

**Analysis of the Costs and Benefits
of the
Cross Sound Cable
for
Connecticut Electric Consumers**

**A Report
prepared by the
Connecticut Office of Attorney General**

September 15, 2003

Executive Summary:

A careful review of publicly available data for the last six months shows that Connecticut will pay \$36 million annually in higher electricity costs if the Cross-Sound Cable continues to operate. This analysis, based on data from March through September 1, establishes that if the Cross Sound Cable had been in regular commercial operation throughout these months, its operation would have cost Connecticut ratepayers an additional \$18 million. On an annual basis, operation of the Cross Sound Cable will cost ratepayers at least \$36 million per year, shown by data for both current price and usage, and provide Connecticut with no compensation and no benefit.

This study deals only with the pricing and supply impacts of the cable, apart from the potentially significant environmental costs to Long Island Sound and the potential loss to safety and security of shipping in New Haven Harbor.

The facts are clear that the cable compels Connecticut to pay for Long Island's electricity – in effect subsidizing New York ratepayers and LIPA. The price of electricity on Long Island has, on average, been 26% higher than in Connecticut, and 29% higher in peak load hours. Overall, the Long Island price has been higher than the Connecticut price 95% of the time in peak hours, and 85% of the time overall.

Whenever the Connecticut price is lower, Long Island will buy power through the cable, increasing the demand for electricity in Connecticut, using up lower cost generating resources, and forcing the operation of more expensive generation resources in Connecticut than would occur without operation of the cable. Under the wholesale electric generation market rules in New England, the most expensive generator in use sets the price paid to all generators serving a particular location. Operation of this more expensive generation, caused by exports over the Cross Sound Cable, will push up the price paid to all generators in Connecticut, thereby raising the cost of power for all Connecticut consumers. There is no reason to expect any change in these facts in the foreseeable future. Accordingly, there is no reason to believe that Connecticut, while it continues to bear the costs of this cable, will ever receive any benefits from it.

The Cross Sound Cable serves one and only one function – to provide a huge financial subsidy to Long Island ratepayers at the direct expense of consumers in Connecticut. It seriously threatens economic development and jobs, as well as individual financial well-being.

Our study also concludes that Long Island Power Authority (LIPA) and Cross-Sound Cable Company have misrepresented the line as open to all bidders when in fact LIPA enjoys an effective monopoly over its use. The institutional arrangement and rules governing the line's use are anti-competitive.

This outcome is the opposite of what the Federal Energy Regulatory Commission (FERC) said it intended when it approved the project. The line was supposed to be a true "merchant" project, meaning that anyone could bid to use it.

FERC has expressed concerns that the failure to open the line to all parties violates the conditions under which it approved the project. LIPA's effective stranglehold on the line's use could allow it to exercise effective monopoly power, FERC concluded. Cross-Sound Cable Co., however, continues to operate even though it has yet to fully respond to FERC's concerns, which were first expressed in January.

LIPA's stranglehold on the line's capacity makes it even less likely that Connecticut will ever see any benefit from the project. In fact, LIPA is pursuing changes to market rules and arrangements that will further guarantee that all the benefits flow to Long Island.

LIPA and Cross-Sound have argued that the line would increase Connecticut's reliability. In fact, however, if the line is used to export power from Connecticut, as is almost certain given the commercial arrangements that govern its use, it may reduce the reliability of Connecticut's power supply. ISO New England has reached the same conclusion.

Even the Connecticut Siting Council in approving the project several years ago found only marginal, if any, reliability improvement.

Introduction and Summary:

This report discusses the economic costs and claimed benefits for Connecticut electric ratepayers that can be anticipated from normal commercial operation of the Cross Sound Cable ("CSC") if it were to occur. A glossary of acronyms utilized in the report is attached.

The CSC facility is a 330MW direct current high voltage electric transmission line running from New Haven, Connecticut, to Shoreham, Long Island. It was constructed and is owned by the Cross Sound Cable Company LLC ("CSCCLLC"), an operating subsidiary of TransÉnergie U.S. Limited ("TEUS"). The Long Island Power Authority ("LIPA") has purchased the transmission rights over the line and is paying for the fixed costs of the line under a long-term arrangement with TEUS. In other words, LIPA effectively owns and controls all use of the line.

The CSC has been constructed but is not currently authorized for commercial operation under the conditions and requirements of valid environmental permits issued by the State of Connecticut's Department of Environmental Protection ("DEP"). In constructing the CSC, TEUS violated certain conditions and requirements of its DEP permits by failing to bury the cable to the depth required for safety.

Notwithstanding these permit violations, on August 28, 2003, the federal Secretary of Energy issued an order declaring the line available for commercial operation for an indefinite period, supposedly premised on the emergency circumstances resulting from the Northeast Blackout of August 14, 2003. Secretary of Energy, Order No. 202-03-2. LIPA claims that the emergency, cited by the Secretary's order and upon which the order is premised, remains on-going, several weeks following the Northeast Blackout and long

after a full return to service of power in both New York and Connecticut, pending the publication of definitive findings regarding the cause of the 2003 Northeast Blackout.¹ The Connecticut Attorney General has requested reconsideration of the Secretary of Energy's order, asserting that it is both illegal and unjustified.

