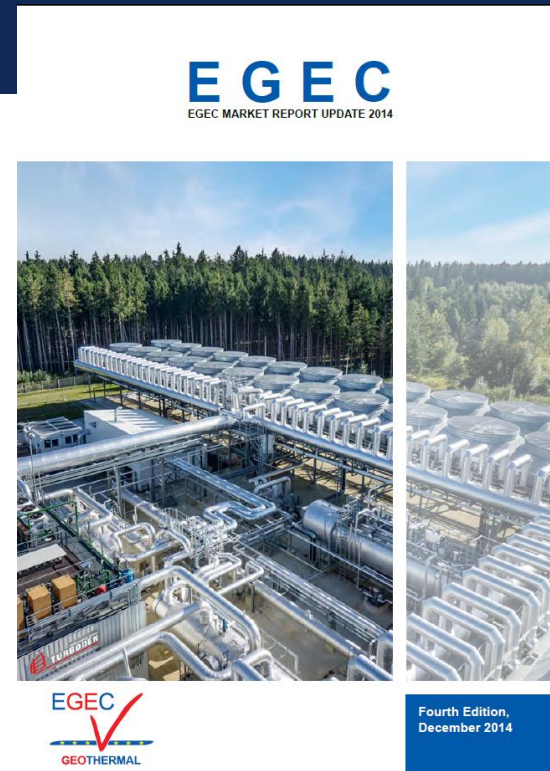


Geothermal Market in Europe

Launch of the EGEC Geothermal Market Report 2013/2014 - update



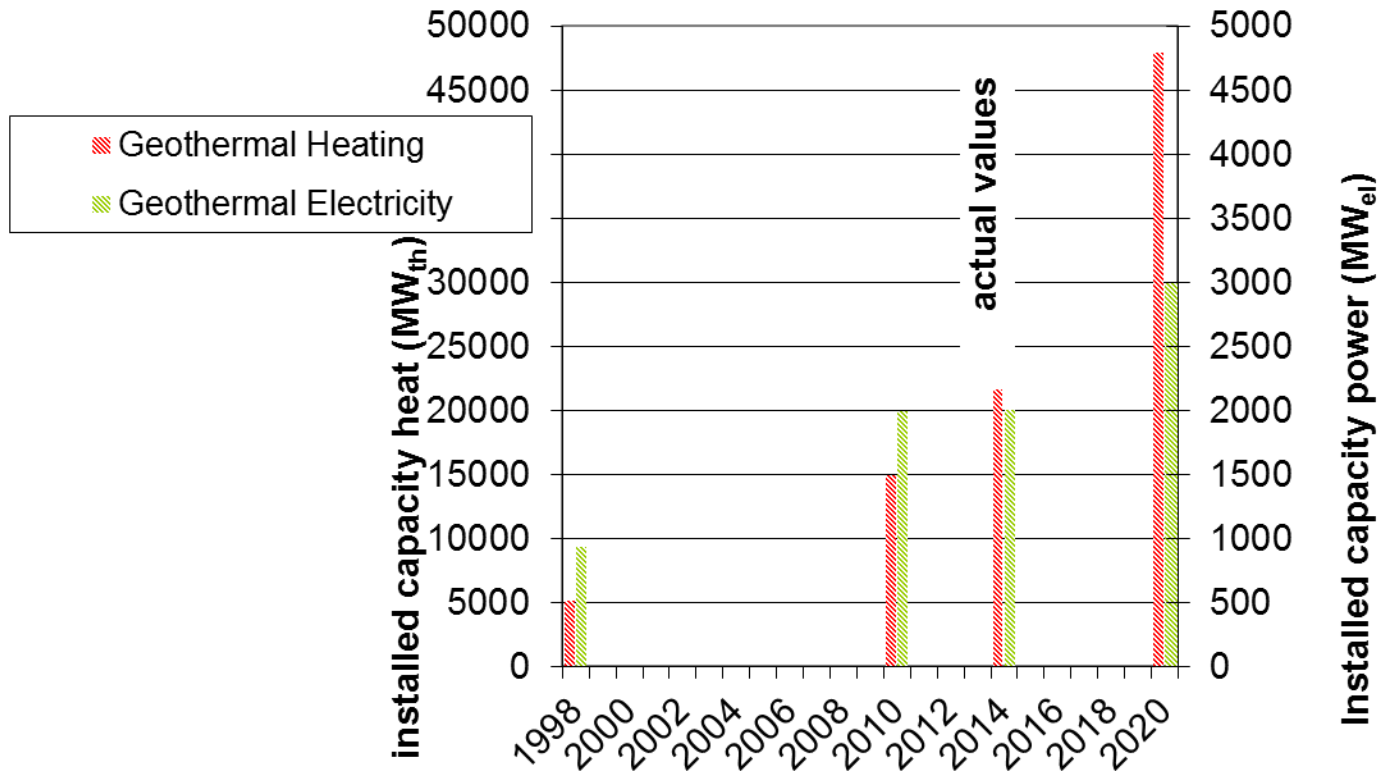
3 parts:

Geothermal Electricity

Geothermal District heating

Shallow Geothermal

From the Ferrara Declaration



On track but...We urgently need a stable political and regulatory framework to achieve the targets for 2020, 2030 and beyond!

