

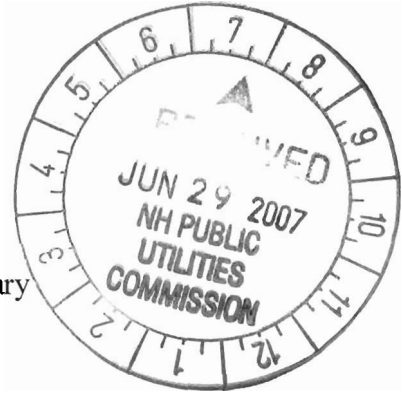
# Orr&Reno

Professional Association

One Eagle Square, P.O. Box 3550, Concord, NH 03302-3550  
Telephone 603-224-2381 • Facsimile 603-224-2318  
www.orr-reno.com

Malcolm McLane  
(Retired)

June 29 2007



## VIA HAND DELIVERY

Ms. Debra A. Howland, Executive Director & Secretary  
New Hampshire Public Utilities Commission  
21 South Fruit Street, Suite 10  
Concord, NH 03301

**Re: DE 07-045, Petition of Briar Hydro Associates for Declaratory Judgment**

Dear Ms. Howland:

Enclosed for filing with the Commission please find the original and eight (8) copies of Briar Hydro Associates' Reply Memorandum in the above-captioned matter.

Very truly yours,

Howard M. Moffett

Ronald L. Snow  
William L. Chapman  
George W. Roussos  
Howard M. Moffett  
James E. Morris  
John A. Malmberg  
Martha Van Oot  
Douglas L. Patch  
Connie L. Rakowsky  
Jill K. Blackmer  
James P. Bassett  
Emily Gray Rice  
Steven L. Winer  
Peter F. Burger  
Lisa Snow Wade  
Jennifer A. Eber  
Jeffrey C. Spear  
Connie Boyles Lane  
Todd C. Fahey  
Vera B. Buck  
James F. Laboe  
John M. Zaremba  
Maria M. Proulx  
Phillip Rakhunov  
Jessica E. Storey  
Justin M. Boothby  
Heidi S. Cole

Susan S. Geiger  
Judith A. Fairclough  
(Of Counsel)

HMM/dlc  
Enclosures  
cc w/enc:

Gerald Eaton, Esq.  
F. Anne Ross, Esq.  
Meredith Hatfield, Esq.  
Richard A. Norman  
Jonathan H. Winer

**STATE OF NEW HAMPSHIRE**  
**BEFORE THE PUBLIC UTILITIES COMMISSION**  
**DE 07-045**  
**Briar Hydro Associates' Petition for Declaratory Ruling**

**REPLY MEMORANDUM OF BRIAR HYDRO ASSOCIATES**

Petitioner Briar Hydro Associates (“Briar”) submits this Reply Memorandum in response to Public Service Company of New Hampshire’s (“PSNH’s”) Memorandum of June 15, 2007 in opposition to Briar’s Petition. Briar had asked the Commission to determine whether Briar or PSNH is entitled to payments for “capacity” attributable to the Penacook Lower Falls Project (the “Project”) under FERC’s Forward Capacity Market Order of June 16, 2006 (the “FCM Order”), based on the provisions of a 1982 “Contract for the Purchase and Sale of Electric Energy” between Briar’s predecessor-in-interest (New Hampshire Hydro Associates or “NHHA”) and PSNH (the “Contract,” attached as Appendix A).

The pertinent facts are set forth in Section A of Briar’s March 25, 2007 Petition. This Reply Memorandum generally tracks the objections raised in PSNH’s June 15 Memorandum: Section I below responds to PSNH Sections I and II, Section II to PSNH Sections III and IV, Section III to PSNH Section V, Section IV to PSNH Section VII and Section V to PSNH Sections VI and VIII.

## I. The Contract Provisions

A. The 1982 Contract. At the beginning and the end, this is a case of fairly straightforward contract interpretation. The Contract is plainly entitled a “Contract for the Purchase and Sale of Electric Energy,” under which the Seller (originally NHHA, now Briar) agreed to sell and PSNH agreed to purchase and receive “all of the electric energy produced by the Penacook Lower Falls generating facility” (Article 1). Nowhere in the Contract does it say that the Seller will sell its capacity in addition to its energy. PSNH and Briar both clearly understood the difference between “energy” and “capacity” for the reasons set forth in Briar’s Petition at Section B.2, pages 4 and 5. The pricing provisions of the Contract were expressly based on PSNH’s incremental costs of energy (Article 3), and incorporated no value for capacity, as Briar will show in Section IV below. Thus Briar contends that the capacity value associated with the Project remained with the owner (originally NHHA, now Briar) and never passed to PSNH under the Contract.

PSNH is apparently arguing that the Contract includes capacity even though it plainly does not say so. Although the Contract nowhere provides for the sale or purchase of capacity, in Section I of its Memorandum, PSNH calls attention to the preamble provision that the “Seller desires to sell its entire generation output to [PSNH].” PSNH apparently means to infer that “entire generation output” is the contractual equivalent of “capacity.” This implied argument, which is never made explicit, fails because the words used and their context in the agreement both suggest that the phrase “entire generation output” refers to the total amount of electric energy produced by the Project, not to its capacity.

When interpreting a contract, absent fraud, duress, mutual mistake, or ambiguity, the parties’ intent will be determined from the plain meaning of the language used in the contract.

Close v. Fisette, 146 N.H. 480, 776 A.2d 131 (2001). The language of a contract is ambiguous if the parties can reasonably differ as to its meaning. Woodstock Soapstone Co. v. Carleton, 133 N.H. 809, 815, 585 A.2d 312, 315 (1991). Any ambiguous language in the contract will be interpreted by the court. Commercial Union Assurance Cos. v. Town of Derry, 118 N.H. 469, 471, 387 A.2d 1171, 1172 (1978), *rev'd on other grounds*, 122 N.H. 711, 451 A.2d 358 (1982). In interpreting a written agreement, a court will give language used by the parties its reasonable meaning, considering the circumstances and context in which the agreement was negotiated, and reading the document as a whole. Keshishian v. CMC Radiologists, 698 A.2d 1228, 142 N.H. 168 (1997), rehearing denied. New Hampshire courts will construe contracts of adhesion against the drafter of the document. See Gamble v. University System of New Hampshire, 136 N.H. 9, 610 A.2d 357 (1992) (Supreme Court construes reservation of rights clause in tuition agreement in student's favor). Briar is not suggesting that the 1982 Contract is an adhesion contract, but it is fair to point out that PSNH drafted the Contract based on its own template, and to suggest that ambiguities should be resolved in Briar's favor.

According to Webster's Third New International Dictionary, the word "output" means "something that is put out or produced":

**output** 1. something that is put out or produced: as **a:** mineral, agricultural, or industrial production {coal~} {wheat~}{new car~}; **b:** mental or artistic production {his enormous symphonic~}{his small literary ~}{a period of great scientific ~}; **c:** the amount produced by a person in a given time {the average daily ~ of coal miners}; **d (1):** power or energy delivered by a machine or system for storage (as by a storage battery) or for conversion in kind (as by a mechanically driven electric generator or a radio receiver) .....

The one thing that all these examples have in common is that output is something that is produced (e.g., energy), not the thing that produces it (i.e., capacity). Thus, PSNH's reference

(in the first paragraph of Section II of its Memorandum) to “the generating capacity produced by the project” (emphasis added) does not make sense: the Project does not produce “generating capacity”; it is “generating capacity” that produces energy. The phrase “entire generation output” cannot fairly be understood to refer to or to include capacity, because what is generated by a hydroelectric power project is energy, not capacity. In the context of an agreement to sell electrical energy, the phrase “entire generation output” should fairly be read to refer to the entire energy output of the facility (as in “the entire output generated by” the facility) – i.e., all of the kilowatt-hours of electric energy generated by the facility, as the contract title suggests. Briar submits that that is how the phrase is used in Article 2, which provides that “.....Seller shall endeavor to operate its generating unit to the maximum extent reasonably possible under the circumstances, and shall make available to PSNH the entire net output in kilowatt-hours from said unit when in operation.”<sup>1</sup>

**B. “Output Contract” Cases.** Commissioner Getz asked the parties at the pre-hearing conference to brief the question of how “output contracts” have been interpreted in New Hampshire, especially cases in which an output contract may have some greater value than originally anticipated. There are no New Hampshire cases that decide whether an “output contract” necessarily includes capacity,<sup>2</sup> but in Part IV below, Briar points out that PSNH’s internal memoranda (not shared with NHHA) attributed specific capacity value to the project

---

<sup>1</sup> This interpretation of the meaning of the term “output is consistent with PSNH’s usage of the term in other contracts. For example, in a 2003 “Operating Agreement for Purposes of Wheeling and Power Sales” between PSNH and Thomas Hodgson and Sons, Inc., owner of the China Mill hydroelectric generating facility. Article 2 provided that “The metering shall be configured so as to represent the electric power output delivered to the PSNH electric system...” The capacity entitlement for the China Mill project remains with the project.

<sup>2</sup> The New Hampshire cases that mention output contracts for energy do so in the context of describing the Limited Electrical Energy Producers Act (LEEPA), RSA ch. 362-A. See, e.g., Appeal of Public Service Co. of New Hampshire, 92 P.U.R.4<sup>th</sup> 550, 539 A.2d 275 (1988) (noting that LEEPA “requires an electric utility...to purchase the entire output of electric power produced by a limited electrical energy producer at a rate set by the PUC.” (internal quotations omitted). See discussion below at Section II.A.

from the beginning, but that PSNH was not willing to recognize any capacity value in its pre-contract negotiations with NHHA.

Cases from New York and Virginia help answer the question so far as they clearly equate “output” with energy and distinguish output from capacity. In Energy Tactics v. Niagara Mohawk Power Corporation, 219 A.D.2d 577, 579 (1995), a New York appellate court denied a utility’s claim against a facility for breach of an output contract for energy.<sup>3</sup> The court in Energy Tactics found that the facility’s yearly production of electricity was commercially reasonable, because the utility “was aware that the capacity of the plant, once fully operational, would be at least 1.0 megawatts and that its yearly output would exceed 9,000 megawatt-hours.” The court also noted that “the plant’s average yearly output of electricity was approximately 8,620 megawatt-hours.” Id. at 579.

In Westmoreland-LG & E Partners v. Virginia Electric and Power Company, 254 Va. 1, 486 S.E. 2d 289 (1997), the contract at issue defined “Net Electrical Output” as “all of the Facility’s generating output made available for sale.” Id. at 5, 291 (internal quotations omitted). Under the contract, the utility was obligated to make two types of payments to the facility: “one for net electrical output...and the other for dependable capacity.” Id. The payments for output, according to the Westmoreland court, were designed to compensate the facility for “*the actual*

---

<sup>3</sup> Energy Tactics is one of a series of cases in which New York courts applied UCC principles to output contracts for energy. New Hampshire has not yet decided whether contracts for the purchase and sale of electricity are governed by UCC article 2, but the New York cases demonstrate how courts use UCC principles in interpreting output contracts for energy. In each of the New York cases, the utility sued the facility for breach of contract, alleging that a breach occurred when the facility produced more energy over a period of time than the utility had anticipated. Philadelphia Corp. v. Niagara Mohawk Power Corp., 207 A.D.2d 176, 177 (1995) (where contracts did not set forth capacity estimates, commercial good faith requires that facilities produce energy in amounts “limited to normal or otherwise comparable prior output;” also noting that output seller’s commercial good faith is especially important where, under PURPA, “defendant’s obligation to enter into the contracts was not voluntarily assumed but imposed by law”); Philadelphia Corp. v. Niagara Mohawk Power Corp., 282 A.D.2d 913 (2001) (facility’s output was not unreasonably disproportionate to the reasonable expectations of the parties as quantified by the estimate in the contract). If UCC principles apply here, the text and comments of 2-306, read together, indicate that an output contract is one in which the actual quantity of goods for sale is indefinite. RSA 382-A:2-306; UCC §2-306, Cmt. 1.

*amount of electricity it generates and delivers* to [the utility]” (emphasis added) and for other variable costs incurred during the energy production process. *Id.* The capacity payments, unlike the output payments, were designed to compensate the facility for the fixed costs associated with building and maintaining the plant. *Id.* This case suggests that a contractual commitment to sell “output” does not necessarily include capacity. In Gordonsville Energy, L.P. v. Virginia Electric & Power Company, 39 Va. Cir. 292, 1996 WL 1065548 (1996), a Virginia Circuit Court agreed with the Westmoreland court and construed the term “output” to mean energy, not capacity, in noting that the utility purchased the facility’s “electrical capacity and output.”

Several other jurisdictions agree with these cases, and construe the term “generation output” to refer to energy actually produced by the plant, not the plant’s theoretical capacity to produce energy.<sup>4</sup> Cases from other jurisdictions could be interpreted otherwise, and thus fail to clarify the issue.<sup>5</sup>

---

<sup>4</sup> Output is often characterized as an amount of energy that can increase or decrease, unlike capacity, which is typically described as a fixed amount. North Star Steel Co. v. United States, 68 Fed. Cl. 672, 704 (2005) (energy load drawn by recycling mill “cycle[d] up and down and impacted variable operating and maintenance expenses”; because the mill’s load was drawn during ‘intra-hour’ cycles, utility’s “generation output was reduced and saved water”); Northern Indiana Public Service Company v. Colorado Westmoreland, Inc., 667 F.Supp 613, 618, 620 (N.D. Ind. 1987) (utility able to “reduce[] the output of its units as demand [for energy] falls”; utility able to decrease its “generation output in its more expensive generation facilities, to the degree that with reasonable notice the output from those plants could be raised to the maximum level”); Delmarva Power & Light Company v. Public Service Commission of Maryland, 370 Md. 1, 22 803 A.2d 460, 472 (2002) (utility compelled by settlement agreement to “sell all generation output into the wholesale market”, except for energy sold pursuant to “Standard Offer Service,” whereby some consumers pay for generation output” measured in terms of megawatt-hours, the unit traditionally used to describe energy).

<sup>5</sup> In one dispute before the United States Tax Court, a generating unit was described as having a “generation output of 818 megawatts,” which suggests that “output” was there used as a measure of capacity. Oglethorpe Power Corporation v. Commissioner of Internal Revenue, T.C. Memo. 1990-505, (1990). Another decision equates “total actual generation output” with the energy actually generated by the plant over time, but also describes “annual primary energy capability” in terms of kilowatt-hours. State Utilities Commission v. Edmisten, 299 N.C. 432, 437, 263 energy at a capped rate); Public Utility District No. 1 of Snohomish County Washington v. Federal Energy Regulatory Commission, 471 F.3d 1053, 1071-72 (9<sup>th</sup> Cir. 2006) (“entire S.E.2d 583, 587 (1980). In a case where an energy contract stated that the terms “energy” and “capacity” referred individually and collectively to “electricity,” the Second Circuit held that a capacity estimate in the contract was a material term subject to good faith and fair dealing. Fulton Cogeneration Associates v. Niagara Mohawk Power Corp., 84 F.3d 91 (1996). See also Municipal Electric Authority of Georgia v. City of Calhoun, 227 Ga. Ct. App. 571, 489 S.E.2d. 599 (1997) (1975 contract “provided for the sale of electric capacity and electric energy...Under the terms of this contract, a participant agreed to receive and pay for an entitlement share of the output of those plants.”).

## II. The Regulatory Framework

A. PURPA<sup>6</sup> and LEEPA<sup>7</sup>. In the heading to Section III of its Memorandum, PSNH argues that “Under PURPA Briar may not separate sales of energy from capacity.” PSNH suggests that 18 CFR §292.303(a), which provides that “each electric utility shall purchase, in accordance with §292.304, any energy and capacity which is made available from a qualifying facility....” requires a QF to sell its capacity with its energy – that is, that a QF cannot sell its energy to a purchasing utility without selling its capacity as well. Briar submits that PSNH is simply mistaken on this point, for several reasons.

First, it is very clear under the PURPA regulations and the LEEPA statute that even in the context of an avoided cost rate order governed by PURPA and LEEPA (which is not our case), a “qualifying facility” (QF) is entitled to sell, and a receiving utility is required to purchase, either energy or capacity or both, whatever is offered by the QF. In its 1980 Order No. 69 implementing PURPA, FERC cited the Definitions section of the PURPA regulations at 18 CFR §292.101:

*Subparagraph (2) defines “purchase” as the purchase of electric energy or capacity or both from a qualifying facility by an electric utility.*

45 F.R. 12214, 12216. Order No. 69 – issued more than two years before the Contract in this case was signed – distinguishes throughout between energy and capacity. At 45 F.R. 12216, FERC highlighted the differences between a utility’s avoided energy costs and avoided capacity costs:

*The costs which an electric utility can avoid by making such purchases generally can be classified as “energy” costs or “capacity” costs. Energy costs are the variable*

---

<sup>6</sup> Public Utility Regulatory Policies Act of 1978, 16 USA §824a et seq.

