Geothermal Policy and Regulation
Cases from Chile, Kenya, New Zealand and the Philippines

November 2015
Geothermal Capacity Building in the Andes

- Legal and Regulatory Frameworks
  - CB Workshop Nov 2013
    - Peru
- Technical – Environmental Licensing & Reservoir Modelling
  - CB Workshop May 2014
    - Chile
- Finance and Risk Mitigation
  - CB Workshop Sep 2015
    - Colombia
Geothermal Policy and Regulation

Review of policies and regulations from four countries in the main geothermal development regions with varying level of sector development

Chile
Kenya
Philippines
New Zealand
Geothermal regulation is complex

Ownership and access

Geothermal investment and risk policy

Electricity market and RE policies

Community participation

Regulation of Environ. Impacts

Chile

Kenya

New Zealand

Philippines
Ownership and access to the resource

Need for a clear framework or ‘contract’

Electricity market regulations

Policies and regulations to help support the financial viability of a geothermal project

Environmental regulations

Need to strike a balance between resource usage and (local) environmental impacts
Other dimensions

Community participation

• Involving and rewarding (indigenous) communities from the initial phases

Investment and risk support policies

• Policies to support the different phases of geothermal development
  • Specially for exploration drilling

Olkaria Geothermal Complex, Kenya
Chile

First country in South America to start the construction of a geothermal power plant

- Emerging market with recent exploration wave
- 3-16 GWe potential
- Few projects approved
Chile

Ownership and Access
- State resource ownership

Electricity Market
- Open competition between private generators

Environmental Impacts
- Environmental Assessment Agency responsible for approval of each project

Community Participation
- Several local and international indigenous laws

Investment and Risk
- Complete private development

Volcanoes and geothermal explorations
Kenya

- Development since 70’s
- 5-16 GW potential 500 MW installed
- Resources state-owned
- Recent drive for private development
- Still largely state (GDC) & donor driven
Ownership and Access
• State resource ownership and license to private sector

Electricity Market
• Privatizing with high state involvement and single buyer

Environmental Impacts
• NEMA + KENGEN experience

Community Participation
• KenGen involved in many community projects

Investment and Risk
• Mainly state and donor development

Geothermal prospects in Kenya’s Central Rift Valley
Source: Mulaha, 2013
New Zealand

- Mature geothermal market since the 1950’s.
  - Geothermal energy currently provides around 16% of electricity (900 MW installed)
  - Significant direct heat use for industries (paper, diary, agriculture) and tourist attractions.
- Estimated potential of around 3 to 5GW
- Resources private-owned
- Private & public developers
- Competitive market without state support
New Zealand

Ownership and Access
• Regional Authorities managers of resource

Electricity Market
• Open competition between public and private generators

Environmental Impacts
• Resource Management Act (1991)

Community Participation
• High involvement of indigenous (Maori) people

Investment and Risk
• All private project development
- Well-developed market
- 3-4 GW potential
  1.9 GW installed
- Resources state-owned
- Newly privatized power market; support schemes for geothermal (incl. FiT)
- Originally state driven; lately private sector
Ownership and Access
• State resource ownership with indigenous approval

Electricity Market
• Newly privatized electricity market

Environmental Impacts
• Department of Environment & Natural Resources to coordinate

Community Participation
• Geothermal royalties are shared with regions and indigenous groups

Investment and Risk
• Recently completely privatized

Existing geothermal capacity in the Philippines
THANK YOU

www.irena.org