Summary of Key Conclusions: Electricity

State of Play in 2014

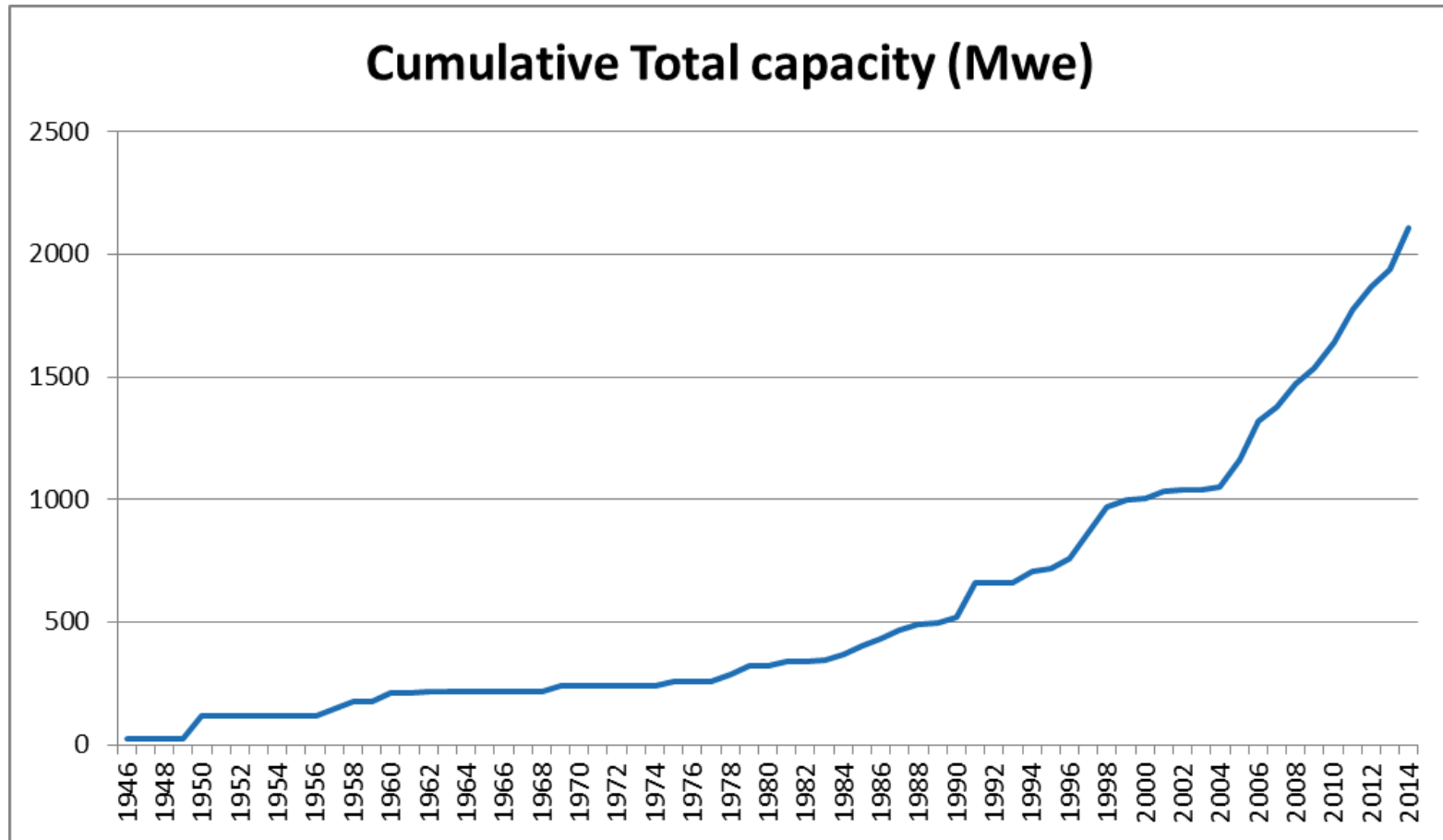
- Total Installed Capacity in Europe: 2 GWe (+170 MWe in 2014)
- Producing 11,7 TWh of Electric Power (in 2012)

