1. Exploration Outlook
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Exploration Outlook
Marcos Mozetic
Current geographical deployment in Exploration to lever growth

- Countries with current Exploration activity
- Countries exited or being exited
- Countries recently entered

- USA (Alaska)
- Canada
- Brazil
- Peru
- Bolivia
- Colombia
- Venezuela
- Suriname
- Sierra Leone
- Liberia
- Angola
- Namibia
- Mauritania
- Morocco
- España
- Portugal
- Tunisia
- Iraq
- Iran
- Oman
- Saudi Arabia
- Indonesia
- Australia
- Russia
- Kazakhstan
- Norway
- España
- Bulgaria
- Ireland
- Eq. Guinea
- Rumania
- Libya
- Angola
- Bolivia
- Peru
- Colombia
# Summary of Exploration Activity in 2013

<table>
<thead>
<tr>
<th>Finalised wells</th>
<th>22 (+1 Appraisal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>Continued drilling</td>
<td></td>
</tr>
<tr>
<td>Exploration success</td>
<td></td>
</tr>
<tr>
<td>Unrisked Prospective R. W.I.</td>
<td>E 1,500 Mboe</td>
</tr>
<tr>
<td>Prospective Resources W.I.</td>
<td>E 302 Mboe</td>
</tr>
<tr>
<td>Contingent Resources W.I.</td>
<td>+300 Mboe</td>
</tr>
</tbody>
</table>

We continue adding +1.5 (1.8) prospects per well drilled
Exceeded our goal for new ventures (28 blocks/projects added)
2013
Continue notable improvement in reserve replacement, without exhausting contingent resources bank

Reserve Replacement Ratio

Contingent Resources 3C (Mboe)

Mboe
Countries with drilling activity during 2014

Operated & non operated
Operated
Non Operated
Repsol Exploration Net Acreage Evolution

DGU Net acreage evolution

- 2009: 128,573 km², 349 blocks
- 2010: 132,407 km², 362 blocks
- 2011: 215,750 km², 545 blocks
- 2012: 210,221 km², 634 blocks
- 2013: 212,554 km², 630 blocks

# of blocks
Repsol Key Projects

2012-2016

Post 2016
Next wave of growth

Exploration

• Contingent resources
  - Alaska
    - C-33 (Seat, Gavea, Pao de Açucar)
    - Presalt Albacora
    - Buckskin
    - Malombe
    - NC200
    - Sagari
    - TIHS-1

• Prospective resources
  - GoM
  - Beaufort Sea
  - Louisiana
  - East Canada
  - Campos, Santos
  - Colombia RC11, RC12 & Tayrona
  - Guyana
  - Angola and Namibia
  - Spain and Portugal
  - Norway offshore
  - Peru: Mashira
  - ...
Europe: 

Growth in high potential plays while looking for contracts value in:

1) Norway 2) Romania 3) Offshore Bulgaria 4) Spain 5) Portugal
Europe Exploration Growth
Themes and Update

- 2013 Drilled Portfolio based on high risk / impact prospects with poor results in Norway and Ireland: Dunquin, Darwin, Bonna. Migration and charge issues.

- 2013 Taken positions in high potential blocks with favourable fiscal and contractual regimes:
  1. Non Operated 49% Onshore Romania Petrom JV
  2. Non Operated 30% Bulgaria Offshore Deepwater Han Asparuh

- Europe growth rationale and plays:
  a) **Onshore producing thrust belt exploration of Deep Plays in the Southern Carpathian with seasoned operator as OMV Petrom**
  b) **Upfront exploration cost recovery in high potential plays in NCS (Barents and Norwegian Seas)**
  c) **Plays in proven source rocks systems and frontier as Tertiary Mediterranean, Adriatic and Black Sea.**
A New Region: East Europe - Romania

- Signed four blocks located in the prolific and producing South and East Carpathian thrust belt in a 51% OMV Petrom (Operator) 49% Repsol. Commitment 3 wells 2014.
- Exploring proven deep targets (below 2500 m) using new 3D seismic programs.
- Prospects consists of a stack of imbricates of Oligocene- L. Miocene age rocks.
Romania Petrom Repsol JV

OMV Petrom Totea Discovery 2012 (60MMBOE)

SOUTH CARPATHIAN BASIN METRICS
Number Of Fields 353
Oil Recoverable MBO 5,490.55
Gas Recoverable BCF 13,083.6
Recoverable MBOE 7991.6
Romania Petrom Repsol JV

Romania Theme:
Exploring deep horizons in mature onshore producing areas with attractive contracts terms using new 3D seismic programs.
Bulgaria: Han Asparuh Block

NON OPERATED
REPSOL 30%

2013 Completed Program
3D 7740 Km2
2D 3450 Km

DOMINO DISCOVERY
3 - 5 TCFG
Exxon OMV 2012

Khan Asparuh Block
14220 km²
Repsol Norge Active Licenses

Key Drivers
- Licenses concentrated in Norwegian and Barents Seas seeking higher potential.
- Exploring for new frontier plays.
- Operated remote wells.
- Significant growth position in 4 years
- Upfront exploration cost recovery contract.

Repsol Blocks Status 2014:
17 Licences (6 Operated)
- Barents Sea: 5 (2)
- Norwegian Sea: 10 (3)
- North Sea: 2(1)

Norway Acreage Evolution

- 2009
- 2010
- 2011
- 2012
- 2013
- 2014
Repsol Norge 2013 Results and 2014 Outlook

- **2013 Drilling**: 3 wells drilled, 2 operated, all negative.
  
  a) *On proven plays*: Brattholmen-1
  Main cause of failure was lack of migration.

  b) *On new Plays*: Darwin-1 and Bonna-1, additionally lack of reservoir, failed to open the Lower Tertiary/Upper Cretaceous play in Southwestern Barents Sea.

