



SPE:ATW PRESERVING VALUE IN LARGE
SCALE PROJECTS

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DECISIONS WITH CONFIDENCE

WHAT THE HEADLINES ARE SAYING

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The Sydney Morning Herald

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\$100b LNG projects imperiled by cost
rush

August 31, 2012

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material shortages force up
of projects, a switch to East Africa
where energy consumption is forec.

ALL PRIZES DO

Triple whammy sparks \$5bn blowout
for BG's Gladstone project

MATT CHAMBERS AND BARRY FITZGERALD The Australian May 04, 2012 12:00AM

Cost blowouts and skills shortage
threaten gas projects

The Australian January 29, 2011 12:00AM

Chevron finds huge cost blowout at
Gorgon: report

Published 3:56 AM, 14 Nov 2012 Last update 3:56 AM, 14 Nov 2012

World's biggest gas finds in a decade threatens to

Santos Reports \$2.5B Increase in GLNG Price Tag

by Quintella Koh Rigzone Staff
June 28, 2012

Too many projects
over-runs for all,
side back on the



sector booms amid concerns

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Cost of PNG LNG rises to \$US19 billion

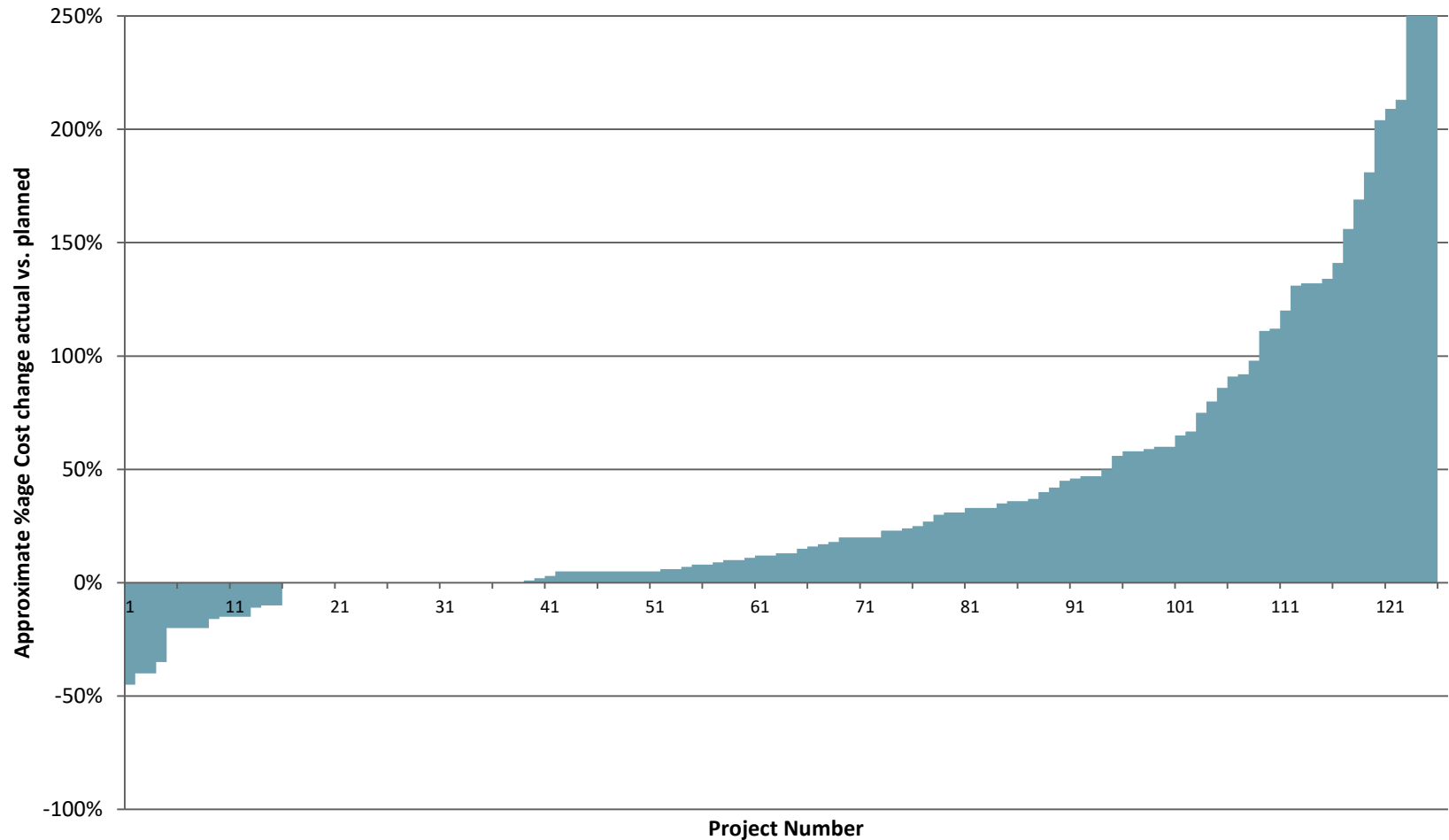
Some planned liquefied
Australia-Pacific LNG
lucrative supply contracts,

