

Overview

When Powerlink lodged its 2023–27 Revenue Proposal in 2021, our operating environment was markedly different to what we face today. Our forecasts of a reduction in capital expenditure and no real growth in operating expenditure were reasonable at the time and reflected our view of the future operating environment.

The proposal was aimed at keeping costs low for Queenslanders. But since then, the global environment has fundamentally shifted in ways that could not reasonably be foreseen. Global instability and efforts to boost national energy security and address climate change have driven step changes in equipment costs, extended lead times, and intensified competition for labour for all transmission businesses.

Powerlink's regulatory obligations and our focus on keeping our network safe and reliable has resulted in the need to spend more than the current regulatory allowances which were set in early 2022.

Powerlink proposed an alternative approach in its draft 2027-32 Revenue Proposal to calculating net carryovers from the current 2022-27 regulatory period under the AER's capital expenditure sharing scheme (CESS) in response to the fundamentally changed operating environment. This document outlines the methodology undertaken to update Powerlink's 2022-27 capital expenditure allowance to account for actual cost escalation.

Background

Powerlink's 2022-27 capital expenditure allowance is based on the AER's standard assumptions for real cost escalation. These assumptions are

- Materials and equipment escalated in line with overall inflation – i.e. no real increase in prices
- Internal labour escalated based on a forecast wage price index (WPI) for the Electricity, Gas and Wastewater (EGWW) sector, and
- External labour escalated based on a forecast WPI for the construction sector.

During the 2022-27 regulatory period Powerlink has experienced real cost escalation significantly above the level of these standard assumptions. For example, the price of power transformers has approximately doubled in real terms while the price for skilled labour has grown much faster than inflation. These significant real cost increases, which are beyond Powerlink's control, have contributed to Powerlink overspending its capital expenditure allowance for the regulatory period and incurring a substantial penalty under the CESS.

Powerlink has suggested its performance under the CESS should be assessed against an updated capital expenditure allowance that accounts for these impacts. This approach ensures that the application of the CESS has proper regard for Powerlink's circumstances during the 2022-27 regulatory period consistent with 6A.6.5A(e) of the National Electricity Rules. This paper describes the analysis undertaken to update the capital expenditure allowance to account for actual cost escalation experienced during the 2022-27 regulatory period and presents the results of that analysis.

Summary of outcomes

We have applied the methodology described in this paper to restate the capital expenditure forecast for the 2022-27 regulatory period to include the cost increases outside of Powerlink's control. The CESS carryover amounts for both the original and restated capital expenditure allowances were presented in our draft Revenue Proposal published in September 2025. These are presented in the table below.

CESS carryover amounts (\$million, real 2026/27)

	2028	2029	2030	2031	2032	Total
CESS carryover (unadjusted allowance)	(24.3)	(24.3)	(24.3)	(24.3)	(24.3)	(121.6)
CESS carryover (restated allowance)	(7.6)	(7.6)	(7.6)	(7.6)	(7.6)	(37.9)
Difference	16.7	16.7	16.7	16.7	16.7	83.7

Overview of methodology

The general approach is to update the forecast of real cost escalation, excluding general inflation represented by Customer Price Index (CPI), for internal and external labour and include an explicit real increase in the cost of non-labour components (materials and equipment). This is done by modifying the AER's Final Decision Capital Expenditure (Capex) Model as follows:

- modify Input Rates worksheet to include rows for a real Non-Labour Escalation (both full year and half-year)
- update CPI and the real escalations for internal and external labour to reflect actual CPI and real Wage Price Index (WPI) outcomes and latest forecasts
- include Powerlink's actual wages outcome in line with the Working at Powerlink Agreement (WAPA)¹, and
- include real increases in non-labour.

Increases in non-labour have been calculated using Powerlink data of the year-on-year escalation of different equipment types and weighted by the proportion of replacement capital expenditure for those equipment types. It reflects the increase in prices paid for the same type of equipment over time.

The end result is an increase in the capital expenditure forecast of \$224.5 million (\$real 2021/22), or around 25%. A detailed step-by-step methodology is included as Attachment A.

Breakdown of changes

The comparison between the forecast capital expenditure in the Final Decision and each of the successive steps to arrive at the updated forecast is shown in the table below. Note the capital expenditure allowance is presented before disposals.

