



UNITED STATES COMBINED
HEAT & POWER ASSOCIATION

Higher Energy Prices and CHP/Clean DG Deployment

Presented by

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to

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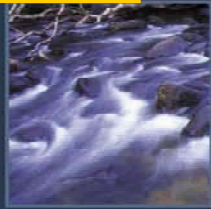
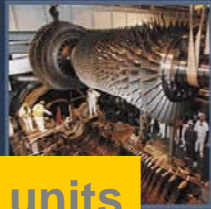
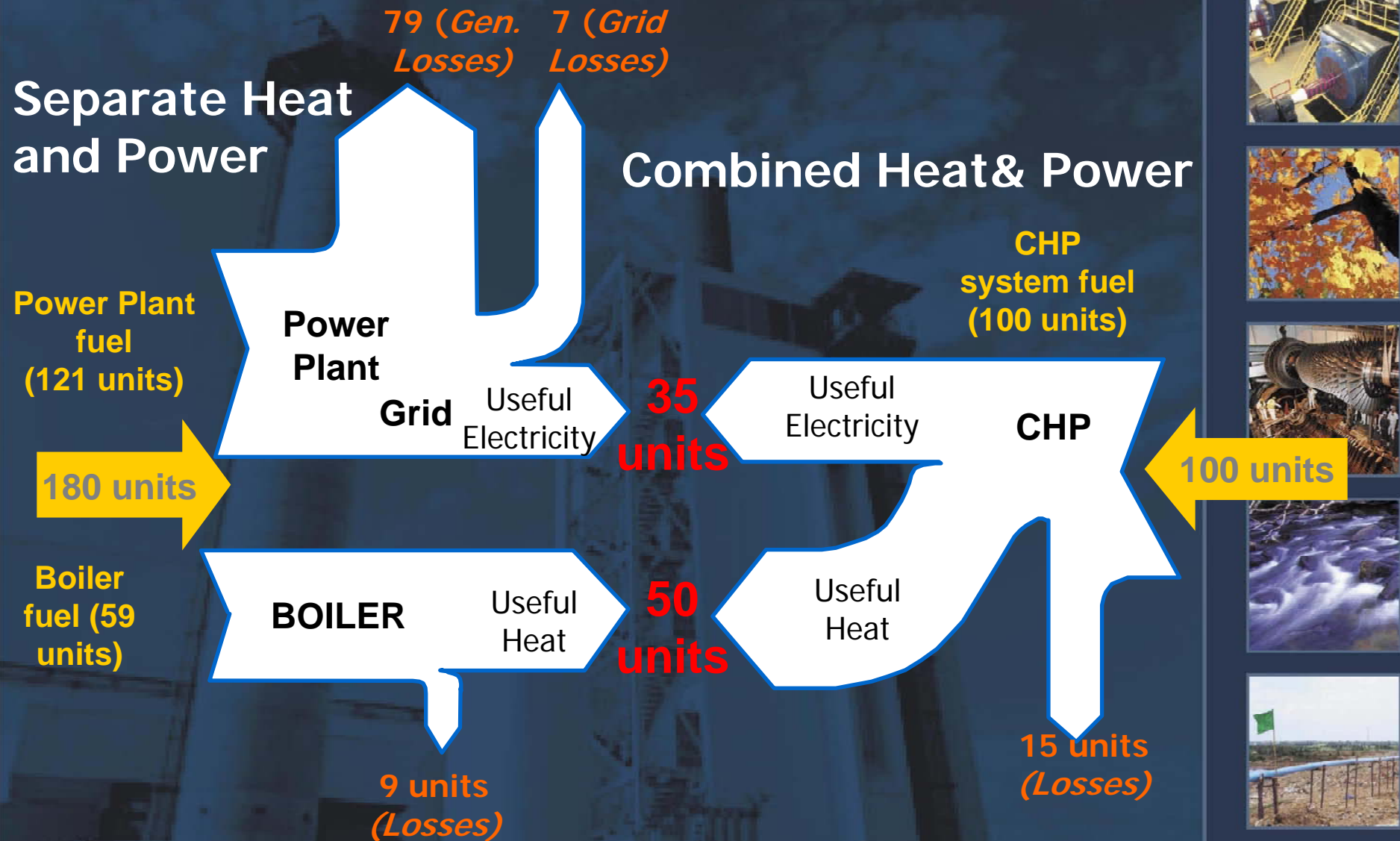


