

Common Voice Northwest

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ENERGY TASK FORCE

**SUBMISSION FROM
COMMON VOICE NORTHWEST'S
ENERGY TASK FORCE
On the Role of
BIOMASS
in
NORTHWESTERN
ONTARIO**

June 20, 2021

Background


Common Voice Northwest was created to provide advice to Governments on policies that effect the economy of Northwestern Ontario.

It's Energy Task Force (ETF) has worked closely with the Northwestern Ontario Municipal Association (NOMA), the various Chambers of Commerce across the region as well as a number of other organizations to understand the needs and future of the region as it relates to the supply of energy, be it electricity, natural gas, or biomass.

The ETF regularly engages with the IESO to identify current and future demand for the Northwest as well as participating in the IESO's regional planning process. The ETF regularly intervenes directly (or indirectly through NOMA or the Chambers) in formal consultations or applications before the Ontario Energy Board.

The ETF consists of a broad range of interests from across the region. This includes Economic Development Officers, representatives of local utilities, municipal elected and appointed officials, retired employees of Hydro One and Ontario Power Generation as well as representatives of various worker associations in the power field. There are also representatives of major consumers from the mining and forest industries.

The Common Voice Northwest Energy Task Force is pleased to respond to the Government's Draft Forest Biomass Action Plan.



Iain Angus, Chair

The Role of Biomass in the Generation of Electricity

The Northwest has an abundance of natural fibre in the Boreal Forest. It was also home to a broad range of forest industries, from pulp and paper mills to sawmills and wood pellet manufacturers. The fibre crash in the early part of this century saw a multitude of pulp and paper mills closed and demolished. So too, numerous sawmills closed and remain dormant today. There are three functioning pulp mills in the region and 16 Sawmills today. There is one sawmill also producing biomass pellets and one stand alone pellet producer in the Northwest.

The forest manufacturing sector is fully integrated, in large part due to Provincial forest policy of making the highest and best use of the harvested fibre. Logs suitable for lumber (and the continued storage of carbon) primarily proceeds to a sawmill with the chipped residue then shipped to the appropriate pulp processing facility. Smaller trees are chipped on site and sent directly to the pulp processor. Neither facility can operate independently from each other. Nor is sending merchandisable wood to a chipper a good use of the stored carbon.

The Thunder Bay based woodlands operation of Resolute provides wood to AV in Terrace Bay, Domtar in Dryden, Bio Power (Atikokan), Weyerhaeuser (Kenora), Norbord (Barwick), the Thunder Bay Pulp, Paper, Sawmill & Pellet mills, Atikokan (Sapawe) and Ignace Sawmills operated by Resolute FP.

Resolute has a contractual relationship with 18 Indigenous Partners across Northwestern Ontario at a value of \$60 million annually and 230 direct and indirect Indigenous employees. Most of those contracts and many of the jobs exist because of the use of biomass for the creation of electricity.

The majority of left-over fibre is utilized by the pulp sector to generate electricity and heat for its own operations.

“Bomass creates by far the most long-term jobs of any renewable energy source: up to 5.5/MW vs 0.2-0.7/MW for PV solar and on-shore wind.” (Biomass Innovations – Alberta Innovates Bio-Solutions)

In addition, the lack of outlets for biomass will lead to a further reduction in the annual harvest, with an increased forest fire risk due to increased dry wood material left along forest access roads.

There will also be a cost to the treasury with a reduction in provincial stumpage revenue, contributions to the reforestation trust funds, and reduced income tax payable by employed individuals and corporate taxes paid by the harvesting and processing companies.

