

GEOELEC Project Overview

Regional Workshop
UK - Ireland - Iceland

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European Geothermal Energy Council

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Objective of GEOELEC project is to

- convince decision-makers about the potential of geothermal electricity in Europe: Create awareness and improve perception among policy makers

- 1) At EU level:

From 6 TWh today
and 10 TWh by
2050!

Table 9: Power generation

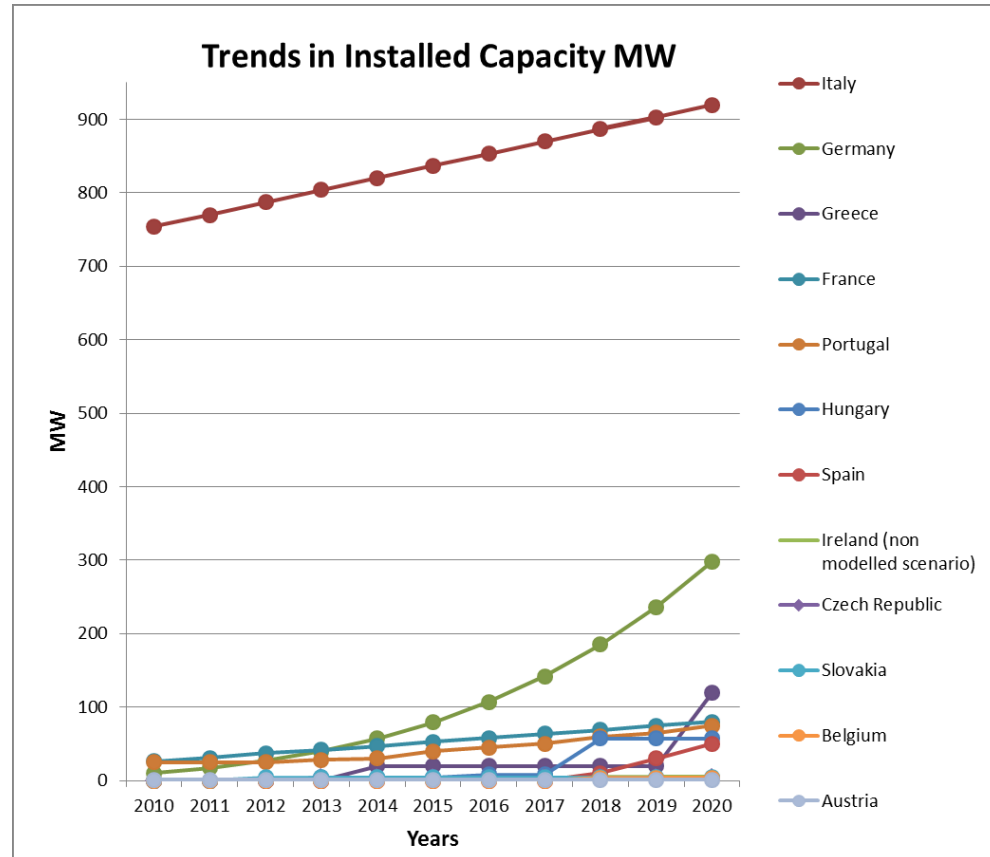
		2005	2050		
			Reference	Scenario 1bis	Scenario 2
Electricity generation	TWh	3274	4931	4620	4281
Nuclear energy	Shares (%)	30.5	26.4	20.6	14.2
Renewables		14.3	40.3	48.8	64.2
Hydro		9.4	7.6	8.5	9.2
Wind		2.2	20.1	24.7	33.2
Solar, tidal etc.		0.0	5.1	7.0	10.6
Biomass & waste	2.6	7.3	8.4	10.9	
Geothermal heat	0.2	0.2	0.2	0.3	
Fossil fuels		55.2	33.3	30.6	21.6
Coal and lignite		30.0	15.2	11.1	4.8
Petroleum products		4.1	2.2	2.1	0.0
Natural gas		20.3	15.1	16.7	16.7
Coke & blast-furnace gasses		0.9	0.7	0.7	0.0
Other fuels (hydrogen, methanol)		0.0	0.0	0.0	0.0
		2050			
		Scenario 3	Scenario 4	Scenario 5	Scenario 6
Electricity generation	TWh	4912	5141	4872	4853
Nuclear energy	Shares (%)	16.1	3.5	19.2	2.5
Renewables		59.1	83.1	60.7	64.8
Hydro		8.0	7.7	8.1	8.1
Wind		31.6	48.7	32.4	35.6
Solar, tidal etc.		9.9	16.4	9.9	10.8
Biomass & waste		2.2	2.6	2.2	2.8
Geothermal heat		0.3	0.6	0.4	0.4
Fossil fuels		24.8	9.6	20.1	32.7
Coal and lignite		8.1	2.1	5.1	13.1
Petroleum products		0.0	0.0	0.0	0.1
Natural gas	16.6	7.5	14.9	19.5	
Coke & blast-furnace gasses	0.0	0.0	0.0	0.0	
Other fuels (hydrogen, methanol)	0.0	3.9	0.0	0.0	

Objective of GEOELEC project is to...

