Guidelines on Unmetered Load Management

Version 2.1

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Version control

Version	Date amended	Comments
1.0	22 February 2008	Board approved guidelines.
2.0	26 November 2009	Updated into the Commission's new format. Updated to reflect amended Rules.
2.1	1 November 2010	Updated for transition to Electricity Authority and amendments to parts E and J of the rules.

Disclaimer

These **unmetered load** management guidelines (Guidelines) have been prepared by the Electricity Authority (**Authority**) for the purposes of assisting participants and others in interpreting and determining how participants might comply with the parts of the Electricity Industry Participation Code 2010 (**Code**) that relate to **unmetered load** management.

These Guidelines explain the relevant obligations and describe the expected processes and procedures for quantifying, and submitting for reconciliation, the quantity of **electricity** consumed at **ICPs** that have **unmetered load**.

The Guidelines do not form part of the Code. They are provided for general information only and not as legal advice. They do not establish any legal obligation themselves.

Bolded words within the text of these Guidelines refer to definitions in Part 1 of the Code. These Guidelines should be read in conjunction with the Code, the registry functional specification,[1] and the registry user manual.[2]

Although the **Authority** has taken every care in the preparation of the content of these Guidelines, the **Authority** offers no warranty (express or implied) as to the accuracy, completeness, or legality of that content. The **Authority** is not liable or responsible to any persons for direct or indirect loss or damage that may result from the action or failure to act by any person in reliance on the Guidelines.

The publishing of these Guidelines does not place any obligation on the **Authority** to follow any interpretation contained in them when carrying out any of its functions under the Electricity Industry Act 2010 or the Code.

1 http://www.ea.govt.nz/industry/market/registry-icps

2 The registry user manual can be downloaded from the registry.

Glossary of abbreviations and terms

Authority	Electricity Authority
Code	Electricity Industry Participation Code 2010
Guidelines	Unmetered load management guidelines

Definitions for bolded words can be found in Part 1 of the Code.

Contents

Purpose

1. These Guidelines have been prepared by the **Authority** to assist **participants** and others in interpreting and determining how **participants** might comply with certain obligations in Parts 1, 11 and 15 of the Code. Those obligations relate to the management of **unmetered load ICPs** and the submission of **unmetered load**[3] volume to the **reconciliation manager**.

2. The purpose of these Guidelines is to assist **participants** to manage **unmetered load**, and submit **unmetered load** volume to the **reconciliation manager** in compliance with the Code.

Introduction

3. Under normal circumstances, the quantity of **electricity** consumed at an **installation control point** (**ICP**) is determined for reconciliation by metering. However, it may be determined without metering in certain circumstances described in the Code. This is then **unmetered load**.

4. **Unmetered load** may be the only load at an **ICP** or may co-exist with metered loads at that **ICP**. Part 15 of the Code[4] requires each **reconciliation participant** to submit **submission information** to the **reconciliation manager** in relation to certain **NSPs**, and **points of connection**, and in respect of certain **consumption periods**. The **submission information** must include any **unmetered load**.[5]

5. The purpose of the clauses of the Code that relate to the quantification and reconciliation of **unmetered load** is to ensure that accurate and complete **reconciliation information** is provided (to the extent practicable).[6] These Guidelines explain the relevant clauses and describe the expected processes and procedures for quantifying, and submitting for reconciliation, the quantity of **electricity** consumed at **ICPs** that have **unmetered load**.

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[3] '**Unmetered load**' is defined in Part 1 of the Code as **electricity** consumed that is not directly recorded using a **meter**, but is calculated or estimated in accordance with the Code.

[4] Clause 15.4 of the Code requires each **reconciliation participant** to ensure that **submission information** is delivered to the **reconciliation manager** for all **network supply points** at which it has purchased or sold **electricity** for certain periods in accordance with Schedule 15.3 of the Code. Clause 15.5 of the Code provides that when preparing and submitting **submission information**, **reconciliation participants** must ensure that **volume information** for each **ICP** is allocated to the **network supply point** indicated by the data held by the **registry** for certain periods.

[5] Clause 2(c) of Schedule 15.3 of the Code.

[6] Clause 15.2 of the Code provides that each **participant** that has an obligation to deliver information to any person under Part 15 of the Code must take all practical steps to ensure that all information delivered is complete and accurate.

Reconciliation accuracy

6. Any **electricity** consumed (including **unmetered load**) that is not accurately submitted[7] for reconciliation directly affects the outcome of reconciliation and settlement for all **participants** trading at any relevant **network supply point (NSP).**

7. The quality of reconciliation will in part be determined by how well **electricity** at each **point of connection** for **unmetered load** is quantified and how accurately the **electricity** consumed by that load is determined.

8. When quantifying **unmetered load** in accordance with the Code,[8] actual consumption must be accurately determined. The **Authority** considers that it is not appropriate to simply rely on the manufacturer's nameplate capacity rating, which may over- or under-state the equipment's actual consumption. This will have a greater impact with more prevalent **unmetered loads**, such as street lighting, where the nameplate may (for example) indicate the wattage of the bulb but omit the quantity of **electricity** consumed by the ballast. The total load recorded on the **registry** is the total connected load, including any ancillary or control equipment in addition to the nameplate rating of devices.

