



Inflation Modelling in Regulatory Models

Technical Workshop

9 August 2017

Common Framework

Use replica of LTAS to undertake inflation scenario modelling in the PTRM and RFM

Isolate inflation impacts on Return **of** Capital and Return **on** Capital over multiple regulatory periods

Common Inputs

Opening RAB is \$1000

CAPEX is \$100 in years 1–10 inclusive and zero afterwards

CAPEX has a standard asset life of 30 years with straight line depreciation applied

Scenarios

Nominal WACC	Est. Expected Inflation	Imp. Real WACC	Actual Inflation	Actual Inflation	Actual Inflation
7.62 %	2.50 %	5.00 %	2.50 %	1.50 %	3.50 %

Input

Real year	FY15		REGULATORY PERIOD 1					REGULATORY PERIOD 2				
			FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
Total	\$1,000.00		\$100.00	\$100.00	\$100.00	\$100.00	\$100.00	\$100.00	\$100.00	\$100.00	\$100.00	\$100.00
Actual												
CPI (actual)			2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
CPI Index Base (actual) = real FY15		100%	102.5%	105.1%	107.7%	110.4%	113.1%	102.5%	105.1%	107.7%	110.4%	113.1%
Nominal Vanilla WACC (actual)		Constant	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%
Real WACC (actual)		Real	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Nominal WACC (actual) used in model			7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%
WACC Index (actual)		100%	92.9%	86.3%	80.2%	74.5%	69.3%	64.3%	59.8%	55.6%	51.6%	48.0%
Forecasts												
CPI (forecast)			2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
CPI Index Base (forecast) = real FY15		100%	102.5%	105.1%	107.7%	110.4%	113.1%	102.5%	105.1%	107.7%	110.4%	113.1%
Nominal Vanilla WACC (forecast)		Constant	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%
Real WACC (forecast)		Real	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Nominal WACC (forecast) used in model			7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%
WACC Index (forecast)		100%	92.9%	86.3%	80.2%	74.5%	69.3%	64.3%	59.8%	55.6%	51.6%	48.0%

Output

2.50 % Actual

Real year	FY15	REGULATORY PERIOD 1					REGULATORY PERIOD 2				
		FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
PTRM Outputs (\$ nominal)											
Opening RAB (not indexed)		\$1,000.00	\$1,097.17	\$1,194.94	\$1,293.19	\$1,391.78	\$1,490.59	\$1,589.46	\$1,688.22	\$1,786.72	\$1,884.77
Indexation		\$25.00	\$27.43	\$29.87	\$32.33	\$34.79	\$37.26	\$39.74	\$42.21	\$44.67	\$47.12
Opening RAB (Indexed)		\$1,025.00	\$1,124.60	\$1,224.81	\$1,325.52	\$1,426.58	\$1,527.86	\$1,629.19	\$1,730.43	\$1,831.39	\$1,931.89
Nominal Depreciation		-\$34.17	-\$38.65	-\$43.34	-\$48.24	-\$53.36	-\$58.71	-\$64.29	-\$70.11	-\$76.18	-\$82.51
Nominal Capex		\$106.34	\$108.99	\$111.72	\$114.51	\$117.38	\$120.31	\$123.32	\$126.40	\$129.56	\$132.80
Closing RAB		\$1,097.17	\$1,194.94	\$1,293.19	\$1,391.78	\$1,490.59	\$1,589.46	\$1,688.22	\$1,786.72	\$1,884.77	\$1,982.18
Return on capital		\$76.25	\$83.66	\$91.11	\$98.61	\$106.12	\$113.66	\$121.20	\$128.73	\$136.24	\$143.71
Return of capital		\$9.17	\$11.22	\$13.47	\$15.92	\$18.57	\$21.44	\$24.55	\$27.90	\$31.51	\$35.39
Revenue requirement		\$85.42	\$94.88	\$104.58	\$114.52	\$124.69	\$135.10	\$145.75	\$156.63	\$167.75	\$179.10
Expected Revenue (Smooth)		\$85.42	\$94.88	\$104.58	\$114.52	\$124.69	\$135.10	\$145.75	\$156.63	\$167.75	\$179.10
NPV Revenue Requirement		\$1,801.07									
NPV Expected Revenue (Smooth)		\$1,801.07									
NPV Diff		\$0.00									