77 Geothermal Power Plants

- 8 new power plants in 2014
- EU Installed Capacity of 0.945 GWe

Summary of Key Conclusions

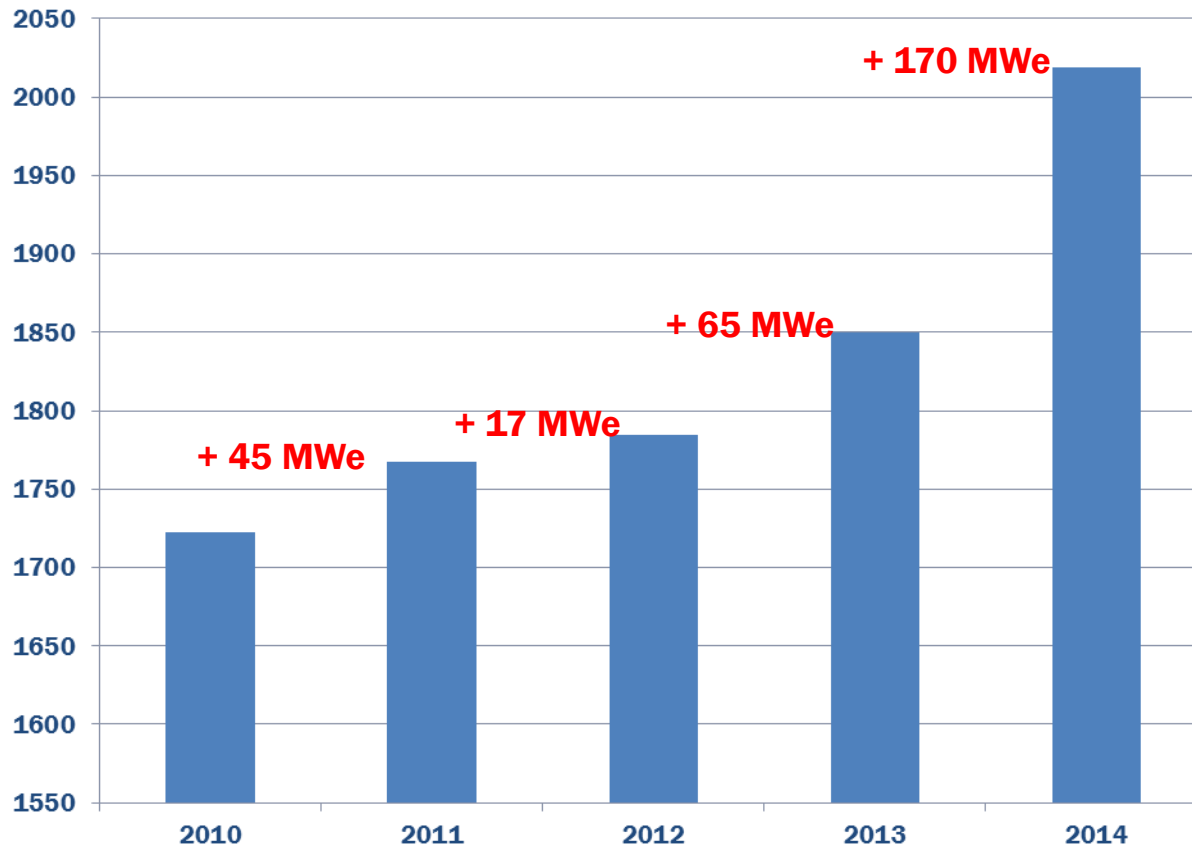
Electricity



Cumulative Installed capacity in Europe – 1946 - 2014 (MWe)

Summary of Key Conclusions

Electricity



Cumulative Installed capacity in Europe – 2010-2014 (MWe)

New power plants in 2014

TURKEY	Locality	Power plant	Year comm.	Turbine	Manufacturer	Capacity MWe	Consortium
	Aydın-Pamukören	Pamukören 1+2	End 2013	Triple Flash	Atlas Copco	44,00	Celikler Enerji
	Aydın-Germencik	Gumusky 1	2014	Binary-ORC	TAS	6,60	BM Holding
	Aydın-Germencik	Gumusky 2	2014	Binary-ORC	TAS	6,60	BM Holding
	Aydın-Salavatlı	Dora 3U1	2014	Binary-ORC	Ormat	21,00	Mege Elektrik
	Manisa-Alasehir	TR1	2014	Binary-ORC	Ormat	24,00	Turkerler Enerji
	Aydın-Salavatlı	Dora 3U2	2014	Binary-ORC	Ormat	20,00	Mege Elektrik
	Aydın-Germencik	Germencik 3	2014	Binary-ORC	Ormat	25,00	Gurmat Elektrik
	Aydın-Germencik	Kerem	2014	Binary-ORC	Ormat	22,50	Maren Enerji
Total						169,7 MWe	

EGS power plants in 2014 – in operation

Country	Locality	Power Plant Name / Type	Year Comm.	Turbine	Manufacturer	Capacity Installed MWe	CHP - MWth (included in GeoDH)	Gross Electric Production GWh (2012)	Consortium
France									
	Soultz-sous-Forêts - Alsace	EGS Project	2010	B-ORC	Turboden/Cryostar	2,1		6,0	GEIE Soultz
Germany									
	Insheim (Rhineland - Palatinate)	EGS/Hydrothermal	2012	B-ORC	Turboden	4,8		3,3	Pfalzwerke Geofuture GmbH
	Landau (Rhineland - Palatinate)	EGS/Hydrothermal	2007	B-ORC	Ormat	3,6	5	13,2	geox GmbH

