Clean Energy for Alaska's Future
Stably Priced, Local and Inexhaustible

Chris Rose, Executive Director

Renewable Energy Alaska Project

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What We're Spending Today

- Alaskans spend an estimated $5 BILLION on energy annually

- That's $100 BILLION over the next 20 years, much of which will leave Alaska's economy

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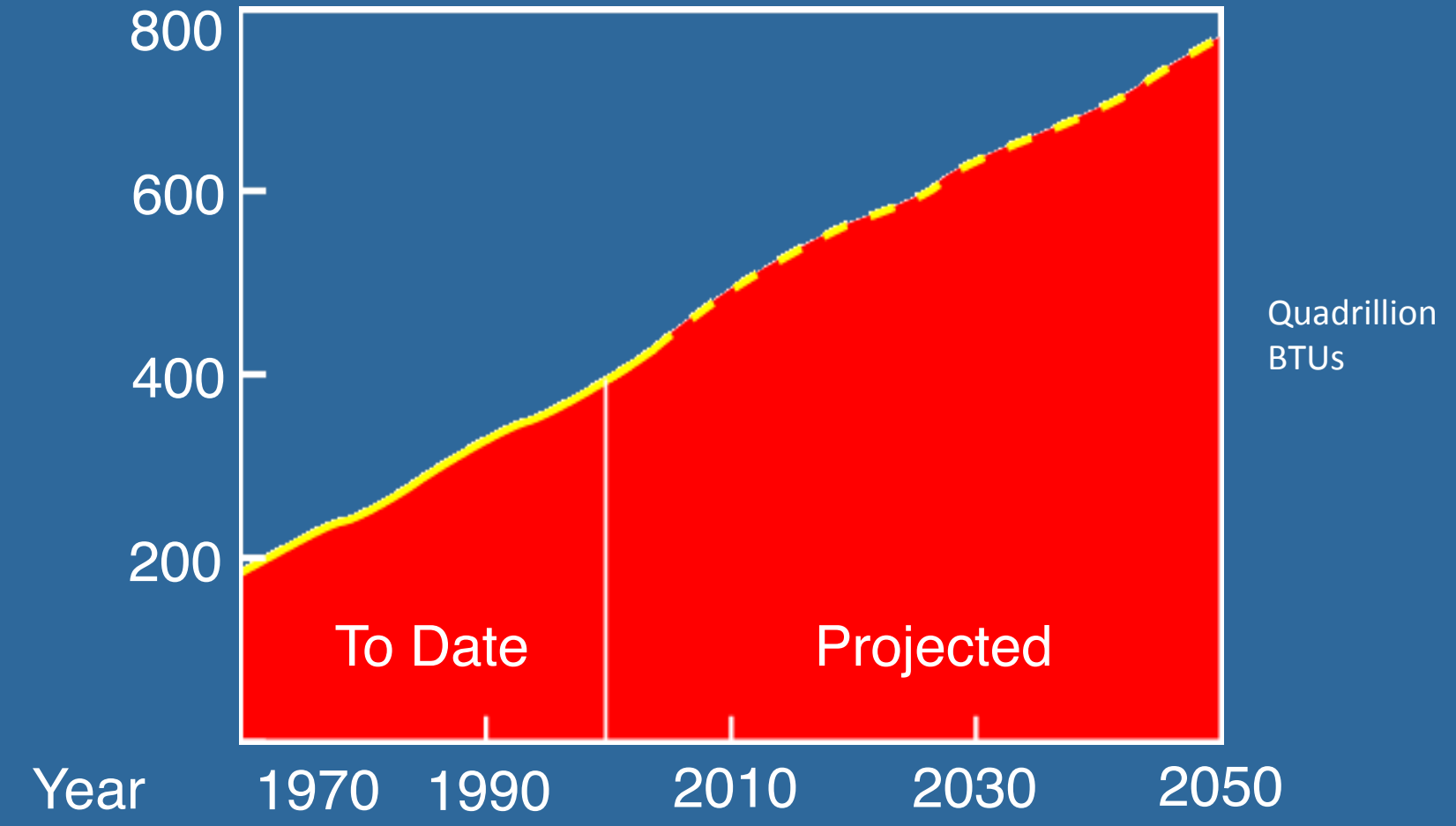
Renewable Energy is Risk Management:

Worldwide Energy Use Expected to Double by 2050



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Precious Oil

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Efficiency & Conservation

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Heating Bills are Killing Alaskans

- Many people in rural areas are now paying more than 50% of their take-home pay on energy.
- Heating bills of $800-1,000 per month are not uncommon in rural areas. Fairbanks is not far behind.
- Fuel switching in Southeast Alaska is having unintended consequences.
- Almost all of the state except Anchorage is feeling the pinch.

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Energy Efficiency is **Always** Cheaper than Generation

- The average cost of delivering energy efficiency programs in the US is going down
- The cost of new supply-side generation is going up

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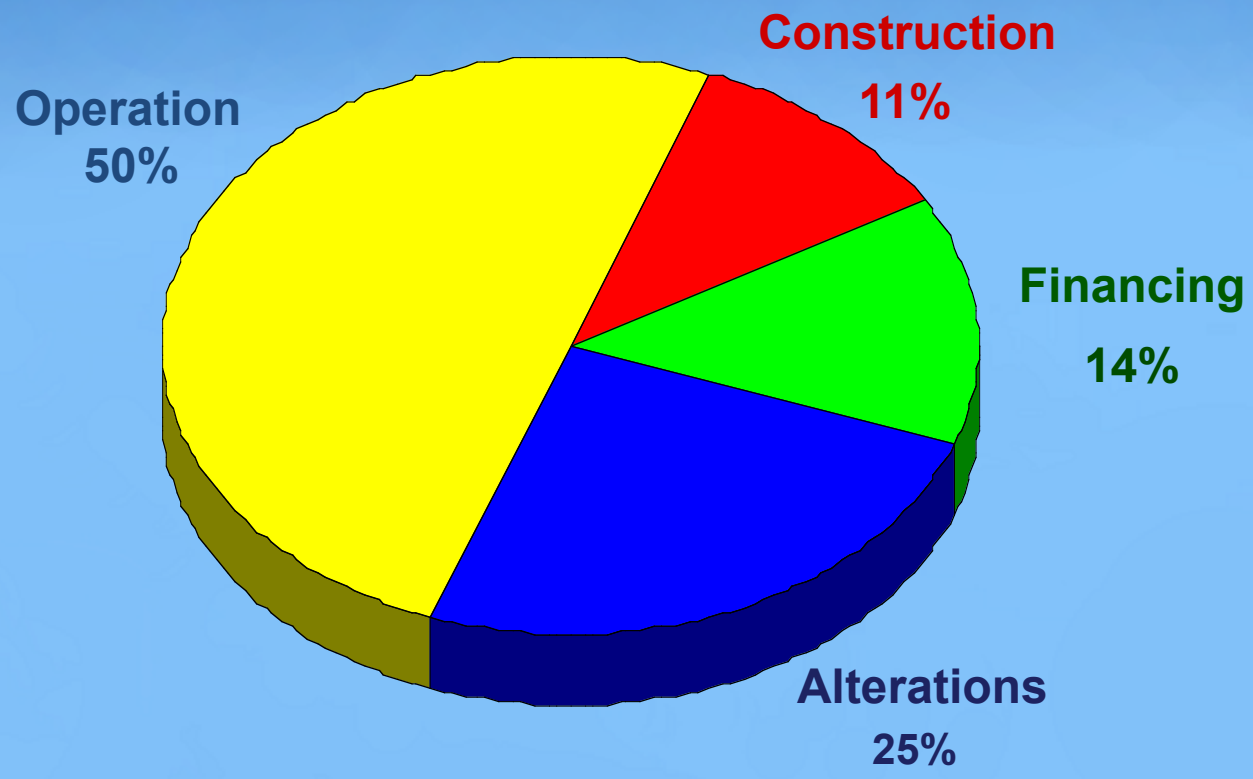
Building Cost over 40 Years: Real World Costs*



*ASHRAE - American Society for Heating, Refrigeration & Air Conditioning Engineers

Benefits of Efficient Buildings

- Utility cost savings
- Maintenance cost reductions
- Increased value
- Tax benefits
- Risk mitigation
- Public relations
- Higher morale & improved productivity

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The Bullitt Center, Seattle

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AHFC Weatherization & Rebate Program Summary

- Over 34,000 homes completed
- Average rebate recipient has saved 34%
- $386.5 million expended so far
- Created a 2,500 - 4,000 jobs
- TOTAL ANNUAL SAVINGS: *19.2 MILLION GALLONS* OF HEATING OIL EQUIVALENT

