

Annual Material Cost Escalation Factors 2013-17

SUPPLEMENTARY UPDATE

- Final Report
- 15 April 2011



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Limitation Statements

Limitation Statement

Forecasts are by nature uncertain. SKM has prepared these projections as an indication of one possible outcome it considers likely in a range of possible outcomes. SKM does not warrant or represent the selected outcome to be more likely than other possible outcomes and does not warrant or represent the forecasts to be more accurate than other forecasts. These forecasts represent the authors' opinion regarding the outcomes considered possible at the time of production, and are subject to change without notice

SKM has used a number of publicly available sources, other forecasts it believes to be credible, and its own judgement and estimates as the basis for developing the cost escalators contained in this report. The actual outcomes will depend on complex interactions of policy, technology, international markets, and multiple suppliers and end users, all subject to uncertainty.

Expert Witness Compliance statement

In providing the materials cost escalators contained within this report, SKM has read and agreed to be bound by the guidelines for expert witnesses in proceedings in the Federal Court of Australia, as published by Chief Justice M.E.J. Black on 5th May 2008¹

In providing consultative services in other assignments, SKM acknowledges a pre-existing relationship with Aurora Energy, but is confident such relationships do not compromise SKM's objectivity in defending its professional opinion based on specialised knowledge and capabilities held in the area of developing materials cost escalation rates for the Australian electricity industry.

¹ Available as a download from: http://www.fedcourt.gov.au/how/prac_direction.html#current



1. Introduction

In November 2010, Sinclair Knight Merz (SKM) was engaged by Aurora Energy (Aurora) to review factors likely to affect price escalation in their material costs over the year to June periods between 2009/10 to 2016/17 (with June 2010 being the base year for Aurora) and propose suitable materials cost escalation rates.

The results of the assignment were described in an SKM report entitled *Aurora Energy annual material cost escalators 2013-17* dated 22 December 2010.

In March 2011, SKM was engaged by Aurora to provide a set of updated cost escalation rates, bringing into account additional market pricing information that had become available since the previous report was compiled. The escalation factors presented in this supplementary report represent SKM's calculated best estimate of likely cost escalation components to account for the predicted movement in underlying drivers affecting the cost of undertaking capital and operational expenditure work over the period June 2009/10 to June 2016/17, relative to Australian National CPI, being the base inflation factor used by the AER.

The escalation factors presented are specific to the operating environment faced by Aurora, and based on the most up-to-date information available at the time of compilation. Escalation rates were also established for various asset categories existing within the SKM cost escalation model.

Table 2 in section 3 of this report presents the updated forecast escalation rates for the underlying drivers of network infrastructure plant and equipment costs.

Table 3 in section 3 provides forecasts for escalation rates based on the movements in underlying cost drivers, but at the asset category level.



2. Methodology

The methodology employed in updating the cost escalation rates was identical to that described in the original December 2010 report to Aurora, but for one exception.

In the case of oil price forecasting, SKM has typically found that World Oil markets provide future contracts with settlement dates sufficiently far forward to accommodate their use in updating this specific cost driver, without the need to refer to the quarterly forecasts for oil market prices presented in the Consensus Economics survey.

However, in this particular instance the last forward price was a December 2015 position. Therefore, in developing the updated cost escalation rates contained in this report, SKM interpolated between this December 2015 forward contract price and the Consensus Economics' January survey long-term nominal price of US\$101.23 in order to complete the set of oil escalation rates to June 2017.



3. Movements in Key Cost Drivers

In order to remain current, forecast positions of the key cost drivers within the SKM model are updated on a quarterly basis, to ensure the most practical recent/current date information is used as the basis of each assignment requiring the model's application.

The key cost drivers used are identical to those used in the December 2010 report, and their values have been updated to reflect current market forecasting advice² dated January 2011.

3.1. Consumer Price Index

In updating the forecast values for Consumer Price Index (CPI), SKM has referred to the RBA Monetary Policy Statement of February 2011. The revised forecast figures are shown in Table 1.

■ Table 1 Forecast CPI Figures

Year to June	2010	2011	2012	2013	2014	2015	2016	2017
CPI Forecast	3.05%	2.50%	2.75%	3.0%	2.5%	2.5%	2.5%	2.5%

In updating the cost escalation factors, SKM has continued to apply the methodology used by the AER in their Final Decision for NSW distribution businesses of including both the *midpoint* of the RBA target range, and short term forecasts to provide a conservative estimate of the likely position of this network cost pressure that can reasonably be expected to materialise over the periods 2012/13 to 2016/17.

² Consensus Economics, *Energy & Materials Consensus Forecasts*, survey date 24 January 2011



4. Model Outputs & Recommendations

The SKM cost escalation modelling methodology provides a rigorous and transparent process through which reasonable and appropriate cost escalation rates are able to be developed in relation to the prices of network plant and equipment.

The escalation factors established during this assignment were developed with specific consideration of the operating environment faced by the client, being Aurora Energy, and were based on the most up-to-date information available at the time of compilation.

These escalation rates therefore constitute SKM's calculated opinion of appropriate materials cost escalation rates that can reasonably be expected to affect Aurora Energy over the year to June periods 2012/13 to 2016/17 inclusive.

The results of SKM's modelling during this assignment are presented in Table 2 below.

