# Balancing Area Guidelines and Network Supply Point Implementation Details

## Version 2.2

5 March 2015

# Version control

| Version | Date amended | Comments |
|---|---|---|
| 1.0 | 10 October 2007 | Creation of guidelines |
| 2.0 | 17 March 2008 | Inclusion of naming procedure for balancing areas and Appendix 1 updated to reflect the naming procedure.<br><br>The authority to approve minor amendments has been delegated to the General Manager by the Commission Board at the 1/2 April 2008 meeting. |
| 2.1 | 1 November 2010 | Updated for transition to Electricity Authority and amendments to part J of the rules. |
| 2.2 | 5 March 2015 | Update to contact details and style |

# Glossary of abbreviations and terms

| | |
|---|---|
| **Authority** | Electricity Authority |
| **Code** | Electricity Industry Participation Code 2010 |
| **GXP** | Grid Exit Point |
| **HHR** | Half Hour |
| **ICP** | Installation Control Point |
| **NHH** | Non Half Hour |
| **NSP** | Network Supply Point |

# Contents

# Objective

These guidelines have been prepared by the Electricity Authority (Authority) to assist participants and others in interpreting and determining how participants might comply with Part 15 of the Electricity Industry Participation Code 2010 (Code). These guidelines relate to the supply of information to the **reconciliation manager** under Part 15 of the Code.

Bolded words within the text of these guidelines refer to words and phrases that are defined in Part 1 of the Code.

The purpose of this Guideline is to provide **network** owners with the criteria to use when deciding how to group **network supply points** (**NSP**) into balancing areas, as required by Part 15 of the Code. These guidelines should be read in conjunction with Part 15.

In particular, these guidelines set out information about the establishment and inclusion of **NSPs** in the **NSP** mapping table, and the relationship between **NSPs**, the **loss category** table, and **NSP submission information**.

In appendix A, an example is provided showing four **balancing areas** and how the **NSP** mapping table would look.

# Disclaimer

These guidelines are provided as general information only, and not as legal advice. They are not legally binding. If there is any inconsistency between the content of these guidelines and the Code, the Code takes precedence.

# Balancing area guidelines

*Background*

1. Under normal conditions, **ICPs** are supplied **electricity** via one designated **NSP**. However, in the event of an outage, a **network** owner can reconfigure **points of connections** within its **network** so that supply is provided from another **NSP**. Since **retailers** are unable to track these changes accurately in their submissions, they will provide **submission information** for the wrong **NSP**. The reconciliation process uses the concept of **balancing areas** to group **NSPs** together and to re-allocate consumption from over-allocated **NSPs** to under-allocated **NSPs** within each **balancing area**.

*Decision criteria*

2. For reconciliation purposes, every **NSP** is assigned to one **balancing area**. Only **NSPs** with the same **network** owner can be grouped within a single **balancing area**.

3. To decide which **NSPs** should be grouped together to form a **balancing area**, each **NSP** should be considered and evaluated as follows:

    (a) A gateway **NSP** that permanently connects a **local network** with an **embedded network** or permanently connects an **embedded network** with another **embedded network** should be assigned its own unique **balancing area**. This **balancing area** is for the purpose of reconciling the (child) **embedded network**.

    (b) An **NSP** supplying a **direct consumer** is assigned its own unique **balancing area**. If the **direct consumer** at a single location is supplied by more than one **NSP** then these **NSPs** can be grouped under the same **balancing area**.

    (c) An **NSP** that is **grid**-connected and into which a **generator** is supplying **electricity** should be assigned its own unique **balancing area**. If the **generator** injects into more than one **NSP** from a generating plant then these **NSPs** can be grouped under the same **balancing area**.

