

Geothermal Regulations in Europe

GeoThermal Regulation - Heat (GTR-H)

www.gtrh.eu

ENGINE Workshop 6

Increasing Policy Makers' Awareness and Public Acceptance

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Aims of the project

- Review Regulatory Barriers and Deficiencies in 4 target countries
- Identify Legislative Solutions based on 3 Regulated countries
- Create a Cooperative Network for Geothermal Legislation
- Create a template Framework for geothermal heat
- Accommodation of Geothermal Energy in national legislation
- Sectoral and cross-border Investment in Geothermal Energy

Background – K4RES-H

Need for

- ‘a community level communication’ which ‘shall foster member states to adopt a coherent legislative system and to designate a rational framework of competent authorities in order to ease the application for geothermal use’

Project Methodology

4 main stages in the project

Stage 1

- Establish the Legislative and Regulatory deficiencies for geothermal energy/heat in the 'Target' countries – *Hungary, Ireland, Northern Ireland, Poland*

Stage 2

- Establish the Legislative basis for geothermal heat in the 'Regulated' or 'Best Practice' countries – *France, Germany, Netherlands*

Project Methodology

Stage 3

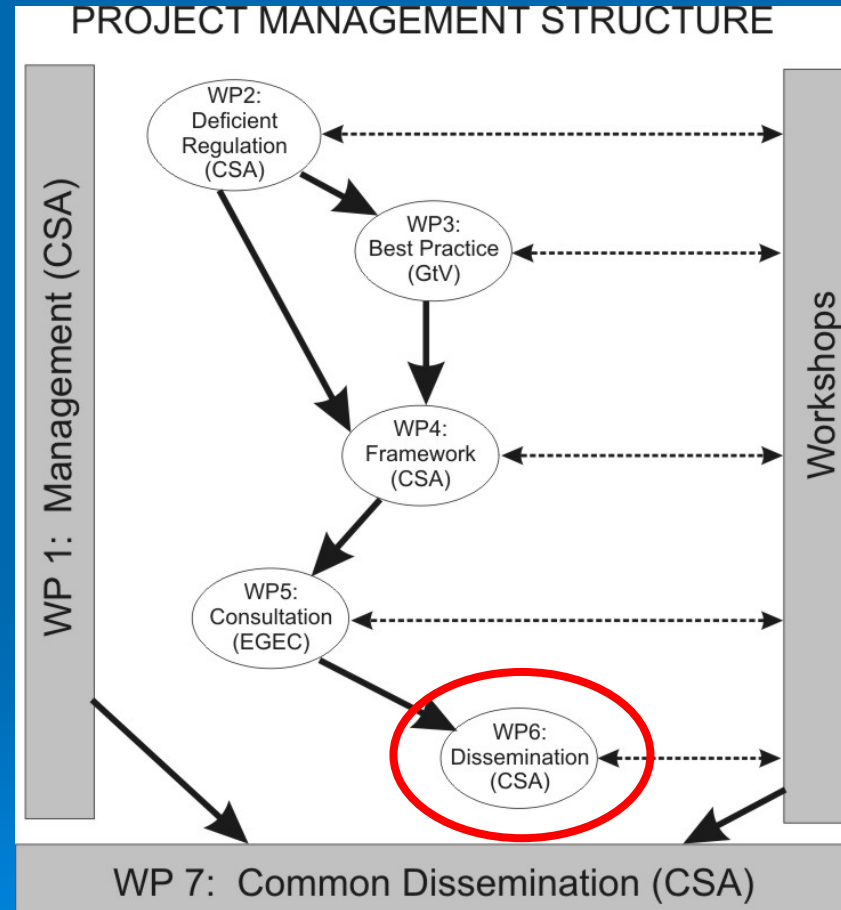
- Development of a preliminary Framework

Stage 4

- Consultation and amendment of the framework to allow adaptation in the Target countries and beyond

