

A Solid Foundation, A Prosperous Future

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April 19, 2005

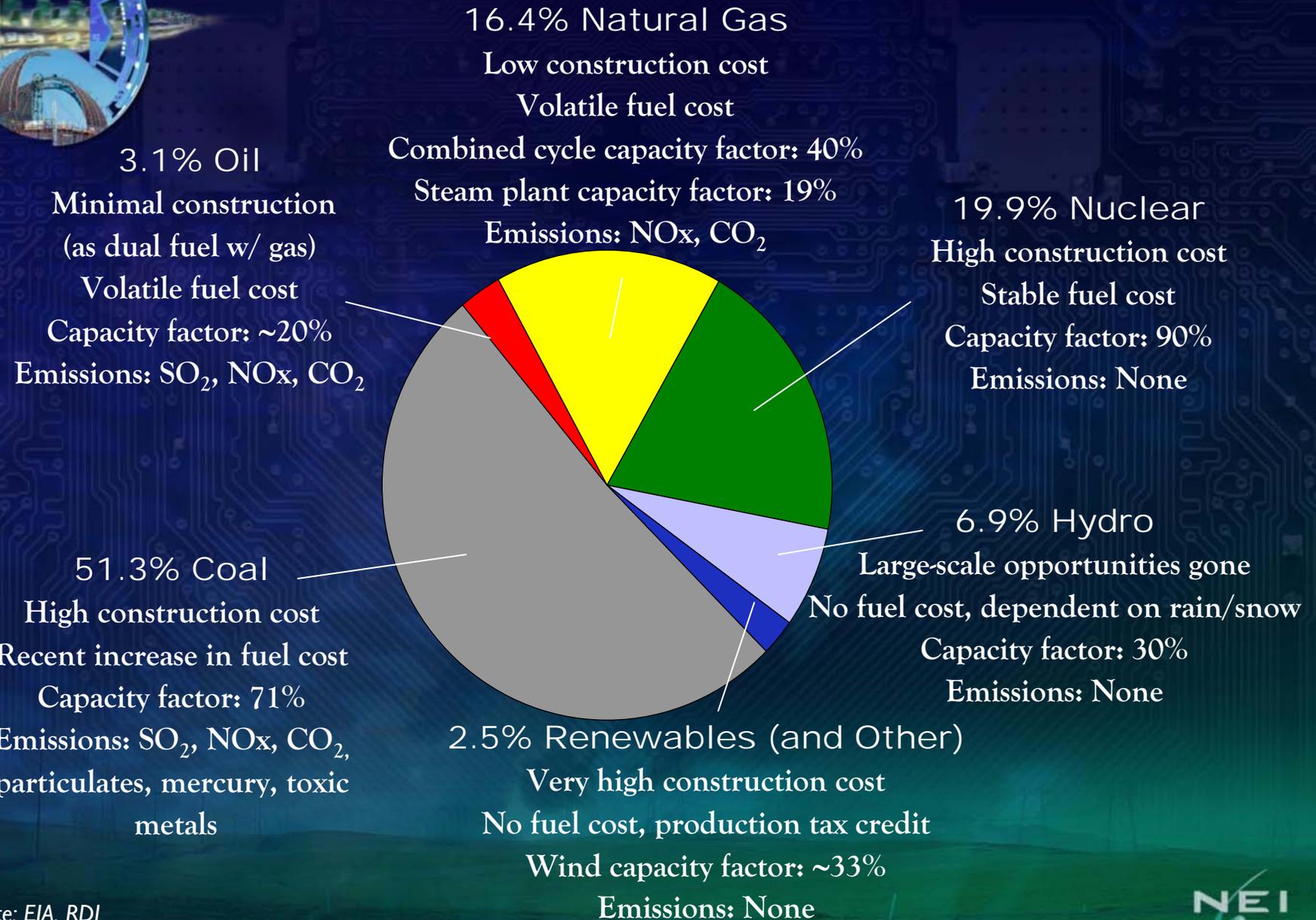
Today's Briefing

- ▶ Performance highlights
- ▶ Staying ahead of the issues
 - Used fuel
 - Nuclear plant security
 - Materials management
 - Outlook for new nuclear plant construction
- ▶ The year ahead: Perspective on policy and politics

Performance Highlights



Sources of U.S. Electricity (2003)



Source: EIA, RDI





Performance Highlights

Nuclear Holds 20% Market Share Even With 25% Growth In U.S. Electric Supply

1994

- ▶ U.S. electricity supply = 3.2 trillion kWh
- ▶ Nuclear production = 640 billion kWh (20% of total)

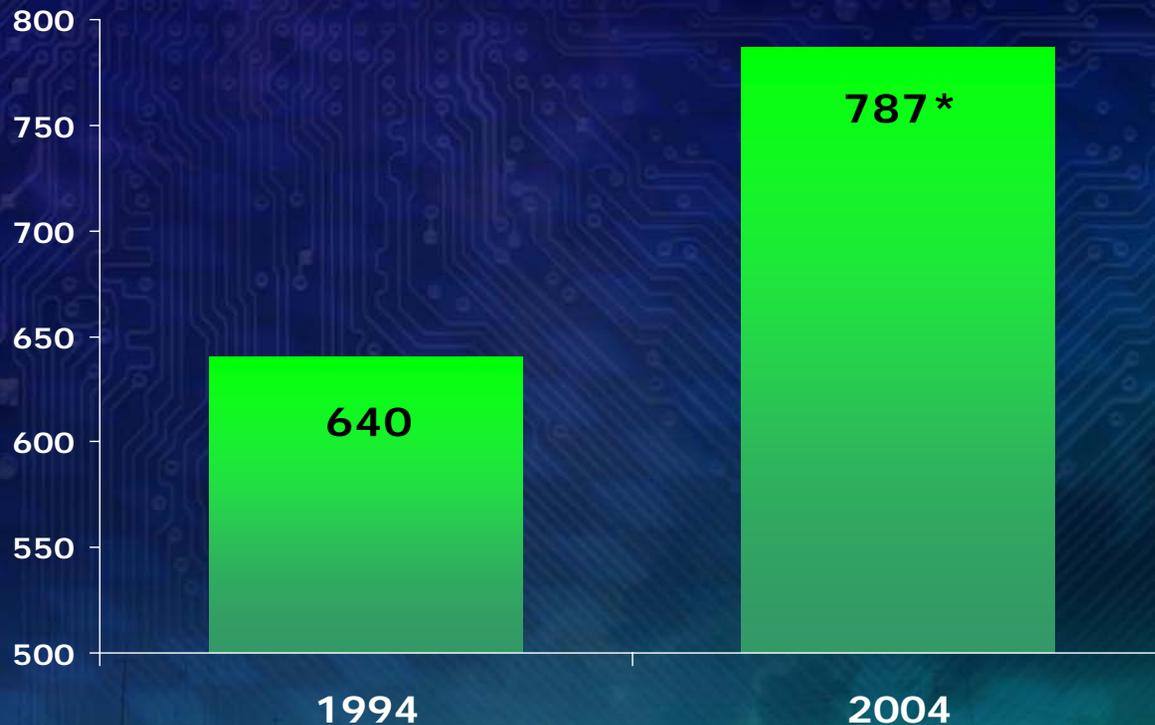
2004

- ▶ U.S. electricity supply = 4 trillion kWh
- ▶ Nuclear production = 787 billion kWh (20% of total)

