Retail Advisory Group

Review of secondary networks

Issues and options paper

12 February 2015

Note: This paper has been prepared for the purpose of the Retail Advisory Group. Content should not be interpreted as representing the views or policy of the Electricity Authority.

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1.1 Purpose of the RAG's review

1.1.1 The Electricity Authority (Authority) has requested the Retail Advisory Group (RAG) recommend options to promote competition and efficiency on secondary networks for the long-term benefit of consumers.

1.1.2 The RAG noted retailers, particularly small retailers, may not be able to compete on customer networks and embedded networks.

1.2 Purpose of this paper

1.2.1 The purpose of this paper is to:

a) provide an overview of secondary networks

b) describe issues that appear to have an adverse effect competition and efficiency on secondary networks

c) consider potential solutions to address these key issues and propose a preferred solution

d) assess the high level costs and benefits of the preferred solution for improving competition and efficiency on secondary networks

e) seek feedback from interested parties on the issues and solutions discussed.

1.3 How to make a submission

1.3.1 The Authority prefers to receive submissions in electronic format (Microsoft Word) in the format shown in Appendix A. Submissions in electronic form should be emailed to submissions@ea.govt.nz with "RAG – Secondary Networks Review" in the subject line.

1.3.2 Do not send hard copies of submissions unless it is not possible to do so electronically. If you cannot or do not wish to send your submission electronically, you should post one hard copy of the submission to either of the addresses provided below or you can fax it to 04 460 8879 if you have any questions.

Postal address

Retail Advisory Group
C/- Electricity Authority
PO Box 10041
Wellington 6143

Physical address

Retail Advisory Group
C/- Electricity Authority
Level 7, ASB Bank Tower
2 Hunter Street
Wellington

1.3.3 Please note that we want to publish all submissions we receive. If you consider that we should not publish any part of your submission, please indicate which part, set out the reasons why you consider we should not publish it and provide a version of your submission that we can publish (if we agree not to publish your full submission).

1.3.4 If you indicate that there is part of your submission that should not be published we will discuss it with you before deciding whether to not publish that part of your submission.

1.3.5 However, please note that all submissions we receive, including any parts that we may not have published, can be requested under the Official Information Act (OIA). This means that we would

be required to release them unless good reason exists under the OIA to withhold them. We will normally consult with you before releasing any material that you had identified should not be published.

1.4 When to make a submission

1.4.1 Submissions should be received by [DATE]. Please note that late submissions are unlikely to be considered.

1.4.2 Submissions will be acknowledged electronically. Please contact the Submissions Administrator if you do not receive electronic acknowledgement of your submission within two business days.

2 An overview of secondary networks

2.1 What are secondary networks?

2.1.1 There are two types of networks that convey electricity from the transmission grid to consumers:

a) local networks – networks that are directly connected to the transmission grid – these are usually called local distribution networks (local networks)

b) secondary networks – networks that are connected to the transmission grid via another network (typically a local network).

2.1.2 There are three different types of secondary networks:

a) Customer networks – a network owned by a customer network owner who manages the network supplying a number of consumers at a single location. The customer network owner provides the consumers with network services. The owner also provides certain retail products and services (e.g. the owner bills the associated consumers for their electricity consumption). See section 2.4 for more detail.

b) Embedded networks – a network owned by an embedded network owner that provides network services to a number of consumers at a single location. The consumers obtain retail services from retailers that operate on that embedded network. See section 2.5 for more detail.

c) Network extensions – a network where the network extension owner provides network services relating to connection and provision of a reliable electricity service while the associated local network performs market functions. The consumers obtain retail services from retailers that operate on the associated local network. See section 2.6 for more detail.

2.2 Why secondary networks exist

2.2.1 Secondary networks have evolved as a practical and commercial means of providing consumers at specific locations with electricity products and services, network services and performing market functions.

2.2.2 Examples of secondary network premises include: multi-tenanted office blocks, residential apartment buildings, retirement villages, shopping centres, airports, industrial/commercial parks, residential subdivisions, and permanent camping sites.

2.2.3 Customer networks and network extensions are a long-standing feature of New Zealand's electricity sector. They emerged as a practical means to assign responsibility for the electricity purchase costs and responsibility for providing electricity services of multi-tenant properties.

2.2.4 Embedded networks are a more recent feature. They emerged in the late 1990s, initially in response to the legislative requirement for ownership separation of electricity lines from generation and retail activities. Embedded networks are a variant of customer networks.

2.2.5 The alternative to secondary networks is that the local networks provide networks services and market services at multi-tenanted locations by taking greater responsibility for maintenance for internal wiring.

2.3 A comparison of a consumer's experience on local and secondary networks

2.3.1 Electricity supply to consumers involves providing a service and a good.

2.3.2 The electricity service is supplied by the local or secondary network and involves providing the network infrastructure required for the transport of electricity.

2.3.3 The electricity service includes connection to the network and provision of a reliable electricity service (operation of the network to meet demand, maintenance and fault management). A reliable electricity service also has a safety dimension. Distributors need to comply with electrical safety legislation pursuant to the Electricity Act,[1] any Code of Practice issued under the Act,[2] and the Electricity (Safety) Regulations 2010.[3]

2.3.4 The electricity good (electricity provided to the consumer) is supplied by the retailer.

2.3.5 Supplying the electricity service and the electricity good requires coordination between the retailer and the distributor to meet the quality and reliability standards agreed with the consumer and to carry out market functions such as settlement in the wholesale market.

2.3.6 The common approach in New Zealand is for retailers to contract with consumers to provide the electricity good and service with the contract setting out the terms and conditions of supply, such as customer service and reliability standards and electricity pricing. The retailer separately contracts with distributors through a use-of-system agreement (UoSA) to establish the terms and conditions of supply of the network service and requirements for business-to-business interactions (e.g. supply of data).[4]

2.3.7 The retailer 'interposes' itself between the distributor and the consumer. In general, what this means is the consumer contracts with a retailer who agrees to supply electricity for a specified price and to meet certain quality and reliability standards. The retailer typically is responsible for all contact with the consumer. The consumer can choose from the retailers that have agreements with the local distributor to operates on the network the customer is connected to. The retailer and distributor will agree quality and reliability standards necessary for the retailer to meet its contracts with consumers.

2.3.8 A few distributors in New Zealand adopt a conveyance model for supplying network services. In general, what this means is the consumer contracts with both the retailer and the distributor separately. The retailer supplies the electricity service; the distributor supplies the network services.

2.3.9 Secondary networks are a further variation for allocating responsibility for providing the electricity service and electricity good:

a) customer networks provide both the network service and the electricity good. The customer network owner will typically set out the terms and conditions of supply (e.g. price, quality and reliability standards) in a contract with its customers

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1 See section 169 and 61A of the Electricity Act 1992.

2 Electrical Codes of Practice, available at: http://www.med.govt.nz/energysafety/legislation-policy/electricity-acts-regulations-codes/standards-and-codes-of-practice/new-zealand-electrical-codes-of-practice

3 See 61A of the Electricity Act 1992: Electricity generators and electricity distributors must have safety management systems;

4 The retailer 'interposes' itself between the distributor and the consumer. A few distributors in New Zealand adopt a conveyance model for supplying network services and contract with both the retailer and the customer.

b) embedded networks provide the network service, but retailers provide the electricity good (making them similar in most respects to local networks). The embedded network owner sets out the conditions of supply (for network services) with either its customers or with retailers (that is, adopts an interposed or conveyance use-of-system agreement)

c) network extensions provide some network services, but contract with the local network to provide market functions. Retailers provide the electricity good. The network extension will set out the conditions of supply with its customers (for network services) and with the local distributor (for market functions).

2.3.10 Irrespective of whether a consumer is supplied via a local network or a secondary network, the price, the quality of service expectations and the reliability of supply expectations are, or should be, set out in contracts or a UoSA, or both, so the expectations are clear. Consequently, the consumer experience will differ depending on factors such as where they are, the service they expect, who provides the retail service and who provides the network service.

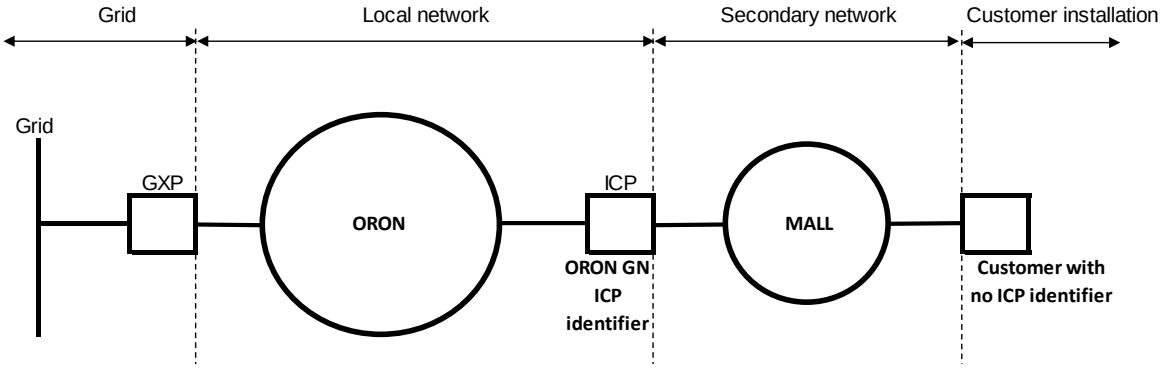
2.3.11 There is potential for differences in the quality of service and reliability of supply by secondary networks relative to local networks. One reason is that secondary networks are not solely focused on the business of supplying electricity services – their primary business activity is likely to be providing accommodation services.