Forecast capital expenditure – as incurred (\$million, real 2021/22)

	2023	2024	2025	2026	2027	Total	Difference from Final Decision
Final Decision	194.8	214.3	172.6	156.8	158.4	896.9	-
Updated Actual / Forecast Inflation	194.6	214.2	172.4	157.0	158.4	896.6	-0.3
Updated Inflation + WPI	192.0	209.4	168.5	153.2	154.4	877.4	-19.5
Updated Inflation + WPI + WAPA	192.0	212.3	174.0	159.4	160.3	898.1	+1.2
Updated Inflation + WPI + WAPA + Materials	205.5	260.5	232.1	212.2	211.1	1,121.4	+224.5
Difference from Final Decision Model	+10.7	+46.2	+59.5	+55.4	+52.7	+224.5	

¹ The WAPA reflects the increased demand for skilled resources within the energy sector and is critical to enable Powerlink to secure and retain the resources to deliver the capital and operating objectives, and continue to provide safe, secure and reliable transmission services.

Attachment A

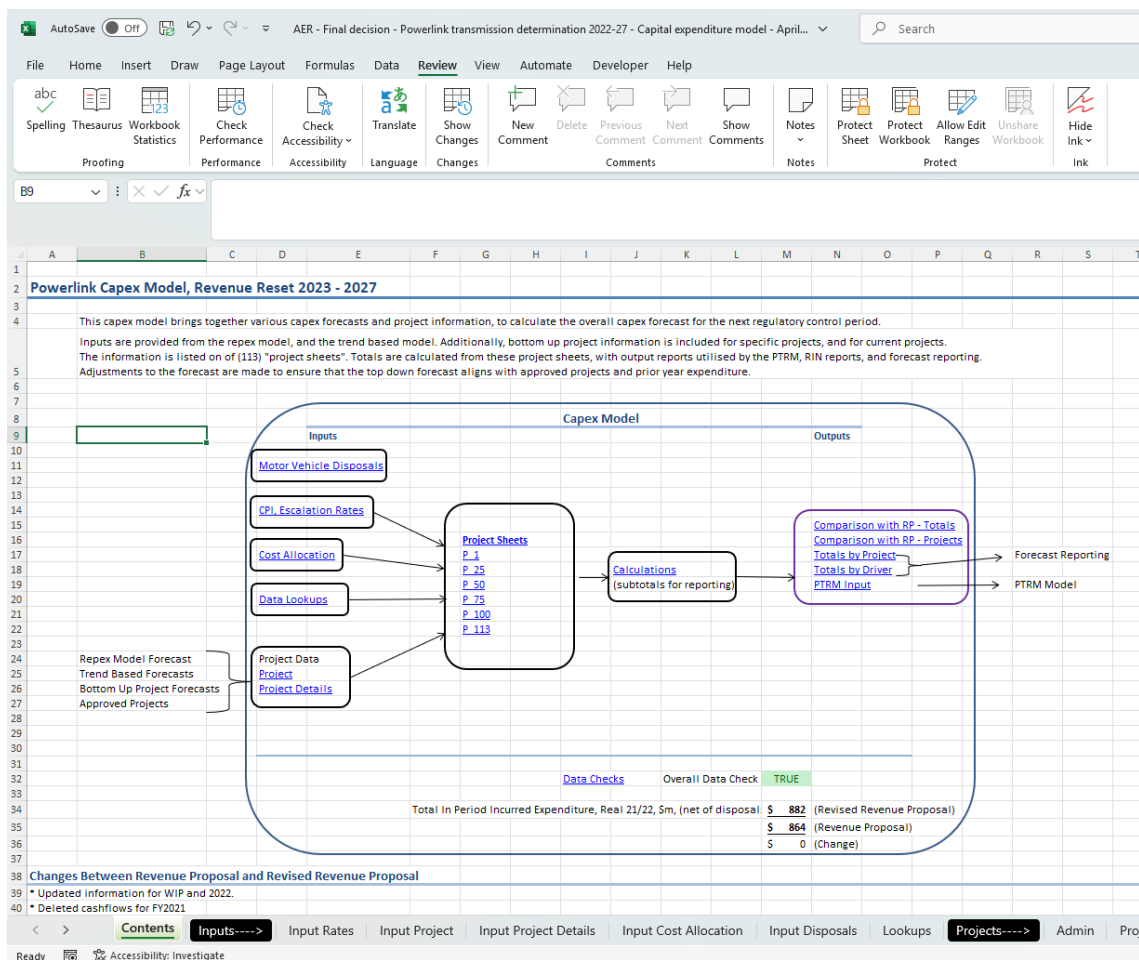
Updating Powerlink's 2022-27 Capex Model for actual real cost escalation

This attachment provides detailed step-by-step methodology how to update the Powerlink 2022-27 Capex Model from the AER's Final Decision version to include the effect of the real cost increases for materials and labour.