9. The quantity of **electricity** (in kWh) consumed by an **unmetered load** over a particular time period is calculated by multiplying the load in kW by the length of time the load is consuming electricity (in hours). Reconciliation requires that the quantity of **electricity** consumed by each **point of connection** is determined and allocated as accurately as possible.

10. The **Authority** intends to publish on its website an information table indicating **unmetered load** consumption for common **unmetered load** types. Use of the methodologies described in these Guidelines will assist in ensuring consistent calculation and submission of reconciliation information by all **participants** (although there is no legal requirement to do so and **participants** do so at their own risk). The **Authority** intends to update the table from time to time as technology and methods evolve.

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7 In accordance with clause 15.2 of the Code – see footnote 6 above.

8 Clause 2(c) of Schedule 15.3 of the Code .

Profiling for unmetered loads

11. The total consumption of an **unmetered load** is determined over 1-month **reconciliation periods**.[9] The total consumption value in kWh and a **profile**[10] code are provided to the **reconciliation manager** within the reconciliation **participant's submission information**.[11] The **profile** code tells the **reconciliation manager** the **profile** shape. The **reconciliation manager** must calculate the **trading period** information by applying the **profile** shape[12] specified in the submission file (provided certain conditions are met).

12. The **profile** shape applied by the **reconciliation manager** must be a residual profile shape (if a **balancing area** shape is required as part of the **profile**)[13], or a **participant** may elect to create a **profile** and obtain the **market administrator's** approval to use a shape to be used for synthesising this **trading period** information. Further information on creating and seeking approval for new **profiles** is set out in Schedule 15.5 of the Code.

13. Profiling **unmetered load** can be illustrated by considering the example of 200kWh of **unmetered electricity** consumed by street lights that operate from 5:30pm (**trading period** 36) to 5:30am (**trading period** 11) in a 24-hour period.

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[9] A **reconciliation period** is defined in clause 1.1 of the Code as a calendar month, subsequent to a **consumption period**, during which the reconciliation process is performed in respect of the **electricity** conveyed during one or more **consumption periods**.

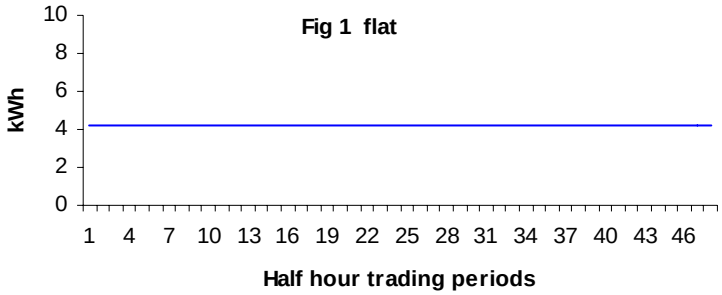
[10] A **profile** is defined in clause 1.1 of the Code as a fixed or variable **electricity consumption pattern** assigned to a particular group of **meter** registers or **unmetered loads**. Clause 8 of Schedule 15.3 of the Code requires that **submission information** be provided by **reconciliation participants** to the **reconciliation manager**, aggregated to various levels, including the **profile** (clause 8(c) of Schedule 15.3 of the Code).

[11] Refer to the later section of these Guidelines entitled "Submissions to the **reconciliation manager**".

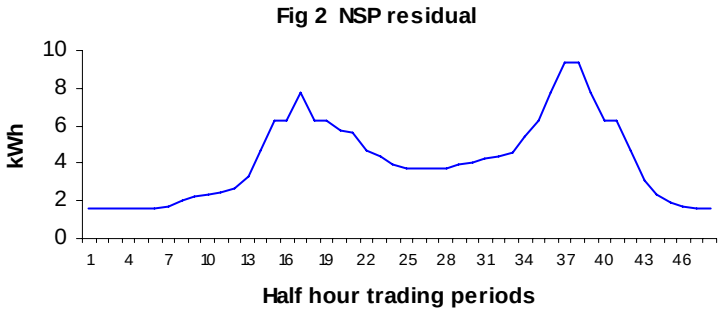
[12] Clause 12 of Schedule 15.4 of the Code requires that the **reconciliation manager** must calculate the **trading period** information by applying the **profile** shape for the **profile** code specified in the submission file provided by the **reconciliation participant**, in certain circumstances.

[13] Clause 12(c) of Schedule 15.4 of the Code

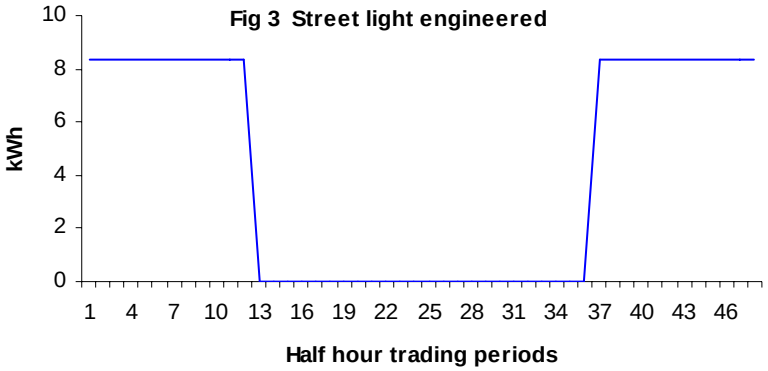
14. Figure 1 illustrates the allocation of the **electricity** consumed by this load to a flat **profile** where a constant 4kWh per **trading period** is allocated to each **half hour**. This allocation does not accurately represent either the load or the **trading periods** in which the **electricity** was consumed by the street lights. Significant errors are introduced by allocating this load to a flat **profile**.