2.4 Specific characteristics of customer networks

2.4.1 A customer network owner provides its consumers with network services (including connection) and a retail service.

2.4.2 Figure 1 shows the configuration of a typical customer network.

Figure 1 Customer network configuration



Source: Electricity Authority

Notes:
1. Each consumer does not have their own ICP on a customer network.
2. ORON stands for Orion

2.4.3 A customer network owner usually has a supply contract with a retailer(s) for delivered electricity to the site. This site will typically be represented by a single ICP in the Authority's registry.[5] The

[5] The Authority's registry does not currently include which ICPs are for sites which are customer networks.

customer network owner typically purchases electricity (including network services) off a retailer, but may separately purchase electricity from the clearing manager[6] and network services from the local network owner. The customer network owner then on-sells it to consumers on their network.

2.4.4 The customer network owner provides distribution lines services to all of the consumers on the customer network by taking responsibility for maintaining the lines (often the building's internal wiring) conveying electricity to consumers.

2.4.5 The customer network owner typically bills consumers to recover the cost in accordance with the arrangements that have been agreed between the customer network owner and consumer/tenant (e.g. tenancy agreement). The consumer is billed either directly (e.g. electricity bills) or indirectly (e.g. corporate fees, rent or lease payments). Some customer network owners engage an agent to bill tenants.

2.4.6 Consumers on a customer network are not 'visible' for market purposes because no customer installation connected to the network has an installation control point (ICP) identifier.[7] Further, there may or may not be a meter at the installation.[8] This means that consumers on a customer network cannot choose their retailer (unlike on a local network).

2.4.7 There is no robust data on the number of customer networks or the number of consumers served by customer networks in New Zealand. The Authority does not have visibility of customer networks, as there are no customer networks recorded in the Authority's participants' register. However, the Authority is aware there are potentially many hundreds of customer networks in New Zealand.

2.5 Specific characteristics of embedded networks

2.5.1 An embedded network is a separate network where the embedded network owner provides consumers with network services. The network owner also must have Code-compliant metering installations, registry management information and switching customer processes, trading arrangements and reconciliation.

2.5.2 Retailers who wish to trade on the embedded network must negotiate a UoSA with the embedded network owner. They must also establish trading arrangements in their billing and customer management systems including retail pricing and service arrangements

2.5.3 Customers on an embedded network are 'visible' for market purposes and can choose their retailer because they have an ICP identifier. These ICP identifiers are created and managed by the embedded network owner.

2.5.4 Embedded network owners can buy network services in bulk from the local network owner and then sell to retailers at the same or similar tariff rates as would apply to an equivalent ICP on the local network (that is, buy wholesale and sell retail).

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6 The Clearing Manager is responsible for ensuring that industry participants pay or are paid the correct amount for the electricity they generated or consumed and for market related costs, available at: https://www.ea.govt.nz/operations/market-operation-service-providers/clearing-manager/

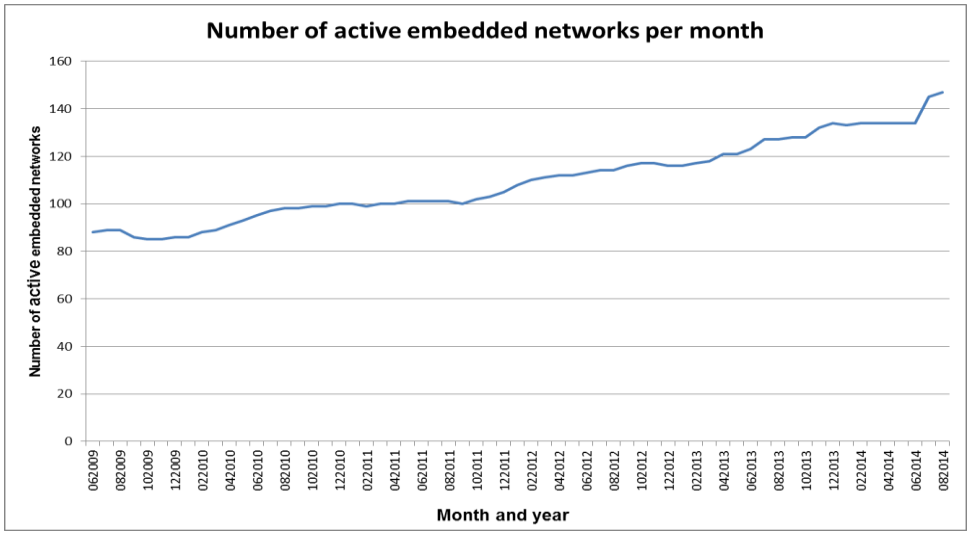
7 An ICP is a physical point of connection on an electricity distribution network at which a retailer is deemed to supply electricity to a consumer. Each ICP is assigned an ICP identifier.

8 If there is a meter at the consumer's premise, it should comply with the accuracy and installation requirements for meters set out in Part 10 of the Electricity Industry Participation Code (the Code).

2.5.5 Some embedded network owners also advise they offer an enhanced customer experience compared to a local network owner (including on-site fault management, on-line information services and emergency standby power generation).

2.5.6 Embedded networks are becoming more prevalent. In 2009 there were about 88 embedded networks in New Zealand, with about 6,872 consumers (ICPs) on them. Figure 2 shows the increase in the number of embedded networks from 2009 to today. There are currently about 149 embedded networks in New Zealand, with about 10,673 consumers (ICPs).[9]

Figure 2 Number of embedded networks (2009-2014)



Source: Electricity Authority

Notes:

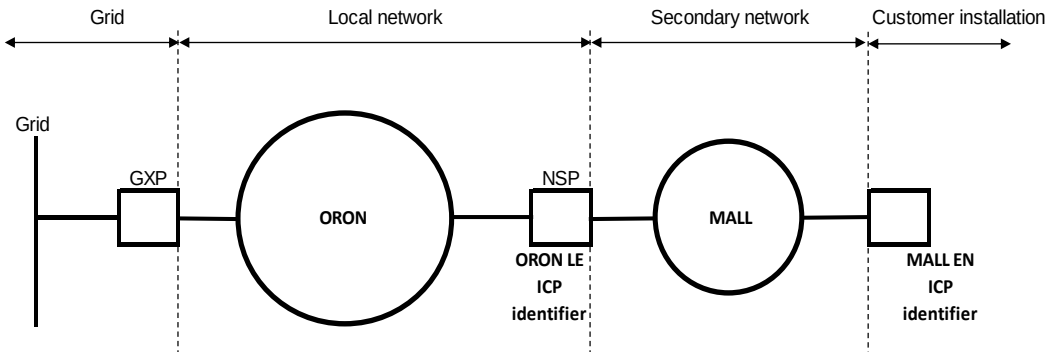
1. In 2009, there were 88 embedded networks in New Zealand
2. In 2014, there are about 149 embedded networks in New Zealand (10,673 consumers).

2.5.7 Figure 3 shows the configuration of a typical embedded network. Electricity entering the embedded network is metered using a 'gateway' meter at the point labelled "NSP" (network supply point). Electricity used by each consumer with an ICP identifier on the embedded network is also recorded by a meter at each consumer's installation. The metering equipment on an embedded network must comply with specific requirements set out in the Code.[10]

[9] Data from the registry and current as at 1 October 2014. The figures exclude Nelson City, which converted from an embedded network to a grid connected (local) network on 1 February 2014.

[10] Specific metering obligations under the Code are available in Part 10, see https://www.ea.govt.nz/code-and-compliance/the-code/part-10-metering/

Figure 3 Embedded network configuration



Source: Electricity Authority

Notes:
1. Each consumer has their own ICP on an embedded network.
2. ORON stands for Orion

2.6 Specific characteristics of network extensions

2.6.1 A network extension is a secondary network that is treated in the New Zealand electricity market's processes as a part of the local network to which it is connected.

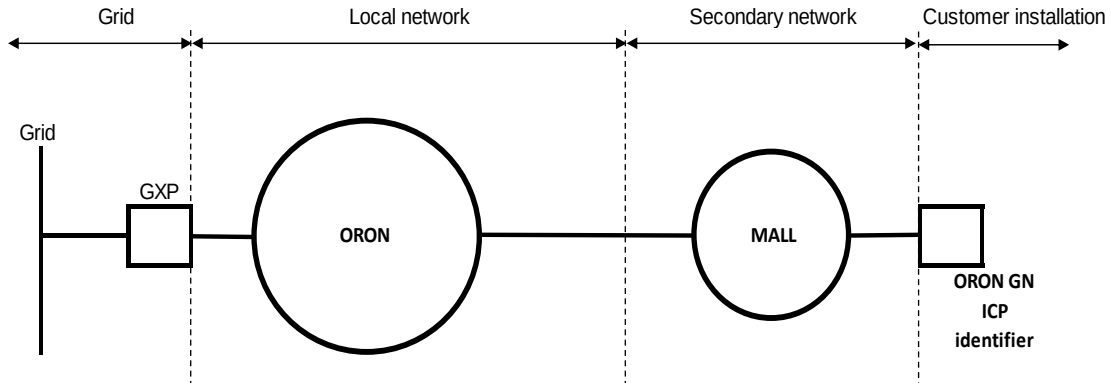
2.6.2 All ICPs on a network extension must have ICP identifiers in the registry. These are created and managed by the local network owner.

