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

TSC Category	Digitalisation					
TSC Title	Smart Grid Implementation					
TSC Description	Integrate digital technologies and smart automation into grid management to optimise efficiency and performance					
TSC Proficiency Description	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**	**Level 6**
				\<Insert TSC Code\>	**\<Insert TSC Code\>**	**\<Insert TSC Code\>**
				Monitor smart grid projects and support the testing and commissioning of smart grid installations	Specify, manage and conduct testing and commissioning of smart grid projects, in cooperation with other project teams, and monitor the technical performance	Evaluate smart grid proposals and specify conditions to harmonise interfacing requirements with power system network, and approve testing and commissioning reports for smart grid projects
Knowledge				• Smart grid system concepts and components • Smart grid control and operations • Components of a secured smart grid system • Distribution and energy management systems in smart grid • Communications in smart grid • Integration of renewable energy sources into smart grid • Advancement in energy management system for smart grid • Advanced smart grid technologies	• Smart grid control and operations • Communications in smart grid • Machine intelligence in the grid • Emerging technologies in smart grid • Future of smart grid, microgrids, and nano grids • Interconnection and interoperability of Distributed Energy resources (DER) with associated electric power systems • Future cybersecurity considerations and countermeasures for smart grid projects	• Emerging technologies in smart grid • Future of smart grid, microgrids, and nano grids • Interconnection and interoperability of DER with associated electric power systems • Future of cybersecurity considerations and countermeasures for smart grid projects • Performance standards for smart grid integration with power grids

Abilities				- Differentiate smart grid from traditional power systems - Describe the benefits and modern technologies related to smart grids - Explain how smart grid technologies can be applied and its limitations and risks - Supervise smart grid projects - Inspect smart grid projects for compliance with industry standards, regulatory and project requirements - Witness the testing and measurement of smart grid installations - Oversee the maintenance of smart grid infrastructure	- Review designs of an efficient and secure smart grid - Specify technical requirements of smart grid projects - Evaluate (DER) proposals - Oversee testing and measurement to verify performance and compliance with industry standards, regulatory and project requirements - Monitor performance of smart grid installations - Develop solutions to address cybersecurity issues - Conduct impact studies to assess the feasibility of integrating DER with associated electric power systems - Evaluate the feasibility of emerging technologies	- Drive the adoption of smart grid technologies - Lead discussions in the future of smart grid, microgrids, and nano grids within their organisation - Evaluate solutions to address cybersecurity issues Evaluate and approve smart grid project proposals - Analyse and evaluate interfacing requirements of smart grid installations with power grids - Evaluate requirements for existing network upgrade to accommodate smart grid projects - Identify smart grid challenges and provide optimal solutions