

Common Voice Northwest Energy Task Force. October 28, 2013. *North of Dryden Draft Reference Integrated Regional Plan*. page 24 and 31 Thunder Bay, Ontario.

# North of Dryden Draft Reference Integrated Regional Plan

Response from the Common Voice Northwest Energy Task Force



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CVNW Energy Task Force

October 28, 2013

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## Forward

The Common Voice Northwest Energy Task Force (ETF) has been in existence, in one form or another since it was created as a Sub-Committee of the Northwestern Ontario Municipal Association (NOMA) in 2005. In 2008 it evolved into one of the Task Forces operating under the mandate of Common Voice Northwest, a regional research organization. The ETF acts as advisors to NOMA, the Northwestern Ontario Associated Chambers of Commerce (NOACC), the City of Thunder Bay and the Municipality of Atikokan specifically, and all municipalities and Chambers of Commerce in the Northwest in general.

The members of the Energy Task Force include retired operators of the Ontario Hydro transmission, distribution and generation systems, current and former CEO's of regional hydro utilities, economic development officers and board members and municipal councillors.

The ETF also relies on the knowledge of those individual municipalities and Chambers along with local economic development officers to inform the energy needs of the entire region – the Districts of Rainy River, Kenora and Thunder Bay.

The release of the first iteration of the Integrated Power System Plan for Ontario (IPSP) was the key impetus for the concentrated work of the ETF. The first IPSP included minimal references to the needs and realities of the Northwest and that triggered a combined effort before the Ontario Energy Board (OEB) by the ETF and its partners, NOMA, NOACC, the City of Thunder Bay and the municipality of Atikokan. This intervention resulted in the OEB determining that regional planning must be a key part of any future IPSP.<sup>(1)</sup>

Subsequently, the ETF has been a key participant, through its various partners, in a range of matters before the OEB and matters under the jurisdiction of the Ontario Power Authority (OPA), the Integrated Electrical System Operator (IESO) and Ontario Power Generation (OPG). This engagement includes the following:

- Integrated Power System Plan – phase 1 and 2

### Ontario Energy Board

- IPSP
- East West Tie selection of a Transmitter
- Reliability Must Run Contract for the Thunder Bay Generating Station
- Micro Embedded Generation initiative

(1) Interlocutory decision of the Ontario Energy Board, dated March 26, 2008, in relation to the "Issues" to be considered in the proceeding. Specifically beginning at page 12 of the Issues List Decision, is a section titled "Regional Issues and Consultation with Non-Aboriginal Interests". This section outlined NOMA's position that Northwestern Ontario should be considered a separate entity for purposes of analysis. At page 13 of the attached Issues List Decision the OEB states the following: "Although the Board agrees with the OPA that regional issues could be included under the more general issues proposed by the OPA, the Board finds that greatest clarity will be achieved by establishing a specific issue to address the concerns of these parties. Therefore the Board will include the following issue on the issues list: 34. Does the IPSP meet its obligation to provide adequate electricity system reliability in all regions of Ontario?"

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- Regional Planning
- Atikokan GS Conversion
- Thunder Bay GS Conversion
- Merging of Local Distribution Companies (LDC)
- Long Term Energy Plan
- North of Dryden Plan

It is also important to note that the ETF through its partners have expended over \$900,000 in legal fees since 2007, in order to protect the interests of the Northwest before the Ontario Energy Board. While approximately 60% of these costs have been recovered, the remainder represents a significant commitment by the Northwest to obtain an energy system that will meet its needs for the future. In addition, the volunteers of the Energy Task Force have expended thousands of hours reviewing, commenting and reacting to the documents produced by agencies with budgets in the hundreds of millions of dollars per year.

The ETF's involvement, and that of its partners, was by and large at its own initiative rather than as a result of an invitation from the various agencies to provide input. It has only been in the last two months or so that the ETF has received communication from the OPA or IESO requesting our involvement – even though the ETF and its partners – NOMA, NOACC, Atikokan and the City of Thunder Bay have been known to those two agencies and a succession of Ontario Ministers of Energy for a number of years now.

A key role of the Energy Task Force is to quantify the known future demand for electricity in the Northwest. This is done so on the assumption that the load will drive the supply and the method of delivering the required electricity. The ETF relied on specialists' knowledgeable in the field of mining and forestry development to quantify the loads, their locations and the timing of the requirement for connection to the grid. The ETF limited its examinations to those facilities that are planning for connections up to 2020. Approximately 22 mines, a handful of sawmill type forestry facilities, and the conversion of one of TransCanada Pipelines' natural gas lines to the transportation of crude are included in the analysis.

The Energy Task Force has projected that the future load for the Northwest up to 2020 will be in the range of 1,600 MW. In January of this year, the Ontario Power Authority was projecting a 2020 load of approximately 800 MW (2). As a result of the data and mine by mine information provided by the ETF to the OPA, by May of this year, the OPA had increased their projections to 1,400 MW with one senior planner indicating that "any plan must meet the needs of the region." While the OPA's projection is still less than that identified by the ETF, the agencies acceptance of an additional 600 MW of load is an indication that the ETF was correct all along. "The ETF has also provided information on the power needs of the sub-zones north of Dryden, however, this information is not currently reflected in the OPA plan."

(2) Current load as agreed to by both the OPA and the ETF is approximately 720 MW

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## **Introduction**

The Energy Task Force's response to the North of Dryden plan will be composed of two sections; a commentary about the relationship between all of the components of the entire Northwest including those located within the North of Dryden Plan area and a detailed response to the contents of the North of Dryden Plan. This is done with the understanding that the Minister of Energy, the Hon Bob Chiarelli is keenly interested in the views of the Energy Task Force and that those views will influence his decision regarding the conversion of the Thunder Bay Generating Station. We therefore believe that an overview of how the system in the Northwest is inter-related is an important component of our response and more particularly, the relationship between the Thunder Bay Generating Station and the needs of the entire region is also crucial to effective long term planning.

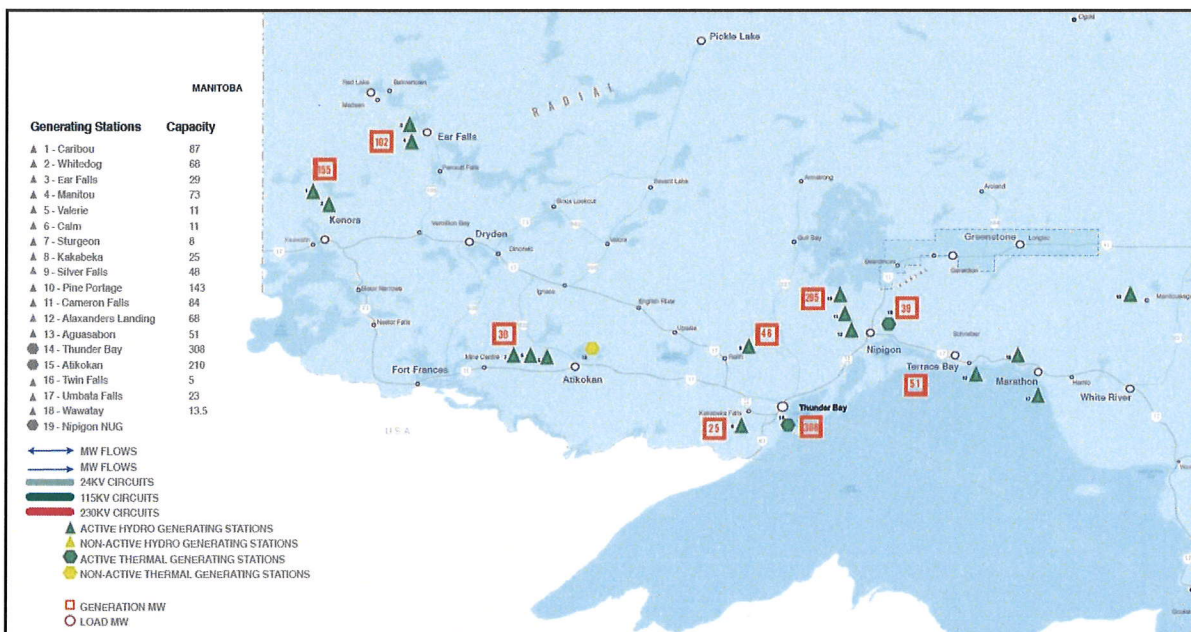
# Common Voice Northwest Response to the North of Dryden Plan

## The Northwest System

In general, the Northwest currently relies on two completely different methods of generation (3) and two equally different methods of moving electricity from one point to another.

On the generation side, the Northwest relies on hydraulic generation (dams and run of the river) and on thermal and co-generation (Atikokan and Thunder Bay Generating Stations as well as a gas generator near Beardmore and the output from co-gen facilities at area paper mills) (4). All generators, with the exception of the Atikokan GS and the Dorion Wind Farm, introduce electricity into the grid at 115 kv. This output is delivered directly to end users through the 115 kv distribution system of Hydro One.

Figure 1 indicates location and type of generation along with their respective licensed capacity.



**FIGURE 1 NWO GENERATION**

- (3) While there is some wind, solar and biomass energy generation in the region, the overall impact is minimal given the total projected load for the Northwest
- (4) Resolute Forest Products in Thunder Bay and Fort Frances



## Common Voice Northwest Response to the North of Dryden Plan

There are two distinct systems for the movement of electricity in the Northwest: transmission at 230 kv; and, distribution at the lower 115 kv rate.

### Distribution

The Northwest's loads are all on the 115 kv system, being supplied by generation that is directly connected to that 115 kv System. The 115 kv system was originally built to connect those customers to generation located within the area and it was not until the 1970's that the 230 kv system was installed. (Excess MWs are transferred up to the 230 kv system through Auto Transformers located in Kenora, Dryden, Fort Frances, Atikokan, Thunder Bay and Marathon.)

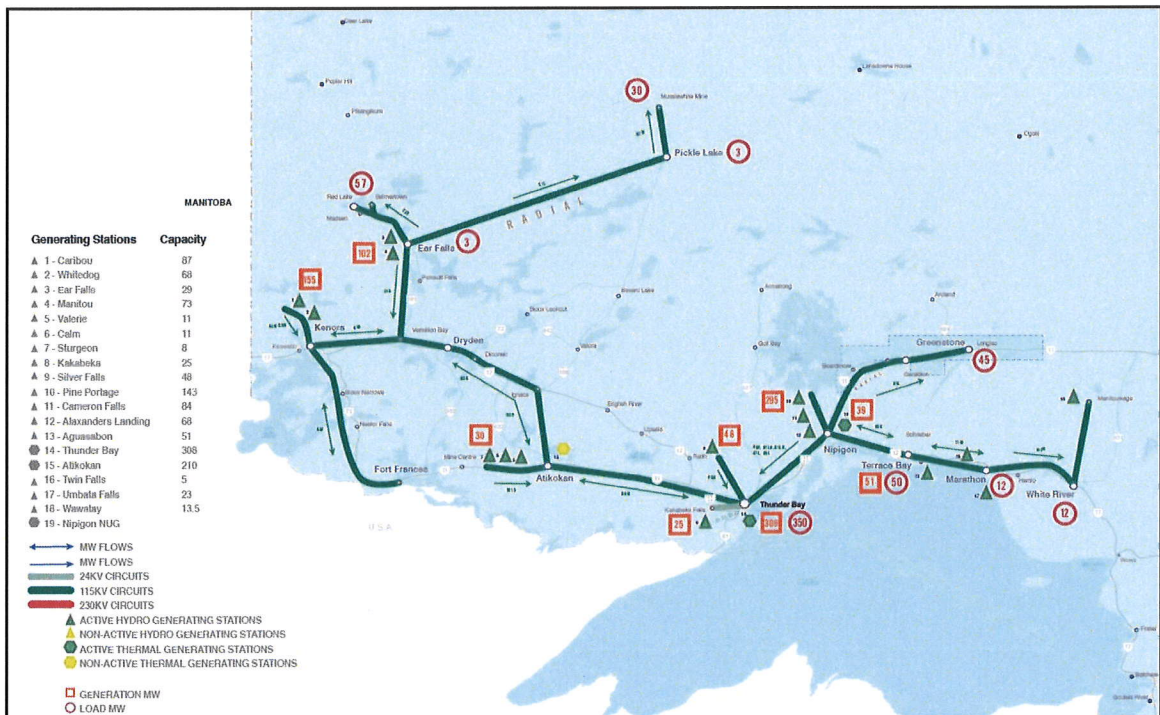


Figure 2: map of 115 kv distribution system showing direction of electricity flow

# Common Voice Northwest Response to the North of Dryden Plan

## Transmission

Transmission at 230 kv is the system that moves energy between jurisdictions rather than delivering it directly to Northwestern Ontario customers. Very few generators produce electricity at the 230 kv rate.(6) The east-west tie line connecting Manitoba to Northeastern Ontario (with a capacity of 350 MW) is the transmission system in the region. There is a minor 115 vk distribution connection (100 MW) to Minnesota at Fort Frances.

The one exception to both generation or supply and the movement of electricity is when energy is obtained from outside of the region when the local generators are not able to supply the required amount of power or when surplus energy is sent out of the region.