2.6.3 The network extension owner provides distribution services and is responsible for maintenance, safety, connections, and so on. The retailer does not need to establish any special trading arrangements as ICPs on the network extension are treated the same as if they are on the local network for the purposes of metering and switching.

2.6.4 Consumers on a network extension can choose and obtain retail electricity products and services from any retailer that has access to the local network.

2.6.5 Figure 4 below shows the configuration of a network extension.

Figure 4 Network extension configuration



Source: Electricity Authority

Notes:
1. Each consumer has access to all retailers on a network extension.
2. ORON stands for Orion

Q1. Please provide any comments and views on the description of the characteristics for customer networks, embedded networks and network extensions. Please provide evidence on your comments and views, where possible.

2.7 Secondary networks are participants

2.7.1 The Electricity Industry Act 2010 (Act) defines parties as industry participants if they are one or more of the following:[11]

a) a distributor – which means a business engaged in distribution (the conveyance of electricity on lines other than lines that are part of the national grid)

b) a retailer – which means a business engaged in retailing (the sale of electricity to a consumer other than for the purpose of resale)

c) any other person who owns lines – which are defined as works used or intended to be used to convey electricity.

2.7.2 All secondary network owners are industry participants.

a) A customer network owner is a 'retailer' and may be a 'distributor' or 'any other person who owns lines'

b) An embedded network owner is a distributor

c) A network extension owner is a distributor.

2.7.3 The Act imposes various obligations on 'industry participants', including:

a) to register with the Authority as an industry participant

b) to comply with the ownership separation requirements in Part 3 of the Act (if the participant is in the business of providing electricity line function services)

c) to make available a low fixed charge tariff option for domestic consumers in accordance with the Electricity (Low Fixed Charge Tariff Options for Domestic Consumers) Regulations 2004.

2.7.4 Retailers and distributors must be a member of the dispute resolution scheme that is administered by the Electricity Gas and Complaints Commission (EGCC).[12] The EGCC is actively attempting to identify customer network owners that should be members of its scheme so it can investigate consumer complaints.

2.7.5 The Code, which is made and enforced by the Authority, places obligations on 'embedded network owners' and 'distributors', but does not specifically refer to customer networks or network extensions.

2.7.6 The Authority also makes voluntary market facilitation measures, which industry participants are expected to align their activities and practices with. These include:

[11] Refer to section 7 (industry participants) and section 5 (interpretation).

[12] See section 96 of the Act.

a) the *Guidelines for Metering, Reconciliation and Registry Arrangements for Secondary Networks* (Guidelines for Secondary Networks) which set out the Authority's expectations for embedded networks' operation practices, and to a lesser degree those of customer networks and network extensions[13]

b) the *Guidelines for drafting embedded network use-of-system agreements* which provide guidance on drafting an embedded network UoSA with a model example.[14]

Legal framework for customer networks

Obligations of a "participant" under the Act

2.7.7 A customer network owner is a 'retailer' to the extent that they are engaged in the sale of electricity (which includes supply). A customer network owner may also be a distributor or an owner of lines, depending on the configuration of the specific customer network.

2.7.8 The definitions of 'distributor' and 'person who owns lines' depend on the meaning of the word "lines":

a) 'lines' mean works used to convey electricity

b) 'works' mean fittings (as defined in the Electricity Act 1992) used in connection with the… conveyance of electricity; but does not include an electrical installation

c) 'electrical installation' mean the fittings used to convey electricity from the point of supply to the point of consumption

d) 'point of supply' means, generally, the boundary of a property. However, where the fittings are owned by a tenant or licensee of the owner or occupier of the property then the point of supply is the point where the fittings reach the premises occupied by the tenant or licensee. There can, however, be exceptions to this, created by agreement.

2.7.9 The complexity of these definitions means it is not possible to say generally how the definitions in the Act apply to customer networks. However, it is likely that owners of customer networks are distributors under both the Act and the Code if the convey electricity on lines.

2.7.10 Owners of customer networks may also be participants because they own lines. However, the examples below show when a network owner is or is not a line owner:

a) *example of a participant as the owner who 'owns lines':* a retirement facility is connected to the local network but the facility consists of a village of separate units, each of which is owned by its occupier. The unit owners pay the retirement facility owner for the provision of various services, including electricity supply. It is likely the retirement facility owner is a participant because the lines that the customer network owner owns are separated (in an ownership sense) from the lines on the property for each separate unit. Instead of owning lines that go all the way to the consumer, the customer network owner owns the lines between the point of supply for the facility as a whole and (most likely) the boundary line for each unit. It follows that the lines are fittings used or intended for use in the conveyance of electricity so the facility owner owns them and is thus a participant.

[13] Available at: www.ea.govt.nz/dmsdocument/6077.

[14] Guidelines for drafting embedded network use-of-system agreements, available at: www.ea.govt.nz/dmsdocument/13648. See also the Authority's example UoSA for an embedded network, available at: www.ea.govt.nz/dmsdocument/13653.

b) *example of a non-participant because the owner does not 'owns lines':* where a customer network owner owns a retirement facility that is connected to a local network then the people who live in the facility have the right to occupy the facility but otherwise have no property rights in it. The owner is most likely not a participant because the relevant assets – the lines on the retirement facility – do not come within the definition of works because they fall under 'electrical installation'. The lines instead constitute fittings that convey electricity from the point of supply to the points throughout the facility from which electricity will be consumed by those who live there. The residents of such a facility do not have legal title to a particular area of the retirement home and thus it would not be possible to identify a separate point of supply for any resident. Rather there is only a point of supply for the facility as a whole.

Obligations under the Code

2.7.11 The Code does not specifically mention the obligations of a customer network owner but a customer network owner will still need to follow the obligations of a 'distributor' under the Code if it is a distributor.

Obligations under Guidelines

2.7.12 The Guidelines for Secondary Networks provide specific guidance about the process for converting a customer network to a network extension or an embedded network.[15]

Legal framework for embedded networks

2.7.13 An embedded network owner is an industry participant under the Act because they are a business engaged in distribution. That means they are a distributor.

2.7.14 An embedded network owner has specific obligations under the Code.[16] These include obligations around metering, including processes and responsibilities for testing, calibrating and certifying metering installations (Part 10), registry management information and switching customer processes (Part 11), trading arrangements (Part 13) and reconciliation (Part 15).

2.7.15 In addition, embedded network owners are subject to requirements of the following market facilitation measures:[17]

a) the Guidelines for Secondary Networks.[18] These guidelines outline expectations on embedded network owners for metering, reconciliation and registry arrangements

b) the Guidelines for drafting an embedded network use-of-system-agreement (UoSA) are intended to help embedded network owners draft a UoSA for retailers wanting to trade on the embedded network. These guidelines indicate how the interposed model UoSA can be adapted for embedded network use.[19]

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15 See page 4 of the Guidelines for Metering, Reconciliation and Registry Arrangements for Secondary Networks, available at: https://www.ea.govt.nz/search/?q=secondary+network+guidelines&s=&order=&cf=&ct=&dp=&action_search=Search

16 See, for example Schedule 11.1 and Part 17; see also Parts 10, 11, 13 and 15.

17 See Parts 1, 8.54B; 10.28; 11, 13, 14 and 15 of the Electricity Industry Participation Code 2010 (the Code).

18 See pages 7-25, 27-29 of the Guidelines for Metering, Reconciliation and Registry Arrangements for Secondary Networks, available at: www.ea.govt.nz/dmsdocument/6077.

19 Guidelines for drafting embedded network use-of-system agreements, available at: www.ea.govt.nz/dmsdocument/13648. See also the Authority's example UoSA for an embedded network, available at: www.ea.govt.nz/dmsdocument/13653.

Legal framework for network extensions

2.7.16 The owner of a network extension is an 'industry participant' because it is a distributor, so it must follow the relevant obligations for participants and distributors under the Code.

2.7.17 There are no explicit Code obligations for a person that owns lines, in that capacity alone. Nor does the Code specifically mention the obligations of a "network extension owner".

2.7.18 The Guidelines for Secondary Networks provide minimal guidance to retailers and owners of their responsibilities under this type of arrangement.[20]

Q2.	Please provide any comments and views on the description of the legal framework for customer networks, embedded networks and network extensions. Please provide evidence on your comments, where possible.

[20] The Guidelines only include the characteristics and examples of network extensions with a note that further information will be developed: see pages 5-6 of the Guidelines for Metering, Reconciliation and Registry Arrangements for Secondary Networks, available at: file:///C:/Users/townsendk/Downloads/05b-DRAFT-Secondary-network-guidelines-v8-2-MT-7-Dec-2012%20(3).PDF.