- *convince decision-makers about the potential of geothermal electricity in Europe: Create awareness and improve perception among policy makers*

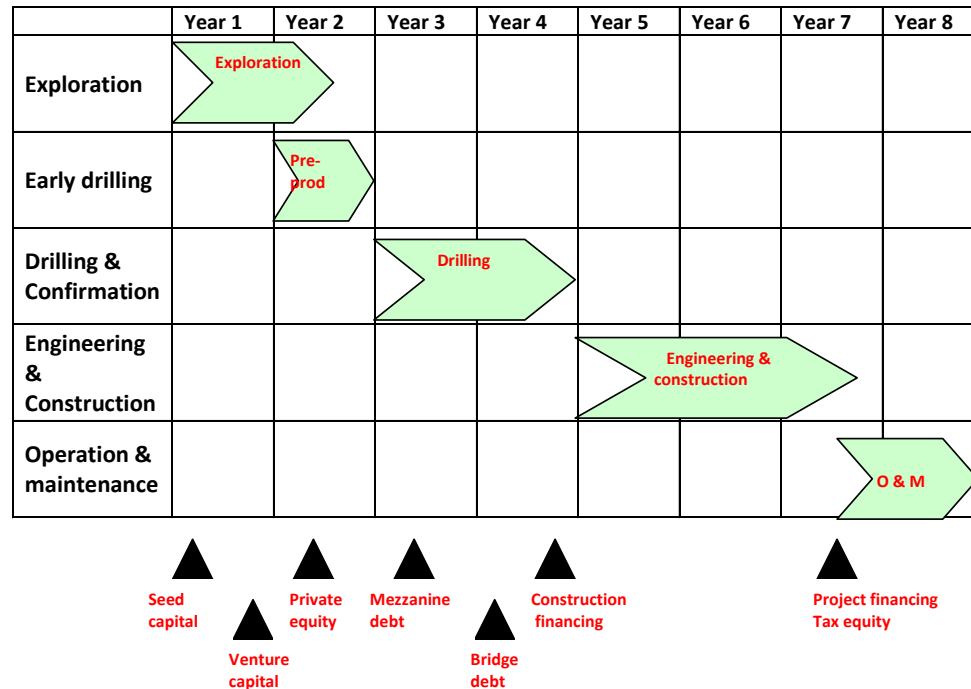
- **2) At National level:**

NREAPs: From 6 TWh today to 11 TWh by 2020!



Objective of GEOELEC project is to...