    (d) An **NSP** that is **grid**-connected and that under normal conditions supplies one or more **ICP** with **electricity** should be assigned to the same **balancing area** as any **NSP** that can provide an alternative supply of **electricity** to at least one of those **ICPs**. This alternative supply can be either temporary or permanent. However:

        (i) if this connection is from a **network** that has a different **network** owner then the **NSP** should not be assigned to the same **balancing area**. In this case, an interconnection **NSP** should be established with a **metering installation** to measure the flow of **electricity** between the two **balancing areas**

        (ii) if this connection is from an **embedded network** which is only temporarily connected to the **local network**, then an interconnection **NSP** should be

established with a **metering installation** to measure the flow of **electricity** between the two **balancing areas**.

*Examples of **balancing areas***

4. In practical terms, a **balancing area** would consist of:

   (a) a **local network** owned by one **network** owner;

   (b) a single **embedded network**;

   (c) the **NSPs** connecting a **direct consumer** at one location to the **grid**; or

   (d) the **NSPs** connecting a **generating plant** to the **grid** (for one **generator**).

*Business rules applying to **balancing areas**, **local networks**, and **embedded networks***

5. **NSPs** that can be electrically interconnected should belong to the same **balancing area**.

6. Each **local network NSP** and each **embedded network** should belong to one, and only one, **balancing area**.

7. A **local network** can have one or more **NSPs** that connect it to the grid and may consequently comprise one or more **balancing areas**.

8. Each **embedded network** is a **balancing area** in its own right and should not be included in the **balancing area** of its parent **network**.

9. An **embedded network** permanently connected to a **local network** should have a single gateway **NSP** defined for that connection.

10. An **embedded network** may be permanently connected to another **embedded network** via a single gateway **NSP**.

11. An **embedded network** with only a temporary connection to a **local network** or to another **embedded network** should have an interconnection **NSP** established for that connection.

12. A **local network** may have more than one **embedded network** connected to it.

13. Where a **direct consumer** extracts **electricity** from one or more **NSPs** at a single location, these **NSPs** should all be grouped into one **balancing area**.

14. Where a **grid**-connected **generator** injects **electricity** into one or more **NSPs** from a **generating plant**, these **NSPs** should all be grouped into one **balancing area**.

15. An **NSP** or a gateway **NSP** can only belong to one **balancing area**.

16. An interconnection-point **NSP** should have two **NSP** identifiers, one for each **balancing area** that it connects.

***Balancing area*** *notification to the* ***reconciliation manager***

17. **Network** owners should ensure that each **balancing area** definition contained within the **NSP** mapping table includes details of all possible temporary **points of connections** (**NSPs**) as well as permanent **points of connections** (**NSPs**). The **reconciliation manager** must be notified when an **NSP** is created, decommissioned, or transferred, whether permanently or temporarily, in accordance with clause 11.8 of the Code.

*Naming procedure of* ***balancing areas***

18. The naming procedure for **balancing areas** should be as follows:

    a. The 12 character code will be "aaaaaaaNNNNX", where:

| | |
|---|---|
| aaaaaaa | is a seven character unique identifier (can be upper or lower case) |
| NNNN | is the network four letter identifier assigned by the market administrator to the network owner (should be upper case). |
| X | is the network type (G for grid connected or E for embedded) (should be upper case). |

# NSP implementation information

*Interconnection **NSPs***

19. Interconnection **NSPs** are metered connection points between two **networks** (local or embedded) that are in different **balancing areas**.

20. **ICPs** cannot be assigned to interconnection **NSPs** and hence there should be no purchaser submissions at these **points of connection**. There will be only **NSP volume information** submissions.

21. Interconnection points require two entries in the **NSP** mapping table, one for each **network** owner. For example, at interconnection point BCD0331 there will be two **NSPs** defined, one for each **network** owner. One for the first **network** (BCD0331 NET1) and another for the second **network** owner (BCD0331 NET2).

22. When an interconnection point is established, there should also be a parent **NSP** designated for it in the same **balancing area**. The parent **NSP** should be either a **grid**-connected **NSP** of the **balancing area**, or, if the **balancing area** is an **embedded network** then it should be the gateway **NSP**. The purpose of the 'parent **NSP**' is to allocate of **submission information**, when load is re-allocated during the balancing process within the reconciliation process.

