# Enel North America
# Utah Geothermal Working Group Meeting

**Cedar City Utah, April 22nd, 2008**

# Contents

# A brief overview of Enel

- The second-largest listed utility in Europe with a market capitalisation of EUR 45 billion;
- 53,000 MW of generating capacity worldwide, increased to 80,000 MW with Endesa acquisition in year 2007: wide range of hydroelectric, thermoelectric, nuclear, geothermal, wind-power, and photovoltaic power stations;
- With Endesa acquisition, Enel extended its activity in 21 countries;
- The first utility in the world to replace its customers' traditional electromechanical meters with modern electronic devices

**Enel aims to be the most efficient, market driven, quality-focused provider of power and gas, creating value for shareholders and satisfying customers while enhancing the professional growth for all its employees.**

# Enel in the world

## Europe


## America

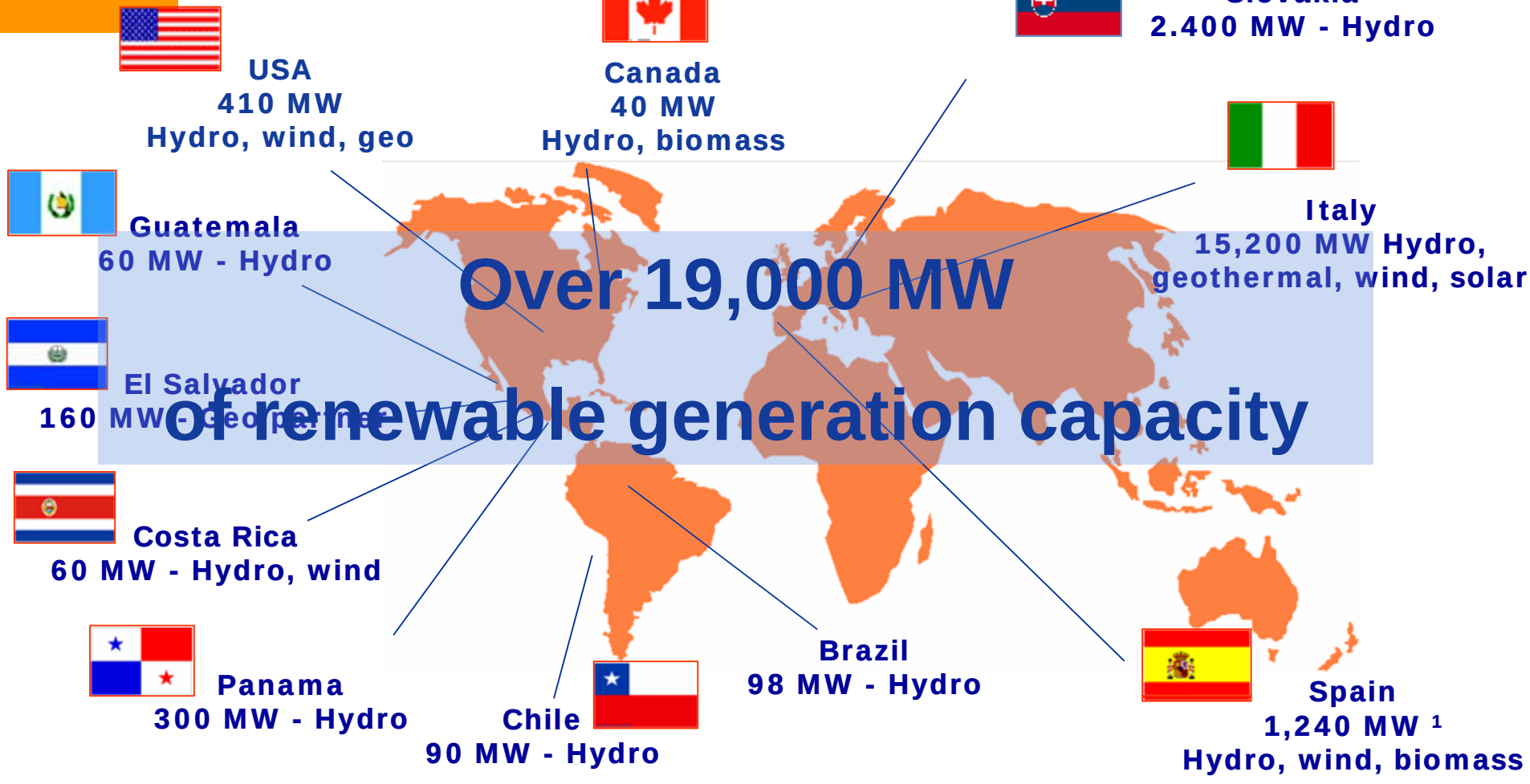

**With Endesa acquisition: Argentina, Colombia, Morocco, Peru, Portugal**

**Over 80,000 MW * over 50 million customers**

# Long-Term Commitment to Renewable Energy

## Recent announcement to invest 4.1 billion euro in Renewable Energy Worldwide

# Enel's Renewable Energy Portfolio




**Over 19,000 MW**

**Of renewable generation capacity**

(1) including plants in partnership

# Enel's Geothermal Project Portfolio

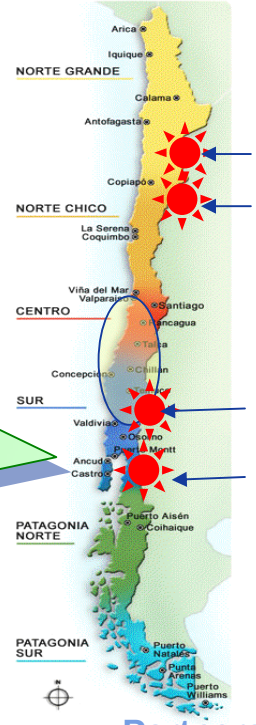
## United States

Enel North America, Inc.
(formerly AMP Resources):
14 MW Operating; about 150 MW to be developed in Nevada, Utah & California

## Italy

Pioneered Geothermal over 100 Years Ago
Over 700 MW operating today at Larderello and surrounding Areas
Over 100 MW to be developed

## Chile




Apacheta
La torta

Calabozo
Chillan

Partnership with ENAP
ENG s.a & GDN s.a.

