

# Repsol 3<sup>rd</sup> Sustainability Day

London, November 7<sup>th</sup>, 2016



- 1. REPSOL in the North Sea. Sustainability after Talisman Acquisition:** Mr. Tomas Garcia Blanco, Executive Director, Europe, Africa and Brazil
- 2. 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

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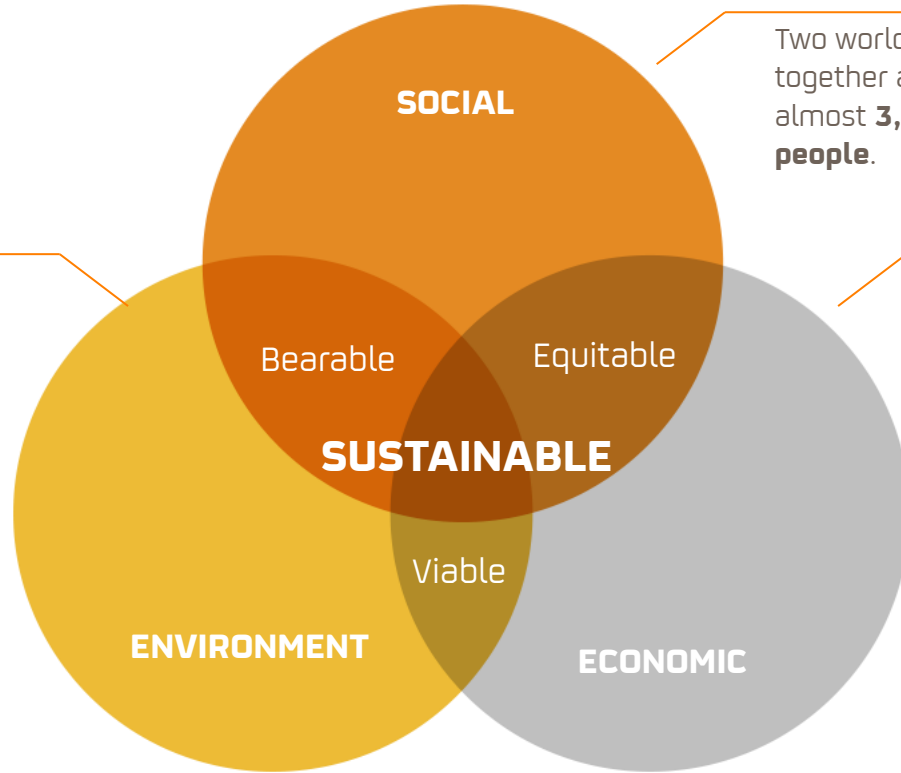
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- 1. North Sea operation incorporated to Repsol**
- 2. Evolving to a sustainable operation in the North Sea**
  - Operational highlights
  - Financial / Economic
  - Society and the workforce
  - Safety and Environment
  - Pillars to sustainability
  - Decommissioning
  - Governments and stakeholders

# Sustainability in the North Sea

## Pillars of Sustainability



Two worlds went together affecting almost **3,500 people**.

**Integrity and decommissioning are key concerns.**

After the acquisition of Talisman in May 2015 Repsol faced a **challenging** situation: two sets of aging assets with **important decomm liabilities and weak cash flows**.

*One single Objective:*  
**make it SUSTAINABLE**

# Repsol in UK

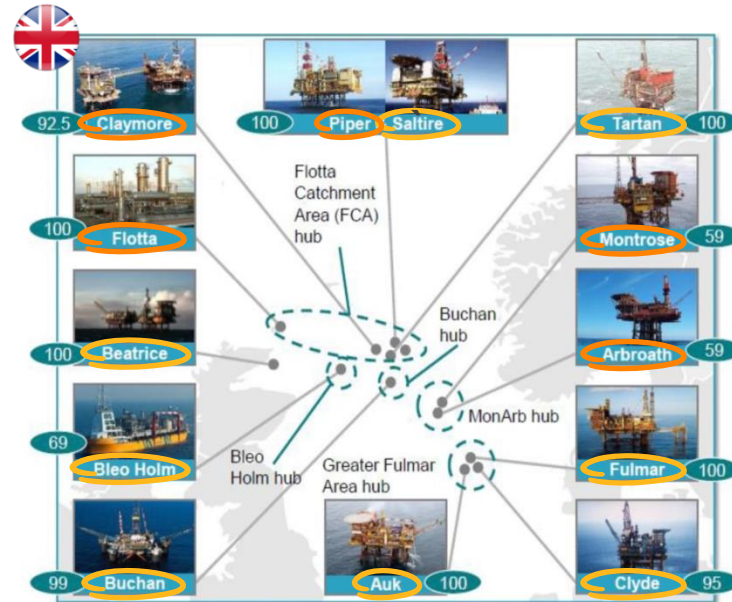
## What we found

### Complex network of operated production facilities

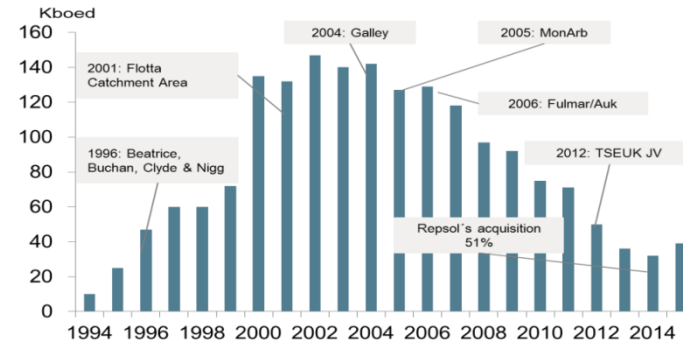
- Legacy TLM complex portfolio, built through a number of different acquisitions.
- Integrity challenges and low production efficiency.
- High cost decommissioning obligations along next decade.
- Organizational improvement required.