EGS power plants in 2014 – under development

Country	Locality	Power Plant Name / Type	Expected Capacity Installed MWe	CHP - MWth	Gross Electric Production GWh	Consortium + info
Belgium						
	Mons	EGS project	3			Earth Solutions
Czech Republic						
	Litoměřice	EGS project	5	50	40	Municipality of Litoměřice, Geotermální Litoměřice Co.
Germany						
	Groß Schönebeck	EGS project	1	10		GFZ Potsdam
	Mauerstetten	EGS project	5			Exorka
Hungary						
	Battonya (earlier: Ferencszállás)	South Hungarian EGS Project /NER 300	5 - 10	10 - 20	37.5 - 75	Hungarian NER 300 Project Consortium. Status: Early phase of exploration. Awarded in NER300 tender, as well as National Geothermal Concession is obtained.
New	Jászberény	Jászberény Geothermal Power Plant Project	1 - 5	3 - 10	8 - 30	CEGE Zrt. (geothermal subsidiary of MOL). Status: Early phase of exploration. National Geothermal concession obtained.
United Kingdom						
	St Austell (Mid Cornwall)	Eden Project	4,1	3,45		EGS Energy Limited, The Eden Project
	Redruth (West Cornwall)	United Downs Deep Geothermal Project	10	55		Geothermal engineering ltd

EGS power plants in 2014 – under development

Country	Locality	Gross
Belgium	Mons	
Czech Republic	Litoměřic	
Germany	Groß Schönebeck Mauerstette	
Hungary	Budapest Ferencszál	
New	Jászberén	
United Kingdom	St Austell (Cornwall)	
	Redruth (W Cornwall)	

update on the status.

The South Hungarian EGS Demonstration Project (SHEGSDP) is progressing in line with the projected timeline.

The Geothermal Concession Contract is signed and issued, and the team is currently working to complete the licensing procedures necessary to imitate the upcoming activities on-site.

An important milestone was passed recently when the project sponsor signed a contract with AltaRock Energy Inc. for Well Stimulation, Seismic Monitoring and Seismic Risk Mitigation services on the project.

Other ongoing activities include continuing geoscientific investigations and procurement of casing and drilling services.

Drilling of the first SHEGSDP well is scheduled for the second half of this year.



EGS power plants in 2014 – under investigation

Country	Locality	Power Plant Name	Expected Capacity Installed MWe	CHP - MWth	Consortium/ More details	
Croatia						
	Velika Ciglena	Marija 1	4,71		GEOEN	
France						
	Alps-Salève	EGS - 2020	4,6	15	Fonroche Géothermie	Waiting permit
	Alsace- Lauterbourg	EGS project - 2018	3	15	Electricité de Strasbourg and Géopetrol	Permit granted
	Alsace- Rittershoffen	EGS project - 2015		24	Electricité de Strasbourg	Permit granted
	Alsace-Durningen	EGS project			Moore Géothermie	Permit granted
	Alsace-Ilkirch	EGS project - 2016	3	15	Electricité de Strasbourg	Permit granted
	Alsace-Soufflenheim	EGS project			Moore Géothermie	Permit granted
	Alsace-Strasbourg	EGS project / NER300 Project - 2015	4,6	15	Fonroche	Permit granted
	Alsace-Wissembourg	EGS project - 2016	3	15	Electricité de Strasbourg	Permit granted
	Aquitaine-Arsacq	EGS project - 2018	4,6	15	Fonroche Géothermie	Permit granted
	Aquitaine-Pau	EGS-2018	5	15	Fonroche Géothermie	Research project
	Guadeloupe- Vieux habitants	Hydrothermal			Teranov	Research project
	Martinique- Arlet	Hydrothermal			Géothermie de Martinique	Waiting permit
	Martinique-Nord Carïbe	Hydrothermal			N.A.	Waiting permit
	Massif Central-Allier	EGS project - 2019	4,6	15	Fonroche Géothermie	Permit granted
	Massif Central-Cézallier	EGS project	4,6	15	Electerre	Permit granted
	Massif Central-Riom	EGS - 2017	4,6	15	Electerre - Fonroche Géothermie	Waiting permit
	Massif Central-Sancy	EGS project - 2018	2	7	Fonroche Géothermie	Permit granted
	Val de Drôme	EGS project - 2016	4,6	15	Fonroche Géothermie	Permit granted
Germany						
	Bietigheim	EGS project			N.A.	
	Krefeld	EGS project			Municipality	
	Lohmen	EGS project	10	80	Geothermis AG	
	Rülzheim	EGS project	4,5		HotRock Engineering GmbH	

