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Policies Affecting the U.S. Electricity Generation Mix

American Antitrust Institute
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American Wind Energy Association

American Wind Energy Association (AWEA)

- Founded in 1974
- More than 2,400 business members
  - Wind project developers
  - Transportation and construction companies
  - Manufacturers from bolts to turbines
- Wind info at www.AWEA.org
- Join us at WINDPOWER 2011 in Anaheim this May

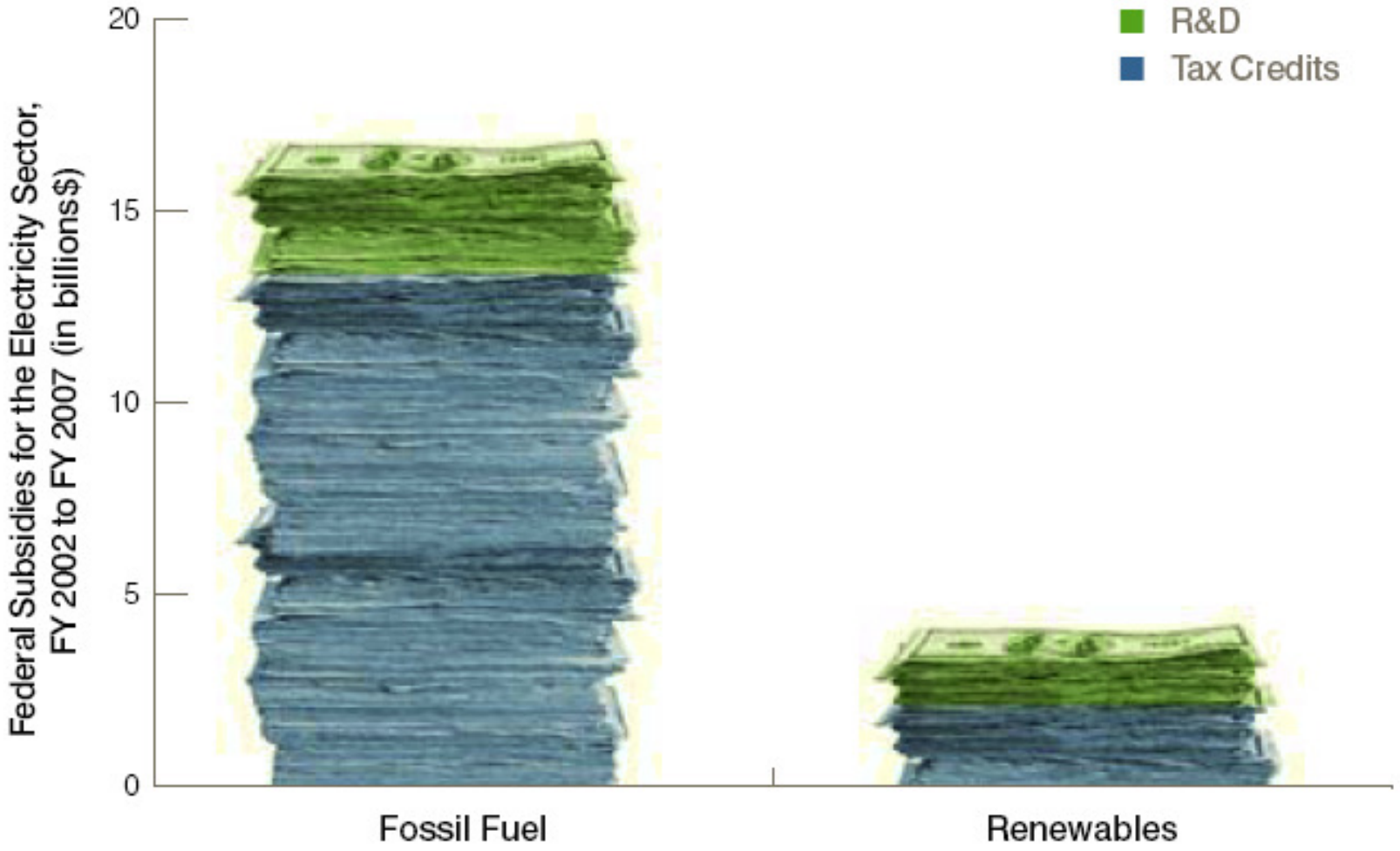
Theoretical Pure Energy Market

- All externalities internalized (carbon, military spending, water consumption, waste water, mercury, etc.)
- No taxpayer funded accident insurance
- No incentive for depleting resources (!)
- No rate based investment
- No fuel cost pass-throughs
- No construction work in progress
- No tax credits, loan guarantees, resource requirements

Reality

- Externalities only partially addressed, generally not through price mechanism
- Public and political support for bringing new technologies into the market through incentives
  - Eg, current unconventional gas supply

