Clean Air and Reliable Power:

Connecticut HB 6365
Will Not Jeopardize
Electric System Reliability

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1. Introduction

The Connecticut Department of Environmental Protection ("DEP") enacted regulations in late 2000 that would limit emissions of nitrogen oxides (NO_x) and sulfur dioxides (SO_2) from power plants and other large stationary sources. The regulations are intended to bring about annual emissions reductions of NO_x and SO_2. The sulfur dioxide regulations (R.C.S.A. section 22a-174-19a) establish two phases of compliance, the first requiring on-site reductions at facilities starting January 2002, and the second permitting emissions limits to be met through allowance trading starting January 2003. The DEP anticipates that Phase 1 of the regulations will reduce 1999 baseline SO_2 emissions of 43,529 tons by 18,893 tons per year, or 50 percent. Phase 2 of the regulations provide for additional reductions of 8,900 tons after 2003; but such reductions may not occur in Connecticut due to the use of allowance trading. Legislation has been proposed (sHB6365/File No. 398) that would have the effect of eliminating the SO_2 trading provisions of Section 19a in order to achieve local emissions reductions at the affected facilities.

The proposed legislation would affect units at the following six electric generating stations known as the "Filthy Five:"[1] Devon, Montville, Middletown, and Norwalk Harbor, owned by NRG Power Marketing, Inc., and New Haven Harbor, and Bridgeport Harbor, owned by Wisvest CT, LLC.[2] Together, these six generating stations represent a total summer capacity of about 2800 megawatts ("MW") of electric generating capacity. Opponents of proposed legislation argue that it will put at risk the reliability of electric supply to electricity consumers in Connecticut.

The Clean Air Task Force asked Synapse to examine whether the State of Connecticut's adoption of legislation that would effectively eliminate SO_2 allowance trading as a compliance option beginning December 31, 2004 would jeopardize the reliability of the electric system in the state of Connecticut, specifically southwest Connecticut.

Synapse has found that it is highly unlikely that the proposed legislation would cause the retirement of any electrical generating facility that is truly needed to maintain reliability of the power system. Existing market rules and procedures in New England are designed to ensure that units needed for reliability are available to provide power. These provisions are discussed in Findings 1 and 2. Simply put, generating units that are critical from a reliability standpoint must be run when needed. In addition, the proposed legislation provides temporary suspension of emissions limitations during power supply emergencies.

However, due to the repeated threats of NRG Power Marketing, Inc. to shut down at least some of its generating facilities, the Clean Air Task Force asked Synapse to examine the impact on reliability in the event that some units do retire rather than undertake activities to comply with the legislation. This analysis is presented in Findings 3 through 6.

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[1] The "Filthy Five Campaign" originally focused on five electric generating facilities; however a sixth was added when the owner of the Devon units restarted a mothballed unit fueled by oil.

[2] NRG Power Marketing, Inc. is in the process of acquiring the generating facilities owned by Wisvest CT, LLC.

2. Summary of Findings

Synapse has concluded that:

> There is no evidence that the proposed Connecticut legislation will jeopardize electric system reliability in New England, the State of Connecticut, or the transmission constrained areas of Southwest Connecticut and Fairfield County either through the retirement of specific units or through outages in the event a facility owner decides to install pollution control equipment. Where such outages are necessary, the reliability of electricity supply can be maintained by careful planning of outages. The unsubstantiated claims regarding electric system reliability from NRG Power Marketing, Inc, the owner of several (and potentially all) of the affected six facilities, do not constitute a reasonable basis for rejecting the requirements in House Bill 6365.

Synapse has made the following key findings in support of this conclusion:

1. The New England Power Pool would have to approve an owner's request to retire a generating facility if that retirement would cause reliability problems.
2. It is highly unlikely that the adoption of the proposed legislation will lead to the retirement of a generating unit or units that are critical for electrical reliability.
3. Electric system reliability in New England would not be jeopardized in the highly unlikely event of the retirement of as many as five of the generating facilities that would be affected by the proposed legislation.
4. The reliability of Connecticut's state-wide electric system outside of Southwest Connecticut would not be jeopardized in the highly unlikely event of the retirement of as many as five of the generating facilities that would be affected by the proposed legislation.
5. If the proposed Oxford generating facility is built, then up to 500 MW of existing generating unit capacity could be retired in Southwest Connecticut without jeopardizing the reliability of the electric system in that transmission constrained area.
6. Any needed equipment retrofit outages could be scheduled for the years 2002 through 2004 without jeopardizing system reliability.

These findings are explained in Section 4 below.

3. Data Sources

This analysis is based on data published by the Independent System Operator of New England ("ISO New England" or "ISO-NE"), the New England Power Pool ("NEPOOL"), and the Connecticut Siting Council. In particular, we have relied upon the April 2001, NEPOOL CELT Report,[3] filings and reports by the Connecticut Siting

[3] *NEPOOL Forecast Report of Capacity, Energy, Loads and Transmission, 2000-2009*, April 1, 2000.

Council, testimony submitted to the Legislature's Clean Air Working Group by the Siting Council and the Connecticut Department of Public Utility Control, and presentations concerning ISO New England's regional transmission expansion plan. We have examined projections of future peak loads and available capacity for New England, the State of Connecticut, and the transmission constrained areas of Southwestern Connecticut and Norwalk-Fairfield County.

4. Findings

1. The New England Power Pool would have to approve an owner's request to retire a generating facility if that retirement would cause reliability problems.

The New England market rules and procedures prevent a generating unit owner from retiring a unit if such retirement would jeopardize the reliability of the electric system. A proposal to retire a generating unit must be reviewed and approved by ISO New England and the members of the New England Power Pool. In a letter to DPUC Chairman Downes, ISO-NE's general counsel explained that:

> The NEPOOL Agreement stipulates that owners of any bulk power facility in New England (generating stations, transmission lines, substations, etc.) must obtain ISO-NE and NEPOOL permission (through the [NEPOOL Agreement Section] 18.4 Process) to make any change in the facility's capability, characteristics or status. ISO-NE and NEPOOL can reject the proposed change if it has significant adverse impacts on the secure and reliable operation of the bulk electric power system. The NEPOOL Reliability Committee reviews 18.4 Applications and determines if proposals are technically acceptable. The NEPOOL Participants Committee (NPC) grants final approval. If the NPC does not approve such a request (due to reliability issues), then it must develop some form of compensation to keep the unit in-service. [4]

This is one of the provisions of electricity markets and system operation in New England that is designed to ensure that necessary facilities will be available to support system reliability, and that facility owners will be compensated. The compensation and parameters of unit operation would be determined through a negotiation process between the unit owner and NEPOOL. Consequently, there is no danger that if the proposed legislation is adopted the owners of the Filthy Five facilities will unilaterally decide to retire those units if doing so would cause blackouts or other serious system reliability problems.