EGS power plants in 2014 – under investigation

Country	Locality	Power Plant Name	Expected Capacity Installed MWe	CHP - MWth	Consortium/ More details
Croatia					
	Velika Ciglena	Marija 1	4,71		GEOEN
France					
	Alps-Salève	EGS - 2020	4,6	15	Fonroche Géothermie
	Alsace- Lauterbourg	EGS project - 2018	3	15	Electricité de Strasbourg and Géopetrol
	Alsace- Rittershoffen	EGS project - 2015		24	Electricité de Strasbourg
	Alsace-Durningen	EGS project			
	Alsace-Ilkirch	EGS project - 2016			
	Alsace-Soufflenheim	EGS project			
	Alsace-Strasbourg	EGS project / NER300 Project - 2015			
	Alsace-Wissembourg	EGS project - 2016			
	Aquitaine-Arsacq	EGS project - 2018			
	Aquitaine-Pau	EGS-2018			
	Guadeloupe- Vieux habitants	Hydrothermal			
	Martinique- Arlet	Hydrothermal			
	Martinique-Nord Carïbe	Hydrothermal			
	Massif Central-Allier	EGS project - 2019			
	Massif Central-Cézallier	EGS project			
	Massif Central-Riom	EGS - 2017	4,6	15	Electerre - Fonroche Geothermie
	Massif Central-Sancy	EGS project - 2018	2	7	Fonroche Géothermie
	Val de Drôme	EGS project - 2016	4,6	15	Fonroche Géothermie
Germany					
	Bietigheim	EGS project			N.A.
	Krefeld	EGS project			Municipality
	Lohmen	EGS project	10	80	Geothermis AG
	Rülzheim	EGS project	4,5		HotRock Engineering GmbH

This NER300 project is launched

Phase of preliminary studies

In Drilling autorisation procedure

EGS power plants in 2014 – under investigation

Country	Locality	Power Plant Name	Expected Capacity Installed MWe	CHP - MWth	Consortium/ More details
Latvia					
	Riga	EGS	3-4	30-40	Riga City Council accepted the project idea by approval of the Riga Sustainable Energy Action Plan 2010-2020
Romania					
	Tulcea	EGS			
Slovenia					
	Murska-Sobota	EGS project	5		Timo ltd
Spain					
	Andalucia	Guadalquivir	5		Molinos del Ebro
	Andalucia	Cádiz	5		Molinos del Ebro
	Andalucia	Ejido			Norvento
	Andalucia	Almanzora			Norvento
	Andalucia	Andarax			Norvento
	Andalucia	Beiro			Norvento
	Aragon	Serralbo	5		Molinos del Ebro
	Aragon	Huesca	5		Molinos del Ebro
	Galicia	Arteixo			Norvento
	Galicia	Rego de Mera			Norvento
	Galicia	Triacastela			Norvento
	Galicia	Ourense	5		Molinos del Ebro
	Galicia	Arnoia			Norvento
	Murcia	Guadalentín Norte			Norvento
	Madrid	Madrid	5		Petratherm, ITER
	Murcia	Mazarrón			Norvento
United Kingdom					
	Aberdeen (Scotland)	Energetica project			Scottish Enterprise
	Eastgate (Weardale)	EGS			Cluff Geothermal Ltd in agreement with Lafarge

