

What the Energy Policy Act Of 2005 Does and Does Not Do for Distributed Generation ...and Why It Matters

Presented by

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Outline of Presentation

- What is Distributed Generation?
- What is Combined Heat and Power (CHP)?
- Why should energy policy makers care about DG/CHP?
- What did EPA Act 2005 include with regard to DG/CHP?
- What was left out?
- What should be done now? Three key elements of the necessary answer.



DE, DG, and CHP

Distributed Energy Resources

Distributed Generation

CHP

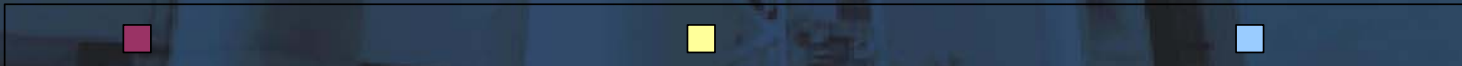
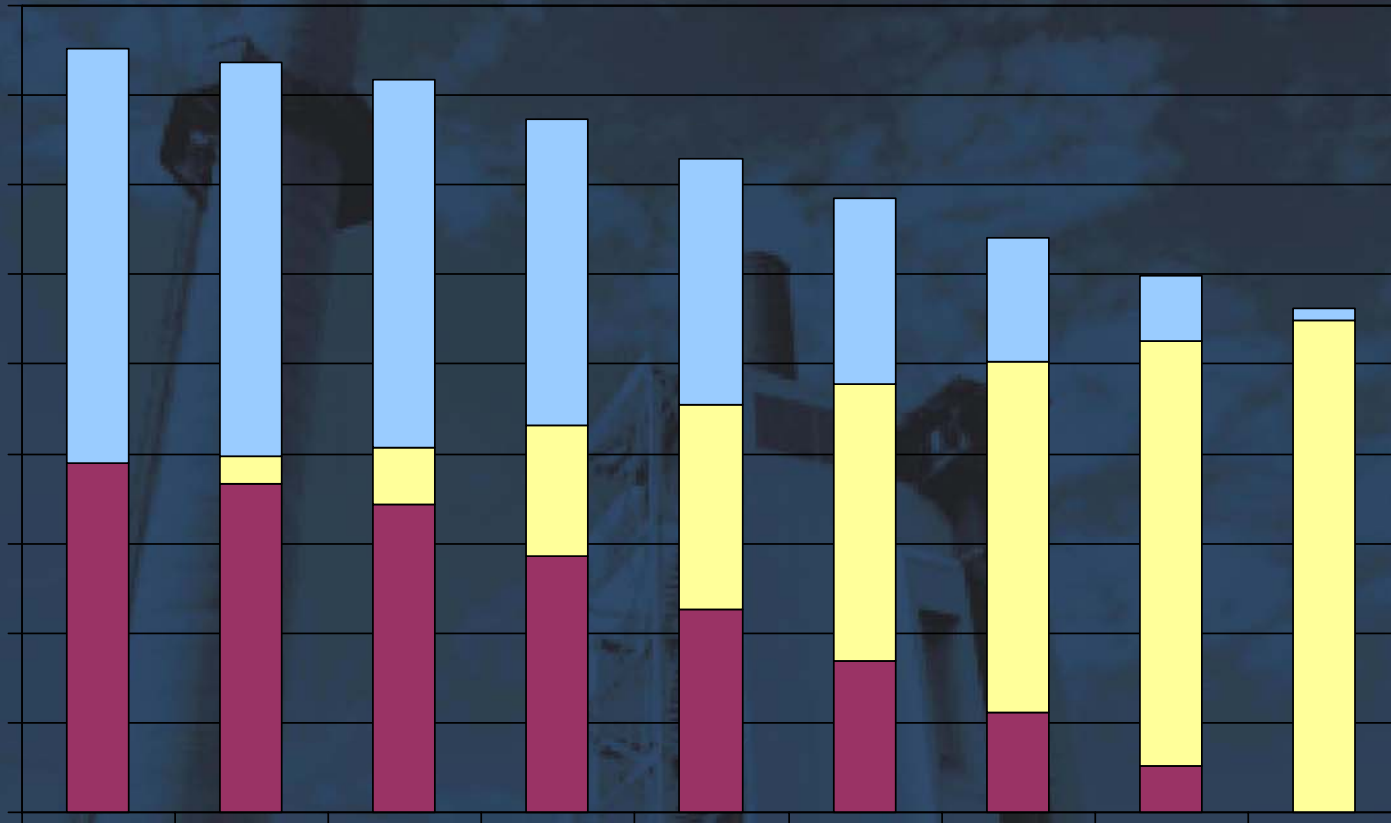


Why Care? What are the Benefits of Distributed Generation?

