Repsol Key Refining Projects

Cartagena and Petronor

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Executive Director Downstream

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Leading integrated Downstream position

<table>
<thead>
<tr>
<th>Refining</th>
<th>Marketing</th>
<th>LPG</th>
<th>Petrochemicals</th>
<th>Trading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership position</td>
<td>Highly efficiency and integrated</td>
<td>World leader with focus on core markets</td>
<td>Regional focus and integration</td>
<td>Intra-Company integration</td>
</tr>
</tbody>
</table>

- **Refining**
  - #1 in Spain
  - Premium refining market
  - Integrated system with high conversion: 5 sites operated as a single one
  - Middle distillates deficit in Europe and in Spain
  - #1 Refiner in Peru

- **Marketing**
  - # Efficient network of over 4,400 outlets
  - 40% market share in Spain, integrated with refining
  - 20% market share in Portugal
  - Leadership position in Peru, integrated with refining

- **LPG**
  - #1 in key markets: Spain and Latam
  - 4th worldwide by volume
  - Leader in productivity

- **Petrochemicals**
  - #1 in Iberian peninsula
  - Leading market share in Iberia and Southern Europe
  - Integration with refining, (Integrated sites maximizing value of side-streams)

- **Trading**
  - 75 Mt operated
  - 14 TC ships
  - Business integration: upstream, refining, LPG, chemicals...

Leading integrated Downstream position + New Energies
Repsol: Leading refiner in Spain

<table>
<thead>
<tr>
<th>Location</th>
<th>Refining Capacity [bpd]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilbao</td>
<td>220,000</td>
</tr>
<tr>
<td>Cartagena</td>
<td>220,000</td>
</tr>
<tr>
<td>La Coruña</td>
<td>120,000</td>
</tr>
<tr>
<td>Puertollano</td>
<td>150,000</td>
</tr>
<tr>
<td>Tarragona</td>
<td>186,000</td>
</tr>
<tr>
<td>TOTAL Repsol YPF</td>
<td><strong>896,000</strong></td>
</tr>
<tr>
<td>Castellón</td>
<td>120,000</td>
</tr>
<tr>
<td>Algeciras</td>
<td>240,000</td>
</tr>
<tr>
<td>Huelva</td>
<td>190,000</td>
</tr>
<tr>
<td>Tenerife</td>
<td>90,000</td>
</tr>
<tr>
<td>TOTAL Spain</td>
<td><strong>1,536,000</strong></td>
</tr>
</tbody>
</table>

Five refineries in a single optimized system

- Bilbao
- Cartagena
- La Coruña
- Puertollano
- Tarragona
Key Refining Projects

Cartagena

Petronor
Projects rational

SCENARIO

- Middle distillates supply-demand stress, with deficit in Spain
- Fall in heavy fuel oil demand

WHY IN CARTAGENA?

- Configuration not competitive

WHY IN PETRONOR?

- Configuration oriented to heavy fuel oil

Synergies: Existing infrastructures and services in both refineries
Repsol key refining projects

**Cartagena**
- Capacity increase of 120 kbpd, up to 220 kbpd
- Hydrocracker (2.5 Mt/y) and coker (3.0 Mt/y)
- Conversion from 0% to 76% FCC eq. (up to 92% w/o lubes)
- Total investment 3,195 M€
- Start-up: Sep/Oct 2011

**Petronor**
- Coker (2.0 Mt/y)
- Conversion increase of 32% FCC eq. (up to 63%)
- Total investment 885 M€
- Start up: Oct/Nov 2011

- The projects will add 2-3 $/bbl of margin to Repsol’s refining system in Spain
- Both projects developing better than planned (savings of 200 M€ from budget)
- From 2012 on, solid cash generation from premier integrated position
Repsol Spanish Refining Targets

**Distillation Capacity**

<table>
<thead>
<tr>
<th>Year</th>
<th>Capacity (kbpd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>776</td>
</tr>
<tr>
<td>2012</td>
<td>896</td>
</tr>
</tbody>
</table>

**Conversion level**

<table>
<thead>
<tr>
<th>Year</th>
<th>Conversion (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>43</td>
</tr>
<tr>
<td>2012</td>
<td>63</td>
</tr>
</tbody>
</table>

**Middle Distillates production**

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (Present=100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>100</td>
</tr>
<tr>
<td>2012</td>
<td>125</td>
</tr>
</tbody>
</table>

- Repsol Spanish refining system footprint set to further increase competitiveness
Key projects to strengthen our competitiveness

- Cartagena 2012
- Bilbao today
- Cartagena today

La Coruña
Puertollano
Tarragona

Mbcd

% FCC equivalent

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

1Q 2Q 3Q 4Q

Bilbao 2012
Repsol will be well positioned...

