

DEPARTMENT FOR BUSINESS
ENTERPRISE & REGULATORY REFORM

Stewardship Process *– 3 years on*

BERR Energy Development Unit

September 2007

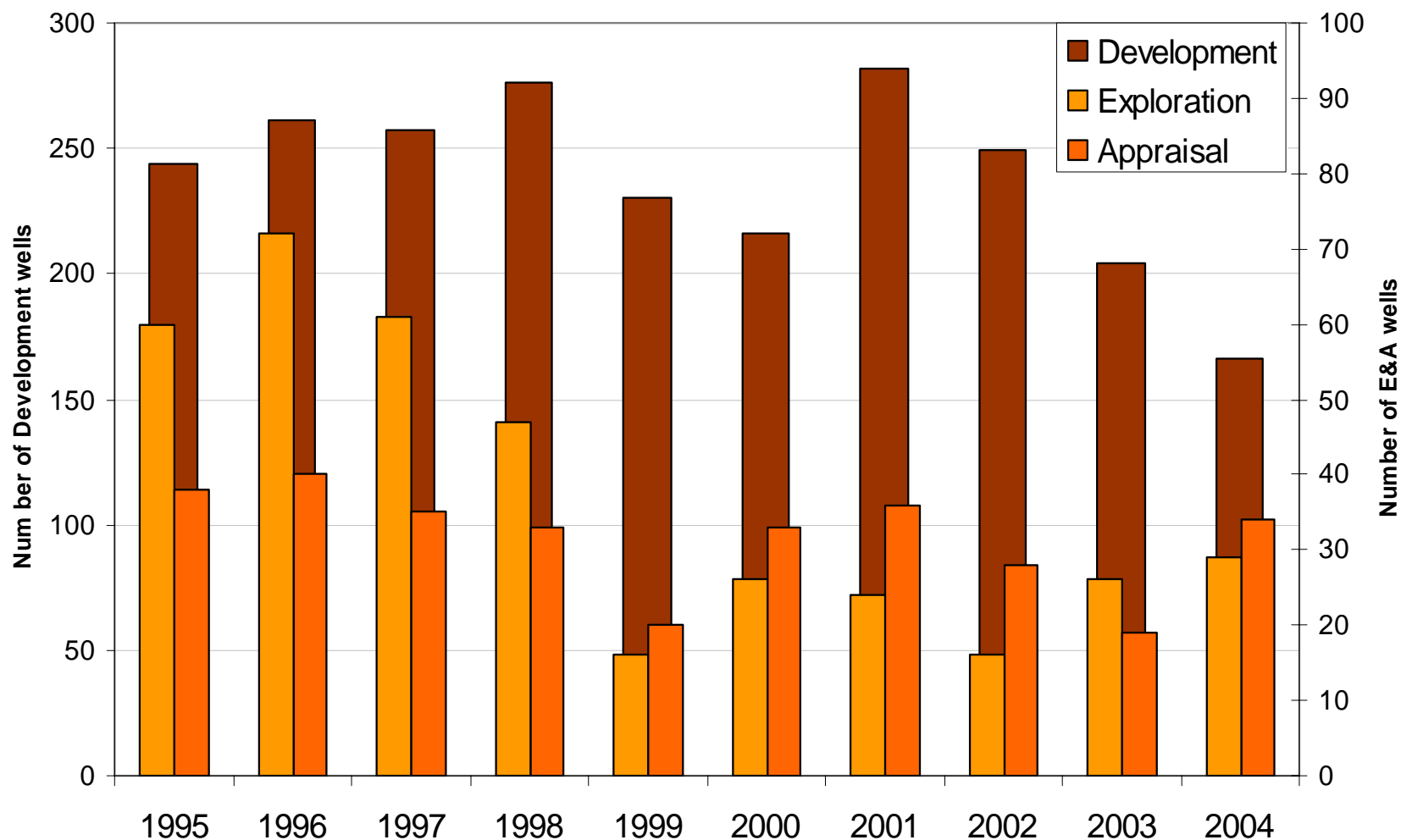
Introduction

- Background to the Stewardship Initiative
- Process Overview
- Review of Outcomes
 - the high level picture
- Way Forward
- Q&A
- General Discussion

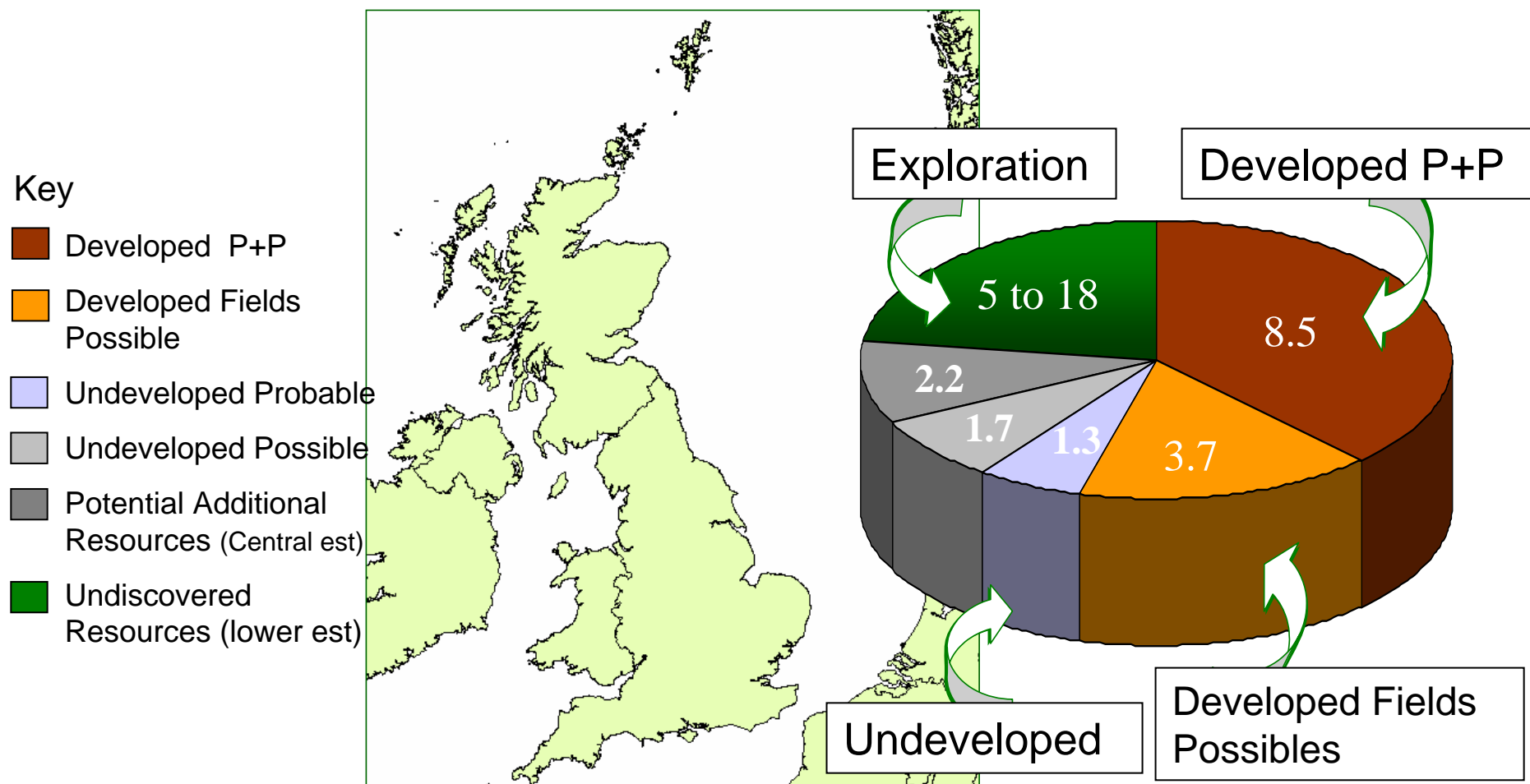
“Stewardship” Initiative

- Brown Field Work Group (2003-2004)
 - Concern that some fields are not being invested in to their full economic potential
 - Possible explanations:
 - Capital constraints
 - People constraints
 - Materiality of benefits
 - Partnership misalignment
 - Shadow of decommissioning ...
- (see <http://www.oilandgas.org.uk/issues/brownfields/index.htm>)

UKCS Drilling Activity 1995-2004

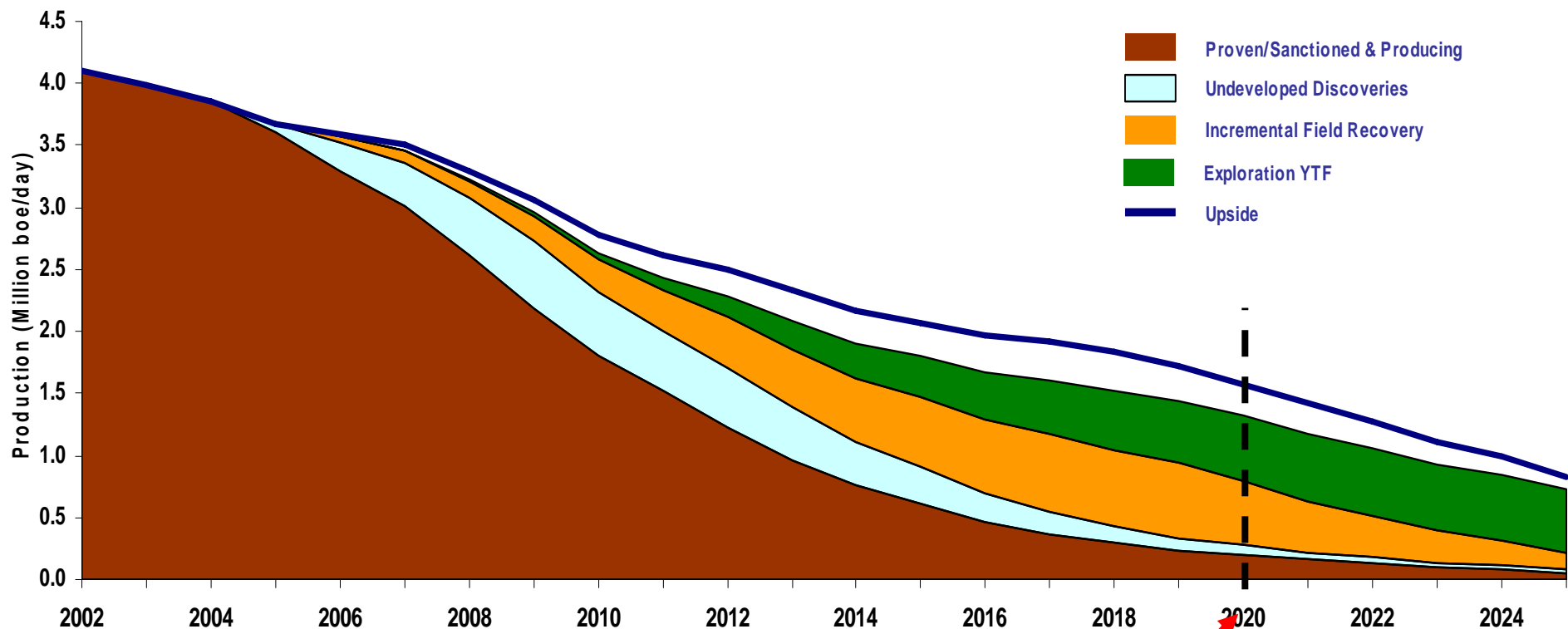


UKCS Reserves and Resources Distribution



UKCS Combined Production Forecast

(inc. Incremental Field Recovery and Exploration YTF)