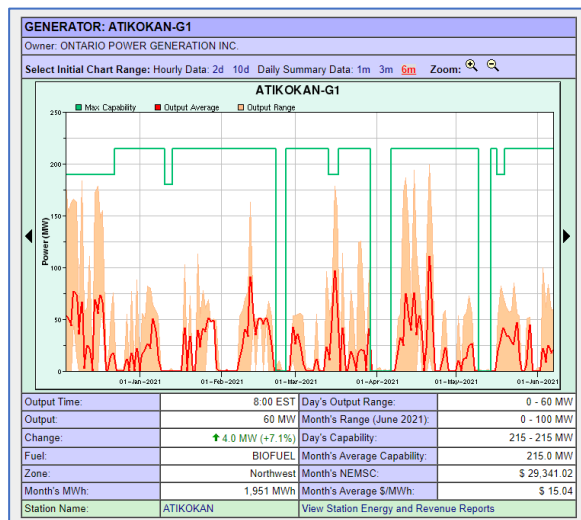
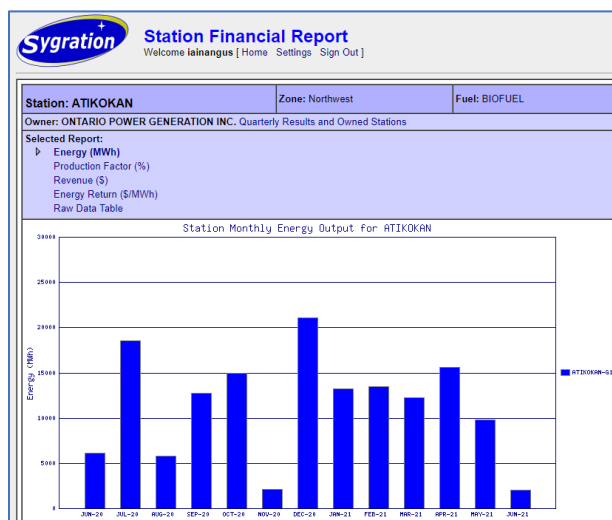
Due to the integrated nature of the forest product sector, without an adequate market, wood fibre residuals will need to be landfilled. Landfills will come as an added cost to

saw and panel mills to the region, along with a potential loss of revenue due to lack of biofibre markets. Landfills also come at a cost to the public and government; resulting in methane emissions, potential fire hazards, and concerns with environmental leachate.

Without existing facilities, Ontario could be landfilling over a million tonnes, or approximately 30,000 truckloads, of wood fibre annually.

Expanding forest biomass markets will improve the sustainable management of our public forests. Finding a market for all species and qualities of timber will unlock veneer and sawlog volumes for existing facilities – improving the utilization of our forests and achieving the objectives within the Ontario Forest Sector Strategy.

There are two facilities currently supplying electricity under contract with the IESO using biomass as a fuel source. One is the OPG Thermal Generating Station at Atikokan (AGS) and the other is the Resolute Forest Products, Non-utility generator. Both of



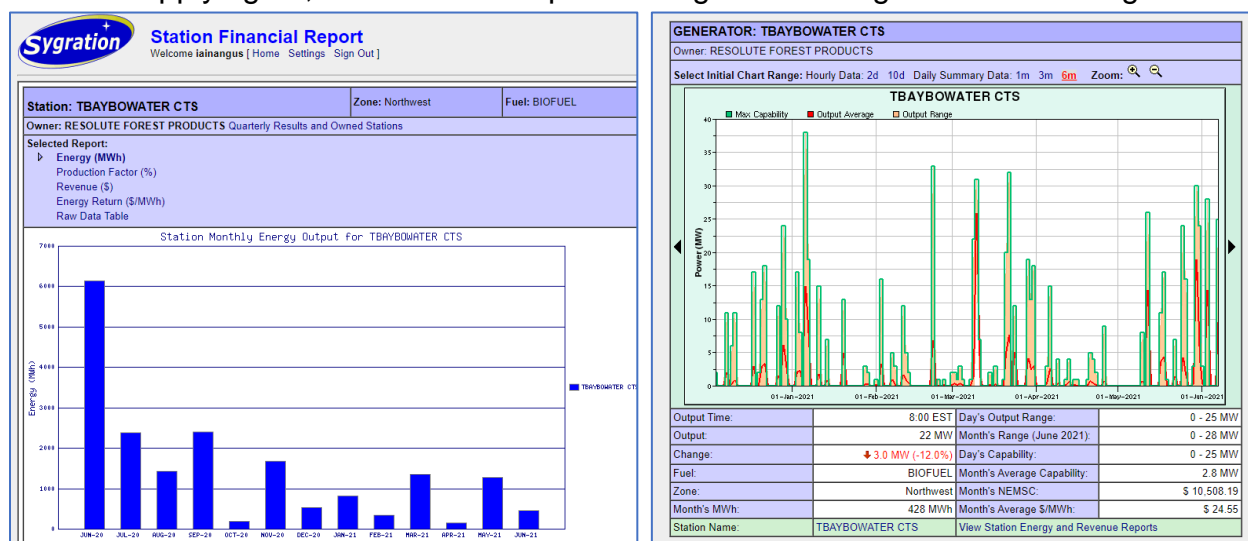
these generators can supply energy on demand or on a scheduled basis, filling in any shortfall in the supply. Both have the ability to expand their output, with Atikokan having the largest growth potential of 150 MW and Resolute increasing their output to 65 MW.