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Alaska's Challenge

- Become the place with the *most energy efficient building stock in the world* in 20 years

- Increase the capacity already built by CCHRC and others

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Alaska's Renewable Energy Resources

- Wind
- Geothermal
- Biomass
- Tidal/ Wave
- Hydro
- Solar

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Advantages of Renewable Energy

- Stably Priced (no fuel costs)
- Clean
- Local
- Inexhaustible

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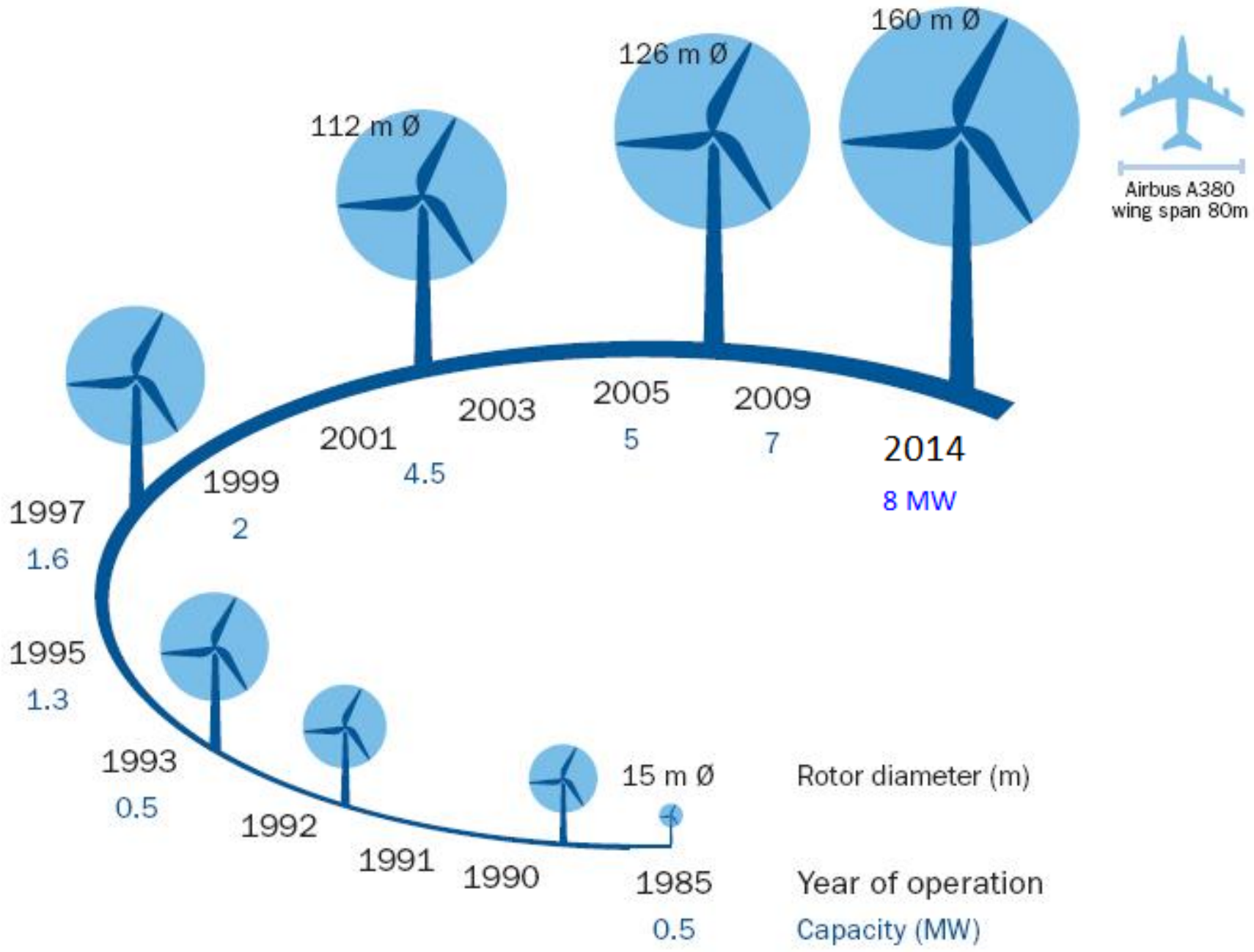
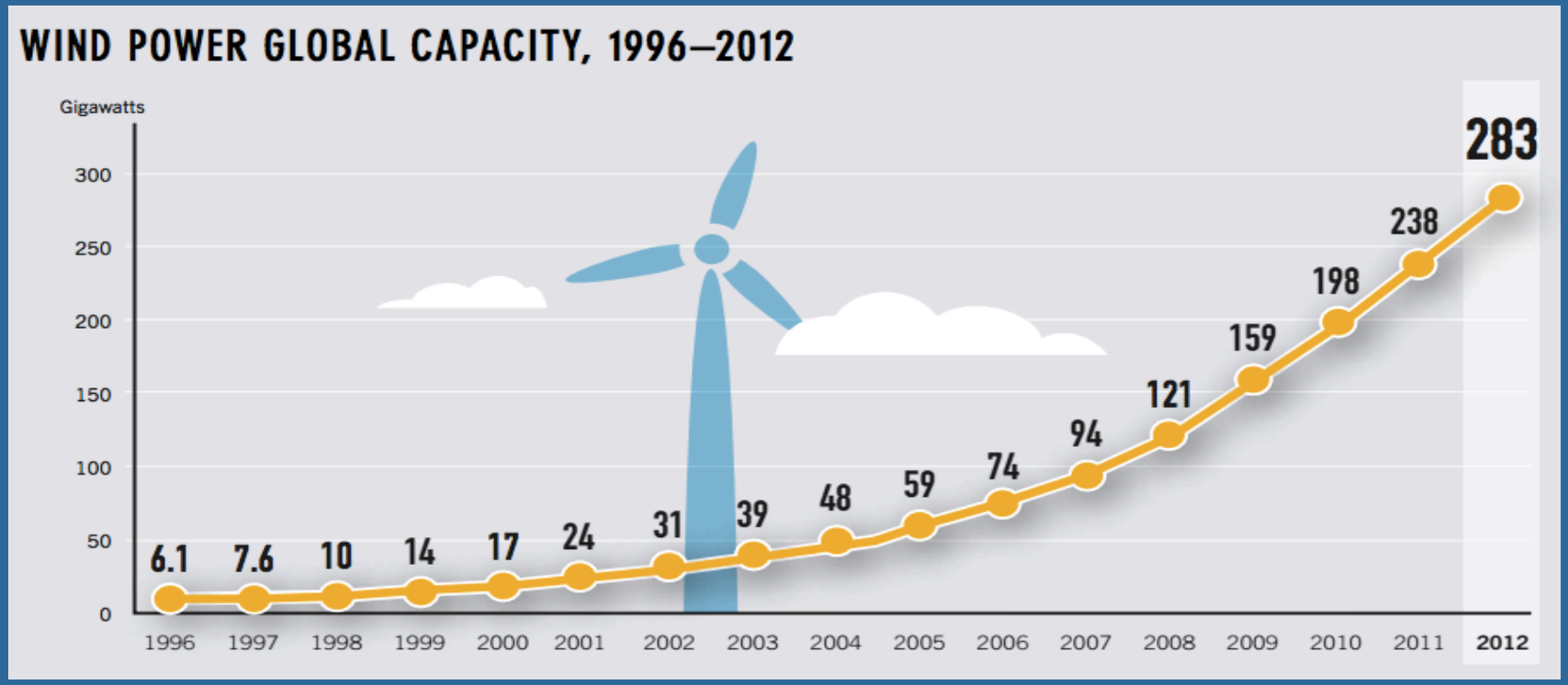
Size evolution of wind turbines over time





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Ivanpah Solar Power Facility, world's largest solar power plant at 392 MW

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Solana, 300 MW with Thermal Storage

