v2024

SPgroup
Empowering the Future of Energy

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LEW Refresher Course

Topic 4C – Metering Requirements

Electrical Meters Section

Overview

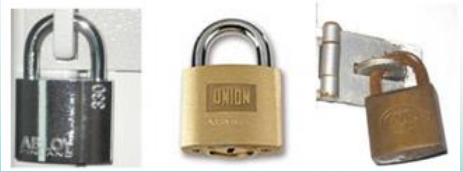
- General Requirement
- Whole Current Meter Installation
  - Centralised meter room
  - Meter compartment and gate pillar
  - Meter riser
- LTCT Meter Installation
- HT Metering Requirement
- Online Submission of CT/VT Reports
- Final Remarks – “Dos” & “Don’ts

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General Requirement

- Allow 4 business days lead-time for meter installation request
- Application submission is required for supply up/downgrading, replacement and relocation of switchboard
- Meter panel/board and ancillaries must be ready at site before meter installation
- All lockable meter enclosure must be fitted with the master series lockset (Union G1HBG, Yale MK48 or Abloy MK911047)

Abloy	Chubb (Union)	Yale
• MK 911047	• G1HBG	• MK48

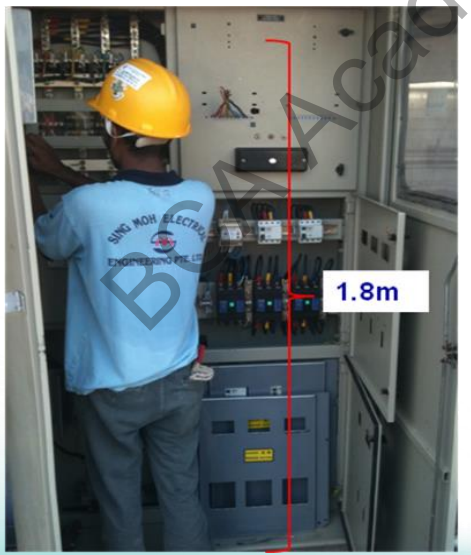


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General Requirement

- The height of the meter register must be between 800mm and 1800mm above ground level





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General Requirement

- Meters must be installed in a safe location with adequate working space where they will not be damaged or be a cause of danger to personnel (eg. Away from traffic hazards)





OGB installed in the middle of two-way road with the front too close to the road



Meter panel housed inside switch room with unsafe cat ladder access

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General Requirement

- Express service fees applies for meter installation request less than 4 business days, or outside of office hours, or during weekends and public holidays.



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General Requirement

H METER SERVICE CHARGES

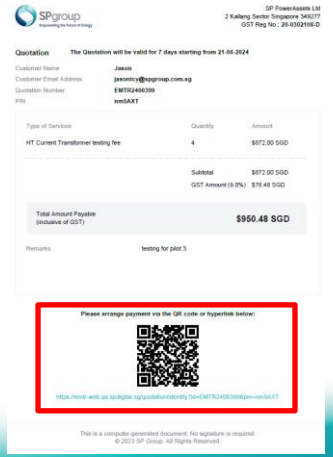
Table 7: Meter Service Charges (Exclusive of GST)#

1	Site testing of Single Phase Meter	:	$ 30 per meter per trip
2	Site testing of Three Phase Whole-Current Meter	:	$ 30 per meter per trip
3	Site testing of CT-operated Meter	:	All meter under customer account @ $80 per meter per trip
4	Additional charges for site testing	:	Weekday after office hours : $150 per trip Weekend/Public Holiday : $300 per trip
5	Auditing of Meter Data	:	$ 100 per man-day or part thereof
6	Express service for meter installation	:	Weekday : $150 per man-day per site Weekend/Public Holiday : $300 per man-day per site
7	Meter Installation/ Replacement of metering transformers	:	Weekday after office hours : $150 per man-day per site Weekend/Public Holiday : $300 per man-day per site

Note : Office hours are from 8.00 am to 5.30 pm on weekdays from Monday to Friday.