In the past 6 months the AGS has produced as much as 200MW at a time providing essential supply to the grid at a time when all other sources were insufficient to meet the needs of the region. The chart on the left reports the monthly MWh generated while the chart to the right shows the daily fluctuations since January 1, 2021. Over the past 12 months, the Atikokan GS contributed 178,304 MWh to the Ontario Grid, supporting industry and residences throughout the Northwest.

The Atikokan Generating Station is also an essential economic generator for the region. The 90,000 tonnes of biomass fuel is produced equally by two facilities – one in Thunder Bay (Resolute FP saw mill) and another in Atikokan (BioPower Sustainable Energy Corp.) The raw wood is harvested and transported from areas throughout the

Northwest and is residual to the operation of either sawmills or pulp mills. The AGS and BioPower are major employers and property taxpayers supporting the community of Atikokan. There are 70 direct employees at the AGS with another 36 at BioPower plus their woodland operation. The AGS payroll is in excess of \$8 million per year with the facility contributing 40% of the total property tax received from the community and the employees paying an additional 15% of the total Atikokan taxes. The property taxes paid by BioPower and their employees increases the relationship between the town and the financial viability of the two facilities. A total of 1,250 truck loads of pellets make round trips from Thunder Bay to Atikokan each year with another 1,250 loads delivered from BioPower to the AGS. The IESO contract for the Atikokan GS and the two suppliers ends in July of 2024.

Resolute's Thunder Bay pulp and paper operation has contributed as much as 38 MW at a time to the Provincial Grid in the last 6 months with an economic multiplier of 3 to 1. The chart below and to the left reflects Resolute's contribution to the grid for the past 12 months supplying 21,659 MWh to the provincial grid and filling a need in the region..



The chart on the right reports the generation since January 1 of this year and shows the fluctuation of the supply as the NUG is able to respond to demands from the grid.

By consuming biomass, an imbedded facility such as Resolute's Thunder Bay mill reduces the need to dispose of the residue. Resolute diverts 650,100 tonnes of biomass from landfilling each year. That takes 7,700 truckloads annually off the local road system. In addition, the company has been able to retrieve legacy landfill to be used as a biomass fuel. Both are a benefit to the natural environment. It is important to note that it takes a significant number of years to locate an appropriate site for a landfill, consult with the neighbouring residential area and obtain the required regulatory approval.

In Resolute Forest Product's pulp and paper mill in Thunder Bay the revenue from the sale of over 20,000 MWh to the grid is a key component in the financial sustainability of

this Mill along with the avoided cost of landfilling the residue (effluent waste sludge) and the subsequent impact on the environment. This contract expires in March of 2023. The loss of this revenue will have a negative impact on the hundreds of workers at the facility, in the forest and in the transportation services utilized to deliver the fibre to and the finished product from the mill. It is estimated that without a power purchase agreement the resulting change in the operation of the mill could result in a reduction of between 220 and 400 well paying unionized jobs in the region.

Recommendation # 1:

That the contract with Resolute Forest Products and Ontario Power Generation for the Atikokan GS be renewed and that the renewal be announced at least two years prior to the end of the current contract. This advance notice is required to enable the companies involved to make the appropriate capital investments on a go-forward basis.