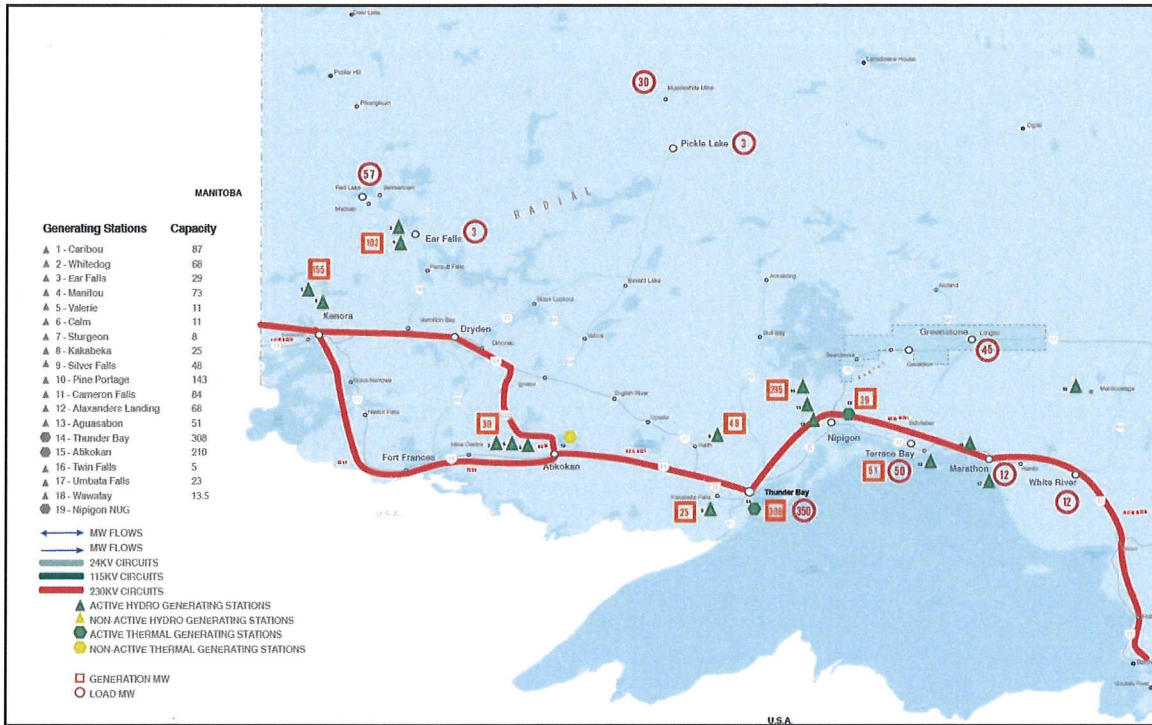


Figure 3 map of NWO 230 kv transmission shows the existing system.

(6) Resolute Forest Products in Thunder Bay and Fort Frances

## 115 kv Distribution System Structure

### Dryden – Kenora/Manitoba Border Sub System

The 230 kv system for the Dryden area is supplied from Kenora, via the K23D circuit. The K23D (Kenora to Dryden) Circuit gets its MWs from the excess generation that is created by the Caribou Falls and Whitedog Falls generating stations, after the Kenora area load on the 115 kv system is accommodated, by being transferred to the 230 transmission line at the Kenora TS.

There is also a 115kv Circuit, the K3D which connects Kenora and Dryden to each other. MW flows along this circuit are dependent on the MW's available and

the needs of the system.

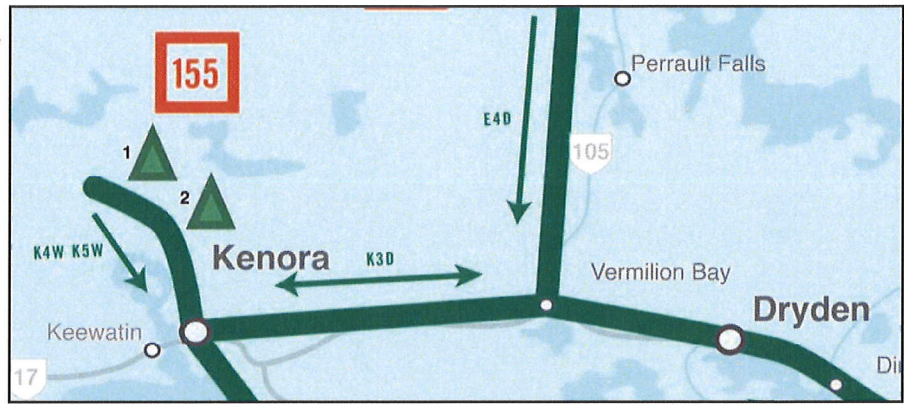


Figure 4 (map of K23D circuit)

### Fort Frances-Emo Sub System

Some of the excess MW's from the Whitedog and Caribou GS' will also flow southward out of Kenora area via the 115 kv K6F (Kenora-Fort Frances) circuit, as well as via the 230 kv K24F

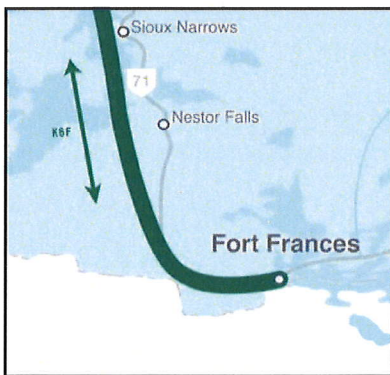


Figure 5 map of K6F 115 kv circuit

Circuit. The amount of MWs flowing southward to Fort Frances is dependent on how much generation is being supplied by the Fort Frances Mill, along with how much load there is in the town of Fort Frances. Excess MW's may be transferred from the 115kv to the 230kv system.

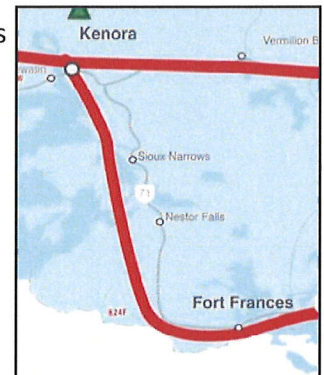


Figure 6 map of K24F 230 kv circuit



## Atikokan Sub System

The Atikokan Sub System consists of 2 Transformer Stations, fed from the 115 kv system at the Atikokan Moose Lake TS and from the 230 kv system at MacKenzie TS (Atikokan).

Moose Lake TS is part of the original 115 kv system and it is supported by the B6M Circuit, from Birch TS (Thunder Bay) and the 115kv Circuit M2D. There is an interconnection to MacKenzie TS, at the 115 kv level, via the A3M circuit. A radial line runs from Moose Lake TS and it is connected to Valerie Falls Customer Generating Station (CGS) and Calm Lake and Sturgeon CGS's.

MacKenzie TS is connected to the 230 kv system eastward via the A21/22L twin Circuits to Lakehead TS in Thunder Bay and westward via the F25A circuit to Fort Frances TS. As well, there is a 230 kv circuit (D26A), that runs from Mackenzie TS to Dryden TS. MW transfers in the sub system are looked after by the 230/115 kv Auto Transformers located at MacKenzie TS and this TS is connected to Moose Lake via the 115 kv circuit A3M. Atikokan GS is connected directly into the 230 kv Buswork of MacKenzie TS via the N93A 230 kv circuit. It is currently unavailable to the system, being converted to Biomass fuel although it is currently scheduled to be on line in June of 2014.

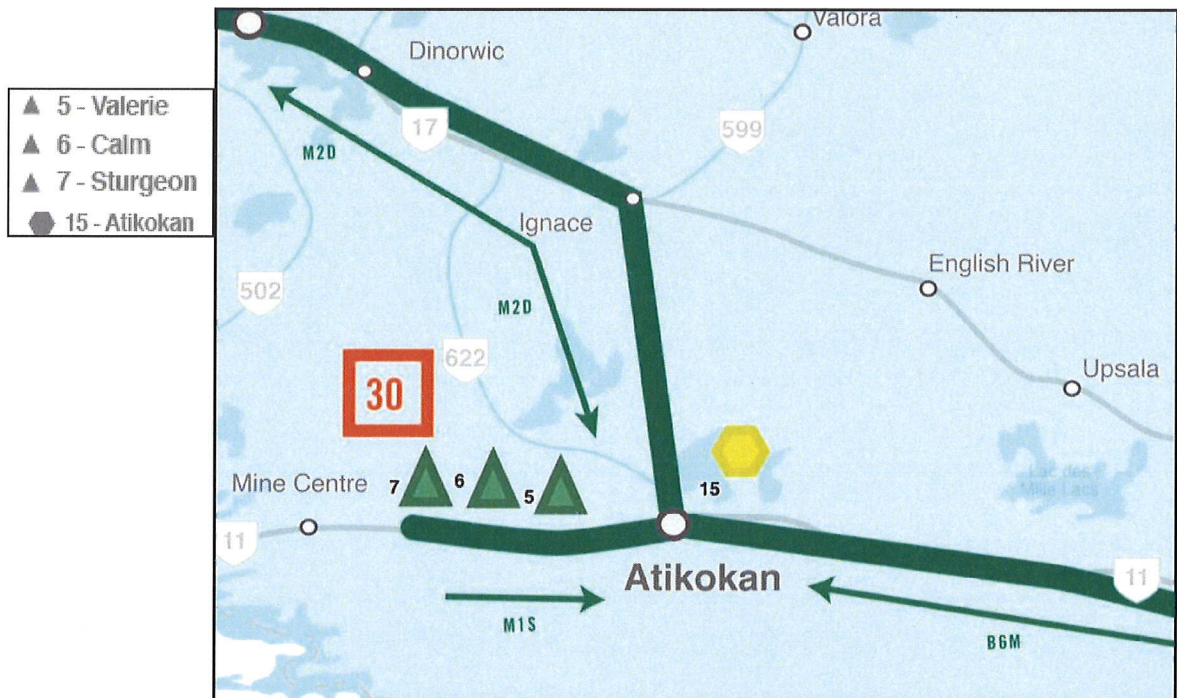


Figure 8 Map of Atikokan Subsystem

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### Thunder Bay Sub System

The Thunder Bay Sub System is supplied from Lakehead TS, Birch TS, Port Arthur TS (PATS) and Fort William TS all located within or immediately adjacent to the City of Thunder Bay. The 115 kv system is comprised of circuits that run from the Nipigon River Generating Stations that are connected to Lakehead, Birch and PATS. Those circuits flow to PATS via A6P, Lakehead TS, via R1LB and R2LB the A7L and A8L and to Birch TS via R1LB and R2LB. Fort William TS is supplied by the Q4B and Q5B 115 kv circuits that run from TBGS to Birch TS, with a tap off to Fort William TS (and a major industrial customer). There are 2 other 115 kv circuits (Q8B and Q9B) connecting directly from TBGS to Birch TS. All these stations are used to assist in the supply of the loads of the City of Thunder Bay, along with any Direct Industrial customers connected directly to the 115 kv system.

Kakabeka Falls GS connects to the system, via the 24 kv Distribution at Murillo and is stepped up to the 115 kv at Fort William TS.

Silver Falls GS is connected to Port Arthur TS via the 115kv Circuit, P5M.

Any excess generation that is left in this sub system is transferred to the 230 kv system, via the Auto Transformers at Lakehead TS, to be transmitted either Eastward via the M23/24L twin circuits, or Westward via the A21/22L twin circuits.

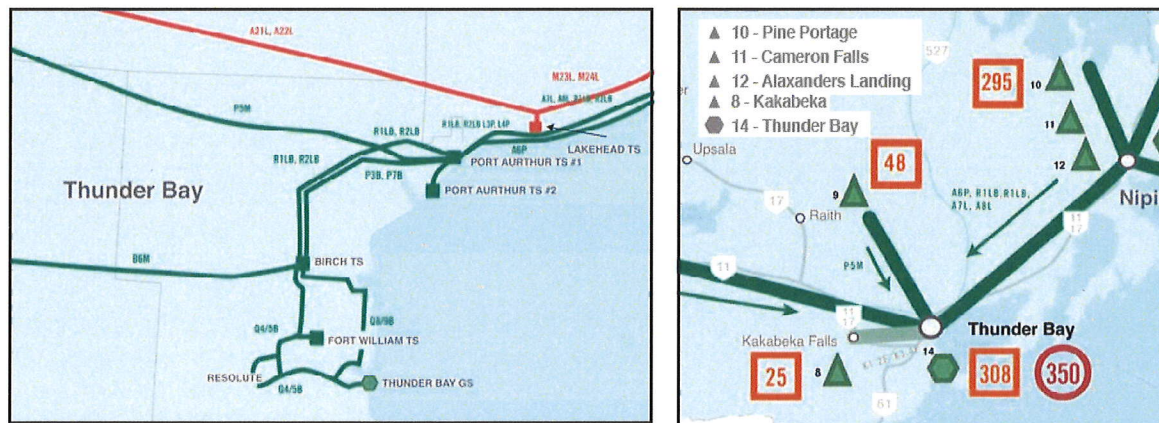


Figure 9 & 10 Maps of Thunder Bay Subsystem

## Nipigon Sub System

The Nipigon River Sub System consists of the 3 Generating Stations, Pine Portage, Cameron Falls and Alexanders Landing. The plants move generation towards Thunder Bay, mainly through to two switchyards, one at Pine Portage and one at Alexanders Landing. The Nipigon River generation also feeds into the 115 kv system and the excess not needed to assist in the supply of Thunder Bay loads, is also stepped up to the 230 kv system at Lakehead TS. MW flows are then distributed to the 230 kv system as a whole, taking the path of greatest load, whether it be eastward, via the M23L and M24L Circuits to Marathon, or westward, via the A21L and A22L Circuits to MacKenzie TS in Atikokan.

