

1.0 PROJECT INTRODUCTION AND OVERVIEW

1.1 EXECUTIVE SUMMARY

The **Carmacks-Stewart/Minto Spur Transmission Project (the Project)** involves development of the following related transmission lines and substations in the Northern Tutchone Planning Region:

1. The **Carmacks-Stewart (CS) Transmission Project**: The CS development will connect the 138 kV **Whitehorse-Aishihik-Faro (WAF)** and 69 kV **Mayo Dawson (MD)** electricity grids in order to encourage economic development along the corridor and enhance overall WAF and MD system reliability, economic efficiency and flexibility in resource use. The CS development involves a new 138 kV transmission line of approximately 172 km in length located within a 60 metre **right-of-way (ROW)** which proceeds generally along the Klondike Highway east of the Yukon River between Carmacks and Stewart Crossing. The CS development also involves new transmission substations to be located in the Carmacks airport area and at Pelly Crossing, and expansion of the existing Stewart Crossing substation north of the Stewart River. The CS facilities will be operated and maintained as long-term infrastructure without any expected decommissioning date; and
2. The **Minto Spur (MS) Transmission Project**: The MS development will provide surplus WAF grid power to the new copper-gold mine under development west of the Yukon River at Minto (the Minto Mine), utilizing the CS development from Carmacks to the Minto Landing area. The MS development involves a new 35 kV transmission line of approximately 27 km in length within a 30 metre ROW which proceeds generally along the existing access road between the Minto Mine and the Klondike Highway in the vicinity of Minto Landing. A new transmission substation in the vicinity of Minto Landing, and additional equipment at the Minto Mine site to tie into the existing Minto Mine Site distribution system are also planned. The MS facilities will be operated and maintained during the life of the Minto Mine, after which time most of the facilities are expected to be decommissioned and removed.

Yukon Energy Corporation (**Yukon Energy**) is undertaking all the necessary planning, consultation, environmental, engineering and other related activities required in order to obtain the authorizations and regulatory approvals necessary to allow for a decision to commence construction of the Project in the summer of 2007. Yukon Energy is providing for the Project to be developed in two stages: Stage One will involve the CS development from Carmacks to Pelly Crossing as well as the MS development (target for first transmission in-service to the Minto Mine in the third quarter of 2008), and Stage Two will involve the balance of the CS development from Pelly Crossing to the MD grid substation at Stewart Crossing (target for potential in-service in the second half of 2009).

At this time, Yukon Energy has made no final decision to proceed with the Project, either in whole or in part.

To date, funding for the Project's development has been provided by the Yukon Government and by Yukon Energy. As set out in Yukon Energy's 20-Year Resource Plan, filed with the **Yukon Utilities Board (YUB)** in June 2006, the development of both stages of the Project is subject to the provision of Yukon Government funding and mine customer contributions in order to ensure that there is no net cost to Yukon Energy or to Yukon ratepayers beyond what would be required for any other option to provide required electric energy and capacity.

Yukon Government, First Nation and federal regulatory approvals and decisions are required before any construction activities may be undertaken; however, these approvals and decisions may only be made after the required screening assessment by the Executive Committee of the **Yukon Environmental and Socio-economic Assessment Board (YESAB)** of this Project Proposal Submission (**Project Proposal**). Yukon Energy has engaged the InterGroup/Access socio-economic and Environmental Assessment Study Team (**Study Team**) to carry out all necessary studies and assist Yukon Energy in preparing the Project Proposal in response to YESAB guides (Reference Materials 1R) and the requirements set out pursuant to the Yukon Environmental and Socio-economic Assessment Act (**YESAA**).

