## SKILLS FRAMEWORK FOR ENERGY AND POWER

### TECHNICAL SKILLS AND COMPETENCIES (TSC) REFERENCE DOCUMENT

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Effective date: Oct 2018, Version 1.1

<table>
<thead>
<tr>
<th>TSC Category</th>
<th>Maintenance Management</th>
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<tbody>
<tr>
<td><strong>TSC</strong></td>
<td>Meter and Associated Equipment Maintenance Management</td>
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<tr>
<td><strong>TSC Description</strong></td>
<td>Manage meters and associated equipment maintenance programmes</td>
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<thead>
<tr>
<th>TSC Proficiency Description</th>
<th>Level 1</th>
<th>Level 2</th>
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<th>Level 5</th>
<th>Level 6</th>
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<tr>
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<td>EPW-MAI-2039-1.1</td>
<td>EPW-MAI-3039-1.1</td>
<td>EPW-MAI-4039-1.1</td>
<td>EPW-MAI-5039-1.1</td>
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<tr>
<td>Identify irregularities on low-voltage meters and tampering cases, and perform rectification works</td>
<td>Manage irregularities on low- and high-voltage meters and/or associated equipment, and investigate meter tampering cases</td>
<td>Plan maintenance programmes for meters and associated metering equipment</td>
<td>Formulate strategies for meter and associated metering equipment maintenance, and provide technical advice on the maintenance and performance improvement of these equipment</td>
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### Knowledge

- Low-voltage connected meter board and compartment layout plans
- Low-voltage connected meter requirements
- Types of low-voltage connected meters and their maintenance cycles
- Organisational Standard Operating Procedures (SOPs) for documentation
- Maintenance principles for low-voltage meters
- Meter testing procedures
- Rectification procedures for meters
- Troubleshooting principles
- Removal and installation procedures for low-voltage connected metering equipment and accessories
- High-voltage metering kiosk and low-voltage current-transformer-operated metering panel layout plans
- Requirements of various types of low-voltage current-transformer-operated meters and high-voltage meters and accessories
- Troubleshooting procedures for irregularities on low- and high-voltage meters and/or associated equipment
- Meter and/or associated equipment tampering investigation processes
- Analytical methods for meter and/or associated equipment irregularities
- Maintenance programmes, plans and schedules
- Metering equipment maintenance programmes
- Organisational strategies and policies on metering equipment maintenance and replacement
- Strategies for asset management and metering and associated equipment
- New and emerging technologies
- Target and Key Performance Indicator (KPI) setting processes for meter performance
- Target and KPI monitoring systems and processes for meter performance
- Meter and associated equipment maintenance strategy formulation processes
- Local and international industry best practices in metering
- Methods to integrate emerging technologies and equipment with existing operations and systems
- Maintenance principles of meters and associated metering equipment
- Methods for evaluating the effectiveness of
<table>
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<tr>
<th>Abilities</th>
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| • Environmental and other safety hazards and risks associated with meter maintenance  
  • Metering Code and other metering regulations  
  • Singapore Power PowerGrid (SPPG) rules on the control and safe operation of low and high voltage apparatus | • Environmental and other safety hazards and risks associated with meter maintenance  
  • Meter and associated equipment removal, installation, and modification methods  
  • Commissioning procedures for low-voltage current-transformer-operated and high-voltage metering equipment and accessories | • Environmental and other safety hazards and risks associated with meter maintenance |
| • Apply relevant sections of the Metering Code, and other legal and regulatory requirements for low-voltage connected meters and associated metering equipment  
  • Apply relevant SOPs for the maintenance of low-voltage connected meters and associated metering equipment  
  • Interpret meter board and/or compartment layout plans  
  • Document meter and associated metering equipment maintenance details  
  • Perform tests on meters to identify causes of irregularities  
  • Perform rectification works on meters and associated metering equipment  
  • Perform removal, installation and | • Analyse low- and high-voltage current-transformer-operated meters and associated metering equipment data to identify irregularities  
  • Determine causes of abnormalities and irregularities  
  • Conduct investigations on meter tampering  
  • Perform maintenance works to resolve meter and associated metering equipment irregularities and abnormalities,  
  • Record and document maintenance details and investigation findings for meters and associated metering equipment  
  • Perform removal, installation and commissioning of meters and associated metering equipment  
  • Prepare fault reports | • Develop maintenance programmes and plans for meters and associated metering equipment  
  • Align maintenance plans and programmes with organisational and asset management strategies, as well as meter and associated metering equipment maintenance strategies  
  • Determine and source for appropriate metering and associated equipment and spares for maintenance and rectification works  
  • Implement maintenance plans and programmes for meters and associated metering equipment  
  • Lead investigations on tampered meters  
  • Analyse meter performance and  |
| • Set targets and KPIs on maintenance, safety, regulatory compliance, and customer satisfaction  
  • Develop, review, and revise processes to monitor maintenance activities  
  • Formulate meter and associated metering equipment maintenance strategies according to industry best practices and regulatory requirements  
  • Evaluate and make improvements to enhance the effectiveness of maintenance programmes and strategies  
  • Provide technical guidance on maintenance works for metering and associated equipment  |
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<tr>
<td><strong>Commissioning of Meters and Associated Metering Equipment</strong></td>
<td><strong>Suggest Methods for Enhancement</strong></td>
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<tr>
<td>- Identify and collate information on meter tampering cases</td>
<td>- Compile statistics on meter performance</td>
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<td>- Prepare fault reports</td>
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### Range of Application

Range of application includes, but is not limited to:

- Advanced Metering Infrastructure (AMI)
- Standard, digital, dial and prepaid meters