio Management approach increases the economic costs to Delaware above the costs of riding the wholesale markets on a short-term basis.

Traditional regulation had various rules for allocating the risks of failed or uneconomic plant. The difficulty of allocating the costs of failed or uneconomic plant was one of the spurs of the move towards deregulation. These difficulties do not go away under any new approach that includes long-term commitments. As we have seen, there is risk in all resources, making it likely that at least some choices by the portfolio manager will turn out in hindsight not to be felicitous.

In long-term commitments, whether through building or procurements, it will be important to specify who bears the risk of adverse future events. If the long-term resource investments turned out not to be economic, who must pay this now-excessive cost? If plant is built by or for customers, then to that extent the costs will likely remain with the customers.

For a price, long-term contracts could be fashioned so as to designate who would bear the risk, and at what cost, between consumers and providers. In addition, short-term market procurements to fill in resources to meet demands would be "load-following" contracts, under which the supplier bears the risk that needs will not be as high as forecast, and reaps the benefit if sales are higher than forecast, over the year to three years of the contracts. To get the benefit of cost-based resources owned by the power authority or the utility, however, the risk that the costs will be incurred without the anticipated level of benefits must be absorbed.

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<sup>104</sup> It can be argued that over time, consumers end up paying the costs of suppliers' unhappy choices as well as those that turn out well. At the least, suppliers' costs of debt and equity will reflect their riskiness. To the extent the industry is risky overall, all suppliers will have higher costs, and these costs are reflected in competitors' rates.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

If the State wants to maintain the option for retail choice, it is unlikely that any great premium would be exacted by suppliers for the resulting risk that sales will be lost to competition, so long as migration stays as low as it has been in recent years. If shopping began to create the need to pay high migration risk premium to suppliers, or to expose remaining customers to noticeable risk of having to pay costs stranded by the shoppers, steps could be taken to prevent the adverse impact on non-shoppers. Customers could be required “take or pay” for power from the portfolio, with exit fees imposed if individual customers left significant costs for non-shoppers to pay. HB 6 made a number of tools available to the Public Service Commission to protect remaining customers from migration risk.

The more serious problem is that long-term commitments will bind customers to pay at least some level of costs regardless of whether the commitment turned out in fact to provide the expected level of benefits. But this is the fundamental choice confronting the State. Absent some kind of long-term commitment, with this concomitant risk, the consumers will be forced to ride the markets.

“You pays your money, and you takes your choice.” Punch magazine, vol.10, p.17, 1846
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Delaware in HB6 in 2006 moved in the direction of greater stability of pricing and less exclusive reliance on wholesale markets for electricity supply. The markets did not provide satisfactory results when the caps came off. But the stability of prices made possible by resources with longer-term obligations comes at a price. Thus, the obligation to “take or pay” for long-term investments can be viewed as a premium to pay for insurance against the many problems with competitive wholesale markets. Alternatively, it could be seen as the payment for a physical hedge against market gyrations and market abuse.

The decision to pursue longer-term commitments is not risk-free. But the economic costs are likely to be small compared to the benefits, especially if Delaware develops the ability to have cost-based generation options. And the creation of a portfolio does spread the risks of all procurements among a number of alternative resources, of varying types and terms. The amount subject to longer term commitments can be minimized if the public is willing to ride the ups and downs of the market in exchange for less of a long-term obligation. Conversely, the amount of the resource need obtained in long-term contracts<sup>105</sup> can be expanded to ensure a steady supply at a relatively stable price.

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<sup>105</sup> Or plant ownership, by the utility and/or by a state power authority.

#### **5.2.4 Delaware Halfway There Already**

Delaware has already started to put together the pieces of a portfolio. Under HB6, it initiated an Integrated Resource Planning process, and directed various state agencies to develop a Request for Proposals for longer-term procurements. Both of these processes include elements of the portfolio approach. As noted above in Recommendation I, Delaware has begun a number of efforts to develop policies expressing the risk preferences and non-price criteria that are important to the State for its electric industry. These efforts are similar to the exercise the State would have to go through to determine the mandate for its portfolio manager.

