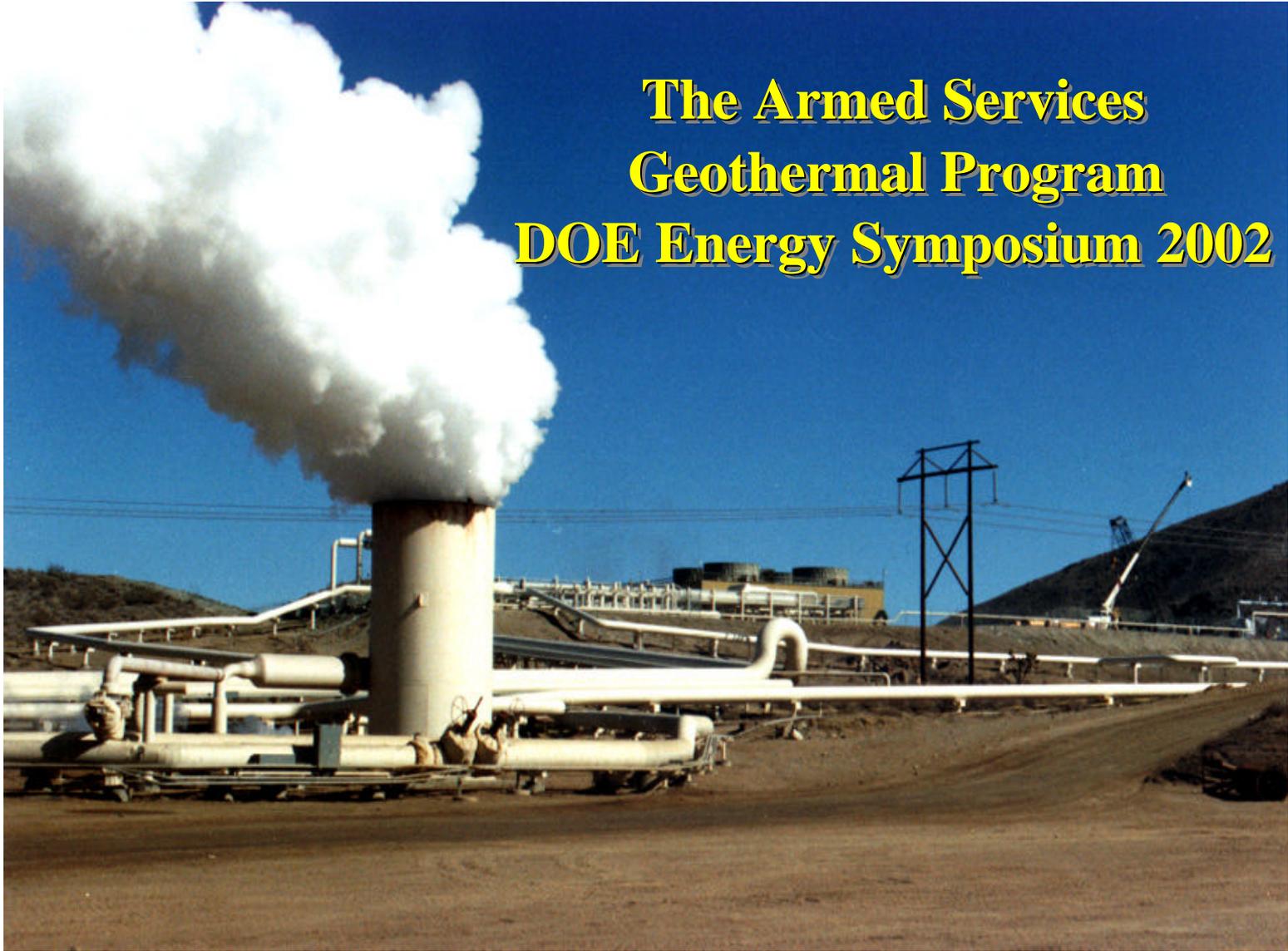


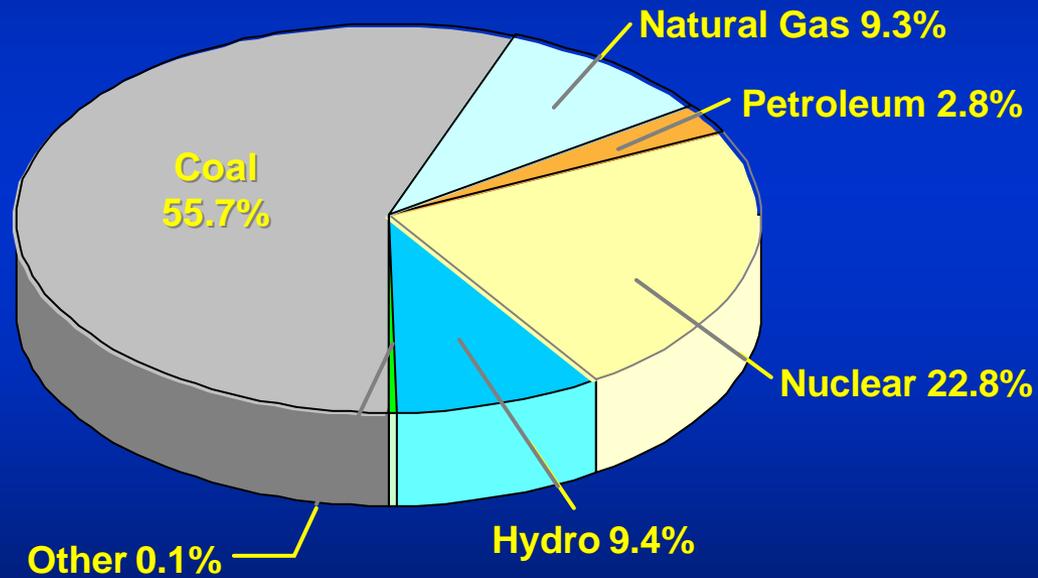
**The Armed Services
Geothermal Program
DOE Energy Symposium 2002**



