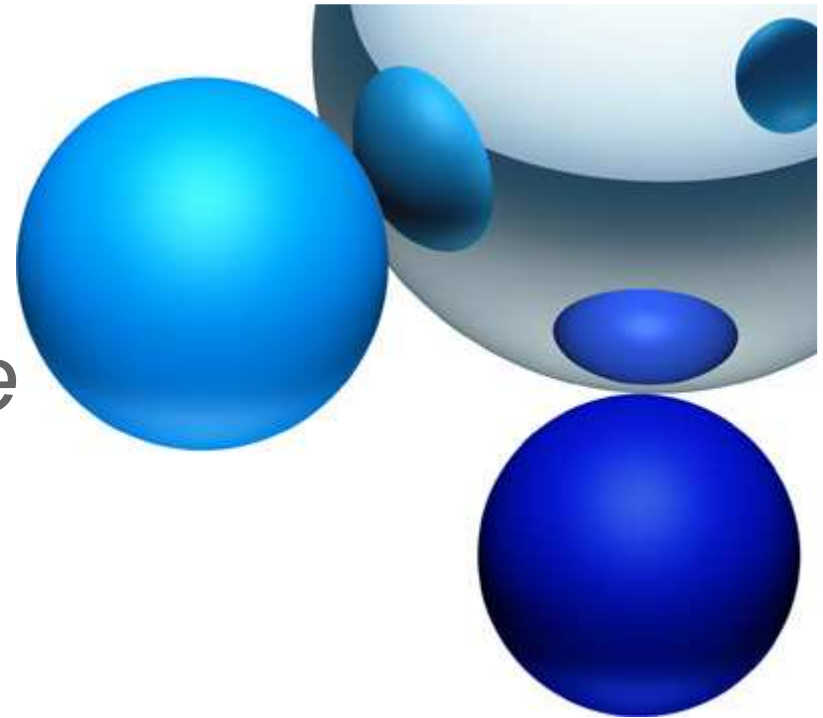


*Controlling the influence
of foreign exchange &
escalation on capital
projects in the South
African context*

*ICEC World Congress
Cape Town - SA
April 2004*

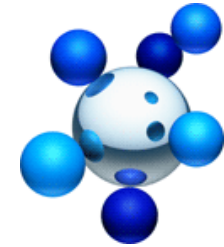


SASOL
reaching new frontiers



*Pieter F Boucher
Strategy & Change Team*

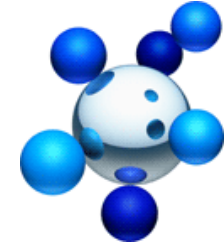
Agenda



- 1. Introduction*
- 2. Context*
- 3. Schedule*
- 4. Estimate / Control Base*
- 5. Cost Control*
- 6. Lessons learnt*
- 7. Conclusion*

Introduction

Insight !



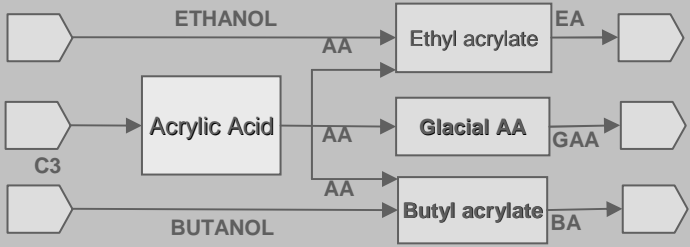
- *How does one distinguish between a Cost Engineer and an Accountant ?*
- *How does one verify insight into the key principles of cost control ?*
- *The story of the fishing expedition provides the answer*



Context

- *Presentation based on actual capital project*
- *Focus is on project phase, not lifecycle / business*
- *Acrylic Acid & Acrylates complex – Sasolburg, SA*
- *Project duration : January 2001 to December 2003*
- *Duration from EPCM award to hand-over : 25 months*
- *Project Cost : SA Rand 2 200 000 000*
 - *ca US Dollar 270 000 000 Equivalent*
- *Imported component : SA Rand 711 000 000 (32%)*
- *Commercial policy : FEC's on all imports above R20k*