Fossil Fuels Enjoy Permanent Incentives
5x Those of Renewables



Data Source: Government Accountability Office, October 2007

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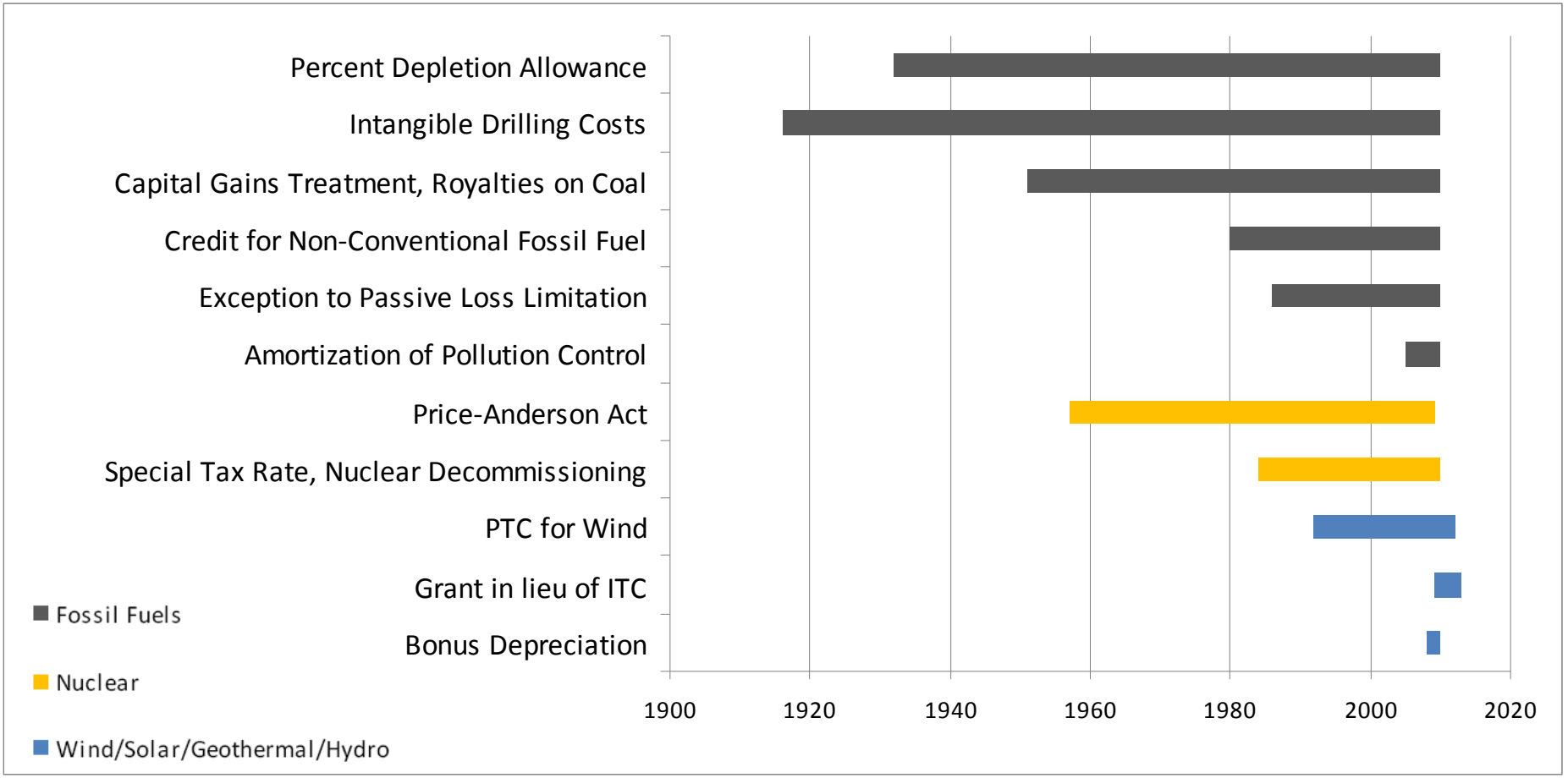
All Domestic Energy Has Had Long-Term Support, Except Renewables



Data Sources: Congressional Research Service, Federal Legislation

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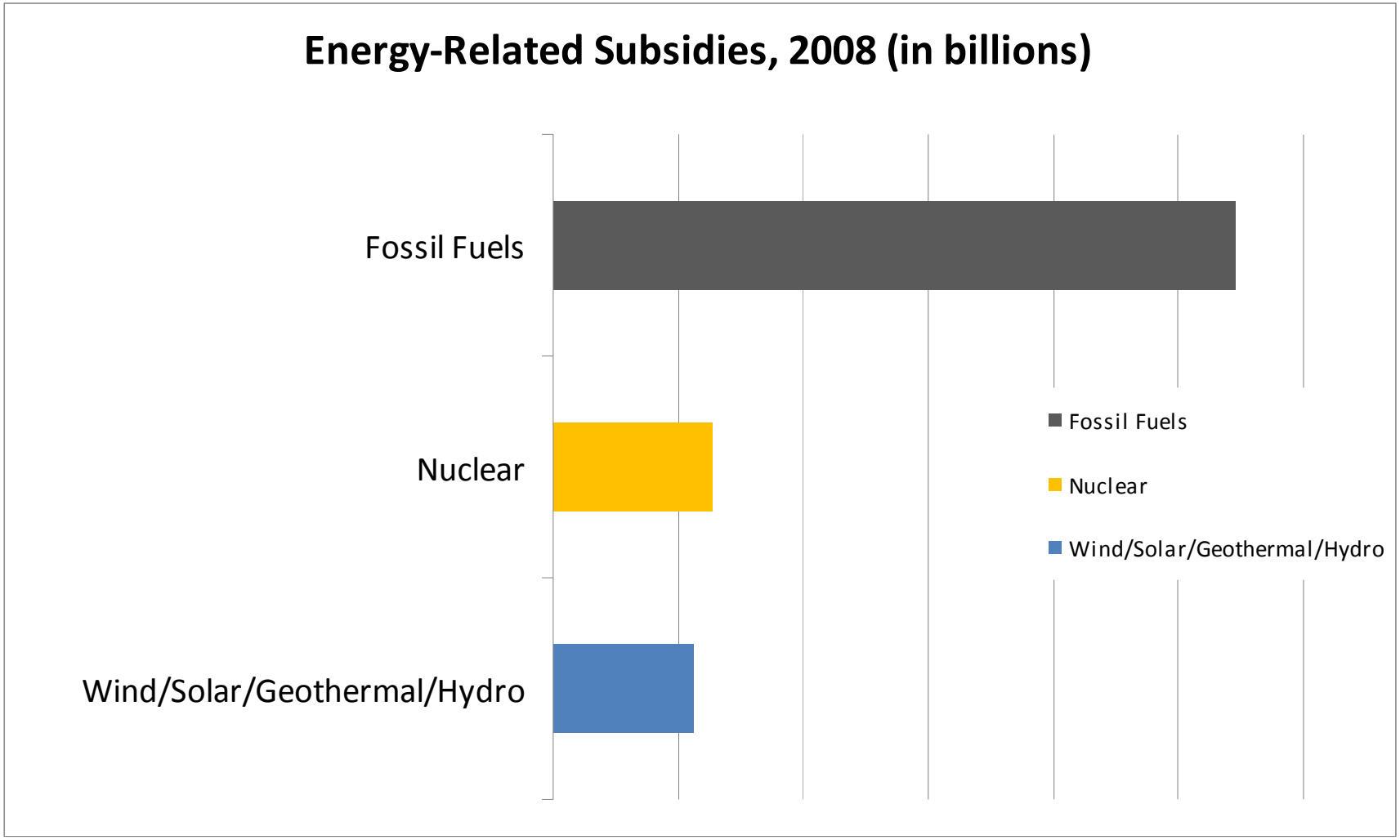
Snapshot of Federal Energy Incentives