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- No payment is required for normal meter installation.
- For express services or other metering services where payment applies, it shall be done via a payment link/QR generated by SP Electrical Meter section



Whole Current Meter Installation



- Provide pre-wired meter board as per handbook
- Meter board must be securely held with at least 4 screw/bolts
- Unit number must be engraved or embossed and riveted or screwed to meter board
- Depth of at least 200mm from meter board surface

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Centralised Meter Room



- Access door should be at least 600mm (W) X 2000mm (H)
- At least 2000mm in standing height
- At least 600mm of space in front of meter panel
- Unit number permanently labeled on meter panel

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Meter Compartment

- Unit number permanently labeled on meter panel
- Depth of meter compartment must be between 200mm to 300mm from meter board surface to compartment door access
- Electricity compartment must be isolated from water and gas compartment.

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Meter Compartment at Gate Pillar



- Meter compartment at gate pillar must be weatherproof outside the premises
- Hinged door access of at least 450mm (W)
- Clear glass viewing window of 200mm(W) x 300mm(HA) x 6mm(thick) shall be provided
- Adequate ventilation
- Adequate standing space in front of compartment
- If drain exits, provide concrete platform or hinged galvanised steel grating

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Meter Riser



- Provide the recommended master series lockset if access door is to be locked
- Access door to meter riser should be at least 500mm in width
- Depth of meter board surface to access door should be at least 200mm
- Meter should be installed between 800mm (min) and 1800mm (max) in height

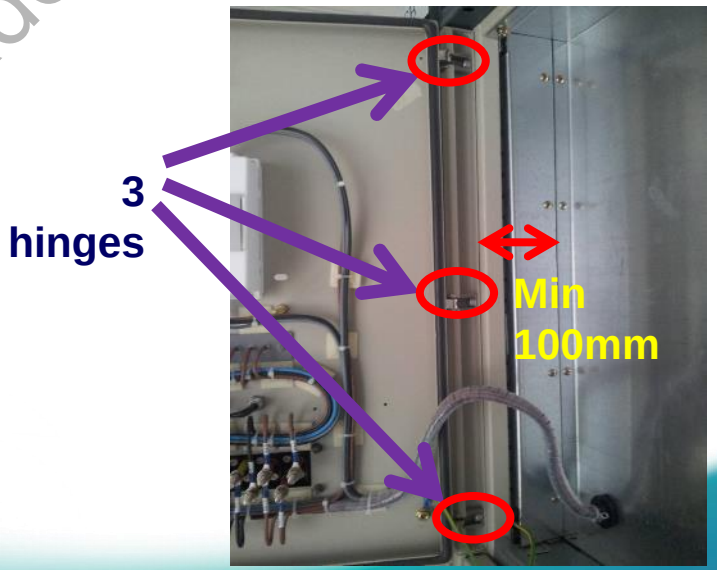
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LTCT Meter Installation

- Provide a 4-pole 6A MCB. Pilot lights not required.
- Panel shall be of 3 hinges and able to swing open at least 90°
- Depth of 100mm between panel and base
- Clear horizontal standing space of 600mm in front of meter

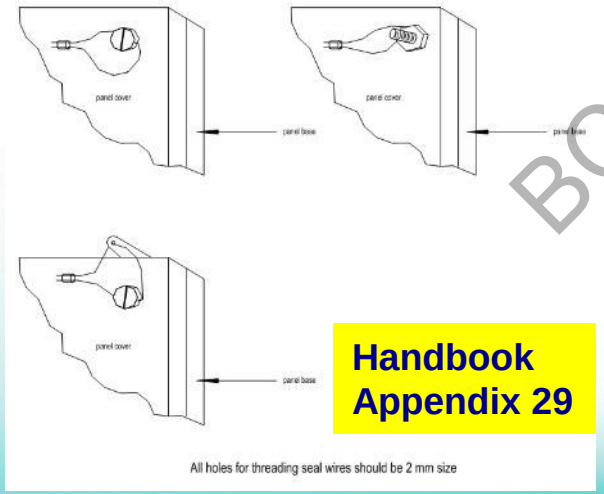


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LT CT Meter Installation

- CT enclosure must meet the minimum dimension stated in Appendix 30 of the Handbook. Facilities for sealing shall also be provided.
- Ensure CTs are installed before day of meter installation
  - 3 metering CT of 5VA, accuracy class 0.5 and must comply with IEC 61869-2 standards