Repsol Norge 2014 Wells

IMSA 1: PL589 License (Non Operated)
- Structural Trap: Tilted fault block with middle Jurassic stacked reservoir sands
- Oil and gas objective. On trend with discoveries (Ragnfrid)
- Water Depth: 261m
- Target Depth: 4520m
- TD: 5240m
- Spud 2Q 2014

HAGAR 1 PL642 (Operated)
- Combination Trap: 3 way structural dip closure of Upper Jurassic fault scarp apron deposits
- Oil and gas target.
- Water Depth: 250m
- Target Depth: 3200m
- TD: 3600m
- Spud 1stQ 2015
Active Player: In June 2013 MPE awarded Repsol 4 blocks: Two in the Norwegian sea and two in the in the Barents sea. In Jan 2014 3 more blocks awarded (Not in map)
Repsol Iberian Exploration Activities
Position in Portugal and Spain
Canary Islands: A new play opener
Canary Islands Blocks Type Prospect

- BBOE Multi prospect Tertiary Play
- Salt cored 4 way dip closures
- Target Reservoirs: Miocene Turbidites
- Source: Turonian Shales
Portugal  Algarve Tertiary Gas Play

Repsol Gas Fields (Poseidon Field 150 Bcfg)

Algarve Basin

Block 13 and 14

Biogenic Gas Play

Sub Salt Play
Algarve Tertiary Biogenic Gas Play

- Biogenic Gas Play
- Analogy with Poseidon Field
- Target Miocene Turbidites
- Source: Tertiary Shales
- Spud 4Q 2014.

WD 700 m

MIOCENE TURBIDITE CHANNELS

Cadelinha Prospect
Middle East Exploration: Kurdistan

- Plays and growth rationale:
  - Thrust belt exploration of Kurdistan Zagros Fold Belt in multibillion barrels play.
- Drilling portfolio high impact prospects in Piramagrun and Qala Dze concessions (Wi: 40%). 2013: Divested 40% to Maersk.
- Seeking growth in high potential blocks in the region.
Kurdistan Fields and Pipeline

- Binari Servan 1 spud 27th Jan
- Zewe 1 well drilling @2300 m
- Oil Pipeline partially completed
- Gas Pipeline completed
- Gas Pipeline construction deal signed
Piramagrun Block: Zewe Prospect

**Zewe 1 Well**
- Trend and adjacent with BBOE discoveries
- 2 BBOE in place resources
- Jurassic and Triassic Objectives
- Complex large 4 way dip closure
- 200 sq km closure
- Near new pipeline to Turkey
- Drilling at depth 2300 m TVD
Qala Dze Block: Binari Servan Prospect

Binari Servan 1 Well
- Trend and adjacent with BBOE discoveries
- 3.5 BBOE in place resources
- Jurassic and Triassic Objectives
- Complex large 4 way dip closure
- 320 sq km closure
- Near new pipeline to Turkey
- Spud date 28th Jan 2014
Latin America Region
José Ángel Murillas
Repsol’s Latin America Regional Exploration Unit covers 19 exploration blocks.

In terms of acreage, Repsol is the leading private operator in the region with access to ~120K km².

Repsol operated portfolio is diverse, expanding from Caribbean Deep Water to Andean foothills settings.

In addition to the exploratory acreage, Repsol participates 40 production blocks.

Repsol acreage in the region expands through 9 countries.
52 wells were drilled in the last decade.

19 Discoveries (37%)

5 Large (>100MBOE) Discoveries (10%)

1.4 BBOE net resources addition.

Leading private company in terms of volumes added in the region.

Excluding Brazil and Argentina
Latin America Region Exploration Ventures

% Latin America Exploration Expenditures

(1) Excluding Brazil
Western Caribbean Region
Western Caribbean
Acreage and planned activities

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>NET REPSOL</th>
<th>BLOCK</th>
<th>ACTIVITY PLANNED</th>
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</thead>
<tbody>
<tr>
<td>NICARAGUA</td>
<td>20%</td>
<td>Tyra Bank</td>
<td>Post Well Analysis</td>
</tr>
<tr>
<td></td>
<td>20%</td>
<td>Isabel Bank</td>
<td></td>
</tr>
<tr>
<td>ARUBA</td>
<td>100% (Op)</td>
<td>Aruba</td>
<td>150 km 2D</td>
</tr>
<tr>
<td></td>
<td>100% (Op)</td>
<td>Aruba</td>
<td>3,600 km 2D</td>
</tr>
<tr>
<td>COLOMBIA</td>
<td>30%</td>
<td>Tayrona</td>
<td>2,500 km² 3D</td>
</tr>
<tr>
<td></td>
<td>50% (Op)</td>
<td>RC-11</td>
<td>Orca-1 Well</td>
</tr>
<tr>
<td></td>
<td>50% (Op)</td>
<td>RC-12</td>
<td>Siluro 1 Well</td>
</tr>
<tr>
<td></td>
<td>50% (Op)</td>
<td>Gua Off-1</td>
<td>300 km² 3D</td>
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<tr>
<td></td>
<td>50% (Op)</td>
<td>Gua Off-1</td>
<td>2,574 km² 3D</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>3,925 km 2D</td>
</tr>
</tbody>
</table>
Western Caribbean
Colombia - Tayrona Block - Orca Well

- **Block**: Tayrona Offshore, Repsol 2011 Farm-In.
- **Trap**: Very Large 4-way closure (460km² @L. Miocene)
- **Objectives**: L. Miocene and Oligocene Carbonates.
- **Water Depth**: 674 m
- **TD**: 4,775 m
- **Chance of geolog. success**: 26%.
- **Estimated Resources**: 4 TCFE

REP30%, PBR(op.)40%, ECP30%
Western Caribbean
Colombia - RC11 Block - Siluro Well

- **Block:** RC-11, Repsol 2012 Farm-In
- **Main Objective:** L. Miocene Carbonate
- **Water Depth:** 90 m
- **TD:** 2,090 m
- **Chance of Geological Success:** 26.5%
- **Estimated Resources:** 1.6 TCFE
Western Caribbean
2014 3D Seismic Programs

- More than 6,000 km of new 2D will be completed by February 2014.
- More than 5,000 km2 of new 3D will be recorded by December 2014.
- A single seismic tender is ongoing to contract all the planned surveys.
- All new volumes will be processed by Repsol Depth Imaging Group in Houston.
- At least 3 to 5 valid prospects are expected from the new volumes, to be drilled during 2015-18.
Andean Region
Andean Region
Acreage and planned activities
Andean Region
Peru Block 57 Remaining Prospectivity

