Electricity Engineers' Association

HEALTH & SAFETY

SM-EI Workshop 2

BUILDING FURTHER UNDERSTANDING – THE DETAILS

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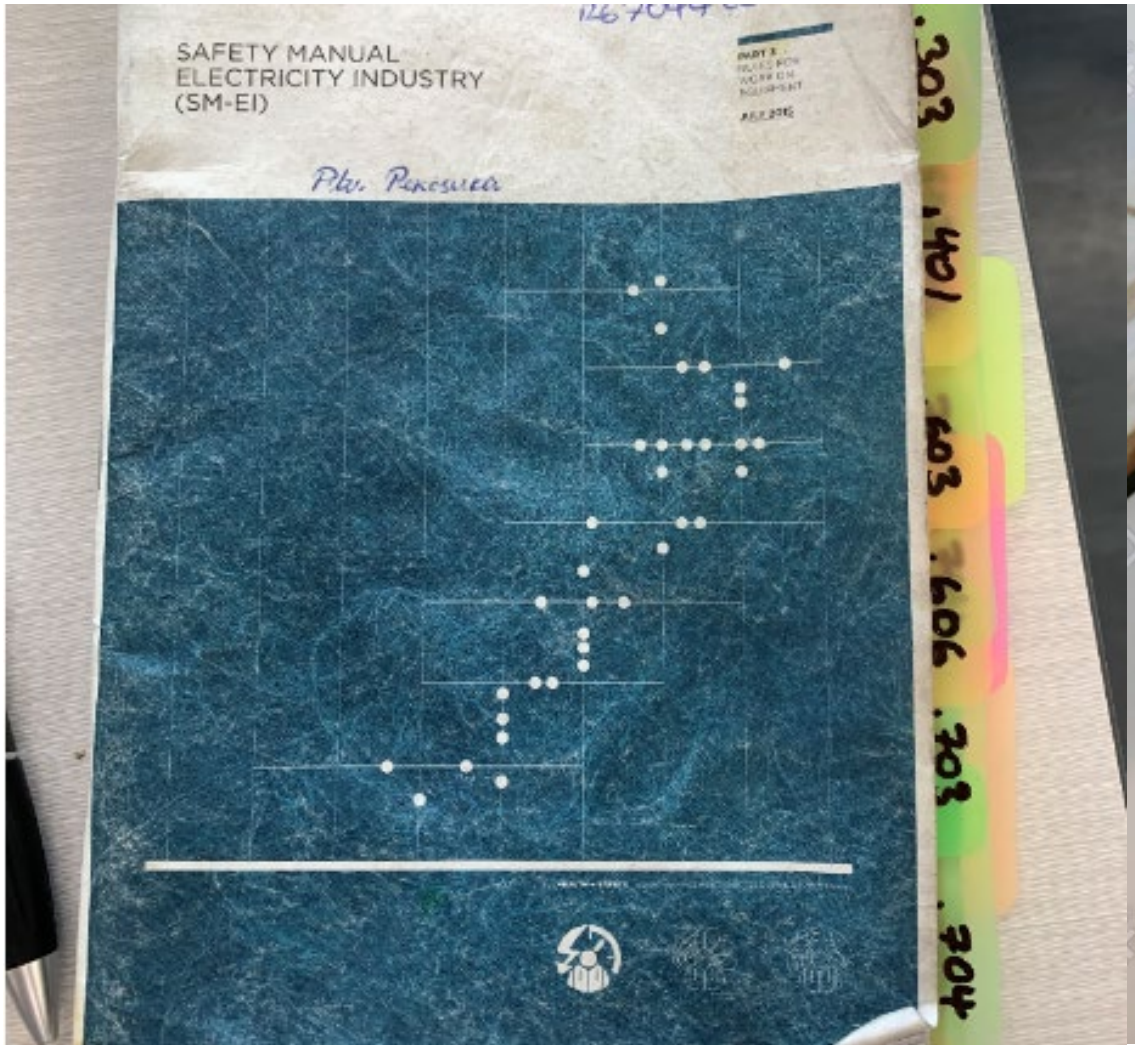
SAFETY MANUAL
ELECTRICITY INDUSTRY
(SM-EI)
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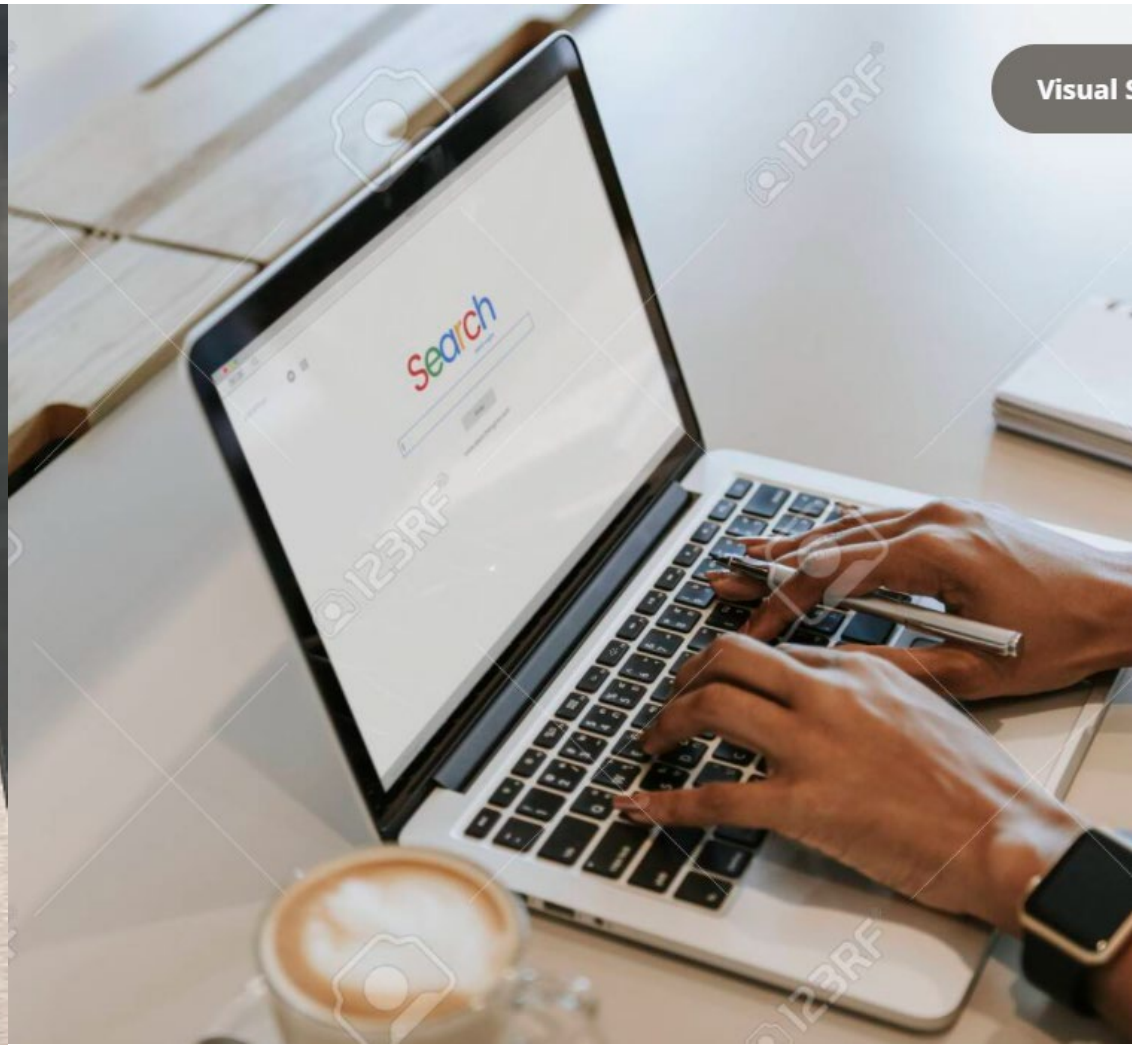