New power plants in 2014

Turbine manufacturers

- 5 turbines from ORMAT

Dora



- 2 turbines from TAS

Aydın-Germencik



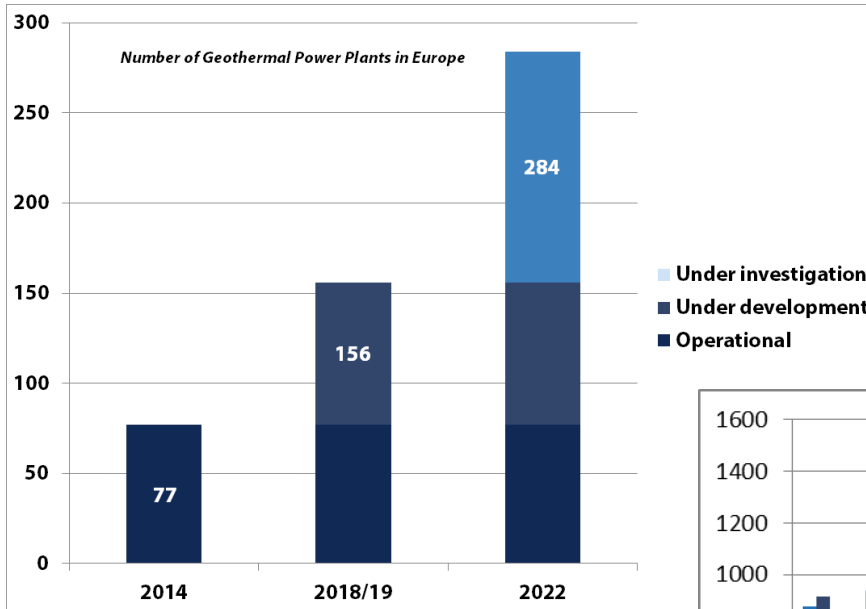
- 1 turbine from Atlas copco

Pamukören



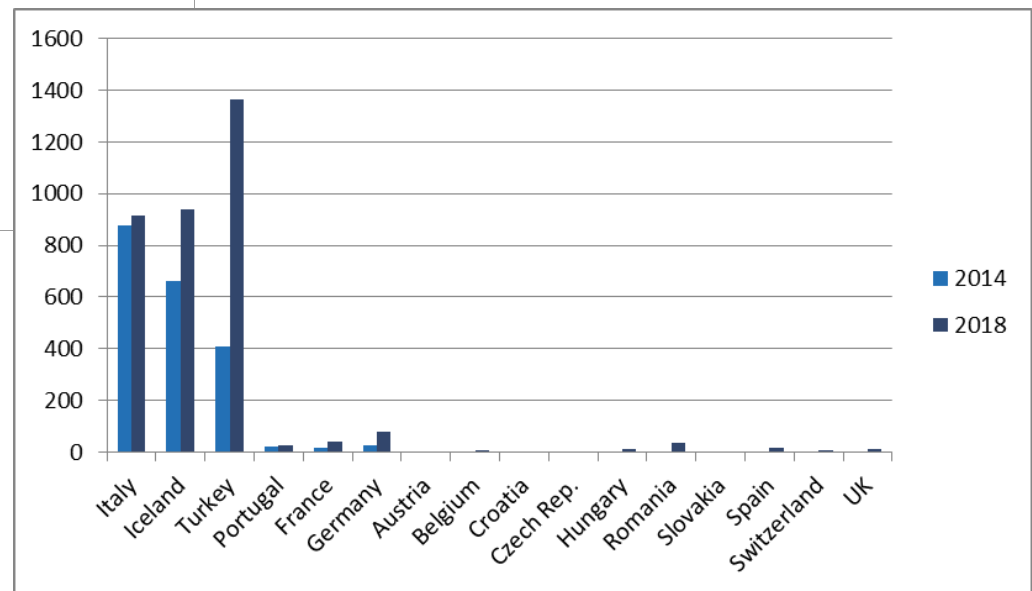
Installed Capacity per Country

Looking to the next 5 years...