2. It is highly unlikely that the adoption of the proposed legislation will lead to the retirement of a generating unit or units that are critical for electrical reliability.

Owners of electrical generating units that are affected by the Connecticut DEP's new regulations and by the proposed legislation claim that unit retirement, due to compliance

[4] May 7, 2001 letter to Donald W. Downes, Chairman - CT DPUC from Kathleen A. Carrigan, Vice President, General Counsel & Secretary, ISO-NE.

with emissions requirements, would jeopardize electrical reliability. Synapse has done several analyses presented in this report of the likely impact of unit retirements on electric system reliability.

However, threats of unit retirements and reliability impairment cannot be considered in isolation. It is important to consider the *likelihood* of retiring a generating unit instead of undertaking compliance activities. There is no reason to believe that a generating unit necessary for reliability would be retired; indeed, contemplating such a retirement would appear unreasonable.

Compliance costs cannot render a unit that is needed for reliability uneconomical. Units that are critical from a reliability perspective will always be run, even if they must be run out of economic merit order. The decision of whether to undertake compliance activities or retire a unit is an economic decision based on the cost of compliance and the availability of cheaper alternatives for supplying needed electrical power. Compliance costs will not result in the retirement of a unit unless a more economic unit is available to serve a comparable electrical function. If the costs to comply with the regulations and proposed legislation render a unit uneconomic, then by definition that unit is not needed to maintain the reliability of the power system. This is because the New England markets for energy and ancillary services, and the New England System Operator's dispatch rules are all designed to meet the primary objective of maintaining power system reliability.

Within any known transmission constraint, the most economic units will operate to provide needed electricity. If a unit is not replaceable from an electrical point of view, the system operator will always operate the unit to serve load and preserve the transmission system. Generating units in the New England power system are dispatched in general based on their bids to supply energy. Generating units with the lowest bid are dispatched first, then bids with increasingly higher bids, until the system can run to meet electrical load within accepted standards of reliability.

However, often the generating units cannot be dispatched in the exact order of their increasing bids due to constraints within the transmission system. As a result, generating units are sometimes run out of economic merit order in order to meet demands on the system in a reliable manner. In these situations, in the current markets the generating units are not used to establish the energy market clearing price throughout New England, but they are paid "uplift". These uplift payments provide a mechanism for the owners of generating units that are more expensive than other units, but are needed for reliability, to recover their bid cost. For example, there is routinely several hundred megawatts of uplift in Southwest Connecticut where generating units are run out of economic merit order for reliability reasons. The mechanism for paying for units that run out of economic merit order is likely to change in the next few years as ISO New England and market participants develop a congestion management system. However, the overall point remains the same, that units needed for reliability will operate, and will be given an opportunity to recover their costs.

Generating unit economics and reliability functions will be influenced by a variety of factors. Between now and 2005, when the legislative requirements would be in force, there are several factors that are likely to affect the economics of compliance decisions, and the reliability role of individual units. The regulations and legislative proposals

should be considered in light of these developments. For example, there are several new generating units proposed for Connecticut, some of which are already under construction. When these units come on line, they will be incorporated into the dispatch order and are likely to affect whether existing units are economic and/or are needed for reliability. Some of these units are considered in Synapse's analyses, presented below.

Further, the on-going development of a congestion management system will create financial incentives to take steps in high cost areas, such as load response, transmission enhancements, and/or new generation. The congestion management system would move New England away from the current markets that result in a single, region-wide energy market clearing price. Under a congestion management system different areas in the region would experience different energy prices when the transmission system is constrained. As a result, some areas, such as the Boston area and Southwest Connecticut could face different electricity prices than areas of Maine and New Hampshire when those areas face transmission constraints. The congestion management system will result in financial incentives to reduce congestion in high cost areas. Transmission congestion, and high costs, can be mitigated by load responsiveness (as discussed in the next paragraph), by transmission enhancements, and/or by the installation of new generation capacity. A congestion management system is likely to be in place in New England in the next two to three years.

In addition, there is currently a strong effort in New England to develop "economic load response," the ability of customers to reduce their electricity consumption in response to peak prices, as well as "emergency load response," the ability for the system operator to request that customers reduce their electrical consumption in exchange for compensation to mitigate reliability concerns. Such load response will enhance reliability and will reduce all customers' exposure to peak electrical prices. ISO New England developed load response programs this year with the aim of having 600 MW of price responsive load that could be called upon in tight capacity situations, or could respond voluntarily to reduce usage at peak pricing times. Reductions of usage at peak pricing times reduce peak prices throughout the region as well as enabling the load reducing customer to reduce their energy bills.

ISO New England has an on-going transmission planning process that will focus on reliability of the transmission system. This transmission planning process offers an important mechanism for addressing transmission constraints even if market forces are not sufficient incentive to remedy severe constraints. For example, there may be opportunities to address load pocket issues by improving transmission transfer capabilities from generating units adjacent to the Southwest Connecticut load pocket. It is important that regulations and legislation not be designed to safeguard the economic viability of any one unit since market rules and procedures, and dispatch practices are in place to ensure system reliability, and there are multiple changing factors that affect generating unit economics and system reliability.

Generating unit owners should bear the burden of demonstrating specific threats to the reliability of the New England and Connecticut power system associated with compliance activities. General threats of reduced reliability seem to rely on the premise that each existing unit is necessary for system reliability. The implication that if an existing unit becomes uneconomic due to compliance costs the whole power system will be threatened

is simply inaccurate. It is not appropriate for regulations and legislation to be shaped by their potential impact on individual competitors rather than on the achievement of a public policy goal.