Performance Highlights

Significant Increase in Output During the 1990s

U.S. Nuclear Plant Output (billion kWh)



Increase in nuclear plant output 1994-2004:

- ▶ equivalent to output from 18 1,000-MW plants operating at 90%
- ▶ satisfied 20% of growth in U.S. electricity demand

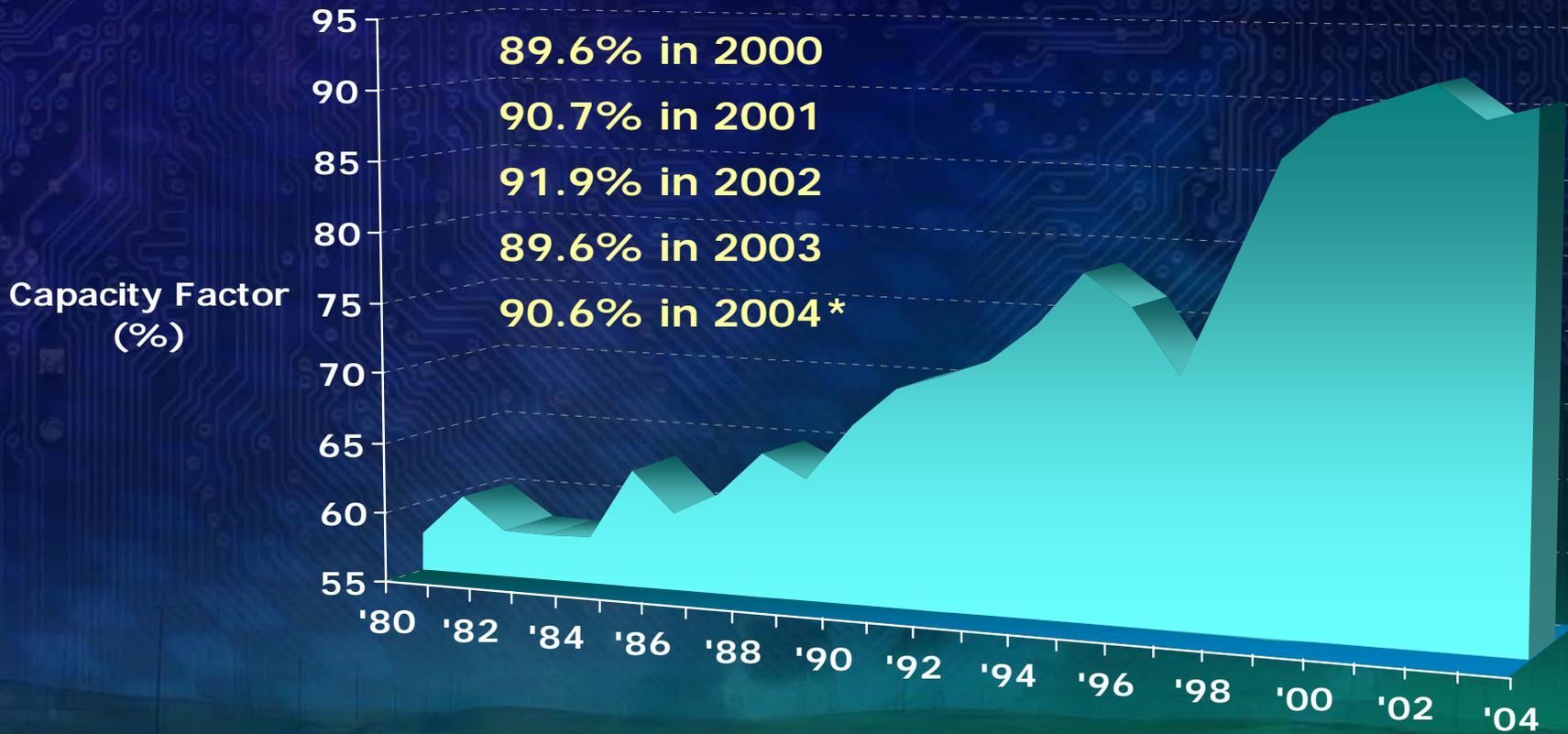
* NEI estimate for 2004

Source: Energy Information Administration



Performance Highlights

High Level of Industry Performance Continues

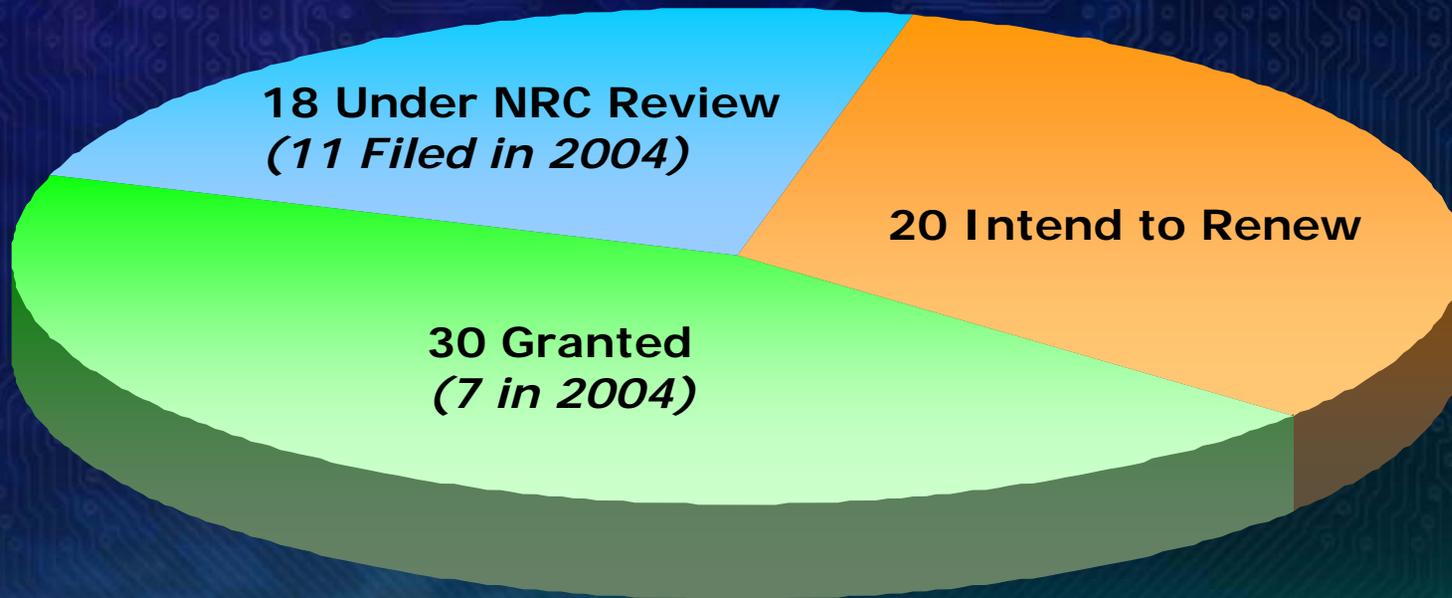


* Nuclear Energy Institute estimate



Performance Highlights

Continued Progress With License Renewal



Source: U.S. Nuclear Regulatory Commission



Performance Highlights

Steady Increases In Nuclear Capacity

- ▶ Power Uprates
 - Approx. 2,300 MW approved in last four years
 - Approx. 1,100 MW under NRC review
- ▶ Browns Ferry 1 Restart (2007)
 - \$1.8 billion project
 - One-half complete
 - On schedule, within budget



