



Keynote Speaker

Dynamic Positioning in Offshore Drilling Increased Importance – Enhancing Performance

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October 9-10, 2007

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Your Next Generation Driller

Dynamic Positioning in Offshore Drilling: Increasing Importance, Optimizing Performance

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EVP – COO
Transocean

October 9, 2007

2007 DP Conference
Houston, TX

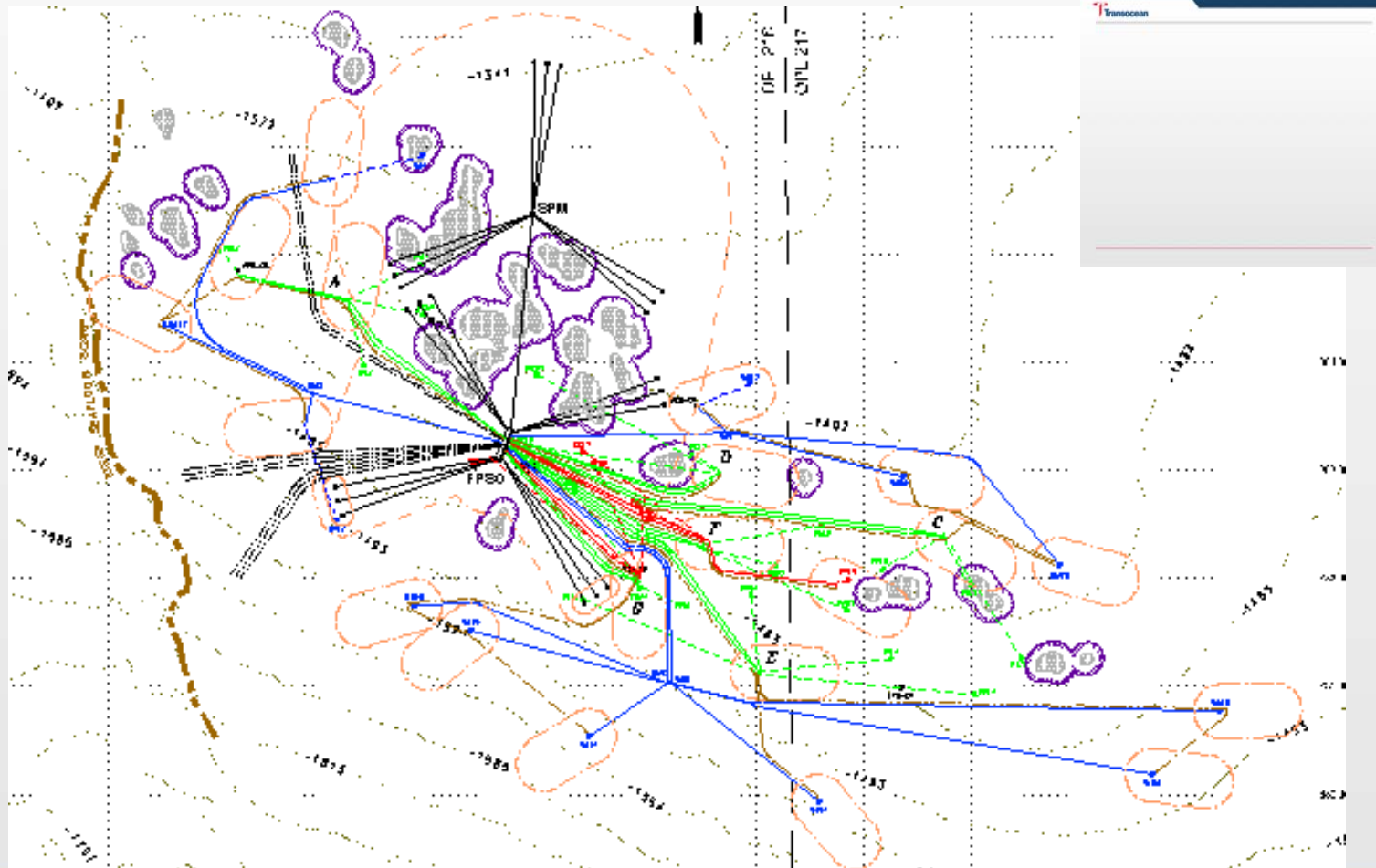


Discussion Topics

- ◆ **Factors Driving DP Today**
- ◆ **Historical DP Performance**
- ◆ **Optimizing DP Performance**