Yukon Energy carried out preliminary studies in 2002/2003 in order to define a 500 metre corridor for the CS project which was generally located along the Klondike Highway. A Map Notation for this corridor was issued in May 2004 by the Lands Branch. Yukon Energy also reserved land from the Crown for the new transmission substation at Carmacks, located north of the Yukon River on the 138 kV WAF line from Carmacks to Ross River. In late 2005, Yukon Energy secured the Yukon Government funding necessary to proceed with initial planning studies and consultations for the CS development. Thereafter, in the fall/winter of 2005/2006, Yukon Energy provided general information regarding the CS development to Yukon Government departments, the **Northern Tutchone First Nations (NTFN)**¹, the general public, YESAB and the developer of the Minto Mine.

In May 2006, a **Memorandum of Understanding (MOU)** was concluded between Yukon Energy and the three NTFNs. The MOU provided for joint support of the CS development which was to be generally located within the 500 metre corridor identified along the Klondike Highway and for the MS development which was to be located generally along the Minto Mine access road (the Route Study Area). The MOU established commitments with regard to a consultation process for the route selection and for a YESAB filing process targeted for completion before the end of June 2006. Principles regarding a Project Agreement and arrangements relating to benefits, access rights and easements were targeted for completion by October 31, 2006.

Pursuant to a **Letter of Intent (LOI)** signed in March 2006, Yukon Energy is proceeding with negotiations with the developer of the Minto Mine (Sherwood Copper Corporation (**Sherwood Copper**)) and its wholly owned subsidiary Minto Explorations) in order to finalize a **Purchase Power Agreement (PPA)** to supply WAF grid power to the Minto Mine through the new transmission facilities that would be

¹ The three NTFNs are **Little Salmon Carmacks First Nation (LSCFN)**, **Selkirk First Nation (SFN)** and **Na-Cho Nyak Dun (NND)**. The CS development will, in some areas, be adjacent to or crossing settlement lands of each of the three NTFNs. The MS development generally crosses SFN settlement lands.

provided by the Project. Under the anticipated PPA, the mine developer will pay all costs for the MS development. The Minto Mine is currently under construction and is expected to begin operations in spring/summer 2007, using on-site diesel generation to supply its power needs until such time as grid power can be provided by the Project. Mine/mill operation is currently planned into 2014, with shut down activities and related power loads continuing thereafter until 2018; however, three or more additional years of production are projected if additional high grade resources are confirmed by drilling currently being completed. Stockpiled low grade material will also be available for processing in the future should economics warrant after processing of higher grade material has been completed.

Yukon Energy has also engaged in initial discussions with Western Copper Corporation, the new entity responsible for developing the Carmacks Copper Mine, in order to confirm interest in potential future transmission development that would connect this mine site, west of the Yukon River, with the CS development in the vicinity of McGregor Creek, south of Minto Landing (i.e., transmission to be developed as part of the Stage One CS development). The Carmacks Copper Mine is currently in the permitting stage, with potential for start of construction in summer 2007 and start of operations in the third quarter of 2008.

As fully described in the Project Proposal, Yukon Energy selected a preferred transmission route for the Project within, or near to, the Route Study Area based on consultation with interested parties and consideration of various factors such as environmental and socio-economic effects, engineering requirements, and costs. Generally, the Route Study Area provided an environment already disturbed by established linear road development as well as other activities, and route selection was generally able to address concerns and interests with regard to current resource use activities, cultural and heritage areas, protected areas, trapper's cabins, special viewpoints and recreation areas, wetland areas, other infrastructure (e.g., local airports and quarries), and other valued environmental and socio-economic components. Given the inherent flexibilities in selecting a final ROW, as well as pole placement and clearing within such ROW, the route selection process generally sought to identify areas to be avoided and/or used to minimize adverse effects and enhance beneficial effects. Cumulative effects were fully considered as an integral part of the effects assessment process.

The Project Proposal reflects, as relevant, the agreement with the NTFNs and Sherwood Copper on the Project's selected route as well as any review undertaken with relevant Yukon Government department interests.

