POWER ENGINEERING COMPETENCY FRAMEWORK			
SKILLS MAP - Chief Engineer (Design)			
Sector	Power Engineering in the Public Service		
Track	Design		
Occupation	Electrical Engineer		
Job Role	**Chief Engineer (Design)**		
Job Role Description	The Chief Engineer (Design) is responsible for approving scope of work and electrical and power requirements, as well as establishing engineering standards and technical specifications for electrical designs. job scopes and endorsing design plans that align with requirements and technical feasibility. He/She provides technical expertise for feasibility reviews, designs plans, and conceptual and detailed design. He endorses technical specifications and drives conformance of electrical designs to agency standards, industry regulations, codes of practice and safety standards. He guides the resolution of complex design problems to improve quality and efficiency of electrical equipment, systems and networks. He builds strategic partnerships with internal and external stakeholders, reviews tendering decisions and approves design works done by contractors. He drive compliance with Design for Safety (DfS) regulations and standards, and contributes to formulation of the agency's environmental sustainability practices. He establishes direction and strategy for the agency's decarbonisation, decentralisation and digitalisation 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 a technical subject matter expert and a strategic thinker with good leadership skills. He also advises on national energy and power policies, strategies and frameworks to balance economic competitiveness, environmental sustainability and energy security.		
Critical Work Functions and Key Tasks / Performance Expectations	**Critical Work Functions**	**Key Tasks**	**Performance Expectations (For legislated / regulated occupations)***
	Design electrical equipment, systems and networks	Approve scope of work and electrical and power requirements	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
		Establish engineering standards for electrical designs	
		Provide technical expertise and approval for site surveys, investigations, feasibility reviews and simulations prior to conceptual design	
		Endorse design plans based on technical feasibility and alignment with requirements	
		Provide expert advice to optimise detailed design including schematics, technical specifications, test plans, and material requisition	
		Drive optimisations in the design and planning for electrical systems development	
		Establish measures to ensure mitigation of design risks during design and planning phase	
	Conduct design reviews for electrical equipment, systems and networks	Approve conceptual and detailed design for electrical equipment, systems and networks	
		Endorse agency standards, objectives and requirements for electrical system designs	
		Drive conformance of electrical designs to industry regulations, codes of practice and safety standards	
		Provide technical expertise to validate constructability, maintainability and safety reviews for electrical designs	
		Guide resolution of complex design problems to improve quality and efficiency of electrical equipment, systems and networks	
	Manage key stakeholders / Manage contractors	Lead inter-agency committees for technical matters, technology discussions and policy decisions	
		Build strategic partnerships with internal and external stakeholders	
		Approve tender briefs and technical specifications for electrical and power design services	
		Review tendering decisions to ensure they advance the agency's performance and operational goals	
		Approve electrical and power design works done by contractors	
		Establish measures to enhance contractor performance and compliance with technical standards and codes of practice	
	Manage health, safety and environment	Drive compliance with Design for Safety (DfS) regulations and standards	
		Recommend safe work practices for contractors	
		Drive workplace adherence to relevant sector regulations and codes of practice	
		Drive formulation of the agency's environmental sustainability practices, policies and procedures	
	Contribute to decarbonisation, decentralisation and digitalisation initiatives	Advise on national energy and power policies, strategies and frameworks to balance economic competitiveness, environmental sustainability and energy security	
		Establish direction and strategy to leverage new electrical and power technologies for the industry	
		Drive industry and inter-agency collaborations for research and assessment of new electrical and power technologies	
		Drive continuous improvements to green initiatives for application of clean and renewable energy	
		Advise on strategies for implementation of distributed power technologies	

		Formulate data analytics plans for strategic decision-making		
Skills & Competencies	**Technical Skills and Competencies**		**Critical Core Skills**	
	Airfield Lighting Systems Management	Level 5	Decision Making	Advanced
	Battery Systems Management	Level 5	Developing People	Advanced
	Business Intelligence and Data Analytics	Level 5	Transdisciplinary Thinking	Advanced
	Continuous Improvement Management	Level 6	Collaboration	Advanced
	Contract and Contractor Management	Level 5	Creative Thinking	Advanced
	Distributed Energy Resources Implementation and Interconnection	Level 6	Problem Solving	Advanced
	Electric Vehicle Charging Systems Management	Level 6	Communication	Advanced
	Electrical Equipment and Systems Testing	Level 5	Sense-Making	Advanced
	Electrical Systems Design	Level 5	Customer Orientation	Advanced
	Electricity Network Planning	Level 5	Global Perspective	Basic
	Emergency Response and Crisis Management	Level 6	Digital Fluency	Advanced
	Energy Storage Systems Management	Level 6	Building Diversity	Advanced
	Engineering Asset Management	Level 5	Learning Agility	Advanced
	Engineering Safety Standards Interpretation	Level 5	Adaptability	Advanced
	Environmental Sustainability Management	Level 6	Influence	Advanced
	Fuel Cells Technologies Application	Level 6	Self Management	Advanced
	Hybrid AC and DC Power Distribution and Utilisation	Level 6		
	Innovation Management	Level 6		
	Inter-agency Collaboration	Level 6		
	Internet of Things (IoT) Application	Level 6		
	Lifts and Escalators Systems Management	Level 5		
	Lighting Technologies Application	Level 6		
	Lightning Protection Systems Management	Level 5		
	Microgrids Implementation	Level 6		
	Modelling, Simulation and Visualisation	Level 5		
	Policy Development	Level 3		
	Power Engineering Management	Level 5		
	Predictive Maintenance Management	Level 5		
	Public Health and Safety Management	Level 6		
	Regulatory Compliance and Risk Management	Level 6		
	Relay and Protection Systems Management	Level 5		
	Reliability Centred Maintenance Management	Level 5		
	Renewable Energy Technologies Application	Level 6		
	Robotics and Automation Systems Application	Level 5		
	Smart Grid Implementation	Level 6		
	Solar Photovoltaic Systems Application	Level 6		
	Solid-State Power System Apparatus Implementation	Level 6		
	Stakeholder Management	Level 6		
	Strategy Development	Level 6		
	Substation Automation Systems Management	Level 6		
	Substation Design Management	Level 5		

	Technology Road Mapping	Level 6	
	Traction Power Systems Management	Level 6	
	Uninterrupted Power Supply Management	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.