- 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)



- Operation assets
- Late Life Assets
- RSRUK WI [%]



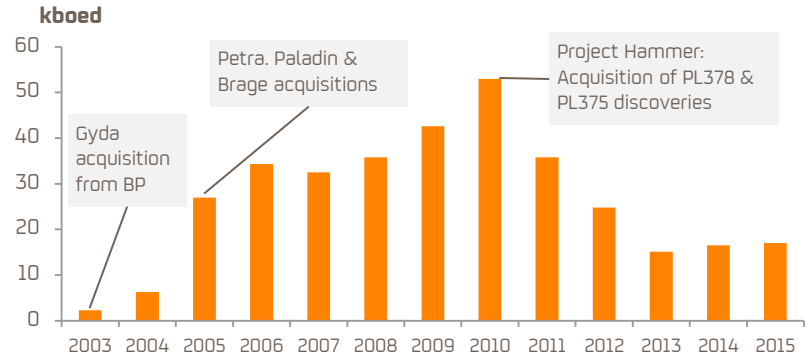
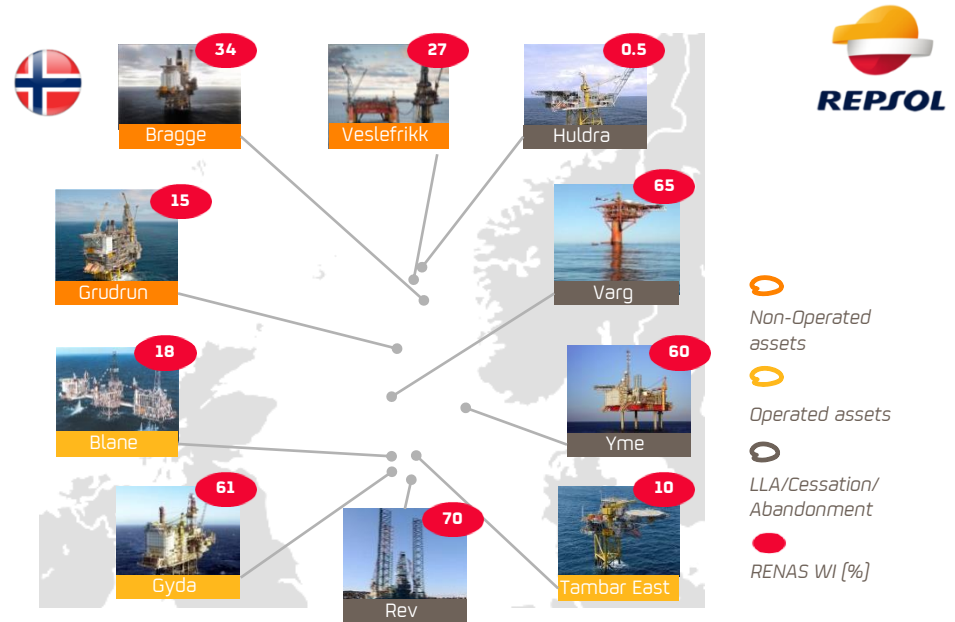
# Repsol in Norway

## 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
  - 4 production hubs with 9 mature fields
  - 130 active wells fields grouped in 4 hubs
  - 21 exploration licenses

*Repsol has mainly non-operated production*





# Operational Highlights

Net Repsol North Sea integrated view



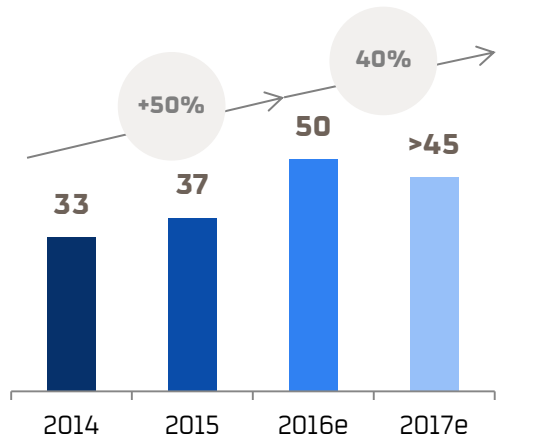
1

Production increases 50% 2016 vs 2014, thanks to better op. efficiency and production acquisition

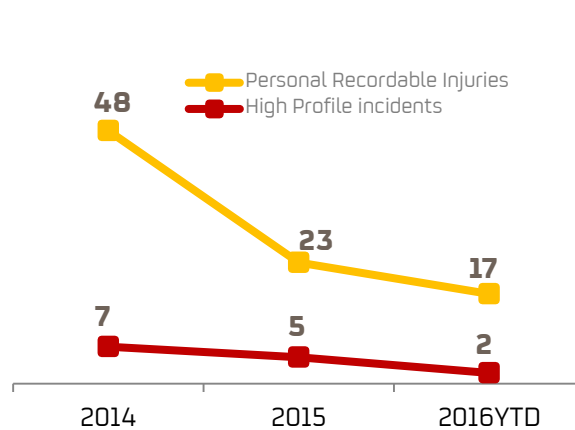
2

Positive HSE performance with a decreasing number of incidents and reduced Hydrocarbon Releases (HCR) incidence