The Project Proposal indicates that the Project is expected to cause no likely significant adverse effects on the biophysical environments (e.g. land, water and air environments and associated terrestrial and aquatic life) or on the socio-economic components (e.g., resource and other land use, economy, and social components including infrastructure and services, aesthetics, cultural/heritage sites, traditional lifestyle, human health and social well being). This conclusion reflects careful routing of the transmission lines and the consideration of mitigation measures that would reduce or eliminate remaining potential adverse effects. Planned mitigation includes an **Environmental Protection Plan (EPP)**, to be finalized following the YESAB screening, which will be designed to provide direction to contractors regarding the requirements of Yukon Energy and the regulator. Some residual adverse effects (e.g., the physical

presence of the facilities result in an altered landscape and other changes for as long as the facilities are in place, and improved access in some areas may create concerns about potential conflicts with existing resource uses) are anticipated, but are not expected to be significant based on criteria relevant to the YESAB assessment.

The Project Proposal also indicates that positive environmental and socio-economic effects are likely to result from the Project as it improves the use of existing WAF and MD grid power resources (including existing surplus hydroelectric generation) and consequently displaces diesel generation emissions; it is anticipated that this will create associated benefits for Yukon electric utility ratepayers, enhance the feasibility and economics of new mining developments, improve access to certain areas, and provide opportunities for local jobs and business activity during construction and subsequent periodic ROW clearing and maintenance.

1.2 PROPONENT INFORMATION

Yukon Energy is the Project proponent.

Yukon Energy is a public electric utility which is owned by the Yukon Government through the Yukon Development Corporation (a Crown corporation) and subject to rate regulation by the YUB. Yukon Energy owns and operates the 138 kV WAF and 69 kV MD transmission grids as well as over 90% of the electric generation resources on these grids; it is also the public utility with primary responsibility for planning and development of new generation and transmission facilities in Yukon. Yukon Energy's recent transmission development experience includes the MD grid development completed in 2002.

Yukon Energy management reports to its Board of Directors through the President. Final approval to proceed with the Project will be subject to the approval of the Board of Directors as well as the Minister responsible for Yukon Energy. Project design and construction will be under the overall direction of Yukon Energy's Director of Technical Services (Alex Love), and Project operation and maintenance will be under the direction of Yukon Energy's Director of Operations (Dave Wray).

Through a competitive request for proposal process, Yukon Energy will retain the required consulting and engineering services to complete preliminary and detailed engineering design for the Project, and to provide contract tender engineering design documents and contractor supervision services during construction. The MOU provides that, through the final Project Agreement, NTFN businesses will have the opportunity to provide all route clearing and brushing services required for the Project on a sole source basis. Contracts to construct the remaining components of the Project will be awarded by Yukon Energy through an open and competitive tendering process. It is expected that the final Project Agreement with the NTFN will provide the opportunity and preference for qualified NTFN citizens to be employed by Yukon Energy contractors working on the Project.

The primary YESAB contact for the Project is Hector Campbell, Yukon Energy's Director of Resource Planning and Regulatory Affairs.

1.3 PROJECT BACKGROUND

Yukon Energy carried out preliminary studies in 2002/2003 in order to define a 500 metre corridor generally along the Klondike Highway for the location of the CS project route. A Map Notation for this corridor was issued in May 2004 by the Lands Branch. Yukon Energy also reserved land from the Crown for the new transmission substation at Carmacks, located north of the Yukon River on the 138 kV WAF line from Carmacks to Ross River. In late 2005, Yukon Energy secured Yukon Government funding required to proceed with initial planning studies and consultations for the CS development. Thereafter, in the fall/winter of 2005/2006, Yukon Energy provided general information of the CS development to Yukon Government departments, the NTFNs, the general public, YESAB and the developer of the Minto Mine.

In May 2006, a MOU was concluded between Yukon Energy and the three NTFNs addressing joint support for the CS development to be generally located within the 500 metre corridor identified along the Klondike Highway and for the MS development to be located generally along the Minto Mine access road (the Route Study Area). The MOU set out commitments for a consultation process regarding the route selection and the YESAB filing process targeted for completing before the end of June 2006. Principles regarding a Project Agreement and arrangements relating to benefits, access rights and easements were targeted for completion by October 31, 2006. More detail on the MOU, including updated information on current scheduling, is provided in Chapter 4, Section 4.3.1.1.

