

Energy Efficiency: the First Fuel in the Race for a Clean Energy Future

Bill Prindle, Deputy Director

American Council for an
Energy-Efficient Economy

RESNET, February 18, 2008



Overview

Why the “First Fuel”?

- Cheapest carbon savings
- Only near-term resource option
- Available everywhere in large amounts
- Best economic strategy

How can we mine the first fuel?

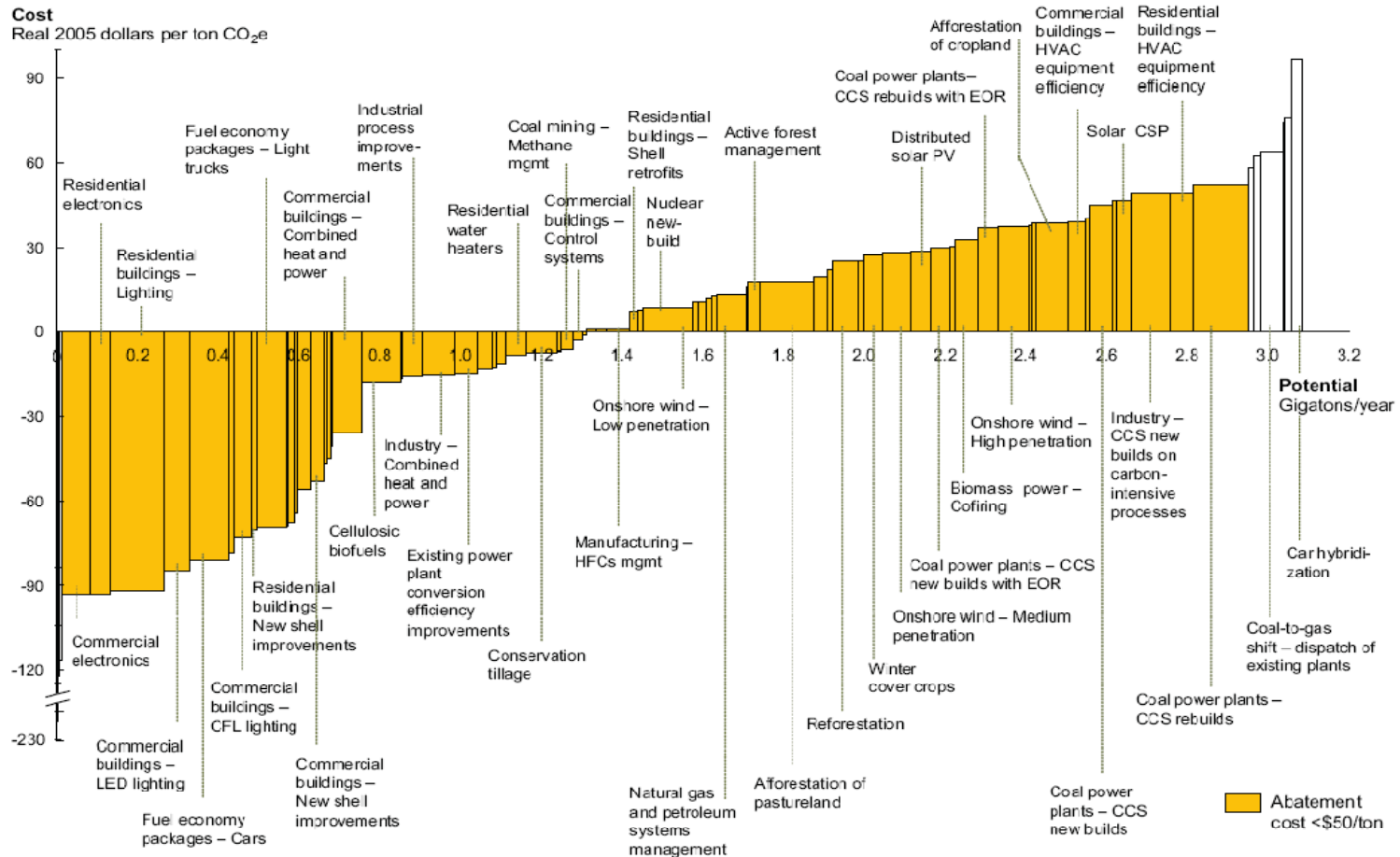
- Energy policies that overcome barriers
- Climate policies that use EE effectively
- Better delivery infrastructure: Financing, expertise, person-power

What does it all mean for RESNET?



