### Existing Assets / Post FID Ranking (2001 Capex > $20 million)

<table>
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<tr>
<th>$14/bbl Attractiveness</th>
<th>4</th>
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<tr>
<td>High</td>
<td>4</td>
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<td>Syria - AFPC Existing Facilities</td>
<td>4</td>
<td>2</td>
<td>1</td>
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<tr>
<td>UK - Existing assets</td>
<td>4</td>
<td>2</td>
<td>1</td>
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<tr>
<td>65%</td>
<td>7</td>
<td>5</td>
<td>3</td>
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<tr>
<td>USA - Brutus</td>
<td>7</td>
<td>5</td>
<td>3</td>
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<tr>
<td>USA - Crosby</td>
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<tr>
<td>45%</td>
<td>9</td>
<td>8</td>
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<tr>
<td>USA - Ursa</td>
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<td>UK - ExAss Brent Gas Contract</td>
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<td>SNEPCO - Bonga-Main</td>
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<td>SPDC - 02 Value Preservation</td>
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<td>SPDC - 03 Bonny Terminal</td>
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<td>Norway - Troll Oil</td>
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<td>Russia - Caspian Pipeline Consortium</td>
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<td>Sakhalin - Molikpaq</td>
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<td>UK - ExAss Skua</td>
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<tr>
<td>USA - Aera Equity</td>
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<tr>
<td>Low</td>
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<td>Argentina - VALLE MORADO</td>
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<td>Egypt - POST FID Obaiyed</td>
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<td>Malaysia - MLNG Dua PSC New (M4, B11, etc)</td>
<td>8</td>
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<td>Iran - Soroosh/Nowrooz Integ.</td>
<td>8</td>
<td>6</td>
<td>6</td>
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<tr>
<td>SPDC - 90 EA Equity and Carry - NLNG 3</td>
<td>8</td>
<td>6</td>
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<td>SPDC - 91 Offshore Pipeline - NLNG 1-5</td>
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<td>Canada - Athabasca Oil Sands Project</td>
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<td>Brunei - Ampa Fairley Rationalisation Phase 1</td>
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### Notes
- **$14/bbl**
- **High Attractiveness**
- **Medium Attractiveness**
- **Low Attractiveness**
$14/bbl

$5.5 BLN CAPEX CEILING FOR EXISTING OUS

Tranches 1-3 & New Projects (FID Q3+ 2000 & 2001 Capex > $20 mln)


2. Syria - APFC Tranche 1a (FID 2000)
   USA - Oregano
   Thailand - Tranche 1 S1 2000
   UK - Tranche 1 FID00 committed

3. NAM Scenario 2 - 1st Incremental Tranche
   Netherlands - NAM Plan - Scenario 3
   UK - Tranche 1, DW, non-EB2, FID 2001
   USA - UGHELLI
   Oman - Zababor Development

4. Base
   Options
   USA - Serrano
   Denmark - Gas Developments
   SPDC 41 Cawthorne Channel - NLNG 3
   SPDC 46 South Forcados (2001-AF)
   Denmark - Halten Phase II
   Norway

5. UK - Tranche 2 FID00 committed
   Iran - Atlantic Area Major Banglestern Reservoir Development
   SPDC - 22 Offshore Pipeline AF - NLNG 1.5

6. UK - Magnus EOR
   USA - Offshore Pipeline
   Netherlands - NLNG 3
   Denmark - Halten Phase II
   Norway

7. USA - Nakita
   SNPCO - Etha Main
   UK - Tranche 3 FID01 FOP

8. UK - Folkhaven East
   UK - Foin Infill
   UK - Tranche 3 FID01 FOP

9. Medium
   Low
   MRH
   Nigeria Deepwater
   Gas
   Oil

$14/bbl Attractiveness

FOIA Confidential
Treatment Requested

V00120324
$ 5.5 BLN CAPEX CEILING......DENMARK & BIG PROJECTS IN

Tranches 1-3 & New Projects (FID Q3+ 2000 & 2001 Capex > $20 mln)

High

1. Total Capex (2001) in Box 1 is $470 mln
   - Egypt - Obaiyed South discovery & compression 1
   - Netherlands - NAM Plan - Scenario 3
   - Netherlands - NAM Scenario 2 - first incremental tranche
   - UK - Tranche 1 FID01
   - SPDC - 49 UGHELLI
   - Oman - 2aPB01M DEV TRAN1 2000 W
   - USA - Tranche 1, DW. non-EBZ, FID 2001

2. Total Capex (2001) Box 2 is $200 mln
   - Syria - AFPC Tranche 1a (FID 2000)
   - Thailand - Tranche 1 S1 2000
   - UK - Tranche 1 FID00 committed

3. Options
   - Base
   - USA - Serrano
   - Denmark - Gas Developments
   - SPDC - 41 CAWTHORNE CHANNEL - NLNG 3
   - SPDC - 46 SOUTH FORCADOS - NLNG 3
   - SPDC - 114 H BLOCK Appr. (2001-AF)
   - Denmark - Skjold Phase II
   - Denmark - Halfdan Phase II
   - Denmark - Halfdan Phase III
   - Oman - 7a PB01M DEV TRAN2 2000 W
   - UK - Mandarin
   - USA - Tranche 1, non-DW, non-EBZ, FID 2001
   - UK - Tranche 2 FID00 committed
   - USA - Tranche 2, non-DW, non-EBZ, FID 2001
   - USA - Alex Phase 2
   - UK - Penguin Development
   - UK - Goosander

4. USA - Oregano
   - SNEPCO - Ext WTF
   - Russia - Salym
   - UK - Tranche 1 FID01 FOP
   - UK - Schieh infill 1
   - UK - Loyal Phase II

5. USA - Holstein
   - USA - Nakika
   - SNEPCO - Erha Main
   - UK - Tranche 3 FID01 FOP
   - UK - Tranche 3 FID01 FOP
   - UK - Foin Infill1

6. UK - Magnus EOR
   - USA - Offshore Pipeline
   - Iran - Ahwaz Area Major Bangestan Reservoir Development
   - SPDC - 92 Offshore Pipeline AF - NLNG 1-5

Low

7. USA - Oregano
   - SNEPCO - Ext WTF
   - Russia - Salym
   - UK - Tranche 1 FID01 FOP
   - UK - Schieh infill 1
   - UK - Loyal Phase II

8. USA - Holstein
   - USA - Nakika
   - SNEPCO - Erha Main
   - UK - Tranche 3 FID01 FOP
   - UK - Tranche 3 FID01 FOP
   - UK - Foin Infill1

$14/bbl

Projects inserted to Base Plan

$14/bbl Attractiveness

65%

45%

Low

MRH
Nigeria
Deepwater
Gas
Oil

High

Mediun
The Way Forward..(1)

- We accept the flaws in the process, challenge the submissions at the workshop, build the 2000 Plan and make a "promise adjustment" at Excom level:
  - existing assets minus 200 Million US$
  - post-FID minus 400 Million US$
  - weed out "false promises" to the tune of 400 Million US$
  - adjust production promise

Manage Improvement through the scorecards

*We must address the integrity flaws in the CA process and send a very strong signal...*
The Way Forward..(2)

- We demand a resubmission... we change the workshop.
- We explain our problems to the delegates at workshop.
- We ask the delegates to return to their OUNVOs and rework their submissions and restore reality.
- Key OUNVOs will be invited for a hard challenge session with the Excom (large OUs) or their RBD.

- After resubmission of sanitised data, a final ranking will be done with the RBA/RFA community.
Two Possible Schedules

- Improve
- Improve

Workshop → OU Financials → Final OU Plan → Excom Adjustment
27-28/6 → 10/7 → 6/9 → 14/9

- Improve/challenge
- EPB-RBD

Workshop → Resubmission → Allocation → OU Financials → Final OU Plan
10/7 → 17/7 → 28/7 → 6/9
### KEY METRICS - RAW DATA

#### Base

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<td>395</td>
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<td>180</td>
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<td><strong>3735</strong></td>
<td><strong>3754</strong></td>
<td><strong>3884</strong></td>
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Value continues to be dominated by traditional OUs Nigeria dominance of production growth not reflected in value

#### Options

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<td>466</td>
<td>10374</td>
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<td><strong>65950</strong></td>
<td><strong>63</strong></td>
<td><strong>312</strong></td>
<td><strong>597</strong></td>
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Deepwater excludes SNEPCO Ranked out production in 2001 63,000 bbls/d Does not reflect OUs outside EP control - (SOGU)
SHORT TERM OPPORTUNITIES ....RANKED OUT

Short Term Oil Projects are predominantly in Shell Expro.....

<table>
<thead>
<tr>
<th>Country Name</th>
<th>Project Name</th>
<th>CA Cat</th>
<th>FID yr</th>
<th>Status</th>
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<th>2001 MBOE/d</th>
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<td>Base</td>
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<td>5.08</td>
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<td>0.00</td>
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<td>0.00</td>
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<td>2001</td>
<td>Option</td>
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<td>2.39</td>
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<td><strong>Sum:</strong></td>
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<td><strong>99.94</strong></td>
<td><strong>56.89</strong></td>
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UTCs $3.5 - 5.5/bbl
VIRs [$14] 0.4 - 0.8
low / medium strategic fit. ......