Pursuant to a LOI signed in March 2006, Yukon Energy is proceeding with negotiations with the developer of the Minto Mine, (Sherwood Copper and its wholly owned subsidiary Minto Explorations), in order to finalize a PPA to supply WAF grid power to the Minto Mine through new transmission facilities to be provided by the Project. Under the anticipated PPA the mine developer will pay all costs for the MS development. The Minto Mine is currently under construction and is expected to begin operations in spring/summer 2007 using on-site diesel generation to supply its power needs until such time as grid power can be provided by the Project. Mine/mill operation is currently planned to continue into 2014, with shut down activities and related power loads continuing thereafter until 2018; however, three or more additional years of production are projected if additional high grade resources are confirmed by drilling currently being completed. Stockpiled low grade material will also be available for processing in the future should economics warrant after processing of higher grade material has been completed.

Yukon Energy has begun initial discussions with Western Copper Corporation, the new entity responsible for developing the Carmacks Copper Mine, in order to confirm its interest in potential future transmission development to connect the mine site west of the Yukon River with the CS development in the vicinity of McGregor Landing, south of Minto Landing (i.e., transmission to be developed as part of the Stage One CS development). The Carmacks Copper Mine is currently in the permitting stage, with a potential start of construction in summer 2007 and start of operations in the third quarter of 2008.

The **Public Involvement Program (PIP)** consultations to date are fully reviewed in Chapter 4 of this Project Proposal.

To date, funding for the Project's development has been provided by the Yukon Government and Yukon Energy. As set out in Yukon Energy's 20-Year Resource Plan (see Appendix 1A), filed with the YUB in June 2006, development of both stages of the Project is subject to the provision of Yukon Government funding and additional mine customer contributions in order to ensure that there is no net cost to Yukon Energy or to Yukon ratepayers beyond what would be required for any other option to provide required electric energy and capacity.

Yukon Energy is providing for the Project to be developed in two stages: Stage One will involve the CS development from Carmacks to Pelly Crossing as well as the MS development (target for first transmission in-service to the Minto Mine in the third quarter of 2008), and Stage Two will involve the balance of the CS development from Pelly Crossing to the MD grid substation at Stewart Crossing (target for potential in-service in the second half of 2009).

At this time, no final decision has been made by Yukon Energy to proceed with the Project, either in whole or in part. Current schedules to plan, design and construct Stage One and Stage Two of the Project are set out in Chapter 5, Section 5.4.

Before any construction activities may be undertaken Yukon Government, First Nation and federal regulatory approvals and decisions are required. These approvals and decisions may only be undertaken after a screening assessment of this Project Proposal by the Executive Committee of the YESAB.

Prior to any final decision by Yukon Energy's Board of Directors on the Project, the following tasks will all need to be completed (in addition to securing all required regulatory approvals and decisions): final engineering design, costing and construction contract tendering, the completion of the current YUB review of Yukon Energy's 20-Year Resource Plan, the completion of the PPA with Sherwood Copper, the finalization of Yukon Government funding related to the Project, and approval of the Minister responsible for Yukon Development Corporation pursuant to Order-in-Council 1993/108.

1.4 PROJECT PURPOSE

The Project's prime purpose is twofold:

1. to connect the WAF and MD electricity grids in order to encourage economic development along the corridor, including new mine developments, and enhance overall WAF and MD system reliability, economic efficiency and flexibility in resource use; and,
2. to provide surplus WAF grid hydroelectric power to the new copper-gold mine under development west of the Yukon River at the Minto Mine, utilizing the CS development from Carmacks to the Minto Landing area.

