

# Algeria-Europe gas pipeline via Spain



## I. Introduction to the Project

II. Project Scope

III. Project Phases

IV. Key Points

V. MEDGAZ: A Strategic Project

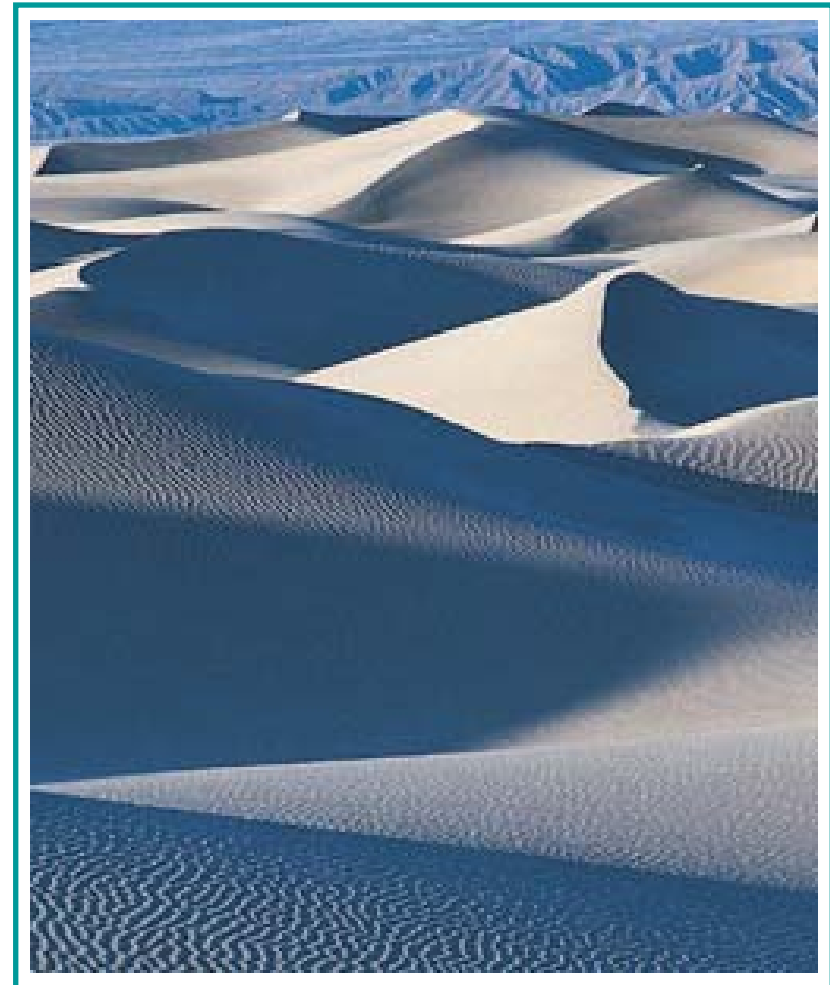
VI. Timetable

VII. Construction Process

# I. INTRODUCTION TO THE PROJECT

## Background:

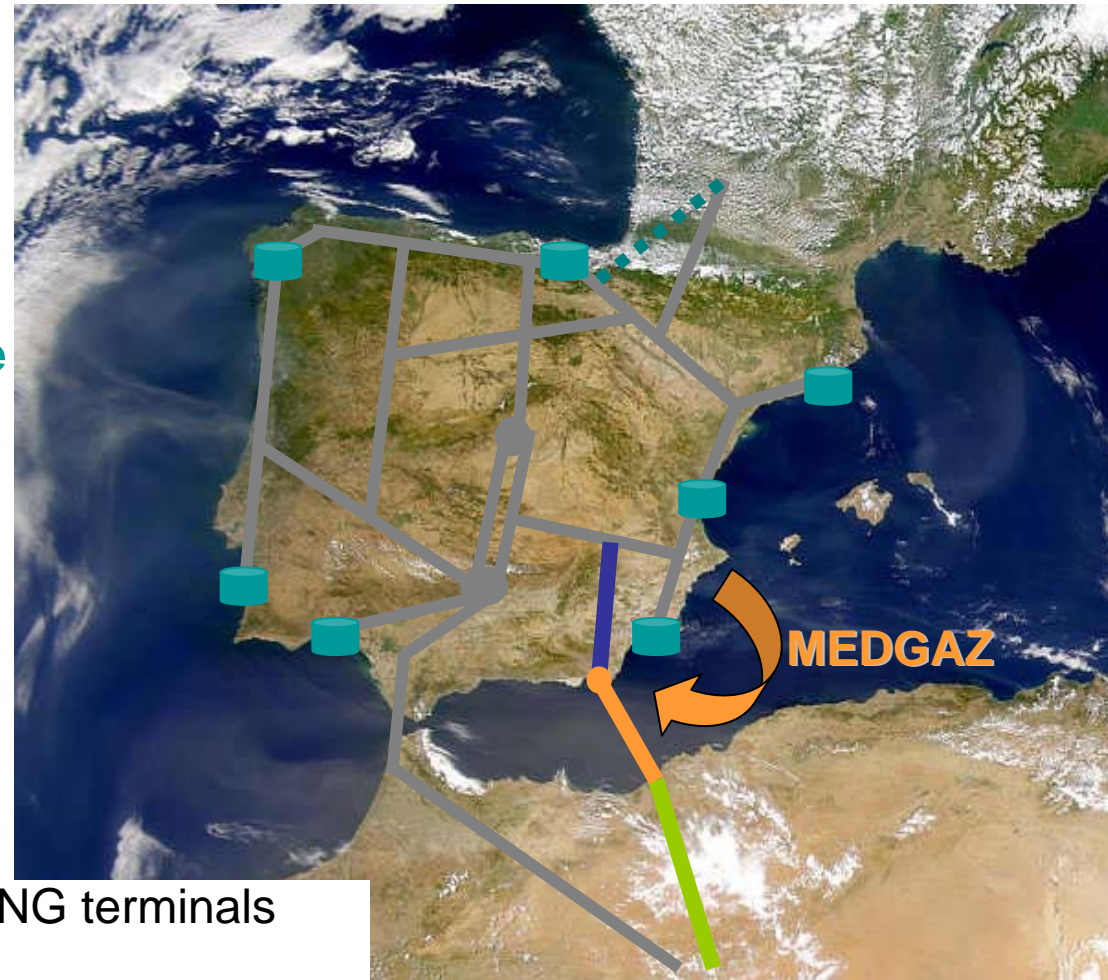
- **1970's:**
  - **The idea** of building a direct gas pipeline between Algeria and Europe **arises.**
  - Several **feasibility studies** take place.
  - **Technical limitations** prevent the construction and operation of an ultra deepwater pipeline.
  