Cheapest Carbon Savings

U.S. Mid-Range Abatement Curve – 2030



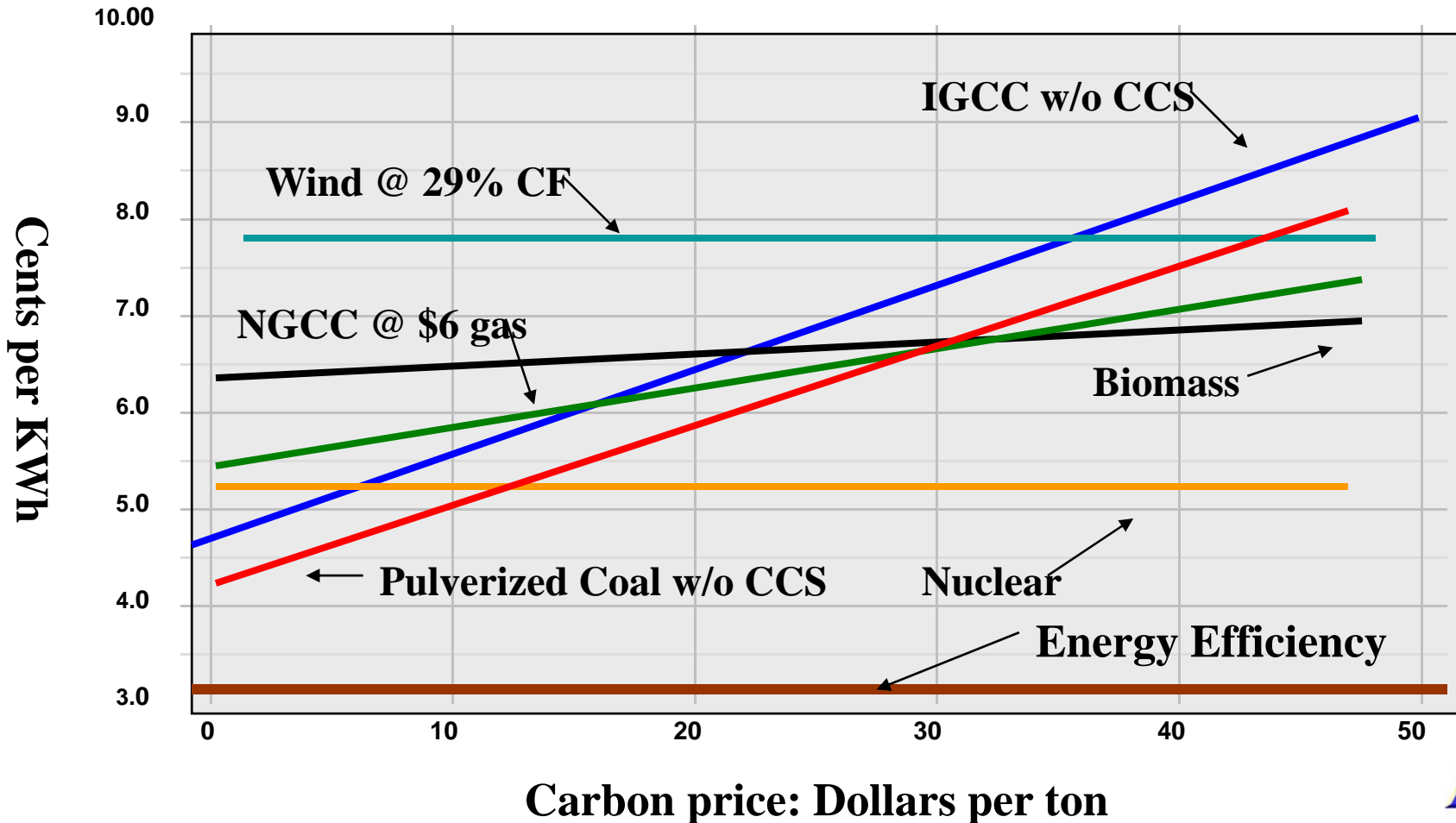
Source: McKinsey analysis

Note: The McKinsey report only examines a scenario through 2030. NRDC recommends a goal of 80 percent emissions reductions by 2050.



Cheapest Energy Resource

Levelized Cost of Electricity by Source

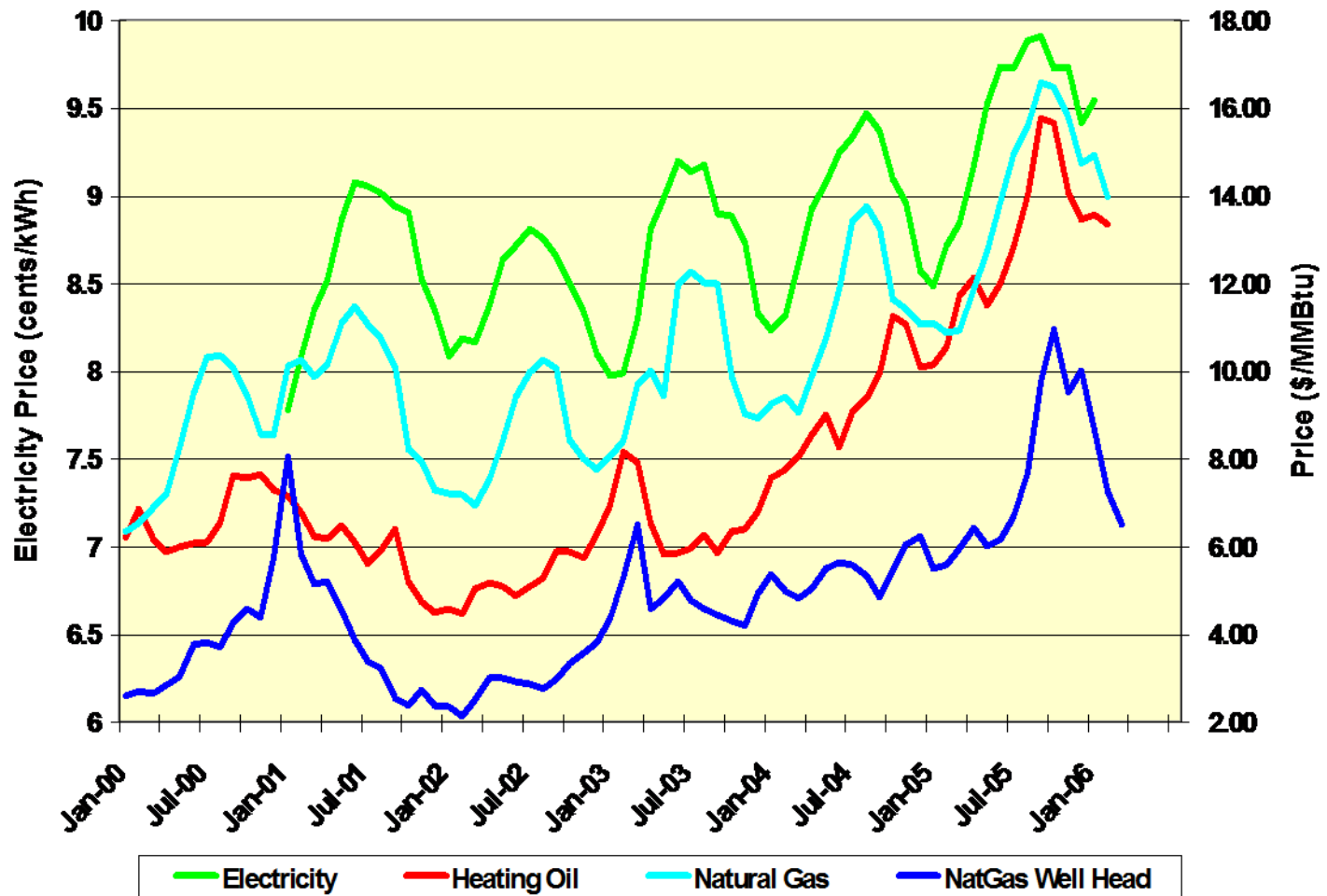


Only Near-Term Option

- Delivery of conventional energy is strait-jacketed
- Global competition for materials as well as fuels limits availability
- If we don't moderate demand, no clean energy scenario will catch up
- We know how to deliver efficiency