3 Problem definition

3.1 Stakeholders have raised several issues about competition and efficiency on secondary networks

3.1.1 The RAG has undertaken desktop research to gain an understanding of issues that may be inhibiting competition and efficiency on secondary networks. A cross-section of retailers, secondary network owners and consumers were interviewed and discussions held with the Commerce Commission, the EGCC and Consumer NZ.

3.1.2 Stakeholder raised various issues. These are summarised below.

Issues raised about customer networks

Consumers do not have choice of retailer

3.1.3 The characteristics of a customer network mean that individual consumers do not have choice of retailer.

3.1.4 Consumers on a customer network obtain their electricity from the customer network owner. The customer network owner negotiates a retail supply offer with a retailer, which effectively is on behalf of the consumers on the customer network. In this way, a customer network is like a group buying arrangement, however consumers may not have any say in which retailer the customer network owner selects. The consumers on a customer network agree to this arrangement when entering in to an occupancy or tenancy agreement.[21]

3.1.5 One of the benefits of a customer network arrangement for consumers is the bulk discount on electricity that the customer network owner has potential to negotiate. In addition, consumers have the convenience of dealing directly with the customer network owner, who is often the same person that owns the building and bills them.

3.1.6 However it is possible that the customer network owner may not pass on any discount to the consumer. This would likely provide the customer network owner a financial advantage. The ability to achieve this advantage would depend on the specific contractual arrangements between the customer network owner and the consumer.[22]

3.1.7 The Unit Titles Act 2010 aims to prevent body corporates from 'clipping the ticket' in such circumstances but it does not extend to a third party service provider to the body corporate, such as a customer network owner.[23] This would be determined by the contract between the parties.

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[21] Consumers occupying a building when it is converted to a customer network will often agree to the conversion according to the terms of their occupancy agreement, for example, by agreement of the body corporate. The Authority considers it would be valuable for any real estate or legal officer to inform consumers about the implications of buying in to a customer network arrangement for those consumers who purchase a building on a customer network (e.g. an apartment).

[22] See section 54C(2)(g) and (h) of the Commerce Act, available at: http://www.legislation.govt.nz/act/public/1986/0005/latest/DLM1940014.html

[23] See sections 125 of the Unit Titles Act 2010, available at: http://www.legislation.govt.nz/act/public/2010/0022/latest/DLM1160600.html If any amenity or service is supplied to the unit title development and the body corporate installs and maintains a meter recording the use of that amenity or service by any principal unit, the body corporate may charge the owner of that unit the cost of the usage as indicated on the meter. Any charge is recoverable from the owner of the principal unit as if it were a levy. The cost of the usage charged by the body corporate to the principal unit owner must be the same as that charged by the provider of the amenity or service.

Insufficient notice when converting to a customer network

3.1.8 A customer network can be established by removing the customers at that location from market systems by removing the ICPs from the registry. This process is known as conversion.

3.1.9 One issue raised by retailers with the process for converting to a customer network from an embedded network or network extension, is that the process for converting to a customer network is unclear.

3.1.10 Distributors are responsible for decommissioning an ICP to prepare it to become a customer network under the Code.[24] Traders are responsible for managing the 'active' status of an ICP. In this way, customer network owners and retailers are responsible for managing the timing of a conversion. Retailers consider customer network owners typically provide insufficient notice. As we consider a customer network owner to be a 'retailer' and in some cases a 'distributor', it follows that a customer network owner needs to adhere to the conversion obligations under the Code.[25]

3.1.11 The Code does not specify a time by which this notice of conversion needs to be given. Consequently some retailers believe that they are given insufficient notice to create or decommission a customer network. Insufficient notice can mean additional costs for retailers, particularly if they need to manage additional customer inquiries about the change in their supplier (from the retailer to the customer network owner). Improved co-ordination between retailers and secondary network owners would assist this problem. Further, retailers could refuse to help in the decommissioning process unless they are given enough notice to manage their processes and meet their Code obligations.

Uncertainty about who is responsible for managing faults and service levels

3.1.12 Retailers have informed the RAG that when consumers on a customer network experience a fault, they often telephone a retailer's call centre even if it is the distributor/customer network owner who is responsible for managing the fault. Retailers report that consumers call them because they recall the retailer's branding or have seen the retailer's brand in the new customer network arrangement, hence that retailer is front-of–mind for the consumer.

3.1.13 RAG spoke to consumers who had paperwork from both the retailer and the consumer network owner, which could lead to consumers being confused about who to contact when a fault occurs. When a consumer calls the retailer, the retailer explains the situation to the consumer who then calls the customer network owner. According to retailers interviewed by the RAG, this is an inefficient process and likely increases the retailers' operating costs by taking these calls and servicing these customers who ought to be directly liaising with the secondary network owner.

3.1.14 Reliability standards and fault management arrangements on a customer network are a matter for negotiation between the customer network owner and its customers and any party the customer network owner may use to provide electricity services. There is no electricity industry specific regulation or guidance on the terms and conditions of supply to consumers on a customer network. Nor is there any electricity industry specific regulation or guidance about interactions between customer network owners and the local network or retailers. Instruments such as the MUoSA were not developed with customer networks in mind.

[24] See the Electricity Industry Code at Schedule 11.1 (clauses 25-30).

[25] See the Electricity Industry Code at Schedule 11.1 (clauses 25-30).

Issues raised about embedded networks

Difficulties and costs of negotiating UoSAs

3.1.15 Retailers should negotiate an arrangement (new UoSA) with each embedded network owner to be able to supply consumers on each owner's embedded networks.[26] The Code requires the terms of the UoSA must be negotiated in good faith.[27]

3.1.16 Some retailers consider the cost of negotiating a UoSA for each embedded network owner is too high relative to the number of consumers they might be able to win. Retailers say that a major influence on the cost of negotiating UoSAs for embedded network is because embedded network owners have historically offered bespoke UoSAs, with unique terms and conditions, requiring legal review in each case.

3.1.17 The RAG understands from retailers that the terms of some embedded network UoSAs that have been offered attempted to depart significantly from the provisions of the example embedded network UoSA. This can make it difficult for the parties to reach agreement in a timely manner.

Difficulties and costs of maintaining embedded network consumers

3.1.18 Some retailers consider that the cost of maintaining a presence on an embedded network is too high relative to the number of consumers they might win, i.e. high cost to serve relative to local networks. One retailer reported that it costs the same to serve one consumer on an embedded network as it does to serve 1,000 customers on a local network.

3.1.19 Retailers mention the following factors as influencing the costs of serving customers on an embedded network:

a) the cost of managing the proliferation of embedded network tariffs and loss factors, as each embedded network will require bespoke set-up and bespoke maintenance of tariffs and loss factors, for a relatively low number of customers

b) the cost of managing 'additional' queries from customers on the embedded network arising from the customers' uncertainty about who is responsible for which services, for example fault management

c) the cost of non-standard reporting and data exchange requirements and processes used by embedded network owners. Retailers informed the RAG that they need to set up their own templates for processes when networks are converted and that these bespoke processes for each premises can be costly to administer.

Uncertainty about who is responsible for managing faults and service levels

3.1.20 In the example embedded network UoSA, there is a clause for either the distributor *or* the retailer to provide a 24 hour, seven day a week unplanned service Interruption diagnosis and information

[26] See the EA's website for the model UoSA, available at: http://www.ea.govt.nz/operations/distribution/distributors/use-of-system-agreements/

[27] See 12A.2 of the Code, available at: file:///C:/Users/townsendk/Downloads/Merged-Code-12-January-2015%20(4).pdf

service in accordance with the agreement.[28] The terms of the final agreement are decided by the parties.

3.1.21 Where the responsibility lies with the distributor/embedded network owner, then if a consumer raises concerns with the distributor/embedded network owner about the power quality (frequency or voltage of the supply), reliability or safety of the consumer's supply, the distributor/embedded network owner will investigate. If appropriate, they will then install equipment at the consumer's point of connection to measure power quality, and provide the results of such measurements to the retailer. If such installation requires the services to be interrupted, the distributor/embedded network owner will restore the services as soon as reasonably practicable.[29]

3.1.22 The RAG was informed that when consumers on an embedded network experience a fault, they typically always phone a retailer's call centre, even if the UoSA assigns responsibility for fault calls to the embedded network. This is because consumers may be confused as to who to contact because fault contact details appear on retailer's bills and in other cases it will be the embedded network owner's contact details. The time taken to resolve a fault is set out in the UoSA between the embedded network and the retailer or in the contract between the customer and the embedded network.[30] A co-ordination problem appears to exist between retailers, embedded network owners which could be costly to the consumer.

Insufficient notice when converting to an embedded network

3.1.23 When new networks are created, transferred or decommissioned, the retailer needs to negotiate a new UoSA and make changes to customer management systems (e.g. contact details for faults), establish prices and provide timely written communications to customers.

3.1.24 As set out above in the section concerning issues for customer networks, some retailers consider such changes require similar notification periods as for pricing and loss factor changes in the model UoSAs to reflect the industry norm: 40 business days. Retailers informed the RAG that this time is necessary to process system requirements and develop communications to notify affected customers 30 days before any change to meet standard customer contracts.