- Awarded to Repsol in 2004.
- 267 km of 2D seismic acquired in 2007.
- 3 exploratory wells were drilled to date:
  - Kinteroni (2008): Discovery 1073 BCFE (2P)
  - Sagari (2012): Discovery 1342 BCFE (Resources)
- Remaining Exploration portfolio;
  - 3 low to medium risk exploration opportunities with cumulative prospective resources of 1.4 TCFE.
- Contract Status:
  - Repsol has retained 100% of the exploration area to preserve remaining prospectivity.
  - The contract provides 3 periods of 2 years. The first period has a 140km 2D commitment before August 2015.
  - Remaining prospectivity can add significant value to Kinteroni-Sagari Development Plans.
  - Exploratory drilling will resume when a rig returns to the Block to develop Sagari.
Andean Region
Peru - Block 76 High Impact Portfolio

- 2006: Hunt 50% Farm Out to REP
- 2009-10: 460 km of 2D Seismic acquired
- 2012: REP-Hunt joint Farm Out to Pluspetrol
- Full Environmental Impact Study (EIA) approved August-13.
- Very large (14,340 km²) block containing multiple anticline opportunities.

High Reward-Medium Risk Portfolio:
- 3 prospects identified with an average of 2.3 TCFE each.
- Multiple additional leads to propagate success.

2014 Work program:
- Base camp construction in progress.
- Civil works for two well pads (Pad A and Pad B)
- Dahuene-1X well spud
- “Back to back” drilling activities are planned pending Dahuene-1x results.

October 2013: Development Phase II completed, producing >14 MMm3/day.

Development Phase III in progress, based on the Huacaya volumes.

The contract area contains remaining exploration potential with at least three exploration leads identified along the trend.

During 2014 Repsol will operate a 3D survey over Huacaya, and two 2D surveys (259 km) to complete seismic coverage of the block.

Contingent on seismic results, exploratory drilling could resume in 2015-16.

Caipipendi prospective resources could be significant (multi TCF) and add value to current and future development phases.
Atlantic Basins
Atlantic Basins
New Exploration Acreage

<table>
<thead>
<tr>
<th>2013</th>
<th>2013</th>
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<tbody>
<tr>
<td><strong>TRINIDAD &amp; TOBAGO</strong></td>
<td><strong>GUYANA</strong></td>
</tr>
<tr>
<td>Block 23b</td>
<td>Kanuku Block</td>
</tr>
<tr>
<td>BHP 60% (Op.) - REP 40%</td>
<td>REP40%(Op.) - TUL30%-RWE30%(1)</td>
</tr>
</tbody>
</table>

(1) FOA executed Dec/2013, pending Guyana Government request for approval
Repsol is an established player in the Guyana-Suriname basin, having drilled two frontier wells to date (Jaguar and W Tapir).

Repsol signed the 6,525 km² Kanuku Block contract in May 2013. The Block is located 50 miles offshore Guyana, in shallow waters.

During H2-2013 Repsol acquired regional 2D and a 3D seismic program covering the Berbice Canyon.

During 2013 Repsol farmed out 30% of the Block to Tullow. A FOA for an additional 30% was executed with RWE in Dec-2013.
Block 23b covers a deep water area of 2,585 km² located to the East of Tobago.

The Block contains multiple Tertiary clastic and carbonate plays with oil and gas potential.

REP 40% and BHP (op.) 60% signed the contract on November 2013.

A 3D seismic program covering most of the block will be conducted during 2014.

Drilling during the 2nd Phase is contingent on seismic results.

<table>
<thead>
<tr>
<th>Block 23b, Trinidad &amp; Tobago - Timeline</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSC Signature Nov 2013</td>
<td></td>
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<tr>
<td>3D Seismic Survey Acquisition</td>
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<td>3D Processing</td>
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<tr>
<td>3D Interpretation</td>
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<tr>
<td>2nd Phase (contingent drilling commitment)</td>
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</tbody>
</table>
Latin America New Ventures
Latin America New Ventures
Remaining Prospectivity

- The largest conventional oil and gas fields in South America have been discovered recently (Tupi/Lula 2007, Perla 2009).

- The region keeps delivering very significant volumes, despite restricted access to acreage in several high potential countries.

- Intensity of exploration investment has historically been low, especially offshore and in the complex Andean settings.

- Unconventional exploration is just starting.

- Repsol assigns significant resources to new geological concepts, monitors all LATAM activities and opportunities above 100MBOE.
Latin America New Ventures
Continuing to expand into the Caribbean Sea

REPSOL IS THE LEADER IN THE CARIBBEAN SEA IN TERMS OF:

- Acreage (sqkm)
- Number of Active Countries
- 2014-2015 New Seismic Acquisition Programs
- Hydrocarbon Volumes Discovered to Date
- Repsol holds a 49% participation in YPFB Andina, the leading producing company in Bolivia, controlled by YPFB.

- YPFB Andina drilled in 2012 the Sararenda deep exploration well, abandoned for operational reasons at 6000m, without reaching its primary target.

- Repsol and YPFB Andina have agreed to continue exploring the Sararenda prospect trend, north of Margarita-Huacaya.

- YPFB has already pre-assigned several areas to YPFB Andina to carry out exploration activities.

- Seismic acquisition will start once the Petroleum Contracts are completed and approved by the Bolivian authorities.
Africa

Didier Vincent Lluch
Repsol present in 9 countries, 7 of them operated
Exploration Campaign Update

- Exploration deadline for CA129/130 (NC115) /CA130/131 (NC186): October 25th 2015.
- Commitment to drill 16 wells and acquiring 5,600 Km2 of 3D seismic.
- 1 well drilled and 3,997 Km2 of seismic acquired previous to the 2011 unrest.
- Drilling Campaign started again in May 2012: back to back basis.
- Three wells drilled since the operational resumption in May 2012:
  - 1 Officially announced discovery.
  - 1 Completed but with tight reservoir indications.
  - 1 Dry hole.
- The next well in the sequence (well number 4) spudded-in on January 24th 2014.
- Seismic Campaign not started yet.
- Ongoing Country Screening for potential Bid Round in Q4 2014.
Libya Exploration Campaign Update

Drilled in 2011
1. Nakhla Prospect A1-129/4
2. Waha Prospect A1-129/2
3. Khaima Prospect B1-129/4