GTR-H Project Structure

7 work packages: each 6 – 8 months in length



GTR-H Tasks completed to date

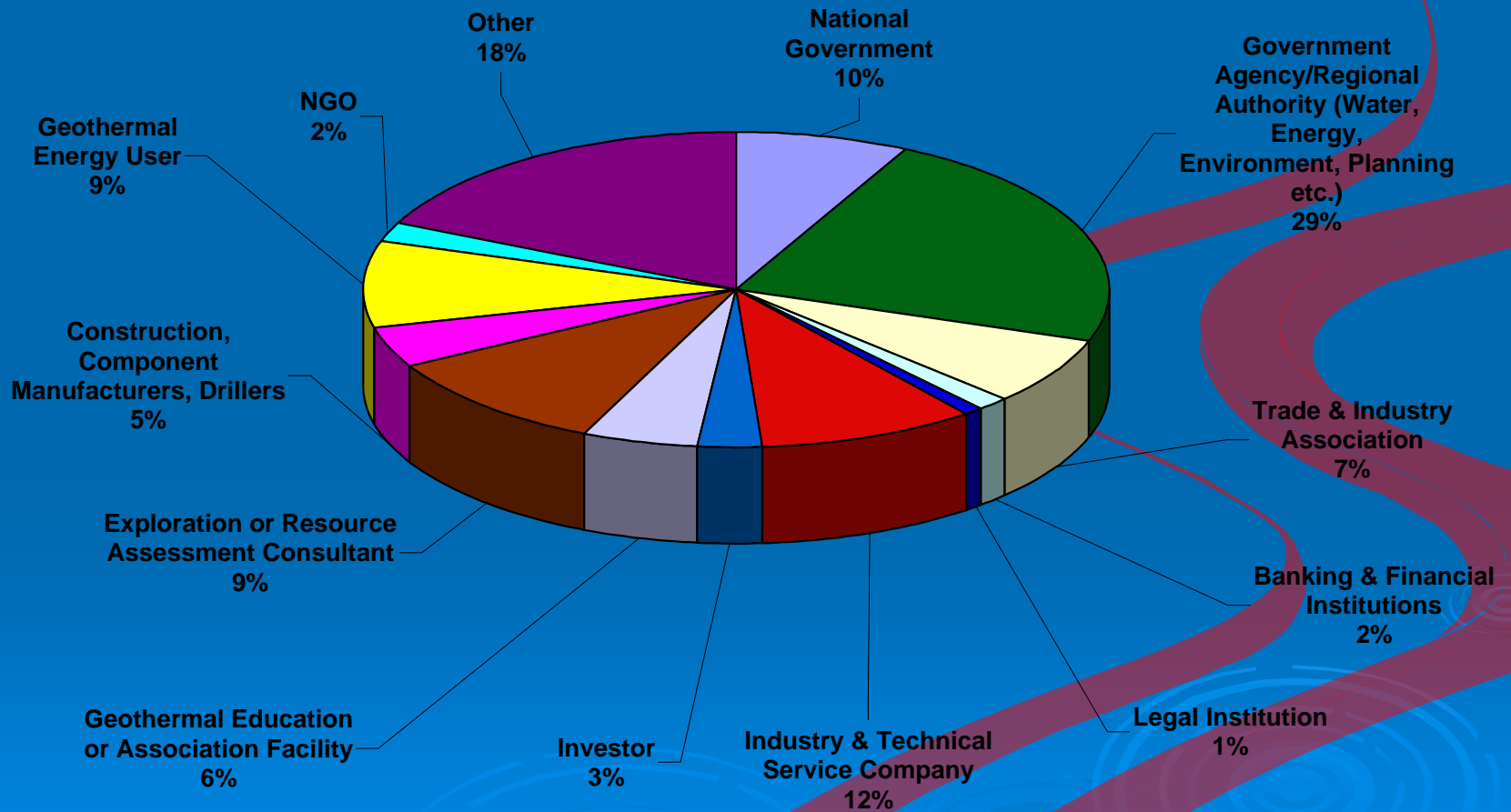
- Management Committee meetings Dublin and Budapest – *(2 of 6 throughout the project)*
- Round-Table discussions in Ireland, Hungary, Northern Ireland and Poland *(Initial introduction of the project to the stakeholders and feedback)*
- Analysis of barriers to the development of the Geothermal energy sector - Questionnaire distribution – *(ongoing task to gauge participation and identify major issues)*
- Interviews in each of the 'Target' countries *(ensuring all aspects of the sector are presented)*
- Compilation of Target country reports *(baseline of the legislative and geothermal sectoral issues)*
- *Best Practice reports (Information gathering and planning of tours to 'Best Practice' countries – Germany, France, The Netherlands)*

GTR-H

Results so far

GTR-H 'Target' Countries – workshop attendees

Stakeholder Organisations (Hungary, Ireland, Northern Ireland, Poland)



- **127 Questionnaire Responses Across 4 target countries**
(Hungary - 45, Northern Ireland/UK - 32, Ireland - 28, Poland - 40)
- **3 Main Stakeholder Proportions:**
 - Largest - Government Agencies, Service Companies & Industry
 - Medium - National Government, GT Energy Users, Trade & Industry Exploration/Resource Consultants
 - Smallest - NGO, Banking/Financial, Legal, Investor, Education & Associations, Construction, Drillers, Component Manufacturers
- **Other Stake Holders included:** third level education, research & development institutions, heating plant operators, engineering and planning consultants, public associations

'Target' Countries – workshop attendees and feedback of issues of concern

- **Good spread within stakeholder groups** - *Attendees reflect status of the sector in each state*
- **Majority - Government agencies and Industry** - *followed by National Government & geothermal energy users*
- **Legal and financial attendance** – *more participation as advance*
- **Ireland and Northern Ireland – good spread of participants** - *(Less well documented resources) - newness of the sector, need for information for potential members of this developing sector*
- **Hungary and Poland – strong attendance from commercial & development side of the sector** – *more developed GT industry*
- **Diverse aspects of the sector** - *difficulty in producing a snapshot of the sector – multiple legislative tools*

Questionnaire – Minimal or significant barriers?

Legal

- Lack of specific law/regulation related to geothermal?
- Inadequate regulation?
- Lack of clarity on legal and regulation requirements?

Resource and exploitation

- Access to geological information on geothermal resources?
- Availability of proven geothermal resource/resource risk?
- Access to information on geothermal exploitation systems?

Financial

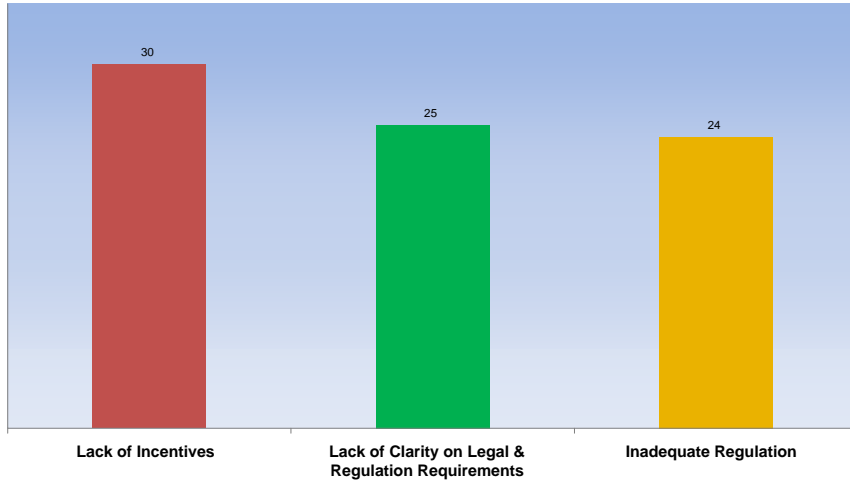
- Availability of geothermal risk insurance?
- Geothermal taxes?
- Lack of incentives / need to reduce payback period?
- High cost license/royalty (includes geological info. fee)?
- Cost of Environmental Impact Assessment (EIA)?