Other important issues concerning the cable include the environmental impacts of the line, the effective destruction of incentives for compliance with environmental permit conditions, if a project subject to the permit conditions is allowed to operate without complying with them, and, finally, the costs of the line, and lack of benefits.

As noted above, this report focuses on the economic effects of the line resulting from its commercial operation.

The report's major conclusions are the following:

1. The CSC's normal commercial operation can be expected to have significant adverse economic impacts on Connecticut. Since March 1, 2003, when FERC's new system of localized pricing for energy commenced in New England, prices for energy have been consistently lower in Connecticut than on Long Island. These price relationships can be anticipated to continue in the future. Power flows utilizing the CSC would, therefore, almost always be exports from Connecticut to Long Island to exploit this price differential. The increased loads utilizing the CSC for export from Connecticut will commonly push demand in Connecticut up the generation supply curve, with the effect of raising the internal price for energy in Connecticut, thereby creating adverse cost impacts on Connecticut ratepayers. In other words, the lowest cost supplies of electricity are used first; with the increasingly more expensive supplies used as the need for electricity increases. When LIPA takes power from Connecticut over the CSC, Connecticut needs electricity to replace it. However, supplying that additional demand to replace the electricity lost to CSC will require the use of additional, higher cost generating facilities at Connecticut ratepayers' expense. These costs are anticipated to be at least \$36.4 million annually in increased energy costs within the State.
2. The Independent System Operator New England, Inc. ("ISO-NE"), the administrator of the New England electric markets, determined in its study of the reliability benefits of the CSC, that the electric system reliability benefits of the CSC, at best, are "slight". When the CSC is utilized to enable contractual exports from Connecticut to Long Island, as almost always will be the case, ISO-NE has concluded that the CSC may tend to reduce – not improve -- electric system reliability in Connecticut.

¹ Testimony of R. Kessel, CEO of LIPA before the U.S. House Committee on Energy and Commerce (September 4, 2003).

3. The New England electric market, including Connecticut, has been opened to full competition in generation. The market for purchase of electric generation on Long Island, by contrast, has highly concentrated ownership and is effectively controlled by LIPA. The CSC, and the arrangements for its use, exacerbates this mismatch by allowing LIPA, through the exercise of its virtual monopoly power, to drain lower cost power away from Connecticut. LIPA holds an effective monopoly on the wholesale purchase of electricity on Long Island, with no or limited reciprocal ability by Connecticut market participants to access power generation opportunities over the long-term on Long Island. Consequently, the CSC does not broaden the linkages between well-designed competitive markets in wholesale electric generation, as its proponents pretend, but rather allows LIPA to control all use of the cable for Long Island's and LIPA's benefit and to Connecticut's detriment.
4. Finally, although Long Island currently has high cost generation and short supply relative to its demand (conditions of scarcity), Connecticut also faces similar but less severe circumstances because of transmission constraints on the New England transmission grid and the imposition of increased power supply costs on Connecticut resulting from the ISO's recent adoption of FERC's "standard market design" ("SMD"). The CSC's normal commercial operation can, therefore, be anticipated to "rob Peter to pay Paul."

Background:

The CSC has asserted that it will operate as a "merchant" transmission facility and, as such, it will arbitrage pricing differences between power markets on Long Island and Connecticut. In other words, it claims that it will sell power to Connecticut when it is cheaper to produce it on Long Island and to Long Island when the opposite is true – so that in the long run the project will benefit both sides of Long Island Sound.² The CSC has claimed that it will provide reliability benefits, allowing power to flow either way, in the event there is a system outage on either side of the Sound. The CSC has also asserted that it can provide economic benefits to Connecticut by transmitting power from its Connecticut terminus (electrically near Middletown) in the portion of Connecticut that is less constrained by transmission limitations and re-injecting it in lower Fairfield County, where transmission constraints are likely more severe, by use of the existing Northport-Norwalk undersea cable.³

² In typical parlance in the electric industry, a "merchant" facility means one whose output is not dedicated under contract or paid for through ratepayer guarantees. Instead, it means generally a facility relying for its sales on the open market and not under long-term contracts.

³ As explained below, this proposal has little basis in economics based on pricing data to date because Long Island's prices are normally higher than prices in Connecticut, whether in southwest Connecticut or elsewhere. We understand, in addition, that the Northport-Norwalk line currently and historically has been

In order to analyze the functioning of the CSC and evaluate the CSC's claims, given its lack of commercial operation to date, we have looked at recent experience in the Connecticut and Long Island electric markets to model how the line would likely have operated and can be anticipated to operate in the future in commercial operation, assuming that the electric markets in the two regions are transparent and market participants can respond effectively to differences in the price of energy. Our analysis is based on the experience in the power markets since March 1, 2003 -- the date New England moved to a location-based pricing regime -- allowing for calculation of separate prices for delivery or sale of electricity in Connecticut. This data shows that the claimed economic benefits of the CSC do not exist. In fact, to the contrary, the normal commercial operation of the CSC can be shown to substantially adversely affect Connecticut.

