

Overview of Geothermal Deployment - Trends



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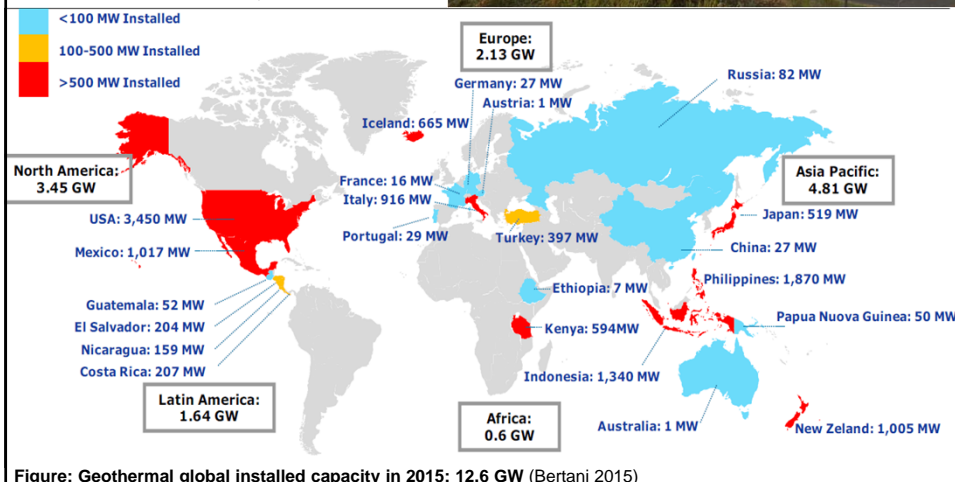
Marietta Sander & Juliet Newson
Executive Director of the IGA
c/o Bochum University of Applied Sciences, Germany
Nairobi, GGA Stakeholder Meeting, 15 June 2015



The IGA is one of the five
REN Alliance partners

Global Geothermal Trends - Power

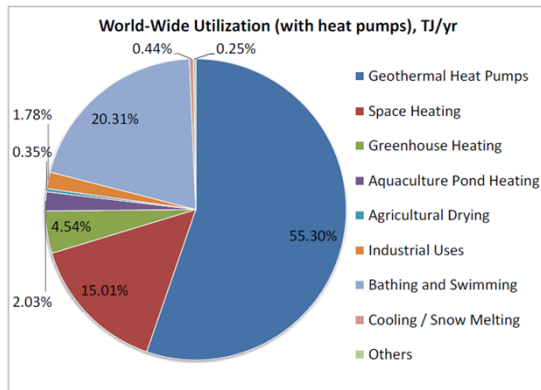
- 5 Top geothermal power producers are: USA, Philippines, Indonesia, Mexico, New Zealand
- Installed global capacity is 12.6 GWel currently, in 2010 only 10.897 GWel were installed.
- Technology innovations: Binary systems, Enhanced Geothermal Systems



Global Geothermal Trends – Direct use

- **Direct use applications** exist in **82 countries**
- Geothermal direct use applications for **heating** are growing in the northern hemisphere (Sweden, Denmark, China are forerunners)
- Increasingly, **geothermal heat** is fed into **district heating networks** (>230 networks in Europe) and/ or supplies larger public complexes (malls, offices)