1. Download a copy of the Final Decision Capex Model from the AER website.

The Capex Model is available [here](#)², and is nearly 18 MB in size.

The Capex Model has a Contents worksheet which illustrates the general structure of the model. Given the large number of worksheets in the model the Contents worksheet contains hyperlinks to take you directly to different parts of the model. The Contents worksheet is shown below.



² Final decision - Powerlink transmission determination 2022-27 - capital expenditure model, Australian Energy Regulator, April 2022

2. Modify the model to allow materials price escalation different from general inflation

The Final Decision Capex Model adopts the standard AER approach to assume that escalation of the price of materials will, over the long run, track general inflation. The model is structured to simply adopt the provided CPI figures and apply them to materials.

For this exercise it is necessary to first modify the structure of the model to break this nexus and provide for escalation of materials prices independently of CPI.

First, navigate to the Input Rates worksheet, either directly or by clicking on the 'CPI, Escalation Rates' hyperlink on the Contents worksheet as shown below

The screenshot shows the 'Powerlink Capex Model, Revenue Reset 2023 - 2027' spreadsheet. The 'Contents' worksheet is active, displaying a flowchart of the model's structure. The flowchart shows inputs (Motor Vehicle Disposals, CPI Escalation Rates, Cost Allocation, Data Lookups, Project Data, Project Details) feeding into 'Project Sheets' (P.1, P.25, P.50, P.75, P.100, P.113), which then feed into 'Calculations (subtotals for reporting)'. The calculations feed into 'Comparison with RP - Totals' (Comparison with RP - Totals, Totals by Project, Totals by Driver, PTRM Input), which then feeds into 'Forecast Reporting' and 'PTRM Model'. A 'Data Checks' section shows 'Overall Data Check' as 'TRUE'. At the bottom, a table shows 'Total In Period Incurred Expenditure, Real 21/22, \$m, (net of disposal)' with values: \$ 882 (Revised Revenue Proposal), \$ 864 (Revenue Proposal), and \$ 0 (Change).

An orange box with the text 'Either click here' points to the 'CPI Escalation Rates' hyperlink in the flowchart. Another orange box with the text 'Or select this worksheet' points to the 'Input Rates' worksheet tab in the bottom navigation bar.

You will see the following table of rates.

	A	B	C	D	E	F	G	H	I	J	K
1	Contents										
2											
3		Unit Rates									
4											
5		Conversion	2020	2021	2022	2023	2024	2025	2026	2027	
6		CPI	0.0184	0.0086	0.0325	0.0237	0.0237	0.0237	0.0237	0.0237	
7		Internal Labour Escalation real		0.0048	0.0063	0.0038	0.0051	0.0085	0.0114	0.0068	
8		External Labour Escalation real		-0.0050	0.0036	0.0032	0.0046	0.0085	0.0115	0.0059	
9											
10		1/2 CPI	0.0092	0.0043	0.0161	0.0118	0.0118	0.0118	0.0118	0.0118	
11		1/2 Internal Labour Escalation		0.0024	0.0031	0.0019	0.0026	0.0042	0.0057	0.0034	
12		1/2 External Labour Escalation		-0.0025	0.0018	0.0016	0.0023	0.0042	0.0057	0.0029	
13											
14		Convert MY Real 20/21 to MY Nominal - Non Labour		1	1.0205	1.0492	1.0741	1.0996	1.1257	1.1525	
15		Convert MY Real 20/21 to MY Nominal - Internal Labour		1	1.0261	1.0603	1.0903	1.1238	1.1620	1.2004	
16		Convert MY Real 20/21 to MY Nominal - External Labour		1	1.0197	1.0520	1.0812	1.1141	1.1519	1.1896	
17											
18		Convert MY Nominal to EOY Real 21/22	1.0509	1.0369	1.0161	0.9883	0.9654	0.9430	0.9211	0.8998	
19		Convert EOY Real 21/22 to MY Nominal - CPI Only		0.9644	0.9841	1.0118	1.0358	1.0604	1.0856	1.1114	
20											
21											

