

North American Natural Gas: Was Chicken Little Right After All?

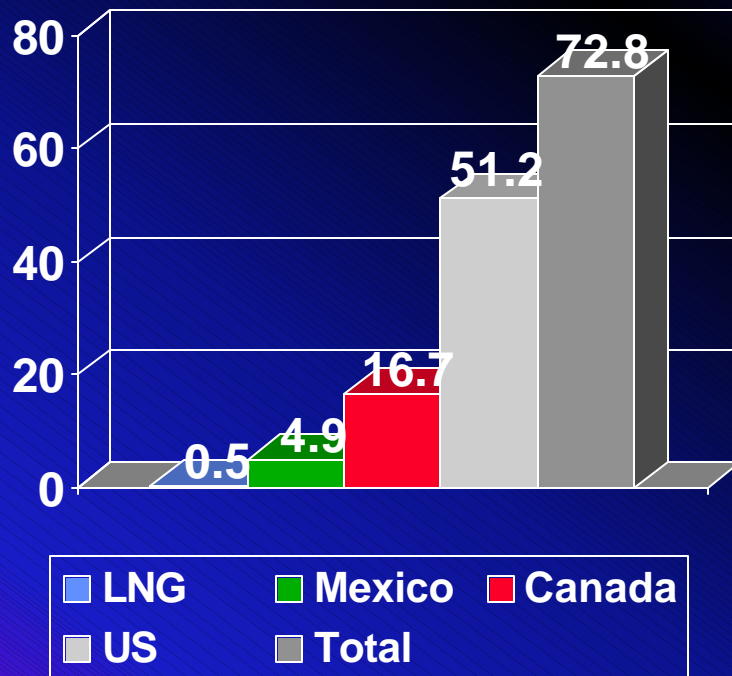
Fifth Annual Northeast Natural Gas Symposium

February 2, 2003

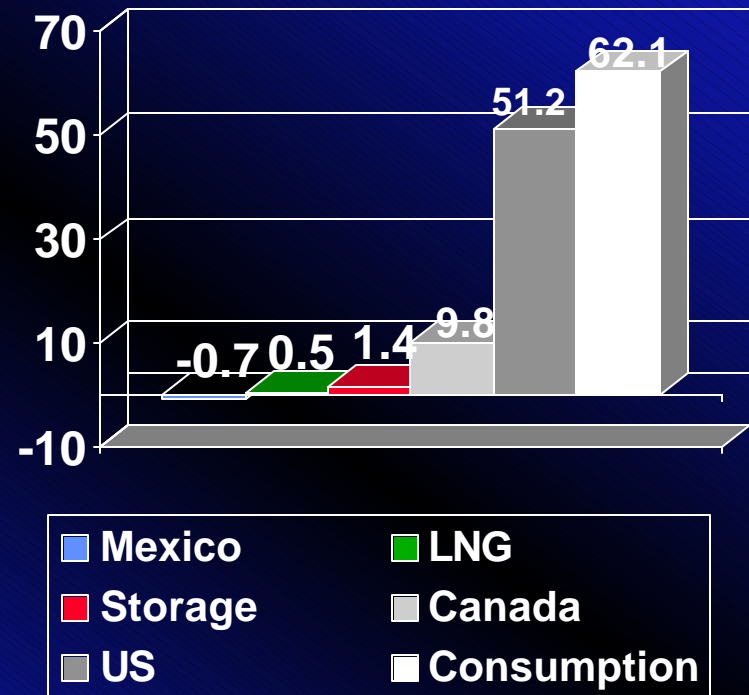
**Ron Denhardt
Chief Executive Officer**

2002 North American Natural Gas Supply was 72.8 Bcfd and US Consumption was 62.1 Bcfd.

North American Natural Gas Supply (Bcfd)



US Natural Gas Supply (Bcfd)



If you don't know where you are, it is hard to know where you are going. The question about current production is important for both the near term and long term outlook.

- Company quarterly report data suggest production in 2003 declined 2.8% YOY versus EIA data that shows production up 2.4%.
- SEER estimates production declined .8% in 2003 and will be flat in 2004.