<sup>7</sup> Limited Electrical Energy Producers Act, NHRSA Chapter 362-A



*costs associated with the production of electric energy (kilowatt-hours). They represent the cost of fuel, and some operating and maintenance expenses. Capacity costs are the costs associated with providing the capacity to deliver energy; they consist primarily of the capital costs of facilities.*

*If, by purchasing electric energy from a qualifying facility, a utility can reduce its energy costs or can avoid purchasing energy from another utility, the rate for a purchase from a qualifying facility is to be based on those energy costs which the utility can thereby avoid. If a qualifying facility offers energy of sufficient reliability and with sufficient legally enforceable guarantees of deliverability to permit the purchasing electric utility to avoid the need to construct a generating unit, to build a smaller, less expensive plant, or to reduce firm power purchases from another, utility, then the rates for such a purchase will be based on the avoided capacity and energy costs.*

Nowhere in Order No. 69 (or anywhere else, as far as Briar can tell) does FERC state that a QF has to make its capacity available for purchase if it offers to sell its energy to a purchasing utility. Because of the history of utility refusals to purchase the energy generated by small power producers, the PURPA implementing regulations required a purchasing utility to purchase any energy and any capacity made available by the QF at the utility's avoided costs – but if the QF offered only energy (either because it had no reliable capacity, or because it didn't want to sell it, or because the parties couldn't agree on a price), the utility would still be required to purchase whatever energy the QF made available, up to and including its entire generation output.

LEPPA is fully consistent with PURPA on this point. RSA 362-A:8, II (a) provides that “energy or energy and capacity provided by qualifying small power producers... under commission orders or negotiated power purchase contracts are part of the energy mix relied on by the commission to serve the present and future energy needs of the state...”(emphasis added).

LEEPA confirms that QF sales can be either for energy, or for energy and capacity. The logical follow-on is that a contract should specify one or the other. The 1982 NHHA Contract specified the former.

Long –Term Rate Orders v. Negotiated Contracts. Second, even if a QF were required to sell its capacity with its energy under a long-term rate order at rates prescribed by the Commission under PURPA and LEEPA, that is not our case. The NHHA/PSNH Contract of April 28, 1982 was a product of negotiations between the small power producer and PSNH, not an order of the Commission under PURPA and LEEPA. As FERC said in Order No. 69 at 45 F.R. 12217, in its discussion of the scope of the implementing regulations in Subpart C under 18 CFR §292.301:

*...this subpart does not preclude negotiated agreements between qualifying cogenerators or small power producers and electric utilities which differ from rates, or terms or conditions which would otherwise be required under this subpart.*

In the case at hand, NHHA did not have the luxury of relying on the 7.7¢/8.2¢ avoided cost rates for energy and capacity set by the Commission under PURPA and LEEPA in Order No. 14, 280 in DE 79-208 (June 18, 1980).<sup>8</sup> Because it needed to provide its lender with the security of a long-term contract with significant front-end loading in order to finance the construction of the Penacook Lower Falls Project, NHHA needed to negotiate a contract with rates and terms different from those established by the Commission as default terms. As Briar will demonstrate in Section IV. below, NHHA made several formal attempts during the negotiations to offer its capacity to PSNH at a fair price, but those offers were rebuffed by PSNH, which refused to entertain any credit for the Project's capacity under the Contract. As a

---

<sup>8</sup> Nor did PSNH seek to use these rates with NHHA.

result, capacity was not included in what PSNH purchased under the Contract – it bought electric energy, but not capacity.

B. FERC’s Forward Capacity Market Order. Commissioner Below asked the parties to brief the question whether the FERC FCM Order assigns capacity credit to the owner of the generating facility or to the party that owns or controls the capacity. (In this case, Briar contends that it owns both.)

The Settlement Agreement incorporated in FERC’s FCM Order assigns capacity value to “Resources.” A “Resource” is defined as “a generating unit, Dispatchable Load, External Resource [located outside New England], or an External Transaction.”<sup>9</sup> A Load Serving Entity [like PSNH] may designate, as its FCA Resources, “Self-Supplied Capacity Resources that it owns or to which it has contractual rights.”<sup>10</sup> A Self-Supplied FCA Resource offsets an equal number of MW that the Load Serving Entity would otherwise have to purchase as necessary to provide for its share of ICR [Installed Capacity Requirement]<sup>11</sup>, but a Self-Supplied Resource is not entitled to capacity payments.<sup>12</sup> These provisions make clear that an owner of generating capacity otherwise entitled to FCM capacity payments may assign away that capacity by contract, but they do not answer the underlying contract interpretation question in this case, which is whether PSNH actually acquired the rights to the capacity attributable to the Project in the 1982 Contract, or whether those rights remain with Briar as the Project owner.

---

<sup>9</sup> FCM Settlement Agreement, Attachment A, Definitions

<sup>10</sup> FCM Settlement Agreement, Section 11, Part III.O

<sup>11</sup> FCM Settlement Agreement, Section 11, Part II.F.1

<sup>12</sup> FCM Settlement Agreement, Section 11. Part V.A

### III. The Price Standard at the Time of the Contract

In Section V of its Memorandum, PSNH correctly notes that before the Contract was negotiated, the Commission had established avoided cost rates for energy and capacity purchased from small power producers under PURPA and LEEPA. PSNH suggests that these rates were “incorporated into a single cents per kilowatt-hour rate,” but in fact the rates were differentiated. In Order No. 14,280 in DE 79-208, the Commission set 7.7¢ /kWh as the default rate for “energy only” and 8.2¢/kWh as the default rate for energy associated with reliable capacity for sales at PURPA and LEEPA avoided cost rates. PSNH suggests that “...these rates were long-term because they could last for the life of the LEEPA or PURPA facility,” but since PSNH expressly treated them as short-term rates, it would be more accurate to say that Order 14,280 established these rates as minimum rates available on request to QF’s then operating under PURPA and LEEPA, and to any QF’s coming on line between the date of Order No. 14,280 (June 18, 1980) and the date of initial generation at Seabrook, for the life of the QF or until the Commission established new avoided cost rates.<sup>13</sup>

To the extent that PSNH is saying that at the time the Contract was negotiated, capacity as well as energy was often compensated at a rate expressed in cents/kWh, PSNH is correct and Briar does not disagree. However, it does not follow that the single, undifferentiated rate in cents/kWh that PSNH agreed to pay NHHA (now Briar) for “sales of electric energy” under Article 3 of the Contract included payment for capacity. To the contrary, under Order 14,280, the rate for energy associated with reliable capacity was a half cent higher than the rate for energy only. When PSNH and a QF agreed that the QF was selling both energy and capacity under rates “established by the NHPUC and.....subject to change from time to time,” the contract

---

<sup>13</sup> Seabrook Unit 1 was completed in 1986, and full power operation began in 1990, but the avoided costs rates established in Order No. 14,280 had been superceded by 1984.

specified that PSNH would pay 8.2¢/kWh for energy associated with “dependable capability,” and 7.7¢/kWh for each kW generated during an hour in excess of that dependable capability. See, e.g., the August 21, 1980 Rollinsford contract to which Briar referred in Section B.5 at page 6 of its March 27, 2007 Petition, and which PSNH appended to its June 15 Memorandum as Attachment A. As Briar sets forth in more detail in Section IV below, if PSNH was bargaining to buy capacity as well as energy, all it had to do was either (1) accept NHHA’s explicit offer to sell capacity at a fair negotiated rate, or (2) get NHHA to agree in the Contract that the simple undifferentiated rate PSNH agreed to pay was for “capacity” as well as “energy.” PSNH did neither, and it cannot now be heard to say that it is entitled to the Project’s capacity value when it declined NHHA’s offer to sell that capacity at a fair price, and when the contract accordingly was finalized as a contract for the purchase and sale of electric energy only.

#### IV. Pre-Contract Negotiations

In Section VII of its Memorandum, PSNH acknowledges that NHHA made a specific proposal that PSNH compensate NHHA for the value of the capacity provided by the Penacook Lower Falls Project at such time as the existence and operation of the Project “enables PSNH to defer additions to its generating capacity.” PSNH then says, “PSNH did not accept that proposal, and the final contract agreed to by NHHA does not provide for any separate compensation for capacity.” That is true, but as Briar has pointed out in its Petition and in Section I above, neither does the Contract provide for the sale of capacity to PSNH.

As discovery documents from PSNH’s files show, PSNH’s internal memoranda established that the Penacook Lower Falls Project had reliable capacity value to PSNH from the beginning of the Contract, while PSNH was taking the position with NHHA that the Project had

no capacity value. See, e.g. Cannata Intra-Company Business Memo to H.J. Ellis of July 31, 1981 (Appendix B-1, attached), which noted at Paragraph 3 that “No estimate has been made of project dependable capacity. I estimate that to be approximately 1.57 MW,” and Cannata Intra-Company Business Memo to H.J. Ellis of September 9, 1981 (Appendix B-2, attached), which referred in line “f” to “Dependable Capacity: 1.57MW,” and in line “g” to “Capacity Credit” value ranging from \$70/kW-year from 1/83 through 2/84 to \$894/kW-year levelized from 2016-2022.

On November 20, 1981, PSNH’s John Lyons wrote to NHHA’s Richard Norman noting that “We would like to contract for the purchase of energy from your Penacook Facility,” and enclosing a copy of PSNH’s new “Policy Statement” on contract pricing provisions for Limited Electrical Energy Producers (Appendix B-3, attached). The Policy Statement provided for three different types of contract pricing and term provisions available to hydroelectric LEEP’s:

- (1) a short-term contract for the purchase of “dependable capacity” at 8.2¢/kWh and “excess energy” at 7.7¢/kWh, as determined by the NHPUC in Order No. 14,280, terminable by either party on twelve months or less written notice;
- (2) a 30-year “fixed rate-future escalating contract” for “all energy sold to PSNH” based on a 9¢/kWh index price with future adjustments declining to 50% of PSNH’s “incremental energy cost;” and
- (3) a front-loaded variation on the 30-year contract offered in (2) above, containing pricing above the 9¢/kWh index for a certain number of years at the beginning of the contract offset on a present worth basis by lower rates in subsequent years.

NHHA and PSNH settled on contract type (3) in order to allow NHHA to obtain financing for the Project. The salient feature of the Policy Statement as the basis for pricing under the NHHA Contract is that although contract type (1) expressly provided for purchases of

“dependable capacity” and “excess energy” at the differentiated avoided cost rates set by the NHPUC under LEEPA, the long-term contract pricing available in contract types (2) and (3) was expressly for “energy,” without any reference to capacity.<sup>14</sup> Further, that pricing was explicitly based solely on PSNH’s incremental energy cost, without incorporating any value attributed to PSNH’s avoided capacity costs. Thus, even though the Policy Statement specified (at the end of page 3) that the three types of contract pricing provisions would be offered to QF’s “who agree to sell their entire net output to PSNH,” it is very clear that neither NHHA nor any other small power producer that accepted contract type (2) or (3) was to be paid for capacity, and as we have seen, the NHHA Contract did not provide for the sale of capacity.

NHHA certainly offered to sell its capacity to PSNH, on more than one occasion. On December 29, 1981, NHHA’s Warren Mack wrote to John Lyons (Appendix B-4, attached), noting that “the PSNH methodology for power pricing equitably recognizes the value of energy from LEEPS” but “does not incorporate a means of recognizing any dependable capacity offered by a LEEP.” NHHA proposed “that the Project be given a capacity payment reflecting the expense that PSNH will avoid by having the Project as a “generating resource.” On January 7, 1982 (the letter is mistakenly dated January 7, 1981), Mack again wrote Lyons (Appendix B-5, attached), noting that “NHHA is currently drafting.....provisions for payments for capacity if and when the Penacook Project will enable PSNH to avoid adding capacity to their system.” It was NHAA’s understanding, rightly or wrongly, that at the time capacity had no value to PSNH and was not of interest to PSNH.<sup>15</sup> Finally, on January 21, 1982, Mack sent Lyons NHHA’s

---

<sup>14</sup> See Section II.A.1 and the last paragraph on Page 2 of the Policy Statement and the attached Exhibit 1, Appendix B-3.

<sup>15</sup> Until the advent of the Forward Capacity Market in December 2006, NHHA was not aware of any mechanism to independently sell NHHA plant capacity. That new awareness prompted the filing of the Petition in this Docket. PSNH expressed the same view – that “up to now no real monthly capacity market has existed” – in the November 7, 2006 e-mail from John MacDonald to Richard Norman, which is attached as Appendix 3 to Briar’s original Petition on March 27, 2007.

“proposed contract provisions for abandonment and credit for capacity that we discussed” (Appendix B-6, attached). The proposal was for capacity payments to be based on NEPOOL’s “Instructions for Periodic Capacity Audit Tests of NEPOOL Generating Units,” and to be paid in equal monthly installments on the same terms and conditions as the regular monthly billing for sales of energy provided in Article 8 of the contract as then proposed.

PSNH and Briar agree that NHHA’s proposal for capacity was not incorporated in the final Contract. But it is also clear that the final Contract, which used a PSNH contract template, did not provide for the purchase by PSNH of any dependable capacity; if it had, the Contract should have said so, and should have provided for the Project’s dependable capacity to be determined, either by NHPUC or NEPOOL audit or by some other mutually agreeable means. All rate work sheet documents shown to NHHA during the negotiations referenced PSNH’s “incremental energy cost,” without mentioning capacity.<sup>16</sup> The only reasonable and equitable conclusion is that when PSNH declined to pay for the Project’s capacity, NHHA declined to sell it. The result was a contract for the purchase and sale of energy but not capacity, leaving the entitlement to the Project’s capacity value with the owner of the Project.

PSNH cannot have it both ways. Having recognized a value for the Project’s capacity in its internal memos but having declined to recognize and pay for that capacity when the Contract was negotiated, and having then signed the Contract providing for the purchase of energy but not capacity, PSNH cannot now claim the transition and capacity payments to which the Project owner is entitled under the FCM Order.

---

<sup>16</sup> See, e.g., Exhibit 1 attached to the Policy Statement, attached as Appendix B-3.



## V. Post-Contract Course of Dealing

Sections VI and VIII of PSNH's Memorandum are flawed. PSNH incorrectly argues that actions following the Contract's execution show that the parties considered the value of the Project's capacity to be incorporated in the contract rate. PSNH's argument is premised on two points: (1) that PSNH filed for capacity recognition of the Plant with NEPOOL in 1984 and was never challenged by NHHA in this regard; and (2) that PSNH Attachment D shows the value of capacity was included in the rates paid for NHHA's energy. Sections V.A and B below show that neither of PSNH's premises is correct. Section V.C deals with PSNH's invoicing under the Contract.

A. The NEPEX Letter. As to the first point, the fact that PSNH unilaterally filed for capacity recognition with NEPOOL has no bearing on what was agreed to and permitted by the Contract. Nowhere does that Contract state that PSNH may claim the capacity value. For purposes of understanding how the parties interpreted the Contract, the most important fact about PSNH's 1984 letter to NEPEX (Appendix C-1, attached) is that there is no record of it ever being copied to NHHA. Briar now understands that, subsequent to execution of the Contract, PSNH filed for capacity recognition with NEPOOL. But NHHA was not a party to that letter, and neither NHHA nor Briar had ever been provided with a copy of that letter until after this Docket was opened before the Commission.

During the term of the Contract, PSNH has apparently continued to claim capacity credit for the Project, but neither NHHA nor Briar has been a party to those filings either. Briar has obtained a record of the recent value of capacity in the ISO-NE market, downloaded from the NEPOOL website (Appendix C-2, attached). Appendix C-2 shows PSNH customers have received some capacity value over the many years the contract has been in effect, without the

knowledge or concurrence of NHHA or Briar. Even though Briar believes it is entitled to capacity value compensation, its Petition did not seek reimbursement for capacity value prior to the establishment of the Forward Capacity Market effective December 1, 2006, and Briar is willing to waive any claim to that value if it is allowed to recover the capacity value sought in the Petition from December 1, 2006 forward.<sup>17</sup>

The structure of the New England power market has changed with the introduction of the FCM. The fact that PSNH unilaterally claimed the Project's capacity value in the past does not mean that PSNH is entitled to continue to claim that value without compensation in the future, since that result would be inconsistent with the Contract and would be unfair to Briar. With the advent of the FCM in December 2006, there is a public market for this product with a defined value. Given that the Contract is an energy-only contract and that the capacity was never assigned to PSNH, Briar should have the right to sell the Project's capacity and receive the FCM payments.

