

Monday, September 28, 2009

YESAB Head Office
P.O. Box 31642
Whitehorse
Yukon Y1A 6L2

Re: Proposed Mayo Hydro Enhancement Project (Mayo B) Project #2009-0040

Attn: YESAB Executive Committee

Dear Mr. McCoy and the Executive Committee,

Please accept this letter as the Yukon Conservation Society's comment submission for Yukon Energy's proposed Mayo Hydro Enhancement Project (Mayo B) YESAB project 2009-0040.

1.0 Overview

The Yukon Conservation Society (YCS) has several concerns about Yukon Energy Corporation (YEC)'s Mayo B project and proposal. We are primarily concerned about fish and fish habitat in Mayo River and in Mayo Lake. Second, we have concerns with the assessment process and the fact that work is proceeding at the site before design plans have been determined and before the environmental and socioeconomic assessment has been completed. Finally, we feel the proponent has not fully explored alternatives to the project by considering different ways we could generate or save as much electricity with fewer negative impacts to the environment.

YCS agrees that it is prudent and potentially less environmentally damaging to try to improve the efficiency of existing hydro infrastructure before building new or "greenfield" facilities, and that hydroelectricity is a cleaner form of energy than that generated from burning fossil fuels. However, we feel Mayo B is too expensive, there are too many risks involved and too many other opportunities missed to support it.

In our assessment of this project, the Yukon Conservation Society feels that the green infrastructure dollars from the federal government could be spent in better ways that do not have potential negative environmental impacts on salmon, whitefish, trout, shoreline habitat, wetlands, aquatic mammals and waterfowl.

It appears the Mayo B project has not been designed within ecological limits, but instead was designed to get as much power as possible and attempt to mitigate negative effects after the damage is done.

There are examples of hydroelectric facilities that mimic the natural variations of water bodies and seasonal fluctuations of flow like the sustainable hydroelectric facility at Surprise Lake serving the needs of the nearby community of Atlin, BC. Hydro projects like this is the kind that YCS can support.

YCS does not support the Mayo B project at this time. There are other ways to generate or save 5 MW of electricity in the Yukon at a lower cost with fewer negative environmental impacts than the proposed Mayo B project. At the very least, all the questions raised about impacts to fish and fish habitat must be addressed.

Recommendation

- The Mayo B proposal should be withdrawn from YESAB and resubmitted after a full year of hydrological and habitat study and there is a better understanding of potential negative environmental impacts and possible mitigations.

2.0 Fish and Fish Habitat

2.1 Additional one metre drawdown on Mayo Lake

YESAB must address the issue of the one metre increased drawdown on Mayo Lake that Yukon Energy still intends to acquire, but did not include in its most recent Mayo B proposal.

Although this request is not explicit in YEC's revised proposal, Yukon Energy wants to use more water from Mayo Lake, thus having the option to lower the lake level by an additional one metre from what is currently licensed. The drawdown is part of the Mayo B project whether or not it is part of this proposal. The Executive Committee Screening must consider the significance of any adverse cumulative environmental or socio-economic effects of a project in combination with the ongoing effects of existing projects or the predicted effects of projects that will occur in the future. Section 51 of the YESAA states that: "... the Executive Committee shall... include within the scope of the project, in addition to any activity identified within the proposal, any other activity it considers likely to be undertaken in relation to an activity so identified and sufficiently related to it to be included in the project." Yukon Energy has stated publicly it will ask for the additional drawdown at a later date, therefore clearly the drawdown must be included in the project scope and be considered in this assessment.

Furthermore, if the economics of the project don't look good without the option of using more water from Mayo Lake thereby lowering the lake level, the project should not proceed.

In its supplementary information, Yukon Energy Corporation states:

“Environmental assessment activities highlighted the extent to which adopting an unrestricted ability to use this enhanced range (3.59m, compared to the existing 2.59m range) could not permit a conclusion of “no likely significant adverse effect” in respect of Lake Trout spawning. This is because the only evidence that could be developed with any certainty was that Lake Trout can successfully spawn in Mayo Lake at a 2.59m drawdown.