## Guatemala

1 project under exploration

## Nicaragua

Partnership with LaGeo, SA

2 projects under exploration


## El Salvador

Partnership with LaGeo, SA

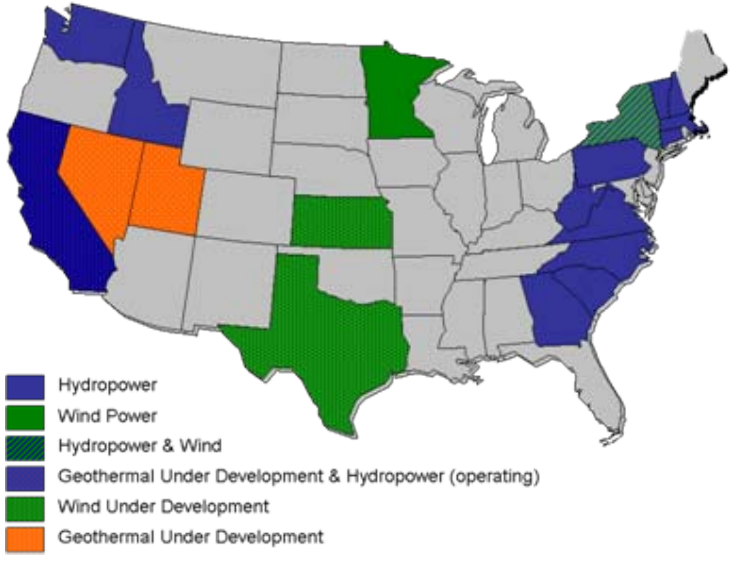
Over 160 MW in operation
over 50 MW to be developed

**Over 880 MW** in operation

Over 400 MW under development

# Enel North America

- **Independent Power Producer**
  - Established in December 2000 when Enel purchased CHI Energy, Inc, a company founded in 1985 to develop and own small hydroelectric projects;
- **100% Renewable Energy**: Uniquely diversified renewable energy company with four renewable technologies in its portfolio
  - » Hydropower
  - » Wind
  - » Biomass
  - » Geothermal




**Operator and developer** of renewable energy plants in North America, with project activities (operating and under development) in 21 U.S. States and 3 Canadian Provinces;

In Operation: 70 plants with an installed capacity of around 410 MW

Under Development:

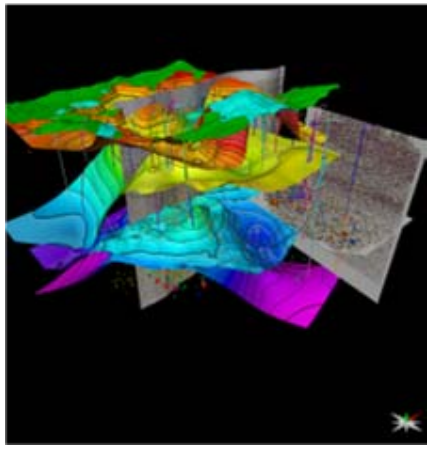
164 MW Wind (Texas and Kansas)

150 MW Geothermal (Nevada, Utah and California)

Additional 1000 MW of wind in the long-term pipeline with partnership with TradeWind Energy LLC

