

Comments of the Vermont Chapter of the Sierra Club  
On PUC Case 17-4632-INV

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We are commenting here on the RES compliance submissions under docket 8550, case 17-4632-INV.

We have reviewed many of the RES compliance statements by Vermont utilities, prior to the August 31 deadline. Many or all include electricity purchases or RECs from Hydro-Quebec in their compliance with the Tier 1 requirement of the RES. We urge the PUC to find that these kilowatt hours are not in fact renewable.

We note that in the PUC order under docket 8550, hydropower is listed as one of the forms of power that is “presumed” to be renewable. We also recognize that in many cases, hydropower is a renewable source of electricity. But that is not always the case.

We also note that Vermont law provides a clear definition of what is renewable power. That is,

(21) "Renewable energy" means energy produced using a technology that relies on a resource that is being consumed at a harvest rate at or below its natural regeneration rate. (30 V.S.A. § 8002)

We recognize that, if one were to look purely at the quantity of water flowing into a reservoir, the Hydro Quebec hydropower sources might legitimately qualify as renewable. What we argue is that the “resource that is being consumed” is not limited to the flowing water, it includes multiple aspects of a complex system. That system includes numerous things that are resources. The aquatic life, particularly the fish, that inhabit the rivers, are an important resource. The wildlife that populate the riverine habitat are an important resource. The boreal forest and peat landscapes are a critical resource for taking up carbon dioxide from the atmosphere and locking it up in biomass and soil. Each of these is a very important aspect of the “resource that is being consumed” as a direct consequence of the development and use of these particular hydropower resources.

The statute’s definition of renewable energy implies that what is renewable is not simply based on the technology that is being used. It also implies that sometimes, a specific

technology can be used in a renewable fashion, and sometimes not. It calls on us to make a distinction between the renewable use of a resource, and a non-renewable use of the resource. Our use of hydropower in Vermont, for the most part, demonstrates how we can use this resource in a way that is clearly renewable. Hydro-Quebec's use of these resources demonstrate how it is possible to cross that line.

In Vermont, over the last few decades, hydropower projects have been reviewed and relicensed, and in many cases brought up to a standard of sound management. This is the difference between operating in a non-renewable fashion, and operating in a way that recognizes and respects the complex nature of the resource that is being used. Through the careful application of the 401 water quality certification process, such aspects of a river resource as fisheries, water quality, wildlife habitat, and other qualities are regulated and managed. Even more care is applied with Low Impact Hydro standards.

But the Hydro-Quebec dams would never be permitted in our state, because they fundamentally alter the resource in ways that would not be acceptable here. They effectively use the resource in a way that will never be regenerated, and therefore fail to meet the statutory definition of what constitutes renewable energy. This can be seen most clearly through the "consumption" of three resources: the fishery, the wildlife, and the carbon sink.

Non-renewable consumption of the fishery. For millennia, the fish in the Boreal Forest rivers has sustained the human population. The LaGrande, the Eastmain, the Rupert, the Churchill, the Manicouagan, and others, have all supported fisheries that in turn supported human inhabitants of those regions. This is not casual sport fishing as we might understand in Vermont; this is a life-sustaining fishery resource. The high quality water has supported a healthy aquatic food web. People have been using this resource, particularly by fishing and consuming at the very top of the food chain, the salmon. But this resource has been thoroughly destroyed by the hydro projects that have been developed along these rivers. As the impoundments flood a region, bacteria begin to transform relatively stable forms of mercury into the potent neurotoxin methylmercury, which then bioaccumulates up the food chain. It becomes present in the salmon at levels that are toxic to humans, and have resulted in severe health impacts, ranging from basic brain function, learning, muscular control, imbalance, and ultimately death. This vital resource is gone from these waterways. The levels may reduce over time, but they are still present at toxic levels, and as new dams are built in response to export-induced demand, the process begins anew.

Wildlife. River shore habitats are critical in the boreal forest ecosystem. Beaver, marten, lynx, mink, and a host of other species depend critically on the river for food and for shelter. Once the rivers are flooded, the reservoir shores are a very different kind of habitat. Furthermore, the management of the dams causes the water levels to rise and fall dramatically, at times that make no sense to the natural cycles of these wildlife. That wildlife resource, again depended upon by humans and also as a crucial keystone in that ecosystem, is deeply affected. There is no suggestion that the loss of this resource is in any way “regenerated”.

Carbon Sinks. The boreal forest is a very important link in the global carbon cycle. One of its great functions is to take in carbon dioxide in the process of photosynthesis, and convert it into the carbohydrates and other organic compounds that make the trees grow. This becomes part of the forest biomass. Even as the trees shed needles, or die, their biomass in this cool climate does not decay as rapidly as in temperate or tropical forests, and as a result a significant portion of the carbon that is taken up by the forest stays in the forest and in the soils. This is a critical global resource. When forest is cleared, as it is for the vast reservoirs of the Hydro Quebec system, that resource is used up, never to return. That system has cleared and inundated over 11,000 square miles of lost carbon sink. Even Vermont’s portion of the electricity generated, a bit less than 1%, represents about 100 square miles of lost carbon sink; this translates into around 150,000 metric tonnes of CO<sub>2</sub>e every year that is not being stored in the forest biomass.

We urge the PUC to recognize that the power from Hydro Quebec’s hydropower system is not a resource that is being consumed at a harvest rate at or below its natural regeneration rate, it is not renewable, and it does not qualify as a Tier 1 renewable resource.