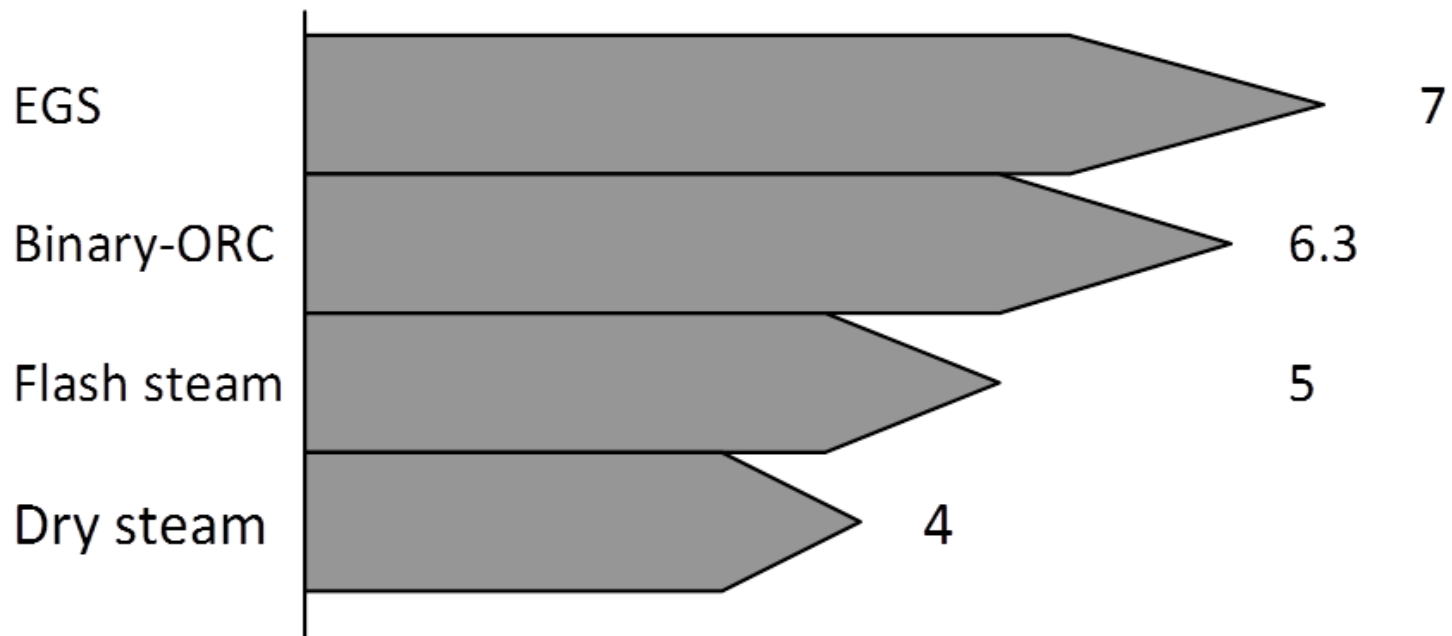
- *stimulate banks and investors in financing geothermal power installations.*
- *Geothermal project development has high upfront costs and can take several years: 3-6 years, need innovative mechanisms for funding*



Objective of GEOELEC project is to...

- *attract key potential investors such as oil and gas companies and electrical utilities to invest in the geothermal power.*
- *Geothermal projects are capital intensive*

