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# Understanding profiles

Ron Beatty Principal Advisor

COMPETITION • RELIABILITY • EFFICIENCY

# PROFILE TYPES

- Profiling is a methodology
  - we have a guideline available at *http://www.ea.govt.nz/dmsdocument/19198*
  - used to synthesise NHH metered or unmetered volume information into HHR volume that can be used in the HHR market settlement process
  - the reconciliation manager requires a shape file for each profile

- The methodology requires two distinct steps
  - allocating meter register volumes into true months using seasonal adjustment shapes by calculating two different estimate types *(whiteboard)*
    - forward estimates
    - historic estimates
  - creating a shape file at the trading period level to represent the shape of the consumption of the profile

# PROFILE TYPES

- There are a number of profile types in use that can be arranged into two distinct groups
  - **standard profiles** that any participant can use
    - RPS, PV1, EG1, HHR, UML
    - do not require a shape file to be provided to the reconciliation manager for each NSP as the shape is either determined in the reconciliation process or provided by the Authority
  - **special profiles** that are individually owned and require market administrator approval.
    - NSP derived profiles
    - engineered profiles
    - statistically sampled profiles
    - subject to two yearly audit, and may be revoked by the market administrator
  - each unique profile has a 3 letter reference code allocated to it
  - Authority publishes some details on special profiles including the owner and the profile code at http://www.ea.govt.nz/dmsdocument/8563

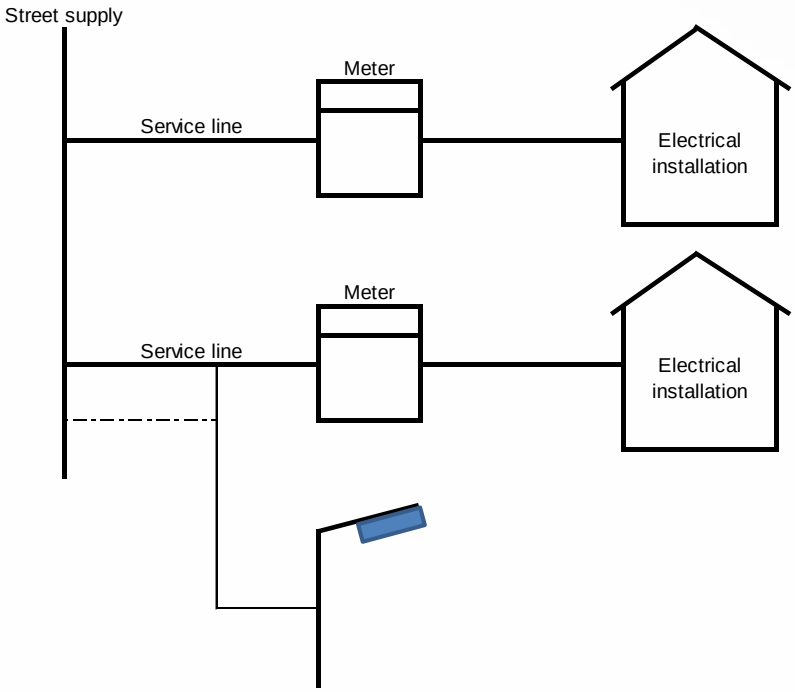
# APPROVED SPECIAL PROFILES

| Profile owner | Description | Metering installation characteristics | Profile class | Profile reference |
|---|---|---|---|---|
| | | | | |
| **Contact Energy** | Ripple Switched 11pm to 7am plus Ripple controlled boost | B & D | 1.2 | E11 |
| | Ripple Switched as variable times | B & D | 1.2 | E21 |
| | Ripple Switched as variable times. Switched portion calculated | B & D/E | 1.3 | E24 |
| | Ripple Switched 11pm to 7am | B & D | 1.1 | EO8 |
| | Ripple Switched Night plus Ripple controlled boost 5 hours | B & D | 1.2 | E13 |
| | | | | |
| **Body Corporate Power** | Half hour advanced metering | B, C,D & E | 2.4 | HHB |
| | | | | |
| **Ecotricity Limited** | Half hour advanced metering | B, C, D & E | 2.4 | HHA |
| | | | | |
| **Electrica Limited** | Half hour advanced metering | B, C, D & E | 2.4 | HNL |
| | | | | |
| **Electric Kiwi** | Pseudo Half Hour | B, C,D & E | 2.4 | HHZ |