Specific Project objectives include:

1. Providing near-term and long-term benefits to all Yukon ratepayers, the mines connected to the Project, governments and others through development of new transmission access

- connecting the WAF and MD grids, and also connecting grid power resources with customer power loads that would otherwise be supplied solely with diesel fuel power generation.
2. Providing the near-term opportunity specifically for the Minto Mine, the Pelly Crossing community, and other mines in the Project Study Region² (e.g., the Carmacks Copper mine) if and when developed, to have access to near term surplus hydroelectric power to displace local diesel fuel power generation with its associated added costs, emissions and noise.
 3. Providing the opportunity for meaningful consultation and involvement with the NTFN and the other residents of communities in which the Project will either be located or might have significant environmental or socio-economic effects.
 4. Developing the Project through an approach consistent with the purpose of YESAA, and involving among, other elements, PIP consultations and a MOU with the NTFN, which:
 - a) protects and maintains environmental quality and heritage resources;
 - b) protects and provides for the well-being of Yukon Indian persons and their societies in the NTFNs, as well as Yukon residents and the interest of Canadians;
 - c) intends to be undertaken in accordance with principles that foster beneficial socio-economic change without undermining the ecological and social systems on which community/residents/entire societies depend; and
 - d) recognizes and, to the extent practicable, enhances the traditional economy of Yukon Indian persons and their special relationship with the wilderness environment.

1.5 REQUIRED AUTHORIZATIONS AND REGULATORY APPROVALS

A YESAB Executive Committee screening is required under Section 5 and Section 22 of Schedule 3 of the YESAA regulations³ as the Project components will involve the construction of an electrical transmission line with a voltage that is at least 138 kV. An Executive Committee screening may also be required where the power line is of a length of more than 50 km where the power line is not on a right of way developed for a power line, pipeline, railway line or road or on a right of way contiguous to, for its whole length, a right of way developed for a power line, pipe line, railway line or road. Absent these components, the MS components of the Project would be subject to a Designated Office (under Schedule 1, Part 4, Section 1 of the regulations⁴) assessment due to the required voltage (less than 138 kV) and line distance (less than 50 km). In accordance with Section 1(1) of the YESAA regulations, a "power line" includes the transmission line and related transformers and switching stations.

In addition to approval of the Minister responsible for Yukon Development Corporation pursuant to Order-in-Council 1993/108, regulatory permits and approvals are required for land use (Crown lands and settlement lands), river and stream crossings and other activities related to the Project's development. Table 1.5-1 lists the regulatory permits and approvals that have been identified. Construction of the Project is planned to be in conformance with **Fisheries and Oceans Canada (DFO)** "Overhead Line

² The Project Study Region is described in Chapter 2, Section 2.2.

³ The *Assessable Activities, Exceptions and Executive Committee Projects Regulations* (SOR/2005-379) ("*Assessable Activities Regulations*"), made under Section 47 of YESAA.

Construction Operational Statement, Version 2. 2006", and accordingly no DFO permit requirement is included in Table 1.5-1.⁵

