
PSSP Cat 1a

Safety isolation procedures required for level V interconnected customers



Student guide

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Course Introduction

Welcome to the **Power System Safety Protection, or PSSP, Category 1A** training course, Safety isolation procedures required for level V interconnected customers.

This student guide is designed to accompany the PSSP Category 1A online training course and be used as reference material.

After completing this module, you'll be able to define and identify level V distribution interconnections, describe customer isolation and procedures for establishing it. You will also be able to describe the procedures for returning customer isolation and handling situations when work on customer-owned equipment is needed.

Audience

BC Hydro workers authorized to PSSP Category 5 who are required to establish customer isolation.

Course Objectives

At the end of this course, you will be able to:

- Define and identify level V distribution interconnections.
- Describe customer isolation.
- Describe the procedure for establishing customer isolation.
- Describe the procedure for returning customer isolation.
- Describe procedures for handling situations when work on customer-owned equipment is needed.

Level V distribution interconnections

Definition

What is Level V distribution equipment and how can you identify it?

Item	Description
Level V distribution equipment	Level V distribution equipment is power system distribution equipment of any voltage that is located outside stations and that does not have looped or multiple feeds. A single isolation point must establish positive safety protection of a line or cable. An example is a distribution lateral.

Applying the Level V definition to distribution interconnections

How the principle applies to customer connections:

- Distribution customer is less than 60 kV.
- A single isolation point must establish positive safety protection of the customer from BC Hydro’s power system.
- There must be no infeeds from the customer’s equipment into the BC Hydro power system. Looped or multiple feeds and/or interconnected generation must not be present.
- Safety isolation procedures can be carried out by a BC Hydro Category 5 authorized worker who has switching authorization, without the involvement of the Person in Charge (PIC).



This information can also be found in SPR Section 609.

Distribution interconnections

Other key aspects of level V distribution interconnections

What are power system boundaries?

Power system boundaries are the point where PSSP ends and the customer’s safety procedures begin (primarily WorkSafeBC lockout).



Where is the boundary between BC Hydro electrical system and a level V customer?

The level V boundary with a distribution customer is at the point of delivery to that customer. Customer isolation can apply to these level V equipment boundaries (Source: PSSP 1T-12H 4.2.5).

What safety isolation procedures are used to isolate level V customers?

Customer isolation will be applied by BC Hydro for work on customers' systems.

Customer isolation

What is customer isolation?

Item	Description
Customer isolation	Customer isolation is the procedure BC Hydro follows when a customer requires electrical isolation from the power system.

The customer isolation procedure ensures that workers authorized to Category 5 have isolated the electrical supply to the customer and will not reconnect it until the customer requests it.



When would the customer require it?

A typical case where customer isolation would be required is when a customer needs to work on their own primary system isolating device.

If the customer cannot obtain isolation by using devices they control, then BC Hydro must isolate them from the power system. This will help the customer establish the worker protection zone necessary to carry out the work.



Establishing Customer Isolation

A specific, six-step procedure must be followed in order to establish customer isolation from the BC Hydro power system.

1. The first step is to schedule the outage. This gives the customer time to plan for the outage and BC Hydro time to schedule a Category 5 worker to establish the safety isolation.

CUSTOMER REQUEST TO ISOLATE ELECTRICAL SUPPLY

PLEASE RETURN THIS COMPLETED FORM TO YOUR LOCAL DESIGN OFFICE.
CALL 1 877 520 1355 FOR OFFICE LOCATIONS.

MANDATORY FIELDS

LOCATION address of Isolation:		
NAME of location to be isolated:		
VAULT/KIOSK #:	CABLE NUMBER:	POLE ID:
ISOLATION PURPOSE:		<input type="checkbox"/> DISCONNECT at Service Entrance Required?

CUSTOMER CONTACT INFORMATION

Name:
Address:
Telephone:
Fax:


ONSITE CONTACT INFORMATION

Contractor Name:	Company Name:
Address:	
Telephone:	
Fax:	

POWER OFF	DATE:	TIME:
POWER ON	DATE:	TIME:

SPECIAL REQUESTS:

- Please provide 18 working days advance notice.
- For isolations during non-standard working hours, a payment is required to schedule the work.



