

Nuclear Operator Perspective

HTR 2008

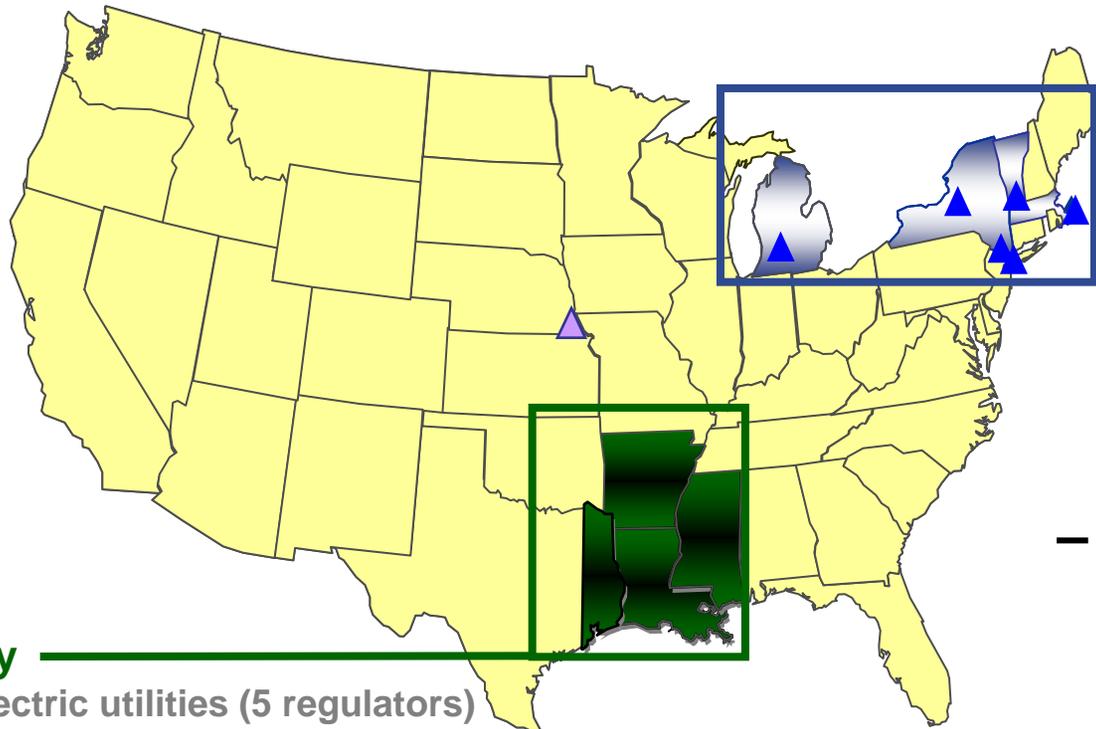
September 29, 2008

Dan Keuter, Entergy Nuclear



Entergy Overview

Principal Lines of Business



Entergy Nuclear Operations/Services Business

▲ 6 non-utility units at 5 sites
(4,998 MW)

▲ 1 plant managed (800 MW)

■ Decommissioning and
license renewal

*Commodity Marketing for
Owned Assets*

Utility

- 5 electric utilities (5 regulators)
- 4 contiguous states – Arkansas, Louisiana, Mississippi, Texas
- 22,000 MW of generating capacity
 - 87 generation units
 - 5 nuclear units= 5120 MW
 - 5 coal units = 2233 MW
- 15,000 miles of transmission lines

Utility Portfolio

Entergy's Nuclear Fleet

2nd Largest Nuclear Fleet in U.S.