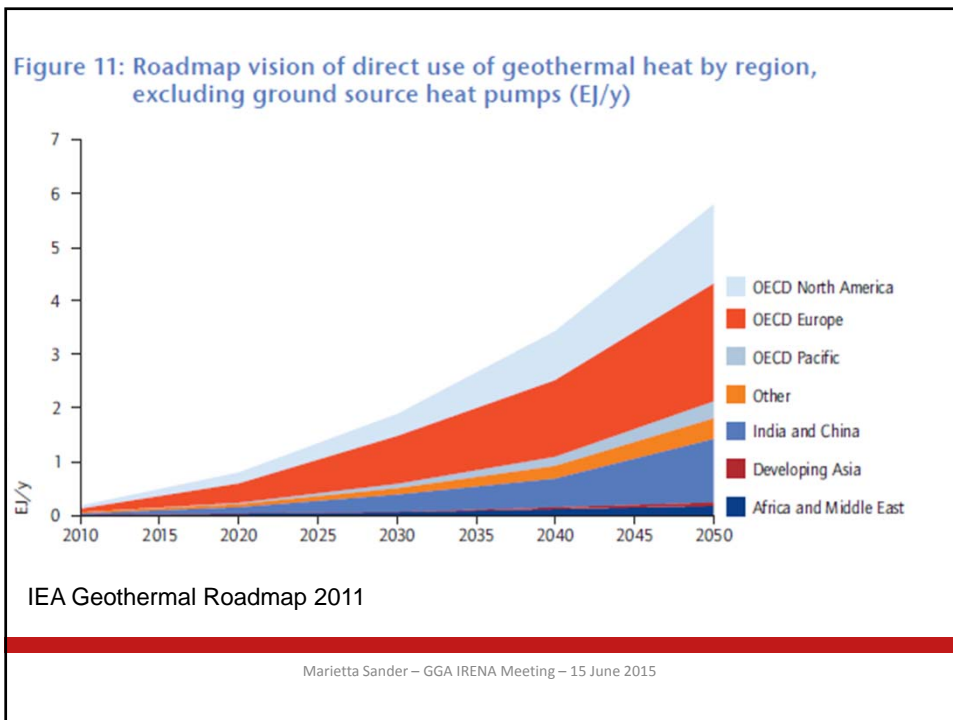
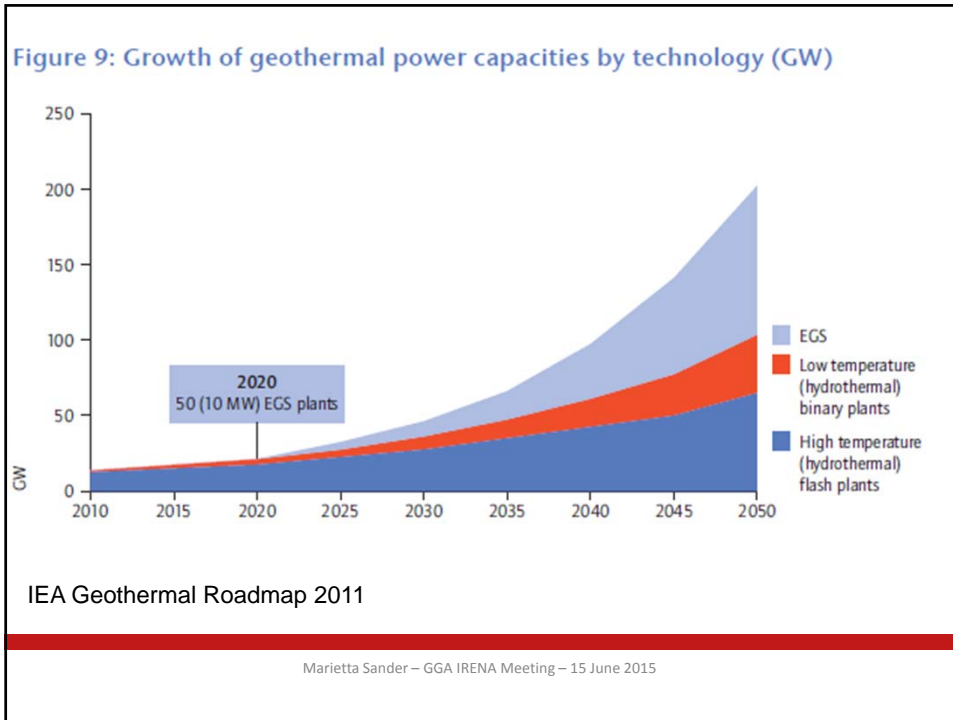
Figure: Geothermal direct use in 2015 (Lund 2015)



