



22 April 2013

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Mr Chris Pattas  
General Manager – Network Operations and Development  
Australian Energy Regulator  
GPO Box 520  
Melbourne VIC 3001

By email: [expenditure@aer.gov.au](mailto:expenditure@aer.gov.au)

Dear Mr Pattas

Jemena Electricity Networks (Vic) Ltd (**JEN**) is pleased to make this submission in response to the AER's proposal for asset categories and sub-categories for the replacement and augmentation expenditure tools (**the proposal**) which the AER distributed following the workshop held on 27 March 2013.

JEN has contributed to and supports the submission that the Energy Networks Association (**ENA**) has made in response to the proposal. In particular we support:

- the proposition that asset groups and categories should be defined at a high level such that they encompass all businesses, but that individual businesses should be free to add sub-categories that reflect their particular circumstances
- the observation that it is unlikely that businesses will be in a position to provide all required data at auditable quality and that RIN requirements will need to reflect those limitations.

We note also that the ENA submission includes an alternative asset grouping/categorisation structure to that in the proposal.

The proposal asks businesses to indicate those sub-categories which are likely to apply to them and to nominate a new category or sub-category as appropriate to capture assets that do not readily fall into any of the categories and sub-categories listed in the proposal. While we would prefer to see the AER adopt the structure proposed by the ENA in its submission, we recognise that the AER may instead decide to proceed on the basis of the structure in the proposal. The attached table sets out JEN's observations on that structure.

If you wish to discuss this submission, please contact Peter Wong, Manager Network Technology, on 03 8544 9244 or by email at [peter.wong@jemen.com.au](mailto:peter.wong@jemen.com.au).

Yours sincerely

A handwritten signature in blue ink, appearing to read 'R McMillan', with a stylized flourish at the end.

**Robert McMillan**  
General Manager Regulation

## Asset replacement and augmentation modelling – JEN observations on the AER’s proposed asset categorisation

### 1. REPLACEMENT

Network Segments / Sub-categories	Does JEN have assets in this category?	JEN Comments
<b>POLES</b>		
Steel towers on distribution line	Very few, if any	
Steel towers on sub-transmission line	Very few, if any	
Monopoles on distribution line	None	
Monopoles on sub-transmission line	None	
Wooden HV poles on CBD feeder	None	
Wooden HV poles on urban feeder	Yes	
Wooden HV poles on short rural feeder	Yes	
Wooden HV poles on long rural feeder	None	
Concrete HV poles on CBD feeder	None	
Concrete HV poles on urban feeder	Yes	
Concrete HV poles on short rural feeder	Yes	
Concrete HV poles on long rural feeder	None	
Wooden LV poles on CBD feeder	None	
Wooden LV poles on urban feeder	Yes, many common ST, HV and LV poles	
Wooden LV poles on short rural feeder	Yes, many common ST, HV and LV poles	
Wooden LV poles on long rural feeder	None	
Concrete LV poles on CBD feeder	None	
Concrete LV poles on urban feeder	Yes, many common ST, HV and LV poles	
Concrete LV poles on short rural feeder	Yes, many common ST, HV and LV poles	
Concrete LV poles on long rural feeder	None	
<b>POLE TOP STRUCTURES</b>		
Pole top structures on CBD feeder	None	
Pole top structures on urban feeder	Yes	
Pole top structures on short rural feeder	Yes	
Pole top structures on long rural feeder	None	
Pole top structures on a SWER HV feeder	Yes	Note that JEN is replacing its SWER feeders by 3-phase equivalent and would expect this category is no longer applicable from 2014 onwards.
Break down each of these sub-categories by voltage level	Yes	
<b>OVERHEAD CONDUCTORS</b>		
Bare sub-transmission conductors	Yes	
Bare conductors on 3-phase HV CBD feeder	None	
Bare conductors on 3-phase HV urban feeder	Yes	
Bare conductors on 3-phase HV short rural feeder	Yes	