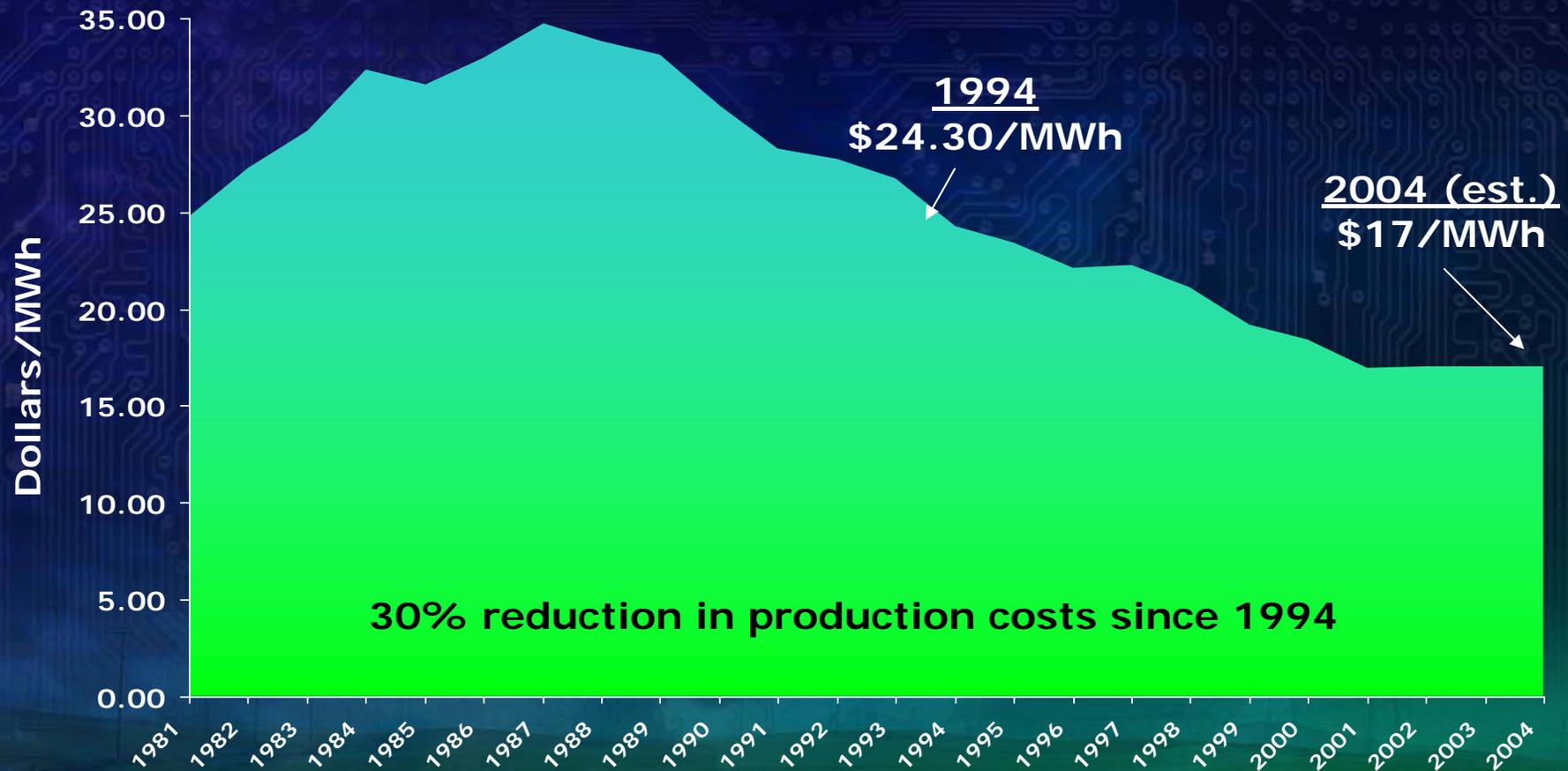
*Generator rewind project
at Browns Ferry Unit 1*



Performance Highlights

Steady Improvement In Economic Performance

U.S. Nuclear Plant Production Costs (O&M + Fuel)



Source: RDI



A circular inset image in the top left corner shows a large, metallic, dome-shaped structure, likely a nuclear reactor containment dome, with a complex internal structure visible. The background of the slide is a dark blue gradient with a subtle circuit board pattern.

Nuclear Energy Protects the Environment

- ▶ Plays a vital role in reducing air pollution
- ▶ Avoids massive amounts of emissions
- ▶ Is gaining greater recognition for its environmental benefits
- ▶ Can supply more of our world's energy while protecting our environment



One Example of Nuclear Energy's Contribution to Clean Air Attainment

- ▶ One closed nuclear power plant scheduled to restart before stricter clean air limits take effect.
- ▶ The Tennessee Valley Authority (TVA) is renovating Browns Ferry 1 in northern Alabama.
- ▶ Browns Ferry 1 will come back on line in 2007 and reduce regional emissions by 54,000 tons of SO₂ and 14,000 tons of NO_x per year.
- ▶ Alabama's assigned budget for SO₂ = 157,582 tons; for NO_x = 67,422 tons.
- ▶ The restart of Browns Ferry 1 will economically reduce emissions in the Tennessee Valley



