

# APPENDIX A

# MEMORANDUM

SUBJECT: Possible State purchase of the Connecticut and Deerfield River Dams  
DATE: June 24, 2003

---

This is a summary of the background and some of the pros and cons of pursuing a state purchase of the Connecticut and Deerfield River hydroelectric stations.

## What is for sale?

USGen New England, Inc., a wholly-owned subsidiary of PG&E National Energy, purchased a portfolio of hydroelectric dams and fossil fuel generation plants in Vermont, New Hampshire, Massachusetts and Rhode Island in 1998 from National Grid USA for approximately \$1.6 billion. There are six hydroelectric dams along the Connecticut River that are now owned by USGen New England, along with three lakes in Northern New Hampshire used as water storage. There are two hydroelectric dams on the Deerfield River in Vermont (including one reservoir in Somerset, VT, that do not have an electric plant), and six in Massachusetts. There is also a "pumped storage" facility on the Deerfield in Massachusetts. Finally, there are three fossil fuel plants in the portfolio, two in Massachusetts (Brayton Point in Somerset, Mass., and the Salem Power Plant in Salem, Mass.) and one in Rhode Island (Manchester Street Station in Providence, RI).

Since 1998 the legislature has discussed whether Vermont should have attempted to purchase the facilities on the Connecticut and Deerfield Rivers, characterizing it as an opportunity for Vermont to control a local, non-polluting source of electric generation. This discussion has resurfaced this year with the offering of USGen New England, Inc. for sale.

In a conversation with the Department this winter, PG&E National Energy indicated that it is offering for sale 100% of the stock in USGen New England, Inc. A stock purchaser takes not only the company's physical assets, but also its corporate liabilities, existing power sales contracts, union employee contracts, etc. PG&E National Energy has stated this winter that it was not entertaining offers on individual assets, or groups of assets. The company would not say if such offers would be entertained at any time in the future.

## How much power do the dams produce?

The six hydroelectric stations on the Connecticut River have a rated output of 480 megawatts (MW). The two Deerfield River hydroelectric stations in Vermont have a rated output of 44 MW. The two systems in Vermont are rated at 524 MW. There are an additional six hydroelectric stations on the Deerfield River in Massachusetts (not including the Bear Swamp pumped storage station) with a rated output of 49MW.

The "rated output" is the amount of energy produced if the turbines are operating at full capacity. This is rarely the case. The "capacity factor" for each station tells us what percent of

the rated capacity is produced on average each year. The capacity factor for each station is based on a number of variables, including: the amount of rainfall, the storage capacity of each station, and the "head," or distance the water falls into the turbines. The best bottom line measure of actual electrical energy production is the average annual generation measured in millions of kilowatt-hours generated (kWh/yr).

In 2001, Vermont's electric energy load was 5,993,000 kWh. The average for all six Connecticut River stations is 1,083,600 kWh/yr. The average for the two Vermont stations on the Deerfield River, Searsburg and Harriman, is 120,900 kWh/yr. For the whole Deerfield system (excluding Bear Swamp), the average is 322,600 kWh/yr. Therefore, the Connecticut and Deerfield stations produce approximately 20% of Vermont's electrical energy needs per year, on average. This does not mean that the systems will produce the power exactly when it is wanted or needed, as hydro stations operations are affected by weather, and there are seasonal peaks and valleys.

#### **What are the benefits to Vermont of owning the dams?**

Owning this source of electric power will stabilize a portion of Vermont's power supply and costs for as long as we own the assets. To the extent that power markets are volatile in the future, Vermont can count on a certain amount of power at a relatively fixed cost (there will, of course, be cost increases for inflation of labor, capital equipment, taxes, etc.). The power produced may cost more than the wholesale market price at some times, and less than market at other times, but it will always be relatively stable. Vermont can offer this power to its incumbent utility companies at cost, and lay claim to the environmental benefits of maintaining facilities that produce power using a renewable generation source (water) with no air pollutants or other polluting wastes.

The state would be purchasing the dams in competition with private industry bidders, and should expect to pay a market-based price. The state's advantages are that it presumably will have a lower cost of borrowing to finance the purchase, and can avoid paying some taxes that a private entity will pay (for instance, income taxes, and some property taxes in Vermont).