15. Larger errors would occur if this consumption was allocated to an **NSP** residual **profile** as shown in Figure 2, in which case even more of the **electricity** would be erroneously allocated to daytime **half hours**.



16. Figure 3 illustrates use of the correct **profile** for the street light load, and shows that a constant 8kWh per trading period was consumed only during the **half hours** the lights were turned on.



17. When applying this **profile**, the on and off times of the load are recorded and reported to the **reconciliation manager** (as described later in these Guidelines).

18. Street lighting represents approximately 1% of all **electricity** traded in New Zealand. If half this quantity is incorrectly allocated to daytime **trading periods**, the accuracy of settlement is lessened. Not only is the street light consumption inaccurately allocated but the errors distort the **NSP** residual **profile** and may displace other consumption that occurred at that time.

19. **Unmetered loads** that are constant and operate for 24 hours per day, such as traffic lights and cell phone transmitters, may have a flat **profile** applied to them, as illustrated in Figure 1. (Note that these loads could also be submitted to a **NSP** residual **profile**.)

20. **Unmetered loads** that are operated intermittently such as right of way lights, and water and sewer pumps, must be assigned to each **ICP** to which the **unmetered load** is connected and must use either the final residual **profile** (**profile class** 1.5),[14] or could be the subject of a custom **profile** developed and approved in accordance with the Code. The **reconciliation manager** is required to calculate the residual **profile** shapes during the reconciliation process.[15]

[14] Clause 6 of Appendix 1 of Schedule 15.5 of the Code. Clause 6provides that typical **unmetered loads** in this classification include sewer pumps. The **Authority** considers that this **profile class** may also be suited to right of way lights and water and sewer pumps.

[15] Clause 9 of Schedule 15.4 of the Code.

Profiles provided

21. **Profile** class[16] 1.5 (**unmetered loads**) is an **NSP** residual **profile**,[17] the shape of which is applied by the **reconciliation manager**.[18] This **profile** has the shape illustrated in Figure 2 above, and is suitable for **unmetered loads** where the consumption varies. It may also be used where loads that are not constant operate for unpredictable periods.

22. Profile class 1.7 (differenced loads)[19] is available for unmetered consumption calculated by differencing by the **reconciliation manager** during the reconciliation process. This is the residual volume or difference load calculated for an **embedded network**.[20]

23. If **reconciliation participants** want to use another **profile** for the settlement of **unmetered load**, then a new **profile** can be created based on a process of statistical sampling carried out in accordance with the appendices to Schedule 15.5 of the Code, or derived using recognised engineering principles, or derived from **NSP profiles**.[21] A **reconciliation participant** who wishes to reconcile its **ICP identifiers** using an existing **profile** must first gain the approval of the **profile owner**.[22]

24. Examples of **profiles** that may, in some circumstances, be created by **participants** in accordance with the Code, include a flat **profile** for constant loads, such as traffic lights and parking meters, and an engineered **profile** for street lights where the **profile** shape is determined by on and off times for the load. The on and off times or a shape file are submitted to the **reconciliation manager** by the responsible **reconciliation participant** along with the monthly consumption of the load.[23]

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16 **Profile** classes are described in Schedule 15.5 of the Code.

17 Clause 6 of Appendix 1 of Schedule 15.5 of the Code. Clause 6 - Typical **unmetered loads** in this classification include, but are not limited to, under veranda lighting, electric fences, sewer pumps, advertising hoardings, public conveniences, supply to construction sites, electric parking meters, and public water fountains. For these types of **unmetered load**, a fixed annual kWh quantity must be assigned to each **ICP** and must be applied according to the final 24 hour NSP residual **profile**.

18 Clauses 10 to 12 of Schedule 15.4 of the Code .

19 Clause 7 of Appendix 1 of Schedule 15.5 of the Code.

20 The **profile** class for differenced load is set out in clause 7 of Appendix 1 of Schedule 15.5 of the Code. . This **profile** class represents the result of subtractive processes performed by the **reconciliation manager** to form differenced load. See the "Revised Guidelines for Metering, Reconciliation and Registry Arrangements for Secondary Networks – Discussion Paper" (dated December 2007) available on the **Authority's** website. See also clause 3 of Schedule 15.4 of the Code .

21 Clauses 25 to 34 of Schedule 15.5 of the Code..

22 Clause 32 of Schedule 15.5 of the Code.

23 Clause 11 of Schedule 15.4 of the Code provides that if an engineered, statistically sampled or recorded **profile** forms part of the **submission information**, the shape file associated with that **profile** must be provided to the **reconciliation manager** by the **reconciliation participant** authorised by the **profile owner** to use that **profile** for each relevant **NSP** in respect of the prior **consumption period** in accordance with clauses 15.4 to 15.12 of the Code . See also clause 3 of Schedule 15.5 of the Code.