# Enel vertically integrated on geothermal process

**RESOURCE EXPLORATION & ASSESSMENT**

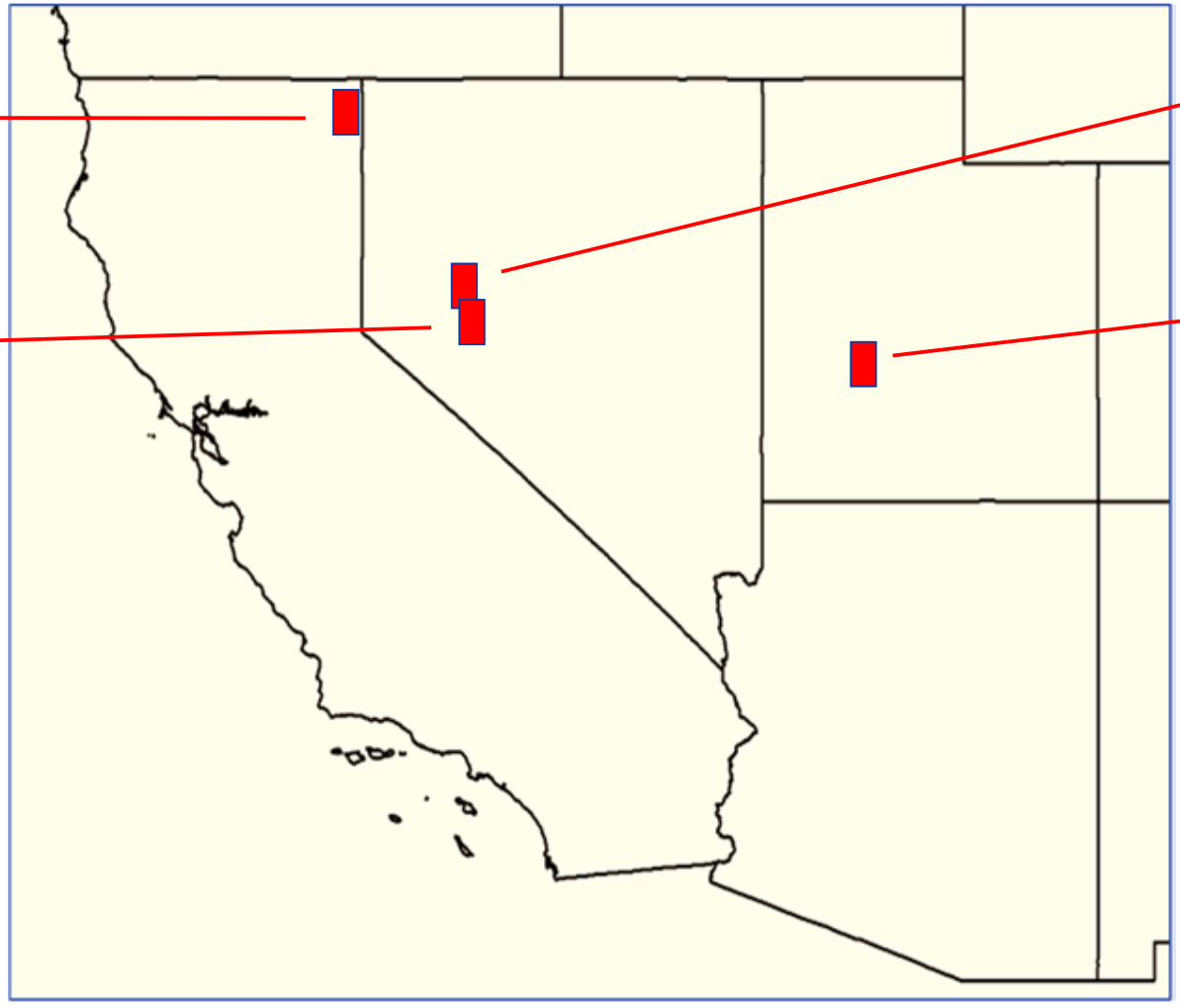


**DRILLING**

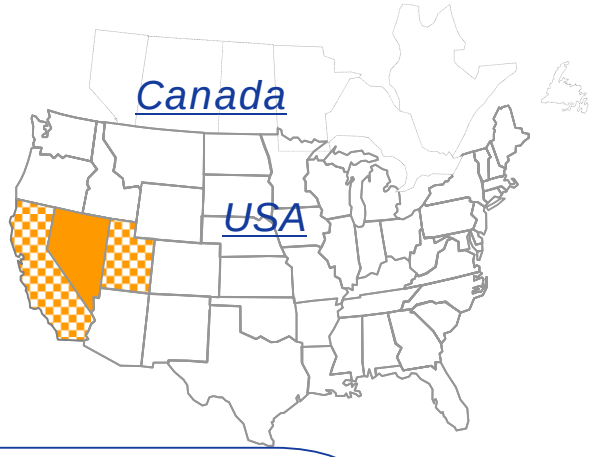
**ENGINEERING & CONSTRUCTION**

**OPERATION & MAINTANANCE**

# ENEL North America Geothermal Projects - Overview



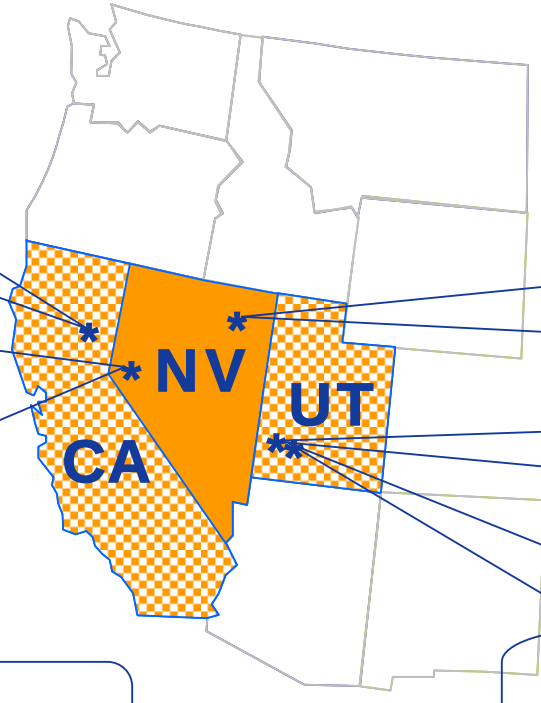
# ENA Geothermal projects




~38 Net MW in Development at Surprise Valley (CA)

7 Net MW in Operation at Stillwater (To be replaced by Stillwater II in 2008: ~34 Net MW)

Other possible additional developments




~14 Net MW in Development at Salt Wells (NV)

~19 Net MW in Development at Cove Fort I (UT)

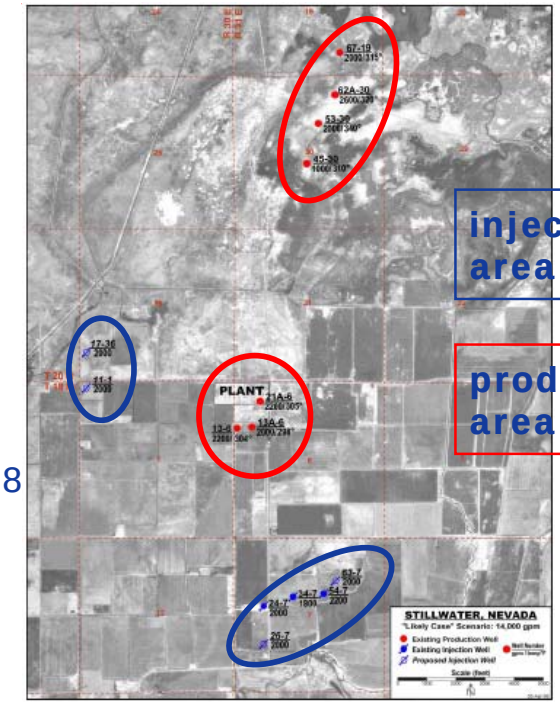
Cove Fort's Future Expansion: ~33 Net MW

*~150 Net MW portfolio of geothermal projects at different stage*

# North America_ Still Water (NV)

## Currently in operation

- Binary cycle power plant operating at Stillwater since 1989.
  - 16 MW, 14 ORC units, iso pentane working fluid, air cooled
  - 5 - 7 MW net generation depending on the time of the year
- Geothermal fluid production
  - 7,000 gallons per minute at 290 - 305 °F
  - N. 4 production wells
  - N. 3 reinjection wells