- **Year 2001:**
  - The construction of an ultra deepwater pipeline is **feasible.**
  - CEPSA and Sonatrach **found MEDGAZ.**





## I. INTRODUCTION TO THE PROJECT

### Objective:

MEDGAZ is a company specially constituted to **design, build, and operate** an Algeria-Europe gas pipeline via Spain, to improve security of energy supply and meet growing demand for natural gas.

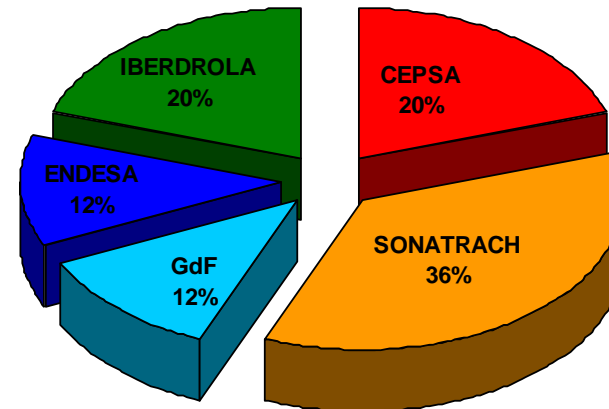


-  LNG terminals
-  Main pipelines

# I. INTRODUCTION TO THE PROJECT

## Shareholding :

- **Founding members:**  
CEPSA and Sonatrach
- **Rest of shareholding:**  
Iberdrola, Endesa and Gaz de France



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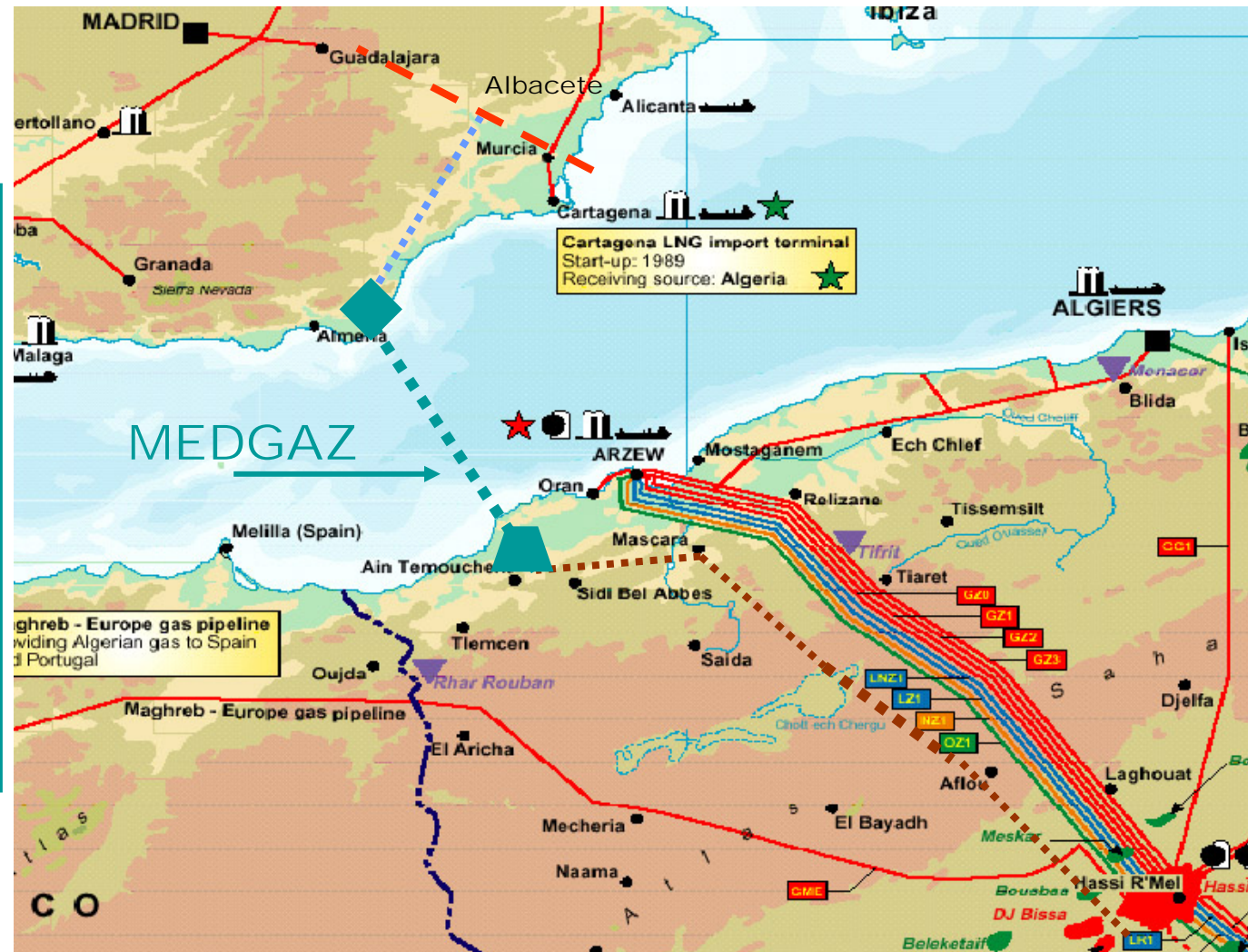
VII. Construction process



## II. PROJECT SCOPE

### Route

-  Spanish Onshore
-  Transversal Axis
-  Algerian Onshore
-  Reception Terminal
-  Compressor Station
-  MEDGAZ