UNIT BLOCK DIAGRAM



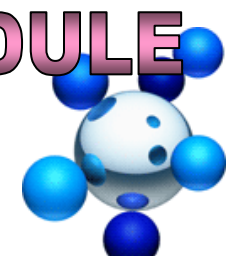
AAA Complex – Sasolburg
15 000 m³ concrete, 2,000 mt steel, 470 items mechanical equipment , 80 km piping, 25km steam tracing, 400 km cable, 2,000 jobs, 4 million construction hours & 25 months' execution phase duration



START 

PLANT LAYOUT 

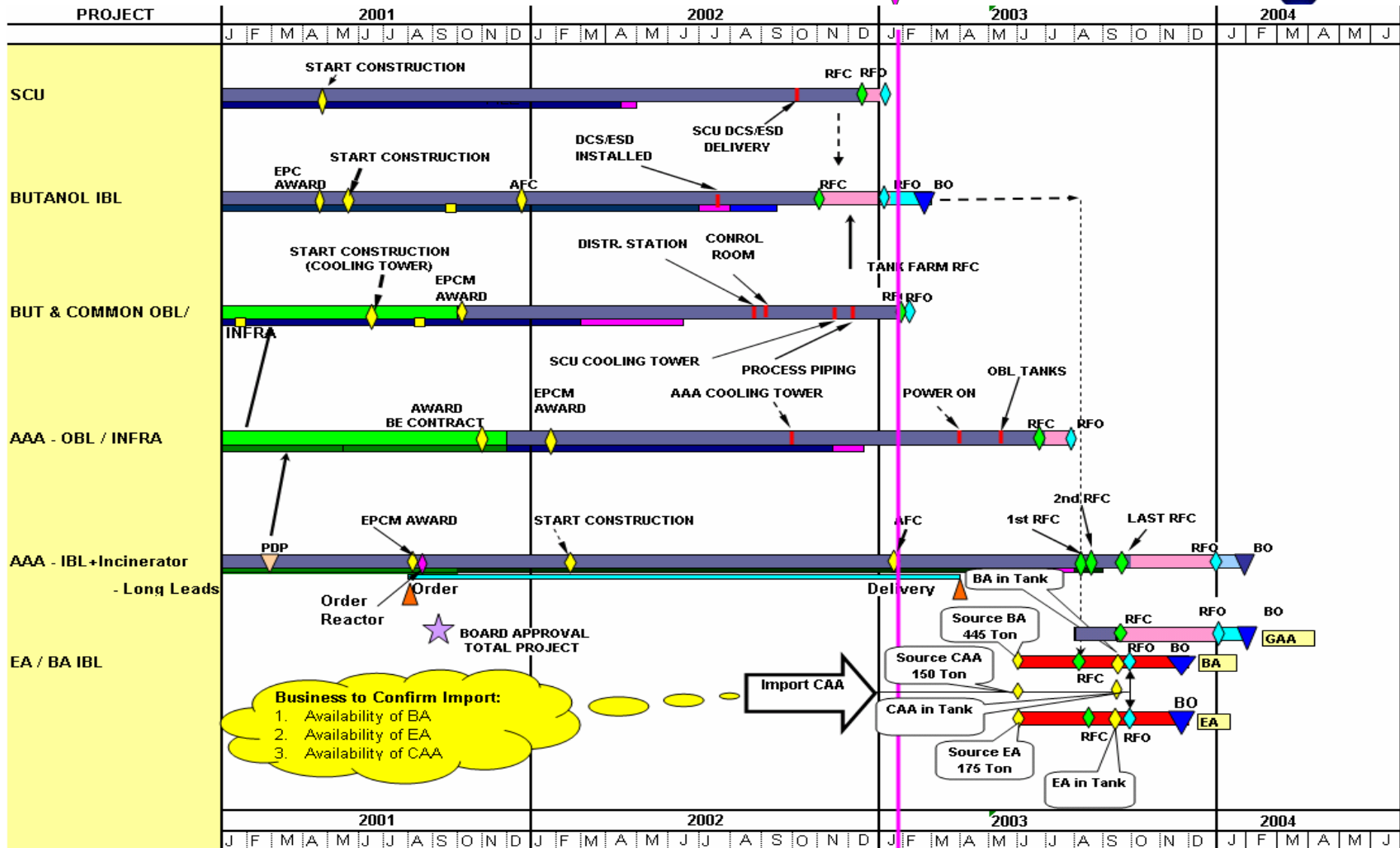
SSBAC PROJECT MILESTONE SCHEDULE



Phase Status of Project
BD&I Colours

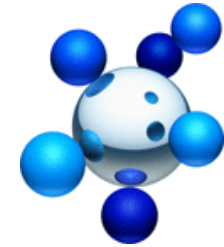
STATUS: 28-01-2003

TIME
NOW



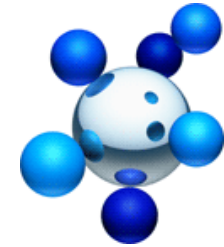
Capital estimate / Control base

Some typical activities



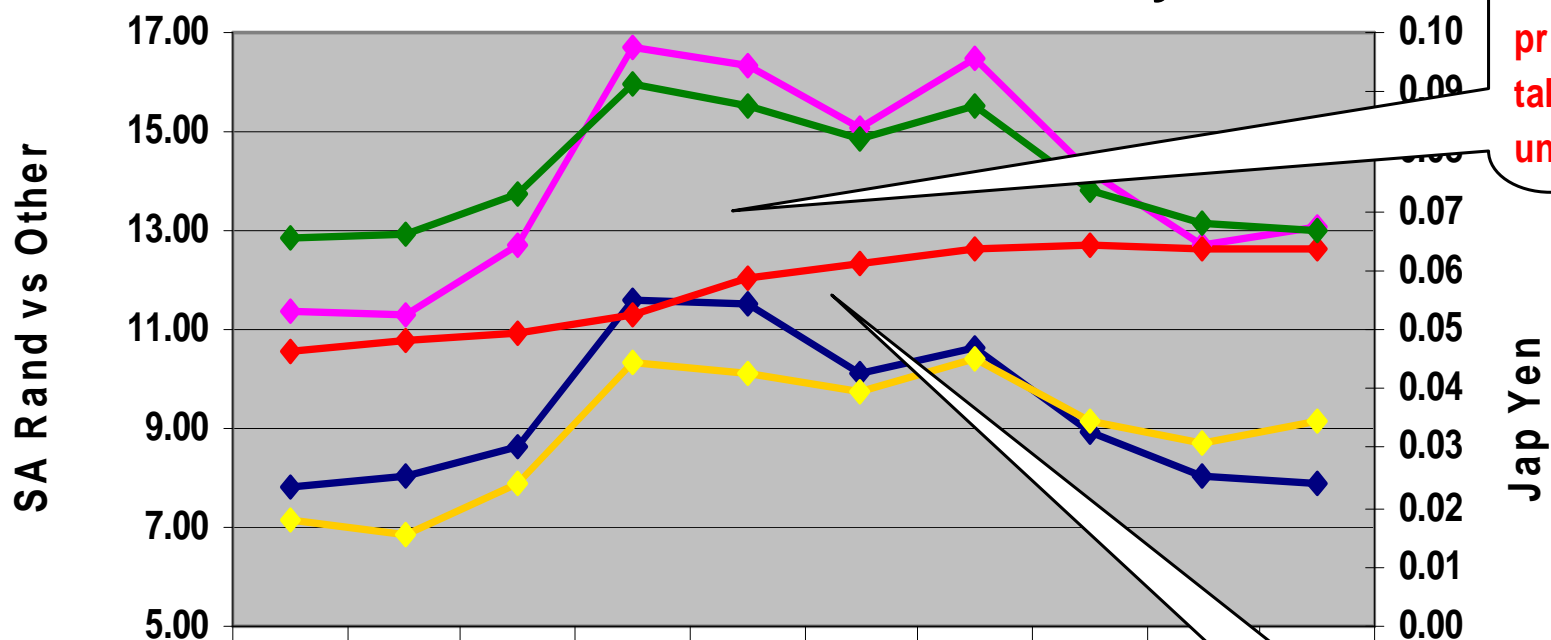
- *Define scope within given constraints*
- *Determine location factors / complexity / type of project*
- *Quantify Major Equipment (Usually key driver of estimate)*
- *Estimate costs : Factoring / extra & interpolation / quotes / stats / estimate parameters / market conditions / risks*
- *Project schedule (Sequence & durations) per primary element, eg Engineering, Procurement & Construction of civil works, steel, piping, mechanical equipment , electrical, control systems, paint, insulation. Also Owner's costs, eg Pre-production, Cat & chem, spares etc. Schedule/cash flow help to determine future escalation*
- *Escalate from instantaneous to EOJ via SEIFSA & SA Statistics*
- *Determine imported components, RoE mix, & escalate accordingly*
- *Assess risk & objectively determine project contingency*
- *Stipulate assumptions & qualifications*
- *Develop realistic cash flow schedule*
- *Develop cost & schedule control base*

