Getting Electricity Supply

Presented by
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1.0 Tenaga Nasional Berhad Electricity System

Electrical System

- Voltage : Transmission : 500kV,275kV,132kV ; Distribution : 33kV,11kV, 400/230V,
- Supply Frequency : 50Hz ±1%
- Consumer are required to maintain Power Factor : min 0.85 for Voltage less than 132kV, Min 0.90 for Voltage 132kV and above
- The electricity and Installation at P. Malaysia are governed by ESA 1990 (Act 447), Licensee Supply Regulation 1990, Electricity Regulation 1994.
- Supply Voltage Option : 275kV, 132kV, 33kV, 11kV, and 400/230V.

Types of Supply

- Supply based on load (Up to 100KVA ; Load Exceeding 100KVA)
- Consumers Standby Supply.
- Alternative Source of Supply. (Cost Fully Borne by the consumer)
- Temporary Supply. (Cost fully Borne by the consumer & additional 33% surcharge of the total bill will charged monthly.
- Single Tenant Premises
- Multi Tenanted Premises
- Turnkey Project (For Housing Projects)

Charge

- Connection Charges
- Tariff
- Request for additional Requirement or Special Features

SOURCE: ELECTRICITY SUPLLY APPLICATION HANDBOOK

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2.0 What The Applicant Should Do??

STEPS	ACTION
Step 1	• Appoint One Electrical Consultant for Each Electricity Supply Application • Submit an appointment letter of the electrical consultant to allowing him to act on behalf of the applicant.
Step 2	• after approval from Local Authority / OSC, the applicant settles CC to TNB

Step 3	• Provide the substation(s) land and building (s) to TNB by:-
	  • Transfer the substation land at a nominal value of RM 10.00 to TNB or;
	  • Leasing the substation land at the nominal value of RM10.00 to TNB
	• Transfer of the land title should be finalized prior to the handing over of site.
	• In the absence of the land title, the applicant is to prepare a BG to TNB for a period of 12 months

Step 4	• Applicants are Required to
	  • Deposit a sum of money equivalent to 2 months bill (Cash / BG for amount more than Rm2k)
	  • Sign Electricity Supply Contract with TNB through the appointed Electrical Contractor

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3.0 Supply Requirement and Info

Voltage Level	Supply Project Typical Lead Time*	MD Range	Land Requirement
11kV	6 months – 12 months	1000kVA up to <5000kVA	SSU Land :13.0m x 14.2m
33kV	18 months - 2 years	5000kVA to 25000kVA	SSU Land : 30.0m x 30.0m
132kV	3 years – 5 years	25,000kVA to <100,000kVA	SSU : 115M x 110M Standard Overhead Lines with AIS switchgear
275kV	3 years – 5 years	100,000kVA and above	SSU : 150M x 135M Standard Overhead Lines with AIS switchgear

Notes:-
1. Project Lead Time depends on the site distance and complexity.
2. Land requirement is based on normal design connectivity

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4.0 System Voltage Level

Voltage Level	% Variation Normal Conditions	% Variation Contingency Condition
400V and 230V	-6% & +10%	+/- 10%
11kV, 33kV	+/- 5%	+/- 10%
132V and 275kV	-5% & +10%	+/- 10%
500kV	+/- 5%	-10% & +5%

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5.0 System Security Level

Security Level	Average Restoration Period
Level 1	Less than 5 seconds
Level 2	Less than 15 Minutes
Level 3	Less than 4 hours
Level 4	Less than 24 hours

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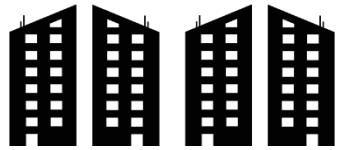
6.0 Connection Charge for getting supply (CC)

LV SUPPLY

- 1 Ø O/H : RM450
- 3 Ø O/H : RM750 (DOM Only)
- 3 Ø O/H : RM1700 (Non DOM)
- 3 Ø U/G : RM1700
- LV CT Meter : RM2700/100 A

SPECIAL FEATURES
(100% need to be Pay By Client)

- 1 Ø U/G
- MV Cable length > 6km
- LV cable > 80 meter
- HDD
- Utility Mapping
- Mill & Pave
- Traffic Management Plan (TPM)
- Permit Cost (Wang Hangus)
- Land Surveyor
- GeoTech report/Soil Test
- Landscaping
- Fully Underground cable
- Pole > 3 for single individual applications pay 50% cost