While there is substantial evidence that Lake Trout should be able to similarly successfully spawn in sufficient quantities in Mayo Lake with a 3.59m drawdown, there is simply no way to rule out the potential that drawdowns in excess of 2.59m could at times adversely affect spawning success, regardless of any number of possible additional field study activities or field seasons that may be undertaken.”

If this is in fact the case – that the proponent cannot conclude the action will not have a negative effect – the precautionary principle ought to be applied and the additional drawdown not be granted.

Officials with Environment Yukon do not have the same confidence that fish can successfully spawn in Mayo Lake at a 2.59m drawdown (the current license range). The department recommends adaptive management and monitoring to ensure the existing management regime is not harming fish.

“An important management consideration for Mayo Lake fisheries resources is that there is risk and uncertainty regarding potential effects to fisheries resources from exercising the full 2.59m water drawdown on Mayo Lake under the existing water license.”

Environment Yukon identified Lake Trout and Whitefish as Valued Ecosystem Components in the Mayo River watershed. “Whitefish recruitment may be adversely affected through exercising the full drawdown range of the existing water license. Whitefish are susceptible to impacts from water drawdown because spawning often takes place in shallow water habitats.” Environment adds that whitefish have significant socio-cultural value and are the main food source for trout in Mayo Lake.

Environment goes on to say that despite the water license that permits the storage range of 2.59m, “the proposal indicates that historical drawdowns under current operating conditions dating back to 1987 have rarely approached 2.59m, a scenario that poses a greater risk to fish eggs.”

Yukon Energy has not often used the full range of its license for the existing Mayo hydroelectric facility. But with an additional powerhouse and turbine fed by water from Mayo Lake and Wareham reservoir, likely the 2.59 low level will be reached much more often. Yukon Energy wants to use more water and lower the lake by a metre more, when the effects of the existing range is still not clear.

Environment Yukon finds fault with the proposed adaptive management and monitoring for the proposed Mayo B Hydro Enhancement Project and warns of a repeat of the fisheries debacle on Aishihik Lake that resulted from the Yukon Energy hydro facility there.

“Within the Aishihik watershed, experience with Whitefish populations in that system demonstrates how difficult it is to conclusively determine that recruitment is poor in any given year (e.g. due to high drawdown). The 'early warning' system that is proposed by the proponent, based on juvenile or larval sampling, has not proven reliable after a decade of work in Aishihik. The reality is that distribution of juvenile fish is highly variable through space and time and the consequence is that the power to detect effects from project activities (or other factors) is very low.”

In addition to potentially exposing and destroying whitefish and trout eggs along the shores of Mayo Lake, additional drawdown could also negatively impact aquatic mammals. Environment mentioned that the Aishihik Hydro Project Screening Report from 2001 identified impacts to beaver and muskrat

at Aishihik Lake as a result of winter water drawdowns as these species require stable and predictable water supplies.

The theme that emerges is that there is not adequate baseline information on the myriad species and habitats in and around Mayo Lake. This includes the important Roop wetlands that provide such ecosystem services as: nesting habitat, water storage, erosion prevention, filtration of toxins or impurities, and carbon storage. More needs to be known about this area and its ability to maintain these services before changes to the drawdown range can be entertained or approved.

Recommendations

- The proponent needs to clearly demonstrate whether Mayo B is economically feasible without the additional drawdown, and if it is not, the project should not proceed.
- YESAB needs to include the additional drawdown in the scope of this project.
- The Mayo B project includes the extra drawdown on Mayo Lake despite not being in this submission. The drawdown must be assessed at this stage of the project development, not separately.
- The full drawdown allowed under the current license needs to be monitored if used to determine impacts to wetlands, fish and other wildlife.
- Adaptive management must include limiting the drawdown if negative impacts are discovered.
- At least another season of fish studies are needed before the potential impacts can be adequately assessed and an adaptive management plan is developed.

2.2 Chinook Salmon in Mayo River

It must be noted that the proponent added supplementary information regarding salmon in Mayo River on Friday, September 25, one business day prior to the public comment deadline. YCS was not able to review this.