Cost Control



- *Establish cost & schedule control base & systems*
- *Establish reliable early warning & tracking system of potential / actual cost & schedule impacts*
- *Integrate E/P/C/M / Commercial / Financial / CE info*
- *Create reliable communication channels / media*
- *Define roles & responsibilities / accountability*
- *Set up technical & commercial verification process*
- *Agree appropriate authorisation levels*
- *Acknowledge inter-dependence*
- *Maintain reliable EOJC & schedule Forecasts*
- *Update estimating database*

SA Rand - PPI & RoE history



Most major items procured & FEC's taken at unfavourable time

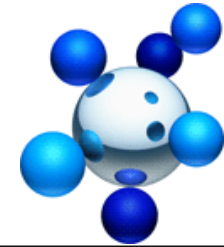
June '01 to Sep '02 : SA PPI (Ac) increased by 17 % vs avg of 40% by foreign currencies vs SA Rand.

	Mar 2001	Jun 2001	Sep 2001	Dec 2001	Mar 2002	Jun 2002	Sep 2002	Dec 2002	Mar 2003	Jun 2003
R / USD	7.84	8.04	8.65	11.62	11.49	10.15	10.59	8.95	8.03	7.87
R / GBP	11.34	11.29	12.67	16.74	16.36	15.08	16.48	14.20	12.72	13.06
R / Euro	7.17	6.86	7.89	10.37	10.08	9.72	10.39	9.13	8.68	9.18
PPI (Ac)	10.55	10.81	10.95	11.29	12.04	12.37	12.64	12.69	12.65	12.66
R / YEN	0.07	0.07	0.07	0.09	0.09	0.08	0.09	0.07	0.07	0.07

