IEA-GIA Annex X – Data Collection and Information

Collection and publication of data on geothermal energy uses, trends and developments in IEA-GIA member countries

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About Annex X

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It is the objective of Annex X – "Data Collection and Information" to collect essential data on geothermal energy uses, trends and developments in the GIA countries, and to publish these data on a yearly basis as a "Geothermal Trend Report". All current 14 GIA Country Members are required to support the work within Annex X through their provision of information.

Geothermal energy uses and manifestations. *Photos: Ganz, Mongillo (Iceland, centre) , Agemar (Hellisheidi, 2nd from right).*

Aims & Objectives

- collect essential data on geothermal energy uses, trends and developments in GIA Member Countries
- publish these data in an annual report available as hardcopy and on the GIA website for wide public distribution
- the resulting report should provide a brief overview of data trends such as installed capacities and produced electricity and heat, as well as relevant political and economic information

Structure

Operating Agents: Leibniz Institute for Applied Geophysics (LIAG), Germany
Federal Office of Energy (BFE), Switzerland

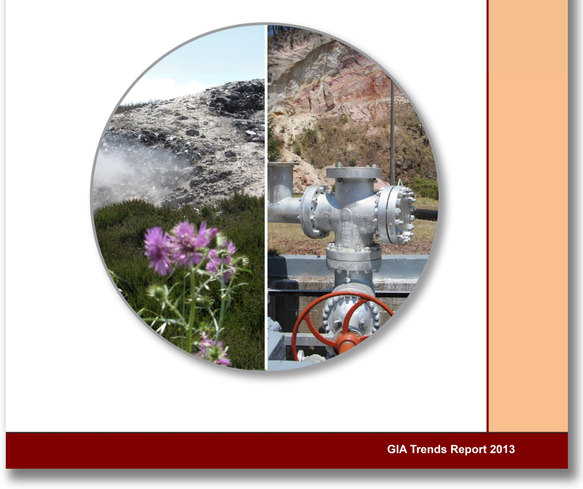
Annex Leader: Josef Weber (LIAG, Germany)

Participants: All GIA Country Members

LIAG´s work within Annex X is funded by the German Federal Ministry for Economic Affairs and Energy (BMWi) as part of the project "The role of deep fault zones for geothermal energy utilisation", project number 0325623A.

The Geothermal Trend Report

Annex X started its work with data from 2010. The first Geothermal Trend Report for the year 2010 was published in 2012. The 4th volume for 2013 has been released in March 2015.



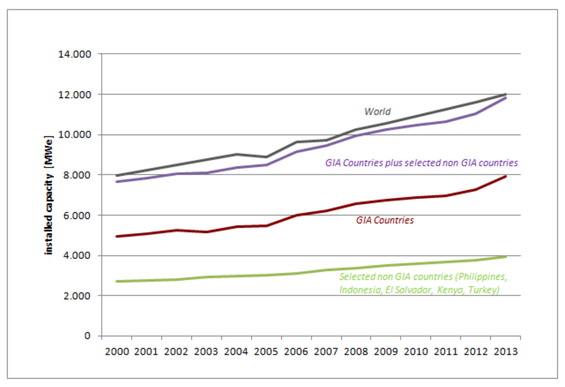
GIA Trend Report 2013 (Weber et al. 2015)

Main contents

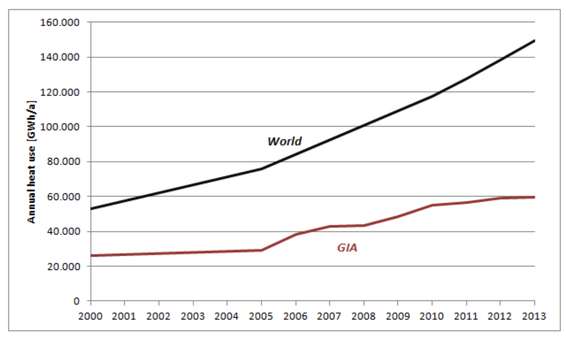
- Geothermal power generation
- Direct use of geothermal heat (with use categories and heat pumps)
- Trends heat and power 2000-2013
- Comparison with worldwide data (eg. Bertani 2012, Lund et al. 2011)
- CO_2- and energy savings
- Energy market and national policy
- Geothermal highlights and challenges