23. The **network** owner who initiates the interconnection is responsible for the quantification of **volume information** and its submission to the **reconciliation manager**, from their own **network** point of view. The **reconciliation manager** will generate the 'opposite' **NSP volume information** submission for the other **network** owner on the other side of the interconnection point.

24. All **NSP volume information** submissions for interconnection **NSPs** must have a **reconciliation type** of "NP".

25. **Loss factors** for interconnection **NSPs** are applicable from the designated parent **NSP**. A **loss category** code and the **loss factor** for the **loss category** code must be established and added to the table of **loss category** codes on the **registry** for the applicable **network** (of the interconnected **NSP**).

26. The **loss category** code will be recorded in the submission file for that interconnected **NSP**, in accordance with the Code.

*Gateway **NSPs***

27. A gateway **NSP** is a permanent metered **point of connection** between an **embedded network** and a **local network** or another **embedded network.**

28. **ICPs** within an **embedded network** will be referenced to the gateway **NSP** in the **registry**. Likewise their **submission information** (consumption and embedded generation) will be provided at the gateway **NSP**.

29. When a gateway **NSP** is established, there should also be a parent **NSP** designated for it in the **network** to which it is connected. The parent **NSP** should be either a **grid**-connected **NSP** or another gateway **NSP**, if the **network** to which it is connected is embedded.

30. **Loss factors** for gateway **NSPs** are applicable to the designated parent **NSP**. The **loss factor** code will be recorded in the 'distributor ICP' that represents the gateway **NSP** in the **registry** and that is maintained by the **parent network** owner. The associated entry in the **loss category** table is also maintained by the **parent network** owner.

31. It should be possible to trace back to a **grid**-connected **NSP** from each **embedded network** in the **NSP** mapping table.

*Grid-connected **NSPs***

32. **Local networks**, **direct consumers**, and **grid**-connected **generators** have metered **points of connection** to the **grid**.

33. **Direct consumers** and **grid**-connected **generators** will not have **ICPs** in the **registry** and hence there will be neither non half hour (NHH) nor half hour (HHR) **submission information** provided to the **reconciliation manager**. There will however be **NSP volume information** submitted.

34. **Direct consumers** will have their **NSP volume information** submitted by the **grid owner**. In the **NSP volume information** submission, the **participant** code (in the role of **network** owner) will be that of the **participant** code of the **consumer** and the **participant** code of the submitter will be "TPNZ".

35. **Grid**-connected **generators** will submit their **NSP volume information** to the **reconciliation manager**. In the **NSP volume information** submission, the **participant** code (in the role of **network** owner) will be that of the submitting **generator** and the **participant** code of the submitter will be the same **participant** code. For example, if the **generator** is Meridian Energy, the **participant identifier** will be MERI in both cases.

36. **Local networks** will have their **NSP volume information** submitted by the **grid** owner. The submission's **network** code of the **NSP** will be the **participant** code of the **local network**. For example, if the **network** owner is Powerco, the **network participant identifier** will be POCO, but the **participant** code of the submitter will be TPNZ.

37. The **loss category** code of GRID will be used in these **NSPs volume information** submissions. There will be an entry pre-loaded in the **reconciliation manager's** system for the **loss category** code GRID, with a **loss factor** of 1. The reconciliation system will use this entry for **loss category** codes of GRID.

# Sources of information

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

    http://www.ea.govt.nz/code-and-compliance/the-code/

39. If you require further assistance, please contact the Market Operations Team:

    Electricity Authority
    PO Box 10041
    Wellington
    Attention: Market Operations Team