DB 07496
CAPEX CREAMING CURVE - THE BUILDING BLOCKS

The promise

NPV $14

Cumulative Capex in 2001

On merit NaKika, Holstein & Ehra do not rank
"EXISTING ASSET" CATEGORY CAPEX 2001

- 800 mln - 18% of Devt Capex Budget
- Same level as 2000
- No additional production generated
- Keeping brownfield plant operating & ready for new devts
- Value adding or value erosion (vs 502Fs)

<table>
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<tr>
<th>Country</th>
<th>Value (US$m)</th>
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<td>Abu Dhabi</td>
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<tr>
<td>Australia (Direct)</td>
<td>27</td>
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<tr>
<td>Brunei</td>
<td>34</td>
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<tr>
<td>Denmark</td>
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<td>Egypt</td>
<td>15</td>
</tr>
<tr>
<td>Gabon</td>
<td>17</td>
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<tr>
<td>Germany</td>
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<tr>
<td>Malaysia</td>
<td>17</td>
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<td>Nigeria (SPDC)</td>
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<td>Norway</td>
<td>15</td>
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<tr>
<td>Oman</td>
<td>81</td>
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<tr>
<td>Syria</td>
<td>23</td>
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<td>UK</td>
<td>144</td>
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<tr>
<td>USA</td>
<td>160</td>
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<td>Total</td>
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OIL & GAS PRODUCTION 2001-2005 BY OU

Raw Data Submission

Nigeria Largest producer by 2005 with threefold growth!

Production dominated by the big three in plan period

Without Nigeria growth,...
- still only 2 OUs ~ 300+ Kboe/d S/S
- 5 OUs ~ 200 - 300 kboe/d by 2005
- 3 OUs ~100 - 200 kboe/d by 2005
- 10 OUs~ <100 kboe/d OUs by 2005
A few Outcomes from the Raw Data........

Raw data quality is good,
...........but there is a large request will be a tough competition for funds
...........Large number of attractive new devts & tranche funds

Large amount of funds for existing assets & Post FID's ca $4 Bln
To maintain oil production requires ca $5 Bln, with 100 % delivery

Before we consider more capex funds.....there are some issues....

But new devt “promises” are different from Vol-1 findings
...........Most post FID projects have been under delivering production
...........Most projects have aggressive schedules vs Vol-1 reality
...........VAR programme will have to be accelerated to meet FID planned
...........Last years E&A followup developments have largely not materialised

How do we avoid an “over promise & under delivery” cycle...?
KEY ISSUES

CURRENT PERFORMANCE
- Production under-performance
  - 1999: UK, Egypt, SPDC, Syria, Netherlands
  - 2000 LE: Oil: Essentially on target but SPDC,
    Gas: Egypt, Argentina, Netherlands, US

- Major New Project Delivery
  - 1999 on-stream disappointments due mainly to project schedule delays
  - 2000 onwards (CA 2000) suggests production under-delivery (sub-surface & facilities)
  - Reserves Replacement
  - 2000 LE 24 % with major concerns throughout Plan Period

FUTURE PROMISES
- Continued reliance upon Nigeria (and our ability to grow oil production there)
- Need to avoid over promising and under delivering cycle.
- Continued pursuit of major Capex spend outside of existing portfolio ..are regretting oil?
CAPEX SPEND 2001 BY COUNTRY - Raw Data Submission

Top 5 countries requested 60% of total Capex

Total Capex request 2001 = $7.1 bln
Total Commitments = $2.7 bln

Next 10 countries requested 30% of total Capex

The tail = 10%
RESERVES REPLACEMENT - RAW DATA
Proved Reserves Replacement Ratio
(BP-2000 raw data exci Canada & Woodside - SPDC to be updated)

You need to believe that the "hopes" in Angola and Brazil and new gas come off to replace reserves...

Woodside Effect
SFR MATURATION RATES - RAW DATA

SFR_{com} Maturation to Expectation Reserves

- BP-1999
- CA-2000

Actual

1999 2000 2001 2002 2003 2004 2005

0% 2% 4% 6% 8% 10% 12%
Discoveries '90-'99 - Resource Split @1.1.2000

- Avg 10% SFR_{non-com}
- Avg 30% SFR_{com}
- Avg 45% Undeveloped
- Avg only 15% developed/produced
IBV raw data submission versus 1999

1999 & 2000 value creation is limited........
- data assumes all planned 2000 FIDs are achieved ....unlikely based on LE
- highly optimistic forward looking 2001 to 2005 (Nigeria assumed growth not likely...)
- eg 2001 assumes we take roughly one big project FID per month (ranked in)....
CAPEX REQUEST 2001 BY REGION
Raw data Submission

Total Capex request 2001 = $7.1 bln
Total Commitments = $2.7 bln
CAPEX REQUEST 2001 BY THEME
Raw data Submission

Total Capex request 2001 = $7 bln
Total Commitments = $2.6 bln
Excluding: Woodside, Shell Canada

- Total Capex MOD
- Committed Capex (MOD)

SNEPCO in Nigeria Theme ($500 mln)

<table>
<thead>
<tr>
<th>Theme</th>
<th>US$ min MOD</th>
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<td>Oil</td>
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</table>

EP=Global Committed Capex in 2001 by CA-Category.rpt

DB 07508
OIL & GAS PRODUCTION 2001-2005 BY REGION

Raw Data Submission

OIL/NGR

Liquids grow 50% - predominantly in Nigeria & Brazil

GAS

Gas grows 50% - across the board

Production per Region: Raw data may...
OIL & GAS PRODUCTION 2001-2005 BY THEME
Raw Data Submission

Nigeria accounts for most of the growth in liquids

'O00 bbls/d

2000 2001 2002 2003 2004 2005

'O00 boe/d

2000 2001 2002 2003 2004 2005

Production per Region - Raw data.txt
KEY METRICS - RAW DATA

Value continues to be dominated by traditional OUs.............
Nigeria dominance of production growth not reflected in value

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<th>IN</th>
<th>Capex 2001</th>
<th>IBV $14/bbl</th>
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<td>172</td>
<td>2152</td>
<td>15</td>
<td>26</td>
<td>53</td>
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<tr>
<td>MRH</td>
<td>83</td>
<td>943</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1375</td>
<td>6988</td>
<td>43</td>
<td>220</td>
<td>352</td>
</tr>
</tbody>
</table>

MRH now includes Venezuela hence no value at $14
Deepwater excludes SNEPCO
Ranked out production in 2001 43,000 bbls/d
Does not reflect OUs outside EP control - (SOGU)

Correct...!
SUMMARY

- Growth in production is a major challenge
  - Existing oil assets decline 50% by 2005 1,700-800 kb/d
  - New project schedules & project forecasts need realism
  - Growth story dominated by Nigeria
  - Still Big 3 and small 15

- Reserves replacement is a key issue
  - Brazil, Angola, CIS - new hope and OKIOC

Given the bullishness of submissions....
Need to calibrate to ensure BP'2000 does not under deliver.
### EP / GP Linked Projects (FID < 3 years)

<table>
<thead>
<tr>
<th>Country</th>
<th>Project Description</th>
<th>Capex Ranking</th>
<th>2001 Option Capex ($ mil)</th>
<th>Capex Matrix Pos.</th>
<th>EP/GP Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysia</td>
<td>MLNG Tiga</td>
<td>Base</td>
<td>24</td>
<td>3</td>
<td>GP</td>
</tr>
<tr>
<td>Australia</td>
<td>NWS LNG Train 4</td>
<td>Option</td>
<td>4</td>
<td>6</td>
<td>GP</td>
</tr>
<tr>
<td></td>
<td>ALNG Train 1</td>
<td>Option</td>
<td>-</td>
<td>5</td>
<td>GP</td>
</tr>
<tr>
<td>China</td>
<td>Ordos / Changbei</td>
<td>Option</td>
<td>-</td>
<td>Expex (in)</td>
<td>EP</td>
</tr>
<tr>
<td>Russia</td>
<td>Piltun-Lunskoye</td>
<td>Option</td>
<td>-</td>
<td>Expex (in)</td>
<td>EP</td>
</tr>
<tr>
<td>Egypt</td>
<td>NEMed SMDS</td>
<td>Option</td>
<td>-</td>
<td>Expex (in)</td>
<td>EP</td>
</tr>
<tr>
<td>Iran</td>
<td>Iran SMDS</td>
<td>Option</td>
<td>2</td>
<td>6</td>
<td>Both</td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>T2T Pipeline to Turkey</td>
<td>Option</td>
<td>18</td>
<td>3</td>
<td>EP</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>Saudi Maturation Project</td>
<td>Option</td>
<td>-</td>
<td>-</td>
<td>EP</td>
</tr>
<tr>
<td>Nigeria</td>
<td>NLNG 3</td>
<td>Base</td>
<td>501</td>
<td>misc</td>
<td>EP</td>
</tr>
<tr>
<td></td>
<td>NLNG 4</td>
<td>Option</td>
<td>45</td>
<td>misc</td>
<td>EP</td>
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<tr>
<td></td>
<td>West Africa Gas Pipeline</td>
<td>Base</td>
<td>6</td>
<td>3</td>
<td>EP</td>
</tr>
<tr>
<td></td>
<td>Abuja Gas Pipeline</td>
<td>Base</td>
<td>2</td>
<td>3</td>
<td>EP</td>
</tr>
<tr>
<td>Venezuela</td>
<td>VLNG</td>
<td>Option</td>
<td>7</td>
<td>6</td>
<td>GP</td>
</tr>
<tr>
<td>Namibia</td>
<td>Kudu</td>
<td>Base</td>
<td>-</td>
<td>-</td>
<td>EP</td>
</tr>
</tbody>
</table>