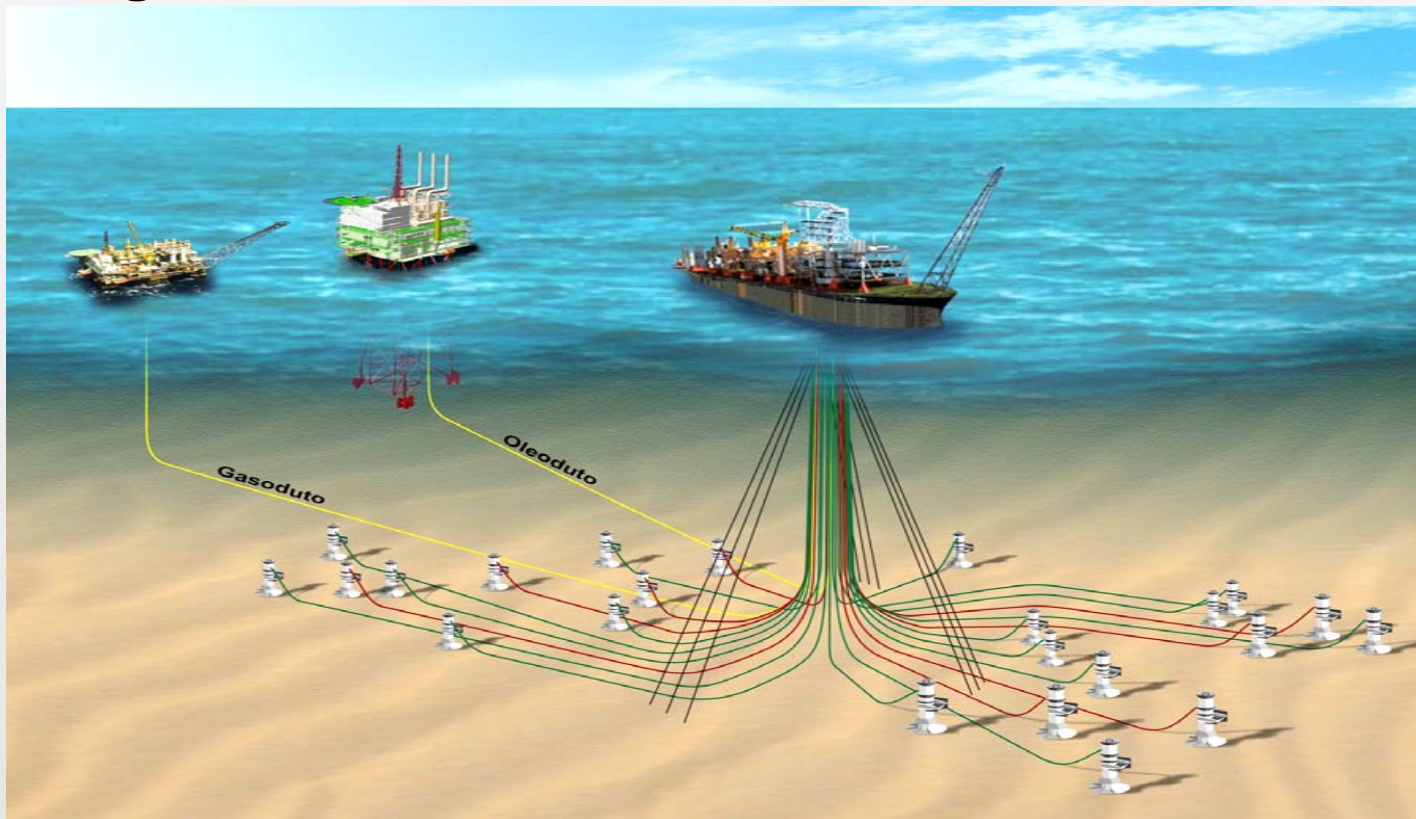
Factors Driving DP Today

◆ More Complex Field Developments

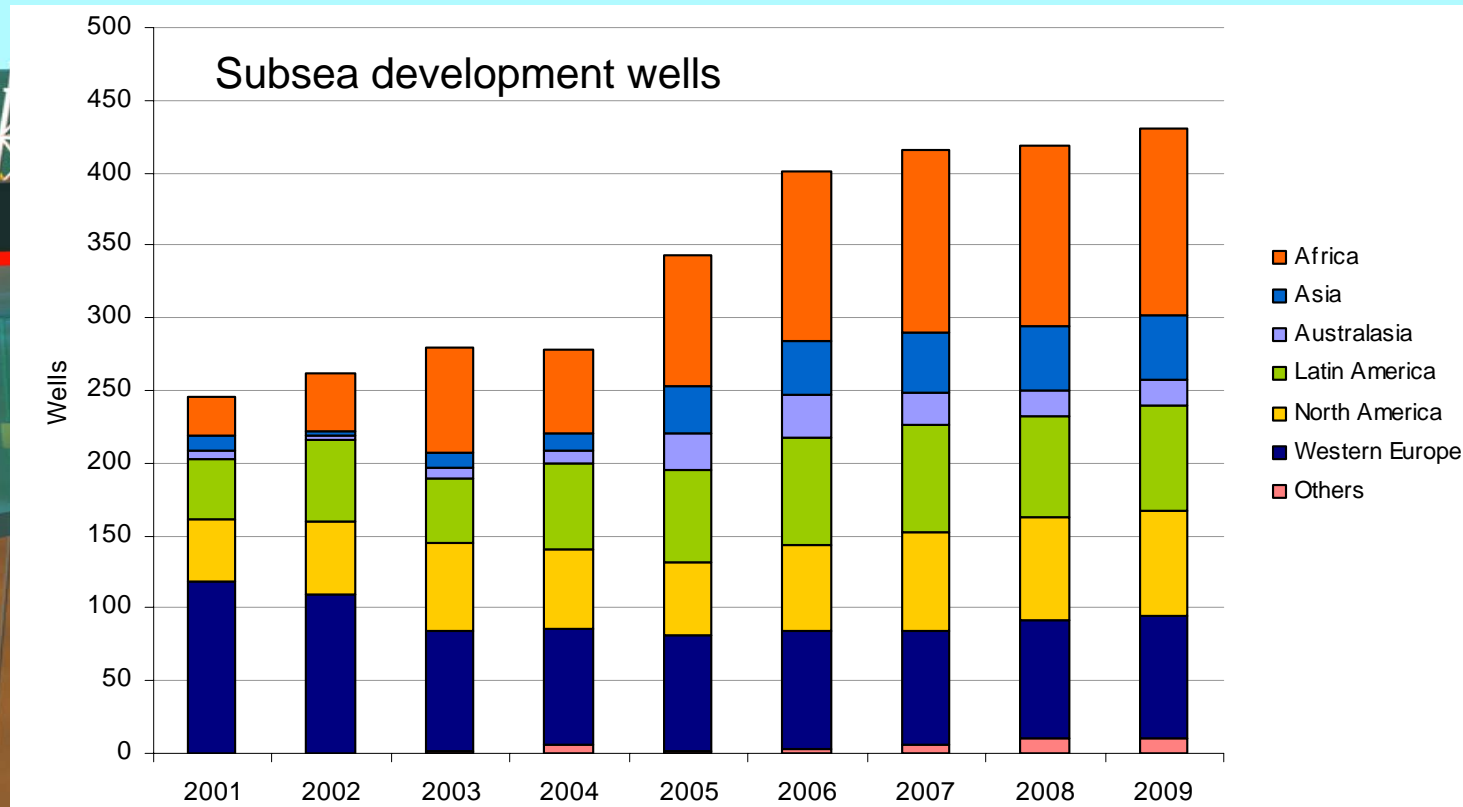


Factors Driving DP Today

- ◆ More Complex Field Developments
- ◆ Increasing Subsea Architecture / Infrastructure