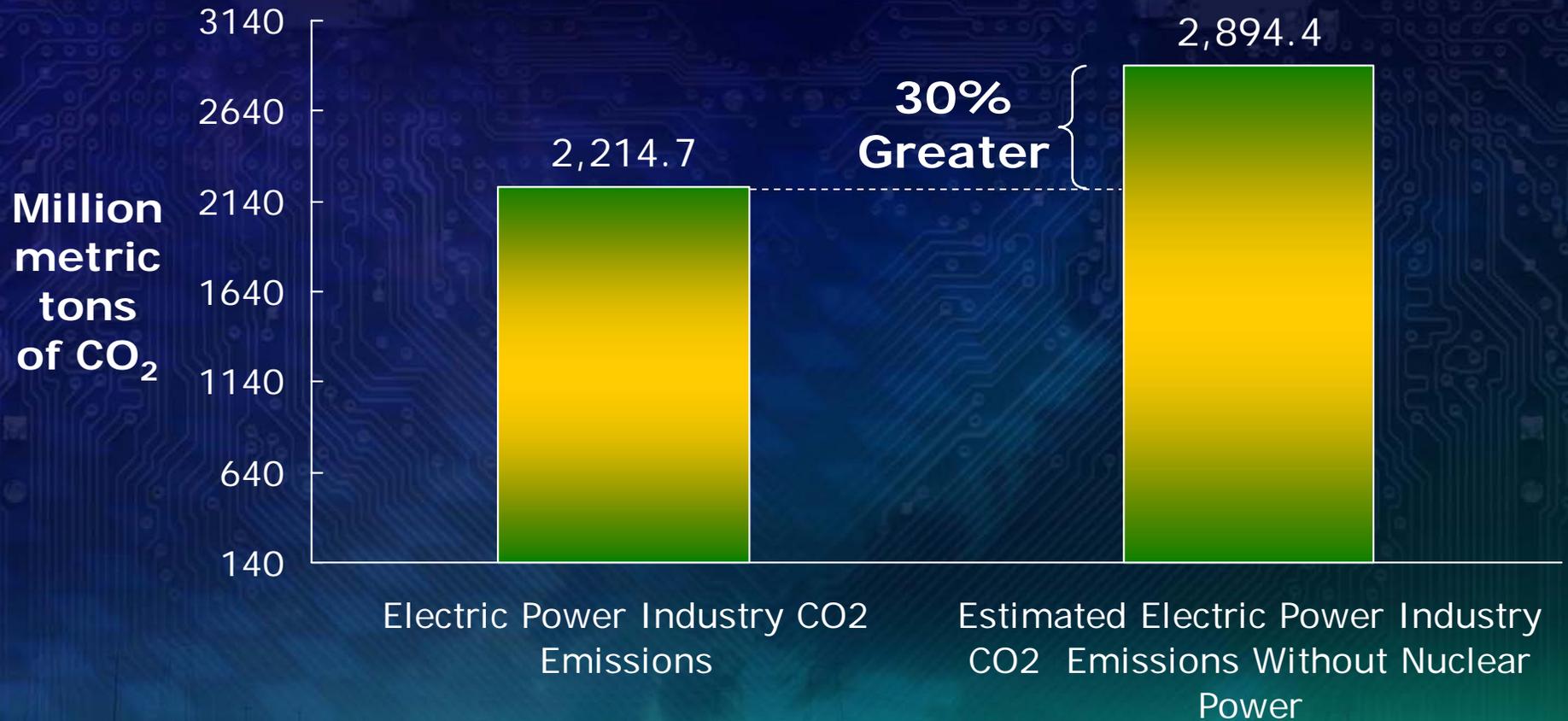
NO_x, SO₂, and CO₂ Emissions Avoided by U.S. Nuclear Power Plants

Year	SO ₂ (million short tons)	NO _x (million short tons)	CO ₂ (million metric tons)
2003	3.36	1.24	679.8
Emissions reduced at fossil generating plants 1990-2001 as a result of 1990 Clean Air Act amendments	5.1	1.97	CO ₂ emissions not regulated by Clean Air Act



Key Trends

Perspective on Nuclear Power and CO₂ Emissions

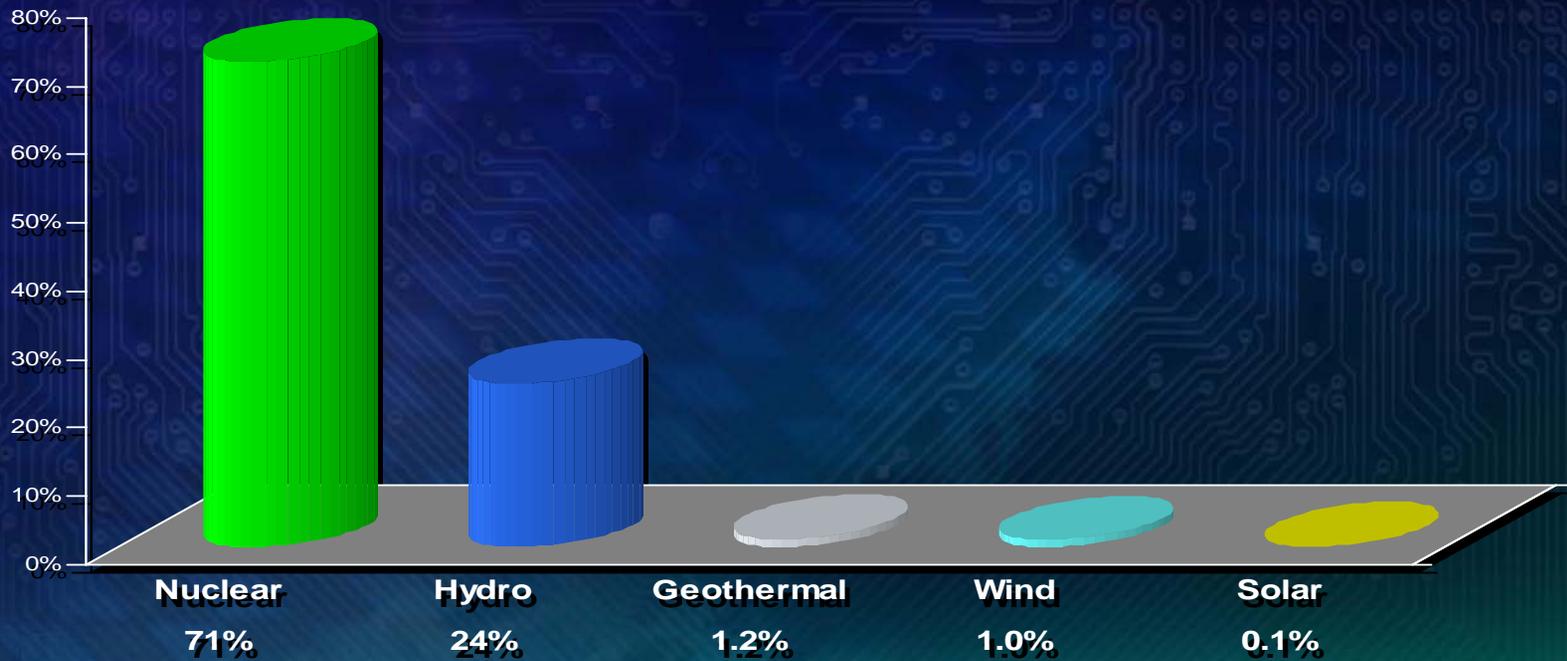


Emissions avoided by nuclear power are calculated using regional fossil fuel emissions rates from EPA CEMS data and individual plant generation data from EIA. Total Emissions are calculated from EPA CEMS data. Last updated 10/08/04



U.S. Emission-Free Electricity

(2003)