## II. PROJECT SCOPE

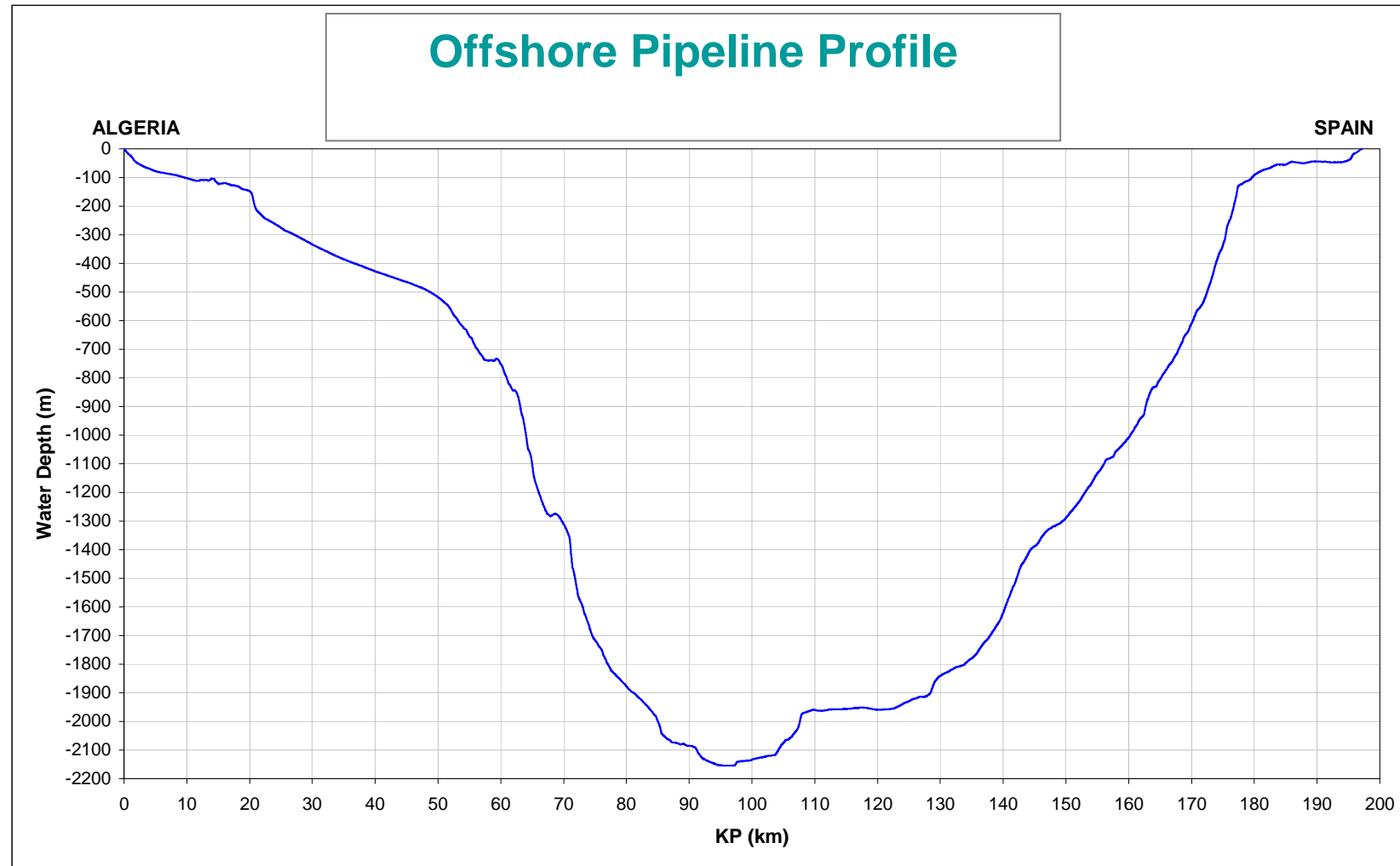
### Technical Summary:

- Length: **210 km**
- Diameter: **24 inches**
- Capacity: **8 bcm/year**
- Maximum Depth: **2,165 m**
- Estimated Investment: **900 M€**
- Workforce:
  - **Over 2,000 people** (construction phase)
  - **Over 100 persons** (operation phase)





## II. PROJECT SCOPE



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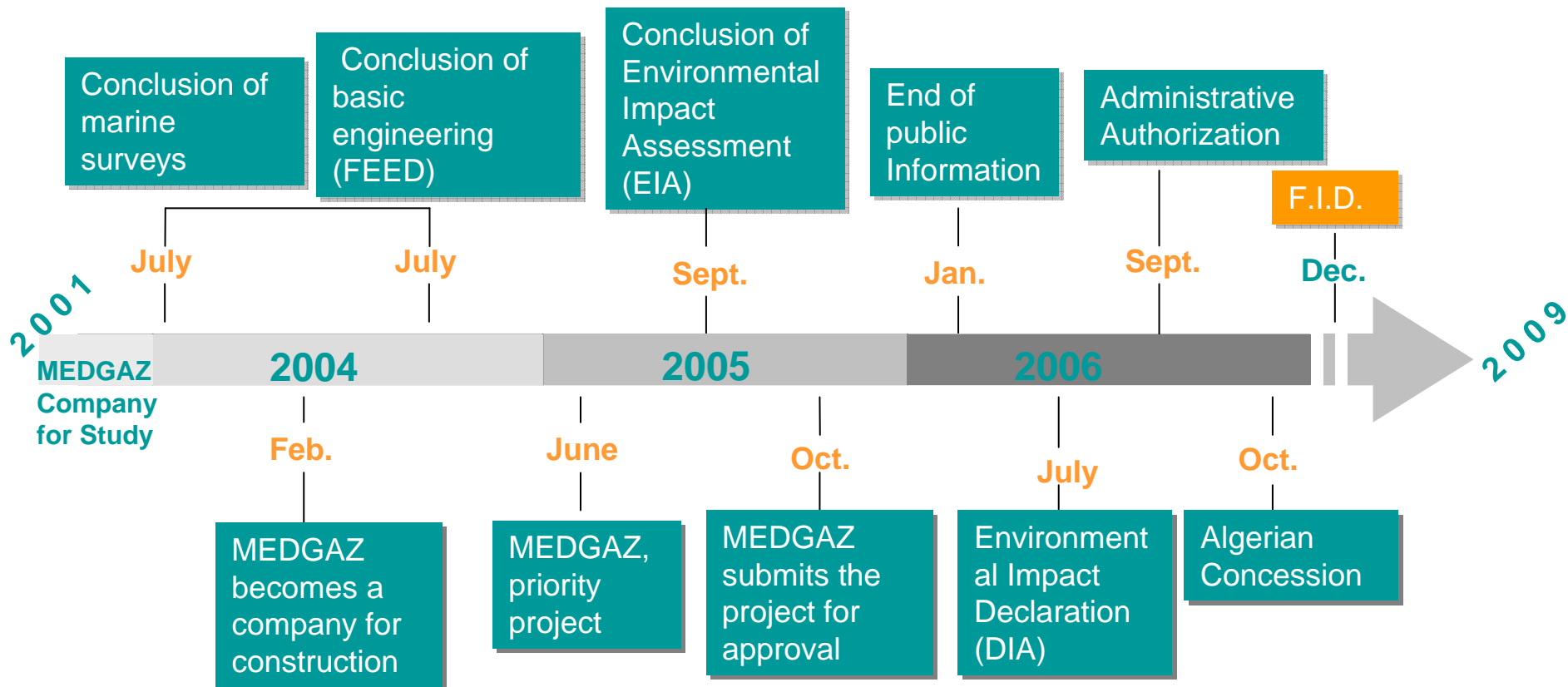
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### III. PROJECT PHASES