- 1. Improved power quality/reliability**
- 2. Improved energy cost predictability**
- 3. Reduced grid congestion (deferred T&D investment)**
- 4. Lower overall capital cost for power**
- 5. No ratepayer investment required (generation or T&D)**
- 6. Reduced system vulnerability**
- 8. Short lead-time, off-the-shelf, modular technology**
- 9. Eliminates line losses**
- 10. Reduces land-use impacts and NIMBY objections**
- 11. Creates new high-tech manufacturing sector, domestic and export**
- 12. Supports competitive electricity market structure**
- 13. Reduces fresh water use**



Capital Savings in 2020 from DG/CHP vs. Central Generation

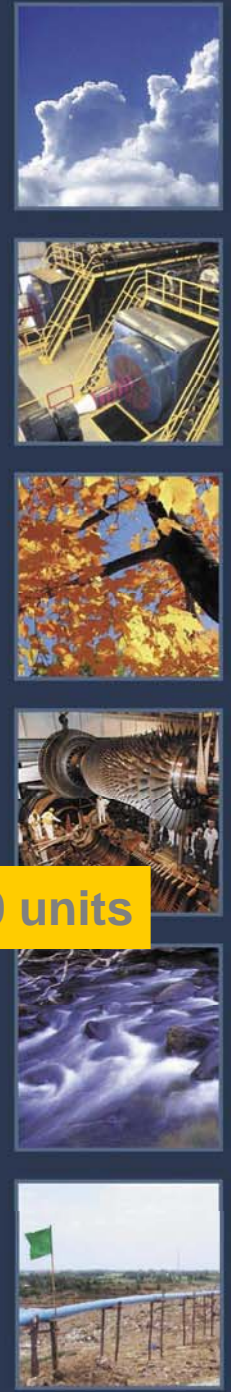
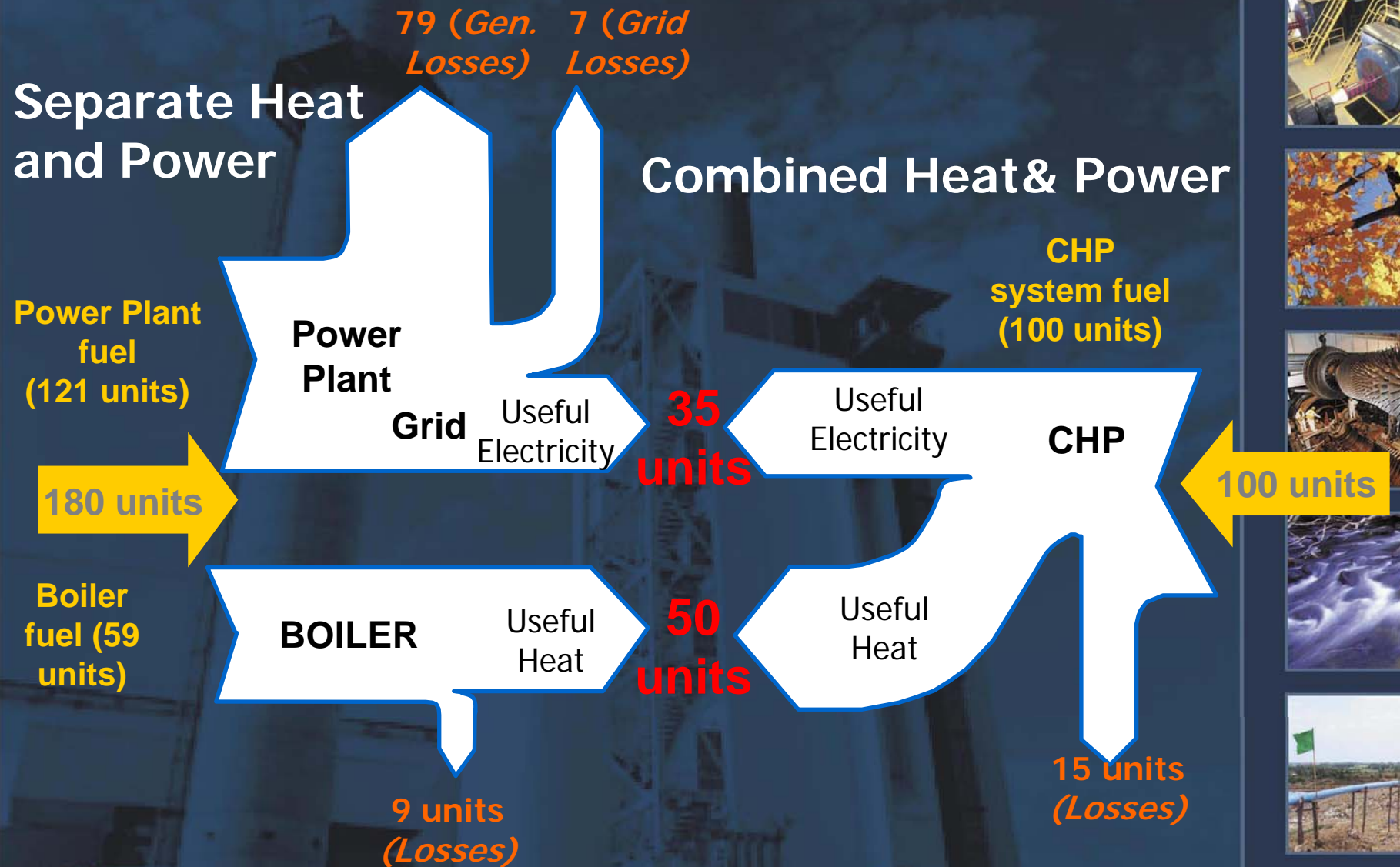


