



Geothermal Energy
and a Feed-In-Tariff Program

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Empowering Canadian Geothermal – 5,000 MW by 2015!

CanGEA Members



CANADA'S GEOTHERMAL POTENTIAL



- ▶ **5,000 MW**
 - ▶ **~43,000 GWh of Firm Power per year**
- ▶ **At least \$20 Billion in Capital investment**
- ▶ **~ 30,000 person years of manufacturing and construction employment**
 - ▶ **6 person years of manufacturing and construction employment per MW**
- ▶ **~ 9,000 permanent jobs**
 - ▶ **1.8 permanent jobs per MW**

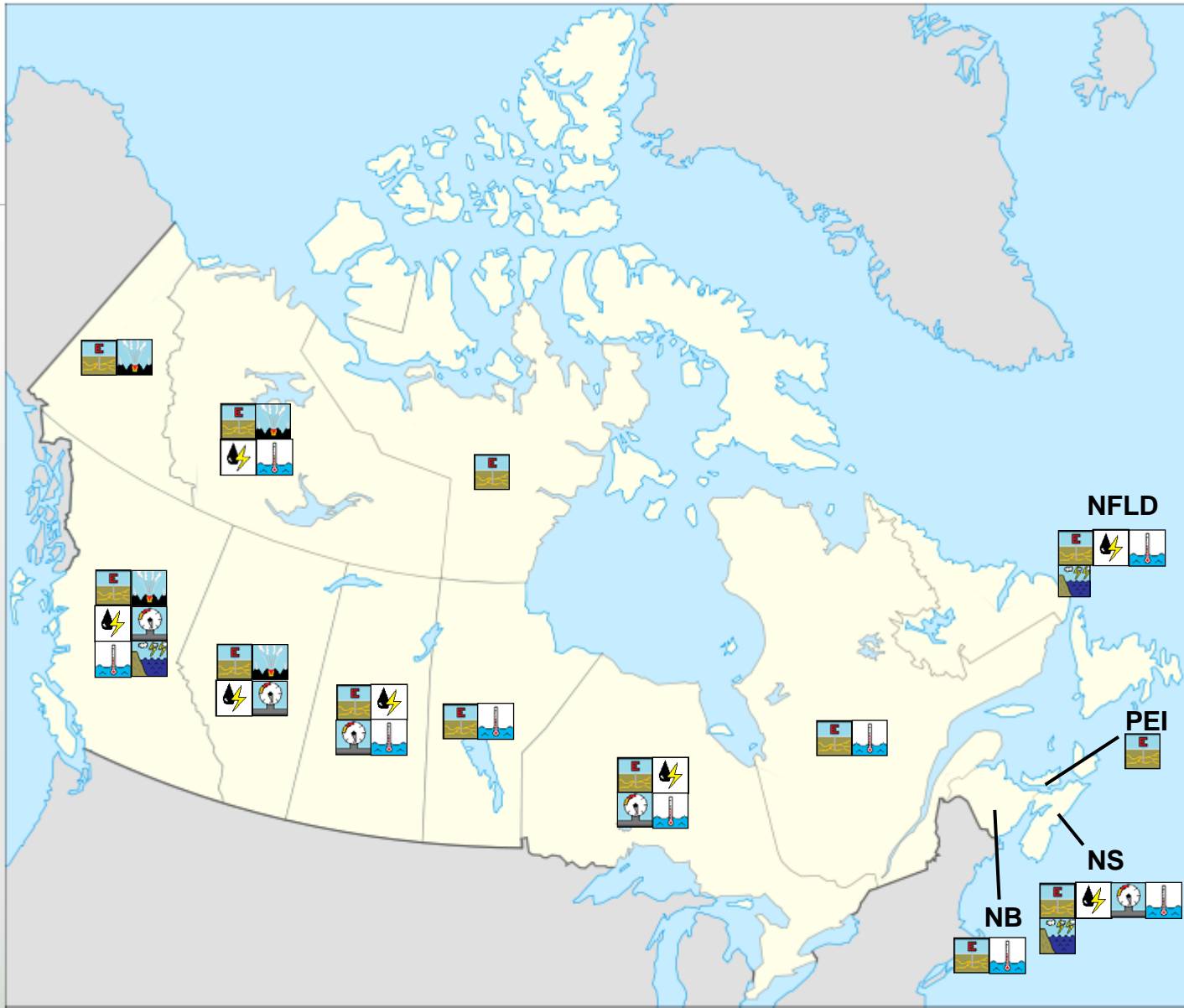