Handbook Appendix 29



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HT Meter Kiosk

- Provide pre-wired meter panel
- Meter kiosk door fitted with master series lockset
- Provide adequate lighting and 2-gang 13A SSO
- Cable trunking must be cover and fasten with screws
- Complete all outstanding works inside meter kiosk before meter installation



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HT Metering CT/VT

- Table shows specifications of metering CT and VT for HT installations

	22kV and below		66kV and above	
	CT	VT	CT	VT
Class	0.5	1.0	0.5	1.0
Burden (VA)	15	100	30	100
Secondary Rating	5A	110V	5A	110V
IEC Testing Standard	61869-2	61869-3	61869-2	61869-3

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HT Metering Requirement

- All metering CT and VT terminals must be sealable
- Submit CT / VT test reports
  - Test reports issued by a laboratory accredited for testing and certification by SAC-SINGLAS or;
  - from a manufacturer with a test certificate endorsed by a national accredited laboratory within a year
- LEWs to ensure enclosure for housing VTs is suitable and offers adequate protection at its operating voltage level

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HT Metering Requirement (Cont)

- The rough breakdown of the lead time from submission is 4-5 weeks:
  - 1 week to review and arrange CT testing appointment in SP Meter test lab
  - 2 weeks lead time for CT testing (can be shorter)
  - 1 week lead time for inspection (dependent on site readiness)
  - 1 week lead time for installation

- For HT switchgear replacement projects – please submit CT/VT documents to jasontcy@spgroup.com.sg / yexiang@spgroup.com.sg

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External VT Enclosure Example