**TOTAL (Base)** | **533**

**TOTAL (Options)** | **76**

Current Capex Ranking Cut-Off is Box 3 @ 50%
## EP/GP Integrated Economics

<table>
<thead>
<tr>
<th>Country</th>
<th>Project Description</th>
<th>EP Ranking</th>
<th>Integrated Ranking (incl NPV)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>Box</strong></td>
<td><strong>Attractiveness</strong></td>
</tr>
<tr>
<td><strong>Australia</strong></td>
<td>NWS Train 4</td>
<td>6</td>
<td>41%</td>
</tr>
<tr>
<td></td>
<td>ALNG Train 1</td>
<td>5</td>
<td>55%</td>
</tr>
<tr>
<td><strong>Iran</strong></td>
<td>Iran SMDS</td>
<td>6</td>
<td>21%</td>
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<tr>
<td><strong>Turkmenistan</strong></td>
<td>T2T Pipeline to Turkey</td>
<td>3</td>
<td>54%</td>
</tr>
<tr>
<td><strong>Venezuela</strong></td>
<td>Venezuela LNG</td>
<td>6</td>
<td>34%</td>
</tr>
<tr>
<td>KEY ISSUES - EP / GP Linked Projects</td>
<td>Upstream Capex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>----------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Name</td>
<td>Malaysia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MLNG Tiga</td>
<td>Australia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NWS LNG Train 4</td>
<td>China</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALNG Train 1</td>
<td>Russia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALNG Train 2</td>
<td>Egypt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAGV Domgas &amp; FLNG</td>
<td>Turkmenistan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gorgon SMDS</td>
<td>Saudi Arabia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ordos / Changbei Kuqa</td>
<td>Nigeria</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sakhalin (Piltun-Lunskoye)</td>
<td>Venezuela</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEMED SMDS</td>
<td>Namibia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iran SMDS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T2T Pipeline to Turkey</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saudi Gas Project</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NLNG 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NLNG 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>West Africa Gas Pipeline</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VLNG Kudu</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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26th JUNE - Position in CA 2000 Sequence

7th June: Exploration Proto-Forum Discussion on expex ranking

13th June: Expex/Capex Data Pack (early rankings/views) to RBAs for Consideration
   (EP / SIG Alignment Meetings take place as required per region)

19th June: Some Regions Holding RBAs & OUs Meeting
   (Improve data quality & identify implications of expex & capex ranking)

22-23rd June: EXPEX Workshop

26th June: EXCOM Raw Data and Issues

27-28th June: CAPEX Workshop

10th July: EXCOM Presentation on Expex, Devt Capex & with Early Financials

14th July: OU Investment level letters (Expex, Capex, etc)

31st July: EXCOM Presentation on Final Expex & Capex

11th Aug: OU Investment Confirmation (as per 2001 Scorecard Outlines)
KEY ISSUES - Decline of "Existing Asset" base

Production (kbbl/d)

Capex mln ($ MOD)

Decline to by half in the plan period......
and cost $0.8 bln/yr to maintain
KEY ISSUES - Arresting the decline with post FID projects

Post FID projects do not arrest the decline...... but cost a further $1.4 bln/yr ......
KEY ISSUES - Arresting the decline

Maintaining current production levels costs $5.1 bln in 2001 and av. of $3.0 bln over plan period

Adding tranche activity...... cost a $0.8 bln/yr but does not halt the decline
KEY ISSUES Arresting the decline - the new promises

Production (kboe/d)

Devtp Capex ($ mln)

E&A follow up
New development
Tranches
Post FID projects
Existing Assets

E&A follow up
New development
Tranches
Post FID projects
Existing Assets

OU Ceilings
KEY ISSUES - Allowing further Funds for Existing OUs.

Dev Capex ($ mln)

Oil Contribution

UTC = .....  
VIR avg = .....  
Time to prodn = .....  

Tranches  
New development  
E&A follow up  
OU Ceilings  

Short Term Oil projects and new devts in existing OUs.

Existing Assets  
Post FID projects  

2000 2001 2002 2003 2004 2005

2001 2002 2003 2004 2005

0 10 20 30 40 50

DB 07522
### BIG TICKET ITEMS...Planned to take FID by end 2002/early 2003

#### Capex Requirements $ mln (till 2005)

<table>
<thead>
<tr>
<th>Description</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nigeria -Ehra</td>
<td>900</td>
</tr>
<tr>
<td>Egypt - NEMED (no dilute)</td>
<td>2000</td>
</tr>
<tr>
<td>Brazil - BC-10+</td>
<td>670</td>
</tr>
<tr>
<td>Angola - Blk -18</td>
<td>1400</td>
</tr>
<tr>
<td>China deals</td>
<td>600</td>
</tr>
<tr>
<td>Venezuela LNG</td>
<td>7</td>
</tr>
<tr>
<td>MRH Others (Kuwait, Lybia)</td>
<td>600</td>
</tr>
<tr>
<td>Bangestan</td>
<td>740</td>
</tr>
<tr>
<td>South Pars</td>
<td>370</td>
</tr>
<tr>
<td>Zapolynaroye</td>
<td>550</td>
</tr>
<tr>
<td>Saudi Gas development</td>
<td>2400</td>
</tr>
<tr>
<td>Sakhalin 40 % Gas devt I</td>
<td>1500</td>
</tr>
</tbody>
</table>

Possibly requiring $11,000+ mln in plan period.

#### Possible People Resources Req'd

<table>
<thead>
<tr>
<th>Description</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nigeria</td>
<td>25+</td>
</tr>
<tr>
<td>Egypt</td>
<td>25+</td>
</tr>
<tr>
<td>Global DW</td>
<td></td>
</tr>
<tr>
<td>Business Staffed up</td>
<td>25+</td>
</tr>
<tr>
<td>Brazil</td>
<td></td>
</tr>
<tr>
<td>Angola</td>
<td>25+</td>
</tr>
<tr>
<td>China deals</td>
<td>25+ (?)</td>
</tr>
<tr>
<td>Venezuela LNG</td>
<td>(?)</td>
</tr>
<tr>
<td>MRH Entry Others ....</td>
<td>25+</td>
</tr>
<tr>
<td>MRH &amp; CIS Business</td>
<td></td>
</tr>
<tr>
<td>Banglestan</td>
<td>25+</td>
</tr>
<tr>
<td>South Pars</td>
<td>25+</td>
</tr>
<tr>
<td>Zapolynaroye</td>
<td>50+</td>
</tr>
<tr>
<td>Saudi Gas development</td>
<td>100+</td>
</tr>
<tr>
<td>Sakhalin deal &amp; Gas devt I</td>
<td>150+</td>
</tr>
</tbody>
</table>

Possibly 500+ Staff required .......
<table>
<thead>
<tr>
<th>Shell Expro - Existing Assets capex</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Existing Assets Capex $ mln MOD</strong></td>
</tr>
<tr>
<td>Brent Gas commitments</td>
</tr>
<tr>
<td>Gas Contract commitments</td>
</tr>
<tr>
<td>HSE &amp; legal obligations</td>
</tr>
<tr>
<td>Minority shareholder obligations</td>
</tr>
<tr>
<td>Prime Scope Schiehallion</td>
</tr>
<tr>
<td>Infrastructure integrity</td>
</tr>
<tr>
<td>Production seismic &amp; subsurface modelling</td>
</tr>
<tr>
<td>Economic improvements</td>
</tr>
<tr>
<td>Capital overheads</td>
</tr>
<tr>
<td>Subject to portfolio management</td>
</tr>
</tbody>
</table>
### Corporate Assets

<table>
<thead>
<tr>
<th>Years</th>
<th>Plan</th>
<th>Period</th>
<th>BP2001</th>
<th>Min US$ Shell Share, MOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>4.6</td>
<td>0.6</td>
<td>0.2</td>
<td>0.0</td>
</tr>
<tr>
<td>2002</td>
<td>4.0</td>
<td>0.1</td>
<td>0.3</td>
<td>0.0</td>
</tr>
<tr>
<td>2003</td>
<td>0.1</td>
<td>0.4</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2004</td>
<td>5.9</td>
<td>3.5</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2005</td>
<td>1.4</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min US$ Shell Share, MOD</th>
<th>BP2001</th>
<th>Plan</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>2.3</td>
<td>0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>2002</td>
<td>1.9</td>
<td>0.8</td>
<td>0.7</td>
</tr>
<tr>
<td>2003</td>
<td>0.8</td>
<td>0.7</td>
<td>0.9</td>
</tr>
<tr>
<td>2004</td>
<td>4.5</td>
<td>2.8</td>
<td>0.9</td>
</tr>
<tr>
<td>2005</td>
<td>3.4</td>
<td>4.5</td>
<td>0.9</td>
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</tbody>
</table>

### Tariffed resources

<table>
<thead>
<tr>
<th>Corporate services</th>
<th>BP2001</th>
<th>Min US$ Shell Share, MOD</th>
<th>Plan</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>5.9</td>
<td>0.5</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td>2002</td>
<td>5.5</td>
<td>0.5</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td>2003</td>
<td>4.4</td>
<td>0.5</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2004</td>
<td>3.7</td>
<td>0.5</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2005</td>
<td>1.4</td>
<td>0.5</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

### Refinery

<table>
<thead>
<tr>
<th>Corporate services</th>
<th>BP2001</th>
<th>Min US$ Shell Share, MOD</th>
<th>Plan</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>0.2</td>
<td>0.2</td>
<td>0.0</td>
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<tr>
<td>2002</td>
<td>0.3</td>
<td>0.1</td>
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<tr>
<td>2003</td>
<td>0.0</td>
<td>0.0</td>
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<td>2004</td>
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<tr>
<td>2005</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
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</table>

### Product flow Existing assets

<table>
<thead>
<tr>
<th>SRU LAND</th>
<th>SRU EAST</th>
<th>SRU WEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP2001</td>
<td>6.6</td>
<td>11.7</td>
</tr>
<tr>
<td>BP2001</td>
<td>0.9</td>
<td>12.6</td>
</tr>
<tr>
<td>BP2001</td>
<td>0.3</td>
<td>9.8</td>
</tr>
</tbody>
</table>