# UNMETERED LOAD TYPES

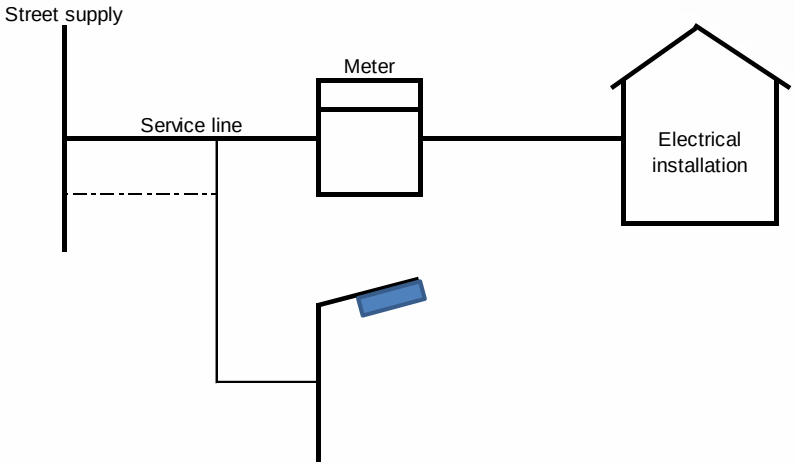
- There are 3 types of unmetered load noted in the Code as follows
  - **Shared unmetered load** where unmetered load is shared by a number of different points of connection for different consumers, eg private way lighting where there are 2 or more properties sharing the right of way
  - **Standard unmetered load** where unmetered load is connected within a consumers electrical installation, eg private way lighting where there is only 1 property sharing the right of way
  - **Distributed unmetered load** where the same type of unmetered load is connected via a number of different points of connection owned by the same consumer, eg streetlights, traffic lights, council watering facilities etc

# SHARED UNMETERED LOAD



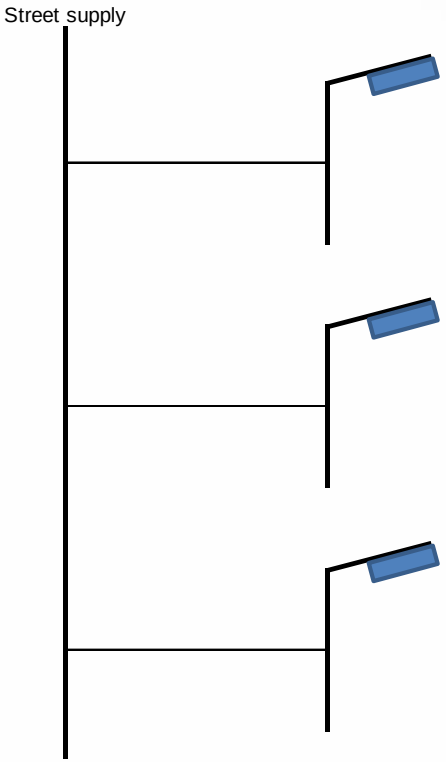

- 2 or more customers receives the benefit of unmetered electricity supply through a single point of connection to a network
- Distributor
  - provides an ICP identifier (SI) for the streetlight (non tradable)
  - advises traders of ICP identifiers that benefit of the kWh/day they must reconcile
  - must populate in the registry a list of beneficiary ICP identifiers
  - must populate the distributor UML field in the registry
- Trader
  - must populate the volume of electricity to be reconciled in the registry as kWh/day (mandatory) and the type and capacity of unmetered load
  - must include the unmetered electricity volume in its reconciliation manager submissions
  - allocate a profile to the load which may be RPS, UML, or a special profile for ICP identifier involved

# STANDARD UNMETERED LOAD




- Only 1 customer receives the benefit of unmetered electricity supply through a single point of connection to a network
- Point of connection may be solely unmetered or mixed metered and unmetered
- Distributor
  - must populate the distributor UML field in the registry if the distributor has information
- Trader
  - must populate the volume of electricity to be reconciled in the registry as kWh/day (mandatory) and the type and capacity of unmetered load
  - must include the unmetered electricity volume in its reconciliation manager submissions
  - allocate a profile to the load which may be RPS, UML, or a special profile for ICP identifier involved

# DISTRIBUTED UNMETERED LOAD (DUML)




- Only 1 customer receives the benefit of unmetered electricity supply through multiple points of connection to a network
- DUML is solely unmetered
- Distributor
  - must populate the distributor UML field in the registry if the distributor has information
  - must create a single ICP identifier for each customer for each load type for each GXP
- Trader
  - must ensure that a database of connections is maintained (DUML database – Clause 11 of Sch 15.3)
  - must populate the volume of electricity to be reconciled in the registry as “ENG” (mandatory)
  - must include the unmetered electricity volume in its reconciliation manager submissions
  - allocate a profile to the load which may be RPS, UML, or a special profile for ICP identifier involved

# DIMMING OR CONTROLLED DUML

- Distributed unmetered load should be reconciled with an engineered profile recognising variable start and end times on a daily basis
- Remote communicating ballasts for streetlights that measure and report electricity consumption are already available
- Streetlights may be reconciled using
  - engineered profile noted above but the benefit of dimming or light control may not be recognised, or
  - where remote reading electronic ballasts are installed, an engineered profile recognising a dynamic load profile where the benefit of for dimming or light control can be recognised