Briefing Content

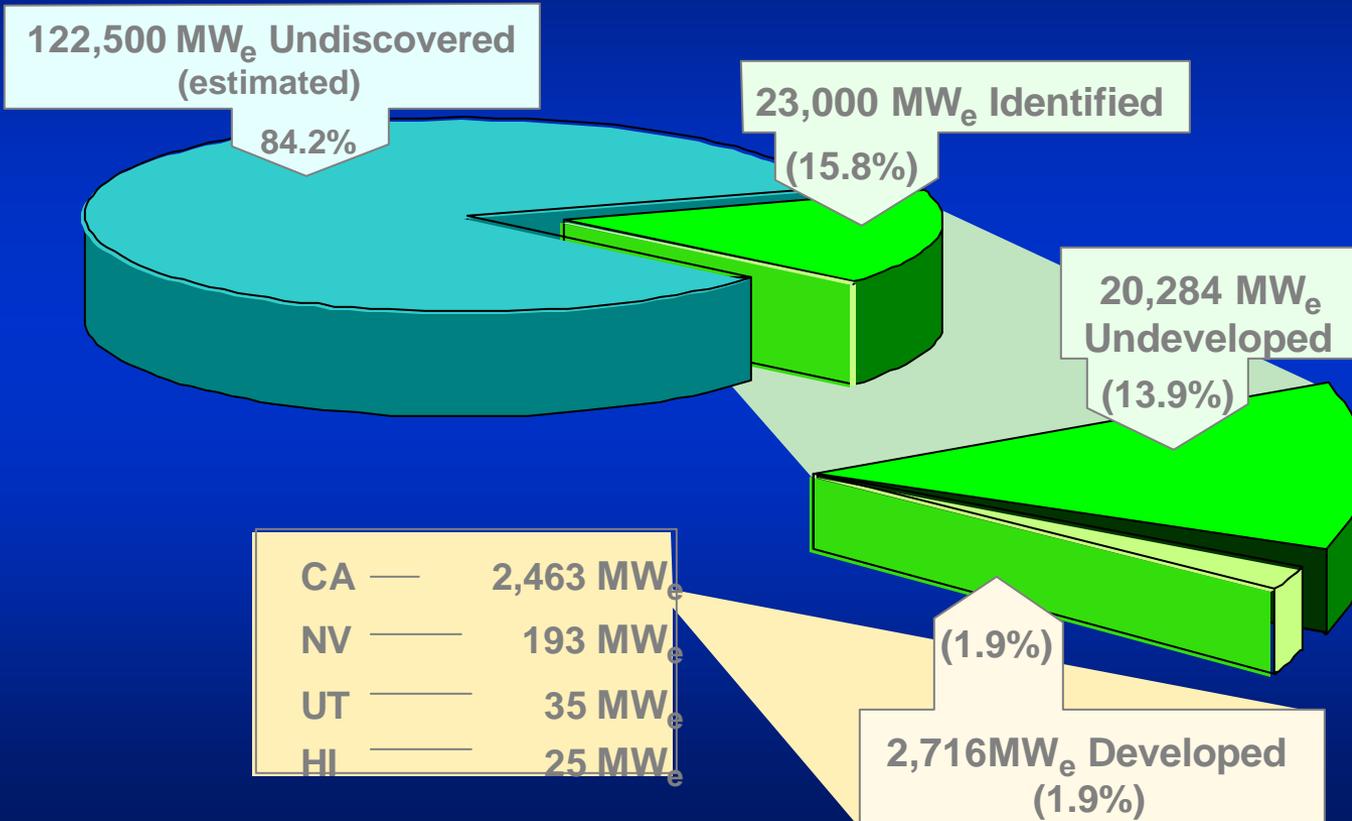
- **Market Perspective**
- **Armed Services Geothermal Program Overview**
- **Business Model vs. Government Model**
- **Geothermal Development Project Areas**