NPV of Capex, RAB and Revenue actually recovered under tariffs	\$0
NPV of actual RAB, actual capex and revenue that should have been recovered	\$0

NPV Actual Revenue \$1,801.07 **Represents NPV of revenue recovered from actual tariffs based on x-factors set with forecast CPI**

NPV Difference	\$0
-----------------------	------------

Real year	FY15	REGULATORY PERIOD 1					REGULATORY PERIOD 2				
		FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
RFM Outputs (\$ nominal)											
Opening RAB (not indexed)		\$1,000.00	\$1,097.17	\$1,194.94	\$1,293.19	\$1,391.78	\$1,490.59	\$1,589.46	\$1,688.22	\$1,786.72	\$1,884.77
Indexation		\$25.00	\$27.43	\$29.87	\$32.33	\$34.79	\$37.26	\$39.74	\$42.21	\$44.67	\$47.12
Opening RAB (Indexed)		\$1,025.00	\$1,124.60	\$1,224.81	\$1,325.52	\$1,426.58	\$1,527.86	\$1,629.19	\$1,730.43	\$1,831.39	\$1,931.89
Nominal Depreciation		-\$34.17	-\$38.65	-\$43.34	-\$48.24	-\$53.36	-\$58.71	-\$64.29	-\$70.11	-\$76.18	-\$82.51
Nominal Capex		\$106.34	\$108.99	\$111.72	\$114.51	\$117.38	\$120.31	\$123.32	\$126.40	\$129.56	\$132.80
Closing RAB		\$1,097.17	\$1,194.94	\$1,293.19	\$1,391.78	\$1,490.59	\$1,589.46	\$1,688.22	\$1,786.72	\$1,884.77	\$1,982.18
Return on capital		\$76.25	\$83.66	\$91.11	\$98.61	\$106.12	\$113.66	\$121.20	\$128.73	\$136.24	\$143.71
Return of capital		\$9.17	\$11.22	\$13.47	\$15.92	\$18.57	\$21.44	\$24.55	\$27.90	\$31.51	\$35.39
Revenue requirement		\$85.42	\$94.88	\$104.58	\$114.52	\$124.69	\$135.10	\$145.75	\$156.63	\$167.75	\$179.10
Expected Revenue (Smooth)		\$85.42	\$94.88	\$104.58	\$114.52	\$124.69	\$135.10	\$145.75	\$156.63	\$167.75	\$179.10
NPV Revenue Requirement		\$1,801.07									
NPV Expected Revenue (Smooth)		\$1,801.07									
NPV Diff		\$0.00									

Represents NPV of revenue that is needed to cover actual nominal costs (perfect forecast of inflation)

