

# Trainers and HV LIVE LINE Work Selection Method.



1

## BACKGROUND

### Powerco HV Live Line Working Group

We have been engaged with our Live Line (LL) service providers and the EEA over the last 3 years to:

- Standardise an approach to planning work that allows the use of LL techniques to complete tasks on the HV Network.
- Establish a Work Method Selection Guide that considers the risks of completing the work live vs. isolated to reduce the risk to ALARP.
- Reference a suite of 'standard' guidelines that can be used by the service providers to base their procedures on to ensure consistency regardless of the contactor in line with EEA Live work HV guides.
- Use an Asset Exclusion List that defines the assets what we deem too complex to work on in the energised state.
- Always use a Work Method Selection Guideline and document the outcome
- Ensure ECP46 +Practise notes compliance.



2

## Powerco Work Method Selection Guide Form

A document intended to supplement the decision-making process for determining the preferred work methodology (live or isolated) on our HV overhead network.

**Powerco needs to;**

- Understand the “risks” associated with HV LL work.
- Identify possible work methodologies in the design, planning and delivery aspects of the project life cycle.
- Know when LL is being considered as a work method to complete a task.

**Service providers and Trainers need to;**

- Understand the “risks” associated with HV LL work.
- Have a structured decision making process that evaluates work methods against a set list of risk based criteria to determine the most suitable method to undertake work on an HV overhead Line
- Communicate to Powerco when a LL job is being considered as a work method to complete a task.

EEA.CO.NZ



3

## STANDARD GUIDELINES

A suite of documents published in BMS & CWM that provides step-by-step guidance on how to complete certain tasks using LL methods.

Established in conjunction with our service providers and the EEA who have also published their own version of some of the documents.

To date, Powerco has published into the BMS;

- 37 guidelines
- Work Method Selection guide S2505271
- Work Method Selection Form 250F002
- A Live Line Works Principles overarching document
- An Asset Exclusions List

Service providers have their own Work Selection Methods and LL manuals. The relevant procedures must align with the Powerco guidelines for the same work. Work Method Selection must align with EEA guide and Powerco Selection methods.



EEA.CO.NZ



4

## ASSET EXCLUSION LIST



A list of assets with known defects or issues that Powerco deems too risky to work on in the energised state due to the risk they pose to the workers.

The initial list has been revised and currently there are 12 items on the list that will be reviewed annually:

- Surge / lightning arrestors
- Conductors on an angle greater than 30°
- Copper or Aluminum wire less than 25mm<sup>2</sup> or No.8 wire
- Replacing in-line tension joints
- Replacing Twisty or Fargo joints
- Cable termination pot-heads
- Damaged or cracked insulators
- Two-piece 33kV insulators
- Zone substations
- Voltage Regulators
- Capacitors
- Single Wire Earth Return (SWER) lines

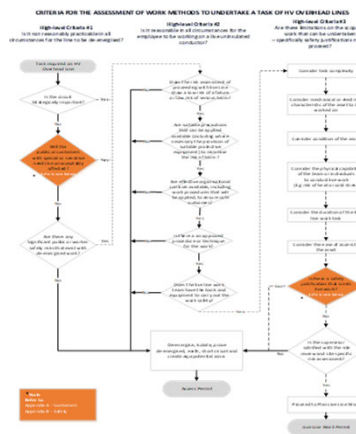
EEA.CO.NZ



5

## EEA Assessment Of Work Methods To Undertake HV OH Line WORK

- Trainers should complete a work selection method when training HV tasks on a network.
- Always follow the Three Risk criteria -
- Risk 1 \_ Is it not reasonably practical in all circumstances for the line to be de-energized.
  - Risk 2 \_ Is it reasonable in all circumstances for the employee to be working on a live uninsulated conductor.
  - Risk 3\_ Are there limitations on the scope of work that can be undertaken, specifically safety justifications not to proceed.
  - Single Wire Earth Return (SWER) lines



EEA.CO.NZ



6

## ECP46 and Practise Notes Compliance

Request for information letters sent to our four approved LL service providers Trainers (Downer, Electrix, Northpower and Scanpower) seeking confirmation of compliance with ECP46 in areas that are not observable or auditable on site.

