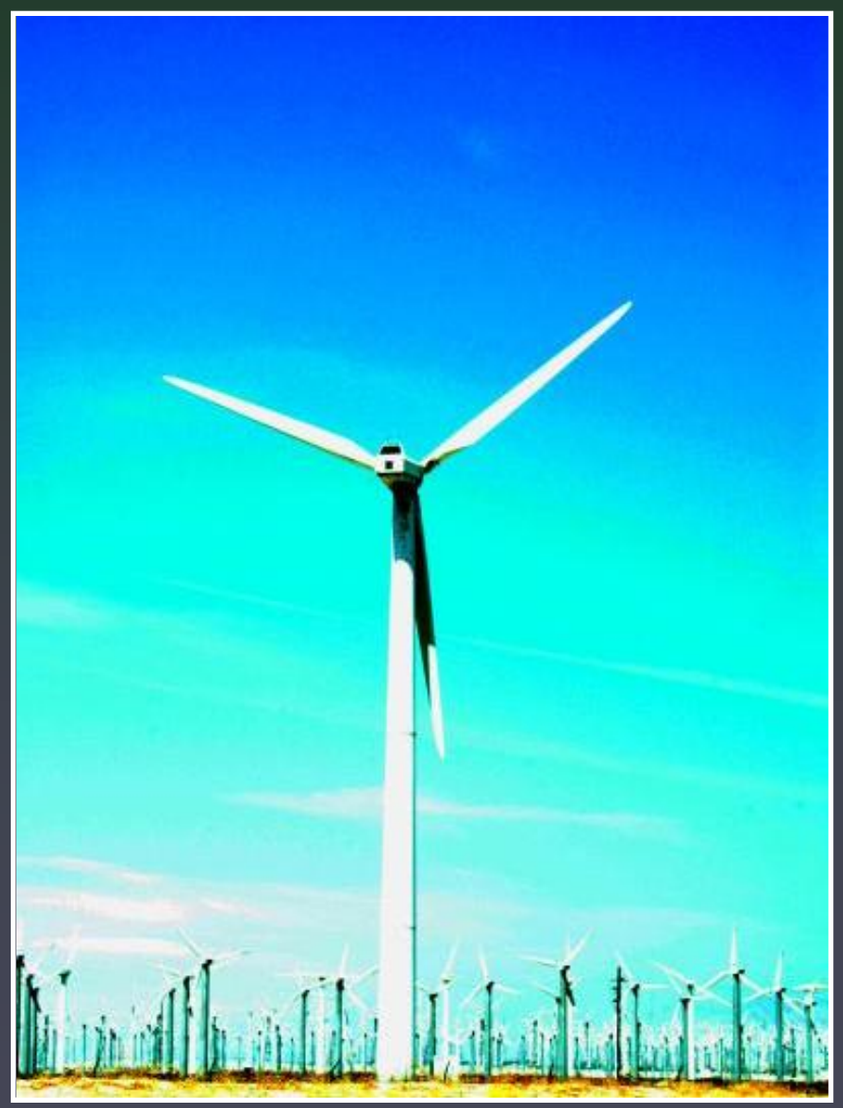
Federal Incentives for Wind: Overview and Implications for Wyoming Projects



