

EXHIBIT 1

PRICE ELEMENTS CONTAINED IN
REQUIREMENTS SERVICE TO CUSTOMERS

Cost Element	Allocation Basis
Day Ahead Energy Charges	DA Load Obligation
Day Ahead NCPC Charges	Pro-rata DA load share
Day Ahead RMR Charges	Pro-rata DA load share
Real Time Energy Charges	Adjusted RT Load
Real Time Marginal Loss Revenue Allocation	Pro-rata RT load share
External Inadvertent Cost Distribution	Pro-rata RT load share
Real Time Demand Response Charges	Pro-rata RT load share
Real Time NCPC Charges	Pro-rata RT Load Deviation share
Real Time RMR Charges	Pro-rata RT Load Deviation share
Real Time Dispatchable Load OR Charges	Pro-rata RT Load Deviation share
OP Reserve Canceled Start Charges	Pro-rata RT Load Deviation share
Clear DA Not Dispatched in RT OR Charges	Pro-rata RT Load Deviation share
Posturing/Reserves	Pro-rata RT Load Deviation share
ICAP Deficiency Charge	Net capacity position
Forward Reserve Charges	Pro-rata RT load share
ICAP Load Shift Charges	Monthly average of UCAP deviations
Regulation Charges	Pro-rata load share of Pool Regulation
Regulation Opportunity Cost Charge	Pro-rata load share of Pool Regulation
ARR Distribution	Pro-rata load share of zonal peak load
ISO Tariff Schedule 2 Charges	RT Load Obligation
ISO Tariff Schedule 3 Charges	Peak Load Obligation

**Granite State Electric Company
Incremental Cost of Day-Ahead Hourly Pricing for G-1 Customers
Computation of Revenue Requirement**

	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>
<u>Deferred Tax Calculation</u>					
1 Incremental Capital Costs	531,250	0	0	0	0
2 Cumulative Capital Spend	531,250	531,250	531,250	531,250	531,250
3					
4 20 YR MACRS Tax Depr. Rates	3.75%	7.22%	6.68%	6.18%	5.71%
5 5 YR MACRS Tax Depr. Rates	20.00%	32.00%	19.20%	11.52%	11.52%
6					
7 Annual Tax Depreciation	73,547	120,128	76,797	50,447	49,513
8 Cumulative Tax Depreciation	73,547	193,675	270,473	320,920	370,433
9					
10 Book Depreciation (a)	79,417	79,417	79,417	79,417	79,417
11 Cumulative Book Depreciation	79,417	158,833	238,250	317,667	397,083
12					
13 Book/Tax Timer	(5,870)	34,842	32,223	3,253	(26,650)
14 Effective Tax Rate	40.53%	40.53%	40.53%	40.53%	40.53%
15					
16 Deferred Tax Reserve	<u>(2,379)</u>	<u>14,120</u>	<u>13,058</u>	<u>1,318</u>	<u>(10,800)</u>
17					
<u>Rate Base Calculation</u>					
18					
19 Plant In Service	531,250	531,250	531,250	531,250	531,250
20 Accum Depr	(79,417)	(158,833)	(238,250)	(317,667)	(397,083)
21 Def Tax Reserve	2,379	(14,120)	(13,058)	(1,318)	10,800
22 Year End Rate Base	<u>454,212</u>	<u>358,297</u>	<u>279,942</u>	<u>212,265</u>	<u>144,967</u>
23					
<u>Revenue Requirement Calculation</u>					
24					
25 Average Rate Base	492,731	406,255	319,119	246,103	178,616
26 Pre-Tax ROR	<u>11.91%</u>	<u>11.91%</u>	<u>11.91%</u>	<u>11.91%</u>	<u>11.91%</u>
27 Return and Taxes	58,674	48,376	38,000	29,306	21,269
28 Book Depreciation (a)	79,417	79,417	79,417	79,417	79,417
29 O&M Costs	142,500	30,000	30,000	30,000	30,000
30 Annual Revenue Requirement	<u>280,590</u>	<u>157,793</u>	<u>147,417</u>	<u>138,722</u>	<u>130,686</u>
31					
32 Net Present value	8.61%	693,344			
33					
34 Levelized Recovery	8.61%	<u>176,453</u>	<u>176,453</u>	<u>176,453</u>	<u>176,453</u>
35					
36					
<u>Imputed Capital Structure (b)</u>					
37					
38	<u>Ratio</u>	<u>Rate</u>	<u>Weighted Rate</u>	<u>Pre Tax</u>	
39 Long Term Debt	50.00%	7.54%	3.77%	3.77%	
40					
41 Common Equity	<u>50.00%</u>	9.67%	<u>4.84%</u>	<u>8.14%</u>	
42					
	<u>100.00%</u>		<u>8.61%</u>	<u>11.91%</u>	