Moreover, the specific arrangements for use of the CSC and the market structure on Long Island are not transparent. The institutional arrangements governing the CSC further tilt the use of the CSC away from helping Connecticut, so that it can be anticipated to deliver benefits to Long Island and accrue substantial costs for Connecticut ratepayers.

Since March 1, 2003, the Independent System Operator -- New England (the "ISO-NE"), the administrator of the power grid in New England, has operated a system of locational marginal pricing ("LMP") in New England. Under this regime, separate prices for the delivery or injection of energy are calculated at each of several hundred "nodes" in the region. For electric "loads" (*i.e.*, ultimate consumers or entities responsible for serving ultimate consumers), such nodal pricing is averaged over geographic zones, with Connecticut treated as single pricing zone. ISO-NE has also established a pricing node for the New England terminus of the CSC, at which it calculates the LMP price for injection or receipt of power over the CSC from Connecticut (called the "Shoreham" node). The New York Independent System Operator ("NYISO"), utilizing a similar pricing regime, calculates a location-based marginal price ("LBMP" using the New York terminology) for all of the designated "nodes" on the New York power grid, with Long Island comprising a single pricing zone.

maintained to deliver "neutral" or zero flows (without scheduling firm power flows in one direction or the other over continuous periods) to allow power to flow instantaneously in either direction to respond to a system outage or system reliability requirement on either side of the Sound and to respect overall stability and interface transfer limits between the ISO-NE and NYISO power grids. Physical scheduling of the line for commercial operations would seemingly require a re-design of the manner in which the line is integrated with overall operation of the grid in order to maintain its role in support of reliability. To our knowledge, LIPA's proposal has not addressed this problem. LIPA seemingly is also discussing with NEPOOL participants a system for "virtual" (imaginary) dispatch of the Northport-Norwalk line which would permit using the line to effect financial and not physical transactions and thereby purportedly avoid a conflict between the market and operational uses of the line. David Clarke, Navigant Consulting, *Memorandum* (August 28, 2003) (available on the ISO-NE web-site). LIPA's proposals, however, do not address the significant problems of potential fraud and secret dealing resulting from "virtual" bidding divorced from physical scheduling of the line. They appear to constitute a further attempt to disguise the true effects of use of the CSC.

If there were transparent competitive markets, differences in the price of energy on Long Island and Connecticut would be utilized to schedule sales of energy in either direction. Following tenets of economic theory, if the LMP in Connecticut exceeds the LBMP in New York, sales can be presumed to be made from New York to Connecticut and the other way around if the pricing relationships are reversed. This response to price differences between the two areas would constitute the “merchant” regime which CSC proposed in originally seeking its approval from federal and state regulators.

We note that electric market participants can also buy and sell energy by contract (through “bilateral contracts”), with pricing which may vary from the hourly LMPs and LBMPs established by ISO-NE and NYISO. Moreover, in Connecticut for the period running until December 31, 2003, retail electric loads are served under a standard offer supply (“SOS”) contract which is intended to allocate fluctuations in the spot market during the term of the contract to SOS suppliers and not ratepayers.⁴ However, over the long-term, bilateral contract sales can be anticipated to reflect LMP and LBMP pricing relationships, as suppliers incorporate the costs of power supply (which the LMPs and LBMPs reflect) into the prices they offer to buyers. Accordingly, the analysis of LMP and LBMP relationships undertaken here is directly relevant to determining the economic functioning of the CSC and its long-term impact on ratepayers.

Discussion of Findings:

1. Economic Impacts of the CSC, assuming transparent market operations.

The actual operation of the markets since March 1, 2003 contradicts any inference that the operation of the CSC is symmetrical, with economic benefits flowing in both directions.

We analyzed the period from March 1, 2003 to August 31, 2003, looking at day ahead market (“DAM”) LBMP and LMP prices for the Long Island zone as reported by NYISO, and the Connecticut zone and the Shoreham delivery node for the CSC in Connecticut as reported by ISO-NE.⁵⁻⁶ In fact, the energy prices on Long Island have

⁴ The suppliers of SOS service in Connecticut to Connecticut Light and Power Company (comprising 80% of load in Connecticut) have taken the position that they can allocate the increased costs of delivery in Connecticut resulting from SMD to ratepayers for the period following March 1, 2003. CL&P affected an approximate 10% retail rate increase in May, 2003, subject to refund, and it collects these increased costs pending a decision on their allocation in an ongoing proceeding at the Federal Energy Regulatory Commission (“FERC”). The SOS suppliers’ position is being currently challenged in the ongoing FERC proceeding by the Connecticut Attorney General and the Connecticut Department of Public Utility Control.

⁵ Both NYISO and ISO-NE operate a day ahead market (“DAM”) and a real-time market (“RTM”) for energy. Loads and generators can offer to buy or sell loads or generation in either market. In theory, the majority of load and generation is anticipated to settle in the DAM, with imbalances between positions taken in the DAM and actual consumption/generation covered in the RTM. Also in theory, significant pricing differences between the two markets should be eliminated because of the ability to arbitrage (in other words, buy and sell previously purchased rights to electricity) between the two markets. For analysis purposes, we have used the DAM pricing, but the results do not differ materially if the RTM is utilized.

consistently been much higher than those in Connecticut, as shown on the following table.