B. PSNH Attachment D. PSNH also references Attachment D to its Memorandum (also attached hereto as Appendix D, but referred to hereinafter as "Attachment D" for consistency) to support its claim that post-contract actions show that NHHA conveyed capacity value to PSNH. Attachment D consists of a letter from PSNH to NHHA dated May 14, 1990, and its associated spreadsheet. The spreadsheet was prepared by PSNH in response to a request by NHHA to determine a contract buyout value. NHHA was concerned at the time that the PSNH bankruptcy might endanger the ongoing sale of energy from the Project. As is discussed in greater detail below, PSNH prepared Attachment D to establish a value that NHHA would have had to pay PSNH to terminate the contract. Upon receiving PSNH's calculation of the buyout cost, NHHA

---

<sup>17</sup> PSNH and Briar have agreed that whatever decision the Commission makes in this case, it should be made effective retroactive to December 1, 2006. See e-mail from Attorney Eaton to Attorney Moffett, attached as Appendix C-3.

decided to abandon buyout discussions. However, an analysis of Attachment D clearly shows that PSNH did not give NHHA any credit for the value of capacity in its buyout analysis. Since PSNH was not buying NHHA's capacity, this approach was correct.

As noted in the preceding paragraph, Attachment D was prepared by PSNH to calculate the value of the front-end loaded rate and the amount that NHHA would have had to pay PSNH to terminate the contract. PSNH points out that the May 1990 spreadsheet included in Attachment D identifies both PSNH Marginal Energy (column M) and PSNH Short Term Capacity Cost (column N). PSNH then states that column O shows "what the Plant would have been paid if purchases had been made at the Marginal Rate." (PSNH Memorandum at 9.) As is discussed below and in Appendix D-1 to this Memorandum, a close look reveals that columns M, N, O, and P support Briar's Petition because the calculations behind those columns do not give any credit to NHHA for the Penacook Lower Falls Project's capacity, nor do the calculations behind the other columns in Attachment D include any capacity value assigned to the Project.

Since the 1990 spreadsheet contains a substantial amount of data, Briar has prepared Appendix D-1 to this Memorandum which describes the spreadsheet components and calculations in detail. As shown in Appendix D-1, the 1990 spreadsheet did not credit the Project with any capacity value. It is true that capacity information is presented in columns A, E and N, but the data in those columns are not used to calculate the value provided by the Project. Briar submits that the capacity information is not included in the Non-Levelized Payment Data (columns H through L) or the Historical Data (columns M through P) because the Contract was solely for energy. Having assigned NHHA no value for the capacity in the 1990 calculations

when NHHA was considering its commercial options, PSNH should not now be allowed to claim that capacity was included in the purchase from NHHA.

Briar also notes that the analysis in Attachment D is fully consistent with the plain reading that the contract did not include the sale of capacity to PSNH. Article 3, Section C of the Contract repeatedly sets potential future rates based on a percentage of PSNH's incremental energy costs, never once mentioning capacity value. Given that PURPA established a process for setting rates for QF's at the purchaser's avoided cost, including both energy and capacity, the language of Article 3 Section C is consistent with the calculations in PSNH's Attachment D which show that capacity value was not conveyed by the Contract.

C. PSNH's Invoicing Under the Contract. PSNH has consistently prepared the invoices for power purchased from the Project. A typical recent invoice is attached as Appendix E. The invoice clearly specifies that it is for energy delivered from the Penacook Lower Falls Project, at the rate of 3.53¢/kWh. The word "capacity" does not appear anywhere on the invoice.

## VI. Conclusion

This case is ultimately about construing the plain meaning of contract language. The 1982 NHHA Contract provided for the purchase and sale of "energy," but not "capacity." PSNH knew the difference between energy and capacity, and if it had wanted to purchase capacity, it should have drafted the Contract to say so. PSNH implies, but does not argue, that the preamble reference to "entire generation output" should be taken as the equivalent of "capacity," but the use of the phrase in the context of the Contract appears rather to refer to the total amount of energy produced by the Project, which is the only way to make sense of "entire generation output," as in the "entire output generated by" the Project.

PSNH's argument that under PURPA a QF cannot sell energy to a purchasing utility without selling its capacity as well is simply wrong, for the reasons set forth in Section II above. Its point that the price standard at the time was a cents-per-kilowatt hour rate for both energy and capacity would only be persuasive if the parties had agreed on the actual amount of dependable capacity represented by the Project (or on how that capacity might be determined), and set separate prices for the energy associated with dependable capacity and "excess energy." They did not do that.

Contrary to PSNH's conclusory assertions in Section VI, VII and VIII of its Memorandum, the documentation relating to the parties pre-contract negotiations can reasonably and fairly be read only to mean that while NHHA offered several times to include the Project's capacity value for a fair price, PSNH declined to do so (even though its internal memoranda showed that the Project had specific capacity value from the beginning), and the plain result was that "capacity" was not included in the Contract as part of what was sold to PSNH. Although PSNH claimed the Project's capacity in correspondence with NEPEX after the Contract was signed, PSNH never copied NHHA on that correspondence, or otherwise alerted NHHA to its claim, and it cannot now assert that NHHA or Briar ever acquiesced to that claim.

PSNH cannot have it both ways. It declined to pay for the Project's capacity value even when it knew there was capacity value, and signed a contract for the purchase and sale of energy only. It later claimed that it had rights to the capacity, but never told NHHA or Briar that it was

making that claim. As PSNH itself said, "A deal is a deal," but the deal that PSNH struck did not include capacity.

Respectfully submitted,

BRIAR HYDRO ASSOCIATES

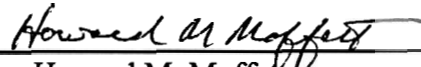
By its Attorneys,

ORR & RENO, P.A.

One Eagle Square

P.O. Box 3550

Concord, N.H. 03302-3550

By:   
Howard M. Moffett  
Telephone: 603-223-9132  
Email: [hmoffett@orr-reno.com](mailto:hmoffett@orr-reno.com)

Dated: June 29, 2007

### CERTIFICATE OF SERVICE

The undersigned hereby certifies that copies of the foregoing petition have been sent this 29<sup>th</sup> day of June, 2007, to Attorney Gerald Eaton at Public Service Company of New Hampshire, to NHPUC Staff Counsel, and to the Office of Consumer Advocate.

  
Howard M. Moffett

11/28/2006 16:37 6173673796 ESSEX POWER SERVICES

CONTRACT FOR THE PURCHASE AND SALE  
OF ELECTRIC ENERGY

CONTRACT, dated April 28, 1982, by and between NEW HAMPSHIRE HYDRO ASSOCIATES, a New Hampshire Limited Partnership, with its principal office in Concord, New Hampshire (hereinafter referred to as SELLER), and PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, a New Hampshire corporation having its principal place of business in Manchester, New Hampshire (hereinafter referred to as PUBLIC SERVICE).

WHEREAS, SELLER is engaged in the business of generation of electrical energy,

WHEREAS, SELLER desires to sell its entire generation output to PUBLIC SERVICE,

WHEREAS, PUBLIC SERVICE is engaged in the business of the generation, transmission, and distribution of electrical energy,

WHEREAS, PUBLIC SERVICE has determined it would be beneficial to secure a reliable supply of electrical energy for a period of not less than thirty years,

WHEREAS, SELLER is willing and able to sell its entire output to PUBLIC SERVICE for thirty years;

NOW, THEREFORE, in consideration of the mutual covenants and agreements hereinafter set forth, SELLER and PUBLIC SERVICE hereby agree as follows:

Article 1. Basic Agreement.

Subject to the terms, provisions, and conditions of this Contract, SELLER agrees to furnish and sell and PUBLIC SERVICE agrees to purchase and receive all of the electric energy produced by the Penacook Lower Falls hydroelectric generating facility owned and operated by SELLER located in Penacook-Boscawen, New Hampshire on the Contoocook River. Since SELLER and PUBLIC SERVICE are interconnected through the system of the Concord Electric Company, PUBLIC SERVICE's obligation to purchase energy hereunder is conditioned upon SELLER obtaining the right to transmit power through the Concord Electric Company system to PUBLIC SERVICE and SELLER shall pay the cost, if any, of such transmission.

The point of delivery from the Concord Electric Company to PUBLIC SERVICE shall be the Garvins Substation metering point located in Bow, New Hampshire.

Article 2. Availability.

During the term hereof, SELLER shall endeavor to operate its generating unit to the maximum extent reasonably possible under the circumstances and shall make available to PUBLIC SERVICE the entire net output in kilowatthours from said unit when in operation.

It is agreed that SELLER shall have sole responsibility for operation and maintenance of its generating unit, including any relays, locks, seals, breakers, and other control and protection apparatus that are necessary, or which Concord Electric Company may designate as being necessary, for the operation of SELLER's generating unit in parallel with the system of Concord Electric Company and that SELLER will maintain said generating unit in good operating order and repair without cost to PUBLIC SERVICE.

Article 3. Price.

The price charged by SELLER to PUBLIC SERVICE for sales of electric energy under this Contract shall be based on an index price of 9.00 cents per kilowatthour (KWH) and shall be determined as follows.

- A. For the first eight (8) years of the Contract, the Contract rate shall be 11.00 cents per KWH. This rate exceeds the index price by 2.00 cents per KWH; and all payments made by PUBLIC SERVICE to SELLER which exceed the index price must be recovered by PUBLIC SERVICE, during later Contract years, in accordance with Section D.1., Article 3. This rate is subject to the adjustment provided for under Section D.2., Article 3. The provisions of Section C, Article 3, shall not override the provisions of this paragraph.
- B. If, during the first eight Contract years, 96 percent of PUBLIC SERVICE's incremental energy costs has not exceeded the index price, the Contract rate beginning with the ninth contract year shall be the index price of 9.00 cents per KWH; and this rate shall remain in effect until superceded by the provisions of Section C, Article 3. This rate is subject to the adjustment provided for under Section D.2., Article 3.



- C. At such time that 96 percent of PUBLIC SERVICE's incremental energy cost exceeds the index, the rate to be paid under this contract will vary in accordance with the following provisions, subject to the provisions of Section D, Article 3.

As soon as 96 percent of PUBLIC SERVICE's incremental energy cost exceeds the index, the contract rate will be based on 96 percent of PUBLIC SERVICE's incremental energy cost for a period of one year. For each subsequent year, the percentage of PUBLIC SERVICE's incremental energy cost to be paid will be reduced by 4 percent (i.e. 96 percent, 92 percent, 88 percent, 84 percent, etc.), until the incremental energy cost is reduced only 2 percent to reach 50 percent of PUBLIC SERVICE's incremental energy cost. At such time, the contract rate will remain at the 50 percent rate for the remainder of the contract term.

PUBLIC SERVICE's incremental energy cost, for any hour, is equivalent to the marginal cost of providing energy for that hour. The marginal cost, for any hour, is the energy cost of the most expensive unit or purchased energy supplying a portion of PUBLIC SERVICE's load during that hour and includes all costs in the New England Power Exchange (NEPEX) bus rate cost for the incremental unit. The NEPEX bus rate costs are essentially the cost of fuel consumed. PUBLIC SERVICE's incremental energy cost, for the purposes of this Contract, will be expressed as a yearly average and will be calculated by averaging all 8,760 hourly incremental energy costs over the calendar year.

If the rate during any year is less than the appropriate percentage of PUBLIC SERVICE's incremental energy cost for that year, an adjustment will be made for all energy sold to PUBLIC SERVICE. The adjustment will consist of an additional payment for each KWH sold to PUBLIC SERVICE during said year based on the difference between the price paid and the appropriate percentage of PUBLIC SERVICE's incremental energy cost. The adjustment will be paid within one month after PUBLIC SERVICE's incremental energy cost for the previous year has been determined.

If the rate during any year is more than the appropriate percentage of PUBLIC SERVICE's incremental energy cost for that year, an adjustment will be made for all energy sold to PUBLIC SERVICE. The adjustment will consist of a refund to PUBLIC SERVICE for each KWH sold during said year based on the difference between the price paid and the appropriate percentage of PUBLIC SERVICE's incremental energy cost. The refund will be made to PUBLIC SERVICE by applying one-twelfth of the total amount as a reduction to each month's payment by PUBLIC SERVICE during the current year. If for any month, no payment is due the SELLER, or the payment due is not equal to the refund, a payment to PUBLIC SERVICE will be made by SELLER so that the total recovery is achieved by PUBLIC SERVICE by the end of the current year.

- D. The Contract rates described in Sections B and C, Article 3, are subject to the following provisions, in order to determine the Contract price to be charged by SELLER to PUBLIC SERVICE for sales of electric energy under this Contract.
1. Beginning with the ninth Contract year, and continuing for the term of the Contract, a recovery amount equal to 5.47 cents per KWH shall be deducted from the Contract rate. This deduction allows PUBLIC SERVICE to recover the payments made under Section A, Article 3, which exceeded the index price.
  2. For the first eight Contract years, the Contract rate shall be adjusted by subtracting 1.00 cents per KWH from the rate. For the ninth through the twentieth Contract years, the Contract rate shall be adjusted by adding 0.67 cents per KWH to the rate. The total of said additional payments, for any given year, shall not exceed one-twelfth (1/12) of the money subtracted during the first eight Contract years. ✓

If proven necessary to PUBLIC SERVICE by SELLER and/or the project lenders, for amortization of the first cost of SELLER's facilities, PUBLIC SERVICE shall grant SELLER the option to extend the pricing under Section A, Article 3 through the ninth or tenth Contract year. If said pricing is extended through the ninth Contract year, the recovery amount under Section D.1., Article 3 shall be 6.84 cents per KWH and the recovery shall begin with the tenth Contract year; if said pricing is extended through the tenth Contract year, the recovery amount shall be 8.46 cents per KWH beginning with the eleventh Contract year.

5.47  
10/10

#### Article 4. Metering.

The metering shall be configured so as to represent the generation delivered to PUBLIC SERVICE. The metering may be installed on the generation side of the transformer provided that transformer losses are subtracted from the measured generation by a suitable method.

SELLER will install, own, and maintain all metering equipment as specified in PUBLIC SERVICE's study of the SELLER's electric generating facility, which study is, or will be upon mutual consent of both parties, attached hereto as Attachment A. SELLER shall bear all costs associated with said equipment and its installation.

If at any time, the metering equipment is found to be in error by more than two percent fast or slow (+ or -2%), SELLER shall cause such metering equipment to be corrected and the meter readings for the period of inaccuracy shall be adjusted to correct such inaccuracy so far as the same can be reasonably ascertained, but no adjustment prior to the beginning of the preceding month shall be made except by agreement of the parties. All tests and calibrations shall be made in accordance with Section V-14 of the NHPUC Rules and Regulations Prescribing Standards for Electric Utilities in effect as of September 8, 1972, as amended. The meter shall be tested as prescribed in said Rules and Regulations.

In addition to the regular routine tests, SELLER shall cause the metering equipment to be tested at any time upon request of and in the presence of a representative of PUBLIC SERVICE. If such equipment proves accurate within two percent fast or slow (+ or -2%), the expense of the test shall be borne by PUBLIC SERVICE.

The SELLER shall allow PUBLIC SERVICE reasonable access to the meter located on the SELLER's premises. PUBLIC SERVICE reserves the right to secure or seal the metering installation, to require SELLER to measure electrical energy sold to PUBLIC SERVICE on an hour-by-hour basis, and to require SELLER to notify PUBLIC SERVICE once each day of SELLER's generation in kilowatthours for each hour during the prior 24 hours.

-6-

Article 5. Modifications.

If SELLER plans any modifications to its electric generating facility, SELLER shall give PUBLIC SERVICE prior written notice of its intentions. In the event that PUBLIC SERVICE reasonably determines that said modifications would necessitate changes to the metering equipment or would cause PUBLIC SERVICE to incur additional expenses associated therewith, the SELLER shall make such changes as reasonably required by PUBLIC SERVICE and reimburse PUBLIC SERVICE for said expenses before PUBLIC SERVICE is obligated to purchase any increased output.

If the interconnecting circuit is converted to a higher voltage in the future, the SELLER shall be responsible for all metering changes necessitated by the conversion and shall bear all costs associated with said conversion.

Article 6. Billing & Payment.

PUBLIC SERVICE shall read the meter, installed in accordance with Article 4, on or at the end of each month, and PUBLIC SERVICE shall send the SELLER a form showing the month's beginning and ending meter readings and total net kilowatthour generation.

SELLER shall then transmit to PUBLIC SERVICE a bill showing the amount due, which amount will be determined by multiplying the rate per kilowatthour specified in Article 3 times the number of kilowatthours delivered to PUBLIC SERVICE since the prior reading of the meter, and PUBLIC SERVICE will send to SELLER a payment for that amount within 20 days of receipt of SELLER's bill.

Article 7. Liability & Insurance.