Electric Power Generation by Source



Source: DOE, Energy Information Agency, Annual Energy Review 1999, August 2000

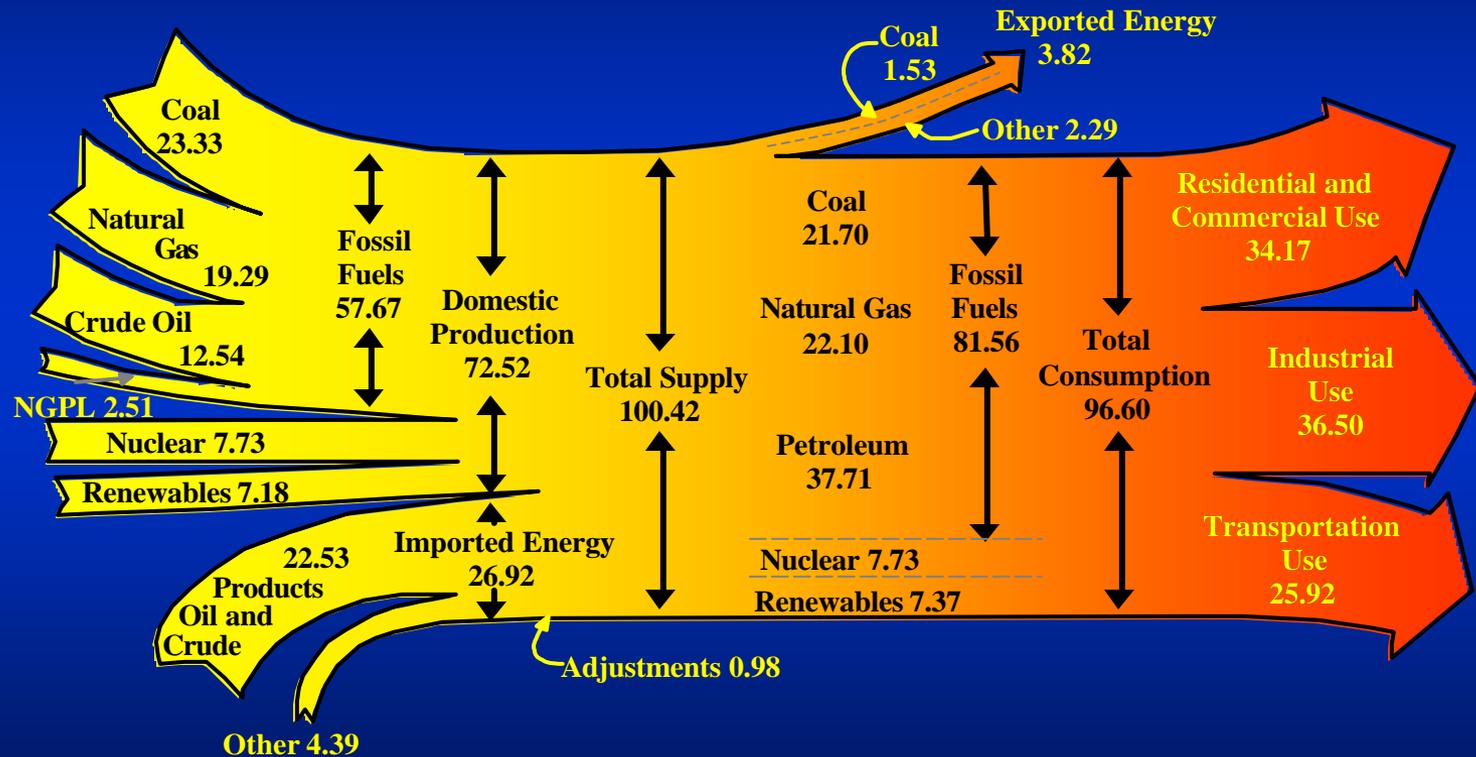
Electricity Grade Resources Western U.S.