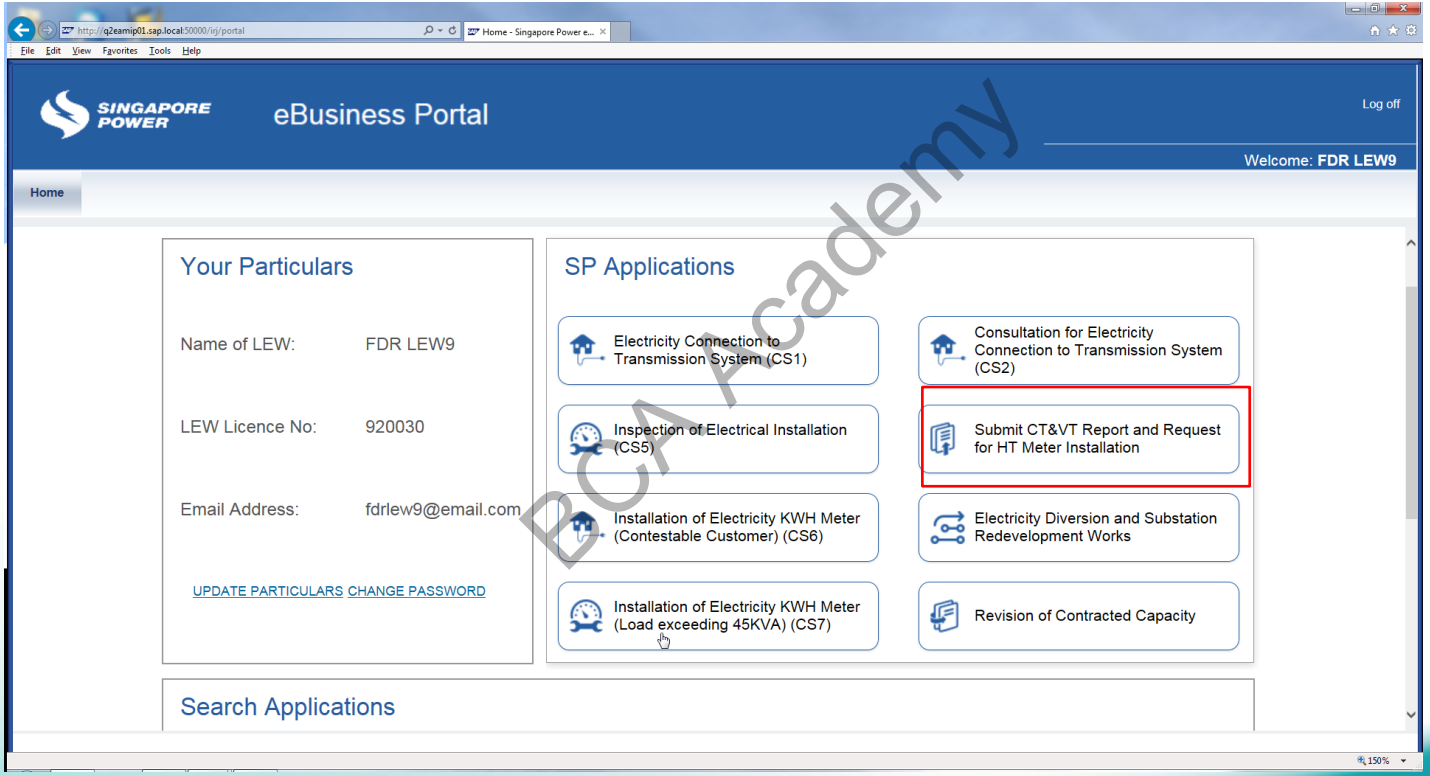






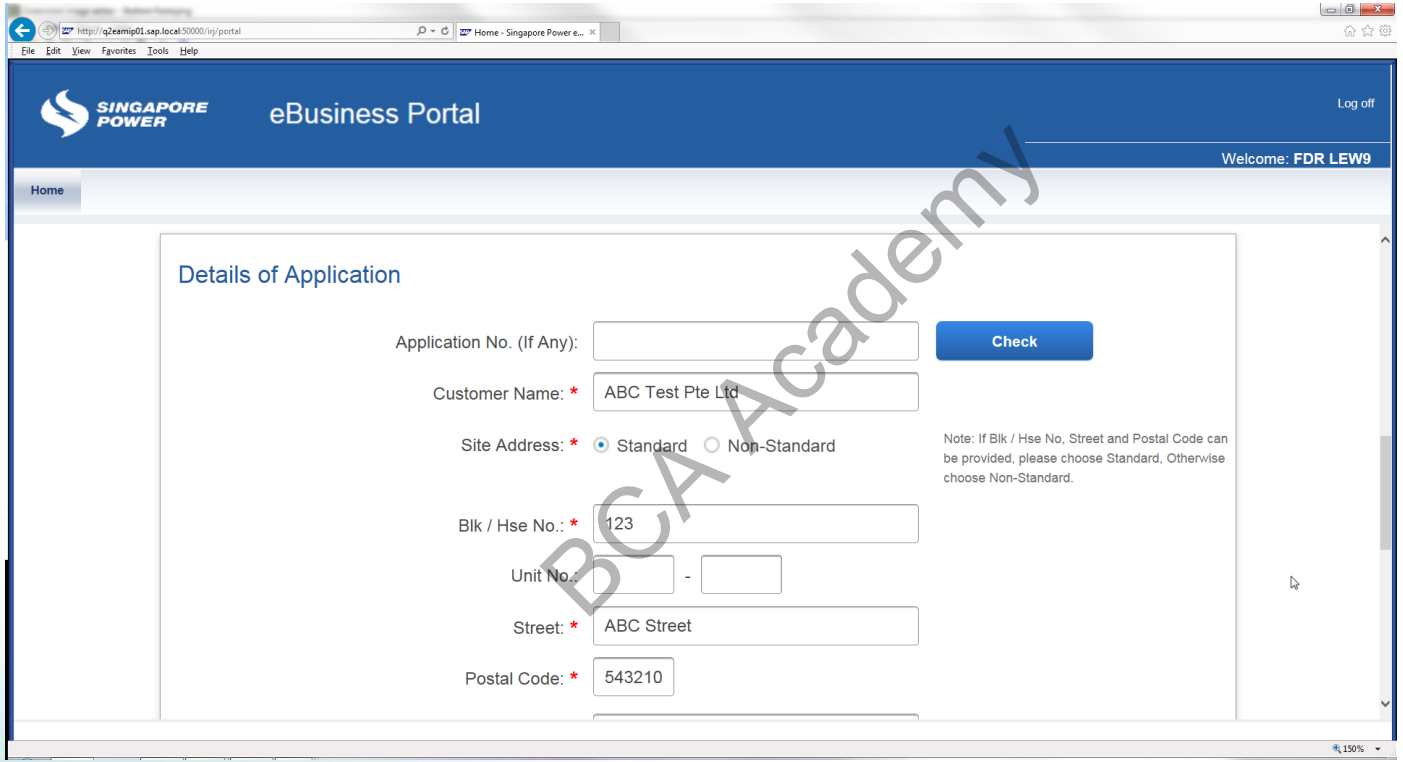
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Online Submission of CT/VT Reports