3.1.25 In some cases, embedded network owners have only given retailers as little as five business days. Lack of adequate notice adversely affects retailers and customers, and is known to have led to a retailer being forced to compensate affected customers in lieu of providing the required 30 days' notice for the consequential price increases applicable to the new network owner. In one case the credits amounted to $30,000 in costs to the retailer. Retailers also report that embedded network

[28] See 2.1(d) and 2.2(d) of the Model Use of System Agreement (Interposed – Embedded Network example, Final Draft, September 2012), available at: file:///C:/Users/townsendk/Downloads/Appendix-I-Example-UoSA-for-an-embedded-network%20(1).PDF

[29] See 2.1(i) of the Model Use of System Agreement (Interposed – Embedded Network example, Final Draft, September 2012), available at: file:///C:/Users/townsendk/Downloads/Appendix-I-Example-UoSA-for-an-embedded-network%20(1).PDF

[30] One embedded network business consumer that the RAG spoke with complained because they could not contact the designated fault manager when they called after hours. They have also been required to wait up to four days for electricians to fix an electricity fault at their leased premises. There is considerable cost to the consumer involved when they do not have electricity for such a period of time. Their own electricians can assist within four hours. In this case, the consumer now organises and pays its own electrician to fix the fault. This consumer reported that this is cheaper than having no electricity supply. On average, this consumer reportedly pays $500-$1,000 for an electrician to fix their electricity fault per year. Over the course of the 12 year tenancy, this amounts to $6,000-$12,000 in bills for fault costs.

owners often provide inaccurate information to retailers during the conversion process, which delays the conversion process.

3.1.26 However, retailers could refuse to assist the decommissioning process on an embedded network unless they are given adequate notice to manage their processes and carry out their obligations under the Code.

Issues raised about network extensions

Uncertainty about who is responsible for managing faults and service levels

3.1.27 The registry identifies if an ICP is on an embedded network, but does not identify if the ICP is on a network extension. This means that the local network owner may not be able to easily identify or reach the location of a fault that is on a network extension. In addition, when the location is identified, it may instead be the responsibility of the network extension owner to fix the fault. This can give rise to delays for the consumer in having their fault fixed.

3.1.28 As with a customer network, no specific example UoSA exists for network extensions. Responsibility for fault management and service levels should be agreed between the network extension owner, the local network and the retailer. If these arrangements are imperfect, then the local network, customer network and retail could be exposed to transaction costs from poor coordination and consumers could be exposed to poor reliability resulting from poor coordination.

3.2 Stakeholders' issues with secondary networks indicate there is a problem

3.2.1 The issues identified with customer networks and embedded networks suggest there may be a problem with the extent to which customer networks and embedded networks are furthering the Authority's statutory objective:

a) reduced retail competition because retailers are discouraged from supplying consumers on embedded networks

b) reduced operational efficiency by existence of non-standard and poor processes on secondary networks

c) reduced reliable supply because of difficulties locating or reaching faults on network extensions.

Reduced retail competition because retailers are discouraged from supplying consumers on embedded networks

3.2.2 Retail competition delivers benefits to consumers by providing incentives on retailers and energy services companies to deliver innovative products and services and to seek operational efficiency gains. This keeps prices lower than they otherwise would be.

3.2.3 On embedded networks, retail competition may be reduced because retailers may be discouraged from supplying consumers due to:

a) the high transaction costs associated with negotiating UoSAs

b) the high transaction costs of maintaining relationships with customers on embedded networks.

3.2.4 Smaller retailers in particular consider that negotiating the necessary embedded network UoSAs is costly and time-consuming.

3.2.5 In addition to reducing the efficient operation of the electricity industry, the difficulties and costs retailers experience in maintaining a relationship with embedded network owners likely reduce retail competition. These costs discourage retailers from wanting to enter a relationship with secondary network owners. Costs include having to deal with non-standard reporting and data exchange processes.

3.2.6 Lastly, retail competition on embedded networks is also likely to be lower if embedded network owners are not negotiating UoSAs with retailers in good faith.

Reduced efficiency by existence of non-standard / poor processes

3.2.7 Secondary networks appear to be having an adverse impact on the efficient operation of the electricity industry due to:

a) secondary network owners imposing unnecessary transaction costs on retailers by using non-standard processes and reporting requirements, and due to poor processes for fault management

b) higher-than-necessary transaction costs for converting an embedded network or a network extension to a customer network.

3.2.8 Currently the Code does not specify a minimum or adequate notice period for ICPs being transferred or decommissioned from one secondary network type to another secondary network or from one secondary network to a local network.[31]

Reduced reliability of supply due to difficulties locating or reaching faults

3.2.9 Difficulties locating or reaching faults that occur on a network extension can occur because the local network may not have the ability to access the location. Consumers may suffer from a lack of reliable supply or lengthy delays in fixing the fault.

3.3 The number of types of secondary networks does not indicate there is a problem

3.3.1 Secondary network owners can decide which network services, retail services and market functions are provided, and how they are provided. Reducing the number of secondary network types means deciding which party (other than the customer network owner) can most efficiently provide network and retail services and market functions, so as to achieve long-term benefits for consumers. To make this decision, it is necessary to know:

a) will the local distributor or selected party be more efficient in providing network services (and do they want the job?)

b) will the ability of retailers to compete to supply each consumer on a customer network deliver a net benefit relative to retailers competing to supply each group of consumers?

c) is it practicable to include consumers on customer networks into market systems and processes?

[31] See Schedule 11 of the Code.

3.3.2 Evidence is not currently available to answer these questions and establish that reducing the number of secondary network types will achieve long-term benefits for consumers.

3.4 Stakeholders' issues with a lack of consumer choice on customer networks does not indicate there is a problem

Customer networks can be an efficient way of supplying electricity services at multi-tenanted locations

3.4.1 Some stakeholders raise the issue that the lack of consumer choice on customer networks is an issue for consumers. However, further analysis suggests that this may not be an issue.

3.4.2 Customer networks can be an efficient and convenient way of supplying electricity services at a multi-tenanted location. By taking responsibility for supplying electricity services the customer network owner can avoid the capital and operating costs of providing certified metering installations for each consumer on the customer network.

3.4.3 The customer network owner may also be able to negotiate a volume discount with retailers, resulting in consumers on the customer network paying less than if they were individually contestable.

3.4.4 These benefits might be expected to offset the benefits from each consumer on a customer network being able to choose their retailer.

3.4.5

Q3.	Please comment on the issues identified with customer networks, embedded networks and network extensions. Please provide evidence where possible.
Q4.	Please comment on the description of the problems relating to reduced retail competition, efficiency and reliability of supply.

4 The RAG's proposal for addressing the problem

4.1 Options to promote retail competition on secondary networks

4.1.1 The RAG has considered various options for improving the extent to which secondary networks promote competition, reliability and efficiency for the long term benefit of consumers.

4.2 Promoting competition and the UoSAs for embedded networks

4.2.1 Industry participants began developing voluntary model (standard) UoSAs in the late 1990s, following the ownership separation of electricity lines from electricity generation and retail activities.

4.2.2 In 2012 the Authority published a model UoSA for local networks, and guidelines for drafting embedded network UoSAs as well as an example UoSA for an embedded network.[32]

4.2.3 As well as providing guidance on best-practice contract terms and conditions, the Authority expected that the model UoSAs would provide the basis for significantly enhanced levels of standardisation in UoSAs negotiated between retailers and distributors /embedded network owners. The objective of this was promoting efficiency and retail competition through reduced transaction costs, particularly for smaller parties with limited resources.

Option 1 (preferred): introduce a default UoSA for secondary networks

4.2.4 For a retailer to supply electricity on a secondary network, the network owner usually requires a UoSA. This UoSA must be negotiated in good faith between parties.[33]

4.2.5 UoSAs are used by distributors and retailers to formalise agreement of the terms under which retailers use the distributor's lines, in order to supply its customers. A distributor's provision of distribution lines services is the primary service covered in UoSAs.

4.2.6 The RAG acknowledges that bespoke terms may be required for particular UoSAs. Retailers and distributors have expressed that they require some flexibility in negotiations.

4.2.7 However, retailers and embedded network owners consider it is currently problematic when negotiations are lengthy and costly when parties depart over terms in the model UoSA. Thus, the RAG considers there are likely to be material net benefits from developing a default embedded network UoSA as a 'fall back' to apply at the end of a certain negotiating period if parties cannot agree to alternative terms. The term of the negotiation process could be included in the default UoSA.

4.2.8 Compared with the status quo, a default UoSA for embedded networks should reduce the negotiating costs retailers and embedded network owners currently face when entering into UoSAs.

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[32] The Authority's model UoSA (interposed) is available at: www.ea.govt.nz/dmsdocument/13646. The Authority's model UoSA (conveyance) is available at: www.ea.govt.nz/dmsdocument/13647. The Authority's guidelines for drafting embedded network UoSAs are available at: www.ea.govt.nz/dmsdocument/13648 and its example UoSA for an embedded network is available at: http://www.ea.govt.nz/operations/distribution/distributors/use-of-system-agreements/

[33] See Part 12A of the Code.