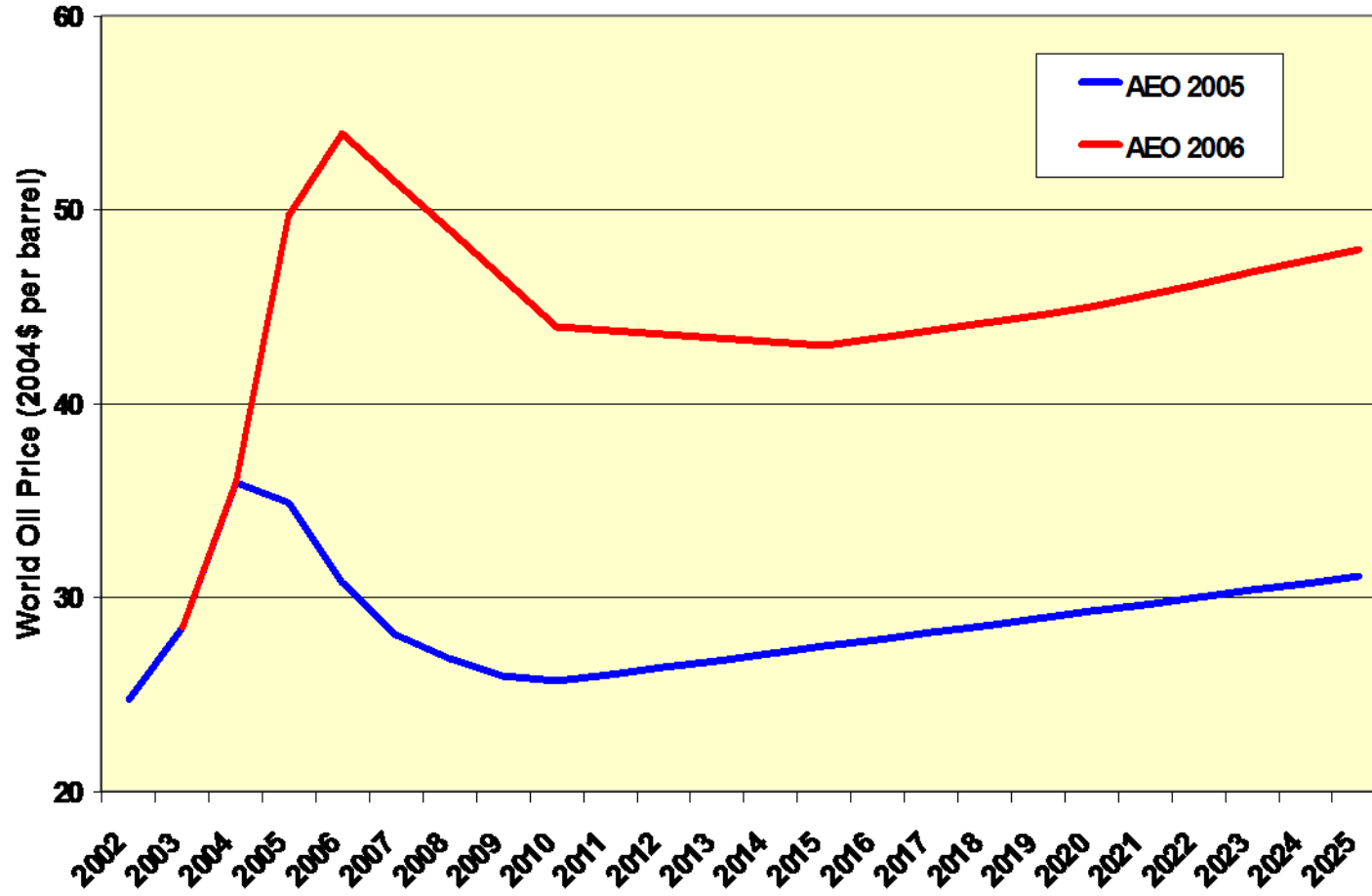
Prices Reflect Tight Markets

Residential Energy Prices



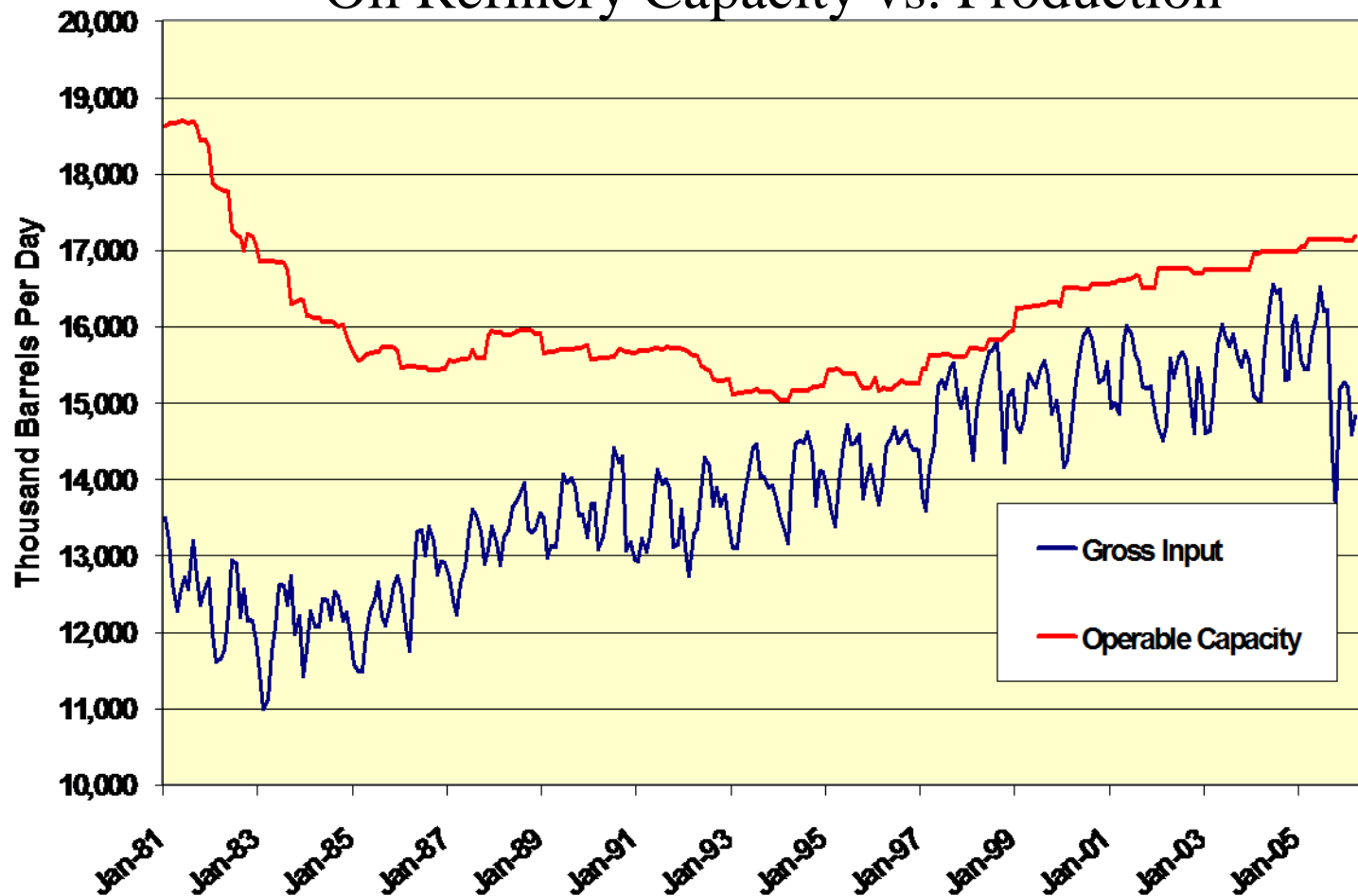
Oil Sets the Global Pace

Crude Oil Price Forecast: 2006 vs. 2005

