PROJECT SHEET

ENERGIA DEL PACIFICO (EDP)
MARINE INFRASTRUCTURE AND SUBSEA PIPELINE

BOSKALIS

Royal Boskalis Westminster is a leading global marine contractor and services provider. We offer our clients a wide variety of specialized activities to the oil & gas and renewables sectors. These activities include marine installation and decommissioning, seabed intervention, marine transport and services, subsea services, and marine survey. In addition, Boskalis is a global dredging contractor, provides towage and terminal services across the globe and delivers marine salvage solutions.

With our committed professionals in engineering, project management and operations, 900 specialized vessels and an unprecedented range of activities in 90 countries across six continents we help our clients in the offshore industry to push boundaries and create new horizons.

INTRODUCTION

Energía del Pacífico Project (EDP) is introducing a clean, affordable, and reliable energy to El Salvador. It consists of a Floating Storage Regasification Unit (FSRU) that receives LNG and processes it with the following transportation of the restored gas via subsea pipeline in the Port of Acajutla to a newly constructed 378-MW gas-fueled power plant onshore.

SCOPE OF WORKS

The marine infrastructure for the LNG Regassification Terminal, which forms part of the facility, has been delivered (by Boskalis) under an EPCI contract. The project consists of a mooring system for the permanently stationed FSRU, as well as a 1,750-meter-long pipeline system that is used to deliver the re-instated gas to the power plant. The scope for the offshore regassification terminal consists of design, engineering, procurement, fabrication, dredging, and onshore and offshore installation works.

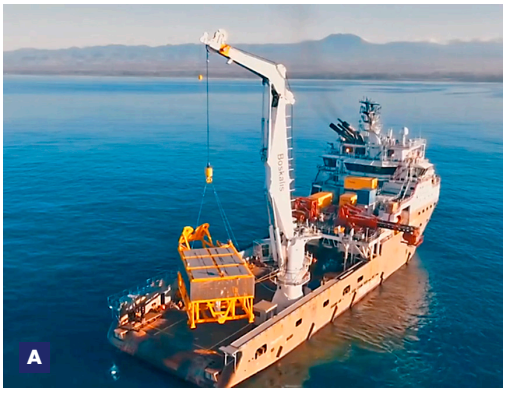
FEATURES

Client	Energia Del Pacifico/Invenergy
Location	El Salvador
Period	2020 - 2021
Contractor	Boskalis
Main Activities	Engineering Dredging Backfilling Pipe installation Micro-tunnelling PLEM installation Flexible Riser installation Pre-commissioning FSRU mooring installation and hook-up

A PLEM installation
B Location map
C TBM recovery

The activities that were performed as a part of the project include micro-tunnel boring, pipeline construction, Pipeline End Manifold (PLEM) design & installation, flexible riser installation, restricted catenary mooring system installation and hook-up of FSRU.

A multidisciplinary and complex project with a wide range of Boskalis capabilities involved.



PROJECT EXECUTION

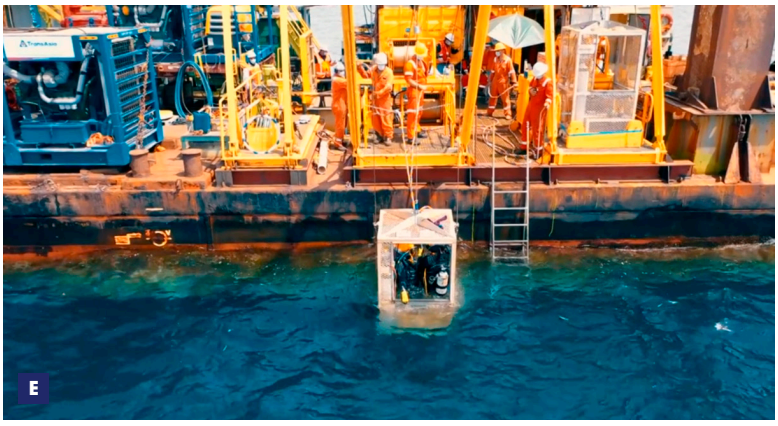
The following activities are executed to deliver the EDP Project in time:

- Dredging of a trench for the pipeline by a backhoe dredger
- Trenchless shore crossing by means of a micro-tunnel drilling (530 m)
- Site preparatory works for a pipe string yard, incl. welding 1,750 meter 24" pipeline
- Pipe pull from the onshore string yard to PLEM (1,750 m)
- Installation of the anchors and mooring chains
- Installation of the PLEM
- Onshore installation of the Pig Launcher & Receiver (PLR) at the powerplant site
- Connection of the pipeline to the PLEM by means of a locally fabricated spool piece.
- Installation of the flexible riser
- Hook-up of the FSRU to the mooring system

The full EPCI (Engineering, Procurement, Construction, and Installation) scope of this Contract is successfully finished in April 2021.

PROJECT EQUIPMENT

- Backhoe Dredger
- DP2 Offshore Construction Vessel "Boka Falcon"
- Grab Dredger/Diving Platform "Elisa"



COVID-19

COVID-19 affected the EDP LNG to Power Project on the daily basis. Special precautions were taken on site to be able to continue the work safely. With El Salvador being in lockdown, our local team has been working on the various scopes for months without possible rotation to make progress in the challenging circumstances. The other part of the team worked from home as much as possible on the various locations, such as Netherlands, El Salvador, Spain, Italy, UK and Egypt.

CONCLUSION

EDP is a multidisciplinary and complex project where a wide selection of Boskalis activities were used.

Evaluation of EDP Project shows that the integration of operational excellence with accurate engineering analysis and well considered planning, was decisive for the safe, controlled, and successful execution of this marine infrastructure and subsea pipeline project. Boskalis proved its ability to execute these types of complex projects from A to Z.

With the completion of this project Boskalis made a large contribution to the increasing demand of global transfer to the environmentally friendly source of power such as LNG. This project is a good example of our focus to a better future.

D Pipe pull through micro-tunnel
E Diving activities
F Berthing of a LNG tanker

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