



# Impact of 2005 Energy Policy Act An Independent Power Provider View

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# Who is Calpine?

- 90 power plants in 21 states
- 27,000 megawatts
- Largest cogenerator in United States
- NewSouth Energy LLC
  - 11 states in the Southeast
  - 6,000 megawatts operational



# History of Energy Bill

- Energy Bill – Decade in the making
- Early Issues – Stranded costs and starting dates
- Later Issues – Increasing supplies
- Controversial Issues - Competition

# Highlights - Reliability

- Establishes Electricity Reliability Organizations (EROs)
- FERC jurisdiction
- Stakeholder boards

# Highlights – Transmission Expansion

- FERC authority
  - Back-stop siting
  - Transmission jurisdiction over munis and co-ops
  - Establishment of incentive-based rates
- PMAs authorized to join RTOs
- Accelerated depreciation for transmission lines

## Highlights – Participant Funding

- Last in line, immediate beneficiary must pay
- Southeast utilities wanted federal mandate that FERC must approve participant funding
- Bill allows, but does not require approval

# Highlights – Native Load

- Load Serving Entities (LSEs)
  - Federal right to transmission access for Native Load (ownership or contract)
  - FERC must facilitate transmission planning to meet reasonable needs of LSEs
- Does not apply to RTOs / ISOs with FTR allocations approved by 1/1/05
- FERC has authority to review whether utility has over-reserved transmission

# Highlights – PUHCA Repeal & FERC Merger Review

- FERC authorized to approve:
  - Holding company mergers
  - Transfers of generation assets
  - Transactions involving assets of \$10 million and above subject to review
- FERC required to ensure transactions do not result in cross-subsidization





## Highlights – PURPA Reform

- Utilities not required to purchase power from QFs if they have access to
  - Non-discriminatory transmission and
  - Competitive wholesale markets
- Utilities not required to sell power to QFs if:
  - There are competitive retail suppliers willing and able to sell
  - Utilities not required to sell electricity in their service territory
- Existing Contracts not affected
- New cogeneration QFs required to meet stricter thermal standards

# Highlights – Market Manipulation

- New FERC rules on price transparency
- New FERC rules prohibiting manipulative / deceptive behavior
- Civil and criminal penalties increased

# Highlights – LNG Provisions

- FERC exclusive authority to site LNG facilities
  - States retain existing authority to review under Clean Air Act, Clean Water Act, etc.
- FERC promulgates rule on NEPA pre-filing process
- FERC must consult with appropriate state agencies on safety
- Codifies FERC policy on open access to LNG supply (Hackberry)

# Highlights – Natural Gas Supply Provisions

- Royalty relief from marginal property and deep wells
- Permitting process streamlined for development on federal lands and for oil refiners
- Assistance to oil / gas production states for coastal restoration
- Inventory of oil and gas reserves in Outer Continental Shelf
- Accelerated depreciation for gas gathering and distribution lines

# Highlights – Economic Dispatch

- Economic Dispatch – security constrained dispatch of all generation, regardless of ownership
- DOE must conduct study of benefits
- FERC must convene regional joint boards to report on reliability and affordability impacts

# Highlights – Clean Coal & Gasification Incentives

- Investment tax credit for clean coal generation
- R&D funding for clean coal technologies
- DOE grants for advanced coal projects
- Loan guarantees for at least 5 petcoke gasification projects
- DOE cost-sharing for clean energy projects
  - Ex: Gasification, coke production, oxidization combustion, etc.



# Highlights – Nuclear Energy

- Provides a Production Tax Credit
- Extends Price-Anderson Act liability protection
- Provides reimbursement of costs due to regulatory delays
- Provides DOE funding for R & D and Next-Generation plants



# Conclusion to Highlights

- 1700 page bill – many other provisions
- Regulations will be key
- **Favorable to neutral** impact on IPP sector



## New Generation for Next 15 Years

Over the next 15 years, gas turbine generation will continue to be the principal power plant technology deployed.



