Repsol 3rd Sustainability Day

London, November 7th, 2016





- **1. REPSOL in the North Sea. Sustainability after Talisman Acquisition:** Mr. Tomas Garcia Blanco, Executive Director, Europe, Africa and Brazil
- Integration of Talisman Legacy Operations in North America. ESG Challenges and Early Benefits of Integration: Mr. Kyle Hegel, North America, Safety & Environment Manager
- 3. **Repsol: making progress towards a low emissions future:** Mr. Jaime Martin Juez, Sustainability and Technology Director

REPSOL in the North Sea

Sustainability after Talisman Acquisition

REPO

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Repsol S.A.EM Division of Economy, Finance and Development. 11/07/2016



1. North Sea operation incorporated to Repsol

2. Evolving to a sustainable operation in the North Sea

- Operational highlights
- Financial / Economic
- Society and the workforce
- Safety and Environment
- Pillars to sustainability
- Decommissioning
- Governments and stakeholders

Sustainability in the North Sea



Pillars of Sustainability



Repsol in UK

What we found

Complex network of operated production facilities

- Legacy TLM complex portfolio, built through a number of different acquisitions.
- Integrity challenges and low production efficiency.
- High cost decommissioning obligations along next decade.
- Organizational improvement required.
 - 11 Platforms+2 FPSOs

- Recovery Factor (avg. <40%)

- 4 Onshore Terminals

- 548 active wells
- 57 fields grouped in 4 hubs

Repsol owns 51% of RSRUK in partnership with Addax (Sinopec)





Repsol in Norway

What we found

Mature Portfolio

- Legacy TLM aged portfolio •
- Rapid production decline •
- Early abandonments •
- Organizational improvement required •
- Positive FCF favored by large tax pool •
- 10 Platforms _

- 130 active wells fields grouped in 4 huhs

> 20 10 0

- 4 production hubs with 9 _ mature fields
- 21 exploration licenses

Repsol has mainly non-operated production



2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015



Operational Highlights

Net Repsol North Sea integrated view





Operational Highlights II

Net Repsol North Sea integrated view





Finantial Highlights

Net Repsol North Sea integrated view

Repsol focus on creating value despite the challenging current market circumstances

FCF. BUSD Total est. 2015-17 (Act., Ref. and Budget)¹



Making a business sustainable means bringing to a neutral self-sufficient cash position





Taking care of the short-to-mid term

Creating Value



Repsol's view of our future in the North Sea walks through production acquisition in Norway reverting the cash fund needs for the period and being cash flow self-sufficient by 2019.



Repsol's main driver is to reduce cash funding needs for both countries in the short-to-mid term

and beyond that...

Repsol committment with the workforce

What have we done?



- 1. Process carefully managed by Repsol.
- 2. Some difficult decisions were made.
- **3**. Various solutions. Flexibility and temporary commuting options were offered to employees (where required).
- 4. Plans were developed and agreed with trade unions.
- 5. Smooth process. implemented as planned.
- 6. No labour conflicts.



- New Leadership team in place. 60% was replaced.
- Organization rightsizing
- Contractor downsizing
- Talent retention
- Two offices merged in Norway
- Culture integration

Strategy lines to Sustainability

Repsol in the North Sea



Pillars

1. Transformation Plan

2. Integrity and Production Efficiency

3. Optimize timing and cost of decommissioning

4. Identify development/divestment opportunities

5. Fiscal Optimization

Goals

- In alignment with Cost Efficiency program and drastically improved organizational capabilities, targeting a neutral FCF by 2017
- ✓ Focus in predictive maintenance
- ✓ CoP of less profitable platforms
- Integrated concept of decommissioning operations and synergies in the North Sea so to postpone, reduce and optimize costs
- Analyze the portfolio of development opportunities to prioritize and select future projects and divest non-core assets
- ✓ Re-balance portfolio and capital requirement for the next 10 years+
- ✓ Fiscal systems offer decomm allowances through tax considerations. A proper analysis and management optimizes the positive impact of those mechanisms.

What's ahead?

Is Sustainability at risk?

Repsol. the same as the industry. Is working hard on the short-to-mid term but...