Search

Asset Scenarios and Business Units for filtering

Asset Scenario
Health and Safety Management System
Human Resources Management System
Competency Management System
Asset Management System
Equipment Register
Work Management Systems
Natural elements
Public property
Private property
Industrial enclosures
Industrial tools
Industrial materials
High-level components
Same-level components
Underground services
Underwater services

Technical Roles
Operational Policy
People and Capability
Asset Maintenance
Operational Services
Operations Planning
Field Control
Field Leadership
Field Operations

Technical Roles

Asset Maintenance

- Asset Procurement, design and maintenance

Field Control

- Systemised identification and control of assets

Field Leadership

- Supervising field teams and managing worksites

Field Operations

- Preparing worksites, working on assets

Operational Policy

- Writing policies, procedures, local instructions

Operational Services

- Procurement and maintenance of tools and technology

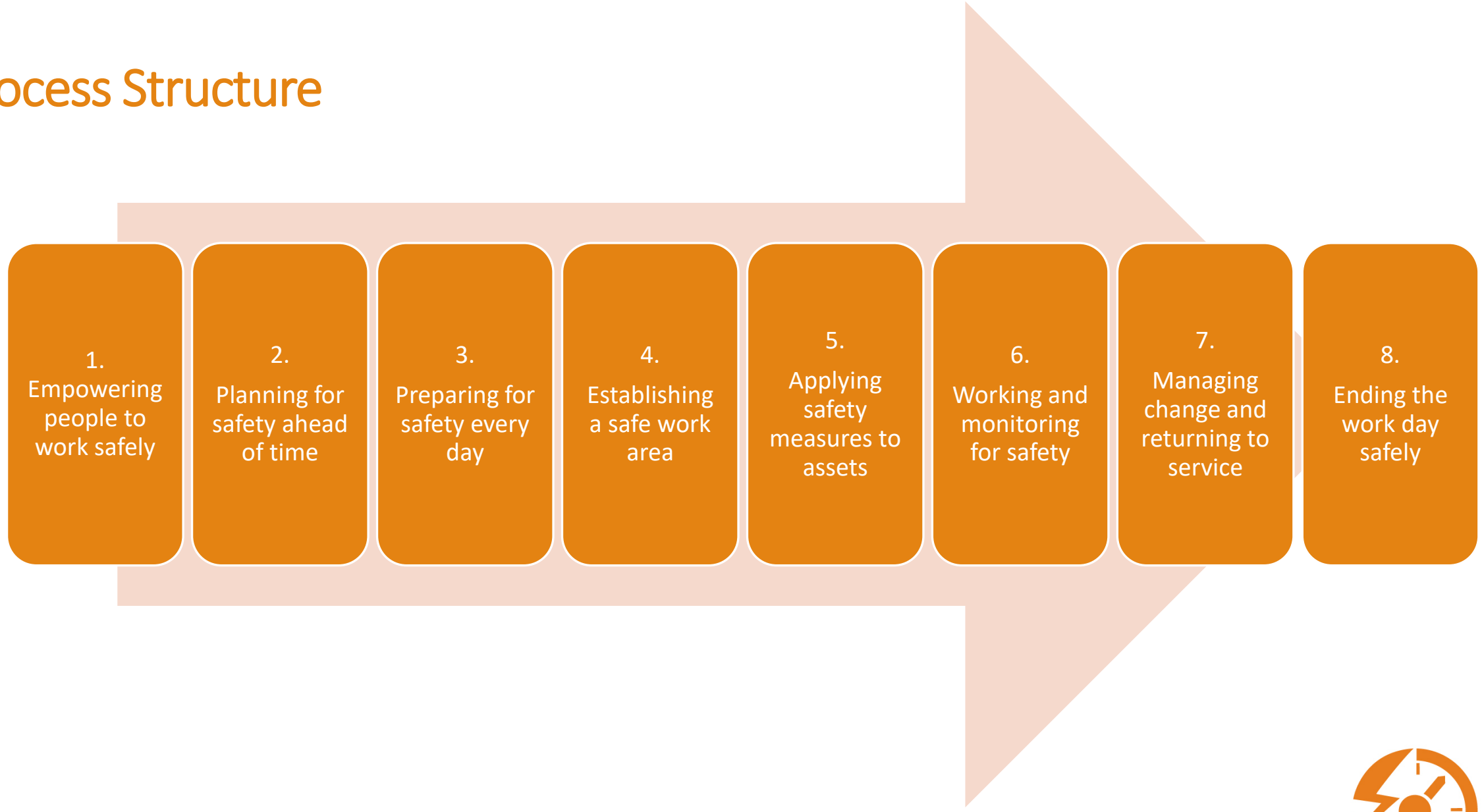
Operations Planning

- Planning and scheduling field operations work

People and Capability

- Recruitment, training and competency tracking

Process Structure



1. Empowering people to work safely

1.1 Providing systems for managing safety

Asset Maintenance
Operation Policy
Field Control

1.2 Providing a safe working environment

Asset Maintenance
Operational Policy
Field Control

1.3 Providing instructions for working safely

Operation Policy
Operational Services
People and Capability
Field Leadership
Field Operations