Source: (1) USGS Circular 790 (2) Geothermal Resource Council

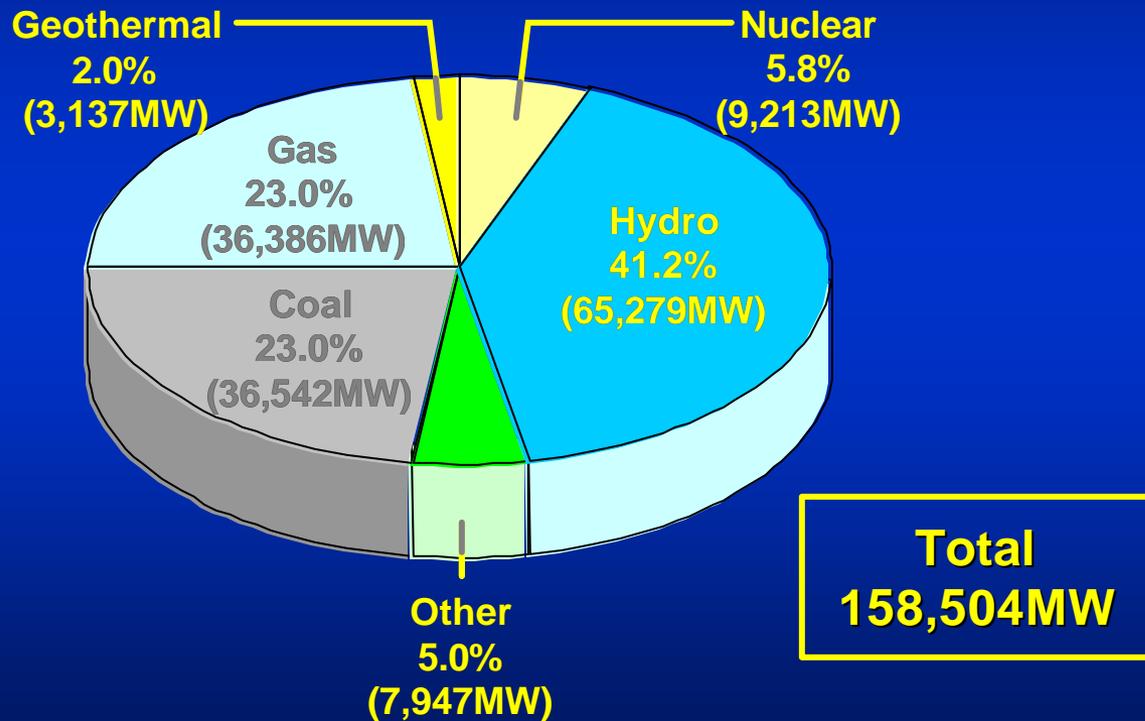
U.S. Energy Flow, 1999

(Quadrillion Btu)



Source: Energy Information Administration/Annual Energy Review 1999

Existing Generation by Source Western States Coordinating Council (Capacity in MW)



Source: Western States Coordinating Council, 2000

Program Authorization

- **10 USC 2394 - Allows for 30 year contracts for energy production**
- **10 USC 2689 - Allows for development of geothermal resources beneath military-controlled lands (fee simple or withdrawn)**
- **10 USC 2483 - Allows for sale of electricity from renewables or cogeneration facilities**

GPO Mission

- **To locate & develop resources on military facilities anywhere in the world**
- **Two-pronged approach:**
 - * **Resource Development**
 - * **Resource Management**

Geothermal Program Office Role

- Evaluate the resource
- Provide permitting/process guidance
- Oversee the PPV contracting process
- Technical training for on-site personnel
- Maintain resource management expertise
- Contract administration
- Provide economic analyses
- Industry and government interface

Business Model

“Farm-Out”

- **Tried & True Energy Business Mechanism**
- **Establish Resource Potential**
- **Pre-Qualify Third-Party Investors**
- **Proposals/Negotiations**
- **Compensation**
- **Navy oversight - resource mgmt.**