Drilled in 2013
4. Taban Prospect A1-130/4
5. Agrub Prospect B1-130/4
6. Ural Prospect C1-130/4
7. Khatem Prospect TBA
8. Sanam Prospect A1-130/3

Drillable in 2014
9. Wedan Prospect B1-130/3
10. Nesser Prospect
11. El Hasheem Prospect
12. TBA Prospect
13. TBA Prospect
14. TBA Prospect
15. TBA Prospect

Repsol: 40%
Total: 30%
OMV: 30%
Statoil: 20%
Prospecting Blocks Northern Tunisia Offshore
Ras Korane, Ras Rihane and Nadhour Permit

Background
2 Years Period + 1 Year extension (Oct. 18th, 2012-Oct. 18th, 2014)

Activities 2013:
- 2D non-conventional seismic acquisition aprox. 2500 km acquired in the 1st Q 2013.
- Reprocessing of the old 2D seismic lines aprox. 7455 km completed in the 2nd Q 2013.
- Seafloor Topography and multibeam bathymetry operation achieved in the 2nd Q 2013.
- Airborne Gravimetric and Magnetic acquisition completed in the 3rd Q 2013.
- Operation over shallow coring campaign finalized in 3rd Q 2013.
**Algeria, SE-Illizi 232 & 241a Blocks**

**Near Field Exploration**

1**st** Exploration Phase 05/ 2010 until 05/ 2013
- 5 Exploration wells completed.
- 2 Commercial Discoveries.

2**nd** Exploration Phase 05/ 2013 until 05/ 2015
- Acquire 340 Km² of HR 3D Seismic.
- Drill 1 Exploration well.
- Drill 4 Appraisal wells.

**Consortium**
Repsol Operator: 52.5%
Enel: 27.5%
GdF-Suez: 20%

**THIS:**
Oil (Devonian)
Gas/Cond. (Ordovician)

**TDE:**
Gas/Cond. (Ordovician)

**TDE-1:** Flow through 64/64”
(Main Flow)
Duration: 6 hours
WHP: 992 psi
Gas Rate: 538 K m³/d
Cond. Rate: 210 Bbl/day
Algeria, SE-Illizi 232 & 241a Blocks
Near Field Exploration and Appraisal

Glacial Valley Fill

>0.2 km
Gharb Play: Oil

Tanger-Larache Play: Shallow Gas

Hauts Plateaux Unconventional S.R.: Carboniferous

Boudenib Unconventional S.R.: Silurian Hot shale
Morocco

Why?

- Very attractive contractual and fiscal terms
- Domestic energy deficiency
- 5th largest economy and 2nd largest energy importer in Africa
- Proximity to Spanish market
- Underexplored Atlantic margin (3000km shoreline) Repsol in Morocco

→ Long time presence when only very recently the rest of the Industry has shown high interest for the country. As a consequence Repsol has been able to build a very large and diversified portfolio

→ Offshore: Conventional
  - Tanger-Larache License: Shallow gas play
  - Gharb Licence: similarity with Nova Scotia, Jurassic and Cretaceous oil play
  - Next activity: G & G studies and 3D seismic acquisition

→ Onshore: Unconventional-Shale Gas
  - Next activities: G & G studies and 3D seismic acquisition
  - Boudenib License: Objective Silurian “Hot Shale”: after two (2) years of “License de Reconnaissance (G&G studies, 5 shallow core-drills), request for exploration permits in four (4) blocks (2000 km2) each
Taoudeni basin

- REPSOL: 70 % (Operator)
- RWE: 30%

Taoudeni is a prospective basin that has been sparsely explored
- 5 wells in Mauritanian side
- Abolag-1 (Texaco, 1974) flowed wet gas at 0.48 MMscf/d
Mauritania

One of the largest unexplored basin in the world. Analogy with large discoveries in Russia and China. Possible follow-up in other large unexplored basins in Africa.

- Repsol was pioneer in Taoudeni Basin: entry in 2005

- Early entry allowed us to elect preferred block from regional studies:
  - Existing Gas and condensate discovery in TA-10 block: Abolag-1 (Texaco, 1973)
  - Regional high within the basin, focus on migration from surrounding kitchens
  - Numerous evidences of oil generation (subsurface and outcrops) within the block whereas the rest of the basin is more gas prone.
  - Prospects with large upside and significant follow-up portfolio in the block due to its considerable size.

Large Cooperation Agreement (rig, services and logistics) with Total, the other active Operator in the area.

- First Repsol well being drilled - Spud mid November 2013: Main targets Neo Proterozoic carbonates Current depth = 2000 m (TD = 3500m, planned for end of March 2014)
Repsol in Sierra Leona and Liberia

**SL-07B-11**
(5093 km²)
Anadarko 55% W.I. (Op.)
Repsol: 25% W.I.
Tullow: 20% W.I.
- Mercury-1: 41 m net pay
- Jupiter-1: 30 m net pay
- Venus B-1: 14 m net pay

**LB-15**
(2533 km²)
Anadarko 47.5% W.I. (Op.)
Repsol: 27.5% W.I.
Tullow: 25% W.I.
- Montserratado-1: 8 m net pay
- 3D seismic reprocessed
- Interpretation ongoing

**LB-16, LB17**
(6375 km²)
Repsol: 52.4% W.I. (op)
Tullow: 47.6% W.I.
- Repsol and Tullow did not enter into second exploration phase.

**Exxon Mobil (LB-13)**
Entered as operator in 2012
*Plans to drill in 2014*

**Chevron (LB-11 / 12 / 14)**
2 wells drilled in 2012
ENI entered with a 25% W.I.
*Plans to drill in 2014*

**African Petroleum (LB-09)**
2 wells drilled in 2011/2012:
- Narina-1 discovery
- Bee Eater -1 discovery

**Mercury-1 Oil Samples**

**LB-10**
(2580 km²)
Anadarko 80% W.I. (op.)
Repsol: 10% W.I.
Mitsubishi: 10% W.I.
- Two exploratory wells to be drilled during 2Q-2014.

Source: IHS
Repsol in Sierra Leona and Liberia

- Repsol **pioneered** the deep water exploration in SL/LB since 2003. Only twelve exploratory deep water wells drilled in the SL/LB margin up-to-date; the first one in 2009.

- Exploratory well results confirm the presence of **liquid hydrocarbons** (condensate and oil).