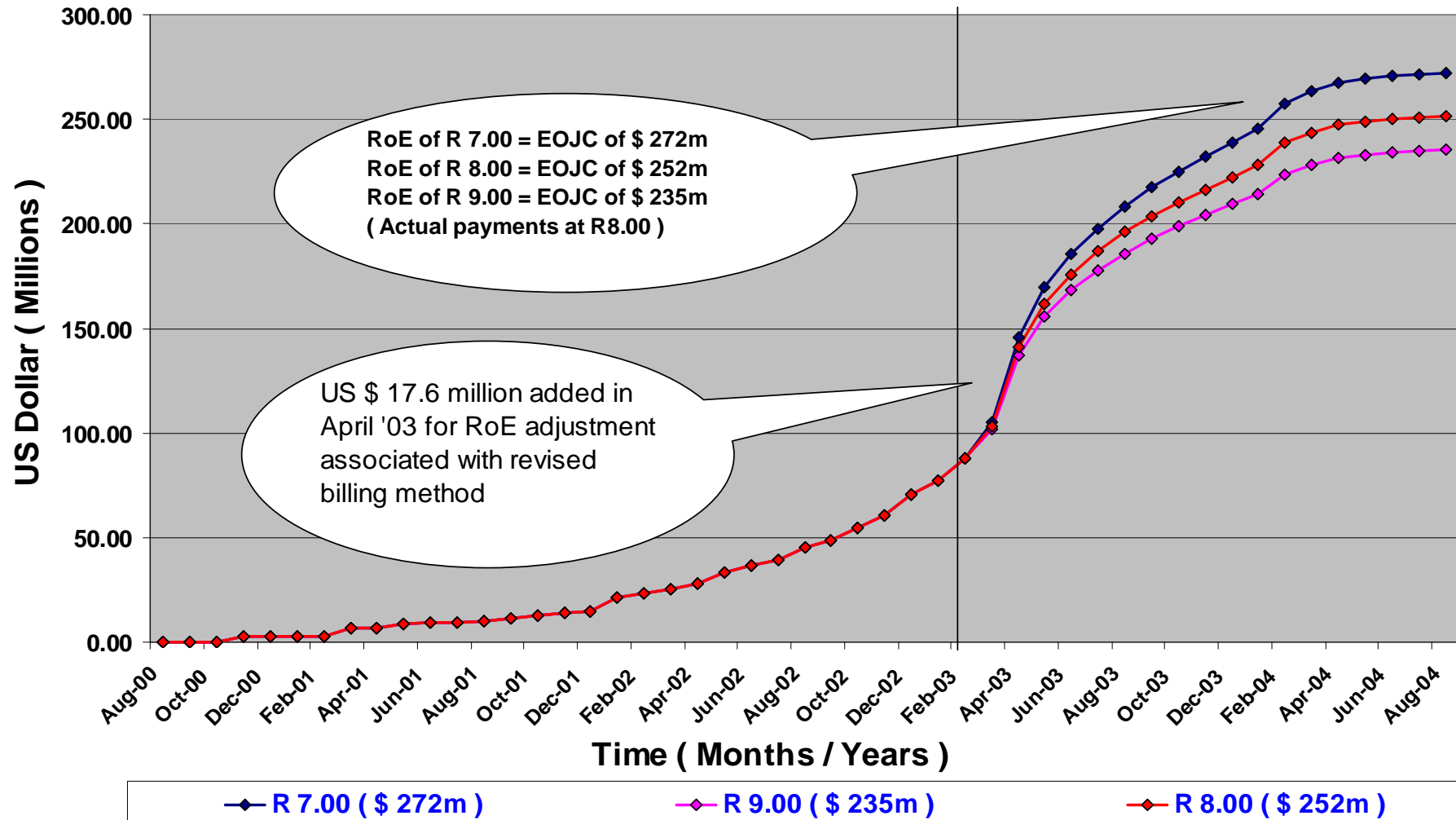
Months



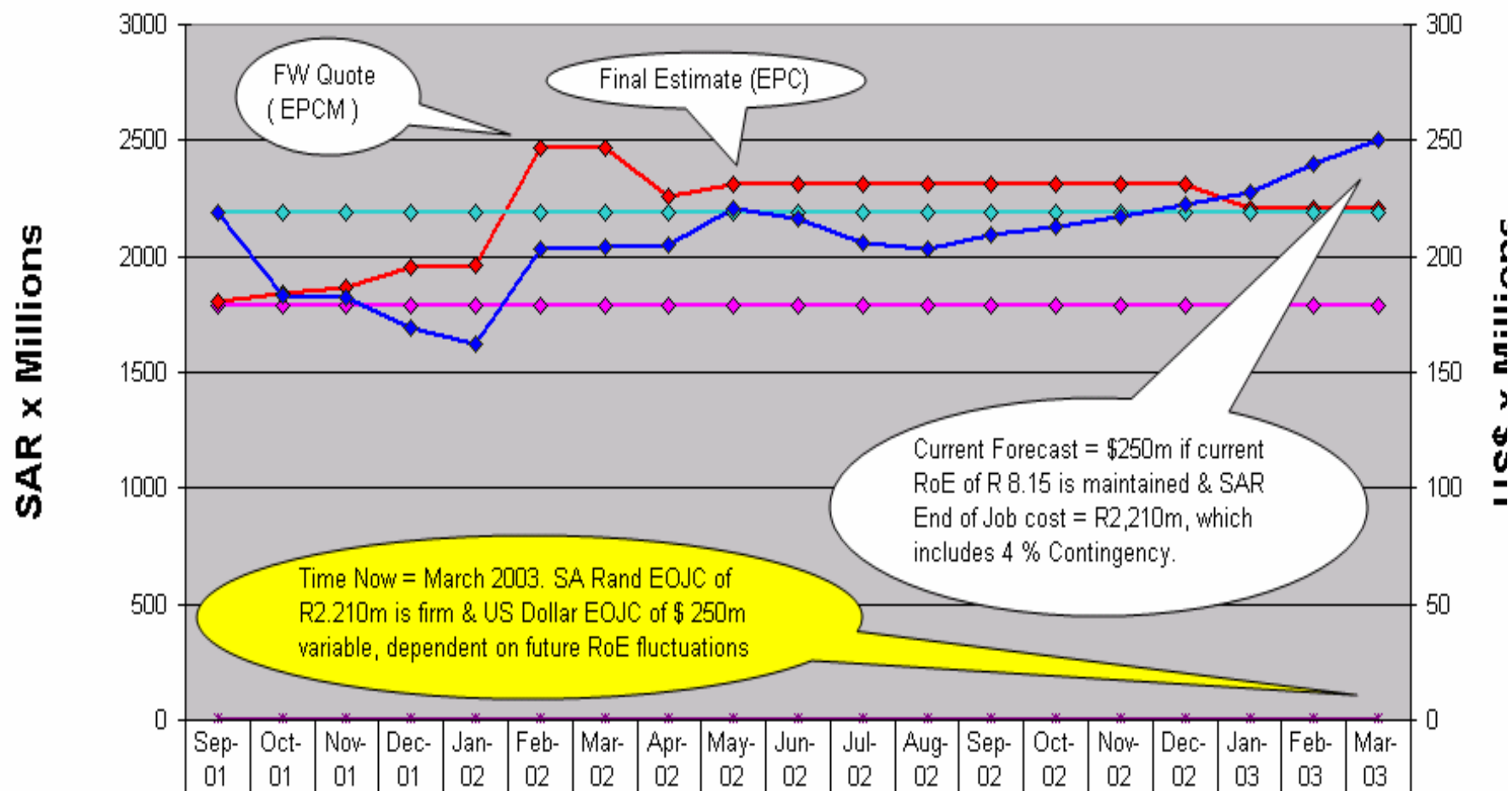
RoE Volatility = Variable outcomes



AAA Project Cashflow in US Dollars (JV)



AAA PROJECT : SAR vs US\$ HISTORY (Stand-alone)



	Sep-01	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	Jun-02	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03
◆ SAR Capital	1785	1785	1785	1785	1785	1785	1785	1785	1785	1785	1785	1785	1785	1785	1785	1785	1785	1785	1785
◆ SAR Forecast	1807	1841	1863	1950	1961	2470	2470	2263	2310	2310	2310	2310	2310	2310	2310	2310	2210	2210	2210
* F'Cast RoE (EOJ)	8.16	10.03	10.21	11.50	12.09	12.14	12.11	11.04	10.45	10.69	11.21	11.38	11.05	10.85	10.65	10.41	9.69	9.21	8.84
◆ US\$ Capital	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219
◆ US\$ Forecast	219	183	183	170	162	203	204	205	221	216	206	203	209	213	217	222	228	240	250

Month & Year

AAA Project Forex History / Scenarios

Oct-03

(Actuals adjusted slightly)

Timing	Foreign Currency	RoE	SA Rand	%	F'C & Actual Variance	All in one foreign currency - Dec '01 (Potential add impact)		Actual Forex Trend (Delta RoE)
						SA Rand	%	
Orig Estimate - August '01	\$19,148,284	8.16	R 156,250,000	25%				
Interim Trend - February '02	\$19,148,284	12.04	R 230,545,343	28%	74,295,343	Over-run		