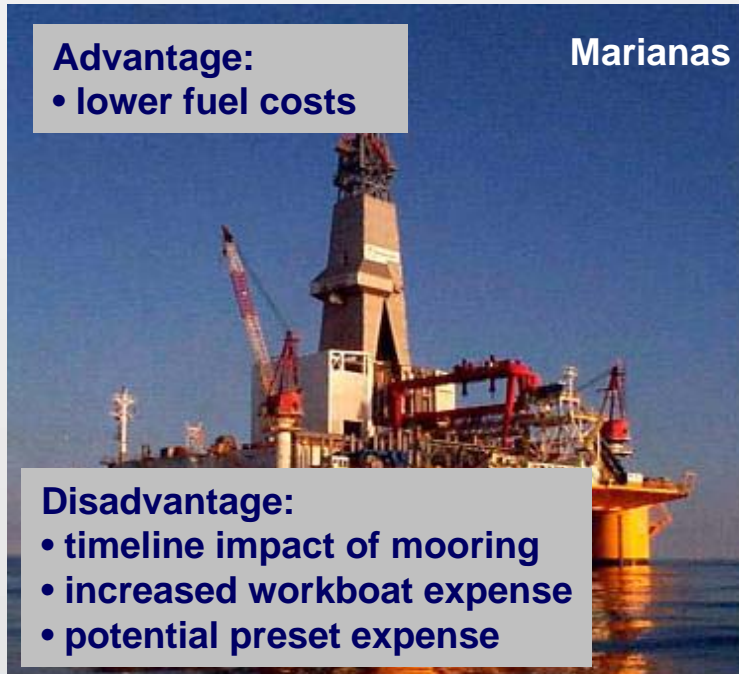
Factors Driving DP Today



Source: Douglas-Westwood / Energyfiles

Factors Driving DP Today

- ◆ More Complex Field Developments
- ◆ Increasing Subsea Architecture / Infrastructure
- ◆ **Improved Economics**

A photograph of the Marianas offshore platform, a large, complex structure with a prominent central tower and multiple cranes, situated on a barge in the ocean.

Advantage:

- lower fuel costs

Disadvantage:

- timeline impact of mooring
- increased workboat expense
- potential preset expense

Marianas

A photograph of the Sedco Express offshore platform, a large, complex structure with a prominent central tower and multiple cranes, situated on a barge in the ocean.

Advantage:

- timeline savings

Sedco Express



Factors Driving DP Today

Transocean

Commercial Model - Version 1.0.0

Rig	Days	Dagrate	Fuel Cost per Dag	Variable Spread Cost per dag	Increase for Anchor Handling Vessels	Fixed Program Costs	Fixed Rig Costs Mob / Capex	Total Program Cost
4 th Gen Moored	2401.0	\$ 475,000	\$ 10,000	\$ 350,000	\$ 50,000	\$ 250,000,000		\$ 2,374,885,000

X
+
=



Factors Driving DP Today

Transocean

Commercial Model - Version 1.0.0

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Pathfinder	2068							
Discovery	2018							
Express	1595							
Spirit	1542							



Factors Driving DP Today

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Factors Driving DP Today

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Pathfinder	2068	\$ 657,507	\$ 20,000	\$ 350,000		\$ 250,000,000		\$ 2,374,885,000
Discovery	2018	\$ 682,966	\$ 20,000	\$ 350,000		\$ 250,000,000		\$ 2,374,885,000
Express	1595	\$ 962,216	\$ 20,000	\$ 350,000		\$ 250,000,000		\$ 2,374,885,000
Spirit	1542	\$ 1,008,006	\$ 20,000	\$ 350,000		\$ 250,000,000		\$ 2,374,885,000

← Equivalent rig rate for the same program cost – not our bid rate!

Factors Driving DP Today

- ◆ More Complex Field Developments
 - ◆ Increasing Subsea Architecture / Infrastructure
 - ◆ Improved Economics
- Driving the Need**
- ◆ **Industry Meeting the Need**
 - Vendors
 - DP Control Systems
 - Position Reference Systems
 - Power Systems
 - Thruster Systems
 - People
 - Maritime Academies
 - Industry Standards
 - Training and Development
- 
- A diagram illustrating the relationship between factors driving DP today and industry meeting the need. Three diamond-shaped bullet points are listed on the left: 'More Complex Field Developments', 'Increasing Subsea Architecture / Infrastructure', and 'Improved Economics'. A red bracket on the right groups these three items and is labeled 'Driving the Need'. A red arrow points from this bracket to a fourth diamond-shaped bullet point, 'Industry Meeting the Need', which is bolded. This fourth point has two sub-bullets: 'Vendors' and 'People', each with its own list of sub-points.