Service providers confirmation that they believe their processes and systems comply with the requirements of ECP46 regarding:

- Staff selection, training and refreshers
- Health monitoring of workers
- Procurement and storage of LL equipment
- Establishment and proving of procedures
- Record keeping
- Auditing



EEA.CO.NZ



7

## Powerco HV Live Work Selection Guide



Status – Issued  
Standard – 2505271  
Version 1 – 24 March 2021

### HV LIVE WORK METHOD SELECTION GUIDELINE

<b>1</b>	<b>GENERAL</b> .....	<b>1</b>
1.1	INTRODUCTION.....	1
1.2	GUIDING PRINCIPLES.....	1
1.3	OUTCOMES.....	2
1.4	DEFINITIONS.....	2
1.5	RESPONSIBILITIES RELATING TO WORK METHOD SELECTION.....	2
1.5.1	ASSET OWNER.....	2
1.5.2	ASSET OWNER – LIVE LINE MONITORING COMMITTEE.....	3
1.5.3	SERVICE PROVIDER - EXECUTIVE.....	3
1.5.4	SERVICE PROVIDER.....	4
<b>2</b>	<b>GUIDANCE</b> .....	<b>4</b>
2.1	WORKFLOW.....	4
2.2	COLLATE HAZARD INFORMATION.....	5
2.2.1	CAN THIS TYPE OF WORK BE COMPLETED LIVE?.....	5
2.2.2	HAS THE WORK SITE BEEN VISITED?.....	6
2.2.3	ARE THERE ANY ASSET EXCLUSION LIST ITEMS OR ACTIVITIES IN THE WORK SITE?.....	6
2.2.4	CAN COMMUNICATIONS BE ESTABLISHED WITH NOC FROM THE WORKSITE?.....	7
2.2.5	ARE THERE OTHER KNOWN HAZARDS THAT CAN BE COMMUNICATED?.....	7
2.3	PLAN AND RISK ASSESS AVAILABLE METHODS.....	8
2.3.1	BASE REQUIREMENT FOR STAGE.....	8
2.3.2	RISK ASSESSMENT.....	8
2.4	POWERCO REVIEW OF PROPOSED WORK METHODOLOGY.....	11
2.5	ONSITE TEAM REVIEW.....	12

EEA.CO.NZ



8

# Powerco Work Method Selection Guide Form

Status – Issued  
Form – 2505271  
Version 1 – 24 March 2021

**POWERCO**  
HV LIVE WORK METHOD SELECTION SUMMARY FORM

**Purpose**  
This form is to document the findings of the risk assessment completed for proceeding with HV live line work on the Powerco network. Either this form or the Service Provider's version of the work method selection form must be submitted to Powerco attached to the risk assessment. If the service provider's form is used, it must cover (at least) all the elements included in this form.

**General Information**

Company:	Date risk assessment completed:
Address of worksite:	Worksite region:
Type of work to be completed:	
Task description:	

**Safety**

Safety Consideration	Result	Comment
Is asset on Powerco HV Live Line Exclusion List (EOL)?	Yes / No	If yes – work must be done isolated
Is the asset in a safe condition to work on live?	Yes / No	If no – work must be done isolated
Can safety measures (that the tag or notice block) be applied to the line?	Yes / No	If no – work must be done isolated
Are the personnel available competent to complete the proposed task live?	Yes / No	If no – work must be done isolated
Can the work be completed using approved glove and barrier live line procedure?	Yes / No	If no – work must be done isolated
Tools, equipment and PPE required to carry out the work safely are available	Yes / No	If no – work must be done isolated

Only proceed to network considerations if it can be demonstrated that the task can be safely completed live.

**Network Considerations**

Network Consideration	Result	Comment
Does using an isolated work method introduce additional risk for workers or the public (for example, shoring, switching risk)?	Yes / No	If no – consider isolated work method
Is the isolation point damaged or unsafe to operate?	Yes / No	If yes – consider alternate isolation point
Is there a strategic or statutory requirement that would be adversely affected by the proposed activity?	Yes / No	If yes – consider other methods of mitigation such as providing generation

Work to be completed live	Yes / No	Justification:
---------------------------	----------	----------------

Submitted by:	Date:
Powerco Person Responsible:	Date:
Powerco Manager:	Date:

