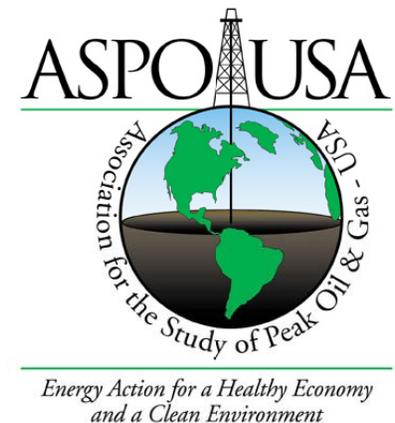


An Unfortunate Link Between Energy Codes and Energy Price Projections

*Steve Andrews, ASPO-USA
US DOE National Codes Workshop
August 1, 2006*





My comments

- Big Energy Picture context
 - Touch on oil; mostly natural gas
- EIA track record w/ energy price forecasts
- Energy prices and energy code upgrades
- Some Colorado energy code quirks
- If Steven Kanipe and Doug Seiter were co-Kings for the Day...

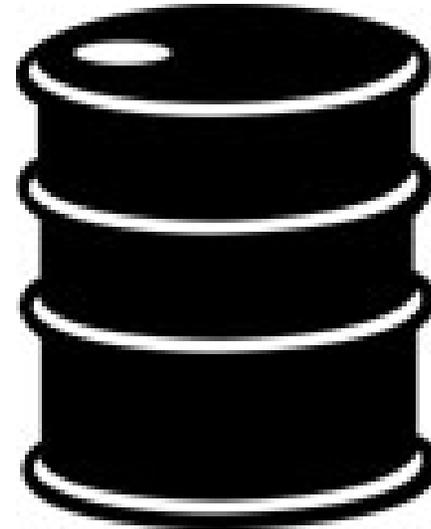
We're all very slow to respond to energy prices, in terms of changing buying habits.



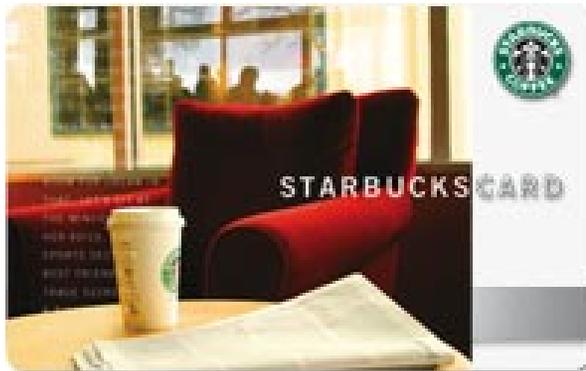
Where's the rage?!



\$ per...



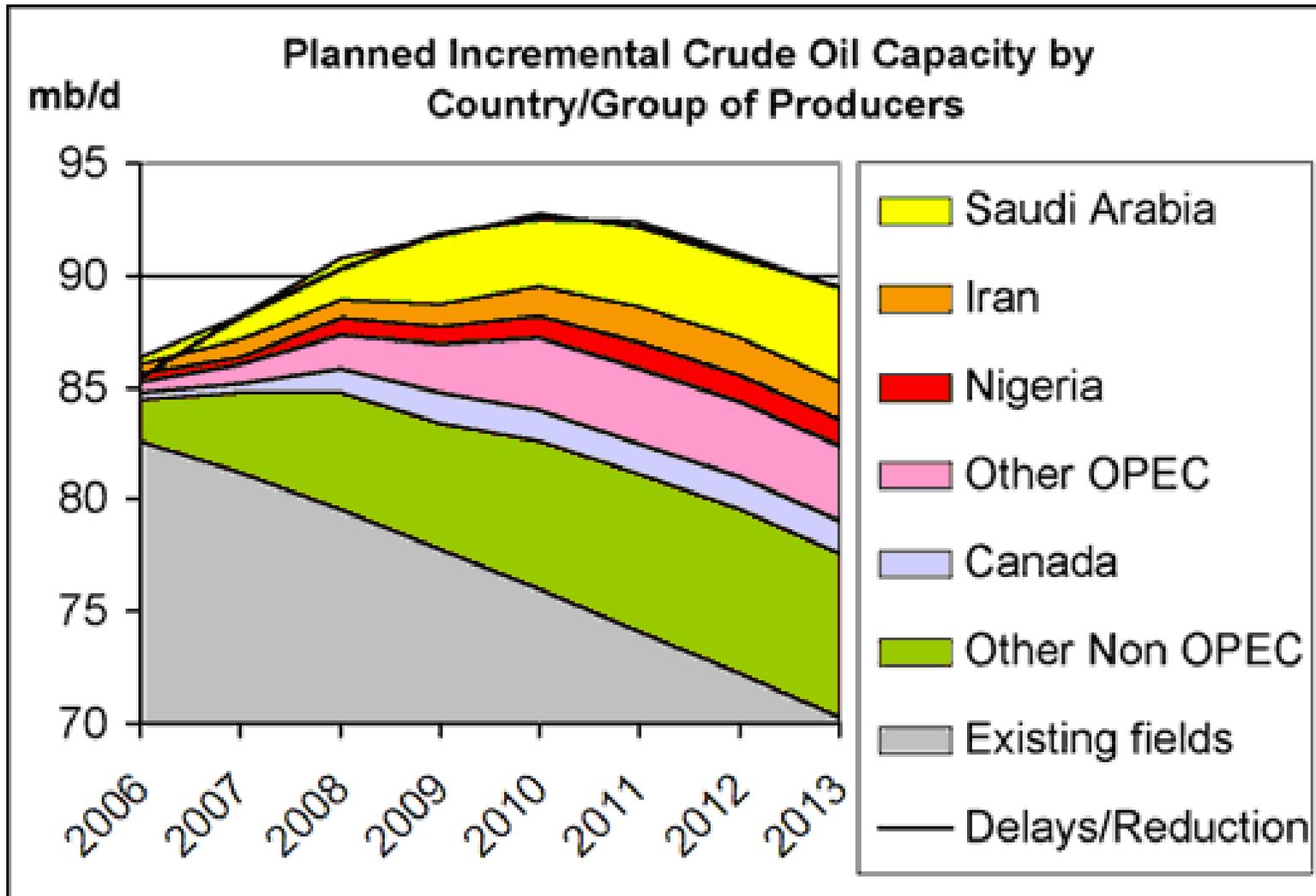
= ?



Toyota shows off new hybrid prototype



Net new capacity through 2013



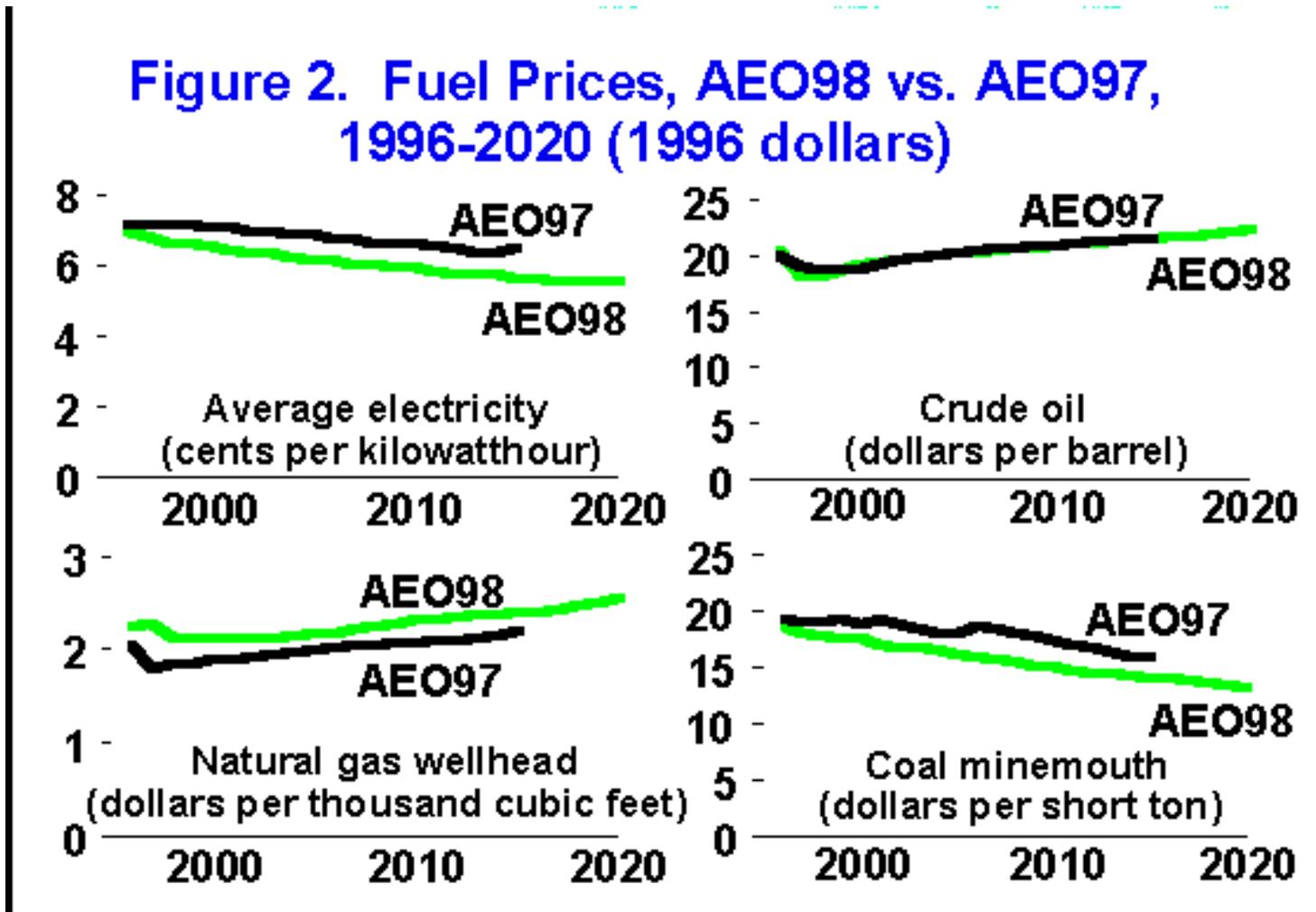
Source: Chris Skrebowski, *Petroleum Review*