#### Completed Stages

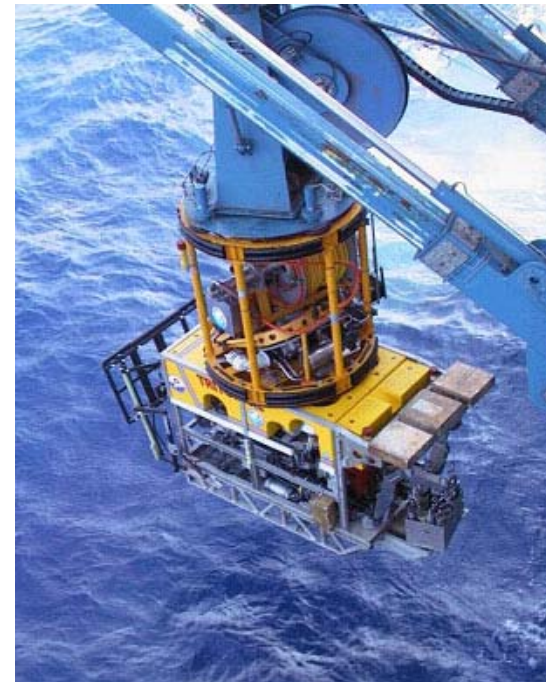


### III. PROJECT PHASES

#### 2004 – Marine Surveys



- HUGIN 3000-GC
- 509 Km. Visual inspection



- Triton XL-14
- 15 km Geophysical
- 130 km Visual inspection

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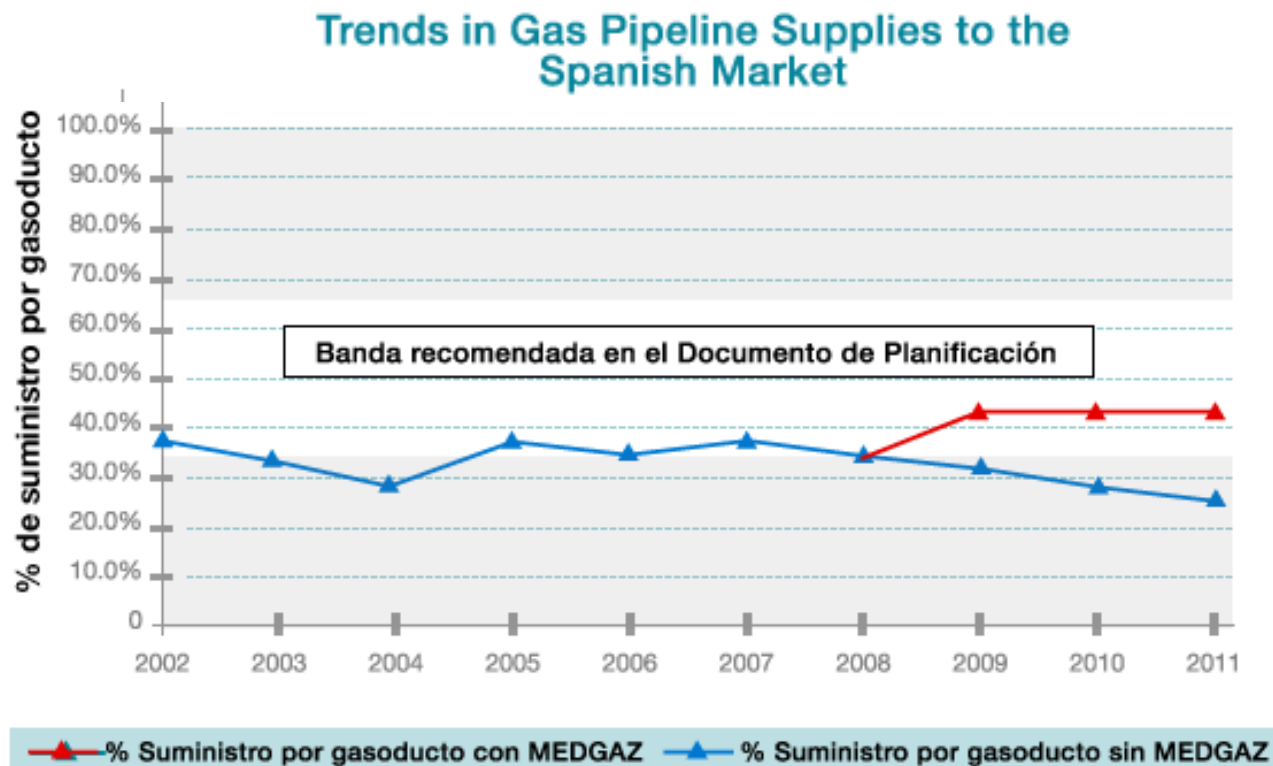
## IV. KEY POINTS

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- Improves **security of supply**
- Is the **most cost-effective** way of supplying natural gas to Spain
- Meets **growing demand** for natural gas in Europe
- Makes a positive contribution towards the **Kyoto Protocol** implementation

## IV. KEY POINTS

### Improves security of supply:



“It is advisable to maintain a balance between NG/LNG supplies, in a way that neither of these two sources should fall below 1/3 of the total (...) to optimize the coverage(…).”