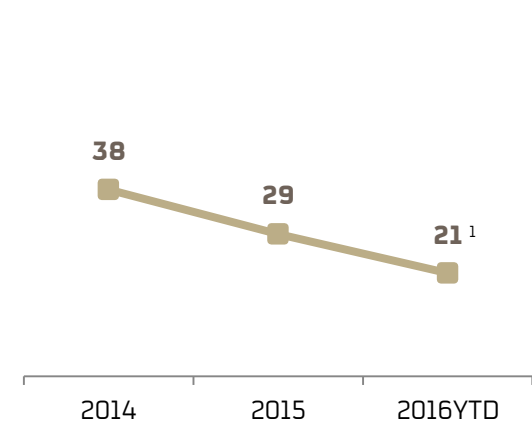
Gross Production. Kboed



Incidents



Regulatory reportable spills



<sup>1</sup>all below 3 bbl and 68 litres on average

# Operational Highlights II

## Net Repsol North Sea integrated view



3

OPEX reduced by >30% 2016 vs 2014 and lifting cost (USD/bbl) by more than 50%

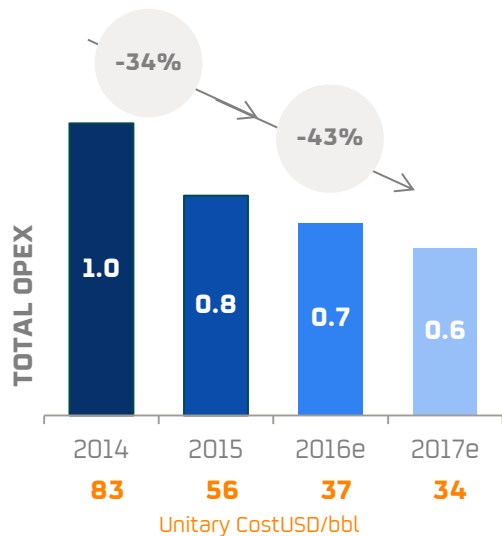
4

CAPEX/ABEX reduced by >40% 2016 vs 2014, following a more disciplined approach and containment

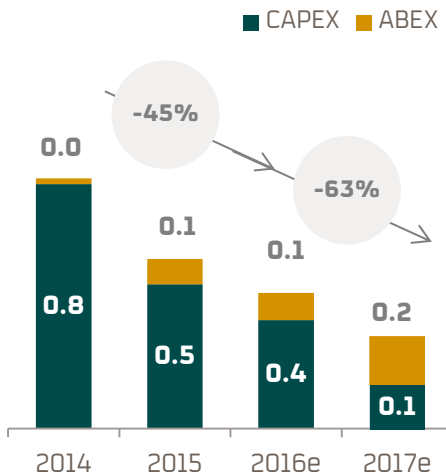
5

Funding gap has been reduced by 0.6 BUSD in 2016, with less than a half oil price

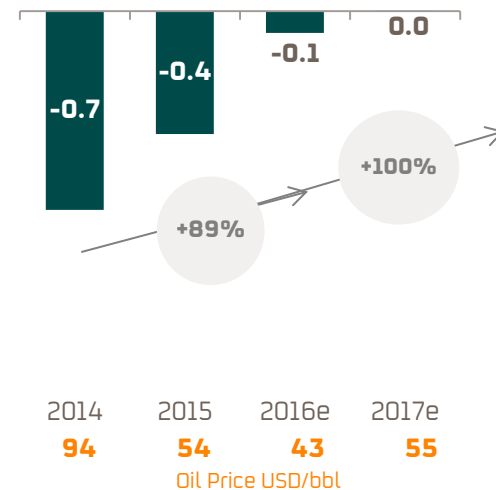
OPEX and Lifting Cost. BUSD



CAPEX/ABEX. BUSD



FCF. BUSD



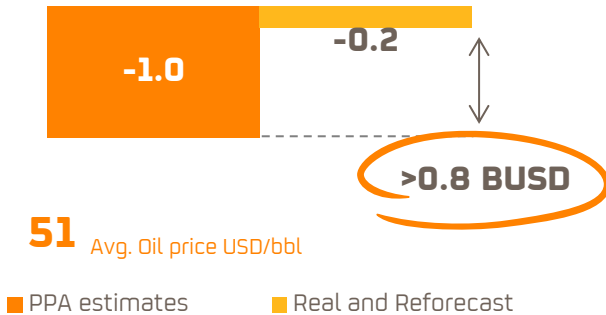
# Financial Highlights

Net Repsol North Sea integrated view



Repsol focus on creating value despite the challenging current market circumstances

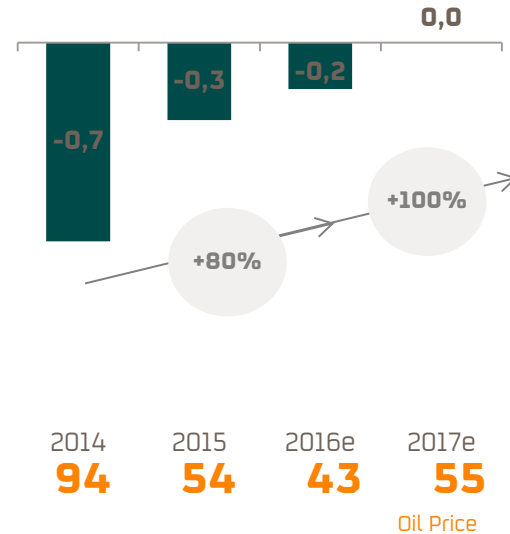
FCF. BUSD Total est. 2015-17 [Act.. Ref. and Budget]<sup>1</sup>



**51** Avg. Oil price USD/bbl

■ PPA estimates      ■ Real and Reforecast

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



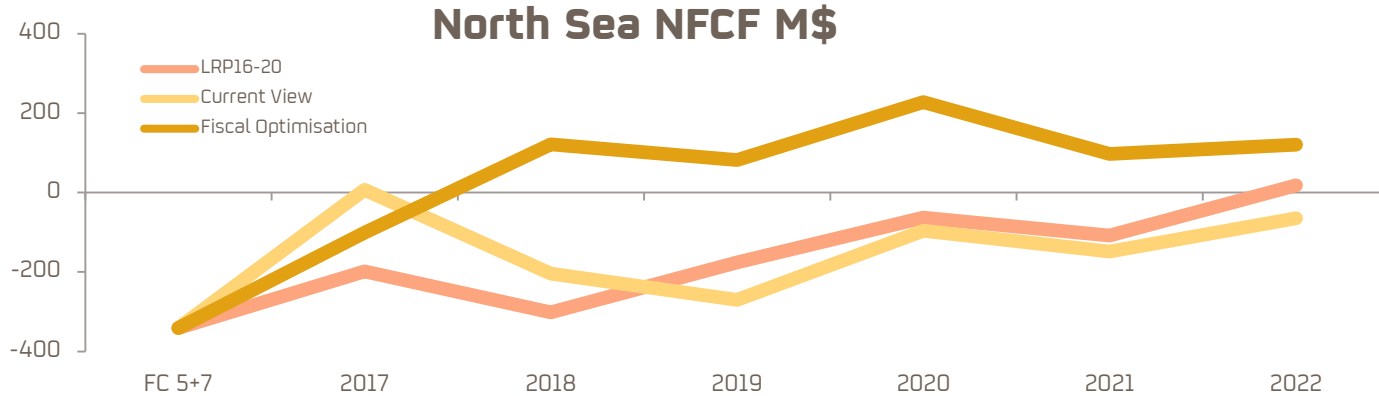
<sup>1</sup> May 2015 – 2017 year end estimates