Implication for fleet vehicle choices

- What do code officials drive?

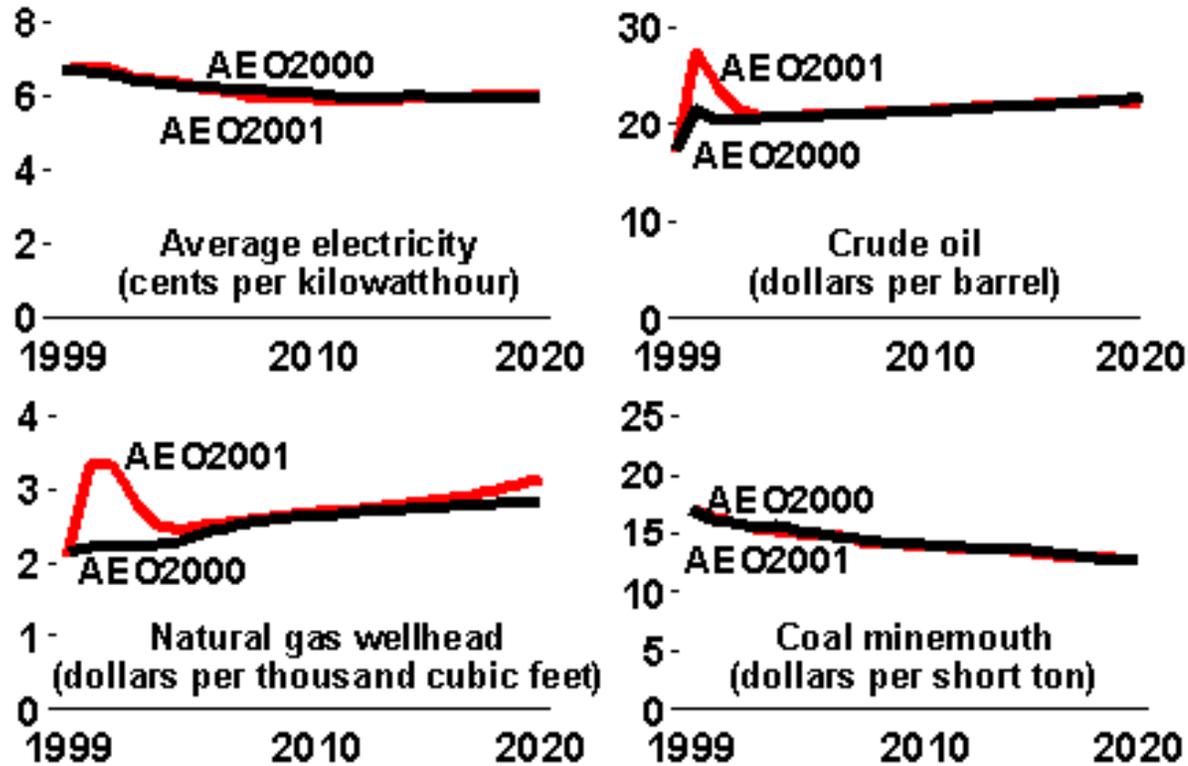


Close enough for hand grenades?



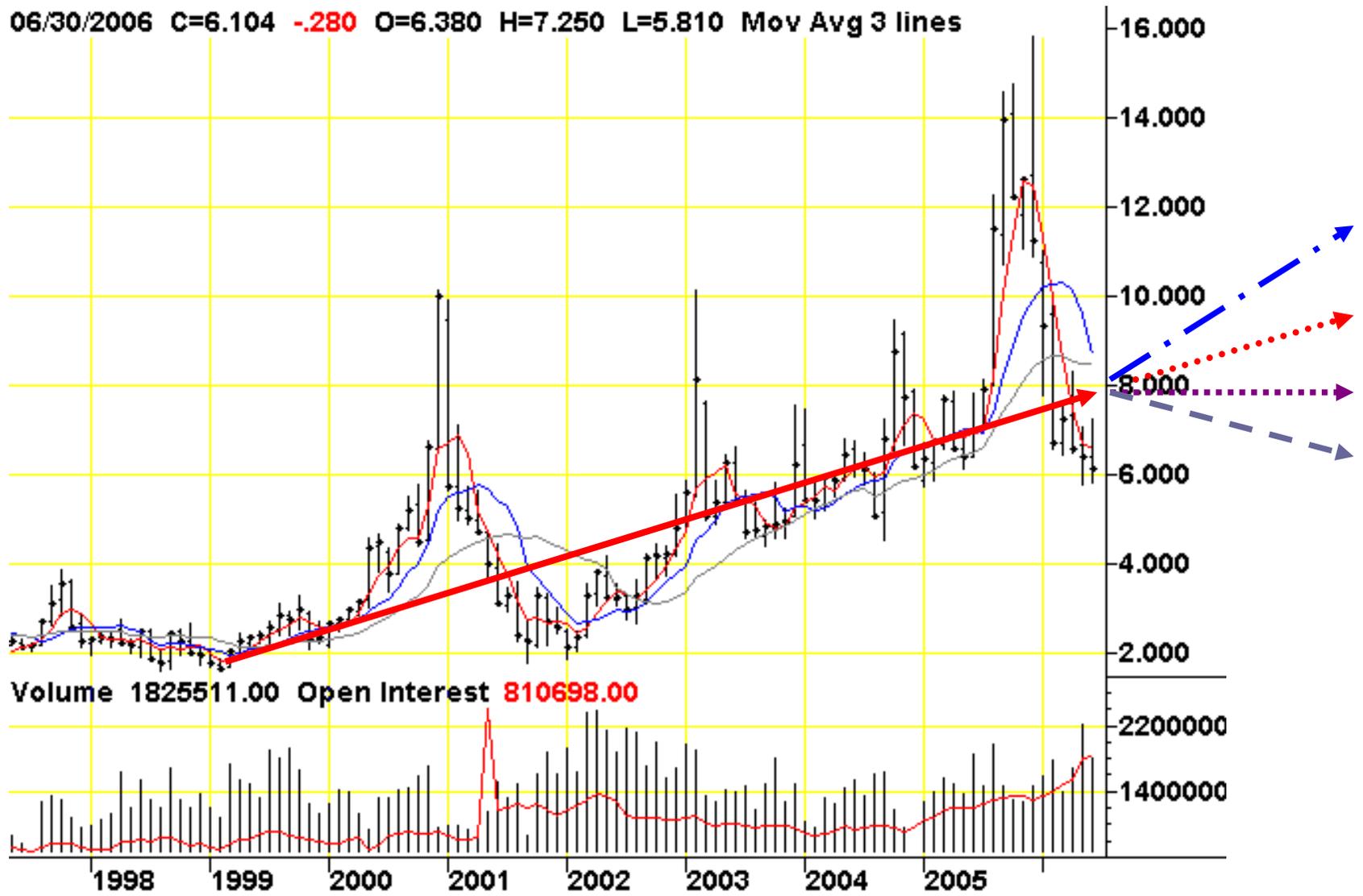
Where can I buy that \$21 oil?