(Planning of Electrical Power and Gas Sectors. Development of Transportation Networks 2002-2011)

## IV. KEY POINTS

### Improves security of supply:

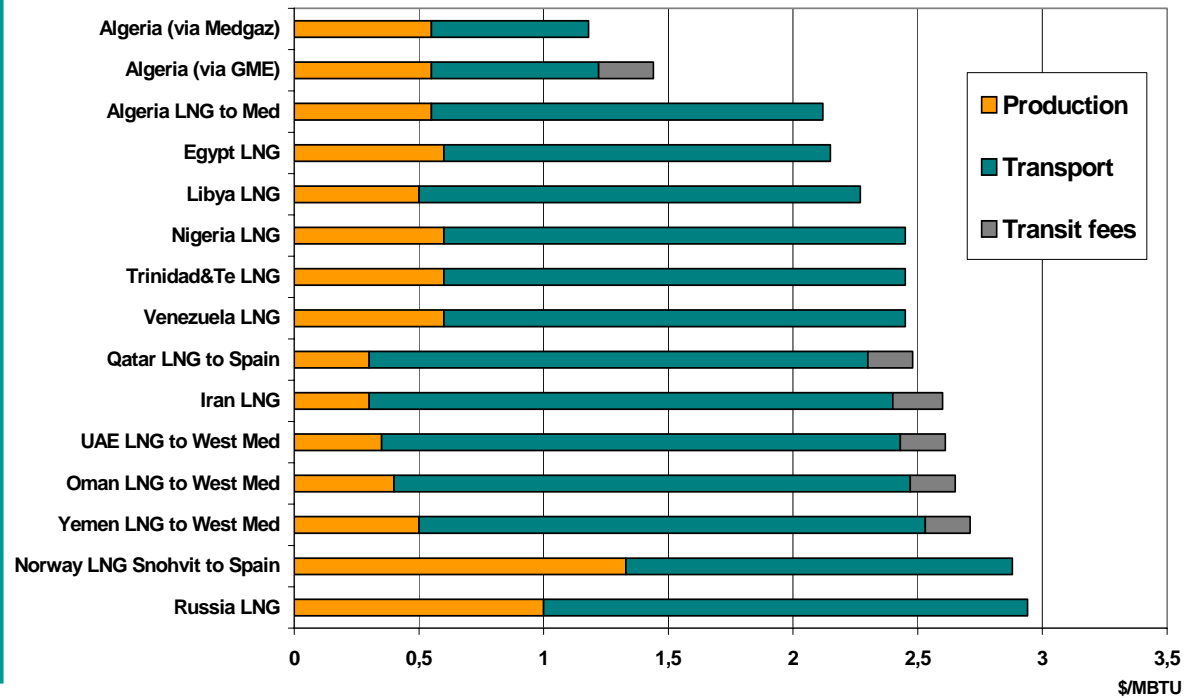
- MEDGAZ does not increase the Algerian energy dependence.

Year	2003	2005	2007	2011
Spanish gas supply, bcm/year	23.7	34.0	35.5	43.7
Algerian gas importation, bcm/year	13.7	14.4	15.3	21.3
• LNG, bcm/year	7.3	5.0	6.0	6.0
• NG through GME, bcm/year	6.4	9.4	9.3	9.3
• NG through MEDGAZ, bcm/year	----	----	----	6.0
Algerian gas share, % s./total volume	57.1	42.0	43.1	48.4

## IV. KEY POINTS

### Most cost-effective way:

- Most direct route
- ↓
- Shorter length (than GME\*)
- ↓
- Lower energy cost and no transit tolls
- ↓
- Most cost-effective way of supplying natural gas to Southern Europe



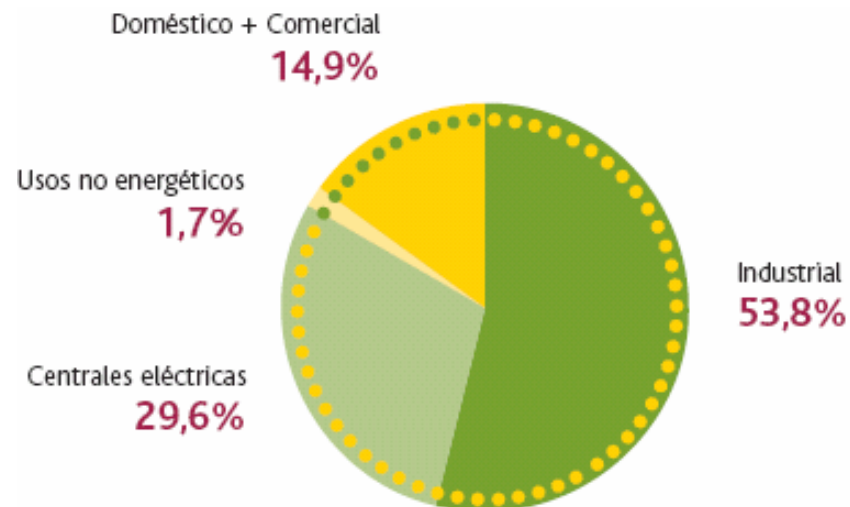
OME, 2005

\*GME: Gasoducto Magreb Europa

## IV. KEY POINTS

### Meets growing demand:

- Increase of natural gas demand in Spain (2005)