*Potential
Infrastructure
Constraint*

Source **UKOOA** (2004)
oil and gas for Britain

Work Group Recommendations

- Construct a framework for raising the game on Stewardship
- Replace Annual Field Report with simpler data submission
- Construct filtering indicators to highlight issues
- Map out process for Stewardship Improvement
- JV involvement

Production Efficiency

- Discussions between DTI and UKOOA Production Efficiency Work Group (2002-2004)
- Agreement on requirement for consistent approach to Production Efficiency
- UKOOA Production MRT endorsement to use a system based on a simplified McKinsey approach
- Production Efficiency data to be collected in parallel with Stewardship
- Results to be fed into Stewardship Filtering Process

Stewardship Process

- Framework
- Data gathering
- Filtering
- Performance Indicators

Stewardship Framework

Stage 1

Annual Data Return

Data analysis and feedback

Clarification Discussions

(1-2 months)



Letter identifying concerns



Review

Stage 2

Options:

BERR/JV meetings

Technical and commercial solutions sought

Full audit

Use of expert for technical issues

JV can revise programme

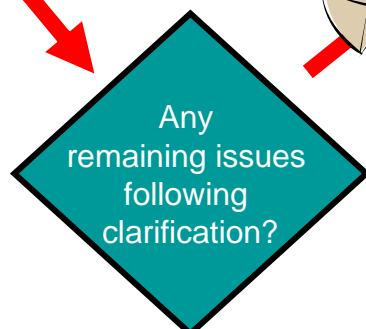
Notice served

Sanctions

Development notice

Change of operator

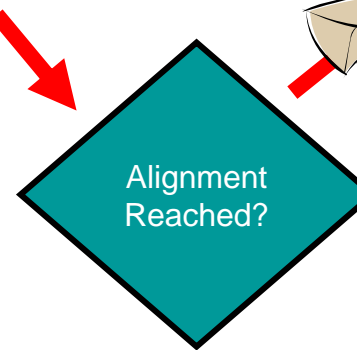
Other sanctions



No



3-6 months



Yes



Stewardship Filtering Process

- Indicators
 - Production Efficiency
 - Drilling / Well Utilisation
 - Investment: Capital and Operational
 - Reserve Replacement
 - Production Decline
 - Seismic / Reservoir studies activity *
 - 2006 performance vs 2005 forecast**
 - [recovery factor]**
 - Forecast Year for Cessation of Production
- ~ 10% selected for detailed review
- JV input sought



* added in 2006

** considered in 2007

Stewardship Review/Audit Process

- **BERR/JV meetings**
 - “Hopper”
 - **Opportunities pursued/not pursued**
 - **Hurdles/Blockers**
 - **JV Alignment**
 - **3rd party options considered**
- **Technical and commercial solutions sought**
- **Options :**
 - Use of expert for technical issues
 - Full audit by BERR



Performance Improvement

- JV develop an Improvement Plan:
 - **Additional resources / focus**
 - **JV realignment**
 - **Sole risk**
 - **3rd party investment**
 - **Divest**
- Absence of appropriate Improvement proposals:
 - Licence powers to require economic investment
 - Replacement of operator (if operator the problem)



Stewardship Survey



- Stage 1
 - ~ 240 Producing Assets in 2005 (now > 250)
 - 34 assets selected for detailed review in 2005
 - 25 added in 2006
 - 20 added in 2007
- Assets selected on the basis of indicators below average
- May select assets for review for validation purposes

Stewardship Filtering Process

- Indicators
 - **Production Efficiency**
 - **Drilling / Well Utilisation**
 - **Investment: Capital and Operational**
 - Reserve Replacement
 - Seismic / Reservoir studies activity*
 - [2006 performance vs 2005 forecast]**
 - [recovery factor]**
 - Forecast Year for Cessation of Production

