Overview of BP Technology Strategy

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Technology Leadership: Optimization of Heritages

$1450m

Synergies

$850m

Enhanced Capability

Increased Basic Science at Universities

Experiments at Scale
Technology Leadership: Key Focus Items

- Polymer Value Chain
- Renewables & Solar
- Retailing Enterprise
- Hydrogen Economy
- Plant Automation
- Seismic Imaging
- Technology Leadership
- Drilling Excellence
- Fuels & Chemicals from Gas
- Refinery of the Future
- Future Fuels & Lubricants
- Gas Transport
- Green Operations

Our Energy & Emission Efficiency

Decarbonisation of Fuels

Past

Present

Future

Reduce Flaring & Venting
Energy Efficiency
CO2 Capture
Novel Low Energy Processes
Gas Replacing Coal
Hydrogen Economy
Fuel Cell Vehicles
DGI & Hybrids
PV Solar
Wind
Renewables

bp
Technology Leadership: Relationships

Ford
Worldcom
DaimlerChrysler
Schlumberger
Baker Hughes
GM
PGS
Technip
Halliburton Company
Berkeley University of California
University of Cambridge
Imperial College of Science, Technology and Medicine
Princeton University
Our Approach to R&D

60+ Business Units Technology Plans

- Every BU maintains a Technology Plan
- Intimately linked to Business Plan
- Illuminates critical technologies to achieve business aspirations

Key Technology Themes

- Common themes
- Understand relative leverage

1-3 Year Technology Projects

- 3-5 Specific projects “owned” by BUs
- Drive internally *plus* collaborate extensively externally
- Centrally funded
Leading Deep Water Lease Position

Lease Holdings - June, 2000
Source: Lexco Database, Minerals Management Service: WD >1000'

BP
Vastar
Exxon-Mobil
Shell
Texaco
Chevron
Others
Exploration Philosophy

Frontier: New Geology (ultra-deep drilling)

Established Plays

Frontier: New Geography (ultra-deep water)

• BP led the exploration of new plays in deeper sections and in deeper water
The deepwater is still relatively immature and has the potential for 40 BBOE in large fields.

**Shallow Water (<2500')**
- Area: 60 M mi²
- Production: 3 MMboe/d
- Discovered: 40 Bboe

**Deep Water (>2500')**
- Area: 50 M mi²
- Production*: 800 Mboe/d
- Discovered: 10 Bboe
- URH: 10-40 Bboe

*1999 Est.
Future of Hydrocarbon Supply: Seismic – No Dry Holes

Angola – Spectral Decomposition

Conventional Image

Spectral Decomposition Image
Recent Reserve Additions

Resources (MMBOE)

Discoveries

3000

0

King’s Peak

King

Nakika

Atlantis

Mad Dog

Holstein

Horn Mountain

Thunder Horse
BP Position in Gulf of Mexico Deepwater

Estimated Net Resources By Company

Total: 9.6 BBOE

Source: J. S. Herold Deepwater Intelligence Database and Publicly Announced Discoveries
DW BP Operated Drilling Program

1999
- Amberjack
- Marlin

2000
- Amberjack/Marlin
- Pompano
- Troika

2001 - 2002
- Amberjack/Marlin/Nile/Pompano
- King’s Peak/King/Nile/Horn Mountain/ILX
Key DW Drilling Technologies

- Dual Gradient Drilling
- Free-Standing Riser
  - Pre-set Taut-Leg Mooring
  - Utilization of 2nd/3rd Gen. Rigs
- Expandable Casings
- Salt Drilling Optimization

Shallow Water Flow Zone
Key Technology: Subsalt Drilling

- Eliminate Casing Strings
- Technical Limit Drilling
- Cost Savings of 30% over previous subsalt well
Gulf of Mexico Deepwater

- Managing the Base
- Keeping the Facilities Full
- Near Term Projects
- Major Developments

Actual / Projected BP Net of Royalty mbbl
Thunder Horse Discovery

World Class Discovery
- 1 Billion BOE resource discovery announced July, 1999
- World class reservoirs
- Delineation underway – 2 wells nearly complete
- Development concept selection in final stages
**Southern Green Canyon**

- Three major field developments along the Sigsbee escarpment
- Water depth of 4500 to 7000 ft
- Combined estimated resource > 1 Billion BOE
- Likely development options are SPARs with wet and dry trees

**Mississippi Canyon**

- Two significant developments
- Water depths of 6000 feet
- Combined estimated resources >> 1 Billion BOE
- Crazy Horse is believed to be the largest discovery ever in Gulf of Mexico offshore
Cost of Supply
$/boe

Majors
bp

BP Technology Strategy and Deepwater Focus

- Diverse Technology Strategy at Group Level looking at various energy sources, green technologies and leveraged with broad collaboration arrangements

- Strong investment in Upstream Technology with Global organization and span of activities

- Leading Gulf of Mexico Deepwater Position and Unprecedented Exploration Success

- Delivering (Near-Term / Mid-Term / Long-Term)
  - Doubling Production in Three Years
  - c.750 mbd by 2007 from Identified Projects

- Quality Barrels
  - Optimized Developments via Standardization
  - Improved Cycle Time
Ready to Deliver

The Right Technology

The Right Portfolio

The Right People