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CHP: the "Crown Jewel" of Distributed Generation



What are the Additional Benefits of CHP?

- 1. Improved fuel efficiency (fuel economy)**
- 2. Reduced emissions per unit of useful output**
- 3. Optimized use of scarce natural gas resources**
- 4. Improved power quality/reliability**
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But if you own the DG/CHP system...

- 1. Improved fuel efficiency (fuel economy)**
- 2. Reduced emissions per unit of useful output**
- 3. Optimized use of scarce natural gas resources**
- 4. Improved power quality/reliability**
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Only **THREE** of the Fifteen Benefits accrue to you...

1. **Improved fuel efficiency (fuel economy)**
2. Reduced emissions per unit of useful output
3. Optimized use of scarce natural gas resources
4. **Improved power quality/reliability**
5. **Improved energy cost predictability**
6. Reduced grid congestion (deferred T&D investment)
7. Lower overall capital cost for power
8. No ratepayer investment required (generation or T&D)
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The Others are **PUBLIC** Benefits...

1. Improved fuel efficiency (fuel economy)
2. Reduced emissions per unit of useful output
3. Optimized use of scarce natural gas resources
4. Improved power quality/reliability
5. Improved energy cost predictability
6. Reduced grid congestion (deferred T&D investment)
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Achieving these benefits is a worthy and necessary function of public policy

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The Roadmap Process

CHP Challenge Initiative Goal: The Path to 92 GW



What did EPAct 2005 do for Distributed Generation/CHP?

Potential indirect help In Titles I and II:

- DG/CHP *may* be included in eligible efficiency improvements, energy-efficient products for federal buildings in Title I(a).
- Support for state programs *may* include DG/CHP projects, technologies in Title I(b).
- DG/CHP technologies *may* be included among renewable technologies encouraged in Title II, especially landfill gas, biofuels, biomass.



What did EPAct 2005 do for Distributed Generation/CHP?

Authorizations of funding in Title IX:

- DG/CHP funding authorized at growing levels through FY 2009.
- Special new programs for high-power density facilities,, high-energy commercial installations, micro-cogeneration.
- New R&D on integrity of electric systems includes DG/CHP applications.



What did EPAct 2005 do for Distributed Generation/CHP?

Potential changes in role in electricity sector in Title XII:

- DG/CHP may be considered in FERC review of reliability in §1211.
- DG/CHP may be seen as offset to new transmission in designating new transmission corridors in §1221.
- DG clearly identified as “Advanced Transmission Technology” among those to be studied in §1223.
- Some DG/CHP technologies included (fuel cells, turbines, hybrid power systems) in Advanced Power System Technology Incentive payments of up to \$180,000 for first 10 million kWh, up to \$70,000 per year.



What did EPAct 2005 do for Distributed Generation/CHP?