**Table 1.5-1
Regulatory Permits and Approvals Required for the Project**

Activity	Permit Required	Regulation
Clearing or installing a utility ROW Conducting geotechnical studies (for substations)	Land Use Permit Land Use Permit	<i>Territorial Lands (Yukon) Act, Lands Act, Land Use Regulations</i>
Clearing or installing a utility ROW on settlement lands	First Nation access for construction approval	<i>N/A</i>
Tenure for Land Lease	Application for Land	<i>Territorial Lands (Yukon) Act, Lands Act, Land Use Regulations</i>
Tenure/easement for Land Lease on settlement land	As-built easement or equivalent for ROW on settlement lands	<i>N/A</i>
Construction of new road access Construct road access on highway ROW Use of land within highway ROW Perform work within highway ROW Erect a sign within highway ROW	Above, and Permit under Highways Act Section 7(2) Access Permit License of Occupation Work in ROW Permit Sign Permit	<i>Highways Act, Highways Regulation</i>
Permission to obtain gravel/sand from quarry	Quarry Permit (submitted along with Land Use Permit)	<i>Quarry Regulations, Territorial Lands (Yukon) Act, Quarry Regulations, Lands Act</i>
Timber cutting – if less than 1000 m ³ per year Timber cutting – if greater than 1000 m ³ per year	Commercial & Personal Use Permit Timber Permit or Timber Harvest Agreement	<i>Territorial Lands (Yukon) Act, Timber Regulation</i>
Burning refuse (wood)	Burning Permit	<i>Forest Protection Act, Forest Protection Regulation, Territorial Lands (Yukon) Act</i>
Work over or across any navigable water	Application for Approval of Proposed Works under the Navigable Water Protection Act, and Lands Act (Yukon)	<i>Navigable Water Protection Act Territorial Lands (Yukon) Act, Lands Act, Land Use Regulations</i>
Storage and handling of Petroleum Products	Storage Tank Systems Permit, Land Use Permit	<i>Environment Act, Storage Tank Regulation Territorial Lands (Yukon) Act, Lands Act, Land Use Regulations</i>
Handling, Disposal, Generation or Storage of Special (Hazardous) Wastes	Special Waste Permit (Environment Act)	<i>Environment Act, Special Waste Regulation</i>
Construction of buildings outside a municipality	Building Permit	<i>Building Standards Act</i>
Work within 4 km of aerodrome property	Transport Canada Obstacle Clearance Form	<i>Canadian Aviation Regulation TP 312 Standards and Recommended Practice</i>

⁴ Schedule 1, Part 4, Energy and Telecommunications Section 1 provides that a Designated Office assessment is required for construction, installation, operation, modification, decommissioning or abandonment of, or other activity in relation to, a power line or a telecommunications line.

⁵ Among other considerations, this Operational Statement requires that the overhead lines do not require the construction or placement of any temporary or permanent structures (e.g. islands, poles, crib works, etc.) below the high water mark, restrictions are incorporated on clearing of riparian vegetation (area within minimum 15 m from top of bank or high water mark of any watercourse) and the stipulated "Measures to Protect Fish and Fish Habitat" are incorporated when constructing overhead lines.

1.6 SUBMISSION ORGANIZATION AND CONTENT

The Project Proposal has followed the *Proponent's Guide to Information Requirements for Executive Committee Project Proposal Submissions* (v. 2005) (*Proponent's Guide*) in structure and content with a few variations. As the *Proponent's Guide* describes in general terms the form of Project Proposal submissions, it has been adapted to meet the unique needs of the Project. Two key variations to the *Proponent's Guide* are:

- **Assessment Approach:** A new chapter (Chapter 3) has been added to the Project Proposal intended to outline the assessment approach, including the route selection process, specific to transmission line projects. This chapter also explains the incorporation of cumulative effects assessment in the chapter on Environmental Affects (and not as a separate chapter as outlined in the *Proponent's Guide*). This chapter also includes a discussion regarding the determination of significance.
- **Evaluation of Alternative Routes:** A new chapter (Chapter 7) has been added to the Project Proposal which focuses on the process the Proponent uses in determining its preferred route for the transmission lines. This chapter reflects best practice on route selection, and incorporates an iterative process of route refinement based on extensive public consultation. Because the route selection process adopted by the Proponent seeks to identify and avoid wherever possible potential adverse effects before the determination of a preferred route, it has been placed in advance of the chapter assessing effects associated with the preferred route.

Other differences relate to a re-ordering of the chapters, and the inclusion of a reference section at the end of each chapter. The following outlines the chapter organization:

- Chapter 1: Project Introduction and Overview
- Chapter 2: Project Location
- Chapter 3: Assessment Approach
- Chapter 4: First Nation and Community Consultation
- Chapter 5: Project Description
- Chapter 6: Description of Existing Environmental and Socio-Economic Conditions
- Chapter 7: Evaluation of Alternative Routes
- Chapter 8: Environmental and Socio-Economic Effects Assessment
- Chapter 9: Acknowledgement and Certification
- Chapter 10: Appendices