REPRESENTING ALL TYPES OF GEOTHERMAL POWER AND DIRECT USE

- ▶ **Direct Use**
(20°C to 150°C)
- ▶ **Hydrothermal (geyser)**
(120°C to 300°C)

ADVANCED GEOTHERMAL TECHNOLOGIES

- ▶ **Co-Produced Fluids**
(25°C to 120°C)
- ▶ **Enhanced Geothermal Systems (man-made)**
(80°C to 500°C)
- ▶ **Geo-pressured mechanical systems**
(no resource temperature range)
- ▶ **Offshore Geothermal**
(many temperatures)





EGS



Co-produced



Geopressure



Hydrothermal

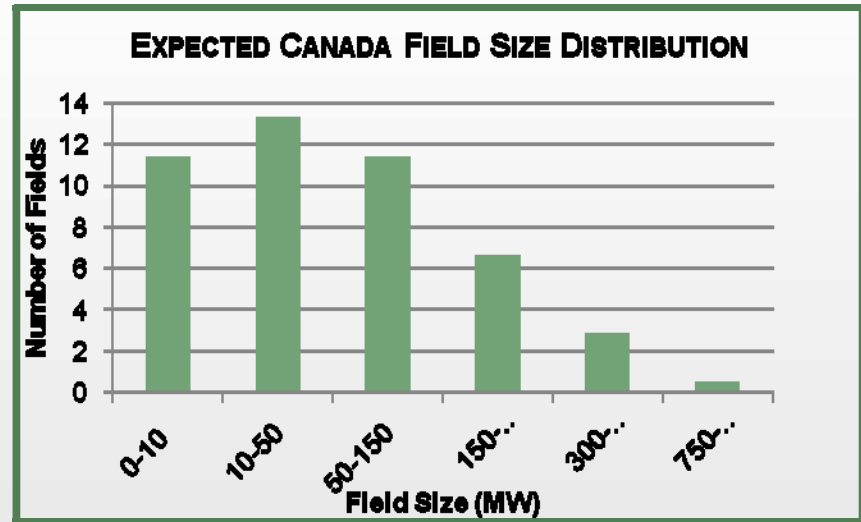
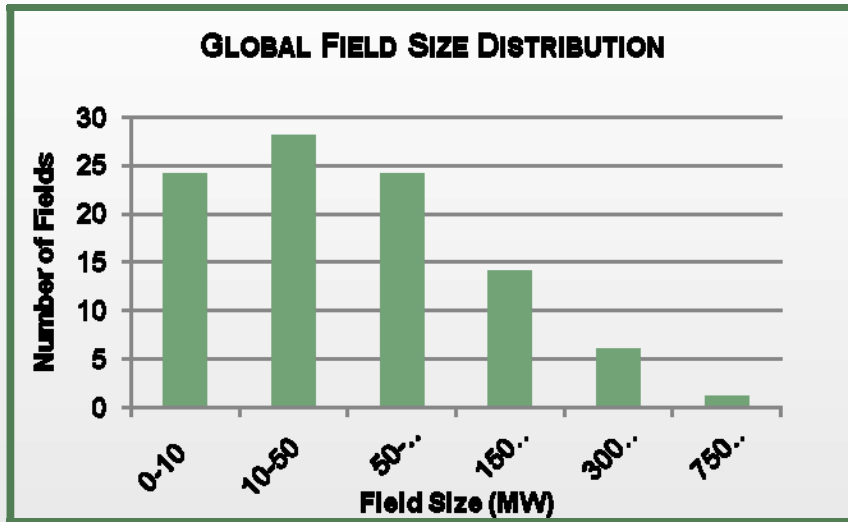