Changes in PURPA in Title XII:

- Qualifying Facility (QF) cogenerators (CHP) maintain purchase and sale rights in non-competitive power markets; no rights in competitive markets in §1253.
- New tougher standards for new Qualifying Facilities, to be adopted by FERC by rule; existing QFs grandfathered in §1253.
- Utilities can now own QFs in §1253.
- New mandates for states to consider state-of-the-art interconnection, net metering, fuel source, and fossil fuel generation efficiency standards in §§1251, 1254.



What did EPAct 2005 do for Distributed Generation/CHP?

POSSIBLE help from tax incentives:

- Potential for DG/CHP installations to take advantage of landfill gas tax credit in §1301.
- Potential for DG/CHP to obtain tax incentives in Energy Efficient Commercial Building program in §1331.
- Potential for DG/CHP to obtain tax incentives in Construction of New Energy Efficient Homes in §1332.
- May obtain tax incentives from residential fuel cells in §1335.
- May obtain tax incentives in business installation of



What did EPAct 2005 do for Distributed Generation/CHP?

Other potentially helpful provisions:

- May obtain National Priority Project medals for high efficiency using fuel cells, biomass under §1405.
- CHP may be recognized as significant greenhouse-gas reducing technology under §§1610, 1611.
- May seek 80% loan guarantees from DOE as projects reducing greenhouse gases using new technologies not already commercially available under §§1702-1703.
- Mandated study of benefits of DG to the grid may result in new awareness in rate cases, regulatory decisions under §1817.



What did EPAct 2005 NOT do for Distributed Generation/CHP?

- No CHP Tax Credit after both houses of Congress passed one in both 107th and 108th Congresses.
- No Clean Energy Portfolio Standard (and unclear whether would have included energy-efficient DG/CHP).
- No recognition of special difficulties of capital investment in energy efficiency by non-profit or public institutions.
- Merely a study, not a mandate, that grid operators dispatch most efficient electric generators.



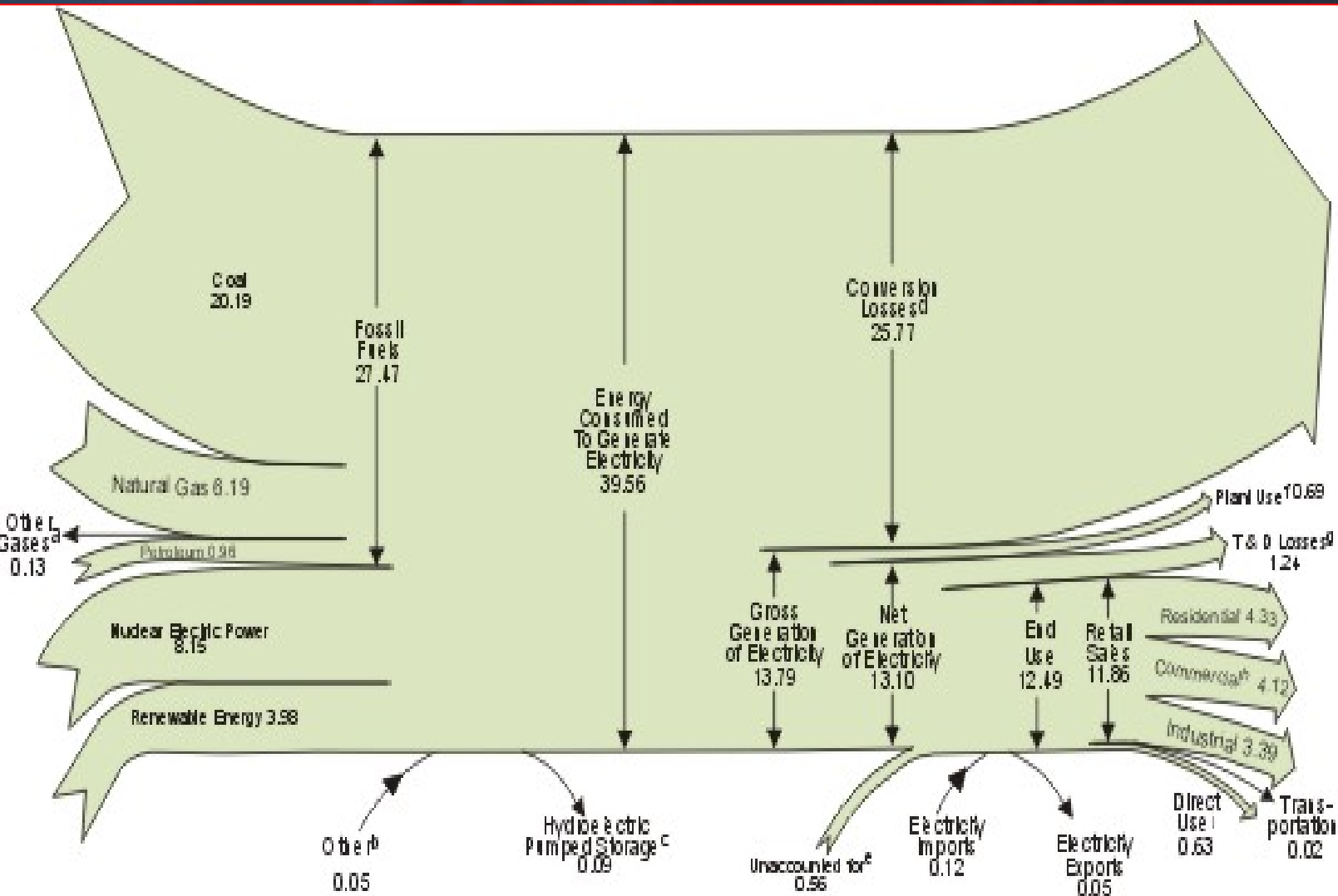
What should Congress do now?