Delaware has not yet decided to pursue a portfolio approach, and has accordingly not determined specifically what institution will have ultimate responsibility for putting together the portfolio. But the intensive debate and deliberations begun in the State in 2006 and continuing now would provide a good basis to start developing a mandate for a portfolio manager, and deciding the best institutional structure for housing such a manager.

### **5.3 RECOMMENDATION 3: DELAWARE SHOULD CREATE A STATE POWER AUTHORITY TO INCREASE THE OPTIONS FOR COST-BASED POWER.**

With a well-rounded portfolio of “smart ideas”, including aggressive demand-side management and longer-term contracts, is a solid basis on which to diversify resources and spread risk. However, it does not necessarily ensure the least cost solution to the resource needs of the state, without more. What is missing is a cost-based option.

A portfolio approach using only market-based options is better than an ad-hoc or short-term market-based approach. But the market does not always produce a least-cost option. This is particularly the case when reliability is a concern. The market price will go up as supplies tighten. Given this reality, and the high capital cost of building new plant, capacity markets are likely to follow a pattern of boom and bust. Relying solely on the market may then produce prices that are artificially high at any given point. Certainly relying on the market leaves Delaware subject to the decisions of PJM and the FERC, since the federal government controls the pricing for generation at the interstate wholesale level.

There are in principle two ways to get a cost-based option for Delmarva customers.<sup>106</sup> One would be for the utility to resume the job of building and buying power at least cost

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<sup>106</sup> DEC receives cost-based service already from Old Dominion. This report does not discuss the option of bringing all Delaware electricity customers into a cooperative. In theory, this could be another way to provide access to cost-based electricity options.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

for its customers. This approach was rejected in favor of deregulation in 1999, because it no longer seemed to produce the least cost power. Without going into all the reasons that judgment may or may not still be valid, suffice it to say that Delmarva has given no indication it is interested in resuming this role.<sup>107</sup>

The other is to have a state power authority. A “Delaware Energy Authority” could build generation and sell the output to the SOS portfolio manager<sup>108</sup> at cost. As a quasi-governmental organization, it could be given the authority to issue bonds backed by the full faith and credit of the State. It would have little difficulty raising needed funds to build plants, and could do so at very reasonable financing costs.

In theory, a state power authority could be empowered to serve all SOS customers in the state. But this is not the only way a state power authority could be used. If another entity were the portfolio manager for the state, the power authority could be a bidder offering power to the portfolio manager. It would then only get chosen if its bid were least cost, and conformed to the non-price criteria specified by the portfolio manager pursuant to its mandate.

Tennessee Valley Authority and Bonneville Power Authority have long term contracts with utilities in their service area, providing all requirements power for these distributors. New York Power Authority was started to exploit the power of Niagara Falls – the low-cost hydro power it delivers from plants along the river is sought after by its potential customers.<sup>109</sup>

Another role that a state power authority could play would be to fill reliability needs when the market was not coming forward with reasonable proposals. The New York Power Authority in the summer of 2001 installed 10 small generators around the boroughs of New York City, and staved off what could have been a massive blackout. NYPA was able to act quickly in part because of its special emergency siting powers.

A state power authority could serve as the state-wide provider of DSM services, if Delaware chooses to move in the direction of a central DSM provider. A state power authority could also build transmission if need be.

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<sup>107</sup> If Delmarva did wish to resume its former role as supplier for its customers, in effect putting together their portfolio, care would have to be taken to avoid the kind of special treatment Dominion was able to obtain for itself in Virginia recently. The Virginia scheme includes almost no protections for customers against high costs from the utility.

<sup>108</sup> If it was not that manager itself.

<sup>109</sup> NYPA sells its power to “government agencies; to community-owned electric systems and rural electric cooperatives; to job-producing companies; to private utilities for resale—without profit—to their customers; and to neighboring states, under federal requirements.”