Pine Portage GS moves MW's to Thunder Bay, via 115 kv circuits R1LB and R2LB. It also moves MW's to Alexanders Landing via 115 kv circuit, R9A.

Cameron Falls moves MW's to Alexanders Landing via 115 kv circuits, C1A, C2A and C3A.

Alexanders Landing has a major Switching Station and it moves MW's eastward, to the Terrace Bay area, via 115 kv circuit A5A. It also moves MW's westward to Thunder Bay and its transformer Stations via the 115 kv circuit A6P to Port Arthur TS and to Birch TS via the R1LB and R2LB circuits. , and the A7L, A8L, R1LB and R2LB to Lakehead TS, 25 MW's are also moved Northward to supply to Greenstone area via the 115 kv A4L

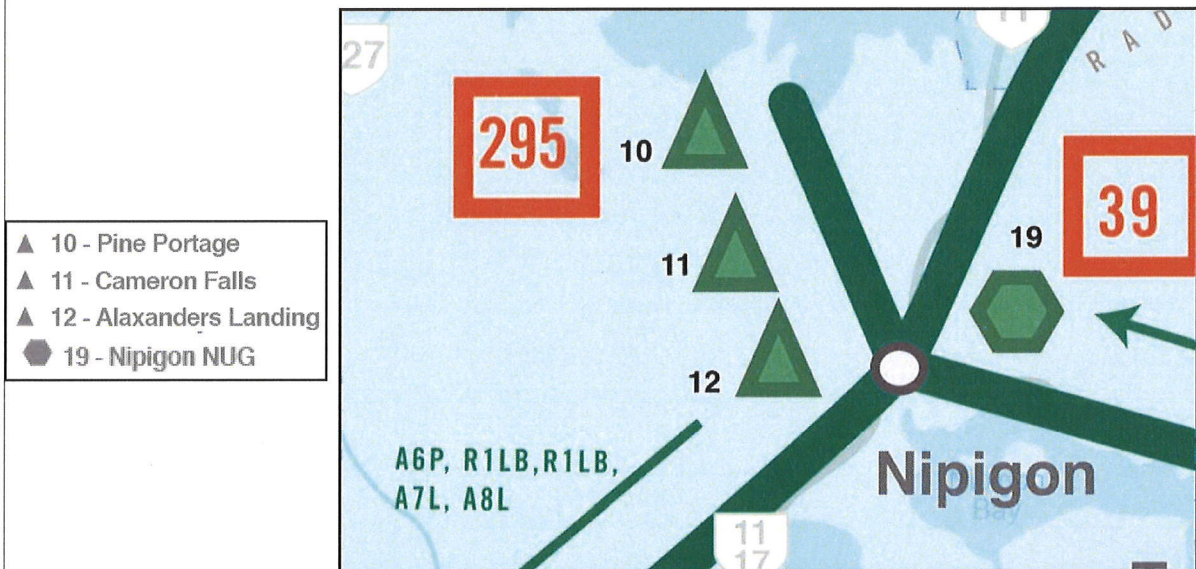


Figure 11 Map of Nipigon Subsystem

### North Shore Sub System

The North Shore Sub System consists of the 115 kv circuit A5A, which runs from Alexanders Landing to Aguasabon GS, where the Generating Station, located in Terrace Bay, provides additional MW's. the local loads in the immediate area are looked after, the excess MW's are then transferred eastward to Marathon via the T1M 115 kv circuit.

The load in the Marathon area is supplied by the 115 kv T1M circuit and eastward to White River and Manitowadge, via the M2W Excess MW's are transferred to the 230 kv system via the Auto Transformers at Marathon TS.

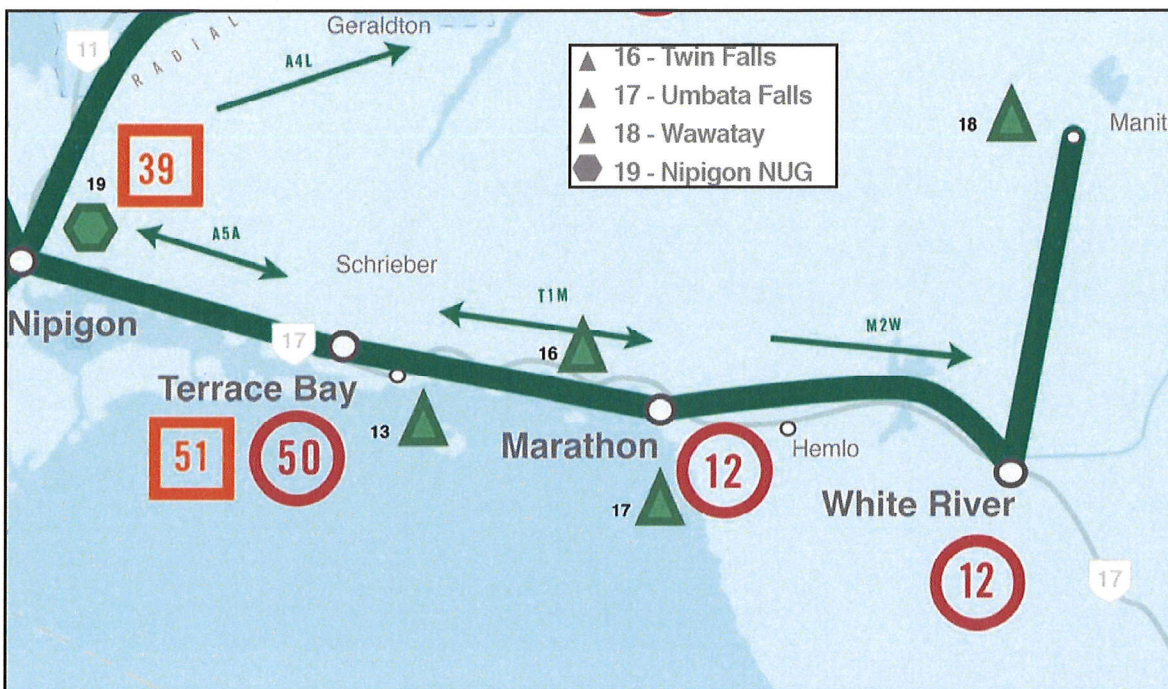


Figure 12 Map of North Shore Subsystem



### Greenstone Sub System

The Greenstone Sub System is supplied via the 115 kv Radial circuit A4L, from Alexanders Landing. The MW's flow into Longlac TS, with tap offs to Beardmore, Geraldton and Nakina, either at the 115 kv or 44 kv level.

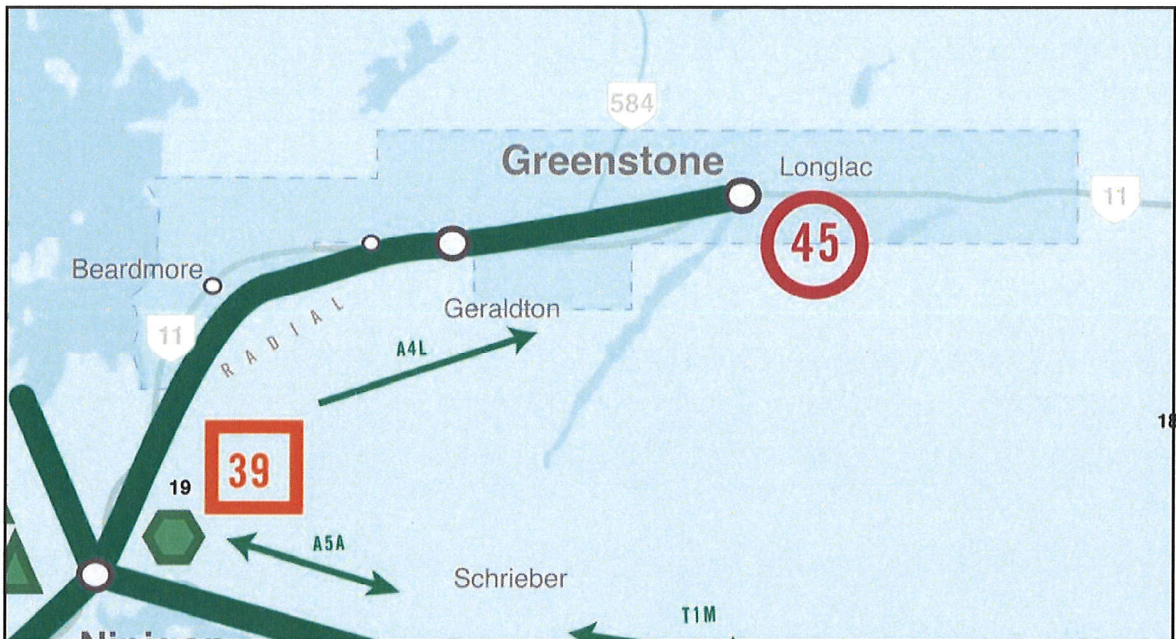


Figure 11 Map of Greenstone Sub System

## Common Voice Northwest Response to the North of Dryden Plan

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### **System Operations**

The energy system in the Northwest is a lot like a potable water distribution system with more than one source of water. As the valve at each source is turned on full, water will flow until the pipes are full. The water source will push as much water into the pipes as those pipes can hold. As each tap along the pipe is turned on to supply water to an end user, the supply will increase to match the demand as long as the source lasts. At some point, the end users will want to take more water than the suppliers can deliver. That's where a supplier like the Thunder Bay Generating Station comes in. The TBGS makes up the difference between the supply and the current demand by, in this analogy, creating additional 'water' to push through the pipes to the end user. Sometimes, that water is pushed west to Atikokan or Dryden and beyond, while other times it is pushed east to Greenstone or the north shore of Lake Superior, and sometimes in both directions.

As the demand for additional water grows so does the need to obtain more water from other sources. If there isn't enough water flowing through the system to meet the demand then somewhere along the line the tap will be turned on but minimal or no water will be available to that user. At the same time, new customers who want to get water from the system but are told that there is no extra water will go elsewhere, taking their investment with them.

The enhanced East-West tie line will add new 'water' to the system. So too will the conversion of the Thunder Bay Generating Station.

## **Role of Thunder Bay Generating Station (TBGS)**

If TBGS is in service, at 300 MWs, those MWs will flow where needed, starting with immediate supply to the loads in the Thunder Bay area. Excess generation will flow westward to Atikokan's Moose Lake TS, through Thunder Bay's Birch TS along the B6M 115 kv cct., to assist in meeting loading needs in those areas. Other excess TBGS MWs will flow to Thunder Bay's Lakehead TS, via 115 kv circuits R1LB and R2LB, where they will be stepped up to the 230 kv system. This will reduce or eliminate the need for new local generation in the North of Dryden region.

As of December 31, 2014 the Thunder Bay Generating Station will no longer be allowed by Ontario Regulation to use coal as a fuel. In November of 2012, the conversion of the TBGS from coal to natural gas was suspended by the Minister of Energy pending the submission of an analysis of the role of the TBGS and its relationship to the northwest. Subsequently, OPG was directed to examine the potential use of advanced biomass (also referred to as torrefied wood pellets) as a replacement fuel. In September of 2013 OPG conducted two successful test burns and determined that minimal capital expenditures would be required to enable the GS to operate with this fuel.

Also during 2013, the Ontario Energy Board approved a Reliability Must Run contract for the TBGS that ensures that one of the two units are available to operate throughout 2013. The IESO determined that this one unit was required for system reliability in the northwest and in a recent decision the OEB concurred. OPG are preparing a submission for a similar contract for 2014. Figure 12 shows the output of the TBGS during an extreme cold spell in the Northwest. These cold spells occur annually.

The cost of converting the Thunder Bay Generating Station to natural gas has been estimated at \$95 million plus the cost of the new gas line at \$37.2 million for a total of \$132.5 million or approximately \$433,000 per MW. On the other hand, the proposal for new distributed generation at Red Lake and Pickle Lake would cost \$229 (7) million and only create 106 MW (a cost of \$2,160,000 per MW.) Converting the Thunder Bay GS is five times more cost effective for the Province of Ontario than building new distributed generation. It also maximizes the use of an existing and paid for Ontario asset.