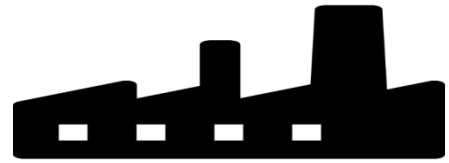


MV SUPPLY
(11kV & 33kV)

- RM45/kW

SPECIAL FEATURES
(100% need to be Pay By Client)

- MV Cable length > 6km
- HDD
- Utility Mapping
- Mill & Pave
- MSC Status Design
- 2nd Dedicated Feeder
- GIS Breaker
- MV Cable length > 6km
- Traffic Management Plan (TPM)
- Permit Cost (Wang Hangus)
- Land Surveyor
- GeoTech report/Soil Test
- Landscaping



HV SUPPLY
(132kV & 275kV)

- Based on 1st Principle

$$CC = P - \frac{(t \times (\text{Revenue in Year} - (\text{Operation Cost}) - 6000)}{1 + 0.22t}$$

Where;
P = TNB Project Cost
t = 15 Years

SPECIAL FEATURES
(100% need to be Pay By Client)

- Dedicated Utility Tunnel
- 2nd Dedicated Feeder Different Source
- GIS Breaker (Based On Cost different with AIS Breakers)
- Underground Cable (Based on cost different with Overhead Line)
- Land acquisition Cost for Right of Way Transmission Lines
- Land Surveyor
- GeoTech report/Soil Test
- Landscaping