Indirect

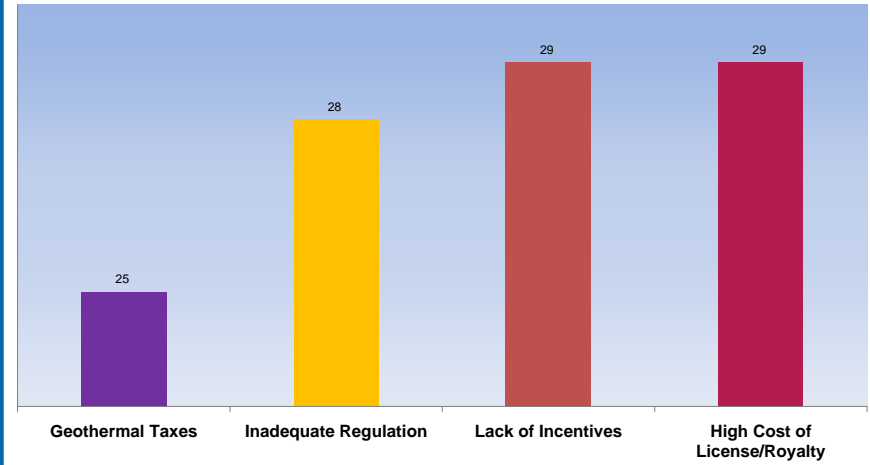
- Lack of standards +/- professional code of practice?

PRINCIPAL NATIONAL BARRIERS:

Hungary



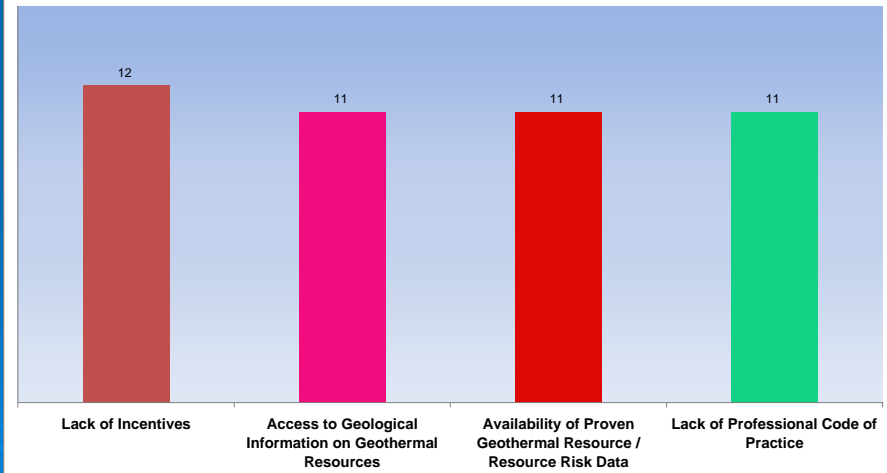
Poland



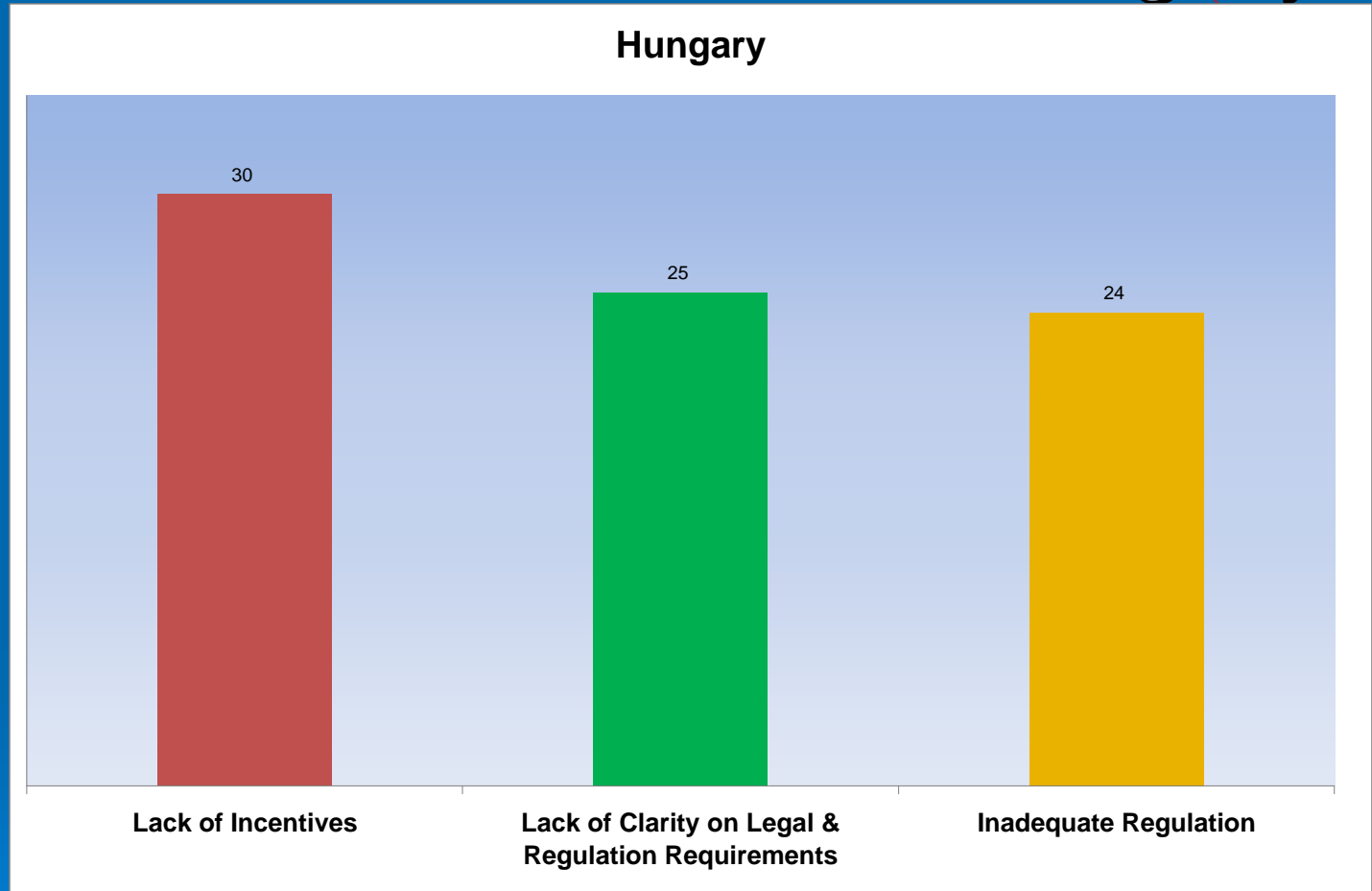
Ireland



Northern Ireland

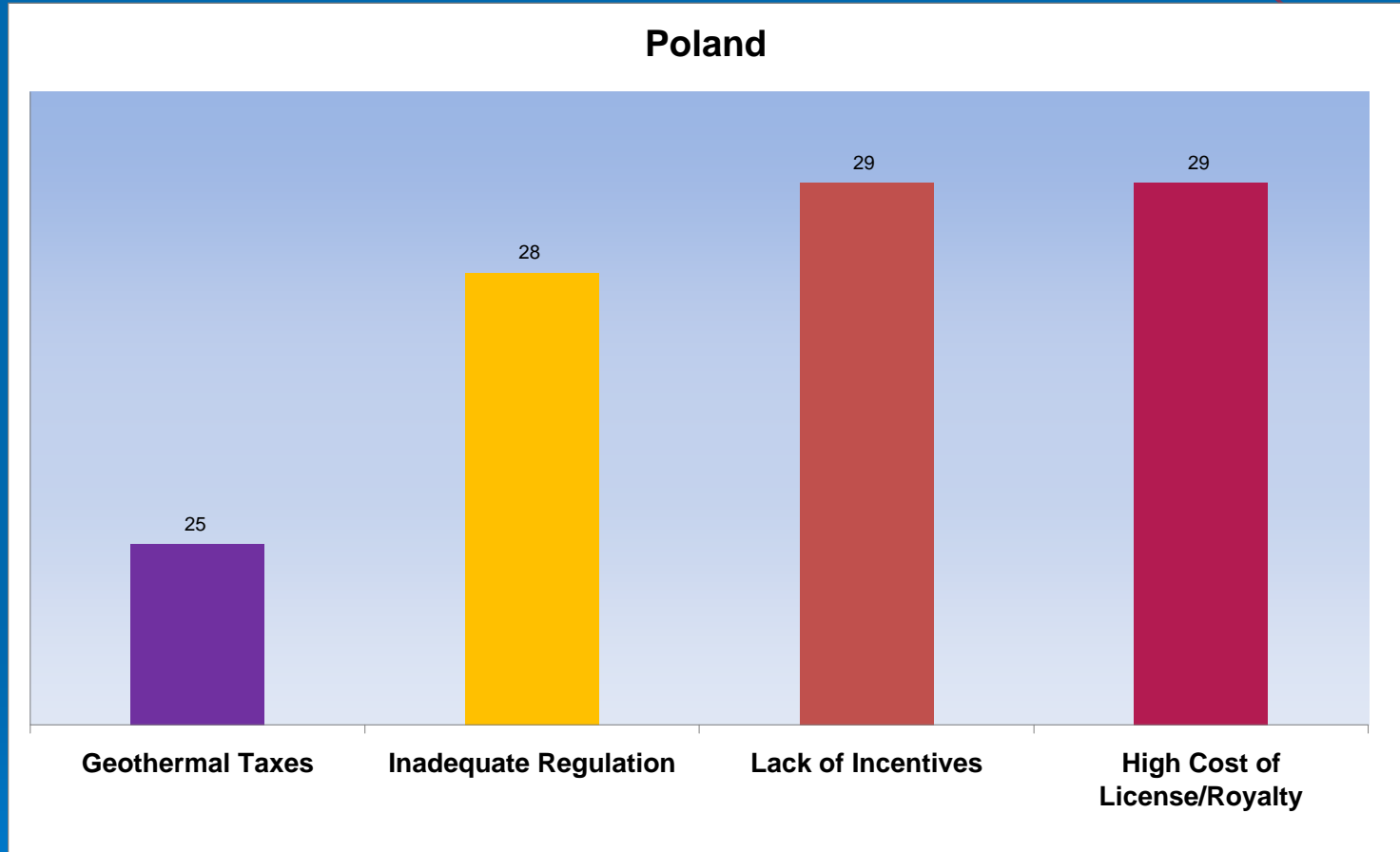