	March	April	May	June	July	August	Cumulative Average
	\$/MWH						
Average Price							
LI	86.67	57.25	60.31	59.49	65.87	69.87	66.67
CT Zone	70.32	47.70	46.91	50.71	49.94	51.74	52.93
NE Shoreham	69.58	47.13	46.03	48.60	48.66	48.91	51.52
Average On-Peak Price							
LI	101.85	66.61	75.56	72.43	74.43	84.77	79.14
CT	77.54	52.59	53.12	61.78	57.45	65.29	61.20
NE Shoreham	76.75	51.68	52.24	57.45	55.47	59.28	58.73
Average Off-Peak Price							
LI	75.51	49.17	49.12	49.42	59.04	58.93	57.04
CT	65.01	43.44	42.35	42.10	43.95	41.79	46.55
NE Shoreham	64.31	43.16	41.47	41.72	43.23	41.30	45.96

In every month, for both peak and off-peak periods, the Long Island prices are higher and, often, significantly higher. Over the period analyzed, Long Island's LBMP is on average 26% (or \$13.74/MWH) higher than the LMP for the Connecticut load zone. Long Island's average LBMP is even higher (29%) than Connecticut's average LMP during the peak hours when load is the highest in both Long Island and Connecticut.

In some individual hours, the Long Island LMP prices are lower than Connecticut's, but these are a small percentage of the total hours and primarily during off-peak hours when the load requirements on either side of Long Island Sound are much reduced and,

⁶ The Shoreham delivery node is the location on the ISO-NE transmission grid where the CSC is connected electrically and at which point ISO-NE calculates a DAM and RTM price reflecting the marginal cost of generation, congestion and losses in New England at that location. The ISO-NE Shoreham nodal price is used to settle transactions over the CSC by ISO-NE. These nodal prices may and do vary from the LBMP price determined by the NYISO at the other end of the CSC, which instead will reflect the marginal cost of generation, congestion and losses on Long Island at the Long Island terminus of the line.

accordingly, affect much less volume of consumption. In sum, the Long Island price is higher than the Connecticut load zone price 95% of the time (for on-peak hours), 82% of the time (for off-peak hours) and 87% overall.

Based on the experience since March 1, it is also true that there are periods during which LMP prices in lower Fairfield County diverge from those prevailing in eastern Connecticut. These periods, however, have been relatively few. The relatively small differences in price between the NE Shoreham node (in the above table), which reflects congestion in the eastern part of Connecticut, where the CSC interconnects with the New England power grid, and the Connecticut zonal price (the overall Connecticut price, averaging the LMP prices at nodes across Connecticut including Fairfield County) are indicative of the relative lack of intra-Connecticut transmission congestion in 2003 to date.⁷

Accordingly, based on the operation of the markets to date there is no support for the views asserted by the CSC or its advocates that the normal commercial operation of the CSC, freely flowing energy between Connecticut and Long Island, will work in both directions in symmetrical ways. In fact, because Long Island's prices are consistently higher, the overwhelming economic incentive is to sell lower cost power generated or delivered in Connecticut into Long Island.

We also reviewed whether such sales into Long Island enabled by the CSC will increase power costs in Connecticut. A critical determinant of this issue is the relative "elasticity" of generation supply. If the supply of energy in Connecticut is "elastic" (meaning an ability to increase energy generation in response to increases in demand without much increase in price), then Long Island may benefit but Connecticut should see no or relatively small increases in power costs. On the other hand, if power supply in Connecticut is relatively "inelastic" (meaning increases in energy generation responding to increases in electric demand raise power supply prices more than proportionately), then incremental power sales into Long Island over the CSC cause Connecticut's internal prices to rise – raising the cost of power to all Connecticut loads. The change in the price of electricity as load increases (the "elasticity of supply") does not occur uniformly at all load levels. In both the ISO-NE and NYISO markets in each hour, generators submit bids to the ISO to supply generation. The ISO administrator then stacks the generator bids up in order of price from lowest to highest, with the bid of the "marginal" generator used to set the clearing price paid to all the generators supplying power to that particular pricing node. In other words, the price of the most expensive generator is paid to every generator supplying that node at that time. The "marginal" generator is that generator whose supply has the highest price bid in the generator stack just needed to meet the load at the particular pricing node. Typically, at low and intermediate load levels, the generator bid

⁷ "Congestion" is the term used to describe the increase in costs resulting from higher cost generation which needs to be operated in a local area because of a transmission or other system constraint. Absent the constraint, the system could have utilized a lower cost generator from outside the area to serve the same load. The difference in costs between actual generation (reflecting the constraint) and the lower cost of operation if the constraint had not existed is calculated hourly for each LMP at a particular node on the grid and reported as a component of the LMP for that node.

stack is relatively flat so that incremental load increases do not increase clearing prices significantly. However, at higher load levels, especially at levels which start to utilize fully transmission lines connecting a local area to the larger region, the bid stack can be fairly steep with slight increases in load causing large price increases.