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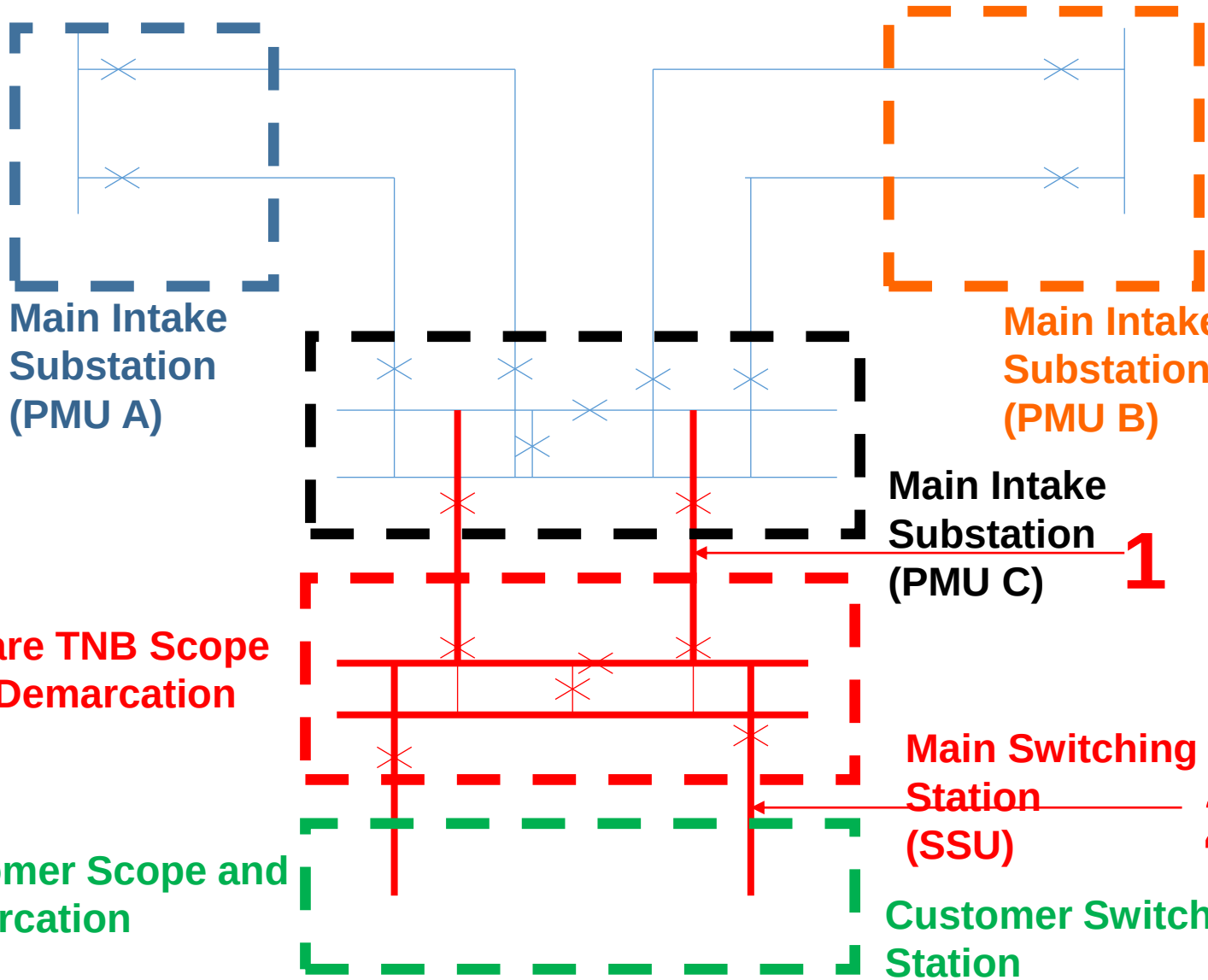
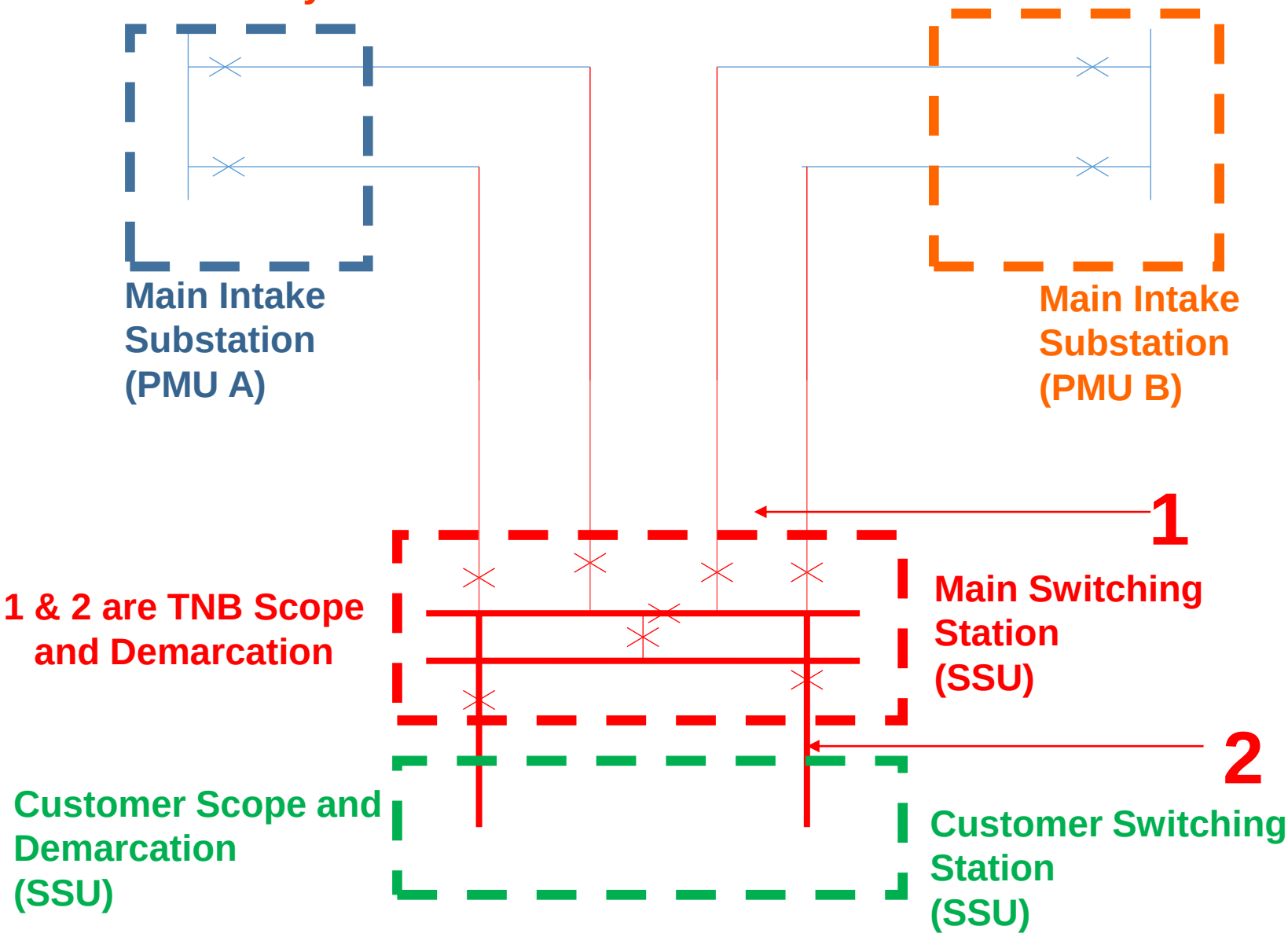
7.0 Normal Grid Connectivity to consumers (275kV & 132kV)