# PROPOSED METHOD FOR REMOTE READING ELECTRONIC STREETLIGHT BALLASTS

- The following is a proposal and will require Code amendments to be in place

1. The operator of the communicating dimming electronic ballasts system could become an MEP under the Electricity Industry Act 2010 (Act) and the Electricity Industry Participation Code 2010 (Code)
2. As ballasts are currently not self recognising, the DUML database concept will need to remain to ensure that all streetlights are accounted for
3. The MEP will need to
    a. integrate electricity data received from each communicating ballast into trading period information accurately, including the timing periods being synchronised as required in the Code for HHR metering installations
    b. all data received from each communicating ballast is complete and validated for errors such as missing periods from a ballast, high and low values etc and where appropriate estimates are made

# PROPOSED METHOD FOR REMOTE READING ELECTRONIC STREETLIGHT BALLASTS

4. An error compensation factor will need to be applied to the output data based on the test results of the electronic ballasts to correct the accuracy to that require in table 1 of schedule 10.1 for the equivalent capacity metering installation. This will require testing of a sample number of ballasts to determine the accuracy of measurement (the Code allows +/- 2.5%)

5. There will need to be a process to check the peak recorded capacity from the ballasts against the peak recorded DUML capacity

6. Reconciliation requirements

    a. the profile should be reconciled using an engineered NHH profile with 1 ICP per GXP for the communicating electronic dimming ballasts and 1 ICP per GXP for the other street lamps

    b. non half hour monthly volumes and profile shape files will need to be delivered as separate file sets to the reconciliation manager for the electronic communicating dimming ballasts per GXP and the other street lamps per GXP

    c. the shape file would be generated from the MEPs back office system as the aggregation of the consumption information from 3.b. above

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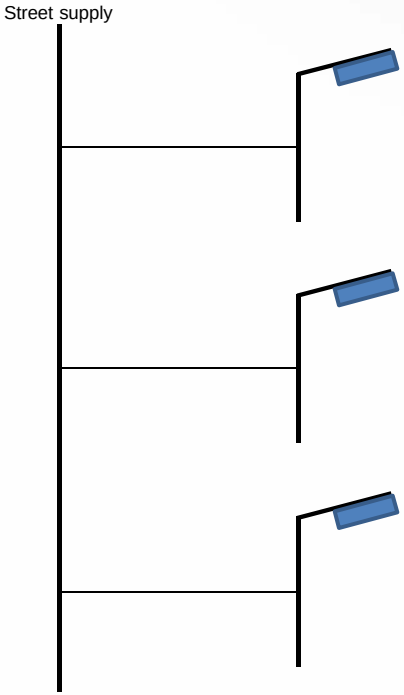

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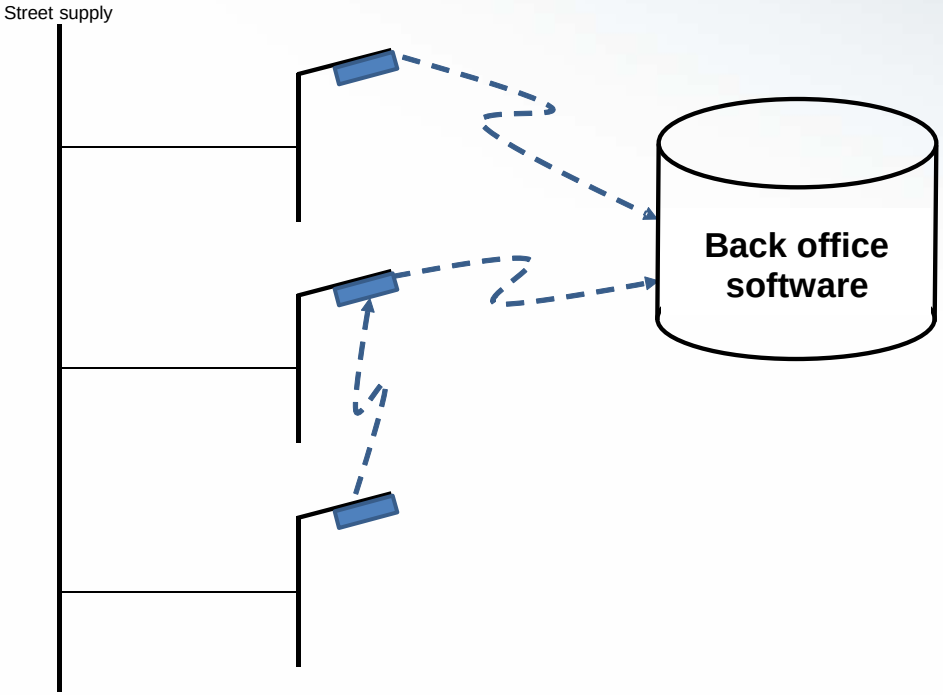

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