Finally, the legislation itself provides a safeguard against reliability threats. The legislative emission limits can be suspended in the event that electricity supply to Connecticut is insufficient to meet demand. While due to the above-mentioned provisions in market rules and system operation this provision is not likely to be implemented, it nonetheless provides a final protection against potential impacts of the legislation on system reliability.

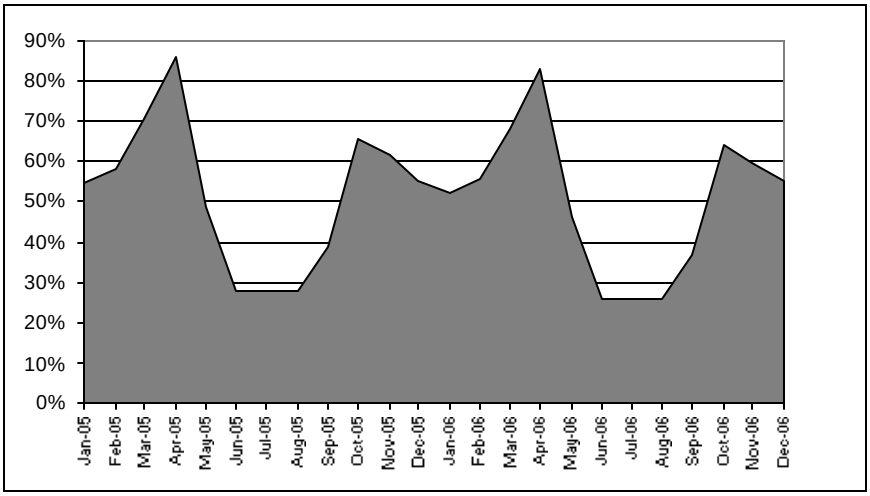
3. Electric system reliability in New England would not be jeopardized in the highly unlikely event of the retirement of as many as five of the generating facilities that would be affected by the proposed legislation.

The New England Power Pool and now ISO New England traditionally plan and operate the power system so as to achieve specific reliability standards. The result of such planning and operation is generally to maintain 15 percent or higher reserve margins during the summer peak months, with appropriate consideration of specific transmission constraints.[5] These reserve margins allow for higher than projected loads (i.e., as a result of hotter than expected weather) and higher than expected levels of unplanned generating unit outages.

As shown in Figure 1 below, ISO New England projects that there will be enough generating capacity available during the summer of 2005 and the summer of 2006 to provide system capacity reserve margins significantly higher than the usual minimum 15 percent.

[5] The reserve margin represents the percentage by which capacity exceeds load.

Figure 1.
NEPOOL Monthly Capacity Reserve Margins
January 2005 through December 2006
No Retirements of Affected Connecticut Facilities



The reserve margins shown in Figure 1 assume that no existing Connecticut generating facilities will be retired. However, Figure 2 shows that New England would still have adequate capacity reserves of 18 percent in the summer of 2005 and 17 percent in the summer of 2006 in the unlikely event that all of the affected Connecticut generating facilities other than Norwalk Harbor were retired.

Figure 2.
NEPOOL Monthly Reserve Margins
January 2005 through December 2006
With Retirement of Montville, Middletown, New Haven Harbor,
Devon and Bridgeport Harbor

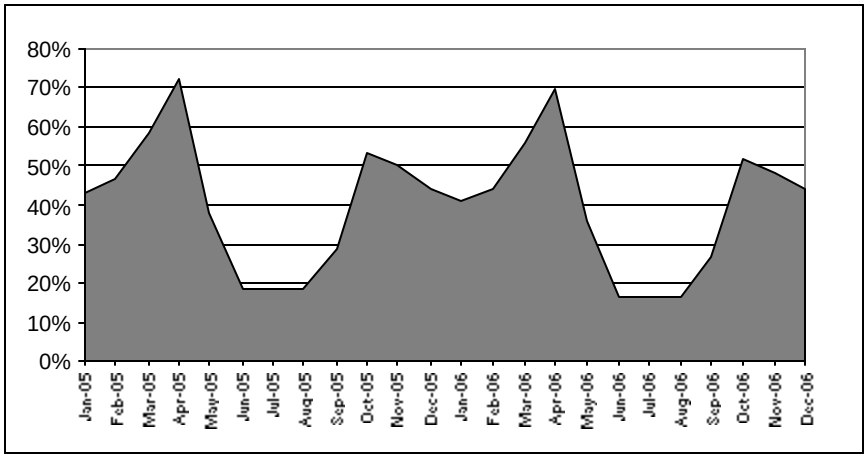


Figure 2 also shows that New England would still have reserve margins of more than 40 percent during peak winter months with reserve margins above 50 percent in many off-peak months.

Moreover, there are a number of reasons why these figures substantially understate the amounts of reserve capacity that actually will be available in 2005 and later years. First, the reserve margins shown in Figures 1 and 2 are based on projections of installed generating capacity that only reflect existing generating units plus those new units that are currently under construction (approximately 8,000 MW). In fact, another 4,000 MW of new generating units scheduled to be in-service by 2004 or 2005 have been licensed but are not yet under construction. This includes the Oxford and Meriden Units that have been licensed by the Connecticut Siting Council. The addition of any of these new units would increase the amounts of reserve capacity and the reserve margins that would exist in 2005 and 2006 even if some or all of the Connecticut units affected by the proposed legislation were retired.