A. Dedicated from Main Intake



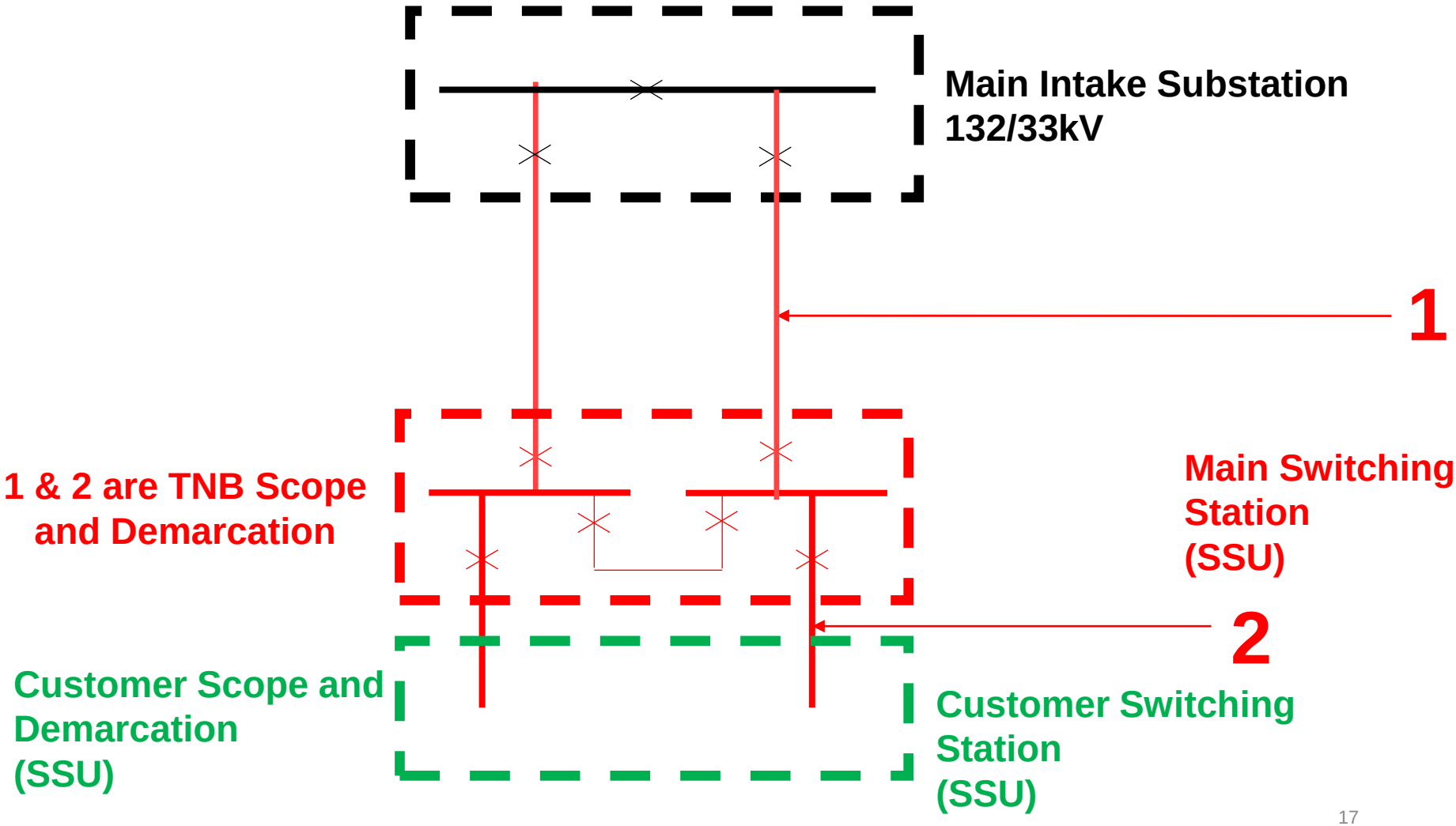
7.0 Normal Grid Connectivity to consumers (275kV & 132kV)