1.4 Providing a competent workforce

Operational Policy
People and Capability
Field Operations

2. Planning for safety ahead of time

3. Preparing for safety everyday

3.1 Reporting for wok and briefing workers

Field Leadership
Field Operations

3.2 Selecting suitable tools equipment and PPE

Operational Services
Field Leadership
Field Operations

3.3 Inspecting gear and preparing for work

Operational Services
Field Leadership
Field Operations

1.4 Operating vehicles for work

Operational Services
Field Leadership
Field Operations

4. Establishing a safe working area

4.1 Establishing a worksite safety plan

Field Leadership

Field Operations

4.2 Allocating roles and responsibilities

Field Leadership

Field Operations

4.3 Defining and protecting the work area

Operational Services

Field Services

Field Operations

4.4 Establishing safe working positions

Operational Services

Field Leadership

Field Operations

5. Applying safety measures to assets

5.1 Isolating and securing significant hazards

- Field Control
- Field Leadership
- Field Operations

5.2 Earthing and purging to ensure protection

- Field Control
- Field Leadership
- Field Operations

5.3 Issuing control of assets to recipient

- Field Control
- Field Leadership
- Field Operations

5.4 Communicating and ensuring safety before work

- Field Leadership
- Field Operations

6. Working and monitoring for safety

6.1 Monitoring actions and safety levels

Field Leadership

Field Operations

6.2 Using equipment and materials near assets

Field Leadership

Field Operations

6.3 Using procedures for work on assets

Field Leadership

Field Operations

6.4 Responding to unplanned events

Field Leadership

Field Operations

7. Managing change and returning to service

7.1 Testing assets during and after work

Field Leadership

Field Operations

7.2 Returning assets to service

Field Leadership

Field Operations

7.3 Returning control and managing change

Field Control

Field Leadership

Field Operations

7.4 Removing isolation safety measures

Field Control

Field Leadership

Field Operations

8. Ending the working day safely

8.1 Packing up and securing the work area

Field Leadership

Field Operations

8.2 Disposal of hazardous waste and rubbish

Operational Services

Filed Leadership

Field Operations

8.3 Checking and storing tools and equipment after use

Operational Services

Field Leadership

Field Operations

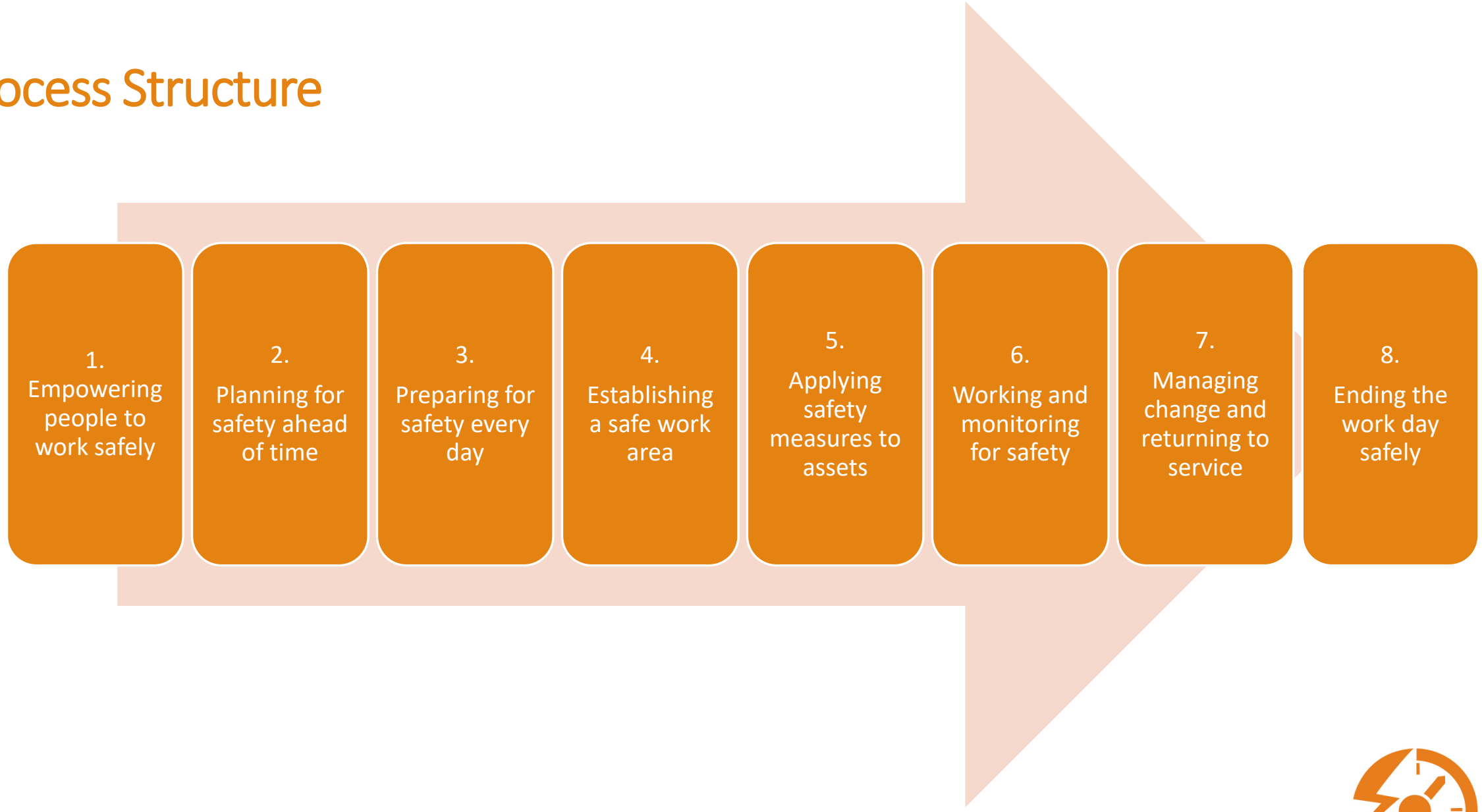
8.4 Providing work records and reporting

Asset Maintenance

Operations Planning

Field Leadership