<<http://www.nypa.gov/about/whoweare.htm>>.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

Because a state power authority can offer a cost-based alternative without giving a utility special treatment to incent its participation in the supply side, a number of states have considered adding a state power authority to their tool chest for obtaining least cost power. As noted, New York state has had an active and successful power authority for many years. Proposals are being actively debated in state legislatures in Connecticut,<sup>110</sup> Indiana, Illinois, and Rhode Island.<sup>111</sup>

**5.4 RECOMMENDATION 4: DELAWARE SHOULD CONSIDER LIMITING RETAIL CHOICE.**

HB 6 allows the Public Service Commission to limit retail choice if the Commission determines that it is in the public interest.<sup>112</sup> The legislature in HB 6 empowered the Commission to limit retail choice to protect customers from bearing costs incurred to serve customers who later migrate to competitive suppliers:

§1010 Electric distribution companies' obligation to serve customers....  
(c) After hearing and a determination that it is in the public interest, the Commission is authorized to restrict retail competition and/or add a non-by-passable charge to protect the customers of the Electric Distribution Company receiving Standard Offer Service. The General Assembly recognizes that Electric Distribution Companies are now required to provide Standard Offer Service to many customers who may not have the opportunity to choose their own Electric Supplier. Consequently, it is necessary to protect these customers from substantial migration away from Standard Offer Service, whereupon they may be forced to share too great a share of the cost of the fixed assets that are necessary to serve them as required by this Act.<sup>113</sup>

HB 6 also requires the Commission to promulgate rules governing “the amount of notice that a customer who desires to return to the Standard Offer Service Supplier must provide, the minimum amount of time that a customer must take service from a Standard Offer Service Supplier, and the amount of charges that may be assessed against a customer who leaves the standard offer service supplier and later returns to the Standard Offer Service Supplier, including the appropriate retail market price, which may be

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<sup>110</sup> It is possible that the renewed interest of the major electric utility, Connecticut Power & Light Company, to resume its obligation to build plant, was in part in response to the a Connecticut Electric Authority suggested and promoted by Connecticut's Attorney General; <<http://takebackthepower.net/tbtp/docs/blumenthal.pdf>>.

<sup>111</sup> See, for example, H 5317, filed in February in the Rhode Island House.

<sup>112</sup> Section 1010(c) of HB 6 (2006).

<sup>113</sup> HB 6, Section 8, replacing former Section 1010 of Title 26 of the Delaware Code.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

higher than the standard offer service price.”<sup>114</sup> These provisions, taken together, could also protect remaining SOS customers from bearing the costs directly incurred to serve migrating customers.

However, there are some indirect costs imposed on SOS customers by the existence of retail choice. It is conceivable that consumers pay a price for allowing theoretical competition to exist, even if no significant shopping has occurred. This is because market prices for SOS supply now include migration risk premiums. While these premiums may not be large today, any such premiums could be avoided if choice were eliminated for such loads.

The legal right of consumers to shop for alternative supplies also complicates forecasting and planning. Again, the extent of complication is low in practice, because the level of shopping is low.

While the risks of choice may be low to non-shoppers, the benefits of retaining choice are low as well. Retail choice provides few benefits to the bulk of consumers, and would likely not be missed if it were eliminated for small consumers. As noted above, only one competitive retail vendor offers electricity to residential consumers, and few customers of any class shop today.

If retail choice were eliminated for all customers, or for some customers, then to that extent monopoly would be explicitly restored. Customers would have no choice of vendors, and no prospect of getting a choice of vendors. Regulation or direct state action (e.g. a state distribution utility) would be required to ensure reliable and adequate service to customers.

Proponents of deregulation have argued that the combination of customer choice and generator response, with retail consumers and suppliers making decisions in the marketplace, would lead to the optimum array and pricing of resource options. To the extent this formulation still holds credence, the elimination of retail choice would remove one of the two key components of a market system, and doom it to failure. Of course, we have seen that the market has not met its promises to ensure reliable supplies at reasonable cost. So for many practical observers of the deregulation experiment, this may not seem a great loss. Also, there are many who have argued that wholesale competition can exist separate and apart from the extent of retail competition.

