

Ground Source Heating in NZ:

Planning and Regulatory Issues



Environmental Management Services

Presentation Outline

- Introductions
- Project background
- Methodology
- Findings:
 - Policy & Planning framework
 - Regulatory framework
 - Discussions with Councils
- Next steps
- Work in progress

Introductions

- **About us:**

- Environmental Management Services (“EMS”)
- Environmental planning consultancy – Napier, Hamilton, Auckland, Wellington
- Specialise in environmental consenting and analysis
- Strong association with renewable energy projects

Project Background

- **About the Project:**
 - Engaged by GNS in early 2011
 - Consider planning and regulatory constraints to increased LEG use
 - Low Enthalpy Geothermal Energy (LEG):
 - GSHPs
 - Direct use applications (*not in this presentation*)
 - Report: "*Low Enthalpy Geothermal Energy, New Zealand Planning & Regulatory Assessment*"

Methodology

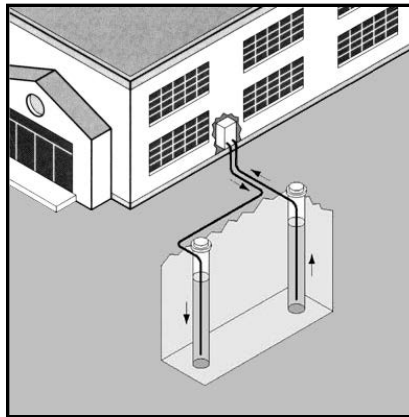
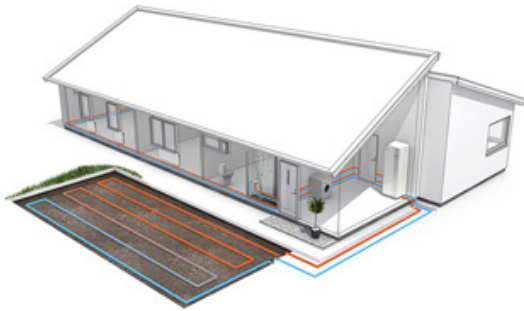
- **Consider policy & planning frameworks:**
 - National, Regional and Local
- **Consider regulatory frameworks:**
 - Resource consents – regional & district plans
 - Building consents – building code
- **Discussion with Councils (regulators):**
 - Interactions with LEG technologies

Findings: Policy & Planning Framework

- Extensive policy framework provides direct support for LEG
- Primary legislation:
 - Building Act 2004
 - Resource Management Act 1991
- Opportunities through resolution of ToW processes

Testing the Regulatory Framework

- 3 GSHP Test Projects:
 - Small scale residential – closed loop
 - Medium scale commercial – open loop
 - Large scale commercial – closed loop



Testing the Regulatory Framework: Building Consents

- Building Consents:
 - Building Code – national document
 - GSHPS covered by exception in Building Code
 - Generally not required for GSHP installations
 - Exception – building foundation

Testing the Regulatory Framework: Resource Consents

- Resource Consents:
 - Regional and District Plans
 - Each one different
 - Sample selected...

Testing the Regulatory Framework: Resource Consents

Auckland

Auckland Regional Council
Auckland City Council
Franklin District Council
Manukau City Council
North Shore City Council
Papakura District Council
Rodney District Council
Waitakere City Council

Waikato

Waikato Regional Council
Waikato District Council
Matamata-Piako District Council
Hamilton City Council
Waipa District Council
Rotorua District Council
Taupo District Council

Wellington

Greater Wellington Regional Council
Kapiti Coast District Council
Porirua City Council
Upper Hutt City Council
Wellington City Council
Hutt City Council

Canterbury

Canterbury Regional Council
Kaikoura District Council
Waimakariri District Council
Selwyn District Council
Christchurch City Council
Timaru District Council