# 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

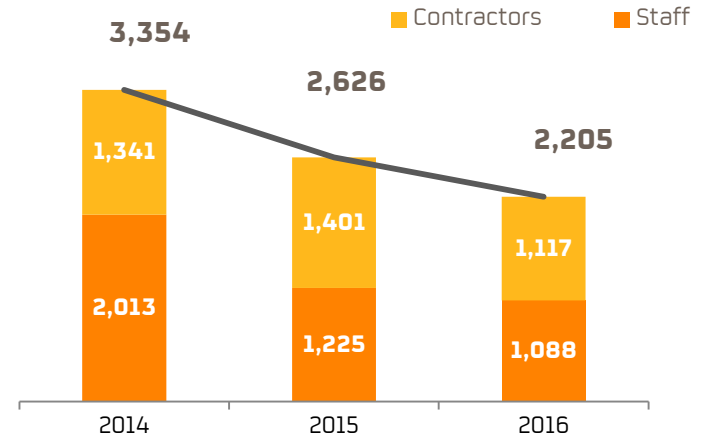
and beyond that...

# Repsol commitment 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

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## Goals

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### 1. Transformation Plan

- ✓ In alignment with Cost Efficiency program and drastically improved organizational capabilities, targeting a neutral FCF by 2017

### 2. Integrity and Production Efficiency

- ✓ Focus in predictive maintenance
- ✓ CoP of less profitable platforms

### 3. Optimize timing and cost of decommissioning

- ✓ Integrated concept of decommissioning operations and synergies in the North Sea so to postpone, reduce and optimize costs

### 4. Identify development/divestment opportunities

- ✓ 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+

### 5. Fiscal Optimization

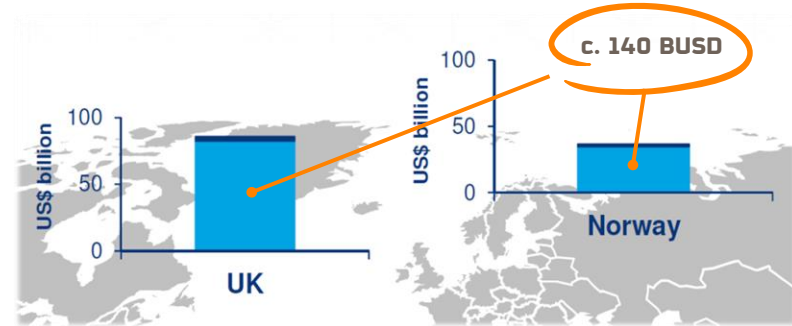
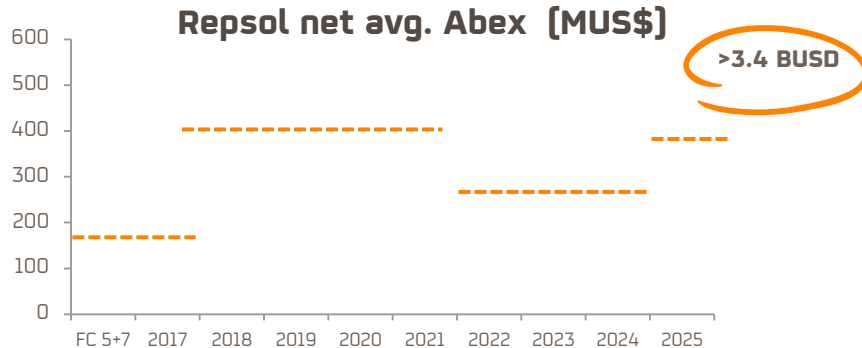
- ✓ Fiscal systems offer decomm allowances through tax considerations. A proper analysis and management optimizes the positive impact of those mechanisms.

# 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*



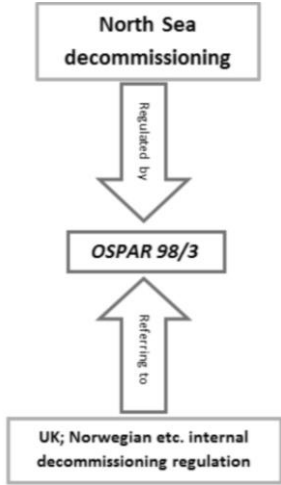
■ Historical decommissioning expenditure  
■ Remaining decommissioning expenditure

Source: Wood Mackenzie UDT  
\*Includes child field data only  
\*All costs are in real terms, undiscounted

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

# Decommissioning

## OSPAR and local regulation



**OSPAR  
COMMISSION**

Protecting and conserving the  
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***