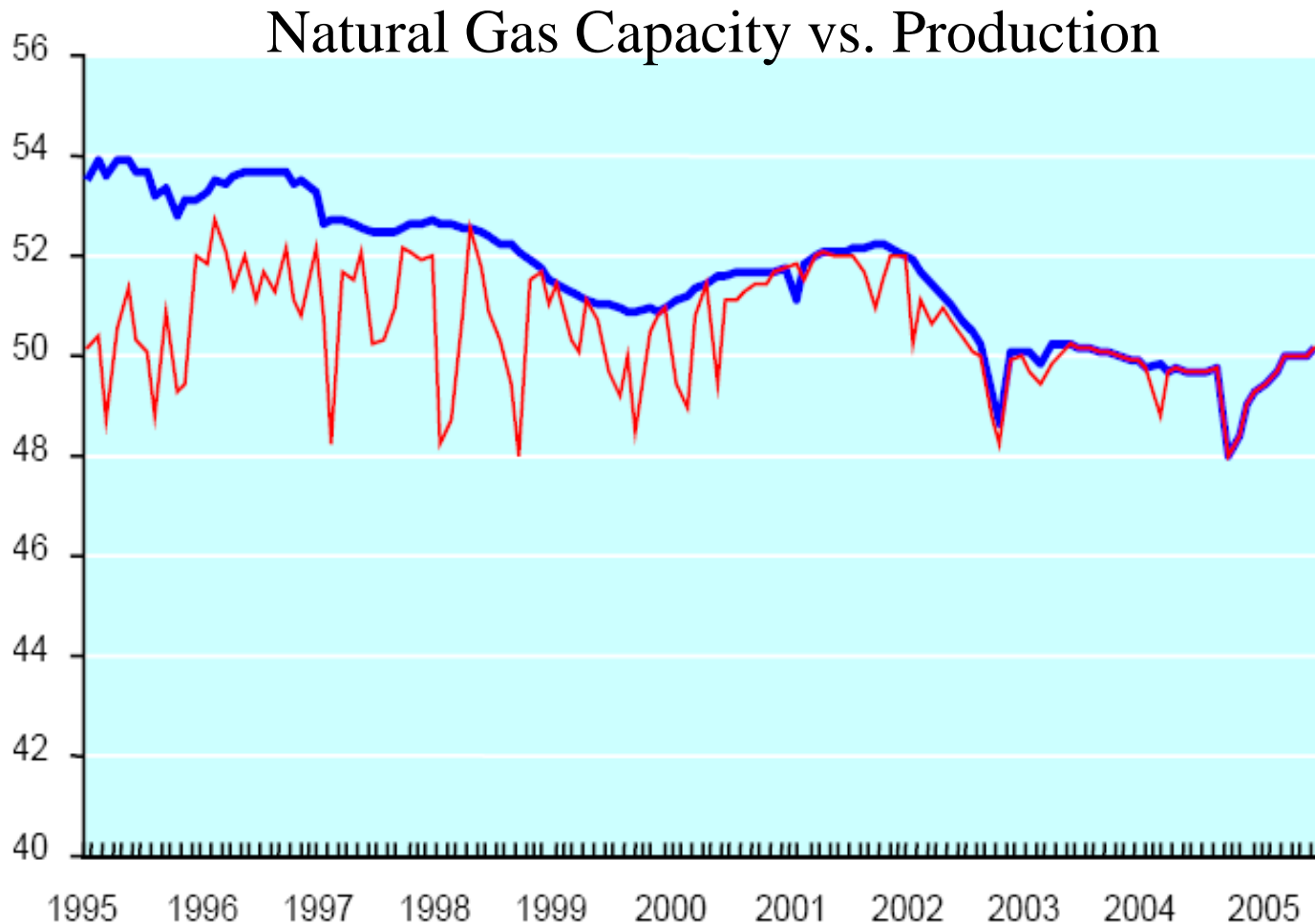


It's Not the Barrels in the Ground, Stupid

Oil Refinery Capacity vs. Production

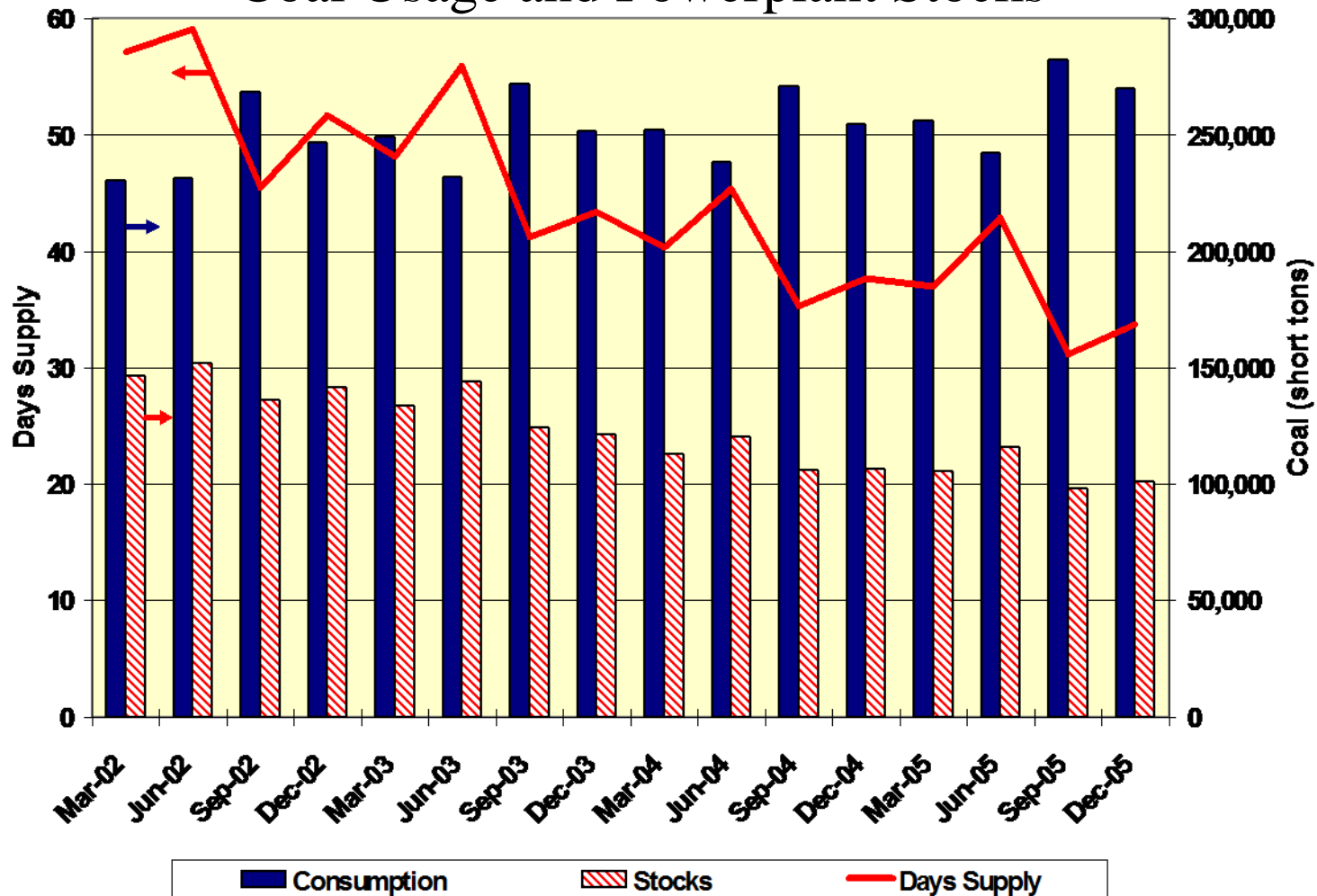


...Nor the Gas Underground