Output

1.50 % Actual

Real year	FY15	REGULATORY PERIOD 1					REGULATORY PERIOD 2				
		FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
PTRM Outputs (\$ nominal)											
Opening RAB (not indexed)		\$1,000.00	\$1,097.17	\$1,194.94	\$1,293.19	\$1,391.78	\$1,416.73	\$1,510.90	\$1,604.99	\$1,698.86	\$1,792.32
Indexation		\$25.00	\$27.43	\$29.87	\$32.33	\$34.79	\$35.42	\$37.77	\$40.12	\$42.47	\$44.81
Opening RAB (Indexed)		\$1,025.00	\$1,124.60	\$1,224.81	\$1,325.52	\$1,426.58	\$1,452.15	\$1,548.67	\$1,645.12	\$1,741.33	\$1,837.13
Nominal Depreciation		-\$34.17	-\$38.65	-\$43.34	-\$48.24	-\$53.36	-\$55.81	-\$61.10	-\$66.62	-\$72.37	-\$78.38
Nominal Capex		\$106.34	\$108.99	\$111.72	\$114.51	\$117.38	\$114.55	\$117.42	\$120.35	\$123.36	\$126.45
Closing RAB		\$1,097.17	\$1,194.94	\$1,293.19	\$1,391.78	\$1,490.59	\$1,510.90	\$1,604.99	\$1,698.86	\$1,792.32	\$1,885.19
Return on capital		\$76.25	\$83.66	\$91.11	\$98.61	\$106.12	\$108.03	\$115.21	\$122.38	\$129.54	\$136.66
Return of capital		\$9.17	\$11.22	\$13.47	\$15.92	\$18.57	\$20.39	\$23.32	\$26.49	\$29.90	\$33.57
Revenue requirement		\$85.42	\$94.88	\$104.58	\$114.52	\$124.69	\$128.41	\$138.53	\$148.87	\$159.44	\$170.23
Expected Revenue (Smooth)		\$85.42	\$94.88	\$104.58	\$114.52	\$124.69	\$128.41	\$138.53	\$148.87	\$159.44	\$170.23
NPV Revenue Requirement					\$1,641.69						
NPV Expected Revenue (Smooth)					\$1,641.69						
NPV Diff					\$0.00						
NPV of Capex, RAB and Revenue actually recovered under tariffs	\$18				\$1,815.37	Represents NPV of revenue recovered from actual tariffs based on x-factors set with forecast CPI					
NPV of actual RAB, actual capex and revenue that should have been recovered	\$0										
NPV Difference	\$18										
RFM Outputs (\$ nominal)											
Opening RAB (not indexed)		\$1,000.00	\$1,085.95	\$1,170.71	\$1,254.17	\$1,336.21	\$1,416.73	\$1,495.60	\$1,572.70	\$1,647.90	\$1,721.07
Indexation		\$15.00	\$16.29	\$17.56	\$18.81	\$20.04	\$21.25	\$22.43	\$23.59	\$24.72	\$25.82
Opening RAB (Indexed)		\$1,015.00	\$1,102.24	\$1,188.27	\$1,272.98	\$1,356.26	\$1,437.98	\$1,518.04	\$1,596.29	\$1,672.62	\$1,746.89
Nominal Depreciation		-\$33.83	-\$37.89	-\$42.05	-\$46.34	-\$50.74	-\$55.26	-\$59.91	-\$64.68	-\$69.59	-\$74.63
Nominal Capex		\$104.78	\$106.36	\$107.95	\$109.57	\$111.21	\$112.88	\$114.58	\$116.29	\$118.04	\$119.81
Closing RAB		\$1,085.95	\$1,170.71	\$1,254.17	\$1,336.21	\$1,416.73	\$1,495.60	\$1,572.70	\$1,647.90	\$1,721.07	\$1,792.07
Return on capital		\$65.75	\$71.40	\$76.97	\$82.46	\$87.86	\$93.15	\$98.34	\$103.41	\$108.35	\$113.16
Return of capital		\$18.83	\$21.60	\$24.49	\$27.52	\$30.69	\$34.01	\$37.48	\$41.09	\$44.87	\$48.81
Revenue requirement		\$84.58	\$93.00	\$101.47	\$109.98	\$118.55	\$127.16	\$135.81	\$144.50	\$153.22	\$161.97
Expected Revenue (Smooth)		\$84.58	\$93.00	\$101.47	\$109.98	\$118.55	\$127.16	\$135.81	\$144.50	\$153.22	\$161.97
NPV Revenue Requirement					\$1,797.15						
NPV Expected Revenue (Smooth)					\$1,797.15	Represents NPV of revenue that is needed to cover actual nominal costs (perfect forecast of inflation)					
NPV Diff					\$0.00						

