DEMONSTRATION SITES

Many demonstration sites have been selected within the project.
The list of demonstrators includes: demo sites, existing facilities and new pilot units that will be built in the frame of the project.

BALMATT | The Geothermal Balmatt site belongs to VITO and is located in Belgium. The geothermal fluid is used to heat the nearby district area and, when the temperature of the brine is high enough, it produces electricity. A bypass in the main brine circuit will be realized for the evaluation of different coated materials in contact with the geothermal fluid at extraction temperature.

NUOVA SAN MARTINO | Nuova San Martino, a geothermal plant, belongs to ENEL GREEN POWER and is located in Italy. The installed electric capacity of the plant is 40 MW, with one generating unit and six forced cooling towers. One of the towers will be retrofitted into a hybrid configuration.

AS PONTES | As Pontes, a coal-fired power plant, belongs to ENDESA and is located in Spain. Several new test facilities will be integrated into the power plant: 1) a pilot condenser; 2) a vortex degasification module; 3) membrane distillation modules.

BRINDISI SUD | Brindisi Sud, a coal-fired power plant, belongs to ENEL and is located in Italy. A new membrane test facility, including pressure driven membranes (MF, UF, NF and RO) and MD modules, will be integrated into the plant.

EDF LABORATORIES | The EDF Laboratories are located in Chatou (near Paris) in France. Two facilities (TRHyCo and PERICLES) will be used to investigate drop-wise condensation and evaluate stainless steel with biocide properties and antifouling coatings.

ENGIE LABORATORIES | The ENGIE Laboratories are located in Linkebeek (near Bruxelles) in Belgium. A pilot cooling tower (MERADES) will be used to evaluate Membrane Capacitive De-Ionization (MCDI), Vortex degasification module (chemical-free water treatment) and MD modules.

BUGEY | Bugey, a nuclear power plant, belongs to EDF and is located in France. The site hosts a pilot cooling tower (MISTRAL loop) that will be used to test membrane condenser (MC) modules.

MATCHING QUICK FACTS

- MATChING is an EU-funded project within the Horizon 2020 framework.
- MATChING is managed by a multi-stakeholder consortium led by ENEL which encompasses 16 partners from 6 EU member states.
- MATChING got started in March 2016 and the project lasts 42 months
- Budget: 11.8 M€
- Objective: to reduce the demand of water and improve energy efficiency of cooling systems in the energy sector through the use of advanced materials and nano-technology based materials.

Visit our website:
www.matching-project.eu

and follow us on LinkedIn
https://www.linkedin.com/groups/8533291

STAKEHOLDER COMMUNITY

The project partners are establishing a stakeholder community composed of relevant and committed market players to exchange views and stand points on the project.

Joining the stakeholder community is on a non-binding complimentary and voluntary basis.

For further information contact:
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MATChING

MATERIALS & TECHNOLOGIES FOR PERFORMANCE IMPROVEMENT OF COOLING SYSTEMS IN POWER PLANTS

MATCHING is a collaborative project, funded by EU Horizon 2020 program, with the aim to reduce the cooling water demand in the energy sector.

Project undertaken with the financial support of the European Commission.
Grant Agreement Number: 686031

European Commission

PROJECT OVERVIEW

Power generation is a sector requiring great amounts of water. Cooling water for energy production actually accounts for a staggering 45% of total water abstraction in the EU, second only to agriculture.

MATCHING will demonstrate a set of technological solutions that can be applied to both the fossil fuel sector and the geothermal sector, with the aim to:

- **reduce evaporative losses** in geothermal power plants;
- **increase the sturdiness of cooling equipment** to allow the use of unconventional waters;
- **increase the heat exchange efficiency** of condenser and cooling equipments;
- **promote the use of alternative water sources** trough advanced and alternative treatment equipment.