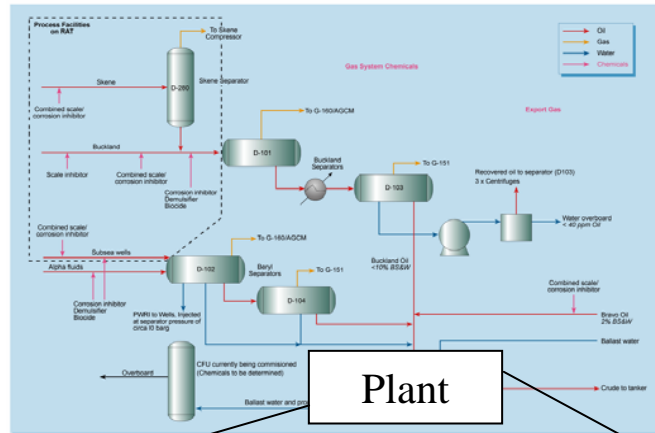


* added in 2006

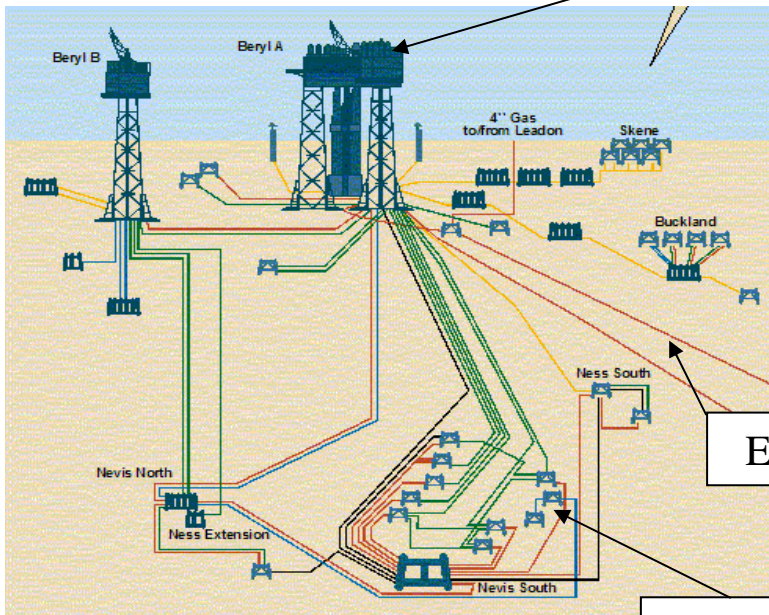
** considered in 2007

“Choke Model” for Production Efficiency

Figure 2.3 Beryl Alpha production system

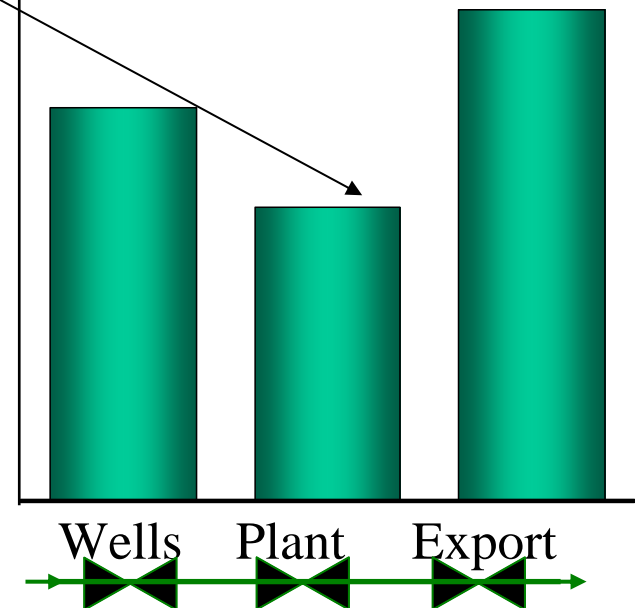


Plant



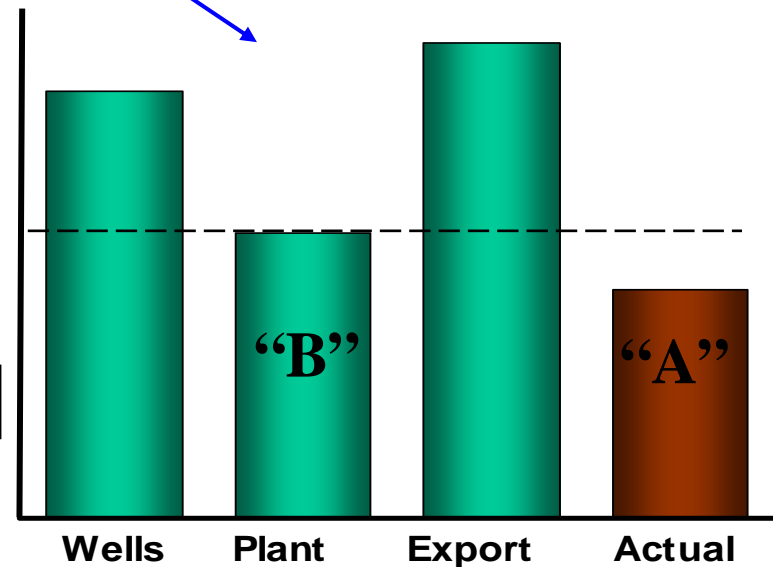
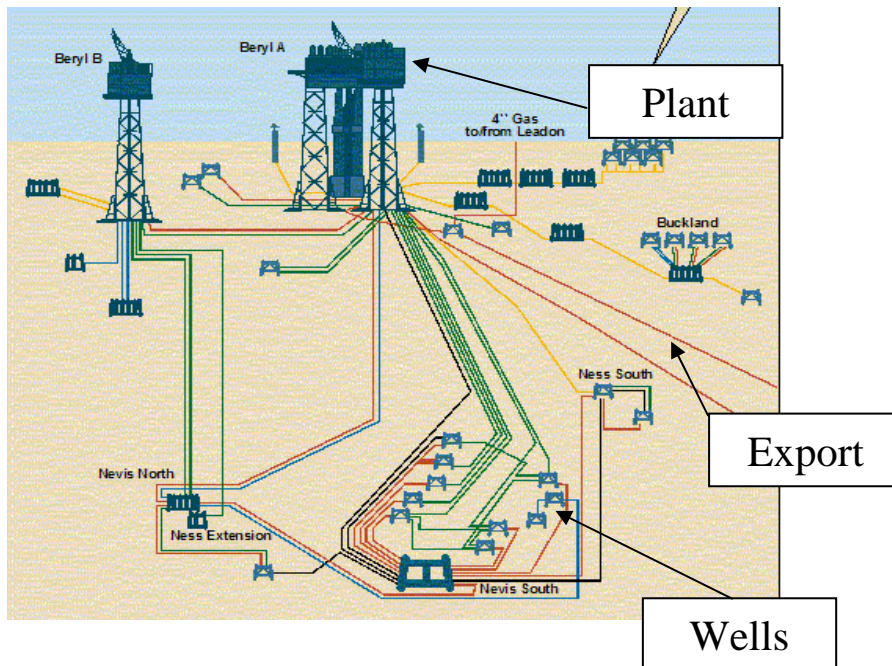
Export

Wells

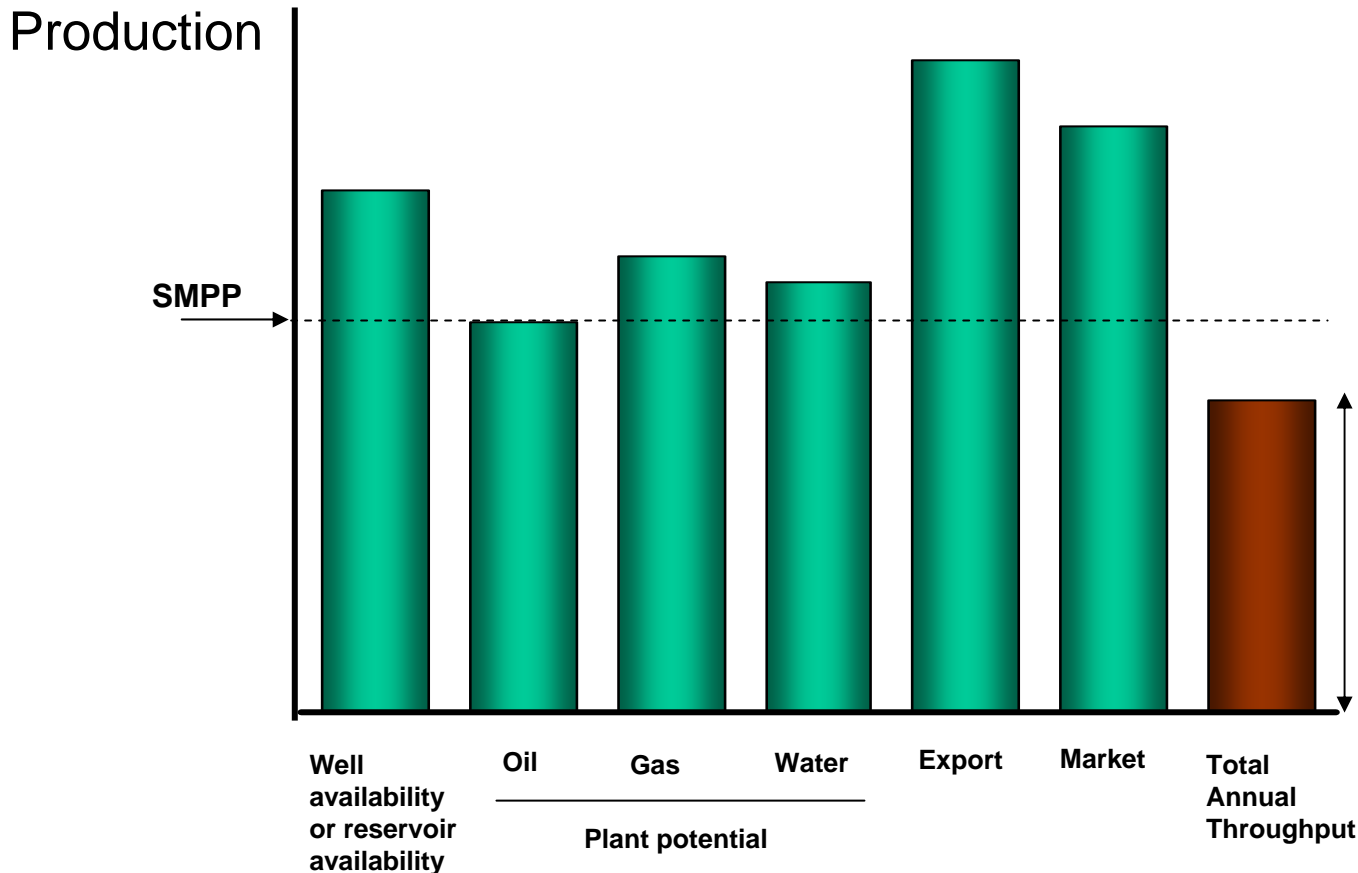


Production Efficiency (PE)

$$\text{PE} = \frac{\text{Throughput ("A")}}{\text{Structural Maximum Production Potential ("B")}}$$



BERR Production Efficiency: Structural Maximum Production Potential (SMPP)