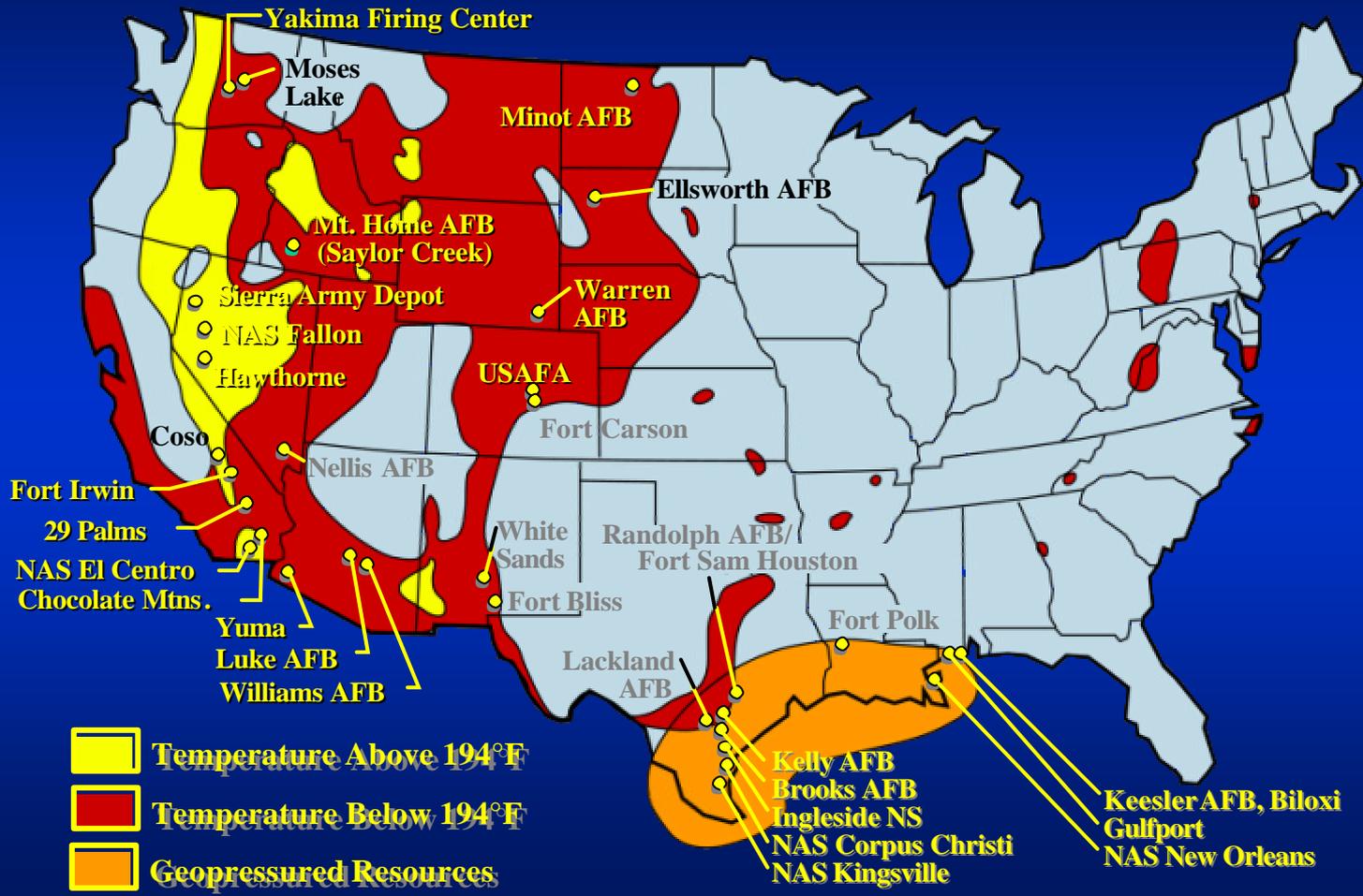
Business Model vs. Government Model

- **Risk Reduction - Success Increase**
- **Flexibility**
- **Market Conditions**
- **Resource Quality/Viability**
- **Fair Market Value**

“Acid Test”

- **If deal is too tough, the industry won't participate.**
- **Corollary: If economics are not favorable, then developers won't invest.**

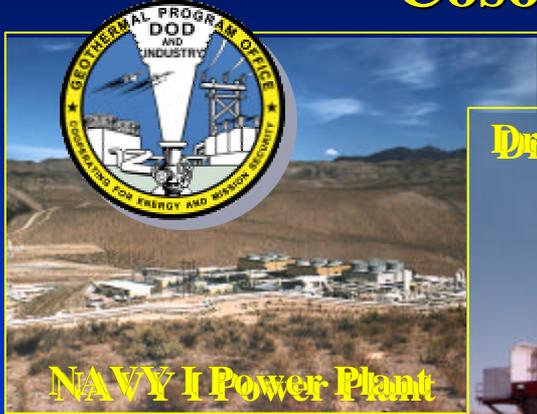
Geothermal Resources



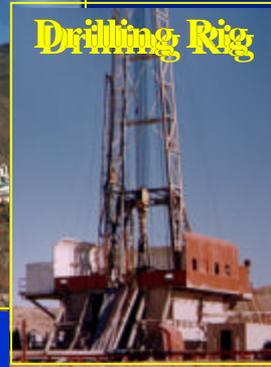
Navy Facilities with Known Geothermal Potential

- **Coso - China Lake**
- **Naval Air Station Fallon**
 - * **Mainside**
 - * **Dixie Valley**
 - * **Bravo 19**
- **Naval Air Field El Centro**

Coso Geothermal Field



NAVY I Power Plant



Drilling Rig

Status/Highlights

- First power from Coso in 1987
- Full power in January 1990
- Nearly 25,000 GWh electricity since first power
- Average on-line availability 98%
- Anticipated reservoir lifetime is 30 years although 50 years is not unlikely
- Drilling two deep exploratory holes in new prospective area at Coso

