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# Appendix D – Justification for Recovery of Regulated Inventory Costs

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**September 2011**





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# Justification for the recovery of regulated inventory costs

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## 1 Recovery of regulated inventory costs

Western Power will add to its opening capital base in AA3 the value of the inventory assets required to support the efficient delivery of services on the covered network.

The addition of inventory assets to the capital base will earn a return on this investment to recover the financing costs that we incur in holding these assets to support our provision of covered services. A depreciation allowance on our inventory assets has not been sought. Our decision to not recover depreciation reflects the fact that an inventory asset does not commence its useful life until it is allocated for use to a specific activity or project from inventory.

The recovery of the costs to finance inventory (through our regulated revenue cap) appropriately recovers the direct costs of financing regulated inventory assets from the business segments that incur the costs – transmission and distribution.

## 2 The current treatment of regulated inventory

Our development of a cost and revenue allocation method (CRAM) has identified the practice in AA2 of not allocating inventory financing costs to the regulated side of our business. This means that inventory is purchased to support our provision of covered services, however the cost to finance this inventory (until the asset is allocated to a specific activity or project) is not recovered through covered services. This is in contrast to the common practice adopted by other Australian electricity network businesses.<sup>1</sup>

Western Power has addressed this issue in AA3 by recovering the financing costs associated with its inventory investment through its regulated revenue cap. The recovery of these financing costs from our covered network operations reflects the fact that inventory assets are held in readiness for use on the covered network. Acting in line with good electricity industry practice requires that we hold an efficient level of inventory. Without inventory, our ability to undertake planned work and respond to and repair faults on the network would be severely compromised, to the detriment of covered network users.

## 3 Determining the efficient inventory value

We have only added the value of our efficient inventory investment to our capital base in AA3. This meets the objectives of Section 6.4(a)(i) of the Access Code which states that an access arrangement must provide a service provider the opportunity to recover:

*“an amount that meets the forward-looking and efficient costs of providing covered services, including a return on investment”.*

Recovery in this manner promotes the development of efficient prices, and efficient prices signal to the user the costs that they create through their use of services on the covered network. Such pricing promotes efficient utilisation of the network, offering long term benefits to Western Power and its customers through lower costs and lower network tariffs.

Our efficient inventory investment has been allocated between transmission, distribution and unregulated (external asset sales) categories. This makes it possible to directly allocate inventory to our capital base. Following this, annual adjustments are made to the

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<sup>1</sup> Examples from other Australian electricity network businesses include Ergon Energy (CAM refers to allocation of inventory and materials), Integral (CAM refers to allocation of inventory), Country Energy (CAM refers to allocation of inventory), Energex (CAM refers to allocation of material costs, logistics and warehousing costs) and EnergyAustralia (CAM refers to allocation of logistics and warehousing costs).

amount of inventory within our capital base to align with our forecast level of inventory investment.

The formula we use to calculate the value of our inventory investment in AA3 is:

$$\text{Inventory investment} = (\text{regulated materials consumed} / \text{asset turnover}) + (\text{regulated insurance spares})$$

Where:

- 'Materials consumed' refers to the value of materials used for construction and ongoing maintenance. These assets are used daily with a large portion relating to planned maintenance, so inventory items in this category are reordered repeatedly throughout the year when they are taken from inventory for use on the covered network.
- 'Asset turnover' identifies the forecast number of times per annum that inventory items in the 'materials consumed' category are utilised and reordered (and hence turned over). We have used an asset turnover rate of '3 times per annum' to calculate our forecast level of efficient inventory for both transmission and distribution. Our inventory investment formula shows that a higher turnover rate produces a lower inventory value. Our use of a turnover rate of 3 means that our inventory investment only includes one third of our annual 'materials consumed' at any one time. A turnover rate of 3 is the turnover rate that we aim to achieve over AA3. It is based on industry statistics and our analysis of current internal inventory reporting.
- 'Insurance spares' are held specifically for assets that are of critical importance to the covered network. They are typically few in number and can have long lead times for delivery once ordered. Insurance spares safe guard against the possibility that an asset of importance to the network (for which they are a spare) could fail and require replacement.<sup>2</sup> Insurance spares are held as back up and so it is assumed that they are not 'turned over' in a year, but instead held ongoing to respond to unexpected asset failures.

We know that our forecast inventory investment is efficient because we rely on the operation of the formula that is used to calculate its value to ensure this. The formula we use only includes the inventory investment (materials consumed) that we require annually to undertake planned work and repair faults on the network, to maintain the safety and reliability of our covered network services. The formula incorporates an asset turnover rate, which means that the value of our inventory investment forecasts only reflects the assets held within our inventory at any one time, and not the total amount of inventory that we use within a year.

The formula that we use to forecast our inventory investment excludes the assets within our current stock of inventory that we consider do not meet NFIT. Assets relating to cancelled projects that are specific in nature are an example of this. These assets are excluded because they do not provide incremental revenue, offer benefits to the network or maintain safety and reliability, and so do not meet NFIT.

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<sup>2</sup> Insurance spares differ from strategic spares. Strategic spares relate to a specific individual asset, whereas insurance spares relate to a common type of asset (of which there is more than one). Strategic spares are not included within inventory.