Manage decommissioning is key to sustainability in the mid-to-long term





- Governments involvement on the same strategy: to postpone and/or reduce abandonment costs
- Current alternative solutions to decomm:
 - Lighthouse mode
 - Artificial reefs

Decommissioning

OSPAR and local regulation





OSPAR COMMISSION

North-East Atlantic and its resources

- OSPAR decision has been accepted by the UK and Norway
 - Governments, and its requirements been transferred to country legislation

OSPAR DECISION 98/3 ON THE DISPOSAL OF DISUSED OFFSHORE INSTALLATIONS

- The disposal at sea and the leaving wholly or partly in place of disused offshore installations is prohibited.
- Presumption in favour of re-use, recycling or final disposal on land.
- Only the 'footings' or part of the 'footings' may be left in place.
- **Minimum water clearance of 55 metres** required above any partially removed installation.
- In exceptional circumstances resulting from there may be exemptions for an offshore installation to be dumped or left wholly or partly in place (very heavy / concrete structures).

"At least 140 fields will cease production over the next 5 years, with a total of £55 billion (real terms) to be spent on decommissioning the UK Continental Shelf" Wood Mackenzie. May 2016 Decommissioning costs and **contribution of both British and Norwegian Governments** represent an important opportunity towards the **social dimension** of our business in the North Sea: any reduction of costs will have a direct impact on both countries' bills **leaving funds for social needs**

What's ahead?

Challenging projects: Yme MOPU removal







Extremely challenging as nothing similar had ever been conducted before

The successful completion of this project sets a precedent for considering single lift removal operations of offshore structures within the industry as well as being the first ever done by Repsol worldwide.

But not everybody was that happy...



Sustainability in the North Sea for Repsol

Conclusions



- After acquiring Talisman, sustainability of the North Sea business means for Repsol FCF generation maintaining HSE standards.
- Cost reduction is absolutely required as well as developing pending reserves opportunities.
- Sustainability will depend on how Decomm costs are managed: cost reduction and postponements.
- Fiscal losses are real opportunity and some Fiscal Modifications might be required.
- Government & People support is a precedent condition.

North Sea is still a Non Core area for Repsol that requires to be managed for its own sustainability

Sus,tain'abil'i.ty

n., the ability to meet the needs of the present without compromising the ability of future generations to meet their own needs.

Thank you

REPJOL

Integrations in Talisman Legacy Operations in North America

ESG Challenges and Early Benefits of Integration





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- **1**. North America upstream business
- 2. Talisman legacy operations in North America
- 3. Groundwork for synergy
- 4. Sustainability challenges and benefits of integration
- 5. Conclusions

North America upstream business

Alaska Exploration ★ (~162,000 net acres)

- 212 onshore leases
- 44 offshore blocks

Chauvin ★ (~129,000 net acres)

- 2015 Production
- 10 mboe/d

Duvernay 🛧 (~329,000 net acres)

- 2015 Production
- 2 mboe/d

Greater Edson ★ (~561,000 net acres)

- 2015 Production
- 45 mboe/d





Marcellus ★ (~170,000 net acres)

- 2015 Production
- 417 mmcf/d

Eagle Ford 🗙 (~41,700 net acres) *

- 2015 Production
- 26 mboe/d

MIDCON 🛧 (~60,000 net acres) **

- 2015 Production
- Liquids: 4.0 mbbls/d
- Gas: 48 mmcf/d

Gulf of Mexico ★ (~ 350,000 net acres)

- Exploration: 99 operated blocks
- SHENZI field 2015 Production:
- Liquids: 23 mbbls/d
- Gas: 8 mmcf/d

Talisman legacy operations in North America



Western canada core operating areas



Marcellus ★

Activity focused in Northeast Pennsylvania

- ✓ Tioga County
- ✓ Bradford County
- 🗸 Susquehanna County



Groundwork for synergy

Repsol and Talisman complement each other well in North America



Adding long-term strategic support to responsible day to day operations



Some key issues for North American on-shore operations







- 1. Surface and groundwater protection.
- 2. Evolving climate change policy and regulation.
- 3. Increasing public concern over pipelines.
- 4. Induced seismicity.