Data Source: Energy Information Administration, April 2008

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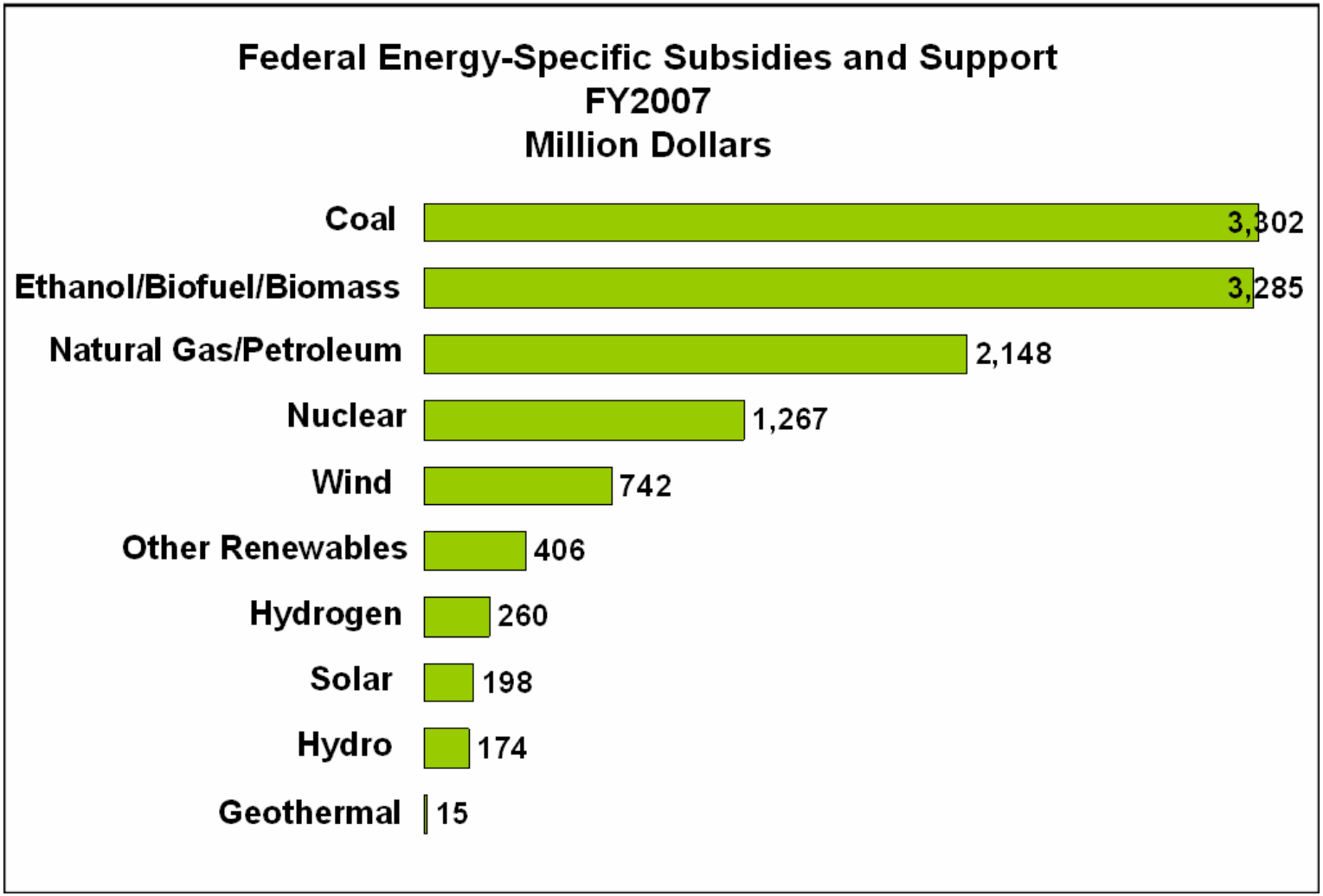