Historical DP Performance

◆ Recent DP Events - 2003 through 2006

- 29,200 DP Operating Days

◆ 30 Red or Yellow DP events

- Power plant primary cause 14 of 30 (46%)
- Human error primary cause 9 of 30 (30%)
- Weather (4) ... Thruster (2) ... Position Ref (1)

◆ Clear Improvement Trend over Last 10 Years

- 2006 Significantly Better Than 2003

**99.9%
Reliability**

Driving Towards 100% Reliability

- ◆ **Enhanced FMEA Emphasized Need for Improving Power and Propulsion Plant Robustness**
- ◆ **Elements Include:**
 - Eliminating Potential Faults
 - Improving Fault Detection
 - Improving Generator Performance
 - Improving Thruster Performance
- ◆ **Improved Casualty Response**
 - Improve Generator Availability
 - Improve Thruster Recovery Time (Autonomy)

6th Generation Power and Propulsion Plant

◆ Difference:

- Lower Fault Probability
- Better Fault Tolerance

◆ Reliability Improved In:

- Power Generation Plant
- Power Distribution System
- Propulsion Power and Control System

Advanced Generator Protection (AGP)

Improved Power Distribution

Advanced Thruster Control and Protection (ATCAP)

(It's not about the mathematics or the processors...)

...and it's not about "DP-3")

Improvements in Practice

◆ Traditional Transformer Closing

- Substantial Inrush Currents Peaking at 2000 amps
- DC Circulating Currents for 20 Seconds
- No Verification of Health before Closing



◆ 6th Generation Transformer Closing

- No Inrush Current or Mechanical Shock
- Full Verification of Transformer Health before Closing



Improvements in Practice

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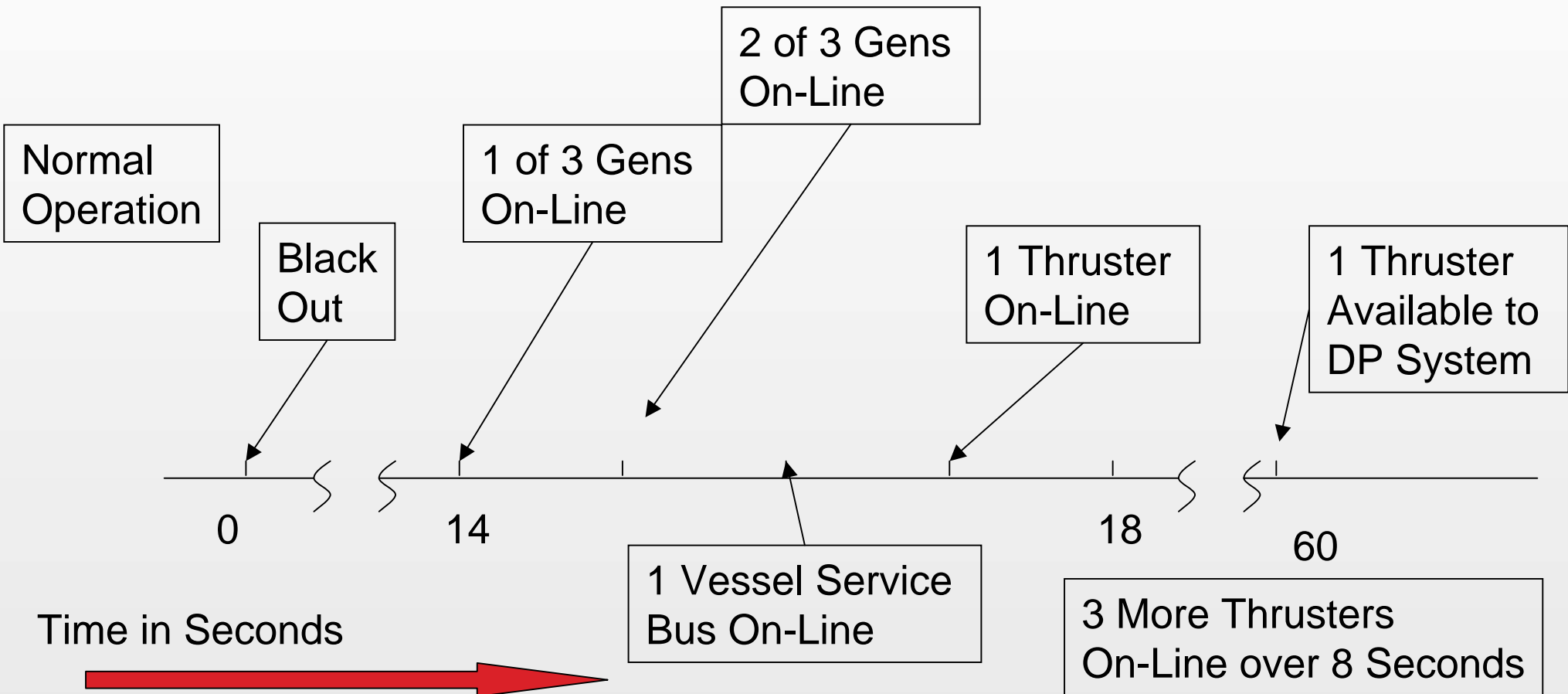