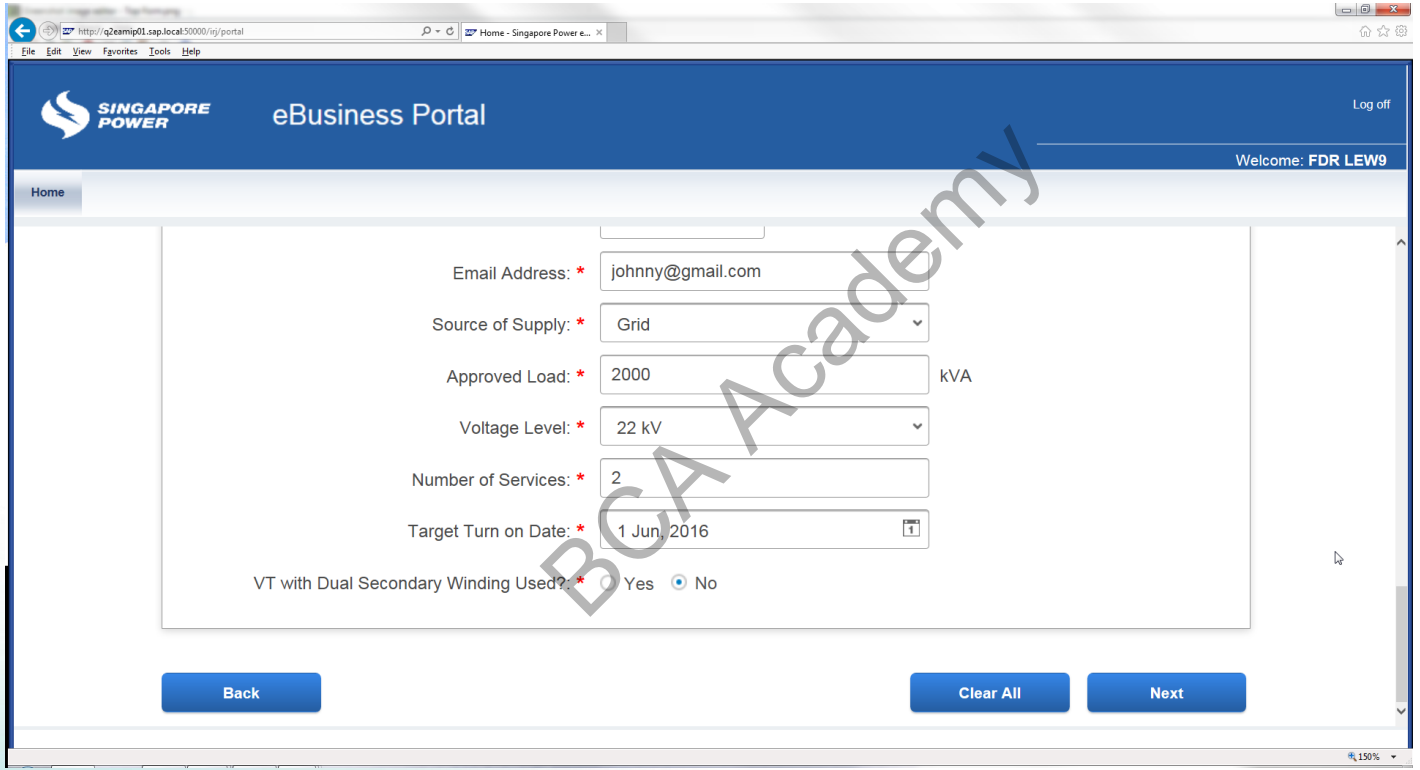
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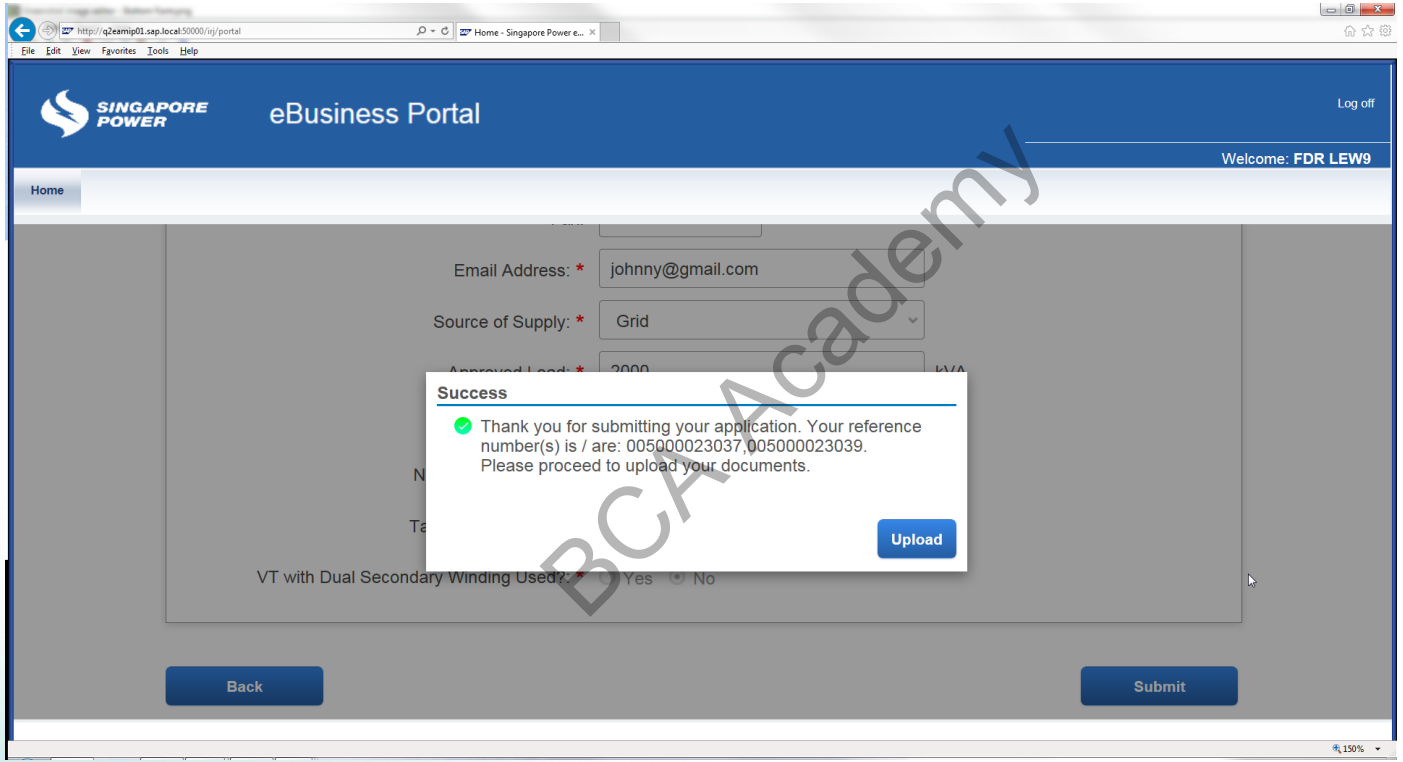