Questionnaire Results - Hungary



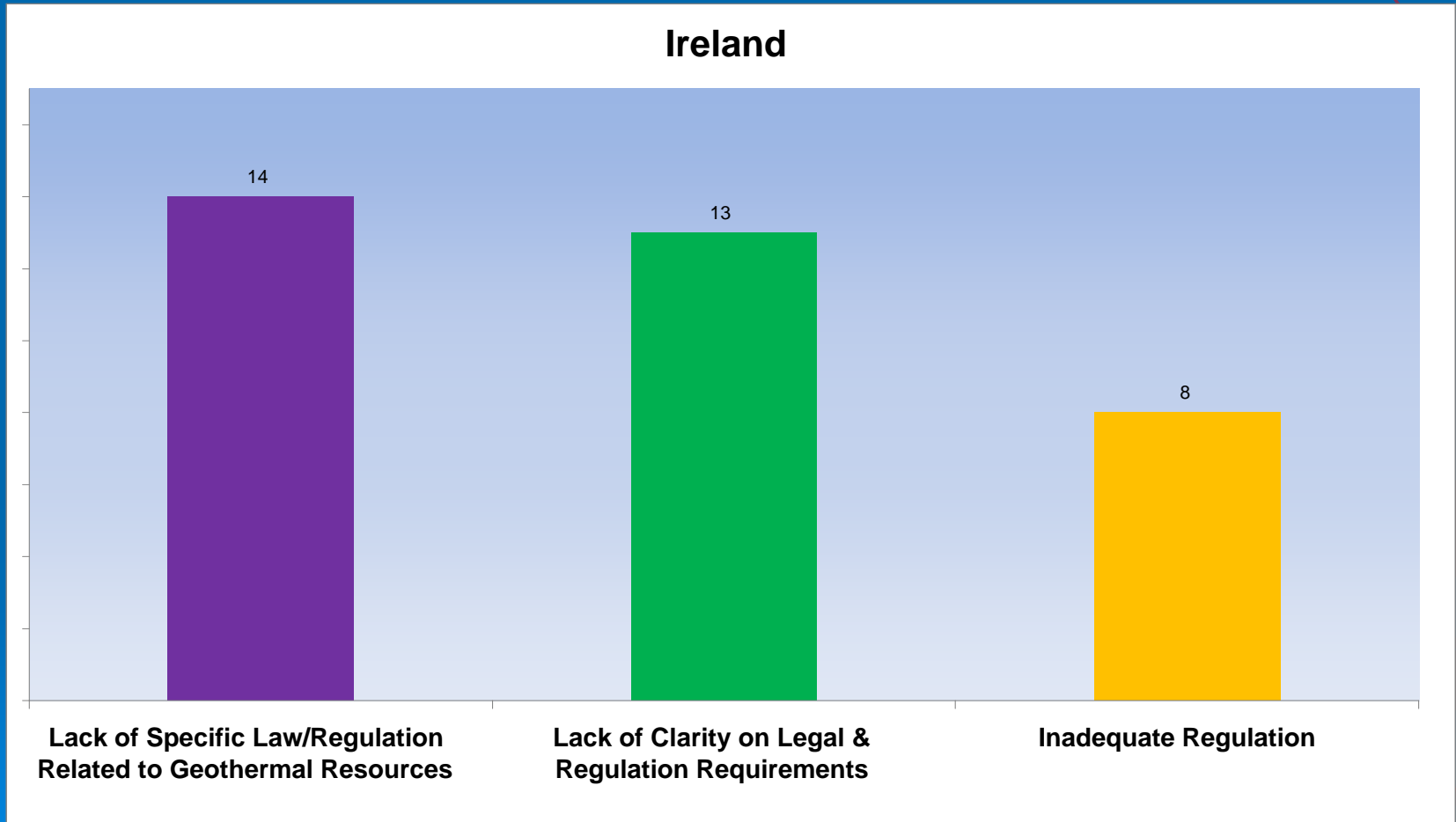
Summary - Lack of specific law/inadequate regulation, lack of incentive, lack of clarity