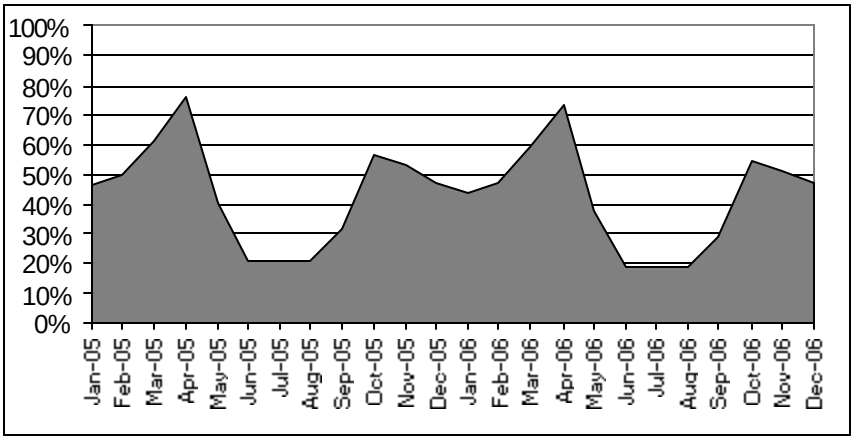
Second, the reserve margins shown in Figures 1 and 2 are based on ISO-NE's forecast that only 470 MW of capacity would be imported into the region during 2005 and 2006 from such sources as Quebec and New Brunswick. This would be substantially less than the levels of power that have been imported into the region in recent years. For example, New England averaged net imports of over 1,000 MW per hour during the summer of 2000.

Finally, the development of load responsiveness can significantly lower New England's peak loads during 2005 and later years and can enhance reliability region-wide and in specific locations. Customer response to price and reliability conditions should become an increasingly important component of wholesale markets and reliable power supply (see the discussion in Finding 2 above).

Figure 3 presents the capacity reserve margins in New England in the extremely unlikely event that all of the generating facilities affected by the proposed Connecticut legislation were retired and 1,000 MW of additional capacity were available in New England either through the construction of proposed facilities such as the Oxford and Meriden plants in Connecticut, through increased power imports, or as a result of peak load reductions due to the load responsiveness programs discussed above.

As shown in Figure 3 summer reserve margins would be 21 percent in 2005 and 19 percent in 2006 in such a scenario and would be significantly higher in other months. Such reserve margins would provide adequate New England-wide reliability even in the unlikely event that all of the Connecticut Filthy Five were retired.

Figure 3.
NEPOOL Monthly Reserve Margins
January 2005 through December 2006
Retirement of All Affected Connecticut Facilities
And Addition of 1,000 MW of New Capacity



ISO-NE recently prepared a preliminary assessment of the impact on NEPOOL system reliability of the potential retirement of six Massachusetts and five Connecticut generating facilities. This preliminary assessment was sent to Chairman Downes of the Connecticut DPUC who then submitted it to the Chairmen and Ranking Members of the Legislature's Energy & Technology Committee.[6]

This preliminary assessment makes a number of unrealistic and unjustified assumptions that cause it to grossly overstate the potential impact of the adoption of the House Bill 6365 currently pending before the Connecticut legislature. In fact, the ISO New England assessment contains absolutely no consideration of the likely impact that the regulations in Connecticut and Massachusetts, or the proposed legislation in Connecticut, will have on a generation owner's decision whether to retire a unit or to take actions to comply with regulations. Further, ISO New England's analysis does not even take into account the facts explained in the general counsel's letter regarding the inability of a unit owner to retire a unit if such retirement creates significant reliability issues.

First, the preliminary assessment implies that the recent adoption of revised air emissions requirements by the State of Massachusetts will lead to the retirement of six generating facilities. We have reviewed the claims made by the owners of the affected Massachusetts facilities prior to the adoption of the revised emissions requirements and have found no credible evidence whatsoever that the adoption of requirements will lead to the retirement of a single unit at any affected facility let alone the retirement of all six facilities. We have similarly found no credible analyses that show that the adoption of the

[6] ISO-NE *Preliminary Assessment of the Impacts on NEPOOL System Reliability from the Potential Retirement of Six Massachusetts Generating Stations and Five Connecticut Generating Stations*, dated May 4, 2001, attached to the May 8, 2001 letter from Donald W. Downes to the Chairmen and Ranking members of the Energy & Technology Committee.

proposed Connecticut legislation would lead to the retirement of any generating facilities in this State.

Second, the recently adopted Massachusetts emissions requirements will be phased in starting in December 2003 and the implementation date for the proposed Connecticut legislation is December 31, 2004. However, ISO-NE's preliminary assessment makes the unreasonable and nonsensical assumption that the owners of all eleven affected Massachusetts and Connecticut generating facilities would retire those plants by January 1, 2002 and thereby forego several years of profits from selling the electricity produced at those plants.

Third, the preliminary assessment appears to reflect the installed capacity that will be provided by the twelve generating facilities that are presently under construction in New England. However, it does not reflect the construction of the additional 4,000 MW of generating capacity that already has received permits in New England or the additional thousands of MW of capacity that has been proposed and that is considered in such other ISO-NE analyses as its recent assessment of the impact of New England's increasing reliance on natural gas for generating electricity.[7] The addition of any of these additional generating facilities would offset the retirements of any of the plants affected by the Massachusetts or Connecticut emissions requirements.

Fourth, the preliminary assessment assumes that New England will import significantly less power from such sources as Hydro Quebec and New Brunswick than it has in recent years.

Finally, the preliminary assessment ignores the substantial reductions in peak demand that can be expected from the load response programs that ISO-NE is starting to implement and that the Federal Energy Regulatory Commission has required for efficient and reliable electrical supply in New England.

Consequently, ISO-NE's Preliminary Assessment offers no valuable insights into the potential impacts, if any, of the legislature's adoption of House Bill 6365.

4. The reliability of Connecticut's state-wide electric system outside of Southwest Connecticut would not be jeopardized in the highly unlikely event of the retirement of as many as five of the generating facilities that would be affected by the proposed legislation.

The State of Connecticut will have very substantial capacity reserves in 2005 and 2006 if existing generating facilities are not retired and the three facilities currently under construction are added in 2002 as presently scheduled. In fact, under these circumstances, Connecticut would have 57 percent reserve margins during the peak summer months of 2005 and 54 percent during the peak summer months of 2006. As shown on Figure 4 capacity reserves would be 80 percent during the peak winter months and would reach even higher during off-peak months.