Large customers have taken more advantage of retail choice, and might resist being denied the opportunity to shop. One approach that has been considered by a number of states is the “core/non-core” approach. The name is adopted from the gas industry, which for many years has allowed retail shopping by its so-called non-core customers (large

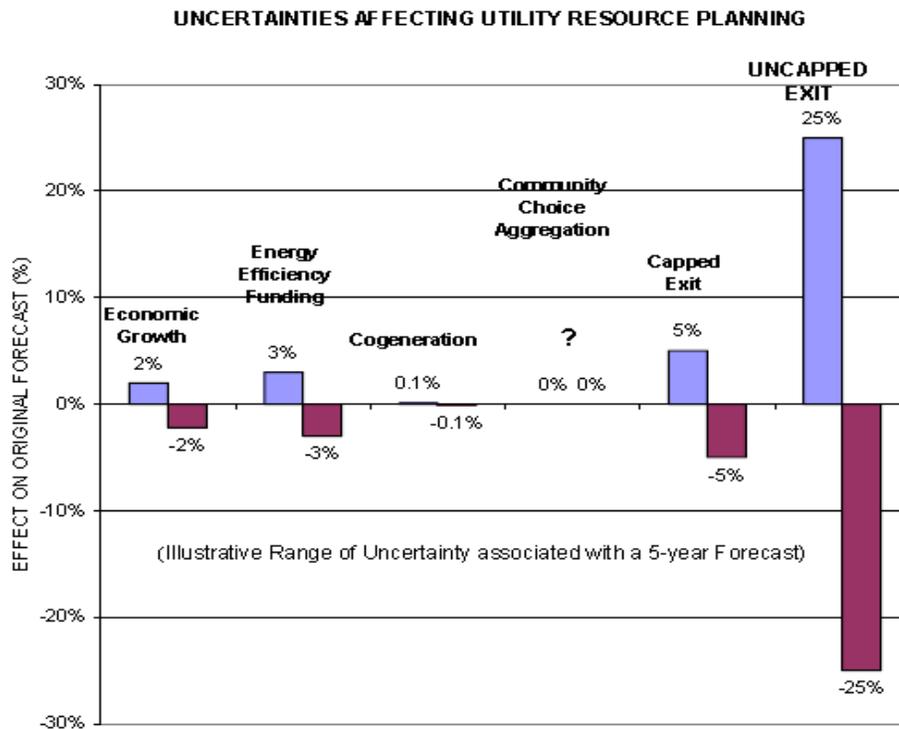
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<sup>114</sup> New Section 1010(b).

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

customers, often with dual-fuel capability, but not allowing or encouraging it among the smaller, core customers).

The Staff of the California Public Utilities Commission in 2004 produced a report for the Commission that examined the pros and cons of moving to a “core/non-core” system of retail choice only for larger electric customers.<sup>115</sup> In that report, the Staff found that there is considerable uncertainty in forecasted demand where large customers have the right to “migrate”, or choose an alternative supplier. The size of this added uncertainty in forecasting swamped the uncertainties that exist with or without retail choice for large customers, as shown in the following graph borrowed from the report:



As can be seen, the ability of large customers to exit the SOS group without limitation produces uncertainty in the five-year forecast of plus or minus 25%. By contrast, economic growth uncertainty only swings this medium-term forecast by 2% in either direction. The load forecast uncertainty translates into cost uncertainty, for the customer, for the competitive supplier, but also for the SOS supplier and any non-shopping customers who have to make the SOS supplier whole for migrations by other customers.

<sup>115</sup> Staff Report, Division of Strategic Planning, *A Core/NonCore Structure for Electricity in California*, California Public Utilities Commission, March 15, 2004; <http://www.cpuc.ca.gov/PUBLISHED/Report/34806.PDF>.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

The reasons for adopting a core/non-core approach are as follows:

- Small customers have not shopped in any numbers
- Few retailers market to small customers
- Sales to small customers are not economic
  - Retailing and back-office costs are high
  - Costs of passing through wholesale costs are lower
- Retailers ask for migration risk premiums for selling SOS service
- Large customers wish to retain the option to buy in the market.

