POWER ENGINEERING COMPETENCY FRAMEWORK FOR POWER ENGINEERING PROFESSIONALS IN PUBLIC SERVICE
TECHNICAL SKILLS AND COMPETENCIES (TSC) REFERENCE DOCUMENT

TSC Category	Decarbonisation					
TSC Title	Lighting Technologies Application					
TSC Description	Oversee application of light-emitting diodes (LED) devices and associated smart lighting control systems for energy-efficient lighting applications					
TSC Proficiency Description	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**	**Level 6**
			<Insert TSC Code>	**<Insert TSC Code>**	**<Insert TSC Code>**	**<Insert TSC Code>**
			Oversee installation, testing, operation and maintenance for LED lighting devices and lighting controls	Review design, installation, testing and maintenance of LED lighting devices and lighting controls based on technical specifications and project requirements	Manage projects to upgrade and maintain lighting systems comprising LED lighting devices and smart lighting controls	Plan upgrading programs for adoption of energy-efficient LED lighting systems with smart lighting controls
Knowledge			• Fundamental concepts of lighting and chromaticity • Principles and types of LED • The functioning of semiconductor LED • Types and classification of lamps • Types of lighting controls • Operation and maintenance procedures for LED applications • Photometry or light measurement tools and techniques • Relevant regulations, industry standards, codes of practice and safety practices	• Principles, types and applications of LED • Physics of semiconductor LED • Lighting types, light sources and classification of lamps • Light intensity ranks for commercial operations • Types and applications of lighting controls • Maintenance, compliance and audit procedures for LED applications • Relevant regulations, industry standards, codes of practice and safety practices	• LED technologies and their applications • Factors influencing the operation of the semiconductor LED • Factors affecting the quality, performance and reliability of LED luminaires • Energy efficiency principles and practices • Advanced lighting controls using sensor and Internet of Things (IoT) technologies • Maintenance, compliance and audit programmes for LED applications • Relevant regulations, industry standards, codes of practice and safety practices	• Residential, commercial, industrial and outdoor lighting markets • LED technologies and their applications • Applications of the semiconductor LED • LED product lifecycle • Whole-of-government energy efficiency principles and practices • Advanced lighting controls using sensor and Internet of Things (IoT) technologies • Relevant regulations, industry standards, codes of practice and safety practices

Abilities			• Explain the theories of light propagation and concepts of chromaticity • Oversee set up, testing, installation and maintenance of lighting controls to verify performance and compliance with regulatory requirements, industry standards and tender specifications • Prepare progress reports on LED lighting devices and controls installation and testing • Oversee the measurement of light output and electric energy consumed by LED devices • Oversee maintenance, compliance and audit tasks for LED devices	• Identify applications of LED devices • Explain the physics of LED lighting • Select and specify lighting controls using dimmers, sensors, motion detectors, timers or energy management systems • Review LED lighting quality by tracking colour appearance and colour rendering factors • Oversee the monitoring and tracking of light output and energy consumption metrics • Review progress reports on LED lighting devices and controls to verify compliance with regulatory requirements, industry requirements and tender specifications • Review audit reports for LED devices • Identify relevant regulations, industry standards, codes of practice and safety practices for LED	• Provide technical advice on factors influencing the operation of LED devices • Resolve issues in implementing and maintaining LED lighting • Review conventional lighting controls and advise on the application of IoT-based lighting controls • Evaluate the quality, performance and reliability of LED luminaires • Identify solutions to reduce energy consumption • Develop maintenance, compliance and audit programmes for LED applications • Review compliance with relevant regulations, industry standards, codes of practice and safety practices for SSL	• Support research on specialty applications of LED • Provide expert technical advice on applications of LED devices • Establish procedures to implement and maintain LED • Guide on issues on long-term performance and reliability of LED luminaires • Approve conventional and IoT-based lighting controls • Recommend solutions to reduce energy consumption and improve energy efficiency • Approve maintenance, compliance and audit programmes for LED applications • Establish procedures to drive compliance with relevant regulations, industry standards, codes of practice and safety practices for LED