Output

3.50 % Actual

Real year	FY15	REGULATORY PERIOD 1					REGULATORY PERIOD 2				
		FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
PTRM Outputs (\$ nominal)											
Opening RAB (not indexed)		\$1,000.00	\$1,097.17	\$1,194.94	\$1,293.19	\$1,391.78	\$1,567.53	\$1,671.28	\$1,774.91	\$1,878.22	\$1,981.04
Indexation		\$25.00	\$27.43	\$29.87	\$32.33	\$34.79	\$39.19	\$41.78	\$44.37	\$46.96	\$49.53
Opening RAB (Indexed)		\$1,025.00	\$1,124.60	\$1,224.81	\$1,325.52	\$1,426.58	\$1,606.72	\$1,713.07	\$1,819.28	\$1,925.18	\$2,030.57
Nominal Depreciation		-\$34.17	-\$38.65	-\$43.34	-\$48.24	-\$53.36	-\$61.73	-\$67.61	-\$73.74	-\$80.14	-\$86.82
Nominal Capex		\$106.34	\$108.99	\$111.72	\$114.51	\$117.38	\$126.29	\$129.45	\$132.69	\$136.00	\$139.40
Closing RAB		\$1,097.17	\$1,194.94	\$1,293.19	\$1,391.78	\$1,490.59	\$1,671.28	\$1,774.91	\$1,878.22	\$1,981.04	\$2,083.15
Return on capital		\$76.25	\$83.66	\$91.11	\$98.61	\$106.12	\$119.52	\$127.44	\$135.34	\$143.21	\$151.05
Return of capital		\$9.17	\$11.22	\$13.47	\$15.92	\$18.57	\$22.54	\$25.83	\$29.37	\$33.19	\$37.29
Revenue requirement		\$85.42	\$94.88	\$104.58	\$114.52	\$124.69	\$142.07	\$153.26	\$164.71	\$176.40	\$188.35
Expected Revenue (Smooth)		\$85.42	\$94.88	\$104.58	\$114.52	\$124.69	\$142.07	\$153.26	\$164.71	\$176.40	\$188.35
NPV Revenue Requirement					\$1,987.05						
NPV Expected Revenue (Smooth)					\$1,987.05						
NPV Diff					\$0.00						
NPV Actual Revenue					\$1,787.03	Represents NPV of revenue recovered from actual tariffs based on x-factors set with forecast CPI					
RFM Outputs (\$ nominal)											
Opening RAB (not indexed)		\$1,000.00	\$1,108.40	\$1,219.43	\$1,333.03	\$1,449.10	\$1,567.53	\$1,688.21	\$1,810.99	\$1,935.73	\$2,062.24
Indexation		\$35.00	\$38.79	\$42.68	\$46.66	\$50.72	\$54.86	\$59.09	\$63.38	\$67.75	\$72.18
Opening RAB (Indexed)		\$1,035.00	\$1,147.19	\$1,262.11	\$1,379.69	\$1,499.82	\$1,622.40	\$1,747.30	\$1,874.38	\$2,003.48	\$2,134.42
Nominal Depreciation		-\$34.50	-\$39.43	-\$44.66	-\$50.21	-\$56.10	-\$62.33	-\$68.94	-\$75.92	-\$83.32	-\$91.14
Nominal Capex		\$107.90	\$111.67	\$115.58	\$119.63	\$123.81	\$128.15	\$132.63	\$137.27	\$142.08	\$147.05
Closing RAB		\$1,108.40	\$1,219.43	\$1,333.03	\$1,449.10	\$1,567.53	\$1,688.21	\$1,810.99	\$1,935.73	\$2,062.24	\$2,190.33
Return on capital		\$86.75	\$96.15	\$105.79	\$115.64	\$125.71	\$135.98	\$146.45	\$157.10	\$167.92	\$178.90
Return of capital		-\$0.50	\$0.64	\$1.98	\$3.56	\$5.38	\$7.47	\$9.85	\$12.54	\$15.57	\$18.96
Revenue requirement		\$86.25	\$96.79	\$107.77	\$119.20	\$131.09	\$143.45	\$156.30	\$169.64	\$183.49	\$197.86
Expected Revenue (Smooth)		\$86.25	\$96.79	\$107.77	\$119.20	\$131.09	\$143.45	\$156.30	\$169.64	\$183.49	\$197.86
NPV Revenue Requirement					\$1,804.97						
NPV Expected Revenue (Smooth)					\$1,804.97	Represents NPV of revenue that is needed to cover actual nominal costs (perfect forecast of inflation)					
NPV Diff					\$0.00						

NPV of Capex, RAB and Revenue actually recovered under tariffs **-\$18**

NPV of actual RAB, actual capex and revenue that should have been recovered **\$0**

NPV Difference **-\$18**

Extension Scenario – Constant Nominal

Real WACC	Est. Expected Inflation	Imp. Nominal WACC	Actual Inflation	Actual Inflation	Actual Inflation
5.00 %	2.50 %	7.62 %	2.50 %	1.50 %	3.50 %

