



ABIAER



The Seventh International Symposium on Environmental Biotechnology and Engineering

May 22-26, 2023 - Marseille, France - 7ISEBE@imbe.fr



Visit of the Thassalia Marine Geothermal Power Plant

24th May 2023

8H30 : Meeting point at the Word Trade Center (City Center Vieux Port Palais De La Bourse, 2 Rue Henri Barbusse, 13001 Marseille)

➔ Collection of metro tickets

9H00 : Departure by metro to Thassalia (2 bd J. Saade - Quai d'Arenc Euroméditerranée - 13002).

10H00: Visit of the installations.

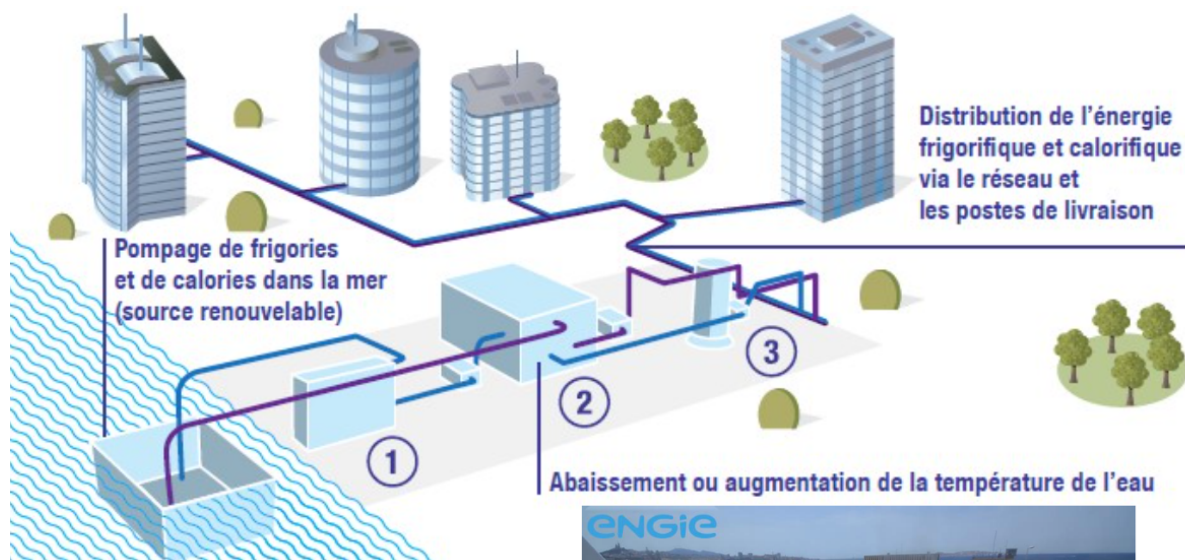
12H00-12H30: Return to the Word Trade Center.

➔ Collection of lunch box

Contact: Hervé MACARIE (06 23 20 35 15)

Comfortable clothes and shoes are recommended.

A description of the Thalassia marine geothermal plant is available on the following website (<https://www.construction21.org/infrastructure/fr/thassalia-france-s-first-marine-geothermal-power-plant.html>)





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Visite de la Centrale de géothermie marine Thassalia



Le 24 mai 2023

8H30 : RDV au Word Trade Center (City Center Vieux Port Palais De La Bourse, 2 Rue Henri Barbusse, 13001 Marseille)

➔ *Récupération des tickets de métro*

9H00 : Départ en métro vers Thassalia (2 bd J. Saade - Quai d'Arenc - Euroméditerranée - 13002).

10H00 : Visite des installations.

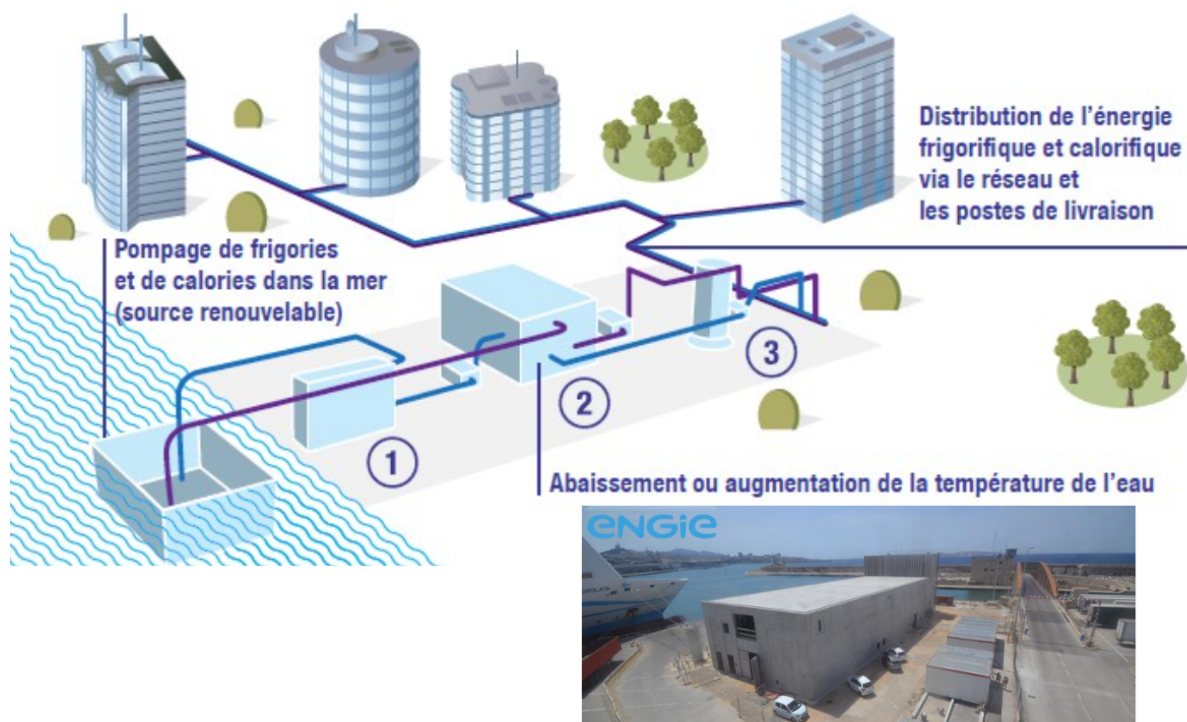
12H00-12H30 : Retour au Word Trade Center.