Source: FreePhoto.com

Wyoming Wind Symposium
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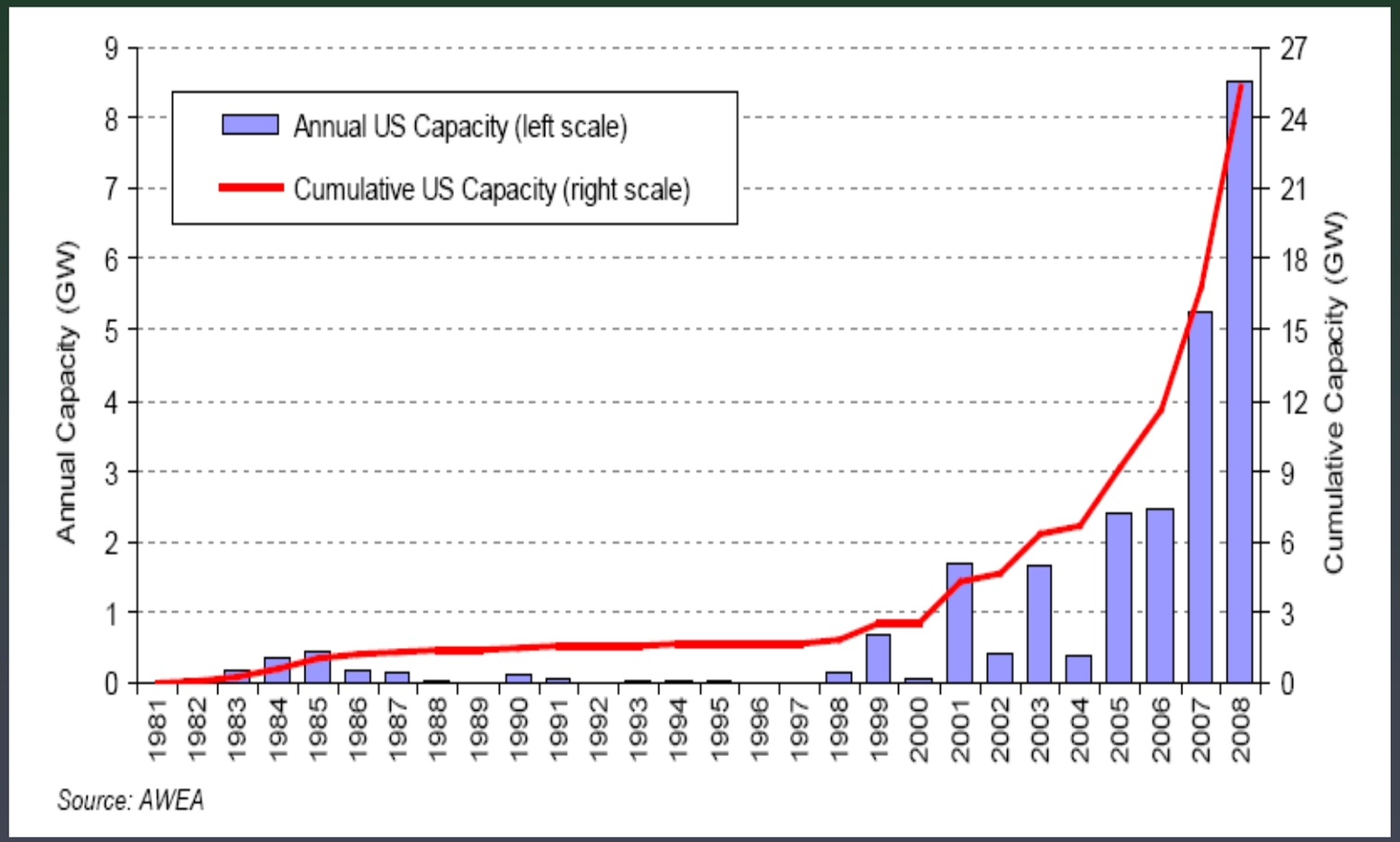
Major Categories of Federal Incentives

- Tax Incentives
  - Production Tax Credit
  - Bonus Depreciation
- ARRA Stimulus Funding
  - Investment Tax Credit/Cash Grant
- Small Wind, Ranchers and Residential Incentives

Renewable Energy Production Tax Credit (PTC)

- 2008: Per kilowatt-hour tax credit of 2.1 cents (inflation adjusted), 10 year credit
- Originally enacted in 1992 at 1.5 cents/kWh; expired, extended and renewed numerous times but most recently in February by ARRA for projects in service by 2012
- PTC expanded to other renewable resources in 2008



PTC Correlates to Higher Installed Capacity

MACRS + Bonus Depreciation

- MACRS = Modified Accelerated Cost-Recovery System
- Allows renewable energy technologies, including microturbines, small wind turbines, and large wind facilities to take five-year depreciation schedules on property with useful life of 20 years or less
- 50% bonus depreciation allowance in first year for systems placed in service in 2008, extended by ARRA to 2009 tax year
- Projects must be completed in 2009

Not Often Figured Into Subsidy Cost, But Extremely Valuable

Business Energy Investment Tax Credit

- Must be placed in service* or under construction in 2009 or 2010
- Projects under construction in 2009 or 2010 can claim 10% to 30% of eligible costs depending upon the type of energy property. Large wind may claim 30% of costs, project must be in service by 1/1/13 and under construction in 2009 or 2010.
- ARRA created option to take ITC or grant from Treasury instead of PTC
- Federal guidelines issued July, 2009

*Placed in service means that the property is ready and available for use.