ANO
Unit 1 836 MW B&W PWR
Unit 2 858 MW CE PWR



(2)

Riverbend
936 MW GE BWR



(1)

Grand Gulf
1210 MW GE BWR



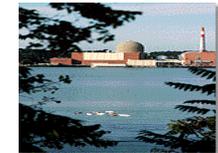
(1)

Waterford 3
1075 MW CE PWR



(1)

Indian Point
Unit 2 974 MW W PWR
Unit 3 965 MW W PWR



(2)

Fitzpatrick
820 MW GE BWR



(1)

Pilgrim
665 MW GE BWR



(1)

Vermont Yankee
506 MW GE BWR



(1)

Palisades
778 MW CE PWR



(1)

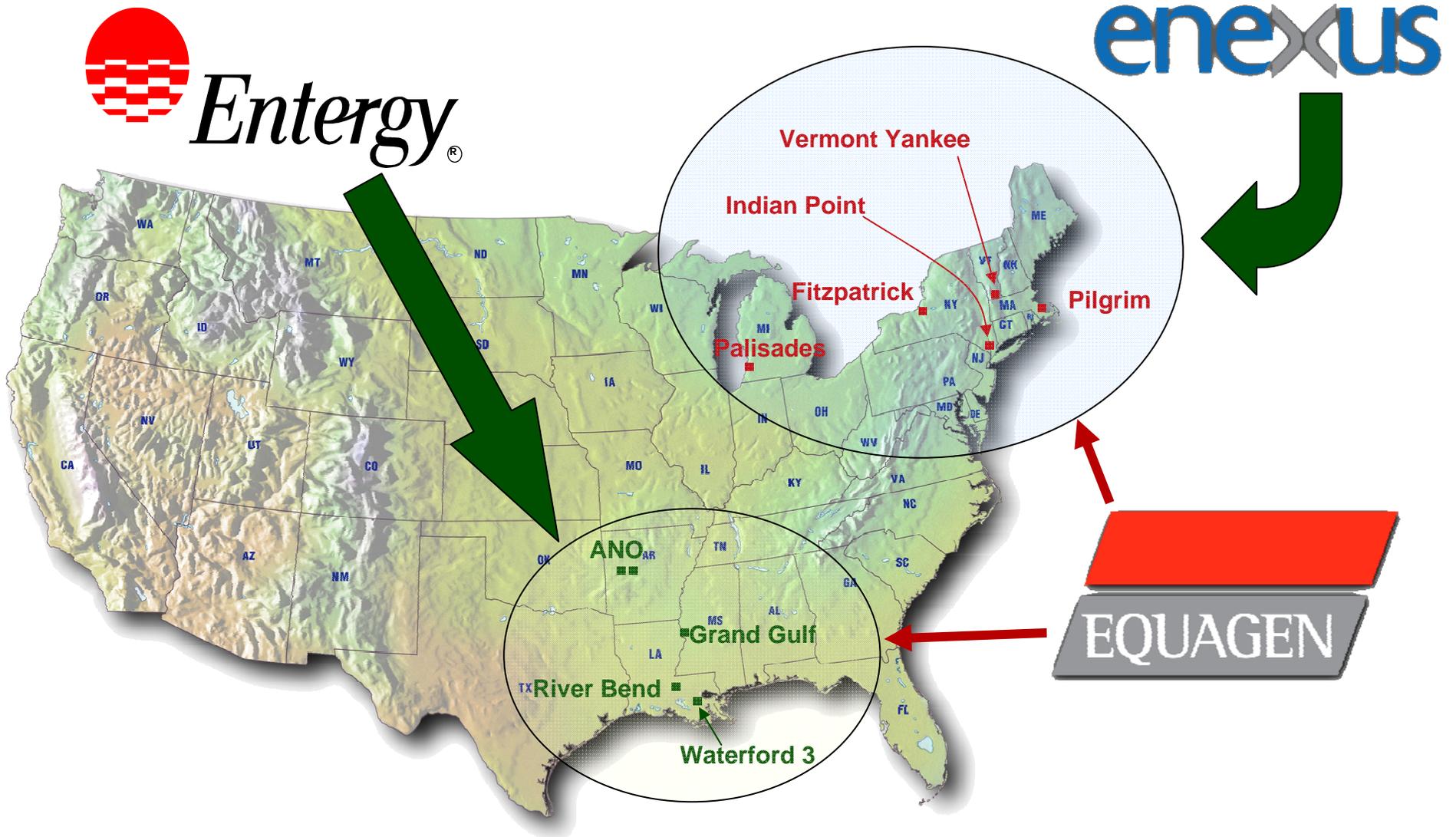
Cooper
764 MW GE BWR



(1)