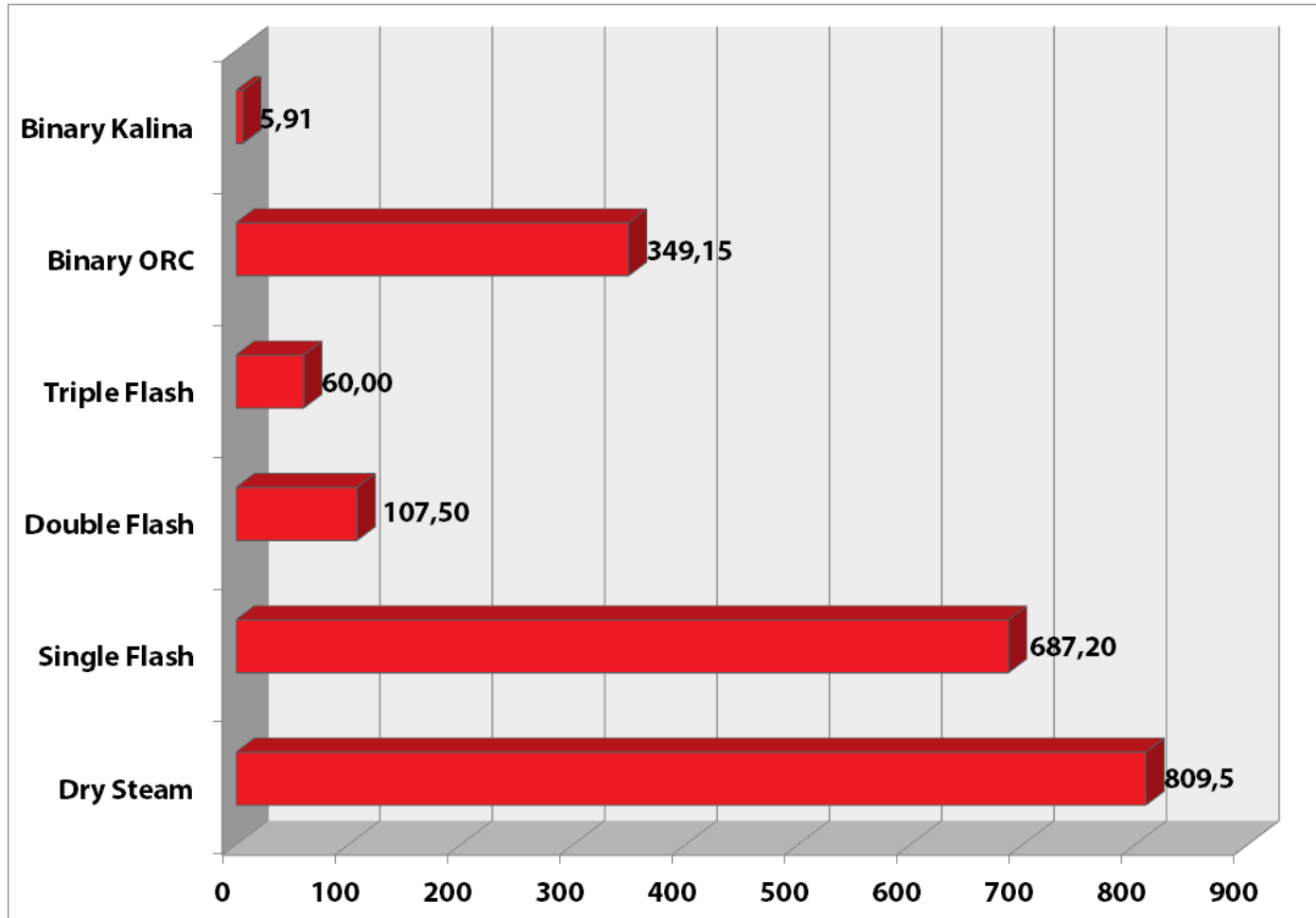


Number of geothermal power plants in Europe
 (+200 projects under development or investigation !)

Installed capacity per country (MWe)