To investigate this question empirically, we employed statistical techniques relating electric loads in Connecticut, adjusting for changes in fuel prices, to the zonal LMP clearing prices by month.⁸ We found, as one would expect, that increases in loads correlate with increases in prices and that price increases for changes in load are greater (*i.e.*, the supply curve is steeper) during peak or near-peak load conditions. This is particularly the case in Connecticut, as the transmission interfaces with the rest of New England become full to capacity and the in-area load then requires use of the more expensive generating resources within the State needed to meet these incremental increases in load. While we have no history of operating the CSC and its direct impact on clearing price, the CSC when exporting to Long Island acts like 345 MW of additional load or usage in Connecticut.⁹ We can model, therefore, the impact of the CSC, by adding 345 MW to Connecticut loads and determining the impact on the price of local supply.

We investigated the relationship between load and price when Connecticut experiences relatively high load and “congestion” and faces a relatively inelastic portion of the supply curve for electric generation. We found a positive correlation between load and clearing price, as, again, one would expect, such that on average during such periods (over the period from March 1 to August 31), and over the portion of the supply curve in use under those conditions, a 345 MW increase in load increases the Connecticut zonal LMP by approximately \$11.60/MWH. We then summed the loads served in Connecticut during all periods when congestion was positive, Connecticut demand was relatively high and the Long Island LBMP exceeded the LMP of the Shoreham delivery node in Connecticut (adjusted to reflect the anticipated increase in cost to LIPA from use of the CSC). These loads were all now assumed to clear at the higher LMPs, pushed up the supply curve by the increase in load delivered over the CSC to Long Island. We then netted against the resulting cost any savings resulting from sales from Long Island to Connecticut during the limited periods when Long Island’s LBMP in the DAM was lower than Connecticut’s LMP.

Under these assumptions, the increase in cost, resulting from commercial operation of the CSC, for the purchase of energy to loads served in Connecticut would be \$18.2 million for the period March 1 to August 31 (or approximately double that – or \$36.4 million for the entire year). This number represents a net increased cost for the supply of electric energy in Connecticut caused by the CSC’s operation. We did not separately analyze

⁸ A more detailed discussion of methodology is included as an attachment.

⁹ The CSC is capable of exporting a net value of 330 MW, but because of electrical losses incurred in transmission, it requires approximately 346 MW of generation in the exporting control area to deliver 330 MW to the receiving control area. *See, ISO-NE. CSC, Updated System Impact Study of New England Area* (December, 2001).

increases in the prices of other energy products (operating reserves, daily reliability must-run), which also must be purchased under the ISO-NE's SMD market rules to supply load. The prices for these products can also be anticipated to increase with increases in load. However, because, energy is the predominant cost in the total cost of electric supply, the reported results provide very conservative estimate of the costs to Connecticut resulting from commercial operation of the CSC.

2. Reliability Benefits of the CSC.

The CSC has also asserted that its operation will afford reliability benefits to Connecticut and New England. ISO-NE studied the contribution of the line to reliability of the New England electric grid and noted the following, in relevant part, in its report, *Regional Transmission Expansion Plan 2001* ("RTEP01")¹⁰:

As shown by the results in Table 9, the Cross Sound Cable transactions would impact NEPOOL system reliability depending on the direction of the power flow. If power is exported out of New England, NEPOOL system reliability would decrease slightly every year. If the Cable is used to import power, system reliability would increase slightly every year of the study period. RTEP02, Appendix 13.6.a, p. 27 (emphasis added).

Table 9, referenced in the quoted passage, shows that when CSC exports to capacity to Long Island, there is a decrease in NEPOOL's firm generation capability of 300 MW when compared with the case without the CSC. As discussed above, the economics of the CSC will usually ensure its use for the export of power from Connecticut, not its import, and so the likelihood is that use of the line will degrade New England's reliability. Moreover, as discussed further below, LIPA's efforts to structure the arrangements for use of the line seek to enact a regime of contractually scheduled exports which would impair NEPOOL system reliability. Even if the line were used for imports to New England, which will seldom if ever be the case, its contribution to reliability would be "slight."

It should also be noted that the CSC's purported reliability benefits presumably result from operation of the line when limited to responding in real-time to system outages on either side of Long Island Sound. This mode of operation is distinct and different from the continuous, commercial operation authorized by the Secretary of Energy's recent order. In fact, dedication to continuous commercial scheduling is at odds with use of the line to support system reliability. If an outage occurs on one side of Long Island Sound, counter to the then flow of power over the line occurring at the time of the outage, power flow could not be reversed, for technical reasons, for at least an hour – far too long to assist in an emergency. For this, as well as other reasons, the existing Northport-Norwalk

¹⁰ ISO-NE's conclusions in RTEP01 were contemporaneous with the applications which CSC made for interconnection with the ISO-NE grid. ISO-NE incorporated RTEP01, including its conclusions about the CSC's contribution to reliability, in its RTEP02 report approved by the ISO-NE Board of Directors on November 7, 2002, by including RTEP01 as an appendix to the RTEP02 report. RTEP02, Appendix 13.6.a. Public dissemination of RTEP03 is currently pending.

line is kept open so as to be able to respond immediately to outages on either side of Long Island Sound.¹¹

During the 2003 Northeast Blackout, it is our understanding that the CSC was used; pursuant to an authorization of the Secretary of Energy issued prior to his August 28, 2003 order. This use may have permitted Long Island and Connecticut to recover load following the initiating events in the Midwestern U.S., which precipitated the Blackout. While still subject to pending investigation, these limited, emergency uses of the line may have assisted in maintaining power flows and contributed to reliability of the electric system. It is a very different matter, however, to conclude that the use of the line in normal commercial operation provides any benefits to New England. In fact, as explained in the ISO-NE RTEP report, the commercial operation of the line as proposed by LIPA and now authorized by the Secretary of Energy in the August 28, 2003 order (as opposed to its use only for emergency purposes) may instead operate to decrease reliability in Connecticut.

