



Ministerie van Economische Zaken



Kas als Energiebron



LTO Glaskracht
Nederland

Workshop Research Agenda May 28, 2015



Ministerie van Economische Zaken



11:00	Welcoming/ introductory round	Jongerus
11:20	Introduction on the Geothermal Research-agenda and relevant geothermal topics in the Netherlands	Schoof
11:45	The geothermal ERA-net: goals, means and structure	Breembroek
12:00	Overview of current European geothermal research	t.b.a.
12:15	Informal lunch	
13:00	Introduction on the challenges/ research-topics in each country <ul style="list-style-type: none">• Denmark• France• Germany• Belgium	Berg Lorenzen Boissavy Schöner/Seibt Laenen
	Discussion	
16:00	Conclusions/ wrap-up <ul style="list-style-type: none">• Lessons for the Dutch situation• Actions on joint questions	
16:15	Informal follow-up	
18:00	Dinner in The Hague	



Ministerie van Economische Zaken



Dutch geothermal Research Agenda & relevant geothermal topics



Ministerie van Economische Zaken



Kas als Energiebron



LTO Glaskracht
Nederland

Origine of Research agenda

Background:

- Part of the 'Geothermal Acceleration Plan 2014'
 - Horticultural potential = 10 – 20 % of energy demand
- Sustainable district heating
- Heat-supply to industry?
- Electricity-generation?

Conclusion of Acceleration Plan on knowledge:

Research is only partially demand-driven, scattered and 'incident-driven'

Remedy: combine financial means and set up a combined, demand driven
Research Agenda

Financing: 900k, (400k for TNO)



Ministerie van Economische Zaken



Aim of the agenda

Purpose: knowledge-development and -transfer to improve development of geothermal energy

Characteristics

- Start with vision and goals, in combination with topics from current practice.
- Demand-driven (f.e: no product- or service-introductions)
- Independent from suppliers and consultants
- All reports publically available
- Use existing experiences from O&G and from abroad (EU context)
- Started October 2014



Ministerie van Economische Zaken



Kas als Energiebron



LTO Glaskracht
Nederland

Structure of the agenda

Steering
committee

Funding:

Ministry of Economic Affairs, LTO Glaskracht (Association of Horticulturalists)

(Together: Steering committee)

Coordination
committee

Members:

DAGO - Platform Geothermie – State Supervision of Mines – RVO – TNO-AGE –
Ministry of EA – LTO Glaskracht



Ministerie van Economische Zaken



Kas als Energiebron



LTO Glaskracht
Nederland

Topics so far

Previous research (public/private funding)

- Corrosion/scaling (causes, effects, (quick) fixes)
- Filtering
- Geothermal Handbook
- Co-funding of DAGO (Dutch Association of Geothermal Operators)
- (First) Industry-standards

Publically funded (Ministry, executed by TNO)

- Multiple European programmes (like GEYSIR, IMAGE)
- Results are slowly becoming available

From TNO (using other subsidies)

- Poor well-performance
- High temperature storage
- Geochemistry
- Lead deposition

Central database(-s) www.nlog.nl , www.dago.nu ,...



Ministerie van Economische Zaken



Goals

Horticulture

Industry

Reducing risks and uncertainties

Optimisation of operations

Focus on design and operations

Improving energetic efficiency

Improving operational efficiency



Reduce drilling costs

Ultra deep

Build environment

Life-time extensions



Ministerie van Economische Zaken



Kas als Energiebron



LTO Glaskracht
Nederland

Elements of first call (Feb 2015)

Short-term...

- Increase predictability reservoir-models
- Predicting seismicity
- Optimal choice of well-materials
- Well-integrity: Barrier- philosophy
- Corrosion & scaling control- and monitoring-systems
- Dual-play: combination of gas- & geothermal wells
- Development of maintenance- and management-information systems



Ministerie van Economische Zaken



Kas als Energiebron



LTO Glaskracht
Nederland

Medium-term elements

Medium term (2- 4 years)

- Drilling techniques and well-desings for deep geothermal
- Stimulation: execution and effects
- Completion design
- Production- modelling:
 - Optimisation doublet-use and reservoir-behaviour
 - Effectiveness of monitoring- techniques
 - Long-term changes in doublet-behaviour
- Optimal use of other minerals/fluids (mainly gas)



Ministerie van Economische Zaken



Next steps

- Wait for results first call
- Two major items stil open:
 - Seismicity (demands, design, control)
 - Well-integrity
- Align with TNO & European efforts
- Align with other activities/subsidies in NL
- Second call
- Etc...