Size limit of unmetered load

25. The Code[24] requires that, if the quantity of **electricity** conveyed at a single **point of connection** to a **network** is not determined using a **metering installation**, the amount of **electricity** conveyed must not exceed 3,000 kWh per annum.

26. The actual load that can be connected as **unmetered load** therefore depends on the annual operating hours for the load. If the load operates continuously, the connected load may not exceed 342 watts. If the load operates for 8 hours per day, the connected load may not exceed 1kW.

Management of unmetered load ICPs

27. There are three types of **unmetered load**: standard **unmetered load**, and two special types (**shared unmetered load** and **distributed unmetered load**), each having specific management requirements.

General requirements

28. General requirements of **unmetered load ICPs** include the following:

    (a) The **registry** is the **unmetered load** database**.**[25] Parts 11 and 15 of the Code require **participants** to maintain records within the registry[26] and, in the case of **distributed unmetered load**, within an external database.[27]

    (b) A **distributor** may require a person applying for connection to the **distributor's network** to supply details on the type and capacity (in kW) of any proposed associated **unmetered load**.[28]

    (c) **Distributors** must notify the **registry** of any information they have concerning the type and capacity of **unmetered load** associated with an **ICP**, of which the **distributor** becomes aware, by updating the appropriate fields.[29]

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[24] Clause 10.3(b) of the Code .

[26] **Traders** are required to do this in relation to **unmetered load** by clause 11.7 and clause 9(1)(g) of Schedule 11.1 of the Code.

[27] **Retailers** must do this under clause 11 of Schedule 15.3 of the Code.

[28] This is to be the kW as consumed by the load, not the kW capacity the connection is able to deliver.

Clause 11.7 and clause 7(1)(m) of Schedule 11.1 of Part 11.

(d) **Traders** are required to maintain details on the **registry** of the average daily unmetered kWh consumption or the **profile** code (in the case of an engineered **profile**) of all **unmetered load** at each **ICP** if a metering type of "UNM" is assigned to the relevant **ICP**,[30] in a 6-character field.[31] To achieve this, the **Authority** expects that **traders** will review the information in both the **distributor** and **trader unmetered load** detail fields. The **registry** also contains a 50-character field for each **ICP** in which **traders** must enter **unmetered load** details.

(e) When **traders** place **unmetered load** records into the **registry** that represent either standard or **shared unmetered load**, the **meter** type "UNM" should be selected.[32]

(f) When **traders** place **unmetered load** records into the **registry** that will be settled as **distributed unmetered load**, the meter type "UNM" should be selected,[33] and the 6-character field for daily unmetered kWh entered as "ENG".[34]

(g) All **unmetered load** consumption must be submitted to the **reconciliation manager** by the **reconciliation participant** that has responsibility for the settlement of the **electricity** volumes for that **ICP**.[35]

Standard unmetered load

29. Standard **unmetered load** is **unmetered load** at a single **point of connection** that is distributed across only one **ICP**, and that benefits only that one **point of connection**. The general requirements stated above apply.

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30 Clause 9 of Schedule 11.1 of the Code requires that each **trader** must ensure that, in relation to each **ICP** at which the **trader** trades **electricity**, certain information is provided to the **registry** within five **business days** of commencement of trading of **electricity** at that **ICP**. Clause 9(1)(f) of Schedule 11.1 of the Code requires the **trader** to provide the daily average unmetered kWh information to the **registry** (or in the case of a load profiled through an engineering **profile** in accordance with **profile class** 2.1, the code ENG**)**.

31 See the **registry** functional specification RM-020.

32 Clause 9(1)(e) of Schedule 11.1 of the Code requires **traders** to provide and maintain **registry** information about the type of **metering installation** assigned to an **ICP**. For use of the meter type "UNM", refer to maintenance of meter type in the **registry** manual.

33 Refer to maintenance of meter type in the **registry** user manual.

34 Clause 9(1)(f)(i) of Schedule 11.1 of the Code requires that the code ENG be entered where the load is profiled through an engineering **profile**, in accordance with **profile class** 2.1.

35 Clause 2 of Schedule 15.3 of the Code provides that **unmetered load** quantities for each **ICP** that has **unmetered load** associated with it must be included in the **submission information** that each **reconciliation participant** must submit.

30. The 3,000 kWh annual limit on **electricity** conveyed at a single **point of connection** that is not quantified using a **metering installation**, applies to each **point of connection** to the **network**.[36] This means that a load that draws more than 3,000 kWh of **electricity** each year must have a **metering installation** in accordance with the Code.

Shared unmetered load

31. In relation to shared **unmetered load**, the following requirements apply in addition to those set out above:

    (a) **Shared unmetered load** is **unmetered load** at a single **point of connection** that is distributed across more than 1 **ICP**.[37] That is, the benefits of the **unmetered load** are shared across more than **ICP**. A typical example is private street lighting located in a private right of way where the **consumers** in the right of way share the **electricity** volumes for the street light(s).

    (b) The 3,000 kWh annual limit on **unmetered load** applies to each **point of connection** to the **network**.[38] A typical street light is individually connected to a **network** and consumes less than 1,000 kWh per year.