[7] Page 51 (Pickle Lake 46 MW costing \$99 million – CNG) and page 56 (Ear Falls-Red Lake 60 MW costing \$130 million –NG, not including the gas pipeline)

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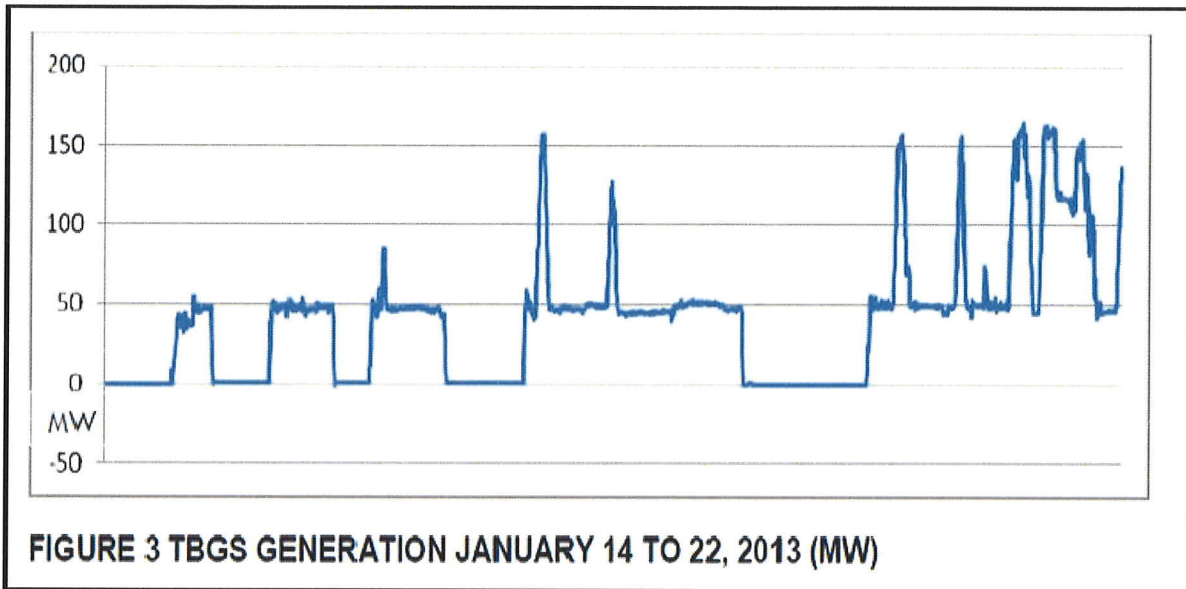


Figure 12 TBGS Generation from January 14 to 22, 2013

## **Role of Atikokan Generating Station**

The Atikokan Generating Station is currently being converted to biomass from coal fuel. This conversion is scheduled to be completed by June of 2014

As Minister Duguid wrote to the OPA "Consideration of Atikokan was ... a key part of the government's consultation with OPG, OPA and other stakeholders and informed the development of the Long-Term Energy Plan (LTEP). Page 21 of the LTEP states "(Atikokan) is expected to generate 150 million kilowatt-hours of renewable power..."[8]

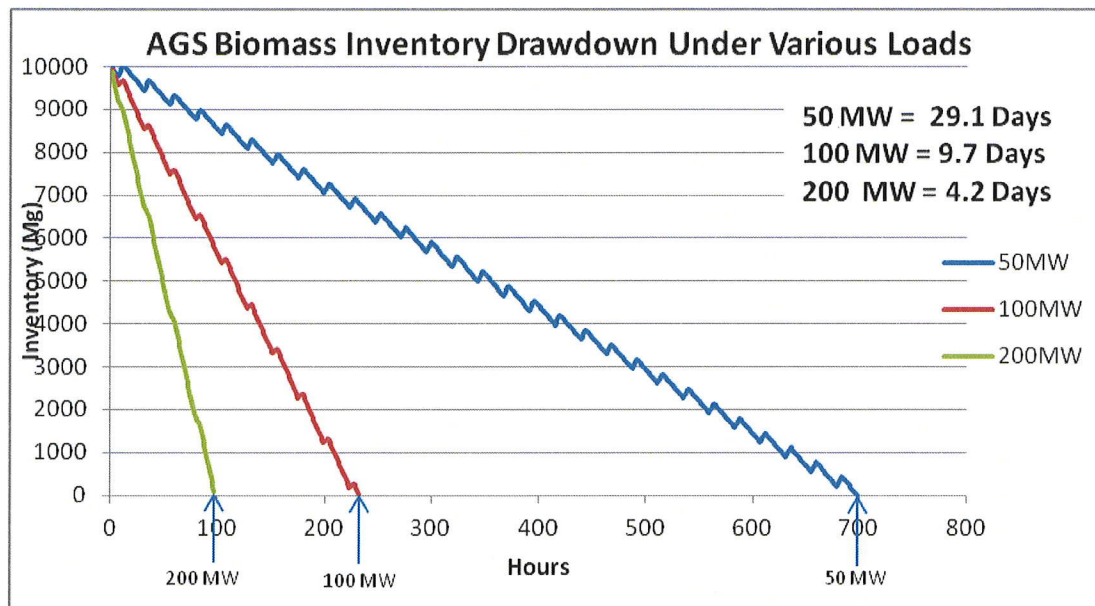
The slide deck presented to the Energy Task Force by the OPA on January 17 indicated that Atikokan would provide approximately 200 MW of power to the northwest (slide 8 and 9). However, slide 11, reflecting the letter from Minister Duguid, states that the "Plant will provide peak capacity and have fuel storage and handling systems to handle up to 90,000 tonnes of biomass fuel annually." It is important to note that 90,000 tonnes of biomass is equivalent to approximately 150 million kilowatt-hours of energy.

The Energy Task Force understands that the output of the Atikokan GS as currently planned for will be only a small part of what is needed in the Northwest.

We have been advised that the ATGS fuel suppliers will be capable of providing biomass roughly equally through the year. It is assumed that the GS will receive approximately 360 tonnes per day, 5 days per week, 52 weeks per year. That 360 tonnes translates into 3 hours of full production or 6 hours at 100 MW. The proposed storage silos have a combined capacity of 10,000 tonnes. If the plant is run like a hydroelectric facility with limited water and a storage reservoir (the silos), working with the IESO, OPG will plan to accumulate fuel during periods of low demand and then consume the inventory during periods of high demand. This is on a planned basis of course, i.e. it will not account for unpredictable system needs. It is assumed that the ATGS will have a minimum of 12 hours at full load worth of biomass on hand (about 1500 tonnes).

Assuming that the ATGS silos start at full capacity (10,000 tonnes) and are filled at a rate of 360 tonnes per day, Figure 1 indicates the number of hours that the plant will be able to run at various output levels. This would be scaled accordingly if the silos are not full.

(8) Letter to Colin Anderson, CEO, Ontario Power Authority, Aug 17, 2011 from Brad Duguid, Minister of Energy



**FIGURE 13 OUTPUT OF THE BIOMASS FUELED ATIKOKAN GENERATING STATION**

At the minimum operation level of 50 MW, the ATGS will be able to run for 700 hours or 29.1 days if run on biomass, as opposed to gas, (which is used to bring the unit from the shut down state to the ready-to-run state normally). At the other end of the spectrum the ATGS could only run for 4.2 days at a level near what the OPA has used to identify the role of this station. In reality the ATGS output will not be constant, so the 50MW and 200MW lines provide the outer bounds of the scenario. Clearly at 4.2 days, the ATGS cannot be relied on to provide a base load for the region. More likely it would operate somewhere between 50 and 100 MW on a more sustained basis as a peaking facility.



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The Atikokan Generating Station, as a key demand asset, will be able to augment the needs of the region from time to time but will not be able to dispatch energy in the quantity required during low water periods or periods of high demand. It should not count towards the base load supply requirements of the Northwest. It is important to note that during the annual January extreme snap experienced by the Northwest in - 2013, the Atikokan GS would likely not have been able to match the 16 days of peaks of up to 160 MW supply provided by the Thunder Bay GS during that period.

That being said, the capacity of the plant is only limited by the authorized fuel contract and the available storage facilities. With the growing wood pellet industry in Northwestern Ontario combined with the current historically low harvest rate OPG should be able to secure adequate supply to augment the current 90,000 tonnes of pellets contracted for. A study conducted for OPG by the Pembina Institute in 2011 identified as much as 2.9 million oven dried tonnes of fibre supply as being available for conversion to pellets. As the capital costs for the conversion to biomass has already been committed, the comparison between the construction of new generation in the North of Dryden zone and the addition of new storage and fibre supply will indicate that the further expansion of the Atikokan GS storage is the most cost effective solution to meet future demands.



## **Detailed Analysis of the North of Dryden Plan**

**This chapter is structured in a way that provides for general comments on the issues identified in the Plan and then a section on page by page observations and comments on the contents. For ease of review, the latter section will be referenced by page number, and where appropriate paragraph or line number.**

### **GENERAL COMMENTS**

#### **Support for Components of the Plan**

The Energy Task Force strongly welcomes the proposal to develop new transmission facilities and upgrades to the Ear Falls, Red Lake, Pickle Lake communities and to the remote communities located to the North of those municipalities. It has been the position of the ETF since its inception that these radial lines must be 'looped' in order to ensure a quality and quantity of supply that matches that experienced elsewhere in the Northwest as well as the rest of Ontario. That being said, it has taken way too long to get to this point in the planning as these shortfalls (in both quality and quantity) have been known for years and not acted upon in a timely manner.

#### **Northwestern Ontario Needs Ignored for Too Long**

The document states that the planning process commenced in 2010, yet fails to note a series of requests from area industry and municipalities to improve services for almost 20 years that have been virtually ignored by the Ontario Government and its agencies.

"Ever since the Musselwhite mine, located north of Pickle Lake started production in 1995 the transmission line to Pickle Lake (E1C) was maxed out. Musselwhite had the power they required to operate at the beginning but as they went through several expansions, their power requirements increased but the E1C was not capable of supplying the additional load. As of 1995 the Pickle Lake region had no access to additional power." (9) Officials in Pickle Lake believe that this at-capacity situation has limited their ability to grow.

Since 1995, the township of Pickle Lake has been telling the Government of Ontario and anybody who would listen that their community has no access to sufficient energy.

(9) Communiqué from Roy Hoffman, Mayor of Pickle Lake

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The Municipality of Red Lake began communicating with the Government of Ontario and its energy agencies in 2007 about the need to enhance the service to the Red Lake-Ear Falls area.

In 2008 representatives of Mussel White Mine, met with then Minister of Energy, George Smitherman to present their case for the construction of a new transmission line to serve the expansion of their mine. The Minister's response was to instruct Hydro One Networks to initiate planning for such a line. As far as the ETF is concerned (as well as Musselwhite) no such planning was ever done by Hydro One.

The Energy Task Force identified as early as 2009 that without the Thunder Bay Generating Station the Northwest would be short of power, particularly during low water or during storms. In June, 2012, the ETF raised with the Minister of Energy the remarkable opportunity for mining growth in the Northwest and their requirements for electrical energy and projected at that time that the growth would be in the range of 560 MW – bringing the total projected demand to 1,280 MW after 2016. (10) It was in the fall of 2012 when the full extent of the mining opportunity in the region became clear and the ETF adjusted its projected new loads to 880 MW by 2020 including the first two of the Ring of Fire mines.

Finally, while the Plan says that the planning has been ongoing since 2010 it was not until May of this year that the OPA came close to fully accepting the projections of the Energy Task Force and incorporating them into the Plan.

The mining companies, in their public documents have identified when they plan on commencing operation of their mines. The years identified are when they will require a connection to the grid. At the same time, all the mines must go through a series of steps to obtain financing and permission to engage in a mining activity at the location they have chosen. Lead times are between 2 and 4 years. However, lead times for transmission and distribution planning and construction are as lengthy if not longer than what is required for the development of a new mine.

Early on in the planning cycle for a mine, the proponents need to know that they will be able to connect to the grid in a timely manner and at what cost.

Energy planning for the Northwest must be robust and rapid, otherwise the economic potential of these mines will not be realized.

(10) Based on 14 known mining properties

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Capital respects no borders and will go where it is welcomed and where the return can be assured in a timely manner. Regulatory and planning delays will only discourage investment.

The one thing to keep in mind is that the OPA's projections are slanted towards 2033, but this is due to their inability to provide a system that is capable of carrying increased load any earlier, as opposed to a customer not wanting to increase their load. The real question that should be posed to the customer is...".If the capacity were in place to allow you to increase load NOW, what would you do? "

It is not as if the northwest is a household, where when a new appliance is purchased all one has to do is run an extension cord to the existing power supply. The distances to the grid in the northwest range from 2 km to 330 km. Lengthy planning, route selection, environmental assessments and construction will take time. The longer the planners take to understand the needs of the region, then plan properly to meet those needs, the greater the chance that capital will go elsewhere.

## Common Voice Northwest Response to the North of Dryden Plan

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### Focus of the Plan

The North of Dryden Plan (the Plan) although billed as a focus on the area immediately north of Dryden is in fact a plan that encompasses a large part of Northwestern Ontario. It reaches as far east as Marathon, makes references to Thunder Bay, Ignace and Atikokan and then attaches the Ring of Fire to the Dryden system without any consultation with the Greenstone area which also, like Pickle Lake, believes it has an attachment to the Ring of Fire.

The recently issued Updated Assessment of the Rationale for the East-West Tie Expansion (Oct 8, 2013, OPA) The North of Dryden Plan takes the position that TBGS is not in the picture due to the government's decision to suspend the gas conversion.<sup>(11)</sup> However, it leaves the door open by indicating that under either scenario (with or without the EW tie expansion), there is "a need for additional capacity and energy supply", which begins in 2015 at 100MW and grows from there to 400 MW by 2018, which is assumed to be met by a number of non-generation potential options in the short term before the tie-line is upgraded, and the addition of "new gas-fired generation" in the longer term. TBGS would certainly be an option to address both the near and medium term gap.

The economic analysis is not clear, it states that the study period is 2018-2062, but then they state it included the addition of "100MW of gas-fired

peaking generation in the Northwest as a solution to meet interim needs". When do the interim needs begin? In the conclusion it states that "with fewer internal resource available to supply this demand (i.e. the suspension of the conversion of TBGS to natural gas) there is greater urgency to plan supply for the NW." There appears to be an issue in the 2015 to 2018 period as a minimum.

A future draft of this Plan should include a schedule of new generation requirements under either scenario, with and without the EW tie expansion, beginning in 2015.

