

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

<b>TSC Category</b>	Power Quality, Reliability and Security					
<b>TSC Title</b>	Power Quality Management					
<b>TSC Description</b>	Investigate power quality issues to identify root causes and advise on mitigation solutions					
<b>TSC Proficiency Description</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Level 4</b>	<b>Level 5</b>	<b>Level 6</b>
			<b>&lt;Insert TSC Code&gt;</b>	<b>&lt;Insert TSC Code&gt;</b>	<b>&lt;Insert TSC Code&gt;</b>	<b>&lt;Insert TSC Code&gt;</b>
			Analyse data to determine power quality issues and root causes	Investigate power quality issues and root causes, and recommend mitigating solutions	Develop power quality investigation and mitigation frameworks and procedures	Review and approve power quality investigation and mitigation frameworks and procedures
<b>Knowledge</b>			<ul style="list-style-type: none"> <li>Type of instruments and equipment used for on-site power quality measurements</li> <li>Equipment setup procedures</li> <li>Data collection techniques</li> <li>Types of power quality problems</li> <li>Relevant regulations, industry standards, codes of practice and safety procedures</li> </ul>	<ul style="list-style-type: none"> <li>Types of power quality problems</li> <li>Type of instruments and equipment used for on-site power quality measurements</li> <li>Site measurement testing procedures</li> <li>Analytical methods for investigating power quality problems</li> <li>High resolution measurements on power quality factors</li> <li>Relevant regulations, industry standards, codes of practice and safety procedures</li> </ul>	<ul style="list-style-type: none"> <li>Investigation procedures on power quality issues and causes</li> <li>Effects of system components on power quality</li> <li>Principles of power quality mitigation and solutions</li> <li>Power factor correction approaches</li> <li>Interactions between equipment and networks</li> <li>Communication protocols</li> <li>Relevant regulations, industry standards, codes of practice and safety procedures</li> </ul>	<ul style="list-style-type: none"> <li>Power quality guidelines and regulations</li> <li>Best practices in power quality management</li> <li>Power quality investigation framework development and revision processes</li> <li>Complex power quality issues and mitigation solutions</li> <li>Evaluative methods for the effectiveness of power quality management processes</li> <li>Relevant regulations, industry standards, codes of practice and safety procedures</li> </ul>
<b>Abilities</b>			<ul style="list-style-type: none"> <li>Set up equipment for site measurements</li> <li>Document relevant data to aid analysis for power quality measurement</li> <li>Analyse data to determine power quality issues and root causes</li> <li>Follow electricity safety rules</li> <li>Ensure compliance with industry standards, regulatory and project requirements</li> </ul>	<ul style="list-style-type: none"> <li>Perform site measurement testing</li> <li>Review voltage dip and sag incidents in low voltage networks to identify root causes</li> <li>Perform investigations on low voltage power quality issues reported by consumers</li> <li>Recommend mitigating solutions for power quality issues</li> <li>Observe electricity safety rules</li> <li>Review compliance with industry standards,</li> </ul>	<ul style="list-style-type: none"> <li>Develop power quality investigation and mitigation frameworks and procedures</li> <li>Determine power quality issues and root causes</li> <li>Perform analysis of power quality problems at specific sites based on readings and data</li> <li>Recommend mitigating solutions to solve power quality issues</li> <li>Review system components for effects on power quality</li> </ul>	<ul style="list-style-type: none"> <li>Provide technical advisory on power quality investigations and mitigation</li> <li>Formulate and revise power quality investigation and mitigation frameworks</li> <li>Evaluate the effectiveness of power quality management processes, plans and performance</li> <li>Integrate best practices for power quality management into</li> </ul>

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				regulatory and project requirements	<ul style="list-style-type: none"> <li>Investigate harmonic resonance due to power factor correction and recommend improvements to consumers</li> <li>Observe electricity safety rules</li> <li>Manage compliance with industry standards, regulatory and project requirements</li> </ul>	<p>existing power quality investigation frameworks</p> <ul style="list-style-type: none"> <li>Drive adherence of power quality management operations according to regulatory requirements and internal guidelines</li> <li>Drive compliance with industry standards, regulatory and project requirements</li> </ul>
<b>Range of Application</b>			<p>Range of application includes, but is not limited to:</p> <ul style="list-style-type: none"> <li>High resolution measurements on power quality: <ul style="list-style-type: none"> <li>Harmonics and distortion</li> <li>Transients</li> <li>Power factor</li> <li>Voltage sags and dips</li> <li>Current and voltage instability</li> </ul> </li> </ul>			