

WELCOME



The Value of Time in Deepwater Projects

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For

**The Marine Technology Society Lunch
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- **RepsolYPF is reentering the offshore development market, and will be drilling a continuous series of offshore exploration wells over the next three years starting with the Stormy Monday (GC 313) prospect in the Gulf of Mexico in Q4 of 2007.**
- **Of particular importance to the company is the experience that RepsolYPF has gained in being partners in the BHP lead Neptune, Shenzi, and Genghis Kahn developments in the Gulf of Mexico.**
- **It is RepsolYPF's intent to build upon the experience we have gained and combine it with our own expertise to maximize the value we derive from any discoveries that result from our current exploration portfolio.**
- **To that end we have been examining the effects of early production schemes on projects.**



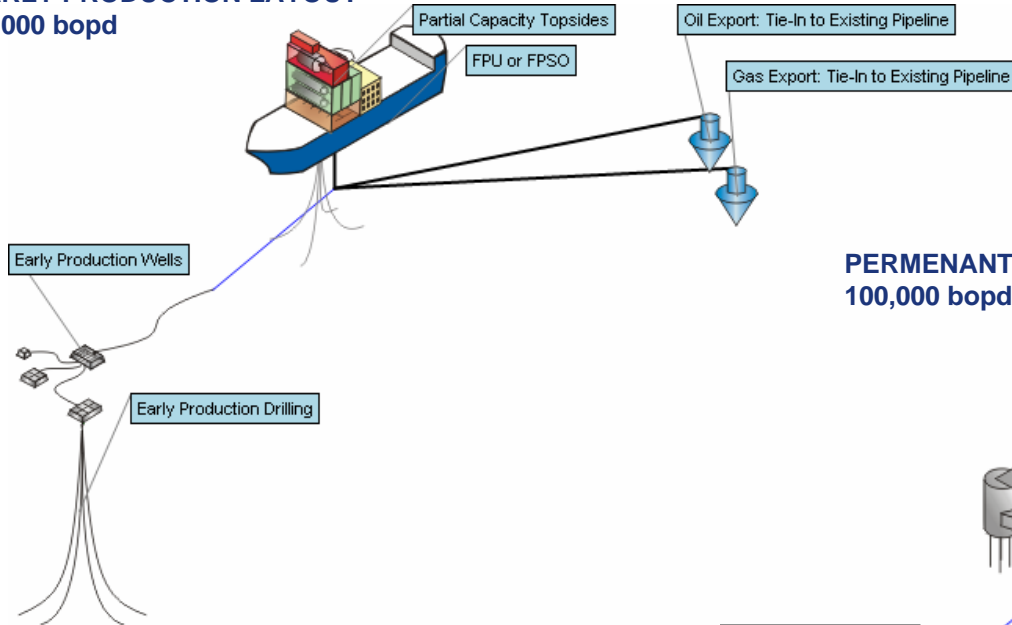
- **Methodology**
- **Design Basis and Assumptions**
- **Cost Estimate and Base Schedule**
- **Calculating Time Impacts on NPV (Cost value of Time)**
- **Sources of Project Delay**
- **Methods of Expediting a Project**
- **Conclusions & Recommendations**

- **The objective of this presentation is to illustrate the true impact that early production/accelerated schedules can have on a project's value.**
- **To achieve this a “typical” 300mmbbl field development was modeled, and the resulting cash flows with and without an early production system were generated.**
- **The result (that early is better) is neither surprising nor noteworthy. The dual aspects of risk reduction and the level of increase in value given current market conditions is.**