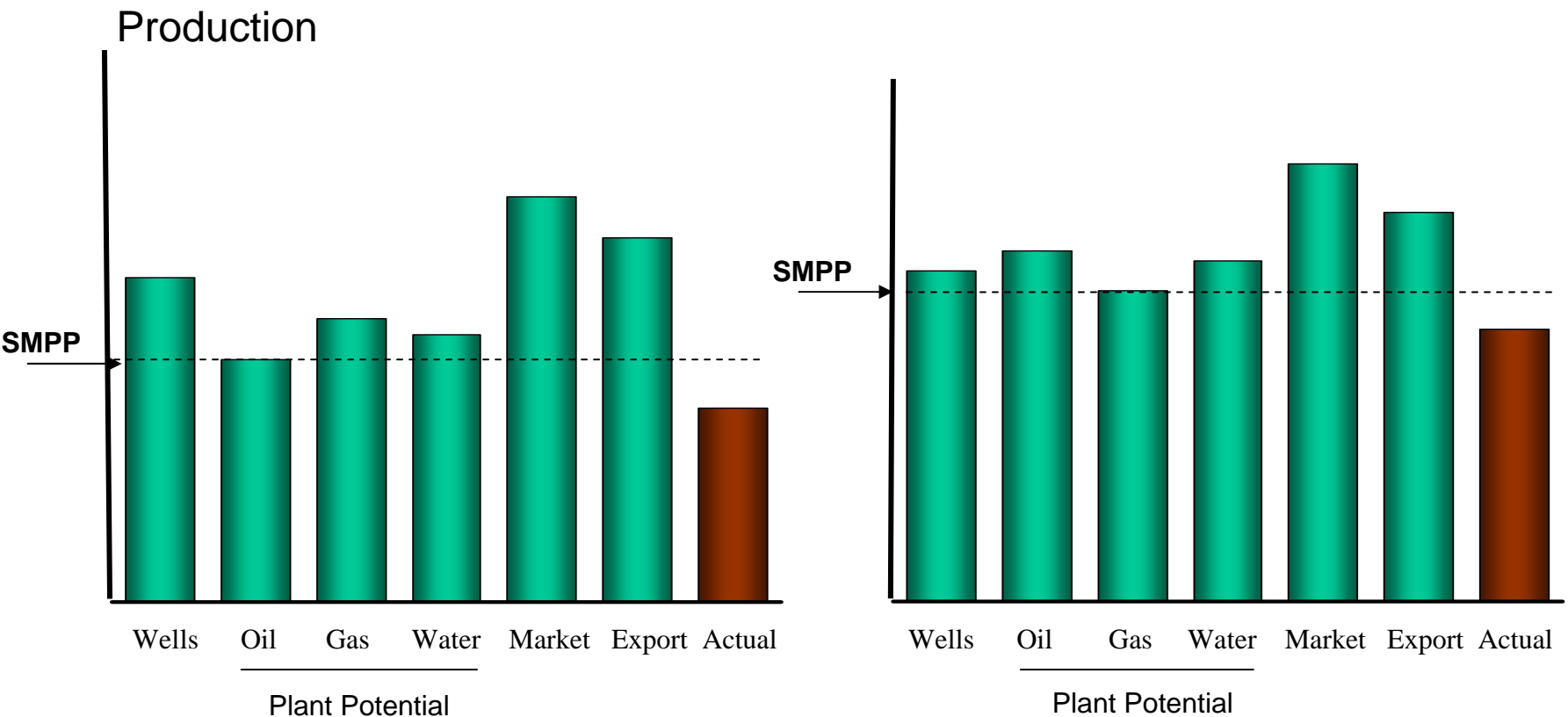


**SMPP is the
lowest
constraint on
production**

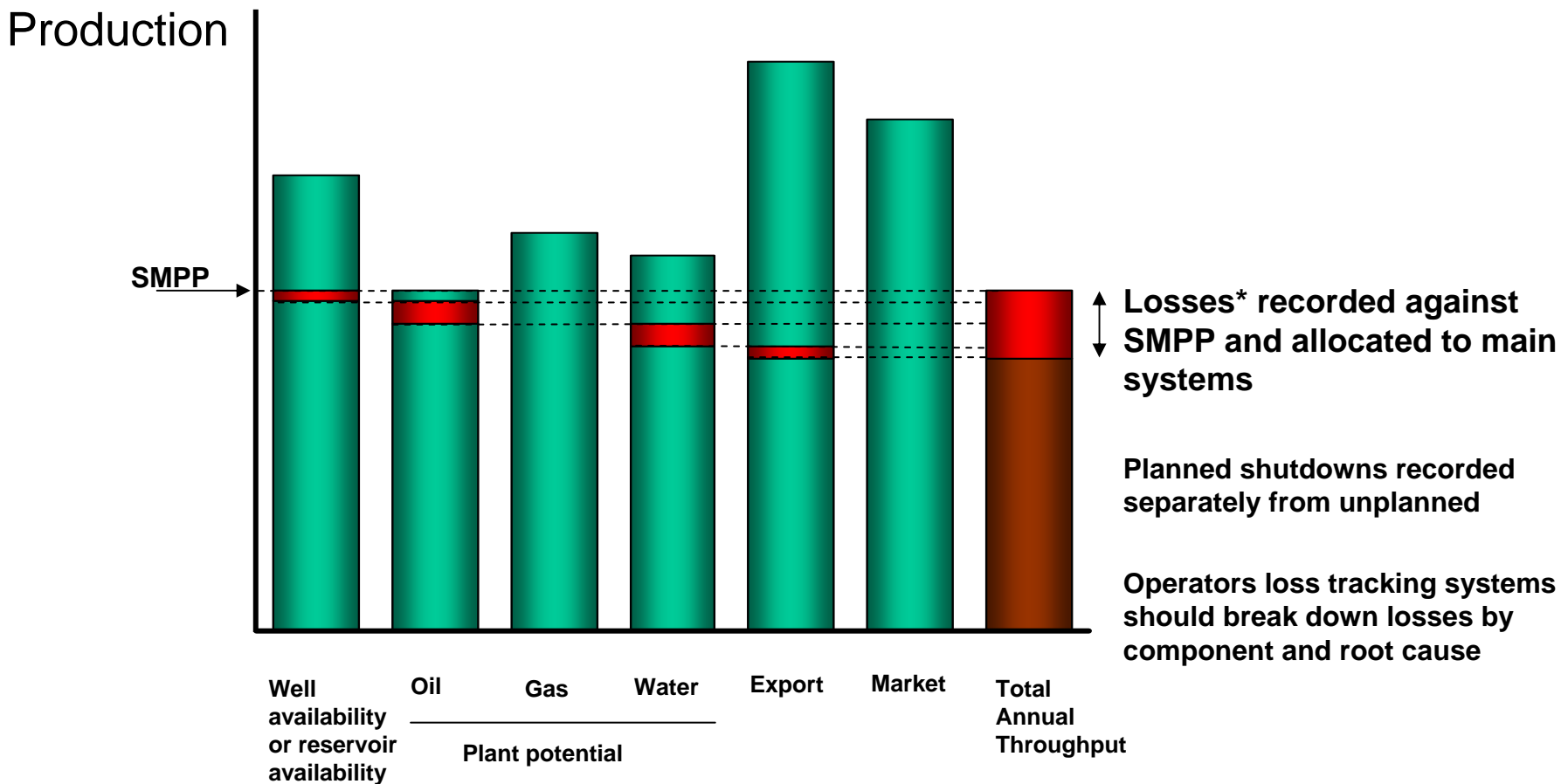
BERR Production Efficiency - SMPP Variation



SMPP may vary from month to month (or week to week)



BERR Production Efficiency – Production Losses



* Losses include both planned and unplanned shutdowns

Stewardship Filtering Process

- Production Efficiency
 - Review both Production Efficiency and Unplanned Losses (boe)
 - Peer Groups
 - Oil
 - Gas Condensate / high GOR
 - Floating Production Systems
 - Dry Gas Platforms



Stewardship Filtering Process



- Well Utilisation
 - Drilling and sidetracks
 - Workovers/Recompletions
 - Downhole Surveillance
 - Other well interventions
- Normalise by number of well slots
- Use 3 year time horizon
- Peer Groups – Platforms, Rigless platforms, FPS/subsea and small fields

Stewardship Filtering Process

- Investment: Capital and Operational
 - Logistics and Support Costs
 - Subsurface and Wells Production Assurance
 - Subsea and Facilities Production Assurance
 - Production Enhancement
 - Future Opportunities
 - Tariff Costs
 - Decommissioning/Mothballing



Stewardship Filtering Process



- Reserves Replacement
 - Difficult to interpret during period of oil price volatility
- Production Decline
 - Difficult to interpret – no longer used
- Seismic / Reservoir studies activity*
 - an indicator of the “hopper” of opportunities
- [2006 performance vs 2005 forecast]**

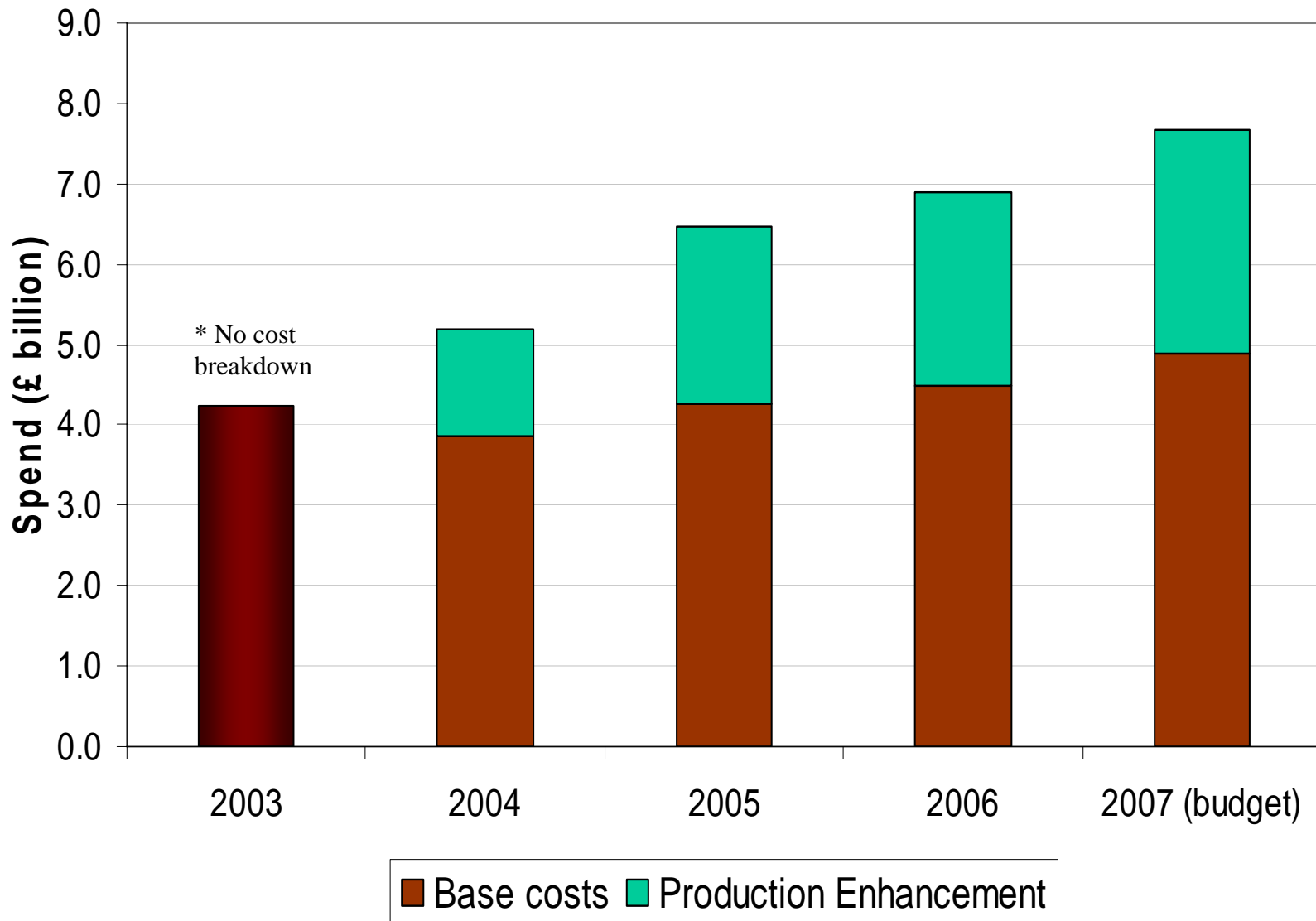
* added in 2006

** considered in 2007

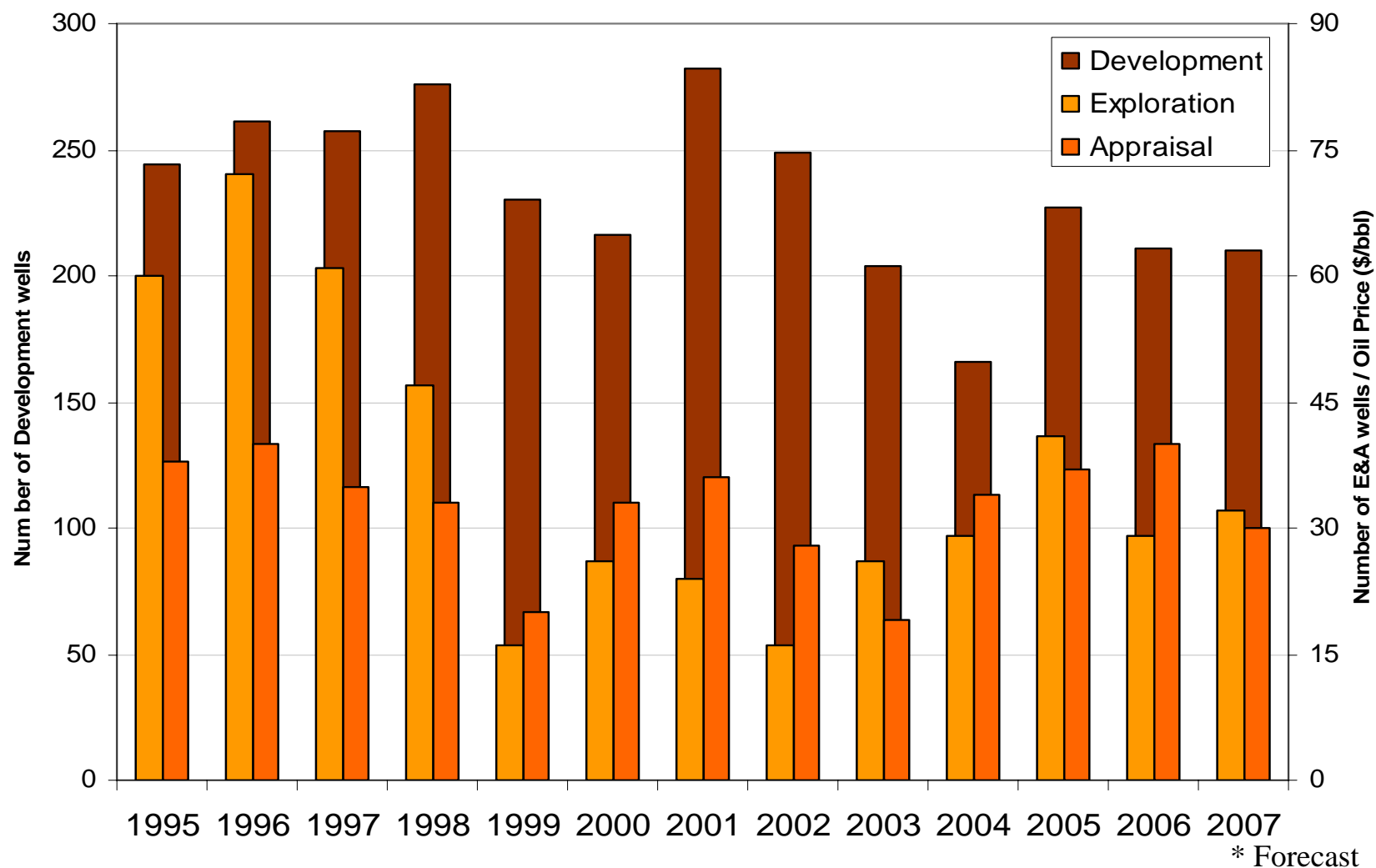
Stewardship Outcomes to date (high level)