PRINT

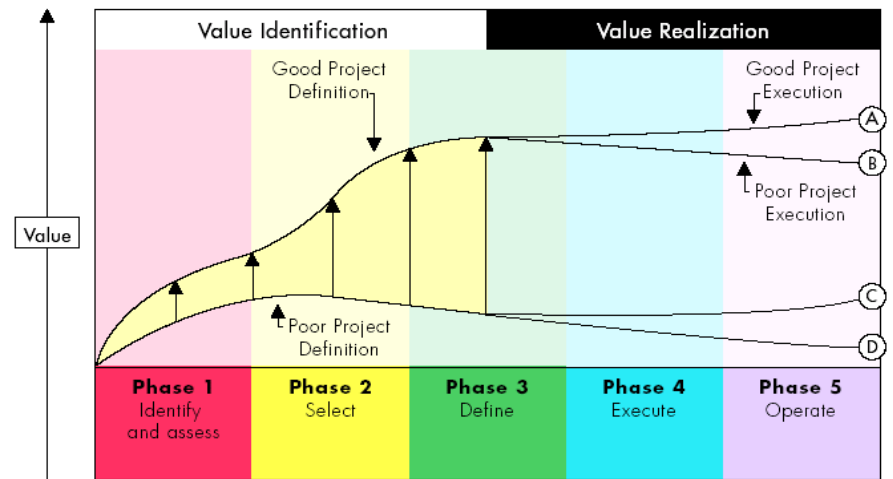
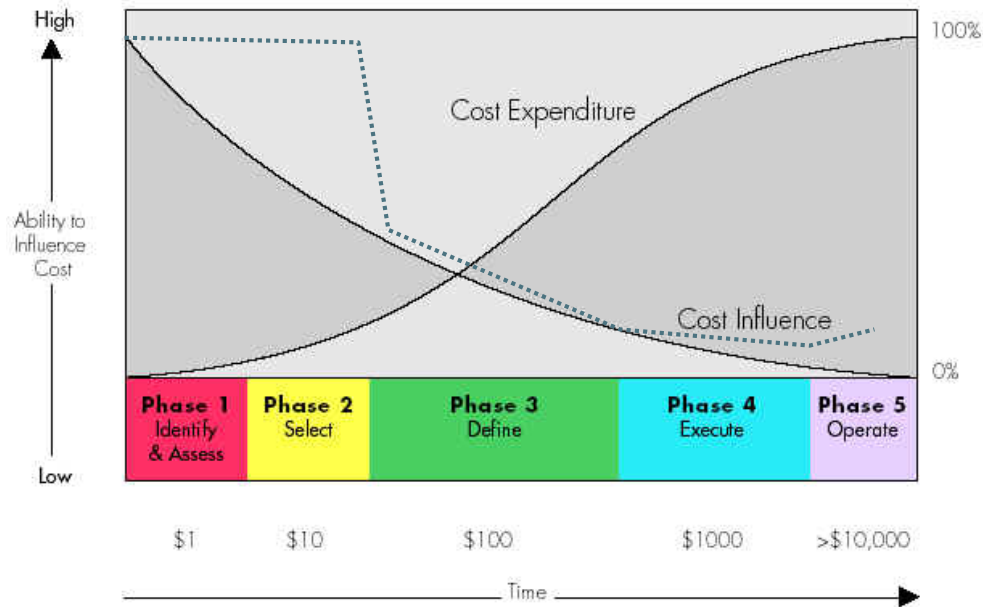
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SHARE