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

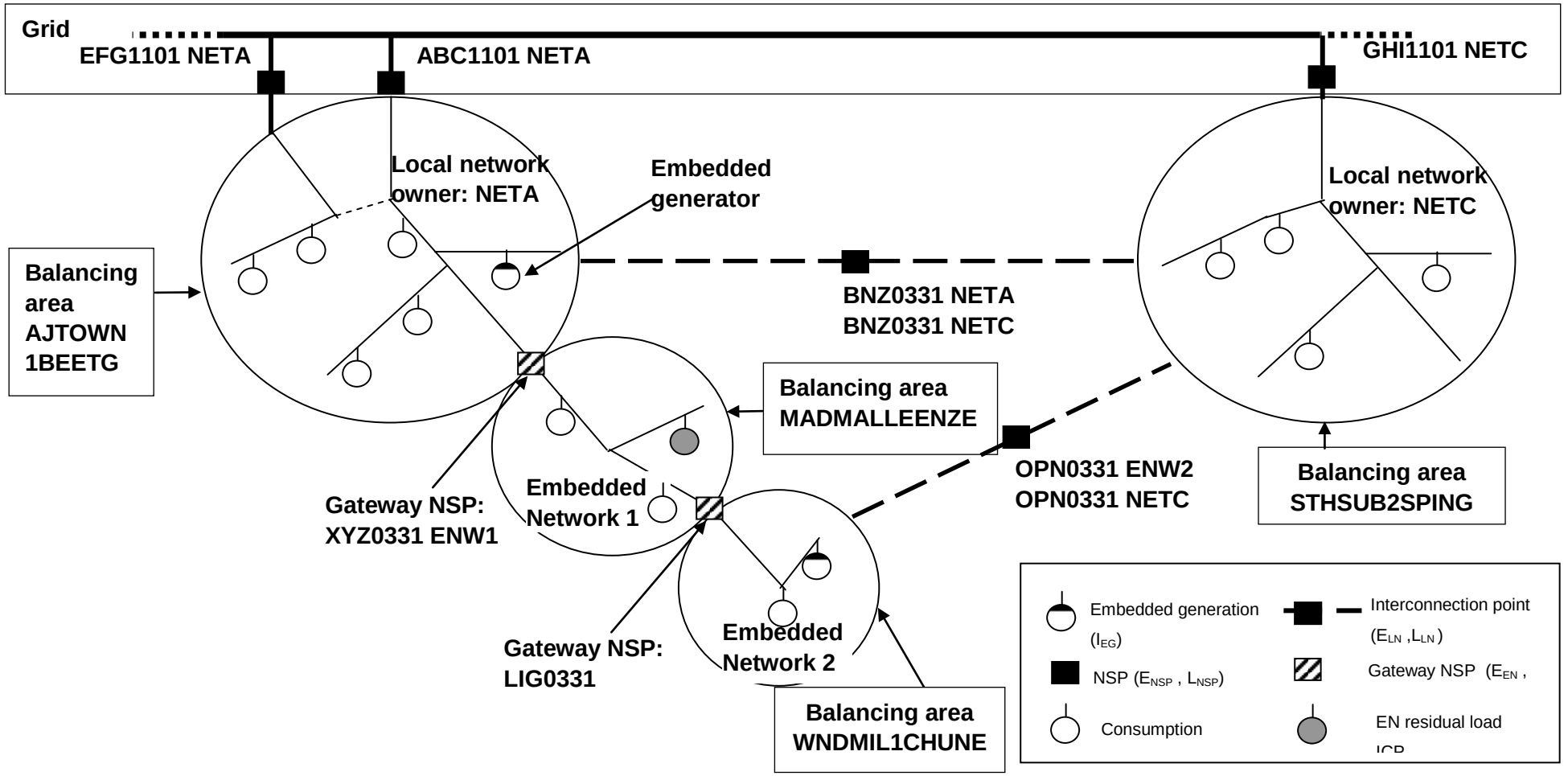
# Appendix A Example of four balancing areas: AJTOWN1BEETG, STHSUB2SPING, MADMALLEENZE, and WNDMIL1CHUNE

A.1 AJTOWN1BEETG will have three entries in the **NSP** mapping table identifying EFG1101 NETA, ABC1101 NETA, and BNZ0331 NETA as the **NSPs** in the **balancing area** where EFG1101 NETA and ABC1101 NETA are the **grid**-connected **NSPs**, and BNZ0331 NETA is the interconnection point **NSP**.