Process Structure



RESPECT

- **Re**adiness for work
- **E**nvironment
- **S**ecurity
- **P**osition hazards
- **E**nergy hazards
- **C**hemical hazards
- **T**ools and technology

R- Managing Readiness for work

RM	RE	RC	RT	RF
• Working with management systems	• Working with suitable equipment	• Working with technical competency	• Working with team member support	• Managing personal fitness for work

E- Responding to the Environment

EC

- Managing exposure to climate extremes

EN

- Managing exposure to worksite noise

ET

- Working safely in difficult terrain

EV

- Working safely with trees and vegetation

S - Managing worksite Security

SE

- Controlling entry to the worksite

SH

- Managing physical hazards at the worksite

SP

- Working near third- party property

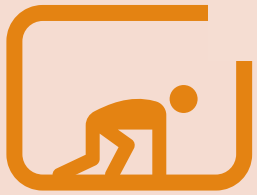
ST

- Managing traffic near the work site

P – Responding to Positional hazards

PC

- Managing the risks of confined space work



PH

- Managing the risks of working at height

PU

- Working safely in excavations and trenches

PW

- Working safely under or over water

E – Responding to Energy hazards

EE

- Working safely around electrical hazards

EG

- Working safely around gravitational hazards

EM

- Working safely around mechanised equipment

EP

- Working safely with pressurised equipment

C – Responding to Chemical hazards

CH

- Handling hazardous substances safely

CG

- Working near hazardous gases

CL

- Working near hazardous liquids

CS

- Working with and near hazardous solids

T – Using Tools and Technology

TH

- Using hand held tools and appliance

TL

- Using mobile plant and load bearing tools

TD

- Working with digital devices

TT

- Operating vehicles for transport

TE

- Operating earth moving vehicles

TA

- Working with helicopters

RESPECT

- **Re**adiness for work
- **E**nvironment
- **S**ecurity
- **P**osition hazards
- **E**nergy hazards
- **C**hemical hazards
- **T**ools and technology

Rules inside new structure, with new coding

Top Level Process Heading

2. Planning for safety ahead of time

Introductory information

Many hazards are directly related to the nature of the work and can thus be predicted and managed in the day(s) before the job is carried out. Understanding the nature of the work, selecting the best methods and resources, and sharing information, are all important aspects of planning. Simple jobs may be planned quite quickly in the day before the job. More complex jobs that require permits or consents, and greater resource, will take longer than a day to plan.