Real year	FY15	REGULATORY PERIOD 1					REGULATORY PERIOD 2					
		FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	
Actual												
CPI (actual)		2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
CPI Index Base (actual) = real FY15	100%	102.5%	105.1%	107.7%	110.4%	113.1%	102.5%	105.1%	107.7%	110.4%	113.1%	
Nominal Vanilla WACC (actual)	Constant	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	
Real WACC (actual)	Nominal	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	
Nominal WACC (actual) used in model		7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	
WACC Index (actual)	100%	92.9%	86.3%	80.2%	74.5%	69.3%	64.4%	59.8%	55.6%	51.6%	48.0%	
Forecasts												
CPI (forecast)		2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	
CPI Index Base (forecast) = real FY15	100%	102.5%	105.1%	107.7%	110.4%	113.1%	102.5%	105.1%	107.7%	110.4%	113.1%	
Nominal Vanilla WACC (forecast)	Constant	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	
Real WACC (forecast)	Nominal	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	
Nominal WACC (forecast) used in model		7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	
WACC Index (forecast)	100%	92.9%	86.3%	80.2%	74.5%	69.3%	64.4%	59.8%	55.6%	51.6%	48.0%	

Output

2.50 % Actual

Real year	FY15	REGULATORY PERIOD 1					REGULATORY PERIOD 2				
		FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
PTRM Outputs (\$ nominal)											
Opening RAB (not indexed)		\$1,000.00	\$1,097.17	\$1,194.93	\$1,293.18	\$1,391.77	\$1,490.58	\$1,589.44	\$1,688.21	\$1,786.70	\$1,884.75
Indexation		\$25.00	\$27.43	\$29.87	\$32.33	\$34.79	\$37.26	\$39.74	\$42.21	\$44.67	\$47.12
Opening RAB (Indexed)		\$1,025.00	\$1,124.60	\$1,224.81	\$1,325.51	\$1,426.57	\$1,527.84	\$1,629.18	\$1,730.41	\$1,831.37	\$1,931.87
Nominal Depreciation		-\$34.17	-\$38.65	-\$43.34	-\$48.24	-\$53.36	-\$58.71	-\$64.29	-\$70.11	-\$76.18	-\$82.51
Nominal Capex		\$106.33	\$108.99	\$111.72	\$114.51	\$117.37	\$120.31	\$123.31	\$126.40	\$129.56	\$132.80
Closing RAB		\$1,097.17	\$1,194.93	\$1,293.18	\$1,391.77	\$1,490.58	\$1,589.44	\$1,688.21	\$1,786.70	\$1,884.75	\$1,982.16
Return on capital		\$76.20	\$83.60	\$91.05	\$98.54	\$106.05	\$113.58	\$121.12	\$128.64	\$136.15	\$143.62
Return of capital		\$9.17	\$11.22	\$13.47	\$15.92	\$18.57	\$21.44	\$24.55	\$27.90	\$31.51	\$35.39
Revenue requirement		\$85.37	\$94.83	\$104.52	\$114.46	\$124.62	\$135.03	\$145.67	\$156.54	\$167.66	\$179.01
Expected Revenue (Smooth)		\$85.37	\$94.83	\$104.52	\$114.46	\$124.62	\$135.03	\$145.67	\$156.54	\$167.66	\$179.01
NPV Revenue Requirement											\$1,801.24
NPV Expected Revenue (Smooth)											\$1,801.24
NPV Diff											\$0.00
NPV Actual Revenue											\$1,801.24
											Represents NPV of revenue recovered from actual tariffs based on x-factors set with forecast CPI
Real year	FY15	REGULATORY PERIOD 1					REGULATORY PERIOD 2				
		FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
RFM Outputs (\$ nominal)											
Opening RAB (not indexed)		\$1,000.00	\$1,097.17	\$1,194.93	\$1,293.18	\$1,391.77	\$1,490.58	\$1,589.44	\$1,688.21	\$1,786.70	\$1,884.75
Indexation		\$25.00	\$27.43	\$29.87	\$32.33	\$34.79	\$37.26	\$39.74	\$42.21	\$44.67	\$47.12
Opening RAB (Indexed)		\$1,025.00	\$1,124.60	\$1,224.81	\$1,325.51	\$1,426.57	\$1,527.84	\$1,629.18	\$1,730.41	\$1,831.37	\$1,931.87
Nominal Depreciation		-\$34.17	-\$38.65	-\$43.34	-\$48.24	-\$53.36	-\$58.71	-\$64.29	-\$70.11	-\$76.18	-\$82.51
Nominal Capex		\$106.33	\$108.99	\$111.72	\$114.51	\$117.37	\$120.31	\$123.31	\$126.40	\$129.56	\$132.80
Closing RAB		\$1,097.17	\$1,194.93	\$1,293.18	\$1,391.77	\$1,490.58	\$1,589.44	\$1,688.21	\$1,786.70	\$1,884.75	\$1,982.16
Return on capital		\$76.20	\$83.60	\$91.05	\$98.54	\$106.05	\$113.58	\$121.12	\$128.64	\$136.15	\$143.62
Return of capital		\$9.17	\$11.22	\$13.47	\$15.92	\$18.57	\$21.44	\$24.55	\$27.90	\$31.51	\$35.39
Revenue requirement		\$85.37	\$94.83	\$104.52	\$114.46	\$124.62	\$135.03	\$145.67	\$156.54	\$167.66	\$179.01
Expected Revenue (Smooth)		\$85.37	\$94.83	\$104.52	\$114.46	\$124.62	\$135.03	\$145.67	\$156.54	\$167.66	\$179.01
NPV Revenue Requirement											\$1,801.24
NPV Expected Revenue (Smooth)											\$1,801.24
NPV Diff											\$0.00
											Represents NPV of revenue that is needed to cover actual nominal costs (perfect forecast of inflation)