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2. The second step is to meet the customer representative at the work site. The BC Hydro Category 5 worker will review the customer isolation procedure with them and discuss the requirements for this particular isolation.



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3. Next, the Category 5 worker isolates the customer from BC Hydro's power system. This is done by opening a switch or other device to create a positive isolation point.



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4. The fourth step is to secure "Do not operate – Customer isolation" tags that clearly indicate the isolation point. Locking or blocking – or both – are applied if available.



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5. Once the isolation is in place the BC Hydro Category 5 worker fills out the Customer Isolation Form and presents it to the customer approval and signing. The BC Hydro worker will then sign the form and provide the customer with the original copy.

CUSTOMER ISOLATION FORM

This isolation from the BC Hydro Electrical System is done at the request of the customer.

The Customer's Representative understands that the WorkSafeBC Occupational Health and Safety Regulation governs any work performed by the customer and it is the customer's responsibility to test for voltage and apply Worker Protection Grounding/Bonding.

This service will not be reconnected without the original customer representative on site to confirm to BC Hydro that the grounds are removed and service is ready to be energized.

The customer's electrical system is isolated from BC Hydro's electrical system and tagged "Customer Isolation".

CUSTOMER REPRESENTATIVE	
Print Name:	Company:
Work Location:	Phone:
Isolation Point:	

ISOLATION		
Isolated by BC Hydro Representative:		
Signature:	Time:	Date:
Acknowledged by Customer Representative:		
Signature:	Time:	Date:
BC Hydro Representative:		
Print Name:	Phone:	
Email:		

RECONNECTION		
I confirm that all workers are clear, customer Worker Protection Grounding/Bonding has been removed and the equipment is ready to be energized.		
Confirmed by Customer Representative:		
Signature:	Time:	Date:
Energized by BC Hydro Representative:		
Signature:	Time:	Date:

THIS FORM TO BE RETURNED TO BC HYDRO IMMEDIATELY PRIOR TO RECONNECTION.

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- Once the Customer Isolation Form is complete, the customer may elect to apply their own safety procedures to BC Hydro isolating devices (e.g., overlocking, tagging). This will be supervised by the BC Hydro Category 5 worker. It's the customer's responsibility to test for voltage and apply worker protection grounding and bonding.

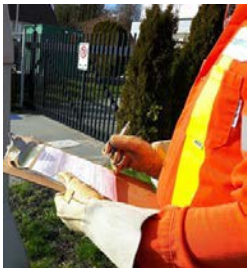


Returning customer isolation

There is a specific procedure the BC Hydro Category 5 worker needs to follow for returning customer isolation and restoring the customer to service. The procedure has three steps.



1. As a first step, the BC Hydro Category 5 worker schedules a time with the customer to return the permit. The customer signs off on the Customer Isolation Form and provides confirmation that:
 - a. All workers are clear.
 - b. All customer worker protection grounding/bonding has been removed.
 - c. The equipment is ready to be energized.



2. BC Hydro Category 5 worker signs off on the Customer Isolation Form and advises the customer representative that customer isolation is no longer in effect and equipment will be re-energized.

Note:

A copy of the signed off Customer Isolation Form will be kept by the customer. BC Hydro is required to maintain a copy for two years.



3. The BC Hydro Category 5 worker removes the lock and tag and then closes the switch or device to reconnect the customer to the power system. The worker then advises the customer that the line or equipment is energized.

BC Hydro worker required to work on customer-owned equipment

There are situations when a BC Hydro worker may require isolation from primary sources under the customer's control—for example, when isolating a metering kit. In these situations, the BC Hydro worker arranges directly with the customer's authorized representative to open the required isolation devices. The worker then applies personal locks to these devices, as per BC Hydro OSH standard 204.



Additional Resources

Power System Safety Protection (PSSP) 1T-12
Safety Practice Regulations (SPR) 506, 600-610
OSH Standard 204