Lower Level Process Heading

2.1 - Selecting systems and methods

Identify job hazards, select control systems and methods

Relevant Roles for searching or filtering

The rules in this section apply to: Operations Planning, Field Control, Field Leadership

Higher Level Subject Heading

RM - Working with management systems

Reviewed Rules, written as stand alone sentences

RM 2.101	All work shall be planned to eliminate or otherwise to minimise the risk of harm to workers in the work party, to other workers and to the public and public property.
RM 2.103	Work planning shall include the selection of control measures for known and potential hazards. Controls to be selected include work methods and resources such as personnel, plant, tools and materials.
RM 2.104	Hazard identification, and determining how these are to be managed, shall be carried out at regular intervals including at the work planning stages (for example, to identify known hazards and those likely to arise from nearby equipment).
RM 2.105	Work planning shall include the selection of backup control measures (e.g. earthing), that need to be in place should the primary control measures selected prove not to be effective.

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SM-EI: Safety Manual Electrical Industry

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1 - Empowering people to work safely
2 - Planning for safety ahead of time
3 - Preparing for safety every day
4 - Establishing a safe working area
5 - Applying safety measures to assets
6 - Working and monitoring for safety
7 - Managing change and returning service
8 - Ending the working day safely

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1 Empowering people to work safely

Persons Controlling a Business or Undertaking have duties to provide and maintain safe plant and structures, and safe systems of work. PCBUs are expected to collaborate, cooperate and coordinate with other PCBUs so that responsibility is assigned according to the level of control each PCBU has in determining safe outcomes. Having suitable systems, facilities, instruction and capability all pave the way for a culture of safety from the start of the PCBU chain, through to the individual employee or worker, on an ongoing basis.

1.1 Providing systems for managing safety

Safety risks can only be managed where systems are set up to support this. All PCBUs have responsibilities to ensure that systems are available to support the health and safety of workers under their control. These systems are designed to provide the infrastructure around which safety can be managed throughout work activities. The rules in this sub-section describe the foundation requirements of PCBUs for managing hazards, emergencies, and operational activities in the context of the electricity supply industry.

Rules in this section apply to: *Asset Maintenance, Operational Policy, Field Control,*

RM. Safety management

RM 1.101
1.108
Persons Controlling a Business or Undertaking shall develop and maintain a Health and Safety Management System to manage the health and safety of workers under their control.

RM 1.101
1.110
The Health and Safety Management System shall include mechanisms for workers to participate in the identification of hazards, and the elimination and/or minimisation of risks to health and safety.

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4 - Establishing a safe working area
4.1 - Establishing the worksite safety plan
4.2 - Allocating roles and responsibilities
4.3 - Defining and protecting the work area
4.4 - Establishing safe working positions
5 - Applying safety measures to assets
6 - Working and monitoring for safety
7 - Managing change and returning service
8 - Ending the working day safely

TR 3.427 *2.901* The driver of a vehicle shall plan ahead for any long trips to ens…at adequate rest stops are taken.

4 Establishing a safe working area

Worksites require preparation to become safe, and for workers to feel safe at that worksite. The level of care taken, and the degree of worker involvement in the process, has a direct impact on safety. In practice, this process is where a pre-work risk assessment is carried out, control measures are agreed, and the safety plan is finally implemented at the worksite. The process ends when workers are in position for work armed with the knowledge that all precautions have been taken to ensure worksite safety, and the part they are to play is well understood. The rules in…section describe requirements for controls to be applied at the worksite to the satisfactio…n, industry standards, supplier instruction, local policy, and all work party membe…

4.1 Establishing the worksite safety plan

The purpose of a worksite safety plan is to record all hazards identified in the planning stages, and at the on-site hazard and risk assessment, and agree how they will be managed at the worksite. This includes the setting of safety tolerances and how work party members will communicate with each other in maintaining those throughout the course of work. It is also the ideal opportunity to determine emergency response procedures and check the integrity of any fixed assets to be worked upon. The worksite safety plan is discussed and completed with all workers present at each worksite. Thus, it provides an opportunity for workers to become fully aware of all hazards and how they are t…managed at the worksite, and raise any concerns immediately before work begins. The rules i…ction describe requirements for the creation and maintenance of a worksite saf…

Rules in this section apply to: *Field Leadership, Field Operations,*

RM. Safety management

RM 4.103 *1.410* Where work is to be undertaken near live equipment, the supervisor shall ensure that workers have been made aware of the control measures to be adopted.

RM 4.104 *1.304* All work party members shall participate in hazard identitication and risk assessment to ensure that they are aware of the hazards they may encounter, or create, and the means of controlling them.