- Expenditure Trends
- Drilling Activity
- Seismic vintages
- Production Efficiency
- Energy Review Recommendations (July 2006)
 - Near Field Potential
 - Reliability

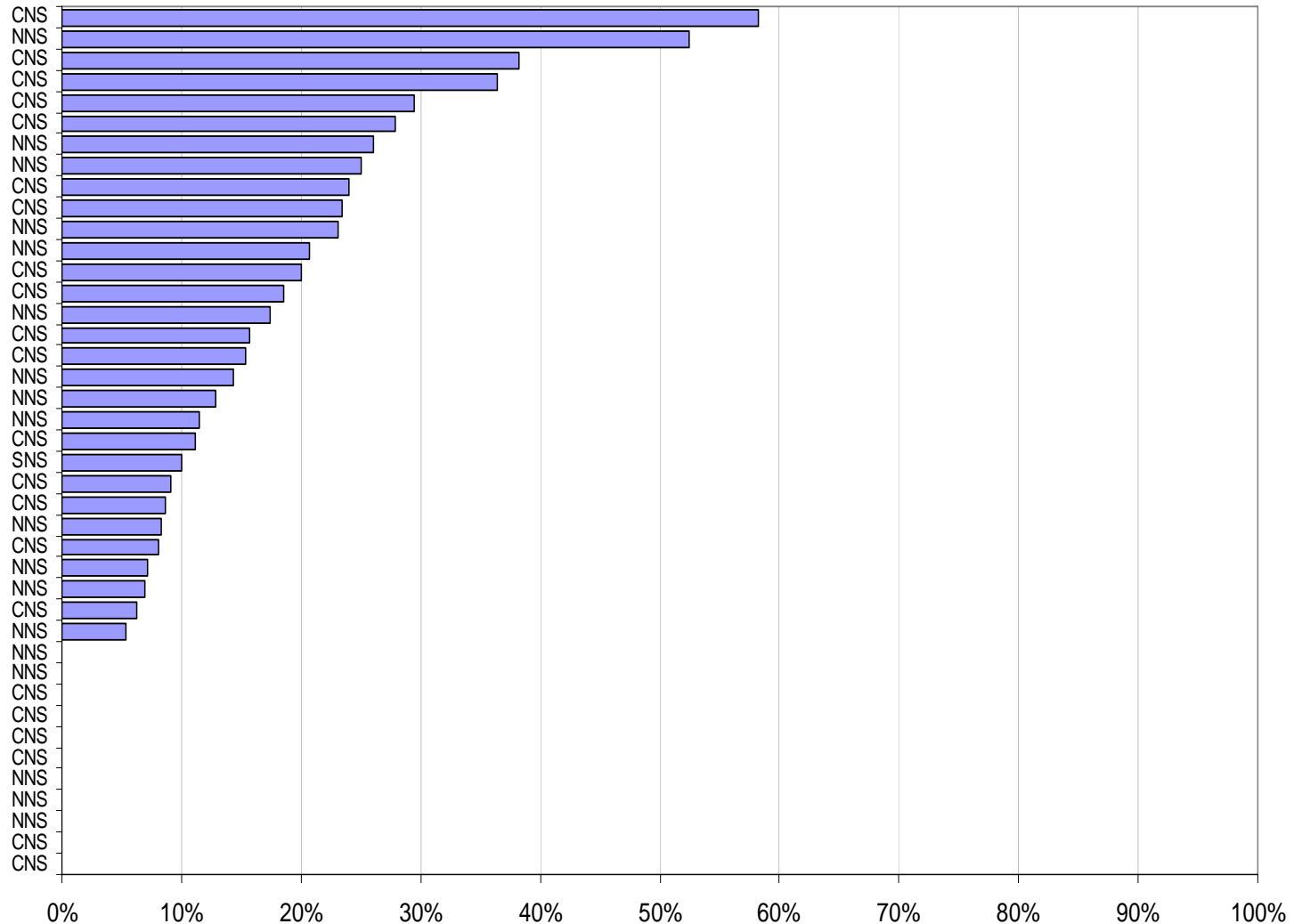
Brown Fields - Expenditure



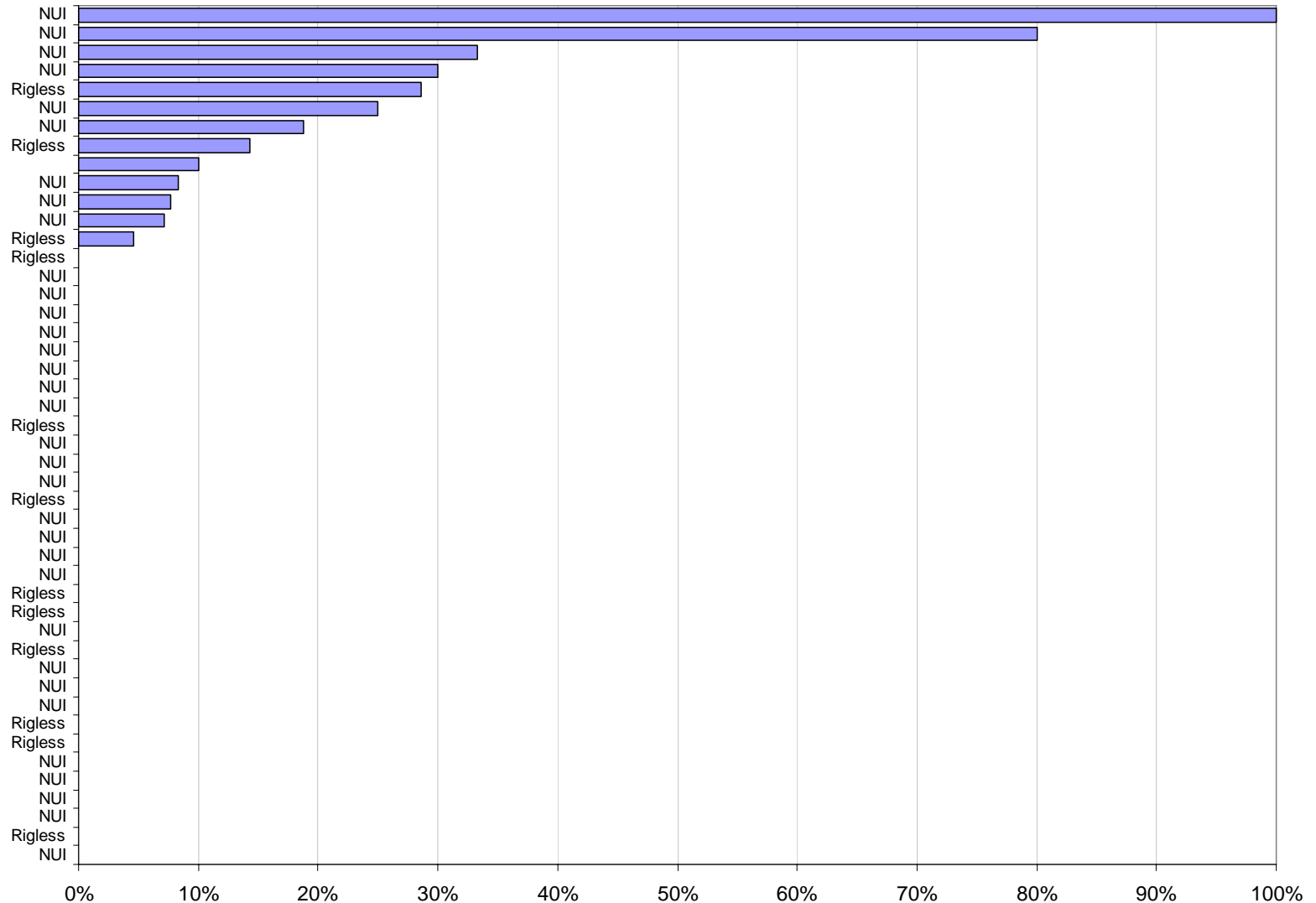
UKCS Drilling Activity 1995-2007



