

# **Jemena Gas Networks (NSW) Ltd**

## **2015-20 Access Arrangement Information**

Appendix 1.3

Statement of 2015 AA submission interdependencies

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## 1. STATEMENT OF INTERDEPENDENCIES

This appendix provides JGN's assessment of key interrelationships between elements of our 2015 AA submission.

**Table 1–1: Statement of interdependencies**

Proposal Element	Chapter reference	Interdependency
<b>Forecast capital expenditure (capex) and depreciation</b>		
All/multiple categories	6	<ul style="list-style-type: none"> <li>Forecast inflation will impact conversion of real/nominal capex, for all categories</li> <li>Forecast real price escalation will impact capex reported in each year of the AA period, for all categories</li> <li>Forecast unit rates will impact any capex forecasts which are estimated using unit rates. This can include capital such as connections and metering</li> <li>Classification of expenditure as capex or operating expenditure (<b>opex</b>), and cost allocation, for all categories</li> <li>Forecast (and historical) capex will influence the forecast depreciation building block</li> <li>Capex depends on an acceptable/adequate WACC (capacity to fund)</li> <li>The scope of the reference services and related Reference Service Agreement (<b>RSA</b>) terms and conditions influence forecast capex.</li> </ul>
Market expansion (direct costs)	6	<ul style="list-style-type: none"> <li>Forecast new connections will drive the requirement to expand the network and therefore market expansion capex.</li> </ul>
Capacity development (direct costs)	6	<ul style="list-style-type: none"> <li>Localised non co-incident peak demand forecasts often influence augmentation projects</li> <li>Safety, reliability and quality of supply objectives and obligations (for example, as outlined in JGN's board-approved asset management plan and also as specified in the RSA) can influence targeted operating pressures and therefore the requirement to increase the capacity of the network to transport energy.</li> </ul>
Mains and services renewal (direct costs)	6	<ul style="list-style-type: none"> <li>Forecast maintenance expenditure may influence the requirement to undertake asset replacement expenditure</li> <li>Safety, reliability and quality of supply objectives and obligations (for example, as outlined in JGN's board-approved asset management plan and also as specified in the RSA) will influence replacement strategy and therefore forecast expenditure requirements.</li> </ul>
Asset lives	8	<ul style="list-style-type: none"> <li>Adopted economic lives may impact actual and forecast depreciation.</li> </ul>
<b>Forecast opex</b>		
Base year choice	7	<ul style="list-style-type: none"> <li>Step change proposals will be influenced by the sustainability of opex in the base year taking into account the requirements for forecast opex in the National Gas Rules.</li> </ul>
Unaccounted for gas ( <b>UAG</b> )	7	<ul style="list-style-type: none"> <li>Throughput and wholesale gas price forecasts may impact UAG allowances included in the opex forecast.</li> </ul>
Total allowance	7	<ul style="list-style-type: none"> <li>Replacement/refurbishment capex strategy may influence the level of forecast maintenance requirements. If the allowance for replacement/refurbishment capex is lower, then maintenance requirements for existing assets that are not</li> </ul>