    (c) **Shared unmetered load** is identified by an **ICP** that has "**distributor**" status[39] with the **registry reconciliation type** field indicating type SI.[40] This type of **ICP** is only maintainable by **distributors**, is not **traded** by **traders** (**volume information** is not submitted to the **reconciliation manager**)**,** and cannot be switched.[41]

    (d) Each **ICP** with the **reconciliation type** SI will have the **registry** field "shared **ICP** list" populated with a list of **ICPs**.[42] The volume consumed at the **reconciliation type** SI **ICP** is shared equally between and submitted against each of the **ICPs** on the shared **ICP** list.[43] If multiple **unmetered loads** contribute to the

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[36] Clause 10.3(b) of the Code provides that where the quantity of **electricity** conveyed at a single **point of connection** is not quantified using a **metering installation**, the amount of **electricity** conveyed per annum must not exceed 3,000 kWh.

[37] Clause 1.1 of the Code.

[38] Clause 10.3(b) of the Code.

[39] Clause 16 of Schedule 11.1 of the Code provides that the **ICP** status of "Distributor" must be managed by the relevant **distributor** and indicates that the **ICP** record represents a **shared unmetered load** installation or the **point of connection** between an **embedded network** and its **parent network**. A **trader** cannot change the status of an **ICP** record with a status of "Distributor".

[40] Refer to the **registry** user manual.

[41] See footnote 40 above.

[42] Clause 7(1)(n) of Schedule 11.1 of the Code provides that if **shared unmetered load** is associated with an **ICP**, the **distributor** must provide and maintain on the **registry**, a list of the **ICP** identifiers of the **ICPs** that are associated with the **unmetered load**.

[43] See paragraph 3 1(f) below.

consumption identified at the **reconciliation type** SI ICP, **traders must aggregate** the consumption to the applicable benefiting **ICPs** identified by the shared **ICP** list.

(e) If a connection is on the "shared **ICP** list" and receives a portion of the **electricity** volume for a type SI connection, **distributors** must insert into the "shared **ICP** list" field, as set out later in these Guidelines, the **ICP identifiers** for the **ICPs** across which the load is shared.[44]

(f) **Traders** must ensure that the **unmetered load** is shared equally across each **ICP** for which the **trader** is responsible that is in the shared **ICP** list.[45]

32. Further requirements for managing **shared unmetered load** include:

(a) **Distributors** must follow the process set out in clause 11.14 of the Code if **shared unmetered load** is connected to the **distributor's network**, including the requirement to notify the **registry** and each **trader** responsible for the **ICPs,** of the **ICP identifiers** of the **ICPs**;[46]

(b) **Distributors** are responsible for creating a non-tradable **distributor**-only **ICP** on the **registry** for the **shared unmetered load**. [47] The **ICP** will have the **reconciliation typ**e of SI and the load and type of load in kW should be provided;

(c) **Traders** are responsible for determining the daily average **unmetered load** in kWh at the **ICP** (unless the load is **profiled** through an engineering **profile**), and the **profile** associated with the **ICP**;[48]

(d) The **trader** with responsibility for an **ICP** across which **unmetered load** is shared must notify the relevant **distributor** if the **trader** wishes to add an **ICP** to or omit an **ICP** from the **ICPs** across which the **unmetered load** is being shared. The **distributor** must notify the **registry** each **trader** responsible for the **ICPs** of the addition or omission;[49]

(e) If a **distributor** becomes aware of a change to the capacity of an **ICP** across which the **unmetered load** is shared, or that an **ICP** across which the

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[44] Clause 7(1)(n) of Schedule 11.1 of the Code provides that if **shared unmetered load** is associated with an **ICP**, the **distributor** must provide and maintain a list of the **ICP** identifiers of the **ICPs** that are associated with the **unmetered load**.

[45] Clause 11.14(6) of the Code requires that each **trader** to, as soon as practicable, after receiving notice from a **distributor** adjust the **unmetered load** information for each **ICP** for which it is responsible so that the **unmetered load** is shared equally across the **ICPs**.

[46] Clause 11.14(2) of the Code.

[47] Clause 16 of Schedule 11.1 of the Code.

[48] Clauses 9(1)(b) and (f)(ii) of Schedule 11.1 of the Code.

[49] Clauses 11.14(3) and (4) of the Code.

unmetered load is shared is decommissioned, the **distributor** must notify all affected **traders** of the change as soon as practicable;[50]

(f) **Traders** should ensure that **volume information** is submitted for reconciliation. There are to be no reconciliation submissions for **a distributor**-only **ICP** across which **unmetered load** is shared;[51]

(g) A **trader** must take responsibility for **shared unmetered load** assigned to an **ICP** for which it becomes responsible as a result of a switch in accordance with Part 11 of the Code;[52]

(h) A **trader** can change the status of an **ICP** across which **unmetered load** is shared to inactive without having to notify the relevant **distributor** of the change. In that case, the amount of **electricity** attributable to the **ICP** becomes **UFE**;[53]

(i) A **trader** must not relinquish responsibility for **shared unmetered load** assigned to an **ICP** if there would then be no **ICPs** left across which the load could be shared.[54]

Distributed unmetered load

33. In relation to **distributed unmetered load**, the following requirements apply in addition to the general requirements set out above:

(a) **Distributed unmetered load** is **unmetered load** with a single **profile** supplied to a single customer across more than one **point of connection**.[55] **Distributed unmetered load** must therefore be allocated to one customer, be one load type, and be reconciled under one **profile**. Typical examples of **distributed unmetered load** are street lights and traffic lights.

