

**Constitution meeting
European Technology and Innovation Platform (ETIP)
on Deep Geothermal**



ENVIRONMENTAL IMPACT



AERIFORM EMISSIONS

(from WELLS and POWER PLANTS)



EFFLUENTS

- WATER VAPOR (50 -70 % OF TOTAL FLUID PRODUCTION)
- DROPLETS CONTAINING POLLUTANTS (B, As,Hg, ...)
- GREENHOUSE GASES (CO₂, CH₄,)
- UNPLESANT SMELL (H₂S)
- OTHER VOLATILE POLLUTANTS (NH₃, H₂, N₂, Rn,...)

Central
Berlín (Usulután)

To improve the environmental sustainability

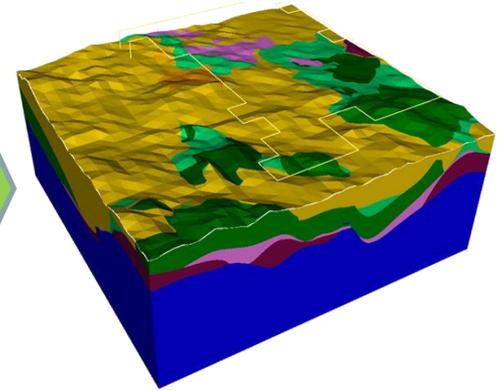
- Total re-entry of the geothermal fluid produced in the geological formations of origin, with no steam and gas emissions into the atmosphere;
- Environmental integration and landscape (“site-specific”)
- Enhancement of thermal application processes compatible with local vocations

***ZERO EMISSIONS” AND TOTAL REINJECTION
ARE MANDATORY FOR THE SOCIAL ACCEPTANCE AND ENVIRONMENTAL
SUSTAINABILITY OF GEOHERMAL PROJECTS***

TECHNOLOGICAL CHALLENGES

RESOURCE ASSESSEMENT & MANAGEMENT

- 3D IMAGING OF SUBSURFACE
- RESERVOIR MODELLING
- RESERVOIR MONITORING



DRILLING

- NEW COST EFFECTIVE TECHNOLOGY
- HT WELL LOGGING TOOLS
- ENVIRONMENTAL SUSTAINABILITY



POWER SYSTEM

- IMPROVEMENT OF EFFICIENCY
- SMALLER FOOT PRINT
- BETTER LANDSCAPE INTEGRATION



GEOHERMAL ENERGY 2.0 - RETE GEOTERMICA

A cluster of enterprises has been established in Italy with the main common goal to develop new technologies for “closed loop” geothermal projects

TOSCOGEO
geothermal energy

EXERGY
THE RADIAL OUTFLOW TURBINE

TME S.p.A. - Termomeccanica Ecologica
Gruppo Termomeccanica

SINTECNICA
ENGINEERING

IdroGeo
ENGINEERING&CONSULTING

Gesto
GEOTHERMAL ITALY

magma
ENERGY ITALIA

SORGENIA

clean energy ahead
TURBODEN
a subsidiary of TURBODEN HEAVY INDUSTRIES, LTD.

ISOLVER SPA

FLORAMIATA

GRAZIELLA
green power

GEOTHERMICS ITALY

RENEWEM

GENERGY
energia al tuo servizio

RETE GEOTERMICA is willing to be a stakeholder of ETIP on Deep Geothermal, and to cooperate for the development of its Strategic Research Agenda

THANKS FOR ATTENTION



MAGMA ENERGY ITALIA S.r.l.

Società partecipata da Graziella Green Power S.p.A. e Alterra Power corp.

Cap. soc. Euro 119.000,00 i. v.

Registro Imprese di Arezzo, n. iscr. e cod. fisc. 06059240488

Sede legale in Arezzo, E. Rossi, 9 – Tel. 0575/32641

Sede Operativa in Castelnuovo di Val di Cecina (PI) Tel. 0588 20307

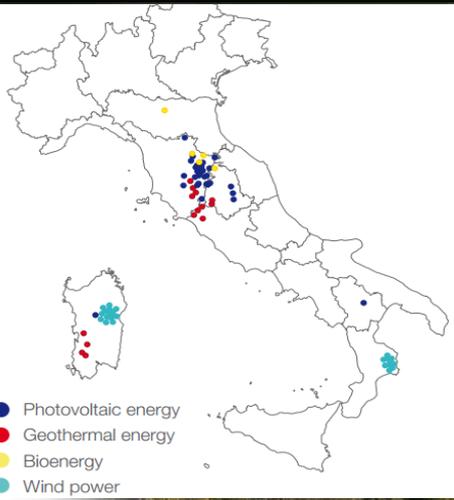
PEC magmaenergy@legalmail.it email info-italy@magmaenergycorp.com