The Plan also does not take into consideration the other planning that is underway with regards to the Ring of Fire – particularly as it relates to transportation and telecommunication utility corridors, service communities etc.

11) The Plan fails to note that it was the OPA that provided the information to the Government which led to the decision to suspend conversion pending further research by the OPA itself.

Finally the Plan is inconsistent in the value of transmission and generation in meeting the needs of the region.

It is the opinion of the Energy Task Force that there should be separate plans for the following areas:

**North of Dryden – lower tier** including Ear Falls, Red Lake, Pickle Lake and Ignace along with the immediate Dryden area

**North of Dryden – upper tier** including all the remote communities except for those associated with the Ring of Fire

**Kenora area** – including forestry and mining operations

**District of Rainy River** – including area mines (but excluding Atikokan)

**Greenstone - Nipigon Area** including remote communities located south or immediately adjacent to the CN main line as well as the proposed Little Jackfish Hydro Electric Generating Station

**Ring of Fire mining area** – including those remote communities associated with the Ring of Fire

**Atikokan area** – including area mines

**Thunder Bay area** – including adjacent mines

**North Shore area** – including adjacent mines

While there are clearly interconnections between many of the planning areas, it is important to differentiate each area to ensure maximum consultation with those who will be affected by the contents of the plans and to ensure a consistent approach across the entire region.

### **Transparency in the Plan**

All of the material presented by the Common Voice Northwest Energy Task Force has included details around the projected source of the loads – including the name and location of the prospective mine, timing of construction and opening and the required load. The OPA has not chosen to reciprocate and instead uses broad numbers to indicate the load projected. That prevents proper verification of the OPA's projections as well as the opportunity to point out where the OPA's source numbers are inaccurate. As will be noted later in this response, the ETF has projected future loads at a level at least 150 MW higher

## Common Voice Northwest Response to the North of Dryden Plan

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than that identified by the OPA. There is no way, given the contents of the Plan, to determine where the differences have arisen.

The cost models or assumptions OPA used when developing estimates should be shared so that the public can assess validity. Excluding environmental costs; land costs; taxes; and the cost of potential impact-benefit or other partnership agreements that may be required with affected First Nations; and the cost of diesel backup to CNG is likely resulting in underestimated costs.

### **Inconsistencies in the Plan**

In a number of cases the Plan concludes that transmission (or distribution) is the appropriate option to serve the area north of Dryden. The Plan also concludes that transmission from North Eastern Ontario via the enhanced East-West Tie is an appropriate way to provide the required energy to the region. Yet, the Plan rejects the transmission of thermal generated electricity from Thunder Bay as a viable option.

During a meeting between the OPA, IESO, Ministry of Energy and the Energy Task Force held in Thunder Bay on May 2 and 3<sup>rd</sup>, OPA officials indicated that an option they were considering to ensure that the North of Dryden area had sufficient power was to either upgrade the existing transmission line from Atikokan to Dryden or to build a new line from Thunder Bay to Dryden. Neither option is presented in the North of Dryden Draft Plan. Yet, the plan states "Given current system conditions, generation from the Thunder Bay or Atikokan areas is not capable of meeting the load growth forecast for the North of Dryden area."

This inconsistency shows the desperation by the OPA to do everything they can to force the closure of the Thunder Bay GS as opposed to needs based planning which recognizes the value of all existing assets.

**The Energy Task Force rejects this OPA position.**

## Gaps in the Plan

One of the largest gaps in the Plan is the failure to consider or even mention the OPG proposed Little Jackfish River Hydroelectric generating facility north of Nipigon. This project is well into the environmental assessment stage of its development and is clearly one of a number of solutions to the enhancement of the quality of electricity service to the Greenstone area as well as being a source of power to the Ring of Fire. Current projections indicate that the station could be operational by 2020. This project offers a number of benefits to the sub-region:

- Connection of two additional remote communities to the electrical grid (Whitesand First Nation and Gull Bay First Nation) (12)
- Providing access to the grid to approximately 200 MW of wind power potential development along the shore of Lake Nipigon
- The proposed transmission line would provide for a short connection to the Greenstone communities to enhance the quality of electricity provided to them as well as increasing the available power (as opposed to a totally new line from Marathon which would have to go through route selection consultation, environmental assessment etc.)
- The connection through Greenstone to the Longlac TS would be well positioned to supply the Ring of Fire.
- Can provide seasonal and daily storage that significantly increases the availability and reliability of clean, renewable power
- Partnership opportunity for Lake Nipigon First Nations, employment opportunities, business contracting opportunities

Its omission says more about the narrow focus and mindset of the OPA than it does about good comprehensive energy planning.

(12) Additional to those located in the far north served by connections to Red Lake, Pickle Lake or Longlac

## Common Voice Northwest Response to the North of Dryden Plan

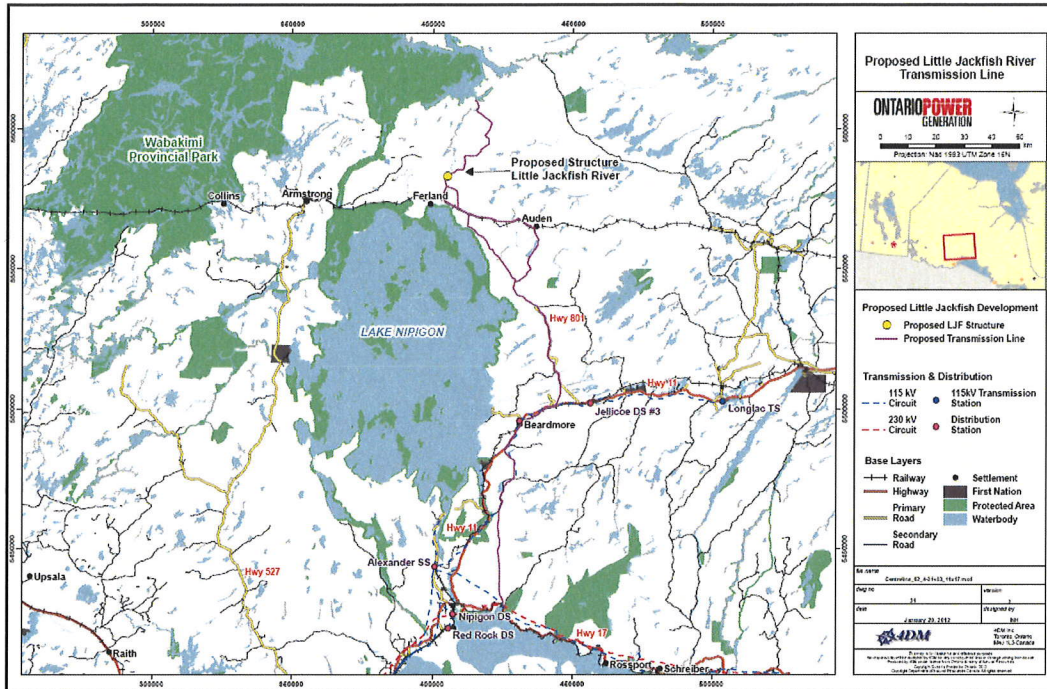


Figure 13 Map of the Little Jackfish Project

### Labour Force

Construction and operation of new gas fired generation facilities at Red Lake and Ear Falls would require the attraction of specialized staff to relatively remote communities. In Red Lake’s situation, staffing costs and accommodations are already at a premium. On the other hand, Atikokan and Thunder Bay has a greater ability to attract and retain skilled staff.

### “Orange” Zone

The Ontario Power Authority has designated Northwestern Ontario an “orange zone”, which indicates there is no transmission capacity for additional independent hydro generation. Other than those FIT contracts expected to come online, all future proposals will be turned down, even though the OPA continues to solicit expressions of interest for Northwestern Ontario generation (as part of an overall call for the entire province.).

Two co-gen proposals directly associated with the redevelopment and/or construction of new forest operations have been turned down, placing the financial viability of the operations in jeopardy. The North of Dryden Plan is silent on this crucial issue, when a solution should have been incorporated into the Plan.



### Load Projection – North of Dryden

Page 86 of the Plan features a chart showing the OPA’s projection for load increases in the short and long term. The Energy Task Force has reviewed its projections and has added its own trend line to the OPA’s Figure 14. Unfortunately, the OPA did not see fit to list the sources of the individual loads that are incorporated into their projections, nor did the OPA clearly delineate the load forecast (choosing instead to present it in the form of a graph). The ETF, on the other hand, has attached its load projections as Appendix A to this submission.

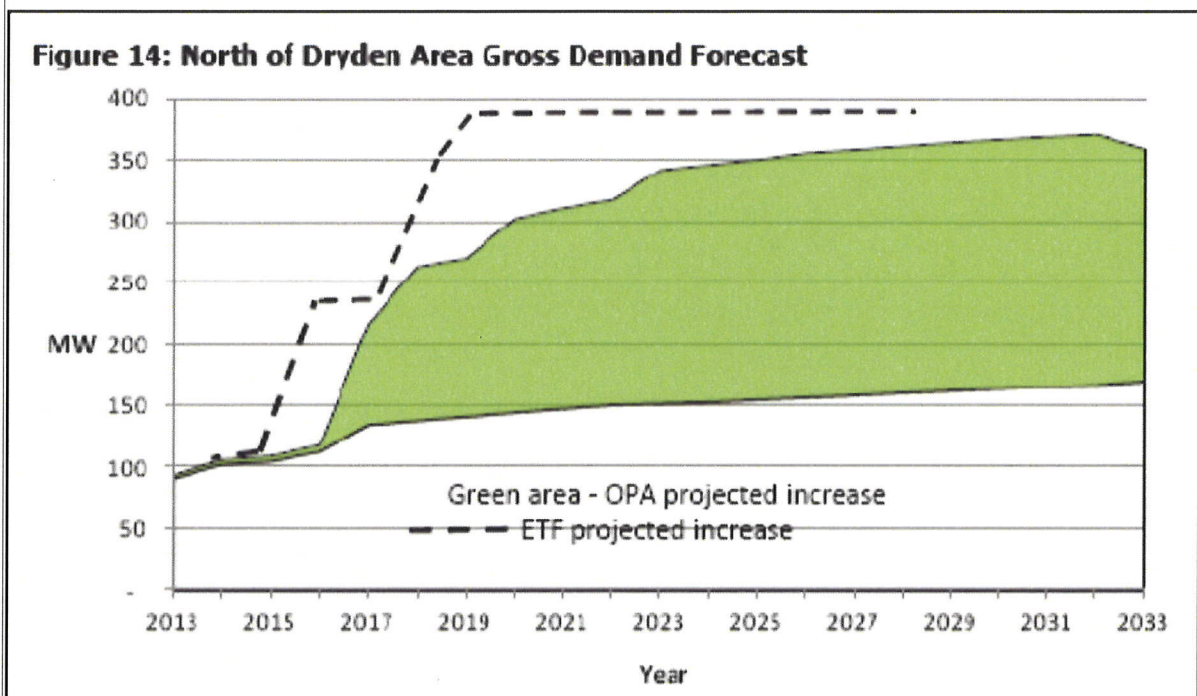


Figure 14 North of Dryden Area Gross Demand Forecast comparing sources

It is important to note that the OPA projections include loads associated with the remote First Nation Communities and the Ring of Fire, while the ETF’s do not include the remote communities. It is equally important to note that the OPA has not incorporated the potential load created by the conversion of one of TransCanada Pipelines (13) from Natural Gas to crude oil. This conversion will result in a pumping station being installed every 60 km with

(13) TransCanada Pipelines are currently conducting engineering studies to determine where those pumping stations will be connected to the electrical grid and where they will be fueled, either directly or indirectly from the adjacent natural gas line.

## Common Voice Northwest Response to the North of Dryden Plan

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each station requiring 10 MW of electrical power each. It is a rough estimate that the pipeline within the North of Dryden Plan area will require 80 MW of power (13

The Energy Task Force's projections for the North of Dryden area, not including the remote communities, are as follows up to the year 2020: :

Year	2013	2014	2015	2016	2017	2018	2019	2020
MW	3.5	14.5	21	190		120	25	4.5

Resulting in 378.5 MW of increased North of Dryden load, over and above the current loads of 2013 (85 MW)) for a total system load of 463.5 MW.70 MW—not including the Ring of Fire loads).

A review of pages 31 to 33, plus 42 of the North of Dryden Plan shows that the OPA projects load forecast as follows:

From Figure 9

- 2016 = 110 to 120 MW load forecast
- 2017 = 130 to 200 MW load forecast
- 2018 = 140 to 260 MW load forecast
- 2019 = 145 to 270 MW load forecast
- 2020 = 150 to 300 MW load forecast.

These figures are substantially different than the ETF projections, as the ETF shows an increase of 378.5 MW, over and above the current loads by 2020.. The range of difference is from a high of 228.5 MW to a low of 78.5 MW

On page 13 of the North of Dryden Plan in the Recommendation section of the Executive Summary, the following statement is found:

“Together these projects increase the Pickle Lake subsystem load meeting capability (“LMC”) from 24 MW to between 70 MW and 140 MW, and increase the Red Lake subsystems LMC from 61 MW to 130 MW.”

The ETF interprets this as resulting in an increased load of between 115 MW and 185 MW. As noted earlier, the ETF projects 378.5 MW of new load by 2020 leaving a gap of between 263.5 MW and 193.5 MW in the capacity of the OPA's proposed system for the planning area.

