The Shallow Geothermal Resource Energy Project:
National geothermal mapping & sustainable development

Catherine Buckley
Presentation outline

• Uses of the maps
• Sustainable development
• Existing geothermal mapping/data
• Data collection

• International examples
• Proposed map types
• Map construction
• Request for data
Uses of the maps

- Promotion
- Public awareness
- Informed decisions
- Preliminary site suitability assessment tool
- Educational tool
- Developing research opportunities
Sustainable Development

- Site selection
- Facilitating future planning decision at local authority level
- Appropriate installations in different areas
- Reduce the number of installations in unsuitable conditions
Existing geothermal mapping/data

- Warm springs data
Data collection

- Existing geological & hydrogeological data:
  - SEAI Geothermal Atlas Temperature Data
  - Met Éireann mean Soil Temperature
  - EPA/Teagasc – Soil/Subsoil Data
  - GSI Bedrock Geology
  - GSI Groundwater Aquifer Classification
  - GSI Interim Vulnerability Data
  - County Groundwater Well Data
  - Source Protection Areas
  - Karst Data.
International examples

- Thermo map project: Europe
- Geothermal Data Portal in Germany
- France – Aquifer Productivity & Transmissivity; – Estimated Temperature of the Resource; – Depth of Resource
- Accessibility.
- British Geological Survey – geological data; – descriptions of rock types; – soil types and Quaternary deposits; – annual ground temperatures – thermal conductivities.
Proposed map types

- Geothermal Energy Resource and Collector Suitability Maps
- Will be produced in GIS and will include:
  - Shallow Geothermal Energy Resource map
  - Open Loop Collector Suitability map
  - Closed Loop Collector Suitability map set
Shallow Geothermal Energy Resource Maps

- Update 100m temp (SEAI 2004 atlas)
- Thermal conductivity / diffusivity map for bedrock geological units?
- Soil thermal conductivity maps
- Existing & any new additional data
Closed Loop Collectors Suitability - Horizontal

• The datasets that will be considered include:
  – Mean Soil Temperature
  – Depth to Rockhead maps
  – Soil & Subsoil Type
  – Published thermal conductivity values such for soil types
Closed Loop Collector Suitability - Vertical

- The datasets that will be considered include:
  - Bedrock Geological Units
  - Thermal conductivity (new data based on third level research data)
  - Thermal diffusivity (new data based on third level research data and TRT data)
  - Aquifer type – Permeability (existing GSI data)
Open Loop Collectors Suitability

- The data will include:
  - Geological Unit
  - Aquifer Classification
  - Aquifer Productivity
  - Interim Vulnerability Data
  - Open loop collector flow rates (new from installers and industry stakeholders)
Map construction

- Existing GSI / EPA Datasets
- New Data from Stakeholders & Research Projects
- Identification of Dataset Limitations / Sensitivities
- Parameter Selection
- Parameter Attribute Indexing
- Criteria Index Map
- GIS Attribute Computation
- Geothermal Collector Suitability Map
Request for data

• Key that we receive data for a wide area