Largely A Response to Decline in Tax Equity Financing

ARRA and DOE: Substantial Increase in Investment in Renewables

- $**37 billion** in funding for energy related projects. The budget for DOE's Office of Energy Efficiency and Renewable Energy's programs rose from an annual level of approximately $1.5 billion to $16.8 billion
- $**2.3 billion:** manufacturers tax credit. 30% ITC for energy project that establishes, re-equips, or expands a manufacturing facility that makes equipment or technology to produce wind energy
- $**6 billion:** loan guarantees aimed at renewable energy systems and electricity transmission (plus additional $30 billion cited by Sec. Chu in 7/29/09 announcement)
- $**11 billion** : smart grid projects plus increased WAPA and BPA capacity for borrowing
- $**3.1 billion:** State Energy Programs (which encourage energy efficiency and renewable energy programs)
- $**2.5 billion:** energy efficiency and renewable energy research and development.
- $**1.6 billion**: clean renewable energy bonds ($800M provided in 2008)
- $**26.8 billion**: FY2010 DOE Budget which includes $2.23B for efficiency and renewable-energy research (vs. $761 million for nuclear and $700 million for fossil-energy)

Other Incentives: Small Wind, Residential & Ranchers

- Small Wind Turbines
  - 30% of basis up to 100kW in capacity, subjection to Business Energy Investment Tax Credit
- Residential
  - 30% tax credit for qualified expenditures
  - Wind turbines places in service after 2008: no maximum credit (per 2009 ARRA)
  - Wind turbines placed in service in 2008: $4,000, or $500/half kW
  - Must be in service before December 31, 2016
- Rural Energy for America (USDA)
  - Provides grants and loan guarantees for energy efficiency improvements and renewable energy systems (not to exceed 75% of project cost).
  - Available to agricultural producers and rural small businesses.
  - Relatively small funding levels ($55-70 million/yr) and small grant amounts ($20K).

Source: US DOE, Energy Efficiency & Renewable Energy

Federal Incentives Effectiveness Unproven

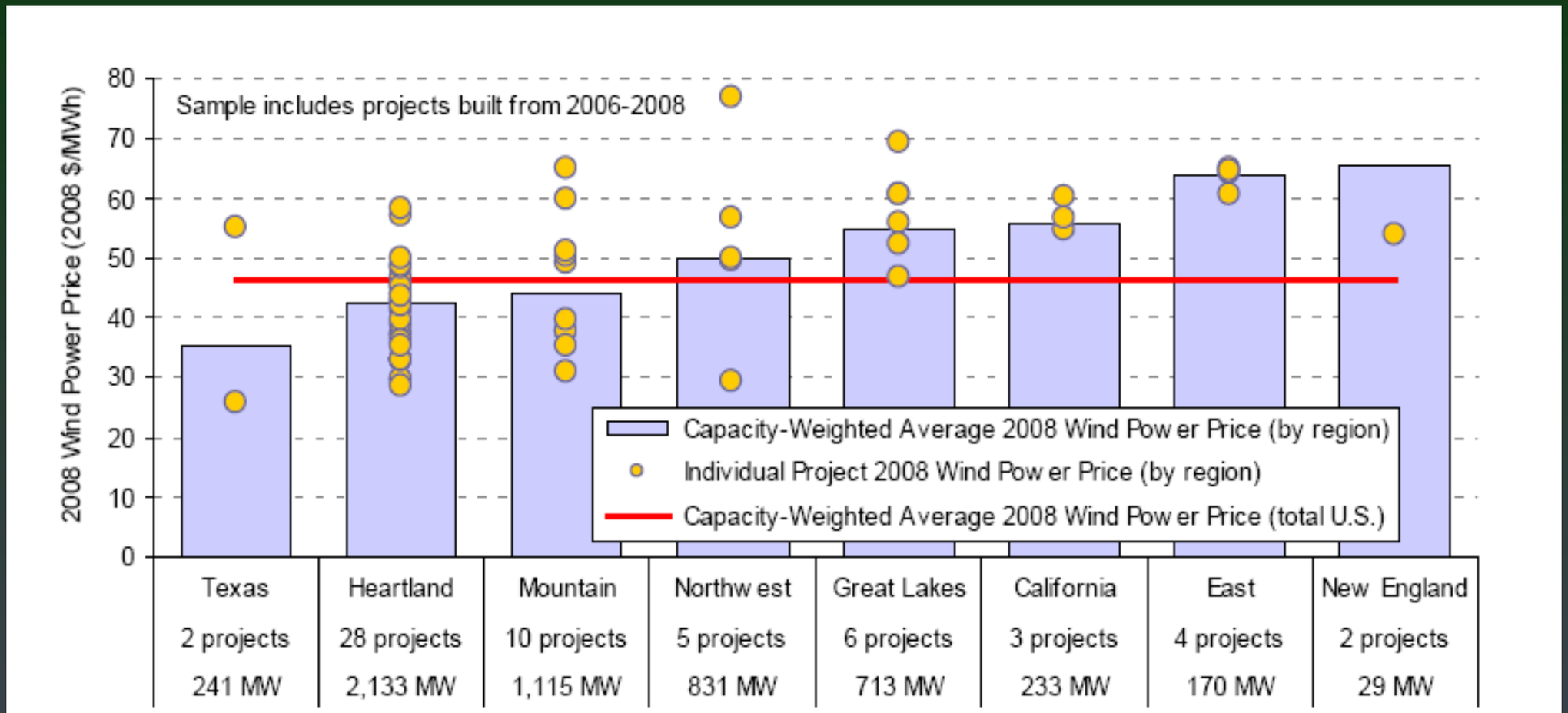
- Will ITC Offset Decline in Tax Equity Market?