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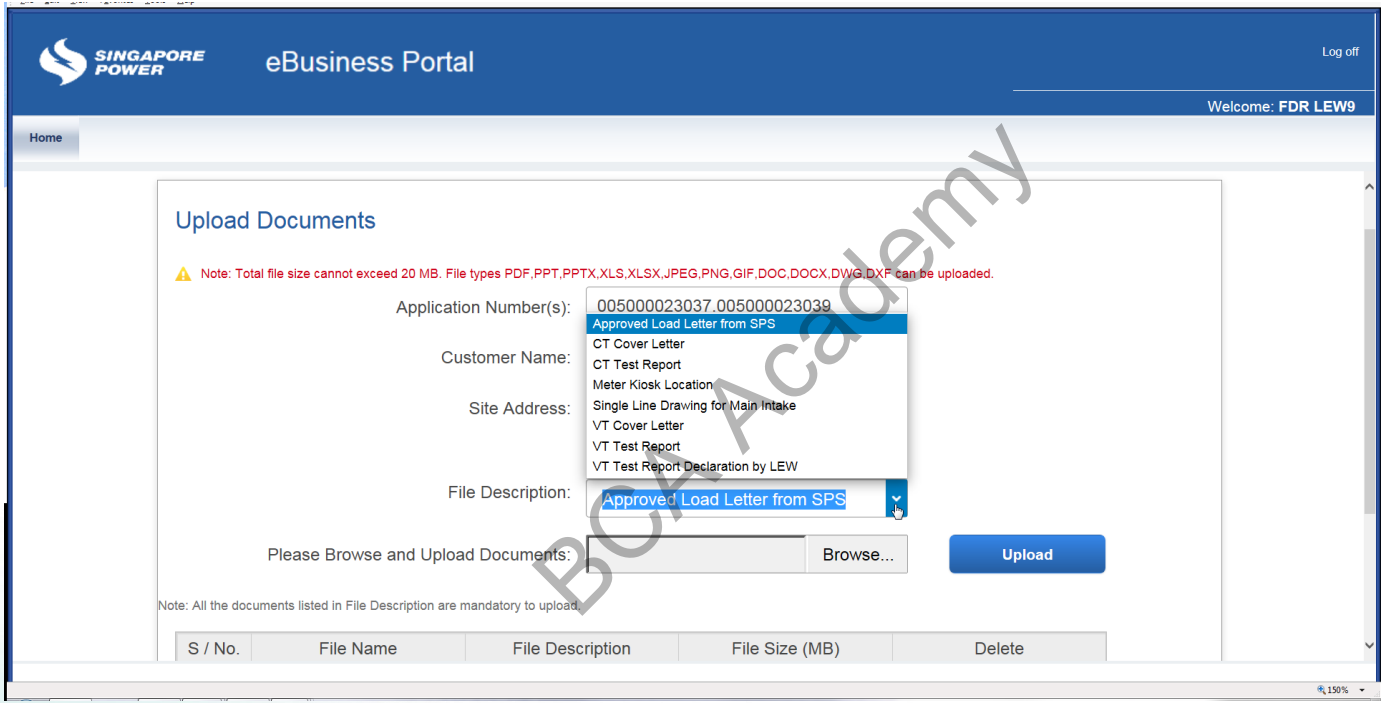
Online Submission of CT/VT Reports



Online Submission of CT/VT Reports



Online Submission of CT/VT Reports



- For incomplete submission of documents, please email Mr Jason Tan at jasontcy@spgroup.com.sg or Mr Chen Yexiang at yexiang@spgroup.com.sg to keep them informed

Final Remarks – “Do”

- Do ensure that metering requirements are fulfilled before meter installation.
- Do check wirings to ensure that they are not transposed
- Do ensure meter is wired to the correct address
- Do ensure application is submitted timely, cater in 4 business days prior to target energisation date
- Do report to Meters Section at 6916 8555 immediately if there is any missing seal

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Final Remarks – “Don’t”

- Don’t place any obstruction to the meter panel opening
- Don’t break any metering seal without first informing Meters section
- Don’t put temporary labeling on the meter board
- Don’t use meter compartment (riser) as storage space
- Don’t change the lockset (non-master series) after meter installation

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