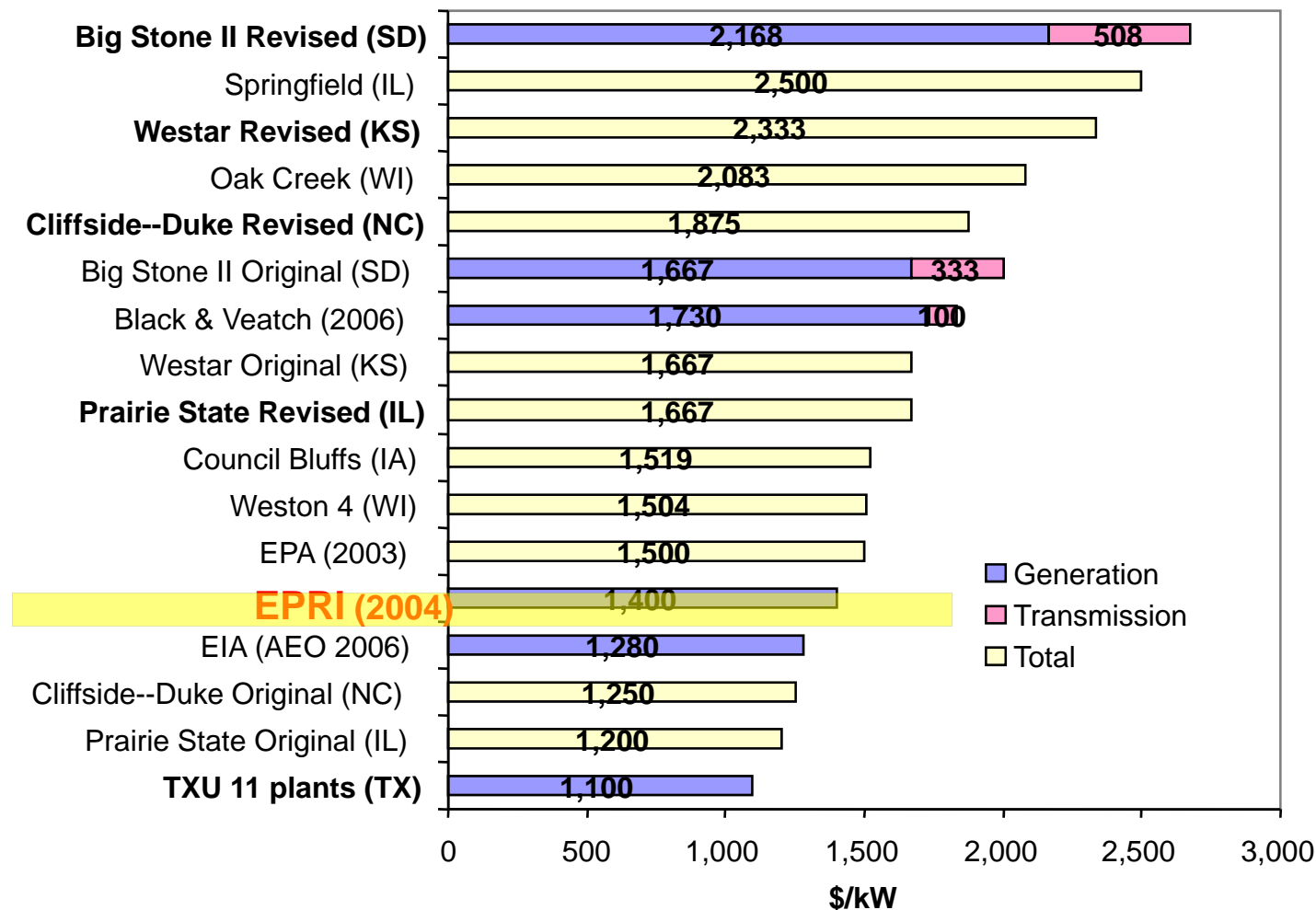
...Not Even the “Saudi Arabia” of Coal

Coal Usage and Powerplant Stocks



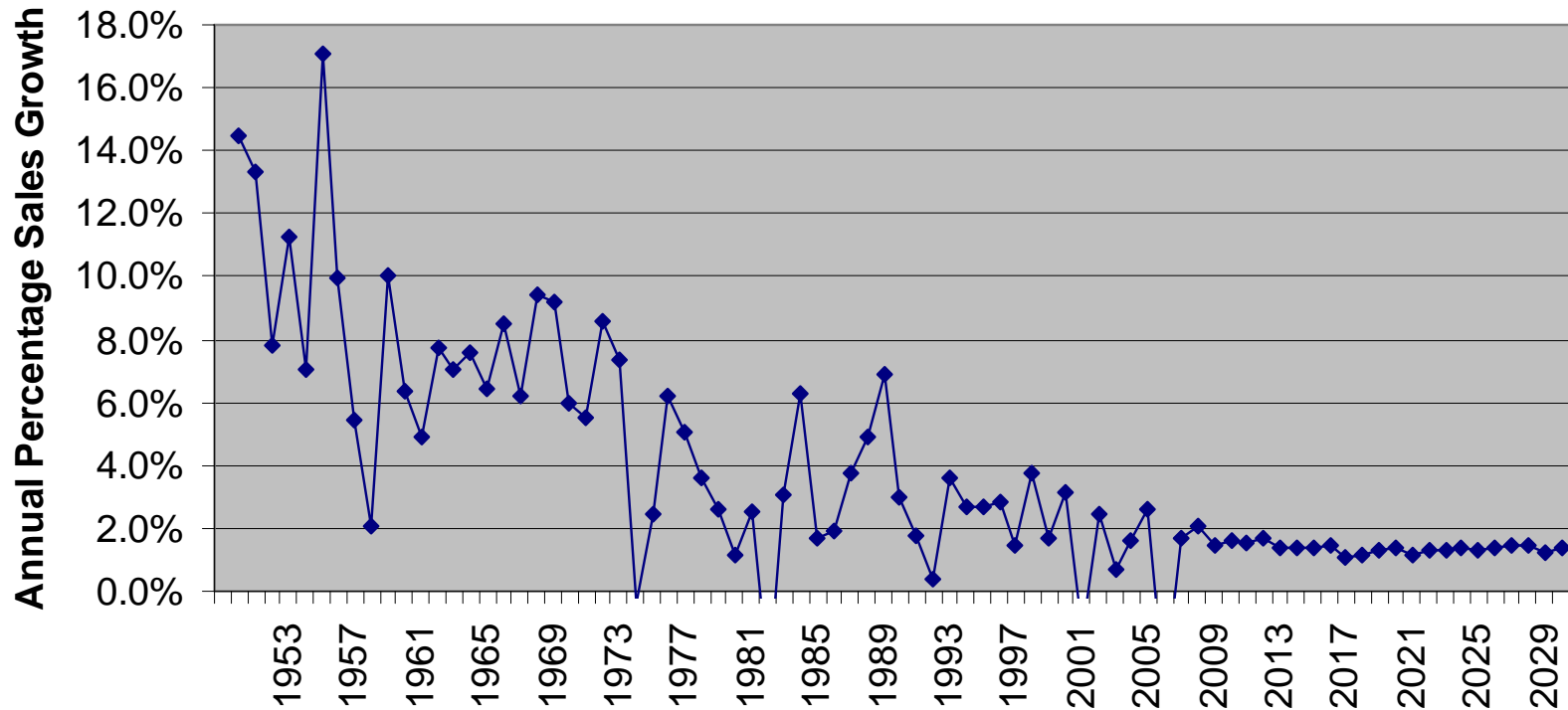
Capital Costs Rising Too