➔ *Récupération des paniers repas*

Contact : Hervé MACARIE (+33 (0)6 23 20 35 15)

Prévoir une tenue et des chaussures confortables

Une description de la centrale géothermique est disponible sur le site web suivant (<https://www.construction21.org/infrastructure/fr/thassalia-france-s-first-marine-geothermal-power-plant.html>)



THASSALIA

District Heating and Cooling system in Marseille



DHC Days – February 21, 2017 - Lyon, France



CONTEXT

District heating and cooling system

- District heating and cooling system in Marseille taking out the energy from the Mediterranean sea.
- Euroméditerranée : European largest urban renovation covering 480 hectares.
- Power station pumping seawater in Marseille Fos Harbor



PROJECT DEVELOPMENT

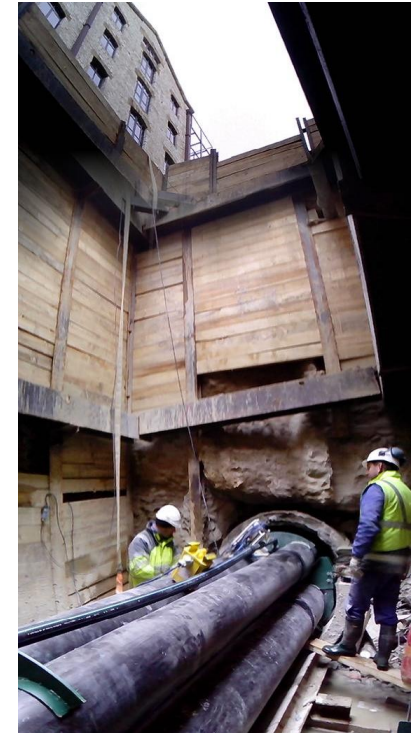
Timeline

- 2010 to 2012 Project's design agreement on the project from public authorities, Marseille Fos harbor, ADEME, clients and Euroméditerranée
- 2012 Signature of the agreement on temporary occupation between Thassalia and Marseille Fos Harbor ADEME's approval for financial support
- Fin 2013 Commitement of the 3 first clients
- Sept 2014 Start of the heating and cooling network installation
- Juin 2015 Installation of a temporary power station to provide energy for the first clients Start of Thassalia power station construction
- Aout 2016 Commissioning of Thassalia power station End of first section pipes installation
- 17 octobre 2016 Official opening of Thassalia
- 2017 à 2020 Pipe installation and substation development

PROJECT DESCRIPTION

District heating and cooling system

- Private installation
- Client's demand on providing warm and cold water
- 4 pipes installation
- Heating and cooling network : 3,1 km long on 500 000 m² of new or renovated buildings – 2/3 tertiary buildings
- More than 70% of renewables covered by cooling unit and thermorefrigerating pump using seawater
- Installed capacity : 18,4 MW cold and 18 MW warm
- Delivered temperature : 60°C and 5°C
- Investissement : 35 M€ and Public funding : 6,9 M€



ADEME



Agence de l'Environnement
et de la Maîtrise de l'Énergie



UNION EUROPÉENNE
Projet bénéficiaire
du Fonds européen
de développement régional



CONSEIL
GENERAL
BOUCHES-DU-RHÔNE



Région
Provence
Alpes
Côte d'Azur



PROJECT DESCRIPTION

District heating and cooling system

• Contract aspects

- Energy supply private-law contract on 10 years (or more) with equal treatment between clients :
 - Heating and cooling network connection costs
 - R1 (€/MWH) based on consumption
 - R2 (€/kW) fixed by the subscribed power
- 35 years temporary occupation agreement on public area :
 - Maritime with Marseille Fos harbor : power station
 - Road network with Aix Marseille Provence city council : pipes
- Seawater law :
Departemental territories and sea Direction
 - Water outflow < 30°C
 - $\Delta T < 5^{\circ}\text{C}$
 - Annual report on biological impact



PROJECT DESCRIPTION

District heating and cooling system

- **Clients : first partners**

- Euromedcenter and Foncière des Régions
 - ◆ Calypso, Floréal et Hermione Buildings - Golden Tulip Hotel
- Constructa - JP Morgan - Advenis
 - ◆ Les Docks
- Constructa
 - ◆ La Marseillaise, H99 et Yves Lion towers



PROJECT CREATION

District heating and cooling system virtues

- **Development of a private project in order to be time effective compare to a Public Service Delegation**
- **Clients :**
 - Heating **and** cooling system
 - Rooftop terrace free space
 - Minimising sanitary risks (legionellosis, refrigerant fluid)
- **Environmental impact :**
 - Renewable energy ratio > 70%
 - Energy efficient (needs pooling et global EER > 5)
- **Economic equation :**
 - Competitive price : taxe reduced to 5,5% on heating system
 - Machines depreciation possible thanks to the dense urban perimeter