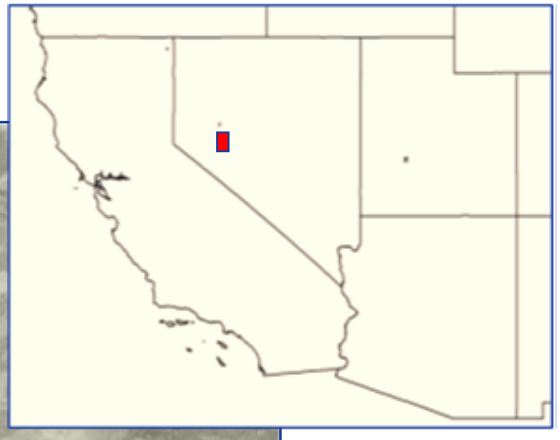

injection area

production area

## Development Plan

- Binary cycle power plant to be in commercial operation by Dec, 2008
  - 48 MW 4 ORC units, iso butane working fluid, air cooled
  - 34 MW net generation depending on the time of the year
- Geothermal fluid production
  - 14,500 gallons per minute at 310 °F
  - N. 7 production wells (existing)
  - N. 7 reinjection wells ( n. 4 new wells to be drilled)

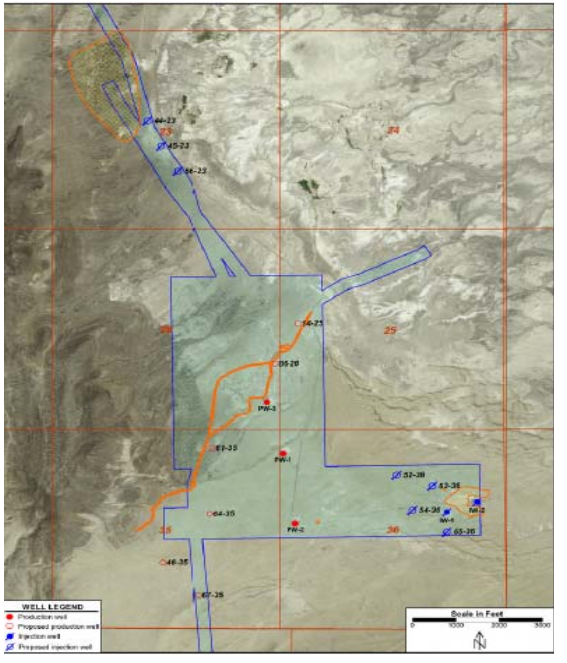
# Salt Wells Geothermal Project



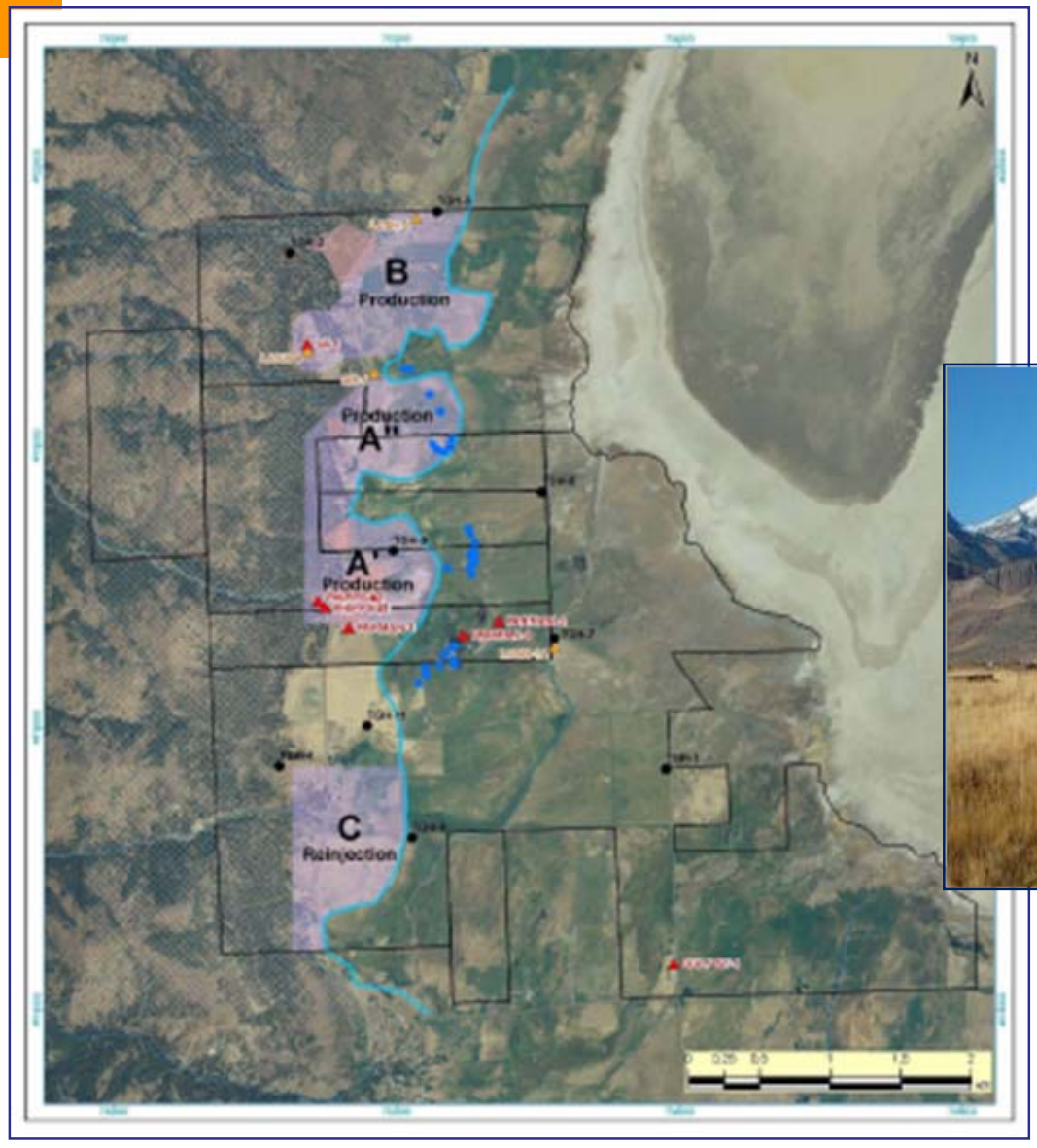
# North America_ Salt wells

## Development plan

- Binary cycle power plant to be in commercial operation by Dec, 2008
  - 19 MW  2 ORC units, iso butane working fluid, air cooled
  - 14 MW net generation depending on the time of the year
- Geothermal fluid production
  - 10,200 gallons per minute at  275 °F
  - N. 4 production wells ( n.3 existing and n.1 to be drilled)
  - N. 4 reinjection wells ( n.1 existing and n.3 to be drilled)

