COMMERCE COMMISSION NEW ZEALAND
Te Komihana Tauhokohoko

Emerging technologies in the electricity sector

Input methodologies review workshop

14 December 2015

Overview

- Emerging technology – areas of focus
- Objective of this workshop
- Recap: how we regulate
- Scope of regulation
- Scenarios
- Cost allocation IM
- Questions

Emerging technology – areas of focus

- Risk of partial capital recovery
- Efficient investment incentives
- Today's workshop: regulatory treatment of revenues and costs?
  - Are the existing provisions 'complete' and 'future proof'
  - Are they too flexible, or too prescriptive?
  - Do they, and should they, provide a level-playing field for investments in emerging technologies?

Objective of this workshop

- Shared understanding of *current* treatment of EDB revenues and costs associated with emerging technologies under Part 4
  - What's out?
  - What's in?
  - What proportion is in?
- What changes to those provisions (especially IMs) would better promote the purpose of Part 4, the purpose of IMs, or reduce costs/complexity
- We won't have all the answers, but we hope to identify all the questions!

Recap: how we regulate

- We regulate **prices** and **quality** of electricity lines services – not costs
- We do so by setting IMs and through price-quality determinations
- We consider s52A, s54Q, s52T(3) etc
- Regulated maximum revenues recover
  - certain types and proportion of costs (capex, opex, pass-through costs etc)
  - financial incentives (rewards/penalties)

Existing rules

- Limited guidance in IMs (load control relays are one exception) on interpretation of ‘electricity lines services’ and on what may go into the regulatory asset base (RAB)
- Asset must be ‘used’ (in whole or in part) to provide electricity lines services
- Operating costs must be ‘attributable’ (in whole or in part) to the provision of electricity lines services
- Three cost allocation approaches
- No revenue allocation rules
- Capital contributions defined