3. Lack of Transparency and Anti-competitive Aspects of the Arrangements for Use of the CSC.

The institutional arrangements for CSC use lack transparency, exclude third-party users in a discriminatory and anti-competitive fashion and reinforce the exclusivity of use of the facility by LIPA for Long Island's benefit.

Notwithstanding the characterization of the CSC as a "merchant" facility by LIPA and TEUS, the actual economic arrangements for operation of the line are **not** merchant. LIPA acquired and is paying for the scheduling rights for the full use of the line for a long-term period. LIPA and LIPA's ratepayers are supporting the cost of the CSC. It does not operate in the market, free of rate-payer supported guarantees, as merchant facilities do.

LIPA insists that its financial support of the line entitles it to preferential and, as a practical matter, sole use of the line. This insistence is at odds with FERC's policy requiring non-discriminatory third-party access over all parts of the high voltage electric transmission grid, subject to mechanisms for reasonable compensation by third-party users of those entities that paid for the grid.

FERC has criticized the CSC for not allowing third-parties (other than LIPA) access to utilize the line during periods when LIPA is not utilizing the capacity. LIPA's preferential right to use of the line, according to FERC, raises concerns about the exercise of undue market power in an anti-competitive manner over transmission facilities.¹² In

¹¹ We note that the Northport-Norwalk line is an alternating current (AC) line, which permits instantaneous shifting of flows between the Long Island and Connecticut systems. The CSC is less flexible by comparison in that, as a direct current (DC) line, it can only be scheduled to operate with advance notification and cannot shift the direction of its flow instantaneously in response to system conditions.

¹² Thus, FERC stated in relevant part:

response to FERC criticism, CSC has proposed advance notice requirements applicable to prospective third-party users which make such use completely impractical and unworkable. CSC recently requested delays in responding to FERC's questions regarding open access use of the CSC.¹³ At the same time, LIPA has pressed the Secretary of Energy for the extraordinary remedy of allowing on-going commercial operation of the line premised on the claimed indefinite continuation of the emergency caused by the 2003 Northeast Blackout, weeks after the resumption of full electric service.

The NYISO has also indicated that it requires costly changes to its market operations software in order to permit third-parties, other than LIPA, to bid for use of the line from the New York side. LIPA has refused to pay these costs and, as a result, no one other than LIPA can utilize the line pending the implementation of these software changes.¹⁴

The contractual and market arrangements for use of the CSC reinforce the true economic operation of the line described earlier in section 1 – *i.e.*, that its real and primary benefit and use is for Long Island and not bi-directional. Moreover, as LIPA seeks to displace any third-party use of the CSC and anchor the line's use for import of power onto Long Island and export from Connecticut, any possible reliability benefits of the line for New England, as indicated in the ISO-NE RTEP report cited previously, will be undermined.¹⁵

4. LIPA seeks further changes to the ISO administered market and arrangements for use of the CSC which will further increase the adverse

As a result, we are concerned that CSC capacity, an interface between New England and New York, could be withheld from the market, thereby allowing CSC rights' holders to exercise market power. We are also concerned that failing to apply open access principles (by not using the LMP congestion management system, including rules that would make all capacity available for use by those willing to pay the applicable market-clearing transmission usage charge [footnote omitted]) to the CSC facilities conflicts with the conditions under which the Commission approved TEUS's proposal for the Cross Sound Cable in our June 1, 2000 order.... As stated above, we are concerned that unused CSC capacity may be withheld from the market. Because the CSC does not currently have an open access tariff on file, and the CSC . . . does not come under the NEPOOL tariff, there is no vehicle for ensuring that unscheduled capacity is made available to others. *New England Power Pool*, 102 FERC ¶61,112 (January 31, 2003) at paras. 17 and 18.

¹³ FERC's questions appear in FERC Staff, Letter (July 23, 2003) filed in FERC docket No. ER03-600-003. CSCCLLC's request for an extension to respond to these questions appears in CSCCLLC, *Partial Response of Cross Sound Cable Company LLC to Commission Staff Data Requests and Request for Extension to Provide Detailed Responses* (August 22, 2003), FERC docket ER03-600-000.

¹⁴ ISO-NE made note of the lack of competitive third-party access to bidding in New York in the NYISO administered day ahead and real time markets for use of the CSC in its letter to the Secretary of Energy commenting on the Secretary's recent Emergency Order. Letter of ISO-NE to Secretary of Energy (August 28, 2003) (available on the ISO-NE web-site).