LARGE SCALE PROJECTS ARE PRONE TO COST AND SCHEDULE OVERRUNS



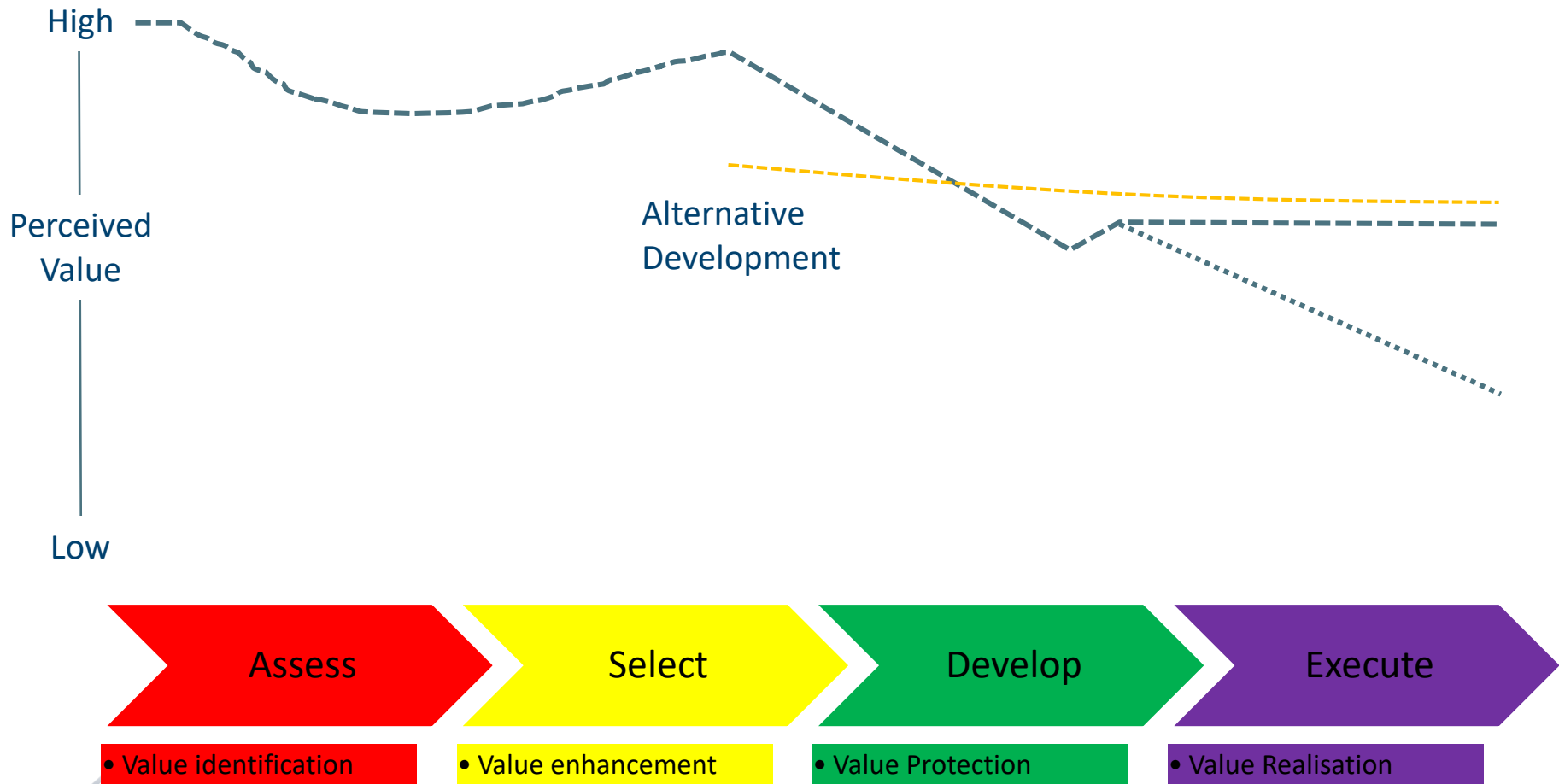
CHANGE BECOMES MORE DIFFICULT AND EXPENSIVE



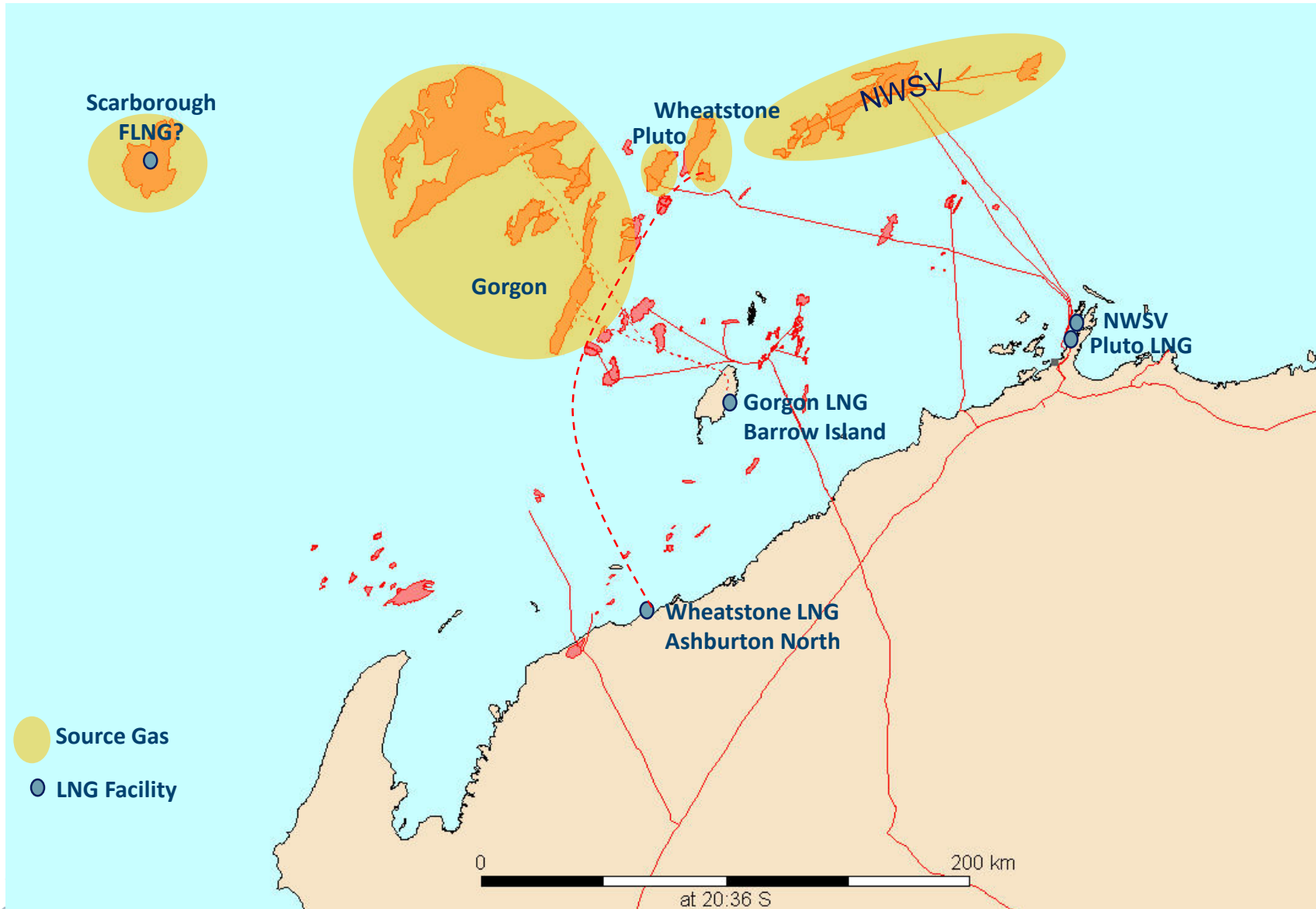
Legend

- (A) Good project definition and execution
- (B) Good project definition and poor project execution
- (C) Poor project definition and good project execution
- (D) Poor project definition and poor project execution

FOR ANY ONE PROJECT THE VALUE CHANGE THROUGH THE PROCESS WILL BE UNIQUE



CARNARVON BASIN LNG DEVELOPMENTS



Source: RISC

GORGON POTTED HISTORY

Time	Event
1981	Gorgon discovered
2000	Io-Jansz discovered
2001-2	JV determines to build plant on Barrow Island, with Geosequestration
2003	Barrow Island Act enacted
2007	Approval for a 2 Train development Pluto FID
2009	Approval for a 3 Train development FID September 2009 (\$37bln, 2014)
2011	Wheatstone LNG FID
2012	Cost and schedule increase (\$52bln, Q1 2015)
2013	Further Cost and schedule increase (\$54 bln, Q2 2015)