New pulverized coal capital costs



Electricity Has Become a Slow-Growth Business

Electricity Demand Growth 1949-2030

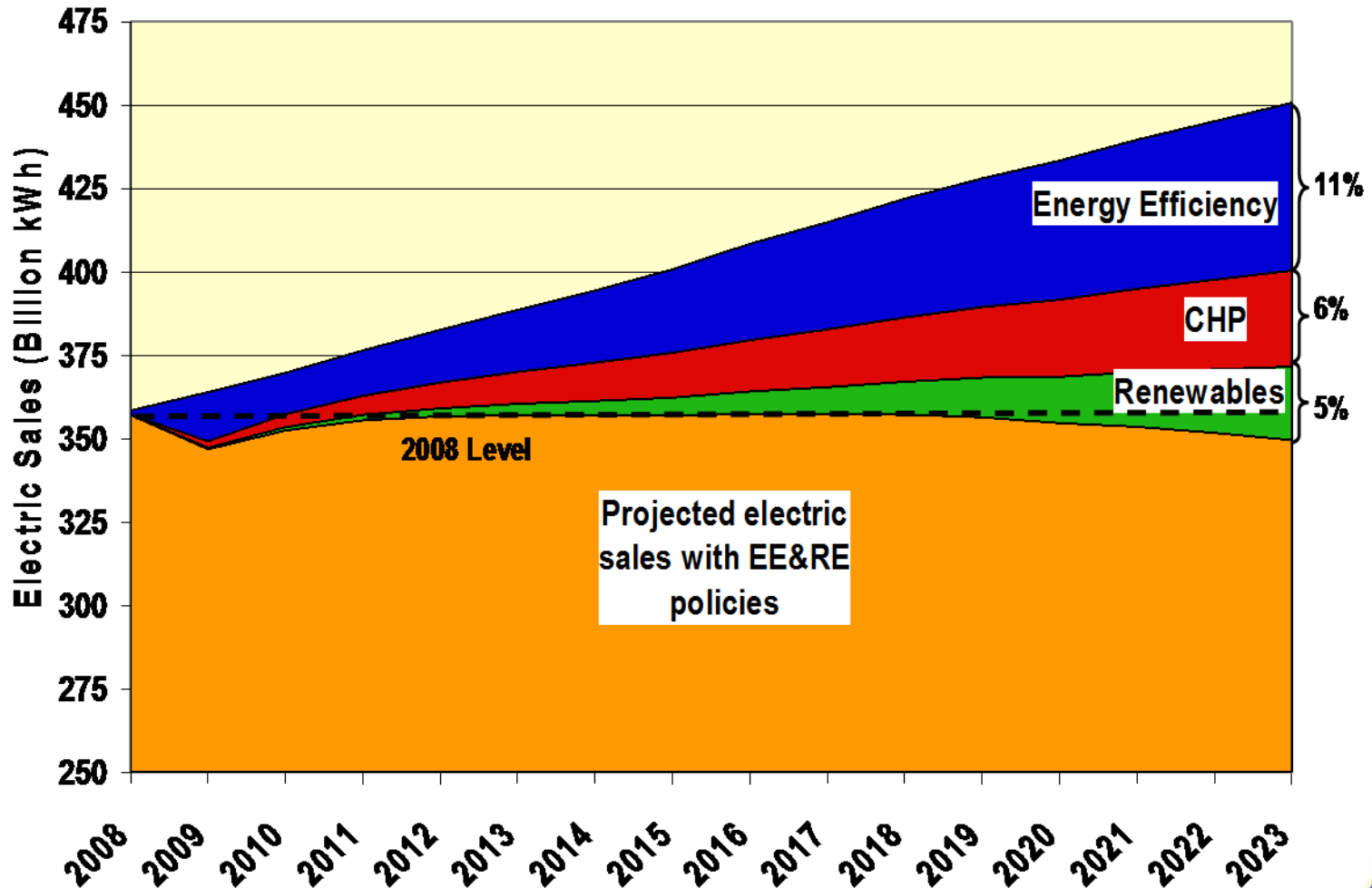


How Fast Can We Deploy Low-Carbon Supplies?