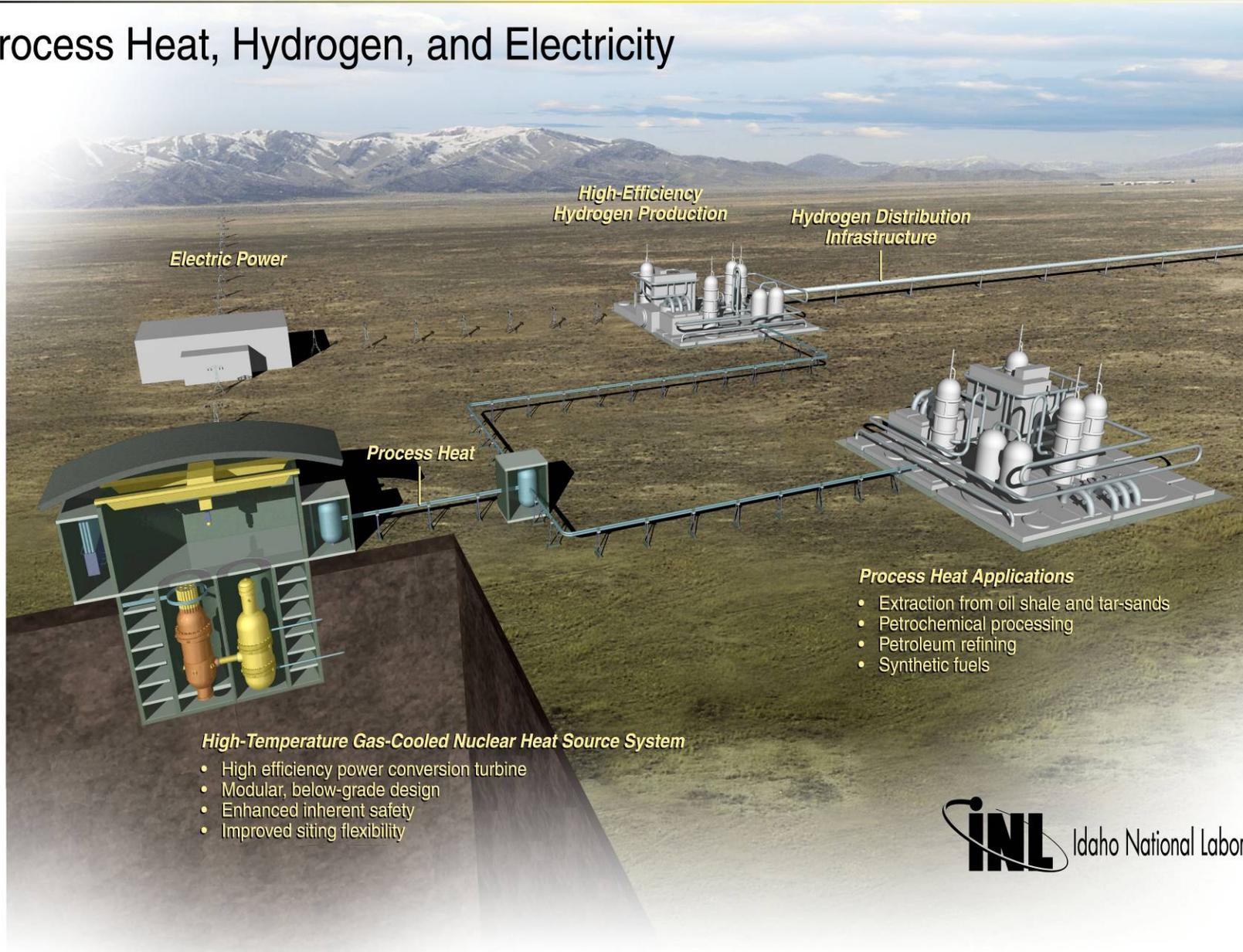
Entergy – The Next Generation

– Our Nuclear Growth Strategy