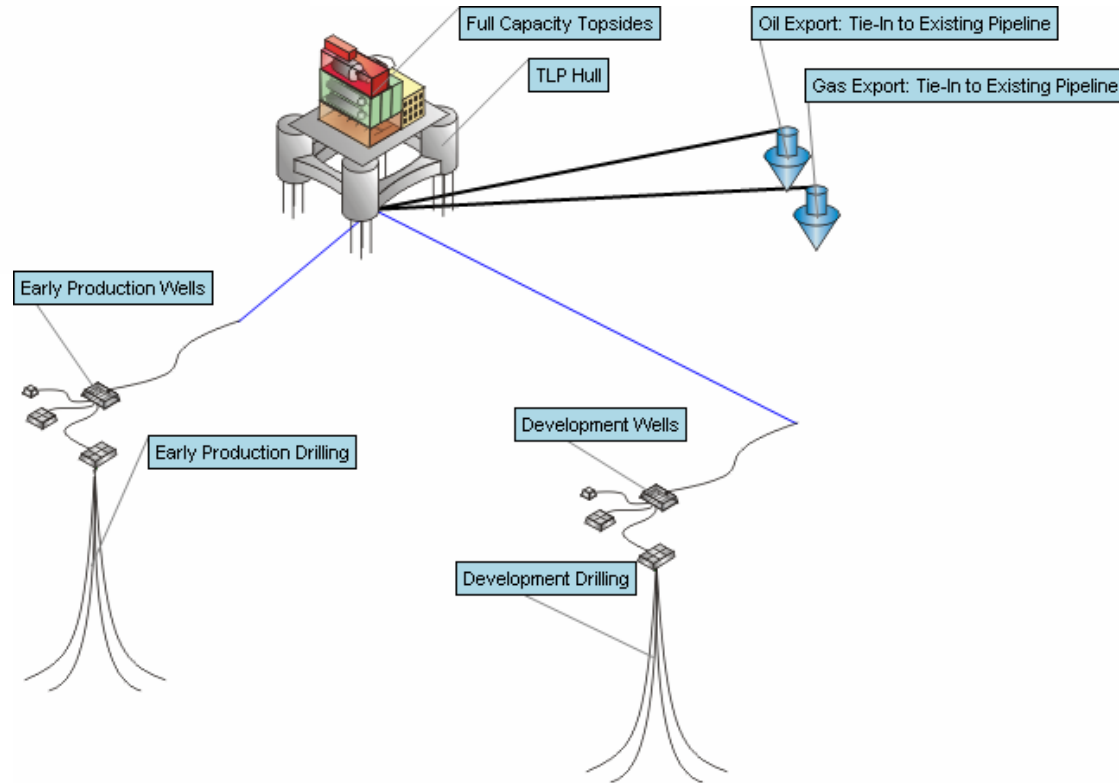
- **Water depth is 1000m**
- **Field Size 300mmbbl w/300bcf associated gas (350mmboe)**
- **Production is by a Semi-TLP, 100 kbopd capacity**
- **GOM Field with a 100km export pipeline system**
- **An early production FPSO/FPU with DP, 50 kbopd**
- **Export pipeline system can be installed 1 year prior to production facility being available**
- **No tariffs, taxes or other fees are included**