It is necessary to insert two new rows in this table to hold specific non-labour (i.e. materials) escalation rates. Insert new rows as follows:

- Between 'CPI' and 'Internal Labour Escalation real' (rows 6 and 7 above) – label this 'Non Labour Escalation real', and
- Between '1/2 CPI' and '1/2 Internal Labour Escalation real' (rows 10 and 11 above) – label this '1/2 Non Labour Escalation real'.

Once this is done the new rows will be in rows 7 and 12 of the workbook as shown below.

3		Unit Rates									
4											
5		Conversion	2020								
6		CPI	0.0184								
7		Non Labour Escalation real									
8		Internal Labour Escalation real									
9		External Labour Escalation real									
10											
11		1/2 CPI	0.0092								
12		1/2 Non Labour Escalation real									
13		1/2 Internal Labour Escalation real									
14		1/2 External Labour Escalation real									
15											

In the new row 7 insert 0's in columns D to J (i.e. 2021 to 2027).

Copy the formula in row 13 into row 12. Where formula in row 13 refer to cells in row 8 the formula copied into row 12 should refer to cells in row 7. That is, the formula in D12 should be $=((D7+1)^{0.5})-1$. The results in D12 to J12 should all be 0.

The final part of this step is to change the formula in row 16 (Convert MY [mid-year] Real 20/21 to MY Nominal – Non Labour) so that it includes both the CPI and the Non Labour Escalation real.

In cell E16 update the formula as follows:

$$=D16*(1+D11)*(1+E11) \text{ becomes } =D16*(1+D11)*(1+E11)*(1+D12)*(1+E12)$$

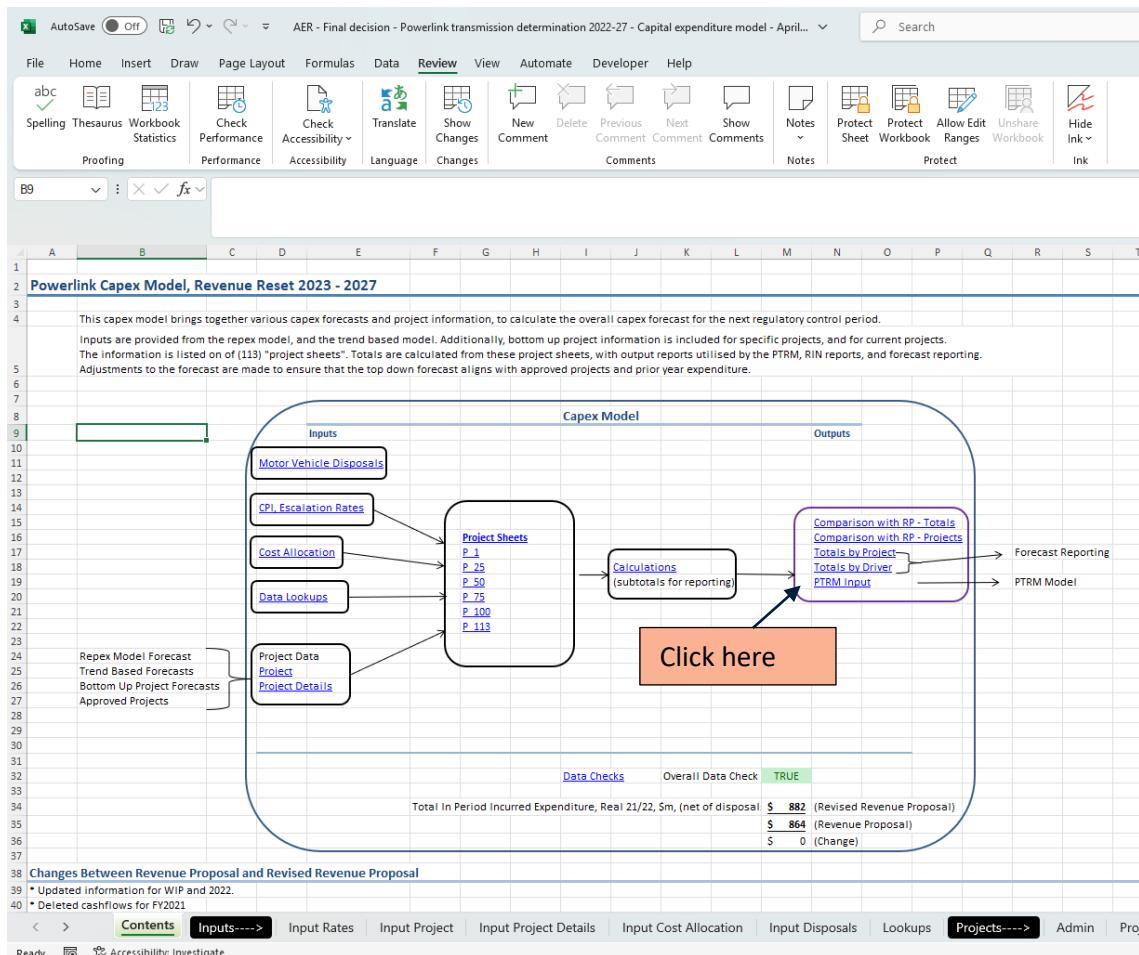
Copy this formula across into the cells F16 to J16.