- Adopt a CHP Tax Credit to assure efficient new investment.
- Include pro-CHP/DG provisions in any post-Kartrina energy bill (recognizing special energy reliability/security values of DG/CHP).
- Assure actual appropriations to match EAct and other CHP/DG authorizations despite federal budget crunch.
- Adopt Clean Energy Portfolio Standard specifically including CHP and recovery of waste energy.
- Incorporate output-based emission standards into clean air enactments to reward, not penalize energy efficiency.
- Help assure that utilities and utility rates discard their current hostility toward energy efficiency as



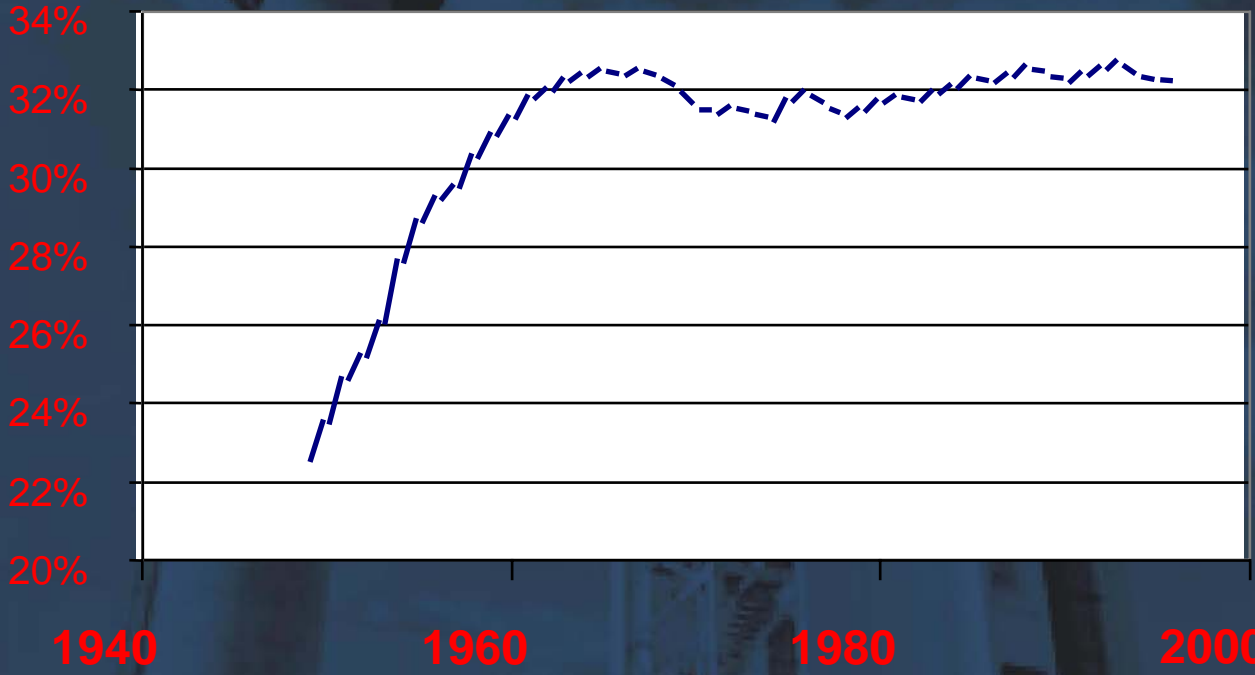
Our Inefficient Electricity System

(2002 Annual Data – Energy Information Administration)