<b>Network Segments / Sub-categories</b>	<b>Does JEN have assets in this category?</b>	<b>JEN Comments</b>
Bare conductors on 3-phase HV long rural feeder	None	
Bare conductors on single-phase HV CBD feeder	None	
Bare conductors on single-phase HV urban feeder	Few, if any	
Bare conductors on single-phase HV short rural feeder	Few, if any	
Bare conductors on single-phase HV long rural feeder	None	
Bare conductors on a SWER HV feeder	Yes	Note that JEN is replacing its SWER feeders by 3-phase equivalent and would expect this category is no longer applicable from 2014 onwards.
Bare conductors on LV CBD feeder	None	
Bare conductors on LV urban feeder	Yes	
Bare conductors on LV short rural feeder	Yes	
Bare conductors on LV long rural feeder	None	
Covered or ABC conductors on HV CBD feeder	None	
Covered or ABC conductors on HV urban feeder	Yes but minimal	
Covered or ABC conductors on HV short rural feeder	None	
Covered or ABC conductors on HV long rural feeder	None	
Covered or ABC conductors on LV CBD feeder	None	
Covered or ABC conductors on LV urban feeder	Yes	
Covered or ABC conductors on LV short rural feeder	Yes but minimal	
Covered or ABC conductors on LV long rural feeder	None	
<b>UNDERGROUND CABLES</b>		
Underground submarine cables on a sub-transmission line	None	For underground cables, JEN is of the opinion that it is far better to categorise them based on voltage and construction - oil, paper, XLPE - than submarine and non-submarine
Underground non-submarine cables on a sub-transmission line	Yes	
Underground submarine cables on a HV CBD feeder	None	
Underground non-submarine cables on a HV CBD feeder	None	
Underground submarine cables on a HV urban feeder	Yes but very few km	
Underground non-submarine cables on a HV urban feeder	Yes	
Underground submarine cables on a HV short rural feeder	None	
Underground non-submarine cables on a HV short rural feeder	Yes	
Underground cables on LV CBD feeder	None	
Underground cables on LV urban feeder	Yes	
Underground cables on LV short rural feeder	Yes	
Underground cables on LV long rural feeder	None	
<b>SERVICES</b>		
Overhead services	Yes	
Underground services	Yes	
<b>DISTRIBUTION TRANSFORMERS</b>		
Pole-mounted transformers < 50kVA	Yes	
Pole-mounted transformers >= 50kVA and <=300kVA	Yes	
Pole-mounted transformers > 300kVA	Yes	

<b>Network Segments / Sub-categories</b>	<b>Does JEN have assets in this category?</b>	<b>JEN Comments</b>
Ground-mounted transformers < 50kVA	None	
Ground-mounted transformers >= 50kVA and <=300kVA	Yes	
Ground-mounted transformers > 300kVA	Yes	
<b>DISTRIBUTION SWITCHGEAR</b>		
Pole-mounted ACR	Yes	
Pole-mounted HV circuit breaker	None	
Pole-mounted air/gas switch	Yes	
Pole-mounted EDO fuse	Yes	
Pole-mounted other fuse	Yes	
Pole-mounted surge diverter	Yes	
Pole-mounted HV links		It is not clear what this means. Are these isolators?
Ground-mounted ACR	None	
Ground-mounted HV circuit breaker		Suggest changing this to Ring Main Unit to include both circuit breaker and line switches that are inherently used together.
Ground-mounted air/gas switch	Yes, in indoor subs	
Ground-mounted EDO fuse	Yes, in indoor subs	
Ground-mounted other fuse	Yes, in indoor subs	
Ground-mounted surge diverter	None	
Ground-mounted HV links		It is not clear what this means. Are these isolators?
AER query - do DNSPs routinely distinguish between ground mounted and pole mounted for these items?		This equipment is generally associated with the substations. JEN distinguishes between pole-mounted substations and ground/indoor and kiosk substations.
<b>DISTRIBUTION OTHER ASSETS</b>	Yes	
<b>ZONE TRANSFORMERS</b>		
Zone transformers with <10MVA ONAN rating	None	JEN has a few 10MVA transformers but none less than 10MVA.
Zone transformers with >=10MVA and <=50MVA ONAN rating	Yes	
Zone transformers with >=50MVA and <=100MVA ONAN rating	None	
Zone transformers with >100MVA ONAN rating	None	
<b>ZONE SWITCHGEAR</b>		
CBs	Yes	
ST switches	Yes	
HV switches	Yes	
CTs	Yes	
VTs/CVTs	Yes	