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### SRU Tariff Resources

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>2001 Min US$ SS</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT/Data Mgmt</td>
<td>OM H/W PURCHASE</td>
<td>0.10</td>
<td>Part of budget for annual upgrades to keep the DM Unix computing infrastructure fit for purpose; essential for continuation of subsurface modelling, data management and alignment with OM/OM systems.</td>
</tr>
<tr>
<td>IT/Data Mgmt</td>
<td>CORTANZ IMPLEMENTATION</td>
<td>0.26</td>
<td>Contract committed (40% VOWD in 2000) to replace/upgrade current application. Budget of 0.26 min US$ SS in 2001 is required to complete the project.</td>
</tr>
<tr>
<td>IT/Data Mgmt</td>
<td>AIMS FACILITIES DATABASE PHASE 1</td>
<td>0.24</td>
<td>Project to develop database to capture integrity of assets/facilities. Provision in 2001 for populating the database using in-house resources.</td>
</tr>
<tr>
<td>IT/Data Mgmt</td>
<td>FIC CENTRAL SERVICES</td>
<td>0.06</td>
<td>Replacement of servers/equipment to maintain IT infrastructure service.</td>
</tr>
<tr>
<td>IT/Data Mgmt</td>
<td>EP Business Systems Strategy</td>
<td>0.59</td>
<td>Budget (project total US$ SS 5.8 min) required to replace BSP's legacy of Group Common systems with an integrated solution based on the EP Blueprint. Most will be obsolete 2002/3 and Group/Vendor support will soon cease to exist.</td>
</tr>
<tr>
<td>IT/Data Mgmt</td>
<td>DESKTOP SERVICE</td>
<td>0.07</td>
<td>BSP have 20 servers to provide desktop services. These are planned to be replaced at the rate of five per year. The replacement of these servers is required to ensure that the quality of the service does not deteriorate.</td>
</tr>
<tr>
<td>IT/Data Mgmt</td>
<td>EPIDORIS II REPLACEMENT</td>
<td>0.03</td>
<td>Ongoing IT system replacement.</td>
</tr>
<tr>
<td>IT/Data Mgmt</td>
<td>DMR FREQUENCY CHANGE</td>
<td>0.75</td>
<td>Driven by international telecommunication rules as enforced by ITU/JTB (Brunel telecom departments).</td>
</tr>
<tr>
<td>IT/Data Mgmt</td>
<td>TELECOM MISC PROJECTS</td>
<td>0.15</td>
<td>Project necessary to ensure continuity, reliability, availability and expansion of Radio, Telephony communication Networks and infrastructure.</td>
</tr>
<tr>
<td>IT/Data Mgmt</td>
<td>DATACOMMS NETWORK</td>
<td>0.21</td>
<td>Project necessary to ensure continuity, reliability, availability and expansion of Datacommunication &amp; Telemetry Networks (LAN &amp; WAN).</td>
</tr>
<tr>
<td>IT/Data Mgmt</td>
<td>LOGOS MIGRATION TO POWERBUILDER</td>
<td>0.08</td>
<td>The budget covers the application's (logistics planning/scheduling) migration to software that is supported (I.e., internally with the organisation or externally), existing software is obsolete and no longer supported.</td>
</tr>
<tr>
<td>IT/Data Mgmt</td>
<td>OM HARDWARE PURCHASE PHASE 2</td>
<td>0.07</td>
<td>Part of budget for annual upgrades to keep the DM Unix computing infrastructure fit for purpose; essential for continuation of subsurface modelling, data management and alignment with OM/OM systems.</td>
</tr>
</tbody>
</table>
### SRU East

#### CA Category : Existing Assets

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>2001 Min US$, SS</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSE</td>
<td>Magpie Vent to Flare Conversions</td>
<td>0.12</td>
<td>To meet Group venting target</td>
</tr>
<tr>
<td>HSE</td>
<td>CP Natural Flow Implementation phase 2</td>
<td>0.59</td>
<td>To meet Group venting target</td>
</tr>
<tr>
<td>HSE/Production</td>
<td>CP Natural Flow Implementation phase 1</td>
<td>0.74</td>
<td>To meet Group venting target and oil production targets</td>
</tr>
<tr>
<td>Integrity</td>
<td>Field Request Plant Change (FRPC)</td>
<td>0.26</td>
<td>Minor operational projects to eliminate shutdown and improve facility operability.</td>
</tr>
<tr>
<td>Integrity</td>
<td>Sand Detection</td>
<td>0.15</td>
<td>To prevent sand erosion failures and optimize production capacity.</td>
</tr>
<tr>
<td>Integrity</td>
<td>CPFB-7 Flare Upgrade</td>
<td>0.29</td>
<td>Upgrade on the CP-7 Flare required as a result of the recent incident on CP 7</td>
</tr>
<tr>
<td>Integrity</td>
<td>CP7 Fire Water System</td>
<td>0.29</td>
<td>Upgrades and study work on CP-7 Fire water system which has leaks and blockages and may need pump replacements.</td>
</tr>
<tr>
<td>Integrity /Production</td>
<td>CP-7 Elect Systems Rationalisation</td>
<td>0.38</td>
<td>Modifications on CP-7 electrical systems - integrity and deferment related</td>
</tr>
<tr>
<td>Integrity /Production</td>
<td>Remote Outstations, Power and Communication</td>
<td>0.15</td>
<td>Changeout of existing RTU's which are obsolete and not maintainable. Required for reservoir management and production optimisation</td>
</tr>
<tr>
<td>Integrity /HSE</td>
<td>PIMS East 2000 -2002</td>
<td>0.36</td>
<td>To allow intelligent pigging on critical pipeline.</td>
</tr>
<tr>
<td>Other</td>
<td>Concept Design East 2000-2003</td>
<td>0.03</td>
<td>In-house manpower and consultant related cost for conceptual design study.</td>
</tr>
<tr>
<td>Production</td>
<td>Well Test Metering Upgrade</td>
<td>0.07</td>
<td>Enable testing of East wells for reservoir management and production optimisation</td>
</tr>
</tbody>
</table>
PRODUCTION PERFORMANCE FROM NEW PROJECTS IS DISAPPOINTING

Egypt
POST FID Obaiyd

CAPEX

OIL

Gas

(...Rosetta same)

First slippage... then less hydrocarbons forecast

Argentina
VALLE MORADO

CAPEX - VALLE MORADO

OIL - VALLE MORADO

GAS - VALLE MORADO
PRODUCTION PERFORMANCE FROM NEW PROJECTS

IS DISAPPOINTING...

UK

Nigeria
MAJOR Post-FID PROJECTS ....CAPEX

Brutus - indications of capex rephasing...
Onstream date unchanged

AOSP - indications that capex 2001 is
larger than planned due to slippage in schedule

Bonga - indications of capex increase......
indications of slippage......
Onstream date unchanged

Nowrooz/Sarooz -
2001 & 2002 capex slippage......
Onstream date unchanged

Shearwater - capex will be under budget & on time....

POST-FID 2000 - Underspend Likely
2001 - $400 mn additional
MAJOR Post-FID PROJECTS IN PROGRESS...PRODUCTION

**Brutus** - Peak production in 2002 & 2003 is now lower
Not a barrel produced yet...!
(is this a meaningful signal...?)

**Bonga** - Peak production in 2003 & 2004 is lower
(System remodelling, revised subsea layouts & well timings)

**Shearwater** - Production unchanged, capex will be reduced vs budgets.

**POST-FID Production in lower across the board**
Can not find examples of increases...

---

FOIA Confidential
Treatment Requested
"Big Ticket" Items Additional Capex vs BP '99

Original FID Timings
Revised FID Timings

Dev Capex ($ mln)

BP '99 CAPEX

4945
4962
5371
6062
2005
2004
2003
2002
2001
0
3500
2500
2000
1500
1000
500
3000
## Oil Production Difference Major Post FID Projects

### 1999 vs 2000 CA Raw Data Submission

<table>
<thead>
<tr>
<th></th>
<th>CA 1999</th>
<th>CA 2000</th>
<th>Difference</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>58</td>
<td>46</td>
<td>-12</td>
<td>-21%</td>
</tr>
<tr>
<td>2001</td>
<td>132</td>
<td>116</td>
<td>-16</td>
<td>-12%</td>
</tr>
<tr>
<td>2002</td>
<td>317</td>
<td>231</td>
<td>-86</td>
<td>-27%</td>
</tr>
<tr>
<td>2003</td>
<td>430</td>
<td>456</td>
<td>26</td>
<td>6%</td>
</tr>
<tr>
<td>2004</td>
<td>484</td>
<td>646</td>
<td>162</td>
<td>33%</td>
</tr>
<tr>
<td>2005</td>
<td>432</td>
<td>715</td>
<td>283</td>
<td>66%</td>
</tr>
</tbody>
</table>

### Chart Descriptions:
- **Mbopd**:
  - 2000: +21%
  - 2001: -12%
  - 2002: -27%
  - 2003: +33%
  - 2004: +66%

### Years:
- 2000 to 2005
Shell Exploration and Production International Ventures B.V.
Dr. W.G. van Dorp
P.O. Box 663
2501 CR THE HAGUE
The Hague, 11 September 1998

Subject: SIEP Petroleum Resource Volume Guidelines

Dear Mr. Van Dorp,

Thank you for providing us with a copy of the Draft revised Petroleum and Resource Volume Guidelines - Resource Classification and Value Realisation (SIEP 98-1100, Draft August 1998). I have met with you in order to discuss these revised Guidelines and am grateful for the introduction and explanations you have provided me with. This letter serves to document the outcome of our meeting.