Summary of key points

1. The IMs play an important – yet only partial – role in determining the regulatory treatment of revenues and costs

2. The IMs attempt to balance flexibility and prescription

3. The cost allocation IM must not unduly deter investment by EDBs in other goods and services

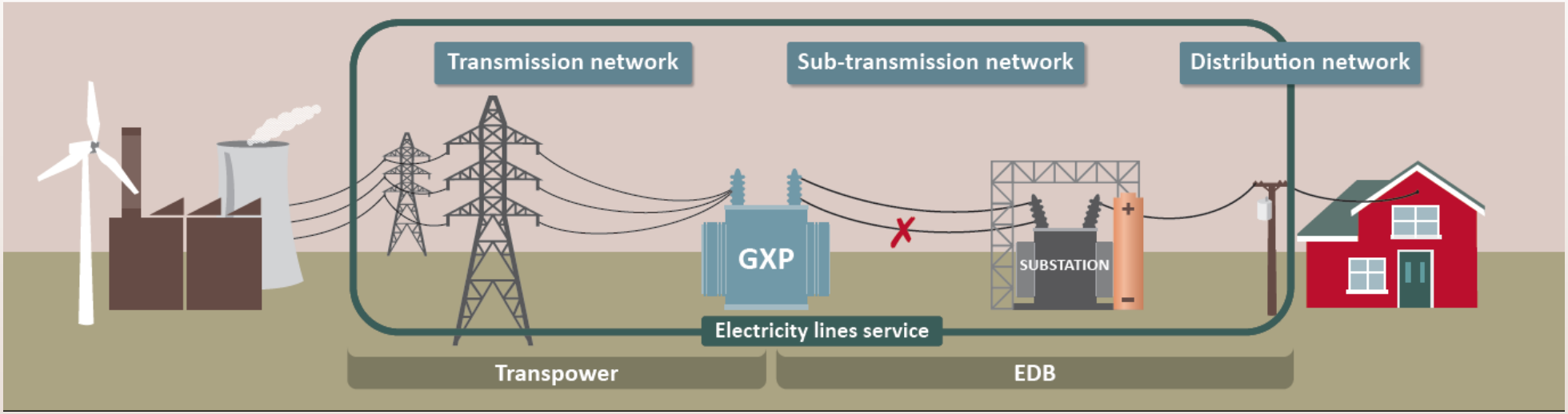
Scope of regulation

Scope of regulation

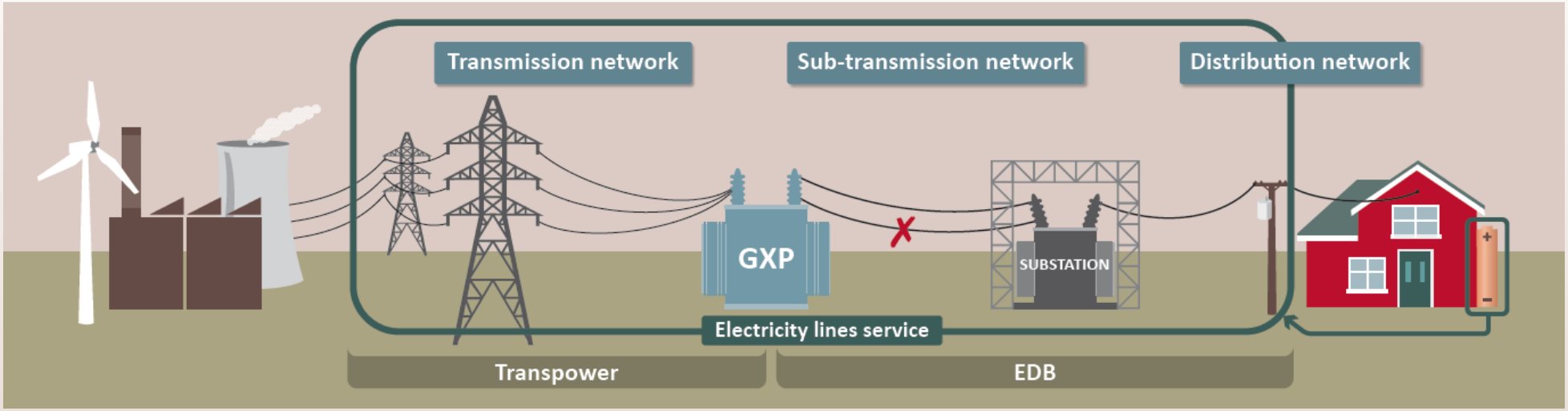
The purpose of this discussion is to:

- Explain how we view the ‘scope of regulation’ for electricity lines services as defined in Part 4, Commerce Act
- Then be able to apply this to the scenario discussion, ie ‘is it part of a regulated or unregulated service?’
- Identify any questions related to the ‘scope of regulation’

What is the electricity lines service as defined in Part 4?



What can be considered within the scope of the regulated service?



Key questions when considering scope of the regulated service

Is what the supplier doing part of the service, where the service:

- Is the conveyance of electricity by line; and
- Is not excluded by any of the exceptions in s54(C)2?

Exceptions for generation, services that are subject to competition from other lines services suppliers, small scale

And then ask:

- Is the asset ‘used to provide’ the regulated service?
- Is the cost attributable to the regulated service (in relation to an activity)?

Part 4 provisions - scope of regulation

54C Meaning of electricity lines services

(1) In this subpart, unless the context otherwise requires, **electricity lines services**—

(a) means the conveyance of electricity by line in New Zealand; and

(b) with respect to services performed by Transpower, includes services performed as system operator.

(2) However, none of the following are electricity lines services:

(a) conveying electricity solely for the supplier's own consumption or for the consumption of the supplier's associates:

(b) conveying electricity only from a generator to the national grid or from the national grid to a generator:

(c) conveying electricity (other than via the national grid) only from a generator to a local distribution network or from a local distribution network to a generator:

(d) conveying electricity by lines that are not connected, directly or indirectly, to the national grid:

(e) conveying electricity only by a line or lines that are mostly in competition with a line or lines operated by another supplier of electricity lines services that is not an associate of the person, provided that the competition is actual competition and not potential competition:

(f) conveying electricity if the total circuit length of all of the prescribed voltage electric lines provided by the supplier (or over which electricity is conveyed by the supplier, as the case may be) is less than 25 kilometres:

(g) conveying electricity if the total amount of electricity conveyed to consumers by the supplier is less than 20 gigawatt hours per annum:

(h) conveying electricity if the total number of consumers to whom the supplier conveys electricity is less than 500.

(3) The prescribed voltage electric lines, the electricity conveyed, or the number of consumers to whom electricity is conveyed, when measured in relation to a supplier include, for the purposes of subsection (2)(f) to (h), the lines provided by, electricity conveyed by, or number of consumers of, any associate of the supplier.