### **The Role of Single Cycle Gas Turbines (SCGT)**

SCGTs are assumed to supply the power needed through the proposed transmission lines. SCGTs may not be representative of system generation, given that current policy has leaned toward more expensive but renewable technologies. Also, for environmental and socio-economic reasons, other technologies warrant analysis. With a little cooperation from those who have access to such studies, the ETF can show graphically that combined with the planned and recommended upgrades to the E4D and E2R there could potentially be a reduction in the need or amount of local generation in the Ear Falls/Red Lake/Dryden area. This reduction can be of a permanent nature, or could, at the very least stall the need for that distributed generation.

### **Regional Engagement**

Following the receipt of this and all other submissions to the OPA on the North of Dryden Plan the Energy Task Force recommends the following engagement process:

1. Post all submissions on the OPA web site and advise all submitters, municipalities, First Nations, economic development offices and Chambers of Commerce in the planning area of the postings.
2. Provide a period for further comment, with a specific deadline for receipt of those comments.
3. Post a revised draft of the plan indicating what changes have been made as a result of the submissions. Also post all source documents, calculations etc that inform the draft plan.
4. Conduct a series of meetings and open houses with key communities and stakeholders across the Northwest including the following locations:
  - a. Dryden
  - b. Ear Falls/Red Lake
  - c. Pickle Lake
  - d. Thunder Bay
  - e. Greenstone

## Common Voice Northwest Response to the North of Dryden Plan

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- f. Sioux Lookout
- 5. The meetings and open houses should highlight the changes from the first draft and allow for extensive dialogue with stakeholders on the overall content – including the technical details that underline the plan.
- 6. Provide an opportunity for further written submissions
- 7. Formally present the final draft to the following organizations
  - a. CVNW Energy Task Force
  - b. NOMA
  - c. NOACC
  - d. The municipalities of
    - i. Dryden
    - ii. Ear Falls
    - iii. Red Lake
    - iv. Pickle Lake
    - v. Greenstone
    - vi. Thunder Bay
  - e. Nishnawbe Aski Nation (and the appropriate Tribal Councils)
  - f. Treaty 3 (and the appropriate Tribal Councils)

**Analysis of North of Dryden Report**

<b>PAGE 10</b>	<b>SUBJECT Executive Summary</b>
<p><b>COMMENT The North of Dryden Report states “Given current system conditions, generation from the Thunder Bay or Atikokan areas is not capable of meeting the load growth forecast for the North of Dryden area.” No further elaboration of this statement is found in this report.</b></p> <p>The OPA must put forward their rationale for this position or remove it from the draft.</p> <p>The Energy Task Force position is that energy is still needed to put through the proposed lines and Atikokan GS and Thunder Bay GS are existing assets that can be utilized to provide this local generation. Benefits include use of existing assets and a skilled workforce; low (or in the case of Atikokan GS, sunk) conversion costs; less line losses than bringing the power up from elsewhere in Ontario via the E-W Tie; supportive communities; and renewable fuels (biomass for Atikokan and Advanced Biomass or a mix of Advanced Biomass and gas for TBGS).</p> <p>Specifically for Atikokan GS, the cost of getting more capacity from this asset to power the transmission lines is only the incremental cost of a larger fuel contract.</p>	
<b>PAGE: 15</b>	<b>SUBJECT: Paragraph 1</b>
<p><b>COMMENT: It is stated that if the Ring of Fire Load is greater than 47 MW a 230 KV line from either Pickle Lake or Marathon would be appropriate.</b></p> <p>Nowhere in the document is there any rationale for a connection at Marathon . There are two other options for this connection and both should be evaluated along with a Marathon routing. This should also be part of a Greenstone Sub-Regional Plan.</p> <ol style="list-style-type: none"> <li>Advanced planning has occurred for the Little Jackfish Project and an EA for a transmission route from Kama Bay to the Little Jackfish Project is near completion and could be utilized as the starting leg for transmission to Greenstone and the Ring of Fire. This route could connect 2 more First Nations than the Remote Communities Connection Plan suggests (Whitesand First Nation and Gull Bay First Nation). It would also make viable 200 MW of wind power located along the east side of Lake Nipigon.</li> <li>There is an existing 115 kv station at Terrace Bay and building a 230 kv tap nearby could be done easily as well, depending on the voltage level desired. The transmission route could easily follow the existing log haul road that connects Terrace Bay to Longlac and</li> </ol>	

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<b>PAGE 17</b>	<b>SUBJECT Introduction</b>
<p><b>COMMENT: The Introduction includes a list of planning areas being worked on by the OPA. Missing is Greenstone.</b></p> <p>At the Joint OPA, IESO, Ministry of Energy and Energy Task Force meeting in May of 2013, a representative of the government agencies indicated that the electrical needs (both current and future) of the Municipality of Greenstone needed to be planned for and <u>they would be</u>. This summary of the 6 areas continues to ignore the largest Municipality in Ontario and its current reliance on an inadequate and regularly interrupted radial service. It does not take into account the plan to construct a major Gold Mine at Geraldton, with a projected load of 80 MW. The current A4L Circuit cannot support this planned increase. It also ignores the advanced planning for the Little JackFish Hydro-electric development and the proposed transmission lines to connect it to the grid at Nipigon along with the role that it can play in the region.</p>	
<b>PAGE 17</b>	<b>SUBJECT: 2.1</b>
<p>COMMENT: It was only through the work of the ETF and its participating partners that the OPA began to understand the growth reality of the Northwest. Page 78 outlines the engagement process that the OPA undertook showing meetings as early as 2011 yet it wasn't until May of 2013 that the OPA (and IESO &amp; Ministry) were willing to accept the majority of the load projections put forward by the area (including the ETF)</p>	
<b>PAGE: 18</b>	<b>SUBJECT: 2.1 General</b>
<p>COMMENT: There is no reference in the North of Dryden Report to looping with Red Lake, Pickle Lake and Longlac, the northern entry points that will facilitate the grid connection to the northern remote communities. It has been the position of the Energy Task Force that all services in the Northwest must be developed with a redundancy component to ensure a continued supply of electricity. This should apply equally to the upper tier (remote) com-</p>	
<b>PAGE: 18</b>	<b>SUBJECT: 2.1 line 9</b>
<p>COMMENT: Instead of providing 'options' the plan should reference 'specific plans' to meet future growth.</p>	



Table 7.5

Options for Transmission Infrastructure Upgrade for Northwest Ontario in the next five years

Transmission Destination	Transmission Line Options	Length of Transmission Lines	Total Cost*	Assumptions
<b>Ring of Fire</b>	115 kV from James Bay	350 Km	\$254,534,000	Wood Poles, Single Circuit, 477kcmil, two terminals and one intermediate stations
	230 kV From North of Kapuskasing	Over 500 Km	\$425,108,371	Twin Wood Pole H Frame, 795kcmil, Single Circuit, two terminals and three intermediate stations
	115 kV from Pickle Lake	350 Km	\$254,534,000	Wood Poles, Single Circuit, 477kcmil, Single Circuit, two terminals and one intermediate stations
	230 kV from Pickle Lake	350 Km	\$288,613,710	Wood Poles, Single Circuit, 477kcmil, Single Circuit, two terminals and one intermediate stations
	115 kV from Longlac	400 km	\$264,712,000	Wood Poles, Single Circuit, 477kcmil, two terminals and two intermediate stations
	230 kV from Longlac	400 km	\$265,700,000	Twin Wood Pole H Frame, Single Circuit, 795kcmil, two terminals and two intermediate stations
<b>Red Lake</b>	230 kV from Dryden or Kenora	220 Km	\$201,387,903	Twin Wood Pole H Frame, Single Circuit, 795kcmil, two terminals and one intermediate stations
<b>Pickle Lake</b>	115 kV from Valora	300 Km	\$245,775,000	Wood Poles, Single Circuit, 477kcmil, two terminals and one intermediate stations
	230 kV from Dryden or Ignace	350 Km	\$288,613,710	Twin Wood Pole H Frame, Single Circuit, 795kcmil, two terminals and one intermediate stations
	230 kV from Nipigon	430 Km	\$360,216,129	Twin Wood Pole H Frame, Single Circuit, 795kcmil, two terminals and two intermediate stations

\* Costs do not include local distribution system infrastructure or reinforcement at the Hydro One network interface.



<b>PAGE: 20</b>	<b>SUBJECT: 2.1 Line 5</b>
<p>COMMENT: The report suggests that there is the 'possibility' of connecting the remotes at Marathon, with a new TS created near Nakina. This is a clear admission that the existing service to the Longlac TS (Greenstone) is inadequate. However, the projected load indicated by the OPA for this line does not take into consideration Premier Gold's 80 MW required for this new mine in Geraldton.</p> <p>The current A4LA4L and Geraldton/Longlac TS's can't accommodate the Premier Gold load. This is just one more example of the OPA's poor planning, caused by their "whites of the eyes" policy and the failure of the OPA to incorporate all of the ETF's projections of future loads.</p> <p>It is obvious to the ETF that the OPA did not query Premier Gold and other potential load customers in the Greenstone area to see what their plans were.</p>	
<b>PAGE: 18</b>	<b>SUBJECT: 2.2 Paragraph 2</b>
<p>COMMENT: According to the North of Dryden Plan, the OPA and the IESO have been developing a plan for the North of Dryden area since 2010. The 2007 IPSP did not identify any improvements needed or planned for this area. However, in the 1<sup>st</sup> Ministry Long Term Energy Plan dated 2012 there is reference to the north of Dryden area (page 47 and 51) including the following:</p> <p>"New transmission supply to Pickle Lake is a crucial first step to enable the connection of remote communities in northwestern Ontario. A new transmission line to Pickle Lake — one of this plan's five priority projects — will help to service the new mining load and help to enable future connections north of Pickle Lake. Subject to cost contributions from benefiting parties, Ontario will focus on supplying Pickle Lake from the Ignace/ Dryden area immediately. A line to serve the Nipigon area specifically will continue to be considered as the need for it evolves."</p> <p>However, Red Lake started asking for upgrades in 2007 and Musselwhite Mine met with Minister Smitherman in 2008 to request assistance to get more power to the mine to enable significant expansion of their operation. The Minister instructed Hydro One Networks to find a solution. There is no evidence of any activity by Hydro One on this file. It has been left to Musselwhite along with its First Nation partners and a second proponent to put forward plans for upgrading the area.</p> <p>Given that the OPA did not indicate anything more than about 75 MW of growth in the entire Northwest at the end of January this year, the ETF questions what the OPA was actually planning for since 2010.</p>	

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<b>PAGE: 21</b>	<b>SUBJECT: Paragraph 1</b>
COMMENT: Again no reference to Greenstone and the current and future electrical needs	
<b>PAGE: 21</b>	<b>SUBJECT: Paragraph 2</b>
COMMENT: "The provision of reliable electricity supply to the area north of Dryden requires that electricity be generated and/or transmitted from elsewhere in the Northwest" - we strongly agree with that statement, however that statement is inconsistent with a statement later in the same paragraph " <i>Given current system conditions, generation from the Thunder Bay or Atikokan areas is not capable of meeting the load growth forecast for the North of Dryden area</i> " found on page 10 of the Executive Summary.	
<b>PAGE: 21</b>	<b>SUBJECT: Paragraph 2</b>
COMMENT: "Given current system conditions generating from the Thunder Bay or Atikokan areas is not capable of meeting the load growth forecast for the North of Dryden area." This may be true for transmission capacity but is not true for generation. We have 306 MW of licensed capacity at the TBGS and if Atikokan does not have the capacity it is the fault of the Government for failing to adequately plan for the needs of the region.	
<b>PAGE: 21</b>	<b>SUBJECT: Last Paragraph</b>
COMMENT: The OPA continues to rely on a business case regarding connecting First Nations to the grid as opposed to doing it for the public good. A majority of the other communities in Ontario have not been charged to connect to the grid, neither should these communities.	
<b>PAGE: 22</b>	<b>SUBJECT: Line 13</b>
COMMENT: The Marathon option should be part of a Greenstone plan not a north of Dryden plan to recognize the distinct nature of the region	
<b>PAGE: 23</b>	<b>SUBJECT: Paragraph 1</b>
COMMENT: The Northwest objects to the 'business case' philosophy etc	

<b>PAGE: 25</b>	<b>SUBJECT: Paragraph 2</b>
<p>COMMENT: A separate plan for the RoF would enable all options for supply and generation analysed in its own right (recognizing that it would impact on both the Dryden and Greenstone plan). Alternatively, instead of a North of Dryden Plan it should be renamed a North of Thunder Bay plan (going from the Manitoba border to the eastern Thunder Bay District – or even mid Algoma border)</p>	
<b>PAGE: 26</b>	<b>SUBJECT: MAP</b>
<p>COMMENT: The North of Dryden sub-zones as shown on this map exclude Ignace. However, page 107, figure 19 (North of Dryden Transmission System) shows Ignace as being included. Ignace should be included, if only for the fact that it could become a factor should the tap off to Pickle be done there and there is potential load increase when the Resolute Sawmill comes on board, as scheduled. There may be increased load if the minerals (Osisko) is handled at Ignace, as opposed to Atikokan.</p>	
<b>PAGE: 27</b>	<b>SUBJECT: Last Paragraph</b>
<p>COMMENT: This paragraph describes the inter-relationship between local generation and transmission/distribution from other locations. This example outlines how a looped system from Red Lake to Pickle Lake and from Pickle Lake to Longlac can ensure a continuous supply of power should there be a break somewhere in the line (only if they are connected at Pickle Lake.). This would reduce the need to restrict load and run in an islanded situation, which is difficult, costly and open to suits, should the E4D become permanently faulted for a prolonged period, which has happened in the past.</p> <p>There are hundreds of hydraulic opportunities located immediately adjacent to the proposed routing of the remote community grid that can not only supply electricity on an ongoing basis but can also be there to backfill when the line breaks.</p>	
<b>PAGE: 28</b>	<b>SUBJECT: Last Paragraph</b>
<p>COMMENT: This graph is misleading as it deals with only connected load. It fails to account for the ongoing request from Musselwhite Mine for the past 5 or more years for increased supply. this information will change the graph as well as the text</p>	