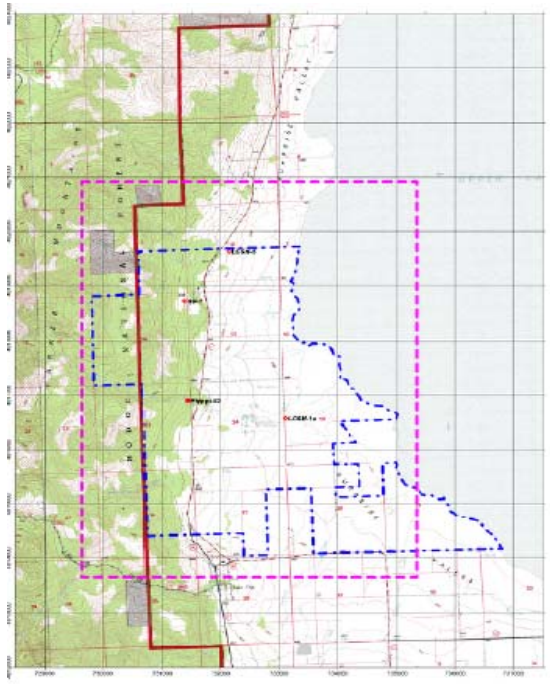


# Surprise Valley Geothermal Project

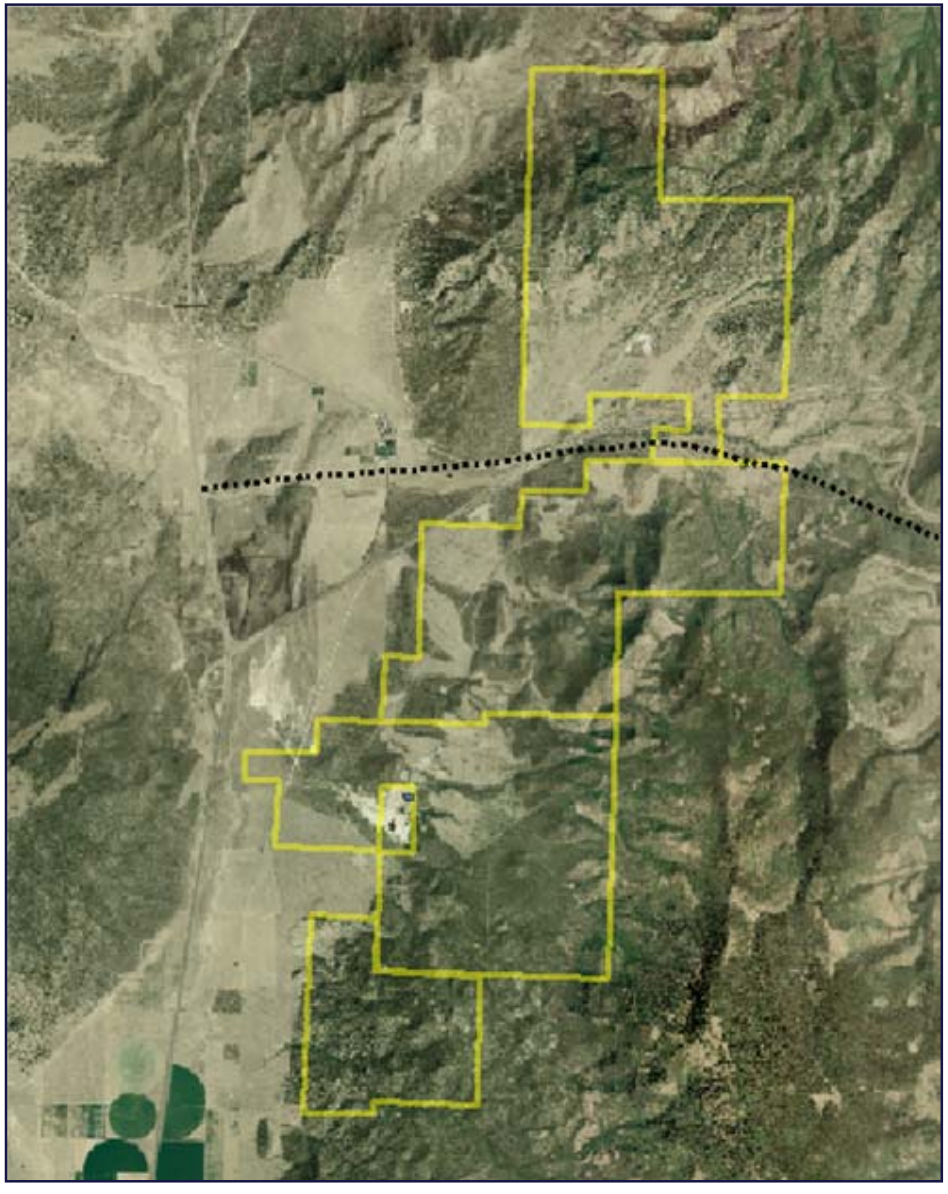


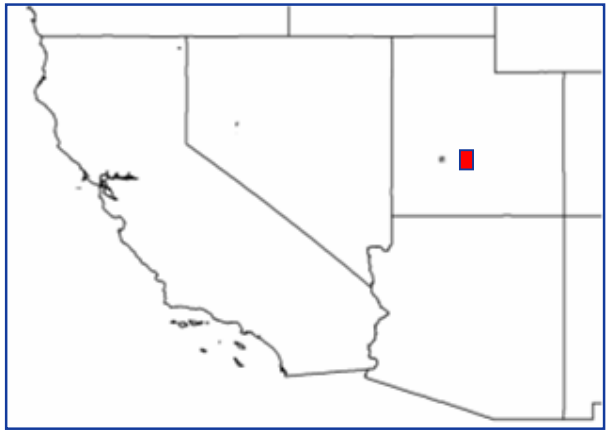

# North America_ Surprise Valley Development plan

Binary cycle air cooled power plant to be in commercial operation in 2010



# Cove Fort Geothermal Project





# Cove Fort

- Well 44-7 was completed on October 13th, 2005 by AMP Resources, Cove Fort, LLC.
- Enel purchased the Cove Fort Project in first Quarter 2007.
- Fourth Quarter 2007 Enel North America (ENA) completed some surface geophysical surveys (MT Survey) with the help of BLM, Forest Service and Private landowners in the area. This information was forwarded to our Generation and Energy Management (GEM) group in Italy for evaluation.
- To date three areas of interest have been identified. We will be actively pursuing permits to drill wells in these areas.

