

POWER ENGINEERING COMPETENCY FRAMEWORK				
SKILLS MAP - Senior Principal Engineer / Principal Engineer (System Stability & Planning / System Control)				
Sector	Power Engineering in the Public Service			
Track	Monitoring & Control			
Occupation	Electrical Engineer			
Job Role	Senior Principal Engineer / Principal Engineer (System Stability & Planning / System Control)			
Job Role Description	<p>The Senior Engineer / Engineer (Energy Management Systems) is responsible for carrying out the implementation, configuration and administration of Information Technology (IT) and Operational Technology (OT) systems. He/She liaises with vendors and licensees for maintenance and repair of Energy Management System and supervises checks to detect failures. He implements cybersecurity measures according to the frameworks and policies, detects anomalous activities and potential threats to network resources, responds to cybersecurity incidents and ensures timely completion of security reviews and audits. He identifies system vulnerabilities and recommends solutions.</p> <p>Additionally, he analyses data for identifying operational and strategic insights, and encourages adoption of new technologies, and clean and renewable energy.</p> <p>He possesses critical thinking and problem-solving ability. He has good interpersonal skills and collaborates well with team members and contractors.</p>			
Critical Work Functions and Key Tasks / Performance Expectations	Critical Work Functions	Key Tasks		Performance Expectations (For legislated / regulated occupations)*
	Manage power system stability and planning	Enhance Planting Strategy, Generation Planting Schedule and Strategy to ensure adequate generation capacity		In accordance with: - Electricity Act including subsidiary legislations - Energy Market Authority of Singapore Act - International Electrotechnical Commission (IEC) Standards - International Organization for Standardisation (ISO) Standards - Singapore Standards for Electrical and Power sector - Workplace Safety and Health (WSH) Act * Performance Expectations are non-exhaustive and subject to prevailing regulations and industry standards
		Lead the review of licensee's Ten-Year Transmission Network Development Plan for adherence to the planning criteria in the Transmission Code		
		Lead analysis on proposed power plant and consumer connections to the electricity systems		
		Review power plant performance to ensure compliance with regulatory requirements		
		Lead system studies on the integration of new transmission/generation technologies with the power system		
	Monitor and control power system operations	Oversee real-time monitoring and remote control of the power system to ensure secure and reliable supply of electricity		
		Review operations plan, equipment outage requests and remedial actions		
		Recommend mitigating measures to minimise system disturbances and network security issues		
		Plan remote switching operation on transmission equipment		
		Lead reviews of market rules, system operation manual and resources qualifications for the implementation of a forward capacity market		
	Contribute to decarbonisation, decentralisation and digitalisation initiatives	Contribute to national energy and power policies, strategies and frameworks to balance economic competitiveness, environmental sustainability, energy security		
		Review practicability and feasibility studies of new electrical and power technologies		
		Evaluate regulatory and power system implications of innovation initiatives leveraging new electrical and power technologies		
		Provide technical advice for industry implementation of green initiatives for application of clean and renewable energy		
Engage industry in the adoption of best practices for transmission, distribution and the integration of distributed generation sources				
Leverage data analytics to enhance operational and strategic decision-making				
Skills & Competencies	Technical Skills and Competencies		Critical Core Skills	
	Battery Systems Management	Level 4	Problem Solving	Advanced
	Business Intelligence and Data Analytics	Level 4	Creative Thinking	Advanced
	Continuous Improvement Management	Level 5	Sense-Making	Advanced
	Contract and Contractor Management	Level 4	Decision Making	Intermediate
	Cybersecurity Framework Application	Level 4	Collaboration	Advanced
	Demand Response Management	Level 5	Communication	Advanced
	Distributed Energy Resources Implementation and Interconnection	Level 5	Transdisciplinary Thinking	Intermediate
	Distributed Generation System Performance Monitoring	Level 4	Developing People	Intermediate
	Electrical Equipment and Systems Testing	Level 4	Digital Fluency	Advanced
	Electrical Systems Design	Level 4	Customer Orientation	Advanced
	Electricity Network Incident Management	Level 4	Adaptability	Intermediate
	Electricity Network Operations Management	Level 4	Influence	Intermediate

	Electricity Network Performance Monitoring	Level 4	Self Management	Intermediate
	Electricity Network Planning	Level 4		
	Emergency Response and Crisis Management	Level 5		
	Energy Security and Reliability Management	Level 5		
	Energy Storage Systems Management	Level 5		
	Engineering Problem Solving	Level 5		
	Engineering Safety Standards Interpretation	Level 4		
	Environmental Sustainability Management	Level 5		
	Equipment and Systems Installation and Commissioning	Level 4		
	Innovation Management	Level 5		
	Inter-agency Collaboration	Level 5		
	Internet of Things (IoT) Application	Level 5		
	Microgrids Implementation	Level 5		
	Modelling, Simulation and Visualisation	Level 4		
	Network Technical Specifications Development	Level 4		
	Policy Development	Level 3		
	Power Engineering Management	Level 4		
	Power Plant Incident Investigation	Level 4		
	Power Plant Inspection	Level 4		
	Power Quality Management	Level 5		
	Power Strategy Planning and Governance	Level 5		
	Power System Monitoring and Control Management	Level 5		
	Public Health and Safety Management	Level 5		
	Regulatory Advisory	Level 4		
	Regulatory Compliance and Risk Management	Level 5		
	Robotics and Automation Systems Application	Level 4		
	Smart Grid Implementation	Level 5		
	Solid-State Power System Apparatus Implementation	Level 5		
	Stakeholder Management	Level 5		
	Strategy Development	Level 5		
	Technical Inspection	Level 4		
	Technology Road Mapping	Level 5		
Programme Listing	For a list of training programmes available for the Power Engineers in the Public Service, please refer to separate document on training courses.			

The information contained in this document serves as a guide.