A.2 STHSUB2SPING will have three entries in the **NSP** mapping table identifying GHI1101 NETC, BNZ0331 NETC, and OPN0331 NETC as the **NSPs** in the **balancing area** where GHI1101 NETC is the **grid**-connected **NSP**, and BNZ0331 NETC and OPN0331 NETC are the interconnection point **NSPs**.

A.3 MADMALLEENZE is an **embedded network** with one gateway **NSP** in the **NSP** mapping table - XYZ0331 ENW1 whose parent **NSP** would be identified as ABC1101 NETA.

A.4 WNDMIL1CHUNE is an **embedded network** with 2 entries in the **NSP** mapping table: gateway **NSP** LIG0331 ENW2 whose parent **NSP** would be identified as XYZ0331 ENW1 and interconnection point OPN0331 ENW2.


Grid
EFG1101 NETA
ABC1101 NETA
GHI1101 NETC
Local network owner: NETA
Embedded generator
Local network owner: NETC
Balancing area AJTOWN 1BEETG
BNZ0331 NETA
BNZ0331 NETC
Balancing area MADMALLEENZE
OPN0331 ENW2
OPN0331 NETC
Balancing area STHSUB2SPING
Gateway NSP: XYZ0331 ENW1
Embedded Network 1
Gateway NSP: LIG0331
Embedded Network 2
Balancing area WNDMIL1CHUNE
Embedded generation ($I_{EG}$)
Interconnection point ($E_{LN}$ ,$L_{LN}$ )
NSP ($E_{NSP}$ , $L_{NSP}$)
Gateway NSP ($E_{EN}$ ,
Consumption
EN residual load

# Entries in the NSP mapping table

| Owner | Registry NSP POC | Registry NSP network | Registry NSP description | Parent POC | Parent network | Balancing area | Network type | Network connection status | Start date | Start trading period | End date | End trading period | ICP# of EN NSP (residual load ICP)* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NETA | ABC1101 | NETA | Abacus | | | AJTOWN1BEETG | G | A | 01/01/1999 | 1 | | | |
| NETA | EFG1101 | NETA | Elfingrove | | | AJTOWN1BEETG | G | A | 01/01/1999 | 1 | | | |
| NETA | BNZ0331 | NETA | Bonanza Interconnection | ABC1101 | NETA | AJTOWN1BEETG | I | A | 01/01/2003 | 15 | | | |
| NETC | GHI1101 | NETC | Goodhill | | | STHSUB2SPING | G | A | 01/01/1999 | 1 | | | |
| NETC | BNZ0331 | NETC | Bonanza Interconnection | GHI1101 | NETC | STHSUB2SPING | I | A | 01/01/2003 | 15 | | | |
| NETC | OPN0331 | NETC | Oponini Interconnection | GHI1101 | NETC | STHSUB2SPING | I | A | 01/05/2004 | 25 | | | |
| ENW1 | XYZ0331 | ENW1 | Kirkwood Mall | ABC1101 | NETA | MADMALLEENZE | E | A | 01/10/2003 | 1 | | | 1234567890AB123 |
| ENW2 | LIG0331 | ENW2 | Light Air Wind Farm | XYZ0333 1 | ENW1 | WNDMIL1CHUNE | E | A | 23/04/2004 | 1 | | | 2345678901XY234 |
| ENW2 | OPN0331 | ENW2 | Oponini Interconnection | LIG0331 | ENW2 | WNDMIL1CHUNE | I | A | 01/05/2004 | 25 | | | |

* Blank indicates an **embedded network** reconciled using standard **UFE** process i.e. allocation to all **purchasers** and **direct consumers**, otherwise the 'differencing' method is used with allocation of the residual volume to the **retailer** providing **submission information** in accordance with the Code and **reconciliation manager** functional specifications and recorded at the **ICP** recorded here.