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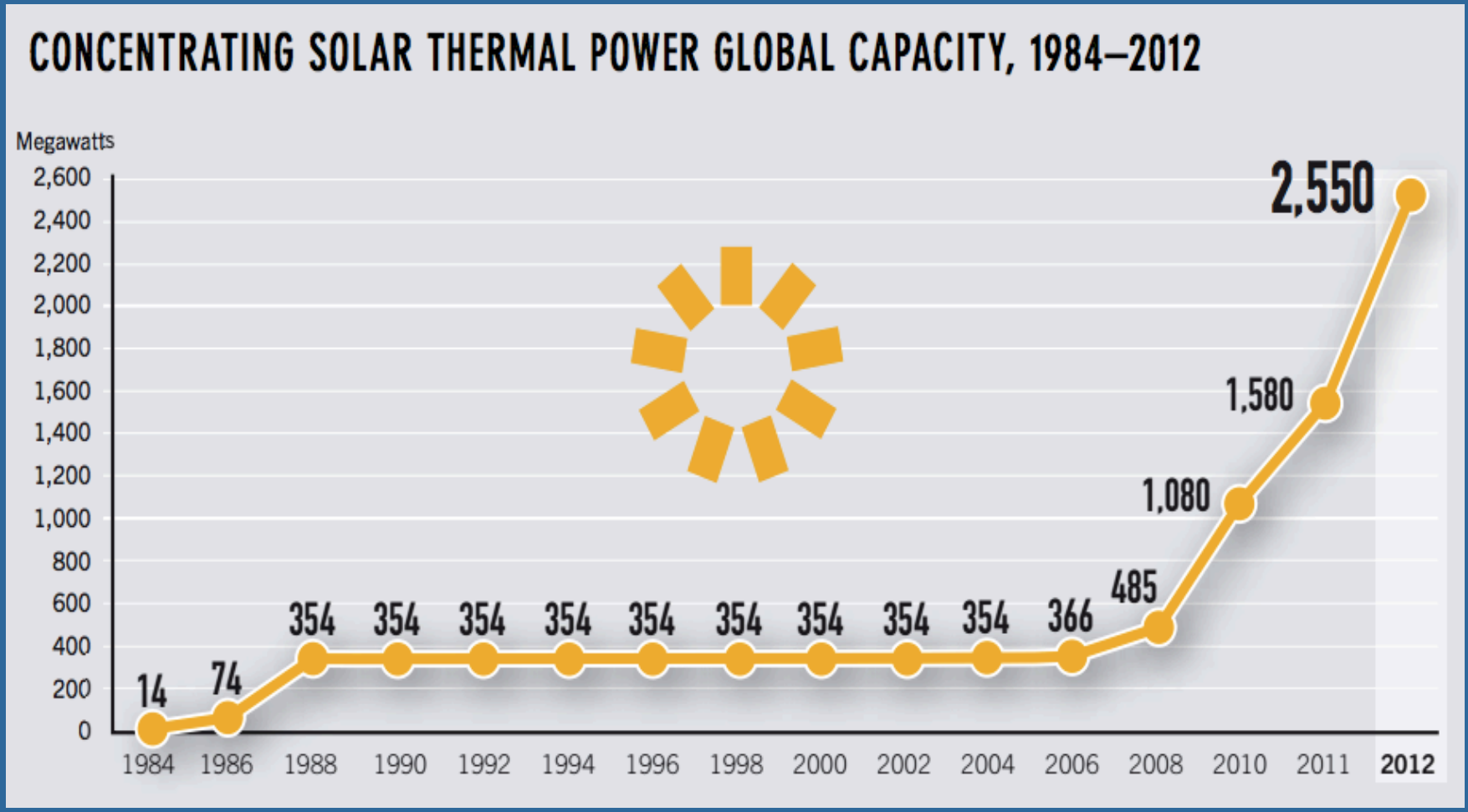

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Alaska's Emerging Technology Opportunities

- Hybrid Systems
- Efficient Building Technologies
- Tidal and Wave Power
- Energy Storage
- Electric Transportation

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Ocean Energy – Tidal & Wave Power

- Alaska has over 90% of the nation's tidal power potential, and more than 75% of the nation's wave energy potential
- ORPC developing pilot project near Nikiski
- ACEP running hydrokinetic test center near Tanana

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SeaGen, Northern Ireland; 1.2 MW

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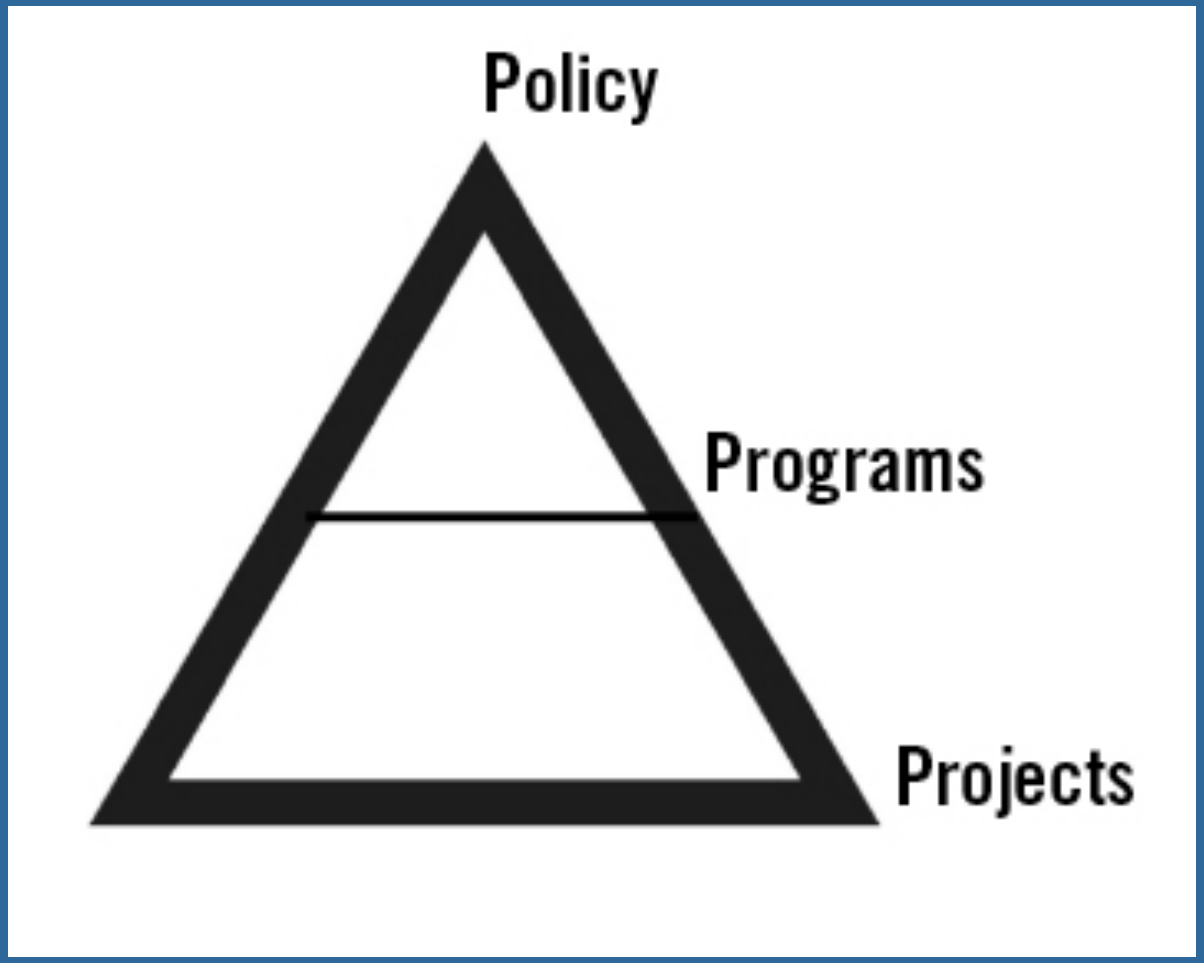
The Three “P” Words



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Declaration of state energy *policy* AS 44.99.115 (HB 306) 2010

- The State of Alaska recognizes that the state's economic prosperity is dependent on available, reliable, and affordable residential, commercial, and industrial energy to supply the state's electric, heating, and transportation needs.

- *The state also recognizes that worldwide supply and demand for fossil fuels and concerns about global climate change will affect the price of fossil fuels consumed by Alaskans and exported from the state to other markets.*

- In establishing a state energy policy, the state further recognizes the immense diversity of the state's geography, cultures, and resource availability.

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What's the State's Implementation Plan?