Figure 1. Fuel Price Projections, 1999-2020
(1999 dollars)



TFC Commodity Charts
Natural Gas (NG, NYMEX)
Monthly Price Chart

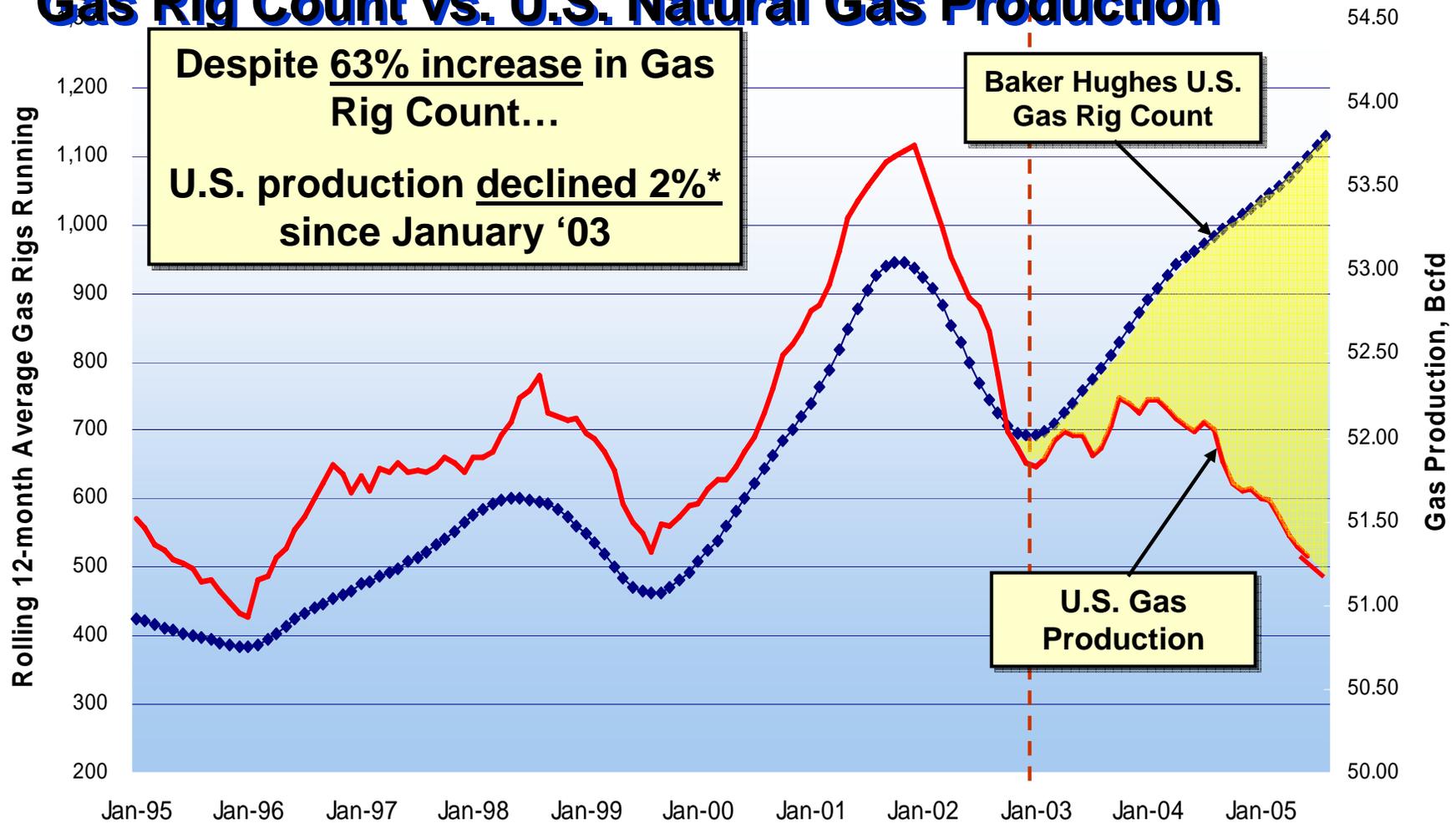
06/30/2006 C=6.104 **-.280** O=6.380 H=7.250 L=5.810 Mov Avg 3 lines



Volume 1825511.00 Open Interest **810698.00**

Tight Natural Gas Supply/Demand=Strong Prices

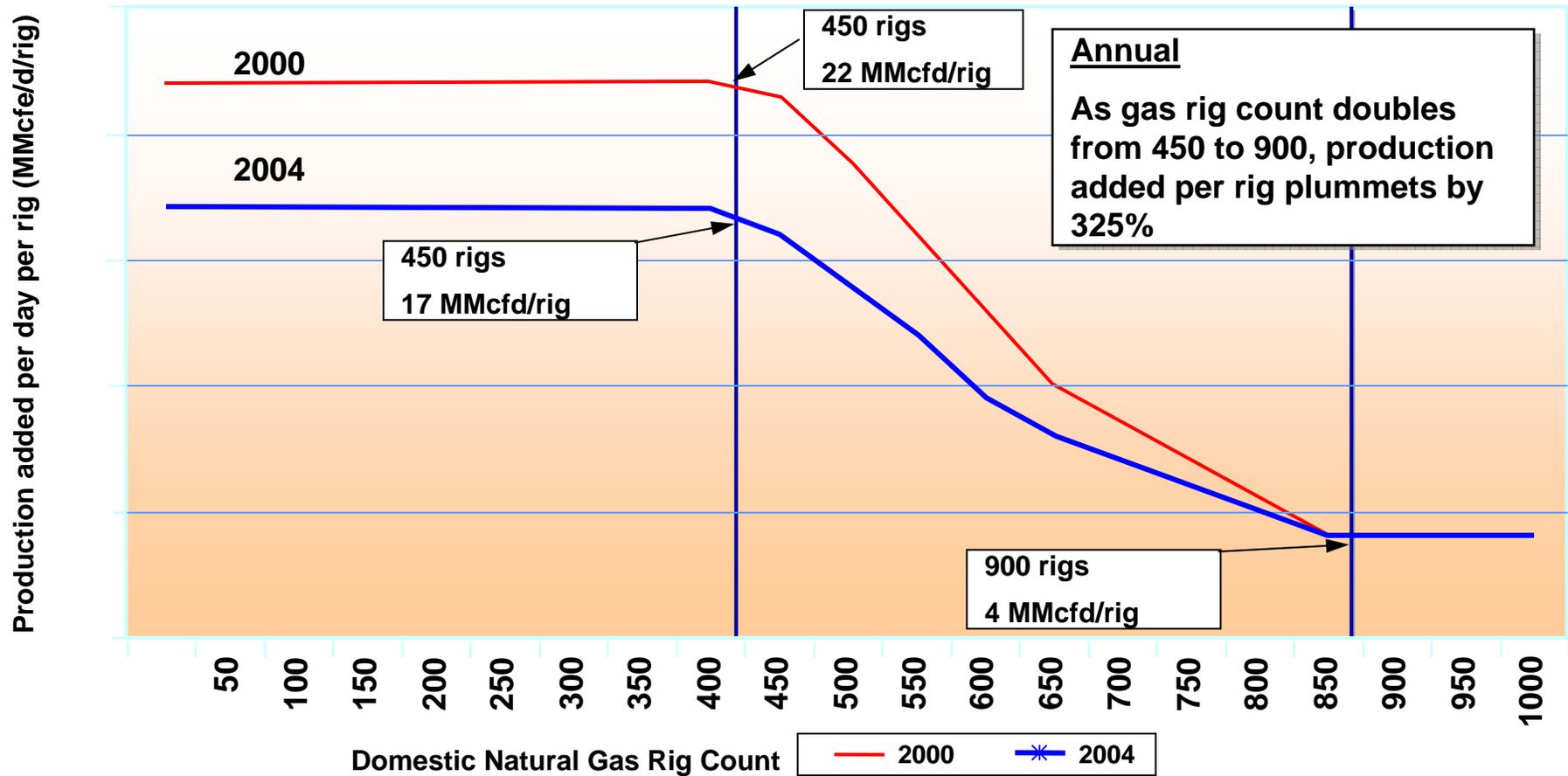
Gas Rig Count vs. U.S. Natural Gas Production



Source: Peter Dea, Western Gas Resources (11/05)