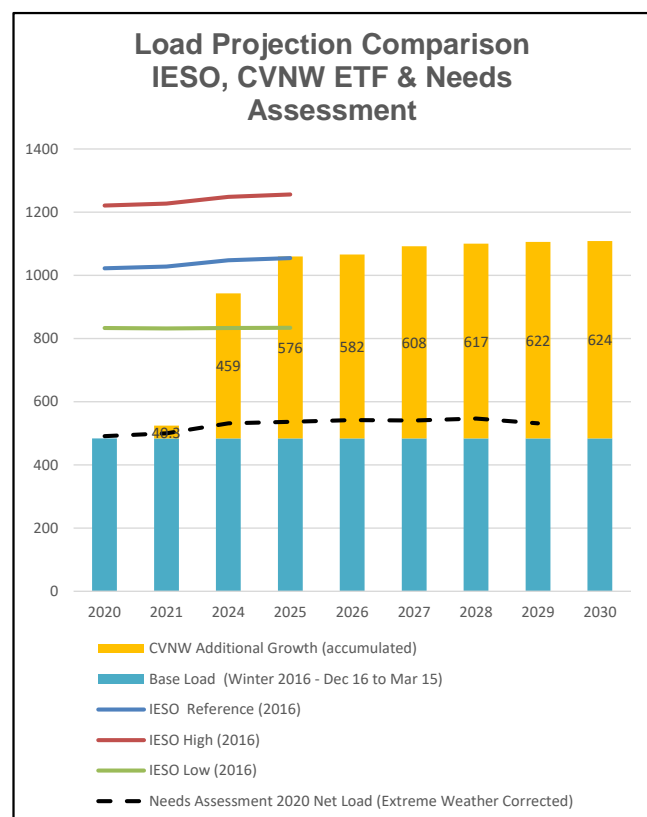
Recommendation # 2

That all Purchase Power Contracts for biomass generation must be a minimum of 10 years in length with renewals to occur five years prior to the end of the current contract. This is to ensure that the owner of the facility under contract is able to make the required capital investment required for the efficient operation of the generator.

Future Load Requirements for the Northwest and the Role of the Atikokan GS

The Common Voice Northwest Energy Task Force regularly tracks known and anticipated increases in electrical load in the Northwest. The information is obtained from a variety of official documents prepared by individual mining organizations and usually are part of regulatory requirements for a range of Government agencies. John Mason, Manager of Mining Services with the Thunder Bay Community Economic Development Commission compiles the information.

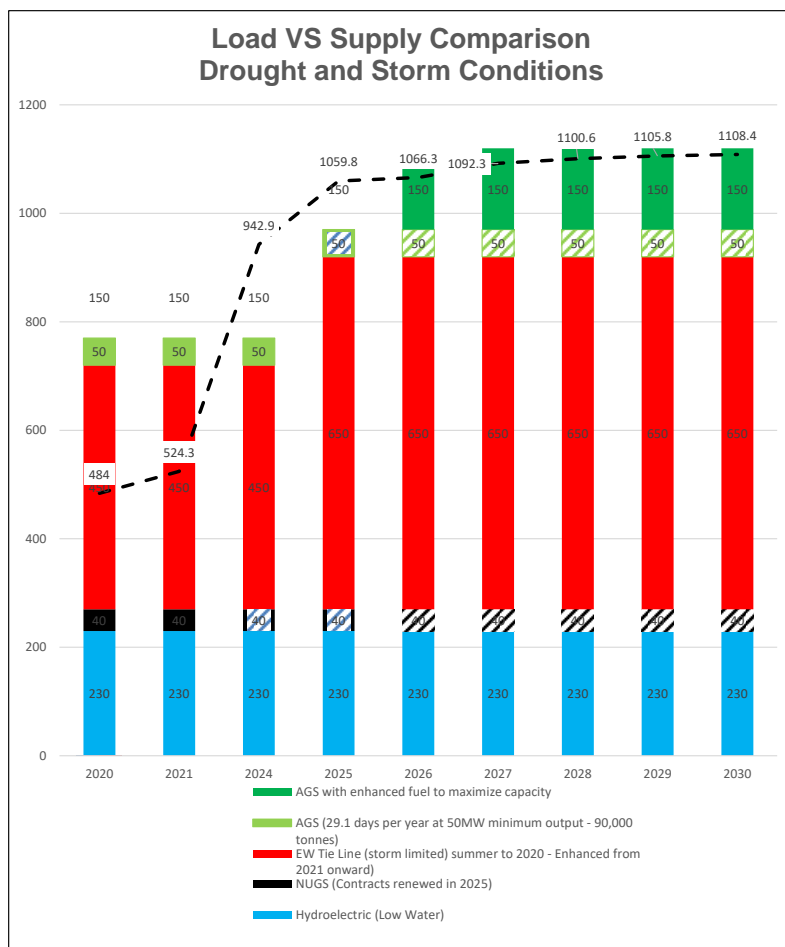
The chart to the right notes the 2016 base load (the amount of electricity required to run the region and all of its electrical customers) in blue and indicates the increased load that the CVNW ETF has identified in orange. The three short horizontal lines represent the range of potential demand as identified by the IESO in 2016. The dashed line represents the