<b>Network Segments / Sub-categories</b>	<b>Does JEN have assets in this category?</b>	<b>JEN Comments</b>
Isolators, disconnectors, and/or earth switches	Yes	
Breakdown each of these sub-categories by voltage level	Yes	Suggest to further sub-categorise based on outdoor or indoor
<b>ZONE OTHERS ASSETS</b>	Yes	
<b>SCADA &amp; PROTECTION</b>		
Protection relays breakdown by technology type	Yes	
Other SCADA and protection assets	Yes	
<b>CUSTOMER METER ASSETS</b>		
customer meter assets: single-phase LV meter	Yes	Suggest additional sub-categories: - customer meter asset: AMI meter - customer meter assets: other meter accessories such as CT and VT
customer meter assets: three-phase LV meter	Yes	
customer meter assets: LV CT meter	Yes	
customer meter assets: HV CT meter	Yes	
<b>PUBLIC LIGHTING ASSETS</b>		
Public lighting luminaires on major roads	Yes	
Public lighting brackets on major roads	Yes	
Public lighting lamps on major roads	Yes	
Public lighting poles/columns (sole use) on major roads	Yes	
Public lighting other assets on major roads	Yes	
Public lighting luminaires on minor roads	Yes	
Public lighting brackets on minor roads	Yes	
Public lighting lamps on minor roads	Yes	
Public lighting poles/columns (sole use) on minor roads	Yes	
Public lighting other assets on minor roads	Yes	
<b>OTHER ASSETS</b>		
Other network assets	Yes	
Major plant and equipment (vehicle/EPV/trucks etc.)	Yes	
<b>IT *</b>		
Mainframe systems	None	While there may still be some "Mainframe" systems in use, the term refers to a class of computer that are no longer in common use and JEN certainly doesn't have any.
Cloud based systems		JEN suggests remove this category. Cloud based systems are typically provided by a vendor as a paid service and hence are opex items and wouldn't be subject to lifecycle upgrades.

Network Segments / Sub-categories	Does JEN have assets in this category?	JEN Comments
PC/Desktop/CAD systems	Yes	

\* As a general observation on IT hardware, we note that replacement is generally driven by vendor support lifecycles and/or the opportunity to lower opex so an age based asset replacement model is unlikely to work well for IT hardware. For software, the picture is more mixed. The performance of software is constant so long as the software remains unchanged. However, for systems that are subject to change, it is important to upgrade to vendor-supported releases.

## 2. AUGMENTATION

Network Segments / Sub-categories	JEN Comments
Sub-transmission lines (grouped by voltage level)	JEN has both 22kV and 66kV sub-transmission lines and can provide the grouped data as requested.
Sub-transmission substations (incl. sub-transmission switching)	What is definition of sub-transmission substation? Substations owned by customers taking supplies at sub-transmission voltage? JEN has only one sub-transmission switching station.
Zone substations (grouped by voltage level)	In providing \$/MVA, JEN believes there is a need to further differentiate between zone substations that are fully developed and zone substations that still have room for further capacity upgrade. The cost of upgrading is less than the cost of a new zone substation because upgrading avoids the costs of land acquisition and associated civil works.
High voltage feeders	JEN only has HV feeders in 'Urban' and 'Short Rural' categories. Furthermore, there are only 4 to 5 'short rural' feeders which means high level analysis result may not be valid. Furthermore, JEN suggests to further sub-divide feeder categories into voltage level groups as the \$/MVA could be different for different voltage levels.
Distribution substations	JEN only has distribution substations in 'Urban' and 'Short Rural' categories. As there are only 4 to 5 HV feeders in the 'short rural' category, high level analysis results for this category may not be valid. Furthermore, JEN can only provide estimates of substation utilisation as demand is not directly measured.
LV feeder	JEN proposes to delete this category as LV feeders are generally augmented as a result of voltage issues (power quality) before the capacity limit is reached, or due to customer initiated works. The majority of investment in LV feeders is therefore captured under 'Gross demand connection' and 'Environmental, safety and legal'. If JEN is to provide the data, it would be a guesstimate as utilisation is not tracked for LV feeders.