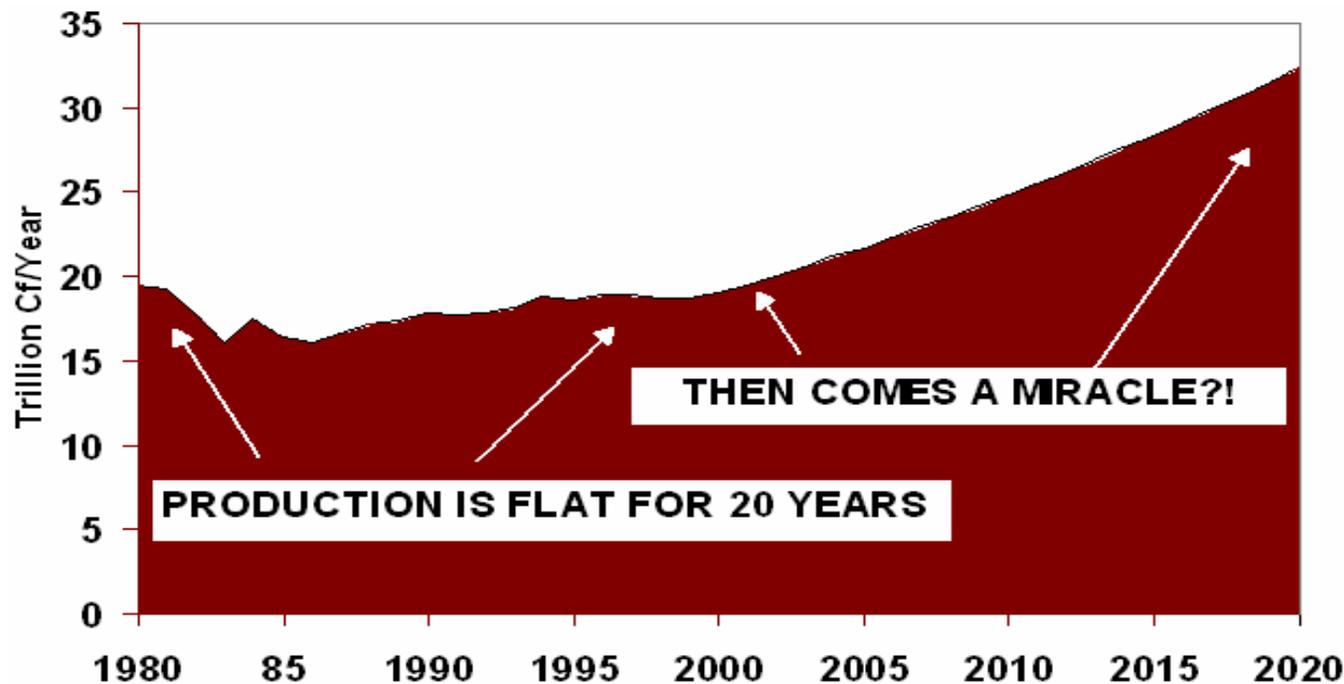
Production Added per Day per Gas Rig, 2000-2004

- ★ The U.S. Shows a solid trend of drilling lower productivity wells both as more wells are drilled each year and in each subsequent year.



Source: Bank of America, 2004

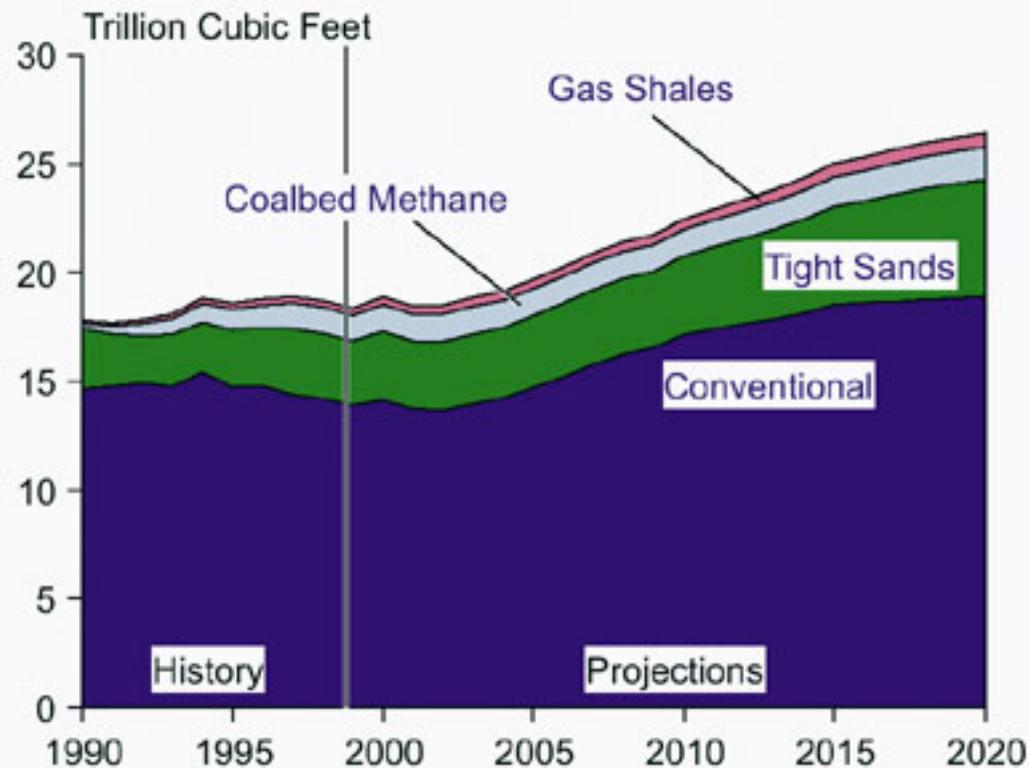
EIA in 1998: U.S. natural gas production forecast *wildly optimistic*



**32+ TCF of
U.S.
production
in 2020**

EIA in 2000: natural gas production forecast is a little less optimistic

Figure 1. Natural Gas Production, 1990-2020

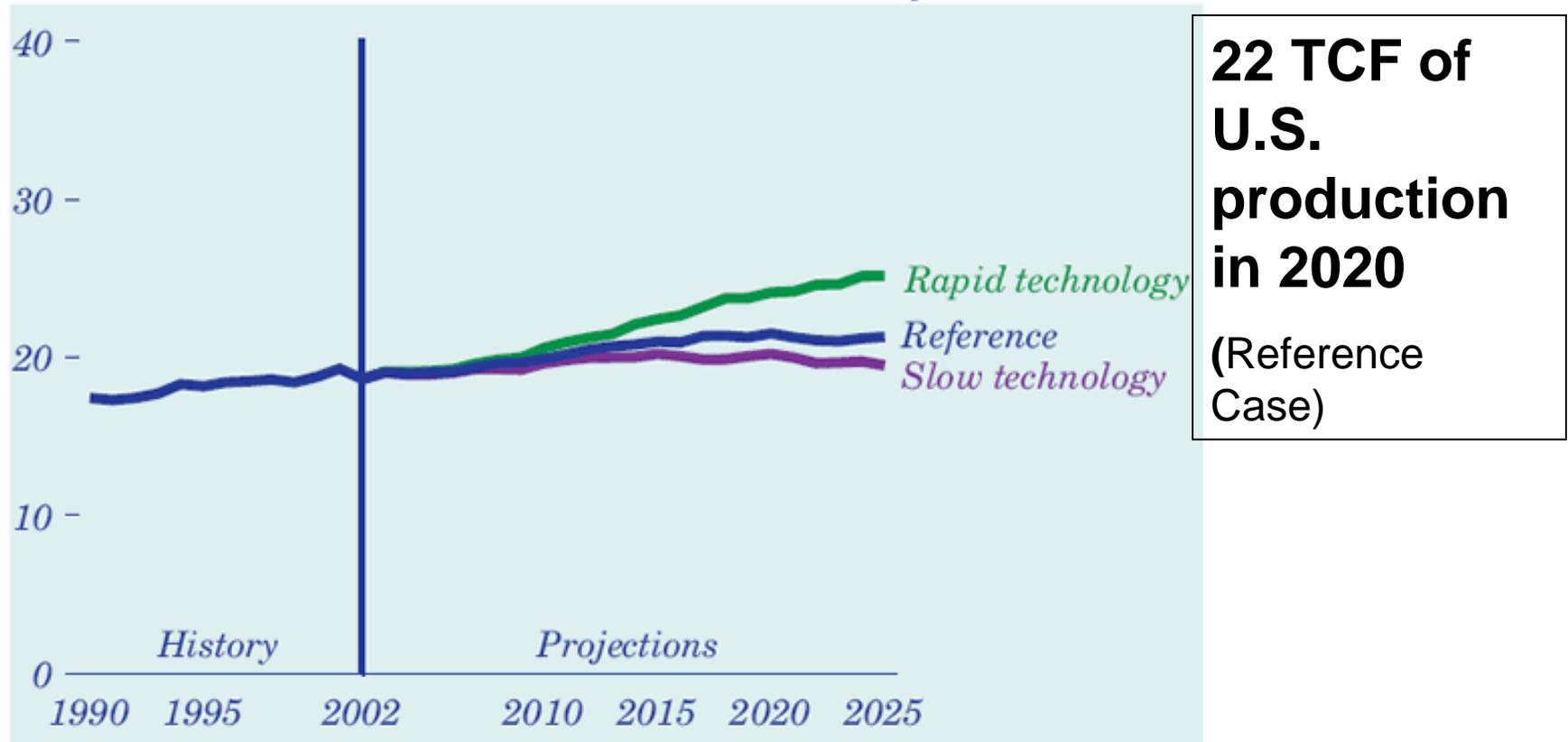


27 TCF of
U.S.
production in
2020

Sources: **History:** Advanced Resources International, Inc. (ARI). **Projections:** Energy Information Administration, *Annual Energy Outlook 2000*, DOE/EIA-0383(2000) (Washington, DC, December 1999), reference case.