Option 2: (status quo) an example embedded network UoSA/model Interposed and Conveyance UoSA is considered an inferior option to a default embedded network UoSA

4.2.9 The RAG has also considered the option of retaining the current situation where retailers and embedded network owners negotiate from the example UoSA for embedded networks and Interposed UoSA and the Conveyance UoSA. The difference between this option and a default embedded network UoSA is that the example/model UoSA is a basis for negotiation and provides significant flexibility for the parties to depart from it without a restricted timeframe for the parties to agree.

4.2.10 However, the example/model UoSA approach is less feasible because of the high transactions costs of negotiating each UoSA in circumstances where embedded networks are typically small-scale. Furthermore, parties to the model UoSA are less likely to strictly adhere to it in comparison to a default UoSA. The cost for retailers and embedded network owners is likely to be much lower if a default embedded network UoSA was put in place as a "fall back".

4.2.11 The RAG therefore does not prefer this option.

Q5.	Do you agree that a default embedded network UoSA will promote retail competition by making it easier and less costly for retailers to supply consumers on embedded networks? Please give reasons for your view.

4.3 Promoting operational efficiency on secondary networks: establishing a minimum notice period to convert a secondary network

4.3.1 Retailers believe establishing a minimum notice period for converting all secondary networks will improve the operational efficiency of the electricity industry by enabling retailers to prepare their systems and any on-site equipment (e.g. metering) for the conversion, in an orderly manner. This would be consistent with the notice period given for changes to network pricing and loss factor changes in the model UoSA. Secondary network owners spoken to by the RAG broadly agree.

4.3.2 According to some retailers, on occasion, secondary or local network owners have provided retailers with as little as five business days' notice of a required transfer of ICPs from one secondary network type to another (or from a secondary network to a local network). Retailers have informed the RAG that this notice period of five business days or similar is insufficient time to convert a network and that a more appropriate minimum notice period would be 40 business days. Some of the secondary network owners interviewed by the RAG agreed that this longer notice period could be workable.

4.3.3 The RAG has considered four options for putting in place a minimum notice period for converting a secondary network.

Option 1 (preferred/status quo): improved co-ordination between secondary network owners and retailers (no minimum notice period prescribed when setting up/decommissioning a secondary network)

4.3.4 The RAG considers this option is the preferred option because the issue could be solved by better co-ordination between retailers and secondary network owners and their own internal processes, to allow 40 business days' notice. Retailers could negotiate the ICP decommissioning date directly with secondary network owners. The uncertainty about process could be costly and inefficient with no prescribed minimum notice period when converting to or from a secondary network. However, this can be solved if retailers (and secondary network owners) create internal processes

to be certain when they will agree to decommission an ICP unless. Retailers could require adequate notice in the circumstances or 40 business days. This timeframe and method of prescribing the timeframe will provide flexibility to retailers as it will be based on the circumstances rather than a prescribed minimum notice period which could be inappropriate or too restrictive.

Option 2: include minimum notice period to convert a network in the existing (example embedded network UoSA/model) UoSAs

4.3.5 Under this option, the UoSA would be drafted to allow better co-ordination between the parties and a 40 day notice period be given by the secondary network owner/distributor to the relevant retailer if they propose a transfer of ICPs and the ICP must not be decommissioned without the prior consent of the relevant retailer.

4.3.6 Furthermore, if an NSP is to be created or decommissioned the secondary network owner who has that particular NSP must notify the reconciliation manager of the creation or decommissioning at least 40 business days before the proposed creation or decommissioning date.

4.3.7 The advantage of this approach for minimum notice periods in a UoSA is that it would provide parties with flexibility to negotiate the terms and conditions but also provides more certainty than the status quo over the arrangement and time to process system changes and notifications to affected customers. However, ultimately, the problem appears to be a lack of co-ordination between retailers and secondary network owners and could be solved through option 1.

Option 3: amend the Secondary Network guidelines to establish a minimum notice period for converting a secondary network

4.3.8 The Secondary Network Guidelines could be updated to require secondary network owners to provide retailers with a minimum notice period of 40 business days when a secondary network is to be converted. However, the RAG's preferred option is to provide more flexibility over the minimum notice period for converting a secondary network. The RAG believes that flexibility for parties in this area is more important than substantial certainty. Improved co-ordination between the retailers and secondary network owners is also encouraged.

Option 4: amend the Code to establish a minimum notice period for converting a secondary network

4.3.9 Under this option, the Code would be amended around the decommissioning status of an ICP as well as the creation and decommissioning of NSPs and transfer of ICPs from one distributor's network to another distributor's network. The Code amendment would require that if a secondary network owner/distributor proposes a transfer of ICPs from one distributor's network to another distributor's network, the responsible distributor for the ICPs would need to give each retailer 40 business days' notice and the distributor must not decommission the ICP without the prior written consent of the relevant retailer.

4.3.10 Furthermore, if an NSP is to be created or decommissioned the secondary network owner who has that particular NSP must notify the reconciliation manager of the creation or decommissioning at least 40 business days before the proposed creation or decommissioning date.

4.3.11 The advantage of this approach for minimum notice periods in the Code is that it would provide parties with certainty over the arrangement and time to process system changes and notifications to affected customers. Certainty of conversion is important for retailers, in particular, to reduce the number of, and possibly automate some of, the processes and procedures they have to accommodate such status changes. However, it appears that the current problem could be overcome by improved co-ordination between retailers and secondary network owners when converting a network through their internal processes, rather than creating a Code amendment to require 40 business days' notice.

Q6. Do you agree with not mandating a minimum notice period for converting a secondary network through amending the Code, UoSAs or amending the Secondary network guidelines? Please give reasons for your view.

Q7. Do you consider there are other viable options, in addition to those considered by the RAG, for improving operational efficiency in respect of secondary networks? Please give reasons for your view.

4.4 Promote reliability of supply and efficiency for consumers on secondary networks

Certainty about fault management processes and inefficiency on secondary networks

4.4.1 A secondary network owner is, typically, responsible for fixing a fault on its network. The RAG has considered the following options to avoid retailers and consumers incurring unnecessary costs, including uncertainty for the consumer, from inefficient fault management on secondary networks.

Option 1: improved co-ordination between retailer and secondary network owner and amendment to the example embedded network UoSA /UoSAs

4.4.2 The example embedded network UoSA/model Interposed and Conveyance UoSAs could be amended to ensure certainty over *which* party is responsible for management of a fault when it occurs. This approach would be straight-forward because provisions of fault management exist in the existing example embedded network UoSA and Interposed/Conveyance UoSAs. A further benefit is that the UoSA provides parties with flexibility to negotiate terms and conditions in good faith. The disadvantage of this option is that the terms are up to the parties to decide whether the retailer or secondary network owner should be responsible for managing the fault and this negotiation could be lengthy and costly. Improved co-ordination between retailers and secondary network owners also is likely to overcome the uncertainty about fault management at low cost.

Option 2: amend the Guidelines for Secondary Networks

4.4.3 The Guidelines for Secondary Networks could specify parties' responsibilities when a fault occurs on a secondary network. This approach has the advantage of flexibility over if it were included in the Code and the disadvantage of not providing as much certainty as if it were included in the Code. However, this option would not provide the certainty option 1 or 3.

Option 3: amend the Code

4.4.4 Amending the Code to make parties' responsibilities clear and certain when a fault occurs is an option that would provide certainty over the respective roles of each party in the arrangement. However this option would not provide parties with the same flexibility as under the option 1 or 4.

4.4.5 The RAG's preferred option is to clearly define parties' roles in managing faults on secondary networks by amending the Guidelines for Secondary Networks. The RAG believes that flexibility in this area is more important for parties than certainty. This is because specifying the full range of scenarios for managing faults on secondary networks is difficult, as faults could be caused either by the local network, or within the secondary network, and so on.

Option 4: reliance on individual contractual arrangement

4.4.6 The issue of uncertain responsibilities when a fault occurs could be remedied by each party relying on its own contractual arrangement and being directed by the terms and conditions about fault management. This would be a cost-effective option and provide flexibility and certainty on a case by case basis. However, in many cases, the parties do not hold a contract that specifies the process to be followed by the parties when a fault occurs. The RAG was informed by a consumer that their tenancy agreement was silent on electricity supply and any related issues. It could be cumbersome and costly to retrospectively amend all existing as well as future contracts to specify the arrangement between parties when a fault occurs at premises on a secondary network. The RAG therefore prefers option 1.

Option 5: educate consumers over who manages faults on their network

4.4.7 Education of consumers by the retailer/secondary network owner will also be a necessary part of the process. Education only is considered insufficient to solve this issue entirely because of the time taken to educate consumers over this complex area of the electricity industry and it still remains the responsibility of the secondary network owner/retailer. However this option would likely complement the other options set out above on fault management.

Q8.	Do you agree with specifying parties' responsibilities for when a fault occurs on a secondary network in either the UoSAs should one be adopted? Please give reasons for your view.
Q9.	Do you consider there are viable options, in addition to those considered by the RAG, for improving reliability of supply on secondary networks? Please give reasons for your view.

