IDENTIFICATION

Department	Position Title	
Infrastructure	Energy Engineer	
Position Number	**Community**	**Division/Region**
33-15477	Yellowknife	Major Energy Projects / HQ

PURPOSE OF THE POSITION

The Energy Engineer (Engineer) leads and supports the identification, analysis and development of conventional and renewable energy projects and initiatives aimed at increasing the use of domestic energy resources and sustainable energy technologies and reducing energy costs in the Northwest Territories.

SCOPE

The Department of Infrastructure is highly decentralized in the delivery of its programs and services and is responsible for territory-wide government programs such as the operation and maintenance of public buildings and transportation infrastructure and systems, project management, facilities planning, design and technical support services, environmental assessment and remediation, property management, procurement shared services, information technology, information management, disposal of surplus property and goods motor vehicle and mechanical/ electrical regulatory services and fleet management.

The Department is also responsible for programming aimed at increasing the use of domestic energy resources and reducing energy costs in the Northwest Territories (NWT), delivering renewable energy solutions, providing energy supply services to non-market communities, and leading efforts in energy conservation and efficiency.

Located in Yellowknife and reporting to the Senior Engineer, Energy Initiatives the Alternative Energy Engineer is a technical expert on alternative energy technologies and systems within the Major Energy Projects Division

The Engineer provides leadership and technical advice for all energy initiatives and funded renewable and alternative energy projects from concept through to capital construction.

The Engineer will stay apprised of the challenges, opportunities and success factors associated with various sources of energy and how they match the diverse circumstances found in regions

and communities across the NWT, to inform the short- and long-term planning and implementation of projects that advance the strategic objectives of the Government of the Northwest Territories (GNWT).

The Engineer will be expected to work collaboratively with colleagues in the Department of Infrastructure and other GNWT departments, the Northwest Territories Power Corporation (NTPC), the Arctic Energy Alliance (AEA), the federal government and other boards and agencies in order to effectively support and implement energy initiatives across the NWT.

Projects may include energy storage, cleaning generation such as solar, wind and hydro generation, fossil fuel generation, distribution, transmission as well as transportation technology opportunities for both electricity and heat type energy projects. Generation sources such as hydro, LNG, wind, biomass combined heat and power, residual heat, district heating, nuclear and geothermal energy options done at a commercial or utility scale may be considered. Storage solutions may include cryogenic, hydro and/or proven battery solutions and other emerging storage technologies. Transmission and Distribution opportunities will include the extension of network assets funded by NWT rate payers and connecting assets funded by industry.

To fulfill the mandate, the Engineer will analyze, evaluate, interpret and communicate a wide range of complex information to a variety of stakeholders, ranging from individuals, businesses, and all levels of government. The professional technical advice gathered and provided by the Engineer is essential to the decision-making process respecting the furtherance of energy projects and proposals for partnerships or funding made to the Government of Canada or to other parties. The Engineer oversees multiple energy consulting contracts that typically range from $50,000 to $200,000 annually depending on funding commitment.

RESPONSIBILITIES

1. Develop and maintain expertise about the use and application of conventional and alternative energy sources in the NWT and in other jurisdictions through research and regular contact with research institutions, universities, consultants, experts and other relevant agencies.

2. Lead technical analysis, design specifications, planning, risk assessment and capital costing for the development of energy project modeling and the development and refinement of business case analysis for potential energy projects.

3. Develop and lead projects, implementation and business plans for conventional and alternative energy projects.
4. Determine technical viability, economic viability and cost estimates for project costs and recommendations for projects that should proceed.

5. Provide expert technical knowledge on a wide variety of conventional and renewable energy technologies and applications relevant to the NWT.

6. Initiative and lead the development financial and economic analysis for conventional and alternative energy technologies and applications relevant to the NWT.

7. Work with and contract private sector engineers, consultants and contractors to initiate, manage, review and evaluate pre-feasibility and feasibility studies on potential energy projects and initiatives.

8. Collaborate and partner with other Departments, governments, agencies, organizations, communities; consultants and industries to develop and implement alternative energy systems, monitor system performance and maintain a working knowledge of systems installed by other organizations in the NWT.

9. Lead procurement process and the development of terms of reference and scope and specifications for contract procurement documents (requests for proposal, tenders) and coordinate the evaluation of bids and in the contract award process.

10. Provide professional engineering technical advice respecting major energy initiatives and project proposals.

11. Work closely with divisional staff and other GNWT staff, the NWT Power Corporation, as well as private sector engineers and consultants to scope, design and engineer potential energy projects and initiatives.

12. Maintain qualifications in professional, technical and administrative areas by attending and completing seminars, training and other professional development opportunities as appropriate.

WORKING CONDITIONS

Physical Demands

Walking, climbing ladders and working in confined spaces for up to four hours during monthly inspections of alternative energy systems.

Environmental Conditions

No unusual conditions.

Sensory Demands

No unusual demands.

Mental Demands

Travel will be required approximately 2 days per month to inspect alternative energy systems.

KNOWLEDGE, SKILLS AND ABILITIES

- Knowledge and understanding of alternative energy systems & challenges of integrating solutions.
- Knowledge of Engineering for remote northern diesel generation, transmission and distribution and engineering of heating systems for remote northern communities.
- Skilled in Energy Engineering tools such as HOMER, RET Screen, Helioscope or similar tools used at a utility scale.
- Ability to lead the preparation engineering analysis of remote electrical generation options for communities and thermal heating solutions.
- Ability to lead the preparation of economic analysis of remote electrical generation options for communities and thermal heating solutions.
- Ability to understand different economic drivers in remote communities including knowledge of rates structure and cost drivers.
- Ability to manage technical consultants and related projects.
- Knowledge of policy and strategy development techniques.
- Knowledge of federal, provincial and territorial energy strategies and climate change programs.
- Verbal and written communication skills.
- Proficient use of computers and software including word processing, spreadsheets and some experience with Internet publishing.
- Problem solving skills and abilities.
- Ability to work in a high stress multi-tasking environment with tight deadlines.
- Ability to interact with industry, government agencies, Indigenous organizations and the public.
- Ability to communicate scientific and technical knowledge and analysis to a non-professional audience.
- Ability to resolve conflicts and differences of professional opinion.
- Ability to commit to actively upholding and consistently practicing personal diversity, inclusion and cultural awareness, as well as safety and sensitivity approaches in the workplace.

Typically, the above qualifications would be attained by:

A bachelor's degree in engineering and Professional Engineering designation with three (3) years of post-designation experience in the analysis and design of utility scale energy systems in the energy field including experience working with and directing a broad range of technical specialists including engineering consultants and field contractors.

Equivalent combinations of education and experience will be considered

ADDITIONAL REQUIREMENTS

Registration with the Northwest Territories and Nunavut Association for Professional Engineers and Geoscientists (NAPEG) within 90 days of hire is required, with flexibility for international registrants.

Position Security (check one)

☒ No criminal records check required
☐ Position of Trust – criminal records check required
☐ Highly sensitive position – requires verification of identity and a criminal records check

French language (check one if applicable)

☐ French required (must identify required level below)
Level required for this Designated Position is:
ORAL EXPRESSION AND COMPREHENSION
Basic (B) ☐ Intermediate (I) ☐ Advanced (A) ☐
READING COMPREHENSION:
Basic (B) ☐ Intermediate (I) ☐ Advanced (A) ☐
WRITING SKILLS:
Basic (B) ☐ Intermediate (I) ☐ Advanced (A) ☐
☐ French preferred

Indigenous language: Select language

☐ Required
☐ Preferred