# New Generation for Next 15 Years

## Opportunities / Challenges:

- Gas turbine technology - Improvements in environmental and generation efficiency performance must continue
- IGCC technology – Must be developed and deployed effectively
- Natural gas and synthetic gas - Optimum mix must be found

# New Generation for Next 15 Years

## Opportunities / Challenges (con't.)

- “New nuclear” – A sound gameplan must be proven and effectively executed
- Generation efficiencies – Must optimize efficient use of NG

PORTIONS OF 2005 ENERGY POLICY ACT REFLECT  
THESE OPPORTUNITIES AND CHALLENGES



# New Generation for Next 15 Years

Some demand data:

- Over next 20 years, new generation needs in U.S.  
~400,000 MWs
- In last 10 years, ~140,000 MWs of gas power plants came on-line in U.S. (~ 165,000MWs Total)



# New Generation for Next 15 Years

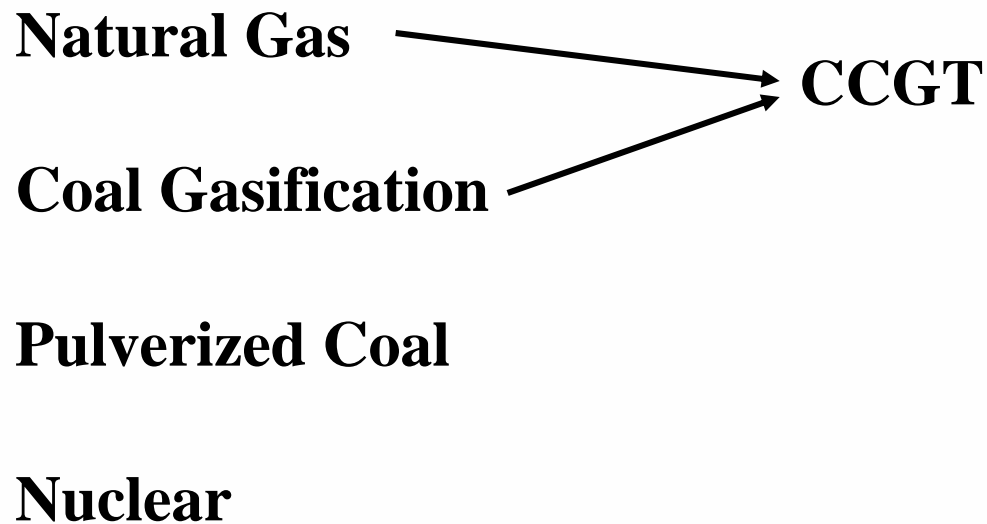
## Selected U.S. Power Generators

COMPANY	NET MW's			
	Total	COAL	CCGT	OTHER
Southern	41,497	22,781	7,366	11,349
AEP	40,042	28,334	2,379	9,329
TVA	33,252	17,407	0	15,845
FPL	31,990	1,002	12,028	18,960
Calpine	27,000	0	23,000	4,000
	<b>173,781</b>			