5 Assessment of benefits and costs

5.1.1 This section contains a *qualitative assessment* of the incremental benefits and costs of the preferred option (counterfactual) against the status quo. It is concluded that the preferred option delivers net economic benefits vis-à-vis the status quo.

5.1.2 The assessment is of the preferred option's net benefits in respect of *embedded networks only*. The preferred option does not have material benefits and costs in respect of customer networks and network extensions, and so a cost-benefit analysis has not been undertaken for them.

5.1.3 This is a preliminary assessment. Information on the types of benefits and costs, and on their dollar value, is sought via this consultation. The assessment will be reviewed upon receipt of feedback from interested parties.

Summary assessment of preferred option's net benefits

5.1.4 The table below summarises the preferred option's net benefits, with reference to the Authority's statutory objective. The qualitative assessment indicates that a default embedded network UoSA is the component of the preferred option with the largest net benefit vis-à-vis the status quo. Of the remaining key elements of the preferred option, the qualitative analysis indicates the net benefits may be minor.

Table 1 Summary assessment of preferred option's net benefits

Preferred option's key elements	Competition net benefits	Reliability net benefits	Efficiency net benefits
Default UoSA for embedded networks	✓	✓? (Possibly faster fault resolution)	✓
Uniform notice period for setting up or decommissioning secondary networks		✓	✓
Standardised data transfer formats	✓?		Questionable whether any benefits

Economic efficiency concepts that underpin this cost-benefit analysis

5.1.5 The economic benefits and costs of the preferred option have been categorised as follows:

i) productive efficiency

ii) allocative efficiency

iii) dynamic efficiency.

5.1.6 *Productive efficiency* is achieved when goods and services desired by consumers are produced at minimum cost to the economy.

5.1.7 *Allocative efficiency* is achieved when the marginal value consumers place on a product or service equals the cost of producing that product or service, so that the total of individuals' welfare in the economy is maximised.

5.1.8 *Dynamic efficiency* is achieved by firms having appropriate incentives to innovate and invest in new products and services over time, thereby increasing their productivity and lowering the relative cost of products and services over time.

Productive efficiency net benefits

5.1.9 Under the preferred option, the transaction costs associated with facilitating competition on embedded networks should be lower than under the status quo.

5.1.10 Transaction costs can be thought of as the costs faced by retailers, embedded network owners and other relevant parties in the sale of electricity to consumers on embedded networks.[34]

Reduced transaction costs associated with negotiating embedded network UoSAs

5.1.11 The transaction costs associated with embedded network owners and retailers entering into embedded network UoSAs include the costs of drafting, reviewing, negotiating, amending, approving and maintaining an embedded network UoSA. These costs include time spent by business analysts, technical experts, lawyers, managers and members of Boards or Body Corporates.

5.1.12 By using the default embedded network UoSA under the preferred option, embedded network owners and retailers are able to avoid a significant amount of the transaction costs associated with entering into embedded network UoSAs. Using the default agreement would also reduce the elapsed time for negotiating embedded network UoSAs (for example, from months to weeks, or from weeks to days).

5.1.13 Transaction costs will not be completely eliminated, for at least two reasons. First, the default embedded network UoSA would need to provide for bilateral negotiation of various inter-business operational details (e.g. service standards, business-to-business information exchange, service interruption and connection policies, and pricing and billing information). Second, the default embedded network UoSA would need to evolve over time to accommodate investment and innovation in service and product offerings by retailers and embedded network owners. These transaction costs could be minimised by the Authority updating the default embedded network UoSA in a timely manner.

5.1.14 Over time the reduced transaction costs associated with negotiating embedded network UoSAs may facilitate some dynamic efficiency benefits. Embedded network owners and retailers could be more willing to make amendments to embedded network UoSAs for reasons of service innovation and product development, knowing that the cost of doing so would be materially less than at present.

[34] Examples of other relevant parties include local network owners and metering equipment providers.

Q10.	Based on your experience, what is the average time and cost for a retailer and an embedded network owner to negotiate and thereafter administer an embedded network UoSA when the retailer is entering the embedded network for the first time?
Q11.	What estimated cost saving would your organisation receive from the use of a default embedded network UoSA?

Reduced transaction costs from standardised data transfer formats

5.1.15 If a default embedded network UoSA is adopted, retailers' cost to serve embedded network customers should be reduced through the mandated use of Electricity Information Exchange Protocols (EIEPs) 1, 2, 3 and 12.[35] This would standardise the process and format for the exchange of line charge billing and related information between embedded network owners and traders (retailers).[36]

5.1.16 At least some, but possibly all, of this benefit to retailers would represent a wealth transfer from embedded network owners that do not use these EIEPs. That is, by not using these EIEPs currently, embedded network owners are in effect shifting certain costs from themselves onto retailers. Such a transfer of economic wealth would not be taken into account by the Authority if it were to consider a Code amendment in this area.[37]

5.1.17 If embedded network owners were forced to use EIEPs 1, 2, 3 and 12, it is conceivable the benefit to retailers would be less than the cost to embedded network owners. That is, the prices faced by embedded network consumers could increase.

5.1.18 There may be some competition benefits for embedded network consumers from adopting EIEPs. These competition benefits would result from more retailers being prepared to compete on more embedded networks.[38]

5.1.19 Overall, based on information to hand, it is not currently possible to determine whether there would be a positive or negative net economic benefit from fewer embedded network tariffs, and from standardising the format for exchanging embedded network tariff information.

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[35] Retailers and distributors are required to use EIEPs 1, 2, 3 and 12 if they have entered into a UoSA.

[36] EIEP 1 sets out a format for traders (retailers) to use when providing billing and volume information to distributors at an ICP level, to support the invoicing of fixed and variable line charges and/or to meet operational information requirements of the distributor. It also allows distributors to provide information to traders to support line charge invoices and traders to reconcile the distributor's line charges.

EIEP 2 sets out a format for traders to use when providing aggregated EIEP 1 billing and volume information to distributors. It can also be used by distributors to provide information to traders that supports the distributor's invoice and assists with reconciliation of the distributor's charges.

EIEP 3 sets out a format for traders to use when providing billing and volume information to distributors at an ICP level, to support the invoicing of fixed and variable line charges where half hour metering information is required. For embedded networks this EIEP allows embedded network owners to provide billing and volume information to the parent network owner.

EIEP 12 sets out a format for distributors to use when notifying retailers of changes to tariffs, including the introduction or removal of tariffs.

[37] Refer to the Authority's interpretation of its statutory objective, available at: www.ea.govt.nz/dmsdocument/9494.

[38] It is not just the number of retailers competing on an embedded network that facilitates competition, but also the *threat* of new entrant retailers competing.

Q12.	What would be the cost saving or additional cost to your organisation if embedded network owners were required to use EIEP 1, 2, 3 and 12?

Reduced transaction costs associated with changing the status of an embedded network

5.1.20 Under the preferred option the Code would be amended to specify a minimum timeframe for converting an embedded network or network extension to a customer network. This minimum timeframe should reduce transaction costs, and provide sufficient time to notify affected consumers, for retailers operating on many secondary networks.

5.1.21 It will enable retailers in particular, but also local network owners, to reduce the number of processes and procedures they have to accommodate such status changes. It may also enable retailers, and possibly local network owners, to automate manual processes and to reduce the number of manual workarounds of existing automated processes.

Q13.	What would be the cost saving to your organisation from adopting the notice period in the RAG's preferred option?

Allocative efficiency net benefits

5.1.22 Electricity consumers on embedded networks may receive a greater level of satisfaction from the distribution services they receive under a default embedded network UoSA than under existing embedded network UoSAs. In economic terms, the 'consumer surplus' under a default embedded network UoSA may be greater than under the suite of existing embedded network UoSAs.39

5.1.23 It is the RAG's understanding that an improvement in consumers' satisfaction with embedded network distribution services could be made in respect of:

i) establishing very clear definitions of services received by consumers on embedded networks, defining measures against which to gauge embedded network owners' service performance, and specifying target service levels (for example, the management of faults on embedded networks)

ii) providing further clarification in respect of various activities where embedded network owners interact with consumers on embedded networks (for example, entering a consumer's premises, responding to a request for disconnection).

5.1.24 It is unknown whether these and other improvements under the proposed default embedded network UoSA would result in material additional ongoing costs to embedded network owners. If there were to be an increase in costs for embedded network owners and these were to be passed on to embedded network consumers, then provided this cost was smaller than what the consumers were prepared to pay for the improved service, consumer surplus would increase and there would be a net benefit. However, the reverse may hold.

5.1.25 Operational cost savings for retailers and local network owners as a result of these improvements are expected. For example, secondary network consumers would be expected to liaise more with their secondary network owner over faults, rather than their retailer and/or the local network

[39] Consumer surplus is the economic term for the benefit a consumer receives from buying a good or service. It is the difference between the price a consumer pays for a good or service and the maximum price that consumer would be prepared to pay for the good or service.

owner. Assuming the markets for retail and local network services are delivering workably competitive outcomes, these savings should be passed onto consumers over time.[40]

5.1.26 Overall, it is expected that the allocative efficiency net benefits from using a default embedded network UoSA will be positive, although relatively minor.