Year	2006	2007	2008
Installed MW financed by Tax Equity	1,000MW	3,616MW	3,385MW
% of Total Transactions	45-50%	70%	40%

Source: JP Morgan Capital Corporation, LBNL 2008 Wind Technologies Report

- Will DOE Loan Guarantees Offset Higher Cost, Standards and Availability of Project Financing?
- Transmission Constraints—Interconnection Queue Still Exist
- Other Potential Impacts—RPS, Cost of Carbon, Firming with Natural Gas

Relevant Impact of Federal Incentives



Source: Berkeley Lab database

- Wyoming's Mountain Region Range of Pricing from $30-70/MWh
- Subsidies Add $24/MWh and Increases Effective Price to Producer by 30%
- Comparative Costs
  - Integration: ~$5-10/MWh
  - Firming: $19-36/MWh
  - Interconnection: $1-18/MWh
  - 10% Capacity Factor Increase adds ~$5-10/MWh to Price
  - 10% Increase in Installed Cost adds ~$5-10/MWh to Cost

Source: U.S. DOE LBNL 2008 Wind Technologies Market Report, E3 Consulting, WEIL Report

Relative Cost of Federal Incentives

Federal Financial Interventions and Subsidies in Energy Markets 2007

Table 35. Subsidies and Support to Electricity Production: Alternative Measures

Fuel/End Use	FY 2007 Net Generation (billion kilowatthours)	Alternative Measures of Subsidy and Support	
		Subsidy and Support Value 2007 (million dollars)	Subsidy and Support Per unit of Production (dollars/megawatthours)
Coal	1,946	854	0.44
Refined Coal	72	2,156	29.81
Natural Gas and Petroleum Liquids	919	227	0.25
Nuclear	794	1,267	1.59
Biomass (and Biofuels)	40	36	0.89
Geothermal	15	14	0.92
Hydroelectric	258	174	0.67
Solar[1]	1	14	24.34
Wind	31	724	23.37
Landfill Gas	6	8	1.37
Municipal Solid Waste	9	1	0.13
Unallocated Renewables	NM	37	NM
Renewables (subtotal)	360	1,008	2.80
Transmission and Distribution	NM	1,235	NM
Total	4,091	6,747	1.65

Source: EIA, Federal Financial Interventions and Subsidies in Energy Markets

Wind Subsidies Are Nearly 50x Coal Subsidies When Measured by Production

How Much Do Federal Incentives Matter As An Economic Driver?

- 2009 projections for annual installed wind capacity vs. 2008 decline due to recession and availability and terms of project financing
- 300 GW already in interconnection queue, what will it take for it to come on line?
- WECC Wide Gap – 40,000 MW Wind (Base Case) increasing to 85,000 MW Wind (High Case—33% RPS in California)
- 2010-2012 time to measure effectiveness of ITC and ARRA investments—ITC alone is likely to exceed $10B.

Is It Worth It?

Source: E3 WEIL Report, January, 2008, Independent Analysis Wyoming Governor's Office