Questionnaire Results - Poland

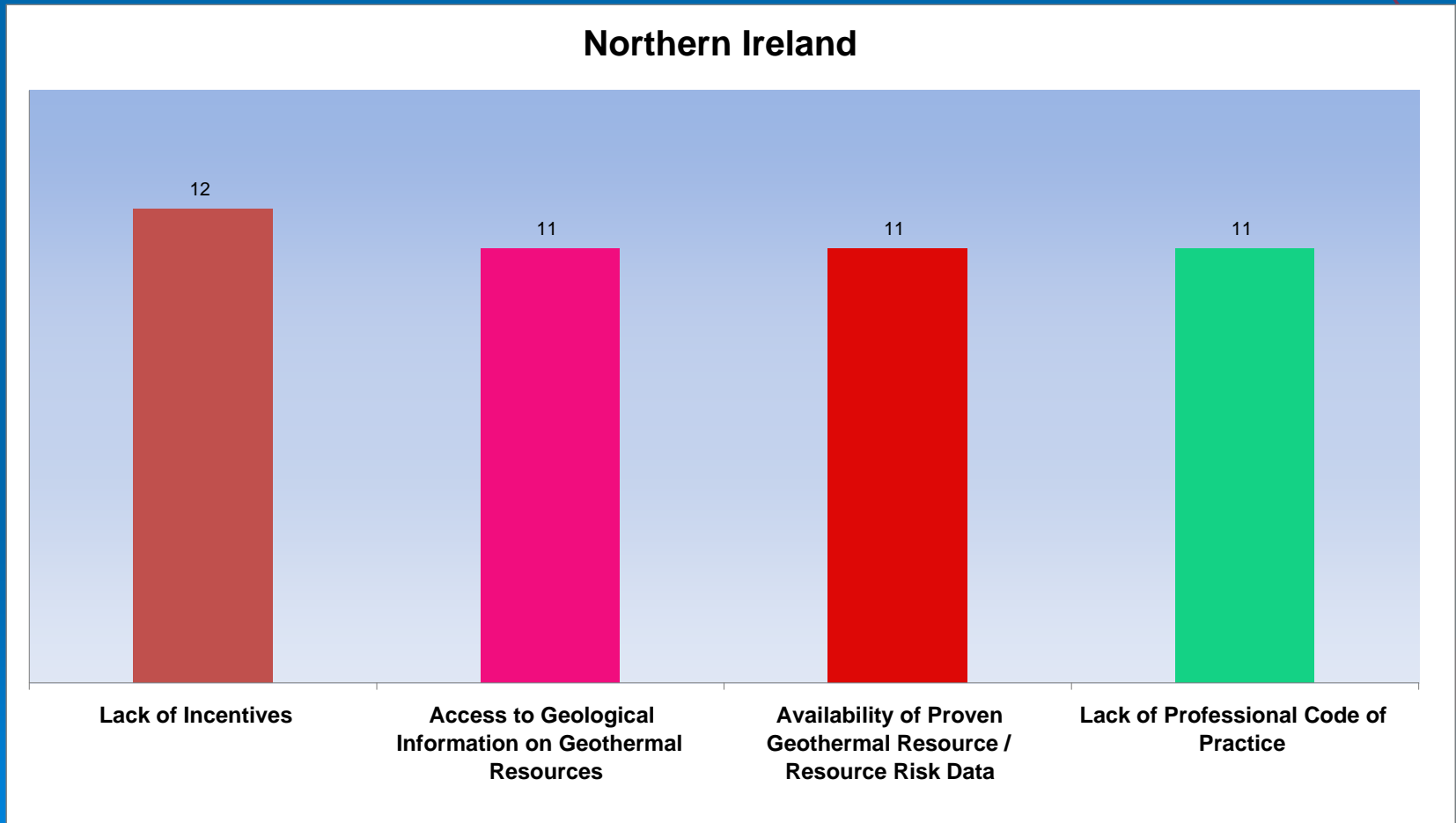


Summary - Lack of incentives, high cost of licence/royalty, lack of specific law and inadequate regulation