# 1 — STATEMENT OF INTERDEPENDENCIES

Proposal Element	Chapter reference	Interdependency
		<p>refurbished or replaced are likely to be higher</p> <ul style="list-style-type: none"> <li>• Classification of expenditure as capex or opex, and cost allocation, for all categories</li> <li>• The scope of the reference services and related RSA terms and conditions influence forecast opex.</li> </ul>
<b>Demand Forecast</b>		
New connections	5	<ul style="list-style-type: none"> <li>• Forecast impact of marketing expenditure will influence the number of forecast new connections</li> <li>• Forecast relativities between retail gas and electricity prices will influence forecast electricity-to-gas conversions</li> <li>• Forecast residential property supply and penetration may influence forecast new connections</li> <li>• Forecast new connections may influence forecast capital contributions.</li> </ul>
Demand	5	<ul style="list-style-type: none"> <li>• Forecast retail gas prices and gas/electricity price relativities will influence demand</li> <li>• The price path is influenced by demand through the mapping of revenue requirements to tariffs</li> <li>• Forecast price relativities between tariff classes may influence forecast tariff uptake</li> <li>• Tariff assignment criteria determines the delivery points relevant to a particular tariff class and therefore may influence the uptake and demand forecast for tariff classes.</li> <li>• Demand forecast risk is related to the asset beta and credit rating.</li> </ul>
<b>Regulatory Asset Base (RAB)</b>		
Opening RAB	8	<ul style="list-style-type: none"> <li>• A function of the amount of historical capex accepted as conforming, treatment of any redundant assets and capital contributions.</li> <li>• Should be denominated in dollars that are consistent with revenue cash flow timing assumptions.</li> </ul>
<b>Allowed rate of return</b>		
Risk free rate	9	<ul style="list-style-type: none"> <li>• In the Sharpe-Lintner Capital Asset Pricing Model (<b>CAPM</b>), the expected return on equity is a function of the risk-free rate, as well as the return on the market and equity beta. The risk-free rate is also an input to other models used to estimate the expected return on equity such as the Fama-French three-factor model and the Black CAPM.</li> <li>• The required return on debt is a function of the risk-free rate, as well as the debt risk premium.</li> </ul>
Equity risk parameters (beta etc)	9	<ul style="list-style-type: none"> <li>• Gearing is used to re-lever the asset beta. A higher level of gearing implies a higher equity beta, for a given asset beta.</li> </ul>
Return on equity	9	<ul style="list-style-type: none"> <li>• Should be greater than cost of debt for the same firm.</li> <li>• The time horizon used to estimate parameters within a cost of equity model should be internally consistent. For example, if the risk-free rate assumes a ten-year investment horizon, then estimates of the market return should be based on the same assumption.</li> <li>• The value of imputation credits estimate is related to the allowed return on equity.</li> </ul>

Proposal Element	Chapter reference	Interdependency
		Under the imputation tax system, the value of imputation credits forms part of the overall return to equity-holders (along with dividends and capital gains). As explained in appendix 9.4, the required return on equity therefore needs to be estimated inclusive of the assumed value of imputation credits. Thus, a higher assumed value for imputation credits implies a higher value for the return on equity.
Benchmark credit rating	9	<ul style="list-style-type: none"> <li>Gearing is relevant to establishing a benchmark credit rating and equity beta.</li> </ul>
Overall rate of return	9	<ul style="list-style-type: none"> <li>Impacts smoothed price path (acting as the discount factor in the NPV calculation)</li> <li>Impacts on amount to be allowed for cost pass-throughs (acting as the adjustment factor in the NPV true-up)</li> </ul>
Capital raising costs	6 & 7	<ul style="list-style-type: none"> <li>Adjustment to any building block may impact equity and debt raising costs through the re-calculation of allowed revenues in the forecast revenue model.</li> </ul>
<b>AA and Reference Services Agreement</b>		
Risk provisions and allocation (e.g. liability)	RSA	<ul style="list-style-type: none"> <li>Insurance and self-insurance allowances, and cost pass through provisions.</li> <li>JGN's operations and work practices are linked to the contractual risk position as set out in the RSA. If this risk position is eroded, potential consequences might include having to adjust work practices or increase emergency response resourcing.</li> </ul>
Drafting	AA/RSA	<ul style="list-style-type: none"> <li>AA and RSA drafting are interrelated in a number of respects such that amendments to one document may require flow-on amendments to be made to the other</li> <li>Changes to drafting in one part of the AA and/or RSA may require flow-on amendments to be made to one or more other clauses in that document, to ensure that the document operates in the manner intended.</li> </ul>
Cost pass through events and automatic adjustment factors	AA	<ul style="list-style-type: none"> <li>JGN's proposed cost pass through event list and automatic adjustment factors reflect risks which are not captured in the proposed rate of return or forecasts of capex and opex. Accordingly, if the events or factors are changed, this may require consequential amendments to either the rate of return calculation, and/or forecasts of capex and opex.</li> </ul>