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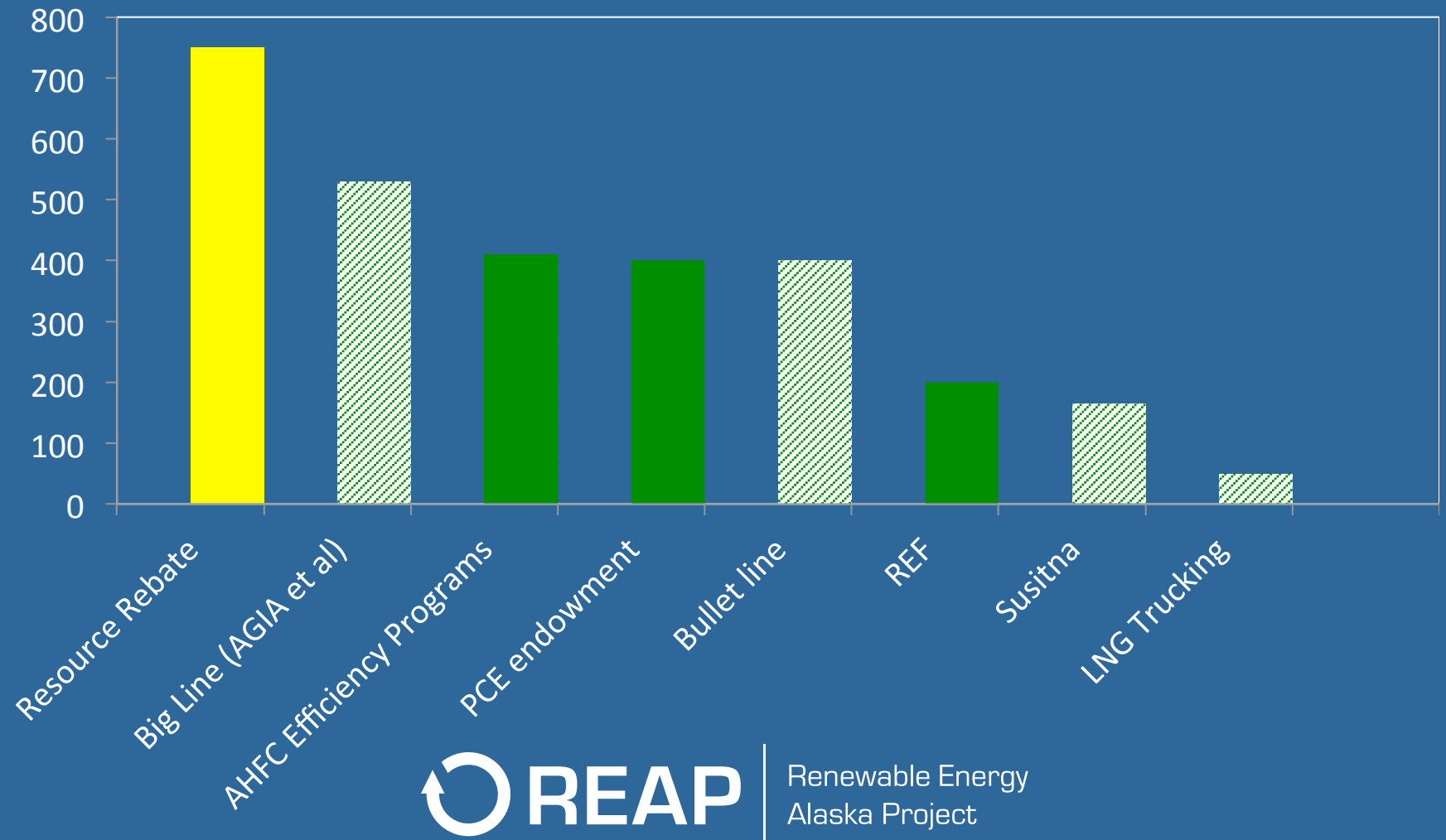
State of Alaska Energy Project Spending Commitments Since 2008



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State Clean Energy *Programs*

- Renewable Energy Fund
  - So far $227.5 million appropriated through FY 2014
  - $20 million in Governor's FY 15 budget
- Weatherization and Rebate Program
  - So far, $560 million appropriated through FY 2014
  - $46.5 million in Governor's FY 15 budget
- Emerging Energy Technology Fund
  - So far, $12 million appropriated (including $5 million from Denali Commission)
  - Nothing in Governor's FY 15 budget

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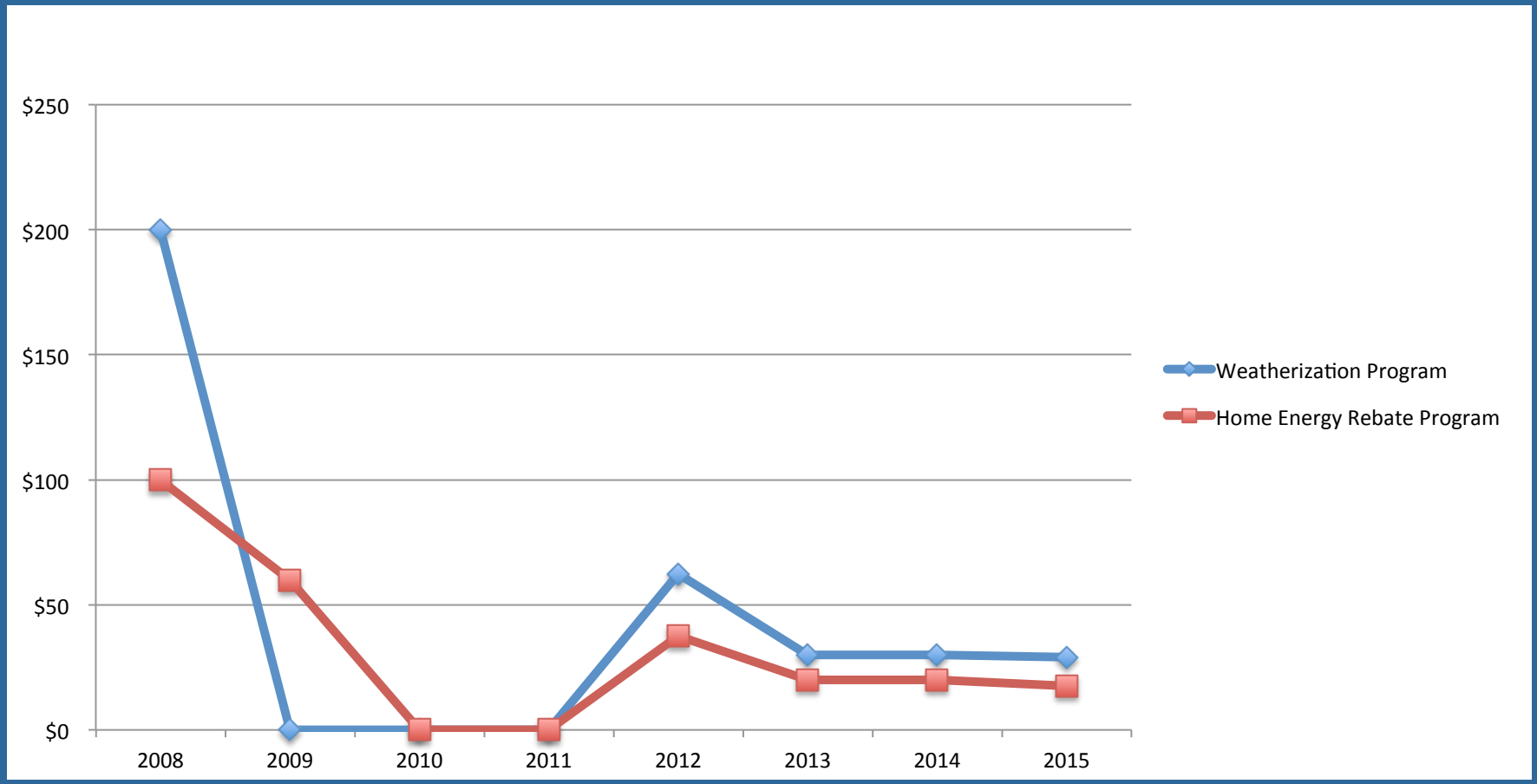
Legislative Appropriations to AHFC Energy Efficiency Programs



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Criteria?

- Technical & Economic Feasibility
  - Life Cycle Cost Analysis
- Matching Funds
- Cost of Energy
- Economic and Other Alaska Benefit
- Project Readiness
- Local Support
- Sustainability

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What Are Others Doing?