B. Connectivity From Lines.

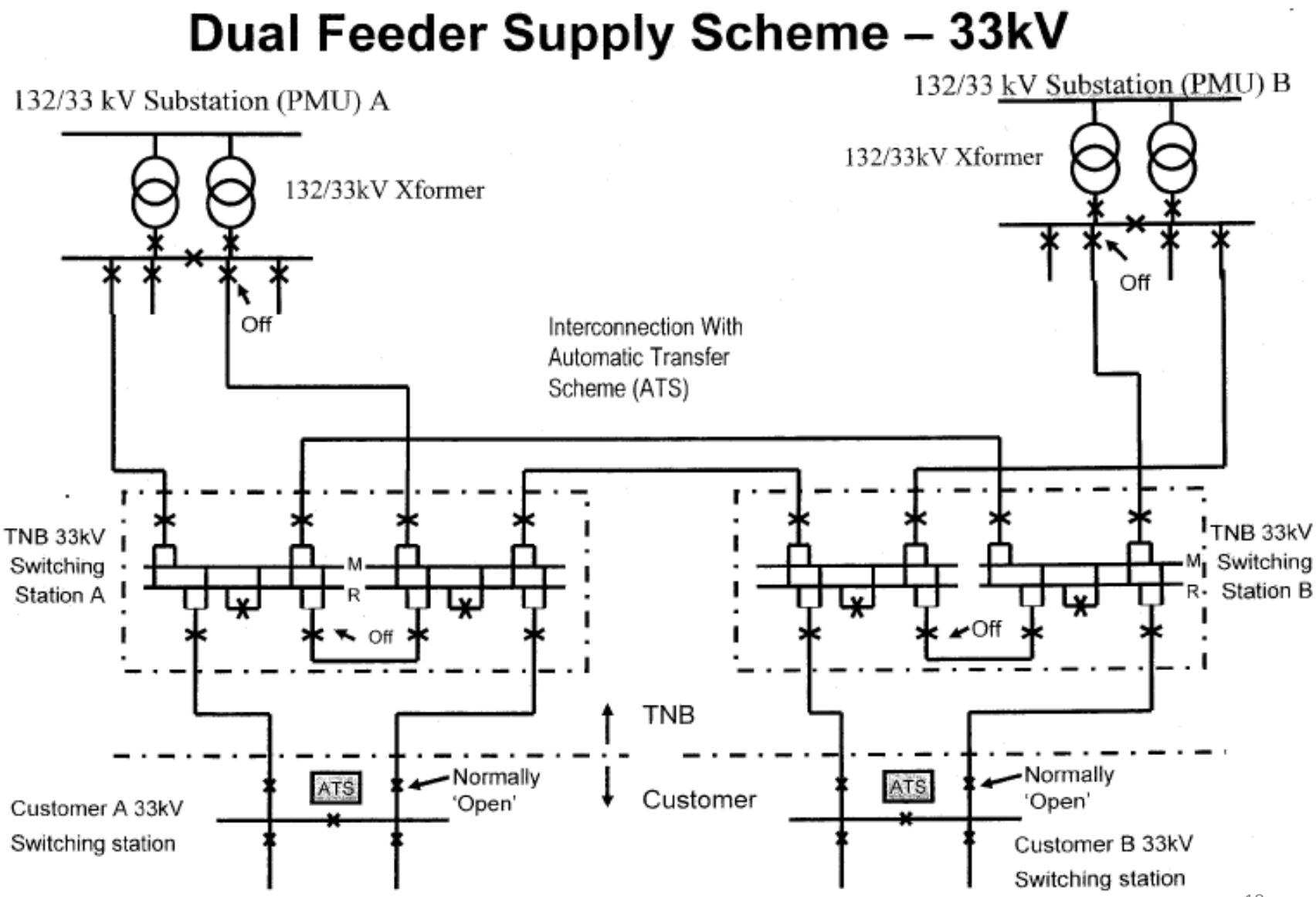


Normal Distribution Connectivity to consumers (33kV)