EIA in 2002: natural gas production forecast is becoming more realistic

Figure 91. Lower 48 natural gas production in three cases, 1970-2025 (trillion cubic feet)



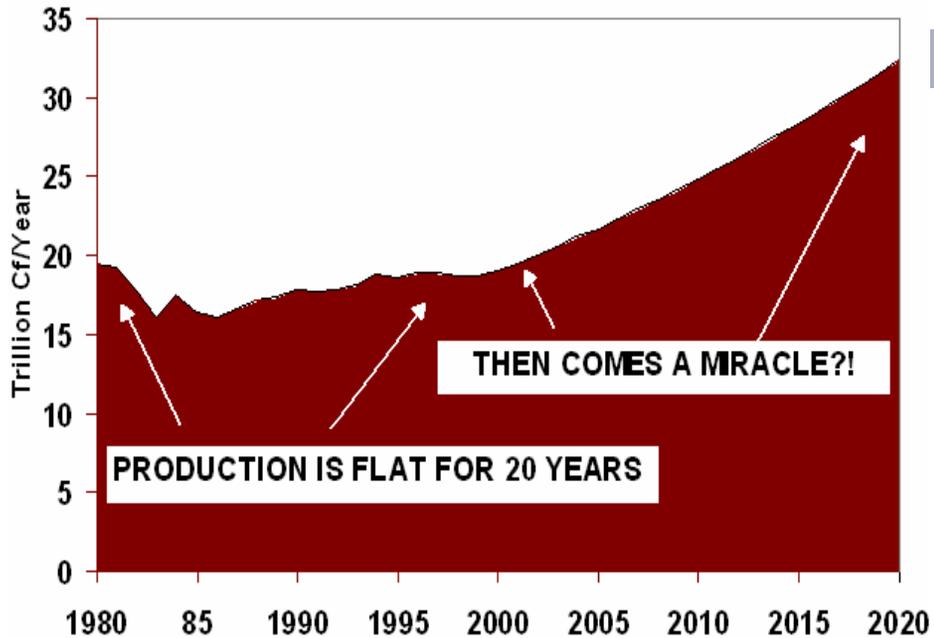


Figure 91. Lower 48 natural gas production in three cases, 1970-2025 (trillion cubic feet)

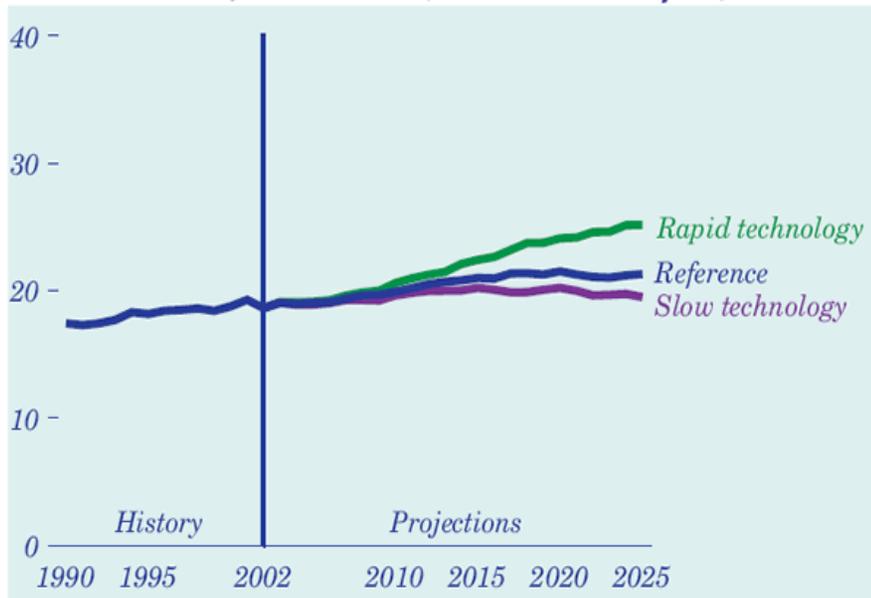
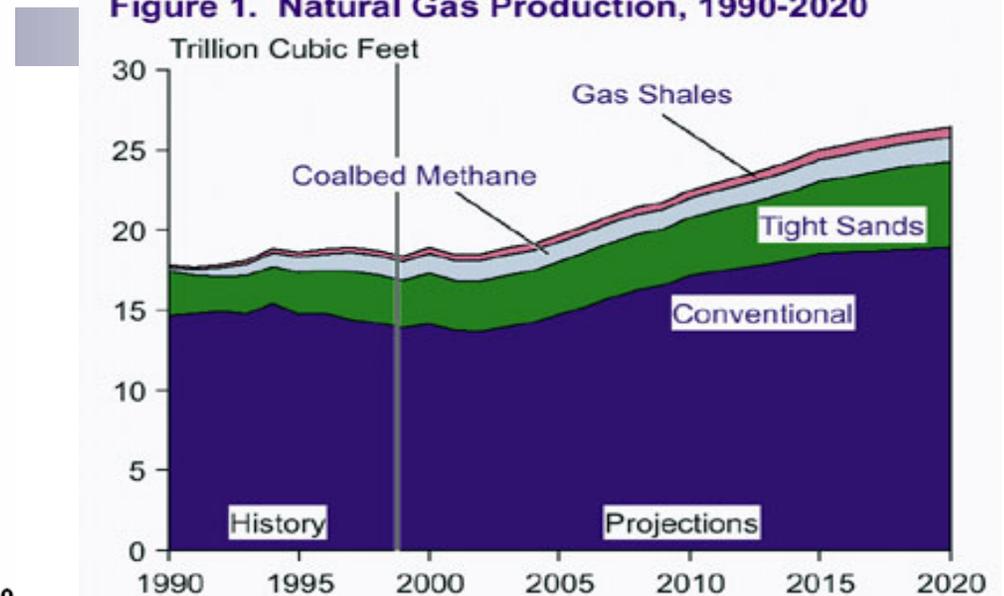


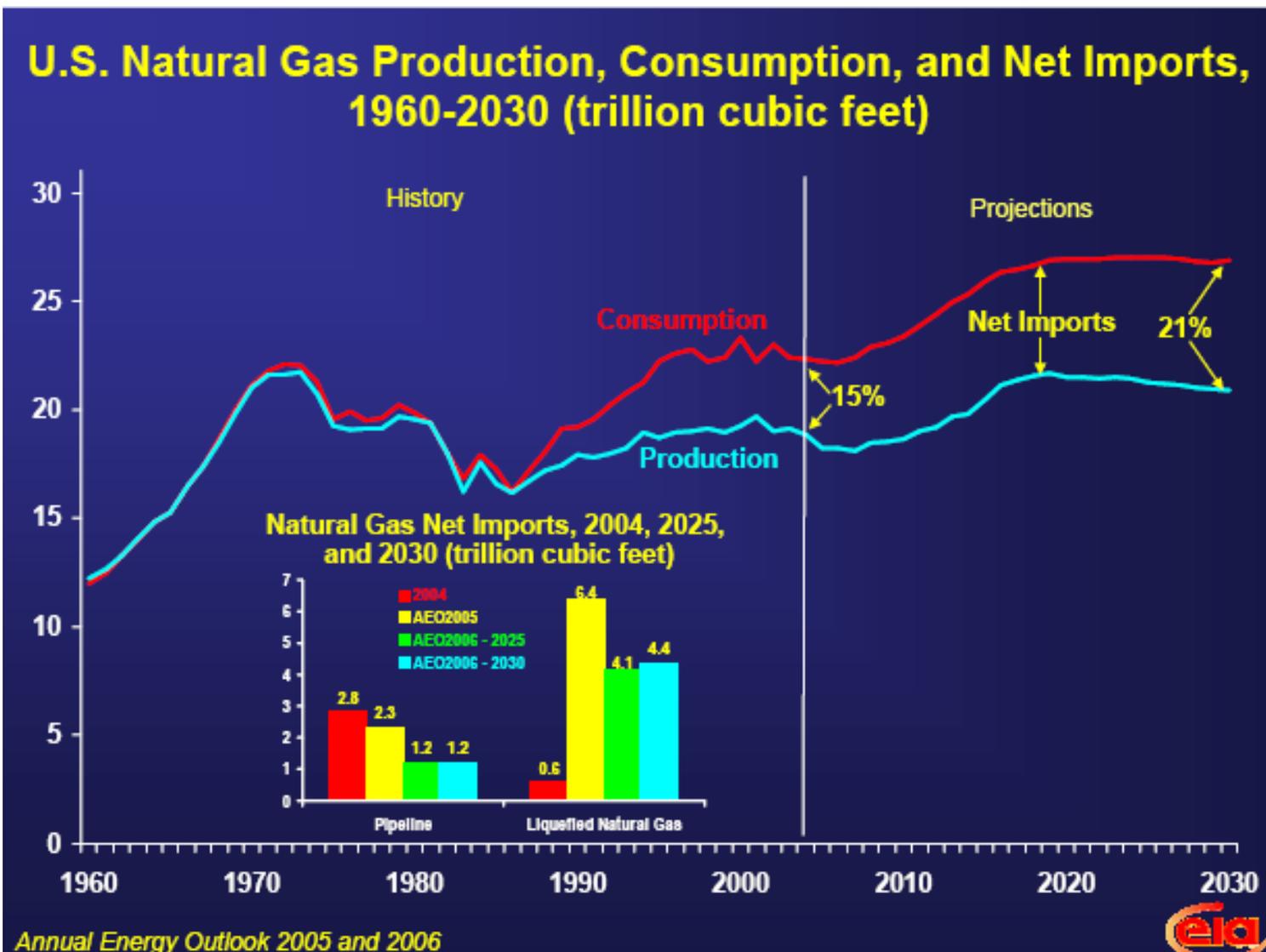
Figure 1. Natural Gas Production, 1990-2020



Sources: **History:** Advanced Resources International, Inc. (ARI). **Projections:** Energy Information Administration, *Annual Energy Outlook 2000*, DOE/EIA-0383(2000) (Washington, DC, December 1999), reference case.