The Capex Model is now ready to accept escalation in materials prices different from CPI.

3. Test scenarios

Take a copy of the now modified unit rates table from the Final Decision Capex Model and place it below the original table – i.e. copy B5:J21 into B24:J40. As you test different values for CPI, non labour and labour escalations in the original you can always go back to the original settings by copying data from cells C25:J28 back into cells C6:J9. You can also preserve different scenarios by making another copy of the B5:J21 table and copying it to further down the worksheet.

The total forecast capital expenditure output from the Final Decision Capex Model can be found on the 'PTRM Input' sheet, which is most easily access from the 'Contents' sheet, as shown below. The total forecast capital expenditure is in cell L24.



4. Update for Final Decision forecast inflation

The Final Decision Capex Model includes an inflation forecast from the time Powerlink submitted its revised Revenue Proposal in November 2021. The inflation forecast was updated prior to the AER Final Decision when the RBA released its Statement on Monetary Policy (SMP) in February 2022. While this updated inflation forecast was included in the Final Decision Post Tax Revenue Model (PTRM) the Final Decision Capex Model was not similarly updated.

The Final Decision PTRM can be found [here](#). The forecast average inflation can be found on the 'PTRM input' worksheet in cell G485 and is approximately 2.65%.³ When this forecast average inflation is copied into the CPI for 2023 to 2027 (cells F6:J6) the forecast capex in the 2022-27 period reduces by around \$370k. This is because already approved projects have future expenditure forecast in \$nominal terms so a slightly higher forecast inflation will discount these amounts more when bringing them back to \$real, 2021-22.

5. Update for latest actual and forecast inflation

Use the Final Decision PTRM to produce a forecast for average inflation over the regulatory control period using the latest RBA SMP forecast and actual CPI to date. This was originally done using the May 2025 SMP as the latest [available](#) – see section 4.6 (Detailed forecast information). Actual inflation measures were taken from the ABS [data](#) – Index Numbers, All groups CPI, Australia (Series ID A2325846C).

All figures are on a December-to-December basis. The relevant figures are illustrated below where 2022-23 to 2024-25 are actuals and 2025-26 to 2026-27 are forecasts, noting figures are only displayed to two decimal places.

Expected Inflation						
Year	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
Expected Inflation	7.83%	4.05%	2.42%	3.00%	2.90%	n/a
Interim Calculation	1.0783	1.0405	1.0242	1.0300	1.0290	n/a
Year	2022-23					
Inflation Rate	4.02%					

This updated forecast of average inflation, approximately 4.02%, should be included in the Capex Model in cells F6:J6. Cell E6 should also be updated for the actual inflation for the 2021/22 year, approximately 3.5%⁴. The slightly higher inflation in 2021/22 uplifts the whole capital expenditure forecast which more than offsets the reduction due to a higher forecast inflation discounting the \$nominal forecast for approved projects.