RM 4.104 *1.300* Hazard and risk identification, and determining how these are to be managed, shall be carried out at regular intervals including upon arrival at the worksite (for example, to identify risks that may arise from other activities not under the control of the work party leader, such as over or under crossing lines, or de-commissioned points of connection).

Resources | Find | Filter

PH W…ight

…3.311 *(2.1407)*
…adder inspection shall be guided by:
- Guide to Portable Equipment for Work On or Near Conductors - Technical Guide (2018) [EEA]

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R - Managing work readiness

E - Managing environment hazards

S - Managing worksite security

P - Managing position hazards

C - Managing chemical hazards

T - Managing technical hazards

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Rules in this section apply to: *Industrial plant, industrial tools, industrial materials,*

S Managing worksite security

What is worksite security? Why is it important to protect the worksite?

SP Controlling entry to the worksite

Why is it important to implement controls to restrict access? What asset types and scenarios require some form of access control? Which ones don't?

Rules in this section apply to: *Private property, public property, work management systems,*

SH Managing physical hazards at the worksite

What kind of hazards are created by the work itself? How can access to a hazardous space or use of equipment add danger? What kind of work creates extra risk for others in the vicinity of the work?

Rules in this section apply to: *Private property, public property, Industrial plant, industrial tools, industrial materials, overhead assets, underground assets, ground level assets,*

SU Working near third-party property

How can nearby services introduce extra hazard to the worksite? What kind of work is likely to encroach on the assets owned by other parties?

Rules in this section apply to: *Private property, public property, underground assets, ground level assets,*

ST Managing traffic near the worksite

What kinds of hazards need to be managed here? How are the controls different to those used to control access? Which asset types and scenarios require greater levels of protection, and why?

Rules in this section apply to: *Natural elements, public property, work management systems, competency management systems,*

P Managing position hazards

How does the design of an electricity supply system create the need for workers to work at unnatural

Resources | Find | Filter

1.1 Provide systems

RM 1.102 *(1.108)*
Safety systems should be guided by:
- Health and Safety Guide: Good Governance for Directors (2016) [WorkSafe]
- AS/NZS 4804:2001 (Reconfirmed 2020) Occupational Health and Safety Management System - General Guidelines on principles, systems and supporting techniques
- AS/NZS ISO 45001:2018 Occupational Health and Safety Management Systems - Requirements with guidance for use.
- NZS 7901: Electricity and gas industries - Safety management systems for public safety

RM 1.104 *(1.110)*
Risk evaluation and management should be guided by:
- Identifying, Assessing and Managing Work Risks (2017) [WorkSafe]

RM 1.107 *(1.108)*
Persons Controlling a Business or Undertaking shall meet the requirements of:
- The Health and Safety at Work Act (2015) - Part 2 Health and Safety Duties
- Health and Safety at Work (General Risk and Workplace Management) Regulations (2016)
- Health and Safety at Work (Worker Engagement, Participation, and Representation) Regulations 2016

RM 2.310 *(3.502)*
Issuing and recording of assurances shall follow:
- [TBA]

RM 2.311 *(3.502)*
Requesting and issuing of assurances shall be guided by:

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2 - General safety guide
3 - Rules for work on equipment
A - Notifiable work
B - Accidents
C - Guides
D - Principles

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ACCESS PERMIT

The electricity supply industry's recognised work management system for managing hazards that have a source external to the equipment to be worked on and that are not under control of the work party intending to work on that equipment.

ASSET OWNER

To be drafted?

ASSURANCE

A written declaration issued by the worker in operational control of equipment, that is not under the control of the issuer but safety measures are required to be applied, to an issuer of an access or test permit confirming the state of the equipment and that it will remain in that state until the assurance is returned and cancelled. The terms sender and receiver apply to assurances.

COMPETENT

An employee is competent when they can demonstrate to their employer, at any time, that they have the necessary knowledge, skills and experience to carry out the work safely and to the standards used by the employer.

CONDUCTOR

Material used for the conveyence of electricity. Examples include overhead lines, underground cables, busbars and electrical connections.

CONFINED SPACE

An enclosed or partially enclosed space which is not intended or designed primarily for human occupancy. Examples include storage tanks, tank cars, shafts, ducts, and shipboard spaces. Confined spaces may present a risk from one or more of the following at any time:

- unsafe concentration of harmful airborne contaminants
- unsafe concentration of flammable substances
- unsafe levels of oxygen

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9.11. Legislation (New Zealand)

Abrasive Blasting Regulations 1958 [NZG]

Hazardous Substance Regulations [Non-specific]

Hazardous Substances (Compressed Gases) Regulations 2004 [NZG]

Hazardous Substances and New Organisms Act 1996 [NZG]

Health and Safety in Employment (Pressure Equipment, Cranes and Passenger Ropeways) Regulations 1999 [NZG]

The Electricity (Safety) Regulations 2010 [NZG]

The Electricity Act 1992 [NZG]

The Gas Act 1992 [NZG]

The Health and Safety at Work Act 2015 [NZG]

The Health and Safety in Employment (Asbestos) Regulations 1998 [NZG]

The Health and Safety in Employment (Prescribed Matters) Regulations 2003 [NZG]

The Health and Safety in Employment Regulations 1995 [NZG]

The Land Transport Rule: Dangerous Goods 2005 (amended April 2010 and August 2011) [NZTA]

The Spray Coating Regulations 1962 [NZG]

9.12. Requirements (New Zealand)

Gazette Notices [Non-specific]

Limits of work for registered electrical workers [EWRB]

Particular hazardous work (Notifiable works) [WorkSafe New Zealand]

Prescribed Classes of Registration for Electrical Workers Including Limits of Work in Respect of Each Class and

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TR 3.427 *2.901*
The driver of a vehicle shall plan ahead for any long trips to ensure that adequate rest stops are taken.