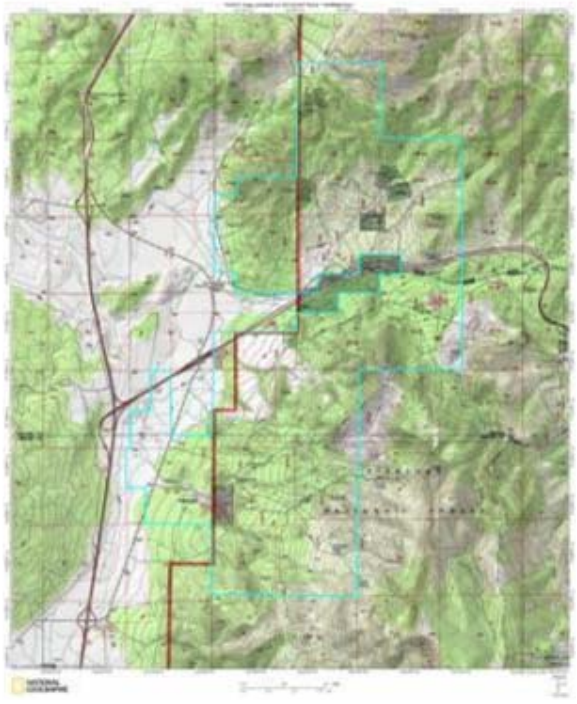
# North America_ Cove Fort Development plan

- Geothermal fluid production
  - +/- 6,600 gallons per minute at 315 °F

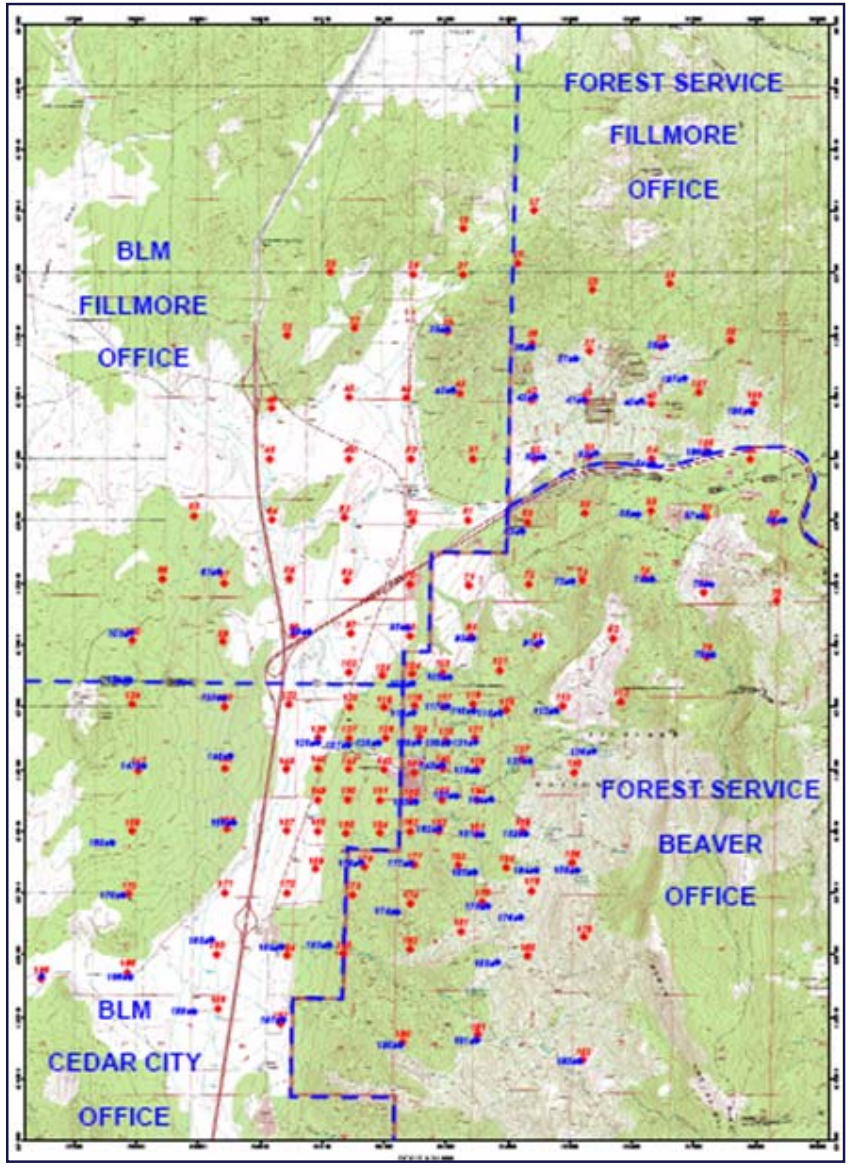
- Binary cycle water- air cooled power plant to be in commercial operation in 2010