Data Source: Energy Information Administration, April 2008

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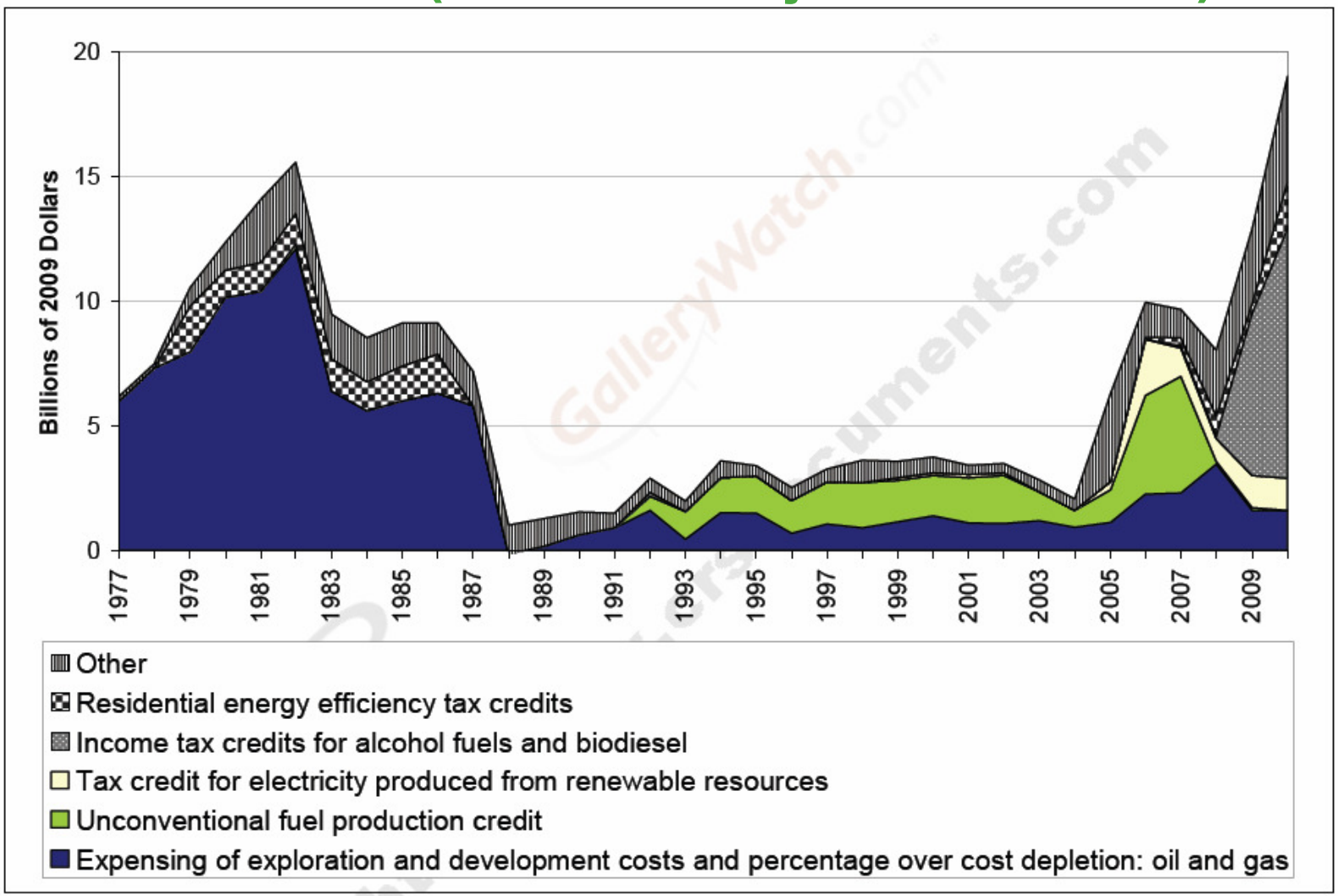
Federal Energy Tax Expenditures, 1977- 2010 (inflation-adjusted dollars)



Source: Congressional Research Service, May 2010

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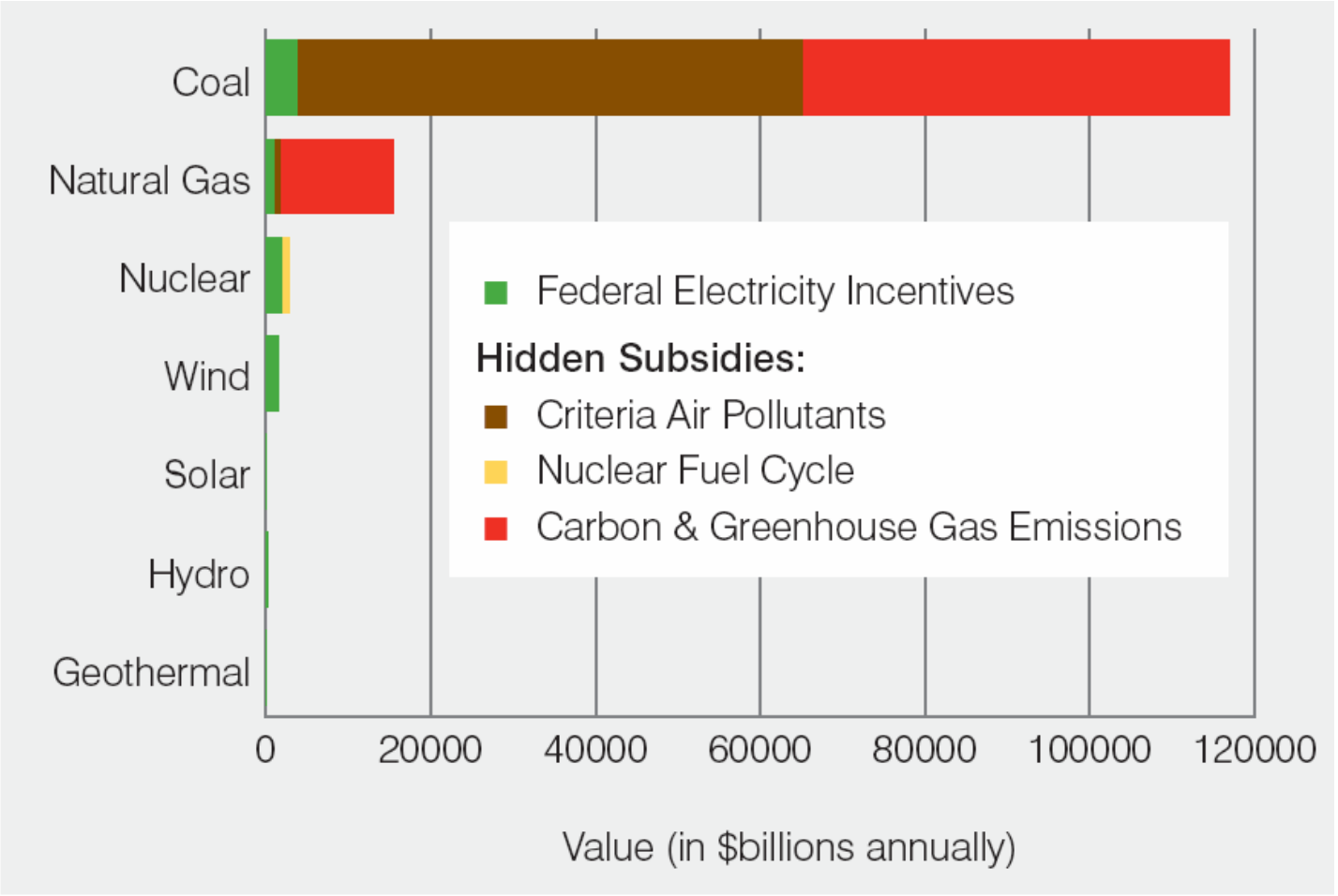
Federal Energy Incentives and Hidden Costs/Subsidies



