POWER ENGINEERING COMPETENCY FRAMEWORK				
SKILLS MAP - Senior Engineer / Engineer (Operations & Maintenance)				
Sector	Power Engineering in the Public Service			
Track	Operations & Maintenance			
Occupation	Electrical Engineer			
Job Role	**Senior Engineer / Engineer (Operations & Maintenance)**			
Job Role Description	The Senior Engineer / Engineer (Operations & Maintenance) is responsible for leading preventive and corrective maintenance works including fault analysis, testing, investigation of power failures and fault repair for low voltage electrical equipment and systems. He/She manages the procurement and replacement of assets for high voltage electrical components and validates inspection and maintenance documentation. He leads in the tender development and evaluation processes for electrical operations and maintenance services. He also reviews contractor performance and compliance with technical standards, codes of practice and safety standards. To drive decarbonisation, decentralisation and digitalisation initiatives, he recommends innovation initiatives and implements green initiatives. He should be authorised as a trained person by a licensed electrical worker to carry out the job duties or be a Professional Engineer or Licensed Electrical Worker. He is detail-oriented and systematic in managing maintenance regimes within the safety and operational guidelines. He is well versed with agency and industry standards, and participates in inter-agency committees for technical matters, technology discussions and policy decisions.			
Critical Work Functions and Key Tasks / Performance Expectations	**Critical Work Functions**	**Key Tasks**	**Performance Expectations (For legislated / regulated occupations)***	
	Manage operations and maintenance	Lead preventive and corrective maintenance works on electrical equipment, systems and networks in accordance with maintenance schedule and procedures	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	
		Supervise complex fault analysis and testing of electrical equipment, systems and networks		
		Identify the root cause of breakdown and abnormalities of malfunctioned electrical equipment and systems		
		Oversee fault repair work for electrical equipment and systems		
		Validate inspection and maintenance documentation		
	Manage power assets	Monitor inspection of electrical equipment to ensure compliance with organisation's Standard Operating Procedures (SOP) and requirements		
		Oversee equipment obsolescence analysis and asset replacement for high voltage electrical equipment and systems		
		Manage procurement of electrical equipment and components within budget		
		Review reports for condition monitoring works on electrical equipment and systems		
	Manage key stakeholders / Manage contractors	Participate in inter-agency committees for technical matters, technology discussions and policy decisions		
		Collaborate with internal and external stakeholders		
		Formulate tender briefs and technical specifications for electrical and power operations and maintenance services		
		Conduct technical evaluation of tender submissions for electrical and power operations and maintenance services		
		Oversee electrical and power operations and maintenance works done by contractors		
		Scrutinise contractor performance and compliance with technical standards and codes of practice		
	Manage safety, health and environment	Lead safety checks in the workplace		
		Monitor contractors on safe work practices		
		Monitor workplace adherence to relevant sector regulations and codes of practice		
		Monitor Permit-To-Work systems for electrical works		
		Ensure compliance with the agency's environmental sustainability practices, policies and procedures		
	Contribute to decarbonisation, decentralisation and digitalisation initiatives	Recommend innovation initiatives to leverage new electrical and power technologies		
		Conduct feasibility studies and assessments of new electrical and power technologies		
		Implement green initiatives for application of clean and renewable energy		
		Oversee initiatives for implementation of distributed power technologies		
		Analyse data for identification of operational and strategic insights		

Skills & Competencies	**Technical Skills and Competencies**		**Critical Core Skills**	
	Business Intelligence and Data Analytics	Level 3	Problem Solving	Intermediate

Continuous Improvement Management	Level 4	Communication	Intermediate
Contract and Contractor Management	Level 3	Collaboration	Intermediate
Corrective Maintenance Management	Level 3	Decision Making	Basic
Cybersecurity Framework Application	Level 3	Sense-Making	Intermediate
Demand Response Management	Level 4	Creative Thinking	Intermediate
Distributed Energy Resources Implementation and Interconnection	Level 4	Customer Orientation	Intermediate
Distributed Generation System Performance Monitoring	Level 4	Transdisciplinary Thinking	Basic
Electric Vehicle Charging Systems Management	Level 4	Digital Fluency	Intermediate
Electrical Equipment and Systems Testing	Level 4	Developing People	Basic
Electrical Maintenance Management	Level 3	Building Diversity	Basic
Electricity Network Incident Management	Level 3	Learning Agility	Basic
Electricity Network Operations Management	Level 3	Adaptability	Intermediate
Electricity Network Performance Monitoring	Level 3	Influence	Intermediate
Emergency Response and Crisis Management	Level 4	Self Management	Intermediate
Energy Storage Systems Management	Level 4		
Engineering Asset Management	Level 3		
Engineering Problem Solving	Level 4		
Engineering Safety Standards Interpretation	Level 4		
Environmental Sustainability Management	Level 4		
Facilities Maintenance Management	Level 3		
Fuel Cells Technologies Application	Level 4		
Hybrid AC and DC Power Distribution and Utilisation	Level 4		
Innovation Management	Level 4		
Inter-agency Collaboration	Level 4		
Internet of Things (IoT) Application	Level 4		
Lighting Technologies Application	Level 4		
Microgrids Implementation	Level 4		
Modelling, Simulation and Visualisation	Level 3		
Power Engineering Management	Level 4		
Power Plant Incident Investigation	Level 3		
Power Plant Inspection	Level 3		
Power Plant Operations Management	Level 4		
Power Quality Management	Level 4		
Predictive Maintenance Management	Level 3		
Preventive Maintenance Management	Level 3		
Regulatory Compliance and Risk Management	Level 4		
Reliability Centred Maintenance Management	Level 3		
Renewable Energy Technologies Application	Level 4		
Robotics and Automation Systems Application	Level 3		
Smart Grid Implementation	Level 4		
Solar Photovoltaic Systems Application	Level 4		
Solid-State Power System Apparatus Implementation	Level 4		
Stakeholder Management	Level 4		

	Strategy Development	Level 4	
	Substation Automation Systems Management	Level 4	
	Technical Inspection	Level 3	
	Technology and Systems Application	Level 4	
	Traction Power Systems Management	Level 4	
	Uninterrupted Power Supply Management	Level 3	
	Workplace Safety and Health Framework Implementation	Level 4	
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.