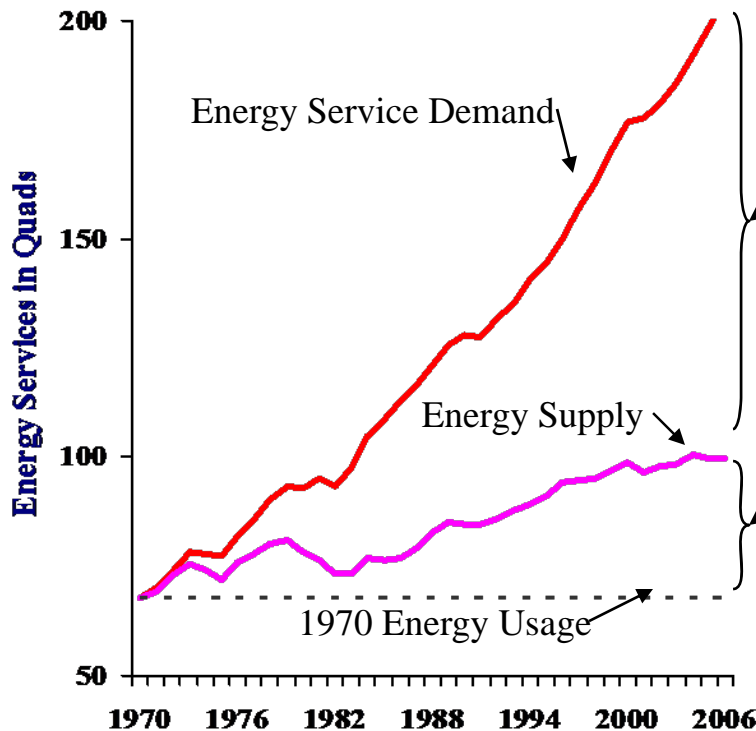
- Biofuels: ~20% of fuel by ~2020?
- Renewable electricity: ~20% of power gen by ~2020?
- “Clean” coal: decades to bring functional IGCC/CCS infrastructure on line
- New nuclear: \$3000/kW? \$5000 anyone? Whose backyard will take the waste?

...and 20% of how much demand?

Available Everywhere: the Texas Example



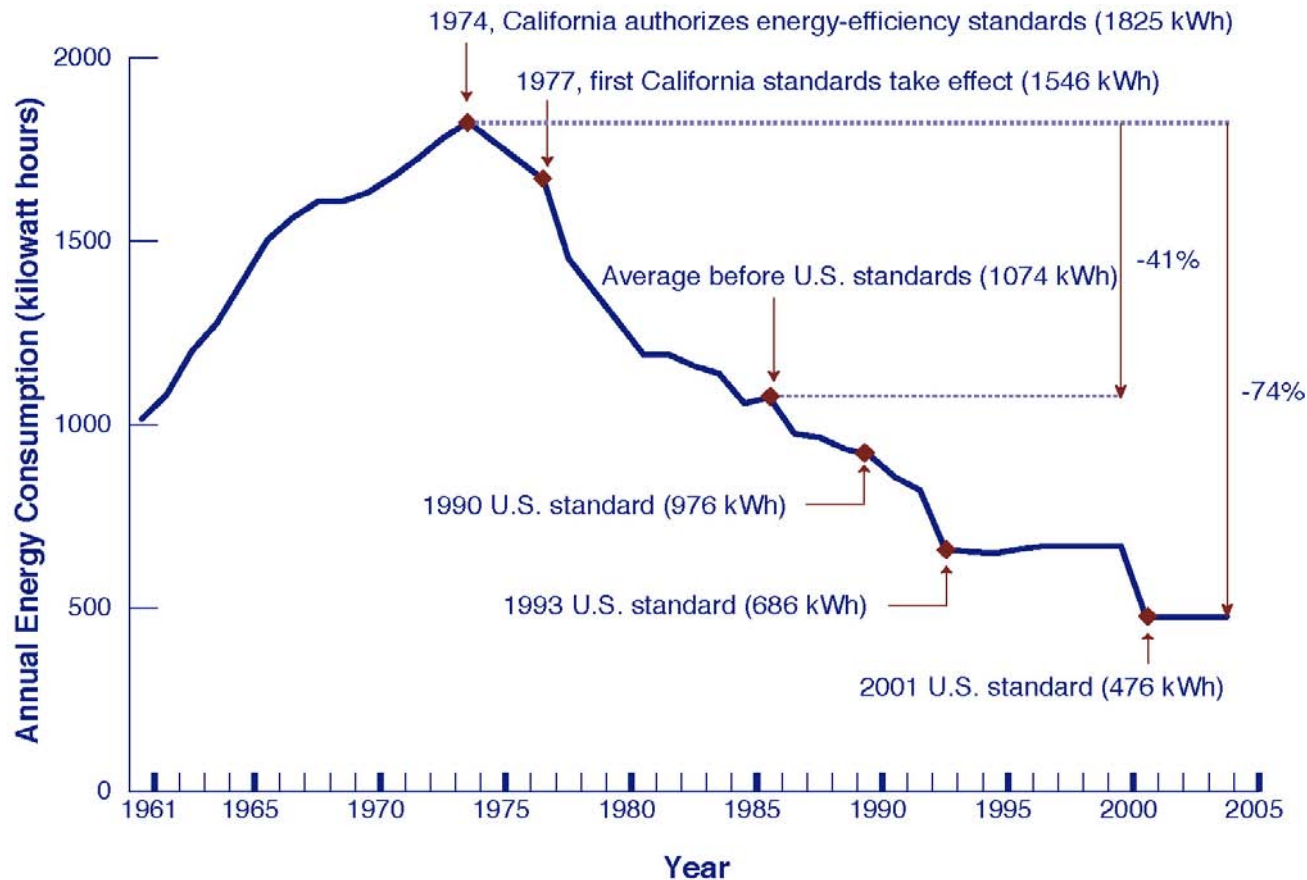
The Best Economic Strategy



- Since 1970, **energy efficiency** has met 77% of new energy service demands in the U.S, while **new energy supplies** have contributed only 23% of new energy service demands.

...One Appliance at a Time

The humble refrigerator...