The result should be an updated capex forecast that is approximately \$300k less than the Final Decision forecast.

6. Update for latest actual and forecast labour escalation

The Final Decision Capex Model uses separate forecasts for internal and external labour price escalation. These Wage Price Indexes (WPI) are in rows 8 and 9 of the modified Capex Model.

Updated actual and forecast figures for WPI movement have been sourced from a report prepared for Powerlink by Oxford Economics Australia (OEA). This updated data has been prepared on the same basis as the WPI forecasts included in Powerlink's recently published Draft Revenue Proposal. Updated figures for use in the modified Capex Model are shown in the table below.

³ Inflation forecasts for individual years are in cells G481:H481. Available forecasts from the RBA's SMP are used for the first two years and then a straight line interpolated to the mid-point of the RBA target range (i.e. 2.5%) in year 5. The forecast average inflation over the five years of the regulatory control period is the geometric mean of these individual year forecasts.

⁴ Source: ABS Time Series Workbook 6401.0, All groups CPI, Australia. Available [here](#).

Adjusted for current actual / Forecast Inflation + WPI

	2020	2021	2022	2023	2024	2025	2026	2027
CPI	0.0184	0.0086	0.0350	0.0402	0.0402	0.0402	0.0402	0.0402
Non Labour Escalation real		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Internal Labour Escalation real		0.0048	-0.0287	-0.0221	0.0148	0.0480	0.0140	0.0114
External Labour Escalation real		-0.0050	-0.0183	-0.0333	-0.0015	0.0105	0.0057	0.0071

With the higher level of inflation the real increase in WPI was negative in the early years which reduces the real value of the forecast capital expenditure to around \$19.5 million less than the Final Decision allowance.

7. Update for Powerlink's actual wage outcomes

Powerlink concluded a new Enterprise Bargaining Agreement (EBA), the Working At Powerlink Agreement (WAPA). Consistent with outcomes from the earlier Energy Queensland EBA the WAPA outcome should be modelled as a one-off 25% increase in the Internal Labour Escalation parameter in 2024 – cell G8 set to 0.25.

When this update is included the real value of the forecast capital expenditure is increased to be around \$1.16 million more than the Final Decision allowance.

8. Update for real increases in materials prices

The final step is to include the actual increases in the price of materials experienced by Powerlink. This uses a mix of publicly available data on the proportion of different equipment types that make up Powerlink's replacement capex program, and Powerlink internal data on the real year-on-year escalation of each of the equipment types. The key steps are:

1. Using the Final Decision Capex Model calculate the amount of replacement capex in different asset classes – Secondary Systems (including Telecomms and Network Switching Centre), Substation Primary Plant (Switchgear and Transformers), and Transmission Lines (O/H and U/G, including refit).
2. Calculate the proportion of each of these asset groupings – Secondary Systems (42%), Primary Plant (22%), Transmission Lines (36%). The 22% for Primary Plant is then split into Transformers (4%) and Switchgear (18%), based on the \$'s in the Reset RIN for the Revenue Proposal.
3. Using the internal PQ Unit Index data calculate the real (above CPI) year-on-year escalation of each of the equipment types. Calculate a simple average of the different voltage levels for transformers and transmission lines.
4. Calculate a weighted average year-on-year real cost escalation using the data from items 2 and 3 above.
5. The resulting non-labour real price escalation applied to the Capex Model is 2021/22 - 10.60%, 2022/23 – 13.38%, 2023/24 – 33.92% and 2024/25 – 2.73%

The final updated figures for use in the modified Capex Model are shown in the table below.

Adjusted for current actual / Forecast Inflation + WPI

	2020	2021	2022	2023	2024	2025	2026	2027
CPI	0.0184	0.0086	0.0350	0.0402	0.0402	0.0402	0.0402	0.0402
Non Labour Escalation real		0.0000	0.1060	0.1338	0.3392	0.0273	0.0000	0.0000
Internal Labour Escalation real		0.0048	-0.0287	-0.0221	0.2500	0.0480	0.0140	0.0114
External Labour Escalation real		-0.0050	-0.0183	-0.0333	-0.0015	0.0105	0.0057	0.0071

When this update is included the real value of the forecast capital expenditure is increased to be around \$224.5 million more than the Final Decision allowance.