Mission

To locate, develop and manage geothermal resources wherever they occur on U.S. military facilities

Approach

- Public-private venture capital projects
- “Other people’s money”
- Share in revenue/benefits

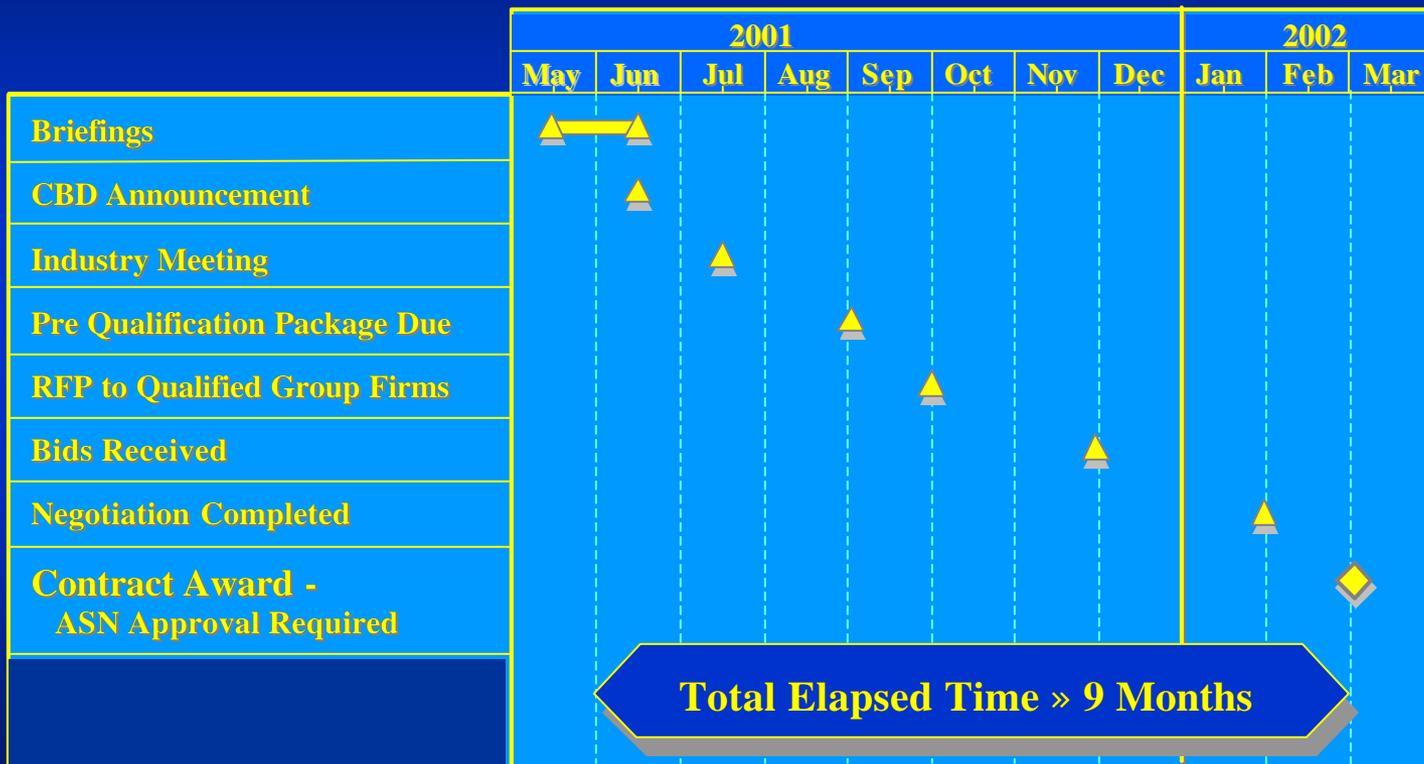
NAWCWD Role

- Geothermal Program Office at China Lake
- Host 180MW of Navy electrical production at Coso facility

