POWER ENGINEERING COMPETENCY FRAMEWORK				
SKILLS MAP - Senior Principal Engineer / Principal Engineer (Energy Management Systems)				
Sector	Power Engineering in the Public Service			
Track	Monitoring & Control			
Occupation	Electrical Engineer			
Job Role	**Senior Principal Engineer / Principal Engineer (Energy Management Systems)**			
Job Role Description	The Senior Principal Engineer / Principal Engineer (Energy Management Systems) is responsible for establishing the standards for Information Technology (IT) and Operational Technology (OT) systems. He/she conducts failure analysis for Energy Management Systems and leads checks to ensure prompt resolution of faults. He formulates cybersecurity initiatives and procedures, leads incident investigation, and supervises security reviews and audits. He also recommends measures to address system vulnerabilities and manage cybersecurity risks. He leverages data analytics to enhance operational and strategic decision-making. He also advises on practical implications of decarbonisation, decentralisation and digitalisation initiatives. He possesses good leadership skills, critical thinking and problem-solving ability. Furthermore, he is a strategic thinker and actively contributes to national energy and power policies, strategies and frameworks to balance economic competitiveness, environmental sustainability, energy security.			
Critical Work Functions and Key Tasks / Performance Expectations	**Critical Work Functions**	**Key Tasks**	**Performance Expectations (For legislated / regulated occupations)***	
	Oversee energy management systems	Establish standards for Information Technology (IT) and Operational Technology (OT) systems to ensure high system availability and high quality data	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	
		Conduct fault/failure engineering analysis for faulty equipment or software issues in Energy Management Systems		
		Collaborate with System Control and Gas System Supervision Departments for gas and power application studies and simulations		
		Lead checks on Sectorial Detection & Early Warning System (SDEWS) to ensure prompt resolution of faults		
		Lead the construction, modification and verification of system schematic diagrams and databases		
	Manage cybersecurity risks	Conduct the design, implementation and management of department security initiatives		
		Investigate open cases of cybersecurity threats, system abnormalities and information security issues		
		Lead Incident Response (IR) reporting and technical assistance when analysis confirms actionable incident		
		Supervise annual technical security reviews and ISO 27001 audits with internal/external audit consultants		
		Recommend corrective and preventive measures to address system vulnerabilities and manage cybersecurity risks		
	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**	
	Business Intelligence and Data Analytics	Level 4	Problem Solving	Advanced
	Continuous Improvement Management	Level 5	Creative Thinking	Advanced
	Contract and Contractor Management	Level 4	Sense-Making	Advanced
	Cyber Incident Management	Level 5	Decision Making	Intermediate
	Cyber Risk Detection and Monitoring	Level 4	Collaboration	Advanced
	Cybersecurity Framework Application	Level 4	Communication	Advanced
	Demand Response Management	Level 5	Transdisciplinary Thinking	Intermediate
	Distributed Energy Resources Implementation and Interconnection	Level 5	Developing People	Intermediate
	Emergency Response and Crisis Management	Level 5	Digital Fluency	Advanced
	Energy Security and Reliability Management	Level 5	Customer Orientation	Advanced
	Energy Storage Systems Management	Level 5	Adaptability	Intermediate
	Engineering Problem Solving	Level 5	Influence	Intermediate

	Environmental Sustainability Management	Level 5	Self Management	Intermediate
	Innovation Management	Level 5		
	Inter-agency Collaboration	Level 5		
	Internet of Things (IoT) Application	Level 5		
	Modelling, Simulation and Visualisation	Level 4		
	Operational Technology Security Audit	Level 5		
	Operational Technology Security Management	Level 5		
	Policy Development	Level 3		
	Power Engineering Management	Level 4		
	Power Strategy Planning and Governance	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		
	Stakeholder Management	Level 5		
	Strategy Development	Level 5		
	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.