electricity
HUMAN RESOURCES CANADA

Electricity Competency Framework and National Occupational Standards

Trainer Guide

Using Competencies to Build a Safety-focused, Highly-skilled, Diverse and Productive Electricity Workforce

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Electricity Human Resources Canada

Electricity Human Resources Canada (EHRC) is Canada's most trusted source for objective human resource and market information, with the tools to guide business planning and development for the Canadian electricity industry. We provide a platform for current industry needs, identify ways to make Canadian businesses "best in class," and forecast industry trends and issues. Our work enables the industry to map workforce supply to demand and to foster growth and innovation in employers and employees. This improves the quality of service industry provides and improves the confidence Canadians have in the industry.

Technological innovation is reshaping jobs and skills that will support the electrical grid of the 21st century. Canada has been a global leader in capitalizing on these innovations, but the changing nature of work demands a rethinking of traditional occupational standards. Funded by the Government of Canada's Sectoral Initiatives Program, EHRC has spearheaded several initiatives including:

- **Electricity Competency Framework:** to lay the foundation for transferrable skills between and across occupations.
- **National Occupational Standards:** to capture the skills and abilities, i.e. competencies, required of specific in-demand occupations in the electricity sector.
- **Skills for Success Profiles:** to outline the foundational literacy and professional skills required of various occupational groups.

Electricity Human Resources Canada's specific objectives are to:

- Conduct and disseminate valuable research about human resources in Canada's electricity industry
- Help the industry create and sustain a skilled and diverse labour force

- Promote awareness of career and employment opportunities in the Industry
- Develop partnerships that better enable the industry to meet its human resource needs

Further information on EHRC is available at **electricityhr.ca**

Introduction

This guide is intended as a resource to assist industry trainers, training consultants, and curriculum developers tasked with reviewing, assessing, evaluating, and developing training initiatives, solutions, and programs for the electricity sector.

This guide provides training professionals with a practical approach for using the competencies developed by EHRC throughout the training cycle. This helps support organizations' training initiatives and programs and ensures the development of a highly-skilled, diverse, safety-focused, and productive workforce.

Electricity Competency Framework

The Electricity Competency Framework is a library of competencies that are required for a range of occupations and functions within the industry. The Framework codes and files the individual competencies within various categories including functional competencies (e.g., design, construction and installation, asset maintenance), management competencies (e.g., project management, human resources, finance) and foundational competencies (e.g., communication, safety, information technology foundations).

Each category includes a cluster of competencies. The Electricity Competency Framework can serve as the foundation to conduct skills assessments; identify and quantify skills gaps; create new (or modify existing) skills profiles; develop job descriptions; and create recruiting and onboarding processes that align to occupational standards, policies, and practices. Organizations can use competencies within the Framework to effectively optimize performance and set the benchmark to ensure a highly-skilled workforce.

Competency Format

The competencies are comprised of the performance, knowledge and abilities that industry professionals need to do their jobs proficiently; that is, safely, effectively and efficiently. An individual's performance, knowledge and abilities can be observed, assessed and measured against the industry-validated competencies.

Sample Competency Area and Competency Units:

Category	Competency Area	Competency Unit		
Safety	Maintain a Safe Working Environment	Follow safe work practices	Use personal protective equipment (PPE)	Participate in safety meetings and emergency drills

As you can see in the graphic above, 'Maintain a Safe Working Environment' is a competency area within the Safety category. This competency area is further comprised of a series of competency units, including: Follow safe work practices; Use personal protective equipment (PPE); Participate in safety meetings and emergency drills, etc. Trainers can select specific competency categories, areas and units from the Electricity Competency Framework to assist in conducting training gap analyses, developing training content, or creating learner assessments.

National Occupational Standards (NOS)

National Occupational Standards (NOS) are voluntary guidelines that have been developed to provide employers, educators and job seekers with practical guidance on the skills and knowledge requirements of a specific occupation or role.

NOS provide the information a person needs to know, and the skills they need to perform on the job, for them to be considered proficient in their role. NOS can be used by all organizations and are a valuable tool to inform the development of human resources strategies, programs, performance, and tools.

Using the Competencies and NOS

The competencies and NOS serve as a benchmark for determining priorities for developing and enhancing training initiatives and programs. There are several ways for training professionals to use the competencies. Some of the most common uses in relation to training include:

- Supporting ongoing professional development, learning and job-related training
- Conducting training needs/gap assessments
- Determining training priorities and developing new training solutions
- Evaluating training outcomes

These common uses will be explored within this guide. However, training professionals are encouraged to use the competencies and NOS as foundational resources throughout the training cycle. The proposed uses and approaches are mere suggestions and are not presented as best practices or preferred methods.

Use 1: Supporting Ongoing Professional Development, Learning and Job-Related Training

Ongoing professional development and continuous learning is critical to maintain a highly skilled and competitive electricity workforce. Competencies that provide a valid and current snapshot of skills and knowledge requirements serve as an ongoing benchmark for identifying and prioritizing professional development goals and objectives for individuals and groups of workers.