(a) See Page 2 of 2

(b) Per Granite State Electric Rate Plan Settlement in Docket DG 06-107

**Granite State Electric Company
Incremental Cost of Day-Ahead Hourly Pricing for G-1 Customers
Computation of Revenue Requirement**

<u>Capital Expenditures</u>	<u>Life</u>	<u>Low Est.</u>	<u>High Est.</u>	<u>Average</u>	<u>Book Depreciation</u>
Digital Wireless meters	15	184,000	218,500	201,250	13,417
Meter Data System changes	5	75,000	85,000	80,000	16,000
CSS Modifications	5	200,000	300,000	250,000	50,000
	5	<u>275,000</u>	<u>385,000</u>	<u>330,000</u>	<u>66,000</u>
 Total Capital Expenditures		 459,000	 603,500	 531,250	 <u>79,417</u>
 <u>Operating Expenses</u>					
Customer Outreach		75,000	150,000	112,500	
Ongoing O&M		25,000	35,000	30,000	
		<u>100,000</u>	<u>185,000</u>	<u>142,500</u>	
 Total Operating Expenses		 100,000	 185,000	 142,500	
 Total Incremental Costs		 <u>559,000</u>	 <u>788,500</u>	 <u>673,750</u>	

FOR ILLUSTRATIVE PURPOSES ONLY

**Granite State Electric Company
Illustrative Calculation of Adjustment Factor
for Hourly Pricing Program For G-1 Customers
Hypothetically Effective January 1, 2009**

(1)	Revenue Requirement	\$176,453
(2)	Forecast 2009 kWh Deliveries	<u>930,130,428</u>
(3)	Adjustment Factor per kWh	\$0.00018

- (1) Exhibit 2, Page 1, Line (40)
- (2) Per Company forecast
- (3) **Line (2) ÷ Line (3), truncated after 5 decimal places**

EXHIBIT 4

DE 06-061; RESPONSE TO STAFF'S SECOND SET OF DATA REQUESTS
STAFF 2-3

Request 2-3

Request:

Does National Grid currently have the capability to meter all large commercial and industrial customers based on time-of-use prices? If yes, provide the number of customers by rate schedule that have the appropriate metering equipment installed. If not, please provide a detailed description of the changes needed to National Grid's metering capabilities in order to apply time-of-use pricing and provide an estimate of the time and cost to implement such changes. The cost should include necessary communications costs and the net book value of existing meters (net of salvage) deemed to be incapable of measuring time-of-use loads. The cost should also be net of any operational savings made possible with the new metering system.

Response:

National Grid currently has the requisite interval meters in place to bill all large commercial and industrial customers based on their actual hourly usage. The Company also has the ability to make this data available to competitive suppliers each month for billing purposes and to the NE-ISO for settlement purposes. However, the Company does not currently have a communication link to these meters that would enable customers to have near real time access to the interval data required to effectively manage their load in response to time based prices.

National Grid's 115 large commercial and industrial customers in the G-1 rate class are equipped with solid state, multi-function meters with a time-of-use register, interval data recording capability for 35 days of two channel data, two programmable pulse outputs and an internal analog modem. Each meter contains an internal program which calculates billing determinants consistent with the requirements of the Rate G-1 tariff, i.e. the maximum 15-minute peak occurring during peak hours in both kW and kVA, and peak and off-peak kWhs usage. Currently, the definition of peak hours is 8 a.m. to 9 p.m. weekdays, excluding holidays. These readings can be viewed through an optical port on the meter. On a monthly basis, a meter reader visits each meter location and manually enters the billing information into a handheld device. The information is ultimately transmitted to the Company's Customer Information System ("CIS") for bill preparation.