Now is a good time to be purchasing generation assets. There is an overabundance of generation on-line in the New England region, driving power prices down; some potential buyers may be sidelined because the slow economy and problems in the electric power industry have made attracting capital at reasonable rates difficult. While this may be a good time to purchase, it will be a major commitment by the state.

The state also can be expected to be a good steward of the water resources along the Rivers. The Federal Energy Regulatory Commission (FERC) licenses all the stations at issue here. The stations must also obtain state water quality permits, where applicable. Vermont can be expected to protect water quality, recreation, fish habitat and aquatic plant habitat when the dams come up for relicensing (the Wilder, Bellows Falls and Vernon dams are up for relicensing in 2018, the other three dams on the Connecticut were relicensed in 2002 for 40 years) as well or better than a private licensee. License operating conditions can require water to be "spilled" for habitat or recreation, instead of used for electric generation. Different river flow levels, and

reservoir water levels can be required for different times or year. All of these restrictions can decrease the water flow through the generators, and thus decrease the affected station's power output. The state, like any hydroelectric station owner, will have to balance habitat and recreational interests with power generation needs.

### **How would the state go about demonstrating an interest in purchasing the assets?**

The Department has had discussions with officials from PG&E National Energy, owner of USGen New England, as has been told that if there is to be an asset sale of the hydroelectric stations, the state will be notified so that it can decide whether to get involved in the process.

Should the assets be put on the market the state would need outside expert assistance to evaluate whether to bid on the assets. Determining the cost of a preliminary assessment is difficult, but several sources have estimated it a several hundred thousand dollars. It likely will take a much greater financial commitment to take the next step and engage in the due diligence and bid process. The state may well conclude at any time during the process that it is not worthwhile or feasible to continue. It could also go through the entire process and not submit the winning bid. At that point, there is no return on the resources invested.

In pursuing a purchase, the state will have to be nimble, be able to deal in a commercial time frame, in a professional way, and will have to show the capacity to perform. The sellers are unlikely to be comfortable engaging in the political process, waiting for legislative approval of the deal, or of the financing details. There likely will be no benefit to selling to Vermont as opposed to a private bidder that would cause the seller to accept an inferior offer, or spend more time than otherwise necessary putting together a deal.

### **What are the possible risks to the state of purchasing the dams?**

The state would be bidding against commercial entities for any assets, and will pay a market price based on the current and projected price for power in the wholesale market. The state's advantages would be that we can get lower cost financing, and that we do not pay income taxes. Although the market is down from when USGen purchased the dams in 1996, they would not be available at "fire sale" prices today. Therefore, any cost advantage the state would have over the market power may be slim.

The state could ultimately be exposed to bond liability even if the purchase is funded with revenue bonds. A collapse of power prices that does not allow bond service, or a catastrophic failure at any facility could bring tremendous pressure on the state to prevent default on the bonds or bankruptcy of the power authority. While neither of these scenarios is likely, they are risks that should be evaluated.

State purchase of the dams will not necessarily create lower-priced power than alternatives -- the main benefit would be a stable source of power at a stable price over the long-term, barring any major problem (prolonged, severe drought, catastrophic failure of a dam or generation hardware, etc.). The cost to generate the power will depend significantly on the price paid for the assets and thus the costs of servicing the bonds. Also, owning generation assets in a

competitive market exposes the state to risks when a regional market, into which the state would be selling power, sets prices.

The state would likely be acting as a wholesale generator selling into the market in the short-to-medium term, because purchasing facilities that generate 1.4 million kWh/yr gives Vermont surplus energy at least until long-term contracts (especially those of our investor-owned utilities) start expiring in 2012. Some of Vermont's municipal and cooperative utilities will have more near-term power needs, but their needs do not approach the amount of power that will be available from these systems.

Federal Energy Regulatory Commission relicensing requirements can also create some risk. Increased river flow requirements for recreational or habitat purposes reduce the quantity and value of the power produced at any station. Because the price paid will be based on the value of future generation, the possibility that the amount of power produced could decrease in 2018 and beyond can decrease expected revenues, and increase the cost of the available power.