Otago Region

Otago Regional Council
Queenstown Lakes District Council
Dunedin City Council

Southland Region

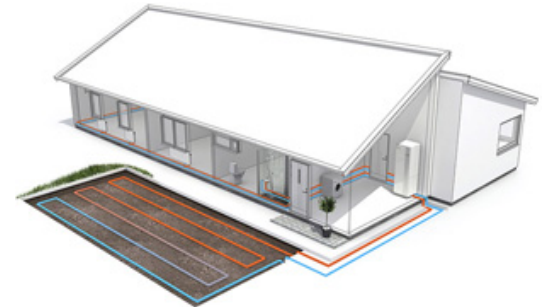
Southland Regional Council
Southland District Council
Invercargill City Council

Testing the Regulatory Framework: Resource Consents

- **Small scale residential:**

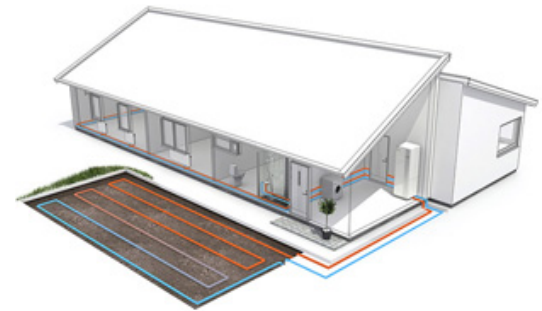
(Closed loop, horizontal)

- RC may be required from TA's, not from Regional Councils
- Major trigger: Earthworks volumes
- Other triggers: Proximity to waterways, neighbouring properties, erosion prone areas, vegetation removal, cultural / archaeological sites.

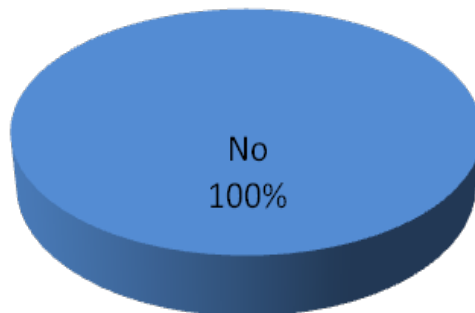


Testing the Regulatory Framework: Resource Consents

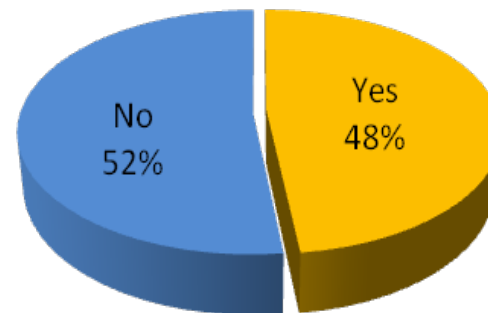
- Closed Loop, Horizontal:
 - Results from analysis:



Regional Councils requiring consent (%)

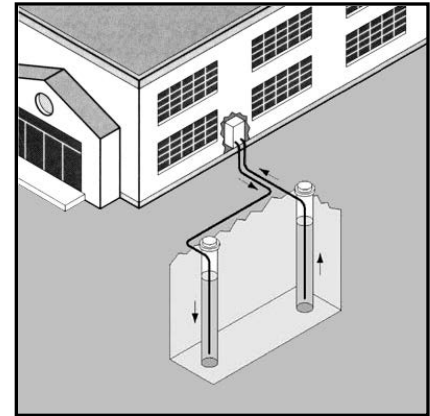


TLAs requiring consent (%)



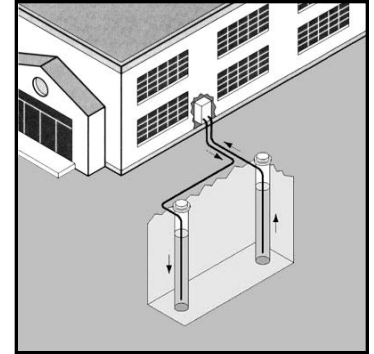
Testing the Regulatory Framework: Resource Consents

- **Medium scale commercial**
(Open Loop, Vertical)
 - RC required from all Regional Councils
 - RC generally not required from TA
 - Major trigger: drilling, water take
 - Other triggers: Water discharge, restricted aquifer, earthworks