4 Establishing a safe working area

Worksites require preparation to become safe, and for workers to feel safe at that worksite. The level of care taken, and the degree of worker involvement in the process, has a direct impact on safety. In practice, this process is where a pre-work risk assessment is carried out, control measures are agreed, and the safety plan is finally implemented at the worksite. The process ends when workers are in position for work armed with the knowledge that all precautions have been taken to ensure worksite safety, and the part they are to play is well understood. The rules in this section describe requirements for controls to be applied at the worksite to the satisfaction of legislation, industry standards, supplier instruction, local policy, and all work party members.

4.1 Establishing the worksite safety plan

The purpose of a worksite safety plan is to record all hazards identified in the planning stages, and at the on-site hazard and risk assessment, and agree how they will be managed at the worksite. This includes the setting of safety tolerances and how work party members will communicate with each other in maintaining those throughout the course of work. It is also the ideal opportunity to determine emergency response procedures and check the integrity of any fixed assets to be worked upon. The worksite safety plan is discussed and completed with all workers present at each worksite. Thus, it provides an opportunity for workers to become fully aware of all hazards and how they are to be managed at the worksite, and raise any concerns immediately before work begins. The rules in this sub-section describe requirements for the creation and maintenance of a worksite safety plan.

Rules in this section apply to: *Field Leadership, Field Operations,*

RM. Safety management

RM 4.103 *1.410*
Where work is to be undertaken near live equipment, the supervisor shall ensure that workers have been made aware of the control measures to be adopted.

RM 4.104 *1.304*
All work party members shall participate in hazard identitication and risk assessment to ensure that they are aware of the hazards they may encounter, or create, and the means of controlling them.

RM 4.104 *1.300*
Hazard and risk identification, and determining how these are to be managed, shall be carried out at regular intervals including upon arrival at the worksite (for example, to identify risks that may arise from other activities not under the control of the work party leader, such as over or under crossing lines, or de-commissioned points of connection).

Resources | Find | Filter

PH Work at height

PH 3.311 *(2.1407)*
Ladder inspection shall be guided by:
- Guide to Portable Equipment for Work On or Near Conductors - Technical Guide (2018) [EEA]

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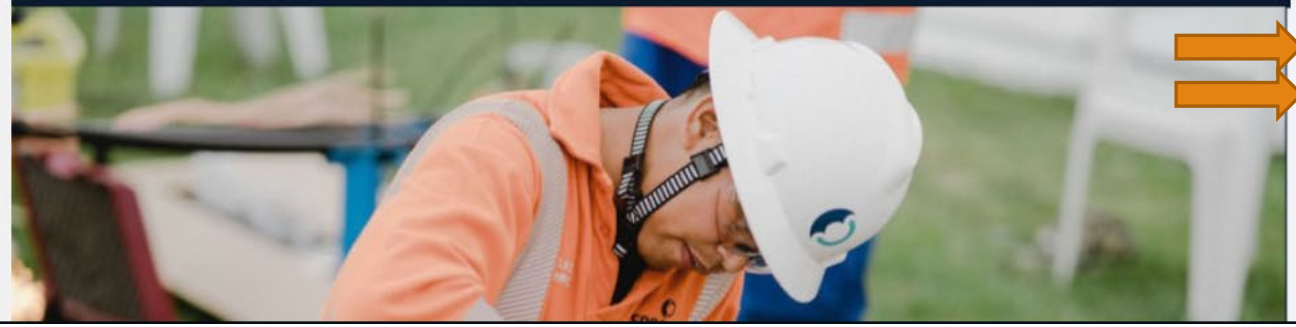

Resources | Find | Filter

height

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5 Applying safety measures to assets

Equipment that forms any part of an electricity supply system is naturally designed for the purposes of generating, transmitting or distributing electricity, or for storing or otherwise conveying hazardous materials involved in delivering these services. Such equipment is therefore inherently dangerous to people and other assets in close proximity. Specific safety measures are applied to provide a safe environment at working position(s) following a documented sequence prepared during the planning stages. The process ends when safety in proximity to electricity assets is proven. The rules in this section describe requirements for safety measures to be applied to assets immediately before work begins.

6 Working and monitoring for safety

Providing for the safety of people and assets is something that happens before the actual work. This is because all actions have an element of danger, and it is inherently easier to plan ahead than it is to change course whilst working, particularly where hazards can be identified in advance. That said, maintaining an awareness of danger is critical to maintaining a safe worksite, safe position, and safe assets. Workers have a duty to be aware of their own actions, and to support members of the work party when providing a monitoring or supervisory role. The rules in this section describe requirements for work to be monitored and procedures to be followed, with adjustments made to match any change in local conditions.