The Need For CHP in the USA

Stagnant Efficiency of U.S. Electric System



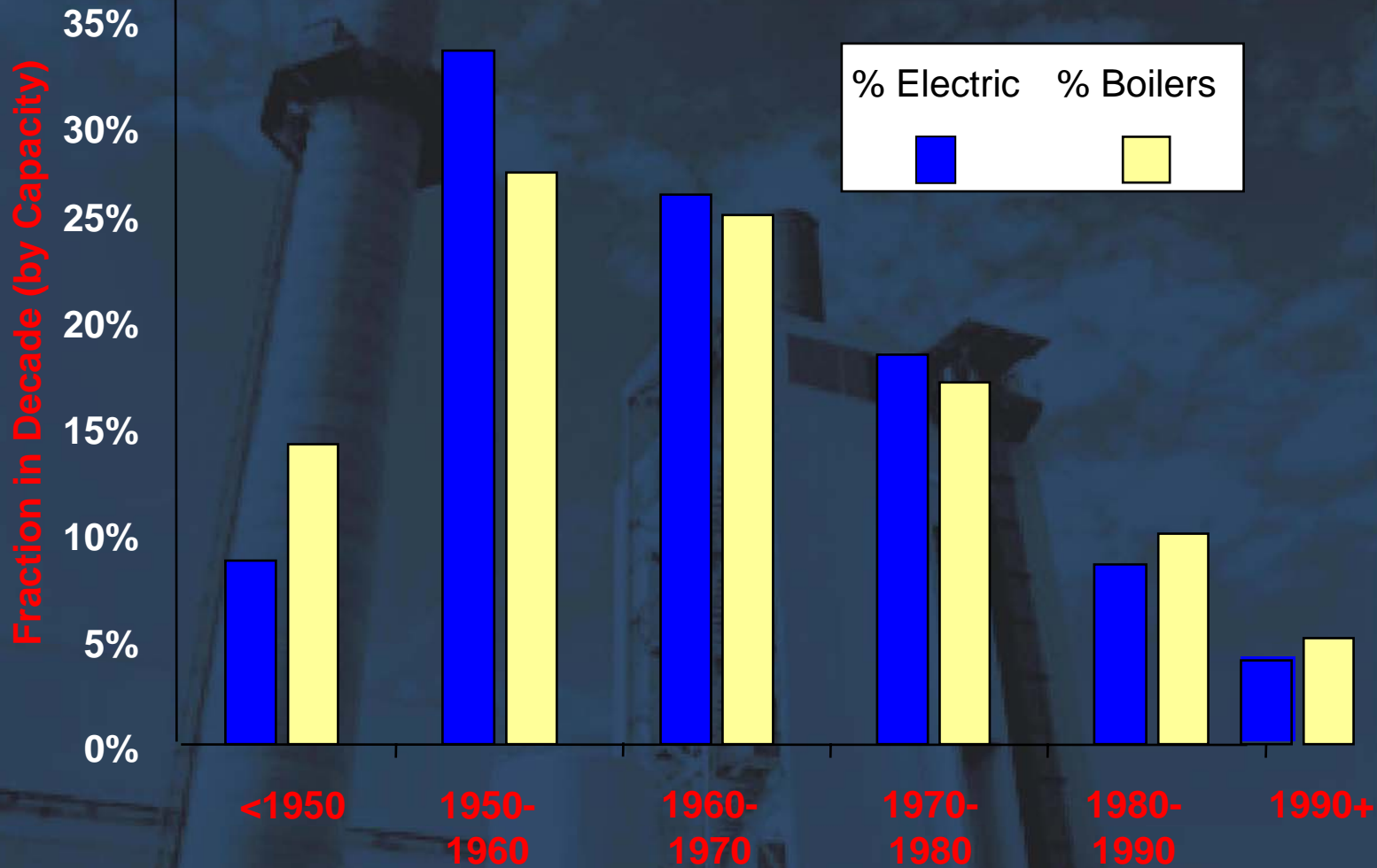
Fossil Electric Generation Efficiency (at plant, W/O T&D)

Source: EIA, Annual Energy Review 1996



Aging Heat & Power Generation

Boilers and Electric Plant Vintage



Sources: Energy Information Administration, Gas Research Institute



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