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DSIRE™

Database of State Incentives for Renewables & Efficiency

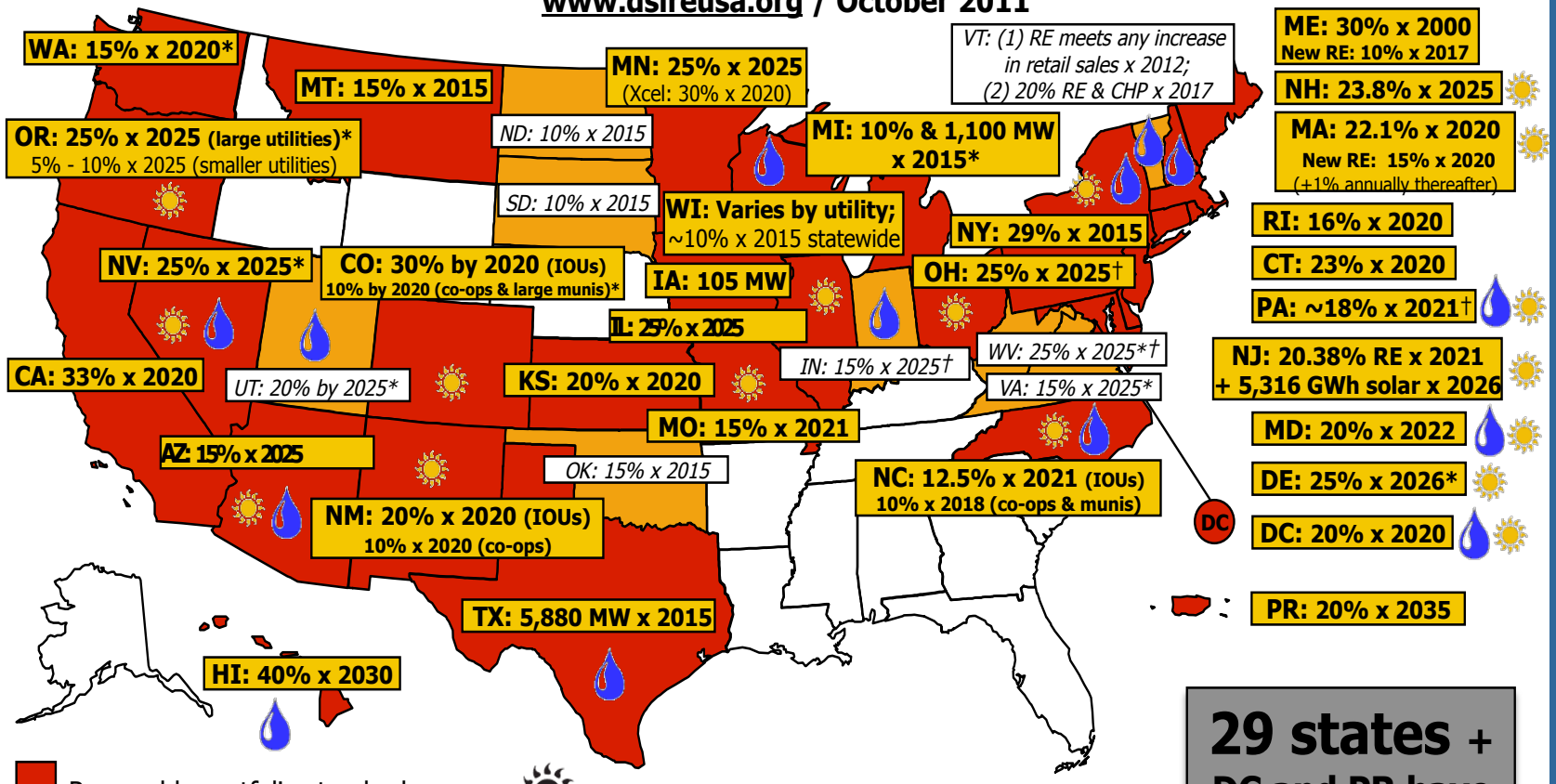
U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

IREC Interstate Renewable Energy Council

North Carolina Solar Center

RPS Policies

www.dsireusa.org / October 2011



Renewable portfolio standard

Renewable portfolio goal

Solar water heating eligible

Minimum solar or customer-sited requirement

* Extra credit for solar or customer-sited renewables

† Includes non-renewable alternative resources

29 states + DC and PR have an RPS

(8 states have goals)

Benefits of Long Term Policy

- *Policy certainty lowers risk*
- Lowered risk means:
  - Lower financing costs – up to 30% lower
  - More investment
  - Continued innovation
  - Economic prosperity

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Future Needs

- Statewide Residential Building Code
- Regulatory Reform & Transmission Upgrades
- *Domestic* Energy Policy with Teeth

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What RE & EE Can Do For Alaska

- *Reduce* fossil fuel use and imports
- *Stabilize* energy prices
- *Attract* investment
- *Diversify* our economy and create jobs
- *Help* us remain an "energy state"

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Business of Clean Energy in Alaska
Conference May 1-2

- National and State Experts, Businesses, Policy Makers & Others
- Networking, Exhibit Hall
- Keynotes: Denis Hayes and Dan Reicher

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Thank You!

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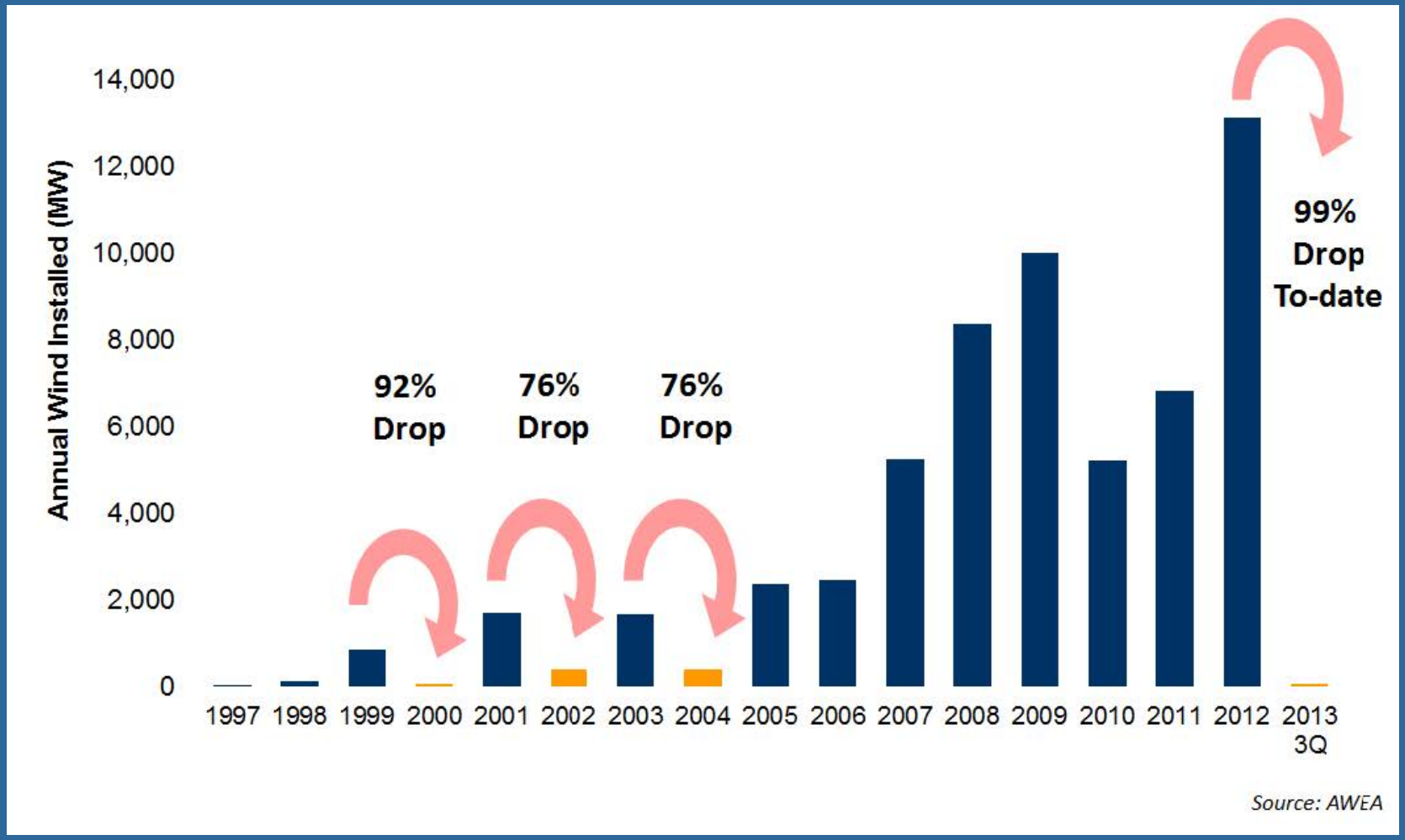
Historical impact of Production Tax Credit (PTC) expiration on annual wind capacity installation