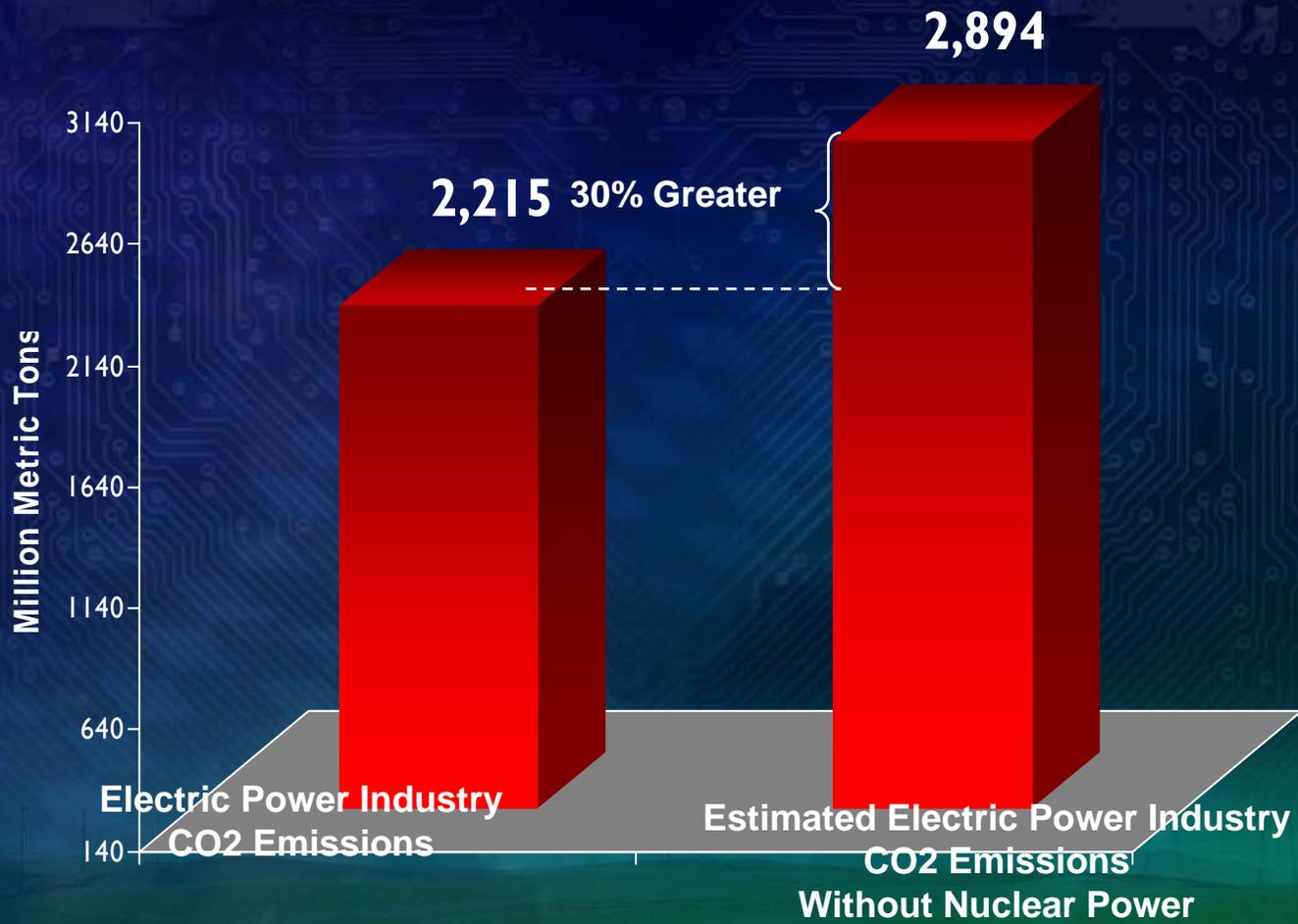
Source: U.S. Energy Information Administration





Nuclear Energy Limits Carbon Dioxide Emissions in Power Sector

(2003)

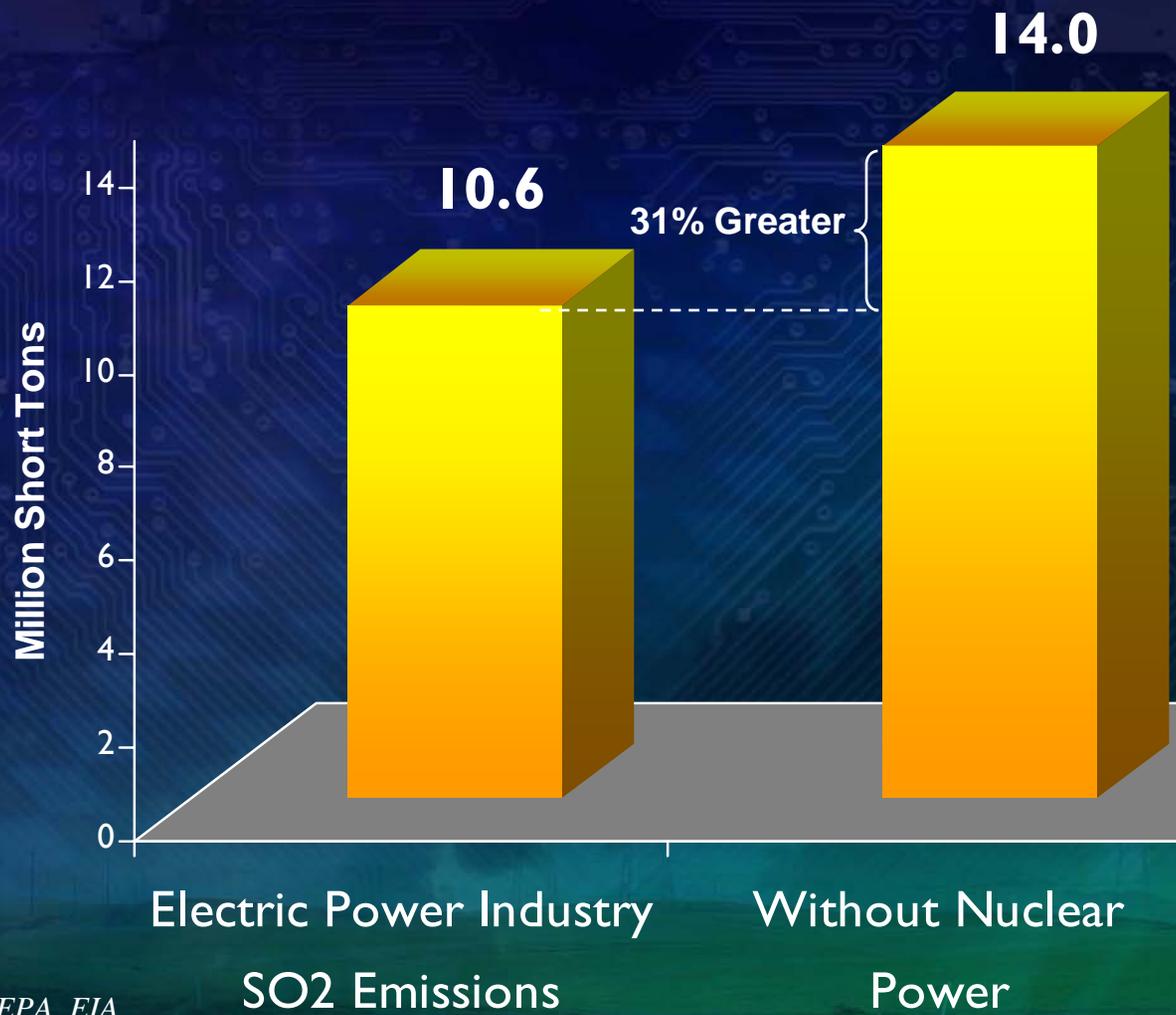


Sources: EPA, EIA



Nuclear Energy Limits Sulfur Dioxide Emissions in Power Sector

(2003)