Thirteen Benefits of CHP/DG

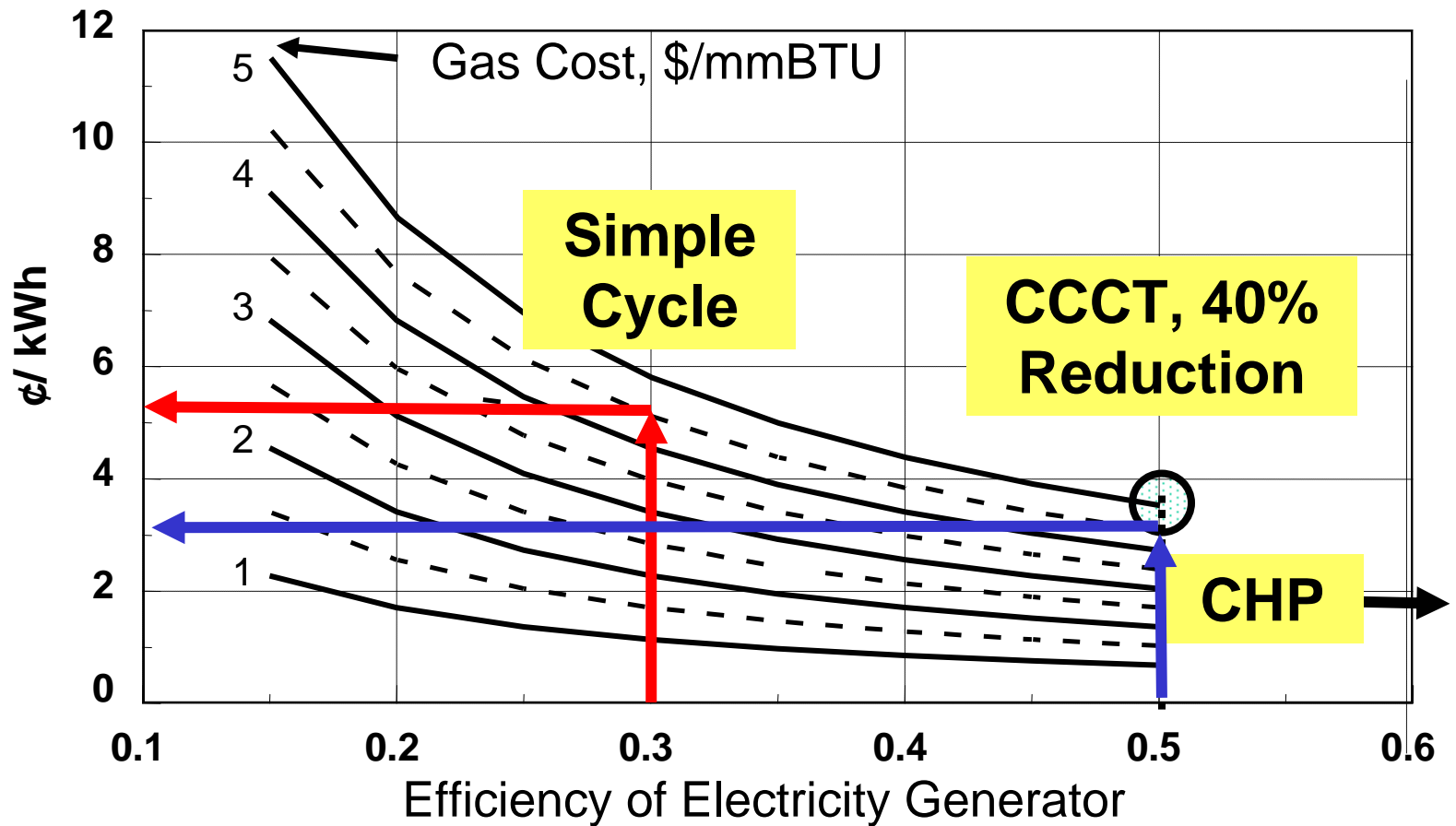
1. Improved fuel efficiency (fuel economy)
2. Improved power quality/reliability
3. Improved energy cost predictability
4. Reduced emissions per unit of useful output
5. Reduced grid congestion (deferred T&D investment)
6. No Ratepayer Investment Required (generation or T&D)
7. Reduced system vulnerability
8. Short lead-time, off-the-shelf, modular technology
9. Reduced land-use impacts
10. Eliminates line losses
11. Optimizes scarce natural gas resources
12. Creates new high-tech manufacturing sector of the economy, with major international promise
13. Supports competitive electric industry market structure