C. Distribution 33kV connectivity



D. MSC Status Connectivity to consumers (33kV)



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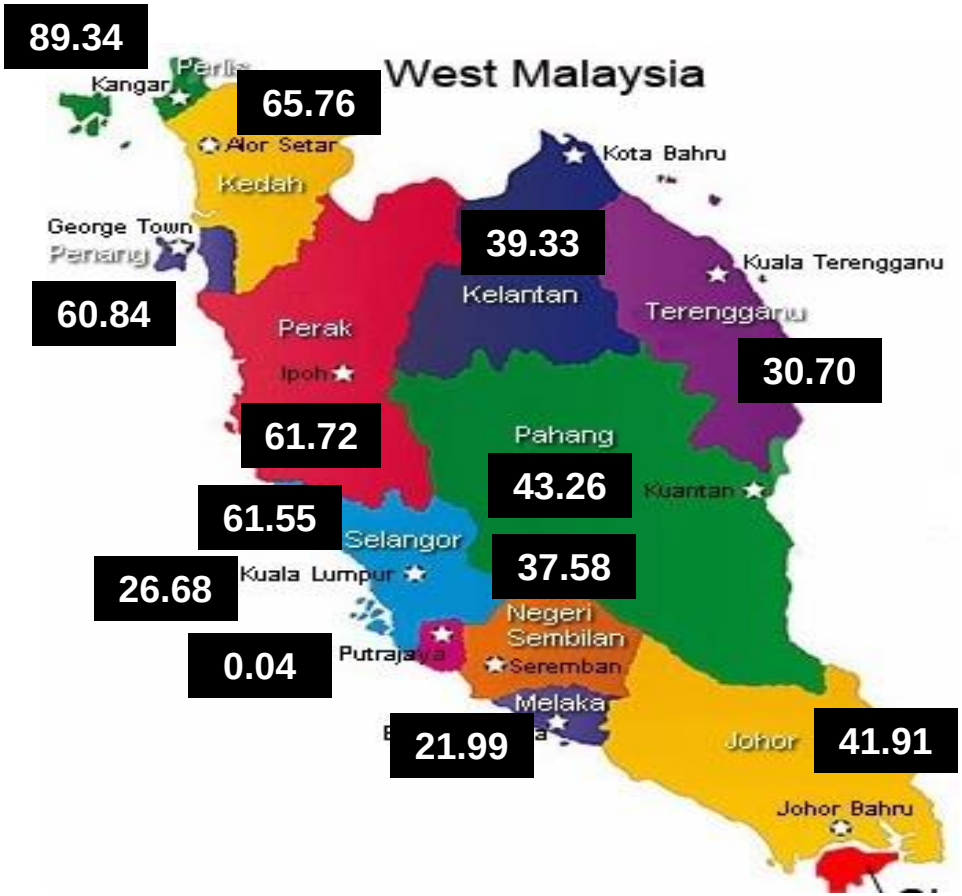
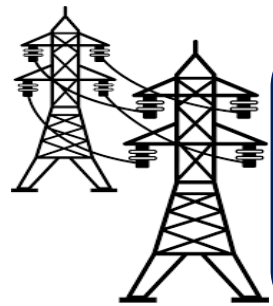
8.0 Distribution SAIDI all West Malaysia Year 2019



SAIDI For a Year 2019
48.13 Min/Cust/Yr



System For a Year 2019
0.27 Minute

***Unit for SAIDI is Minutes/cust/ Year**

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9.0 Tariff Offer

TARIFF CATEGORY Tariff E1 - MEDIUM VOLTAGE GENERAL INDUSTRIAL TARIFF	RATES
For each kilowatt of maximum demand per month	29.60 RM/kW
For all kWh	0.337 RM/kWh
The minimum monthly charge is RM600.00	
Tariff E2 - MEDIUM VOLTAGE PEAK/OFF-PEAK INDUSTRIAL TARIFF	
For each kilowatt of maximum demand per month during the peak period	37.00 RM/Kw
For all kWh during the peak period (08:00 to 22:00)	0.355 RM/kWh
For all kWh during the off-peak period (22:00 to 08:00)	0.219 RM/kWh
The minimum monthly charge is RM600.00	
Tariff E3 - HIGH VOLTAGE PEAK/OFF-PEAK INDUSTRIAL TARIFF	
For each kilowatt of maximum demand per month during the peak period	35.50 RM/kW
For all kWh during the peak period (08:00 to 22:00)	0.337 RM/kWh
For all kWh during the off-peak period (22:00 to 08:00)	0.202 RM/kWh
The minimum monthly charge is PMMC	

THANK YOU

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