Unwarranted optimism didn't help. EIA's super optimistic projections supported power generation's "dash to gas," lower energy code thresholds, etc. *Warning signal missing...*

Back to the future? Another inconvenient truth?





Tom Ahlbrandt, head of USGS World Oil Study Group (2000)

- During May 2003, answering a question about world oil peaking...
- ***“The thing that keeps me awake at night isn’t peak oil; it’s North American natural gas supply.”***

An industry ad that's worrisome

Williams is the Leader in Gas Production Growth through the Drill Bit

Top 20 U.S. Gas Producers

Company	MMcfd		Percent change
	3Q '04	3Q '05	
1 BP	2,685	2,456	-8.5%
2 Chevron*	1,813	1,676	-7.6%
3 ExxonMobil	1,918	1,614	-15.8%
4 Devon	1,630	1,485	-8.9%
5 ConocoPhillips	1,220	1,218	-0.2%
6 Chesapeake*	904	1,183	30.9%
7 EnCana	958	1,099	14.7%
8 Anadarko	1,428	1,098	-23.1%
9 XTO*	847	1,087	28.3%
10 Burlington	935	952	1.8%
11 Shell	1,294	948	-26.7%
12 Kerr-McGee	999	937	-6.2%
13 Dominion	833	729	-12.5%
14 EOG Resources	623	724	16.2%
15 Williams	535	629	17.6%
16 El Paso ⁽¹⁾	644	618	-4.0%
17 Apache	640	586	-8.4%
18 Occidental*	488	564	15.6%
19 Marathon	598	562	-6.0%
20 Newfield	528	509	-3.6%
	21,520	20,674	-3.9%

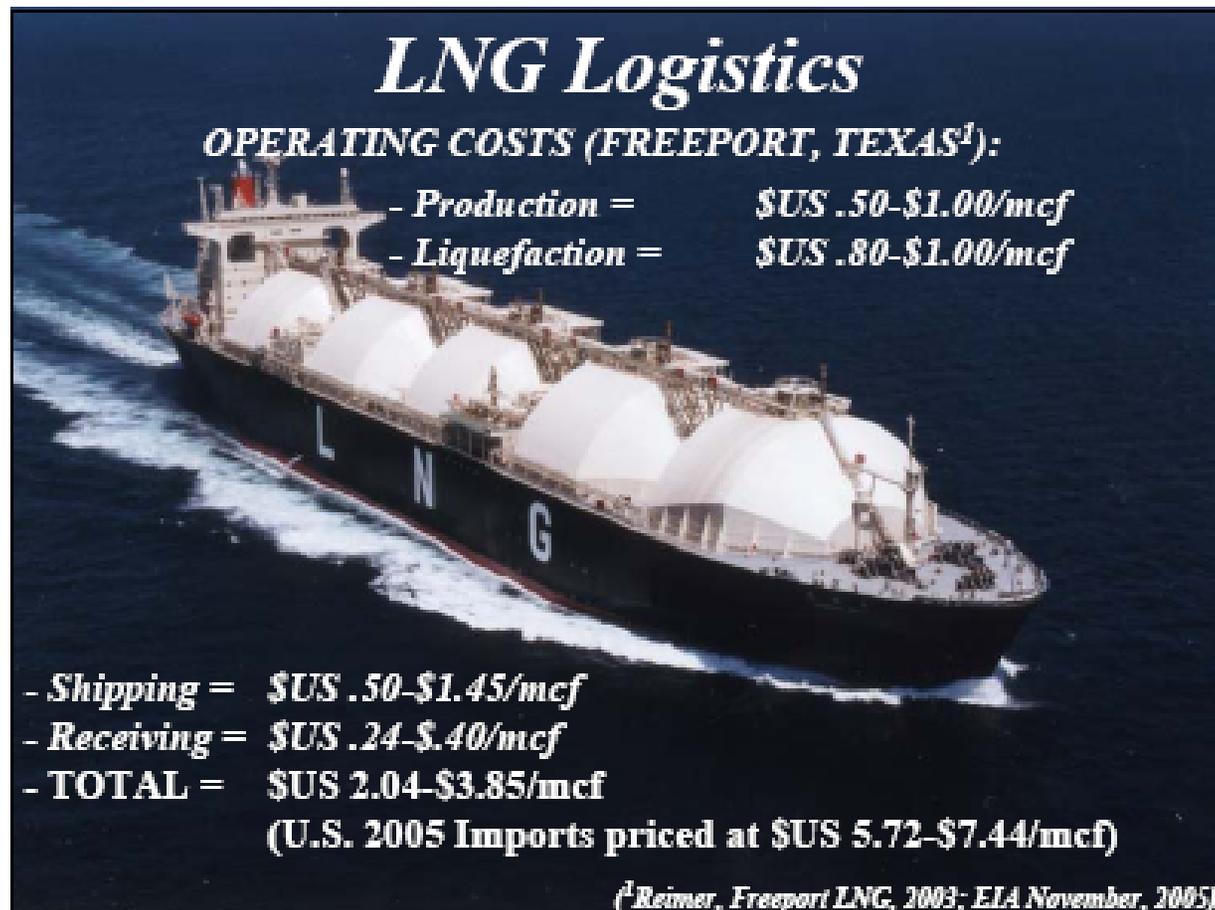
Top 20 U.S. Gas Producers sorted by Production Growth

Company	MMcfd		Percent change
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19 Anadarko	1,428	1,098	-23.1%
20 Shell	1,294	948	-26.7%
	21,677	20,821	-3.9%

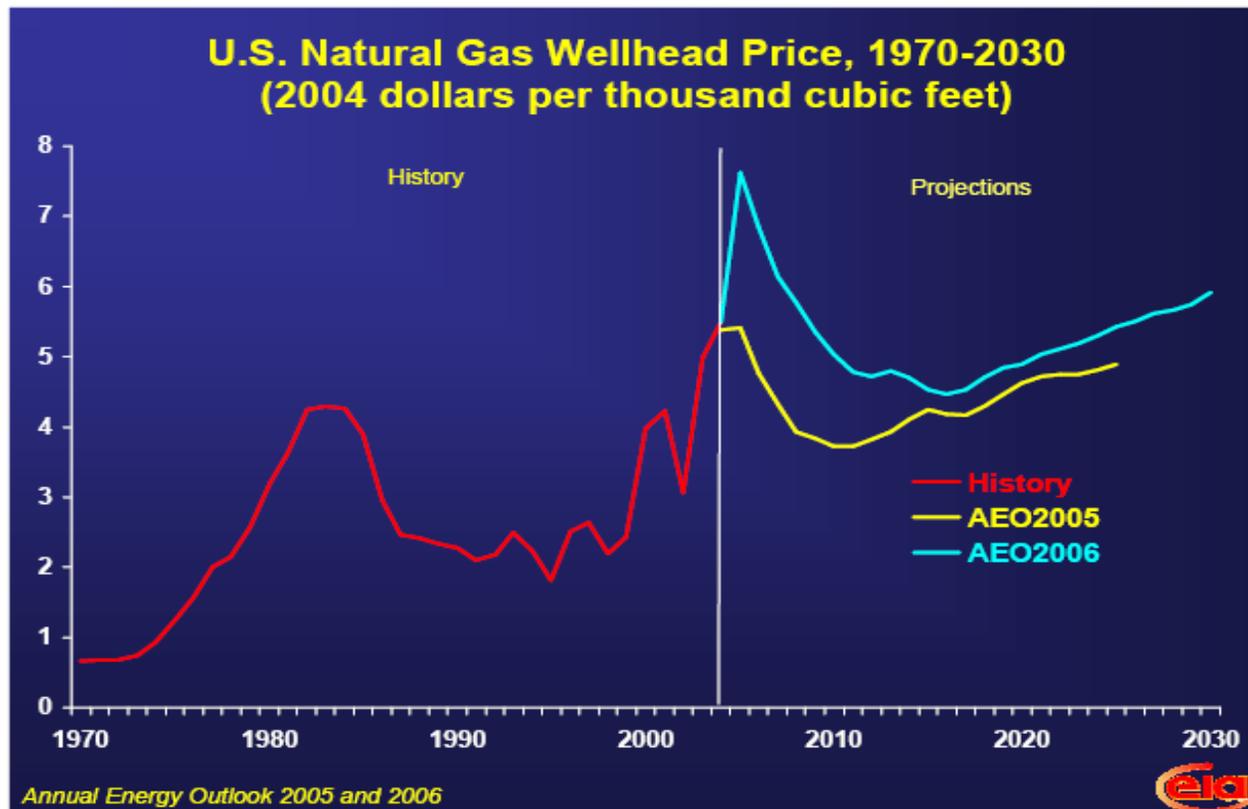
Source:

The Williams Co.