projected Extreme weather corrected 2020 New Load as presented in the current Needs Assessment.

The Northwest enjoys a wide range of sources of the electrical power it consumes. The following chart displays those sources and the loads they can meet. The hashmarks indicate renewed contracts for the NUGS. It is important to note that in 2025 the enhanced East West Tie will be in-service and that the chart shows the need to have the Atikokan Generating Station operating at full capacity. Should all of the projected mines come on stream at the year indicated in their documents and the full capacity of the Atikokan GS is not available the Northwest will be unable to meet its requirements.

In 2024 the shortfall will be 173 MW¹ and from 2025 to 2030 up to 138 MW will be needed to power the growth in the region². With the addition of 150 MW obtained by fueling the Atikokan GS to its maximum, the shortfall during low water will be eliminated. By operating at full capacity, the production cost per MW will be reduced substantially as the fixed operating costs spread over the larger output.



Atikokan GS’s role has recently been highlighted in area media. According to Thunder Bay’s TBNEWSWATCH “Ontario Power Generation says its biomass generating station at Atikokan did the job it’s meant to do whenever there’s a sudden demand for electricity in Northwestern Ontario. The station, which burns wood pellets, ordinarily is only required to operate for several hours a day, during peak consumption periods Monday to Friday. But for 24 days during two recent periods of unseasonably cold weather, the 205-megawatt station was producing power on a 24/7 basis. Darcey Bailey, director of plant operations, says it was not just the cold but a combination of factors affecting the energy grid in the northwest that came into play. Extreme cold always drives up

¹ Assumes Atikokan GS operating at current fuel contract

² This is an updated projection from the January 10, 2021 submission by CVNW ETF to the IESO and is based on new information.

demand. However, Bailey said a relatively dry autumn and winter has left low water levels behind the region's hydro generating stations, resulting in somewhat curtailed power output from those facilities. Some unplanned and planned outages along tie lines to electricity grids in Manitoba and Minnesota also limited OPG's ability to receive power from outside the region.

Bailey said these three issues, combined with the fact that all of Ontario was unusually cold, created "a perfect storm" that led to the Atikokan plant producing electricity around the clock. "The entire province was requiring extra power, all at the same time, creating the need for additional generation in the northwest," he said. Despite the increased demand, the station's output was never required to exceed half its designed capacity. Bailey said this shows the Atikokan plant's value as an important backup power source in the event of an even more serious situation."³

Recommendation #3

The contract for the Atikokan Generation Station should be renewed and expanded to enable the GS to supply its maximum 200 MW to the grid on a continuous basis commencing in 2024.

Recommendation # 4

Concurrent with recommendation #3, the fibre supply contracts with Resolute FP in Thunder Bay and Bio Power Sustainable Energy Corp be renewed and expanded to provide the AGS with sufficient fibre to operate at full capacity.

Pricing Energy

"In May 2002, the opening of transparent, wholesale competitive electricity markets in Ontario marked a shift from large, centralized and publicly owned bodies providing services to passive customers to one where buyers and sellers connect to cost effectively supply more engaged consumers with the electricity they need."⁴

According to The Honourable Greg Rickford, Minister of Energy, Northern Development and Mines in a letter to Ms Lesley Gallinger, President and Chief Executive Officer of the Independent Electricity System Operator "As you know, our government is committed to procuring electricity resources in a competitive, transparent and cost-effective manner that ensures the long-term viability of the system while minimizing the impact on ratepayers' electricity bills."