◆ 6th Generation Transformer Closing

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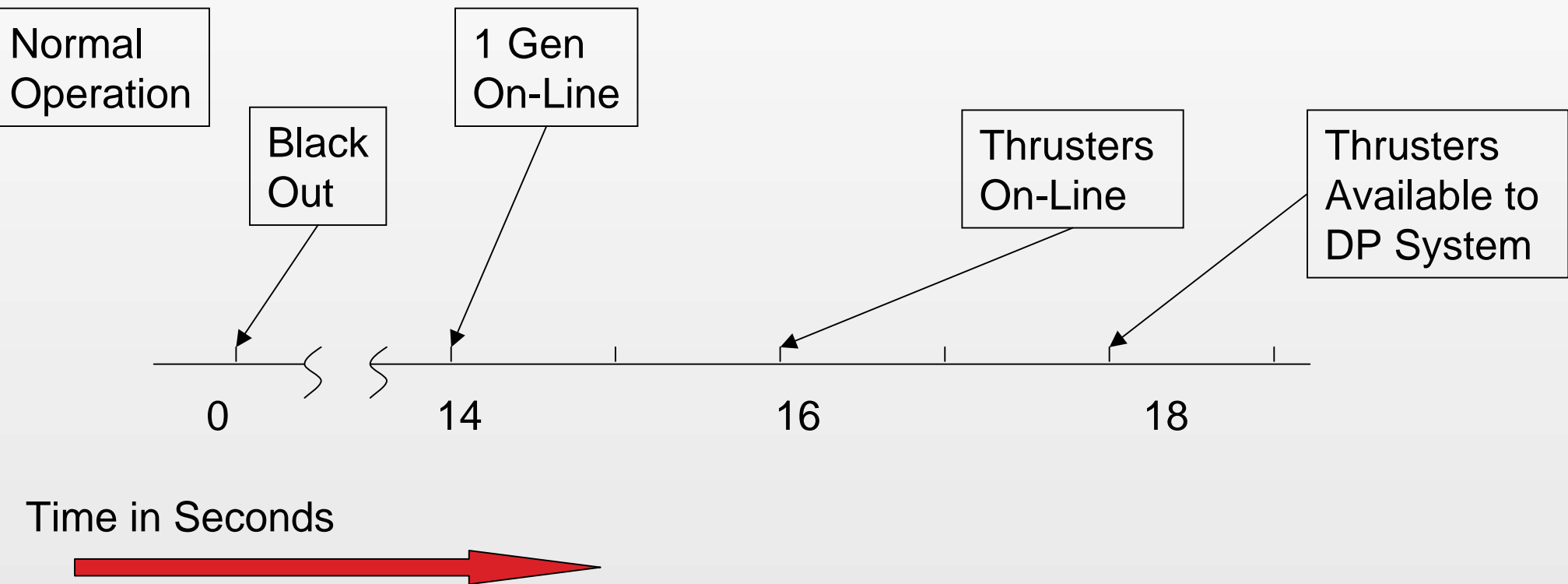
Recovery Time Line – Existing Power Plant



Recovery in 65 seconds with many dependencies.

Recovery Time Line – 6th Gen Power Plant

Probability of Recovery Much Higher



Recovery in 18 seconds with few dependencies.

Summary

- ◆ **Industry is Driving Increasingly Towards DP**
 - ALL 66 Newbuild Floaters Under Construction are DP

- ◆ **Transocean is Committed to Safe and Reliable DP Operations**
 - Enhancing Robustness and Performance
 - Leveraging Operating Experience to Improve Training

- ◆ **Initiatives Currently Underway Delivering Results**
 - State-of-the-Art Technology Deployed Offshore



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