- Big players such as ExxonMobil, Chevron and ENI are present in the SL/LB deep water margin since 2010, showing the interest in this area.

- Repsol blocks are located in the northern and central portions of the SL/LB margin accounting for variations in geologic setting through the basin ensuring a thorough evaluation of its potential.

- Main ongoing exploratory activities are:
  - **Liberia LB-10**: Will drill two exploratory deep-water wells during 2Q 2014.
  - **Liberia LB-15, LB-16 and LB-17**: After performing in-house depth reprocessing of 6140 km² 3D seismic data and reinterpreting it in a very tight time frame successfully, Repsol decided not to renew the exploration license for blocks LB-16 and LB-17.
  - **Sierra Leona**: No remaining exploratory commitments. License expires in August 2014.
Angola: Blocks and Commitments

**B35/11 (Op. ENI (30%) – Sonangol P.P (45%) – Repsol (25%))**
- Awarded on 22nd Dec 2012.
- End 1st Exploration Period 31st Dec 2016:
  - Commitments:
    1. 2500 km² of 3D seismic
    2. 2 (two) Pre-Salt Wells
- End 2nd Exploration Period 31st Dec 2019
  - Commitment:
    1. 1 (one) Pre-Salt well
    2. 1000 km² 3D seismic

**B37/11 (Op. COP (30%) – Sonangol P.P (30%) – Repsol) (20%))**
- Awarded on 22nd Dec 2012.
- End 1st Exploration Period 31st Dec 2016:
  - Commitments:
    1. 3000 km² of 3D seismic
    2. 2 (two) Pre-Salt Wells
- End 2nd Exploration Period 31st Dec 2019
  - Commitment:
    1. 1 (one) Pre-Salt well
    2. 1000 km² 3D seismic

**B22/11 (Op. Repsol (30%) – Sonangol P.P (50%) – Statoil (20%))**
- Awarded on 22nd Dec 2012.
- End 1st Exploration Period 31st Dec 2016:
  - Commitments:
    1. 2500 km² of 3D seismic
    2. 2 (two) Pre-Salt Wells
- End 2nd Exploration Period 31st Dec 2019
  - Commitment:
    1. 1 (one) well
Angola: Blocks Status

B35/11 (Op. ENI (30%)- Sonangol P.P (45%)- Repsol (25%))
- Seismic Acquisition (TGS):
  - Acquired 4820 km²
  - Final PSDM delivered Nov. 2013.
- Contracted Rig
  - Ocean Rig Poseidon.
- 1st Well: spud January 20th 2014

B37/11 (Op. COP (30%)- Sonangol P.P (30%)- Repsol (20%))
- Seismic Acquisition (TGS): 3300 km²
  - Acquired 3330 km²
- Contracted Rig
  - Ocean Rig Athena.
- 1st Well: late 3Q 2014

B22/11 (Op. Repsol (30%) – Sonangol P.P (50%) – Statoil (20%))
- Seismic Acquisition (CGGV): 4100 km²
  - Acquired 4820 km²
  - Final PSDM delivered Nov. 2013.
- Contracted Rig
  - Rowan Renaissance.
- 1st Well: Late 3Q 2014?
Angola: Pre-Salt Regional Map (merge 2D & 3D seismic)
Angola: Block 35 - OMBOVO Prospect

- Prospect Maturation mainly carried out using the WesterGeco Vintage 3D Seismic
- Prospect Refinement performed using the Intermediate products of the TGS new 3D seismic acquisition. Final products delivered in Late October 2013.
- WG and TGS seismic are currently being used for a Bi-Azimutal Seismic reprocessing taking advantage of the different shooting directions ( ).
Angola: Block 37 - Crux Prospect

- Block 38
- Southwest
- Block 37
- Crux
- Top Salt
- Base Salt
- Block 21
- 0 km
- 10 km
- Cameia
- Northeast
For Comparison, CAMEIA has an area of about around 28-30 km².
Repsol in Namibia

- Fairly underexplored margin
- Recently Namibia and South Africa have seen entry of big players.
- Repsol: License 0010 (11,637 km²)
- Located offshore northern Namibia (Walvis Basin).
- Repsol started in Dec. 2012 as operator.
- First exploratory (deep water) well planned for 2Q-2014: Welwitschia-1 on Delta prospect.

North Namibia Petroleum System
- Source Rock Interval
- Regional Seal
- Kudu Gas Field
- Potential Reservoir

Delta Structure Targets
- Late Cretaceous turbidites (Main target)
- Albian Carbonates (Contingent target)
Repsol in Namibia

- License 0010: marks the entry of Repsol in Namibia as part of an effort of increase the Atlantic margin hydrocarbon exploration in high potential areas.

- Carefully selected based on regional and detailed G&G studies that incorporate extensive in-house knowledge related to Atlantic margin in both African and America´s sides: high reward license with SR in oil generation window and very large structural traps.

- Ready-to-drill: ongoing preparations to drill in 2Q-2014 with a secured last generation newbuilt UDW rig.

- Substantial exploratory follow-up within the license (at least three additional large opportunities).

- Considered as an unexplored play: Tapir South-1 well (Chariot, 2012) is not an analog: different hydrocarbon sourcing and trap style. Recently drilled wells by HRT in Walvis basin confirm presence of rich SR in the oil window.
Recent Exploratory Activity in Namibia

✓ None of the exploratory wells drilled in the Walvis Basin have investigated the Welwitschia-1 play (Cretaceous turbidites within a four-way closure). Nevertheless:

✓ They confirm a rich SR within the oil window.

✓ They confirm the presence of Cretaceous turbidites with very good reservoir quality.

<table>
<thead>
<tr>
<th>North Namibia Recent Wells</th>
<th>South Tapir</th>
<th>Wingat</th>
<th>Murombe</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR</td>
<td>No info.</td>
<td>Good News</td>
<td>Good news</td>
</tr>
<tr>
<td>Reservoir</td>
<td>Good News</td>
<td>Not Relevant</td>
<td>Good news</td>
</tr>
<tr>
<td>Trap</td>
<td>No news (Strat. Trap)</td>
<td>Not Relevant</td>
<td>No news (Strat. Trap)</td>
</tr>
<tr>
<td>HC shows</td>
<td>No info.</td>
<td>Good News</td>
<td>No info.</td>
</tr>
</tbody>
</table>

Tapir South (2012)
Namibe Basin (Block 1811)
Chariot (Enigma) op.
TD: 4879m / WD: 2134m
• P&A (spud 5 April - 46 days)
• Found excellent reservoirs (Cretaceous sandstones) but water wet. Presumably stratigraphic trap.
• No SR information.