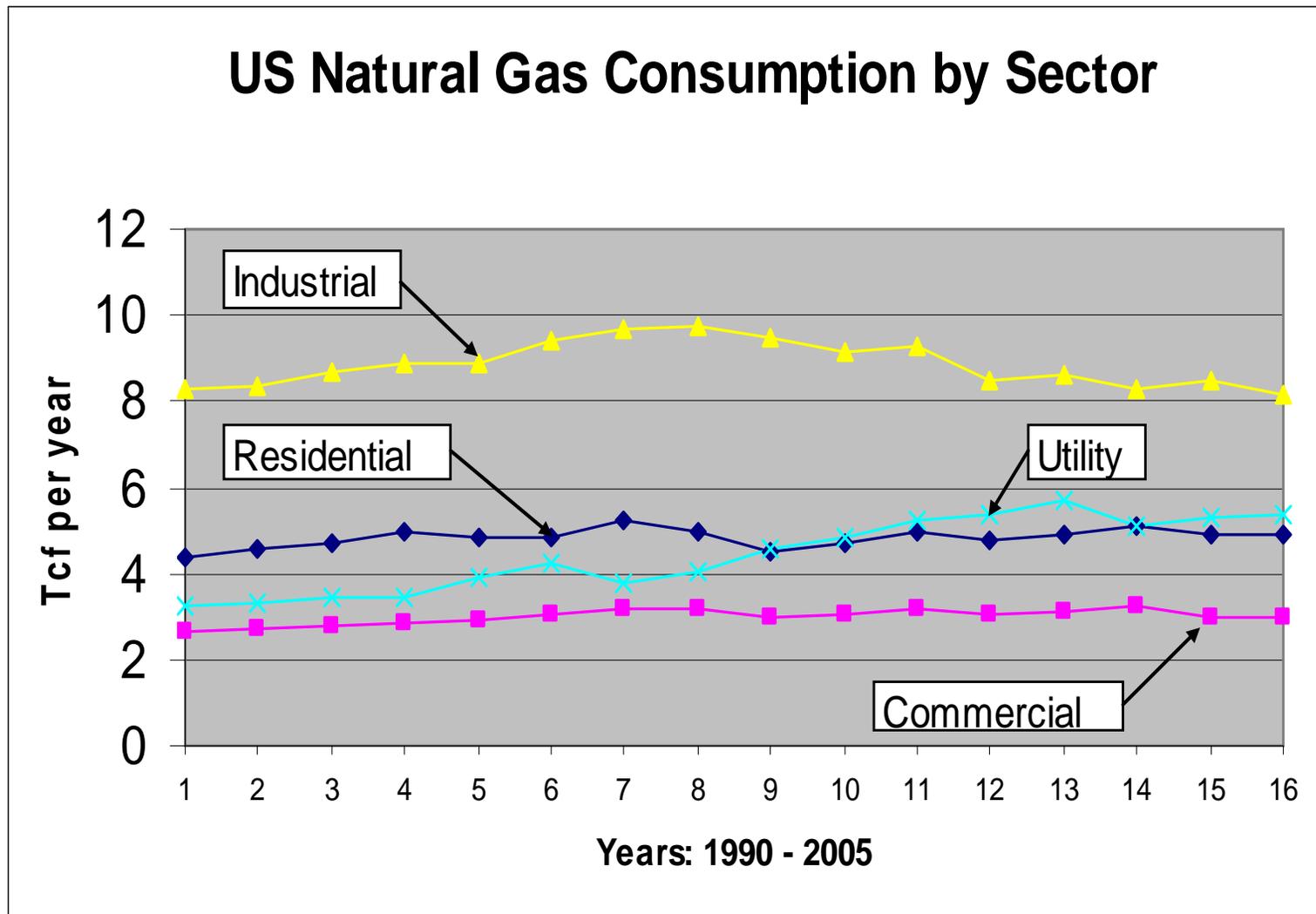
The cavalry comes with baggage



Certiably nuts, wacko, loony



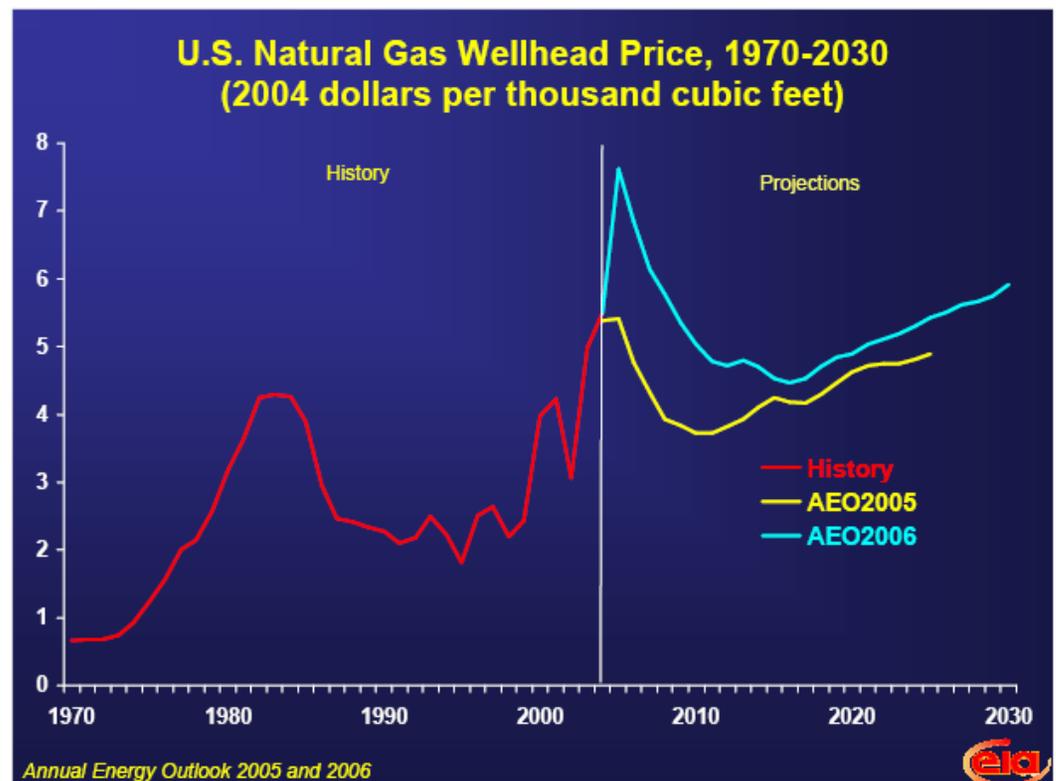
Energy codes and the residential sector in context



Code Development Cycle

(March 24, 2006)

- “Assuming \$10 mmBtu natural gas cost when analyzing basement insulation cost-effectiveness...”

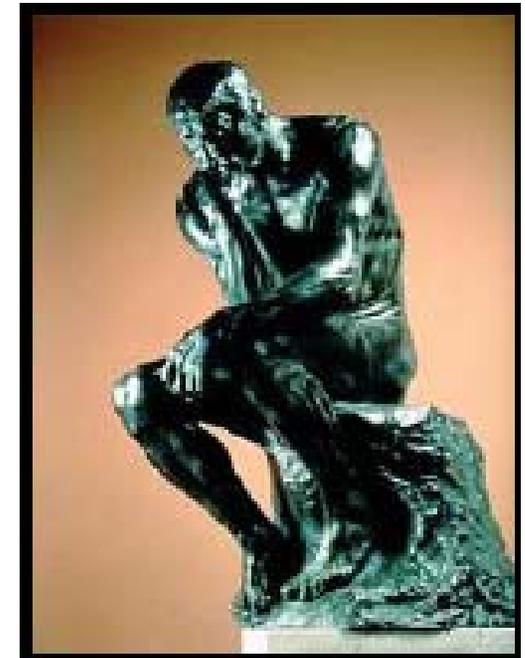


“It’s safer to base costs on present costs.” (?????)

- Key assumption/question:
 - Will the future be just like the present, only more so?



Are we better at energy savings calcs or energy costs/upgrade prices calcs?





Some Colorado quirks

- (Several) IECC 2003, but allow R-13 walls
 - Assumes prescriptive path
 - **Easy** to meet code with other options than 2x6 walls along the Front Range
- Would you believe MEC 1989?
- Statewide (1977) vs. local control



Reactions to proposed energy upgrades and costs

1. Proponents: upgrades at any cost
2. U.S. D.O.E.: life-cycle cost analysis
 - But what energy cost assumptions !?!
3. Builders: no added costs

Are we doing this with houses too?