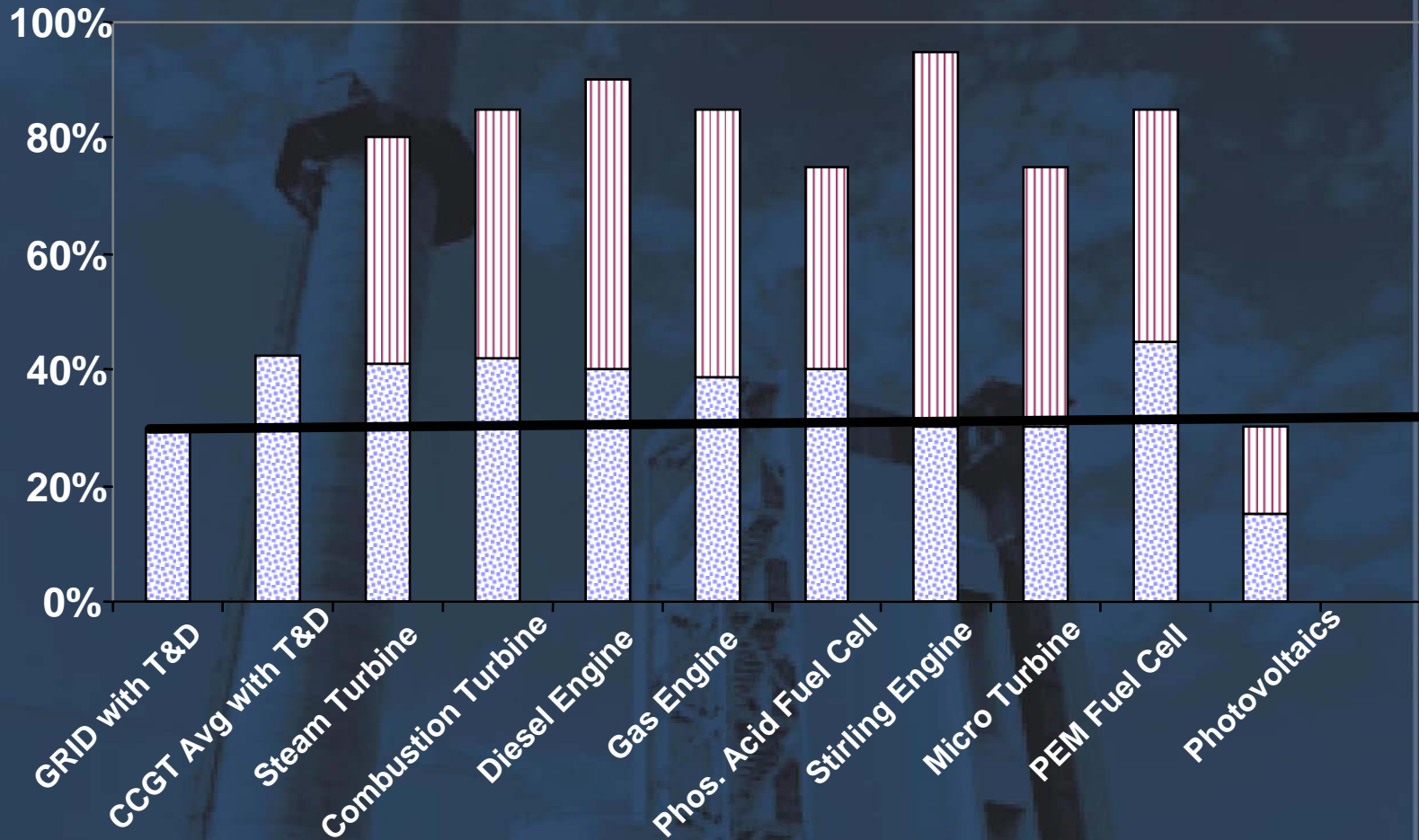
CHP: the "Crown Jewel" of Distributed Generation