- a. Each party will be responsible for its facilities and the operation thereof and will indemnify and save the other harmless from any and all loss by reason of property damage, bodily injury, including death resulting therefrom suffered by any person or persons including the parties hereto, employees thereof or members of the public, (and all expenses in connection therewith, including attorney's fees) whether arising in contract, warranty, tort (including negligence), strict liability or otherwise, caused by or sustained on, or alleged to be

caused by or sustained on, equipment or facilities, or the operation or use thereof, owned or controlled by such party, except that each party shall be solely responsible for and shall bear all costs of claims by its own employees or contractors growing out of any workmen's compensation law. SELLER shall indemnify and save PUBLIC SERVICE harmless against any and all liability for claims, costs, losses, expenses and damages, including bodily injury and death, sustained by Concord Electric Company, its employees or agents, arising out of SELLER's performance of this Contract.

- b. SELLER hereby agrees to maintain in force and effect, for the duration of this Contract, Workmen's Compensation Insurance, as required by statute, and Comprehensive General Liability Insurance for bodily injury and property damage at minimum limits of three million dollars (\$3,000,000). Within sixty days of the effective date of this Contract, the SELLER agrees to provide PUBLIC SERVICE with a certificate of such insurance.
- c. In no event shall PUBLIC SERVICE be liable, whether in Contract, tort (including negligence), strict liability, warranty, or otherwise, for any special, indirect, incidental, or consequential loss or damage, including but not limited to cost of capital, cost of replacement power, loss of profits or revenues or the loss of the use thereof. This provision, subsection c of Article 7, shall apply notwithstanding any other provision of this Contract.

Article 8. Force Majeure.

Either party shall not be considered to be in default hereunder and shall be excused from purchasing or selling electricity hereunder if and to the extent that it shall be prevented from doing so by storm, flood, lightning, earthquake, explosion, equipment failure, civil disturbance, labor dispute, act of God or the public enemy, action of a court or public authority, withdrawal of facilities from operation for necessary maintenance and repair, or any cause beyond the reasonable control of either party.

Article 9. Effective Date & Contract Term.

This Contract shall become effective between the parties as of the date hereof, provided that the metering equipment, as specified by PUBLIC SERVICE in accordance with the conditions set forth in Section 4 of this Contract, has been installed by SELLER.

If said equipment has not been properly installed, this Contract shall become effective between the parties as of the date of proper installation of said equipment or as of the date SELLER begins delivering energy to PUBLIC SERVICE, whichever occurs latest. As of the effective date of this Contract, the Contract shall remain in full force and effect for thirty (30) years.

In order for any modification to this Contract to be binding upon the parties; said modifications must be in writing and signed by both parties.

Article 10. Prior Agreements Superseded.

This Contract with Attachment A represents the entire agreement between the parties hereto relating to the subject matter hereof, and all previous agreements, discussion, communications, and correspondence with respect to the said subject matter are superseded by the execution of this Contract.

Article 11. Waiver of Terms or Conditions.

The failure of either party to enforce or insist upon compliance with any of the terms or conditions of this Contract shall not constitute a general waiver or relinquishment of any such terms or conditions, but the same shall be and remain at all times in full force and effect.

Article 12. General.

This Contract shall be binding upon, and inure to the benefit of the respective successors and assigns of the parties hereto, provided that SELLER shall not assign this Contract except to an affiliated company, without the prior written consent of PUBLIC SERVICE, which consent shall not be unreasonably withheld. The term "affiliated company" shall include any partnership in which SELLER or one of SELLER's subsidiaries or affiliates is a general partner or any corporation in which SELLER or one of its subsidiaries or affiliates owns or controls more than 50 percent of the voting stock or otherwise has operating control. In the event of an assignment to an affiliate, SELLER shall notify PUBLIC SERVICE within five (5) days of the effective date of the assignment.

Article 13. Applicable Law.

This Contract is made under the laws of The State of New Hampshire and the interpretation and performance hereof shall be in accordance with and controlled by the laws of that State.

Article 14. Mailing Addresses.

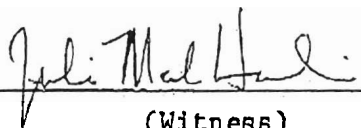
The mailing addresses of the parties are as follows:


SELLER: New Hampshire Hydro Associates  
99 North State Street  
Concord, New Hampshire 03301  
Attn: Richard A. Norman, Partner

PUBLIC SERVICE: Public Service Company of New Hampshire  
1000 Elm Street  
P.O. Box 330  
Manchester, New Hampshire 03105  
Attn: Henry J. Ellis, Vice President

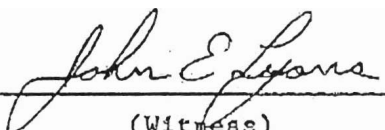
IN WITNESS WHEREOF, the parties have hereunto caused their names to be subscribed, as of the day and year first above written.

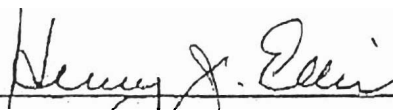
NEW HAMPSHIRE HYDRO ASSOCIATES  
By ESSEX DEVELOPMENT ASSOCIATES,  
A General Partner

  
(Witness)

By:   
Name: Richard A. Norman  
Title: Partner

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

  
(Witness)

By:   
Henry J. Ellis, Vice President

NOTED AUG 25 1981 R.V.P.



## INTRA-COMPANY BUSINESS MEMO

Subject Review of Essex Development Associates, Inc. Penacook Lower Falls Project

From M. D. Cannata, Jr. District

Date July 31, 1981

To H. J. Ellis

Reference

I have reviewed the subject document for reasonableness and have performed an analysis of the average annual energy available at this site under various scenerios.

DOCUMENT COMMENTS/OBSERVATIONS

1. EDAI proposes to develop this site such that the 4.0 MW Kaplan Unit can utilize the water available 80% of the time. (PSNH has found this to be the approximate economic development point at other sites). The installation of an additional house unit may require the reduction in size of the Kaplan unit for optimum economics.
2. The estimated average annual energy (15400 MWH) does not allow for lost energy due to fish passage facilities nor does it include incremental energy from a house unit.
3. No estimate has been made of project dependable capacity. I estimate that to be approximately 1.57 MW.
4. The USF&WS recommends an instantaneous minimum flow of 338 CFS below the project. Presently the USF&WS utilizes their Aquatic Base Flow as a minimum flow which is the August median flow. My calculations show this figure to be approximately 235 CFS at this site. In addition, I can't comprehend a specified minimum flow for a run of river project, where outflow equals inflow on an instantaneous basis, at all times of the year.
5. The USF&WS also notes that the fish passage facilities will be required for anadromous fish. NHF&G notes that in addition to the projected Shad run there are plans to utilize the Contoocook to augment the Merrimack River Atlantic Salmon smolt production.

Fish passage facilities that can pass Shad are usually suitable to pass Salmon. To pass Shad, approximately 2-3 months operation of the passage facilities is necessary. To pass Salmon, approximately 4-6 months of operation is required. When these augmented adult salmon return to the Contoocook, it is not infeasible that the fisheries agencies would want these fish passed through the passage facilities. One would want, in writing, their intent that lengthing the period of operation (to include fall months) of the passage facilities will not be required.



To H. J. Ellis

Date July 31, 1981

6. Utilization of the total period of record of flow data (1930-1977) includes the big floods of the thirties and fifties and the period where water was stored in the Contoocook River Basin for power production. I believe the most recent 20 years of record would be adequate/representative (as water storage was reduced markedly) of future flows at this site.

### ANALYSIS

#### Assumptions

1. 3000 mm Kaplan (4.0 MW at 1800 CFS) (Range 25% - 107%).
2. 1250 mm (.7 MW at 350 CFS), 1500 mm (1.0 MW at 495 CFS), 1750 mm (1.3 MW at 620 CFS), and 2000 mm (1.7 MW at 800 CFS) tube turbine house units (Range 40% - 110%).
3. 32 feet average gross available head and 30 feet average net available head.
4. Constant head. Excavation of tailrace should minimize head loss due to tailwater fluctuations. Tailwater fluctuations are assumed to be included in the 2 foot head reduction.
5. Fish Passage Flow Requirements: 3% of optimum development point (rule of thumb) 55 CFS and those of one ladder on the Merrimack River: 125 CFS.
6. Fish ladder operation for Shad is May and June (2 months). Operation for Salmon is April - June and September - November (6 months).
7. Small unit operates first.
8. Minimum flows passed below project (none in diverted area).
9. Drainage area: 766 square miles.
10. No ponding capability.
11. Maintenance required only when single Kaplan unit installed. (Maintenance will be performed at low flow time so that remaining unit can utilize available flow for multiple unit alternates).
12. Representative future flow data: Water years 1958-1977.
13. No penstock.

To H. J. Ellis

Date July 31, 1981

### RESULTS

Tables I through V present the results of the analysis for the following alternates respectively and are self explanatory.

Alternate 1: 1-3000 mm Kaplan (4.0 MW)  
Alternate 2: 1-1250 mm tube and 1 - 3000 mm Kaplan (4.7 MW)  
Alternate 3: 1-1500 mm tube and 1 - 3000 mm Kaplan (5.0 MW)  
Alternate 4: 1-1750 mm tube and 1 - 3000 mm Kaplan (5.3 MW)  
Alternate 5: 1-2000 mm tube and 1 - 3000 mm Kaplan (5.7 MW)

Table VI is a summary of the results on an annual basis. The following observations are made.

1. EDAI estimates of average annual available energy are reasonable for the conditions cited.
2. For the single Kaplan alternate (#1), 175-350 MWH's of energy per year will be lost if Shad are returned to the Contoocook. 300-675 MWH's per year will be lost if Salmon are also returned.
3. The addition of a house unit will increase average annual output by 2550-2925 MWH's assuming no fish passage facilities.
4. Increasing the size of the house unit increases average annual energy only slightly.
5. For the alternates in which a house unit is added, 175-425 MWH's of energy per year will be lost if Shad are returned to the Contoocook. 425-1025 MWH's per year will be lost if Salmon are also returned.



M. D. Cannata, Jr.

MDCJR:rtl  
Attachments

ESSEX DEVELOPMENT ASSOCIATES, INC.  
PENACOOK PROJECT

TABLE I  
ALTERNATE #1  
1-3000 MM KAPLAN (4.0 MW)

Average Annual Energy Estimates (MWH)

<u>Month</u>	<u>No Fishladders</u>	<u>Fishladders @ 55 CFS</u>		<u>Fishladders @ 125 CFS</u>	
		<u>Shad Only</u>	<u>Salmon and Shad</u>	<u>Shad Only</u>	<u>Salmon and Shad</u>
JAN	1339	1339	1339	1339	1339
FEB	1271	1271	1271	1271	1271
MAR	2178	2178	2178	2178	2178
APR	3046	3046	3017*	3046	2978*
MAY	2394	2316*	2316*	2269*	2269*
JUN	1062	956*	956*	843*	843*
JUL	379	379	379	379	379
AUG	177	177	177	177	177
SEP	196	196	196*	196	168*
OCT	427	427	414*	427	360*
NOV	1326	1326	1249*	1326	1162*
DEC	1752	1752	1752	1752	1752
TOTALS	15547	15363	15244	15203	14876
Annual	15474				

\*Months Fishladders Running

ESSEX DEVELOPMENT ASSOCIATES, INC.  
PENACOOK PROJECT

TABLE II  
ALTERNATE #2  
1-3000 MM KAPLAN (4.0 MW) &  
1-1250 MM TUBE (.7 MW)

Average Annual Energy Estimates (MWH)

<u>Month</u>	<u>No Fishladders</u>	<u>Fishladders @ 55 CFS</u>		<u>Fishladders @ 125 CFS</u>	
		<u>Shad Only</u>	<u>Salmon and Shad</u>	<u>Shad Only</u>	<u>Salmon and Shad</u>
JAN	1451	1451	1451	1451	1451
FEB	1411	1411	1411	1411	1411
MAR	2388	2388	2388	2388	2388
APR	3465	3465	3436*	3465	3399*
MAY	2589	2518*	2518*	2426*	2426*
JUN	1205	1111*	1111*	997*	997*
JUL	621	621	621	621	621
AUG	435	435	435	435	435
SEP	429	429	347*	429	246*
OCT	717	717	621*	717	509*
NOV	1504	1504	1427*	1504	1320*
DEC	1886	1886	1886	1886	1886
TOTALS	18101	17936	17652	17730	17089
Annual	17955				

\*Months Fishladders Running

ESSEX DEVELOPMENT ASSOCIATES, INC.  
PENACOOK PROJECT

TABLE III  
ALTERNATE #3  
1-3000 MM KAPLAN (4.0 MW) &  
1-1500 MM TUBE (1.0 MW)

Average Annual Energy Estimates (MWH)

<u>Month</u>	<u>No Fishladders</u>	<u>Fishladders @ 55 CFS</u>		<u>Fishladders @ 125 CFS</u>	
		<u>Shad Only</u>	<u>Salmon and Shad</u>	<u>Shad Only</u>	<u>Salmon and Shad</u>
JAN	1456	1456	1456	1456	1456
FEB	1417	1417	1417	1417	1417
MAR	2444	2444	2444	2444	2444
APR	3630	3630	3436*	3630	3559*
MAY	2638	2564*	2564*	2468*	2468*
JUN	1187	1097*	1097*	972*	972*
JUL	569	569	569	569	569
AUG	385	385	385	385	385
SEP	393	393	294*	393	221*
OCT	700	700	582*	700	485*
NOV	1515	1515	1427*	1515	1324*
DEC	1904	1904	1904	1904	1904
TOTALS	18238	18074	17575	17853	17204
Annual	18082				

\*Months Fishladders Running

ESSEX DEVELOPMENT ASSOCIATES, INC.  
PENACOOK PROJECT  
TABLE IV  
ALTERNATE #4  
1-3000 MM KAPLAN (4.0 MW) &  
1-1750 MM TUBE (1.3 MW)

---

Average Annual Energy Estimates (MWH)

<u>Month</u>	<u>No Fishladders</u>	<u>Fishladders @ 55 CFS</u>		<u>Fishladders @ 125 CFS</u>	
		<u>Shad Only</u>	<u>Salmon and Shad</u>	<u>Shad Only</u>	<u>Salmon and Shad</u>
JAN	1463	1463	1463	1463	1463
FEB	1430	1430	1430	1430	1430
MAR	2504	2504	2504	2504	2504
APR	3793	3793	3762*	3793	3719*
MAY	2694	2617*	2617*	2518*	2518*
JUN	1182	1082*	1082*	960*	960*
JUL	538	538	538	538	538
AUG	341	341	341	341	341
SEP	332	332	271*	332	210*
OCT	642	642	546*	642	458*
NOV	1522	1522	1448*	1522	1329*
DEC	1928	1928	1928	1928	1928
TOTALS	18369	18192	17930	17971	17398
Annual	18197				

\*Months Fishladders Running

ESSEX DEVELOPMENT ASSOCIATES, INC.  
PENACOOK PROJECT  
TABLE V  
ALTERNATE #5  
1-3000 MM KAPLAN (4.0 MW) &  
1-2000 MM TUBE (1.7 MW)

---

Average Annual Energy Estimates (MWH)

<u>Month</u>	<u>No Fishladders</u>	<u>Fishladders @ 55 CFS</u>		<u>Fishladders @ 125 CFS</u>	
		<u>Shad Only</u>	<u>Salmon and Shad</u>	<u>Shad Only</u>	<u>Salmon and Shad</u>
JAN	1441	1441	1441	1441	1441
FEB	1428	1428	1428	1428	1428
MAR	2583	2583	2583	2583	2583
APR	4003	4003	3967*	4003	3921*
MAY	2759	2678*	2678*	2567*	2567*
JUN	1141	1046*	1046*	918*	918*
JUL	497	497	497	497	497
AUG	283	283	283	283	283
SEP	274	274	230*	274	186*
OCT	581	581	500*	581	425*
NOV	1533	1533	1440*	1533	1303*
DEC	1961	1961	1961	1961	1961
TOTALS	18484	18308	18054	18069	17513
Annual	18480				

\*Months Fishladders Running

ESSEX DEVELOPMENT ASSOCIATES, INC.  
PENACOOK PROJECT  
TABLE VI  
SUMMARY OF ALTERNATES

Average Annual Energy Estimates (MWH)

<u>Alternate</u>	<u>Size (MW)</u>	<u>No Fishladders</u>	<u>Fishladders @ 55 CFS</u>		<u>Fishladders @ 125 CFS</u>	
			<u>Shad Only</u>	<u>Salmon and Shad</u>	<u>Shad Only</u>	<u>Salmon and Shad</u>
1	4.0	15547	15363	15244	15203	14876
2	4.7	18101	17936	17652	17730	17089
3	5.0	18238	18074	17575	17853	17204
4	5.3	18369	18192	17930	17971	17398
5	5.7	18484	18308	18054	18069	17513



NOTED SEP 18 1981 R.V.P.