(4) In this section, unless the context otherwise requires,—

associate has the same meaning as in section 73 of the Electricity Industry Act 2010

consumer has the same meaning as in section 2(1) of the Electricity Act 1992

lines has the same meaning as in section 2(1) of the Electricity Act 1992

national grid has the same meaning as in section 5 of the Electricity Industry Act 2010

prescribed voltage electric line means a line that is capable of conveying electricity at a voltage equal to or greater than 3.3 kilovolts.

54E Electricity lines services declared to be regulated

Electricity lines services are regulated under this Part.

Electricity Act definitions

2 – Interpretation

lines means works that are used or intended to be used for the conveyance of electricity

works—

(a) means any fittings that are used, or designed or intended for use, in or in connection with the generation, conversion, transformation, or conveyance of electricity; but

(b) does not include any part of an electrical installation

electrical installation—

(a) means—

(i) in relation to a property with a point of supply, all fittings beyond the point of supply that form part of a system that is used to convey electricity to a point of consumption, or used to generate or store electricity; and

(ii) in relation to a property without a point of supply, all fittings that form part of a system that is used to convey electricity to a point of consumption, or used to generate or store electricity; but

(b) does not include any of the following:

(i) an electrical appliance:

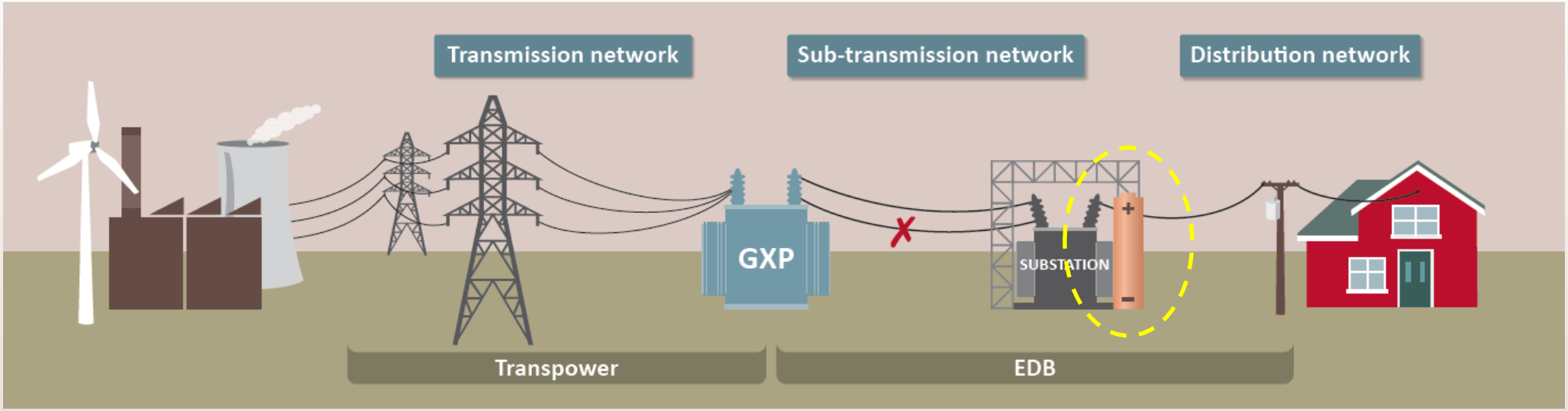
(ii) any fittings that are owned or operated by an electricity generator and that are used, designed, or intended for use in or in association with the generation of electricity, or used to convey electricity from a source of generation to distribution or transmission lines:

(iii) any fittings that are used, designed, or intended for use in or in association with the conversion, transformation, or conveyance of electricity by distribution or transmission lines

Scenarios

Scenario 1
Distribution network battery

EDB buys and installs battery in its network as an alternative to traditional network upgrades. Battery is metered



Location	Ownership	Control	Use	Revenues	Capex	Opex
EDB network	EDB	EDB	- Defer capex - Improve reliability - Reduce transmission charges - Unregulated service	*Received by EDB* - Selling energy at discharge - Quality incentive - Unregulated service	*Incurred by EDB* Battery	*Incurred by EDB* Wholesale energy purchases

Notes: GXP = grid exit point

Scenario 1
Distribution network battery

Regulatory treatment of costs and revenues

- Treatment of capital costs

Battery *used to provide* both regulated and unregulated services → cost allocation IM must be applied to allocate capital costs → ACAM if threshold not reached; ABAA otherwise; OVABAA option if investment unduly deterred

- Treatment of operating costs

Operating costs are *attributable to* both regulated and unregulated service → cost allocation IM must be applied → ACAM if threshold not reached; ABAA otherwise; OVABAA option if investment unduly deterred