*c. 140 BUSD*



# 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.*

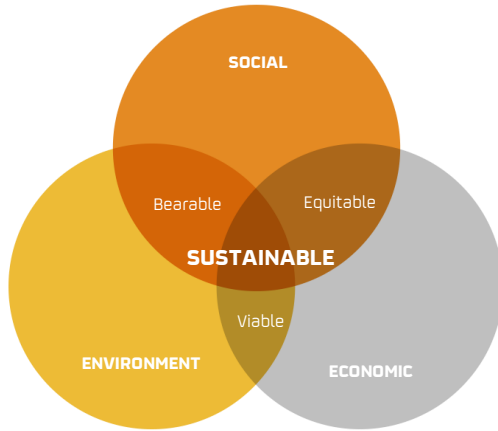
*But not everybody was that happy...*



# 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*

## 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**



# Integration of 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 ★

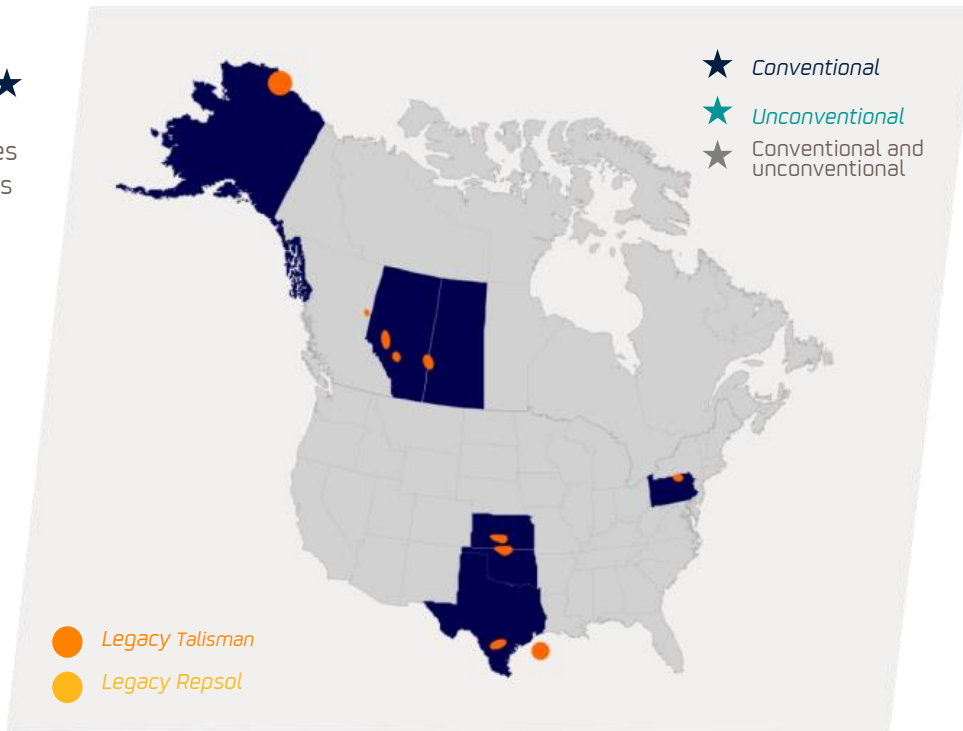
[~329,000 net acres]

- 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

\*On Dec 2015, Repsol divested a 13% stake in its Eagle Ford play to its partner Statoil. A single operatorship [Statoil] was established

\*\* Midcon acreage doesn't include extension [92,964 acres]. AK onshore is not categorized by blocks

# Talisman legacy operations in North America



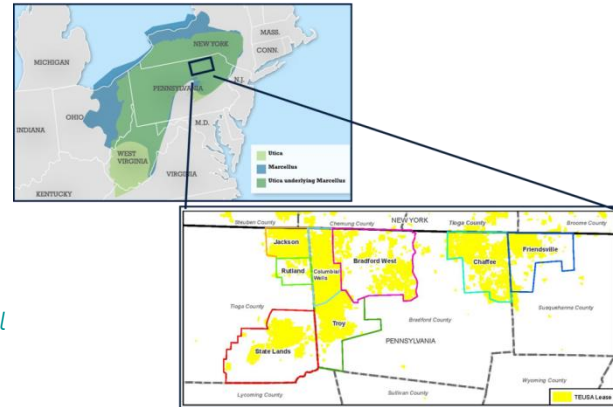
Western Canada core operating areas



Marcellus ★

Activity focused in Northeast Pennsylvania

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

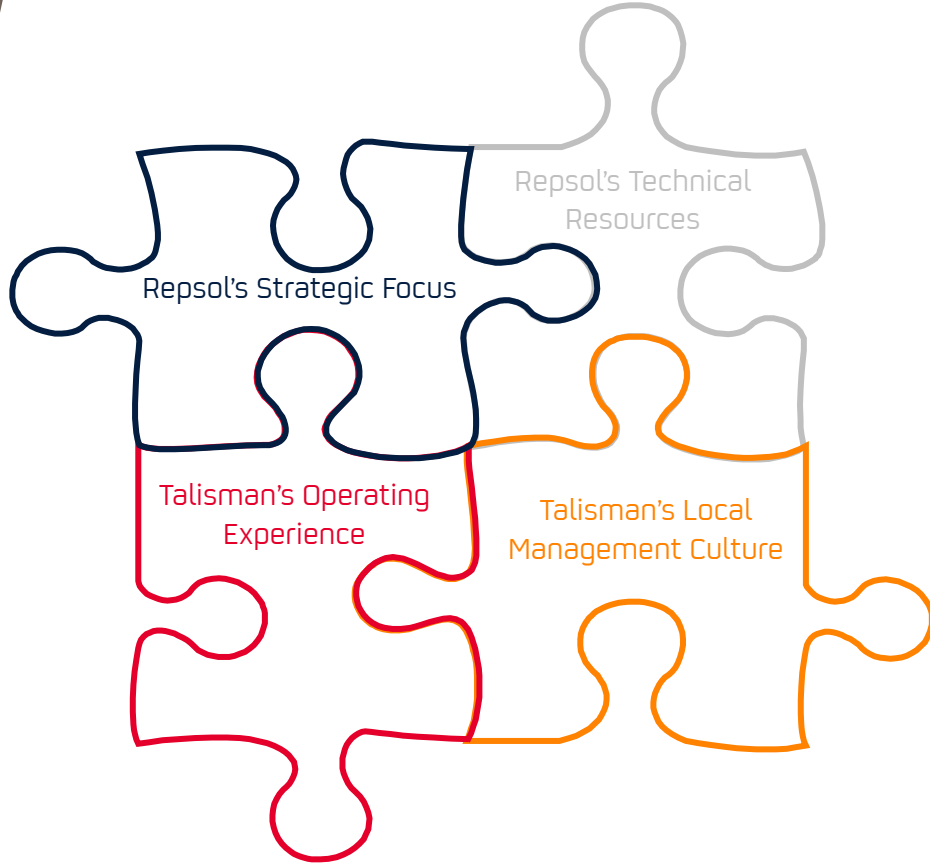


- ★ Conventional
- ★ Unconventional
- ★ Tight Oil & Gas



# Groundwork for synergy

*Repsol and Talisman complement each other well in North America*



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

# Sustainability challenges and benefits of integration

*Some key issues for North American on-shore operations*



## **Local Challenges**

*Surface and groundwater protection (Marcellus)  
Induced seismicity (Shale oil & Shale Gas in Canada)*