“Clearly we underestimated the challenges (of working on Barrow Island)” Chevron to WA Inquiry into FLNG



CSG-LNG FACILITIES AT GLADSTONE



Sources: EIS submissions, RISC estimate for Arrow

COMPARISON OF SINGLE SITE ALTERNATIVE

Scope aspects	Current Developments	Single Site Alternative	Cost Saving \$MIn
LNG Trains	6 (potential for 10)	6 (potential for 8)	0
Utility and Support systems	3	1	700
LNG Storage Tanks	6	2 / 3	500
LNG berths : Jetties	3 : 3	1 : 2	1000
MOFs	3	1	
Dredging	100%	50-75%	
Site clearance	3 sites	1 site (say 1.5 times current largest)	1000
Construction Camps	3	1	



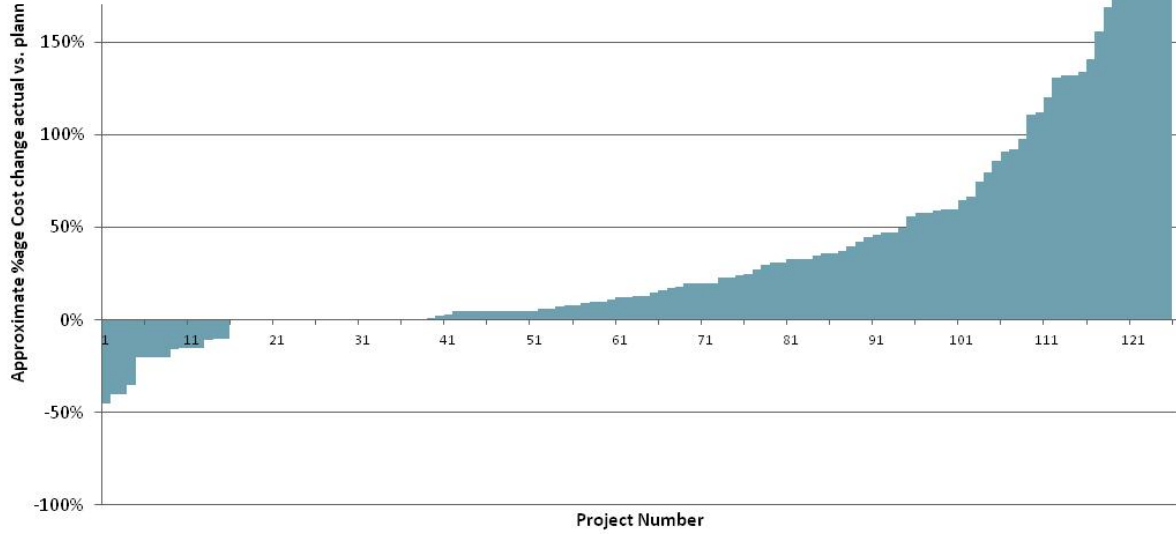
DOES THE PROCESS DRIVE POOR BEHAVIOUR

Approval to Proceed with Concept Selection
GATE 1

Approval of Development Scenario and to Commence FEED
GATE 2

Project Sanction
GATE 3

Typical estimate accuracy for Gate approval:
Gate 1: +/- 50%
Gate 2: +/- 30%
Gate 3: +/- 10%



SOME COMMON OBSERVATIONS FROM PROJECTS

Planning

- Planning for success – “Planning Fallacy”
- No or poor use/application of probabilistic methodologies
- Cost and schedule estimates prepared independently
- Poor use of allowances and contingencies

Over confidence

- Under-estimation of time or complexity
- Confusing increased detail with increased accuracy/confidence
- Lack of awareness of potential for scope change
- Lack of recognition of dependencies and inter-dependencies
- Ineffective risk identification and management



CONCLUDING REMARKS & SUGGESTIONS

- Major projects continue to suffer from cost and schedule overruns

- Evidence that decisions made early in the life cycle have significant impact on the ability of a project to realise the predicted value
 - Re-assess and confirm earlier decisions are still applicable in the light of new knowledge, or changing conditions

- Evidence that it is not possible to understand complex projects at the level of detail implied/required by the current approval processes
 - Improve approaches to planning and risk management
 - Change from a prescriptive range of requirements to identifying the actual anticipated range of outcomes





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