Data Source: Energy Information Administration, April 2008; National Academy of Sciences, 2009

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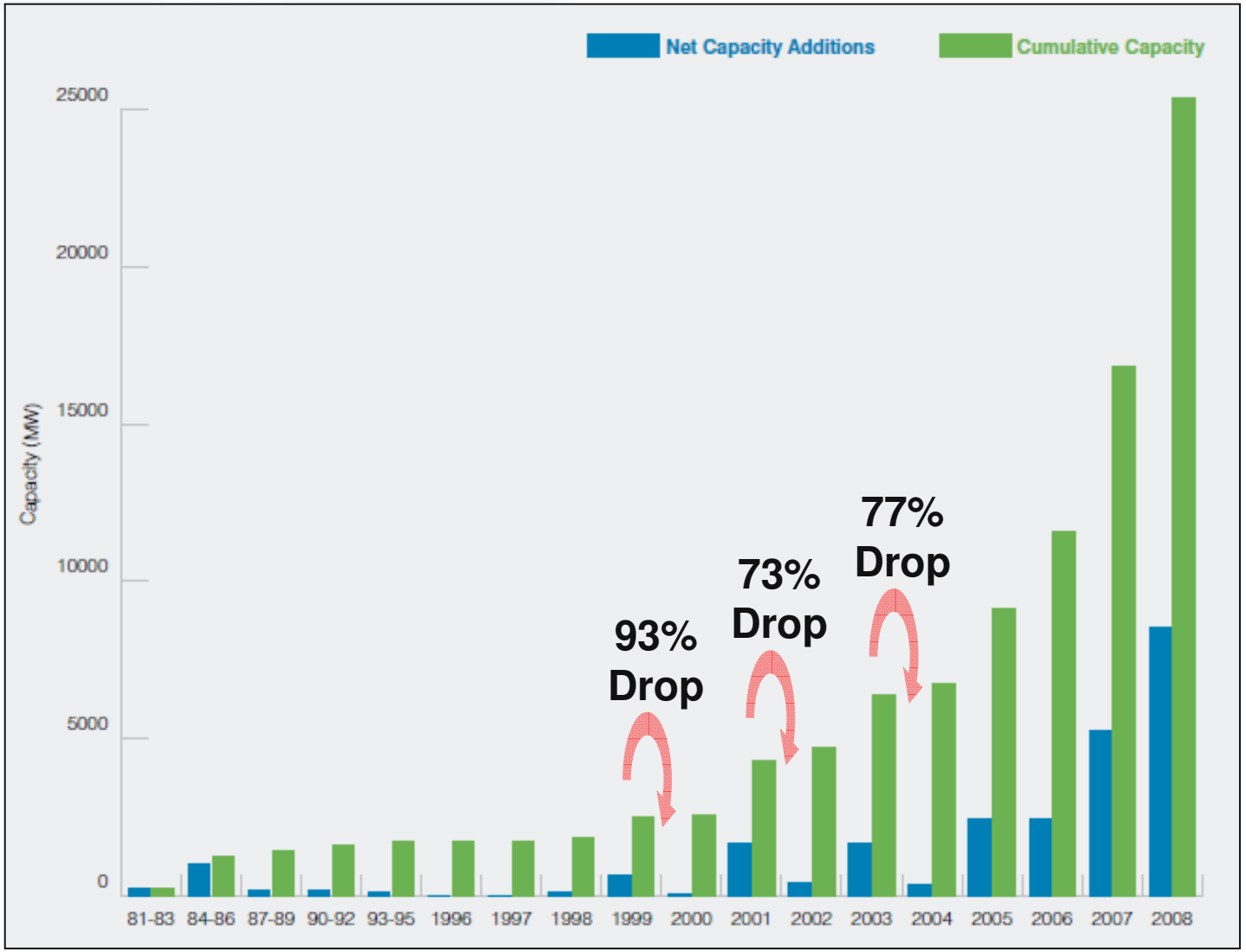
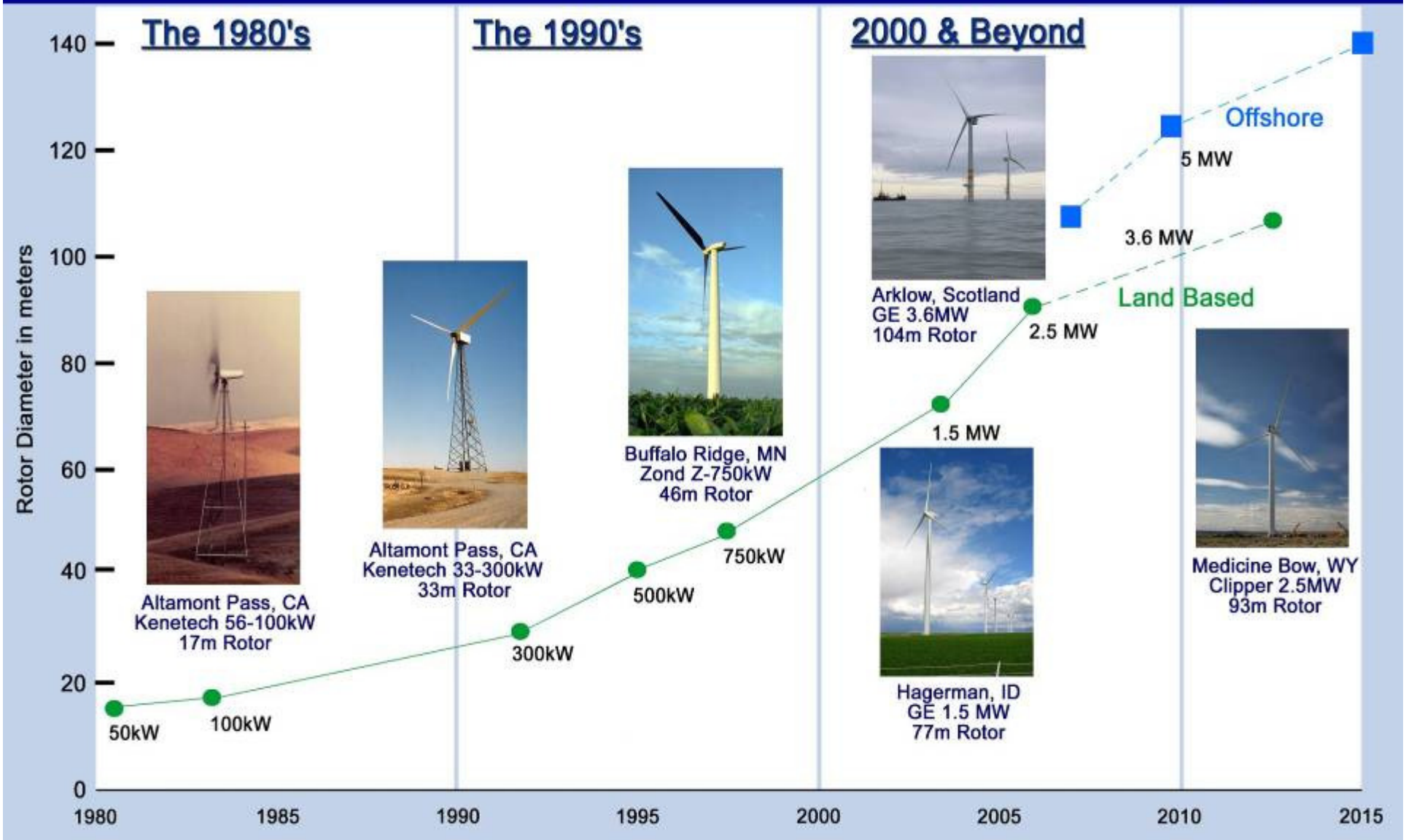
Renewable Energy Incentives

- **Production Tax Credit**
  - **Lowers cost to consumers by 2.1 c/kWh**
  - **Shifts supply curve to the right**
- **State Renewable Portfolio Standards**
  - **3-4 GW/ year in aggregate through 2015 (note wind alone was over 10 GW in 2009)**
  - **Shifts demand curve for renewables to the right**