Trends

Power: installed capacities (MWe) 2000-2013



Heat: annual use (GWh/a) in GIA countries and worldwide 2000-2013

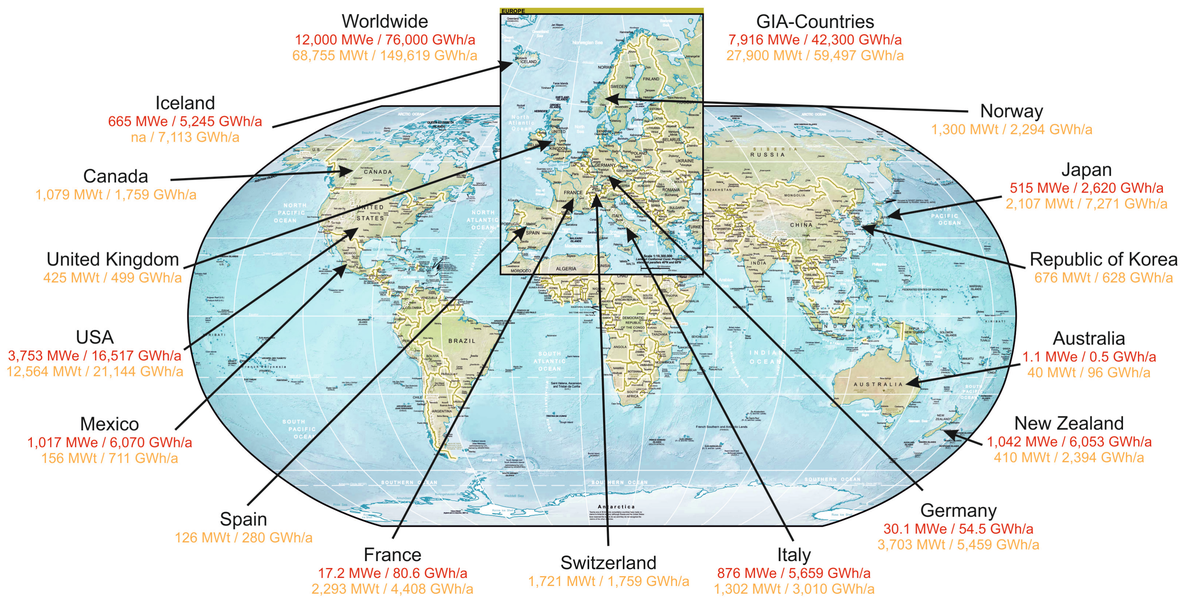


Power: installed capacity (MWe) in GIA countries 2000-2013

	Installed capacity [MW_e]											
Country	2000	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
AUS	0,2	0,1	0,1	0,2	0,1	0,1	0,1	0,1	0,1	0,1	0,1	1,1
DEU	0,0	0,2	0,2	0,2	0,2	3,2	6,6	6,6	7,3	7,3	11,1	30,1
FRA	4,2			15,0	15,0	15,0	17,2	17,2	18,3	17,7	17,7	17,2
ISL	170,0	200,0	202,0	202,0	422,0	485,0	575,0	575,0	575,0	664,6	664,6	665,0
ITA	785,0	862,0	862,0	791,0	810,0	810,0	810,5	842,5	882,5	882,5	874,5	875,5
JPN	547,0	535,0	535,0	535,3	535,3	535,3	535,3	535,3	537,7	540,1	540,1	515,1
MEX	755,0	953,0	953,0	953,0	953,0	958,0	958,0	958,0	958,0	958,0	958,0	1.017,0
NZL	437,0	431,0	452,0	435,0	450,0	452,0	632,0	632,0	792,0	794,0	794,0	1.042,0
USA	2.228,0	2.200,0	2.400,0	2.534,0	2.831,0	2.936,5	3.040,0	3.168,0	3.101,6	3.111,0	3.386,0	3.752,8
Total GIA	**4.926,4**	**5.181,4**	**5.404,4**	**5.465,7**	**6.016,6**	**6.195,1**	**6.574,7**	**6.734,7**	**6.872,6**	**6.975,3**	**7.246,1**	**7.915,8**
World	7.974,0			8.903,0		9.732,0			10.898,0	11.244,0	11.600,0	12.000,0