Direct-Use



Offshore

GLOBAL & EXPECTED CANADA FIELD SIZE DISTRIBUTION

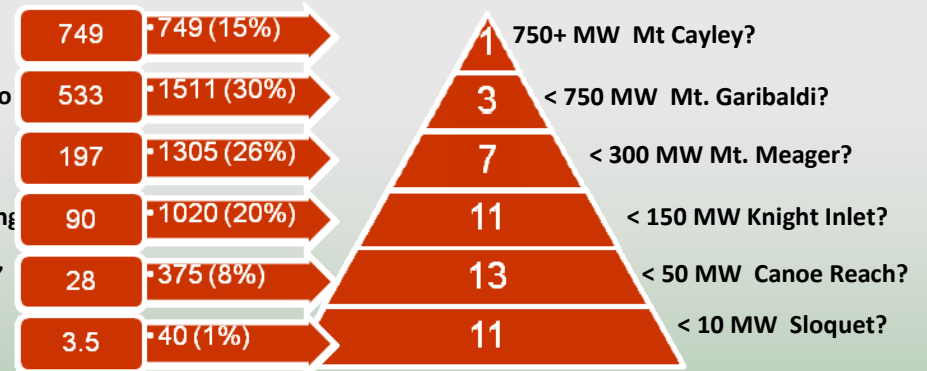
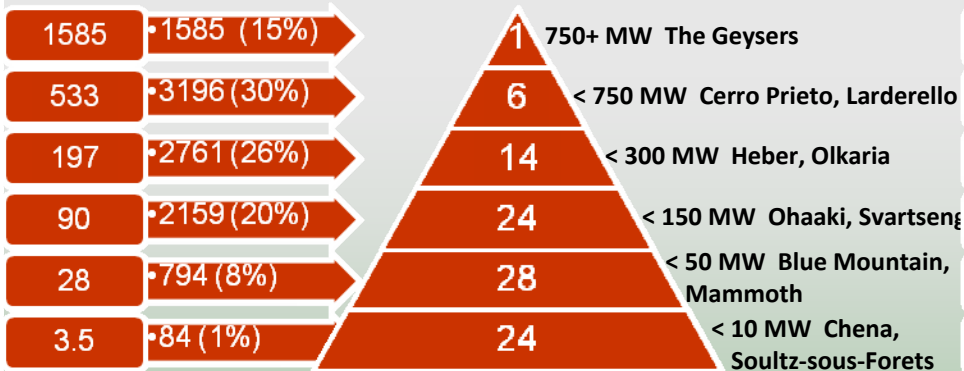


GLOBAL FIELD SIZE DISTRIBUTION
BASED ON 10.5 GW INSTALLED

CANADA HYPOTHETICAL FIELD SIZE DISTRIBUTION
BASED ON 5000 MW INSTALLED CAPACITY

Average Installed Capacity (MW) | Total MW Contribution of Fields and % of World Total

Average Installed Capacity (MW) | Total MW Contribution of Fields and % of Canada Total



Source: Geothermal Power Generation in the World 2005 - 2010 Update Report, WGC 2010, Ruggero Bertani

WHY AREN'T THERE ANY PROJECTS?