If a state wishes to retain retail competition, it is important to take a fresh look at the terms and conditions under which a customer can move back and forth between the competitive market and the Standard Offer Supply, as provided in HB 6. Shopping customers have an incentive to try to buy power from the SOS provider when it is less expensive than the market, and from competitive suppliers when SOS prices are higher. Such moving back and forth can create a situation in which the SOS supplier must secure enough power to meet all possible loads, while being unable to recover its costs because customers migrate to less expensive supplies. To prevent this, limitations on leaving SOS or returning to SOS service have been developed by various states.

Delaware should take full advantage of the power to protect non-shopping customers from bearing any of the risk imposed on the system by shoppers. A core/non-core system could isolate that risk to the non-core classes. Non-bypassable charges, as contemplated by HR 6, could also be assessed. Minimum stay-out provisions could be adopted to prevent a shopper from arbitraging the differences that will exist at any given time between the SOS rates and market rates. Other tools could be used to protect non-shoppers and to keep the SOS load as reasonably certain as possible.

**5.5 RECOMMENDATION 5: DELAWARE SHOULD SET UP THE PROCESSES AND INSTITUTIONS FOR ITS ELECTRICITY FUTURE WITHIN THIS COMING YEAR, AND BEGIN TO IMPLEMENT THEM IN THE YEARS FOLLOWING.**

In order for Delaware to move forward with resource choices that reflect the public's assessment of risks and opportunities, the State will first have to set up the process whereby that assessment can be gauged. As noted, the various proceedings set in motion after the passage of HB 6 have forced state agencies, stakeholders and the public to engage in key elements of the assessment process. At this point, the chief need is to marshal these elements together, and to develop a coherent statement of the public's choices for its immediate energy future. In turn, the various forecasts of loads and resources must be vetted, and a consensus set of forecasts developed that all interest groups and state agencies can use as a common basis for policy recommendations.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

In addition, to acquire resources consistent with the State energy master plan, and based on the consensus forecasts of loads and available resources, the State will have to determine who will be responsible for pulling together the portfolio of resources to serve Delaware customers, with focus on Delmarva customers. If that entity will be the utility, then oversight mechanisms must be put into place. If the entity is a state agency, with or without outside consulting support, the agency must be explicitly designated, and the specialized resources brought together.

To the extent procurements will be used to obtain resources, the mechanics of the procurements should be established. Again, Delaware, and in particular the PSC, has done a great deal of work on the question of long-term electricity contracting, and can draw on this experience to identify the numerous issues that must be addressed in RFPs or other solicitations, contracts, and contract oversight and enforcement. This recent experience will also help the new portfolio manager understand the resources needed to bring together resources to meet the goals of the state energy plan.

Also, to have the option of cost-based resources built or operated under Delaware control, the proposed power authority must be created and empowered. Legislation must be passed to create the authority, a Board must be convened, leadership appointed, and staff hired.

With these tools in hand, Delaware can proceed in coming years to meet the electricity resource needs of its public in a way that best fulfills the choices expressed periodically by the public.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

## **SUMMARY**

The recommendations in this report propose a model for governance, with the specific policies to be the function of a public process. This approach responds to the failure of traditional regulation since the 1970's to consistently meet the needs of consumers and the public in a least-cost way, and the inability of competition to do better in an industry where production must equal demand practically every second, generation cannot be stored, capital costs are high, and public choices must inform resource decisions.

Regulation worked fairly well to restrain firms that were pushing in the right direction, but needed to be prevented from gold-plating their plant, or playing favorites among their customers. It works less well to make a risk-averse firm take firm action in an atmosphere of great uncertainty. The electric industry today is nothing if not uncertain.