Design Basis and Assumptions

EARLY PRODUCTION LAYOUT 50,000 bopd



PERMANENT PRODUCTION LAYOUT 100,000 bopd

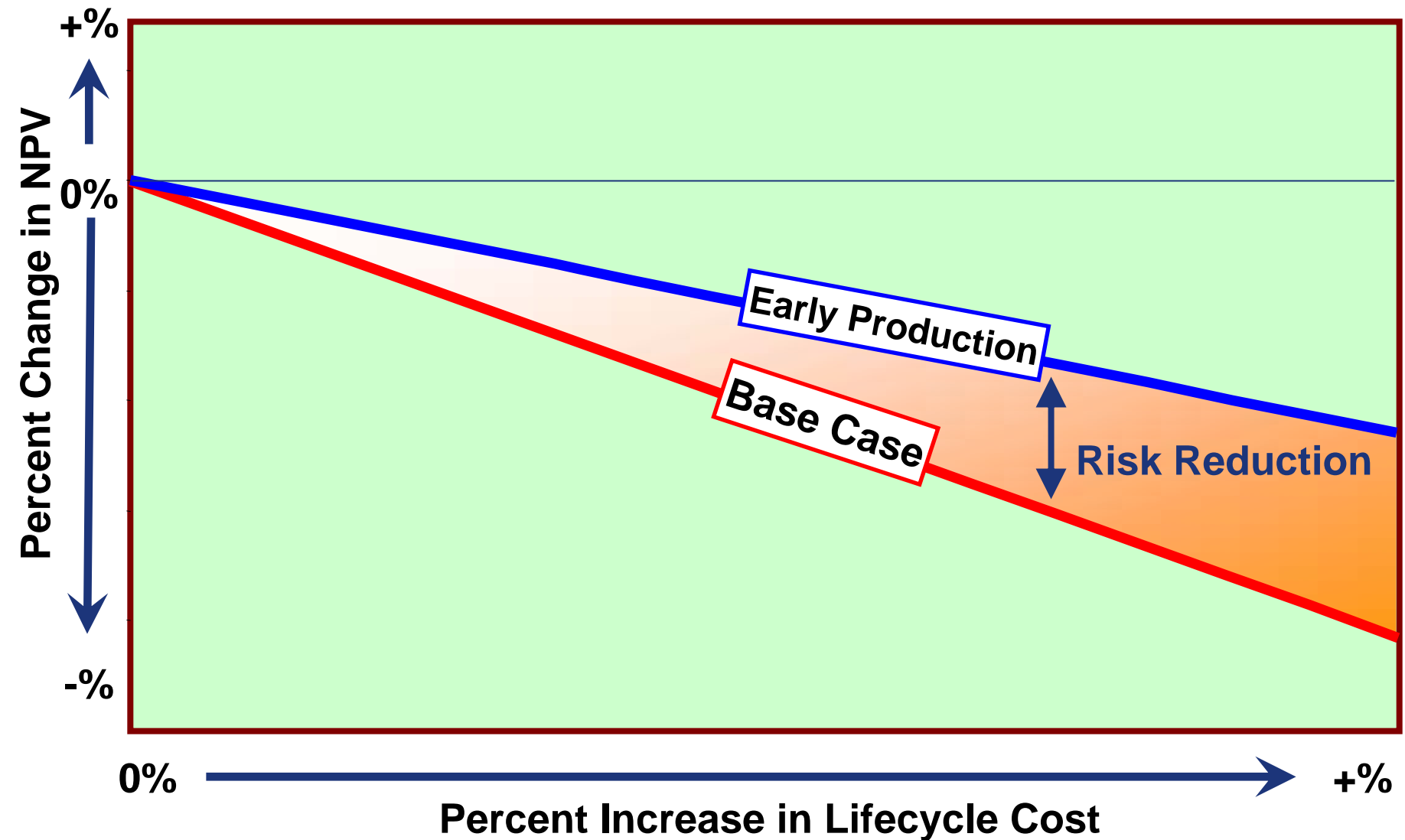


Cost Estimate and Base Schedule

ITEM	COST (\$MM)	DURATION
● Exploration	\$150	12 months
● Drilling	\$1113	68 months
● Facilities		
● Subsea	\$215	24 months
● Pipelines	\$150	24 months
● Topsides	\$338	36 months
● Hull	\$280	36 months
● First Oil		@32 months
● Facilities timed to end concurrently		
● FPU/FPSO	\$145/year	Assumed leased

- For 1 year delay in the start of production, all else being equal and an NPV rate of 15%, the project realizes a reduction in NPV of 20%.
- This ignores the reality that on top of the production delay, delays usually have direct associated costs.
- For a 1 year acceleration of the first oil date, and including the estimated additional cost of an early production system, the NPV of the project increases 17%.

