Adriatic LNG project
Solid Ballast Installation and Scour Protection Installation
The Adriatic LNG Project involves the construction and installation of a LNG Terminal offshore Venice.

The Gravity Based Structure (GBS) will be the world’s first in its kind. (90,000 m$^3$ of concrete, total weight 250,000 ton)

The Project is executed by Qatar Petroleum, ExxonMobil and Edison. Together they form the Company called Adriatic LNG.

Each third day a dedicated LNG carrier will deliver 153,000 m$^3$ LNG.

Storage capacity of the GBS: 250,000 m$^3$ LNG.
The main structure of the Adriatic LNG Terminal, the **GBS**, has been constructed in Algeciras, Spain. Since 2005 until 30th of August 2008

Square **LNG tanks** specially designed for Adriatic LNG

Concrete structure adapted to the extreme low temperatures
December 2005

November 2007
- Towing the GBS over approx 1700 nm
- Estimated duration is 18 days @ average 4 knots
- Manned tow
Installation at 17km from Italian shore

Nearest port is Porto di Chioggia at the South end of the Venetian Lagoon
Activities when GBS arrives on site
1. Ballasting with water
2. Ballasting with solid ballast => SCOPE FDC
3. Pipeline tie-in and Fibre optic connection: scope Saipem
4. Scour Protection Installation => SCOPE FDC
5. Mooring Dolphins Installation: scope Aker Marine Contractors (with Rambiz)
6. Accommodation barge 200pers
Adriatic LNG Terminal Simultaneous Operations

Adriatic LNG Solid Ballast and Scour Protection Installation
Due to the specialized requirements for the solid ballasting, a **full scale test** was done to optimize the inhouse engineering of the mixing and pumping plants in Quenast, Belgium.
After Towage to Venice, GBS will be set aground by ballasting with 235,500 Tonnes of seawater
- On-bottom pressure 20 kN/m²
- Stability to resist to 10-year return wave

Approximate 4 days after GBS is set aground Hydraulic Installation of 250,000 Tonnes of ballast sand
- On-bottom pressure 195 kN/m²
- Stability to resist to 100-year return wave
- **42 ballast cellar compartments and 46 ballast wing compartments** are situated underneath and next to the LNG tanks.

  - Installing ballast material into cellar compartments: hydraulically through **#4 5inch pipes** casted in the concrete walls.

  - Installing ballast material into wing tanks: hydraulically through **opening on deck**.
- DN143: 24,000 tonnes barge
- Dimensions:
  - Length 135.8m
  - Width 42.0m
  - Depth 8.0m
  - Max draught 5.5m
- Has been outfitted at Antwerp Ship Repair
- Started mobilization 20/08/08
Scope FDC - Solid Ballast Installation
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Water treatment installation
- Hydro cyclones
- Lamellae separator
Scope FDC - Solid Ballast Installation

- Power supply
- 5 x 1250kVa
- 8 x 20m³ fuel tanks
Scope FDC - Solid Ballast Installation

- Control room
- Mixing and Pumping Plants
- Bulk Handling Installation
Sand supply will be executed by Jebsen subcontracted by Mantovani

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FDC will install 15,000m$^3$ of **scour protection material (rock)** around the perimeters of the GBS and the Mooring Dolphins with the **Inclined Fallpipe vessel La Boudeuse**.

**Using the Inclined Fallpipe** La Boudeuse will be able to install rock underneath the breasting structure.
The scour protection material (rock) will be produced in a Croatian quarry and transported to a quaywall near Pula.

The Inclined Fallpipe vessel La Boudeuse will load this material in the hopper using its excavators mounted on its Starboard side.
Scope FDC - Scour Protection Installation

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