(b) The 3,000 kWh annual limit on **unmetered load**[56] applies to each **point of connection** to the **network** and not to the aggregated value of **distributed unmetered load**. A typical street light is individually connected to a **network** and consumes less than 1000 kWh per year.

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50 Clause 11.14(5) of the Code.

51 There is no **trader** attached to an **ICP** record that has a status of "**distributor**" (under clause 16 of Schedule 11.1 of the Code), therefore no **trader** should reconcile the **ICP**.

52 Clause 11.14(7) of the Code.

53 Clause 11.14(9) of the Code.

54 Clause 11.14(8) of the Code.

55 Clause 1.1 of the Code.

56 Clause 10.3(b) of the Code provides that where the quantity of **electricity** conveyed at a single **point of connection** is not quantified using a **metering installation** the amount of **electricity** conveyed per annum must not exceed 3,000 kWh.

34. Further requirements for managing **distributed unmetered load** include:[57]

    (a) Each **retailer** must ensure that an up-to-date database is maintained for each type of **distributed unmetered load** for which it is responsible.[58] The **Authority** expects that **retailers** may contract this function to a service provider, or through commercial contracts may require the customer to maintain and operate the **distributed unmetered load** database. The **Authority** emphasises that the **retailer** remains responsible for the database regardless of how the database is maintained and operated. The database will be audited as part of the **retailer's** annual **audit**.[59]

    (b) The **distributed unmetered load** database must contain at least the **ICP identifier** associated with the **distributed unmetered load**, the location of each item of load, a description of each load type for each item of load (including any assumptions made in the assessment of its capacity), and the capacity of each item of load in kW (including any ancillary or control equipment).[60] The **Authority** considers that typical load types may include street lights, traffic lights, etc.

    (c) The database must track the time of additions and changes in a way that enables the total load in kW to be retrospectively derived for any day.[61]

    (d) The database must incorporate an **audit** trail of all additions and changes identifying the before and after values for changes, the date and time of the change or addition, and the person making the change or addition.[62]

Registry fields and unmetered load

35. In order to improve the accuracy of reconciliation, some additional **registry** fields were created in April 2008 to facilitate the identification of **unmetered load** when an **ICP** is switched. Some relevant information can only practically be identified by **distributors**, which has resulted in increased obligations on **distributors**.[63] **Traders** should ensure they have procedures in place to check the additional **registry** fields when switching an **ICP** to ensure **unmetered load volume** is submitted following each switch of an **ICP**.[64]

36. The **distributor**-only **registry** fields discussed in the following paragraphs are relevant to the management of **unmetered load**.

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[57] Clause 11 of Schedule 15.3 of the Code sets out the requirements for the **distributed unmetered load** database.

[58] Clause 11(1) of Schedule 15.3 of the Code.

[59] Clause 11(5) of Schedule 15.3 of the Code.

[60] Clause 11(2) of Schedule 15.3 of the Code.

[61] Clause 11(3) of Schedule 15.3 of the Code. The **Authority** considers that, by definition, such load must be the total connected load and include any associated ancillary and control equipment.

[62] Clause 11(4) of Schedule 15.3 of the Code.

[63] Clause 7(1)(j) and (m) of Schedule 11.1 of the Code.

[64] **Unmetered load** quantities must be submitted under Clause 2(c) of Schedule 15.3 of the Code.

37. ***Reconciliation type***:[65] This field is populated by the **distributor**. It has a two-character code [66] indicating how the **ICP** consumption is to be reconciled. For unmetered **ICPs** with all or part of their consumption determined from **unmetered load**, the **reconciliation type** will generally be either GN or EN.[67]

38. If the **unmetered load** is a **shared unmetered load**, the **reconciliation type** will be SI (**shared unmetered**), which indicates a **distributor**-only **ICP** that is not billed by a **trader**. The Code requires that certain **points of connection** have an **ICP identifier**.[68] A **ICP** with the **reconciliation type** SI should be dedicated entirely to the **shared unmetered load**, i.e. there may not be another **ICP** located at that **point of connection**.[69]

39. An **ICP** of **reconciliation type** SI should have the **registry** field "shared **ICP** list" populated.

40. *Shared **ICP** list*:[70] This field is maintained by **distributors** and is a list of the **ICP** identifiers across which the **unmetered load** is shared. The **Authority** suggests that **distributors** create a cross-reference for **registry** users, so that for each **ICP** that appears on a shared **ICP** list, the **distributor** text field of that **ICP** is populated with the **ICP** number of the associated SI **ICP**(s).

41. The **trader** must advise the **distributor** if the **trader** wishes to add an **ICP** or omit an **ICP** from the **ICPs** across which **unmetered load** is shared.[71]

42. In the table below, the **ICP** 123689RN1B7 is a **distributor**-only ICP of **reconciliation type** SI. The consumption volume will be spread by the **trader** evenly amongst the 8 listed **ICPs**.

ICP identifier	Type		Shared ICP list field	Type
0000123689RN1B7	SI		0000556902RNA6F	GN
			0000358892RN137	GN
			0000784599RN1B8	GN

[65] Clause 7(1)(d) of Schedule 11.1 of the Code provides that the **reconciliation type** code assigned to an **ICP** is one piece of information that **distributors** must provide to, and maintain on, the **registry**.