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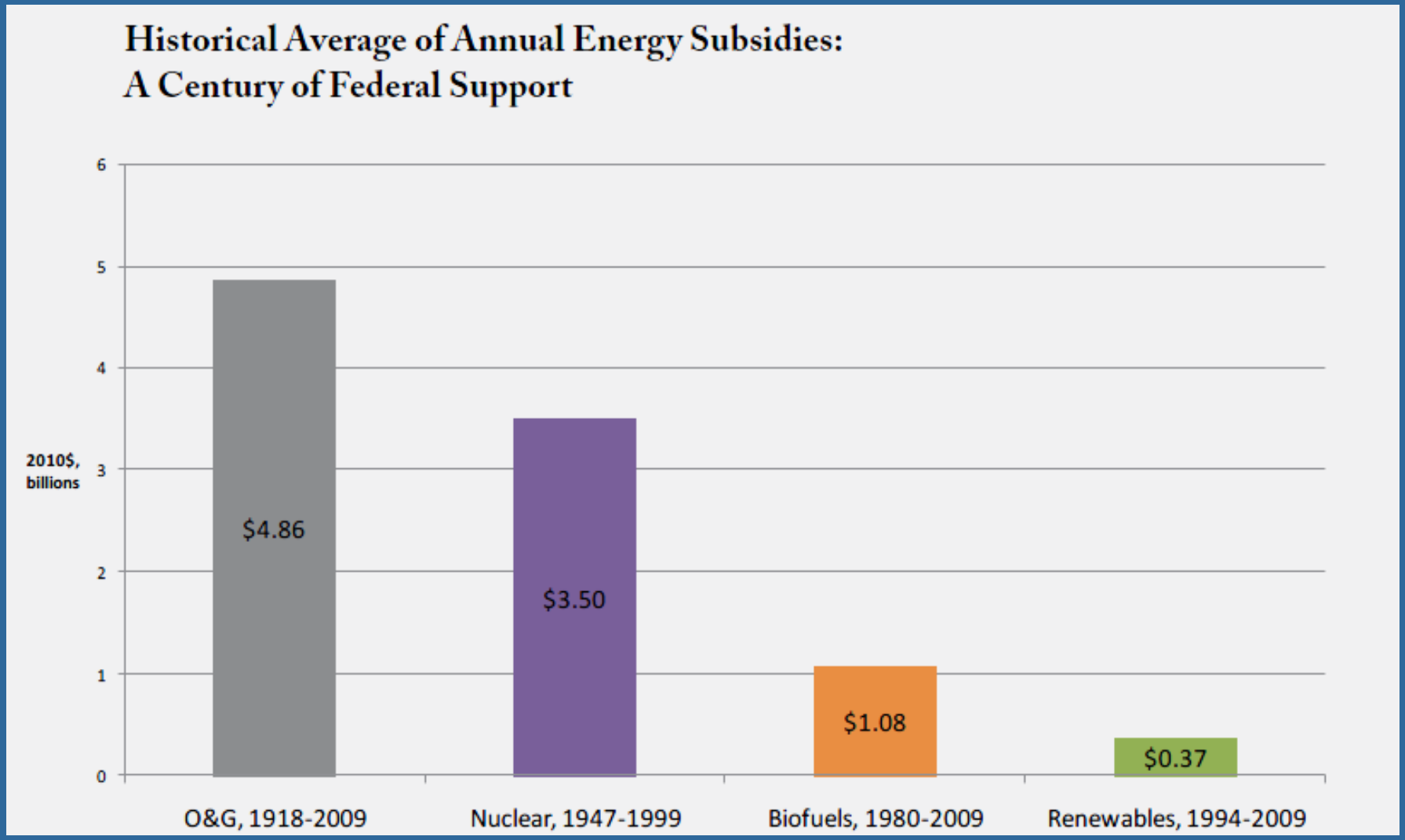
US Energy Subsidies



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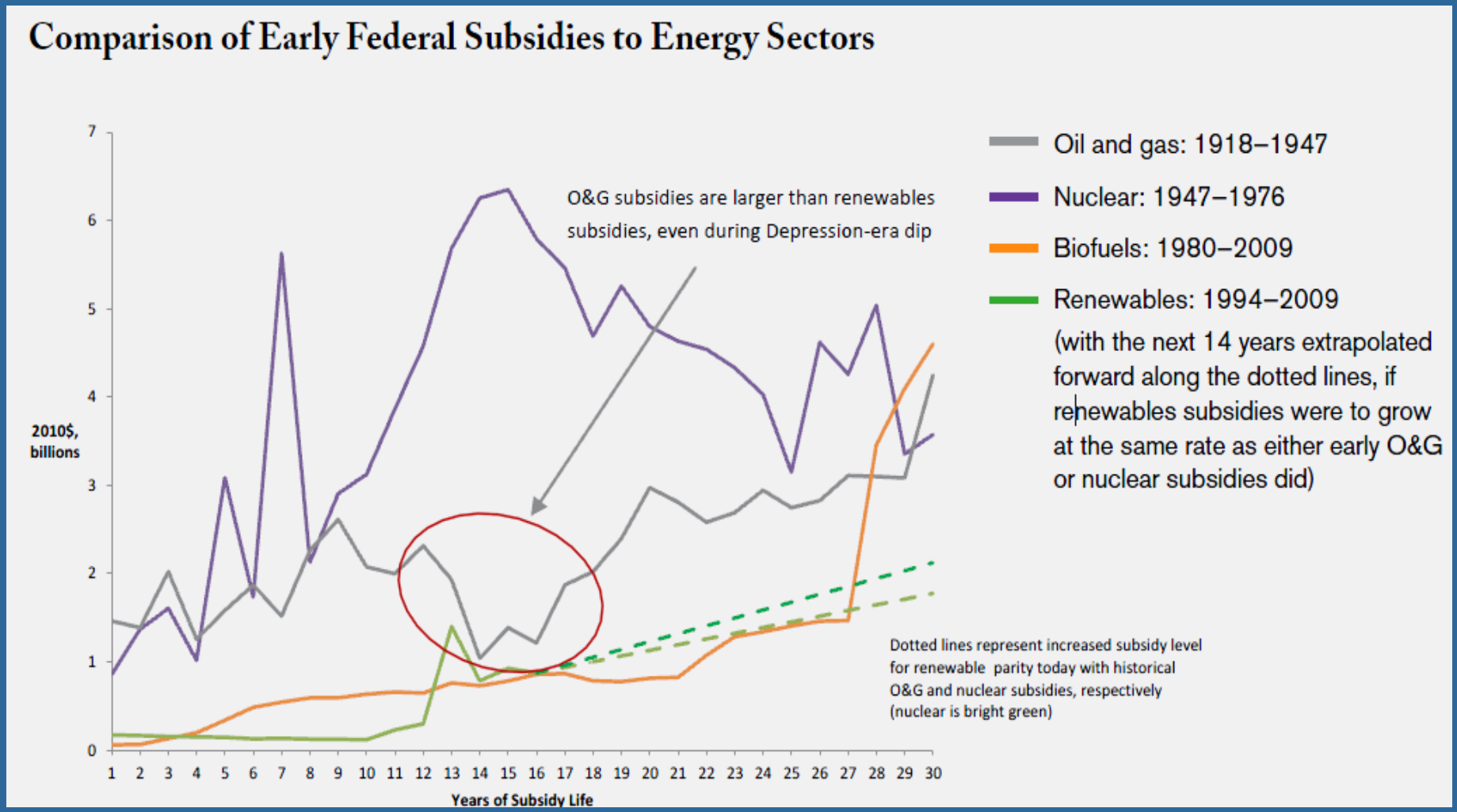
US Energy Subsidies