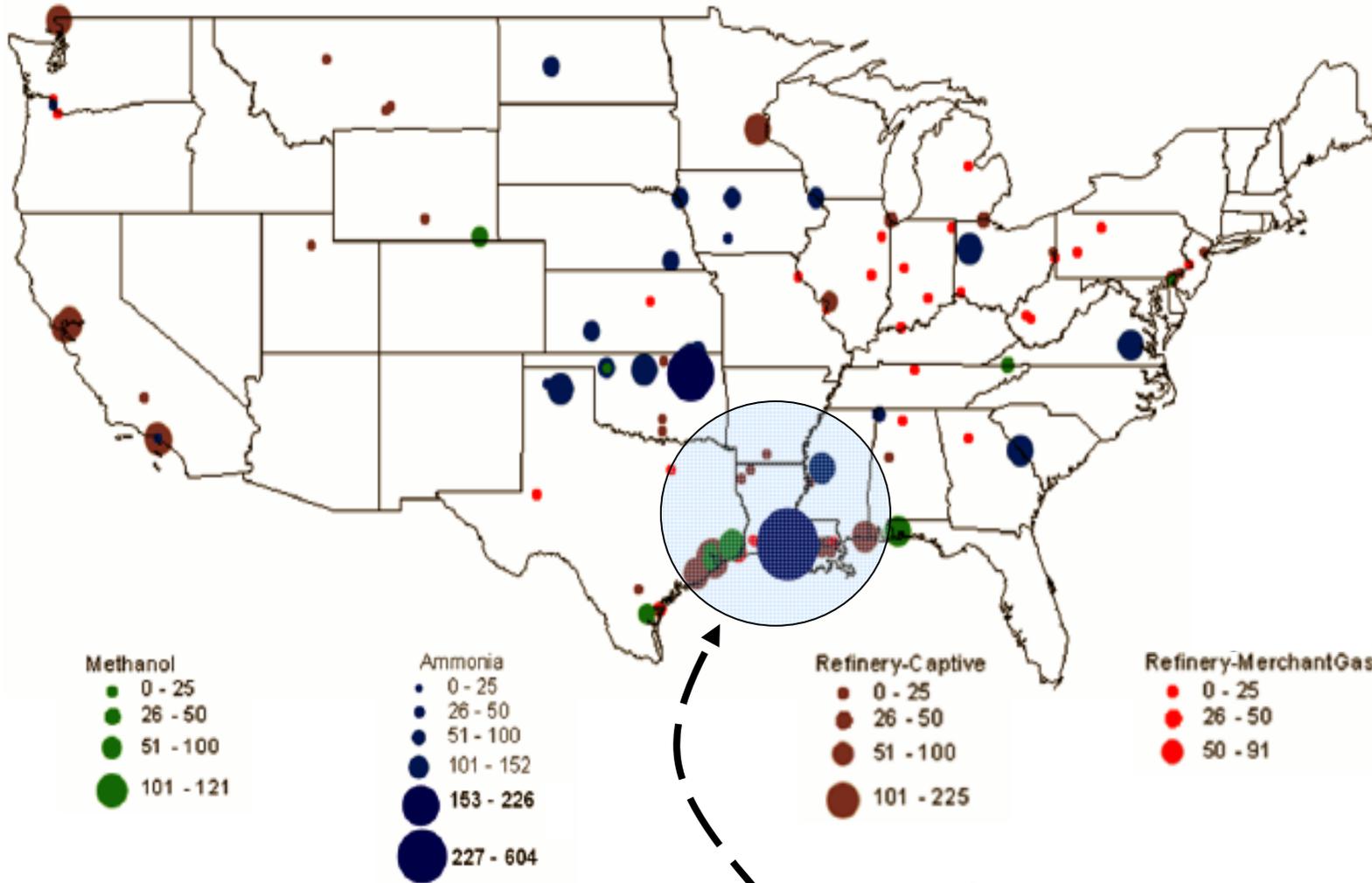


Next Generation Nuclear Plant (NGNP)