2005. Distribución de las ventas de gas natural en España por mercados

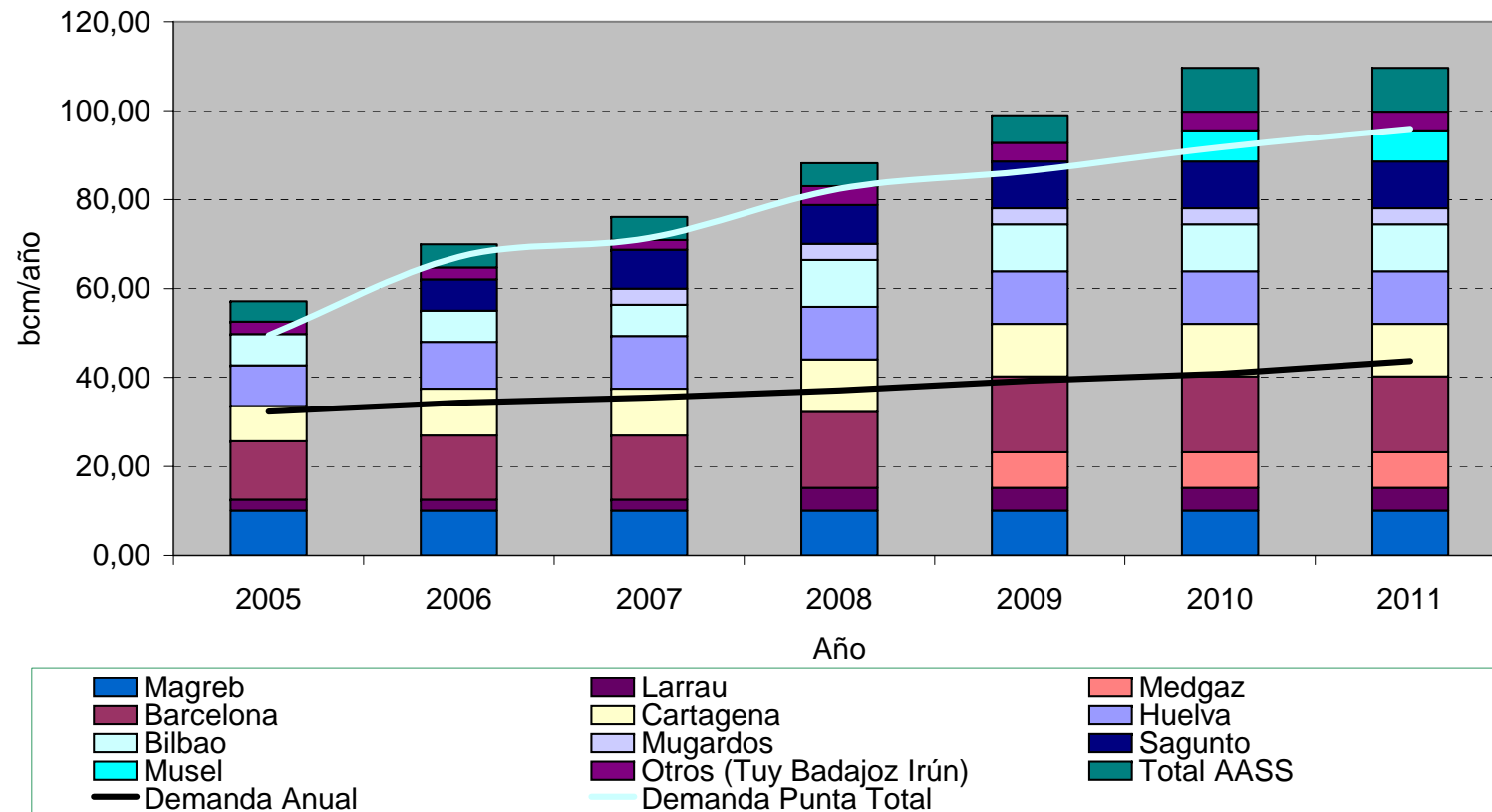
- **Total:** 17.6% more than 2004 .
- **Domestic and commercial :** 8.5% more than 2004.
- **Industrial:** 3.2% more than 2004.
- **Power generation:** 68.4% more than 2004.

★ **Conclusion:** The increase in electrical power generation through combined cycle facilities, which are highly efficient and environmentally friendly, is the main cause for the increase of the Spanish demand for natural gas.



## IV. KEY POINTS

### Meets growing demand:



## IV. KEY POINTS

### Respects Kyoto Protocol:

- **MEDGAZ** will deliver to the European market natural gas: a **clean, efficient, versatile** and **safe** hydrocarbon.
- One of the main objectives of the countries that have ratified the **Kyoto Protocol** is to progressively reduce its CO<sub>2</sub> emissions. In order to do so, they are increasingly relying on natural gas.



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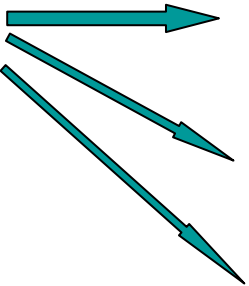


**V. MEDGAZ: A Strategic Project**

VI. Timetable

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## V. STRATEGIC PROJECT



- Europe  **“Project of Priority Interest** within Trans-European Networks in the Energy Sector”
  - “Quick Start” Program
  - Financial aid for preliminary studies
- Spain  **“Priority Project** and **Urgent**: Planning of Electrical Power and Gas Sectors. Development of Transportation Networks 2005-2011” (MIN, 2006)
- AACC  The autonomous authorities have shown there firm support to the project