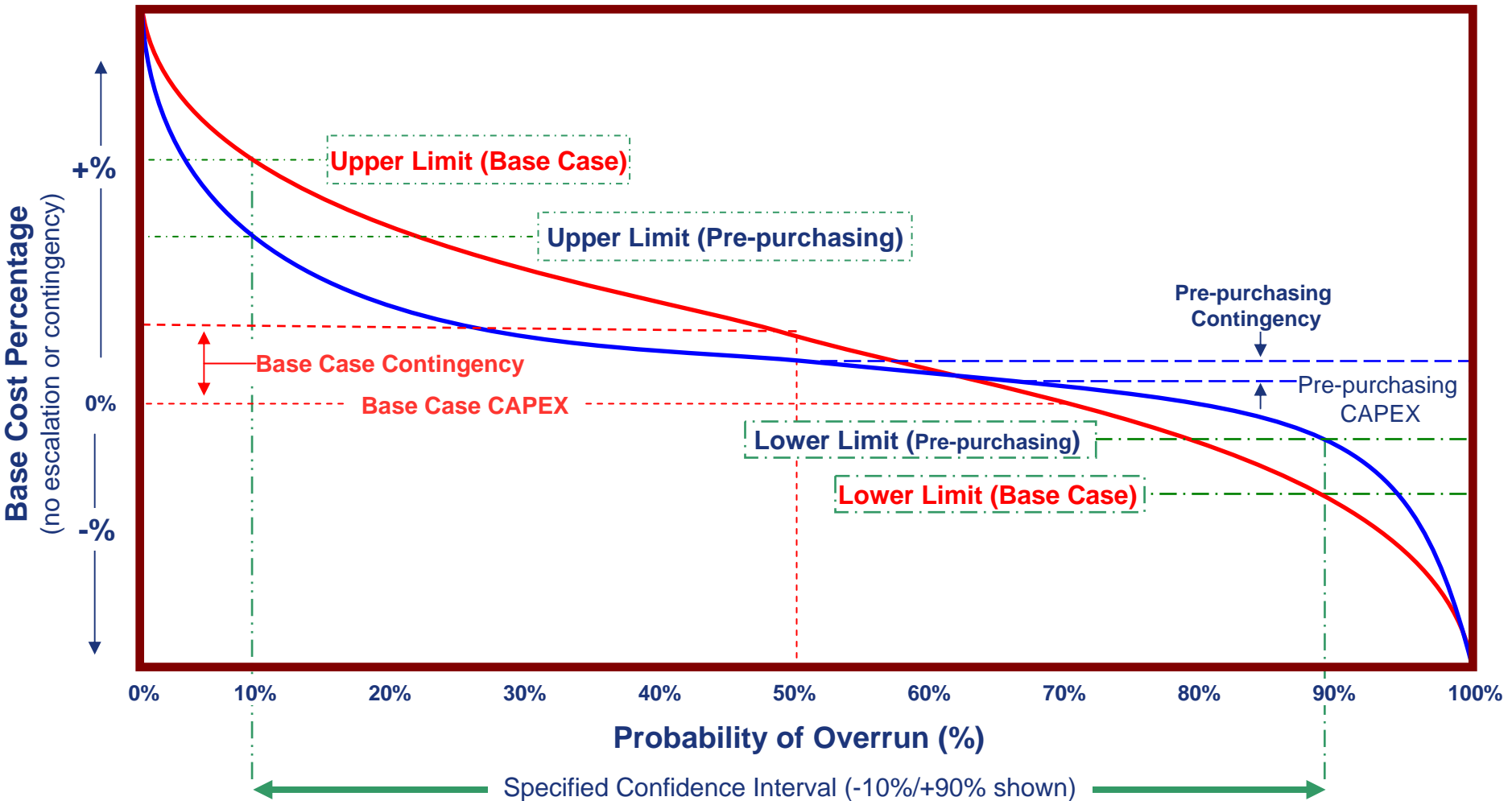
Early Production Effect On NPV Risk



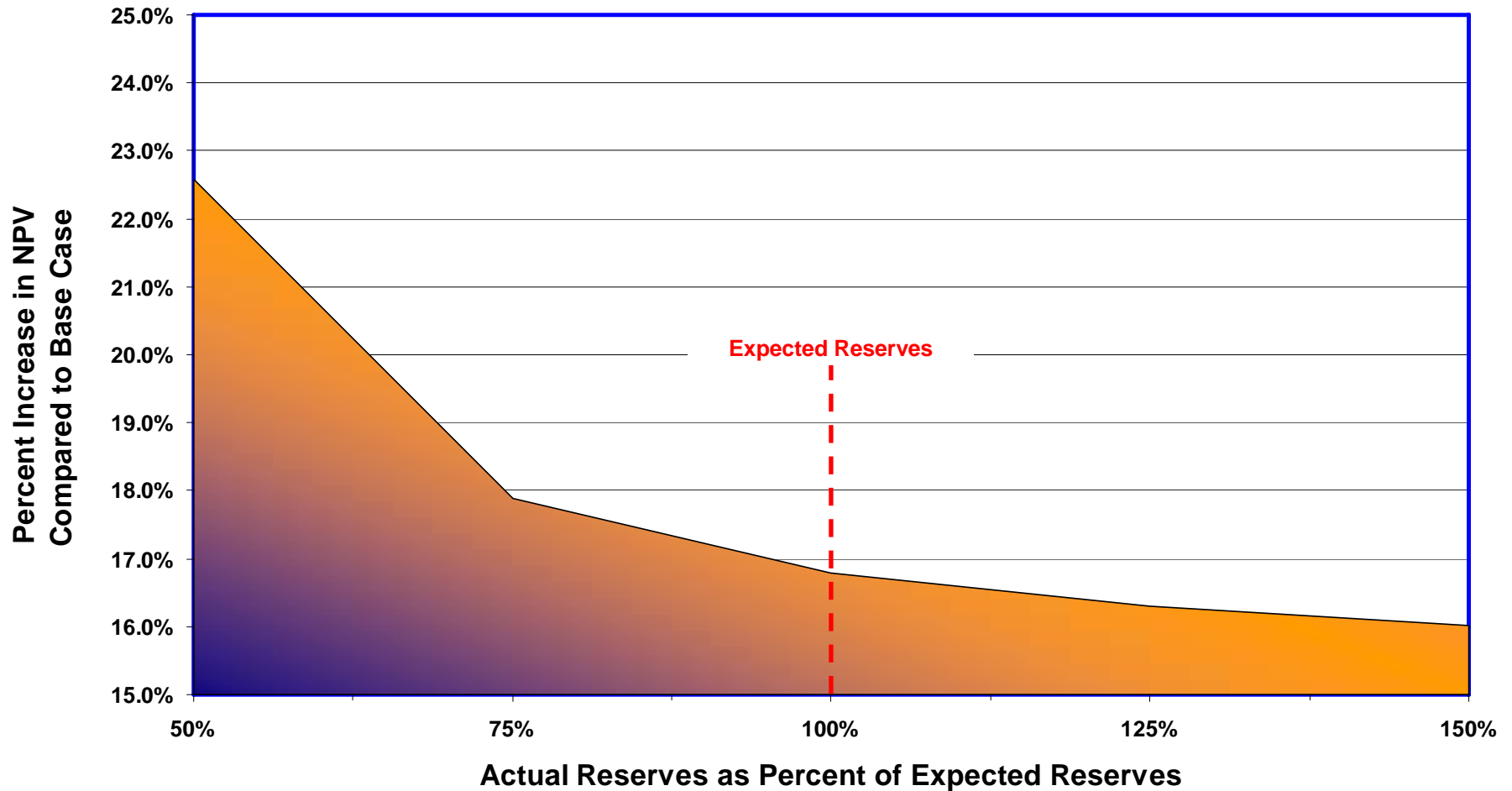
Lifecycle Cost are defined as the sum of all project costs from Exploration to Abandonment, including OPEX divided by the number of barrel equivalents of oil.

