Non-Metered Station Services – Application of Losses

RMSC – October 04, 2007

Non-Metered Station Services

As per **Market Manual 3.7 - Totalization Table Registration** the MSP must provide, when applicable, the station service factor in kW using IESO-FORM 1311 "Connection Facility Station Service – Not metered by a RWM".

This value is entered on IESO FORM 1310 "Totalization Table Form" for submission to IESO.

When processing IESO-FORM-1310 in MV-STAR, the IESO creates a virtual meter, with a constant, 5-minute interval value representing the station service factor.

The main assumptions used in the calculation are as follows:

- secondary estimated load is calculated as the sum of the rated value of all connected loads of the equipment in-use at the station, in kW;
- if the percentage usage of the estimated load cannot be determined, the default value to be used in the calculation must be 75%;
- the secondary estimated load is adjusted by 2% to obtain the primary load – this is an allowance for station service transformer losses;
- the value of the estimated load is rounded to the nearest kW.

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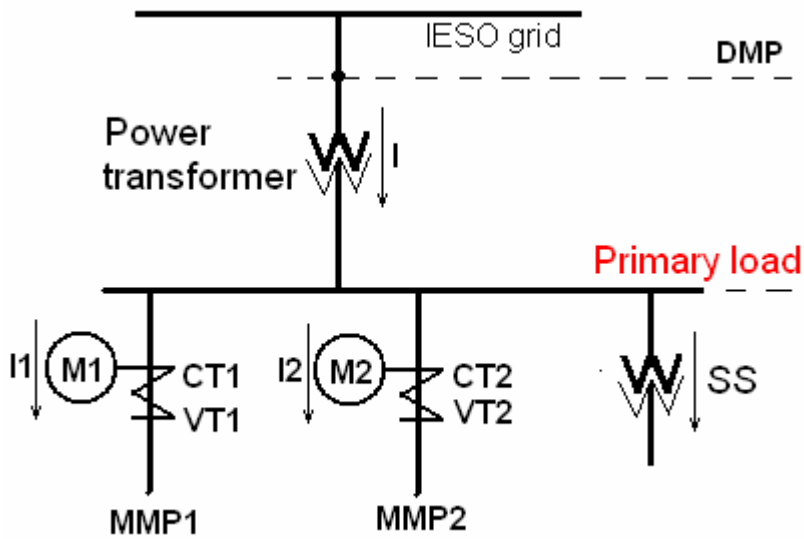
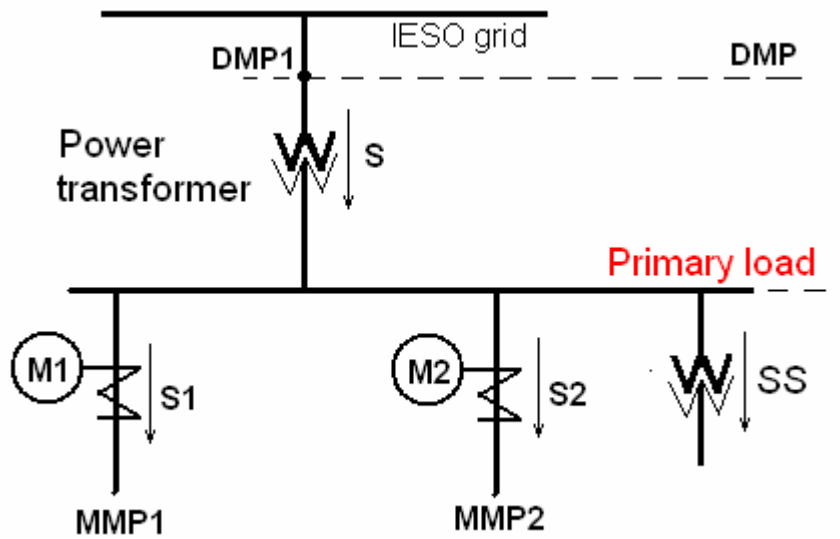
However, this adjusts the load to the high voltage side of the SS transformer only, see Primary Load below.
All metered energies plus the estimated SS must be still be adjusted up to DMP (radial line and transformer losses)





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The adjustment of the primary load to the DMP is done by applying an SSLA in MVStar.

- This is a quite complicate process for both sides:
  - The MSP has to apportion the SSLA for the apportioned SS into form 1310 - Totalization Table.
  - The IESO implements the Totalization Table in MV-STAR.

- In MVSTAR, the IESO creates a SS summary meter with only one channel kWh using a 20 virtual meter:
  - SSLA method 1 cannot be applied because there are no Volts or Currents channels.
  - SSLA method 2 cannot be applied directly to a SS summary meter (no VAR channel).

- There are two options:
  - To add a virtual VAR channel to the SS summary meter and apply the SSLA, or
  - Add the SS into an existing summary meter (having VAR channel) and apply the SSLA.

- These problems could be simplified if the MSP estimates the station service up to the DMP:
  - MSP provides form 1311 with the SS estimated up to the DMP.
  - The MSP will only apportion the SS into the Totalization Table – the SSLA is not needed.
  -The IESO adds the apportioned SS to each Delivery Point - without the SSLA.
  - This method provides flexibility to the MSP – they can use either method 1 or method 2.

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Proposal:
Market Manual 3.7 - Totalization Table Registration to be revised as follow:

2.3.1 Non-Metered Station Services
The *metering service provider* must provide, when applicable, the station service factor in kW. This factor is submitted using IMO-FORM-1311 "Connection Facility Station Service – Not metered by a RWM". (Chapter 9, Section 2.1A of the *market rules*) IMO-FORM-1311 must be stamped and signed by a registered professional engineer (Professional Engineers of Ontario (PEO)). This value is entered on IMO-FORM-1310 "Totalization Table Form" for submission to the *IESO*. When processing IMO-FORM-1310 in MV-STAR, the *IESO* creates a virtual meter, with a constant, 5-minute interval value representing the station service factor.

The main assumptions used in the calculation are as follows:

- secondary estimated load will be calculated as the sum of the rated value of all connected loads of the equipment in-use at the station, in kW;
- if the percentage usage of the estimated load cannot be determined, the default value to be considered in calculation must be 75%;
- **the Station Service load** will be calculated **up to the Define Meter Point (DMP)** as 2.0% higher than usage of the secondary estimated load;
- the value of the estimated load shall be rounded to the nearest kW.