1.1 Identify Professional Development Areas

Trainers can conduct learner assessments to evaluate the skills, knowledge, and abilities of individuals or groups of workers, and review these assessments with managers and supervisors. These assessments can be conducted formally or informally, but the purpose of assessment and evaluation should be to identify how capable the individual employee or worker group is in their skills and knowledge to perform their assigned work duties. This assessment can measure an individual's actual skills and knowledge against the industry-validated competencies, determining the level of proficiency the employee(s) has to perform the work, and highlighting the gap areas that require attention.

As an example, a trainer can assess and evaluate an individual's skill level both pre- and post-training. Whenever possible, a practical assessment such as a skills demonstration, role-play or scenario is the most effective way to assess proficiency. A rating scale, as shown below, can be used to document the current proficiency level for each of the competency units within the overall competency area being assessed.

An example of a Rating Scale is provided below using **Maintain a Safe Working Environment** as an example:

Maintain a Safe Working Environment	1 Novice No experience	2 Developing Developing skills and knowledge	3 Functional Performing skills with guidance	4 Competent Works independently and shows initiative	5 Mentor Demonstrates expertise and can mentor others	N/A Not applicable
Follow safe work practices				✓		
Use Personal Protective Equipment (PPE)				✓		
Participate in safety meetings and emergency drills				✓		
Perform lock-out, tag-out procedures			✓			
Handle, transport and store hazardous materials		✓				
Work in confined spaces						✓
Use fall arrest equipment						✓
Minimize radiation exposure						✓

1.2 Create Professional Development Learning Plan

Once the assessment is completed, the trainer can work with the individual to identify skills and knowledge gaps to determine areas for further professional development. The trainer can develop a customized Professional Development Learning Plan to outline SMART goals (i.e. Specific, Measurable, Achievable, Relevant, and Time bound) associated with training gaps.

Competencies assessed as 'Novice' or 'Developing' should be prioritized within the learning plan, especially if these competencies are deemed essential for the individual's role. In the example above, the individual requires additional development for the competency 'Handle, transport and store hazardous materials.' The trainer may develop the following learning objective within the overall plan to enhance the individual's skill level for this competency:

Sample learning objective:

Competency Unit	Professional Development Activity	Confirm the Required Time	Set Timeline	Conduct the Evaluation
Handle, transport and store hazardous materials	Workshop offered by local Health & Safety organization	1 day	30 days	Obtain relevant knowledge of Transportation of Dangerous Goods regulations

1.3 Evaluate Professional Development Learning Outcomes

After the professional development learning plan has been created and implemented, an evaluation of the training objectives and goals will help to determine if the desired outcomes have been achieved, i.e., learner's skill level has improved. If a subsequent practical assessment of the individual's skill for the competency in question reveals shortcomings, additional interventions should be identified and implemented.

The Electricity Competency Framework contains over 250 competencies across a range of competency categories and areas. Any combination of competency categories, areas and units can be used to assess professional development goals.

Use 2: Conduct Training Needs/Gap Assessments

There are numerous training providers within the electricity sector, including post-secondary educational institutions, union and labour organizations, private training centres, professional organizations/associations, and in-house training departments. Regardless of the training provider, all training programs should be preparing learners for their future roles.

To ensure that learners are acquiring the necessary skills, knowledge and abilities for employment within today's dynamic and innovative electricity sector, programs must be assessed periodically to

confirm alignment. Every educational provider has their own requirements and methods for assessing programs. Periodic program assessment helps to ensure that training content remains current and reflective of the skills, knowledge and abilities required of incumbents in various roles.

There are many methods and resources that can be used to assess training content and programs. The Electricity Competency Framework and relevant NOS should be considered as a useful benchmark resource for assessing existing training programs and identifying gap areas in program content.

2.1 Conducting a Full Program Review

When conducting a full program review for a specific occupation, NOS can serve as a benchmarking document to ensure that the program covers all categories, competency areas and competency units that are required for the occupation. Because the NOS have been developed for the industry by current job incumbents, they serve as the most current snapshot of the specific role or occupation. In addition, the NOS are responsive to innovations and technological advancements that have a direct impact on the requisite skills and knowledge of competent practitioners. The competencies are inherently agile and flexible and are updated to respond quickly to changes in the industry. The NOS and Electricity Competency Framework serve as a finger on the pulse of skill requirements.

The Charts of Competency within the NOS are the ideal starting point for assessing full program curriculum. The major categories typically align with course topic areas; competency areas often reflect specific course modules; and competency units are reflective of individual course content and learning outcomes. A high-level assessment of course content against the Chart of Competency for a specific occupation will provide the first level of analysis regarding potential gaps in the training.

2.2 Conducting a Gap Analysis of Specific Modules/Content

Following the high-level assessment or full program review, the details within the competency units can be used to complete a more detailed gap analysis of specific content and course modules. As with the high-level review, the content within the competency units (with particular focus on Performance and Knowledge) serves as an outline for what should be taught in training programs. The competency units have been developed and validated by experienced industry professionals and are reflective of current practice within the industry. The competency units and associated content can provide training institutions with the most accurate and current details surrounding new skills and innovative techniques, which are often missing within curriculum (due to extended curriculum development and review cycles).