## **Global Challenge**

*Evolving climate change policy and regulation*

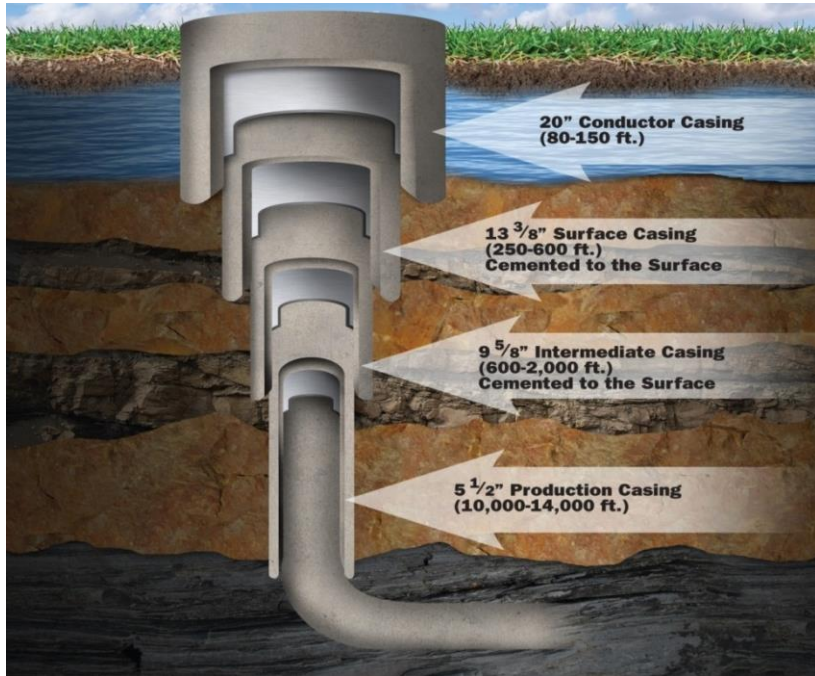
## **Regional Challenge**

*Increasing public concern over pipelines.*

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

# Sustainability challenges and benefits of integration

## 1.-Surface and groundwater protection

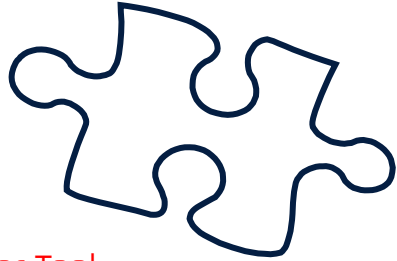


## Context

- High volume hydraulic fracturing: 5,000 – 35,000 m<sup>3</sup> / 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

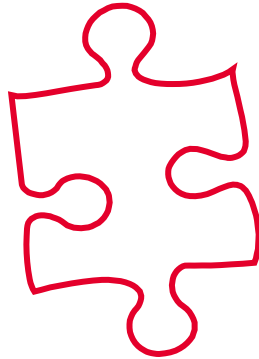
# Sustainability challenges and benefits of integration

## 1.-Surface and groundwater protection



### Leveraging Repsol's Water Tool (RWT):

- Standardized risk management framework
- Holistic assessment of risks and opportunities
- Longer-term planning
- Increased sharing of best practices between Business Units
- Common view of relative risk



### Marcellus Operations:

#### Planning and operations

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

#### Stakeholder Engagement

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

#### Monitoring and Evaluation

- Comprehensive pre-drill groundwater sampling program

# Sustainability challenges and benefits of integration

## 2.-Evolving climate change policy and regulation

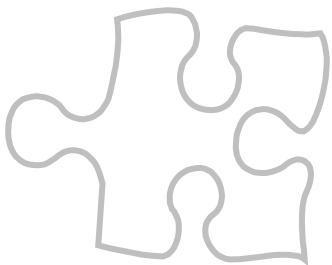


### Context

- 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

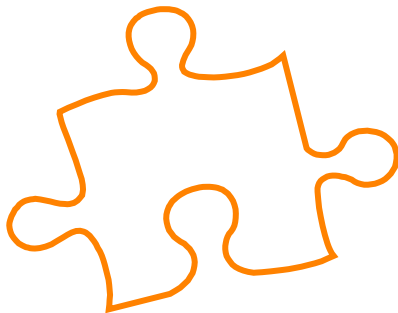
# Sustainability challenges and benefits of integration

## 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.

# Sustainability challenges and benefits of integration

## 3.-Increasing public concern over pipelines

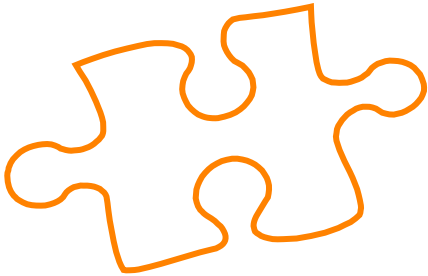


### Context

- 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)

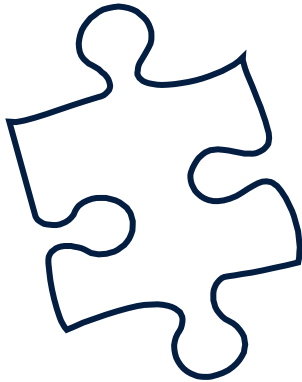
# Sustainability challenges and benefits of integration