Table 1 provides our forecast level of efficient inventory investment over AA3.

**Table 1: Inventory investment for AA3 (\$'000, real as at 30 June 2012)**

	2012/13	2013/14	2014/15	2015/16	2016/17
Transmission	20,039	28,543	31,435	28,964	28,535
Distribution	52,399	53,551	54,575	51,961	53,071
Total	72,438	82,094	86,010	80,924	81,606

## 4 Benchmarking comparisons

We have reviewed the value of our inventory investment against the value of inventory held by the combined total of networks in other Australian states.<sup>3</sup> Table 2 presents a comparison of the combined inventory values and works program sizes for transmission and distribution network utilities in Victoria, New South Wales, Queensland and Tasmania, against the inventory value and works program of Western Power. Table 3 provides a similar comparison – it compares inventory values and network line length.

### 4.1 Inventory value to works program size

A comparison of *inventory value to works program size* provides a measure of the inventory held by a business to undertake planned work on the network. This measure does not recognise the need to hold inventory to repair network faults (reactive maintenance) and is heavily influenced by the size of a business' works program.

Table 2 shows that our performance is within the range of the combined totals for transmission and distribution networks in Victoria, New South Wales, Queensland and Tasmania. Our inventory value as a percentage of our works program size is 6.0%. A comparison of this measure puts us in line with the performance of Queensland. However, while we compare favourably to Tasmania, on this measure we are behind Victoria and New South Wales which places us above the average of 5.2%.

**Table 2: Inventory value to works program size – interstate network comparison**

Company/state	Works program size (\$ million)	Inventory value (\$ million)	Inventory percentage of works program (%)
Western Power	1,226	74	6.0%
Victoria	1,728	64	3.7%
NSW	5,086	135	2.7%
Queensland	3,960	216	5.5%
Tasmania	382	31	8.0%
Average	2,476	104	5.2%

### 4.2 Inventory value to network size

A comparison of *inventory value per kilometre of network line length* provides a measure of the value of inventory held in relation to network size. In addition to holding inventory to undertake planned work, inventory is also required to respond to and repair faults on the network. The larger the network, the greater the value of inventory required to undertake reactive maintenance.

<sup>3</sup> South Australia was excluded from this benchmarking exercise because an inventory value for ElectraNet (the operator of South Australia's transmission network) was not publicly available and so benchmarking was not possible.



Dividing the inventory value by the network line length in Table 3 gives the inventory value per kilometre of network line length for transmission and distribution networks of Western Power and the four states of Victoria, New South Wales, Queensland and Tasmania. Table 3 shows that our inventory value per kilometre of network line length of \$772 sits within the range of the other four states and is in proximity to the average of \$739.

**Table 3: Inventory value to network size – interstate network comparison**

Company/state	Network size (line length in kilometres)	Inventory value (\$'000)	Inventory value per kilometre of network line length (\$)
Western Power	95,374	81,846	772.00
Victoria	163,053	63,908	391.95
NSW	294,991	135,020	457.71
Queensland	221,467	216,330	976.80
Tasmania	28,035	30,771	1,097.59
Average	160,584	105,575	739.21

The inventory benchmarking above provides a crude measure to relate and compare the inventory values of the Western Power, Victorian, NSW, Queensland and Tasmanian networks. The benchmarking exercise demonstrates that Western Power falls within the range of values in other states. This is despite the disadvantages that we face from being further away from our suppliers (relative to the east coast networks). This geographical disadvantage means that we incur longer lead times when ordering materials, which increases the stock of inventory that we are required to hold to efficiently support our covered network operations.

## 5 Regulated inventory and NFIT

Western Power's inventory investment has been added to the capital base because it meets the requirements of the New Facilities Investment Test (NFIT) at section 6.52 of the Access Code.

Inventory is a 'new facility' by definition because it has not yet commenced its useful life. Our investment in inventory meets the efficiency requirements of the 'first leg' of NFIT at section 6.52(a) of the Access Code because:

- the formula we use to calculate our forecasts ensures that we do not exceed the amount that would be invested by a service provider efficiently minimising costs:
  - we only include the inventory that we require annually to undertake planned work and repair faults on the network (to maintain the safety and reliability of our covered network services)
  - we exclude the assets within our current stock of inventory that we consider do not meet NFIT
- benchmarking provides evidence that our inventory performance is in keeping with the performance of interstate networks
- our inventory investment allows us to undertake planned work and repair faults in a timely manner to avoid more costly interim solutions, and so is fundamental in allowing us to efficiently minimise our costs.

The 'second leg' of NFIT requires that one of the conditions of section 6.52(b) is met.

Section 6.52(b)(iii) of the Access Code requires that "the new facility is necessary to maintain the safety or reliability of the covered network or its ability to provide contracted covered services." This condition is met because our inventory investment is required to undertake planned work and respond to and repair faults and emergencies on the network, to preserve network safety and reliability.

The condition of section 6.52(b)(iii) is met, so the second leg of the NFIT is satisfied.

Our efficient investment in inventory forms part of our forward looking efficient costs for AA3. It passes NFIT and has been added to the capital base in line with the requirements of 6.4(a)(i) of the Access Code.