Actual - October '03	\$30,590,717	9.48	R 290,000,000	41%	133,750,000	160,500,000 100%	26%	40,380,000
Orig Estimate - August '01	€ 21,671,290	7.21	R 156,250,000	25%				
Interim Trend - January '02	€ 21,671,290	10.59	R 229,498,960	28%	73,248,960	Over-run		
Actual - October '03	€ 19,906,868	8.59	R 171,000,000	24%	14,750,000	147,332,000 100%	24%	27,470,000
Orig Estimate - August '01	£0.00	11.75	R 0	0%	-			
Interim Trend - January '02	£0.00	-	R 0	0%	-	Over-run		
Actual - October '03	£11,001,517	13.18	R 145,000,000	20%	145,000,000	192,046,000 100%	31%	15,730,000
Orig Estimate - August '01	JPY 4,280,821,918	0.073	R 312,500,000	50%				
Interim Trend - January '02	JPY 4,280,821,918	0.085	R 363,869,863	44%	51,369,863	Over-run		
Actual - October '03	JPY 1,418,918,919	0.074	R 105,000,000	15%	-207,500,000	166,220,000 100%	27%	1,420,000
Orig Estimate - August '01	Total of all currencies	-	R 625,000,000	100%				
Interim Trend - January '02	Total of all currencies	-	R 823,914,166	100%	198,914,166			
Actual - October '03	Total of all currencies	-	R 711,000,000	100%	86,000,000	Misleading Coincidence !		85,000,000

Note ! (1) Two primary variables : Composition of imports and rates of exchange.

(2) Differentiate between absolute variance in imported costs (R 86m) vs forex (RoE) trend (R 85 m) !