¹⁵ Of course, LIPA and its ratepayers will benefit handsomely from Connecticut's losses in this arrangement. LIPA has never proposed any meaningful compensation to Connecticut for this naked money grab, which it plans to use to compensate for its own failure to develop needed generation capacity.

impacts of the CSC on Connecticut's energy costs and electric system reliability.

As noted above, use of the CSC to export power to Long Island, as found by ISO-NE, will tend to decrease Connecticut's electric system reliability. As described in this section of the report, LIPA is currently pursuing additional initiatives which will have the goal of utilizing the line for contractual regularly scheduled exports from Connecticut. Changes sought by LIPA relative to use of the CSC will have further adverse impacts on Connecticut's cost of power and reliability of system operation.

LIPA is currently conducting a request for proposals ("RFP") for the supply of up to 600 MW of generation under long term contract which, among other alternatives under consideration, would utilize the full capacity of the CSC for terms extending beyond 10 years to bring firm base-load power in amounts fully utilizing the CSC onto Long Island. This arrangement, if adopted as part of the pending RFP, can be anticipated to tie-up the line's capacity for the long-term with one-directional flow of power onto Long Island.

LIPA has also sought to accelerate the implementing of a proposal to do what is called "partial delisting" of "installed capacity" ("ICAP") or, using more recent terminology, "unforced capacity" ("UCAP")¹⁶ in the ISO-NE administered power markets.¹⁷ These efforts have been opposed by NEPOOL and ISO-NE as effecting an unwarranted and disorderly introduction in piece-meal fashion of market design elements.¹⁸ UCAP is a measure of installed generating capacity (adjusted for forced outages) which load serving entities (typically the franchised utilities) are required to procure to cover their loads, in addition to the purchase of "energy". FERC has required ISO-NE to adopt a system of "locational" UCAP by the summer of next year, which would require load-serving entities in sub-areas of New England to acquire UCAP from generators within their respective sub-area or which is "deliverable" into the sub-area because, even though located outside the area, it is coupled with firm transmission rights to deliver it into the sub-area. Preliminary analysis shows that Connecticut will have a locational UCAP requirement very close to the amount of generation existing within the state, such that the supply of locational UCAP in Connecticut may be tight relative to its demand, thereby forcing up its price. Current estimates of the aggregate cost to Connecticut ratepayers from implementing this new market mechanism, generally, range up to hundreds of millions of dollars annually.

¹⁶ ICAP is still utilized as a term to describe the market organized by the ISO's for the sale of the product, now called UCAP. See, NYISO, *Installed Capacity Manual*, version 4.0 (May 7, 2003) at section 2.7.

¹⁷ See, LIPA's filing. *Motion for Leave to Respond and Response of LIPA to Answer of Parties' Comments on Motion to Modify Deadline Established by Prior Order* (August 18, 2003), filed in FERC dockets ER02-2330, EL00-62-39.

¹⁸ See, e.g., NEPOOL Participants Committee, *Response of NEPOOL Participants Committee to Motion of the Long Island Power Authority to Modifying Prior Order* (August 1, 2003) filed in FERC docket ER02-2330.

Along with locational UCAP, FERC, as part of its general redesign of electric markets, has also sought to permit generators to “delist” all or portions of their capacity (in the form of UCAP) from the control area where it is located (e.g., New England) in order to sell it at a higher price into other control areas (e.g. Long Island). LIPA, in its filings at FERC, has sought implementation of this delisting procedure as early as October 1, 2003. NYISO already has a system of locational UCAP in which LIPA participates.¹⁹ LIPA’s apparent, but unstated intent, in seeking partial delisting of capacity in New England is to bid away generation capacity from Connecticut for use by it to satisfy its UCAP requirements in New York. This will have the effect of forcing up the price in the pending locational UCAP market in Connecticut by reducing the supply available to Connecticut. Moreover, in order to qualify the UCAP for use in NYISO, LIPA seemingly must couple the UCAP with firm transmission rights for its export to Long Island over the CSC.²⁰

We have not separately analyzed the cost to Connecticut of this development, but it can be anticipated to increase materially the cost to Connecticut of operation of the CSC from the \$36.4 million previously cited, which looked only at impacts in the “energy” market. Moreover, as expressed in the ISO-NE RTEP01 report previously cited, firm exports to Long Island required to effect sales of UCAP to LIPA can have the effect of degrading electric system reliability in New England.

5. Mismatch in Market Structures between Connecticut and Long Island.

The skewed distribution of costs and benefits of the CSC discussed in this report in part emanates from the mismatch in electric market structures between Long Island and Connecticut.

As part of electric restructuring in Connecticut, the previously vertically integrated electric utilities were required to sell off all of their generation assets. Generation now bids into a market administered by the ISO-NE and has no long-term contractual relationship with the franchised electric distribution companies or ratepayers. In Long Island, by contrast, LIPA, a load-serving entity, retains control of the operation of the vast majority of generation on the Island through its contract for long-term power supply with KeySpan. KeySpan, in turn, owns approximately 80% of installed generation capacity on the Island.