Common Voice Northwest Response to the North of Dryden Plan

<b>PAGE: 29</b>	<b>SUBJECT: Footnote</b>
<p>COMMENT: : The Energy Task force is pleased that the OPA shared this data with the ETF when it was the ETF who produced it in the first place and convinced the OPA to change their projections. However it is important to note that as noted on page 18 and 19 of this submission, the OPA’s load projections are approximately 125 KW short of what the area economic development officials and the mining and forestry officials project. It is also important to note that according to the OPA there is only 85 MW of capacity available and it seems the OPA have arbitrarily designated 61 to Red Lake/Ear Falls and 24 to Pickle. The Energy Task Force knows that Red Lake wants and needs more and Pickle/Musslewhite has been demanding more for a number of years..</p>	
<b>PAGE: 30</b>	<b>SUBJECT: 4.1 First paragraph, last sentence</b>
<p>COMMENT: The existing OPA statement should be replaced with the following statement in order to more accurately reflect what is happening in the Northwest:          “The timing and size of electrical demand of these industrial facilities has been identified by each of the mine proponents through detailed engineering studies. Other factors can come into play including:”</p>	
<b>PAGE: 30</b>	<b>SUBJECT: Paragraph 2, 2nd last line</b>
<p>COMMENT: Projecting completion of the North of Dryden line by 2018 may be optimistic</p>	
<b>PAGE: 30</b>	<b>SUBJECT: Last Paragraph</b>
<p>COMMENT: Language is inconsistent – reference to distance from Pickle but not from Marathon - see page 114 of mining readiness strategy for map with distances as repro-</p>	
<b>PAGE: 34</b>	<b>SUBJECT: Line 9 and last paragraph</b>
<p>COMMENT: Projecting conservation on an area where there is no existing load or supply is misleading. Each mining company will install the most energy efficient equipment they can and operate it as cost effectively as their operation requires. To show a potential 1 to 6 MW saving is silly. A projected 8-9% reduction is not realistic. See appendix 10.3</p>	

**PAGE: 36**

**SUBJECT: Paragraph 1**

COMMENT: The document fails to point out that the entire Northwest is an orange zone in that there is no capacity to allow any additional renewable projects to connect to the grid.

**PAGE:39**

**SUBJECT: Section 6**

COMMENT: Section 6 speaks to planning and to what standards they must plan to for the system. IESO uses a policy, called ORTAC and in keeping with that it says the transmission system shall have sufficient capability under peak demand to withstand specific outages, while keeping voltages and equipment within limits. 'This is defined as the Load Meeting Capability (LMC). According to this policy the further a load is away from the Bulk System connection point (ie Dryden), the lower its LMC will be.

For North of Dryden consisting of Red Lake sub system and Pickle Lake sub system, the OPA states that the LMC is 85 MW, based on circuit limits and the amount of generation that is available in the Ear Falls/Manitou Falls GS's. The Red Lake LMC is 61 MW and Pickle Lake is 24 MW.

According to information obtained by the ETF the Pickle Lake LMC is upwards of 32 MW (as compared to the OPA's 24 MW) and Red Lake/Ear Falls LMC is more than the 61 MW as recorded by the OPA. The end result is a negative LMC of at least 6 MW. A negative LMC drastically results in an inability to supply the desired and projected area in a sub system, resulting in negative impacts on the economy and production of it industrial customers and also the social impacts to its residential customers.

However, in the very next paragraph it is acknowledged that additional supply is required and then they support this with Table 3, on page 41.

If they are a 0 right now, then they would be in a deficient mode starting last year :

Red Lake Low Demand

2013 61MW base to 71 MW = 10 MW short to meet the IESO's ORTAC measure of LMC

2014 61 plus 16 MW

2015 61 plus 19 MW

2033 61 plus 40 MW

High Demand

2017 61 to 138 MW short

2018 61 to 180 MW

2033 61 to 189 MW

Common Voice Northwest Response to the North of Dryden Plan

Pickle Lake Sub System

2013 24 LMC with a need for 33 = 9 MW short  
 2014 12 MW short  
 2015 18 MW short  
 2021 30 MW short  
 2033 39 MW short.

Page 42 summarizes the LMC shortfalls, but it is light in its projections. Their own figures show that Red Lake Sub System could be short from 40 to 189 MW, by the ETF's calculations. The OPA does however recognize a serious blockage in their ability to supply either the Red Lake/Ear Falls or the Pickle Lake sub systems, but they seem to make little of the fact that there is a serious deficiency in capability, let alone account for proposed growth. The system does not meet standards today.

All of the OPA's projections look at capacity and do nothing to speak to grid security, system redundancy and lack of an alternative supply route for this area. They have even discounted the R of F impact, by not including that potential load in the analysis.

**PAGE: : 40**

**SUBJECT: Last Paragraph**

COMMENT: It needs to be pointed out that 5 years ago Musselwhite Mine met with Minister Smitherman to put forward the need for additional transmission capacity to serve their mine. Six years ago the Municipality of Red Lake put forward the need for additional supply. The OPA is wrongly leaving the impression that this is new information.

**PAGE: 42**

**SUBJECT: Paragraph 1**

COMMENT: Elsewhere in the plan reference is made to the Ring of Fire communities connecting by 2018 – here it is 2016. The draft should be modified to ensure consistency of information

**PAGE: 49**

**SUBJECT: Table 7**

COMMENT: It is the position of the ETF that all new circuits and line switchgear should be built to 230 kv standards, initially connected to 115 kv, where indicated, but capable of being re-connected to the 230 kv terminal when the load increases to the stage where that 230 kv would be needed. This allows the quick installation that is needed in the near term, but also recognizes that the projected mid to long term load is shown to increase to the point where it cannot be managed on the 115 kv.

<b>PAGE: 50</b>	<b>SUBJECT: 7.2.1 line 4</b>
COMMENT: If the OPA had listened to Musselwhite and Minister Smitherman 5 years ago the line would be in place and diesel a fuel of the past	
<b>PAGE: 50</b>	<b>SUBJECT: 7.2.2</b>
COMMENT: It is the position of the ETF that all circuits (existing and new) shall include a looping or redundancy component. This will ensure continuation of supply even during	
<b>PAGE: 51</b>	<b>SUBJECT: CNG</b>
COMMENT: The use of CNG assumes that expanding natural gas pipeline is not an option – it is, but should be factored into the cost. It may be more appropriate to convert NG to electricity somewhere along the TransCanada Pipeline and construct new transmission to supply the sub-zones	
<b>PAGE: 52</b>	<b>SUBJECT: Paragraph 1</b>
COMMENT: The report says “at present the Ontario system has sufficient generating capacity to meet system peak and energy needs; however, by 2018 there will be a need for additional peak capacity.” This statement goes against earlier statements that Thunder Bay is not needed – see page 21 of this submission. It also forgets to reference the Reliability Must Run contract for the TBGS which ensures that we have the power to maintain system reliability	
<b>PAGE: 53</b>	<b>SUBJECT: Paragraph 2, 2nd sentence</b>
COMMENT:: This paragraph opens the door for recognition that other mines may be in play in the Pickle Lake area – has an impact on the Pickle vs Marathon connection scenario	
<b>PAGE: 54</b>	<b>SUBJECT: Table 11</b>
COMMENT: : The ETF prefers the pre-build option over any option including CNG generation except for cases where there is justification for 230 kv service today.	
<b>PAGE: 55</b>	<b>SUBJECT: 7.3</b>
COMMENT: The mines in Red Lake began asking for upgrades in 2007 – 6 years ago	

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<b>PAGE:56</b>	<b>SUBJECT: Last Paragraph</b>
<p>COMMENT: This section limits the development of transmission to the OPA's near term projections. Those projections are far less than those identified by the ETF. Using the ETF's load projections dictate a significant increase in capacity in the short term. The planning process for all of the proposed mines in this area are well advanced and the requirement for power well documented.</p>	
<b>PAGE: 60</b>	<b>SUBJECT: 7.3.2</b>
<p>COMMENT: Their argument against a 230 kv upgrade is so without thought for the future. They have completely ignored a 230 prebuild with no autotransformer until necessary. It is the ETF's position that the new E2R be built to 230 kv standards and then operated at the current 115 kv until such times as the Red Lake LMC reaches the upper capacity of the 115 kv system. There is a limit as to how much load -that can be carried on a 115 kv circuit.</p>	
<b>PAGE: 61</b>	<b>SUBJECT: Last Sentence</b>
<p>COMMENT: The last sentence on this page states that (in relation to the creation of gas generation in the Red Lake/Pickle Lake Sub-Zones) that "it could operate to support the broader northwest Ontario transmission system."</p> <p>It is ironic that in this case the OPA says it is ok to transmit from Red Lake while elsewhere in this Plan and in general the OPA is working to prevent the Thunder Bay GS from being converted from coal to natural gas. The ETF questions how does 30 MW of gas produced generation, connected on the end of a planned long radial circuit (E2R) outweigh 300 MW of gas produced generation, connected into the dynamic system that Thunder Bay is, outweigh the bigger and far more effective <i>existing</i> generation?</p>	
<b>PAGE: 67</b>	<b>SUBJECT: Table 24</b>
<p>COMMENT: In this table and others only the capital costs are analysed. However, with diesel or compressed natural gas being compared with transmission ongoing operating costs or charges must also be factored in to get a true comparison.</p>	
<b>PAGE: 67</b>	<b>SUBJECT: Table 24</b>
<p>COMMENT: Cost for lines from Pickle Lake include pro-rate costs of upgrade from Dryden to Pickle – the same method should be applied to the Marathon to Nakina to the Ring of Fire proposed line as it would be illogical to run a new transmission line through Greenstone without connecting it to the existing radial circuit to provide stability and to meet the new load demands of the mines that are in the planning stages within that municipality.</p>	



<b>PAGE: : 67</b>	<b>SUBJECT: 2nd last paragraph, last sentence</b>
COMMENT: Assigning capital costs to individual communities and users goes against the principal of building infrastructure as a matter of 'public good' and paid for by Ontario society as a whole. It is unlikely that neither any non-Aboriginal community in Ontario, nor any road based First Nation Reserves had to pay to have power delivered to their boundaries. Ontario must reverse this policy in order to ensure that all of its citizens are treated equally	
<b>PAGE: 71</b>	<b>SUBJECT: Table 26</b>
COMMENT: Table 26 (generation) and Table 27 (transmission) should be shown together	
<b>PAGE: 73</b>	<b>SUBJECT: Point 2</b>
COMMENT: To be consistent this point should be amended to include reference to the con-	
<b>PAGE: 74</b>	<b>SUBJECT: Paragraph 2</b>
COMMENT: Costs will be assigned to users (mines) and communities, even though Ontario as a whole will benefit through the increased economic activity. It is the ETF position that costs to connect to the grid should be considered a matter of "public good" and paid for by the entire rate payer base.	
<b>PAGE: 74</b>	<b>SUBJECT: Last line</b>
COMMENT: The Energy Task Force strongly supports the conclusion that transmission is	
<b>PAGE: 76</b>	<b>SUBJECT: Paragraph 3</b>
COMMENT: : "some" projects may require funding by customers – what about the public good that built the rest of the province? The ETF believes that the public good philosophy must apply to the expansion of the electrical system in Northwestern Ontario. The far reaches of Northwestern Ontario are well below the standard set for the rest of the Province, that already exists and we are only asking to have our systems brought up to that standard. Any further adjustments and improvements can be treated under today's rules.	

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<b>PAGE: 76</b>	<b>SUBJECT: Paragraph 5</b>
<p>COMMENT: Conservation options are overstated in this Plan. Any new mine will have the most modern, most efficient electrical systems installed at the beginning. They will also design their operations to minimize electrical costs. The last remaining pulp and paper operations in the northwest have already implemented all of the conservation programs they can. There is minimal opportunity for further savings. As the non-industrial sector will go from 48% of the load to 22% of the load, even significant savings through conservations will</p>	
<b>PAGE: 78</b>	<b>SUBJECT: 9.2 General Stakeholder Engagement</b>
<p>COMMENT: This section lists a number of engagement sessions.</p> <p>The first and third were one way sessions with the OPA providing an overview of the planning process and data and minimal opportunity for actual input from the stakeholders.</p> <p>The meeting with the Common Voice Northwest Energy Task Force was part of a pan-northwestern Ontario meeting with the North of Dryden Plan taking up a small part of the two days. It did not occur until May of 2013.</p> <p>The Energy Task Force has been in existence since 2005 and is recognized by the Minister of Energy as the 'experts' in transmission and generation planning for the Northwest, and is the research arm of NOMA, NOACC, the City of Thunder Bay and the municipality of Atikokan. Yet, it wasn't until May of 2013 that the North of Dryden planners met with the ETF and only then as part of a larger discussion.</p>	
<b>PAGE: 79</b>	<b>SUBJECT: : 9.2 General Stakeholder Engagement</b>
<p>COMMENT: : The text indicates that "At a minimum the OPA intends to discuss this plan with the following municipalities and stakeholders." Unfortunately, there is no list provided to indicate who those municipalities and stakeholders are.</p>	
<b>PAGE: 93</b>	<b>SUBJECT: Paragraph 1</b>
<p>COMMENT: The report states that neither the Manitou Falls or Ear Falls generating stations have the ability to condense. Both do have condensing features that were utilized in prior years.</p>	

**PAGE: 139**

**SUBJECT: Tables 51-56 and  
59 to 61**

COMMENT: The data provided in table 51, 52 and 53 on pages 139, 140 and 141 does not match that on table 11 on page 54.