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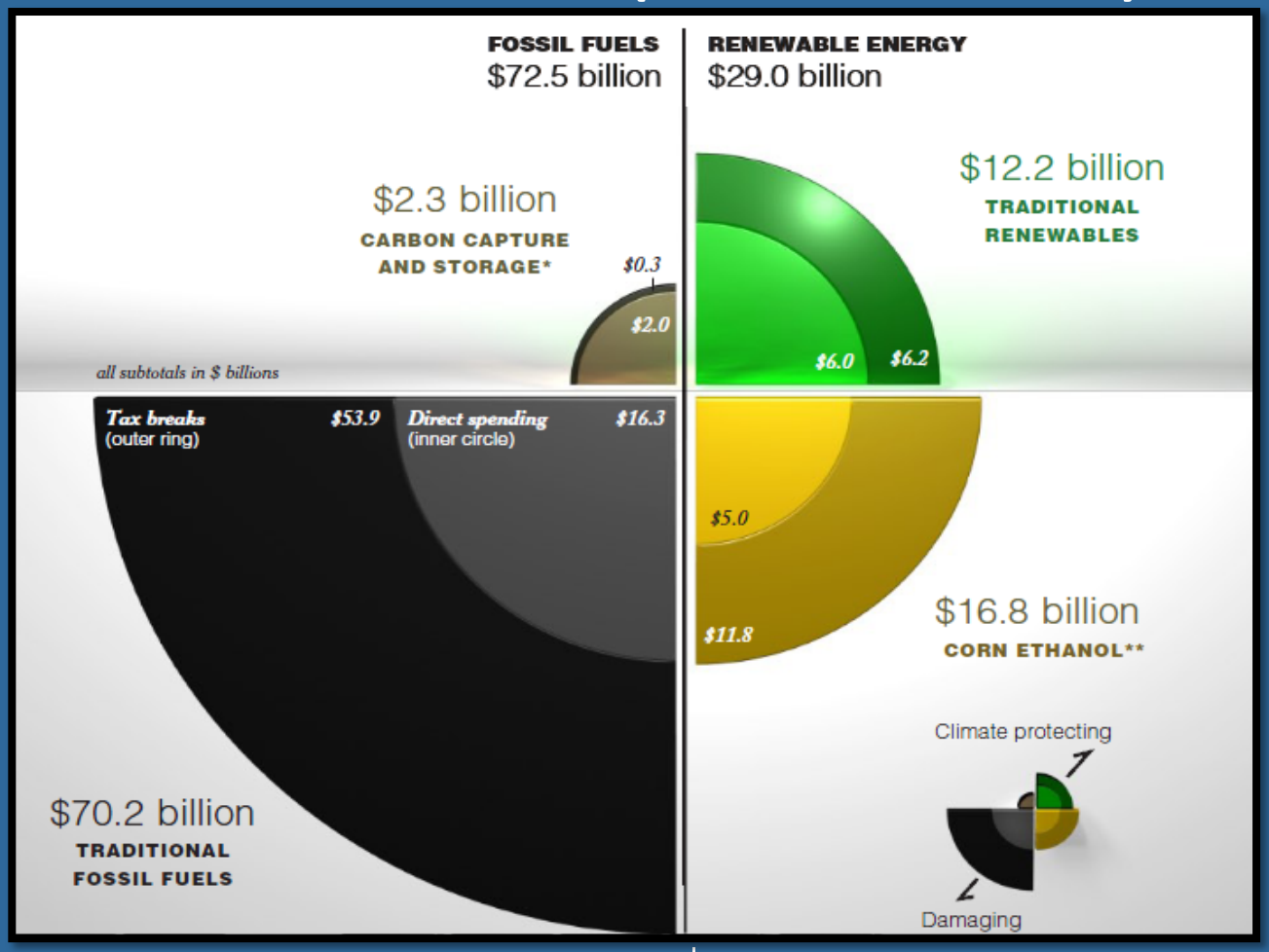
Federal Energy Subsidies 2002-2008 (cumulative)



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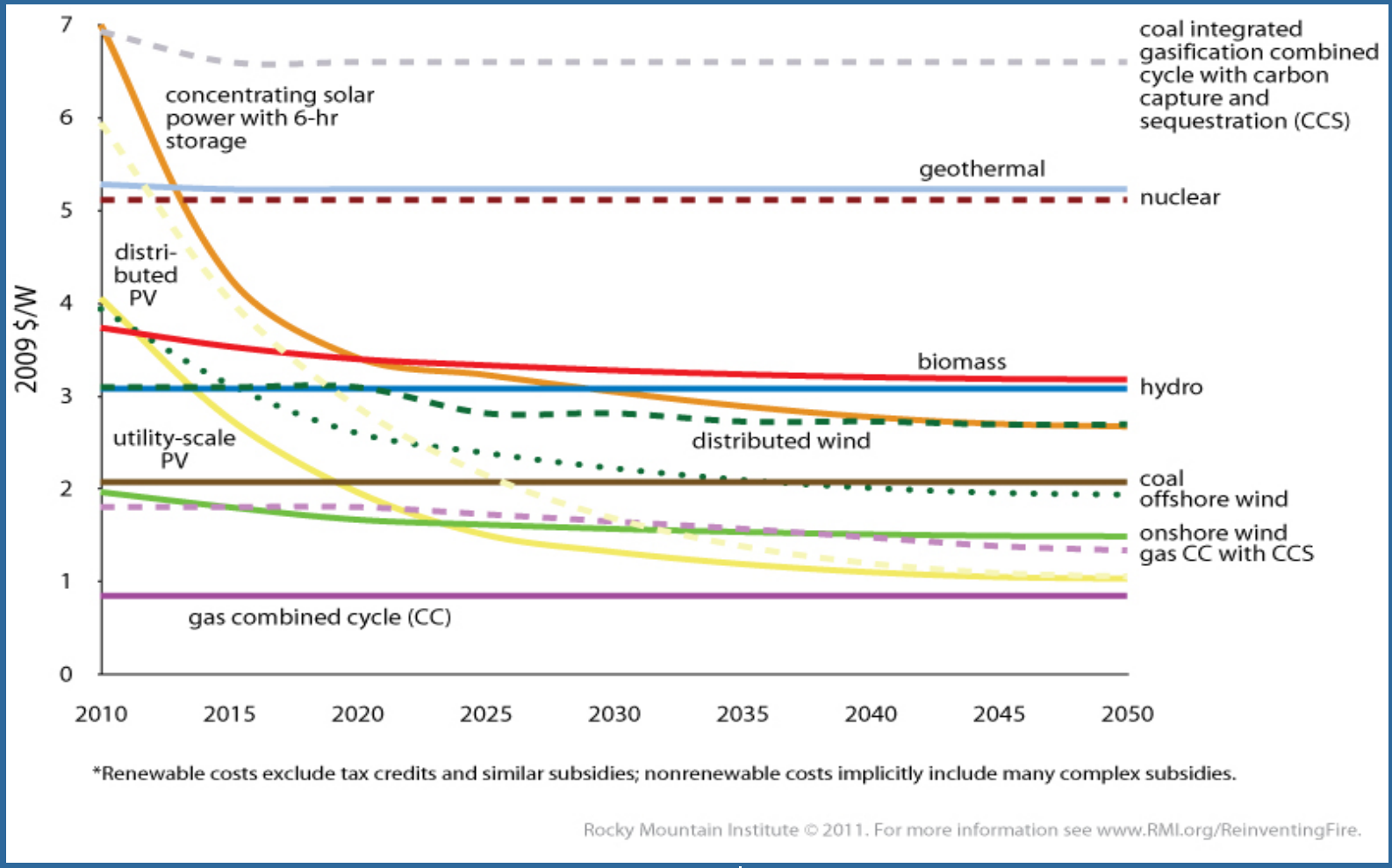
Technology Capital Cost Projections 2010-2050



*Renewable costs exclude tax credits and similar subsidies; nonrenewable costs implicitly include many complex subsidies.

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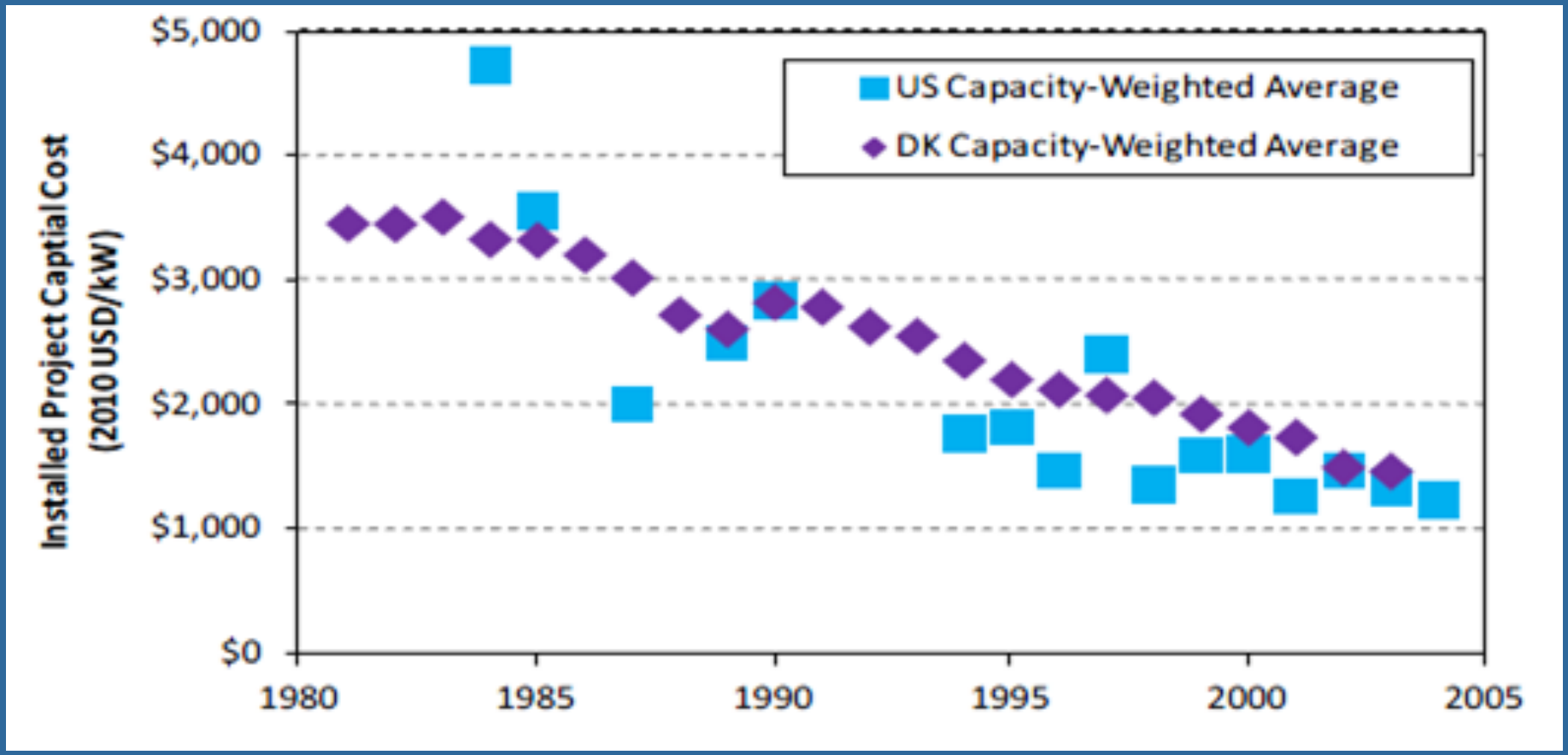