Sources: EPA, EIA

SO₂ Emissions

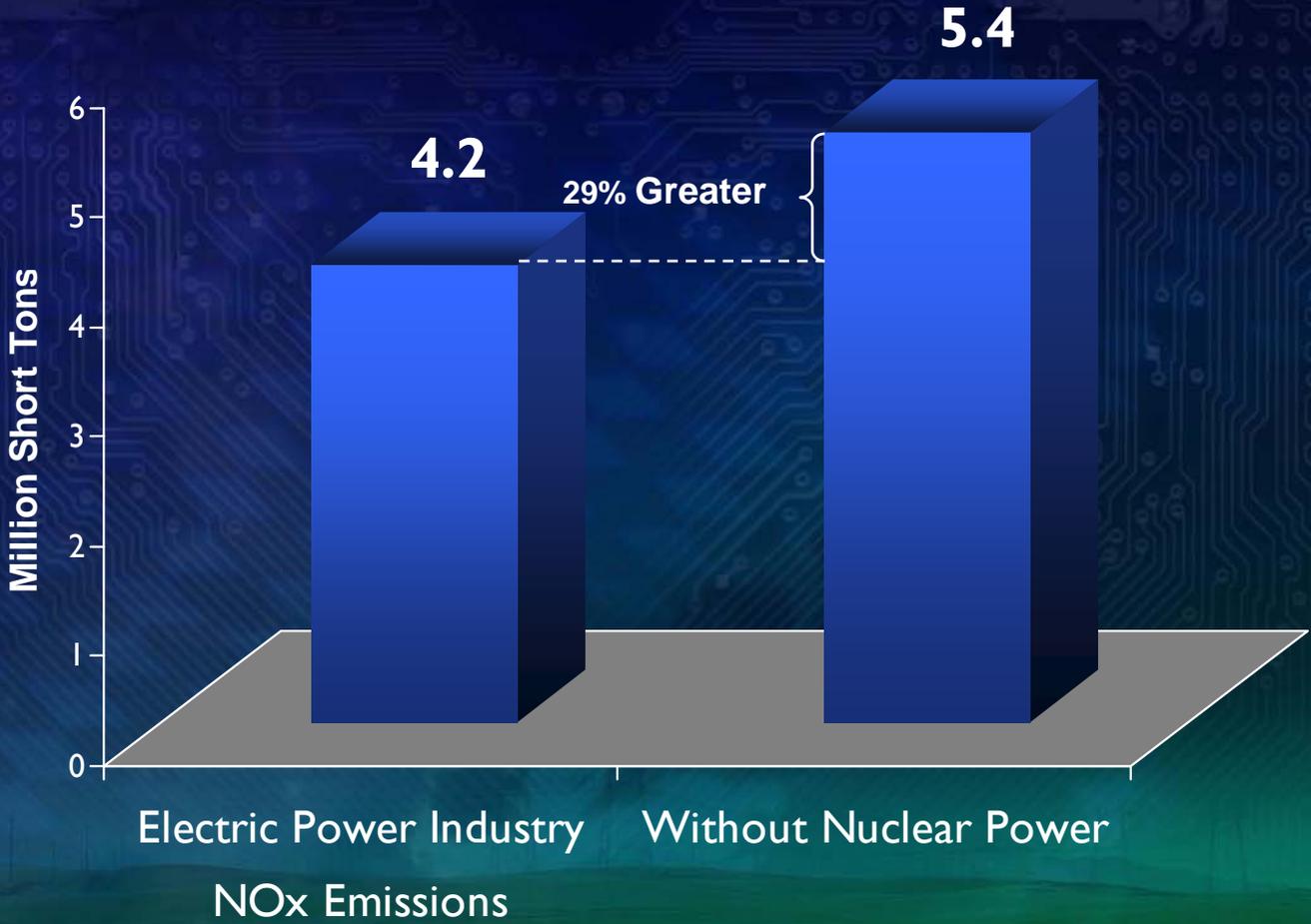
Power





Nuclear Energy Limits Nitrogen Oxide Emissions in Power Sector

(2003)