There is no "free lunch," and there are no easy answers today, when it comes to meeting the public's need for electricity. There is no single resource, with the possible exception of energy efficiency, that is at the same time low in cost, benign in environmental impact, stable in price, and sustainable over the long term. It may be that technological breakthroughs being pursued today will soon provide the industry with another century of declining real costs, with few uncertainties. Low-cost methods of storing electricity could one day make a competitive market appear viable. But whether those happy prospects are realistic on any time frame cannot be assured.

The job of the policy maker today is to set up a structure that can manage the uncertainties. This will require periodic public debates over priorities. Cost versus carbon mitigation. Flexibility versus stability. Diversity versus short-term advantages. And so forth.

Managing the uncertainties will also require the empowerment of an entity to pull together a portfolio of resources for the bulk of customers in the State. That entity could take a number of forms, but state involvement will be necessary. Cooperative utilities can act directly at their members' direction and in their members' interest, subject to oversight for environmental compliance.

But the role of implementing a resource portfolio for customers of an investor-owned utility will require continuous and expert involvement of the state. The old incentives that spurred on a utility to serve the public interest have eroded in the face of today's uncertainties. Bigger is not always better. Less is sometimes more. Traditional regulation, relying on restraint rather than intensive oversight, does not work well to ensure adherence to the spirit as well as the letter of the portfolio plan.

To the extent the utility's interests cannot be aligned with those of the public without paying exorbitant premiums, then a non-utility manager will be necessary. Non-utility

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

managers could include a state power authority, or a state agency, using in-house staff or contracting out to experts. There are pros and cons of any of these approaches. Delaware and other states are breaking new ground in these efforts, and it is not possible to guarantee that one approach will be superior to the others.

The key is that portfolio should be obtained and managed to spread risk and to reflect the public's determination of its priorities. Presumably, Delaware's portfolio would start with aggressive pursuit of the most certain winner in the resource mix – energy efficiency and demand side management. And the portfolio should also be diverse in resource type and commitment length. In this way, Delaware can spread some of the risks it cannot avoid altogether. Once the public's risk preferences are determined, the portfolio manager can put together the portfolio reflecting the specific trade-offs the public prefers.

To have access to a cost-based alternative, and to an adequate supply in case markets do not come through in a pinch, the State should create a power authority. The power authority can be the builder/buyer of last resort, ensuring reliability at a reasonable cost when the market does not step up to the task. The power authority can arrange for building new resources, and managing them or hiring out the operations, so that the market suppliers will have competition from a cost-based alternative. Such an authority has operated successfully in New York State, and similar authorities are authorized or operating in other jurisdictions. Other states facing the need to recreate their electricity industries post-deregulation are also considering power authorities as a tool in the tool chest.

Finally, Delaware may want to limit retail choice, at least so as to avoid excessive migration premiums, and protect non-shoppers.

This report recommends that Delaware complete its process for determining public priorities for electricity resources in the coming year. Delaware should also select a portfolio manager, and put together the resources to staff that function, whether it is housed primarily in the utility or the state. Delaware should also take the next year to create its state power authority. Aggressive work on energy efficiency can proceed and should proceed at any time. Once the portfolio manager and power authority are in place, and the public process for determining trade-offs has been completed, the plan is ready to be implemented. These recommendations will not guarantee the best results in hindsight, but they are the best procedures for managing the uncertainties of today's electricity industry.

Delaware's Electricity Future:  
A Report Pursuant to SS1 of SJR3 of the 143<sup>rd</sup> General Assembly

<b>-RECOMMENDATIONS-</b>	
I.	Delaware Should Periodically Develop Electricity Priorities In A Democratic Process
II.	Delaware Should Adopt A Portfolio Approach To Meeting Electricity Resource Needs.
III.	Delaware Should Create A State Power Authority To Increase The Options For Cost-Based Power.
IV.	Delaware Should Consider Limiting Retail Choice.
V.	Delaware should set up the processes and institutions for its electricity future within this coming year, and begin to implement them in the years following.