Questionnaire Results - Ireland

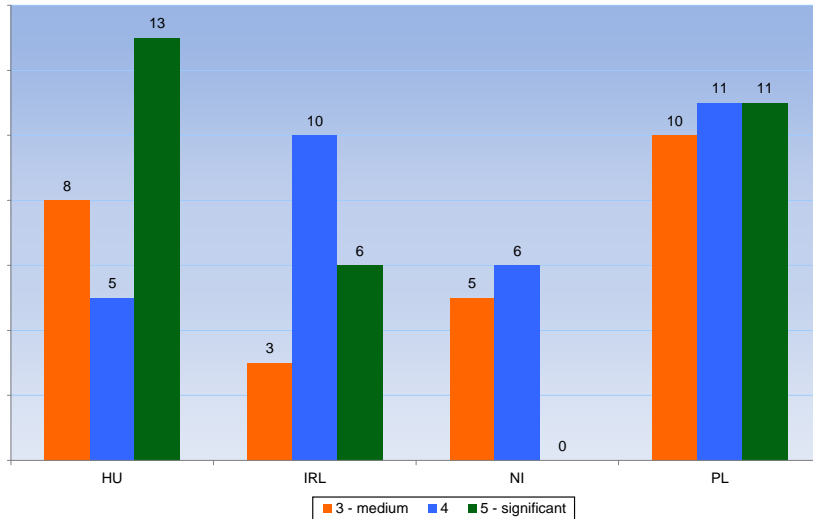


Questionnaire Results – Northern Ireland

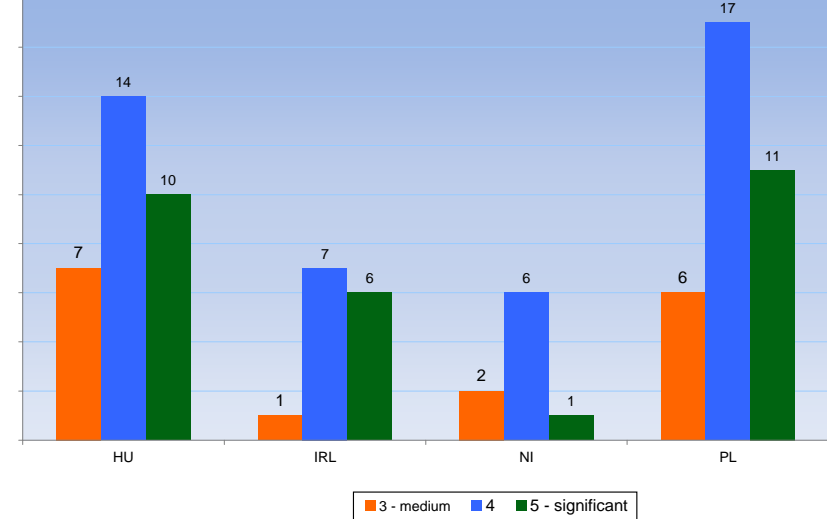


INDIVIDUAL BARRIER COMPARISON

Lack of Specific Law/Regulation Related to Geothermal Resources

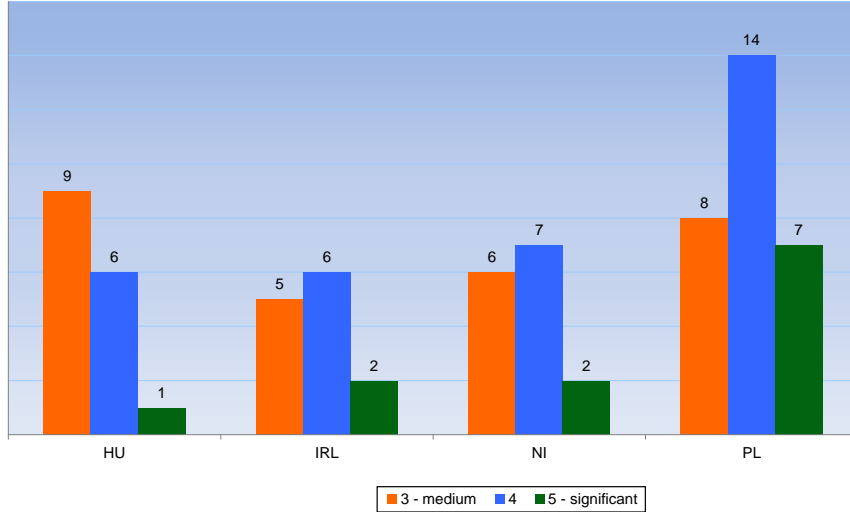


Inadequate Regulation

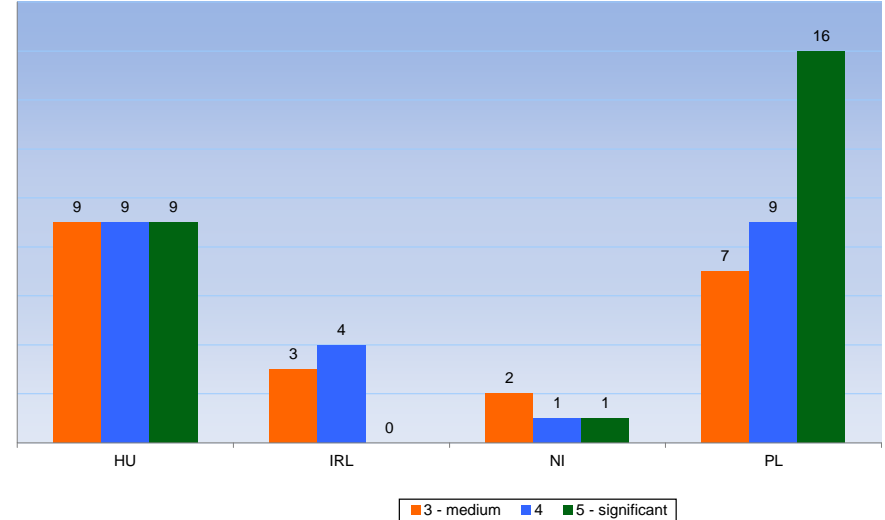


- Lack of specific regulation is perceived as a greater barrier in Hungary and Poland rather than in the unregulated countries
- Inadequate Regulation is preventing the growth of the geothermal sector in all 4 target countries

Access to Information on Geothermal Exploitation Systems

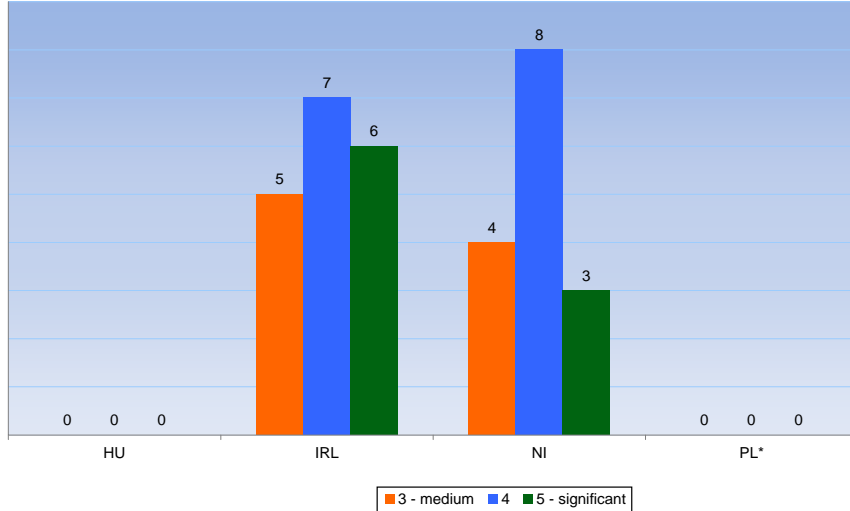


Geothermal Taxes

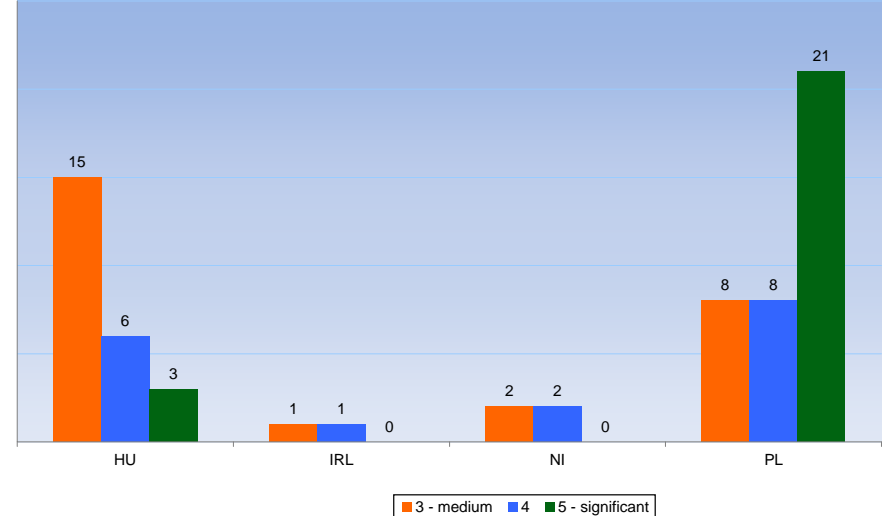


- Proportionally Information on geothermal exploitation systems is perceived as a more significant barrier in Ireland and N. Ireland / UK
- Geothermal Taxation is perceived as one of the most significant barriers in the regulated countries (Hungary / Poland)

Lack of Professional Code of Practice



High Cost of License/Royalty



- Significant unregulated growth of GSHP installations in Ireland and N.Ireland/UK has prompted the ‘lack of code of practice’ as a significant barrier. This is not the case for Hungary and Poland, where legislative requirements force developments to conform to existing codes of practice
- High costs of Licenses and Royalty are only perceived as a significant barrier in the regulated countries particularly in Poland

GTR-H Questionnaire Comments

- Confirmed need for better regulation and influence of the lack of regulation (*stakeholders in the sector*)
- Need for Regulation recognised more where there are higher temperature proven resources – or where inadequate water regulation is an issue (Ireland)
- Uncertainty in results regarding need for a separate geothermal regulation (*review of the ‘regulated’ states will help clarify this*)
- *Incentives recently introduced in Ireland have been successful (specifically in the shallow GT and GSHP areas)*