(3) Local prices escalated in sympathy with weakenig SA Rand (Import parity & foreign content - refer to RoE & PPI graph)

Project Variation History



AAA Project Costs - Variation Summary (Stand-alone)

09-Apr-03

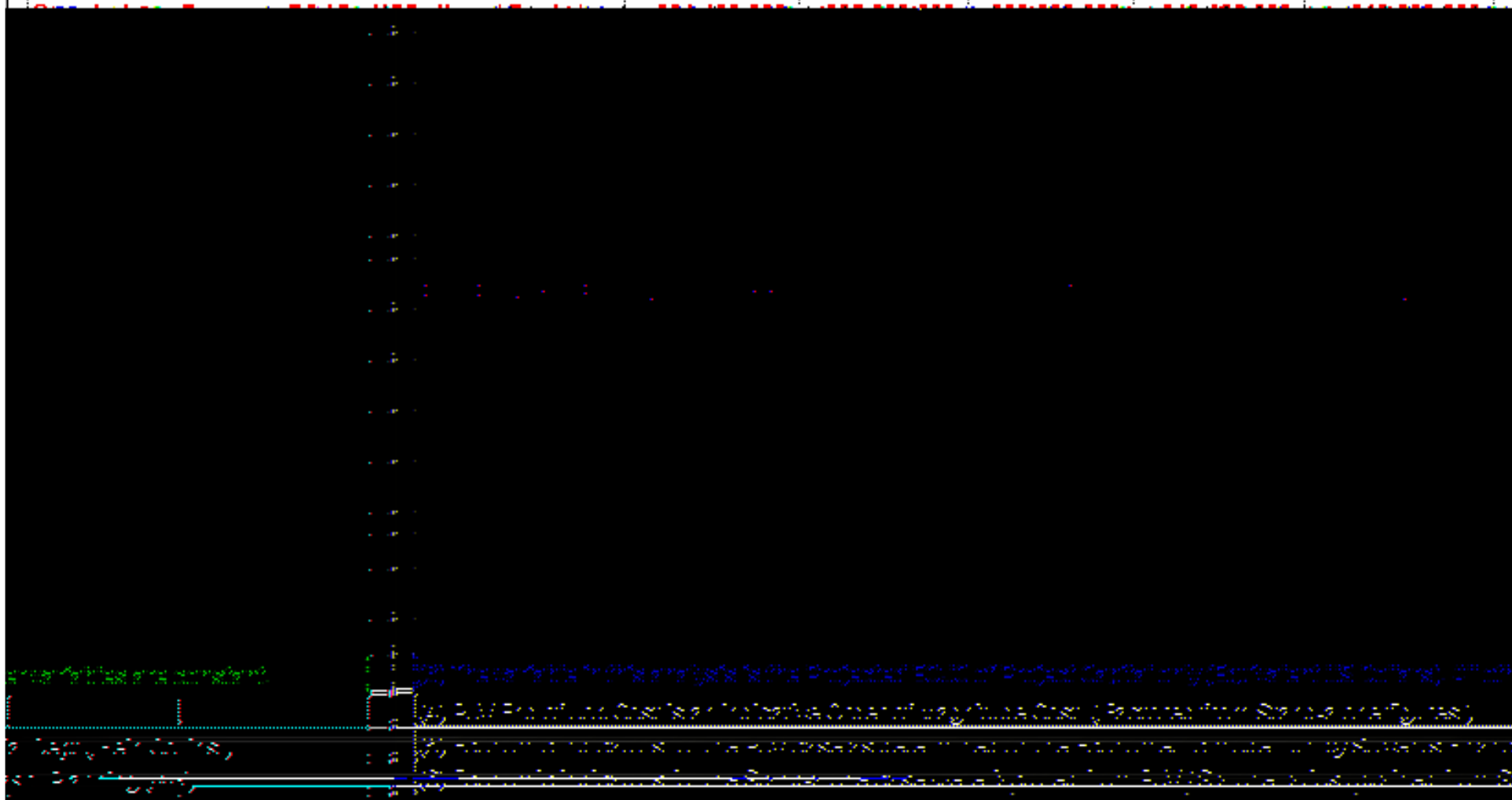
(All figures are in SA Rand millions)