# New Generation for Next 15 Years

## The High Reliability / Capacity Technology Choices

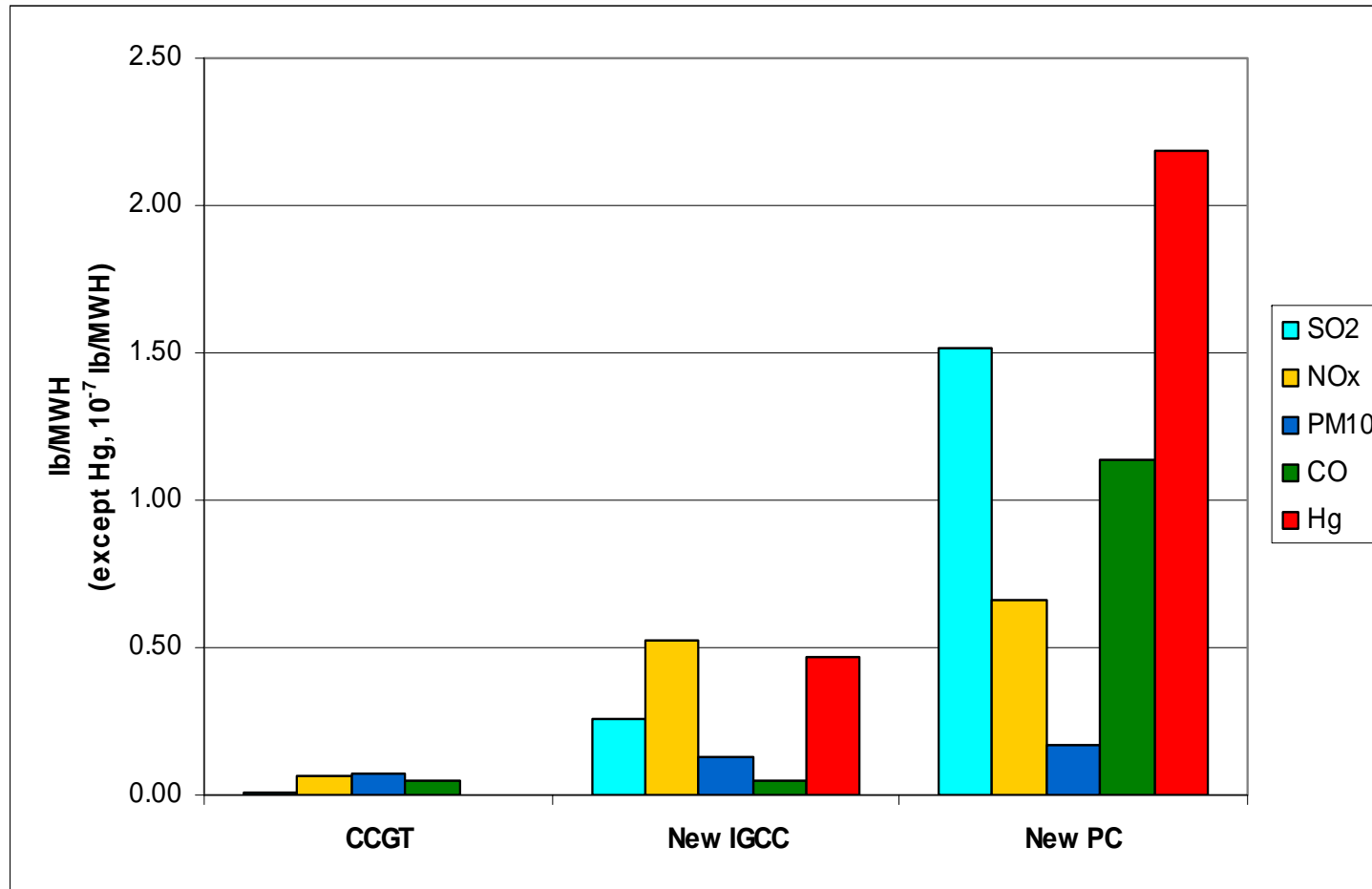


# New Generation for Next 15 Years

## New Build Economics

	NGCC	IGCC	PC
\$ / KW	440	1,550	1,290
HHV HR	7,200	8,700	8,690
Cap \$ / MWH	8.2	31.7	27.4
O&M \$ / MWH	3.5	9.1	8.9
Fuel \$ / MWH	43.2	14.0	14.0
Emissions \$ / MWH	0.1	1.5	2.9
Total \$ / MWH	55.0	56.3	53.2
Capacity \$ / KWMo	4.8	18.5	16.0



# Comparative Emissions Data





# New Generation for Next 15 Years

## Natural Gas Fuel Supply\*

- World NG consumption (20 years)
  - 84 tcf (1999) to 162 tcf (2020)
- World NG Reserves
  - Proven Reserves (2002) = 5,451 tcf
  - Undiscovered Reserves (2002) = 5,196 tcf
- Reserves-to-Production Ratio
  - Proven  **44 Years**
  - Proven and Undiscovered  **86 Years**

# New Generation for Next 15 Years

## Coal Fuel Supply\*

- World Coal consumption projected to grow from 4.7 billion tons (1999) to 6.8 billion tons (2020)
- World Recoverable Reserves
  - 1,089 billion tons
- Years to exhaust at current consumption - 230 years

# 2005 EPAct Highlights

- LNG Provisions
- Natural Gas Provisions
- Economic Dispatch
- Clean Coal and Gasification Incentives
- Nuclear