You have explained that the purpose of the revised Guidelines is twofold:

1. to emphasise to Operating Units (OU’s) involved in reserves estimation that this process, both for internal and external reporting, is important for business purposes and value creation;

2. to update and improve the methods used in oil and gas reserves determination, with a view to bringing these more in line with the rest of the industry. The updated and improved methods are expected to lead to higher reported reserves.

With regard to the first item, we of course support that adequate focus is given at the OU level to the process of reserves determination, also for external reporting purposes.

With regard to the second item, you have explained that the major change to the methods previously documented is that, under certain circumstances, a deterministic approach to estimating proved reserves would be used rather than a probabilistic approach. You have mentioned that in practice several OU’s are already applying deterministic methods, principally for mature fields, and the revised Guidelines would accommodate what already exists in practice.
The revised Guidelines state that probabilistic estimates of proved reserves should be benchmarked against proved reserves estimates based on deterministic techniques consistent with SEC definitions. Where these outcomes are significantly different, the estimate best reflecting shareholder value should be used for external reporting purposes. The revised Guidelines clarify that particularly in mature fields when most of the reserves have been developed, probabilistic estimates of total proved and proved developed reserves can result in values for total proved and proved undeveloped reserves that are no longer reasonable. Once a field is of such level of maturity, the revised Guidelines require a deterministic approach for both proved developed and proved undeveloped reserves, with total proved reserves being the sum of these.

The above would lead to reserves estimation whereby a probabilistic method is used early in the field life cycle with a move to a deterministic method at a later (mature) stage.

With regard to the proposed updated and improved approach to reserves estimates, I have made the following observations:

- As external auditors we are not in a position to either approve or disapprove these revised Guidelines, as we are not qualified petroleum engineers or petroleum consultants possessing the technical expertise required for an in-depth evaluation of the revised Guidelines. If approval by auditors would be required prior to the revised Guidelines being issued, this would probably be within the remit of the Group reserves auditor.

- We have been informed that the revised Guidelines were discussed in workshops with reserves engineers from eight major upstream OU’s and received their broad support.

- The revised Guidelines contain sections on both internal reporting and external reporting. It is presumed that the methods for reserves estimation for external reporting would follow an approach similar to the methods used for internal purposes. I.e., where a deterministic estimate is used for external reporting, it would be expected that this is consistent with the approach taken for business and internal reporting purposes.

- It is noted that the revised Guidelines differentiate between developed and undeveloped reserves in a manner different from the previous Guidelines. In determining developed reserves, the previous Guidelines included that the contribution from existing wells through currently installed facilities should be estimated on the assumption that future development projects will continue. The revised Guidelines state that, when estimating developed reserves from existing wells and installed facilities, no further development activity should be taken into account, thereby taking an incremental approach to future wells and
installations. This revised assumption is likely to lead to higher developed reserves estimates. We have discussed this and you would raise with Group Finance that this change could, in certain circumstances, impact the level of depletion of currently installed facilities.

- The appropriate application of the revised Guidelines will be subject to audit at the OU level, to the extent that reserves estimates have an impact on Group returns subject to audit and local statutory financial statements. In this regard I will notify auditors of the major upstream OU's that Guidelines have been revised and encourage them to discuss the revisions and the impact thereof with the local reserves engineers.

- Based on our understanding of the nature of the revisions proposed, this would not constitute a change in accounting principles requiring restatement of prior year information, but rather a change in accounting estimate whereby the effect would be included as a current year revision. Depending on the quantitative effect of implementing the revised Guidelines, a note may be required in the Annual Report explaining the change and, if significant, disclosing the amount of the effect. This position has been agreed with PricewaterhouseCoopers in London.

- For purposes of internal evaluation of reserves progression as well as evaluating the need for disclosure in the Annual Report, it has been advised to monitor the quantitative effect (both reserves volumes and related impact on Net income) due to changes in the reserves estimation method applied.

I would be grateful to receive a copy of the final revised Guidelines and a copy of the covering letter that will be issued to OU's.

Please do not hesitate to contact me if you need to discuss any of the above.

Yours sincerely,

[Signature]

E. Eastlake

Copy: Mr. Steve Johnson, PricewaterhouseCoopers - London
f.y.i

Met vriendelijke groeten / With kind regards.

Remco D. Aalbers

Group Hydrocarbon Resource Coordinator
& Senior Planner
EPB-P SIEP BV
Tel. +31 (0)70 - 377 2001 (fax: 2460)

e-mail: remco.rd.aalbers@sepivbv.shell.com <mailto:remco.rd.aalbers@sepivbv.shell.com>

-----Original Message-----
From: Bell, John J SIEP-EPB-P
Sent: Tuesday, January 23, 2001 12:54 PM
To: Ewart, Pauline P SI-MGDPW
Cc: Brass, Lorin LL SIEP-EPB; Aalbers, Remco RD SIEP-EPB-P
Subject: RE: 2000 Reserves

Pauline,

Thanks. We can indeed do it by picturetel at 1600 UK time (1700 NL time). I will call you later to fix arrangements.

John

-----Original Message-----
From: Ewart, Pauline P SI-MGDPW
Sent: dinsdag 23 januari 2001 11:20
To: Bell, John J SIEP-EPB-P
Cc: Brass, Lorin LL SIEP-EPB
Subject: RE: 2000 Reserves

John,
Phil is in The Hague on Tuesday but has a full day from 0745 plus CMD starting at 0830. He is back in London on Wednesday - could you do it by PictureTel, say 1600 (UK time)?
Pauline,

-----Original Message-----
From: Bell, John J SIEP-EPB-P
Sent: 23 January 2001 09:37
To: Ewart, Pauline P SI-MGDPW
Cc: Brass, Lorin LL SIEP-EPB
Subject: FW: 2000 Reserves

Pauline,

Phil has asked that we spend sometime with him early next week to go over the reserves statement for 2000. Any chance of an hour with him on Tuesday or Wednesday (preferably in the Hague)?

Thanks

John

-----Original Message-----
From: Brass, Lorin LL SIEP-EPB
Sent: dinsdag 23 januari 2001 7:31
To: Bell, John J SIEP-EPB-P
Cc: Aalbers, Remco RD SIEP-EPB-P
Subject: RE: 2000 Reserves

I doubt it's so much about who's signature as the fact he want to be in the loop as to the numbers. A very important set of numbers always. I will be back in town for meetings Monday. How about:

1. Finish staff work this week.
2. Send results to me (and Dominique) electronically by Friday.
3. I (and Dominique) review and sit down with you and Remco Monday morning.
4. You send a summary to Phil Monday and the two of review with Phil on Tuesday (he is here in The Hague early next week although he has CMD so will have to be sandwiched somehow).

-----Original Message-----
From: Bell, John J SIEP-EPB-P
Sent: 22 January 2001 22:49
To: Brass, Lorin LL SIEP-EPB
Cc: Aalbers, Remco RD SIEP-EPB-P
Subject: RE: 2000 Reserves

Lorin,

Remco will be ready with his analysis and Note for Information to ExCom by end this week. He believed that You (not Phil) had to sign off the reserves statement for the external auditors and was targeting next week Thursday (1/2). He meets with KPMG and PWC on Friday 2/2.

I will touch base with you tomorrow a.m. with Remco. I am happy to take Phil through the stuff with Remco whilst you are away.
John

-----Original Message-----
From: Brass, Lorin LL SIEP-EPB
Sent: maandag 22 januari 2001 21:48
To: Bell, John J SIEP-EPB-P
Subject: FW: 2000 Reserves

John,

-----Original Message-----
From: Ewart, Pauline P SI-MGDPW On Behalf Of Watts, Phil PB SI-MGDPW
Sent: 22 January 2001 13:08
To: Brass, Lorin LL SIEP-EPB
Subject: 2000 Reserves

Lorin,

Please tell me the sequence of events according to which I will sign off the reserves report for 2000. I need enough time to be taken through the stuff personally.

Phil Watts
Group Managing Director
Royal Dutch/Shell Group of Companies
Shell Centre London SE1 7NA
Tel: +44 (020) 7934 5556 Fax: +44 (020) 7934 5557
Internet: Phil.B.Watts@SI.shell.com
Hans,

Attached note that went out this morning - asked Reserves FP to pass on to their finance staff involved.

Met vriendelijke groeten / With kind regards.

Remco D. Aalbers

Group Hydrocarbon Resource Coordinator
& Senior Planner
EPB-P SEP BV
Tel. +31 (0)70 - 377 2001 (fax: 2460)
e-mail: remco.rd.albers@sepivbv.shell.com

-----Original Message-----
From: Aalbers, Remco RD SIEP-EPB-P
Sent: Monday, February 05, 2001 11:18 AM
To: Albert Paardekam; Alexander Boertje; Bram Sieders; Brice Peterson; Christian Schroder; Daniel Truempy; David Walsh; Derek Gardiner; Eduardo Boschero; Frits Eulderink; Frode Linge; Gilles Bertherin; Gordon Parry; Grigore Simon; Guy Janssens; Hans Horikx; Hans-Florian Wiese; Hendrik Leegte; Hermaan Meijerink; Jeroen Hoonhorst; John Allen; John Hoppe; John Pay; Jonathan Gordon; Linda Hubner; Luc Staal; Matt McShee; mauseth; Michael Barnholdt; Min-teong Lim; Mireille Touleikima; Nejib Zaafrani; Neville Beston; Ojo Sanni; Osman Tosun; Pedro Balaguera; Peter Grieve; Phil Hanson; Rhomberg; Robert Cicalo; Rod Sidle; Said Abri; Sarah Bells-Williams; Sean Mcfadden; Sheila Graham; Stephen Pang; Sub Sen; Taylor; Theo Natri; Thomas Holling; Van Luijk; Vinay Lajmi; Vui-bleong Lai; Wim Swinkels; Wolfhart Mohr - RAG
Cc: McKay, Aidan A SIEP-EPB-P; Jespers, Bea BL SIEP-EPB-P; Bell, John J SIEP-EPB-P; Jonckheere, Lout LAJ SIEP-EPB-P; Khan, Rahim, G G A R SIEP-EPF
Subject: ARPR 1/1/2001 - proved reserves finalised
Importance: High

Reserves Focal Points,

The proved reserves for the Group have been finalised as of last Friday - 2nd February - after
audit clearance with the Group External Auditors (PWC and KPMG) and support from Group Control (London). The overall results in terms of proved reserves replacement ratio should become public knowledge after publication of the Group's 4Q2000 and Full Year 2000 Press Release coming Thursday - 8th February 2001.