Wingat-1 (2013)
Walvis Basin (PEL-23)
HRT op.
TD: 5000m / WD: 1005m
• P&A (spud March 25 - 68 days)
• Main target Albian carbonates tight.
• Thin bedded deeper sandy reservoirs saturated by light oil.
• Found two well developed rich SR in the oil window (one Albian).

Murombe-1 (2013)
Walvis Basin (PEL-23)
HRT op.
TD: 5729m / WD:
• P&A (spud: 1 June - 62 days)
• Main target Barremian BFF: tight.
• Secondary target (Santonian turbidites): water wet
• Encounter same SR as Wingat-1.

Kabeljou (2012)
Orange Basin (Block 2714)
Petrobras op.
TD: 5000m / WD: 377m
• P&A (spud 27 July- 44 days).
• Target Albian deltaic ss (4-way).
• Good SR penetrated.
• HC shows.

Moosehead-1 (2013)
Orange Basin (Block 2714)
Petrobras op.
TD: 4170m / WD: 1716m
• P&A (Spud 6 Aug. - 47 days)
• Two SR penetrated: One Aptian.
• Barremian age carbonates (tight)
• Wet gas shows.

Source: IHS
- Delta Structure area exceeds 1000 Km² at maximum closure.
- At least three additional large 4-way closures, in-trend with the Delta structure, present in licence 0010.
- Carbonate Albian play underneath Maastrichtian Turbidite play.
- Additional stratigraphic Late Cretaceous play (turbidites onlapping highs).
11 of the 2013 top twenty oil & gas discoveries in the world have been made in Africa. Several of these discoveries in sedimentary basins already considered as mature
2014 New Ventures Focus strategy

Northern segment: focus on oil sweet spots and low risk/high reward gas play

Southern segment: well established presence in key basins and new acquisition planned in the high potential areas highlighted by regional studies

Mediterranean basins: looking for new play in proven HC provinces

Indian Ocean and Mozambique channel: focus on regional studies to highlight oil sweet spots and eyeing acquisition in gas play with large upside

Western african rift branch: Focus on unlocked oil basins

Eastern Karoo and Easte South Africa basins: focus on light oil sweets spots
The Region

- USA (Alaska)
- USA (Louisiana)
- USA (GoM)
- Canada
- Brazil
Repsol Alaska Portfolio

**North Slope:** 247 Blocks, WI 70%, Operator

**Chukchi Sea:** 93 Blocks, WI 100%, Operator

**Beaufort Sea:** 67 Blocks, WI 20%, Non-Operator
Risked Production profile
Repsol North Slope Acreage, Location Mapwells drilled

Source: Repsol & Woodmac
Alaska North Slope
Resources Evolution considered in the economics exercise
Repsol North Slope Acreage, Location Map 2013-2014 drilling campaign

Source: Repsol & Woodmac
### 2014 Alaska North Slope Planned Activities

- Qugruk -5, Qugruk-7 & Tuttu -1
- 3D seismic acquisition

<table>
<thead>
<tr>
<th>Project</th>
<th>Area</th>
<th>2014</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
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<tbody>
<tr>
<td>Q-5</td>
<td>Alaska N. Slope</td>
<td>Ice Road &amp; Ice Pad</td>
<td></td>
<td></td>
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<tr>
<td>Q-5</td>
<td>Alaska N. Slope</td>
<td>Drilling</td>
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<td>Ice Road &amp; Ice Pad</td>
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<tr>
<td>Q-7</td>
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<tr>
<td>Q-7</td>
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</tr>
<tr>
<td>Tuttu-1</td>
<td>Alaska N. Slope</td>
<td>Ice Road &amp; Ice Pad</td>
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<tr>
<td>Tuttu-1</td>
<td>Alaska N. Slope</td>
<td>Drilling</td>
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<tr>
<td>Seismic</td>
<td>Alaska N. Slope</td>
<td>3D Seismic Acquisition</td>
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</tr>
</tbody>
</table>
2013/2014 Campaign

Source: Repsol & Woodmac
Q-6 DST
Beaufort Sea, 67 Blocks, WI 20%, non-Operated
Chukchi Sea: 93 Blocks, WI 100%, Operator

Source: Repsol & Woodmac
Repsol Participated blocks in East Canada

400 km
Repsol in Canada - 2014

<table>
<thead>
<tr>
<th>BLOCK</th>
<th>KM2</th>
<th>ACRES</th>
<th>W.I.</th>
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<tr>
<td>EL1114</td>
<td>1,213</td>
<td>299,739</td>
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<tr>
<td>EL1121</td>
<td>1,396</td>
<td>344,959</td>
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<td>EL1110</td>
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<tr>
<td>EL1123</td>
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<tr>
<td>EL1125</td>
<td>2,470</td>
<td>610,350</td>
<td>10</td>
</tr>
<tr>
<td>EL1126</td>
<td>1,868</td>
<td>461,593</td>
<td>10</td>
</tr>
<tr>
<td>EL1134</td>
<td>2,089</td>
<td>516,201</td>
<td>25</td>
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<tr>
<td>TOTAL</td>
<td>13,392</td>
<td>3,309,235</td>
<td></td>
</tr>
</tbody>
</table>

**HIBERNIA FIELD**
Estimates of Recoverable Reserves: 1395MMBOE (PP)

**ELL110**
HUSKY (OP) 67%
REPSOL 33%

**ELL1110**
HUSKY (OP) 40%
SUNCOR 40%
REPSOL 20%

**ELL1123, ELL1121**
HUSKY (OP) 50%
CVX 40%
REPSOL 10%

**ELL1125, ELL1126**
Statoil (OP) 75%
CVX 40%
REPSOL 25%

**EL 1125, EL 1126**
Statoil (OP) 75%
CVX 40%
REPSOL 25%

**MIZZEN**
100-200 MMBOE

**TERRANOVA FIELD**
Estimates of Recoverable Reserves: 419MMBOE (PP)

**HEBRON/BEN NEVIS**
Analogue to the Hibernia & White Rose Fields.
Rifted Basin with proved Egret/Hibernia Petroleum System