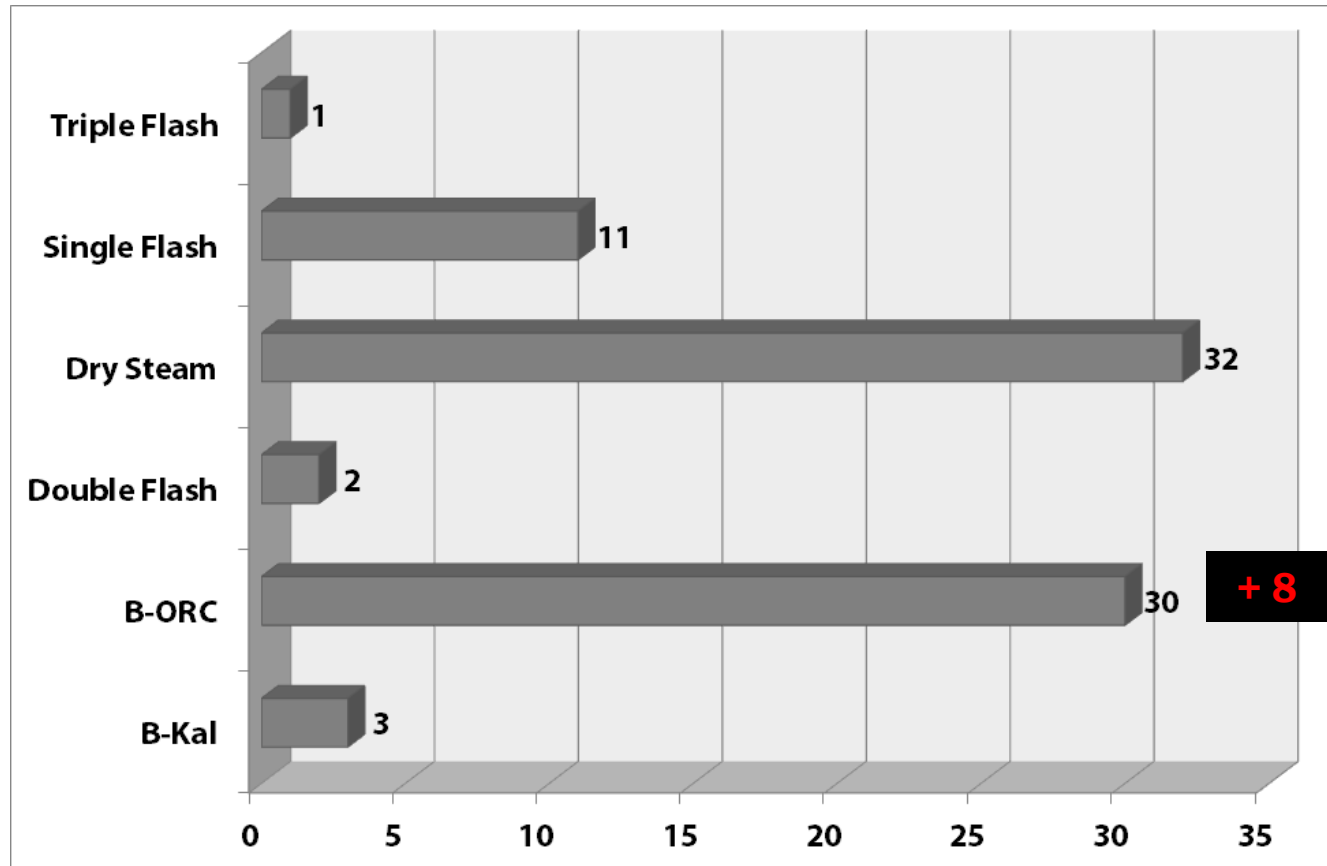


Focus on Turbines



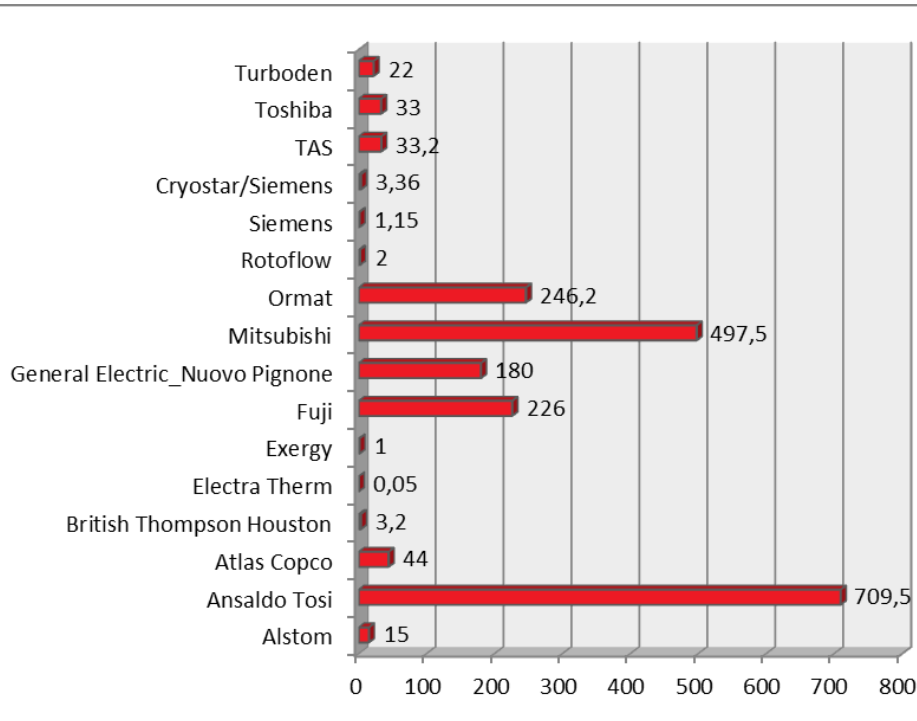
Installed capacity (MWe) per technology

Focus on Turbines

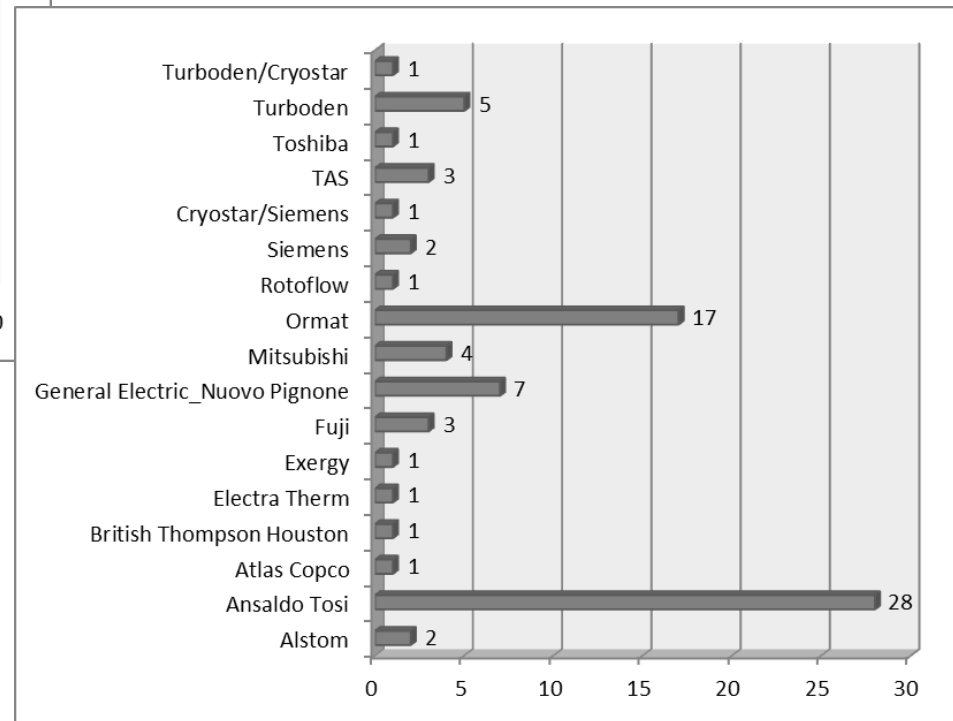


Number of power plants per technology 2013-2014

Focus on Turbine manufacturers



Installed capacity (MWe) per manufacturer



Number of power plants per manufacturer

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of the geothermal sector in Europe

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An update of the 2013/2014 edition
presenting main conclusions