Locking Vermont in to a single source of power now at a fixed price could prevent us from benefiting from future low market conditions, new resource opportunities or new technology. Pursuing this option is making a major decision on what Vermont's power mix will look like into the future without doing a detailed analysis of all the options. We should be cautious about choosing this option, whether it is the best option or not, because the opportunity is now presenting itself.

### **Summary**

In summary, the state purchasing any hydroelectric stations is an extremely complex proposition, one that must be undertaken only after a careful vetting of the benefits and risks. Fully understanding the benefits and risks will take significant resources, commercial business capabilities and the ability to act quickly. There is probably no existing entity within state government that has the necessary skills or resources in-house to manage a transaction of this size. The state will need to dedicate resources that will be at the ready, should an opportunity to explore the purchase arise.

state would

ket in the  
r gives  
estor-owned  
es will have  
at will be

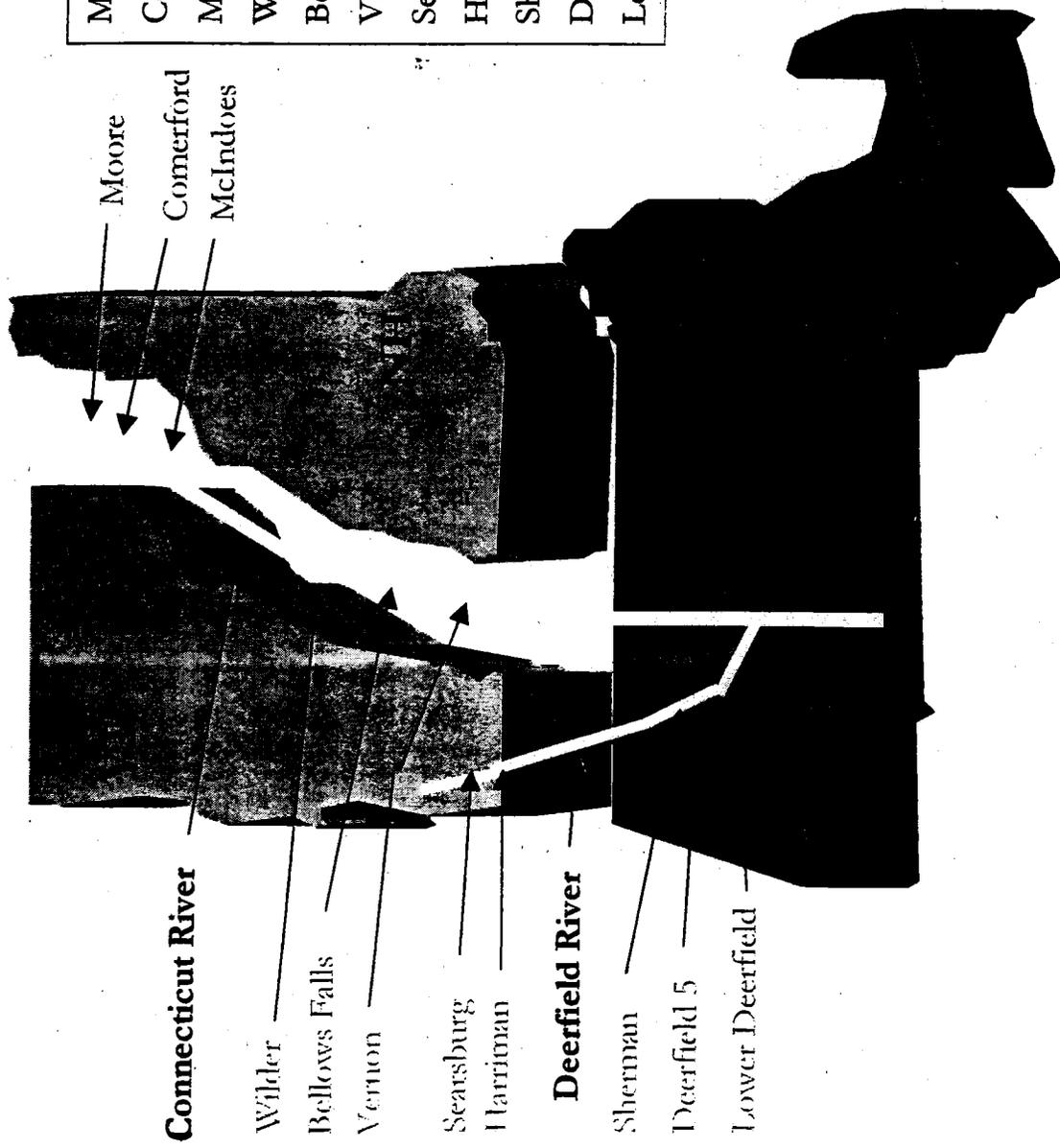
ate some  
e quantity  
on the  
crease in  
le power.