1.-Surface and groundwater protection





Context

- High volume hydraulic fracturing: 5,000 35,000 m³ / well
- Competing demands on surface water resources
- Local potable groundwater users
- Storage, transportation, and disposal of flowback/produced water
- National public concern and media attention

1.-Surface and groundwater protection





Common view of relative risk

(RWT):

framework

opportunities

Marcellus Operations:

Planning and operations

- Proven casing/wellbore design
- Specially formulated cement blends
- Advanced surface water withdrawal and storage systems ٠
- Established flowback water recycling program
- Site-specific hydrogeological risk assessment

Stakeholder Engagement

- Strong relationships with local residents and regulators
- Marcellus Bussiness Unit recognized by regulator as "setting the bar"

Monitoring and Evaluation

Comprehensive pre-drill groundwater sampling program

2.-Evolving climate change policy and regulation





Context

- Alberta Specified Gas Emitters Regulation (2007)
- Alberta Climate Leadership Plan (2015) and Act (2016)
- US/Canada announcement on 45% methane reduction from 2012 baseline (2016)
- Canada announcement (2016) on \$50/tonne carbon levy by 2022

2.-Evolving climate change policy and regulation





Canada and Marcellus Operations:

- Operations in both Marcellus and Alberta have well established processes to report greenhouse gas emissions for required operations
- Edson Gas Plant Large Final Emitter under SGER a credit generating facility
- A history of opportunistic emissions reduction projects



Leveraging Repsol's Global Experience in Climate Change Strategy:

- Repsol Energy and Carbon Reduction Plan 2014-2020
- E&P Energy management model:
 - E-Operational Reviews
 - Analysis of potential energy reduction opportunities
- Experience working with GHG emissions inventories (ISO 14064) since 2008
- Global Climate Change Team
- Experience with carbon trading markets. Repsol downstream facilities in the European emission trading scheme since 2005.

3.-Increasing public concern over pipelines





Context

- Repsol Canada ~ 3,400 km of operating pipelines no interprovincial or international pipelines
- Keystone XL rejected November 2015
- Northern Gateway permits invalidated by court
- Energy East National Energy Board Panel recused (Sept 2016)
- Transmountain
- Dakota Access
- First Nations' pan continental treaty alliance (Sept 2016)

3.-Increasing public concern over pipelines





Canada Operations:

- Established Operating and Maintenance practices in accordance with regulations
- Local Pipeline Integrity team integrated with Operations
- Annual Pipeline Risk Assessment process
- A mix of established and evolving elements of Process Safety Management
- Prescriptive (regulatory driven) approach to managing safety critical equipment



Leveraging Repsol's Process Safety Experience:

- Repsol's Global framework for managing major accident hazards can be adapted to focus on pipeline integrity and other environmental risks
 - Bow-Tie Studies provide a holistic view of major hazards and a risk based approach for identifying key barriers (safety critical equipment and safety critical tasks/processes)
 - Performance standards provide systematic method for improving internal practices

4.-Induced Seismicity



Duvernay Fox Creek area AB to 2016-10



Context

- Duvernay Alberta events mainly confined to Waskahigan block near Fox Creek
 - Largest event: 4.1M
 - ~0.3% of frac wells (39 of 12,289: 1985-2015) in Western Canadian Sedimentary Basin have associated IS events (Atkinson, 2016)
 - ~4/400 Duvernay completions have been +3.5M; 2 are Repsol's
 - Repsol's recent Bigstone completion (Sept 2016) had no seismicity
- Mid-Continent Oklahoma/Kansas
 - Largest event: 5.8M
 - Reduced number of events in 2016

4.-Induced Seismicity



Leveraging Repsol's Technical Resources:

- Repsol's world-class technical team (CTR) providing support – 3D geomechanical model for Duvernay
- Collaboration with our peer companies' technical teams

Canada Operations:

Planning and operations:

- Induced seismicity (IS) risk assessment process
- Mitigation and response protocols
 - Reduce stage tonnage, skip stages, hiatus
 - Consider mid-completion flowback in elevated risk areas

Stakeholder Engagement

- Collaboration with industry groups and regulators
 - Unprecedented geological and geophysical data sharing
- Collaboration with academia on research and data sharing
- Repsol Canada recognized openly as an industry leader in analysis, monitoring and management of completions to mitigate large IS events - Alberta Energy Regulator
 Monitoring and Evaluation
- High quality seismic monitoring array deployed in area of interest- monitoring and evaluation

RFP

Conclusions

Integration has provided the opportunity to combine Talisman's operational experience and local management culture with Repsol's technical expertise and strategic approach to sustainability







Making progress towards a low emissions future

REPSOL

November, 2016

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Climate Change and Carbon Strategy



OUR POSITION ON CLIMATE CHANGE

REPSOL's LONG TERM CLIMATE CHANGE TRACK RECORD

MOVING TOWARDS THE FUTURE

Our position on Climate Change

Strong Comittment to tackle Climate Change



1. In Repsol we believe that two global goals have to be pursued:

- To fight against climate change and
- To provide access to affordable energy in order to support economic growth and development

2. We set up and deploy ambitious energy efficiency programs to reduce energy consumption and GHG emissions as **one of the key elements of our strategy.** These programs pursue long term targets which have been made public in order to facilitate their progress by the stakeholders.