Success of PTC in Deploying Wind



Evolution of U.S. Commercial Wind Technology



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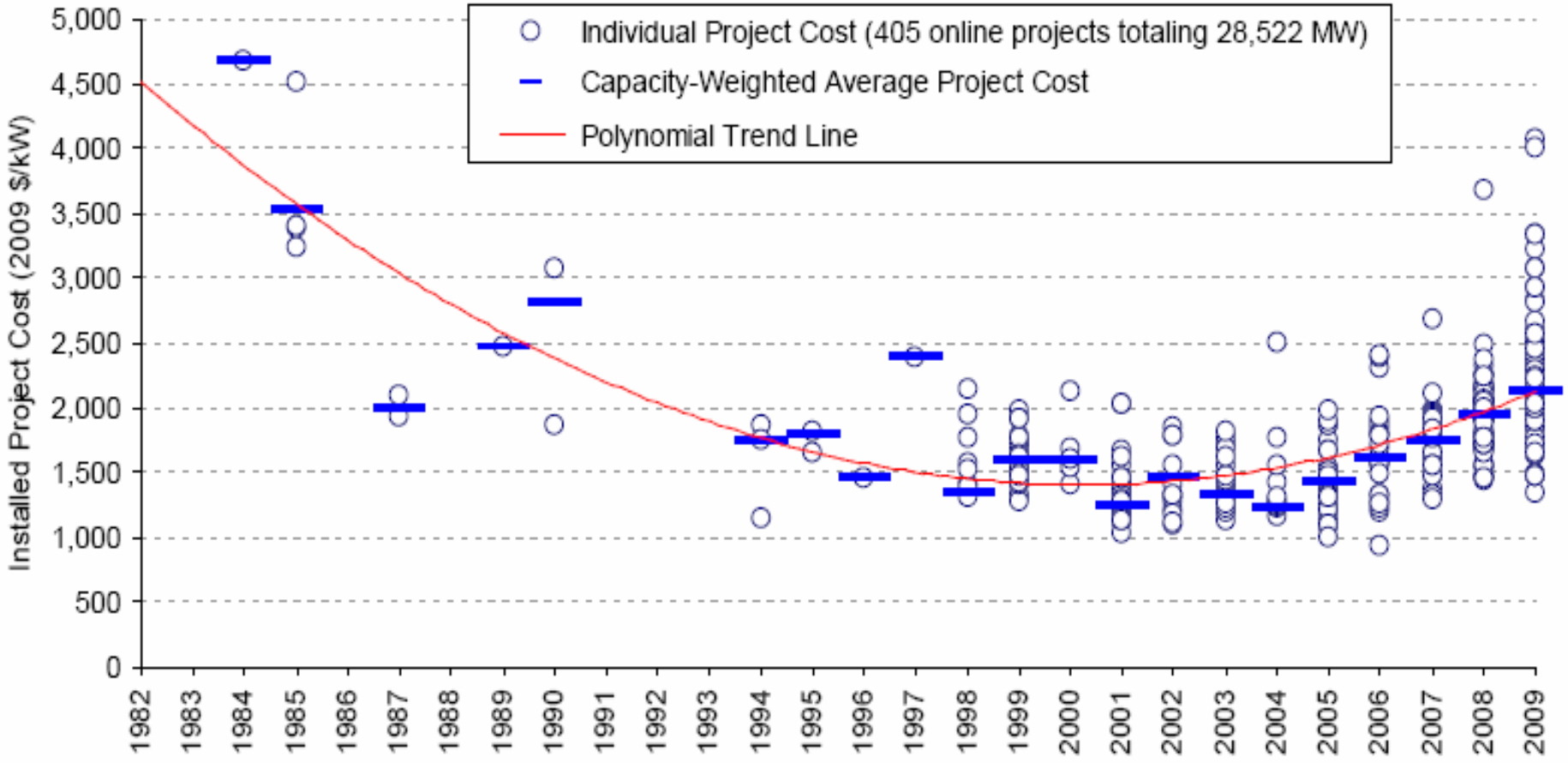
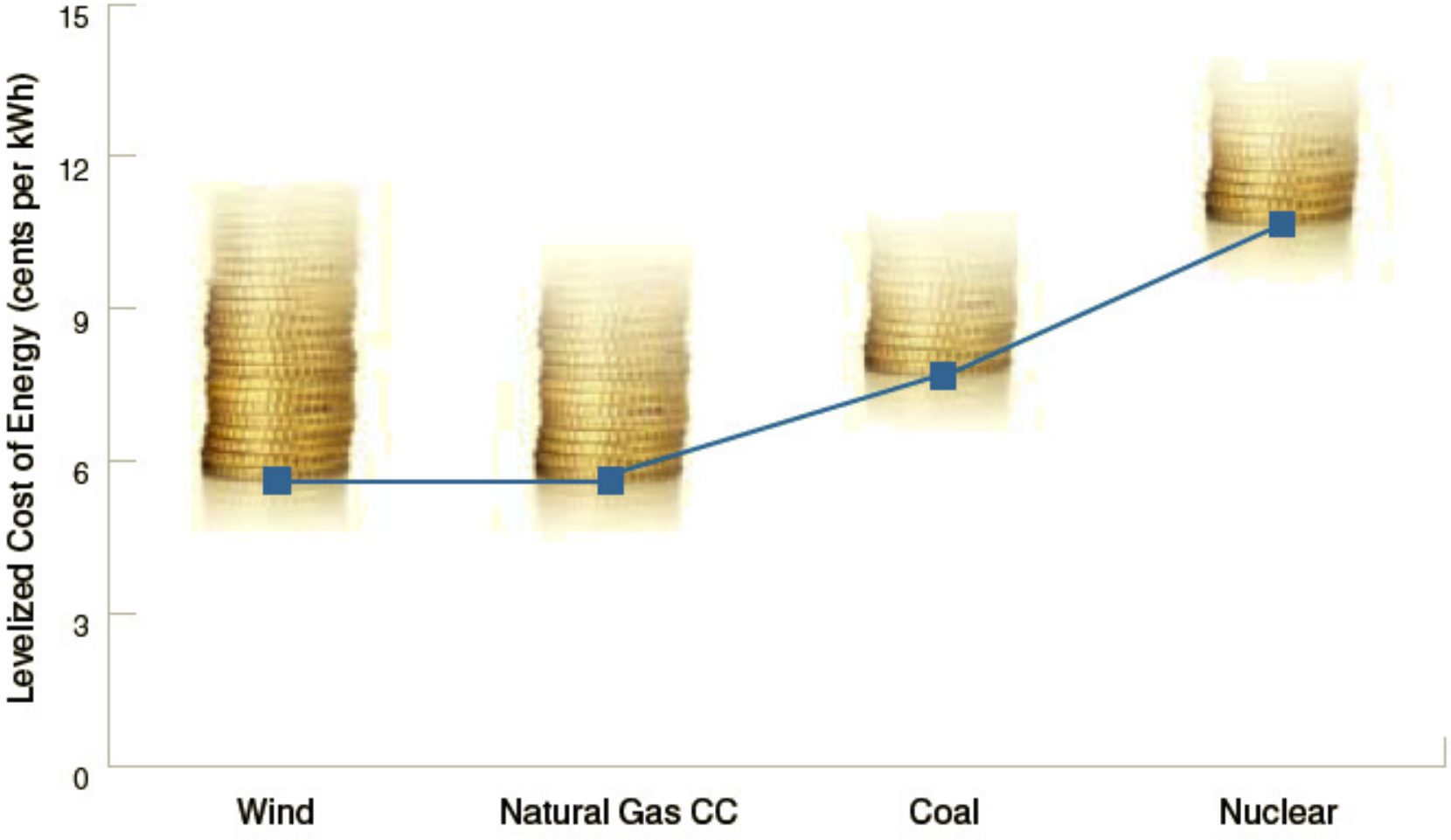
Success in Bringing Down Costs