[66] Refer to the **registry** user manual.

[67] Refer to the **registry** user manual.

[68] Clause 11.3 of the Code.

[69] Clause 11.3 of the Code.

[70] Clause 7(1)(n) of Schedule 11.1 of the Code provides that **distributors** must provide and maintain on the **registry**, if a **shared unmetered load** is associated with the **ICP**, a list of the **ICP** identifiers of the **ICPs** that are associated with the **unmetered load**.

[71] Clause 11.14(2) of the Code.

ICP identifier	Type		Shared ICP list field	Type
			0000112976RN8E4	GN
			0000983652RN5B6	GN
			0000859932RN886	GN
			0000679934RN8E5	GN
			0000129965RNA66	GN

43. The table below illustrates the type GN **ICP** 556902RNA6F being referred back to the source of the **unmetered load** volume by the entry of **ICP** 123689RN1B7 in its shared **ICP** list field.

ICP identifier	Type		Shared ICP list field	Type
0000556902RNA6F	GN		0000123689RN1B7	SI

44. ***Unmetered load*** *details field:* There are two text fields in the **registry**, one for **distributors**, and one for **traders**. The 50-character **distributor** text field is for **distributors**[72] to notify **retailers** of **unmetered load** details, and the 50-character **retailer** text field is for **traders**[73] to record and maintain **unmetered load** details that are to be used in settlement. If the connection is to be reconciled using a fixed daily kWh consumption figure, the **distributor** should identify in this field the kW consumption of the load when it is operating and the daily hours of operation.[74] This field should not be confused with the **registry** field "**chargeable capacity**",[75] which is used by the **distributor** to indicate to the **retailer** any distribution capacity charges applicable to an **ICP**.[76]

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[72] For **distributors**, the relevant clause of the Code is clause 11.7(1), which provides that each **distributor** must provide information about **ICPs** in its **network** to the **registry** in accordance with Schedule 11.1 of the Code. That information includes **unmetered load** details (being the type and capacity in kW of the **unmetered load**) under clause 7(1)(m) of Schedule 11.1 of the Code. If the information changes, clause 8 of Schedule 11.1 requires the **distributor** to notify the **registry** of the change, usually within 3 **business days** after the change takes effect.

[73] For **traders**, the relevant clause of the Code is clause 11.7(2), which provides that each **trader** must provide information about each **ICP** at which the **trader** trades **electricity** to the **registry** in accordance with Schedule 11.1 of the Code. If the information changes, clause 10 of Schedule 11.1 requires that the t**rader** notify the **registry** of the change within 5 **business days** after the change.

[74] Clause 7(1)(m) of Schedule 11.1 of the Code. The **Authority** recommends that consumption information and the hours of operation form part of the information included on the **registry**.

[75] **Chargeable capacity** is defined in clause 1.1 of the Code as the capacity that the **distributor** may charge for, but which **may** not be the actual installed capacity at the relevant **ICP**.

[76] Clause 7(1)(h) of Schedule 11.1 of the Code.

45. The **Authority's** recommended methodology for populating the **unmetered load** details field is set out below:

(a) A standard method of populating this field is suggested by the **Authority** so that computer systems can extract crucial information. The first part of the string is delimited, and should contain the connected capacity and the hours of operation, and the remainder is available as free-form text.

The field definitions are:

Information	**Format**
Connected load	Watts, 4 digits, zero decimal places. Eg 1565
Semi colon separator	;
Running hours per day	Hours to 2 digits, and decimal hours to 1 decimal place Eg 02.5 (ie two and one half hours)
Semi colon separator	;
Other text	Free form as required

Example strings:

- 0110;10.5; Street light corner Rons Rd and Beatty St

  This is a 110 watt connected capacity street light that runs for 10.5 hours per day.

- 1525;01.0; Sewage pump outside 76 Guthries Rd

  This is a 1525 watt connected capacity sewage pump that runs for 1 hour per day.

(b) This field can be populated when the **ICP** is created (refer to the **registry** functional specification, DC-010) or can be maintained (refer to the **registry** functional specification, DM-020).

(c) This field must be accurately maintained by the relevant **trade**r,[77] as the **trader** will use the kW consumption of the load along with other information to determine the daily **unmetered** kWh consumed at the **ICP**.

[77] Clause 10 of Schedule 11.1 of the Code requires **traders** to keep certain information referred to in clause 9 of Schedule 11.1 of the Code up to date, including **unmetered load** details.

46. The following **trader**-only **registry** fields are relevant to the management of **unmetered load**:

    (a) *Daily unmetered kWh*:[78] This field records the daily average kWh of **unmetered load** at an **ICP**. Alternatively, if the load is profiled through an engineering profile in accordance with **profile** class 2.1, the field contains the code must be ENG. The kWh consumed and the **profile** to be applied must be submitted by the **trader** to the **reconciliation manager** (as described later in these Guidelines).

    (b) ***Metering installation*** category:[79] This field sets out the highest category of **metering installation** applicable to the **ICP** (as defined in Code of Practice 10.1 of Schedule 10.1 of the Code). If the **ICP** has no **metering installation**, the category must be "0".