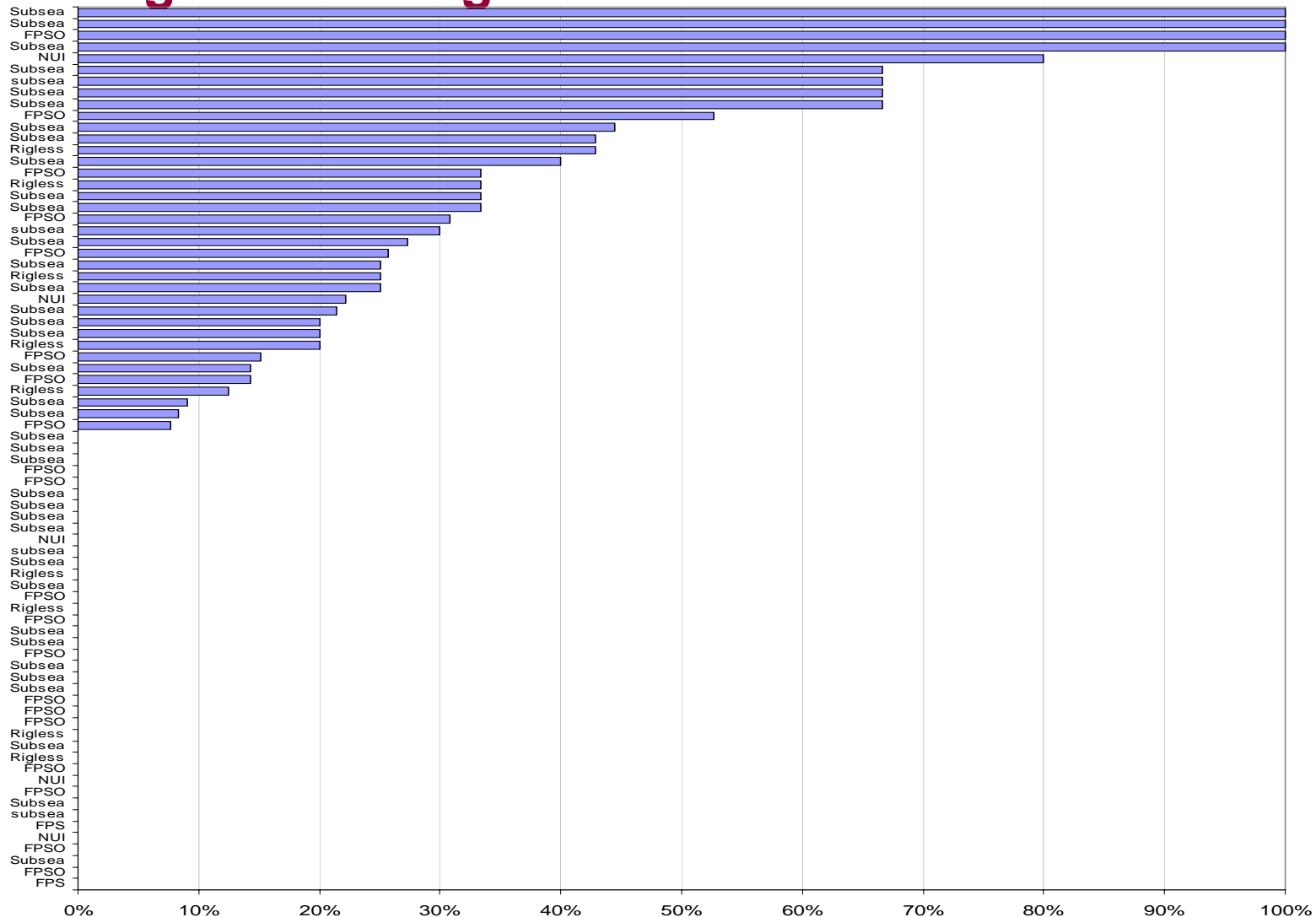
Drilling Rate (2004-2006) for NNS and CNS Platforms



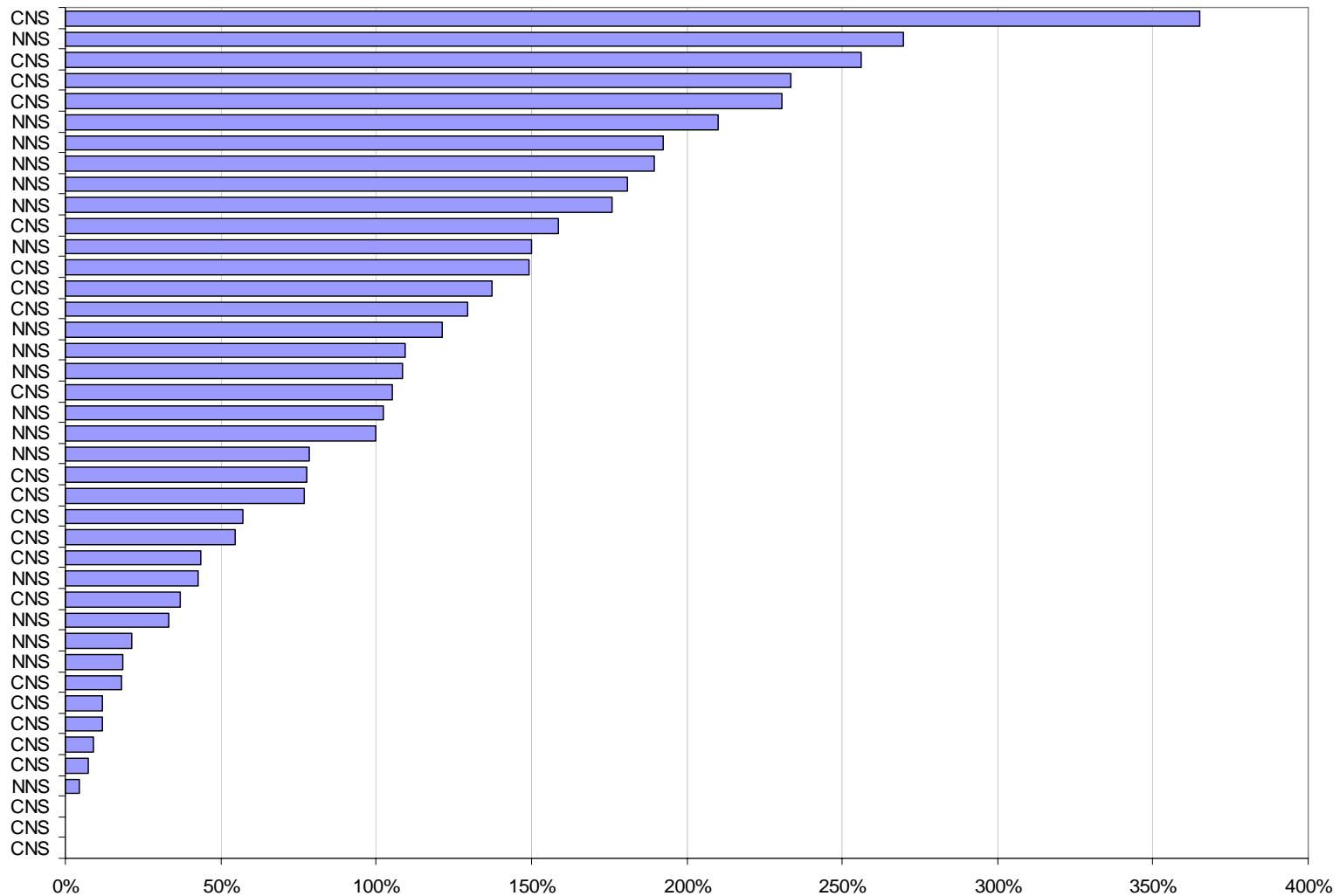
Drilling Rate (2004-2006) for SNS Platforms



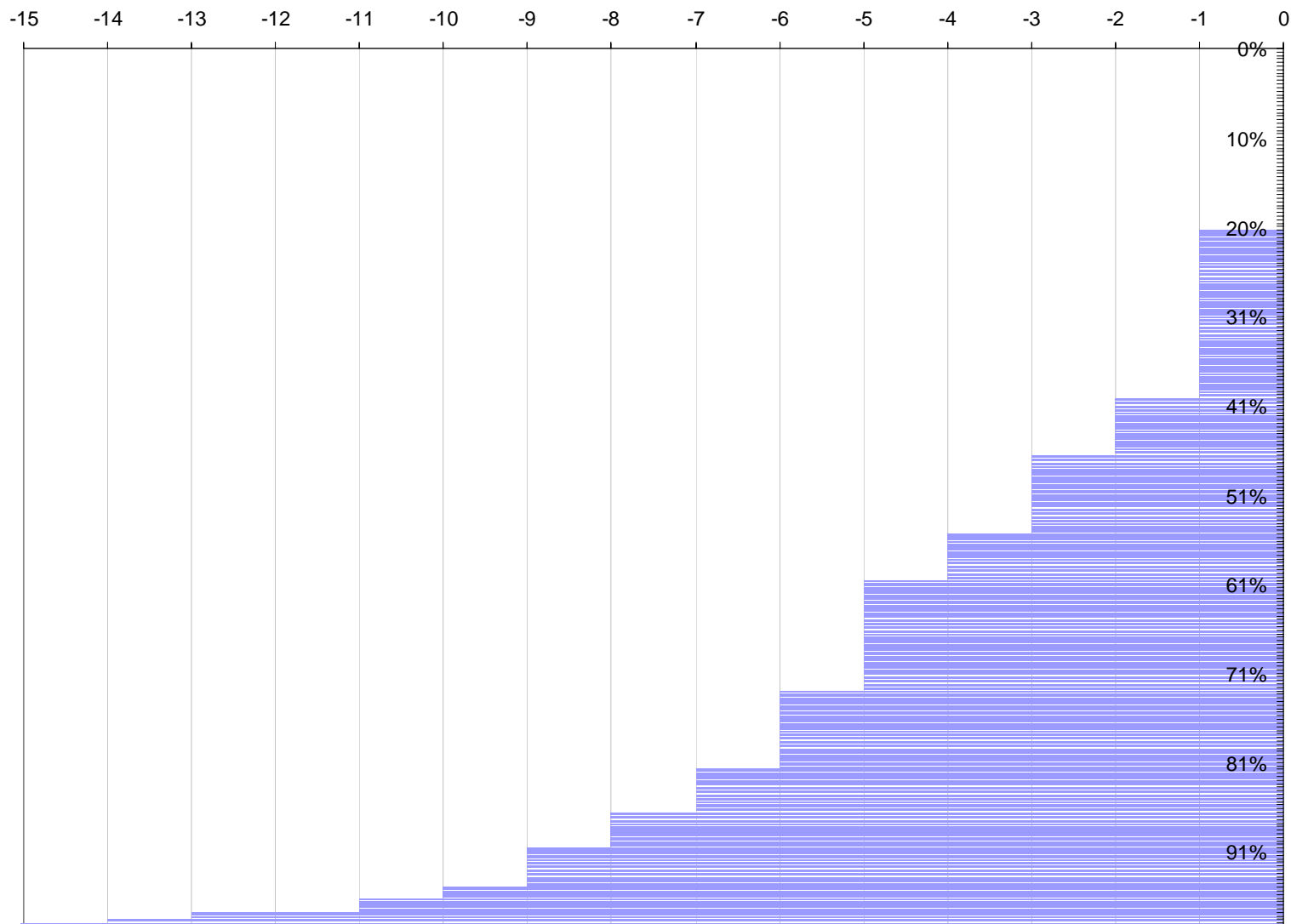
Drilling Rate (2004-2006) for NNS and CNS Fields needing a mobile rig