- Treatment of revenues

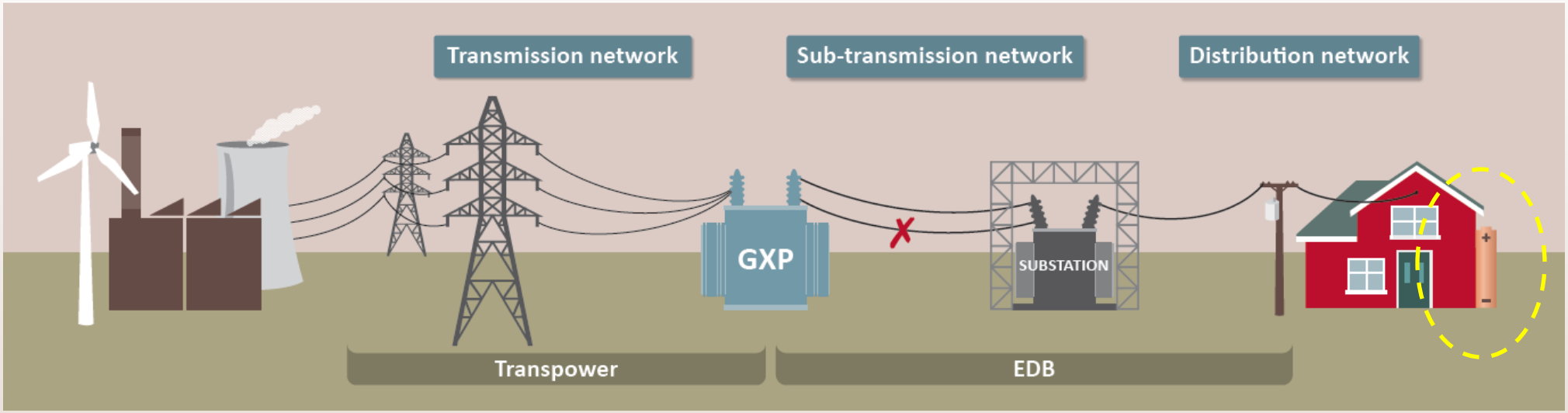
Revenues *attributable to* both regulated and unregulated service. Line charges will be affected by above treatment of capex and opex. There are three additional revenue streams:

1. Selling energy at discharge → ?
2. Quality incentive → regulated
3. Unregulated services → unregulated

Scenario 2

Consumer owned and controlled battery behind meter

Consumer buys battery from EDB and installs it behind the meter in order to reduce its bill by optimising the time of sourcing electricity from the grid



Location	Ownership	Control	Use	Revenues	Capex	Opex
Consumer premises	Consumer	Consumer	- Reduce bill (primary) - Defer capex (u) - Improve reliability (u) - Reduce transmission charges (u)	*Received by EDB* Sale of battery	*Incurred by consumer* Battery	*Incurred by consumer* Retail energy purchases

Notes: GXP = grid exit point; u = unintended effect for EDB

Scenario 2

Consumer owned and controlled battery behind meter

Regulatory treatment of costs and revenues

- Treatment of capital costs

Battery *not used to provide* regulated service → capital costs not considered in regime

- Treatment of operating costs

Operating costs (incurred by consumer) *not attributable to* regulated service → operating costs not considered in regime