NPV of Capex, RAB and Revenue actually recovered under tariffs \$0

NPV of actual RAB, actual capex and revenue that should have been recovered \$0

NPV Difference \$0

Output

1.50 % Actual

Real year	FY15	REGULATORY PERIOD 1					REGULATORY PERIOD 2				
		FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
PTRM Outputs (\$ nominal)											
Opening RAB (not indexed)		\$1,000.00	\$1,097.17	\$1,194.93	\$1,293.18	\$1,391.77	\$1,419.27	\$1,513.41	\$1,607.45	\$1,701.23	\$1,794.59
Indexation		\$25.00	\$27.43	\$29.87	\$32.33	\$34.79	\$35.48	\$37.84	\$40.19	\$42.53	\$44.86
Opening RAB (Indexed)		\$1,025.00	\$1,124.60	\$1,224.81	\$1,325.51	\$1,426.57	\$1,454.75	\$1,551.24	\$1,647.63	\$1,743.76	\$1,839.45
Nominal Depreciation		-\$34.17	-\$38.65	-\$43.34	-\$48.24	-\$53.36	-\$55.90	-\$61.21	-\$66.75	-\$72.53	-\$78.56
Nominal Capex		\$106.33	\$108.99	\$111.72	\$114.51	\$117.37	\$114.55	\$117.42	\$120.35	\$123.36	\$126.44
Closing RAB		\$1,097.17	\$1,194.93	\$1,293.18	\$1,391.77	\$1,490.58	\$1,513.41	\$1,607.45	\$1,701.23	\$1,794.59	\$1,887.33
Return on capital		\$76.20	\$83.60	\$91.05	\$98.54	\$106.05	\$108.15	\$115.32	\$122.49	\$129.63	\$136.75
Return of capital		\$9.17	\$11.22	\$13.47	\$15.92	\$18.57	\$20.42	\$23.38	\$26.57	\$30.00	\$33.70
Revenue requirement		\$85.37	\$94.83	\$104.52	\$114.46	\$124.62	\$128.57	\$138.70	\$149.05	\$159.64	\$170.44
Expected Revenue (Smooth)		\$85.37	\$94.83	\$104.52	\$114.46	\$124.62	\$128.57	\$138.70	\$149.05	\$159.64	\$170.44
NPV Revenue Requirement											\$1,644.77
NPV Expected Revenue (Smooth)											\$1,644.77
NPV Diff											\$0.00
NPV Actual Revenue											\$1,614.14

Represents NPV of revenue recovered from actual tariffs based on x-factors set with forecast CPI