High Efficiency CHP Conserves Natural Gas, Reduces Price Volatility



CHP Efficiency Cuts Emissions



CHP

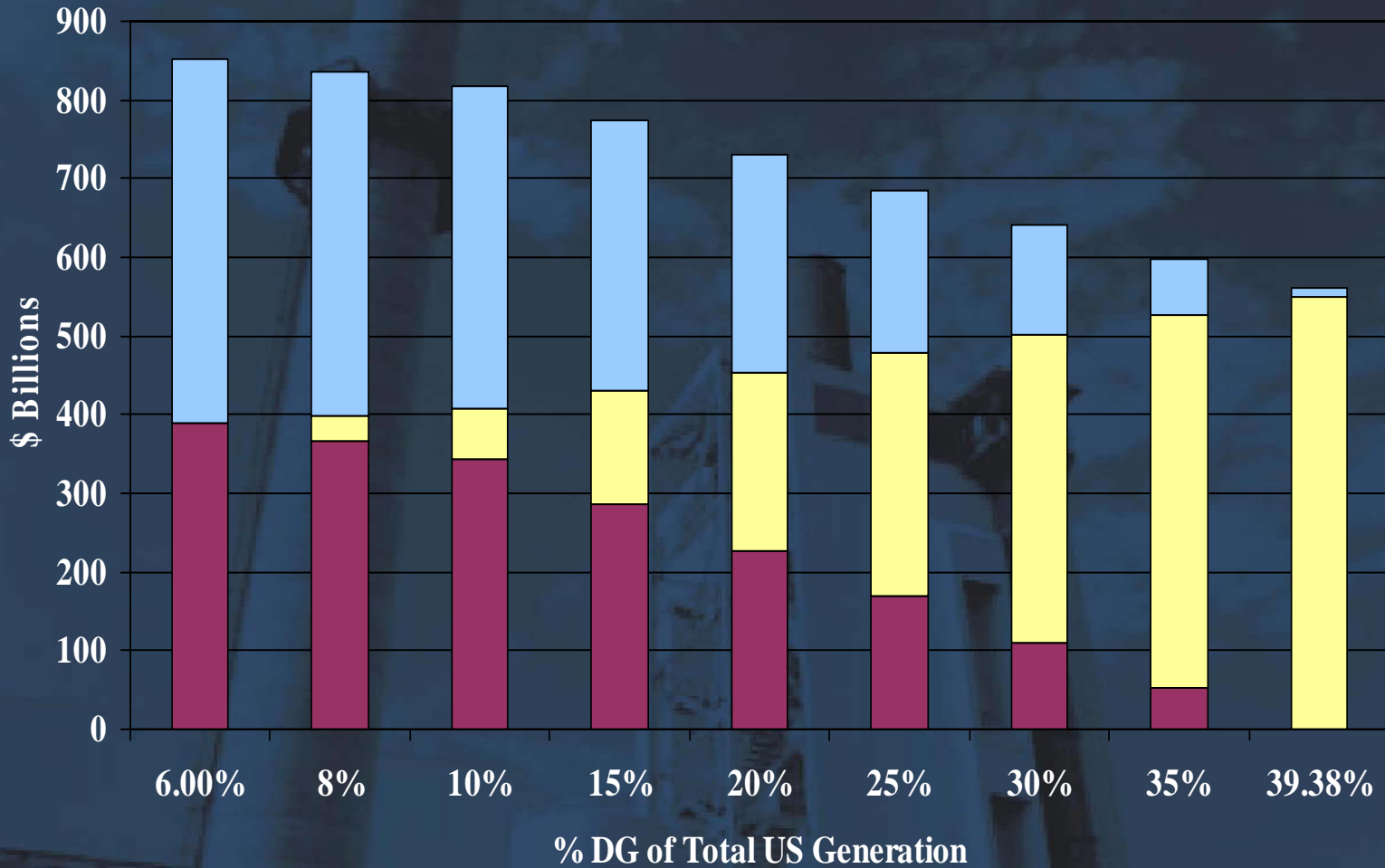


Without CHP

Source: EPA



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



■ New Cent. Gen.

■ New Dist. Gen.

■ T&D



Only the first three benefits are now reflected in price signals:

- 1. Improved fuel efficiency (fuel economy)**
- 2. Improved power quality/reliability**
- 3. Improved energy cost predictability**
- 4. Reduced emissions per unit of useful output**
- 5. Reduced grid congestion (deferred T&D investment)**
- 6. No Ratepayer Investment Required (generation or T&D)**
- 7. Reduced system vulnerability**
- 8. Short lead-time, off-the-shelf, modular technology**
- 9. Reduced land-use impacts**
- 10. Eliminates line losses**
- 11. Optimizes scarce natural gas resources**
- 12. Creates new high-tech manufacturing sector of the economy, with major international promise**
- 13. Supports competitive electric industry market structure**



Seen another way, the problems of conventional energy are not seen in prices:

1. **Poor fuel efficiency (fuel economy)**
2. **Problems with power quality/reliability**
3. **Volatility of energy costs**
4. **Uncontrolled emissions**
5. **Grid congestion (need for massive T&D investment)**
6. **Ratepayer impacts from utility generation and T&D investments**
7. **Significant system vulnerability**
8. **Long lead-times to new capacity**
9. **Significant land-use impacts**
10. **Transmission line losses**
11. **Heavy drain on scarce natural gas resources**
12. **Not in sync with international trends**
13. **Fails to support competitive electric industry market structure**



Thank you!

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