**PSNH PUBLIC SERVICE**  
Company of New Hampshire

**INTRA-COMPANY BUSINESS MEMO**

Subject Economic Review of Essex Development Associates, Inc. Penacook Lower Falls  
Hydroelectric Project per 8/25/81 Power Pricing Proposal.

From M. D. Cannata, Jr. District

Date September 9, 1981

To H. J. Ellis

Reference

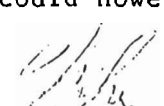
The Penacook Lower Falls Hydroelectric Redevelopment Proposal has been evaluated. Many of the assumptions utilized were a result of the review performed to assess the reasonableness of energy projections (my memo dated July 31, 1981). Study parameters were:

- a. Plant Size: 1-4.0 MW Unit
- b. Commercial Operation: 1/1/83
- c. Contract Term: 40 years
- d. Project Energy: 15,545 MWH 1983-1986 (w/o fish ladders)  
14,875 MWH 1987-2022 (w/ fish ladders)
- e. Fish Ladder Operation: 125 CFS commencing in 1987
- f. Dependable Capacity: 1.57 MW
- g. Capacity Credit: \$70/KW year 1/83-2/84  
\$130.57/KW year levelized 1991-2015  
\$894.21/KW year levelized 2016-2022
- h. Project Energy Cost: Alternate #1 flat rate  
Alternate #2 oil and avoided costs  
(EDAI proposals, attached)
- i. Present Worth Factor: 13.54% and 15.56%
- j. Avoided Energy Worth: Per latest production simulation runs  
(recent softness in oil prices neglected)

The attached table shows that both EDAI proposals:

- 1. Do not provide sufficient payback for the front end penalties incurred.
- 2. Are sensitive to the PSNH weighted cost of capital.
- 3. Would fluctuate in terms of financial viability due to changes in water conditions, fuel prices, load forecasts and in-service dates of future generation.

In short, my opinion is that both EDAI proposals are not financially attractive to PSNH. Modification to the proposals could however alter the economics considerably.

  
M. D. Cannata, Jr.

MDCJR:rtl  
Attachment

ESSEX DEVELOPMENT ASSOCIATES INC.  
PENACOOK LOWER FALLS HYDROELECTRIC REDEVELOPMENT PROPOSAL

<u>Pricing Alternate</u>	<u>Present Worth Percent</u>	<u>Year Project Savings Greater Than Costs*</u>	<u>Project Breakeven Year</u>	<u>40 Year Benefit/Cost Ratio</u>	<u>40 Year Levelized Costs 1983 \$ ¢/KWH</u>	<u>40 Year Levelized Costs 1981 \$ ¢/KWH</u>
Alt. #1	13.54	1991	2010	1.10	9.61	7.45
Alt. #2	13.54	1991	2005	1.10	9.59	7.44
Alt. #1	15.56	1991	2019	1.01	9.67	7.24
Alt. #2	15.56	1991	2009	1.04	9.35	7.00

\*Consistently

November 20, 1981

Mr. Richard A. Normand  
New Hampshire Hydro Associates  
3 Capitol Street  
Concord, NH 03301

SUBJECT: Penacook Lower Falls Hydro  
Concord - Boscawen, New Hampshire

Dear Mr. Normand:

Since our last meeting for discussion of purchase of electric energy from your Penacook Lower Falls Hydro, we have firmed up our policy regarding such purchases. A copy of a Policy Statement on contract pricing provisions for Limited Electrical Energy Producers as now approved, is enclosed. Also enclosed is a copy of a long-term contract incorporating the provisions of this policy.

This policy is somewhat more liberal in compensation for purchased energy than earlier discussions with you indicated that it might be. Recognizing that the development of new hydropower sources, even though highly desirable, is expensive; we are attempting to make our contract offering as helpful to developers as can be justified without forgetting our responsibilities to our customers.

Please review these documents and then give me a call. We would like to contract for the purchase of energy from your Penacook facility in the near future on a mutually beneficial basis.

Very truly yours,



John E. Lyons  
Manager  
Supplementary Energy Sources

JEL:bam  
Enclosures

cc: D. N. Merrill  
H. J. Ellis

POLICY STATEMENT  
CONTRACT PRICING PROVISIONS  
LIMITED ELECTRICAL ENERGY PRODUCERS

Public Service Company of New Hampshire (PSNH) will pursue all viable new supplemental energy sources in order to reduce its dependence on foreign oil, delay construction of future baseload power plants for as long as possible, and provide the best possible service to its customers at the lowest reasonable cost. In this pursuit, PSNH will offer nonfossil fuel burning and hydroelectric Limited Electrical Energy Producers (LEEPS), located in PSNH or its "wholesale for resale" customers franchised areas, the following contract pricing and term provisions.

I. LEEPA Contract Provisions  
for Nonfossil Fuel Burning & Hydroelectric LEEPS

In accordance with NHRSA 362-A: Limited Electrical Energy Producers Act (LEEPA) and subsequent orders of the N.H. Public Utilities Commission (PUC), contract pricing as determined by the PUC, or other regulatory body having jurisdiction, is available. These rates are currently 8.2 cents per kilowatthour (KWH) for dependable capacity and 7.7 cents per KWH for all energy in excess of that generated by the dependable capacity (NH PUC Order No. 14280, June 18, 1980), to the extent discussed in the report accompanying Order No. 14280. These rates may change from time to time as determined by the PUC. LEEPA Contracts will have a termination provision that may be exercised by either party upon twelve months, or less, written notice.

II. Fixed Rate - Future Escalating Contract  
Provisions for Nonfossil Fuel Burning & Hydroelectric LEEPS

Contract pricing under the Fixed Rate - Future Escalating provisions will be as outlined below.

- A. An index price of 9.0 cents per KWH is established effective immediately and is the initial price to be paid under this Contract subject to the following provisions.

1. For the first 10 years of the contract, PSNH will retain 10 percent (0.9 cents per KWH) for all energy purchased. During the second 10 years of the Contract, PSNH will pay the LEEP an additional 0.9 cents per KWH, above the contract price, for purchased energy. The total of said additional payments, for any given year, shall not exceed one-tenth (1/10) of the total money retained by PSNH during the first 10 Contract years.
  2. At such time that 96 percent of PSNH's incremental energy cost<sup>1</sup> exceeds the index, the rate to be paid under this Contract will vary in accordance with the provisions of Paragraph B.
- B. All payments varying from the index will be determined as a percentage of PSNH's incremental energy cost. As soon as 96 percent of PSNH's incremental energy cost exceeds the index, the Contract price will be based on 96 percent of PSNH's incremental energy cost for a period of one year. For each subsequent year, the percentage of PSNH's incremental energy cost to be paid will be reduced by 4 percent (i.e., 96 percent, 92 percent, 88 percent, 84 percent, etc.) until the incremental energy cost is reduced only 2 percent to reach 50 percent of PSNH's incremental energy cost. At such time, the Contract Price will remain at the 50 percent rate for the remainder of the Contract term.

If the price paid for the previous year is less than the appropriate percentage of PSNH's incremental cost for the previous year, an adjustment will be made for all energy sold to PSNH during that year. The adjustment will consist of an additional payment for each KWH sold to PSNH during the previous year based on the difference between the price paid and the appropriate percentage of PSNH's incremental energy cost during

---

<sup>1</sup>See attached definition of PSNH's Incremental Energy Cost

the previous year. The adjustment will be paid within one month after PSNH's incremental energy cost for the previous year has been determined.

If the price paid for the previous year is more than the appropriate percentage of PSNH's incremental cost for the previous year, an adjustment will be made for all energy sold to PSNH during that year. The adjustment will consist of a refund to PSNH for each KWH sold to PSNH during the previous year based on the difference between the price paid and the appropriate percentage of PSNH's incremental energy cost during the previous year. The refund will be made to PSNH by applying one-twelfth of the total amount as a reduction to each month's payment by PSNH during the current year. If for any month, no payment is due the LEEP, or the payment due is not equal to the refund, a payment to PSNH will be made by the LEEP so that the total recovery is achieved by PSNH by the end of said year.

The term of the Fixed Rate - Future Escalating Contract will be 30 years.

### III. Optional Contract Provisions for Hydroelectric Energy Producers

PSNH may, at its discretion, offer hydroelectric energy producers contract provisions similar to those explained in Section II, but containing pricing above the 9.0 cents per KWH index for a certain number of years at the beginning of the Contract. Any payments above the index must be recovered by PSNH, in later Contract years, considering the present worth of money. Furthermore, all contracts offered under Sections II and III of this Policy Statement must be of equal value.

The attached exhibit illustrates the pricing provisions discussed under Section II.

These contract pricing provisions will be offered to all facilities qualifying under LEEPA including those facilities already under contract with PSNH who agree to sell their entire net output to PSNH.

November 5, 1981

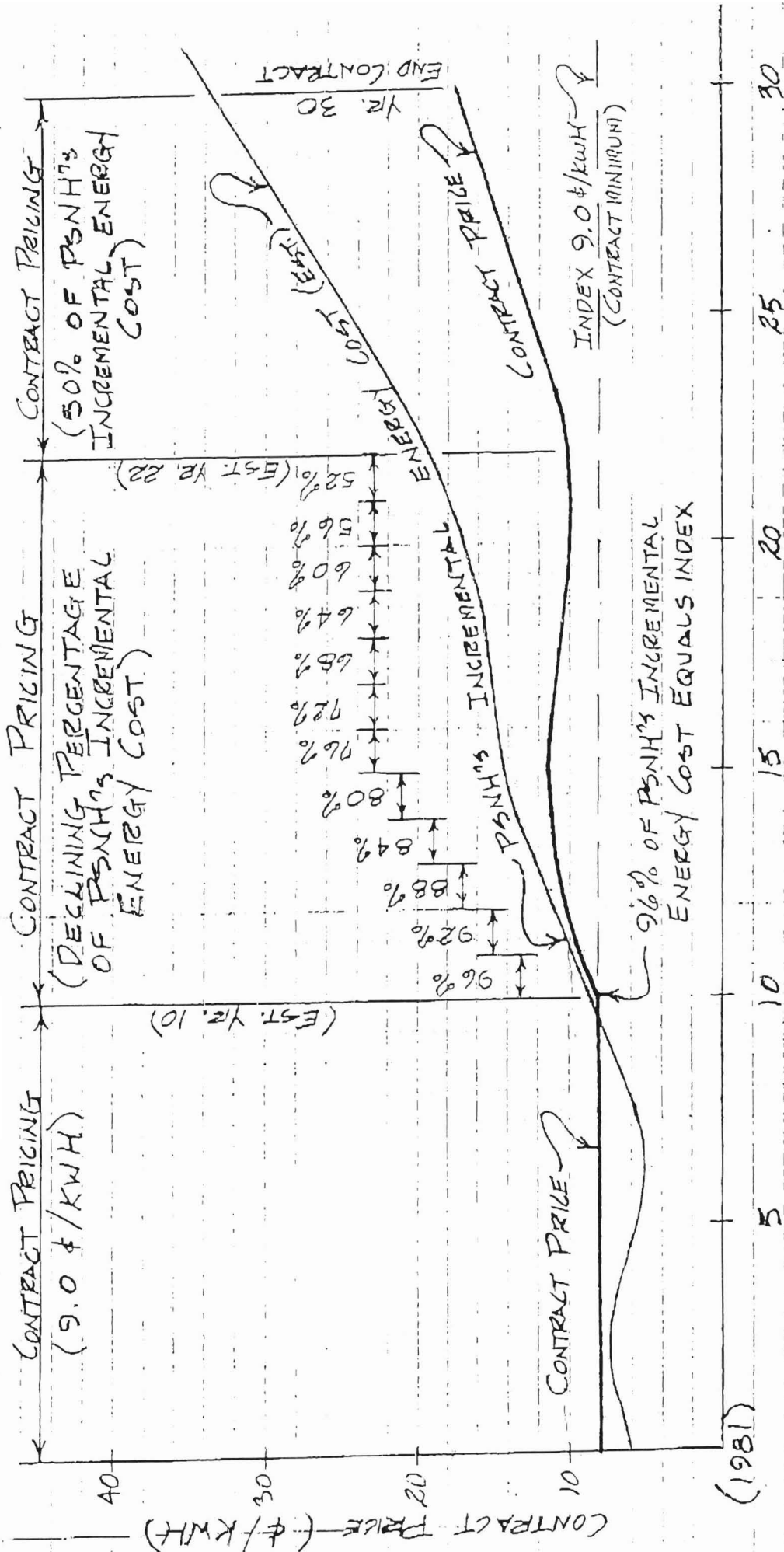
## PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

DEFINITION OF INCREMENTAL ENERGY COST

Public Service's incremental energy cost, for any hour, is equivalent to the marginal cost of providing energy for that hour. The marginal cost, for any hour, is the energy cost of the most expensive unit or purchased energy supplying a portion of Public Service's load during that hour and includes all costs in the New England Power Exchange (NEPEX) bus rate cost for the incremental unit. The NEPEX bus rate costs are essentially the cost of fuel consumed. Public Service's incremental energy cost, as referred to in the "Policy Statement of Contract Pricing Provisions for Hydroelectric Energy Producers", is expressed as a yearly average and is calculated by averaging all 8,760 hourly incremental energy costs over the calendar year.

October 1, 1981

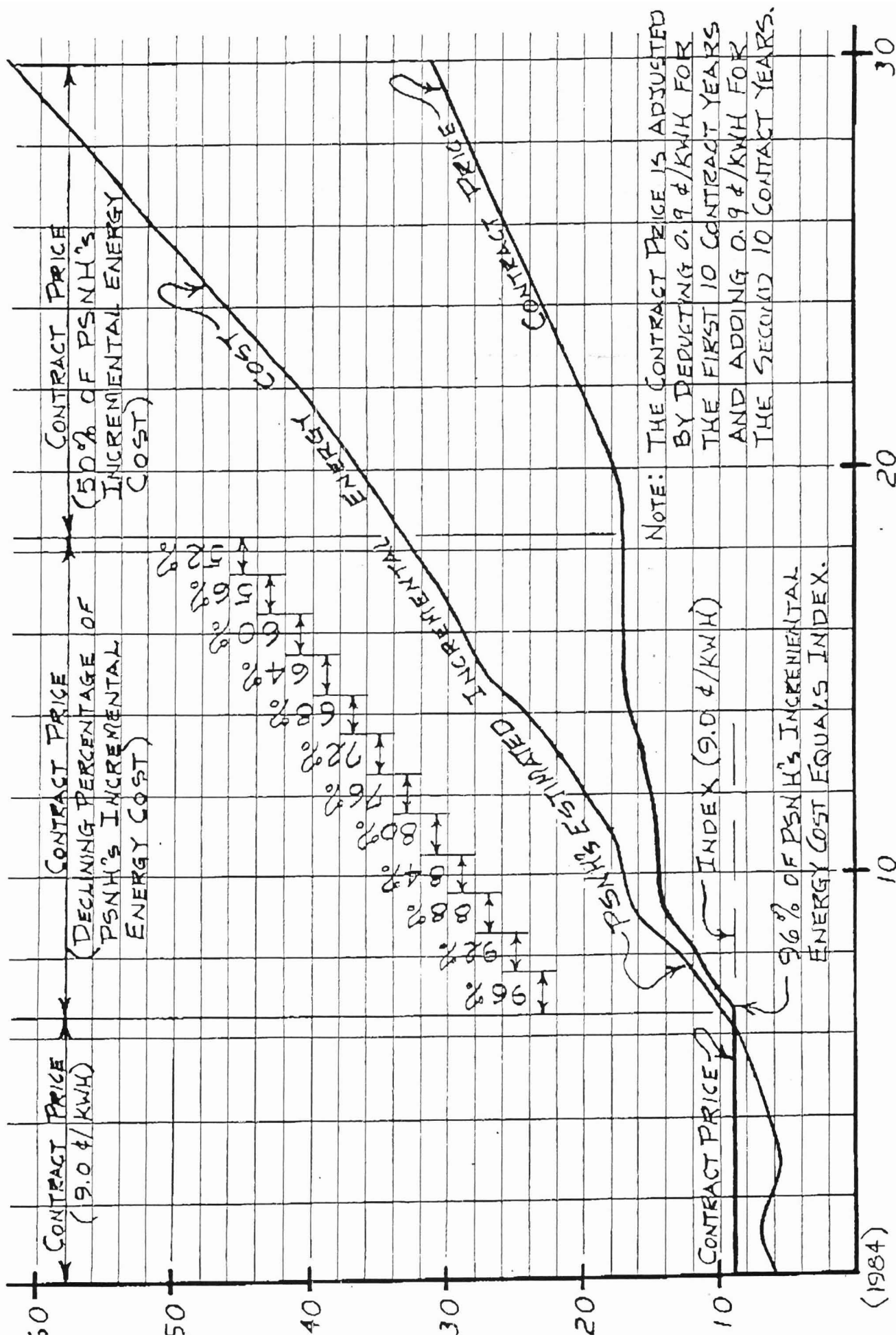
# EXHIBIT 1 FIXED RATE - FUTURE ESCALATING CONTRACT (Hydroelectric Energy Producers)



R.V.P.  
30 SEP 81



# FIXED RATE - FUTURE ESCALATING CONTRACT



RVP 25 JUN. 82

CONTRACT YEARS



**NEW HAMPSHIRE HYDRO ASSOCIATES**

THREE CAPITOL STREET  
CONCORD, NEW HAMPSHIRE 03301  
(603) 224-8333

December 29, 1981

Mr. John E. Lyons  
Public Service Company  
of New Hampshire  
1000 Elm Street  
P.O. Box 330  
Manchester, NH 03105

NOTED JAN

1981 J.E.D.

RE: Penacook Lower Falls Power Sales Agreement

Dear Mr. Lyons:

NHHA has reviewed your letter dated December 21, 1981, regarding the purchase of power from the Penacook Lower Falls Project (the "Project"). NHHA is in essential agreement with the methodology used in the analysis that you provided. The following clarifications, revisions and additions are offered for your consideration:

1. Discount Rate

The discount rate that has been used, 17.75%, may be applicable for analyzing payments made for power today, but will not be applicable during the term of our proposed contract. In order to accurately reflect changes in costs of capital, the discount rate should float. NHHA proposes that the discount rate to be used in determining the Recovery Rate be reviewed annually and adjusted to reflect accurately the current cost of capital. It is NHHA's understanding that there exists a methodology which is used annually to calculate PSNH's cost of capital as a part of the routine regulatory process. NHHA proposes that we consider using this method for determining the appropriate discount rate for each year of the contract.