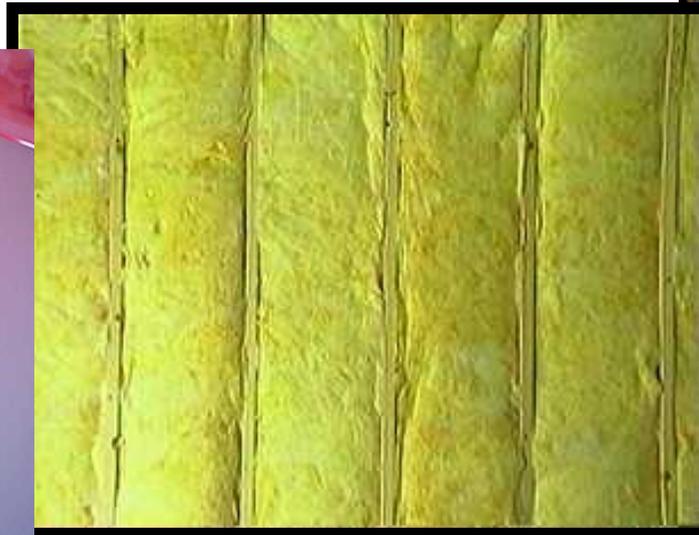


The unfortunate link

- History of energy price forecasts
- Energy costs figures in LCA historically low
- Jurisdictions probably don't do LCAs
- When they do, energy costs probably off base
- *Can't* keep going with biz as usual

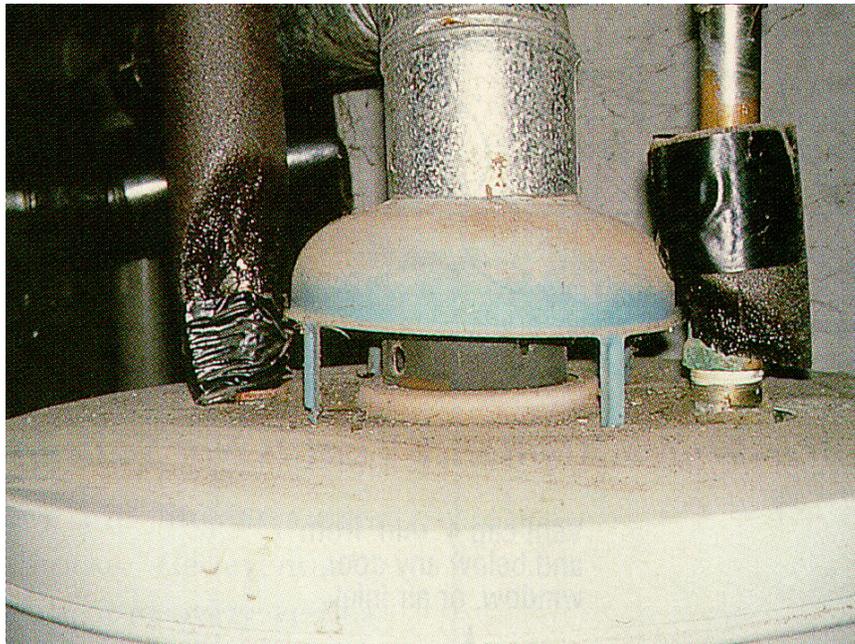
If Steven Kanipe and Doug Seiter were co-Kings of Codes for a day (+ assistant):

1. Incentivize performance-based design and construction (e.g., a feebate)
2. “It’s all in the wall.” (You’ve been here before?)
 - R-13 never cost-effective to upgrade
3. Critics must generate life-cycle cost info



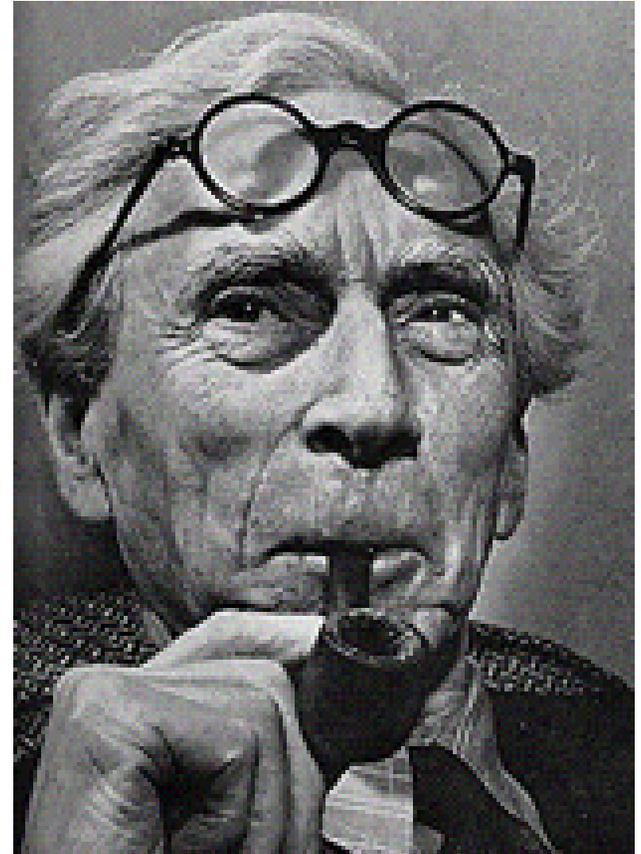
If Steven Kanipe and Doug Seiter were co-Kings of Codes for a day (con't)

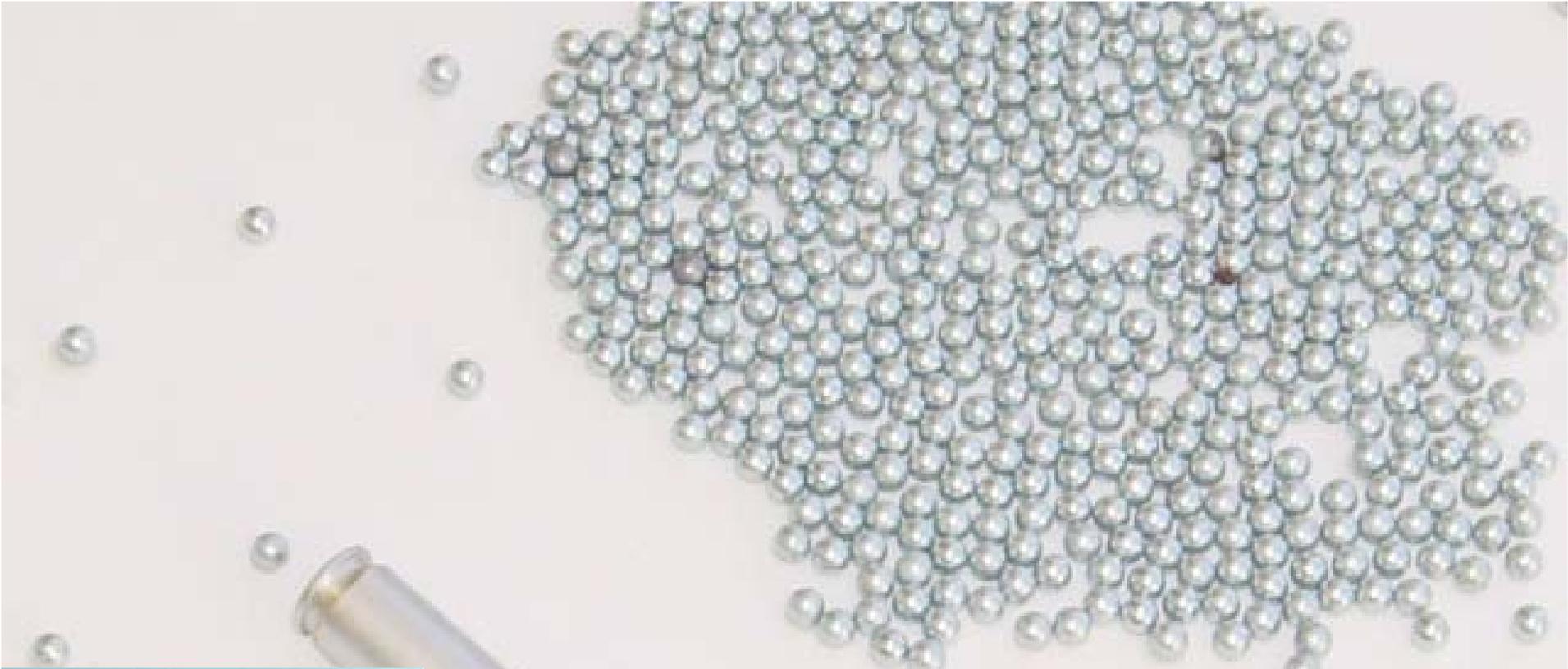
4. Projected energy costs should lead, not lag
5. No one can delete or water down the IECC
6. No more atmospherically vented gas appliances allowed in new homes



Bertrand Russell

- *In all affairs, it's a healthy thing now and then to hang a question mark on the things you have long taken for granted.*
- *The whole problem with the world is that fools and fanatics are so sure of themselves, but wiser people are full of doubts.*





**Intelligent responses,
mitigating actions,
adaptation...**