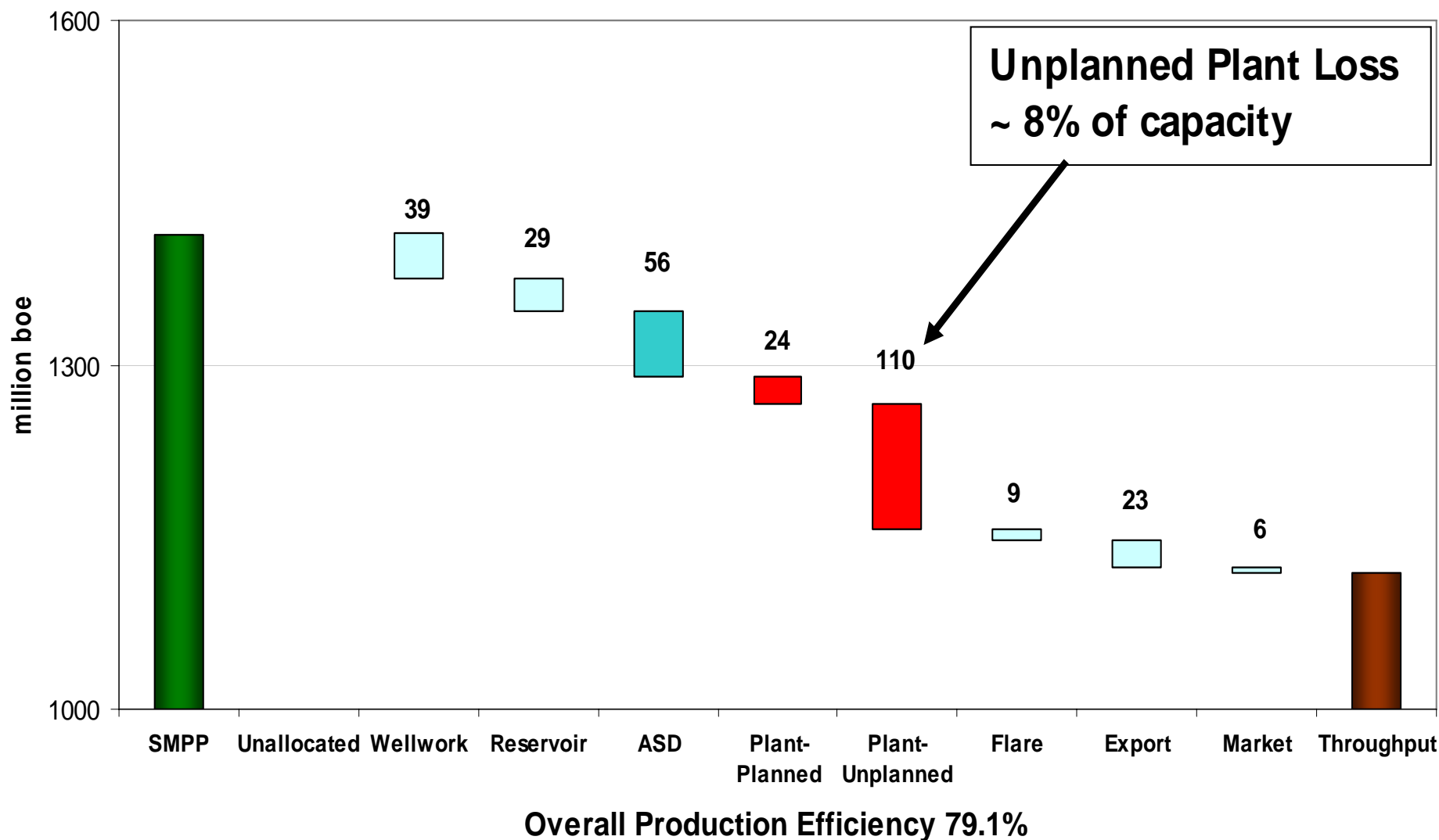
Well Intervention Rate (2004-2006) for NNS and CNS Platforms



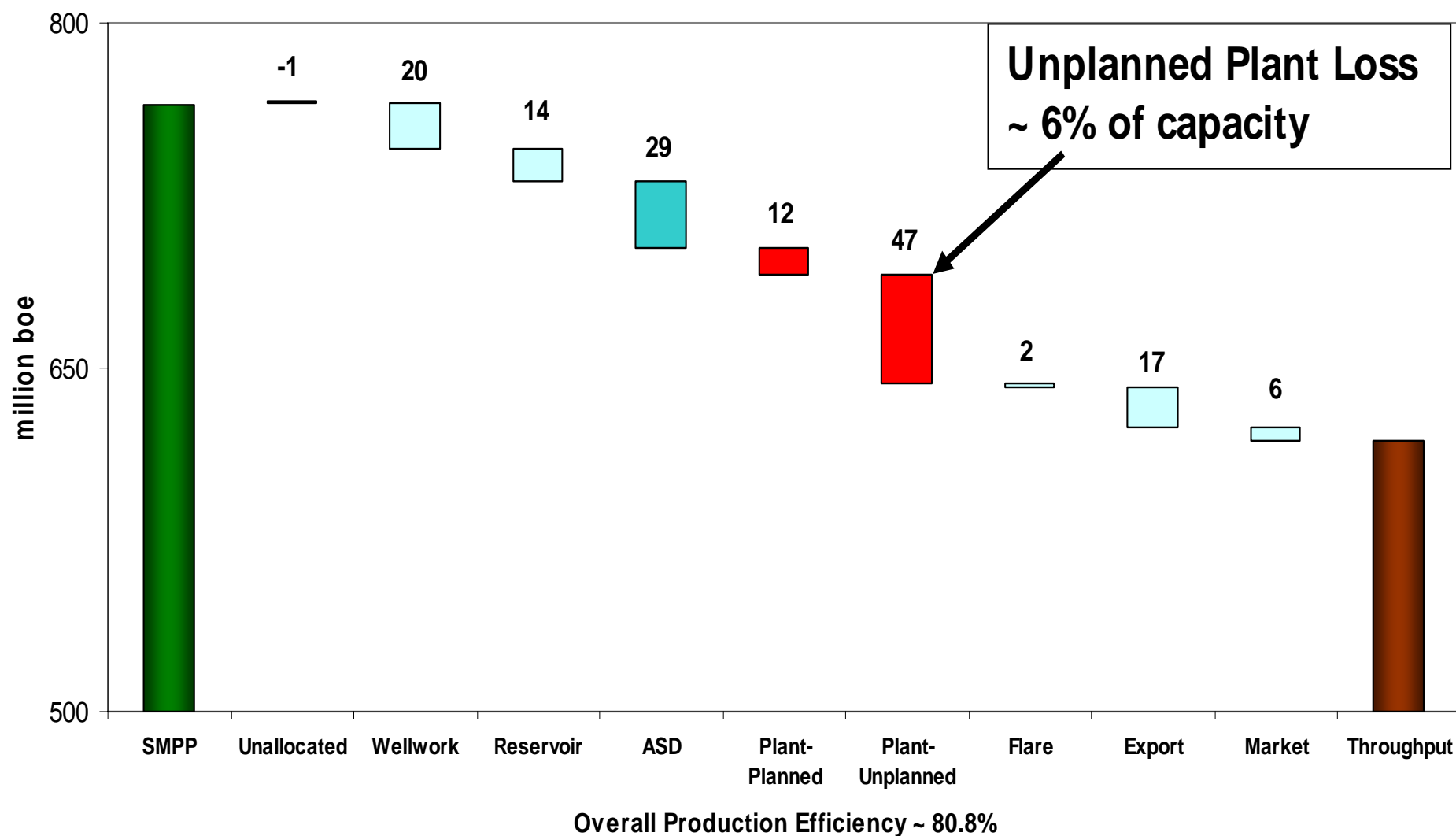
Age of Seismic (years)



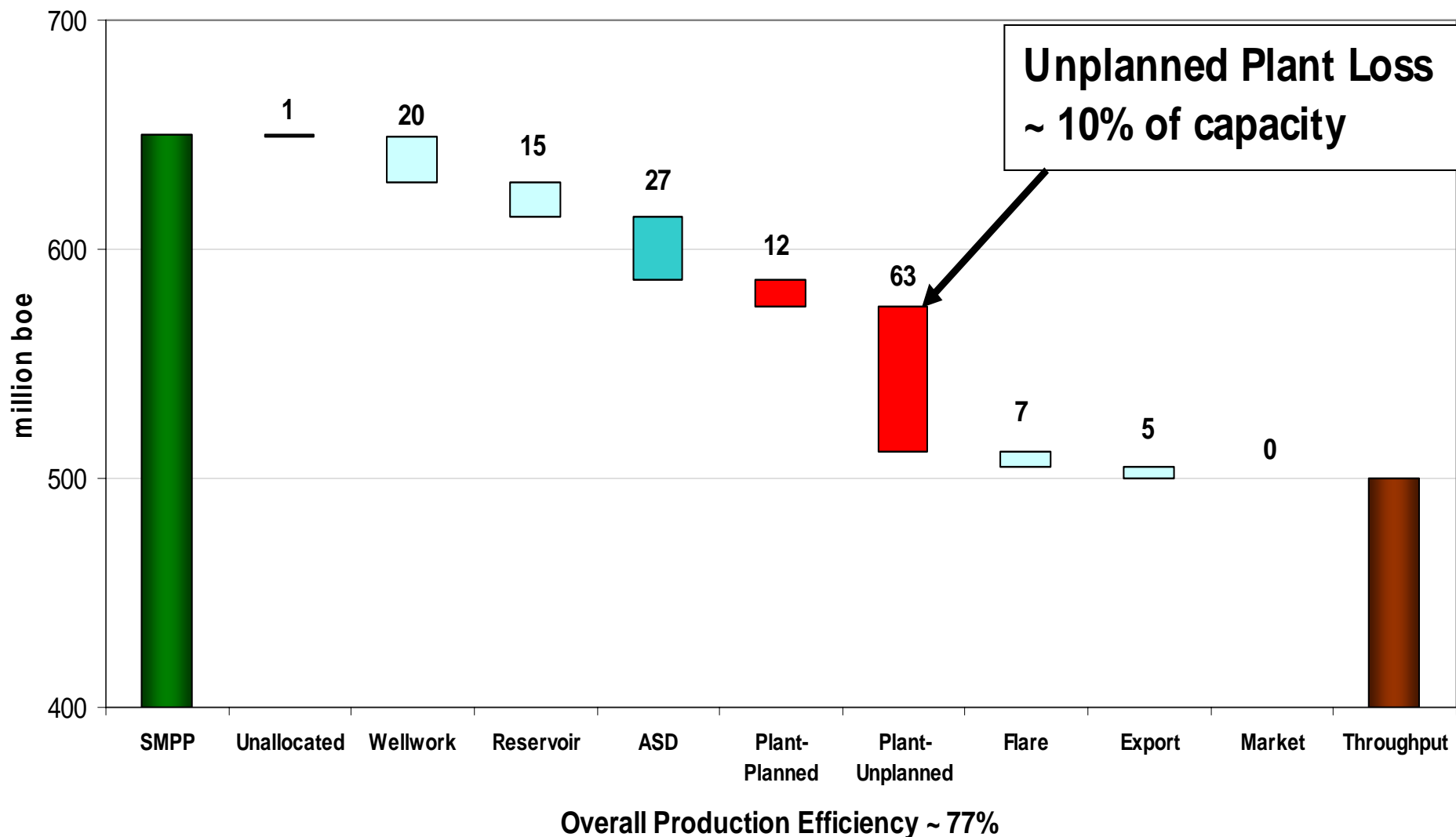
SOURCES OF LOST PRODUCTION - UKCS AGGREGATE 2006