2.2.1 Historical perspective of salmon in the Mayo River

Yukon Energy reported that community members have raised the issue of upstream fish passage on the Mayo River since Wareham Dam was constructed in the early 1950s.

“The Mayo River traditionally had a run of Chinook Salmon which migrated over 50 km upriver to, and through, Mayo Lake. Wareham Dam was constructed 12 km upstream from the mouth of the Mayo River, greatly reducing the length of river available to Chinook Salmon, including access to spawning sites immediately downstream of Mayo Lake.”

Yukon Energy goes on to say that the local community has repeatedly expressed concern over this loss of access by salmon.

“It has been reported by the local community that a provision of a fish ladder was requested as a condition for the construction of Wareham Dam by the Northern Canada Power Commission (NCPC) in the 1950s. Interviews with some elders and other long time residents of the area relay that a fish ladder was understood to be part of the original project design. While some accounts suggest that NCPC agreed to build a fish ladder at the Wareham Dam, others have no recollection of such commitments being made (Buchan, 1993). At numerous meetings over the past six decades, local residents and community representatives have reintroduced and enquired about a fish ladder at Wareham Dam to facilitate the rehabilitation of salmon runs in the Mayo River. Separately, YEC is aware that a fish collection and transport facility (trap and truck) around Wareham Dam has also been contemplated by other parties. YEC conducted a very extensive research of its files and the NCPC files in its possession and can find no mention of a fish ladder.”

Yukon Energy then said that construction of a fish ladder at Wareham Dam would be “technically challenging and a very expensive endeavour.” YEC added that even if fish were to bypass the Wareham Dam either by a fish ladder or a trap and truck system, the river above Wareham Dam “may have been negatively impacted for the production of juvenile salmon.”

YEC explained that a number of factors over the past several decades may have contributed to the degradation of viable salmon habitat on the approximately 40 km of river above Wareham Dam including but not limited to: placer mining activities and related increased seasonal turbidity, components of the Mayo Hydro project such as the Mayo Lake control structure, the use of Mayo Lake for water storage and seasonally regulated flows in the Mayo River.

Yukon Energy concluded that because “no new pathways of effect exist with respect to fish passage beyond Wareham Dam,” it has “focussed efforts in this project proposal on mitigation and enhancements to salmon habitat in the lower Mayo River as part of the project description.” The Mayo B hydro project is being sold as a “green” and “enhancement” project. Those claims could be more accurate if more effort were to be placed on improving the plight of the salmon in the Mayo River. Considering the dire situation with salmon in the Yukon and the apparent collapse of salmon on the BC coast, YCS feels everything must be done to ensure salmon and its habitat is not harmed. Zero net loss is not good enough – ideally Yukon Energy could enhance salmon in the lower Mayo River but also fix some of the mistakes made when the original dam was built.

Recommendations

- Although “no new pathways of effect exist” for salmon on the Mayo River, a condition of Mayo B proceeding should be that YEC work with NND to assess the feasibility of reintroduction of salmon to the river above Wareham Dam. The restoration of that habitat would be part of that study.
- The feasibility of a small spawning enhancement facility to seed the upper reaches of the Mayo River should be studied. If that were successful, strategies to facilitate passage, such as a fish ladder or a trap and truck system should then be put in place.

- The proponent must provide more information on the potential for fish passage around Wareham Dam and conduct a literature review on fish passage in the Mayo River watershed.

2.2.2 Ideal flows for Salmon

Yukon Energy proposes to increase the minimum flows downstream of the facility and claims that because of this change, the Mayo B project will improve salmon habitat conditions on the lower Mayo River.

The Yukon Conservation Society is unclear where the water will come from to increase the minimum flows below the Wareham Dam. Is the additional drawdown from Mayo Lake required to achieve new increased downstream flows?

Conversely, YCS wants to also ensure that *excess* flows do not harm salmon habitat. We want to ensure maximum flow limits are in place so the cobble, gravel and other required components to healthy productive salmon spawning habitat are not damaged or destroyed by spillways or tailraces during sensitive times of year.