3. We consider natural gas as the most cost effective solution to promote a structured transition to a low emissions future, specifically in the power generation field. In this sense, our Upstream portfolio evolves toward greater percentage of Gas versus Oil (about 65% in production and 75% in reserves). Based on this figures, the risk of stranded assets in our company seems limited today.

4. We are convinced **that innovation and technological development** are essential for ensuring reliable and sustainable energy supply in the long term.

5. **We support carbon pricing** as a policy framework that will contribute to provide our businesses with a clear roadmap for future investments.

Repsol's Long Term Climate Change track record

Main activities from 2001 to 2015





About **500 M€** investment planned in CO2 and energy efficiency measures from 2010 to 2020.

Repsol's Long Term Climate Change track record

Climate Change initiatives

OGCI – Oil& Gas Climate Initiative



Repsol joint the initiative in June 2015. We are working in 3 different focus areas:

- Low Emissions Roadmap: We are researching what scenarios intended to limit the global temperature rise to 2°C or below mean concretely for the oil and gas industry.
- **Managing Methane Emissions:** We are collaborating on research to fill the gaps in methane data and detection technology to help both companies and policy-makers act more effectively.
- **Carbon Capture, Utilization and Storage:** CCS projects are already underway, but largescale deployment will require us to reduce costs, develop viable market mechanisms and improve our understanding of geological storage capacity.

Last Friday, November 4th, the initiative launched the OGCI Climate Investments.

 It has been set up to invest one billion dollars over the next decade to accelerate the development of innovative technologies that, once commercialized, have the potential to reduce greenhouse gas emissions on a significant scale.







Josu Jon Imaz CEO, Repsol

"We must be ambitious in our emission-reduction targets and flexible in how we deliver them. We uphold a new model in which the war on climate change, growth and competitiveness are all mutually reinforcing."

Repsol's Long Term Climate Change track record

Climate Change initiatives



Climate Change Initiatives



Repsol is actively involved in several work streams:

- Low Emissions Pathways.
- Methane emissions.
- Adaptation and resilience.
- Energy efficiency.
- Climate reporting.



Since June 2016 we are part of the **Climate & Clean** Air Coalition – Oil & Gas Methane Partnership.

Objective: Implementation of methane emissions reductions initiatives and to be recognized as a leader in methane emissions management.



Since June 2016 we are part of the **World Bank** Group – Zero routine flaring by 2030 initiative.

Objective: Implementation of gas flaring reduction initiatives and to be recognized as a leader in gas flaring management.

Historical results

	2010	2011	2012	2013	2014	2015
Maximum score of the Energy Sector (Disclosure)	90	92	98	98	100	100
Repsol score (Disclosure)	88	89	98	98	96	100
Repsol score (Perfomance)	А	В	A-	В	В	В



Transparency

Repsol has been recognized as one of the best O&G companies for its Carbon Strategy. Our company has been included in the group of "leaders" 7 times in the last 10 years.

In 2016 our global score has been A-

Moving towards the future

How are we going to achieve the target?





In addition to the energy conservation actions, this ambitious plan will have to be filled by:

- Intersectorial Synergies
- Non-conventional technologies
- International consortium
- Open innovation
- Technology Scouting and
- Strong commitment of the entire organization

1st Energy and Carbon Plan: 3.1 Mt CO₂ have been reduced from 2005 to 2013.
2nd Energy and Carbon Plan: 1.9 Mt CO₂ target from 2014 to 2020.

Moving towards the future

Integration of Talisman Energy: Transformation of our Company





Moving towards the future

Upstream: Main lever in the future



Upstream businesss represents a big opportunity

Canada (2017)

Value

Operational Review Energy (OR-E)

Culture

Upstream Energy Management System

Resilience

International Oil & Gas Initiatives





Spain (Test) (2014)

T&T (2014)

Ecuador (2015)

Malaysia (Sept 2016)

Thank you November, 2016

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