

# Ground Source Heating in NZ:

## Planning and Regulatory Issues



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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

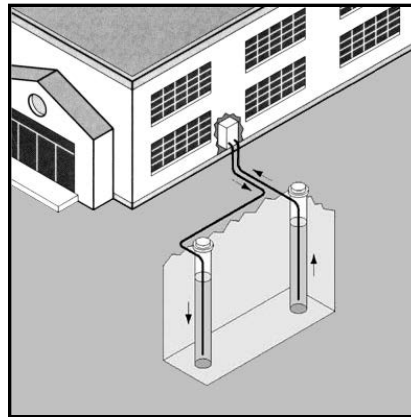
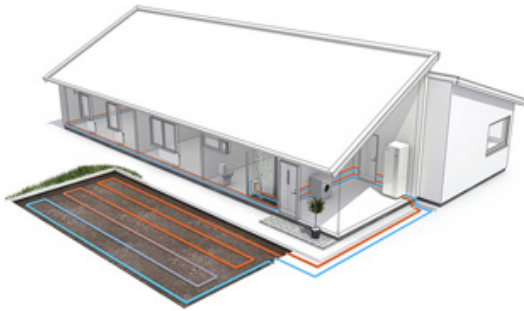
- **Consider policy & planning frameworks:**
  - National, Regional and Local
- **Consider regulatory frameworks:**
  - Resource consents – regional & district plans
  - Building consents – building code
- **Discussion with Councils (regulators):**
  - Interactions with LEG technologies

# 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**

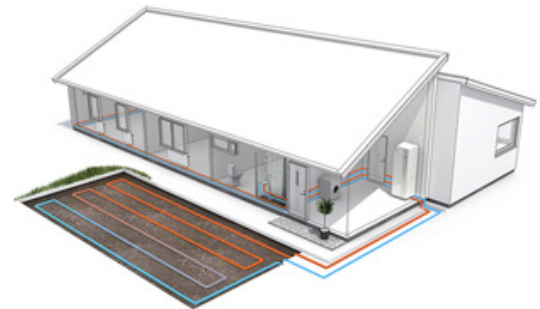
Southland Regional Council  
Southland District Council  
Invercargill City Council

# Testing the Regulatory Framework: Resource Consents

- **Small scale residential:**

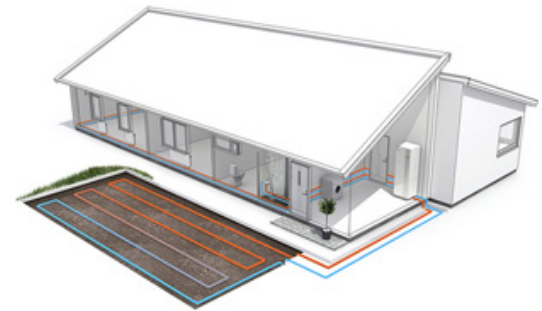
*(Closed loop, horizontal)*

- 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.

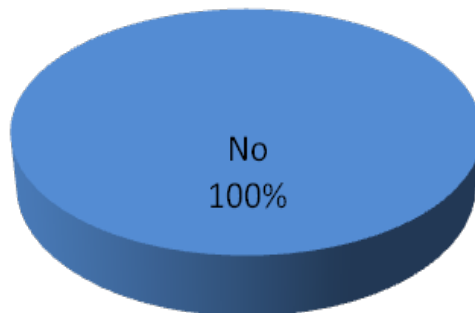


# Testing the Regulatory Framework: Resource Consents

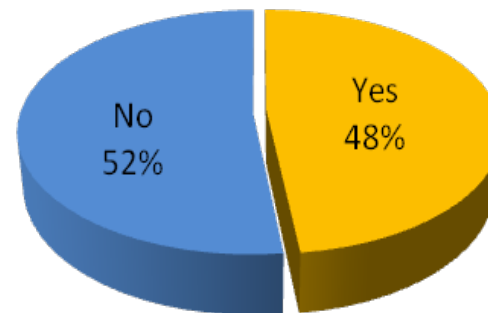
- Closed Loop, Horizontal:
  - Results from analysis:



Regional Councils requiring consent (%)