Process Heat, Hydrogen, and Electricity



Entergy's Interest in HTGRs

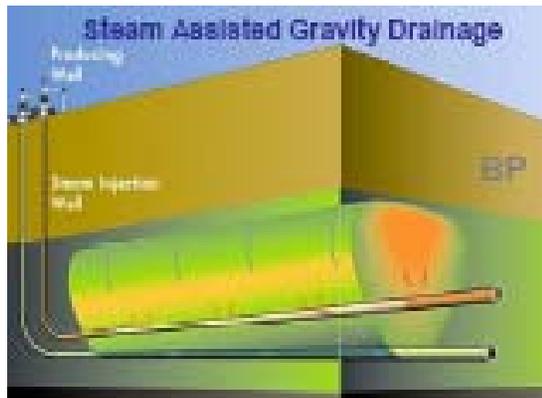


Entergy's Service Territory

*Major Industrial Market for Process Heat & H₂ -
Mississippi River Corridor, Gulf Coast (TX, LA)*

Markets for HTGR Technologies

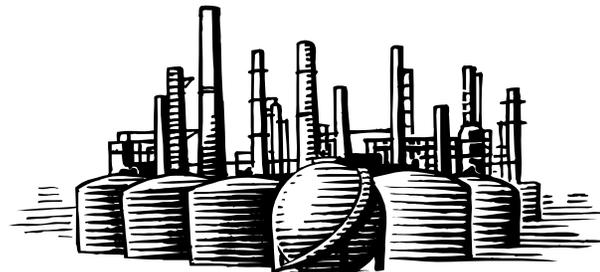
HTGRs are well suited for use in the broader energy sector



Canadian Tar Sands

(Process Heat & H₂)

103 Reactors



Refining / Petrochemical / Fertilizer

(Process Heat & H₂)

200+ Reactors



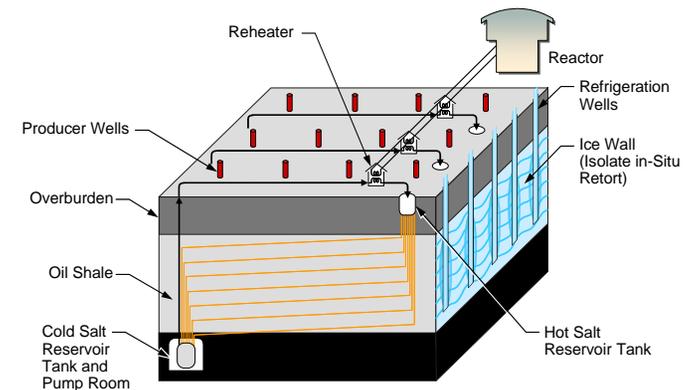
Sasol Secunda Plant

Coal to Liquids "CTL"

200+ Reactors

CTL Using Nuclear Energy

- Essentially eliminates all CO₂ emissions
- Could improve hydrocarbon utilization from ~30% to greater than 95% (with process optimization)