The following graphic illustrates the details contained within each competency unit in the Framework:

Purpose:
A statement that describes what a competency is, and why it is important.

Performance/Abilities:
What a job incumbent must be able to do to perform the competency.

Knowledge:
What a job incumbent must know to perform the competency.

Glossary:
Definitions for key terms used in the competency.

Range of Context:
Specific variables or situations that may impact the way that the competency is performed.

Level of Practice:
The level of job incumbent that typically performs the competency.

Adapted Bloom's Taxonomy:
The level of cognitive performance required for the competency.

RWATEM: The Requisite Work Aids, Tools, Equipment and Materials used by job incumbents to perform the competency.

Major Category	Safety
Competency Area	Maintain a Safe Working Environment
Competency Unit	Use personal protective equipment (PPE)

Purpose

Using PPE correctly protects employees against injury or death, and protects the organization and its assets from loss and liability.

Performance/Abilities

P1 Ensure required training is up to date, e.g. fall arrest equipment training
P2 Select equipment appropriate to task and work environment
P3 Inspect/test PPE before use:
  • check expiry dates, if applicable
  • document condition
P4 Ensure PPE is properly fitted and adjusted
P5 Use PPE only for intended purpose
P6 Communicate issues with PPE to relevant personnel, e.g. co-workers, supervisor
P7 Tag defective equipment:
  • turn in to relevant personnel or department
P8 Clean PPE after use:
  • store in designated location

Knowledge

K1 Relevant legislation, including Occupational Health and Safety (OH&S)
K2 Organizational safety policies and procedures, including OH&S
K3 Potential safety hazards on site
K4 PPE required for specific tasks, equipment and environments

CONTEXTUAL VARIABLES

Range of Context

• Quantity and type of PPE varies with type of work and work location.

Level of Practice	Adapted Bloom's Taxonomy	
☒ Frontline	☐ Recall, Remember	☐ Analyze
☒ Supervisor	☐ Understand	☐ Evaluate
☒ Manager/Executive	☒ Apply	☐ Create/Transform

RWATEM (Requisite Work Aids, Tools, Equipment or Materials)

• PPE, e.g. hard hats, safety glasses, safety boots, rubber gloves, fall arrest and restraint equipment, fire-retardant clothing, shock hazard PPE, arc flash hazard PPE, hearing protection, respiratory protection equipment

Level 2 EVSE Installer 45

Use 3: Determine Training Priorities and Develop/Revise Training

Following a training gap analysis, trainers and training institutions will have a clearer picture of how responsive existing training programs are when evaluated against the competencies. This evaluation of the gap analysis can be used to determine the required response, e.g., developing new training or revising existing training.

3.1 Developing New Training

In the case of new skills requirements based on emergent technologies or advancements, training development is often required. While trainers and curriculum developers have specialized skills to create instructional materials, the competencies serve as useful resources to create a training blueprint, formulate learning outcomes and objectives, and develop course content.

3.2 Revising Existing Training

In many cases, existing training programs are revised on a periodic basis to ensure that they remain responsive to current practice. In most cases, the fundamentals of an occupational area remain the same. It is often technology, approaches or best practices that change due to innovation, resulting in training gaps. In this vein, the initial training gap analysis provides the outline for where revisions are required, and the competencies can provide the basis of the content development. While the intention of the competency units is to inform competent practice (not teach how to perform a skill), they are often used to develop learning outcomes and objectives for courses, ultimately determining what a learner should be able to do after taking the course.

Use 4: Evaluate Training Outcomes

Evaluation is an essential step within the training cycle to ensure that training content remains current, responsive, and valid when preparing the workforce of tomorrow. Evaluation can take on many forms, and training providers have formalized approaches and methodologies for program evaluation. The competencies can be integrated into existing evaluation methods in a variety of ways.

4.1 Gathering Anecdotal Evidence/Feedback

After a training module or program has been developed and delivered, an evaluation should be conducted to determine the effectiveness of the training. One method of evaluation is to gather feedback from learners, as well as program trainers, regarding strengths and weaknesses of the training. The feedback can be collected via surveys and questionnaires. All feedback should be reviewed and considered and, when applicable, training should be updated and improved to respond to issues.

4.2 Conducting Post-Training Learner Assessments

A second method to evaluate the program development outcome and assess the effectiveness of the training program is to evaluate the skills and knowledge of individuals both before and after taking the training program, with results being compared to determine whether there are improvements in their performance, knowledge and abilities.

The details within the competency units can be used to formulate a detailed learner assessment. Ideally, proficiency will be assessed using practical methods, like the approach used to develop a professional development learning plan (in Use 1).

Conclusion

We hope this guide is useful and informative. The potential uses presented in this guide are just a few examples of the many ways that the Electricity Competency Framework and NOS can be used throughout the industry training cycle.

For more information and assistance, please visit the EHRC website at **electricityhr.ca**