    (c) *Metering type*:[80] This field identifies **the** type of **metering installation** at the **ICP**. Four **trader**-entered fields are used to indicate the type of metering at the site, or the manner in which r**econciliation information** is provided for the site. There may be more than one type of metering. If **unmetered load** is present at the site, the metering type UNM field will indicate Y.[81]

    Note: In the case of **unmetered load**, the HHR **meter** or **profile** field is indicative of the type of equipment present at the site or the manner in which **reconciliation information** is provided, and does not explicitly indicate the presence of a **half hour meter**. For example, **unmetered load** may be profiled by the **trader** under an exemption from the Code and submitted for reconciliation as **half hour** information. In that case, both the UNM and HHR fields would be ticked even though no **half hour meter** is present at the site.

    (d) ***Meter** register count*:[82] This **trader**-maintained field indicates the total number of **meter** registers used to obtain **volume information** at each **ICP**. If the site contains only **unmetered load** this field will be set to 0 and the daily unmetered kWh field should be populated.

    (e) ***Profile**:*[83] This **trader**-populated field contains the **profile** code of each **profile** at an **ICP**, approved by the **market administrator**. **Profile** codes are required to be placed in this field for metered and **unmetered loads**. The **profile** associated with a particular **unmetered load ICP** is provided as part of the **submission information** to the **reconciliation manager**.[84]

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78 Clause 9(1)(f) of Schedule 11.1 of the Code.

79 Clause 9(1)(d) of Schedule 11.1 of the Code.

80 Clause 9(1)(e) of Schedule 11.1 of the Code.

81 Refer to the **registry** user manual.

82 Clause 9(1)(h) of Schedule 11.1 of the Code.

83 Clause 9(1)(b) of Schedule 11.1 of the Code.

84 Clause 8 of Schedule 15.3 of the Code.

(f) ***Unmetered load** details:*[85] This **trader**-populated, free-form text field must include details of the type and capacity of any **unmetered load** at the **ICP**. The **Authority** expects that the field will include information about the connected capacity and estimated running hours per day.

(g) ***Meter** multiplier flag:*[86] A flag indicates whether there is a **meter** multiplier used at the site (other than unity multiplier). The **Authority** recommends that this is checked by **traders** when switching I**CPs** to ensure **meter** multipliers are not lost. If only **unmetered load** is present at the site, the flag field should be set to N.[87]

Submissions to the reconciliation manager

47. **Submission information** must be provided to the **reconciliation manager** by **reconciliation participants** in aggregate. This includes information about the quantity of **electricity** generated, conveyed, or consumed, which for **unmetered load**, is calculated in accordance with the Code, in each **reconciliation period** including the **profile** to which the **electricity** consumed is to be reconciled.[88]

48. If the **unmetered load ICP** type is GN or EN (depending on where it is connected) the kWh for each **unmetered load** is submitted in the appropriate aggregation grouping using the N file, as described in the **reconciliation manager** functional specification sub-process AV-080.

49. If the **unmetered load** type is SI (which indicates that the **ICP** is **distributor**-only and represents **shared unmetered load**) the kWh for each **shared unmetered load** is attributed to the **ICPs** identified on its "shared **ICP** list" and submitted in the appropriate aggregation grouping using the N file, as described in the **reconciliation manager** functional specification sub-process AV-080.

50. **Profile** types are indicated by **profile** codes in the **reconciliation manager** submission file, along with the volume submissions. If the **profile** code indicates **profile** data is static, the static data provided is used by the **reconciliation manager**. If **profile** data is dynamic, i.e. for **SCADA** on and off times, it is supplied by the **retailer** in a separate file.[89]

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85 Clause 9(1)(g) of Schedule 11.1 of the Code.

86 Clause 9(1)(i) of Schedule 11.1 of the Code.

87 Refer to the **registry** user manual.

88 Clause 8(c) of Schedule 15.3 of the Code.

89 Clause 11 of Schedule 15.4 of the Code provides that if an engineered, statistically sampled or recorded **profile** forms part of the **submission information**, the shape file associated with the **profile** must be provided to the **reconciliation manager** by the **reconciliation participant** authorised by the **profile owner** to use that **profile** for each relevant **NSP** in respect of the prior **consumption period** in accordance with clauses 15.4 to 15.12 of the Code. Clause 3 of Schedule 15.5 of the Code provides that if load switching information is required from the operation log of an external control system, such as a **SCADA** or ripple injection control system, the relevant **reconciliation participant** must ensure that the information, for the immediately preceding **consumption period**, is available by 1600 hours on the 4th **business day** of each month.

51. Two files exist and are detailed in the **registry** functional specification for providing dynamic **profile** information. AV-145 allows the provision of date and **SCADA** on and off times. AV-100 provides for provision of the date and the number of minutes in each **trading period** a **profile** was active. The possible options for each **trading period** in this format are between 0 and 30. Information provided in AV-145 form is converted by the **reconciliation manager** to AV-100 form prior to further processing.

Sources of information

52. The Code can be found on the Authority's website at:

    http://www.ea.govt.nz/act-code-regs/code-regs/the-code

53. If you require further assistance, please contact the Retail Operations Team:

    Electricity Authority
    PO Box 10041
    Wellington
    Attention: Retail Operations Team

    Telephone: 04 460 8860
    Fax: 04 460 8879
    Email: retailoperations@ea.govt.nz