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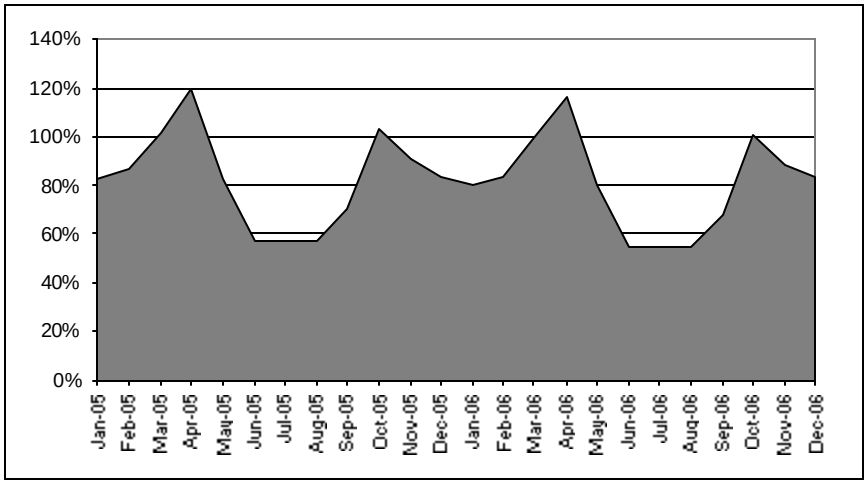
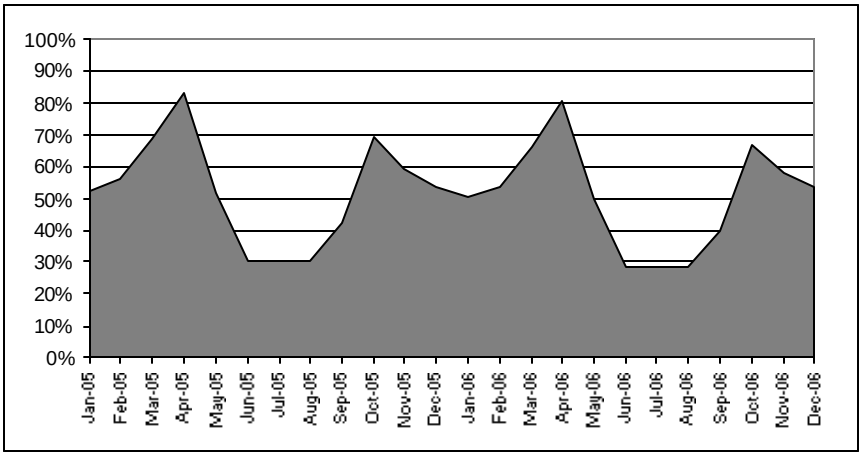
[7] *Steady State Analysis of New England's Interstate Pipeline Delivery Capacity, 2001-2005*, Levitan & Associates, Inc., dated January 2001.

Figure 4.
State of Connecticut Monthly Capacity Reserve Margins
January 2005 through December 2006
No Generating Unit Retirements



Statewide Connecticut capacity reserves also would be adequate if the Filthy Five facilities that are not located in the Southwest Connecticut-Fairfield County transmission constrained areas were retired. Figure 5 below shows what the monthly reserve margins would be if the Montville, Middletown and New Haven Harbor facilities were retired.

Figure 5.
State of Connecticut Monthly Reserve Margins
January 2005 through December 2006
With Retirement of Montville, Middletown, and New Haven Harbor

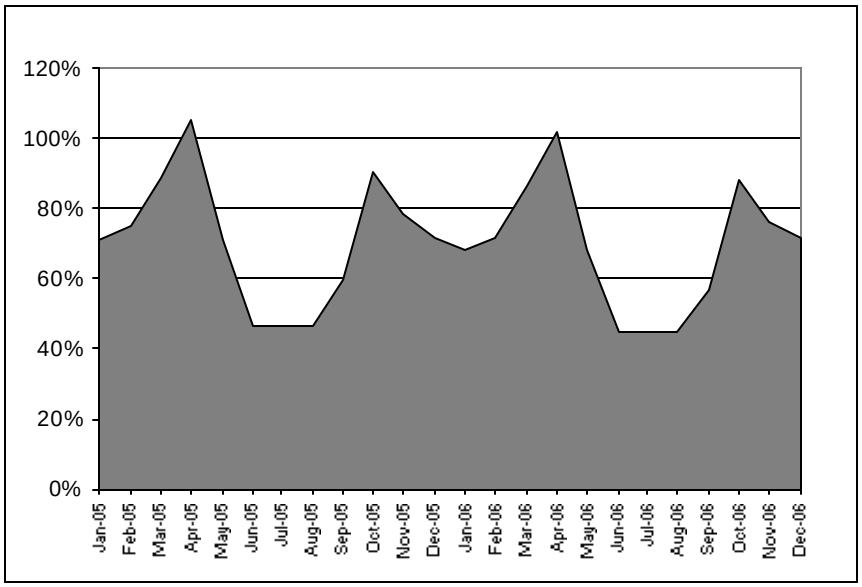


Consequently, peak summer month capacity reserve margins still would be 31 percent in 2005 and 29 percent in 2006 even if the Montville, Middletown and New Haven Harbor

plants were all retired. Capacity reserve margins would be above 50 percent during peak winter months and would reach as high as 83 percent during off-peak months.