The data provided in table 54, 55 and 56 on pages 142, 143 and 144 does not match that on table 22 on page 64.

The data provided in table 59, 60 and 61 does not match that on table 27 on page 74.

Given these significant errors the ETF wonders which sets of data were used to reach the conclusions contained within the report.

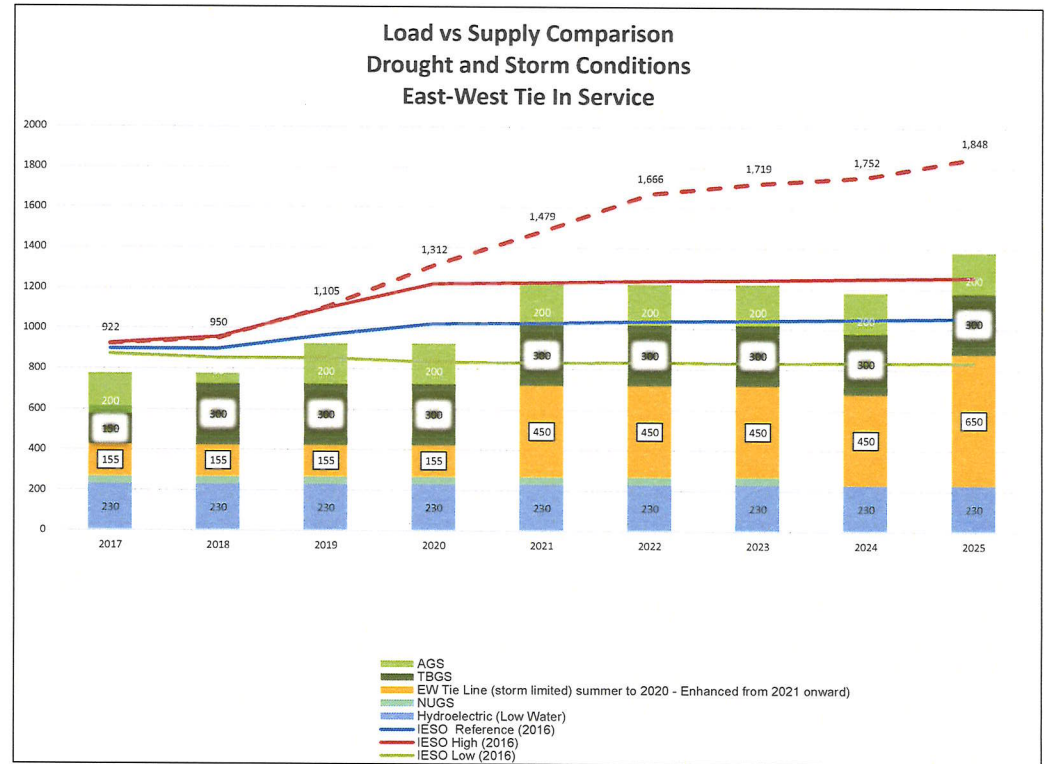
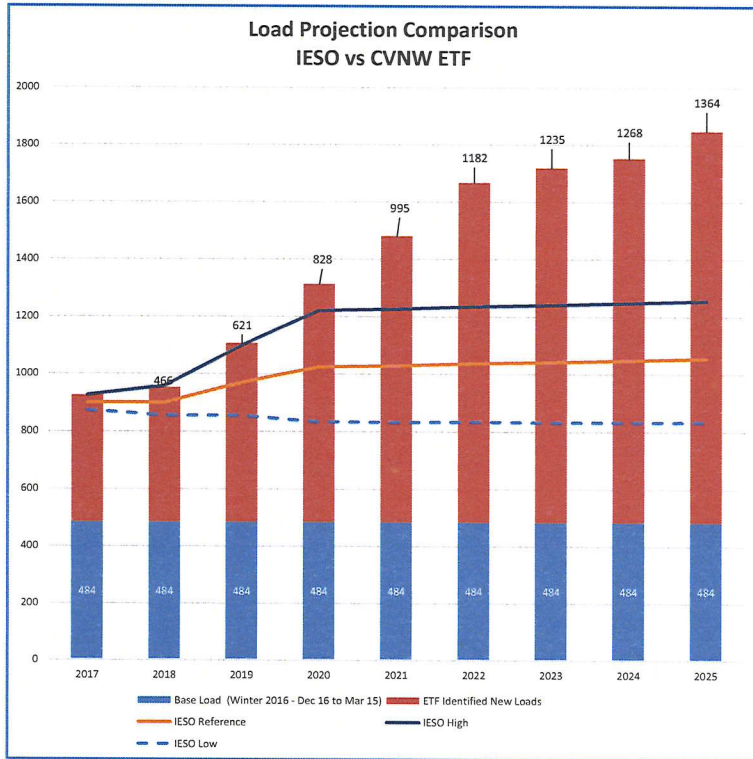
## Common Voice Northwest Response to the North of Dryden Plan

### Appendix A: Energy Task Force Loads for the North of Dryden Sub-Zone

MINING LOADS									
	2013	2014	2015	2016	2017	2018	2019	2020	Total
Rubicon		7						3	10
GoldCorp (Bruce Ch)			9						9
Treasury			12						12
Noront				24			25		49
Northern Iron				60					60
Cliffs				25					25
Rockex						100			100
PC Gold						20			20
<b>TOTAL</b>		7	21	109		120	25	3	285
FORESTRY LOADS									
	2013	2014	2015	2016	2017	2018	2019	2020	Total
Hudson	3.5								3.5
Ear Falls		3.5						1.5	5.0
Ignace		4							4
<b>TOTAL</b>	3.5	7.5						1.5	12.5
TransCan Pipeline				80					
<b>Grand Total</b>	3.5	14.5	21	190	0	120	25	4.5	378.5
Accumu- lated new load	3.5	18	39	229	229	349	374	378.5	378.5
Accumu- lated total load	73.5	88	109	299	299	299	419	444	448.5

The above noted loads are deemed by experts in the field as the most probable to come on line by 2020. The exception is the forestry loads which are either on line now or construction/ re-opening has commenced leading to a high level of certainty.

Mason, John. Thunder Bay Economic Development Corporation. August 24, 2017. *Load Projection Comparison*. Thunder Bay, Ontario.



**LOAD ANALYSIS: NEW LOADS EACH YEAR**  
**Updated August 24,2017**

Mine	Location	Start Year	Circuit	2017	2018	2019	2020	2021	2022	2023	2024	2025	12YEAR TOTAL	2026 and BEYOND	GRAND TOTAL
Goldcorp Inc. -Cochenour Bruce Channel Deposit	(5 M. o	NoD	2018		9								9	5	14
New Gold-Rainy R (3.8 M. Oz Gold-9.4 M Oz Silver)(NW of F. France)	WoTB	2017		61.2									61.2	3	64.2
Harte Gold 319,280 oz @ 10.13 g/T Au(N of White River)	G-M	2018			10								10		10
Treasury Metals (1.14 M. oz Gold)(Dryden)	WoTB	2019				12							12		12
Zenyatta Ventures 1.5 m/t C measured and inferred @4% Carbon	G-M	2019				15							15		15
Pure Gold (Madsen Mine)(928,000oz Gold)(Red Lake)	NoD	2019				15							15		15
Greenstone Gold-Premier Gold Mines/Centerra Gold (4.87 M	G-M	2019				46							46		46
First Mining Finance/PC Gold Inc. (1.26 M oz Gold)(Pic	NoD	2022				10							10		10
Wesdome-Moss Lake Gold Project (1.1 Million oz Au @ 1.1g/tonn	WoTB	2020				40							40		40
Noront Resources (11 mt @ 2.5% Copper/Nickel) (Ring of	RoF	2022					20						20		20
Frontier Lithium-Pakeagama Lake Lithium(7.89Mt @ 1.73% LiO2 (	NoD	2022							10				10	10	20
Northern Iron (Griffith Iron Mine) (120 M t iron re	NoD	unknown											0		0
First Mine Finance-Cameron Lk (997,000oz. Gold) (SE of Kenora) (	WoTB	2023								15			15	15	30
Yamana/Agnico-Canadian Malarctic Partnership (5.13 M. oz Go	WoTB	2023							100				100	100	200
Sibanye-Stillwater Canada Ltd. (91 M t- 1 g/t Palladium/Platin	G-M	2025							50				50	0	50
First Mine Finance-Goldlund (2.41 M oz.gold)(S of S Lookout)	WoTB	2023								10			10	0	10
First Mine Finance/Gold Canyon Resources inc.( 4.41M oz) (Sprin	NoD	2022									30		30	0	30
Rio Tinto -Panoramic (10 Mt @2.2 g/t Platinum & Palladiu	TB	2024										30	30		
Rockex Mining Corp. (1 Billion t @ 25-30% Fe)(S. of S Lookou	NoD	2024												100	100
Ambershaw Metallics-Bending Lake Iron Corp. (245 M. t @ 25% l	WoTB	unknown												0	0
Noront Resources (200 M t Chromite) (Ring of Fire) Blackbird	RoF	2017		30										0	0
Rubicon Minerals Corp. (106,000 oz Gold) (Red Lake)	NoD	?					15							0	0
Avalon Advanced Materials Inc.10 M t 2 1.3% Li O2(N of Kenora)															

RoF	Nod	WTB	TB	G-M
	9			
		61.2		
			12	10
				15
	15			
				46
	10			
			40	
20				
	10			
			15	30
		100		200
				50
			10	
	30			
				30
		100		
				0
50				0
				0

TOTAL				91.2	19	138	35			160		30	30	483.2	233	716.2
<b>FORESTRY LOADS</b>																
		Zone		2017	2018	2019	2020	2021	2022	2023	2024	2025	12YEAR TOTAL	2026 and BEYOND	GRAND TOTAL	
Nakina Sawmill		2018			3.5											
Pellet Manufacturing Facilities (5 locations @3.5 MW ea)		2019				12.25										
<b>FORESTRY LOADS TOTAL</b>				0	3.5	12.25							0	0	0	
<b>FIRST NATION LOADS</b>																
				2017	2018	2019	2020	2021	2022	2023	2024	2025	12YEAR TOTAL	2026 and BEYOND	GRAND TOTAL	
Category Generator Capacity Winter Peak (kw)	Generator Capacity	Winter Loads														
Hydro One Remotes	21	13.4			6	34.4						40.4	40.4	7.4	47.8	
Independent Power Authorities	16	6.5				22.5									0	
Other Diesel Sites	4.8	3.3													0	
<b>FIRST NATION LOADS Total (Winter Loads used as base loads)</b>						56.9						56.9	56.9	7.4	64.3	
First Nation Loads Cumulative total of base plus growth at 4% per year								2.3	2.4	2.5	2.6	2.6	12.2	7.4	19.6	
<b>TOTAL FIRST NATION LOADS</b>						56.9		2.3	2.4	2.5	2.6	66.6	66.6			
<b>INDUSTRIAL LOADS</b>																
Chromite Processor in Thunder Bay				347									347.0		347.0	
Solar Manufacturing Facility in Thunder Bay					5.0	5.0	50.0	100.0					160.0		160.0	
Data Process Centre in Thunder Bay							65.0	65.0		50.0			180.0		180.0	
Pharmaceutical Plant									25.0							
<b>TOTAL INDUSTRIAL LOADS</b>				347.0	5.0	5.0	115.0	165.0	25.0	50.0			687.0		687.0	
<b>TOTAL NEW LOADS</b>				438.2	27.5	155.3	206.9	167.3	187.4	52.5	32.6	96.6	1236.8	7.4		

70	174	238.2	60	121
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RoF	Nod	WTB	TB	G-M
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			347	
			160	
			180	
70	174	238	747	121.0

YEAR	2017	2018	2019	2020	2021	2022	2023	2024	2025		
Base Load (Winter 2016 - Dec 16 to Mar 15)	484	484	484	484	484	484	484	484	484	484	484
ETF Identified New Loads	438	466	621	828	995	1182	1235	1268	1364		484
ETF Projected Load (Identified new loads plus base load)	922	950	1105	1312	1479	1666	1719	1752	1848		491
IESO Reference	898	898	968	1023	1028	1036	1041	1048	1055	1034	1040
IESO High	925	956	1099	1221	1227	1236	1241	1249	1256	1246	1253
IESO Low	873	854	854	833	832	834	832	833	834	784	785

<http://www.ieso.ca/en/power-data/data-directory>

2029	2030	2031	2032	2033
1045	1053	1056	1061	1061
1259	1267	1271	1276	1277
785	785	786	789	788