2. Applicable Years for Recovery Rate Calculation

In calculating the Recovery Rate, as defined in your letter of December 21, 1981, the calculation should begin with the commencement of commercial operation of the Project. This is scheduled for May 1, 1983.

3. Term of 10 cent per kwh Floor Price

NHHA proposes that the 10¢ per kwh price for energy delivered from the Project be extended from 8 to 10 years. This 10 year term is required to assure adequate debt coverage.

On the basis of the above, NHHA has prepared a Calculation of the Recovery Rate and an Energy Price Projection, attached as Exhibits 1 and 2, respectively.

#### 4. Credit for Capacity

The PSNH methodology for power pricing equitably recognizes the value of energy from LEEPS. However, it does not incorporate a means of recognizing any dependable capacity offered by a LEEP. NHHA recognizes that when Seabrook comes on-line it will take care of PSNH's projected need for additional capacity for the near term. However, load growth, plant retirements, etc. will at some point during the proposed term of the contract require PSNH to increase its power supply resources. At that time, the firm capacity of the Project will enable PSNH to avoid the expense of adding capacity. NHHA therefore proposes that the Project be given a capacity payment reflecting the expense that PSNH will avoid by having the Project as a generating resource. This capacity payment can be based upon 1) the firm capacity of the Project as determined using NEPOOL's "Uniform Rating and Periodic Audit of Generating Capacity," and 2) the then current payment for dependable capacity as determined by the Public Utilities Commission of New Hampshire. If there is no such rate in effect, then the then current NEPOOL capacity deficiency charge can be used.

Regarding contract provisions to assure that NHHA will operate the Project for the full term of the contract, several points are worth reviewing. First, NHHA is a New Hampshire limited partnership of which Essex Development Associates, Inc., a Delaware corporation, is general partner. As general partner, EDAI is responsible for fulfilling all of the obligations of NHHA. The Project is only one element of EDAI's hydroelectric program. PSNH can therefore look to an entity with assets and income other than this single Project. Second, NHHA will have in effect sufficient property insurance to assure that the dam and plant can be repaired in the event of fire, flood or other casualty. Finally, the Project structures and equipment are being designed and built and will be maintained to operate well beyond the thirty year life of the proposed contract. This is a reflection of the long-term commitment, EDAI and EG&G, Inc., the limited partner of NHHA, have to the hydroelectric industry.

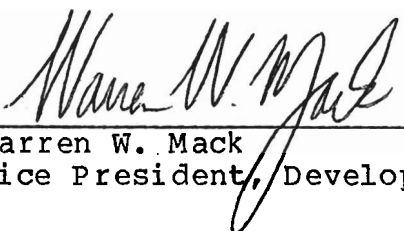
NEW HAMPSHIRE HYDRO ASSOCIATES

NHHA looks forward to discussing these changes at your earliest possible convenience. It would be most helpful if we could meet for this purpose during the week of January 3, 1982.

Sincerely,

NEW HAMPSHIRE HYDRO ASSOCIATES

By: ESSEX DEVELOPMENT ASSOCIATES, INC.,  
General Partner

By:   
Warren W. Mack  
Vice President, Development

WWM/abt

Exhibit 1  
Penacock Lower Falls Project  
Calculation of Recovery Rate

Basis:

- 1) Discount Rate: 17.75% for each year, although it is proposed that this rate be adjusted annually to reflect current costs of capital.
- 2) Initial Price for Energy and Term: 10.0 cents per kwh for the initial 10 years of commercial operation; scheduled start-up is May 1, 1981.
- 3) Term of Contract: 30 years
- 4) Average Fixed Rate Future Escalating Contract Price: See Exhibit 2

Calculation:

- a) Present worth in 1983 of 1.0 cent per kwh premium in operating years 1983 through 1990:  
 $1.0 \times \text{pwf}'(i=17.75, n=8) = 4.1093$
- b) Present worth in 1983 of 0.05 cents per kwh premium in operating year 1991:  
 $0.05 \times \text{pwf}(i=17.75, n=9) = 0.0115$
- c) Present worth in 1983 of 1.61 cents per kwh discount in operating year 1992:  
 $1.61 \times \text{pwf}(i=17.75, n=10) = (0.3142)$

$$\text{Recovery Rate} \times \text{pwf}'(i=17.75, n=20) \times \text{pwf}(i=17.75, n=10) = a + b + c$$

$$\text{Recovery Rate} = 3.60 \text{ cents per kwh}$$

12/28/81

Exhibit 2  
 Penacook Lower Falls Project  
 Energy Price Projection through 1994

<u>Operating Year</u>	<u>Aver. Fixed Rate (1) Future Escalating Contract Price</u>	<u>Less (2) Recovery Rate</u>	<u>Penacook (3) Lower Falls Contract Price</u>
1983	9.00 ¢ per kwh	--	10.00 ¢ per kwh
1984	9.00	--	10.00
1985	9.00	--	10.00
1986	9.00	--	10.00
1987	9.00	--	10.00
1988	9.00	--	10.00
1989	9.00	--	10.00
1990	9.00	--	10.00
1991	9.95	--	10.00
1992	11.61	--	10.00
1993	12.03	3.60	8.43
1994	12.54	3.60	8.94

(1) This is based upon: 1) actual commercial operation of the Penacook Lower Falls Project beginning on May 1, 1983, as currently scheduled. (Therefore for operating year 1991, 8,651 MWH at 9.0¢ and 6,755 MWH at 11.16 for May through December, 1991 and January through April, 1992 respectively); and 2) estimates of PSNH IEC given in RVP-2; December 15, 1981 attached to John Lyons' letter dated December 21, 1981.

(2) See Exhibit 1 for derivation of Recovery Rate.

(3) Prices beyond 1992 are estimates subject to actual: 1) PSNH IEC and 2) PSNH cost of capital.

12/28/81

NEW HAMPSHIRE HYDRO ASSOCIATES  
99 NORTH STATE STREET  
CONCORD, N.H. 03301  
(603) 224-8333

NOTED JAN 21 1982 R.V.P.

January 7, 1981

Mr. John E. Lyons  
Public Service Company of New Hampshire  
1000 Elm Street  
Manchester, NH 02105

Re: Penacook Lower Falls Project Power Sales Agreement

Dear Mr. Lyons:

Enclosed please find a copy of proposed modifications and additions to Public Service's proposed power sales agreement that New Hampshire Hydro Associates offers for your consideration. Regarding the incremented energy cost (IEC) data that you provided with your letter of December 21, 1981, let me again assure you that NHHA clearly understands that these are only PSNH's current estimates, and that the actual IEC's will be those used in determining the price for power in the contract.

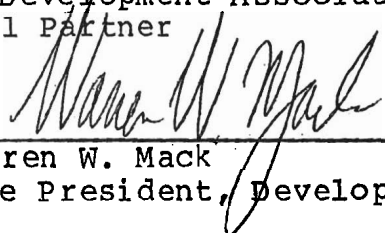
NHHA is currently drafting language concerning a "put" of the plant to PSNH should NHHA cease operations, and provisions for payments for capacity if and when the Penacook Project will enable PSNH to avoid adding capacity to their system.

NHHA looks forward to your expeditious response to the enclosed.

Sincerely,

NEW HAMPSHIRE HYDRO ASSOCIATES

By: Essex Development Associates, Inc.  
General Partner

By:   
Warren W. Mack  
Vice President, Development

WWM/hjd

Enclosures

LAWRENCE OFFICES  
SIX ESSEX STREET, LAWRENCE, MA 01840 (617) 687-2312

NEW HAMPSHIRE HYDRO ASSOCIATES  
99 NORTH STATE STREET  
CONCORD, N.H. 03301  
(603) 224-8333

NOTED JAN 22 1982 R.V.P.

NOTED JAN 20 1981 J.E.L.

January 21, 1982

Mr. John E. Lyons  
Public Service Company of New Hampshire  
1000 Elm Street  
Manchester, NH 02105

Re: Penacook Lower Falls Power Sales Agreement

Dear Mr. Lyons: *John*

Attached is a copy of Essex's proposed contract provisions for Abandonment and Credit for Capacity that we discussed. I have also included two additional amendments for your consideration covering Termination and Test Power.

Essex looks forward to concluding our negotiations as soon as can be arranged.

Sincerely,



Warren W. Mack  
Vice President, Development

WWM/hjd

Attachment

Reply to: 110 Tremont Street, Boston, MA 02108

LAWRENCE OFFICES  
SIX ESSEX STREET, LAWRENCE, MA 01840 (617) 687-2312



RIDER K

ARTICLE \_\_\_\_. Abandonment

If, at any time during the eleventh to thirtieth years of the term of this Contract, Seller ceases operation, as defined below, of its generating facility, PUBLIC SERVICE may, at its option and upon ninety (90) days written notice to Seller and subject to the consent of the Federal Energy Regulatory Commission and Allied Leather Corporation and such other consents as would then be required, lease Seller's generating facility from Seller for the remainder of the term of this Contract at an annual rental charge equal to the annual depreciation allowance, as determined below. If and at such time as PUBLIC SERVICE exercises its option to lease, Seller and PUBLIC SERVICE shall enter into a lease containing the terms set forth in this Article \_\_\_\_ and such additional terms and conditions as the parties shall then mutually agree upon. If Seller and PUBLIC SERVICE are unable to reach agreement with respect to any of the terms of the lease, other than the terms provided for in this Article, the parties shall submit the terms which have not been agreed upon to binding arbitration in accordance with the rules of the American Arbitration Association then in effect and the decision of the arbitrator shall be final. As a part of said lease, PUBLIC SERVICE shall assume all of Seller's obligations relating to Seller's generating facility, including but not limited to leasehold and license payments, taxes, utility charges, insurance and operation, maintenance and repair expenses.

The Seller shall be deemed to have ceased operation of its generating facility if and only if:

- i. The generating facility has not generated any power for a period of twelve (12) successive months; and
- ii. Seller has not commenced necessary repairs or taken other appropriate action to permit resumption of power deliveries under this Contract.

The annual depreciation allowance for a given year of the lease shall be the depreciation expense that would have been charged on the books of the Seller for such year had the costs of acquisition and construction, as hereinafter defined, been depreciated over 30 years using the straight line method of depreciation and had subsequent capital expenditures, as hereinafter defined, been depreciated over the lesser of the remaining term of this Contract or the useful life of the asset using the straight line method of depreciation.

As used herein, "costs of acquisition and construction" shall mean all costs of determining the feasibility of, and acquiring, constructing, licensing, financing, carrying out and placing in operation Seller's generating facility paid or incurred by Seller prior to the commencement of the term of this Contract, and shall include but not be limited to funds required for preliminary survey, investigation and development costs, feasibility studies, engineering studies and services,

contractors' fees, permits, licenses and approvals, labor, materials, equipment, lands, rights of way, leases, franchises, easements and other interests in land and options therefor, utility services and supplies, payments to other public agencies, training and testing costs, insurance premiums, interest on construction financing and an allowance for a return on equity funds used for construction financing, fees and expenses, all federal, state and local taxes and payments in lieu of taxes legally required to be paid in connection with the acquisition and construction of the generating facility, legal and financing costs, administrative and general costs, all costs relating to injury and damage claims arising out of the acquisition and construction of the generating facility, and all other costs incurred by the Seller and properly allocable to the acquisition and construction of the generating facility and carrying out and placing the same in operation.

As used herein, subsequent capital expenditures shall mean all expenditures paid or incurred by Seller subsequent to the commencement of the term of this Contract and capitalized on the books of Seller.

Payment by PUBLIC SERVICE to Seller of the annual rental charge shall be made in equal quarterly amounts on or before the last day of March, June, September and December. In the event the term of the lease commences on a day other than the first day of a calendar quarter, such rental charge shall be pro rated

accordingly. Interest shall accrue to Seller at a rate of 1 1/2% per month from and after the due date on the amount of any payments not made within twenty days of the due date.

ARTICLE . Compensation for Capacity

If at any time during the term of this Contract, the existence and operation of Seller's generating facility enables PUBLIC SERVICE to defer additions to its sources of generating capacity, then PUBLIC SERVICE agrees to compensate Seller for the capacity contribution made by Seller's generating facility. Seller shall be entitled to such compensation upon the occurrence of one or more of the following events:

- a. PUBLIC SERVICE places into service new generating capacity (with the exception of the current construction program of PUBLIC SERVICE);
- b. PUBLIC SERVICE purchases an ownership interest in a power generating facility in service (with the exception of current contractual arrangements);
- c. PUBLIC SERVICE enters into a power purchase agreement for firm power in which a capacity charge is incurred (with the exception of current contractual arrangements); or

d. PUBLIC SERVICE has a lower reserve margin than is required by New England Power Pool ("NEPOOL") under the New England Power Pool Agreement dated as of September 1, 1971, and incurs NEPOOL capacity deficiency changes

At such time as one or more of the above-described events occurs, PUBLIC SERVICE shall give Seller prompt written notice thereof and shall, commencing with the month next succeeding such event and continuing for the remaining term of this Contract, compensate Seller on the basis of the capacity contribution made by Seller's generating facility. The capacity of Seller's generating facility shall be determined by using the method outlined in the NEPOOL publication entitled, "Instructions for Periodic Capability Audit Tests of NEPOOL Generating Units," or, if such publication is not then in existence, whatever method of determining capacity contribution is commonly used at such time. The per kilowatt value of the capacity shall be established by determining the cost avoided by PUBLIC SERVICE. If the avoided cost is an increment of purchased or PUBLIC SERVICE-built generating capacity as described in a. or b. above, then the amount of compensation shall be equal to the annual avoided cost, i.e., the total capital cost of such capacity times the then current fixed charge rate of PUBLIC SERVICE.

Capacity payments by PUBLIC SERVICE to Seller shall be made in equal monthly installments on the same terms and conditions as the regular billing described in Article 8 above.

RIDER L

ARTICLE . TERMINATION

If at any time during the term of this Contract, PUBLIC SERVICE fails to make any payment in full when due and such failure is not cured within 90 days after written notice thereof shall have been given by Seller to PUBLIC SERVICE, then and in any such case Seller may terminate this Contract forthwith by delivering a written notice of termination to PUBLIC SERVICE. In the event of such termination, all continuing obligations of the parties shall cease forthwith, except the obligation of PUBLIC SERVICE and Seller to indemnify each other with respect to claims arising prior to such termination and the obligation of PUBLIC SERVICE to make full payment for power delivered by Seller to PUBLIC SERVICE through such date of termination.

ARTICLE . TEST POWER

PUBLIC SERVICE agrees to purchase all test power generated by Seller's generating facility prior to the commencement of the term of this Contract at the rate then in effect as established by the New Hampshire Public Utilities Commission for qualifying small power producers, provided that all metering, interconnection and protection equipment as specified herein has been properly installed by Seller.