Capital costs, € million /MWe installed



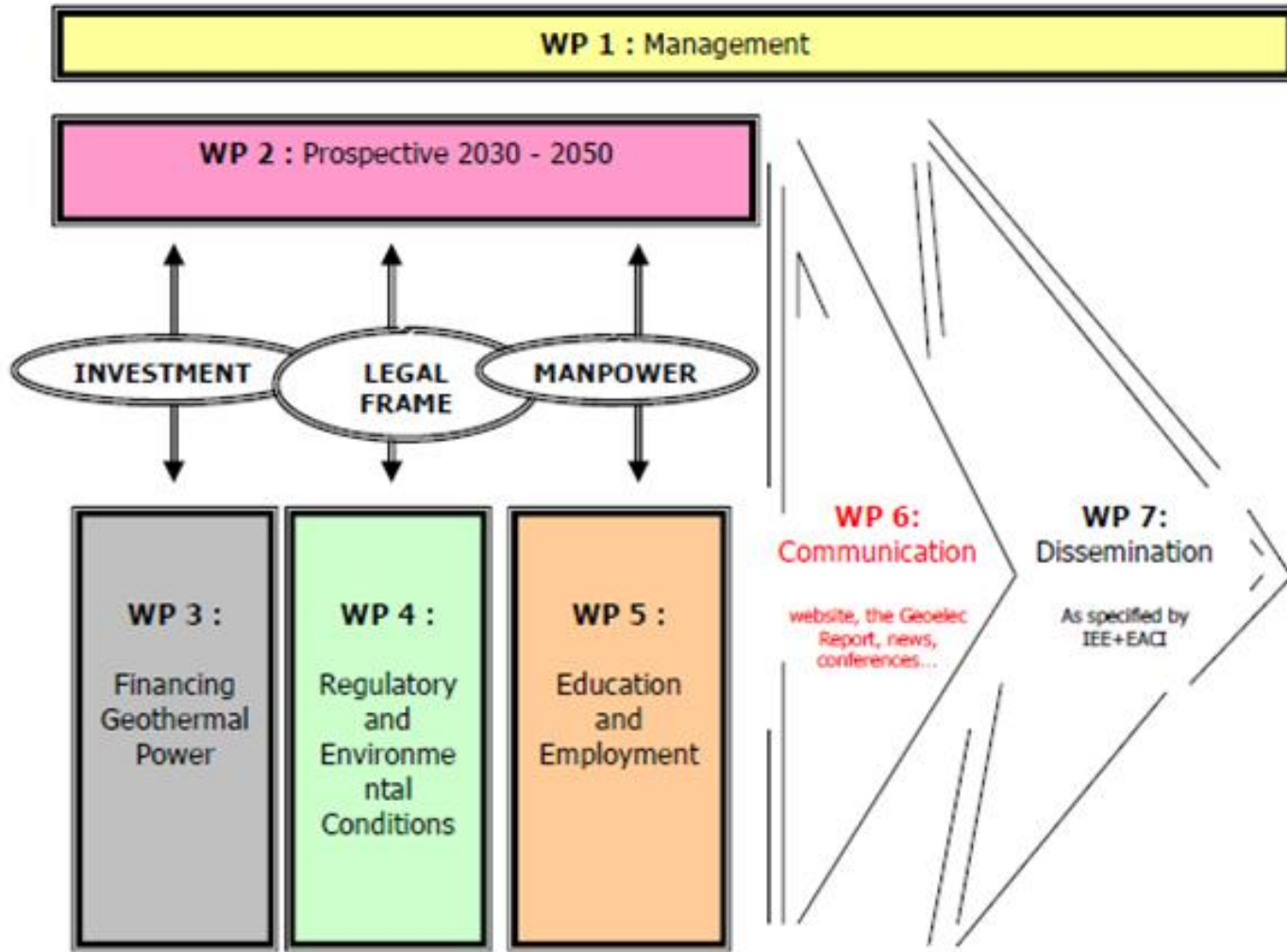
Results

- *GEOELEC will result in an **action plan towards more geothermal electricity generation in Europe**, with the objective to double installed geothermal power capacity in Europe by 2020.*
- *GEOELEC will also result in setting concrete actions to reach these objectives: conditions for financial feasibility, a regulatory framework, and public acceptance.*

List of Participants

European Geothermal Energy Council	EGEC	BE
Bureau De Recherches Géologiques Et Minières	BRGM	FR
Centre For Renewable Energy Sources And Saving	CRES	EL
Consiglio Nazionale Delle Ricerche Istituto Di Geoscienze e Georisorse	CNR-IGG	IT
Asociacion De Productores De Energias Renovables	APPA	ES
Gaßner, Groth, Siederer & Coll.	GGSC	DE
EnBW Energie Baden-Württemberg AG	EnBW	DE
Mannvit	Mannvit	IS
Helmhotz Zentrum Postdam - Deutsches Geoforschungszentrum	GFZ	DE
Nederlandse Organisatie Voor Toegepast-Natuurwetenschappelijk Onderzoek TNO	TNO	NL

Work Flow Chart (June 2011 – November 2013)



Work Programme

Prospective for geothermal electricity in Europe

Resource assessment

- Methodology: Geoelec Resource Assessment Protocol
- Data compilation with 7 regional workshops (London, Valencia, Milano, Athens, Utrecht, DE, Vilnius)
- An online web GIS on EGS potential in the EU-27

Electricity demand and grid infrastructures

- Technical conditions for grid access
- Match the demand: site selection

Forecasts and prospective

- **A prospective study 2020/2030/2050 on the geothermal potential in Europe (January 2013)**



Work Programme

Financing geothermal power projects

Project financing & estimating of costs

- A software to evaluate financial viability of geothermal projects
- LCOE

Risk insurance

- Promote the creation of risk insurance schemes

Drilling costs & rigs

- A European database on drilling costs & performance
- Best practice drilling handbook

Guide to boost investment in the geothermal sector

- **Practical reference tool for banks, developers and investors**



Work Programme

Regulatory, social and environmental conditions

Regulatory barriers

- Licensing procedures, legal conditions for grid access
- Geothermal reporting code review

Environmental issues

Public acceptance

Potential CO2 emissions reduction



Work Programme

Education and employment in the geothermal sector

Employment survey

Training activities

- 3 Training courses in France, Italy and Germany (2012/2013)

Work Programme

Communication

Website: www.geoelec.eu

Publication

- Geoelec Final Report (5500 copies in total, 100 pages, several languages)
- Geoelec Factsheets (4000 copies, brochure 16 pages, several languages)
- Newsletter (First in October 2011, every 4 months)

Events

- 7 promotional workshops (FR,DE,EL,ES,IT,HU,NL) and 1 Final Conference
- Face-to-face meetings with decision makers, banks, investors etc.

Promote the creation of National Geothermal Committee

- **Official body providing recommendations for geothermal development**



Thank You!

Visit www.geoelec.eu