vent us  
r mix will  
d be  
ppportunity

plex  
l risks.  
business  
tate  
of this  
rtunity to

# APPENDIX B

# Overview of Hydro Facilities



Moore	- 191 MW
Comerford	- 162 MW
McIndoes	- 13 MW
Wilder	- 41 MW
Bellows Falls	- 49 MW
Vernon	- 24 MW
Searsburg	- 5 MW
Harriman	- 39 MW
Sherman	- 6 MW
Deerfield #5	- 14 MW
Lower Deerfield (#4,#3,#2)	- 19 MW

# 563 MW of Conventional Hydro Capacity

	<u>Deerfield River</u>	<u>Connecticut River</u>
Net Capacity (MW)	83	480
# of Stations	7	6
# of Units	15	26
Availability (MW Weighted EAF - 5 Year Average)	96.33%	96.24%
Net Generation (MWh) (10 Yr. Avg.)	280,666	1,125,953
Capacity Factor (10 Yr. Avg.)	37.5%	26.3%

UNIT	Net Generation		Capacity Factor	Equiv. Availability Factor	Forced Outage Rate
	MWh				
Moore	259,536	15.49%	94.23%	4.90%	
Comerford	307,222	21.61%	87.22%	2.72%	
McIndoes	40,675	35.72%	98.98%	0.06%	
Wilder	145,484	40.13%	96.85%	1.43%	
Bellows Falls	220,159	51.78%	89.50%	3.95%	
Vernon	123,742	57.92%	93.32%	5.08%	
Searsburg	23,348	53.74%	98.64%	0.64%	
Harriman	121,391	35.81%	97.68%	0.08%	
Sherman	34,194	62.59%	98.97%	0.05%	
Deerfield #2	37,518	65.89%	99.23%	0.01%	
Deerfield #3	31,694	55.49%	97.10%	0.40%	
Deerfield #4	27,130	54.14%	98.75%	0.52%	
Deerfield #5	60,542	49.40%	95.19%	5.26%	

**USGen New England Inc.  
Regional Generating Assets**

Asset	Net Winter Claimed Capability - MWe					Total
	Coal	Oil	Natural Gas	Conventional Hydro		
Brayton Point Station	1,139	455	445			1,594
Salem Harbor Station	314	431				745
Manchester Street Station		495	495			495
Connecticut River				480		480
Deerfield River				83		83
<b>Total</b>	<b>1,453</b>	<b>886</b>	<b>495</b>	<b>563</b>		<b>3,397</b>

## ■ Equipment and Operation

- 563 MW Conventional Hydro
- 13 Stations, 41 Units
- 2 River Systems, approximately 300 linear miles
- High Availability, Fast Response Units
- Operated from Single Control Centers, one on each river
- Water management integrated with portfolio market decision making to assure compliance while maximizing revenues

## ■ People:

- Disbursed maintenance resources that can rove over full system
- Single management and technical support structure over full system
- Functions as single integrated team of craftsmen, supervision, administrative, engineering, compliance, external affairs and management personnel
- Focus on safety (employee and public), environmental compliance, cost management, market, and operational excellence

## ■ External & Regulatory

- 5 FERC Licenses, next license expiration 2018
- Operates in 3 states and 53 communities
- Positive working relationship with the FERC, State Agencies, and NGO's