Effect of Pre-purchasing on CAPEX Estimation

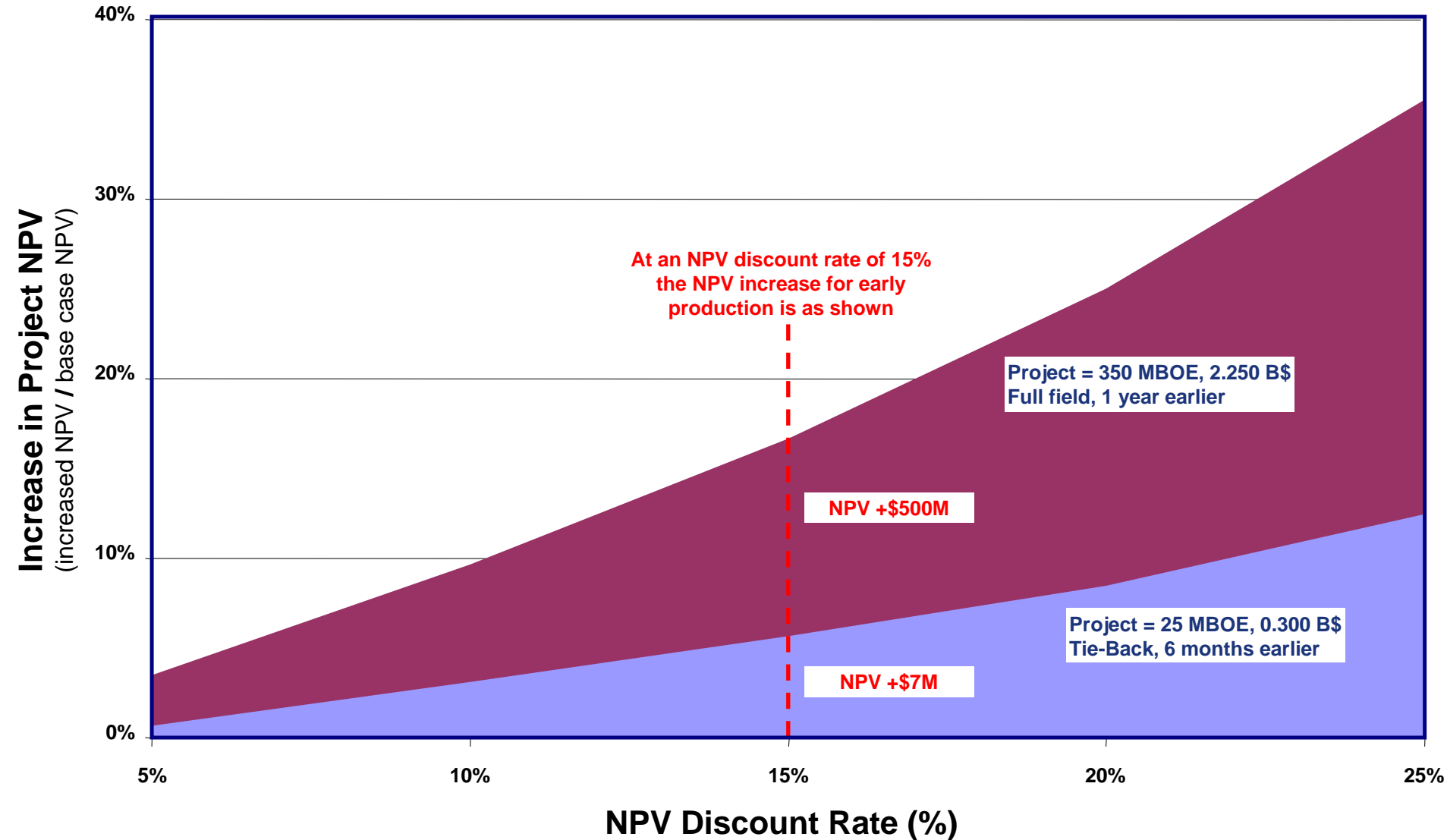
Below is a typical CAPEX risk profile. Pre-purchasing & contracting flattens the curve and reduces the amount of uncertainty, but does increase the base estimate CAPEX.



Downside Risk Reduction



Effect of Project Size & Discount Rate



- **Internally Controlled**
 - Corporate reviews and gates
 - Poor Quality Control processes
 - Poorly trained or unqualified staff
 - Long lead items
 - Engineering errors
 - Poor scheduling
- **Externally Controlled**
 - Permitting & Licensing
 - Inspections & Certifications
 - Partners' requirements (if JV)
 - Contractors' errors or problems
- **Random/Uncontrolled**
 - Weather & currents
 - Force Majeure events
 - Third party accidents

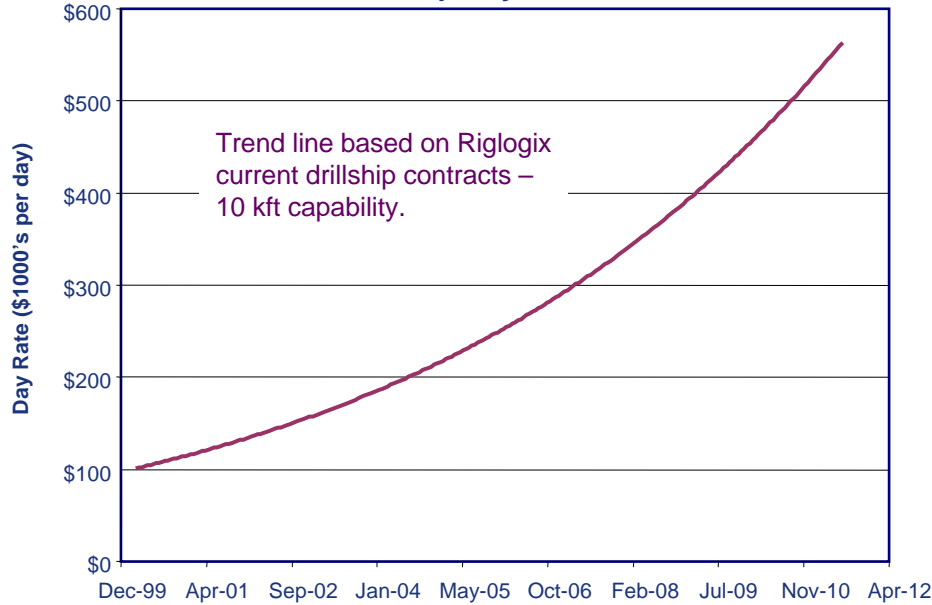
- **Faster exploration results evaluation**
- **Minimizing oversight delays**
- **Early procurement of long lead items**
- **Over Design & Quality Control**
- **Repetitive Design (learning curve)**
- **Use of Early Production Systems**