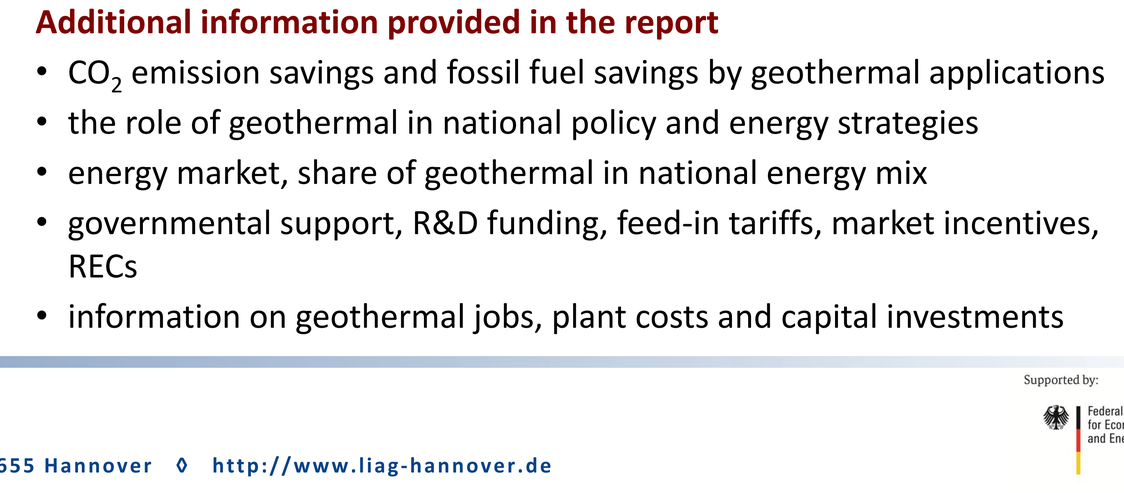
Trends in geothermal power generation (top left and table) and heat use (top right). *Data: Annex X; REN21 (2014), Bertani (2005, 2007, and 2012), Huttrer (2001), Lund et al. (2001, 2005, 2011), GIA Annual Reports. Includes interpolation by average growth rates for years without available data.*

Geothermal Heat and Power in GIA Countries



Overview of geothermal power (red) and heat (orange) utilization in GIA countries and worldwide. *Data : Country data from GIA Annex X country reports 2013; world data for power based on estimates made in the Global Status Report of REN21 (2014); world data for heat based on numbers for 2010 (Lund, 2011) assuming an annual growth rate of 12 % (capacity) and 8 % (heat produced), respectively. Map: The World Factbook 2013 (CIA, www.cia.gov).*

Geothermal Highlights



Geothermal projects in selected GIA countries.

Further Content

Additional information provided in the report

- CO_2 emission savings and fossil fuel savings by geothermal applications
- the role of geothermal in national policy and energy strategies
- energy market, share of geothermal in national energy mix
- governmental support, R&D funding, feed-in tariffs, market incentives, RECs
- information on geothermal jobs, plant costs and capital investments

Supported by:
Federal Ministry for Economic Affairs and Energy
on the basis of a decision by the German Bundestag