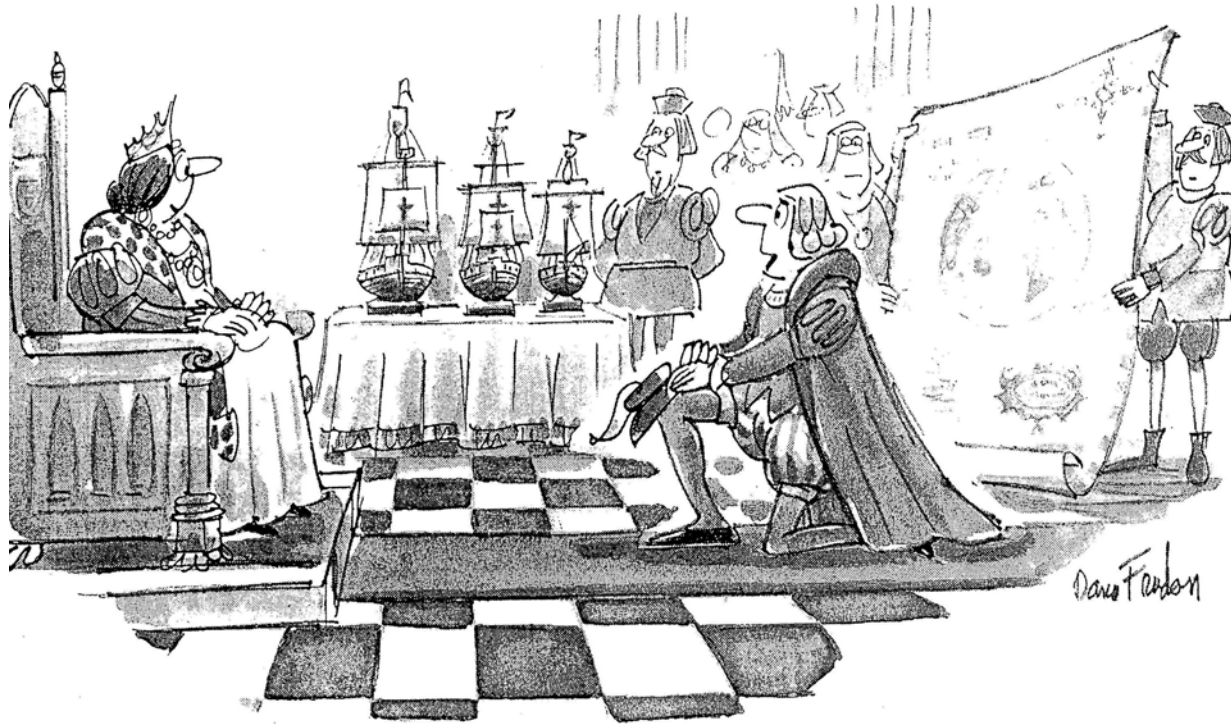
Efficiency: the Silent Economic Engine

- Total annual investment in energy-efficient technologies and services = \$300+ billion
 - Energy Star Product sales = \$88 billion
 - Efficiency value added is not 100% of all investments
- Total 2004 U.S. investment in *energy supply* infrastructure = \$100 billion
- **Inference:** U.S. energy services infrastructure investment exceeds energy supply infrastructure investment
- **Implication:** Investment opportunity is larger on the demand side than the supply side

...Quietly Creating Jobs

- 2004 energy efficiency investment supports 1.6 million U.S. jobs
 - 230,000 directly attributable to efficiency value added
 - Distributed among manufacturing, services, construction
 - Jobs created in more labor-intensive sectors than those stimulated by energy supply investments
 - Direct jobs multiplier:
 - > 6 jobs per \$ million invested, vs.
 - ~ 2 jobs/\$ million for typical supply investments

...with a Caveat, of Course



“Your Majesty, my voyage will not only forge a new route to the spices of the East, but it will also create over 3,000 jobs.”

But: Policy Leadership is Needed To Spur EE Markets

- Markets work, but won't reap enough EE fast enough
 - Income elasticity and cross-elasticity block price elasticity
 - Principal-agent barriers—builder-buyer, landlord-tenant
 - Information-cost barriers—consumers don't have time/\$ to study each purchase
- IEA study: over half of U.S. residential building heating/cooling/hot water energy usage is affected by the principal-agent barrier alone
- Utility regulation must be reformed for the 21st century
- ***Bottom line:*** policy action is need to make markets work for a clean energy future

Energy Policies That Overcome Barriers

- RD&D—filling the technology pipeline
- Rating and Labeling: Energy Star and beyond
- Building codes—emphasis on performance
- Appliance standards
- Tax incentives—performance-based
- Energy Efficiency Resource Standards
 - Tradable markets for efficiency

Energy Efficiency Resource Standards (EERS)

- In place or in development in 15+ states
 - Current targets would save 0.8% nationally in 2019
- Places long-term savings targets for utilities
- Provides flexibility in attainment
- Leading to third-party, “white tags”-type market mechanisms
 - Can supplement utility targets, carbon markets
 - Was part of House RES provision in 2007

Carbon Policies That Use EE Effectively

- ***Flash:*** Neither Cap-and-trade ***Nor*** Carbon Taxes will drive enough EE investment
- Indirect-reduction problem keeps EE out of cap-and-trade emissions markets
- Carbon taxes rely on price elasticity effects, which are too weak in U.S. markets

Carbon Policies That Use EE Effectively

- Possible Fixes:
 - Auctioning allowances and using proceeds for EE: RGGI, Lieberman-Warner bill
 - Allocating allowances directly to entities that use them for EE: Lieberman-Warner, new EU system
 - Complementary policies like EERS, codes, standards, labeling/rating
 - Zero-energy building codes, linked to a white tags market to offset new energy demand from EE harvested from existing buildings

It's the Infrastructure, Stupid

- Manufacturing: If we come, they will build it
- Delivery: distributors, retailers, contractors, specifiers, purchasing agents
- Financing: mortgages, on-bill financing, aggregation for project financing, white tags
- Expertise: curriculum at trade schools, community colleges, universities; professional training
- Person-power: qualified raters, contractors, architects, engineers, building operators, property managers

What's it All Mean for RESNET?

- Infrastructure: Keep building it—they are coming!
- Work for policies that drive infrastructure and investment—EERS, tax incentives, performance-based codes
- Don't assume climate policy will make you rich!

Contact Information

Bill Prindle

Deputy Director

ACEEE

1001 Conn. Ave, NW, Suite 801

Washington, DC 20036

202-429-8873

bprindle@aceee.org

<http://www.aceee.org/energy>