NPV of Capex, RAB and Revenue actually recovered under tariffs	-\$148
NPV of actual RAB, actual capex and revenue that should have been recovered	\$0
NPV Difference	-\$148

Real year	FY15	REGULATORY PERIOD 1					REGULATORY PERIOD 2				
		FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
RFM Outputs (\$ nominal)											
Opening RAB (not indexed)		\$1,000.00	\$1,086.46	\$1,171.73	\$1,255.70	\$1,338.25	\$1,419.27	\$1,498.64	\$1,576.23	\$1,651.92	\$1,725.57
Indexation		\$15.00	\$16.30	\$17.58	\$18.84	\$20.07	\$21.29	\$22.48	\$23.64	\$24.78	\$25.88
Opening RAB (Indexed)		\$1,015.00	\$1,102.76	\$1,189.31	\$1,274.53	\$1,358.32	\$1,440.56	\$1,521.12	\$1,599.88	\$1,676.70	\$1,751.46
Nominal Depreciation		-\$33.83	-\$37.90	-\$42.09	-\$46.39	-\$50.81	-\$55.35	-\$60.02	-\$64.82	-\$69.74	-\$74.80
Nominal Capex		\$105.30	\$106.88	\$108.48	\$110.11	\$111.76	\$113.43	\$115.14	\$116.86	\$118.62	\$120.39
Closing RAB		\$1,086.46	\$1,171.73	\$1,255.70	\$1,338.25	\$1,419.27	\$1,498.64	\$1,576.23	\$1,651.92	\$1,725.57	\$1,797.05
Return on capital		\$76.20	\$82.79	\$89.29	\$95.68	\$101.97	\$108.15	\$114.20	\$120.11	\$125.88	\$131.49
Return of capital		\$18.83	\$21.61	\$24.51	\$27.55	\$30.74	\$34.06	\$37.54	\$41.17	\$44.96	\$48.92
Revenue requirement		\$95.03	\$104.39	\$113.80	\$123.24	\$132.71	\$142.21	\$151.74	\$161.28	\$170.84	\$180.41
Expected Revenue (Smooth)		\$95.03	\$104.39	\$113.80	\$123.24	\$132.71	\$142.21	\$151.74	\$161.28	\$170.84	\$180.41
NPV Revenue Requirement											\$1,762.47
NPV Expected Revenue (Smooth)											\$1,762.47
NPV Diff											\$0.00

Represents NPV of revenue that is needed to cover actual nominal costs (perfect forecast of inflation)

