



# 362 to 800KV Breakers

## Level 4 Field Service Engineer “Hands On” Training

### DTB TRAINING CENTER GREENSBURG, PA– COURSE DESCRIPTION

Hitachi Energy High Voltage Service is pleased to offer the following five (5) day training course consisting of classroom and hands-on instruction in Hitachi Energy Greensburg, PA facility. The course is aimed to provide a general understanding of 362 to 800KV power circuit breakers. During the classroom portion, experienced instructors will share their knowledge and expertise through interactive, engaging classroom instruction. To add further understanding, each main category of instruction will be followed by hands-on activity where students can interact with the breaker first-hand.

|   |                             |   |             |             |
|---|-----------------------------|---|-------------|-------------|
| PREPARED BY<br>Randy Opsitnick  | STATUS<br>Approved          | SECURITY LEVEL<br>Internal                  |             |             |
| APPROVED BY<br>Marcio Schmitt   | APPROVAL DATE<br>2023-03-14 |   |             |             |
| OWNER<br>Head of Training Function  | DOCUMENT KIND<br>Agenda     |   |             |             |
| TITLE<br>DTB-L4-362&420&550&800 PM_PMI_PMI B_PMR-Training Agenda              |                             |   |             |             |
| OWNING ORGANIZATION<br>US-Mount Pleasant-2657-Field Service<br>Hitachi Energy | DOCUMENT ID<br>2GHE001660   | REV.<br>A                                   | LANG.<br>en | PAGE<br>1/4 |
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**Who would benefit:**

- ❖ First line maintenance managers
- ❖ Direct maintenance personnel
- ❖ Substation maintenance engineers
- ❖ Engineering managers
- ❖ Substation supervisors
- ❖ Asset Managers
- ❖ Training Coordinators or Managers

**Included:**

- ❖ 362 to 800 circuit breaker information manuals
- ❖ 5 continental breakfasts
- ❖ 5 lunches
- ❖ 1 group dinner
- ❖ certificate of completion

**Certification:**

A confirmation will be issued after successful participation in this course, as part of the certification process.

Within a 12 months period, an on-site assessment must be carried out along with a final review to complete certification.

**Duration:**

5 days

**Enrolments:**

Send your request to

[us-dtb\\_training@hitachienergy.com](mailto:us-dtb_training@hitachienergy.com)

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| Day | Subject                                       |
|-----|---|
| 1   | <b>Introduction to Breaker Fundamentals</b>   |
|     | ❖ Fundamentals                                |
|     | ❖ Breaker Safety                              |
|     | ❖ Switching                                   |
|     | ❖ Grounding                                   |
| 2   | <b>Pole Assembly</b>                          |
|     | ❖ Slings and Installation/Removal of Bushings |
|     | ❖ Cleaning and Maintenance                    |
|     | ❖ Bushing Types                               |
|     | ❖ Through Rods                                |
| 3   | <b>Interrupter Theory and Maintenance</b>     |
|     | ❖ Interrupter Operation                       |
|     | ❖ Contact Inspection                          |
|     | ❖ Resistor Switch                             |
|     |   |
| 4   | <b>Hands on Disassembly/Assembly</b>          |
|     | ❖ Pole Assembly                               |
|     | ❖ Sling and Removal                           |
|     | ❖ Cleaning and Maintenance                    |
|     | ❖ Through Rods                                |
| 5   | <b>HMB- 8.12 Operating Mechanisms</b>         |
|     | ❖ Principles of Operation                     |
|     | ❖ Maintenance Schedules                       |
|     | ❖ Mechanism Disassembly and Reassembly        |
|     | ❖ Troubleshooting                             |
| 6   | <b>Breakers &amp; SF6 gas</b>                 |
|     | ❖ What is SF6                                 |
|     | ❖ Filling the breaker                         |
|     | ❖ Vacuuming process                           |
|     | ❖ SF6 fittings                                |
| 7   | <b>Sealing Systems</b>                        |
|     | ❖ Sealing Systems                             |
|     | ❖ Corrosion Prevention                        |
|     | ❖ SF6 By-products                             |
|     |   |

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| Day      | Subject                                   |
|----------|---|
| <b>5</b> | <b>Installation and Commissioning</b>     |
|          | ❖ Electrical Controls and Wiring Diagrams |
|          | ❖ Alarms and Lockouts                     |
|          | ❖ CT's                                    |
|          | ❖ Testing                                 |
|          | ❖ Breaker Timing                          |
|          | ❖ Leak Detection                          |
|          | ❖ Moisture Analyzer                       |
|          | ❖ CT Ratio and Polarity                   |
|          | ❖ Micro Ohm Test of Main Contacts         |
|          | ❖ Multi meter                             |

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