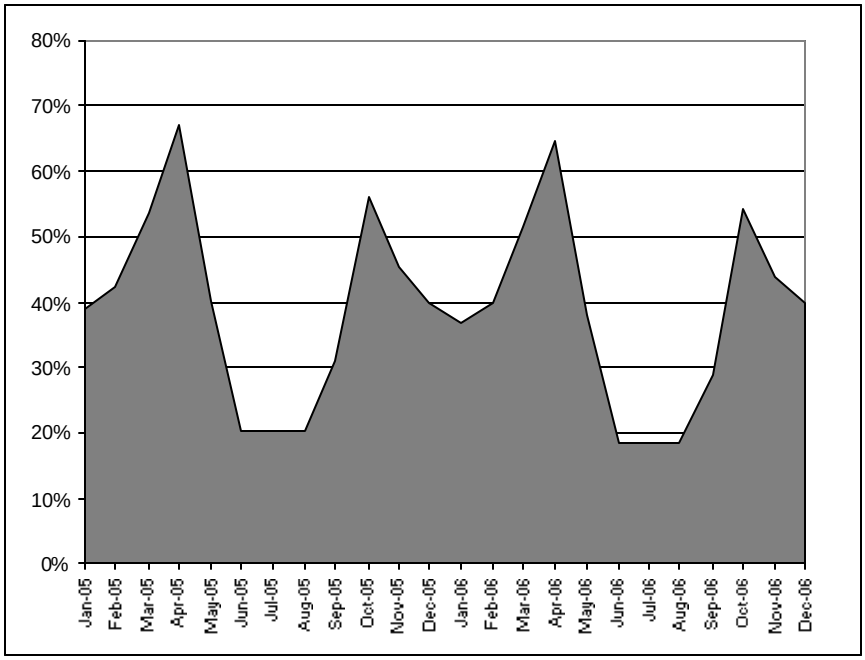
These statewide generating capacity reserves would be higher during 2005 and 2006 if the proposed Oxford and/or Meriden generating units are built. For example, summer capacity reserve margins would be 47 percent during 2005 and 44 percent during 2006 if Oxford and Meriden are built and the Montville, Middletown and New Haven Harbor facilities are retired.

Figure 6.
State of Connecticut Monthly Reserve Margins
January 2005 through December 2006
With the Retirement of Montville, Middletown, and New Haven Harbor and the Addition of the Proposed Oxford and Meriden Facilities



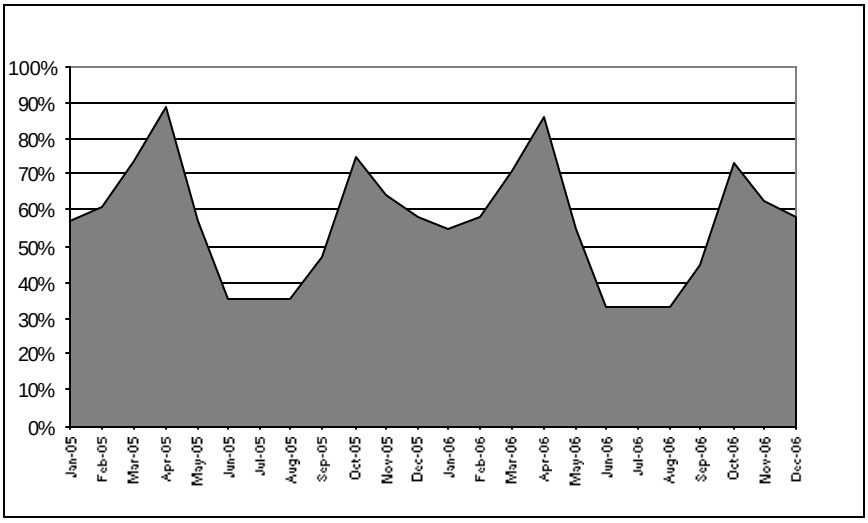
Furthermore, statewide Connecticut generating capacity reserves would be more than adequate even in the extremely unlikely event that the five generating units other than Norwalk Harbor that would be affected by the proposed legislation were retired. For example, as shown on Figure 7, reserve margins for Connecticut still would be 20 percent during the peak summer months of 2005 and 19 percent during the peak summer months of 2006.

Figure 7.
State of Connecticut Monthly Reserve Margins
January 2005 through December 2006
With the Retirement of Montville, Middletown,
New Haven Harbor, Devon and Bridgeport Harbor



These reserve margins would be even higher if the proposed Oxford and Meriden facilities are built. In fact, with the Oxford and Meriden facilities, the State's capacity reserve margins during the peak summer months would be 35 percent in 2005 and 33 percent in 2006. Capacity reserve margins would be above 55 percent during the peak winter months even if all of the affected Connecticut facilities other than Norwalk Harbor were retired. Reserve margins during the off-peak spring and fall months would range as high as 89 percent in 2005 and 86 percent in 2006.

Figure 8
State of Connecticut Monthly Reserve Margins
January 2005 through December 2006
With the Retirement of Montville, Middletown, New Haven Harbor, Devon and Bridgeport Harbor
and the Addition of the Proposed Oxford and Meriden Facilities



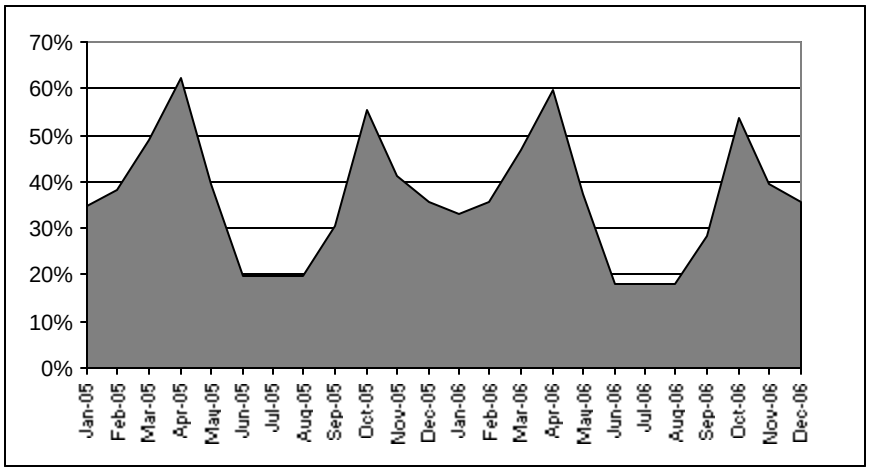
In conclusion, the unlikely retirement of as many as five of the generating facilities that would be affected by the proposed legislation would not jeopardize the reliability of Connecticut's state-wide electric system.

5. If the proposed Oxford generating facility is built, then up to 500 MW of existing generating unit capacity in Southwest Connecticut could be retired without jeopardizing the reliability of the electric system in that transmission constrained area.

Three of the Filthy Five generating facilities are located within the Southwest Connecticut and Fairfield County transmission constrained areas: Norwalk Harbor, Devon, and Bridgeport Harbor.