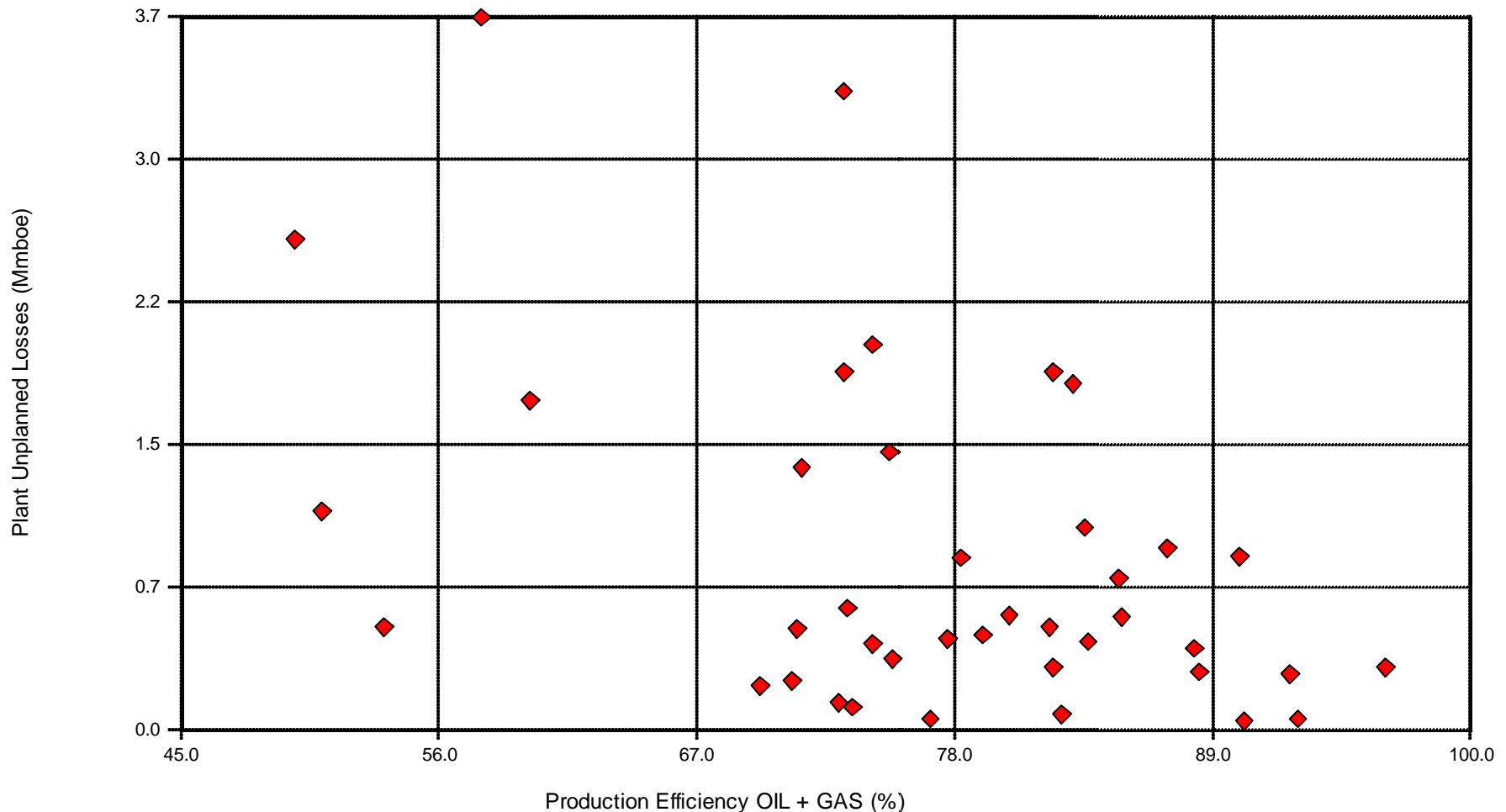
SOURCES OF LOST PRODUCTION GAS FIELDS-UKCS AGGREGATE 2006



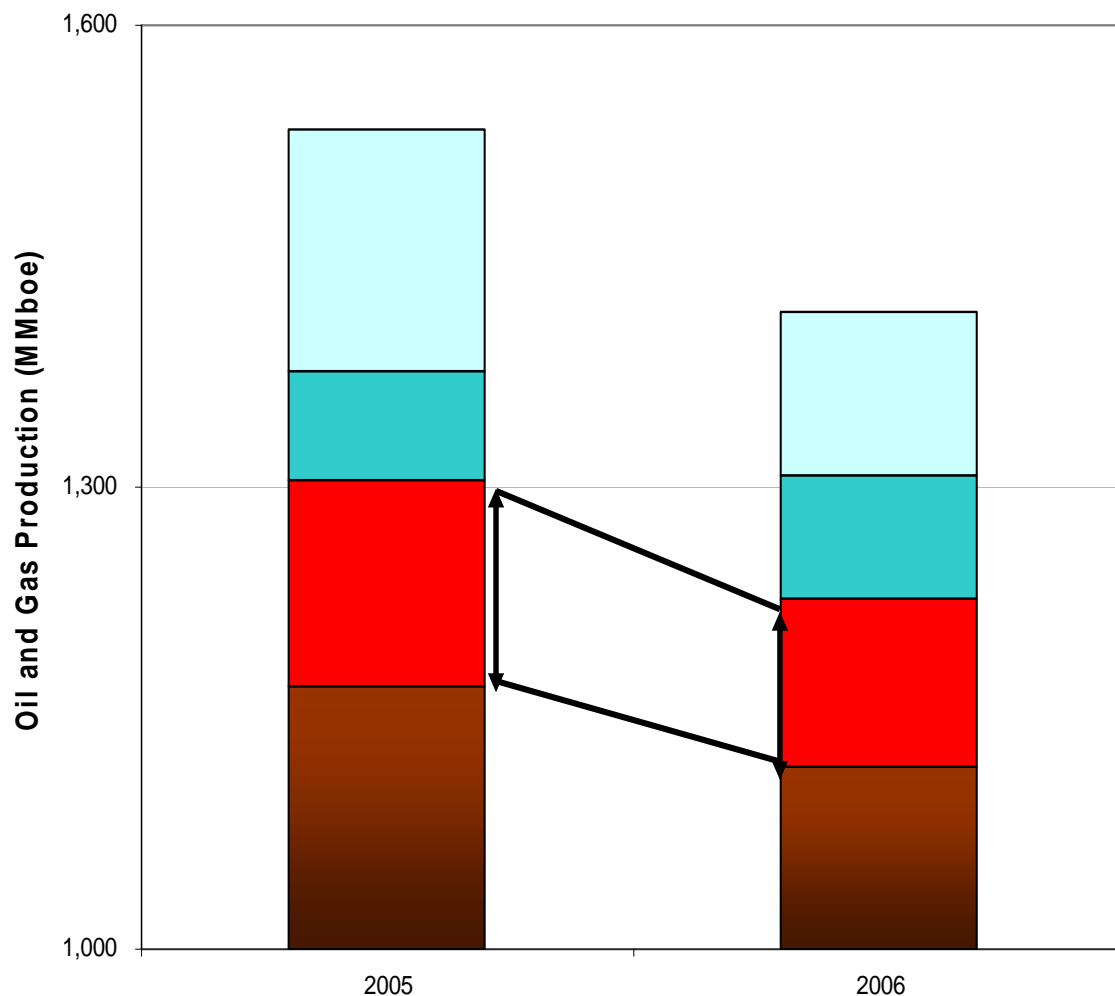
SOURCES OF LOST PRODUCTION OIL FIELDS - UKCS AGGREGATE 2006



Plant Unplanned Losses vs Production Efficiency 2006, Region: All, Peer Group: Oil



UKCS Production Performance 2005 to 2006



Unplanned Plant Losses:

- Some improvement
- Still significant prize
~ 300,000 boepd

- Other losses
- ASD / Plant Planned losses
- Plant Unplanned Losses
- Production

Stewardship and Other Initiatives

- Stewardship links to :
 - Near Field Exploration Potential (NFP)
(<> Fallow process
Infrastructure Code of Practice)
 - “KP3” – HSE’s Asset Integrity initiative
 - 3 Key Performance Indicators
 - Hydrocarbon releases
 - “Open Significant Verification Findings”
 - **Production Efficiency**

Stewardship Outcomes to date

- Expenditure Trends
 - increasing
- Drilling Activity
 - increased in 2005 – still a key factor
- Production Efficiency
 - some improvement – still a key factor
- Energy Review Recommendations (July 2006)
 - Near Field Potential
 - Reliability

Stewardship – Way Forward

- Annual Data Review 1Q2008
 - Use BERR Oil&Gas Portal ?
- Continue emphasis on Production Efficiency and Facilities Reliability
- Continue to Review Near Field Potential
- Refine Stewardship indicators

Questions ?

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