**WHITE ROSE FIELD**
Estimates of Recoverable Reserves: 317MMBOE (PP)

**BAY DU NORD**
300-600 MMBOE

**HIBERNIA FIELD**
Estimates of Recoverable Reserves: 1395MMBOE (PP)

**HEBRON/BEN NEVIS**
Analogue to the Hibernia & White Rose Fields.
Rifted Basin with proved Egret/Hibernia Petroleum System

**HARPOON**

**Aster C-93 Well**
(scheduled 3Q 2014)
Analogue to the Hibernia & White Rose Fields.
Rifted Basin with proven Egret/Hibernia Petroleum System

Source: Repsol & Woodmac
Aster C-93 Exploration Well Schedule

- **Spud Date:** Estimated 3Q 2014
- **Rig:** Henry Goodrich Semi-sub Rig
- **Drilling slot:** 98 days (Drilling, Logging and P&A)
- **WD:** 560 meters
- **MD (TVD):** 4450 (4450) meters
GOM Location Map
Repsol’s Position

Exploration
- □ Operated – Currently Drilling
- ○ Operated - Drill Ready
- ○ Non Operated - Drill Ready

Appraisal
- ○ Non Operated Currently Drilling

Development
- ○ Non Operated Production

Shenzi (BHP Operator)
Miocene (REP 28%)

Leon
Wilcox

Subsector (Zipa Operator)
Wilcox (REP 12.5%)
Keathley Canyon – Wilcox Trend
Recent Discoveries and Activity

Leon Prospect is a 4-way closure at Wilcox level in trend with recent discoveries in the play and with structural similarities to Tiber, Phobos, Gila, Moccasin and Buckskin.
Leon Prospect
Current Activities and Timeline

Well being drilled with Ensco DS-5
Well spudded Jan 1\textsuperscript{st}, 2014
Currently setting 22” casing in Salt

DRILLING OPERATIONS

Jan 13
Leon Spud

Jun 13
Leon TD

Evaluation

Jan 13
Brazil’s state-run oil company Petrobras has confirmed the presence of good quality oil (31 ° API) in ultra deep waters in the Santos Basin pre-salt while drilling well 1-SPS-98 (1-BRSA-1063-SPS), informally known as Sagitário. This is the first well to be drilled in the BM-S-50 block and is located 194 km off the coast of the state of São Paulo in 1,871 meters of water.

The concession where this well is being drilled is located west of the main discovery in the Santos Basin pre-salt (cluster blocks). The importance of this discovery lies in the fact that this is an exploration frontier.

The oil was found in carbonate reservoirs 6,150 meters below the salt layer.

Petrobras is the consortium operator (60%) in partnership with BG E&P Brasil (20%) and Repsol Sinopec Brasil (20%).
Repsol in Brazil main activity in 2014
Deep offshore Campos pre-salt discovery

Repsol Sinopec, Op. 35%
Statoil 35%
Petrobras 30%
Seat, Gavea and Pao de Acucar discoveries

> 1.2 BBOE
1. Russia
2. SE Asia: Indonesia
3. Pacific: Australia
4. New Ventures
Asia-Pacific: Region location map:
Asia Pacific: Some numbers

### Number of Blocks and Area (km²)

<table>
<thead>
<tr>
<th></th>
<th>Number of Blocks</th>
<th>Area (km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia</td>
<td>13</td>
<td>8,005</td>
</tr>
<tr>
<td>Indonesia</td>
<td>6</td>
<td>28,408</td>
</tr>
<tr>
<td>Australia</td>
<td>1</td>
<td>12,548</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20</strong></td>
<td><strong>48,961</strong></td>
</tr>
</tbody>
</table>

#### Main Exploration Delegations
- **Russia Exploration Delegation**: 32%
- **New Ventures**: 30%
- **Australia Exploration Delegation**: 8%
- **Indonesia Exploration Delegation**: 30%

**2013**
- 3 exploration well drilled
- 1000 km 2D+ 2100 km² 3D
- 3 new blocks

**2014**
- 4 wells planned+production testing
- >4300 km 2D+piston coring
Karabashky 7 Blocks: Activity in 1, 2, 3, 9
- Seismic acquisition (1420 km 2D)
- 4 wells: 2 verticals & 2 horizontals

Salymsky 6&7
Seismic acquisition (500 km 2D)

Kumolsky+3
Complete remaining seismic acquisition

REPSOL LICENSES IN WEST SIBERIA (Total acreage: 8005 km²)
Karabashky Group
1. KARABASHSKY-1 (388 km²)
2. KARABASHSKY-2 (303 km²)
3. KARABASHSKY-78 (333 km²)
4. KARABASHSKY-79 (323 km²)
5. KILEYSKY (627 km²)
6. KARABASHSKY-3 (839.4 km²)
7. KARABASHSKY-9 (272 km²)

Salimsky Group
1. SALYMSKY-7 (289 km²)
2. SALYMSKY-6 (516.4 km²)

Kumolsky Group
1. KUMOLSKY (1052 km²)
2. VOSTOCHNO PILILALKINSKY (1471 km²)
3. SOUTH PILILALKINSKY (1217 km²)
4. VERKHNEEULKINSKY (984 km²)
Karabashky Blocks Area:
By choice not by chance

Technical merits
- Prove viability of a new play in the westernmost area of the basin

2013 Summary of work done:
- 2 new blocks, Karabashkiy 3 & Karabashkiy 9
- Approval of exploration license extension for Karabashkiy 1 & Karabashkiy 2 up to April 2015 (w. 1 well per block commitment)
- 2 exploration wells drilled during the winter season 2012-2013
  - Result: oil and gas found, 1 well tested

2014 Work Program:
- Detailed studies of more than 200 m of core & first approach to contingent resource calculation
- Drilling/testing 4 wells
- 1420 km 2D seismic acquisition
Salymskiy 6 & 7 Geological Study Licenses: Central South West Siberia

**Technical merits**

- Blocks located in the center of the basin: low-medium risk; proven Jurassic-Neocomian play
- Promising features identified in (scarce) seismic and large areas with no seismic data
- Well developed infrastructure