■ **Table 2 Average Annual Real Change for Materials Cost Drivers**

Cost Driver	Jun-10	Jun-11	Jun-12	Jun-13	Jun-14	Jun-15	Jun-16	Jun-17
Aluminium	-9.82%	25.04%	17.02%	-1.07%	-1.12%	-2.98%	-2.69%	-2.08%
Copper	14.40%	42.16%	17.79%	-6.04%	-7.69%	-10.45%	-10.76%	-10.86%
Steel Avg	-29.14%	27.38%	13.30%	-2.53%	-1.40%	-3.05%	-2.76%	-2.15%
Oil	-8.63%	26.03%	8.73%	-4.76%	8.71%	-3.33%	-8.88%	1.09%
Construction Costs	-8.53%	2.00%	-0.26%	-2.95%	-1.60%	1.05%	2.79%	2.91%
CPI	3.05%	2.50%	2.75%	3.00%	2.50%	2.50%	2.50%	2.50%

In exerting expected cost pressures on Aurora Energy, SKM concluded that these updated escalation rates form a component of the “*capital expenditure that would be incurred by an efficient TNSP over the regulatory control period*”³

SKM therefore recommends that Aurora take account of these updated materials cost escalation rates within their forward capital and operational expenditure programs.

To assist in accounting for these forecast movements in the underlying cost driver of network materials, plant & equipment pricing, SKM has also provided a set of escalation rates at the asset category level. These asset level cost escalation rates appear in Table 3 below.

³ NER, transitional chapter 6 rules, clause 6.5.7 (e) (4).



■ **Table 3 Average Annual Real Change for Asset Categories**

Asset Category	Jun-10	Jun-11	Jun-12	Jun-13	Jun-14	Jun-15	Jun-16	Jun-17
Overhead Subtransmission Lines	0.847	0.951	1.018	0.998	0.990	0.977	0.968	0.967
Underground Subtransmission Cables	0.875	1.013	1.103	1.078	1.061	1.024	0.986	0.960
Overhead Distribution Lines	0.859	0.971	1.043	1.027	1.031	1.013	0.990	0.981
Underground Distribution Cables	0.889	0.965	1.015	1.002	1.009	0.997	0.980	0.979
Distribution Equipment	0.918	0.995	1.041	1.027	1.028	1.012	0.991	0.983
Substation Bays	0.924	0.979	1.007	0.991	0.989	0.981	0.973	0.974
Substation Establishment	0.907	0.925	0.923	0.895	0.881	0.890	0.915	0.942
Distribution Substation Switchgear	0.918	0.995	1.041	1.027	1.028	1.012	0.991	0.983
Transformers (Zone + Distribution)	0.872	0.997	1.074	1.052	1.046	1.019	0.988	0.971
Distribution Substations	0.876	0.987	1.054	1.032	1.025	1.002	0.978	0.967
Low Voltage Services	0.842	0.955	1.045	1.037	1.030	1.011	0.994	0.982
Metering	0.963	1.000	1.018	1.010	1.015	1.007	0.993	0.990
Communications - Pilot Wires	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Generation Assets	0.907	0.996	1.047	1.031	1.031	1.013	0.991	0.981
Street Lighting	0.952	0.993	1.019	1.013	1.010	1.004	0.998	0.994
Other Equipment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control Centre - SCADA	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Communications	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
IT Systems	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Office Equipment & Furniture	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Motor Vehicles	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Plant & Equipment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Buildings	0.907	0.925	0.923	0.895	0.881	0.890	0.915	0.942
Steel Poles	0.855	0.978	1.048	1.028	1.034	1.015	0.988	0.980
Concrete Poles	0.907	0.925	0.923	0.895	0.881	0.890	0.915	0.942
Switchgear	0.918	0.995	1.041	1.027	1.028	1.012	0.991	0.983
Transformers	0.872	0.997	1.074	1.052	1.046	1.019	0.988	0.971
Structure	0.907	0.925	0.923	0.895	0.881	0.890	0.915	0.942
Foundation	0.907	0.925	0.923	0.895	0.881	0.890	0.915	0.942
Civil	0.907	0.925	0.923	0.895	0.881	0.890	0.915	0.942
P&C	0.963	1.000	1.018	1.010	1.015	1.007	0.993	0.990
Conductor	0.842	0.955	1.045	1.037	1.030	1.011	0.994	0.982
Towers	0.833	0.946	1.009	0.981	0.967	0.955	0.954	0.956
Insulators	0.939	0.988	1.009	0.996	1.018	1.009	0.986	0.989
Fittings	0.876	0.975	1.030	1.013	1.031	1.014	0.984	0.981



Asset Category	Jun-10	Jun-11	Jun-12	Jun-13	Jun-14	Jun-15	Jun-16	Jun-17
Foundations	0.907	0.925	0.923	0.895	0.881	0.890	0.915	0.942
Wood Poles	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Steel Poles	0.855	0.978	1.048	1.028	1.034	1.015	0.988	0.980
Cable Al	0.870	0.964	1.033	1.023	1.027	1.011	0.990	0.983
Cable Cu	0.883	1.096	1.222	1.172	1.120	1.047	0.977	0.919
PVC Conduit	0.927	0.986	1.010	0.996	1.021	1.011	0.983	0.986
Pit	0.907	0.925	0.923	0.895	0.881	0.890	0.915	0.942
Cable Protection	0.907	0.925	0.923	0.895	0.881	0.890	0.915	0.942
Misc Material	0.879	0.980	1.033	1.013	1.031	1.014	0.984	0.981
Standby Generators	0.907	0.996	1.047	1.031	1.031	1.013	0.991	0.981