## 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

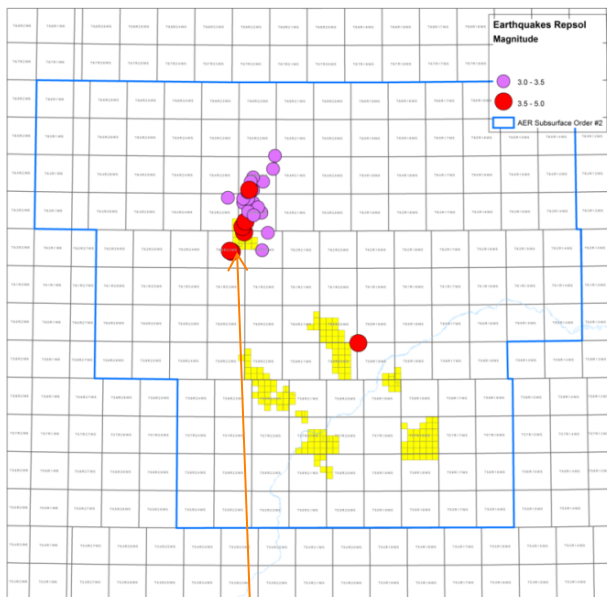


# Sustainability challenges and benefits of integration

## 4.-Induced Seismicity



Duvernay Fox Creek area AB to 2016-10



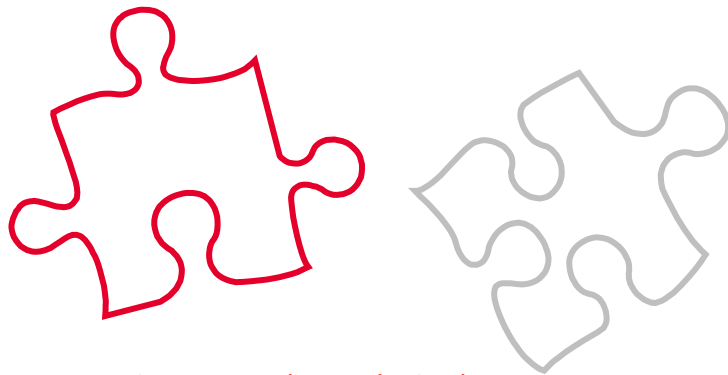
Repsol 2015-01-22 3.8M  
Repsol 2016-01-12 4.1M

## 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

# Sustainability challenges and benefits of integration

## 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

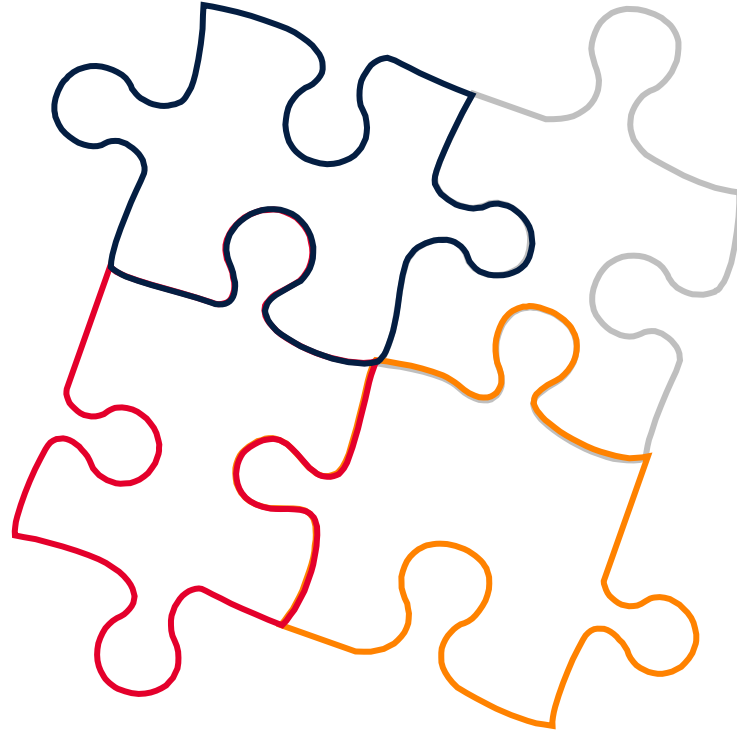
#### Monitoring and Evaluation

- High quality seismic monitoring array deployed in area of interest- monitoring and evaluation

## 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*





**Thank you**

November, 2016





# Making progress towards a low emissions future

November, 2016

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**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.