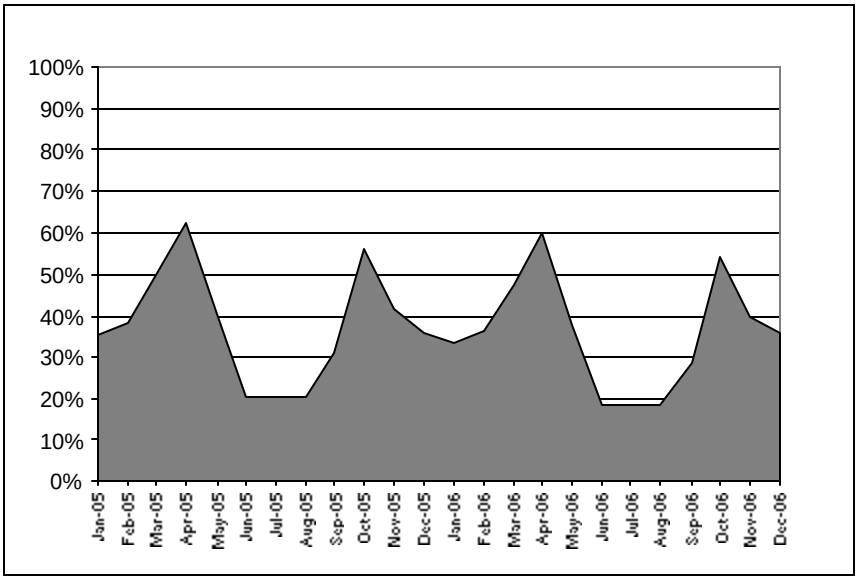
As shown on Figure 9 below, Southwest Connecticut will have more than adequate capacity reserves to maintain system reliability in 2005 and 2006 if all existing facilities continue to be available and the Wallingford and Milford facilities presently under construction come on-line as currently planned. In fact, under these circumstances, Southwest Connecticut would have 20 percent reserve margins during the peak summer months of 2005 and 18 percent during the peak summer months of 2006. Capacity reserve margins would be substantially higher during the peak winter months and the spring and fall off-peak periods.

Figure 9.
Southwest Connecticut Monthly Capacity Reserve Margins
January 2005 through December 2006
No Facility Retirements



Although, capacity reserves in Southwest Connecticut would be insufficient if the Norwalk Harbor, Devon and Bridgeport Harbor facilities were retired without any new generating facilities in place, system reserves would be adequate if up to 500 MW of existing generating capacity were retired in Southwest Connecticut and the proposed Oxford facility were built and available by December 2004.

Figure 10.
Southwest Connecticut Monthly Capacity Reserve Margins
January 2005 through December 2006
500 MW of Existing Capacity is Retired and the
Proposed Oxford Facility is Added to System



We note that at least two of the facilities within this Southwest Connecticut transmission constrained area can comply with the proposed legislation with relatively simple and economical operational changes. Retirement of these facilities is especially unlikely. First, the Norwalk Harbor generating facility must continue to operate absent other mitigating factors due to its location within the transmission constrained area of Fairfield County where electric demand exceeds the local generation, and the transmission system is constrained by voltage limits. Consequently, as we have discussed, NEPOOL would not allow NRG to permanently retire the Norwalk Harbor facility in response to the passage of the proposed legislation unless there were an alternate source(s) of reliable power that complies with applicable environmental requirements. This does not preclude the possibility that other developments, such as new generation and/or transmission enhancements, would reduce the need for the Norwalk Harbor facility in the future. For example, as noted above, the regional transmission planning process undertaken by ISO New England provides an opportunity to address the reliability issues of Southwest Connecticut and Fairfield County, Connecticut.

Furthermore, Norwalk Harbor will be able to comply with the proposed legislation simply by burning a lower sulfur fuel oil. A report prepared for the Clean Air Task Force by Energy and Environmental Analysis, Inc., concluded that sufficient 0.3 percent sulfur oil would be available for operation of the Norwalk Harbor plant, provided there was adequate time (but no more than 12 months) to arrange for supplies.[8] The report also concluded that use of the lower sulfur fuel would result in only a slight increase in operating costs.

At the same time, the Devon facility is capable of burning natural gas in addition to oil. Natural gas contains essentially no sulfur. Therefore, Devon can comply with the tighter emission limits in the proposed legislation simply by burning enough gas during each calendar quarter to bring its quarterly SO_2 emission rate down to the legislative limit.

6. Any needed equipment retrofit outages could be scheduled for the years 2002 through 2004 without jeopardizing system reliability.

Switching to lower sulfur fuels in order to comply with the proposed legislation should not require major downtime at any of the affected Connecticut oil-fired facilities. However, even if a significant outage were required at the Bridgeport Harbor 3 coal-fired unit at some point during the years 2002-2004, that outage could be accommodated without adversely affecting electric system reliability either in Southwest Connecticut or in New England.

In fact, any outages of the units at the affected Connecticut facilities to take actions to comply with the proposed legislation would be coordinated by ISO-NE pursuant to NEPOOL Operating Procedure No. 5 which prevents plant owners from taking generating units out of service for maintenance without approval of the Independent System Operator, unless there is a danger to personnel or a risk of equipment damage.[9]

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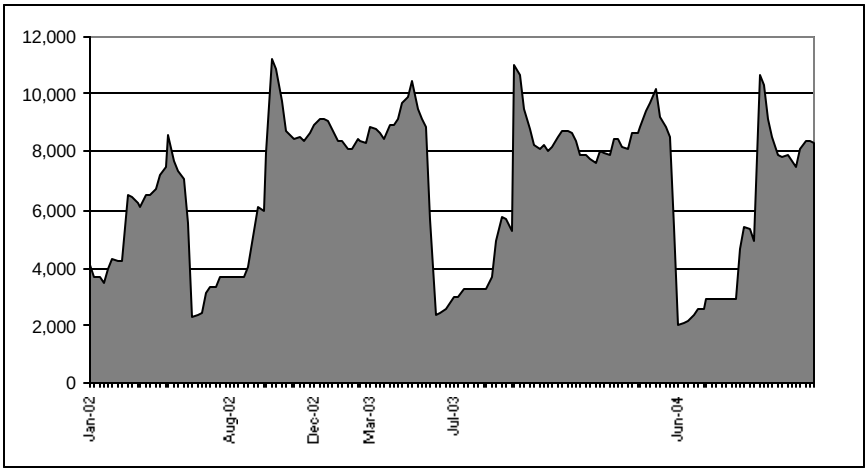
[8] *Impact of Switching to 0.3 Percent Sulfur Residual Fuel Oil at the Norwalk Harbor Generating Station*, prepared by Energy and Environmental Analysis, Inc. for the Clean Air Task Force. February 22, 2001.