While there are continuing reasons for concern about the degree of competition in generation in Connecticut, the market structure adopted in Connecticut permits generators to bid prices reflecting the scarcity of supply subject only to general rules of

¹⁹ See, NYISO, *Installed Capacity Manual*, version 4.0 (May 7, 2003).

²⁰ This is the clear import of NYISO’s current rules regarding the sale of ICAP from outside the NYISO control area (e.g., from Connecticut) for use in the NYISO ICAP market. NYISO, *Installed Capacity Manual* at section 4.9.1, p. 4-16 (In order to qualify an ICAP purchase from outside the NYISO control area, it must be demonstrated that the capacity sold cannot be recalled or curtailed by the exporting control area (e.g., New England) unless curtailed on the same priority as the exporting control area affords to its own “native load”).

market power mitigation administered by ISO-NE. Increased prices paid to generators do not flow back as a benefit to customers in helping meet the retail utility's regulated revenue requirement, as it did prior to electric restructuring. On Long Island by contrast, LIPA, through its control of the transmission system and generation through its contract with KeySpan, directly controls the price of power and third-party access to the transmission grid. Because LIPA effectively controls the entire transmission and generation system on Long Island, it even shares in the benefits from off-system sales. The operation of the CSC exacerbates these differences to LIPA's advantage, allowing LIPA to intervene as a monopolistic buyer and user of the CSC in the Connecticut electric market-place to procure lower cost power for export to Long Island while increasing local generation costs in Connecticut, but foreclosing any reciprocal benefit to ratepayers or ratepayer serving entities in Connecticut.

The general benefits of open transmission access and broader, more competitive electric markets have been documented and discussed extensively. As the California debacle with electricity "reform" demonstrates, however, an evaluation of the specific benefits and costs of particular facilities and arrangements for the use of such facilities requires a detailed review of market structure and economic impacts. Unconsidered and rash adoption of "market-oriented" reform can create large unanticipated adverse consequences. The planning and arguments for the CSC reflect only the economic advantages for LIPA, which LIPA now attempts to augment with crisis-blown rhetoric, rather than pragmatic, honest, realistic analysis of the actual impacts of the economic and contractual arrangements of the CSC. Those actual impacts are totally negative for Connecticut's electric consumers.

Conclusion:

Utilizing recent pricing data from New York and ISO-NE to model the commercial operation of the CSC, the CSC's operation can be anticipated to increase power costs in Connecticut by a conservative minimum of \$36.4 million annually. These costs will be incurred by Connecticut electric ratepayers.

To the extent that use of the CSC will entail contractual exports of capacity and energy to Long Island (which is likely the case and seemingly LIPA's goal), the commercial operation of the line will degrade electric system reliability in Connecticut. Even if CSC were used to bring power to Connecticut, that would afford "slight" reliability benefits to Connecticut at best.

Due to the recent introduction of the so-called "standard market design" ("SMD") in New England by ISO-NE, Connecticut is already facing significantly increased costs of power, as reflected in the zonal LMP charged to Connecticut electric loads, relative to other areas of New England. SMD imposes on Connecticut the costs of congestion resulting from limitations in the transmission grid and transmission losses.

As a result of the commercial operation of the CSC now authorized by the Secretary of Energy's recent order, there is the real prospect that Connecticut will suffer a "double-

whammy.” Energy generation costs will shift to Connecticut from the rest of New England as a result of the advent of SMD, and our energy prices will be further pressured upward by electricity exports to Long Island.

Glossary

CL&P	Connecticut Light and Power Company
CSC	The Cross Sound Cable
CSCCLLC	Cross Sound Cable Company LLC
DAM	Day-ahead market
FERC	Federal Energy Regulatory Commission
ICAP	Installed capacity
ISO-NE	The Independent System Operator – New England, Inc.
LBMP	Location Based Marginal Pricing – the term used by the NYISO to describe the hourly price of energy at a particular location or “node.”
LIPA	The Long Island Power Authority
LMP	Locational Marginal Price – the term used by ISO-NE to describe the hourly price of energy at a particular location or “node”.
NYISO	The New York Independent System Operator
RFP	Request for Proposals
RTEP	Regional Transmission Expansion Plan
RTM	Real-time market
SMD	Standard Market Design
SOS	Standard Offer Supply electric service
TEUS	TransÉnergie U.S. Limited
UCAP	Unforced capacity

Methodology

Data sources:

Loads: Connecticut Valley Electric Exchange (“Convex”) web-site.

LMP, LBMP and congestion pricing Data: ISO-NE web-site; NYISO web-site.

Method:

High-load periods utilized to analyze the price/load relationship were all hours when the congestion component in the Connecticut zonal LMP reported for that hour was positive and electric loads in Connecticut in that hour (as reported by Convex) exceeded 4500 MWs. During other periods, it was assumed that the imports from the rest of New England utilizing the Connecticut transmission import limit of 2200 MW plus generation from Connecticut’s in-area base-load resources provided adequate supply response to

meet the increase in demand without a material change in clearing prices. The price/load relationship, with fuel employed as an additional independent explanatory variable, was modeled using the multiple least-squares regression technique.

Extrapolation from 6 month results to the full year was based on the relationship of loads from March 1 to August 31 to the full year load in 2002 in Connecticut as reported by Convex.