Sources: EPA, EIA

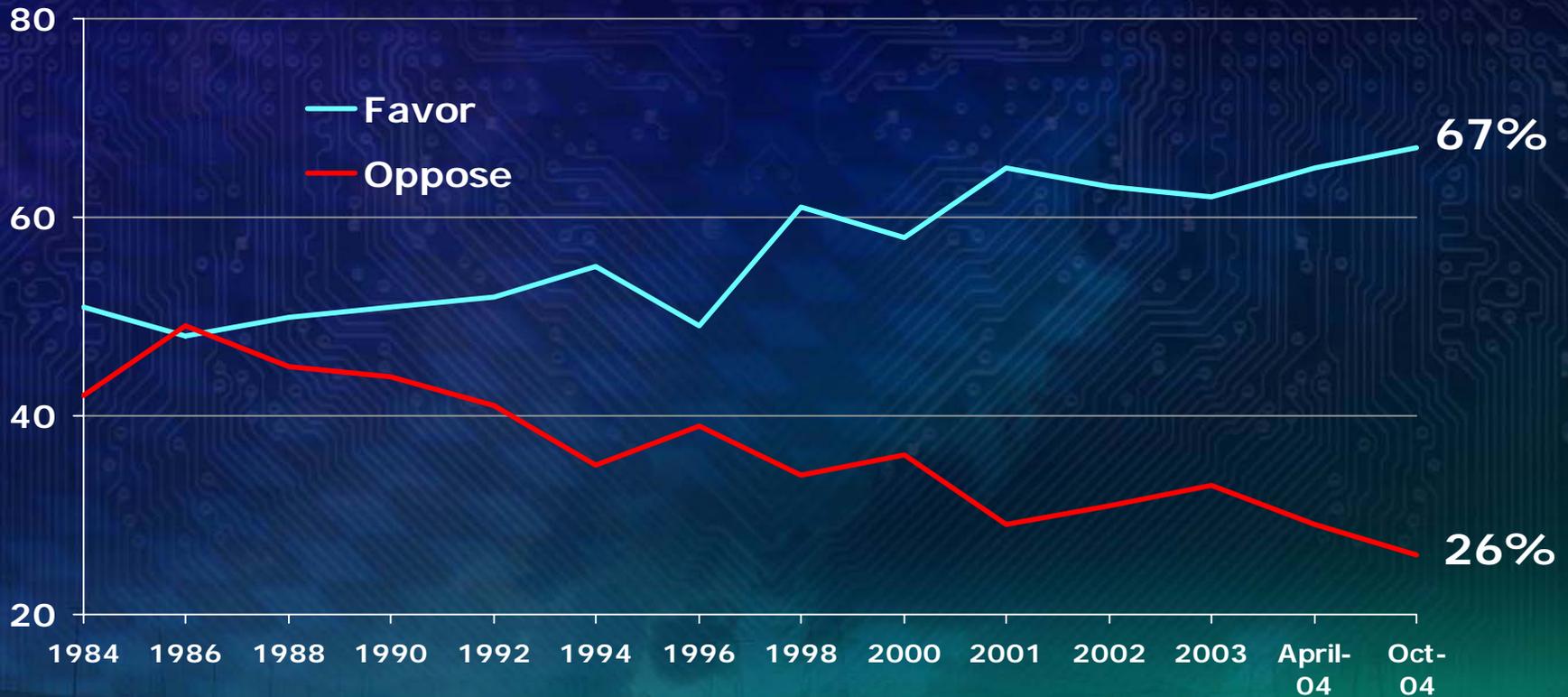




Performance Highlights

Steady Improvement In Public Opinion

Percent Who Favor Nuclear Energy (October 2004)



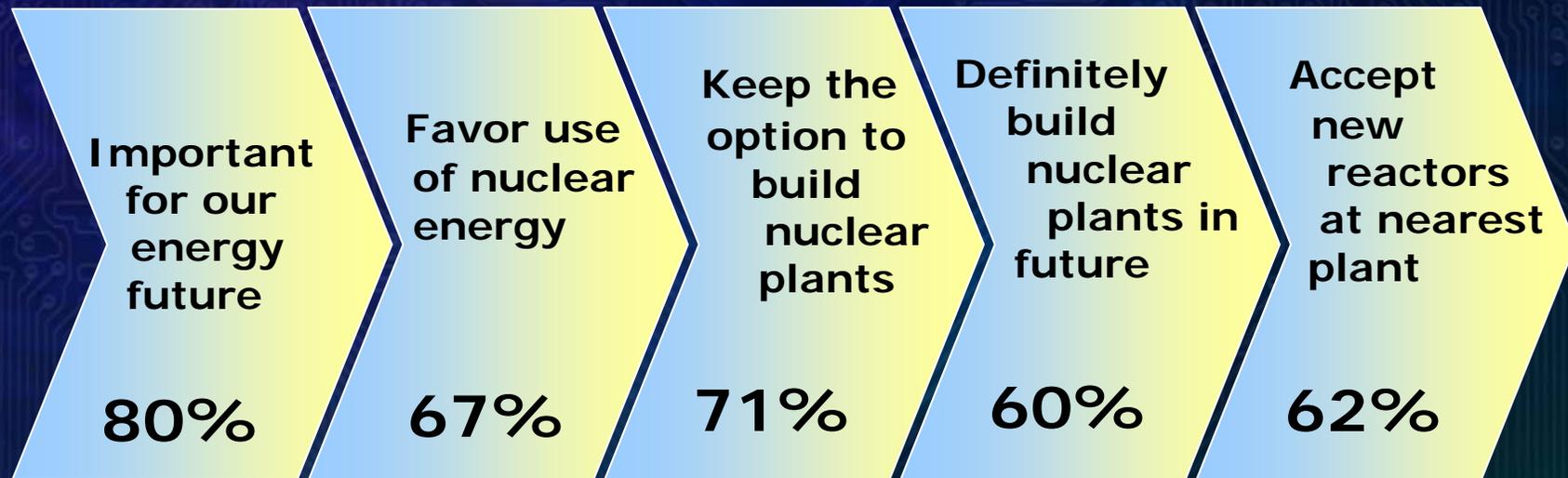
Source: Bisconti Research Inc./NOP World, October 2004, 1,000 national adults





Performance Highlights

Growing Public Support For More Nuclear Energy



Source: Biscanti Research Inc./NOP World, October 2004, 1,000 national adults

Staying Ahead of the Issues





Staying Ahead of the Issues

Yucca Mountain Project: Sustained Progress

- ▶ Adequate funding for 2005; strong support for funding reform
- ▶ U.S. Court of Appeals rejected 11 of 12 challenges in July 2004
- ▶ License application expected in 2005
- ▶ Public opinion research shows majority of Nevadans want constructive engagement:
 - 80% regard project as inevitable
 - 78% want state officials to seek benefits



Staying Ahead of the Issues

Nuclear Plants: A Model for Industrial Security

- ▶ Industry moved aggressively to meet post-9/11 environment:
 - \$1 billion investment since 9/11
 - Extended, strengthened security perimeters
 - Increased security forces by 60% to 8,000 officers
- ▶ Closely coordinated with DHS, NRC, other government agencies



New security tower at the Clinton nuclear plant



Staying Ahead of the Issues

What's Fueling the Interest In New Nuclear Power Plants?

- ▶ Emerging need for new baseload capacity
- ▶ Chronic volatility in natural gas prices, unsustainable pressure on gas supply from electric sector
- ▶ Environmental constraints on fossil-fueled generating capacity
- ▶ Fuel and technology diversity are essential to energy security



Staying Ahead of the Issues

Major Demonstration of Industry Commitment

- ▶ Dominion, Exelon, Entergy have applied for early site permits (issuance in 2006)
- ▶ Two consortia (NuStart Energy, Dominion) developing COL applications (including first-of-a-kind design and engineering)
 - Industry commitment in excess of \$625 million for design/engineering
 - COLs ready to file in 2008
- ▶ TVA: feasibility study at Bellefonte, jointly funded with DOE