7 Managing change and returning service

The reinstatement process begins immediately after electricity assets have been installed, replaced, inspected or somehow worked around. This process involves the progressive removal of safety measures and checks to return the electricity service safely. The order in which safety measures are removed will be carried out according to a documented sequence prepared in the planning stages. Sometimes changes to work management systems are required in order to test the integrity of assets before service is restored. The rules in this section describe requirements for the restoration of electricity supply equipment to the state required for service, or for the next phase of work.

8 Ending the working day safely

Hazards can be naturally occuring (e.g. bad weather), inherent with the work (e.g. voltage difference), created from the work (e.g. air pollution), or from use (e.g. equipment wear and tear). The inherent hazards, and those created from work will continue to present risk until they are eliminated or minimised. The rules in this section describe requirements for securing the worksite between shifts (or after work has finished), checking the safety of facilities after use, and to record improvement opportunities for the benefit of future work parties.

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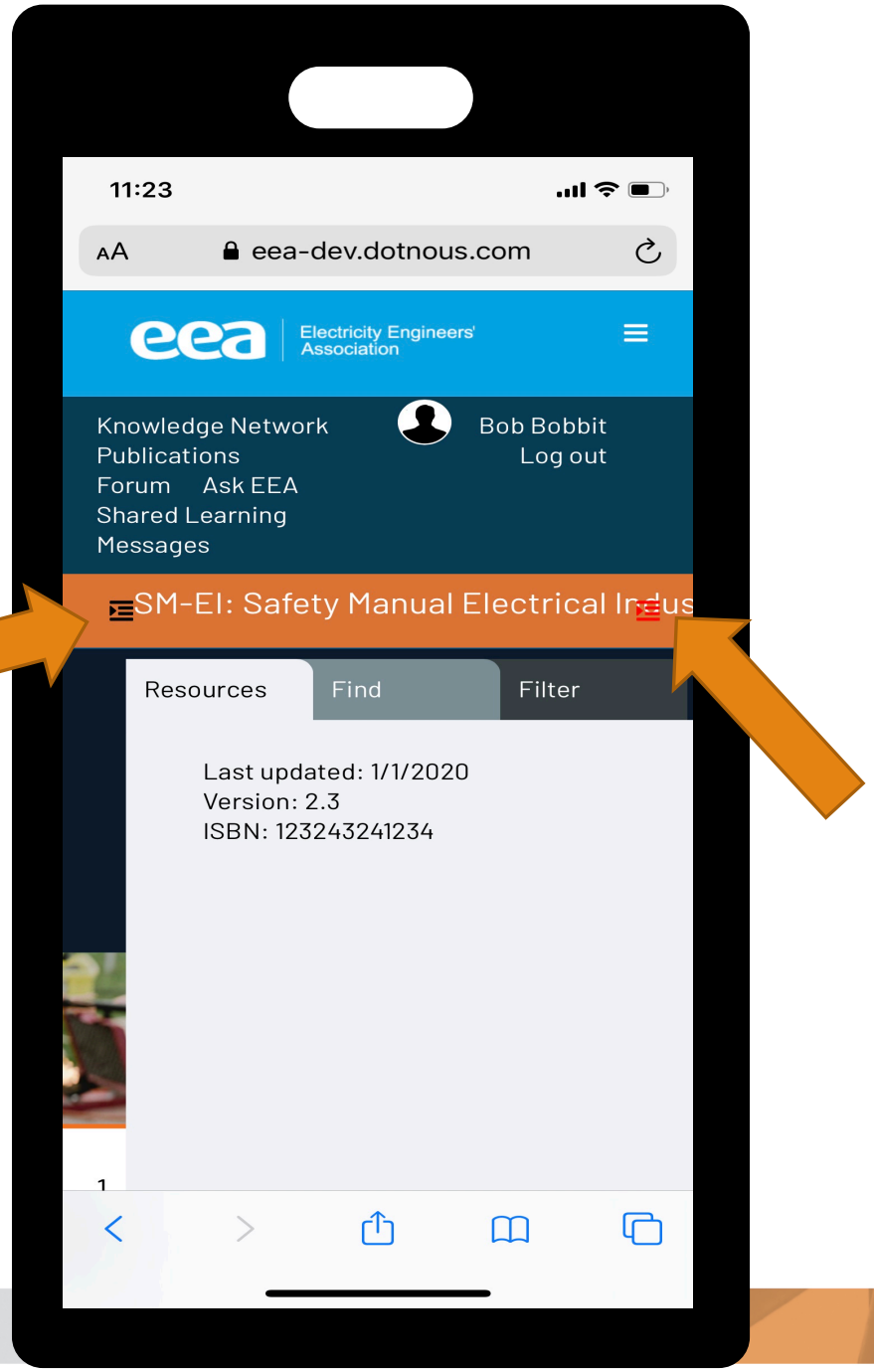
Asset Maintenance
Asset management systems
competency management systems
emergency management systems
equipment inspection registers
Field Control
Field Leadership
Field Operations
ground level assets
Health and safety management system
industrial materials
Industrial plant
industrial tools
Natural elements
Operational Policy
Operational Services
overhead assets
People and Capability
Private property
public property
underground assets
work management systems

Mobile Device




thank
you!