Nacho Nyak Dun's study entitled *Enumeration and Identification of Spawning Habitat of Chinook Salmon in the Lower Mayo River, Yukon Territory (August 2009)* concluded that “The lower Mayo River is regionally important in that it encompasses a significant quantity of spawning salmon,” and that “Preservation and enhancement of salmon habitat values of the lower Mayo River can only be maintained by considering the structure and function of processes related to hydrology, geomorphology, biology, water quality and connectivity.”

The report recommends seasonal monitoring to determine flow regimes to optimize spawning conditions for Chinook salmon and monitoring of known spawning sites. It suggests investigating the feasibility to enhance spawning habitat in Zone 2 with additions of cobble and gravel into the mainstream channel of the lower Mayo River.

Recommendation

- The Yukon Conservation Society supports the above recommendations and feels that more field monitoring is needed to complement current desktop flow modelling.

2.3 Fish passage and connectivity between Mayo Lake and Mayo River

Fish escape from Mayo Lake over the spillway or through the turbines down into the upper reaches of Mayo River. But because of the control structure at the outlet of the lake, fish cannot return. This would be an easier and less expensive fish ladder to construct than one over Wareham Dam, and could help survival rates of migrating lake fish that end up stranded below the Mayo Lake control structure.

Recommendations

- YCS supports any and all efforts to enhance the fisheries downstream and upstream of the

Wareham Dam including the possibility of enhancement facilities and fish ladders at the Mayo Lake control structure and Wareham Dam.

- Reconsideration must be given to the concept of a rearing channel and more thought should be given to how to reconnect the fisheries in the Mayo River watershed.

3.0 Acid Rock Drainage potential from tunnel and penstock-canal construction

Limited drilling for acid generating waste rock potential was done for the project. One result showed there was some potential for concern. Acid rock drainage occurs when acid generating waste rock is exposed to air and water causing acid that leaches heavy metals into ground and surface water having negative impacts on water quality.

Recommendations

- The proponent should ensure no acid generating rock is exposed during the construction of the tunnel/canal and penstock system.
- In the event acid generating rock is unearthed, the proponent must provide detailed information on the amount and treatment method and the standards to which the leachate will be tested.

4.0 Hydro development and climate change

Yukon Energy and the assessors must consider the effects climate change is having on our environment and how these changes could effect the Mayo B project.

4.1 Stability of canal-penstock system

The canal-penstock system is an integral component of Mayo B. It is how the water will travel from the storage behind Wareham Dam to the new turbine and powerhouse. Many uncertainties about this water transport system still exist.

As Environment Yukon points out: the proponent is still uncertain as to how the penstock-canal system will be constructed. Yukon Energy has described the canal being 30 metres wide and 4 metres deep. Environment Yukon suggests fences or other measures to prevent wildlife entrapment in the canal system.

The Yukon Conservation Society is concerned about the stability of the penstock-canal system as it will be located on discontinuous permafrost areas that are already showing signs of melting.

YEC's supplementary information includes a report by BGC Engineering who was hired by KGS Group to do terrain mapping at Mayo A, Mayo B and Drury Lake. The Mayo A and B areas are located in the zone of widespread discontinuous permafrost. The engineers observed that "there is abundant evidence of thermokarst development in the area due to melting permafrost evidenced by numerous surface depressions."

In its Executive Summary, BGC provides a reality check:

“It is now established that northern latitudes are undergoing rapid warming due to greenhouse gas emissions. Several degrees warming can be expected in the order of 4 to 6 degrees C. Accordingly, permafrost is predicted to degrade, and active layer thickness will increase over time. Thaw settlement will intensify in ice-rich areas particularly in discontinuous permafrost. This process has the potential of affecting the proposed hydropower development.”

The Yukon Conservation Society hopes that local and global initiatives to reduce carbon emissions in the very near future will prevent a temperature increase of 4 to 6 degrees C, but even if that is successful, BGC’s description of changes will likely still occur. The degradation of permafrost could affect all the components of Mayo B and it could happen sooner than we would like to believe.