| | MW |
|---|---|
| Gross Plant Capacity | 26 |
| Projected Net Capacity | 19 |

? Steam Plant (5 existing wells) 7 MW

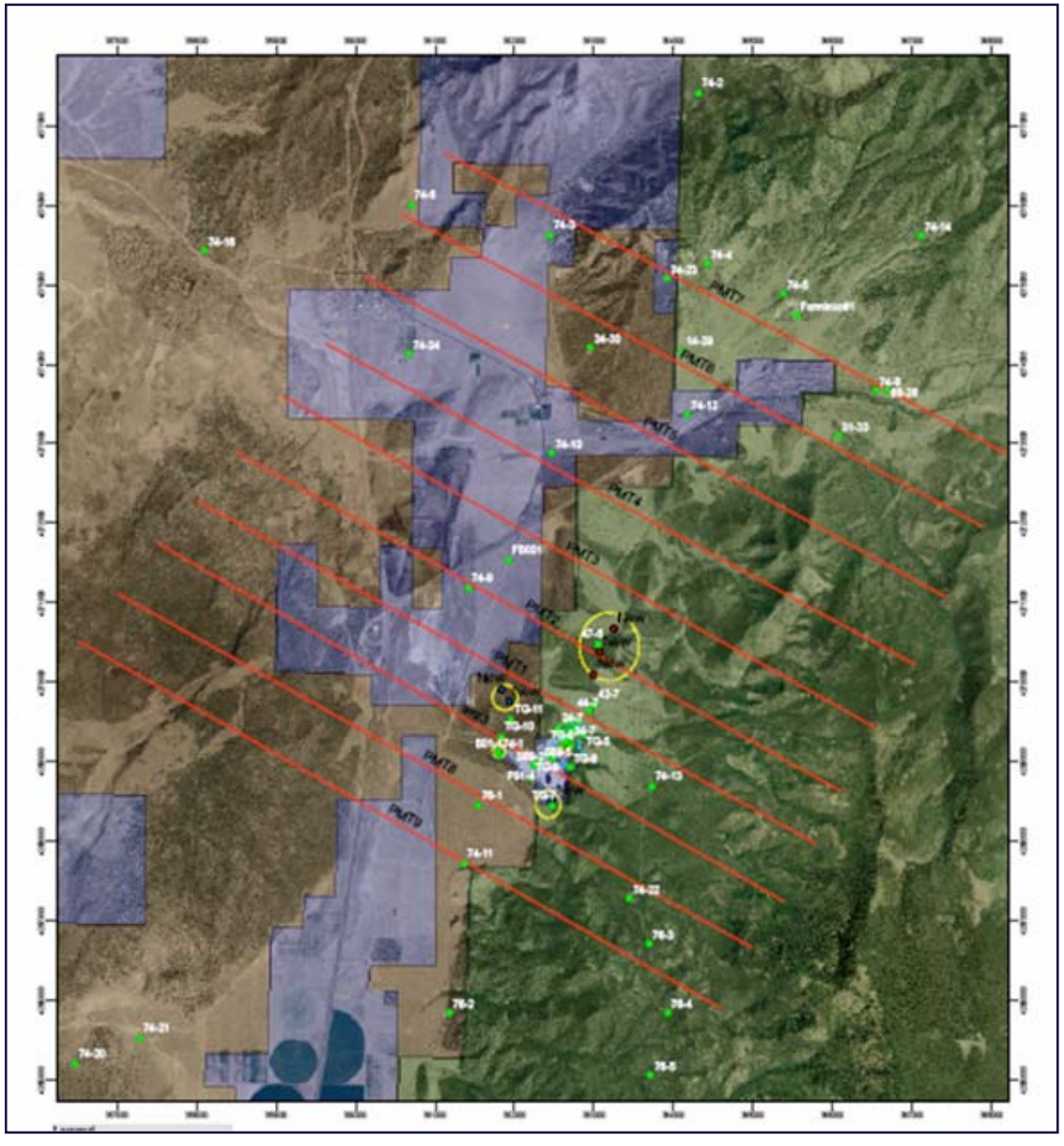


# Cove Fort – Magnetotelluric Survey: Nov-Dec '07




- 140 Stations
- MT & TDEM

# Cove Fort – Modeling



- Selected Transects
- Modeled & correlated
  - oWell Lith/Strat
  - oMT
  - oGravity
  - oGeology
  - •Constructed reservoir surface
  - •Selected well sites