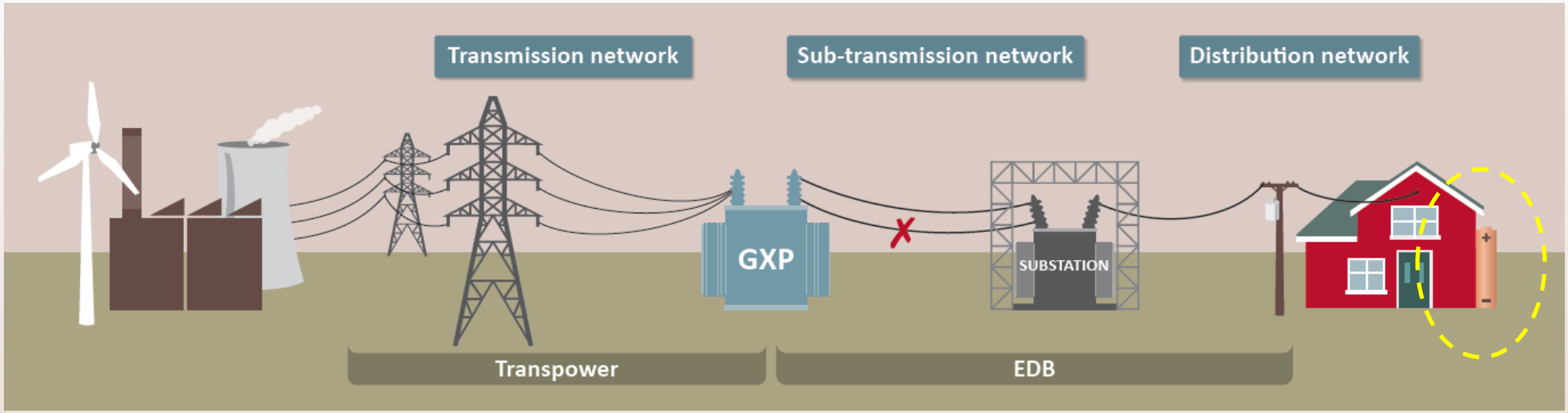
- Treatment of revenues

Revenues *not attributable to* regulated service → revenues are unregulated

Scenario 3

EDB owned and controlled battery behind meter

EDB buys and installs battery behind the meter as an alternative to traditional network upgrades



Location	Ownership	Control	Use	Revenues	Capex	Opex
Consumer premises	EDB	EDB	- Reduce bill (primary) - Defer capex (s) - Improve reliability (s) - Reduce transmission charges (s) - Unregulated service	*Received by EDB* - Consumer lease payments - Quality incentive - Unregulated service	*Incurred by EDB* Battery	*Incurred by EDB* Retail energy purchases

Notes: GXP = grid exit point; s = secondary use for EDB

Scenario 3

EDB owned and controlled battery behind meter

Regulatory treatment of costs and revenues

- Treatment of capital costs

Battery *used to provide* both regulated and unregulated services → cost allocation IM must be applied to allocate capital costs → ACAM if threshold not reached; ABAA otherwise; OVABAA option if investment unduly deterred

- Treatment of operating costs

Operating costs (incurred by consumer) *not attributable to* regulated service → operating costs not considered in regime

- Treatment of revenues

Revenues *attributable to* both regulated and unregulated service. Line charges will be affected by above treatment of capex and opex. There are three additional revenue streams:

1. Monthly lease payments from consumer → potentially treated as capital contributions
2. Quality incentive → regulated
3. Unregulated services → unregulated

Cost allocation IM

Cost allocation IM
The methodologies

Proportion of costs allocated from unregulated service to regulated service

Definitions

- ACAM: avoidable cost allocation methodology
- ABAA: accounting-based allocation approach
- OVABAA: optional variation to the accounting-based allocation approach

Cost allocation IM
Which methodology to use?

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- Step 1: allocate OCDA and AVDA to the regulated service they are wholly and solely attributable to
- Step 2: allocate OCnDA and AVnDA to the regulated service they are associated with using ABAA. However:

→ if unregulated revenue <20% regulated rev → ACAM *may* be used

→ if unregulated revenue >20% regulated rev → then

- if OCnDA (less arm's length deduction) <15% OPEX → ACAM *may* be used

- if AVnDA (less arm's length deduction) <10% RAB → ACAM *may* be used

→ if investment unduly deterred → OVABAA

Definitions

- OC(n)DA: operating cost (not) directly attributable
- AV(n)DA: asset values (not) directly attributable

Questions

1. Do you agree with the contents of the paper?
2. Do you think that relying on EDBs to determine if an asset is *used to provide* - or an operating cost is *attributable to* – the regulated service is appropriate?
3. Do you think that the flexibility provided by three different cost allocation methodologies is appropriate?
4. Do you think that the materiality thresholds for determining which cost allocation methodology should be used are appropriate?
5. Do you think that the rules and processes for determining the circumstance in which OVABAA can be employed are appropriate?
6. Do you think that the definition of capital contributions is appropriate?
7. Are you aware of any revenue/costs that are currently treated as regulated (unregulated) when they *may not* and/or *should not* be?
8. Are you aware of any EDB prices that bundle charges for both regulated and unregulated services, or reasons why such bundled charges might be offered?
9. Are you aware of any arrangement where revenue from the supply of electricity lines services would be best treated as capital contributions?
10. Do you think additional R&D or innovation incentives are needed? If so, what?

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