“Undoubtedly, climate change will affect permafrost distribution through increased temperatures, modified precipitation, frequency of forest fires. The Mayo area also shows signs of permafrost degradation, such as thermokarst lakes and retrogressive thaw slumps. The penstock and canal could be affected by retrogressive thaw slumps and this thaw settlement may lead to unacceptable rates of penstock deformation.”

Permafrost affects slope stability by its influence on soil drainage, soil moisture and soil strength. Rapid thawing of ice rich permafrost on slopes can cause unstable ground conditions due to the release of excess water causing increased pressure and decreased shear strength.

4.2 Climate change effects on water flows

YESAB asked Yukon Energy to explain some other climate change factors - representative modeled water flow.

Specifically YESAB wanted:

“c) a description of how the representative modeled water flow would be affected by extreme or unexpected events such as multiyear flooding events, multi-year drought events, and long-term changes as a result of climate change. Describe how ongoing water management operations would respond to those conditions.”

YEC response (in part):

“In the case of insufficient inflow to permit normal operation of the facility, the primary responsibility for Yukon Energy is to ensure minimum flows are maintained along the Mayo River and minimum licensed lake levels are maintained in order to ensure compliance with water license conditions and constraints. The hydrological record does not indicate any years in which there is insufficient inflow to permit the minimum licensed flows to occur while maintaining lake levels on Mayo Lake within the licensed limits. Even in 1998, the worse drought recorded during this period, there was materially more inflow to the system than would be required to maintain a 5-6 cms year round flow as proposed by Yukon Energy. Therefore, the proposed regime will be able to withstand drought conditions well beyond the worst drought experienced during the 21-year sample period before any sustained pathways of effect could be identified compared to baseline

conditions. Considering that multi year drought conditions would only occur with or without the project and that the proposed regime provides YEC with increased capacity to store and release water as needed during drought conditions to meet all license conditions, no adverse pathway of effect can be determined for multi-year drought conditions. In contrast, the presence of storage on the system permits a beneficial pathway in regards to fish zones.

Yukon Energy explains that climate change is expected to cause extreme weather events to occur with increasing frequency, and this increase will likely result in a higher variance of inflows, producing years with both higher and lower inflow volumes.

“While climate change that results in decreased flows compared to historic periods may affect the ultimate economic value of the project (such as if flows are diminished), such an occurrence would be expected to occur similarly over the long-term at all Yukon Energy hydro facilities, and consequently the need for the Proposed Project in order for Yukon Energy to be able to serve a given load will be increased, due to the reduced quantity of renewable generation from the other sources.”

This is flawed logic.

If ever there were an argument *against* the project, not for it, it would be this statement. It seems incomprehensible to state that because all hydroelectric facilities will be less efficient we should build more of them to make up for it. If anything, the fact that climate change could negatively impact the generating capacity of our hydro facilities should help the proponent and all Yukon people recognize the importance of diversifying and distributing our power generation infrastructure. Yukon Energy and its consultants appear to be preoccupied with hydro to the detriment of all other renewable energy sources.

Recommendations

- The proponent must provide more information about the canal-penstock system when it is eventually determined. This includes how the channel will be lined to ensure water isn't lost through absorption, and how the canal-penstock could affect ground temperatures and slope stability.
- The proponent must examine the impacts of climate change, both on the physical ground (discontinuous permafrost) and future hydro flows, and fully integrated them into the planning and design of the project.

5.0 Socioeconomic effects and their indirect effects on the environment

There are many different ways to consider potential socioeconomic impacts.

In its comment submission, Yukon Government Department of Justice says it “values safe and healthy communities that are part of a just and peaceful society.” The Yukon Conservation Society shares this value and believes safe, healthy, just and peaceful communities can have more positive than negative

impacts on the environment.

Interestingly, the Department of Justice wades into the additional drawdown on Mayo Lake issue and speaks to potential negative socioeconomic effects associated with it:

“Although the present project does not include any change in the level of Mayo Lake, if a later application is made to do so this will have a greater effect on fishing than that presently assessed. Any restriction on subsistence and recreational use of the development area will have a negative effect on the real income of residents and will lower social capital with the likely consequence of a rise in crime.”