Public Service of New Hampshire

NOTED FEB 06 1984 R.S.

File: COPY

a) Penacook  
Con

b) NX-3 DT

February 6, 1984

Mr. Ross McEacharn  
NEPEX  
174 Brush Hill Avenue  
West Springfield, MA 01089

Subject - Purchased Hydro, Penacook Lower Falls

Dear Ross:

Public Service Company of New Hampshire is adding to its hydro capacity 2.5 MW purchased hydro from New Hampshire Hydro Associates, Penacook Lower Falls Station. This addition will increase PSNH's hydro capacity from 65.5 to 68.0 MW.

Penacook Lower Falls will be audited in accordance with NEPEX Audit Procedures prior to the end of the 1983-84 winter audit period.

Enclosed are the following forms and support data.

NX-3 - Notice of change in NEPOOL Claimed Capability.  
NX-12C - Hydro Station Data.  
Station Log - Support Data.

Sincerely yours,

Herbert S. Slattum

Enclosures

cc: E. J. Glofka - NEPEX  
W. A. Harvey - PSNH  
R. S. Johnson - PSNH

HSS/csb  
20:52

NOTICE OF CHANGE IN NEPOOL CLAIMED CAPABILITY

Company Public Service of New Hampshire  
Station Penacook Lower Falls - Purchased Hydro  
Unit \_\_\_\_\_

1. NEW UNIT

Date of Commercial Operation February 1, 1984

Claimed Capability For Public Service Company of New Hamps

<u>Normal</u>	<u>Summer</u>	<u>Maximum</u>	<u>Normal</u>	<u>Winter</u>	<u>Maximum</u>
<u>2.5 MW</u>		<u>2.5 MW</u>	<u>2.5 MW</u>		<u>2.5 MW</u>

Nameplate Rating 4,000 KW  
or  
4,444 KVA and .9 Power Factor

2. RETIREMENT

Effective Date of Retirement \_\_\_\_\_

Nameplate Rating \_\_\_\_\_ KW  
or  
\_\_\_\_\_ KVA and \_\_\_\_\_ Power Factor

3. RERATING

Effective Date of Rerating \_\_\_\_\_

Claimed Capability

<u>Normal</u>	<u>Summer</u>	<u>Maximum</u>	<u>Normal</u>	<u>Winter</u>	<u>Maximum</u>
OLD _____ MW		_____ MW	OLD _____ MW		_____ MW
NEW _____ MW		_____ MW	NEW _____ MW		_____ MW

4. COMMENTS

Capability of this unit added to PSNH capability as purchased hydro effective February 1, 1984. Penacook Lower Falls station is located on the Contoocook River in the towns of Boscawen - Penacook, New Hampshire

Date This Form Submitted January 30, 1984

By (Signed) Herbert S. Slattum

SEND COPIES OF THIS FORM TO THE FOLLOWING:

Ross McEacharn - New England Power Exchange  
174 Brush Hill Avenue, West Springfield, Massachusetts 01089

E. J. Glofka - New England Power Exchange  
174 Brush Hill Avenue, West Springfield, Massachusetts 01089



## NEPEX FORM NX-12 C

Hydro Station DataNEW HAMPSHIRE  
SatellitePSNH  
Company(PURCHASED HYDRO)  
PENACOOK LOWER FALLS  
Plant

	<u>Summer</u>		<u>Winter</u>		<u>Unit No.</u>
1. Low Limit	<u>.3</u> MW Net		<u>.3</u> MW Net		<u>1 Unit</u>
2. Low Regulation Limit	<u>NA</u> MW NET		<u>NA</u> MW Net		<u>NA</u>
3. Normal Net Capability	<u>2.5</u> MW Net		<u>2.5</u> MW Net		
4. Maximum Net Capability	<u>2.5</u> MW Net		<u>2.5</u> MW Net		
5. Response Rates	Manual Control		<u>NA</u>	MW/Min.	
	Automatic Control		<u>NA</u>	MW/Min.	

UNIT IS POND CONTROLLED  
6. Nonsynchronized  
Reserve Capacity

10-min. NA MW 30-Min. NA MW

7. Capable of Motoring

Yes NA NO X

8. Reactive Capability - MVAR RANGES

<u>Mode of Operation</u>	<u>Net MW</u>	<u>Max. MVARs</u>	<u>Min. MVARs</u>	<u>Max. MVARs</u>
		<u>Lagging</u>	<u>Lagging</u>	<u>Leading</u>
Min Load Gen.	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Half Load Gen.	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Three-quarter Load Gen.	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Full Load Gen.	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Motoring		<u>NA</u>	<u>NA</u>	<u>NA</u>
Pumping		<u>NA</u>	<u>NA</u>	<u>NA</u>

9. Manning Status and Labor Charges

Fully Manned NA Partially Manned NA Unmanned X

Hours Unit Not MannedLabor Charges - \$/HR

Weekdays From NA To NA  
 Saturdays From NA To NA  
 Sundays From NA To NA  
 Holidays From NA To NA

NA  
NA  
NA  
NA

10. Data Revision No. 1 Date Prepared 1/30/84 By H. Slattum  
 Requested Effective Date February 1, 1984

\* Denotes data items changed this revision.

EKN: jmp  
8/26/82

NHHA (LAWRENCE READINGS)  
DAILY TOTALS

DATE: JAN 31 1984

CUMMULATIVE MONTHLY TOTAL 687,596

NOTED FEB 3 1984 H.S.S.

TIME	3.5 KWH/ COUNT METER	HOURLY DIFFERENCE X 7	KWH PRODUCED	INSTANTANEOUS K.W.	INSTANTANEOUS K.V.	
2 Mid	575922			2200	34.8	Op
AM	576026	304	2128	2200	34.9	
AM	576335	309	2163	2200	34.8	
AM	576647	312	2184	2200	34.8	
AM	576963	316	2212	2300	34.8	
AM	577286	323	2261	2300	34.8	
AM	577611	325	2275	2350	34.1	
AM	577940	329	2303	2380	34.2	
AM	578282	342	2394	2420	34.2	
AM	578626	344	2408	2500	34.2	
AM	578976	350	2450	2550	34.2	
AM	579328	352	2464	2450	34.2	
PM	579679	351	2457	2550	34.3	
PM	580033	354	2478	2550	34.2	
PM	580397	364	2548	2600	34.2	
PM	580757	360	2520	2600	34.2	
PM	581118	361	2527	2600	34.5	
PM	581490	362	2534	2600	34.5	
PM	581846	366	2562	2600	34.5	
PM	582209	363	2541	2600	34.4	
PM	582577	368	2576	2610	34.5	
PM	582945	368	2576	2650	34.6	
PM	583316	371	2607	2650	34.9	
PM	583680	364	2548	2700	35.0	
Mid	584048	368	2576	2630	34.8	
TOTALS			58888			

745878, monthly final

## Historical ISO New England Capacity Market Clearing Prices

Mo-Yr	\$/MW-mo	PLF	By Year	Total All Years
4/1/1998	\$0	\$0		\$474,852
5/1/1998	\$0	\$0		
6/1/1998	\$0	\$0		
7/1/1998	\$0	\$0		
8/1/1998	\$0	\$0		
9/1/1998	\$0	\$0		
10/1/1998	\$0	\$0		
11/1/1998	\$0	\$0		
12/1/1998	\$0	\$0	\$0	
1/1/1999	\$0	\$0		
2/1/1999	\$0	\$0		
3/1/1999	\$246	\$984		
4/1/1999	\$1,243	\$4,972		
5/1/1999	\$523	\$2,092		
6/1/1999	\$0	\$0		
7/1/1999	\$0	\$0		
8/1/1999	\$0	\$0		
9/1/1999	\$0	\$0		
10/1/1999	\$0	\$0		
11/1/1999	\$0	\$0		
12/1/1999	\$0	\$0	\$8,048	
1/1/2000	\$1,250	\$5,000		
2/1/2000	\$1,250	\$5,000		
3/1/2000	\$1,250	\$5,000		
4/1/2000	\$3,248	\$12,992		
5/1/2000	\$2,500	\$10,000		
6/1/2000	\$2,500	\$10,000		
7/1/2000	\$2,500	\$10,000		
8/1/2000	\$170	\$680		
9/1/2000	\$170	\$680		
10/1/2000	\$170	\$680		
11/1/2000	\$170	\$680		
12/1/2000	\$170	\$680	\$61,392	
1/1/2001	\$170	\$680		
2/1/2001	\$170	\$680		
3/1/2001	\$170	\$680		
4/1/2001	\$170	\$680		
5/1/2001	\$170	\$680		
6/1/2001	\$170	\$680		
7/1/2001	\$170	\$680		
8/1/2001	\$170	\$680		
9/1/2001	\$4,870	\$19,480		
10/1/2001	\$4,870	\$19,480		
11/1/2001	\$4,870	\$19,480		
12/1/2001	\$4,870	\$19,480	\$83,360	

1/1/2002	\$4,870	\$19,480		
2/1/2002	\$4,870	\$19,480		
3/1/2002	\$4,870	\$19,480		
4/1/2002	\$4,870	\$19,480		
5/1/2002	\$4,870	\$19,480		
6/1/2002	\$4,870	\$19,480		
7/1/2002	\$4,870	\$19,480		
8/1/2002	\$4,870	\$19,480		
9/1/2002	\$4,870	\$19,480		
10/1/2002	\$4,870	\$19,480		
11/1/2002	\$4,870	\$19,480		
12/1/2002	\$4,870	\$19,480	\$233,760	
1/1/2003	\$4,870	\$19,480		
2/1/2003	\$4,870	\$19,480		
3/1/2003	\$4,870	\$19,480		
4/1/2003	\$400	\$1,600		
5/1/2003	\$150	\$600		
6/1/2003	\$200	\$800		
7/1/2003	\$200	\$800		
8/1/2003	\$230	\$920		
9/1/2003	\$195	\$780		
10/1/2003	\$120	\$480		
11/1/2003	\$111	\$444		
12/1/2003	\$87	\$348	\$65,212	
1/1/2004	\$200	\$800		
2/1/2004	\$10	\$40		
3/1/2004	\$2	\$8		
4/1/2004	\$30	\$120		
5/1/2004	\$0	\$0		
6/1/2004	\$6	\$24		
7/1/2004	\$9	\$36		
8/1/2004	\$10	\$40		
9/1/2004	\$6	\$24		
10/1/2004	\$0	\$0		
11/1/2004	\$12	\$48		
12/1/2004	\$25	\$100	\$1,240	

1/1/2005	\$120	\$480		
2/1/2005	\$700	\$2,800		
3/1/2005	\$400	\$1,600		
4/1/2005	\$175	\$700		
5/1/2005	\$50	\$200		
6/1/2005	\$100	\$400		
7/1/2005	\$260	\$1,040		
8/1/2005	\$225	\$900		
9/1/2005	\$210	\$840		
10/1/2005	\$110	\$440		
11/1/2005	\$110	\$440		
12/1/2005	\$0	\$0	\$9,840	
1/1/2006	\$100	\$400		
2/1/2006	\$50	\$200		
3/1/2006	\$10	\$40		
4/1/2006	\$10	\$40		
5/1/2006	\$0	\$0		
6/1/2006	\$100	\$400		
7/1/2006	\$1,200	\$4,800		
8/1/2006	\$400	\$1,600		
9/1/2006	\$490	\$1,960		
10/1/2006	\$260	\$1,040		
11/1/2006		\$1,520	\$12,000	
<b>Total 4/98 - 11/2006</b>			\$474,852	

1425



Public Service of New Hampshire

May 14, 1990

Mr. Tom Tarpey, President  
Essex Hydro Associates  
114 State Street 5th Floor  
Boston, MA 02109

Subject: Penacook Lower (SESD #055)  
Front-End Loading Computation

Dear Tom:

Enclosed as you requested are the front-end loading computations for the Penacook Lower Hydro Project based on an annual interest rate of 17.61%. As we discussed earlier, after you have a chance to review the information, we should get together with Bob Winship to work out the changes, including any front-end loading buyout, that may be necessary for both 9 cent contracts.

Currently PSNH is in the midst of a transition period due to the pending merger-acquisition by Northeast Utilities, and the policies and responsibilities of the combined companies are yet to be clearly defined. This situation will probably effect how quickly we can make any contract changes for your project.

If you have any questions regarding this information, please feel free to contact me at extension 2314.

Sincerely,

A handwritten signature in dark ink, appearing to read "S. B. Wicker, Jr.", is written over a rectangular area.

S. B. Wicker, Jr.  
Manager  
Supplemental Energy Sources

GSS/pjb

PROJECT SPECIFIC CALCULATION OF FRONT END LOADING  
FOR ENERGY & CAPACITY PURCHASES FROM SPP'S

SMA: 90/05/05

CSS 05/06/90 VELLOSS

CONTRACT TYPE/DATE: L-1 82/06/28

RATE DOCKET:

STATE NAME: Penn & ok L ven F 11s

FIRST L-1 PAYMENT: 83/09

PSNR 8.055

REMARKS:

CURRENT INSTALLED CAP(KW):		4000
ON LINE DATE:	83/09/26	
EARLIER INSTALLED CAP(KW):	0	
ON LINE DATE:		
CURRENT PUC DEF CAP(KW):	0	
EFFECTIVE DATE:		
EARLIER PUC DEF CAP(KW):	0	
EFFECTIVE DATE:		
ISSUE DATE	5/14/90	
ANNUAL INTEREST:	17.6100	
MONTHLY INTEREST:	1.3603	

A		B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
INSTALLED PUC ADJUST		REDUCTION	FACTOR	AVOIDED COS: AVOIDED COST	ACTUAL	ACTUAL	PAYMENT	- NON LEVELIZED	PAYMENT IF	PREVIOUS	INTEREST	CUMULATIVE	PSNR	PSNR	PAYMENT IF	EXCESS
CAPACITY		FACTOR		RATES (ALL) RATES (CAP)	GENERATION			NON-LEVEL	EXCESS	EXCESS	ON PREV	EXCESS	BALANCE	BALANCE	SHORT TERM & MARGINAL	PAYMENT AT
YEAR/MONTH (KW)		(KW)		(C/KWH) (\$/KWH-YR)	(KW)	(\$/s)	(\$/s)	RATE	PAYMENT	BALANCE	BALANCE	BALANCE	ENERGY* (C/KWH)	CAP COST	RATE	MARGINAL RATE FACTOR
82/01/31	0	0	0	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.79	36.00	0.00	0.00
82/02/28	0	0	0	0.30	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	5.45	36.00	0.00	0.00
82/03/31	0	0	0	0.30	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	5.77	36.00	0.00	0.00
82/04/30	0	0	0	0.30	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	4.76	36.00	0.00	0.00
82/05/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.33	36.00	0.00	0.00
82/06/30	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	36.00	0.00	0.00
82/07/31	0	0	0	0.30	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	7.18	36.00	0.00	0.00
82/08/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.35	36.00	0.00	0.00
82/09/30	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.30	36.00	0.00	0.00
82/10/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.68	36.00	0.00	0.00
82/11/30	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.58	36.00	0.00	0.00
82/12/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.71	36.00	0.00	0.00
83/01/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.75	36.00	0.00	0.00
83/02/28	0	0	0	0.30	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	6.07	36.00	0.00	0.00
83/03/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	36.00	0.00	0.00
83/04/30	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.32	36.00	0.00	0.00
83/05/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.45	36.00	0.00	0.00
83/06/30	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.33	36.00	0.00	0.00
83/07/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.32	36.00	0.00	0.00
83/08/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.17	36.00	0.00	0.00
83/09/30	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	36.00	0.00	0.00
83/10/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.76	36.00	0.00	0.00
83/11/30	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.05	36.00	0.00	0.00
83/12/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.44	36.00	0.00	0.00
84/01/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.07	36.00	0.00	0.00
84/02/29	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.46	36.00	0.00	0.00
84/03/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.44	36.00	0.00	0.00
84/04/30	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.81	36.00	0.00	0.00
84/05/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.63	36.00	0.00	0.00
84/06/30	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.87	36.00	0.00	0.00
84/07/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.61	36.00	0.00	0.00
84/08/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.71	36.00	0.00	0.00
84/09/30	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.94	36.00	0.00	0.00
84/10/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.66	36.00	0.00	0.00
84/11/30	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.84	36.00	0.00	0.00
84/12/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.75	36.00	0.00	0.00
85/01/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.25	36.00	0.00	0.00
85/02/29	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.52	36.00	0.00	0.00
85/03/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.72	36.00	0.00	0.00
85/04/30	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.77	36.00	0.00	0.00
85/05/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.15	36.00	0.00	0.00
85/06/30	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.88	36.00	0.00	0.00
85/07/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.86	36.00	0.00	0.00
85/08/31	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.86	36.00	0.00	0.00
85/09/30	0	0	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.49	36.00	0.00	0.00