[9] *NEPOOL Operating Procedure No. 5, Generation Maintenance and Outage Scheduling*, approved on July 12, 2000.

The same Operating Procedure also establishes that plant owners must request, and the Independent System Operator must evaluate and approve or deny, generating unit outages, taking into consideration the impact of the proposed outage on system reliability. As a result, outages to retrofit the plants affected by the proposed regulations could be carefully planned to occur during off-peak periods and could be coordinated with routine scheduled maintenance outages in order to minimize the total amount of time each unit is unavailable for service.

A review of the data in the May 4, 2001 ISO-NE Preliminary Assessment reveals that there is significant excess generating capacity in the New England electric system during the non-summer peak months in the years 2002, 2003, 2004 to allow for extended equipment retrofit outages of Bridgeport Unit 3 and any of the units affected by the recently adopted Massachusetts regulations. For example, as shown on Figure 11 below, there will be at least 8,000 MW of excess generating capacity in New England at all times during the eight month period between October 1, 2002 and May 31, 2003 above and beyond New England's usual operating reserves, assumed scheduled maintenance, and an allowance for unplanned outages. Similarly, there will be at least 7,600 MW of such excess during the eight month period October 1, 2003 and May 31, 2004. Any required equipment modifications at Bridgeport Unit 3 and any of the units at affected Massachusetts generating facilities could be accomplished during these periods without threatening system reliability.

Figure 11.
New England Capacity Reserves
Above and Beyond Traditional Operating Reserves and
Allowances for Scheduled Maintenance and
Unplanned Outages
January 2002 through December 2004



This data shows that extended outages of the 385 MW Bridgeport Unit 3 and the approximate 1,800 MW of coal-fired capacity affected by the recently adopted Massachusetts regulations would not jeopardize the reliability of New England's electric system.

The data in the ISO-NE Preliminary Assessment also shows that there even will be at least 2,000 MW of excess generating capacity available during the peak summer months of 2002, 20003, and 2004. Consequently, system reliability would not be jeopardized even if one or more planned equipment retrofit outages had to be extended into the summer months.

Capacity reserve margins in the Southwest Connecticut-Fairfield County transmission constrained areas also would be more than adequate if Bridgeport Unit 3 were shut down for an extended period for needed equipment retrofits. In fact, capacity reserve margins in Southwest Connecticut-Fairfield County during the peak winter months and the spring and fall off-peak periods of 2002, 2003, and 2004 would still be above 46 percent even if Bridgeport Unit 3 were out of service. Capacity reserve margins would be above 24 percent during the peak summer months of these same years even if Bridgeport Harbor Unit 3 were shut down for equipment retrofits.

These results are not surprising given that, through modeling analysis of the NEPOOL system, ISO-NE has found that increasing power plant scheduled outages dramatically (by about a factor of four from the annual maintenance schedule figures projected for

2000 and 2001) "showed virtually no impact on reliability."[10] The nearly four-fold increase in assumed scheduled outages resulted in an increase in "objective capability" (the amount of generating capacity required to meet reliability goals) by only 50 MW. The report by ISO-NE explained that "this is because the profile of New England electrical demand is so strongly summer peaking that the amount of maintenance in the fall, winter, and spring periods is not a significant factor in setting Objective Capability."

5. Conclusions

There is no evidence that the proposed Connecticut legislation will jeopardize electric system reliability in New England, the State of Connecticut, or the transmission constrained areas of Southwest Connecticut and Fairfield County either through the retirement of specific units or through outages in the event a facility owner decides to install pollution control equipment. Where such outages are necessary, the reliability of electricity supply can be maintained by careful planning of outages. The unsubstantiated claims regarding electric system reliability from NRG Power Marketing, Inc, the owner of several (and potentially all) of the affected six facilities, do not constitute a reasonable basis for rejecting the requirements in House Bill 6365.

[10] *Review of NEPOOL Objective Capability for Power Year 2000-2001*, prepared for NEPOOL by ISO-NE, at page 29.

Organizations

The Connecticut Coalition for Clean Air

The Connecticut Coalition for Clean Air is a statewide coalition of environmental, public health, and community organizations working together to protect public health by cleaning up the state's dirtiest coal and oil-burning power plants. Together, its 100 plus organizations represent over a quarter of a million people in the State of Connecticut.

The Clean Air Task Force

The Clean Air Task Force is a national environmental organization that advocates state and federal policy change to reduce air pollution. The Task Force's science, policy, legal and public education staff works in close collaboration with over 50 state and regional environmental organizations.

Synapse Energy Economics, Inc.

Synapse Energy Economics is a consulting firm based in Cambridge, Massachusetts. Synapse provides research, testimony, reports and regulatory support, primarily to government agencies and public interest groups. Synapse assesses the public policy implications of electricity industry planning and regulation, with an emphasis on consumer and environmental protection. Synapse's areas of expertise cover electric industry issues such as market power, system reliability, energy efficiency, renewable resources, performance-based ratemaking, mergers and acquisitions, divestiture plans, consumer aggregation, power plant economics and environmental impacts, environmental disclosure, and regulation of distribution companies.

Synapse currently has a staff of nine professionals. In its five years of existence, Synapse has successfully completed approximately one hundred consulting projects for clients including public interest groups, local governments, state agencies (attorneys general and consumer advocates), federal agencies (EPA, DOE, FTC, DOJ), and various associations (National Association of Regulatory Utility Commissioners, New England Conference of Public Utility Commissioners, New England Governors' Conference, Northeast States for Coordinated Air Use Management, and the State and Territorial Air Pollution Program Administrators). In New England, Synapse represents public interest organizations in the New England Power Pool. Resumes for Synapse staff, and samples of testimony and reports are available on the web at www.synapse-energy.com.