**2014 Work Program:**

- 2D Seismic acquisition
- Processing
- Interpretation & Evaluation

<table>
<thead>
<tr>
<th>License</th>
<th>Seismic commitment (Km)</th>
<th>2013-2014 (Km)</th>
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</thead>
<tbody>
<tr>
<td>Salymsky-6</td>
<td>200</td>
<td>250</td>
</tr>
<tr>
<td>Salymsky-7</td>
<td>200</td>
<td>250</td>
</tr>
<tr>
<td>Total, km</td>
<td>400</td>
<td>500</td>
</tr>
</tbody>
</table>
Kumolsky +3 Geological Study Licenses: Eastern West Siberia

**Technical merits**
- Blocks located around 50 km East of a large gas & condensate discovery
- Similar features recognized in seismic, although large zones with no seismic data

**2013 Summary of work done:**
- Approximately 1000 km 2D

**2014 Work Program:**
- Complete seismic work program (600 km)

<table>
<thead>
<tr>
<th>Block</th>
<th>Length, km</th>
<th>Length left, km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kumolsky</td>
<td>292.15</td>
<td>0.74</td>
</tr>
<tr>
<td>Vostochno-Pilyalkinsky</td>
<td>228.75</td>
<td>255.25</td>
</tr>
<tr>
<td>Yuzhn-Pilyalkinsky</td>
<td>480.97</td>
<td>16.28</td>
</tr>
<tr>
<td>Verhnelyulkinsky</td>
<td>0</td>
<td>326.6</td>
</tr>
</tbody>
</table>
New Ventures: A growth history

Regional studies to continue at different stages, helped by good associations and cooperation agreements with local companies and institutes for data access:

- General WSB+Eastern border of WSB (regional Kumolsky)+Western border of WSB (regional Karabashkiy)+Salimsky area
- Timan Pechora…
Repsol in SE Asia: past & present

Legend:
- Repsol 2014 acreage
- Former Repsol blocks

Indonesia
- 6 blocks:
  - Cendrawasih PSC (30%)
  - Cendrawasih Bay II PSC (50%, op.)
  - Cendrawasih Bay III PSC (50%)
  - Cendrawasih Bay IV PSC (50%)
  - Seram PSC (45%)
  - East Bula PSC (45%)

Australia
- 1 block (Repsol 100%):
  - WA-480-P

Offshore Vietnam (Malay Basin):
- Blocks B & 48/95.

Sumatra & Java (exploration & production)

SK301 (Malaysia), SOUTH SOKANG (Indonesia)
SE Asia: Indonesia

Main productive and frontier exploration areas in Indonesia

Declining production in mature basins but with high remaining potential in underexplored frontier areas
SE Asia today
Repsol exploration blocks in Indonesia

Indonesia: focus for expansion into SE Asia

Initial targets are mainly in frontier deep water areas, although close to existing discoveries:

- Complex fold belt offshore (Seram & East Bula), with Australian Plate type geology, and
- Unexplored carbonates & clastic plays (Cendrawasih Bay, 3 blocks and Biak Basin, 1 block)
Indonesia exploration blocks: Creating Value

6 exploration blocks offshore East Indonesia (Cendrawasih Bay II operated by Repsol)

- More than 3 years of exploration activities and acquisition of new data
- With more than 26000 km of 2D and 2200 Km² 3D seismic
- More than 2500 km traverses of geological field work with more than 1260 samples taken (field work, piston coring, etc.), analyzed or under analysis
Indonesia exploration blocks: Cendrawasih blocks (Waipoga & Biak Basins)

- Attractive prospects defined in Operated PSC
- Encouraging results from geological field work in nearby islands (potential source rock)
- Results of first well drilled in Cendrawasih Bay under review

Operated block facing the second exploration period with a prospect identified and potential drilling plans for 2015/2016
Indonesia lessons learned: Studies continue

Elang well Cendrawasih PSC Play concept:

Miocene clastics carbonate reservoir sealed by Pliocene shales and sourced by Miocene/Oligocene argillaceous rocks in a four-way dip closure anticline.

Pre-drill assessment considered reservoir (carbonate) presence and source rock quality as main risk factors.

The well encountered several hundred feet of good porosity carbonate facies + more than 1000 ft of volcanoclastic (perivolcanic), with some potentially reservoir facies in some intervals.

Drilling below budget and with no HSE incidents in a highly sensitive area (environmentally and socially).
Indonesia exploration blocks
Seram & East Bula

Exploration blocks Repsol Indonesia Mesozoic Carbonates in fold Belts setting offshore Seram Island

Complex Thrustfold Belts in Seram and East Bula

- Geological and geographical frontier area
- With oil discoveries onshore in the same play
- Prospects and leads identified offshore, but poor seismic imaging
Indonesia value creation
Pacific today
Repsol exploration block in Australia

Large Deep Water Frontier Area.

- Robust closure defined at Early Jurassic to Late Triassic levels
- Multi-hundred million barrels and multi-tcf resource potential, having direct access to the kitchen

Australia: an opportunity to grow in the Pacific area
Australia Exploration Block
Block WA-480-P, North Carnarvon Basin

License
- Awarded on August 20th, 2012
- Repsol 100% WI
- Area: 12,548 km²

2013 Summary of work done:
- Environmental Plan
- 2085 Km² seismic survey over Naranco prospect.
- Full prospectivity reassessment, recognizing additional potential within the block.

2014 Work Programa:
- 2D seismic infill survey of 1800 km
- Complete processing of 3D and 2D surveys
- Source rock quality and presence to be de-risked by a seabed coring survey and geochemical analyses
- Dilution

RED Asia-Pacific, January 2014
N.V. Asia-Pacific: Focus 2013

- Offshore Myanmar
- Western and Southern South China Sea
- Bird’s Head
- NW Shelf – Timor Sea

(Contracts and applications after IHS)
E&P ACTIVE BLOCKS IN ASIA-PACIFIC (source: IHS)
Plays in Asia-Pacific

- **Accretionary Prisms** (i.e., Myanmar)
- **Rift basins** (i.e., South China Sea)
- **Complex Fold Belts**, Indonesia
- **Paleozoic/Mesozoic Plays** (clastics & Carbonates), W Australia