³ Full article found in Appendix K

⁴ Single Schedule Market High-Level Design, IESO August 2019

The underlying approach by the IESO, the Ontario Energy Board and the Government of Ontario is the securing a supply of electricity at the lowest possible cost to the eventual consumer. The exception to this is the renewables of wind and solar that were incentivised for their development with the promise of a purchase agreement that would enable a return on their investment and a priority of use over other renewables such as hydraulic. They are paid a premium by the IESO.

This market approach of energy pricing does not take into consideration the social and economic impacts of obtaining electricity through the use of biomass.

Forest biomass facilities maintain value for local economies of northern and rural Ontario. They represent only 0.01% of all contracts managed by the IESO yet provide a disproportionately impressive range of benefits to the province and regions they support. Jobs are created through the ongoing operations of these facilities while supporting a highly integrated supply chain between pulp and paper, lumber, and panel mills.

Forest biomass must be viewed differently from wind and solar farms. Once the infrastructure has been installed, these forms of renewables do not require staffing to operate and thus, generate minimal socio-economic (e.g. limited sustained workforce) opportunities to surrounding communities. Biomass requires constant staffing and does not require the sun to shine or wind to blow in order to generate a stable supply of electricity.

The current approach does not take into consideration the relationship between the generator and the community or communities it serves and the impact if a contract is not renewed. Nor does it take into consideration the relationship between a non-utility-generator and the other components of its operation if the contract is not renewed.

Recommendation # 5

That the cost structure for purchasing energy from a biomass generator, either as a stand alone or integrated facility, recognizes the social, economic and environmental benefits to society of the provision and consumption of biomass and that a formula be developed to ensure the financial viability of each generator. This formula should include base funding to ensure full time operation and availability of the generator. Purchase of electricity from a biomass generator should be designated a priority over power generated by natural gas, nuclear or pumped water storage.

Future Biomass Energy Development

The Norwest currently is under harvesting its allowable cut somewhere in the 50% range. The option for further development of new biomass generation facilities designed to meet the emerging need for distributed energy is a realistic source of power. It has the added benefit of increasing the employment in the forestry industry within the region while at the same time converting stored carbon into a useful fuel rather than rotting on the stump and generating CO₂ with its implications on the environment.

Recommendation # 6

That as part of the regional planning process the IESO incorporate options for distributed generation facilities for locations where it would be cost prohibited to connect a new mine or forest operation to the Ontario power grid, and

Recommendation #7

That the Ontario Government develop a funding program designed to assist in the capital costs of developing new biomass generation facilities required to meet the distributed energy requirements of the region.

Biomass for District Heating

A number of communities in the Northwest are not able to access natural gas due to the high cost of constructing the main pipeline to their own community. The communities of the North Shore of Lake Superior have combined efforts to create a system for the delivery of compressed natural gas (CNG) from a facility at Red Rock to community depots for local distribution to an estimated 13,000 customers. Once implemented this will reduce the demand for high-cost electricity for all users in the 5 participating communities.

Other communities, like Sioux Lookout, are forced to heat their homes with electricity, propane or fuel oil – all very expensive fuels.

One option for communities located within the Boreal Forest is through the creation of a biomass steam generation facility connected with each building in the community through a series of insulated pipes. District heating is widely used in northern Europe and usually combines the creation of a thermal generator, a major connection to a facility requiring industrial strength steam (ie a pulp and paper mill) followed by a distribution system to local homes, businesses, institutions etc. Each building includes a heat exchanger which in the summer is used as a means to cool the facility putting heat back into the grid.

Recommendation #8

That the Government of Ontario develop a separate plan for the creation of District Heating Systems utilizing bio-mass as the fuel and that the plan include funding for feasibility studies to be prepared for interested communities.

Respectfully submitted on behalf of the Common Voice Northwest Energy Task Force