YCS can also think of socioeconomic effects as the social impacts on the community of Mayo during the construction phase of the project. What would be the effect of a large crew of men in the community? Will the project bring drugs and alcohol into the community? If the construction company hires locally, what effect will this have on existing employers and their ability to provide services to the community and the First Nation?

Yukon Government Department of Health and Social Services, Policy and Program Development, describes potential negative socioeconomic effects of the Mayo B Hydro Enhancement project:

“- decline in health status of Yukoners if the income use follows a short term “boom and bust” pattern involving big expenditures and heavy partying while the income is there, followed by inability to pay debts for purchases and by loss of income and status once the project ends
- increase in substance abuse, gambling, sexually transmitted infections, communicable diseases and prostitution,
- increase in family violence, family and community disruption.”

Finally, another potential negative socioeconomic effect is the opportunity cost of not doing something else with the federal government green infrastructure money.

There are alternatives to the project which in the opinion of YCS the proponent has not fully examined.

6.0 Alternatives to the Project

The capital cost of this project is huge and it is funded by deficit spending. It's great the Federal Government is investing in infrastructure in the Yukon. But YCS feels the Mayo B project is not necessarily the best use of public stimulus money – especially under the guise of being green – when considering other actions that could be taken to generate power with fewer negative impacts or help consumers use less power to meet the demands for electricity.

6.1 Wind

YCS understands that Yukon Energy looked at wind potential on Mt Sumanik near Whitehorse. This is a viable project but the information is not presented in the proposal under alternatives to the project. YCS sees it as very important for the Yukon to have diversified renewable energy generation that

includes other sources besides hydro and diesel.

6.2 Demand Side Management DSM

YCS also strongly encourages Yukon Energy and Yukon Government to implement demand side management strategies and technologies. This will help households and businesses use less energy and use it better so we can meet new demands for energy and burn less diesel for generating electricity. The DSM discussion arises when a new industrial load customer comes online and our need for energy spikes, but fades away when there is a power surplus as increasing efficiencies is seen as bad because it means people use less energy and the utility's income is reduced.

Until our economy becomes more sustainable and departs from the boom and bust resource exploitation cycle, the Yukon will always have sudden jumps in demand when a new mine opens. The Yukon Conservation Society believes that regardless of whether large energy consumers are on line, Yukon Energy Corporation must seriously explore increasing efficiencies and reducing waste. Yukon Government must lead the way by making this a requirement of our public utility.

Other jurisdictions around North America have shown that it is more cost effective to improve efficiency and conservation than build new power generating facilities.

The best example of how this could happen with positive environmental effects would be to practice load management. If we could better balance out energy use during the day by shifting the load to off-peak times we would eliminate or at least reduce our dependency on diesel fuel when our demands are peaking (before work and after work). Diesel generators at the Whitehorse Rapids Hydro facility in Whitehorse create air pollution and emit greenhouse gases that contribute to climate change.

In 2000, as part of the Yukon Development Corporation's Energy Efficiency Initiative, “penguin” hot water tank timers were installed in several households (along with a low flow showerhead and hot water tank blanket wraps to help residents realize a reduction in energy costs from reduced use, which they wouldn't see from the penguin timers themselves).

Electric hot water heaters are one of the most energy intensive appliances in the household, and automatically switch on to reheat water in storage during times of day when households are already using a lot of energy. The penguins prevent the hot water tank from switching on until a few hours later, when the load was not peaking.

This requires no effort by people. It is a simple piece of technology installed in a house. The total cost for 50 penguins installed in Whitehorse households was \$13,080.

The evaluation report of the Penguin Pilot Project concluded that if penguins were to be installed in 800 Whitehorse households (only 10 per cent of total residential electrical accounts), the potential shifted load would be 2.4 MW for about \$200,000. It is worth noting that the \$140 million Mayo B project provides only 5 MW.

