

# MATCHING - Materials & Technologies for Performance Improvement of Cooling Systems in Power Plants



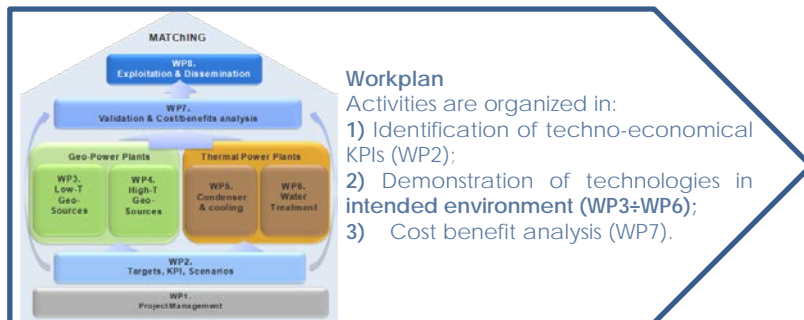
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## OVERVIEW & OBJECTIVES

Power generation is a sector requiring great amounts of water. Cooling water for electricity production accounts for 45% of total water abstraction in European Union, second only to agriculture sector.

**MATCHING** will demonstrate a set of technological solutions applicable to both the fossil fuel plants and the geothermal plants, with the aim to:

- ✓ Reduce the evaporative losses in geothermal cooling towers to increment the geo-fluid re-injected fraction
- ✓ Increase the robustness of cooling equipment to allow the use of non-traditional waters
- ✓ Increase the heat exchange efficiency of condenser and cooling equipments to decrease water consumption in fossil fuel power plants
- ✓ promote the use of alternative water sources through advanced and alternative treatment equipment



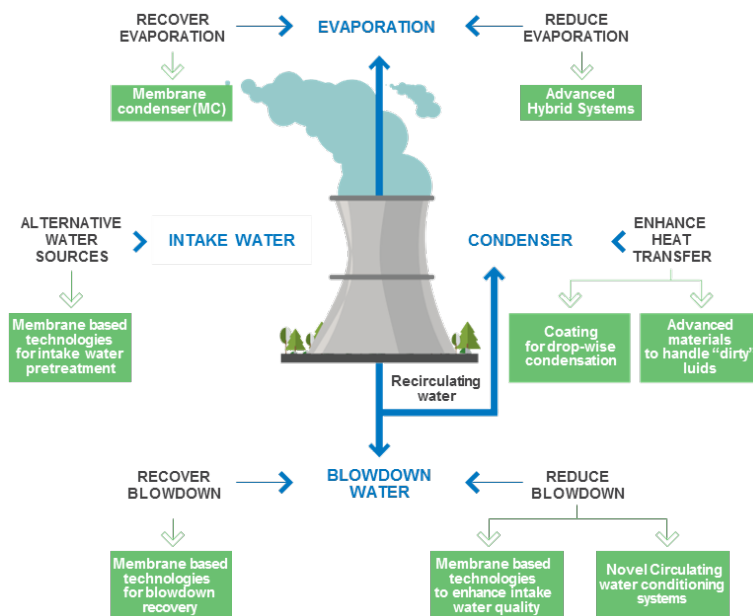
## New Technologies for cooling tower

**Hybrid Cooling Systems** (with advanced CT filling media and anti-corrosion coatings in the dry section) for high-T geothermal cooling tower to reduce evaporative losses.

**Stainless steel with biocide proprieties and antifouling coatings**, to be applied on the cooling water side of condenser tube bundles to enhance the condenser robustness and allow the use of alternative cooling fluids.

**Coatings with high hydrophobic functionality and surface texturing techniques** 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). Membrane Condensers (MC) for water recovery from vapors.



## DEMONSTRATION SITES

Many demonstration sites have been selected within the project: demo sites, existing facilities, and pilots unit that will be built in the frame of the project.

Brindisi (IT) As Pontes (ES) Balmatt (BE) Nuova San Martino (IT) Chatou (FR) Merades (Be) Mistral/Bugey (FR)



## Project details

**Start Date:** March 2016

**Duration:** 42 months

**Project Cost:** 11.8 million euro

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