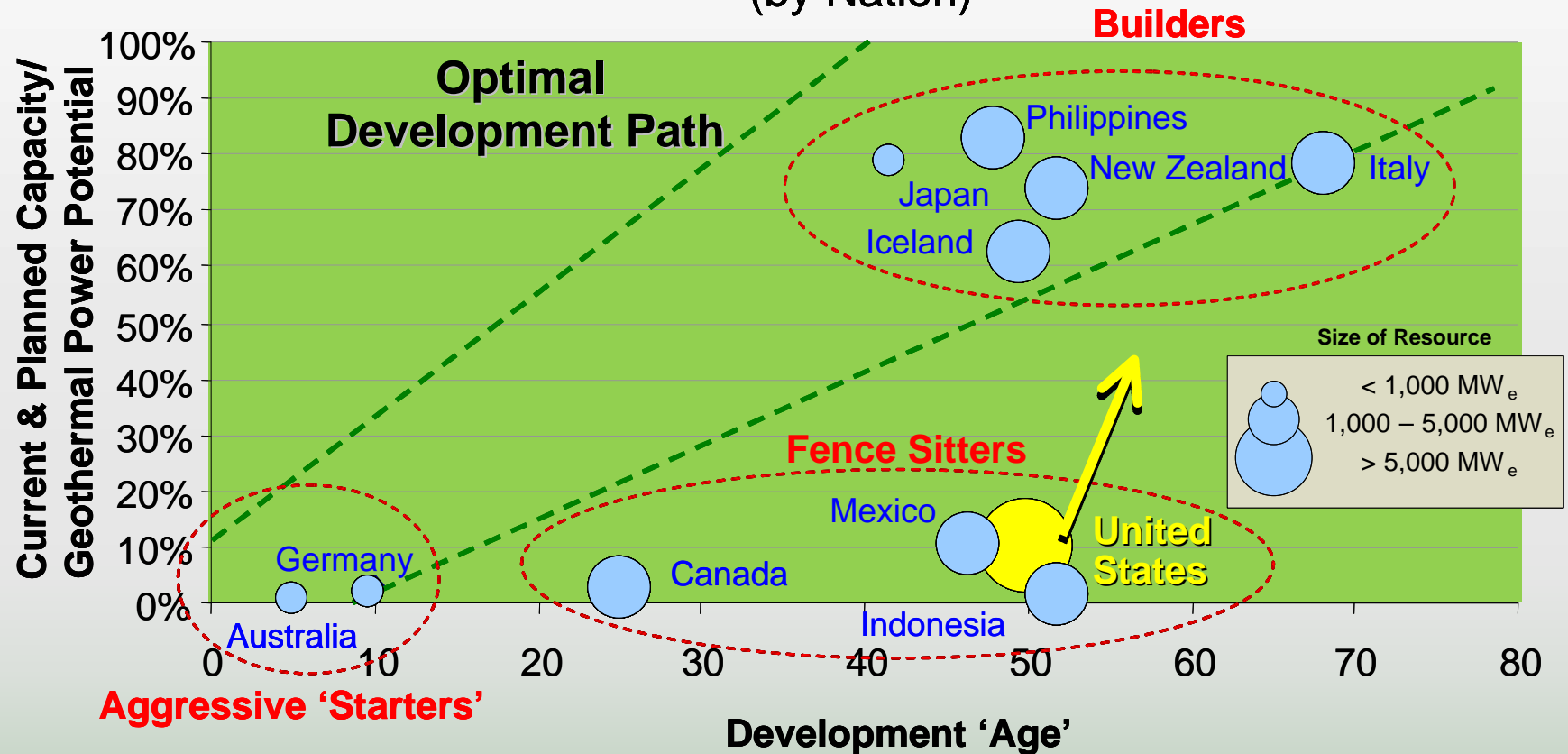
There are fiscal, non-fiscal, technical, and non-technical reasons why Canada doesn't have any operating fields:

- ▶ Too remote
- ▶ Transmission access
- ▶ New to Canadians
- ▶ Other energy sources have been historically less expensive
- ▶ High front end cost
- ▶ Limited LAND TENURING
- ▶ ...
- ▶ Policy doesn't exist or isn't effective