In 2012, Repsol will be one of the European companies with the highest conversion ratio (first quartile of the industry)
…with a significant improvement

… highest yield in middle distillates…

% Middle distillates yield

30  60

European companies

… increasing refining margin.

43% FCC Equivalent  63% FCC Equivalent

+3 $/bbl  +2 $/bbl

2010  2014
Deficit of Middle Distillates in Spain

Spain is an attractive market for refining brownfield expansion and conversion investments.

Middle distillates deficit in 2020 include new production from Repsol and Cepsa projects, and demand covered with biodiesel (10% in 2020).

CAGR +1.0%

CAGR + 0.0%

Figures in million tons

12.0

7.4

3.7

2010

2020

Source: CORES
Key Refining Projects Below Budget

<table>
<thead>
<tr>
<th>BASE BUDGET</th>
<th>TECHNICAL PRECISION</th>
<th>RISK ALLOWANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.304</td>
<td>4.734</td>
<td>4.926</td>
</tr>
<tr>
<td>+10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.874</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

-5%

- 5%
Additional Margin from Projects (Estimated)
Additional Margin from Projects (Strategic Plan)

$/bbl

2011 2012 2013 2014

Jan-sep 2011

Base Scenario
Low Scenario
Cartagena Project
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Cartagena Project Summary

Cartagena Project: over 30 new units

- New Topping (5.5 Mt/year) and Vacuum Unit (5.0 Mt/year)
- New Hydrocracker (2.5 Mt/year).
- New Delayed Coker Unit (3.0 Mt/year).
- New Middle Distillates and Light Coker Gasoil HDS Units
- New Hydrogen production Units
- New Gascon, LPG treatment, Coker Naphta HDS, SWS, sulphur units, coke storage…
- New Cogeneration Unit (40 MW)
- Modifications in existing Units: Topping, Reforming, ...
- New product pipeline Cartagena - Puertollano (360 km)

**CAPEX**
- 3.195 M€

**START-UP**
- Sep/Oct 2011

**DISTILLATION**
- 100 → 220 kbbl/d
- Additional MD = 4.5 Mt/y

**% HEAVY CRUDES**
- 6% → 70%
- (1) Designed for acid and synthetic crude oils

**CONVERSION**
- 0% → 76%
- (2) % Equivalent FCC

(1) Designed for acid and synthetic crude oils
(2) % Equivalent FCC
Cartagena Plot Plan
Some figures of Cartagena Project

- 20,000 tons of structural steel
- 3 times the height of the Eiffel Tower
- Movement of 2.0 Mm³ of earth
- 1,100 Km of pipelines (distance between Cartagena and A Coruña)
- 4,500 km of cables (distance between Cartagena and Moscu)
Cartagena Project (general view)
Cartagena Project (first coke drum assembly)
Cartagena Project (vacuum column transport)
Cartagena Project (Hydrocracker reactors)
Cartagena Project Highlights

✓ **Largest industrial** project in the **history** of Spain

✓ **Total investment** around **3,200 millions euros**

✓ **4.5 millions** of engineering hours

✓ **29 millions** of construction hours (average of **3,000 people** during **3 years**)

✓ **20,000 people** involved in the construction (**7,700 people** at daily peaks)

✓ **790 direct and 800 contractors jobs** to operate the new refinery

✓ Over **8,000 people** of indirect employment
Employment in construction stage

- **Construction**
  - Average people/day: 3,000
  - Maximum people/day: 7,700
  - Total hours: 28,950,000

- **Engineering**
  - Average people/day: 700
  - Maximum people/day: 1,200
  - Total hours: 4,500,000
Cartagena Project Safety

Infrastructure & Emergency Equipments

- 530 contractors
- 220,000 training hours
- 218 Prevention people

“Zero Accidents” Program (OPS)

IF = 1.1
OSHAS = 0.25

32
Acc. With Lost days*

130
Accidents without lost days

236
First Aid

208
Near misses

32,231
Acts and unsafe conditions

(*) Low severity index
Emissions Reduction

**Sulphur**

- Old Refinery:
  - Sulphur removal: 4%
  - Products: 13%
  - Refinery Emissions: 83%

- New Refinery:
  - Sulphur removal: 1%
  - Products: 33%
  - Refinery Emissions: 66%

**Other Emissions Reduction**

- Other t/t crude:
  - NOx: -65%
  - SO2: -70%
  - Particles: -80%
CO₂ Emissions Global Balance

Positive impact on global CO₂ emissions balance

Emissions
(t CO₂/bbl of crude)

100 basis

Capacity x 2,2
(from 0 to high conversion)

Emissions per barrel x 0,5

+ Old Refinery emissions
+ Complexity & Products Quality
= New Refinery emissions
- Efficiency Credit
- Transport Credit
= New Refinery Global Impact