- **Pre-purchasing Long Lead Items**
 - Requires commitment of more funds early
 - Requires a large enough portfolio of potential projects to ensure use of equipment (mitigated by ability to re-sell in current market)
- **Currently there are few suitable early production vessels**
 - The model assumed a suitable vessel could be leased
 - Construction of such a vessel from scratch would require the same amount of time as the production facility.....the first time.
- **Requires detachable riser system or two separate installations.**
- **Impact is more significant on larger projects. Increased cost versus risk should be examined case by case.**

- **The market conditions have changed radically in the last 5 years.**
- **This same 300mmbbl model run with representative numbers from 2002 would show only a 6% increase in NPV.**
- **As total NPV was considerably lower the total increase in project value would only have been \$55MM in 2002.**
- **In 2007 a 17% increase in NPV represents an increase in project value of \$500MM.**

Change in Economic Environment

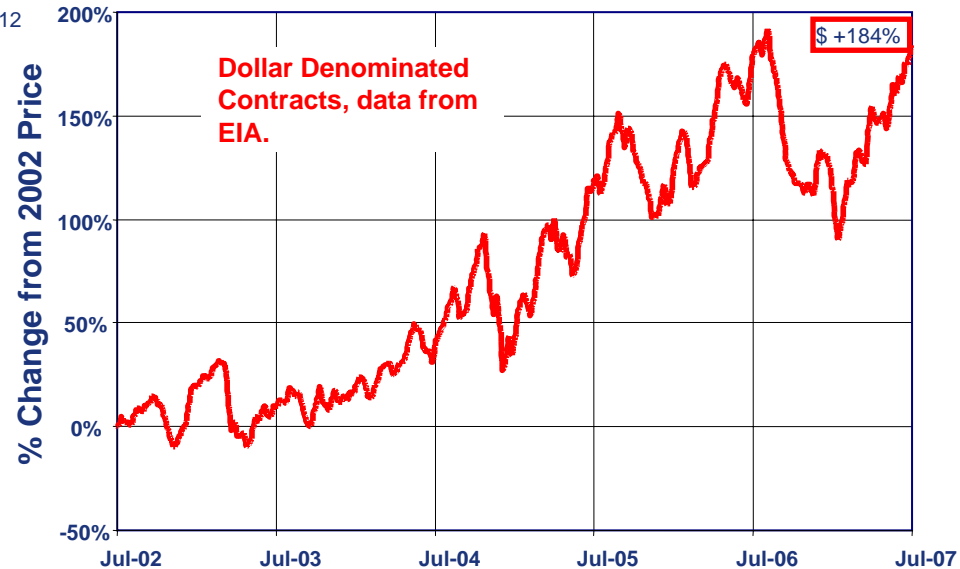
Drill Ship Day Rate



Costs have been going up.....

.....but so has the oil price.....

Change in USA Oil Price



- **Use of pre-purchasing and/or early production systems will significantly increase the NPV of projects more than it has in past market conditions.**
- **While pre-purchasing increases the base cost estimate for a project it reduces the cost risk correspondingly.**
- **The earlier production can be brought online the more resilient the project NPV will to unexpected lifecycle cost increases.**
- **There is a need in the market for more pre-packaged early production systems and widely applicable subsea hardware.**