Prior to the external audit clearance the proved reserves were reviewed directly with Phil Watts as EP CEO, who was very pleased with the overall outcome and the hydrocarbon resource management process. He requested me to pass on his appreciation for all the efforts of those involved with reserves estimation and reporting in the OU/NVOs.

I would also personally like to thank you all for your efforts and the efforts of the teams in your respective companies in timely and accurately preparing the resource information. In general the submissions were very good and almost all data submissions were received either by the deadline or in many cases well ahead of the deadline. This is much appreciated and greatly expedites the reserves process.

As part of the proved reserves clearance, KPMG as External Reserves Auditor and Anton Barendregt as the Group Reserves Auditor reviewed the numbers and reporting process; both positively acknowledged that the current resource process has been greatly improved and is increasingly efficient. All 2000 SEC audit recommendations have been included in the 31.12.2000 reserves estimates.

The production tie-in with CERES was much better this year and already very close on initial data submitted. After clarifications and adjustments (some in CERES and some in the reserves) a 100% tie-in has been achieved both for Oil/NGL Production and for Gas Production available for Sale (GPaF/S). I would appreciate if you could pass this message on to your local finance focal point who assisted in ensuring the tie-in.

There is a growing awareness that hydrocarbon resource management and (proved) reserves replacement is at the heart of a sustainable development of an EP Business. The one-to-one link between projects and hydrocarbon resources in Capital Allocation and subsequent roll-up into the hydrocarbon resource plan, one of the focus areas in the EP Business Plan enforces this message. The hydrocarbon resource promises made in the BP - proved reserves replacement and SFR maturation are part and parcel of the EP & Regional scorecards and are cascaded down on each OU/NVO's individual scorecard. Performance through out the year on the resource KPIs is monitored through the monthly/quarterly MISCOM system and reported directly to EP ExCom - allowing management steer if and when required.

Once more many thanks and let's keep the focus for 2001. 
Met vriendelijke groeten / With kind regards.

Remco D. Aalbers

Group Hydrocarbon Resource Coordinator
& Senior Planner
EPB-P SIEP BV
Tel. +31 (0)70 - 377 2001 (fax: 2460)

e-mail: remco.rd.aalbers@sepivbv.shell.com
From: Aalbers, Remco RD SIEP-EPB-P
To: Dueck, Andrew A SEPI-EPM
CC: Barendregt, Anton AA SIEP-EPB-GRA
Sent Date: 2001-01-25 14:53:02.000
Received Date: 2001-01-25 14:53:02.000
Subject: RE: Proved Reserves increase - OUTSTANDING!
Attachments:

Andrew,

Ministry - MOG - approved the P85 and Exp (Mean or P50) on 100% PDO basis, irrespective of any licence issue.

What the Group reports as proved reserves is Shell's business, we have to limit to licence period, Shell Share and group reserves guidelines - proved is a combination of P85 and P50 pending maturity of the fields.

Met vriendelijke groeten / With kind regards.

Remco D. Aalbers

Group Hydrocarbon Resource Coordinator
& Senior Planner
EPB-P SIEP BV
Tel. +31 (0)70 - 377 2001 (fax: 2460)
e-mail: remco.rd.aalbers@sepivbv.shell.com
<mailto:remco.rd.aalbers@sepivbv.shell.com>

-----Original Message-----
From: Dueck, Andrew A SEPI-EPM
Sent: Thursday, January 25, 2001 3:43 PM
To: Aalbers, Remco RD SIEP-EPB-P
Subject: Oman: Proved Reserves increase - OUTSTANDING!

Remco....some concern re: what has actually been approved by the Ministry - which I will try to confirm with M. Qadri as well. Thanks again for taking the time to clarify for me.
Regards,
Andrew

-----Original Message-----
From: Crocker, John J.M.
Sent: Thursday, January 25, 2001 3:24 PM
To: Dueck, Andrew A.
Cc: Megat, Zaharuddin Z.; Kersley, Stephen S.
Subject: RE: Oman: Proved Reserves increase - OUTSTANDING!

Andrew,

Good news if true. I hope Remco has not lost sight of the fact that reserves bookings in Oman require the approval of the Ministry. The numbers quoted do not match the most recent set I had seen (which were lower). Could you confirm that these numbers relate to bookings which have been approved by the Ministry?

regards

John

J M Crocker
Regional Business Adviser
EPM
Tel: +31-70-377-6238

-----Original Message-----
From: Dueck, Andrew A.
Sent: 23 January 2001 17:43
To: Kersley, Stephen S. /SEPI /EPM; Crocker, John J.M. /SEPI /EPM
Cc: Megat, Zahiruddin Z. /SEPI /EPM
Subject: Oman: Proved Reserves increase - OUTSTANDING!
Importance: High

Gents,

A great piece of news to share before Friday's EPM dept mtg.....

I confirmed with Remco that the total/actual proved reserves (Shell Share), for PDO, actually increased 35.1 mln m3 (220.7 mln boe) over 2000 target of 20 mln m3 (125.9 mln boe), based on 1/1/2001 reserves data. PDO had reported an LE of 20 mln m3 thru October, updated to 21.9 mln m3 in November.

The impact of PDO increase, for both EP overall and EPM, is that it moves Proved Reserves performance to outstanding!
For EPM, proved reserves jumped from Nov LE of 135.1 mln boe to 376.1 mln boe (versus target of 199.4 mln boe).

This is also having an effect on EPM Scorecard overall, possibly moving us from 'below' to 'on target', subject to confirmation of remaining core measures.

Regards,

Andrew

-----Original Message-----
From: Aalbers, Remco R.D.
Sent: Thursday, October 26, 2000 2:04 PM
To: Dueck, Andrew A.
Cc: Crocker, John J.M.; Kersley, Stephen S.
Subject: Oman: Proved Reserves Visit - Group Resource Co-ordinator
Andrew,

Please find the attached fyi - hopefully PDO will manage to increase their proved reserves booking for year end over and above what's currently carried in the MISCOM.

Regards,

Remco

-----Original Message-----
From: Meijssen, Thomas OQP
Sent: Tuesday, October 24, 2000 14:56
To: Shidhani, Sultan OQP; TAYLOR, PAUL ONP1; HINAI, KHALID OMP1; Lozano, Jose OYP11; VanSon, Luc OFP1; HAGE, JONIEK OBP1; ODell, Mike XAP; Kraaijvanger, Hans XAP1; Shidi, Salman GGP1; Stoffels, Peter UPR1; Abri, Said CEM3; Aalers, Remco SIEP-EPB-P
Cc: Lamki, Abdulla DMD; Kharusi, Fatma FD; RUITENBEEK, KEES CD; Marhubi, Amran OFM; ZIJLKER, VOLKERT OQM; Evans, Peter OBM; Holtam, Vincent OYM; vanOorschot, Bob ONM; ERLINGS, HANS OMM; Alkemade, Jan GGM; Penneycard, Andy ONP; Myers, Craig OMP; Blair, Iain OYP; Riyami, Abla OFP; Scales, Jeremy OBP; Pieters, Johan GGP; Levell, Bruce XEM; Naylor, Michael XEL; Antonini, Marcus CEM5; Barendregt, Anton SIEP-EPB-GRA; McKay, Aidan SIEP-EPB-P
Subject: Proved Reserves Visit - Group Resource Co-ordinator

Please find attached some notes on the visit of the Group Resource Co-ordinator Remco Aalers from 23-24 October 2000.

Introduction:
The purpose of the visit was to discuss proven reserves as reported by PDO to the Centre. It was noted that the ARPR 1/1/2000 proven reserves were low when considering the maturity of PDO's resource base. This was also noted during the SEC reserves audit by Anton Barendregt in October 1999. For the ARPR 1/1/2000 a fix was agreed to make proven developed reserves equal to expectation developed reserves, in line with the Group guidelines. This however resulted in a reduction of proven undeveloped reserves as the total proven reserves was unchanged from the P85 as carried by PDO. The visit was to discuss this issue and to define a way forward. Discussions were held with CEM/3, UPR and OBP. Presentations were made to senior REs and the RE community.

Proven reserves PDO (P85):
The uncertainty ratio (as defined by proven / expectation reserves) versus maturity (as defined by cumulative production / expected recovery) of PDO fields was analysed (see plot 1 below). One would expect that fields would have an uncertainty band between 40% and 80% at production start, moving to 100% (without uncertainty) at abandonment. This is indicated by the red and green lines on the plots. As can be observed many fields are well below the expected uncertainty band, despite their relative high maturity.
Furthermore, the quoted proved developed reserves (as prorated from the expected developed reserves) seem low when comparing their respective 1999 field production (see plot 2 below). One would expect a developed reserves / last year production ratio (R/P) ranging from 4.5 to 6, based on a 10 year production forecast at 20% decline (for proven developed reserves) or a 15 year production forecast at 15% decline (for expected developed reserves).