1/15/31	4300	0	0	8.00	0.00	138250.00	110600.00	27650.00	780489.46	10621.49	818760.95	5.11	36.00	70585.06	67664.94	47.35
1/11/30	4300	0	0	8.00	0.00	221900.00	177520.00	44380.00	818760.95	11142.32	84383.27	5.89	36.00	130707.81	91921.19	75.99
1/12/31	4000	0	0	8.00	0.00	227150.00	181720.00	45430.00	874283.27	11897.91	931611.18	7.21	36.00	163711.69	63438.11	77.79
1/01/31	4000	0	0	8.00	0.00	153650.00	122920.00	30730.00	931611.18	12672.07	975019.23	5.78	36.00	288330.48	64819.52	52.62
1/22/28	4300	0	0	8.00	0.00	233100.00	184880.00	46620.00	975019.23	13268.80	1034908.05	4.68	36.00	108995.52	124104.48	79.83
1/23/31	4000	0	0	8.00	0.00	240100.00	192080.00	48020.00	1034908.05	14083.81	1097450.83	3.99	36.00	95831.46	142498.54	82.23
1/24/30	4000	0	0	8.00	0.00	277550.00	222040.00	55510.00	1097011.86	14288.97	1167450.83	4.16	36.00	115476.27	162273.73	95.05
1/25/31	4000	0	0	8.00	0.00	138250.00	110600.00	27650.00	1210988.40	16480.05	1269258.45	3.28	36.00	68621.61	140318.39	71.56
1/26/30	4000	0	0	8.00	0.00	2099500	226950.00	41790.00	1210988.40	17273.53	1310961.48	3.18	36.00	38901.35	83248.65	41.83
1/07/31	4000	0	0	8.00	0.00	122150.00	97720.00	24430.00	1269258.45	17840.56	1369612.04	3.04	36.00	62063.95	141566.05	69.88
1/08/31	4000	0	0	8.00	0.00	204050.00	163240.00	40810.00	1310961.48	18638.72	1396160.76	5.77	36.00	22817.38	16732.62	13.54
1/09/30	4000	0	0	8.00	0.00	395500	316400.00	7910.00	139612.04	19000.01	1431610.77	2.72	36.00	22356.60	59693.40	28.17
1/10/31	4000	0	0	8.00	0.00	82250.00	65800.00	16450.00	1396160.76	19482.44	1481443.21	2.99	36.00	45326.20	106229.80	51.88
1/11/30	4000	0	0	8.00	0.00	151500.00	121200.00	30350.00	1431610.77	20160.60	1570203.82	3.43	36.00	117532.21	225461.79	117.47
1/12/31	4000	0	0	8.00	0.00	343000.00	274000.00	68600.00	1481443.21	21368.52	1627552.34	3.88	36.00	69553.46	110046.54	61.61
1/01/31	4000	0	0	8.00	0.00	179900.00	143920.00	35980.00	1570203.82	22148.97	1671191.30	4.59	36.00	49307.14	58142.86	36.80
1/02/28	4000	0	0	8.00	0.00	107450.00	85960.00	21490.00	1627552.34	22742.86	1735904.14	3.56	36.00	71224.39	128625.61	68.44
1/03/31	4000	0	0	8.00	0.00	199850.00	159880.00	39970.00	1671191.30	23596.28	1813500.42	4.07	36.00	113870.19	166129.81	95.89
1/04/30	4000	0	0	8.00	0.00	280000.00	224000.00	56000.00	1733904.14	24679.49	1881509.91	3.99	47.00	86340.39	130309.61	74.20
1/05/31	4000	0	0	8.00	0.00	216650.00	173320.00	43330.00	1813500.42	26264.33	1934344.92	4.83	47.00	65796.63	70353.37	46.63
1/06/30	4000	0	0	8.00	0.00	136150.00	108920.00	27230.00	1881509.91	26264.33	1993008.95	4.07	47.00	65813.23	95886.77	55.38
1/07/31	4000	0	0	8.00	0.00	161700.00	129360.00	32340.00	1934344.92	27122.38	2027931.33	3.79	47.00	5307.10	8692.90	4.79
1/08/31	4000	0	0	8.00	0.00	140000.00	112000.00	28000.00	1993008.95	27529.58	2071740.91	3.91	47.00	41582.90	64817.10	36.44
1/09/30	4000	0	0	8.00	0.00	106400.00	85120.00	21280.00	2027931.33	28193.82	2128564.73	4.62	47.00	85112.46	85337.54	58.37
1/10/31	4000	0	0	8.00	0.00	143150.00	114520.00	28630.00	2071740.91	28967.12	2191621.85	4.99	47.00	85112.46	85337.54	58.37
1/11/30	4000	0	0	8.00	0.00	170450.00	136360.00	34090.00	2128564.73	29825.25	2263587.10	4.70	47.00	98957.20	111742.80	72.16
1/12/31	4000	0	0	8.00	0.00	210700.00	168560.00	42140.00	2191621.85	30804.61	2315811.71	5.72	47.00	61041.65	46058.36	36.68
1/01/31	4000	0	0	8.00	0.00	107100.00	85680.00	21420.00	2263587.10	31515.32	2386527.03	4.68	47.00	91706.44	104293.56	67.12
1/02/29	4000	0	0	8.00	0.00	196000.00	156800.00	39200.00	2315811.71	32477.67	2461704.70	4.39	47.00	93747.85	119752.15	73.12
1/03/31	4000	0	0	8.00	0.00	213500.00	170800.00	42700.00	2386527.03	33500.74	2546305.44	3.27	47.00	83450.37	172049.63	87.50
1/04/30	4000	0	0	8.00	0.00	255500.00	204400.00	51100.00	2461704.70	33500.74	2546305.44	3.33	47.00	105335.17	210714.83	108.24
1/05/31	4000	0	0	8.00	0.00	316050.00	252840.00	63210.00	2546305.44	34652.05	2644167.49	4.31	47.00	25623.48	53126.52	26.97
1/06/30	4000	0	0	8.00	0.00	110950.00	88760.00	22190.00	2644167.49	35983.83	2702341.33	3.25	47.00	26151.89	79898.11	36.32
1/07/31	4000	0	0	8.00	0.00	78750.00	63000.00	15750.00	2702341.33	36775.51	2754866.83	3.67	47.00	21116.30	40833.70	21.22
1/08/31	4000	0	0	8.00	0.00	67200.00	53760.00	13440.00	2754866.83	37490.31	2805797.15	3.75	47.00	25206.08	41993.92	23.01
1/09/30	4000	0	0	8.00	0.00	106050.00	84840.00	21210.00	2805797.15	38183.41	2861590.56	2.47	47.00	26151.89	79898.11	36.32
1/10/31	4000	0	0	8.00	0.00	61950.00	49560.00	12390.00	2861590.56	38991.68	2916572.25	3.41	47.00	21116.30	40833.70	21.22
1/11/30	4000	0	0	8.00	0.00	280350.00	224280.00	56070.00	2916572.25	39690.92	3012333.17	3.41	75.00	95599.35	184750.65	96.01
1/12/31	4000	0	0	8.00	0.00	161000.00	128800.00	32200.00	3012333.17	40994.11	3085527.28	4.00	75.00	64400.00	96600.00	55.14
1/01/31	4000	0	0	8.00	0.00	102900.00	82320.00	20580.00	3085527.28	41990.19	3148097.47	5.13	75.00	52782.66	50117.34	35.24
1/02/28	4000	0	0	8.00	0.00	93450.00	74760.00	18690.00	3148097.47	42841.70	3209629.17	4.97	75.00	46407.27	47042.73	32.00
1/03/31	4000	0	0	8.00	0.00	152250.00	121800.00	30450.00	3209629.17	43679.07	3283758.23	4.47	75.00	68111.02	84338.98	52.14
1/04/30	4000	0	0	8.00	0.00	2999500	234360.00	58590.00	3283758.23	44687.87	3387036.10	3.71	75.00	108798.11	184151.89	100.33
1/05/31	4000	0	0	8.00	0.00	305550.00	244440.00	61110.00	3387036.10	46093.35	3494239.46	2.76	75.00	84477.55	221072.45	104.64
1/06/30	4000	0	0	8.00	0.00	249550.00	199640.00	49910.00	3494239.46	47552.26	3591701.71	2.73	75.00	68251.43	181298.57	85.46
1/07/31	4000	0	0	8.00	0.00	105700.00	84560.00	21140.00	3591701.71	48878.60	3661720.31	2.59	75.00	27378.10	78321.90	36.20
1/08/31	4000	0	0	8.00	0.00	101500.00	81200.00	20300.00	3661720.31	49831.46	3731851.78	2.54	75.00	25764.66	75735.34	34.76
1/09/30	4000	0	0	8.00	0.00	56350.00	45080.00	11270.00	3731851.78	50785.87	3795907.64	2.72	75.00	15302.63	41047.37	19.30
1/10/31	4000	0	0	8.00	0.00	165550.00	132440.00	33110.00	3795907.64	51630.37	3878648.01	3.32	75.00	54881.31	110668.69	56.70
1/11/30	4000	0	0	8.00	0.00	296800.00	237440.00	59360.00	3878648.01	52783.58	3990791.59	3.77	75.00	111830.98	184969.02	101.64
1/12/31	4000	0	0	8.00	0.00	126350.00	101080.00	25270.00	3990791.59	54309.72	4070371.31	7.53	75.00	95141.55	31208.45	43.27
1/01/31	4000	0	0	8.00	0.00	158900.00	127120.00	31780.00	4070371.31	55392.70	4157544.00	7.53	75.00	119651.70	39248.30	54.42
1/02/28	4000	0	0	8.00	0.00	238500.00	190880.00	47820.00	4157544.00	56579.01	4261943.01	7.53	75.00	179477.55	59022.45	81.63
1/03/31	4000	0	0	8.00	0.00	283500.00	226800.00	56700.00	4261943.01	57999.75	4376642.76	7.53	75.00	213475.50	70024.50	97.09
1/04/30	4000	0	0	8.00	0.00	0	0.00	0.00	4376642.76	59560.67	4436203.43	7.53	75.00	0.00	0.00	0.00
1/05/31	4000	0	0	8.00	0.00	0	0.00	0.00	4436203.43	60371.22	4496574.65	7.53	75.00	0.00	0.00	0.00
1/06/30	4000	0	0	8.00	0.00	0	0.00	0.00	4496574.65	61192.79	4557247.44	7.53	75.00	0.00	0.00	0.00
1/07/31	4000	0	0	8.00	0.00	0	0.00	0.00	4557247.44	62025.35	461792.99	7.53	75.00	0.00	0.00	0.00
1/08/31	4000	0	0	8.00	0.00	0	0.00	0.00	461792.99	62848.44	468262.63	7.53	75.00	0.00	0.00	0.00
1/09/30	4000	0	0	8.00	0.00	0	0.00	0.00	468262.63	63725.22	474337.65	7.53	75.00	0.00	0.00	0.00

62.62

54.98

55.78

58.47



TOTALS: 126,346,000

12,634,800

10,107,680

2,522,120

CUMULATIVE TOTAL:

4,746,368

,515,543

6,438,355

AVG PF:

52.10

## Appendix D-1 Analysis of PSNH Attachment D

Attachment D to PSNH's June 15, 2007 Memorandum consists of a May 14, 1990 letter from PSNH to Essex Hydro (a general partner of NHHA) concerning a possible buyout. In such a buyout, NHHA would compensate PSNH for the value of the front-end loading of payments under the contract in exchange for being able to sell NHHA's output to other buyers.

The three-page spreadsheet accompanying the May 14 letter shows how PSNH analyzed the NHHA project. This Appendix provides a column by column description of the components shown in the spreadsheet. The text of this Memorandum explains how the spreadsheet is consistent with NHHA's position in this Docket.

Column A: This column shows the installed capacity by month. Since the project came on-line in late September 1983, the entries are zeroes until that month and 4000 kW thereafter.

Columns B and C: These columns are all zeroes, listing the PUC Audit Capacity and Peak Reduction Factor. The zeroes in Column B are consistent with the conclusion that NHHA was not selling or receiving credit for its capacity..

Column D: This column, entitled "Avoided Cost (All) Marginal (C/KWH)" shows that the rate against which PSNH was comparing the NHHA actual payments was 8.00 cents per kWh. Since the actual payments began with generation in September 1983, the entries before that month are 0.00. Note that these entries are all in a cents per kWh basis. NHHA's understanding is that term "all" means "all hours" and the 8.0 cent rate was the then approved 30-year levelized avoided energy cost.

Column E: "Avoided Cost Rates (Cap) Marginal (\$'s/kW-yr)" has entries of 0.00 in all months. This is consistent with NHHA's position that it was not selling or receiving credit for capacity.

Column F: This column shows the actual generation in kWh for each month. Since the project started generating in late September 1983, entries begin in October 1983.

Column G: Column G shows the actual payments made by PSNH on account of generation in each month. The entries are the product of Column F actual generation and the 10 cent per kWh rate that PSNH paid to NHHA during the first years of the contract.

Columns H through L: These five columns calculate the excess balance between what NHHA was actually paid and what NHHA would have been paid if it had been paid at the 8.0 cent rate shown in Column D. These columns produce a buy-out price of \$4,746,368 shown on the third page of the spreadsheet. The derivation of this number is explained by looking at each of the five columns as follows.

Column H: Column H is the product of actual generation (Column F) and the avoided cost energy rate (Column E).

Column I: This column is the difference between what NHHA was paid (Column G) and what NHHA would have been paid at the 8.0 cent rate (Column H)>

Column J: This column picks up the entries for Column L in the previous month including principal plus interest accrued to the end of the previous month.

Column K: Column K calculates the current month's interest at the rate of 1.3609% monthly (see upper right corner of spreadsheet) on the balance shown in Column L for the previous month.

Column L: This column sums the entries for Columns I, J, and K. It shows the total amount of PSNH's computed excess balance including interest. Please note that capacity value is not included in any component of the calculation shown.

Columns M through P: These four columns show an alternative method PSNH used to calculate its excess payments to NHHA. The third page of the spreadsheet shows that PSNH used this method to estimate an excess payment of \$6,438,355. Again, a discussion of the individual columns follows:

Column M: This column shows PSNH's actual historical marginal energy costs rounded to the nearest hundredth of a cent.

Column N: This column shows "PSNH's Short Term Cap Cost" on a \$/kW-year basis. The entries start at \$36.00 and increase to \$47.00 starting in May 1987 and then to \$75.00 starting in November 1988. NHHA thinks that these were the applicable NEPOOL capability deficiency charges for those periods.

Column O: Column O is entitled "Payment if Marginal Rate." The entries shown are the product of the actual generation (Column F) and the marginal energy rate (Column M). Small differences between the product of Columns F and M and the entries in Column O appear to be due to rounding in Column M. The capacity information in Columns N and A is not included in the calculations used to produce the entries in Column O.

Column P: Column P calculates the differences between the amounts in Columns G (actual contract rate) and O (actual marginal rate as calculated by PSNH). Interest is not included in the Column P amounts as noted in the heading.

To the right of Column P, monthly and annual plant factors are calculated. These data are not used directly in any of the calculations in Columns A through P.

SMALL POWER PRODUCER GENERATION
**Public Service  
of New Hampshire**

Public Service of New Hampshire  
Supplemental Energy Sources Department  
PO Box 330  
Manchester, NH 03105-0330

**Penacook Lower Falls**

SESD # 055  
Billing Period: December 2006

New Hampshire Hydro Assoc  
c/o Essex Hydro Assoc.  
55 Union Street 4th Floor  
Boston, MA 02108

Invoice Date 01/03/2007  
Expected Payment Date 01/25/2007  
Account # 8808160  
Tel # 617-367-0032  
Fax # 617-367-3796

Delivery Period: 12/01/2006 through 01/02/2007

Energy Component:
Meter Readings

	Total
Present Reading	17,921
<u>Previous Reading</u>	<u>17,057</u>
Difference	864
<u>Multiplier</u>	<u>3,500</u>
Total	3,024,000

Total Kwhrs Delivered **3,024,000**

Energy Rate Calculations

	Energy (Kwhrs)	Rate	
1	3,024,000	3.53 ¢/Kwhr	\$ 106,747.20
2	0	.00 ¢/Kwhr	\$ 0.00
Total Kwhrs	3,024,000	Energy Payment	<b>\$ 106,747.20</b>

Adjustments \$ 0.00  
Translation Fee \$ 0.00

Total Payment Due **\$ 106,747.20**

Notes None.

Approved by

*[Signature]*

Date:

*1/8/07*

Please Approve and Submit this Invoice to:

Danielle Martineau  
PSNH, PO Box 330  
Manchester, NH 03105-0330

*mwl*  
*1/11/07*