The Yukon Conservation Society sees technologies such as penguin hot water tank timers absolutely essential to meeting future demand and reducing the territory's greenhouse gas emissions from diesel electricity generation.

Utilities in other jurisdictions are being instructed to meet new energy demand requirements by reducing demand elsewhere on the system.

For example, in Ontario, the utility is required to install smart meters in all households by 2010. Smart meters help to build a culture of energy conservation by giving consumers information on how they are using energy in their households, and by giving them the power to use it more wisely.

After the smart meters are installed, the utility in Ontario will introduce time of use pricing, where energy rates change throughout the day, the week and in different seasons. Off peak or time of use pricing is another tool to help manage and distribute the load. It gives consumers the responsibility and ability to determine when they use energy and ultimately how much they pay for it.

The Yukon Utilities Board recently directed Yukon Energy Corporation to look into DSM alternatives. YCS does not feel we should be proud of or accept our increasing levels of energy consumption. Yukon Energy and Government should follow Ontario's lead and immediately implement strategies to foster a culture of conservation of our energy resources.

Another option for managing our demand would be to limit mine operation during the coldest months of the year. It should be determined how much additional diesel fuel was burned and greenhouse gases emitted since the Minto Mine came online and continues to operate in the coldest and darkest times of year. Placer mining occurs seasonally, so perhaps it is time to consider the benefits of hard rock mining operations limiting their draw on energy resources by ceasing production for a few months out of the year.

6.3 Solar thermal and photovoltaics

The argument against investments in solar energy always seems to be that the Yukon needs power in the winter not in the summer. This is not accurate though, and if we managed to reduce our reliance on hydro when we have solar energy readily available, we could in effect “store” energy for the winter by not expending hydro energy in the sunshine months. A few businesses in Whitehorse have invested in solar thermal water heating systems on their rooftops. YCS would like Yukon Energy, Yukon Development Corporation and Yukon Government to look into subsidies, incentives and perhaps requirements for these kinds of systems that offset pressure on our electrical system to heat water.

6.4 Geexchange and Geothermal

YCS understands that YEC is investigating potential of geothermal electricity generation in the Yukon such as at the Jarvis River warm springs near Haines Junction. The City of Whitehorse is studying geexchange systems for district heating. There is also the potential of geothermal in the Mayo region.

Recommendation

- The proponent, as part of its project proposal submission, must examine alternative approaches that could provide 5 MW of power.

7.0 Conclusion

The federal money that is funding half of this project has a time limit – the project must be completed by March 2012. This deadline is rushing the entire process, from the proposal to the assessment. Mayo B is a very expensive infrastructure project in the Yukon with potential negative environmental effects. Design plans for the project are still being figured out while the assessment process is well underway. YCS fears the rush will mean we do not give the project due diligence before a decision to move forward is made and the facility is built. The proposal should be delayed by at least one year to provide time to conduct more studies to answer all the outstanding questions about environmental impacts.

When it comes to any development, we need to respect the ecological limits of an area and plan our projects within those limits, instead of planning projects to get the most power and hope we can somehow mitigate our way out of detrimental environmental impacts after they have been experienced. It seems that the decision to move ahead with Mayo B is primarily based on the Federal Government's financial contribution of \$70 million. Mayo B was not a priority for Yukon Energy until this happened.

If anything, the discussion around the ATCO talks, Mayo B and possible alternatives has revealed that there are real information gaps around what could be done to increase efficiencies and generate clean and green energy, as well as what direction we want to pursue for current and future energy needs in the Yukon.

The information gaps could be addressed through the development of a plan to diversify and localize energy generation and increase system-wide efficiencies. This work could be done by a task force of people from Yukon Energy Corporation, Yukon Development Corporation, Energy Solutions Centre, Yukon Conservation Society's energy committee and other experts in the energy field.

The Yukon Conservation Society welcomes the opportunity to be part of these kinds of discussions with government and the utilities.

Thank you for the opportunity to comment on Yukon Energy's Mayo B Hydro Enhancement Project. Good luck with your assessment and we look forward to your screening report.

Sincerely,

Anne Middler
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