Legislation Overview - Ireland

- Directive 2000/60/EC
- Directive 2006/118/EC
- Minerals Development Act, 1940.
- Petroleum & other Minerals Development Act, 1960:
- Minerals Development Act, 1979
- Minerals Development Act, 1995
- Minerals Development Act, 1999
- The Gas (Interim) (Regulation) Act, 2002
- Energy (Miscellaneous Provisions) Act 2006
- Electricity Regulation Act, 1999.
- Planning Act and Regulations
- Various Financial Acts

Ireland Legislation Overview

- Directive 2000/60/EC framework for community action on water policy
- Directive 2006/118/EC on protection of groundwater against pollution/deterioration
- Minerals Development Act, 1940. Principal Act: defn of minerals, mineral ownership, prospecting licences, State mining leases etc.
- Petroleum & other Minerals Development Act, 1960: Removed Petroleum from the 1940 Act, and made other minor amendments.
- Minerals Development Act, 1979: Vests in Minister exclusive right to work privately owned minerals, provides for permitting of working of minerals by third parties, subject to payment of compensation.
- Minerals Development Act, 1995: Deals with renewals of Prospecting Licences.
- Minerals Development Act, 1999: Clarifies State ownership of certain minerals, addresses transfer of right to compensation under 1979 act. *Finance Act (1956) financial incentives, Additional financial Incentives in 1967 known as 20 year tax holiday modified in 1974*
- Electricity Regulation Act, 1999.
- The Gas (Interim) (Regulation) Act, 2002 expanded CER jurisdiction to include regulation of the natural gas market.
- Energy (Miscellaneous Provisions) Act 2006, extends the statutory responsibilities of the CER with regard to gas and electrical safety.
- EPA Act Planning Act and Regulations, Financial Acts

Ireland Regulation Overview

- Minerals Development Regulations, 1979,
- Minerals Development (Amendment) Regulations, 1994
- Minerals Development (Application Fees for certain state mining facilities) Regulations, 1996.

- Local Authority regulations - Planning and EPA
Planning Permission, from the Local Planning Authority and an Integrated Pollution Control Licence, from the EPA must be obtained before the commencement of commercial extraction and discharge, Water Abstraction License

- Petroleum Prospecting Licence regulations issued under Section 9(1) of the 1960 Act
- Undertaking to grant an Exploration Licence ("Licensing Option") issued under Section 7(1) of the 1960 Act
- Exploration Licence issued under Section 8(1) of the 1960 Act
- Undertaking to grant a Petroleum Lease ("Lease Undertaking") issued Section 10(1) of the 1960 Act
- Petroleum Lease issued under Section 13(1) of the 1960 Act
- Reserved Area Licence issued under Section 19(1) of the 1960 Act
- Revised terms – 2003 to Boost Petroleum Exploration

• Hungary:

- the licensing structure **DID NOT** grant the exclusive usage of water reservoir resources (Mining Act Amendment has changed that !)
- environmental, water & energy legislation
- lack of incentives make investment in geothermal energy a greater financial burden than in other EU countries
- environmental opposition to geothermal energy

• Poland:

- centralised state policy for the granting of licenses lacks coherence & administrative processes are too long
- legislation licenses surface area access and not reservoir production area and fixes the price for GT & mineral resources
- high capital costs associated with data purchase, licensing, review of geological assessment, EIA & infrastructure tax
- centralised system of fixed heat prices makes geothermal energy uncompetitive profit from heat sales are not possible (VAT 22%)

- **Ireland:**

- ownership of geothermal energy is undefined and is not recognised as a natural resource
- environmental & water legislation makes reference to geothermal energy, but are not enacted even for heat pumps
- current legislation provides a potential good basis for regulating the geothermal sector but is currently inadequate
- large geothermal projects are perceived as high risk by financial institution due to the lack of deep geothermal/geological info

- **Northern Ireland/UK:**

- lack of resource definitions & ownership definition (depth / T). Mining legislation to be revised in 2009.
- lack of information of geothermal energy resource potential and risk, data - should be made freely available
- GSHP stakeholder influence is very strong, lack of professional code of practice in implementing existing water/enviro legislation
- High CAPEX projects deter the interest from financial institutions / legal sector
- lack of incentives for the development of deep geothermal projects

Implications of results for future framework!

- Potential framework models for geothermal energy beginning to emerge as country geothermal 'profiles' are compiled. In each case a different 'natural fit' within existing legislation (*framework will have to be flexible enough to accommodate this*). 'Civil' versus 'Common' law as basis for legislation
- Identified Barrier Topics are similar but specific legislative implementation varies from country to country
- Specific barrier topics need to be identified during WP 2 will be 'backbone' of the template framework
- Attention will be given to the wider applicability of the template framework to the EU 25 as the project progresses

GTR-H Quantification of success

- **Matching solutions from the regulated countries to the existing problems in the non-legislated target countries.**
(Each existing barrier will have an identified solution)
- **Adoption of Framework**
(4 member states will be actively using framework to form the basis for new legislation through the involvement of MEPs and local MPs at a national level)
- Website Registration (after project completion) will give access to framework data and documentation
- **Increased Number of geothermal exploration license granted**
(5 licenses within 2 years of the regulation being adopted)
- **Increase in the geothermal energy contribution to RE heat in the EU.**
(500 MWth increase of geothermal energy contributed to RES heat)

GTR-H - next stage of the project

Workpackage 3

- Review of the 'Regulated' countries – Germany, France and Netherlands (Sept '07 - Feb '08)
- Tours/workshops/interviews to meet the stakeholders and review the success of the regulation - provide a view of the regulation in operation (Sept – Oct '07)



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Thank You