Output

3.50 % Actual

Real year	FY15	REGULATORY PERIOD 1					REGULATORY PERIOD 2				
		FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
PTRM Outputs (\$ nominal)											
Opening RAB (not indexed)		\$1,000.00	\$1,075.76	\$1,148.76	\$1,218.95	\$1,286.29	\$1,419.27	\$1,483.88	\$1,545.33	\$1,603.58	\$1,658.57
Indexation		\$5.00	\$5.38	\$5.74	\$6.09	\$6.43	\$7.10	\$7.42	\$7.73	\$8.02	\$8.29
Opening RAB (Indexed)		\$1,005.00	\$1,081.14	\$1,154.50	\$1,225.04	\$1,292.72	\$1,426.37	\$1,491.30	\$1,553.05	\$1,611.59	\$1,666.86
Nominal Depreciation		-\$33.50	-\$37.16	-\$40.86	-\$44.59	-\$48.36	-\$54.81	-\$58.85	-\$62.92	-\$67.04	-\$71.19
Nominal Capex		\$104.26	\$104.78	\$105.30	\$105.83	\$106.36	\$112.32	\$112.88	\$113.44	\$114.01	\$114.58
Closing RAB		\$1,075.76	\$1,148.76	\$1,218.95	\$1,286.29	\$1,350.72	\$1,483.88	\$1,545.33	\$1,603.58	\$1,658.57	\$1,710.25
Return on capital		\$76.20	\$81.97	\$87.54	\$92.88	\$98.02	\$108.15	\$113.07	\$117.75	\$122.19	\$126.38
Return of capital		\$28.50	\$31.78	\$35.11	\$38.49	\$41.92	\$47.71	\$51.43	\$55.19	\$59.02	\$62.90
Revenue requirement		\$104.70	\$113.75	\$122.65	\$131.38	\$139.94	\$155.86	\$164.50	\$172.95	\$181.21	\$189.28
Expected Revenue (Smooth)		\$104.70	\$113.75	\$122.65	\$131.38	\$139.94	\$155.86	\$164.50	\$172.95	\$181.21	\$189.28
NPV Revenue Requirement											\$1,875.32
NPV Expected Revenue (Smooth)											\$1,875.32
NPV Diff											\$0.00
NPV Actual Revenue											\$1,910.79
Represents NPV of revenue recovered from actual tariffs based on x-factors set with forecast CPI											
Real year	FY15	REGULATORY PERIOD 1					REGULATORY PERIOD 2				
		FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
RFM Outputs (\$ nominal)											
Opening RAB (not indexed)		\$1,000.00	\$1,086.46	\$1,171.73	\$1,255.70	\$1,338.25	\$1,419.27	\$1,498.64	\$1,576.23	\$1,651.92	\$1,725.57
Indexation		\$15.00	\$16.30	\$17.58	\$18.84	\$20.07	\$21.29	\$22.48	\$23.64	\$24.78	\$25.88
Opening RAB (Indexed)		\$1,015.00	\$1,102.76	\$1,189.31	\$1,274.53	\$1,358.32	\$1,440.56	\$1,521.12	\$1,599.88	\$1,676.70	\$1,751.46
Nominal Depreciation		-\$33.83	-\$37.90	-\$42.09	-\$46.39	-\$50.81	-\$55.35	-\$60.02	-\$64.82	-\$69.74	-\$74.80
Nominal Capex		\$105.30	\$106.88	\$108.48	\$110.11	\$111.76	\$113.43	\$115.14	\$116.86	\$118.62	\$120.39
Closing RAB		\$1,086.46	\$1,171.73	\$1,255.70	\$1,338.25	\$1,419.27	\$1,498.64	\$1,576.23	\$1,651.92	\$1,725.57	\$1,797.05
Return on capital		\$76.20	\$82.79	\$89.29	\$95.68	\$101.97	\$108.15	\$114.20	\$120.11	\$125.88	\$131.49
Return of capital		\$18.83	\$21.61	\$24.51	\$27.55	\$30.74	\$34.06	\$37.54	\$41.17	\$44.96	\$48.92
Revenue requirement		\$95.03	\$104.39	\$113.80	\$123.24	\$132.71	\$142.21	\$151.74	\$161.28	\$170.84	\$180.41
Expected Revenue (Smooth)		\$95.03	\$104.39	\$113.80	\$123.24	\$132.71	\$142.21	\$151.74	\$161.28	\$170.84	\$180.41
NPV Revenue Requirement											\$1,762.47
NPV Expected Revenue (Smooth)											\$1,762.47
NPV Diff											\$0.00
Represents NPV of revenue that is needed to cover actual nominal costs (perfect forecast of inflation)											

NPV of Capex, RAB and Revenue actually recovered under tariffs	\$148
NPV of actual RAB, actual capex and revenue that should have been recovered	\$0
NPV Difference	\$148

Inherent Limitations and Disclaimer

This presentation contains general information only and neither Woollahra Partners, nor any of its related entities, is providing any professional advice or services through its publication. To the extent the presentation contains information on financial products this does not constitute the provision of financial product advice or services. You should seek the advice of a qualified professional advisor before making any financial decisions that may affect you or your business based upon any information contained herein.

Neither Woollahra Partners, nor any of its related entities may be held responsible for any loss by any person relying on information contained in this publication.

About Woollahra Partners

Through effective industry partnership we engage to fill the void and advance Trading, Sales and Marketing, Treasury and Regulatory frameworks and deliver solutions for the betterment of wholesale market exposed entities operating in global markets. This occurs through heavy reliance on industry and market benchmarking, and where appropriate, testing frontiers.

Founded 2017 Woollahra Partners is built and invested upon independent industry know-how forged over 20 years of continuous engagement through Energy, Commodities, Treasury and Regulatory Partnerships; where problems are resolved collaboratively. Technologically scalable solutions are implemented through Partnerships with leading independent data, analytics and information platform businesses.