Authorized by: GM Service Delivery & Systems Operations Page 1 of 1

EEA.CO.NZ



Powerco  
2505271



Status – Issued  
Standard – 2505271  
Version 1 – 24 March 2021

## HV LIVE WORK METHOD SELECTION GUIDELINE

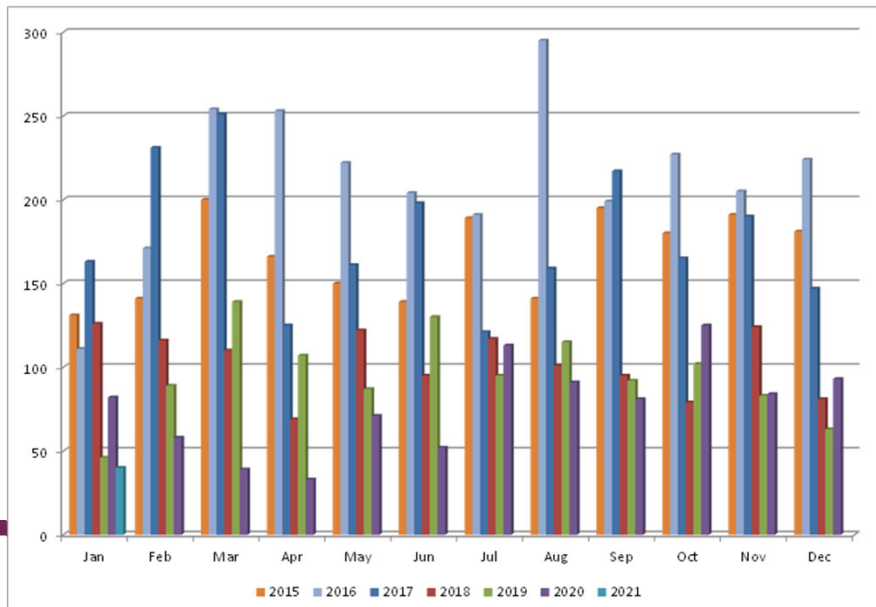
<b>1 GENERAL</b> .....	<b>1</b>
1.1 INTRODUCTION .....	1
1.2 GUIDING PRINCIPLES .....	1
1.3 OUTCOMES .....	2
1.4 DEFINITIONS .....	2
1.5 RESPONSIBILITIES RELATING TO WORK METHOD SELECTION .....	2
1.5.1 ASSET OWNER .....	2
1.5.2 ASSET OWNER – LIVE LINE MONITORING COMMITTEE .....	3
1.5.3 SERVICE PROVIDER - EXECUTIVE .....	3
1.5.4 SERVICE PROVIDER .....	4
<b>2 GUIDANCE</b> .....	<b>4</b>
2.1 WORKFLOW .....	4
2.2 COLLATE HAZARD INFORMATION .....	5
2.2.1 CAN THIS TYPE OF WORK BE COMPLETED LIVE? .....	5
2.2.2 HAS THE WORK SITE BEEN VISITED? .....	6
2.2.3 ARE THERE ANY ASSET EXCLUSION LIST ITEMS OR ACTIVITIES IN THE WORK SITE? .....	6
2.2.4 CAN COMMUNICATIONS BE ESTABLISHED WITH NOC FROM THE WORKSITE? .....	7
2.2.5 ARE THERE OTHER KNOWN HAZARDS THAT CAN BE COMMUNICATED? .....	7
2.3 PLAN AND RISK ASSESS AVAILABLE METHODS .....	8
2.3.1 BASE REQUIREMENT FOR STAGE .....	8
2.3.2 RISK ASSESSMENT .....	8
2.4 POWERCO REVIEW OF PROPOSED WORK METHODOLOGY .....	11
2.5 ONSITE TEAM REVIEW .....	12