# Cove Fort – '08 Primary Area of Interest

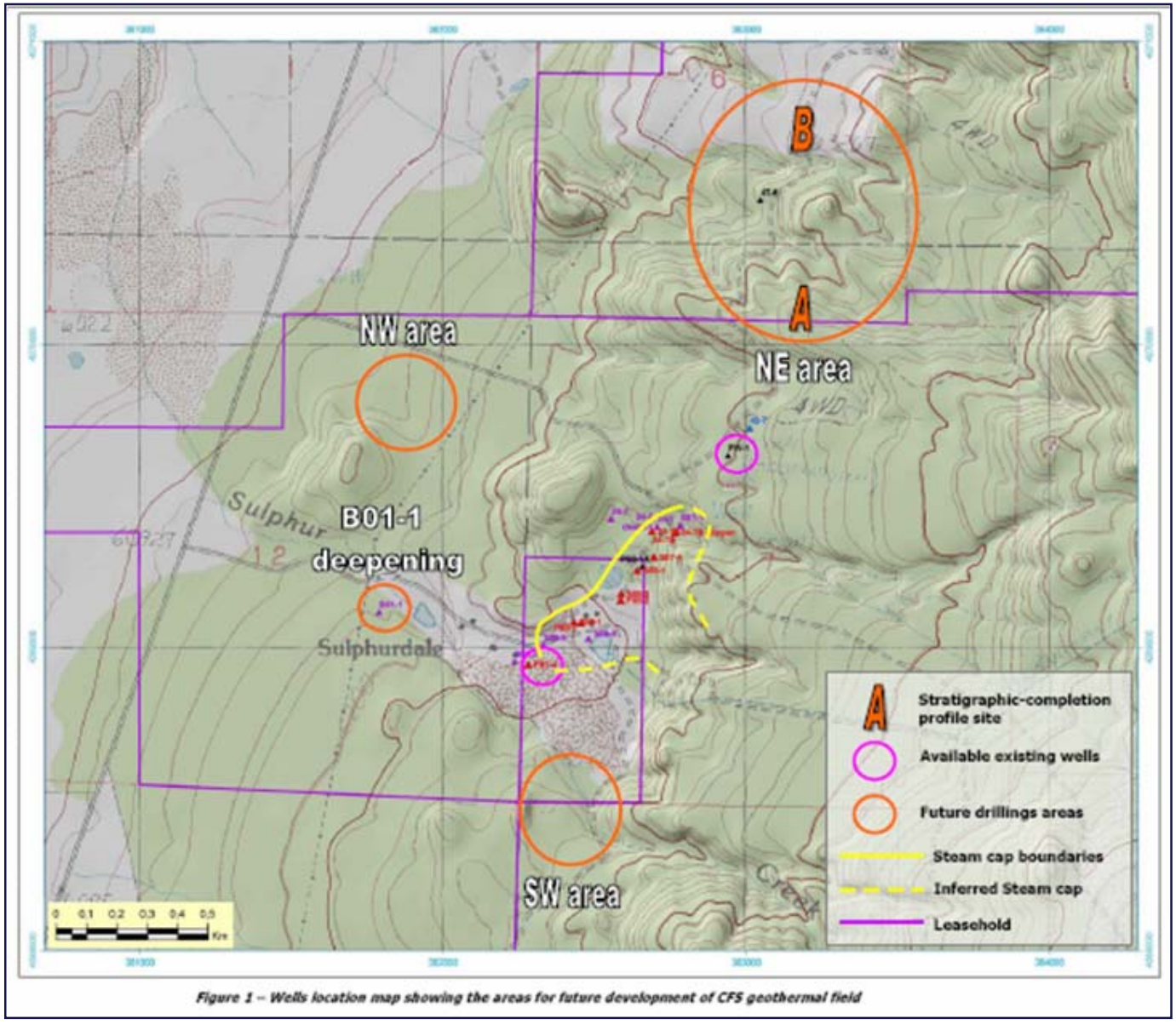
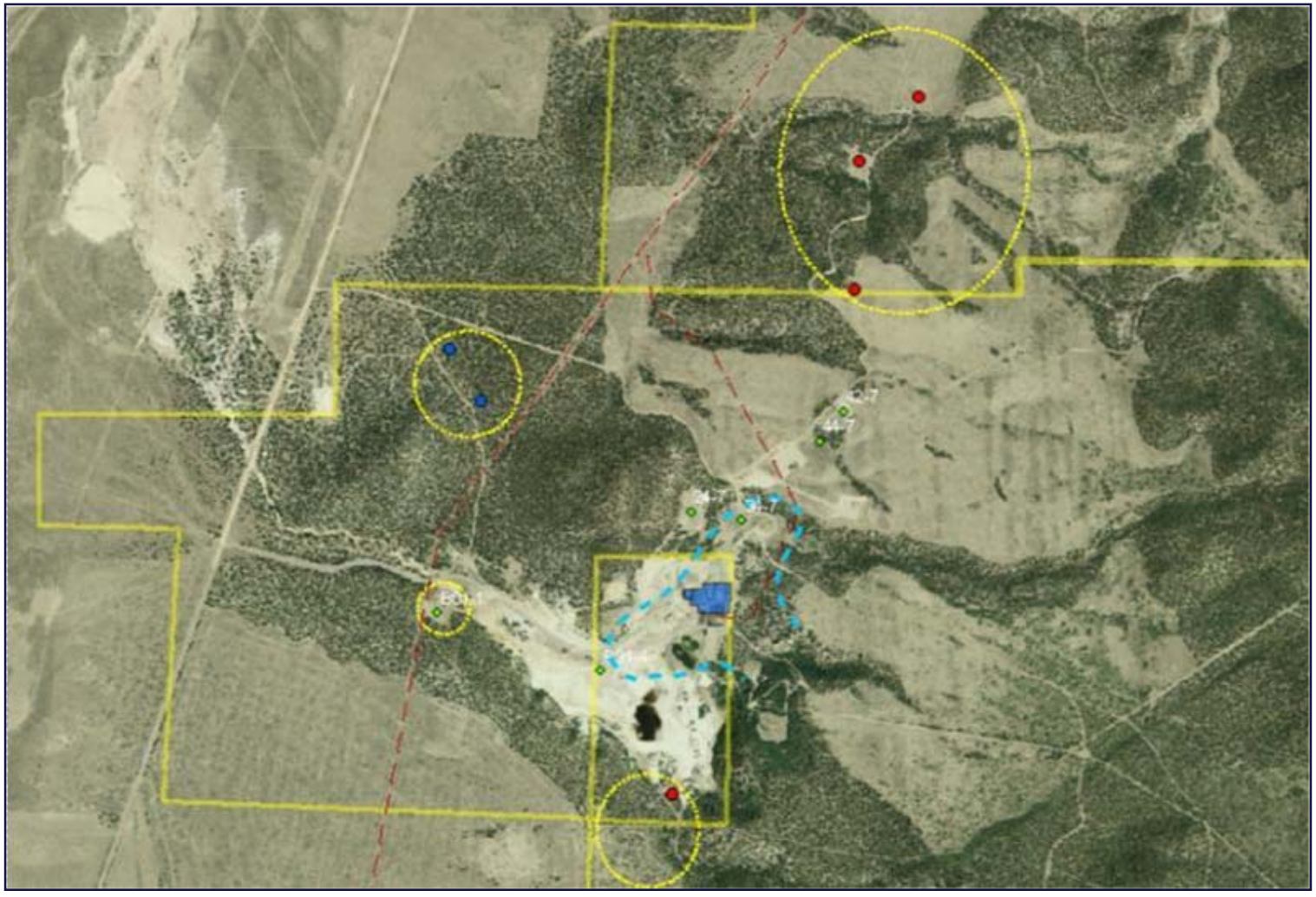



*Figure 1 – Wells location map showing the areas for future development of CFS geothermal field*

# Cove Fort – New Well Selection



- Existing Wells
- Proposed Injection
- Proposed Production
- Steam Cap
- Lease Blocks
- Future Plant Site
- Transmission Lines

## Thanks for your attention

## For any further information please contact

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