Q14.	What would be the cost saving or additional cost to your organisation from clarifying with consumers on embedded networks that the embedded network owner has responsibility for the management of faults, not retailers or local network owners?

Dynamic efficiency net benefits

5.1.27 In some markets, uniform standards have the potential to reduce service and product innovation, as well as to delay improvements to customer service standards (including the cost-effectiveness and efficiency of customer services). The market for designer clothing can be thought of as a good example of this situation. That is, uniform standards in the designer clothing industry would reduce designers' creativity and innovation in clothing.

5.1.28 However, where there is a monopoly provider of a service or product with a high degree of homogeneity across the consumers of that service or product, uniform standards can be an efficient means by which to reflect the preferences of those consumers. This, in turn, provides an opportunity for third parties to provide value-add services or products based on the underlying product or service.

5.1.29 The provision of electricity distribution services on embedded networks is a reasonably good example of this situation. Embedded network owners provide a relatively homogenous service that enables consumers on embedded networks to purchase energy from retailers offering relatively heterogeneous products or services.

5.1.30 In this situation the greatest dynamic efficiency gains arise from strong competition between the energy retailers using the embedded network, as they seek to innovate and offer new and/or more cost-effective products or services to consumers over time. In this way, dynamic efficiency is enhanced by having uniform standards for the provision of embedded network services.

5.1.31 An important caveat is that the standards must be capable of evolving over time where this assists product or service innovation, on the part of embedded network owners as well as retailers, and therefore enhances dynamic efficiency. The RAG anticipates that a default embedded network UoSA would evolve over time, as the electricity regulator's information set evolved.

5.1.32 The RAG's proposed approach also provides for embedded network owners and retailers to bilaterally agree variations to a default embedded network UoSA. This recognises that many individual economic agents will collectively have superior information than regulator.

5.1.33 By providing for this flexibility in negotiating an embedded network UoSA, the RAG considers it unlikely that adopting the preferred option will have significant adverse impacts on dynamic efficiency.

[40] The Authority interprets competition to mean workable or effective competition. Under workable competition, for example, sellers compete on price, quality, location and/or service, or by differentiating their goods or services from their rivals, or through their sales and marketing effort, or via a combination of those activities. Refer to the Authority's interpretation of its statutory objective, available at: www.ea.govt.nz/dmsdocument/9494.

5.1.34 On the other hand, the RAG believes there may be reasonable material dynamic efficiency benefits from adopting a default embedded network UoSA, through the lowering of barriers to entry for entrant retailers on embedded networks.

5.1.35 Enhanced retail competition, including the threat of entrant retailers on embedded networks, increases competitive pressure on electricity prices and encourages efficient investment in capital goods and innovation. It provides embedded network consumers with greater confidence that the price of electricity more closely reflects the marginal cost of producing, transporting and retailing electricity to them, and that price movements are driven by underlying supply and demand movements.

5.1.36 This is consistent with the Authority's interpretation of the competition limb of its statutory objective, which is that the Authority will [exercise] its functions in ways that facilitate or encourage increased competition in the markets for electricity and electricity-related services, taking into account long-term opportunities and incentives for efficient entry, exit, investment and innovation in those markets.41

5.1.37 By reducing the transaction costs associated with retailers entering embedded networks, adopting a default embedded network UoSA should increase the number of retailers/traders competing on embedded networks. Alternatively, it should reduce the likelihood of retailers/traders ceasing to compete on embedded networks. This in turn would lead to increased competitive pressure on electricity prices in embedded networks vis-a-vis what would arise under the status quo.

5.1.38 In summary, the dynamic efficiency benefits from adopting a default embedded network UoSA are expected to be larger than any potential dampening of dynamic efficiency from adopting such an arrangement.

Q15.	Do you agree that the adoption of a default embedded network UoSA will enhance retail competition on embedded networks? Please give reasons supporting your answer.

Establishment costs

5.1.39 The Authority and industry participants would incur implementation costs if the RAG's preferred option were to be implemented.

5.1.40 The Authority's costs would relate primarily to the cost of preparing a default embedded network UoSA, including consultation with interested parties.

5.1.41 Participants' costs would primarily relate to responding to further consultation documents released by the Authority, and making any necessary changes to their internal policies, procedures and systems to accommodate the terms of the default embedded network UoSA and the Guidelines for Secondary Networks.

Q16.	What is the cost estimate for your organisation to review and comment on a draft default embedded network UoSA, prepared using the Authority's model local network UoSA and the Authority's guidelines for drafting embedded network UoSAs?

[41] Paragraph A.30 of the Authority's interpretation of its statutory objective, available at: www.ea.govt.nz/dmsdocument/9494.

Appendix A Format for submissions

Question No.	General comments in regards to the:	Response

Appendix B Jurisdiction over secondary networks

5.1.42 The legal framework for secondary networks includes the:

a) the Act[42]

b) Commerce Act 1986[43]

c) Fair Trading Act 1986[44]

d) Consumer Guarantees Act 1993[45]

e) the Code[46]

f) Guidelines for Metering, Reconciliation and Registry Arrangements for Secondary Networks[47]

g) Guidelines for drafting embedded network use of system agreements[48]

h) Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004.

5.1.43 The legislative requirements do not explicitly specify:

a) that consumers must have individual choice of retailer

b) a reasonable notice period for retailers and secondary network owners to set up or decommission a secondary network

c) clear responsibilities for managing faults on secondary networks

d) a mandatory UoSA for embedded networks.

5.2 The jurisdiction of the Commerce Commission and the Authority

5.2.1 The RAG is mindful of potential confusion between the Authority's role and that of the Commerce Commission. The Commerce Commission is responsible for enforcing the Fair Trading Act and the Commerce Act, which help promote competition. For this reason, the RAG considers a number of the issues raised on secondary networks during the course of its research may fall in an area that the Commerce Commission is responsible for, not the Electricity Authority. In brief:

a) the Fair Trading Act helps ensure consumers get accurate information when making purchasing decisions. The Fair Trading Act makes it illegal for businesses to mislead consumers, give false information, or use unfair trading practices. The Fair Trading Act does not tell businesses what they can or cannot charge customers but it does tell businesses that their prices, and how they represent those prices, must be accurate[49]

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42 Electricity Industry Act 2010, available at: www.legislation.govt.nz/act/public/2010/0116/latest/whole.html#DLM2634233.

43 Commerce Act 1986, available at: www.legislation.govt.nz/act/public/1986/0005/latest/DLM87623.html.

44 Fair Trading Act 1986, available at: www.legislation.govt.nz/act/public/1986/0121/latest/DLM96439.html.

45 Consumer Guarantees Act 1993, available at: www.legislation.govt.nz/act/public/1993/0091/latest/DLM311053.html.

46 Electricity Industry Participation Code, available at: www.ea.govt.nz/code-and-compliance/the-code/.

47 Guidelines for Metering, Reconciliation and Registry Arrangements for Secondary Networks, available at: www.ea.govt.nz/dmsdocument/6077.

48 Guidelines for drafting embedded network use of system agreements, available at: www.ea.govt.nz/dmsdocument/13648.

49 Commerce Commission, *Electricity and the Commerce Commission's role*, www.comcom.govt.nz/regulated-industries/electricity/electricity-role/.

b) the Commerce Act is intended to promote competition in markets for the long-term benefit of consumers. The Commerce Commission regulates markets where competition is limited because, in these circumstances, there is the risk that consumers are overcharged or do not receive the quality of service they require. For electricity, the Commerce Commission investigates anti-competitive behaviour across the electricity industry and regulates transmission and distribution lines services. The Commerce Act makes a range of anti-competitive behaviour illegal, including where a business uses its market power anti-competitively.[50] Under section 36 of the Commerce Act, a business that has a substantial degree of power in a market must not take advantage of that power to restrict the entry of another business into that or any other market or prevent or deter a business from engaging in competitive conduct in that or any other market.[51]

5.2.2 The memorandum of understanding between the Authority and the Commerce Commission sets out the respective roles under the Act and the Commerce Act.[52]

5.2.3 The Authority must consult with the Commerce Commission before amending the Code in a manner that will, or is likely to, affect the Commerce Commission in the performance of its functions or exercise of its powers.[53]

5.2.4 Under Part 4 of the Commerce Act 1986 suppliers of electricity lines services are subject to default/customised price-quality regulation. However, as most customer networks convey electricity for a total number of less than 500 consumers with a total amount of electricity is less than 20 gigawatt hours per year, the customer networks are likely in all cases to be exempt from both price-quality regulation and information disclosure requirements. Furthermore, even if they were subject to price-quality regulation, the Commission does not control the pricing methodology of regulated suppliers.

5.2.5 The Ministry of Business, Innovation and Employment (MBIE) administers the Act. If it was decided that more stringent regulation is required or, for example, that a particular type of network ought to be absolved, then MBIE would be responsible for this decision.

[50] Commerce Commission, *Electricity and the Commerce Commission's role*, www.comcom.govt.nz/regulated-industries/electricity/electricity-role/.

[51] See section 36 of the Commerce Act.

[52] MOU between the Authority and the Commerce Commission, available at: www.ea.govt.nz/dmsdocument/8957.

[53] See section 54V of the Commerce Act.