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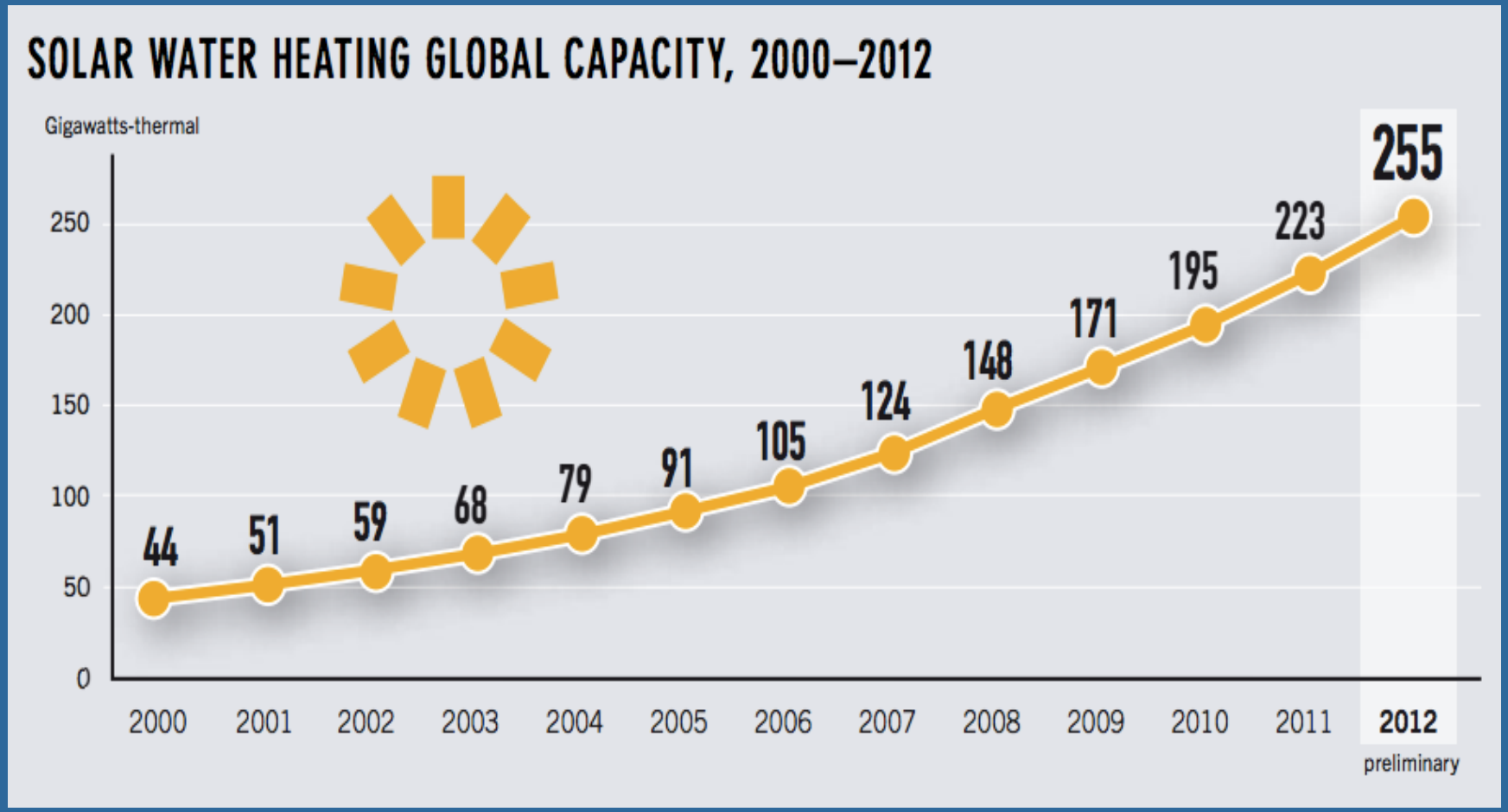

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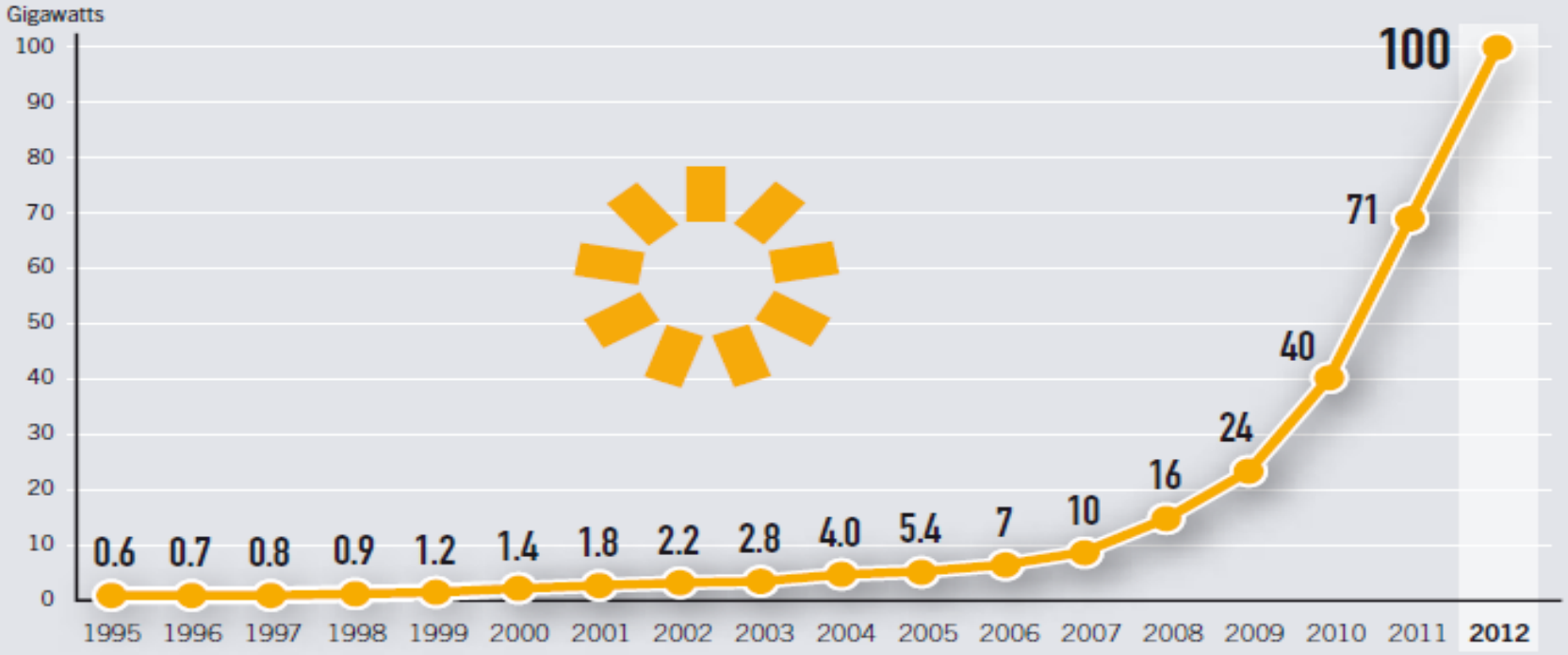
SOLAR PHOTOVOLTAICS (PV)

FIGURE 11. SOLAR PV GLOBAL CAPACITY, 1995–2012



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