Oil Shale Recovery

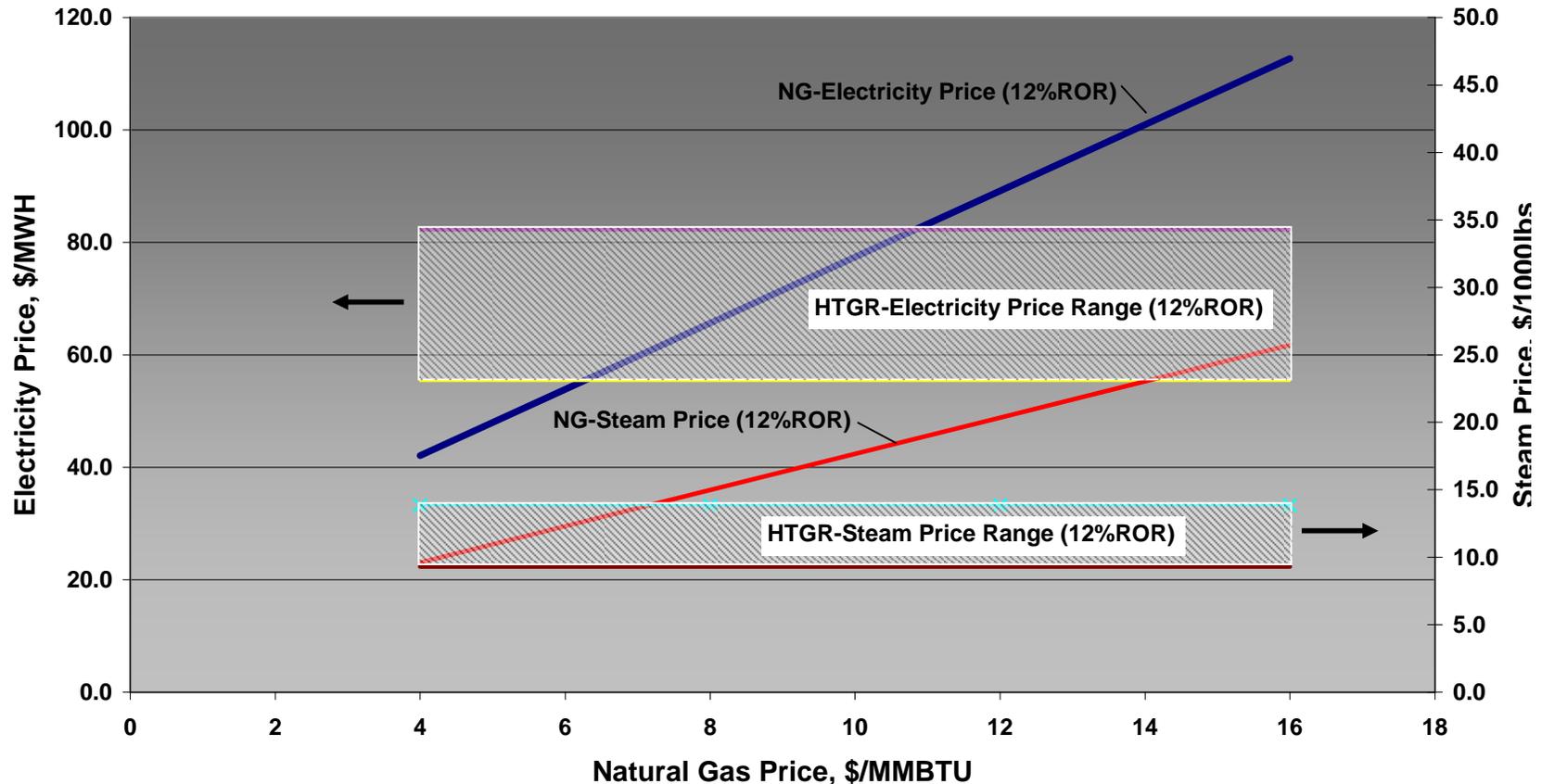
(Process Heat & H₂)

> 100 Reactors

Co-Generation Pricing Comparison

Typical Co-Generation Application Natural Gas versus High Temperature Gas Reactor Pricing as a function of NG Price

Natural Gas (\$1000/Kwe, equiv) , HTGR (\$2900 to \$4100/ Kwe, equiv)
Electric & Steam Conditions -- 400MWe, 1MIb/hr stm, 2400 psi, 1000F



Entergy Does Not Have a Crystal Ball

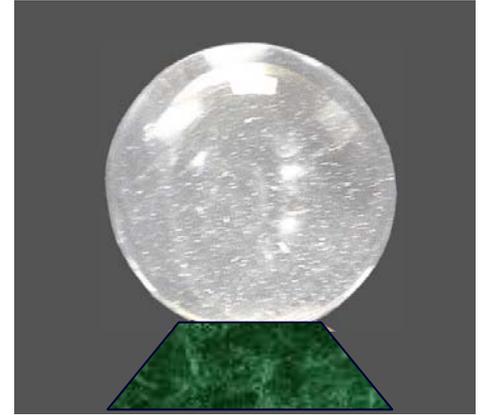
But we do know

World needs more energy

Finite supply of oil and gas

Stricter environmental regulations

America needs energy security/diversity



Future Of Nuclear Is Promising

Entergy – Pursuing Two “New Nuclear” Tracks

- Advanced Light Water Reactors (ALWRs) for Electricity
- High-Temperature Gas Reactors (HTGRs) for Process Heat & H₂

Thank You