COMPETENCY ASSESSMENT

CATEGORY	COMPETENCIES (10)	
1. Technical Competence (10 competencies)	1.1 Demonstrate your knowledge and awareness of Canadian regulations, codes and standards. This includes local engineering procedures and practices as applicable. Note: This is a mandatory Canadian Work-Environment Competency. The minimum required level for this competency is 3.	1. Identify and comply with legal and regulatory requirements for project activities 2. Incorporate knowledge of codes and regulations in design materials 3. Prepare reports on standards and project compliance 4. Recognize the need to design for code compliance while achieving constructability
	1.2 Demonstrate knowledge of materials, or operations as appropriate, project and design constraints, design to best fit the purpose or service intended and address inter-disciplinary impacts.	1. Have knowledge of plant layout and operations 2. Prepare technical specifications 3. Coordinate with equipment vendors and other discipline engineers 4. Demonstrate involvement with feasibility studies
	1.3 Analyze technical risks and offer solutions to mitigate the risks.	1. Demonstrate familiarity with system protection objectives, philosophies, and functions 2. Identify risk areas 3. Develop risk minimization plans
	1.4 Apply engineering knowledge to design solutions.	1. Demonstrate an understanding of the engineering principles used in the application of computer design programs 2. Demonstrate use of theory and calculations to arrive at solutions 3. Demonstrate why a unique design solution could not be accomplished with a standard design solution 4. Calculate fault levels and select equipment to withstand the available fault current 5. Understand ground currents and potential rise and design a grounding system that would protect life and property 6. Perform load calculations for sizing service and distribution equipment including future provisions 7. Design circuits and systems with consideration for efficiency and power quality 8. Using engineering principles, determine voltage level, transformation and distribution methods that provide the most economic and sustainable system 9. Understand source and cause of harmonics and methods used to minimize the effects of harmonics on the system 10. Design electrical control and protection schemes for transmission and distribution systems

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	1.5 Be able to understand solution techniques and independently verify the results.	1. Demonstrate an understanding of the engineering principles used in the application of computer design programs 2. Perform field checks
	1.6 Demonstrate your knowledge and awareness of Canadian regulations, codes and standards pertaining to safety. Note: This is a mandatory Canadian Work-Environment Competency. The minimum required level for this competency is 3.	1. Identify and use relevant safety procedures, processes, and equipment 2. Develop maintenance programs 3. Design test plans and equipment 4. Implement inspection results 5. Review and alter safety or system operating procedures when necessary 6. Demonstrate specific knowledge of safety regulations
	1.7 Demonstrate understanding of systems as well as of components of systems.	1. Demonstrate a working knowledge of the basic components of power generation 2. Manage processes within the overall system (monitor and, where needed, modify processes to achieve optimum outcomes)
	1.8 Exposure to all stages of the process/project life cycle from concept and feasibility analysis through implementation.	1. Demonstrate participation in or exposure to all stages of the project life cycle: ◦ **Identification:** generation of the initial project idea and preliminary design ◦ **Preparation:** detailed design of the project addressing technical and operational aspects ◦ **Appraisal:** analysis of the project from technical, financial, economic, social, institutional and environmental perspectives ◦ **Preparation of specifications and tender documents:** preparation of tender document, inviting and opening of tenders, pre-qualification, evaluation of bids and award of work ◦ **Implementation and monitoring:** implementation of project activities, with ongoing checks on progress and feedback ◦ **Evaluation:** periodic review of project with feedback for next project cycle
	1.9 Demonstrate your understanding of the role of peer review and quality management that is essential to engineering practice in Canada. Note: This is a mandatory Canadian Work-Environment Competency. The minimum required level for this competency is 3.	1. Demonstrate peer review 2. Demonstrate completed project, systems or sub-systems meet project objectives 3. Participate in regular meetings and discussions with project members, both electrical and other disciplines, to ensure quality, scheduling, deadlines and budgeting are not compromised during both design and construction stages 4. Review designs, procedures and manuals to ensure design guidelines are adhered to. Consult with and seek input, including design and field review, from other project members throughout the project design and construction 5. Perform testing and commissioning upon completion of the product/project to ensure all design criteria, terms and conditions and applicable safety standards and regulations have been met 6. Demonstrate understanding of ISO 9000

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	1.10 Transfer design intentions to drawings and sketches; Understand transmittal of design information to design documents.	1. Demonstrate communication of ideas and concepts to project team members 2. Demonstrate produced design documents required minimum additional interaction with other designers, contractors and commissioning personnel 3. Demonstrate the value of project completion reports and lessons learned reports to application in future projects by self or others 4. Understand established and acceptable symbols and terminology used in preparation of design drawings 5. Create sketches, notes and documentation to prepare proposals, preliminary, and final design drawings for acceptance by the client and approval by regulatory authorities