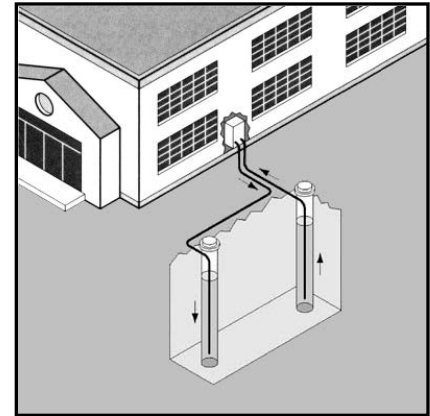


TLAs requiring consent (%)



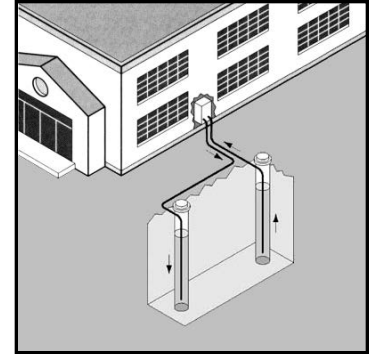
# Testing the Regulatory Framework: Resource Consents

- **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

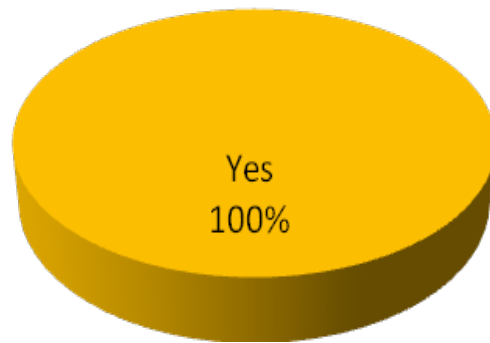


# Testing the Regulatory Framework: Resource Consents

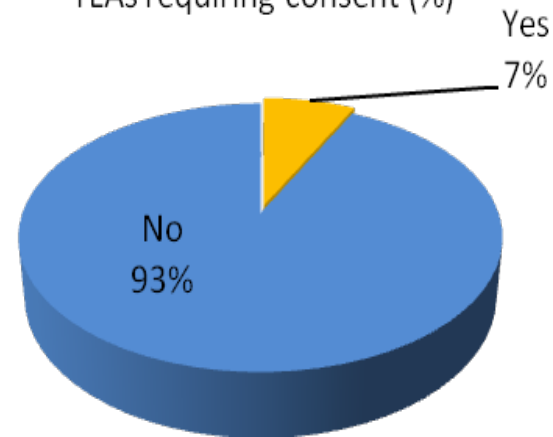
- Open Loop, Vertical:
  - Results from analysis:



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

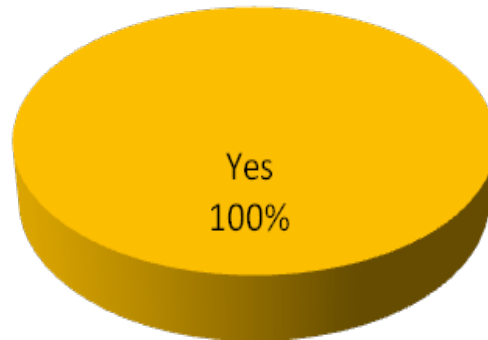


# Testing the Regulatory Framework: Resource Consents

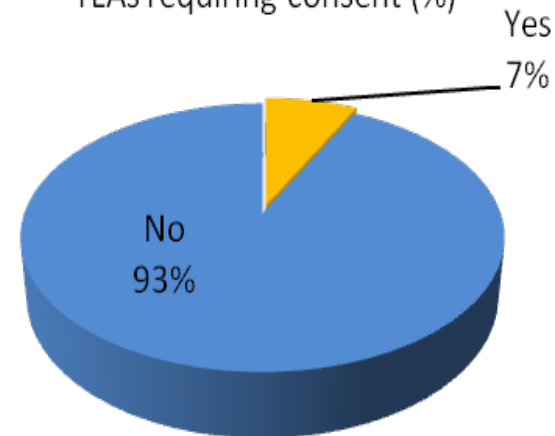
- Closed Loop, Vertical:
  - Results from analysis:



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