As part of proper reservoir management, the proved reserves should be reviewed as part of the annual update of the reserves, reflecting the increase understanding including additional production. The method of just subtracting annual production from the proven recovery results often in unrealistic low (or even negative) proven reserves. At production start, the uncertainty range for developed reserves very much follows the uncertainty range of the volumetric estimate of initial in place volumes. When the field matures, the developed reserves should be based on performance analysis (e.g. decline curve analysis or simulation) and the uncertainty should reduce over time.

Resource submission:
As part of the review the opportunity was taken to review the total resource submission to the Centre. The following observations were made:
* Undiscovered SFR: not all the exploration potential was included for 1/1/2000 but only the EA-SFR (near field potential). For 1/1/2001, also the identified (prospects) and unidentified (leads) exploration potential should be included.
* The commercial SFR within licence volumes should be zero under the assumption of a production plateau of 850,000 b/d flat until mid 2012 is already fully supplied by expectation reserves within licence.

Conclusions and action points:
* All area teams should pay particular attention to establishing the correct proven (P85) developed and undeveloped reserves in line with field maturity and established production performance as part of the annual reserves review. It is recommended to plot the updated reserves in line with the two plots below. Action: all Senior REs.
* Clarify with MOG the intend to put increased emphasis on updating the proven reserves. Action: CEM/3
* External reporting of proved reserves in line with Group guidelines will be handled by PDO reserves co-ordinator and the CFDH reservoir engineering. It is recommended to use field maturity in excess of 40% (as expressed in cumulative production / expected recovery) as the criterion to use proved developed = expectation developed. As a result the total proved reserves will similarly increase. This procedure will be further clarified with Group Reserve Auditor Anton Barendregn. Action: CEM/3, UPR
* To establish proved reserves (within licence) a practical forecast needs to be prepared on the basis of the total proved reserves (as carried by PDO). It is suggested to assume a reduced number of plateau years followed by a decline (15-20%, to be confirmed) such that
the total forecast matches the reserves. This is comparable to the method of establishing PDO's 10 year production plateau based on total expectation reserves as agreed with shareholders. Action: CEM/3

* Based on the above method the total proved reserves (Shell Share) is expected to increase by 20-30 mln m³, based on 1/1/2000 reserves data. Final increase to be established on 1/1/2001 reserves data.

It has been a very useful and productive two days. Many thanks to all involved!

Best regards,

Thomas Meijssen
Said Al Abri
Remco Aalbers
Anton, Remco,

Many thanks for your Email. Based on the guidelines given in your Email below, we have evaluated the impact on the proven reserves numbers to be used for external reporting using the national ARPR 1/1/2001 data.

In the table below, a breakdown of the total expected reserves (developed and undeveloped) versus maturity (as expressed in cumulative production / expected recovery) has been given. As can be observed from the table, 61% of the total expected reserves can be classified as mature, using the 40% criterion.

<table>
<thead>
<tr>
<th>Maturity</th>
<th>Tot Res</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;40%</td>
<td>305</td>
<td>39%</td>
</tr>
<tr>
<td>40-60%</td>
<td>227</td>
<td>29%</td>
</tr>
<tr>
<td>&gt;60%</td>
<td>255</td>
<td>32%</td>
</tr>
<tr>
<td>Total expectation</td>
<td>787</td>
<td>100%</td>
</tr>
</tbody>
</table>

All volumes 100% PDO, mln m3.

An overview of the proven and expected reserves as carried by PDO and the impact of using the Shell Group guidelines on externally reported proven reserves has been indicated in the table below.

<table>
<thead>
<tr>
<th>Proven, P85</th>
<th>DevRes</th>
<th>UndeDevRes</th>
<th>TotRes</th>
<th>Incr</th>
<th>Incr %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proven 1999 method</td>
<td>380</td>
<td>48</td>
<td>428</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Proven, DevRes 40%</td>
<td>347</td>
<td>220</td>
<td>567</td>
<td>141</td>
<td>33%</td>
</tr>
<tr>
<td>Proven, DevRes 40%, UndeDevRes 60%</td>
<td>347</td>
<td>254</td>
<td>601</td>
<td>175</td>
<td>41%</td>
</tr>
<tr>
<td>Proven, DevRes 40%, UndeDevRes 40%</td>
<td>347</td>
<td>304</td>
<td>651</td>
<td>225</td>
<td>53%</td>
</tr>
<tr>
<td>Expectation</td>
<td>380</td>
<td>408</td>
<td>788</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All volumes 100% PDO, mln m3

Some remarks:

- The proven and expectation reserves are as per the reserves bookings, the expected developed reserves are updated annually using the do-nothing production forecast. The proven developed reserves are calculated by projecting the proven/expectation reserves and expected developed reserves.
- Proven reserves as carried by PDO at 1/1/2001
- Expectation: Expected reserves as carried by PDO at 1/1/2001
- Proven, 1999 method: Proven reserves, making proven developed reserves equal to expected developed reserves for fields exceeding 40% maturity, but keeping the total proven reserves equal. As a result the proven undeveloped reserves reduces to 46 mln m3 which seems unrealistically low.
- Proven, DevRes 40%: Proven reserves, making proven developed reserves equal to expected developed reserves for fields exceeding 40% maturity, keeping the proven undeveloped reserves equal.
- Proven, DevRes 40%, UndeDevRes 60%: As above, but in addition now making the proven undeveloped reserves equal to the expected undeveloped reserves for fields exceeding 60% maturity (more relaxed criterion, to reflect the additional uncertainty related to the undeveloped reserves).
- Proven, DevRes 40%, UndeDevRes 40%: As above, but using the 40% maturity criterion for undeveloped reserves.

I would propose for external reserves reporting to only adjust the proven developed reserves using the 40% maturity criterion and to keep the undeveloped reserves for internal and external reporting the same (case: Proven, DevRes 40%). As a result the total proven reserves increases by 141 mln m3 (100% PDO). Any further increase in total proven reserves becomes more difficult to argue in view of the additional uncertainty of the undeveloped reserves which is difficult to quantify.

Would you agree with the proposed method? Following your advise, I will inform PDO senior management on the proposed method for external reserves reporting to the Shell Group.

Best regards,
Thomas

-----Original Message-----
From: Barendregt, Anton AA SIEP-EPB-GBA
Sent: 02 January 2001 16:05
To: Meijssen, Thomas TEM PDO-QP / UPR
Cc: Aalbers, Remco RD SIEP-EPB-P; Abri, Said SM PDO-CEM3; Antonini, Marcus MCJ PDO-CEM5
Subject: RE: Proved Reserves Visit - Group Resource Co-ordinator

Thomas,

In response to your query, I fully support the conclusions reached during Remco's visit, as reflected in your note of 24th October. In particular, I support the move towards using expectation estimates for the externally reported proved reserves for mature fields (i.e. for fields with cum.prod. greater than 40% of expectation ultimate recovery). I note that the 40% criterion is not necessarily rigorous; for simple clastic light oil waterdrive reservoirs it could easily be set lower, for heavy oil reservoirs or complex carbonate reservoirs like many of those in Oman, it seems a realistic proposition.

As mentioned in my 1999 audit report (Att. 3) we should move away from determining total proved reserves through probabilistic volumetrics, combined with probabilistic estimates of recovery factors. Instead we should make separate estimates of developed reserves (from decline analysis or history matched reservoir simulation) and undeveloped reserves (from reservoir simulation or other reliable predictions). Undeveloped reserves must always be based on a well defined set of future activities (new wells, infill drilling, re-completions etc.).

Each of the two volumes (i.e. developed and undeveloped reserves) can have a probability range (P85, P50, P15, Expectation) associated with it. Group guidelines prescribe that for developed reserves in mature fields we should take the expectation estimate as the externally reported 'Proved Developed Reserves'. For those mature fields it is expected that the P85 estimate would be close to the P50/Expectation value anyway. For externally reported undeveloped reserves it will often be appropriate to take the expectation value as well, but in some of the more uncertain cases (e.g. different future well types) it may be more appropriate to take the P15 volume.

The externally reported total reserves should be the sum of the developed and the undeveloped reserves estimates.

Trust this clarifies. Good luck with your 2000 submission!

Last but no least, I wish yourself and the PDO PE community a successful, safe and healthy 2001!

Anton Barendregt

-----Original Message-----
From: Meijssen, Thomas OOP
Sent: 22 December 2000 14:36
To: Barendregt, Anton SIEP-EPB-GBA
Cc: Aalbers, Remco SIEP-EPB-P; Abri, Said CEM3; Antonini, Marcus CEM5
Subject: FW: Proved Reserves Visit - Group Resource Co-ordinator

Anton,

With reference to the visit of Remco Aalbers to PDO from 23-24 October 2000, we would like to know your opinion with respect to external reporting of proven reserves. During the visit of Aalbers the following was suggested:

External reporting of proved reserves in line with Group guidelines will be handled by PDO reserves coordinator and the CFDH reservoir engineering. It is recommended to use field maturity in excess of 40% (as expressed in cumulative production / expected recovery) as the criterion to use proved developed = expectation developed. As a result the total proved reserves will similarly increase. This procedure will be further clarified with Group Reserve Auditor Anton Barendregt. Action: CEM3, UPR

Looking forward to your reply,

Best regards,

Thomas Meijssen
CFDH Reservoir Engineering
Thomas,

Ramco and I have looked at your proposed figures and our comment is as follows:

1. The ratio between your total P85 and expectation reserves (425 and 787 mln m3 respectively) is 54%. This is far too low for a mature area like Oman and indicates that there are fundamental flaws in PDO's present process of calculating the probabilistic range of ultimate recovery in its fields. In essence, it seems that the ranges of volumetric and RF parameters are taken far too wide, as if they applied to virgin fields instead of fields with large numbers of wells and extensive production history. The result is that P85 UR volumes are not increased in line with production performance history. This flaw was highlighted during the 1999 SEC reserves audit and again during Ramco's visit in October 2000.

