

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

TSC Category	Electrical and Power Systems Management					
TSC Title	Battery Systems Management					
TSC Description	Manage the design, testing and commissioning of battery systems according to capacity requirements and site constraints					
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>	
		Verify battery configurations and sizing appropriate for project requirements	Review battery systems design for integration with the power grid as per project and regulatory requirements	Provide solutions to optimise battery systems design for integration with the power grid as per project and regulatory requirements	Evaluate and approve battery system proposals to meet regulatory and industry standards, and identify opportunities to adopt new technologies	
Knowledge		<ul style="list-style-type: none"> Fundamentals of battery systems design Building codes related to distributed generation Battery storage capacity requirements Power grid systems Site constraints Inverter requirements Power controller operating principles Site energy requirement calculation techniques Relevant regulations, industry standards, codes of practice, and safety procedures 	<ul style="list-style-type: none"> Operating principles of battery systems Building codes related to distributed generation Battery storage capacity requirements Power grid systems Site constraints Inverter requirements Power controller operating principles Interfacing requirements for low voltage (LV) and/or medium voltage (MV) electrical power systems Battery systems design and modification methods Battery systems installation, testing and commissioning processes Relevant regulations, industry standards, codes of practice, and safety procedures 	<ul style="list-style-type: none"> Interfacing requirements for low voltage (LV) and/or medium voltage (MV) electrical power systems Electricity demand charges Battery systems available in the market Optimal planning methods Algorithms for battery performance optimisation Electricity demand and generation modelling techniques Distribution network operating principles Software for integrating energy storage systems (ESS) with solar photovoltaic (PV) systems Commissioning and testing requirements for batteries with battery converters Relevant regulations, industry standards, codes of practice, and safety procedures 	<ul style="list-style-type: none"> Distributed generation regulations and guidelines Electrical and building codes Emerging battery technologies Best practices for battery design management Battery design management trends Laboratory tests and onsite test for controls Battery systems design, installation, testing and commissioning standards Relevant regulations, industry standards, codes of practice, and safety procedures 	
Abilities		<ul style="list-style-type: none"> Verify factors at sites that affect battery sizing and configurations 	<ul style="list-style-type: none"> Review selection of battery systems that meet site requirements 	<ul style="list-style-type: none"> Provide solutions to optimise integration of ESS with solar PV 	<ul style="list-style-type: none"> Provide technical advisory on complex 	

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		<ul style="list-style-type: none"> • Check battery configurations and sizing according to project requirements • Check calculations for energy requirements for site • Check compliance with regulations, industry standards, and codes of practice 	<ul style="list-style-type: none"> • Review battery systems configurations to interface with other distributed energy sources and the grid • Review battery system calculations • Review installation, testing and commissioning of battery systems • Review compliance with regulations, industry standards, and codes of practice 	<p>systems and/or power grid</p> <ul style="list-style-type: none"> • Advise on battery systems optimisation • Validate the integration of battery system designs with existing solar PV systems and/or power grid • Recommend sizing of battery systems based on optimisation calculations • Recommend work around methods for complex site constraints to meet battery systems design requirements • Propose solutions to optimise energy efficiency • Validate installation, testing and commissioning against project requirements and industry standards • Ensure compliance with regulations, industry standards, and codes of practice 	<p>battery design management issues</p> <ul style="list-style-type: none"> • Evaluate strategy to ensure battery designs meet regulations and guidelines • Provide acceptance for design, installation and commissioning of battery systems • Drive adoption of energy-efficient solutions and new technologies in battery systems • Promote industry best practices in battery systems • Drive compliance with regulations, industry standards, and codes of practice 	
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