Description	Original Capital Sept '01	Initial Variations	Revised Estimate April '02	Final Variations	Current Forecast April '03	Remarks
Outside Engineering	260	34	294	-	294	Mainly MCC & Foster Wheeler
Direct & Indirect Field Costs	746	337	1083	(28)	1055	As detailed below & recent cost trends
Owner's Costs	391	105	496	(2)	494	Cat & Chem subject to RoE, rest factored
Contingency	163	14	177	(110)	67	Risk profile re-assessed
Total IBL	1560	490	2050	(140)	1910	
Dedicated OBL	144	35	179	43	222	Approx 50% scope growth & 50% Price trends
Shared OBL	81	0	81	-3	78	No significant change foreseen
Total AAA Project	1785	525	2310	(100)	2210	Details recorded in Variation Register
Import portion subject to RoE	625		900		711	US% 41% / Euro 24 % / GBP 20% / Yen 15%
Primary causes of R 525 m cost increase :		Impact	%		%	
Scope growth in IBL (Design development) :		80	15%	80	19%	Major Equipment increased by 4.5 %
RoE Variance - EOJC (EOJ Avg R 8.16 vs R 11.24)		275	53%	86	20%	RoE variances (Avg now R 8.77 / \$)
Local price trends		170	32%	259	61%	Import parity - local cost trends
Total		525	100%	425	100%	

AAA Project - Sensitivity Analysis (RoE impact on US \$)

07-Feb-03

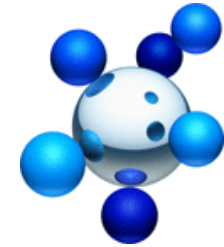
DESCRIPTION	Case 1	Case 2	Case 3	Case 4	Case 5
Stand-alone Forecast EOJC - SA Rand	2,210,000,000	2,210,000,000	2,210,000,000	2,210,000,000	2,210,000,000
Forecast Average RoE - February '03	9.00	8.75	8.50	8.25	8.00
Wt Ave RoE at EOJ	9.56	9.40	9.24	9.07	8.90



error for this area is constant.
 The above table is the analysis of the projected EOJC of Project Capital only (Excluding US dollars). All other
 items are in US dollars. Case 1 is the base case. Case 2 is the base case plus the impact of the US dollar. Case 3 is the base case plus the impact of the US dollar and the impact of the US dollar.
 Case 4 is the base case plus the impact of the US dollar and the impact of the US dollar. Case 5 is the base case plus the impact of the US dollar and the impact of the US dollar.

Lessons learnt

In a volatile economic environment



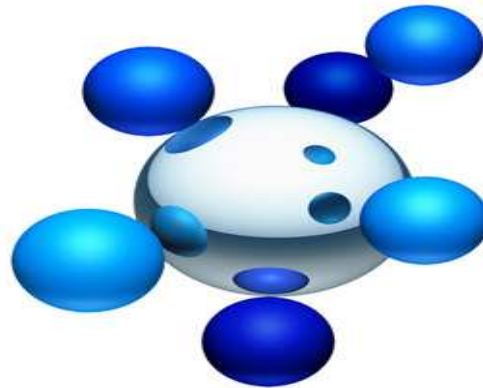
- *Timing of the project is significant : Capex & Lifecycle*
- *Augment standard estimating methodologies with external checks*
- *Sourcing of imports : be open-minded & do sensitivity analyses*
- *Local supplies favourable (17 % vs 40 % escalation)*
- *Local market gravitates towards import parity even if 100 % local*
- *Worthwhile investigating local quotes more thoroughly (Loaded?)*
- *Forward exchange cover safe, but not necessarily the best option*
- *Understand your estimate, control base & market trends*
- *Don't wait for commitments before trending local & foreign elements – read the signs & do comprehensive re-assessments*
- *Understand economic model - integrate capex (EOJC) & RoE volatility into lifecycle scenario / sensitivity analyses*
- *Timely walk-away may be viable option – continually assess walk-away & EOJC, especially at front-end of project & keep clients informed*

Conclusion

Controlling the influence of escalation & currency fluctuations on Capital Projects in South Africa during 2001 / 2003 was a real challenge, requiring utmost vigilance & conditioning oneself to the unexpected.

This presentation was completed in November 2003. The presenter trusts that by April 2004, the SA Rand, relative to other major foreign currencies, would have stabilised at levels favourable to the local economy & international trade & industry in general

- Thank you !



SASOL
reaching new frontiers