MAGMA ENERGY ITALIA

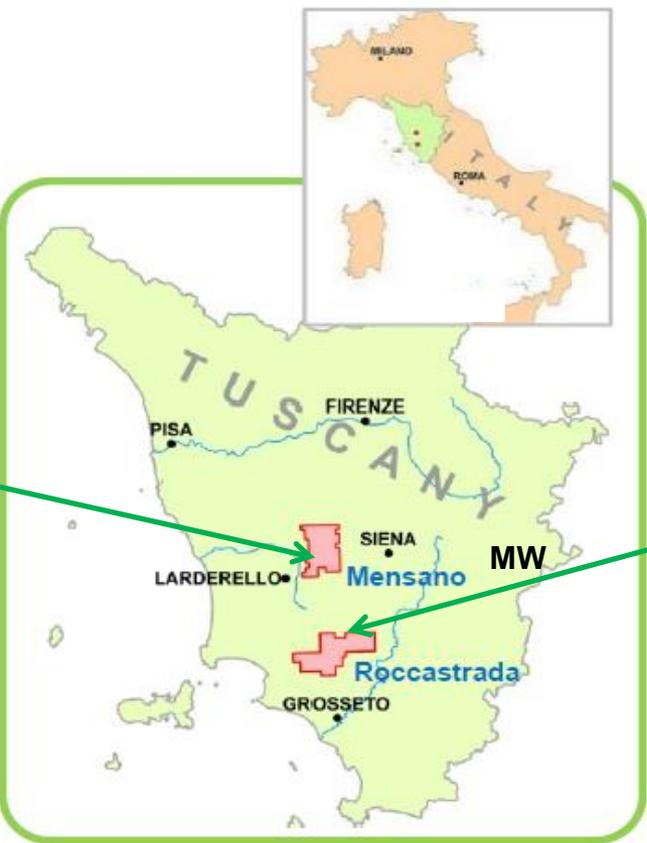


55%

45%



Mensano
Exploration lease
(215 km²)

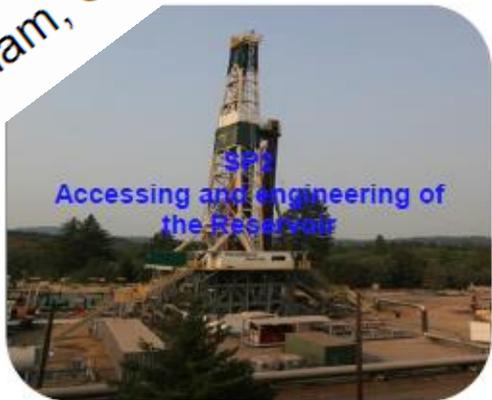
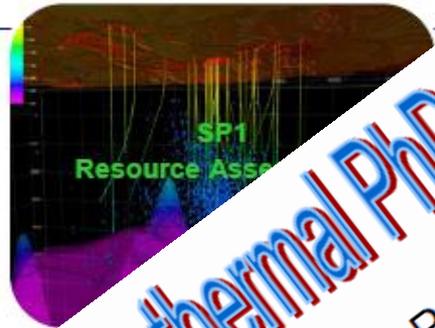


Roccastrada
Exploration lease
(272 km²)

GEOHERMAL ENERGY 2.0 – TECNLOGICAL CHALLENGES



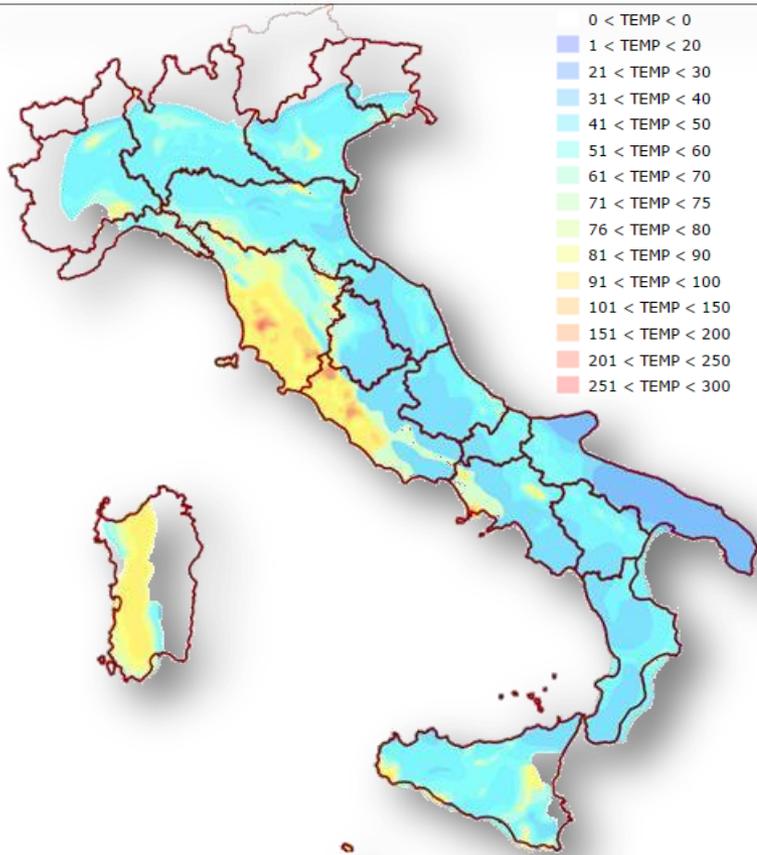
General structure



GFZ **European geothermal PhD day**
Helmholtz-Zentrum **POTSDAM**
Friday 12th of February 2010 in Potsdam, Germany

www.eera-set.eu

GEOHERMAL ENERGY 2.0 - DEVELOPMENT SCENARIOS IN ITALY



Temperature @ 2000m b.s.l.

Source Geothopica (<http://geothopica.igg.cnr.it/>)

Geothermal potential (@ 2040)

- Power capacity: 3000 – 3500 MW
- Electric generation : 24–28 TWh/year

About 8-10% of energy needs in Italy
(today about 1,6 %)

- 15 Billion Euro investment
- 100.000 new jobs
 - 50.000 jobs during construction
 - 20.000 jobs during power plant operation
 - 30.000 jobs for direct uses of heat in industry, agriculture, etc.

Source RETE GEOTERMICA