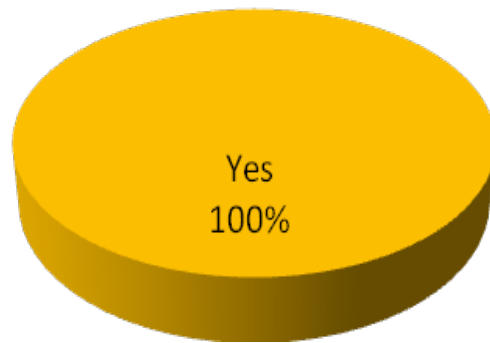


Testing the Regulatory Framework: Resource Consents

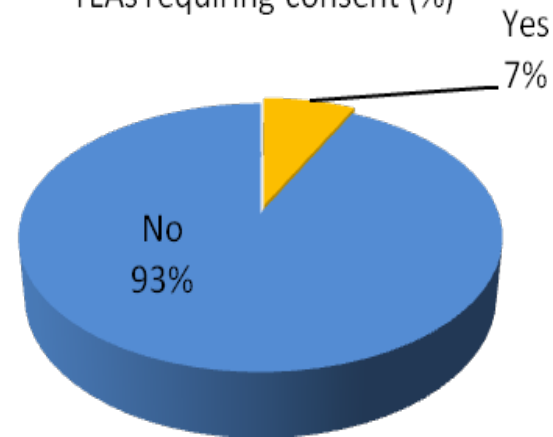
- Open Loop, Vertical:
 - Results from analysis:



Regional Councils requiring consent (%)



TLAs requiring consent (%)



Testing the Regulatory Framework: Resource Consents

- **Large scale commercial**
(Closed Loop, Vertical)
 - RC required from all Regional Councils
 - RC generally not required from TA
 - Major trigger: drilling
 - Other triggers: Presence of aquifer, earthworks

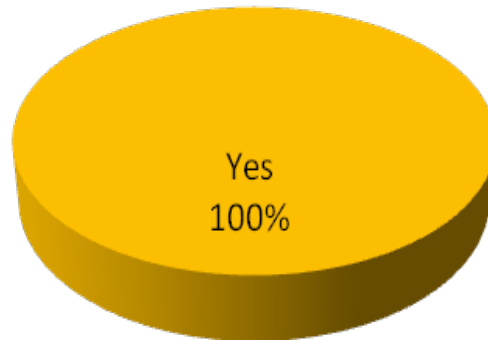


Testing the Regulatory Framework: Resource Consents

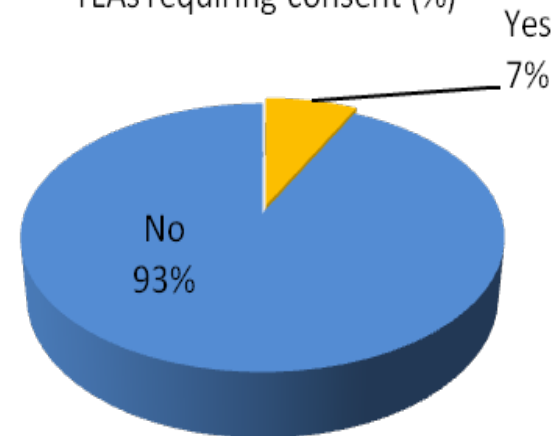
- Closed Loop, Vertical:
 - Results from analysis:



Regional Councils requiring consent (%)



TLAs requiring consent (%)



Discussions with Councils

- Resource consent applications for GSHPs received?
 - Regional Councils – most had
 - TA's – most had not
- Awareness and understanding of GSHP technology:
 - Regional Councils – good
 - TA's – low
- Support through Regional clean heat programmes? – None

Next Steps

- Recommendations – Four Goals:
 - Goal One: A coordinated effort to champion LEG technology
 - Goal Two: Reduce Regulatory Controls, costs and timeframes
 - Goal Three: Enhance policy frameworks
 - Goal Four: Advocate and promote LEG technologies

Work in Progress...

- GNS and EECA working together
- Developing Best Practice Environmental Guide
- Establishing and Working Group, tasked with establishing Industry Association
- Visit from Canadian GeoExchange Coalition, 17 October 2011
- Planners Toolkit