Staying Ahead of the Issues

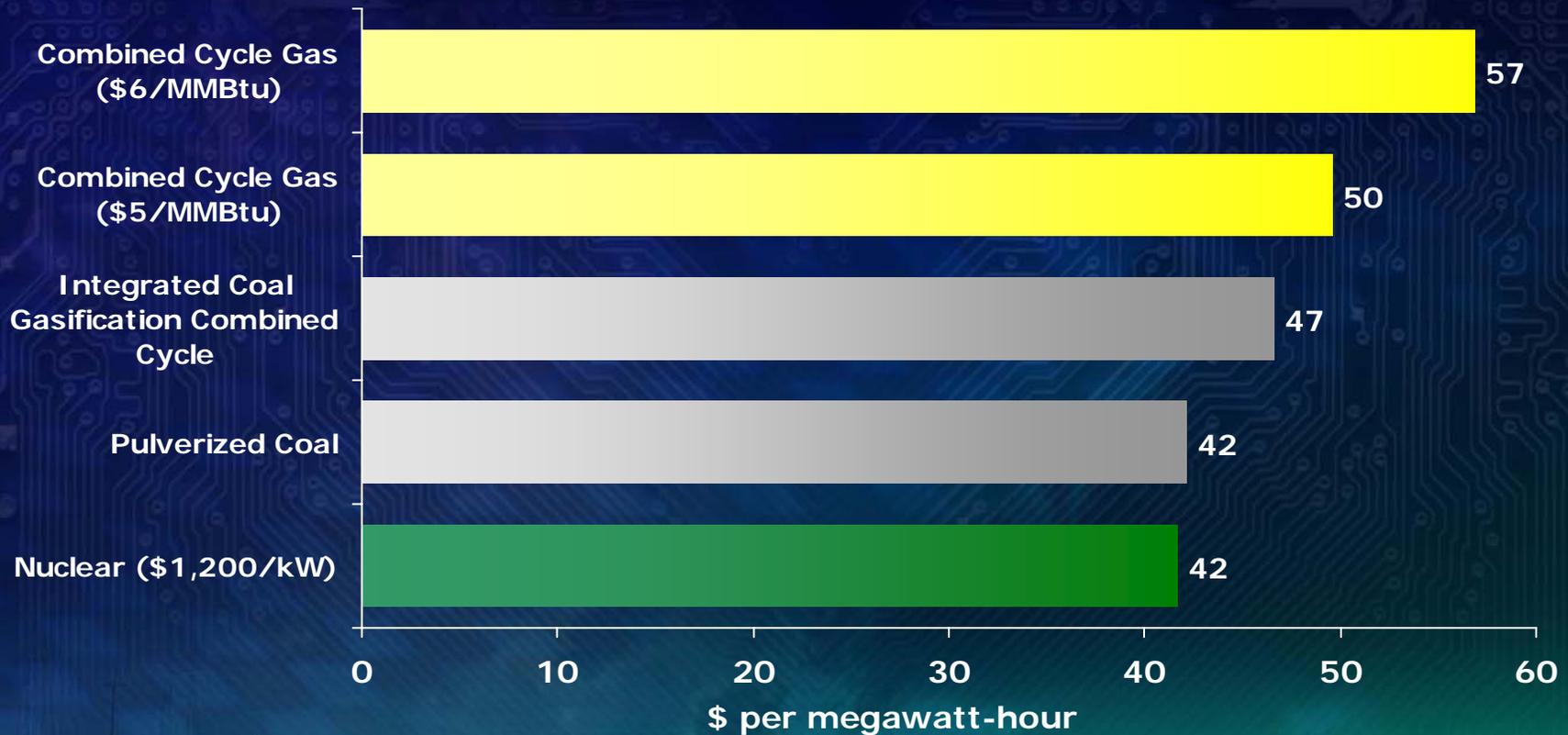
Financing New Nuclear Plants

- ▶ New nuclear plants can be financed with modest government investment in first few plants
 - Help offset first-time costs
 - Mitigate first-time business risks
- ▶ Specific combination of financing tools and techniques will vary, depending on project structure, regulatory status of the project



Staying Ahead of the Issues

New Generating Capacity: Estimated Power Costs



Estimates assume 12% cost of equity, 7% cost of debt and a 50/50 debt/equity capital structure.

Source: NEI analysis



The Year Ahead: Policy & Politics





The Year Ahead

Nuclear Industry Legislative Priorities

- ▶ Yucca Mountain project
- ▶ Increased funding for nuclear energy R&D, including engineering/design work
- ▶ Energy legislation:
 - Investment stimulus for new plant construction
 - Renewal of Price-Anderson third-party liability framework

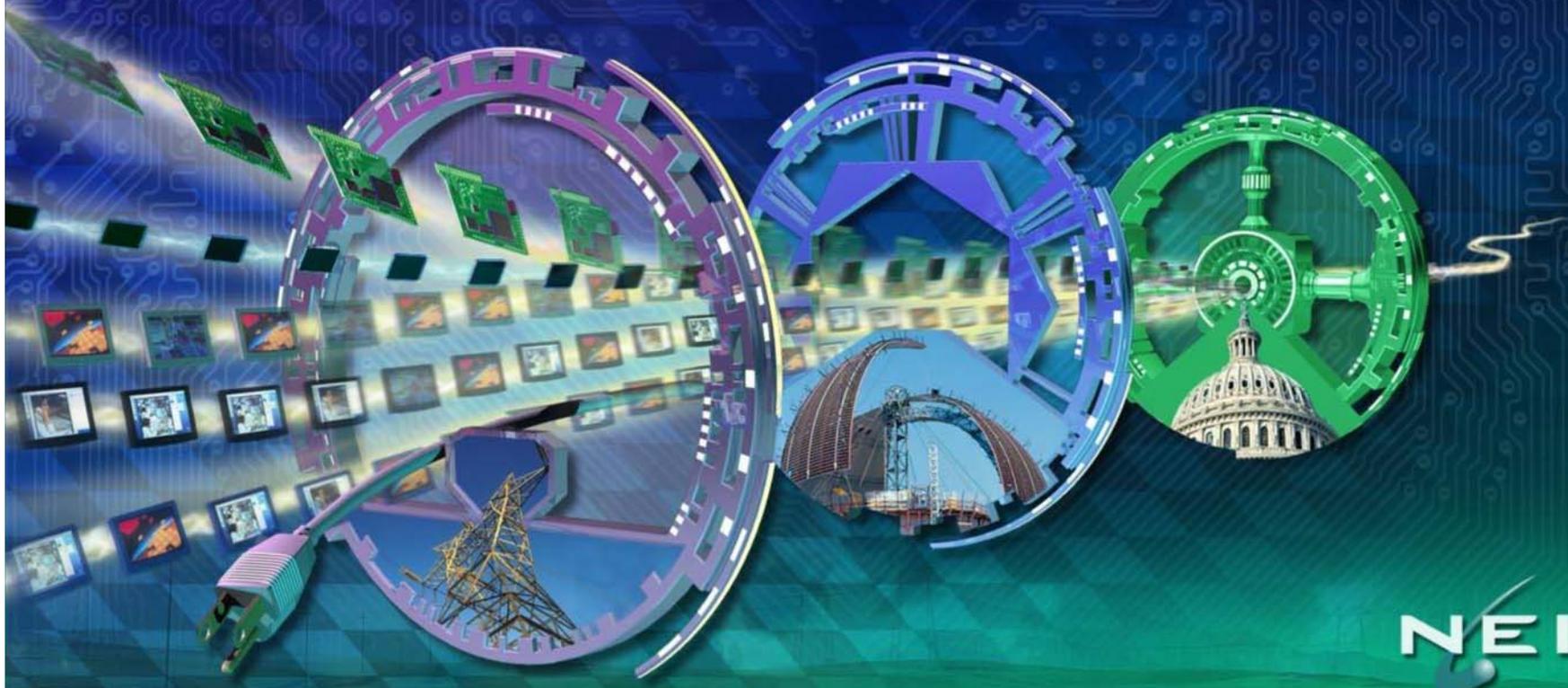


The Year Ahead

Used Fuel Management: Priorities

- ▶ Maintain Yucca Mountain project momentum, including 2005 filing of application for construction license
- ▶ Increase funding for Yucca Mountain project
- ▶ Change funding approach to allow full access to \$750-\$800 million collected each year
- ▶ Encourage constructive engagement by state of Nevada

A Solid Foundation, A Prosperous Future



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