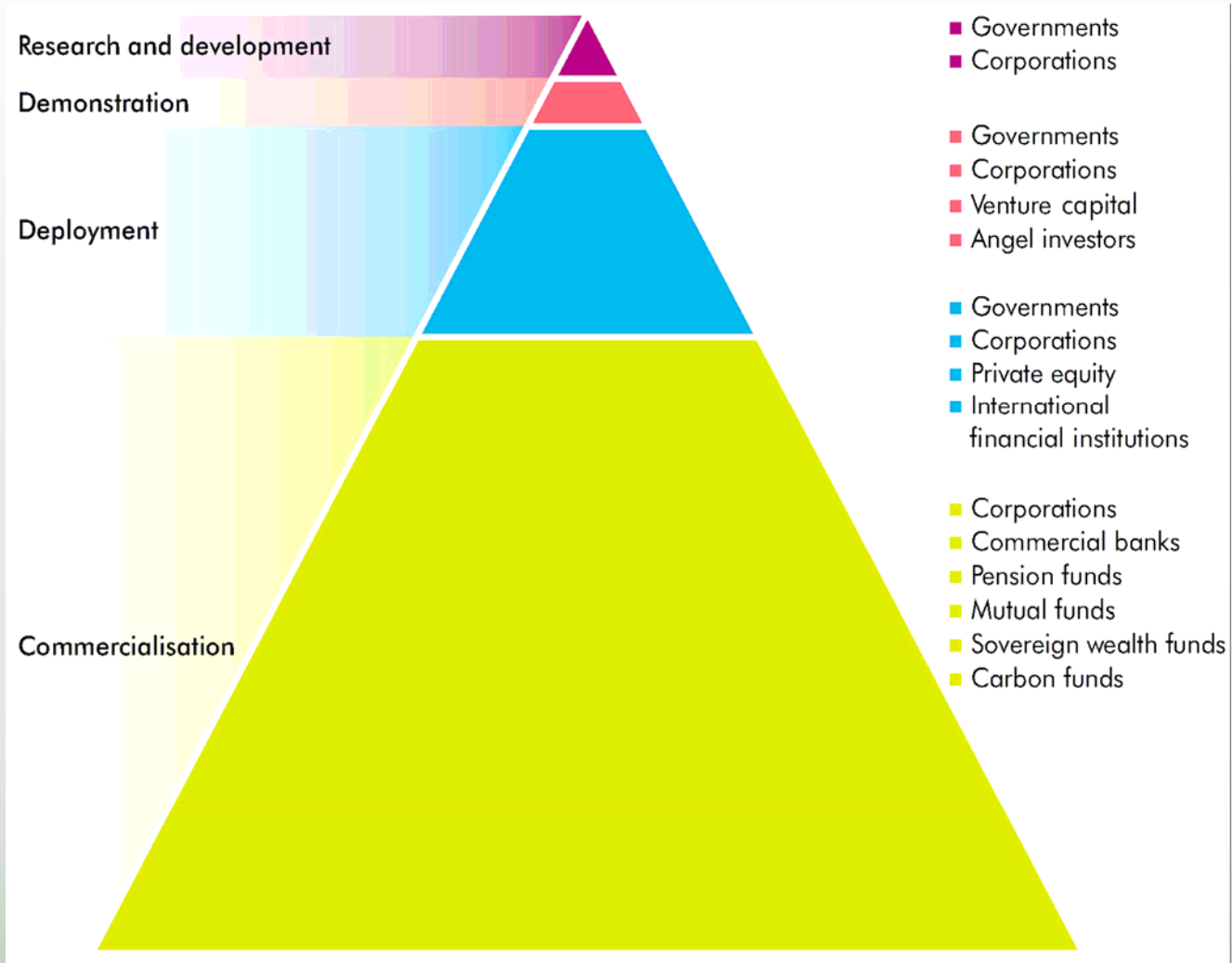


GENERAL FINDINGS: POLICY MATTERS

Progress of Geothermal Development (by Nation)



GOVERNMENT RD&D SPENDING CATALYSES A MUCH GREATER TOTAL INVESTMENT



Source: International Energy Association

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