In addition to collecting the billing information each month, the meter reader also utilizes a handheld device which "probes" the meter to obtain kilowatt-hour data in 15-minute increments. This data is validated and stored in the Company's MV-90 data collection system and is used for load research and ISO reporting, but is not used for billing purposes.

In order to implement the three period time-based pricing mandated by the Commission's order, the Company recommends replacing the 115 interval data meters currently installed with digital wireless meters embedded with Internet Protocol (IP) addressable technology. The Company has utilized this technology extensively in its New York affiliate to implement mandatory hourly commodity pricing for large customers and believes that this approach best supports the objectives of a time-of-use program. This state of the art technology allows for

more efficient and frequent meter reading and provides the G-1 rate class customer with secure and economical access to interval meter data. This type of metering system would provide customers with the ability to access meter data daily. This technology would also support hourly and critical peak pricing as well as the proposed three period time-of-use pricing. In order to view daily data the customer would need to subscribe to Energy Profiler Online ("EPO") offered through the Optional Interval Data Service Provision in the Company's tariff. An annual subscription for EPO is \$309.00.

The cost to install the necessary metering would be approximately \$1600 to \$1900 per meter. Included in this estimate are the cost of the meter, the communications equipment, and the cost of installation. This per meter cost does not include modifications to the Company's meter data system (estimated to be approximately \$75,000) or billing system (see the Company's response to Data Request 2-4) that would also be necessary to add the additional customers to the current system and support the proposed time-of-use schedule.

Ongoing annual costs associated with this option would include the cost of data collection and conditioning, trouble-shooting remote calls, maintenance and system administration, and the cost of the wireless connection. The Company estimates these costs to be approximately \$250 per customer per year.

The Company estimates the time required for the installation of all meters and system modifications to be approximately six months.

An alternative to installing digital wireless technology would be to upgrade existing meters with recorder boards and land lines. This approach would also provide for remote access to meter data at a lower up-front cost than the digital wireless approach. However, the Company's experience with remote access meter connections is that land line connections are significantly more problematic than digital wireless connections. The installation of land lines typically requires long lead times and significant levels of coordination and scheduling between the Company, the customer, and the telephone company. The installation cost may vary significantly depending on each customer's location and installation requirements; therefore, the total cost to install land lines cannot be accurately estimated. It has been the experience of the Company's New York affiliate that wire-based technology creates three times more maintenance calls than wireless connections and back-office and minute charges related to a land line system are four times as great as for the digital solution. Land line technology also limits the frequency and granularity at which the customer can access the meter data and will limit the potential for learning how best to enable customers to respond to price signals.

A third alternative is to utilize the existing interval data recording meters which currently service large commercial and industrial customers in the G-1 rate class, continue to manually collect the 15-minute data once a month, and utilize that data for billing purposes. The Company does not recommend this approach, however, for a number of reasons. First, this is a labor intensive method of collecting and processing the usage data and the number of variable points of collection injects potential for error. Second, the data is collected only once a month. Customers would have access to usage data only at the completion of their monthly billing cycle which would severely limit their ability to actively manage their load. Also, because the data is

Granite State Electric Company d/b/a National Grid
Docket DE 06-061
Responses to Staff's 2nd Set of Data Requests

collected only once a month, the potential for missed reads or undetected meter malfunctions could result in unrecoverable billing data. Third, the Company would be required to implement and maintain a separate data collection and billing process applicable only to the New Hampshire customers that would result in greater upfront costs (in excess of \$75,000) as well as greater ongoing expenses than the recommended alternative.

None of the cost estimates noted above include the costs relating to customer education and outreach. The Company considers education and outreach to be an essential component to the success of any time-based pricing program. The Company's Mandatory Hourly Pricing program implemented in New York for large customers included a cost of approximately \$500 per customer for customer educational seminars and educational materials.