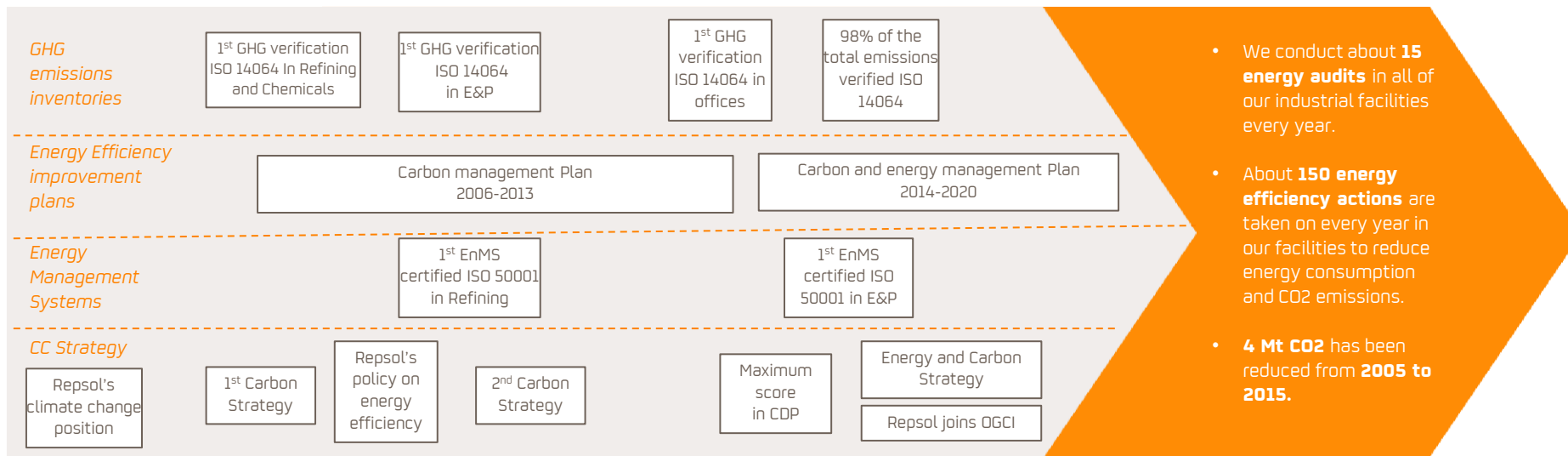


# Repsol's Long Term Climate Change track record

Main activities from 2001 to 2015



Until 2004      2005 - 2012      2013 - 2016



- We conduct about **15 energy audits** in all of our industrial facilities every year.
- About **150 energy efficiency actions** are taken on every year in our facilities to reduce energy consumption and CO2 emissions.
- **4 Mt CO2** has been reduced from **2005 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 large-scale deployment will require us to reduce costs, develop viable market mechanisms and improve our understanding of geological storage capacity.

Last Friday, November 4<sup>th</sup>, 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.



WORLD BANK GROUP

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.

### 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.

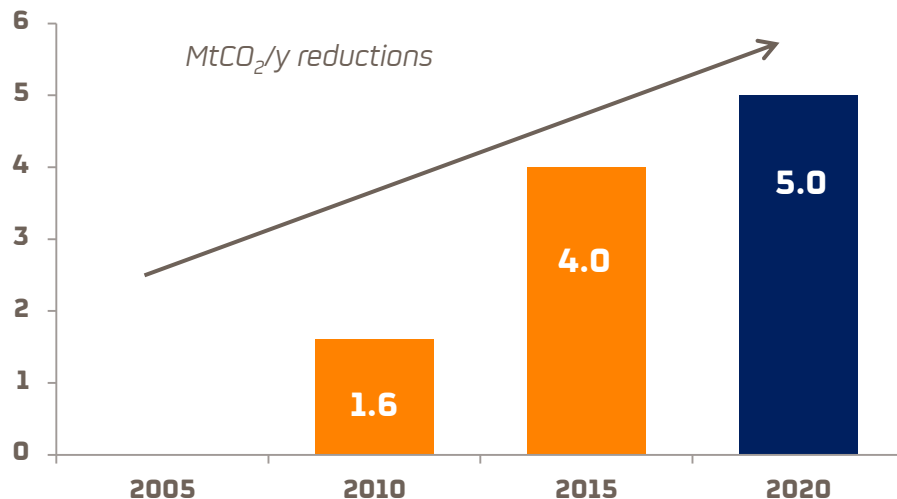
**In 2016 our global score has been A-**

### 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 (Performance)	A	B	A-	B	B	B

# 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**

1<sup>st</sup> Energy and Carbon Plan: 3.1 Mt CO<sub>2</sub> have been reduced from 2005 to 2013.

2<sup>nd</sup> Energy and Carbon Plan: **1.9 Mt CO<sub>2</sub> target from 2014 to 2020.**

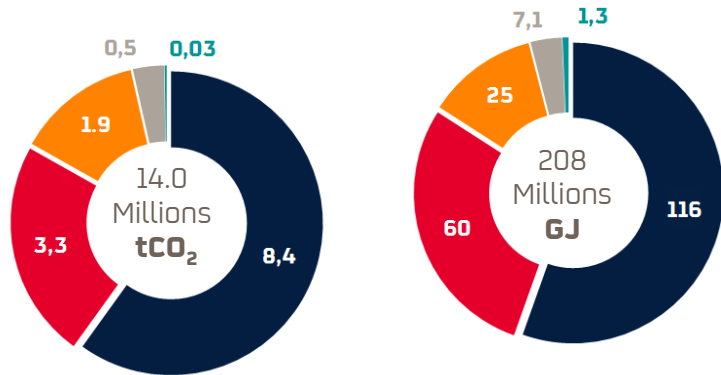
# Moving towards the future

Integration of Talisman Energy: Transformation of our Company



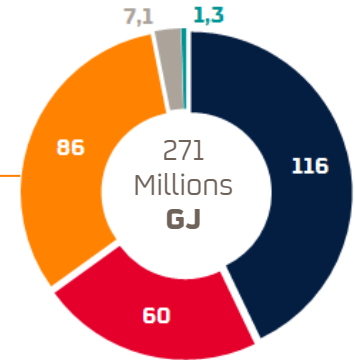
Repsol is facing new challenges after Talisman acquisition

## Legacy Repsol

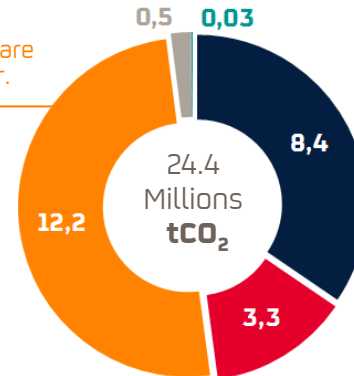


## Repsol

E&P represents now **32%** of the company's total energy consumption.



E&P GHG emissions are now six times higher.



Since may 2015 the energy consumption was 250.9 MGJ and GHG emissions 21.0 millions of CO<sub>2</sub>eq

Data at 31 December 2015

# Moving towards the future

*Upstream: Main lever in the future*



*Upstream business represents a big opportunity*

## Value

*Operational Review Energy (OR-E)*

## Culture

*Upstream Energy Management System*

## Resilience

*International Oil & Gas Initiatives*



CLIMATE &  
CLEAN AIR  
COALITION  
TO REDUCE SHORT-LIVED  
CLIMATE POLLUTANTS

**Methane**



WORLD BANK GROUP

**Flaring**

★  
Canada (2017)

★ ★  
Ecuador (2015) T&T (2014)

★  
Spain (Test) (2014)

★  
Malaysia (Sept 2016)



# Thank you

November, 2016

# Repsol 3<sup>rd</sup> Sustainability Day

London, November 7<sup>th</sup>, 2016