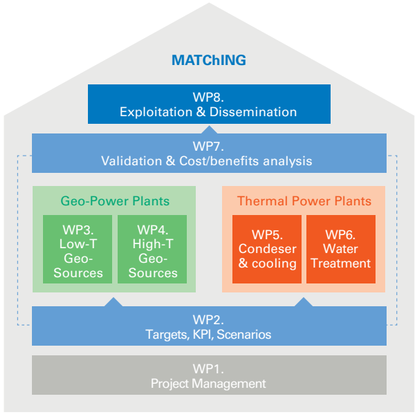
WORKPLAN

Activities are organized in three main temporal steps:

1 | Identification of techno-economical KPIs (WP2);

2 | Demonstration of the new technologies in their intended environment (WP3÷WP6);

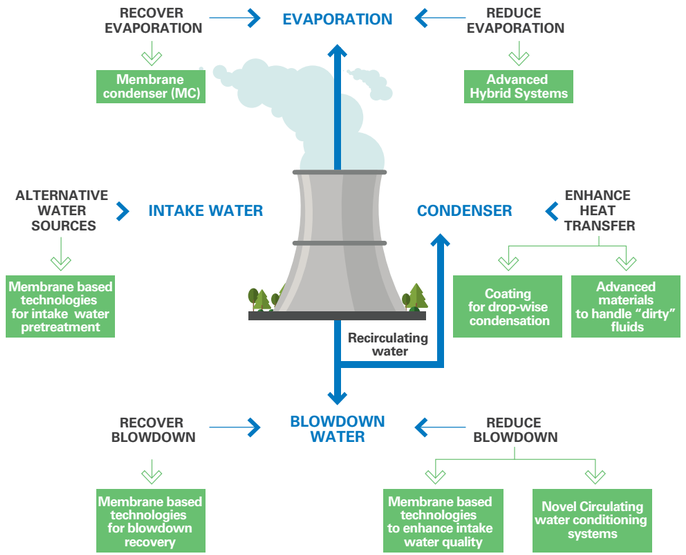
3 | Cost benefit analysis (WP7).



TECHNOLOGIES

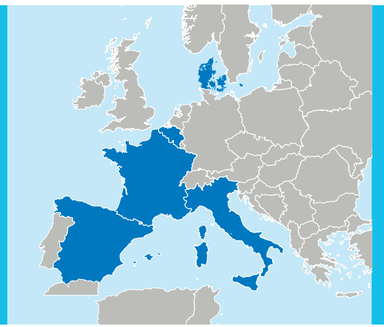
With reference to a typical cooling tower application, a broad set of technologies are proposed acting on intake, blow-down, make-up, and evaporated water.

- **Hybrid Cooling Systems** (with advanced CT filling media and anti-corrosion coating in the dry section) will be developed for high-T geothermal cooling towers to reduce evaporation losses.
- **Stainless steel with biocide properties and antifouling coatings** will be developed and applied on the cooling water side of condenser tube bundles, to enhance the condenser sturdiness and allow the use of alternative cooling fluids.
- **Coatings with high hydrophobic functionality and surface texturing techniques** to be applied on the steam side of condenser tube bundles, will be developed to promote drop-wise condensation enhancing heat-transfer efficiency.
- **Innovative membrane-based technologies,** for cooling water conditioning and/or for water recovery as Membrane capacitive deionization (MCDI), Vortex degasification technology (VPT), Membrane distillation (MD), Microfiltration (MF), Ultrafiltration (UF), Nanofiltration (NF), Reverse Osmosis (RO) and Membrane Condensers (MC) for water recovery from vapors.



PARTNERS

Four utilities (EDF, ENDESA, ENEL, ENEL GREEN POWER), five technology providers (AQUASTILL, INTEGASA, IONICS, PATHEMA, SPIG), six research institutes (AIMEN, CNR ITM, DTI, LABORELEC, MATERIA NOVA, VITO) and one consulting firm (SWECO), for a total of 16 European organisations jointly participate in the MATCHING consortium.



They come from 6 countries: Italy, Belgium, Spain, The Netherlands, France and Denmark.