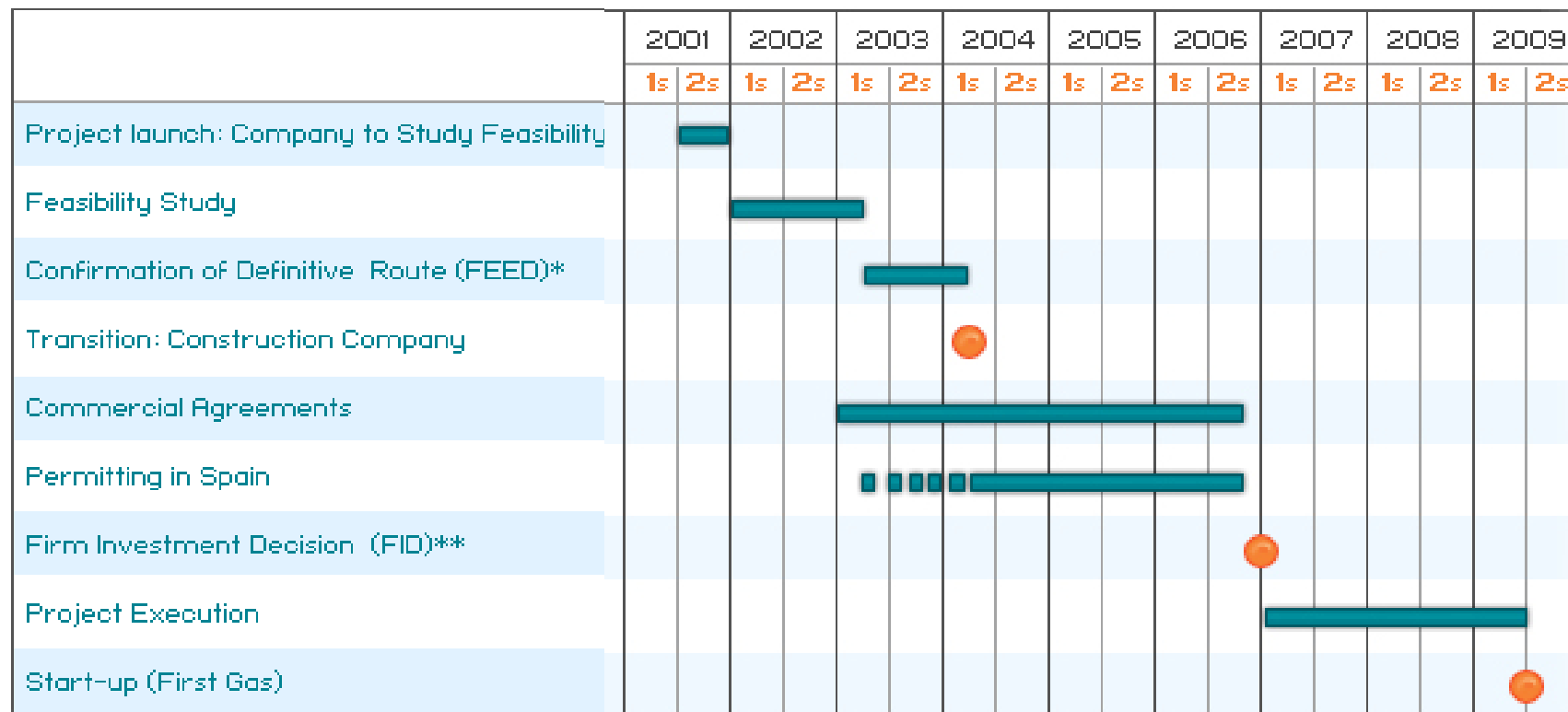
**MEDGAZ is a strategic project for Spain, Algeria and the rest of Europe**

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## VI. TIMETABLE

### 1. Global Project



\* Front End Engineering & Design

\*\* Firm Investment Decision

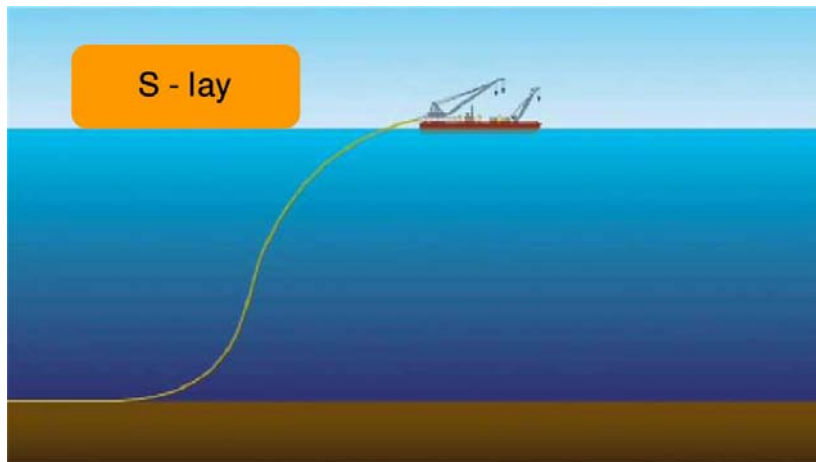
MEDGAZ will adapt its schedule according to the agreements between the Spanish and Algerian authorities

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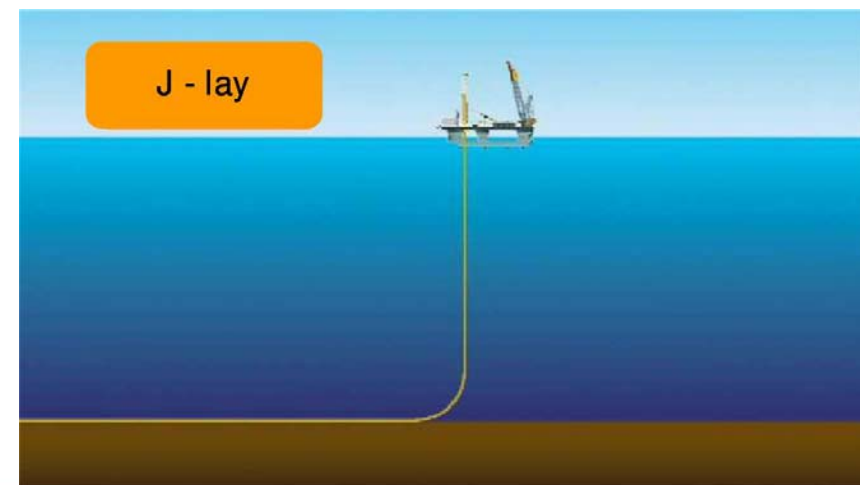
## VII. CONSTRUCTION PROCESS

### Pipe lay methods:



- Both shallow and deepwater areas
- Welding and tending in horizontal position
- Pipeline forms an “S” shape during tending process

- Between 400 y 3.500 meters depth
- Welding and tending in vertical position
- Pipeline forms a “J” shape during the tending process