Source: Berkeley Lab (some data points suppressed to protect confidentiality)

Success in Bringing Down Cost



Data Source: Lazard, Levelized Cost of Energy, June 2009

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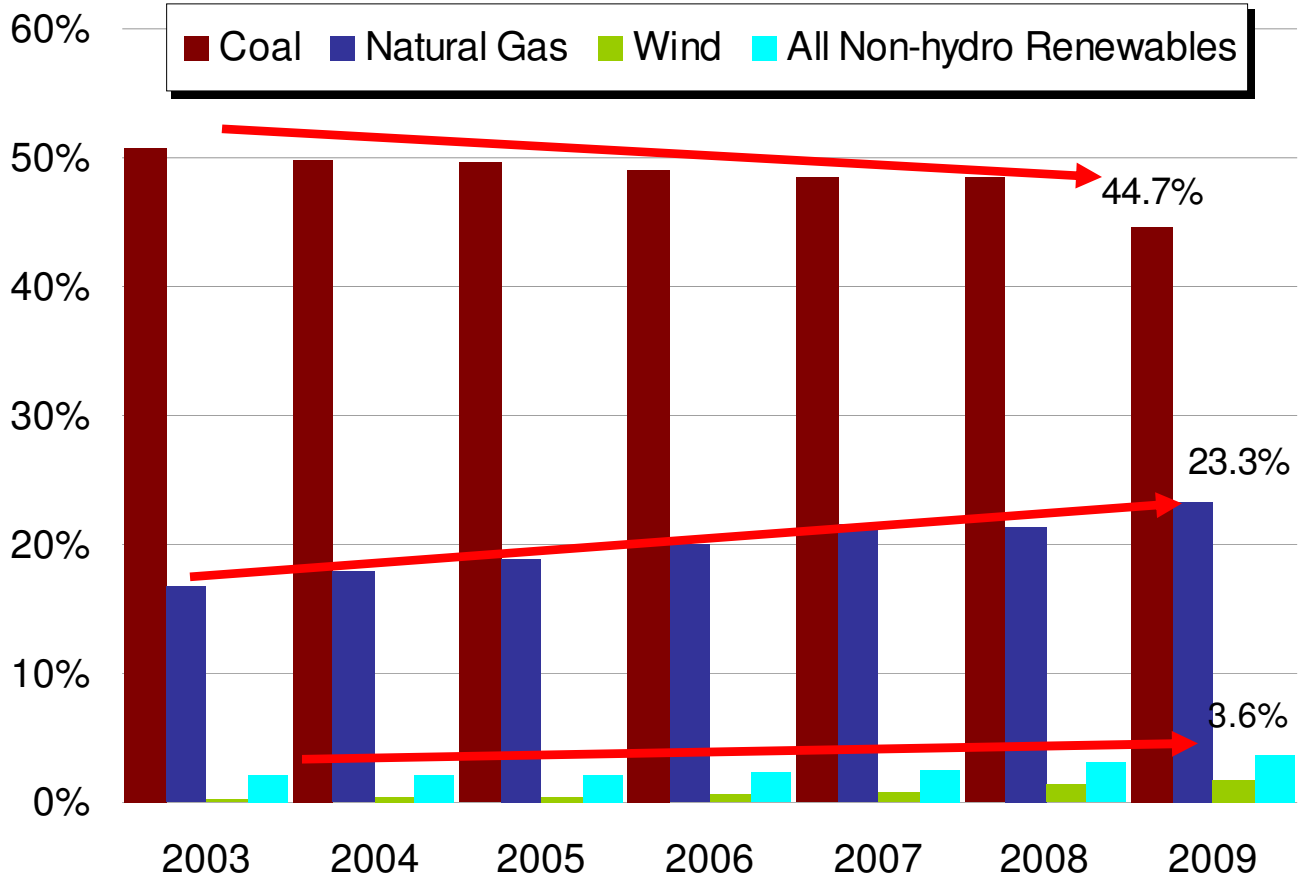
Success of Renewable Energy Policies

- Wind energy installed 35% of all new generating capacity in America over the past 4 years, more than coal and nuclear combined.
- 400 U.S. manufacturing facilities make wind components across 42 states.
- A typical modern wind turbine produces 15 times more electricity than the typical turbine did in 1990.
- Wind energy produced more than 15% of all the electricity in Iowa in 2010, and is expected to produce 20% in the near future.

Current Market:
Gas Still Dominant New Source



Coal Market Share,
Drop Since 2003
- 6.2 percentage pts

Natural Gas Market Share,
Increase Since 2003
+ 6.6 percentage pts

Wind Market Share,
Increase Since 2003
+ 1.5 percentage pts

Data Source: Energy Information Administration

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Going Forward

- Level playing field still needed
  - Renewable policies can be phased out but not before conventional resource incentives
- RES/CES needed to diversify electricity portfolio
- Predictable policy needed to grow US manufacturing
- Transmission is a public good. Public goods are under-supplied. Policy is needed.

References

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