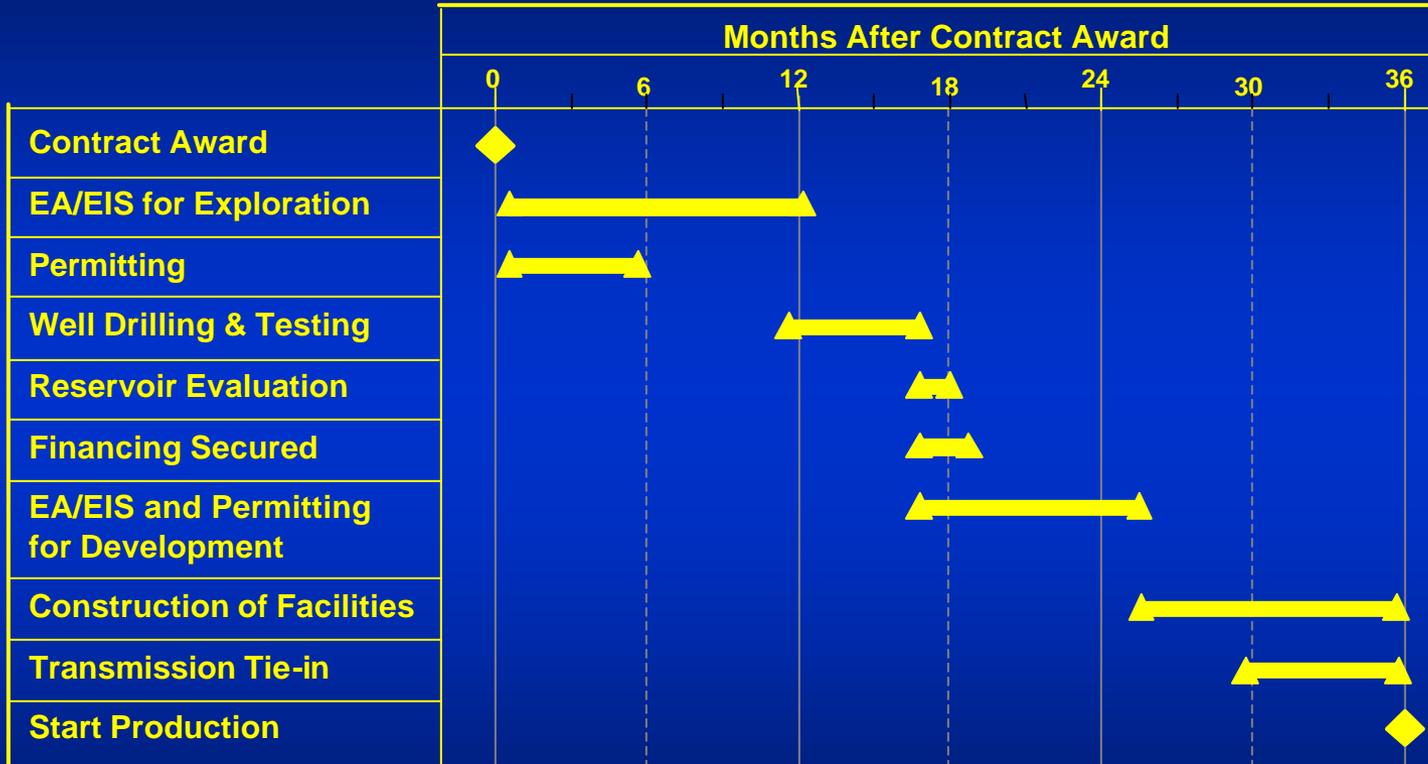
Program Manager:

Dr. Frank Monastero

Project Milestones - Leading to Contract Award



Milestones for Geothermal Development at NAS Fallon



Potential Benefits to Services

- **Direct Power Purchase**
- **Electricity Bill Offset**
- **Revenue Sharing**
- **“Green Power”**

The Coso Geothermal Success Story

How about an encore?