### 1 GENERAL

EEA.CO.NZ



PC G&B APPLICATIONS Yr

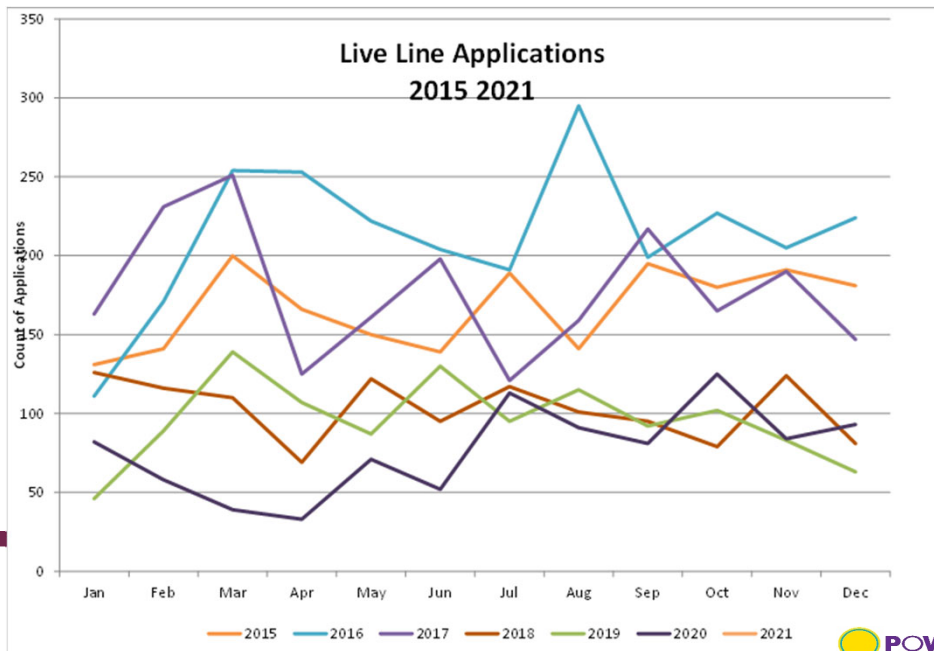


EEA.CO.NZ



11

PC G&B AP Trend by Year



EEA.CO.NZ



12

## EEA Work Method Selection

### Assessment of work Method to undertake High Voltage overhead Live Line Work Guide

- Copyright i
- Disclaimer i
- Status of Examples and Case Studies i
- Preface ii
- 1 Objectives and Scope 1
- 2 Legislation 2
- 3 References 2
- 3.1 Definitions 3
- 4 Work method risk assessment 5
- 4.1 Overview 5
- 4.2 Approach 5
- 4.3 Planning 6
- 4.4 Risk Assessment – Criteria 1 6
- 4.5 Risk Assessment – Criteria 2 7
- 4.6 Risk Assessment – Criteria 3 8
- 4.7 Assessment 9
- 4.8 Pre-work Assessment 10
- 5 Flowchart 10
- Example Criteria 11
- Appendix A Customers 12

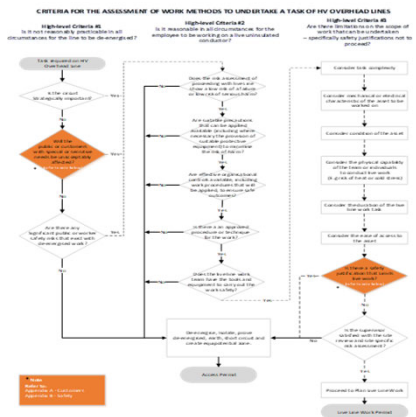


EEA.CO.NZ



## EEA Work Method Selection

### Assessment of work Method to undertake High Voltage overhead Live Line Work Guide



EEA.CO.NZ



## EEA Work Method Selection

Assessment of work Method to undertake High Voltage overhead Live Line Work Guide

Some useful EEA publications

### “EEA Knowledge Centre “

- May 2017 EEA ECP 46 Industry practice note (supplement to NZECP 46)
- Nov 2019 EEA HV Voltage Live Work Model Procedures for Glove and Barrier work, (11 procedures)
- Sep 2016 EEA Guide for the Assessment of Work methods to Undertake High Voltage Overhead Line work
- Dec 2019 EEA Live Line Work restart - Industry Practice Note
- July 2020 EEA High Voltage Live Work Auditing and Inspection Guide.



Electricity Engineers' Association

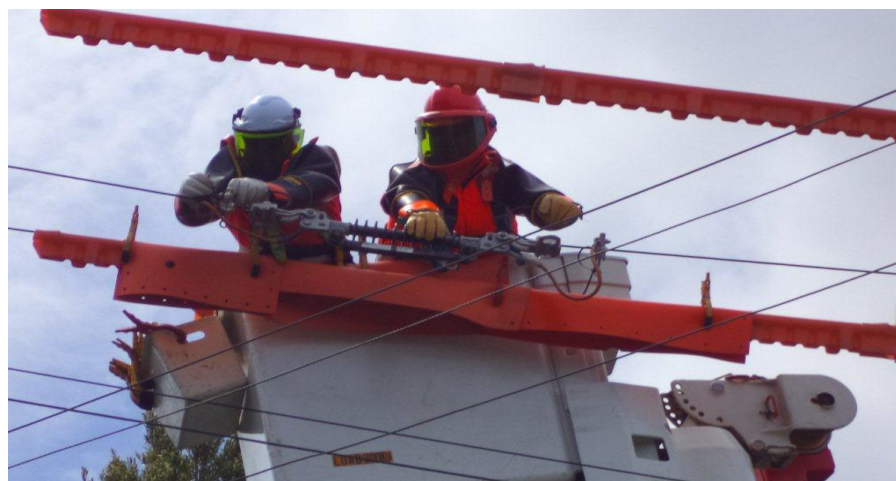


EEA.CO.NZ



15

## QUESTIONS?



EEA.CO.NZ



16