## VII. CONSTRUCTION PROCESS

1-



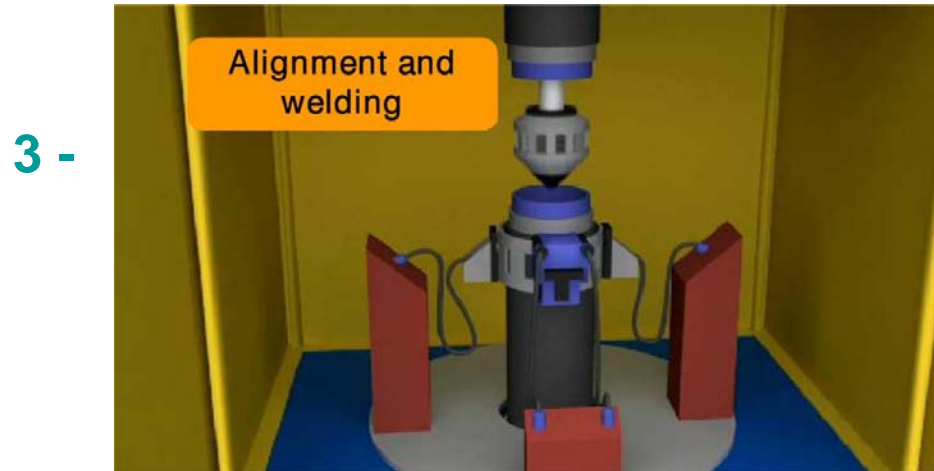
- Pipe section length: 12m
- Diameter: 24 inches
- Triple layer coating

2-

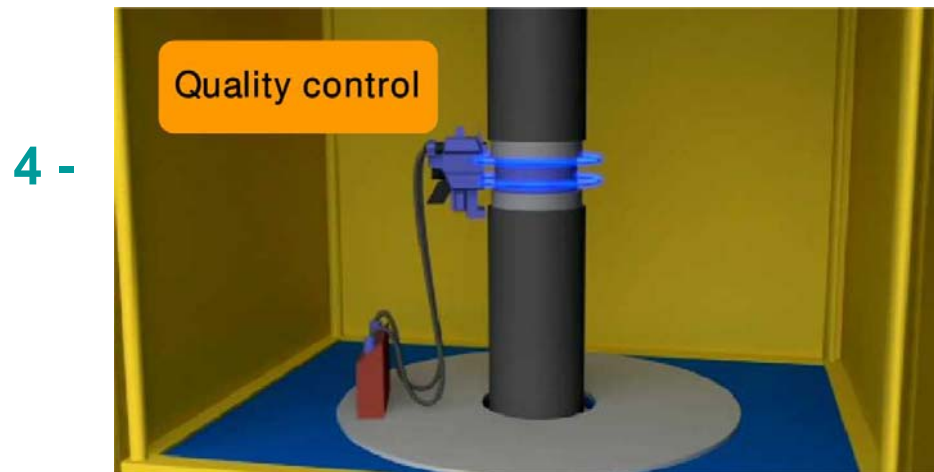


The pipe sections are placed in the middle of the platform and raised up to the welding tower where they are to be welded at the girth joint using submerged arc welding equipment

## VII. CONSTRUCTION PROCESS



The pipes are aligned in the tower and welded using automated welding machineries



Each welded joint is individually tested by nondestructive techniques (NDT)

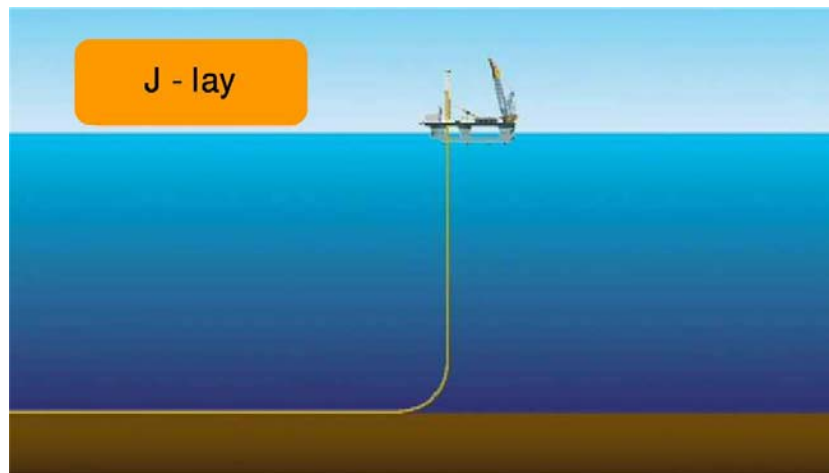
## VII. CONSTRUCTION PROCESS

5 -



The exposed welded joints are coated with two layers, one made of epoxy resin and the other of polypropylene to maintain continuity with the rest of the pipe

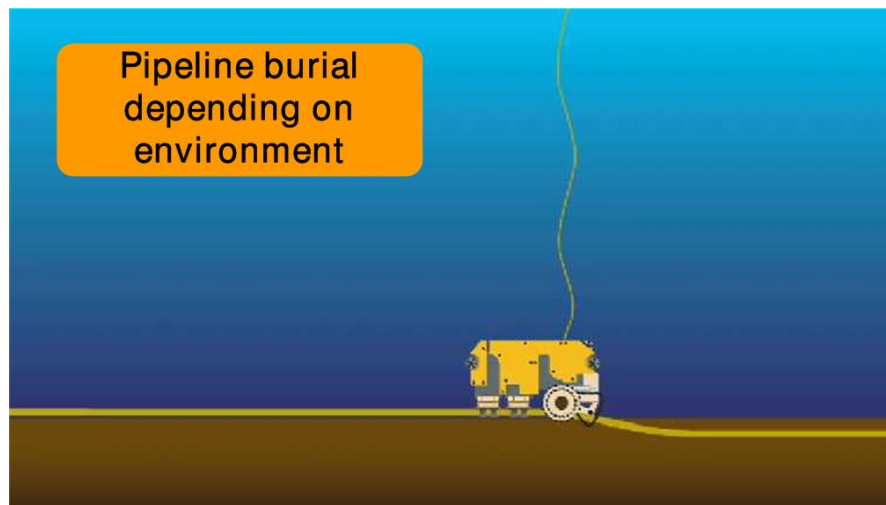
6 -



While these operations are taking place, the vessel slowly lays the pipeline on top of the seabed. The average velocity of construction is **three kilometers per day**

## VII. CONSTRUCTION PROCESS

7 -



The deep sea pipeline is mostly laid on top of the seabed, except in near-shore areas, where it is physically buried in order to minimize the effects of human activity and protect the pipeline from sea currents and storms. An automatic robotic trenching machine digs the trench where the pipeline is to be lowered

**Thank you for your attention**

[www.medgaz.com](http://www.medgaz.com)