2. Having said that, we appreciate that updating field P85 recoveries to more realistic levels requires discussion with the Ministry and hence may take time. We suggest that priorities are set if necessary, aiming at updating the P85 volumes first for the largest fields.

3. We stress again that the issue of what reserves to report as 'Proved, externally reported' is, since the 1998 changes in the reserves guidelines, quite different from the issue of what reserves to carry as P85 or Low volumes for individual fields. The latter may be subject to discussion with the Ministry, but the first cannot be, if only because the total PDO Shell share volume has to be curtailed at licence expiry, an issue that does not interest the Ministry.

4. In order to avoid confusion, also internally within PDO, it may be opportune to reserve the term 'Proved' exclusively for the externally reported Proved reserves and use 'P85' or 'Low' (NOT 'Proven') for the high confidence reserves values. We'll consider whether this distinction can perhaps be made more clearly in future versions of the Guidelines.

5. As for your proposed volumes to book as externally reported Proved Reserves (before they are cut off by licence expiry), your line "Proven, DevRes 40%, UndevRes 60%" (347 mln m3 Dev Res and 254...
UndevelopRes (a) seems the best one to aim for. It is still conservative (because of the too low P5 values in the less mature fields), but it has the advantage that one can maintain this method of determining externally reported Proved reserves in future submissions. Any future over-reporting of undeveloped reserves (i.e. in fields where undeveloped reserves are still somewhat uncertain in spite of the field’s maturity) is compensated by the fact that we take expectation only for fields in excess of 60% maturity (and not 40%) and P85 for those below 60%.

6. As mentioned, externally reported Proved reserves must be cut off at licence expiry through a realistic forecast. For the recommended case “Proven, DevRes 40%, UndevelopRes 50%” we estimate a 9-year plateau plus subsequent decline (20%), leading to a Proved volume after licence expiry cut off (but before 34% Shell share) of some 87% of 347 + 254 mlm m3, i.e. some 523 mlm m3. Shell share would then be 178 mlm m3 1/1/2001, versus 139.5 mlm m3 1/1/2000, an increase of some 55 mlm m3 (assuming 2000 prod is some 16.5 mlm m3).

7. This method results in a proved/exp dev ratio of 347/360 = 91% and a proved/exp undevelop ratio for 254/408 = 62% (POD), values that are much more in line with the maturity of the Oman fields, even if the undevelop ratio is still too low.

We hope the above clarifies. Please let us know if you have further queries.

Best regards,

Anton

---Original Message---
From: Melissen, Thomas OQP
Sent: 03 January 2001 09:59
To: Barendrecht, Anton, SIEP-EPB-GRA
Cc: Aalbers, Remco, SIEP-EPB-P; Abri, Said CEM3; Antonini, Marcus CEM5
Subject: RE: Proved Reserves Visit - Group Resource Co-ordinator

Anton, Remco,

Please note that the 1999 method used for external reporting made the proven developed reserves equal to expected developed reserves for all fields (irrespective of their maturity) and kept the total proven reserves equal.

Best regards,

Thomas

---Original Message---
From: Melissen, Thomas OQP
Sent: 03 January 2001 12:52
To: Barendrecht, Anton, SIEP-EPB-GRA
Cc: Aalbers, Remco, SIEP-EPB-P; Abri, Said CEM3; Antonini, Marcus CEM5
Subject: RE: Proved Reserves Visit - Group Resource Co-ordinator

Anton, Remco,

Many thanks for your Email. Based on the guidelines given in your Email below, we have evaluated the impact on the proven reserves numbers to be used for external reporting using the national ARPR 1/1/2001 data.

In the table below, a breakdown of the total expected reserves (developed and undeveloped) versus maturity (as expressed in cumulative production / expected recovery) has been given. As can be observed from the table, 61% of the total expected reserves can be classified as mature, using the 40% criterion.

<< OLE Object: Microsoft Excel Worksheet >>

An overview of the proven and expected reserves as carried by PDO and the impact of using the Shell Group guidelines on externally reported proven reserves has been indicated in the table below.

<< OLE Object: Microsoft Excel Worksheet >>

Some remarks:
- The proven and expectation reserves are as per the reserves bookings, the expected developed reserves are updated annually using the do-nothing production forecast. The proven developed reserves are calculated by pro-rating the proven/expectation reserves and expected developed reserves.
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Would you agree with the proposed method? Following your advice, I will inform PDO senior management on the proposed method for external reserves reporting to the Shell Group.

Best regards,

Thomas

---Original Message---
From: Barandregt, Anton AA SIEP-EPS-ORA
Sent: 02 January 2001 18:08
To: Meijssen, Thomas TEM PDO-DOQ/ UPR
Cc: Asburs, Ramos RD SIEP-EPS-P; Abd, Said SM PDO-CENS; Antonini, Marcus MCJ PDO-CENS
Subject: RE: Proved Reserves Visit - Group Resource Coordinator

Thomas,

In response to your query, I fully support the conclusions reached during Remco's visit, as reflected in your note of 24th October. In particular, I support the move towards using expectation estimates for the externally reported proved reserves for mature fields (i.e. for fields with cum.prod. greater than 40% of expectation ultimate recovery). I note that the 40% criterion is not necessarily rigorous: for simple elastic light oil waterdrive reservoirs it could easily be set lower, for heavy oil reservoirs or complex carbonate reservoirs like many of those in Oman, it seems a realistic proposition.

As mentioned in my 1999 audit report (Alt. 3) we should move away from determining total proved reserves through probabilistic volumetrics, combined with probabilistic estimate of recovery factors. Instead, we should make separate estimates of developed reserves (from decline analysis or history matched reservoir simulation) and undeveloped reserves (from reservoir simulation or other reliable predictions). Undeveloped reserves must always be based on a well-defined set of future activities (new wells, infill drilling, re-completions etc.).

Each of the two volumes (i.e. developed and undeveloped reserves) can have a probability range (P65, P50, P15, Expectation) associated with it. Group guidelines prescribe that for developed reserves in mature fields we should take the expectation estimate as the externally reported 'Proved Developed Reserves'. For those mature fields it is expected that the P65 estimate would be close to the P50/Expectation value anyway. For externally reported undeveloped reserves it will often be appropriate to take the expectation value as well, but in some of the more uncertain cases (e.g. different future well types) it may be more appropriate to take the P85 volume.

The externally reported total reserves should be the sum of the developed and the undeveloped reserves estimates.

Trust this clarifies. Good luck with your 2000 submission!

Last but no least, I wish yourself and the PDO PE community a successful, safe and healthy 2001!

Anton Barandregt

---Original Message---
From: Meijssen, Thomas OQP
Sent: 22 December 2000 14:38

OM 000207
V00102058 FOIA Confidential
Treatment Requested
To: Barendregt, Anton  SIEP-EPB-GRA
Cc: Aalbers, Remco  SIEP-EPB-P; Abri, Said  CEM3; Antonini, Marcus  CEM5
Subject: FW: Proved Reserves Visit - Group Resource Co-ordinator

Anton,

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Looking forward to your reply.

Best regards,

Thomas Meijissen
CFDH Reservoir Engineering

Thanks for your Email, sounds like your are making progress. Anton is in today and will revert on the internal proved reserves booking, which he supports.

Hope to see a significant increase in proved reserves for PDO for 2000.

Met vriendelijke groeten / With kind regards.

Remco D. Aalbers

Group Hydrocarbon Resource Coordinator & Senior Planner
EPB-P SIEP BV
Tel. +31 (0)70 - 377 2001 (fax: 2460)

e-mail: remco.rd.aalbers@sepivbv.shell.com

-----Original Message-----
From: Meijsen, Thomas OQP
Sent: Sunday, December 24, 2000 5:16 AM
To: Aalbers, Remco SIEP-EPB-P
Cc: Abri, Said CEM3
Subject: Reserves issues - meeting with MOG 23/12/2000

Remco,

Said Al Abri and myself have had a meeting with the Ministry of Oil and Gas (MOG) on 23/12/2000 on proven reserves.

Proven reserves
* Explained that the proven (developed) reserves of many of PDO's fields are low when compared to the expected (developed) reserves and the maturity of these fields. As a result, the proven (developed) reserves are insufficient to sustain a typical proven forecast.
* This could be due to the low frequency of reserves bookings (typically every 5 years, but sometimes even every 10 years) and ongoing production and maturation of the reserves base.
* In addition to the reserves bookings, the proven (developed) reserves per reservoir are currently only updated annually when the production exceeded the proven (developed) recovery, thus giving negative proven (developed) reserves.

* Indicated to MOG the technical need to more regularly updating the proven (developed) reserves. MOG supported this.

* Agreed to review PDO’s resource base (including the 2000 reserves bookings) and identify which fields have low proven (developed) reserves. Check with the asset teams what is the reason for the low proven (developed) reserves. If the proven (developed) reserves are too low, then identify what technical work needs to be done to update the proven (developed) reserves. If this can be done by simple decline curve analysis or using a low NFA forecast, then we can update the proven (developed) reserves for the 1/1/2001 ARPR. If more technical work is required to substantiate the proven (developed) reserves, then this should be done during 2001 for inclusion in the 1/1/2002 ARPR.

We did not discuss external reporting of proven (developed) reserves, which we like to conclude with you, Anton Barendregt and our planning department.

Best regards,

Thomas