Direct use applications



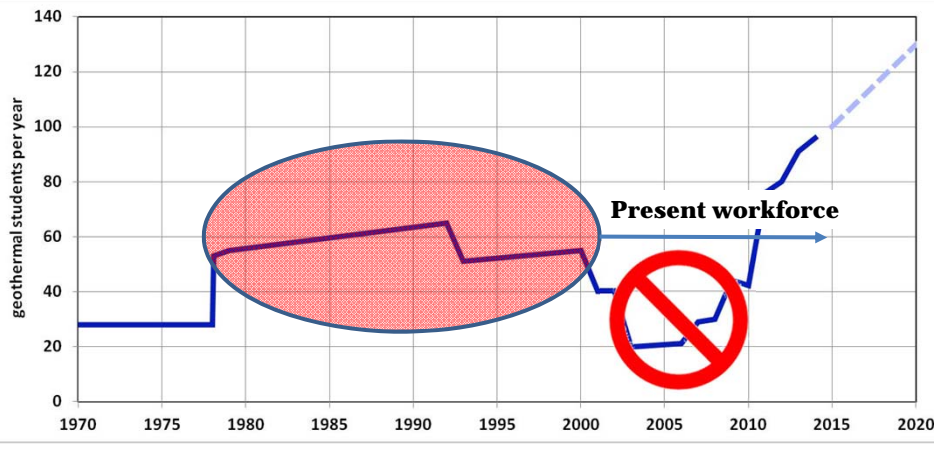
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Training



Figure: Training offered from 1975 until today



Geothermal uses in the Ruhr area, Germany



At the former coal mine **Robert Müser** the City Utility of Bochum & RAG pump mine water to the surface, use heat pumps and supply a school and fire station with heat




Exzenter house in Bochum is heated and cooled with geothermal energy (39 wells, Borehole heat exchangers for heat and cold storage, 5.000m² office space on 15 floors



GEOSTAR drilling project provides the **International Geothermal Centre, Bochum** with heating & cooling: 17 borehole heat exchangers, 200m depth



Solar-Geothermal seasonal storage: Drake Landing, Alberta, Canada



- **Concept:** Store solar energy underground during summer months + distribute energy to each home for space heating needs during winter months
- 800 solar panels generate 1.5 MW thermal per summer day
- 52 houses space & water heating
- 144 boreholes with 2.25 m distance
- In summer heat is transferred into soil + rock and approaches 80°C by end of summer


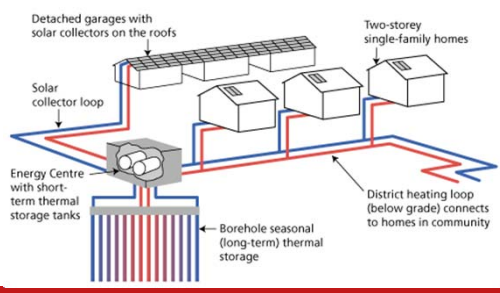



Figure: Solar seasonal storage and district loop
Source: www.dlsc.ca

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REN Alliance (International Renewable Energy Alliance)



- **History:**
REN Alliance was formed during the Bonn 2004 International Renewable Energy Conference
- **Aims:**
 - To advance policy
 - To provide information on renewables with a combined voice
 - To bridge the gap between policy & practice
 - To advice decision makers
- **Areas of work:**
 - Technical input & recommendations on the set-up & use of the Global Climate Fund
 - Actively contribute to climate change negotiations (UNFCCC) with side events, interviews and booth
- **Collaboration partners:**
 - International bodies like UN entities, UNFCCC, IRENA, ILO, REN21, etc.
- **Instruments:**
 - Presentations, side events, webinars, press releases, website