EIA data shows growth
Q Rep shows decline

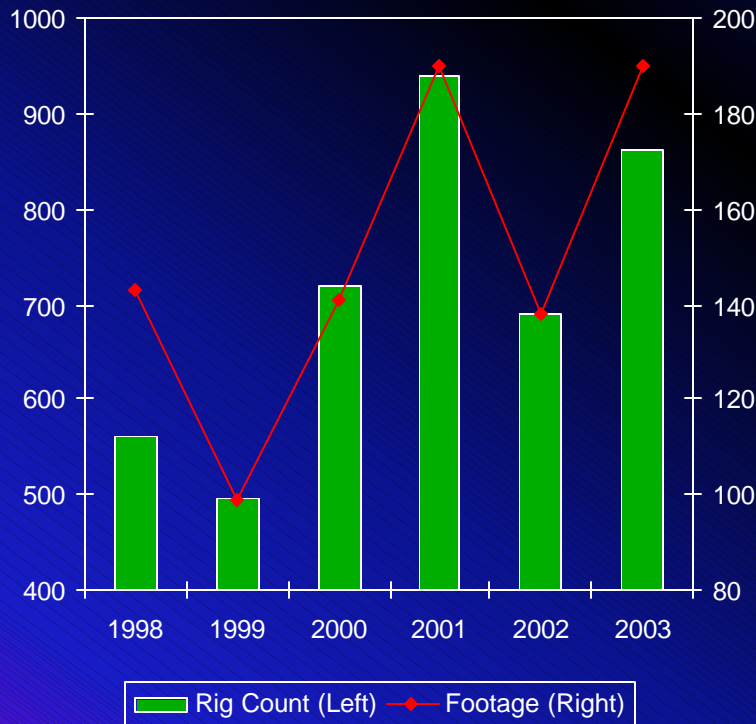
Final EIA differs
from Q Rep

YOY %Change in Production

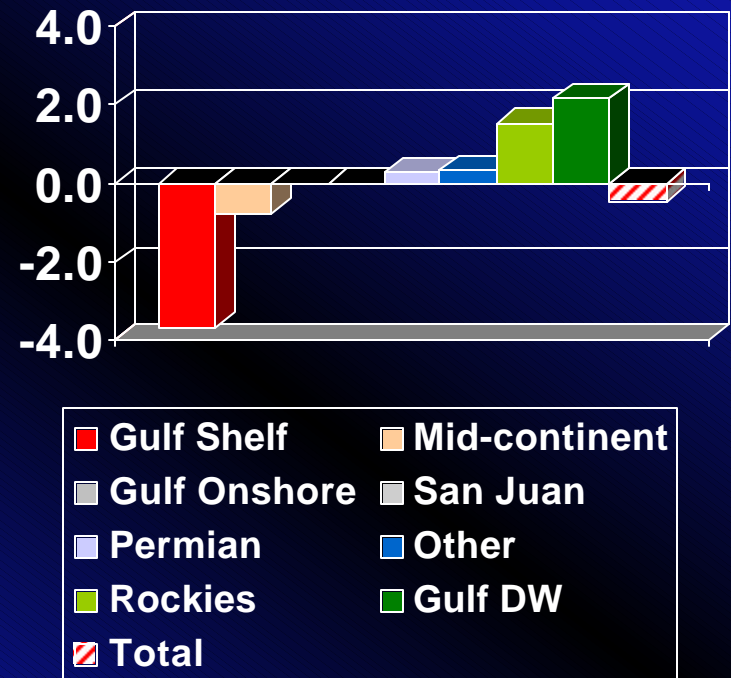


Despite a sharp increase in drilling activity, production is lower today than in 1998 because declines in mature areas have offset growth in the Rockies and Deepwater.

Gas Rig Count and Footage Drilled

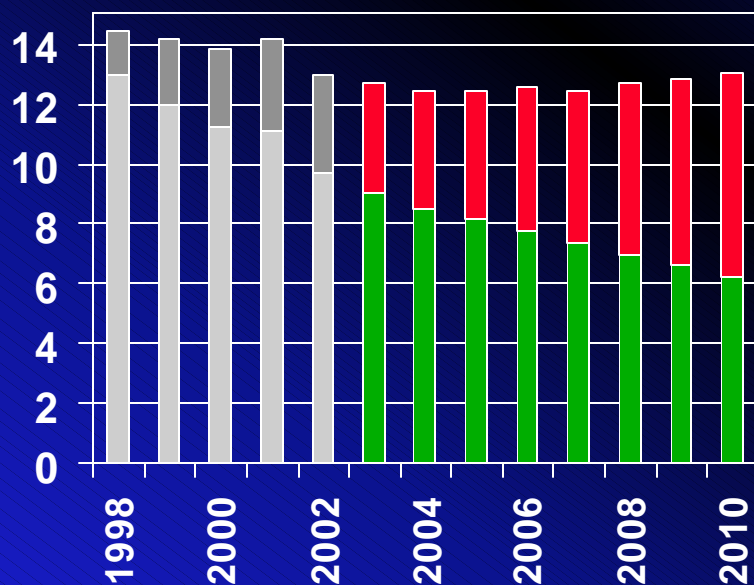


Change in Production (Bcfd) 1998-2003

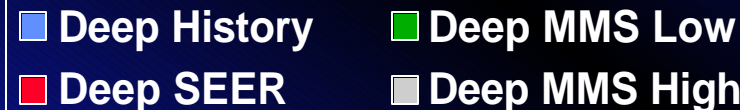
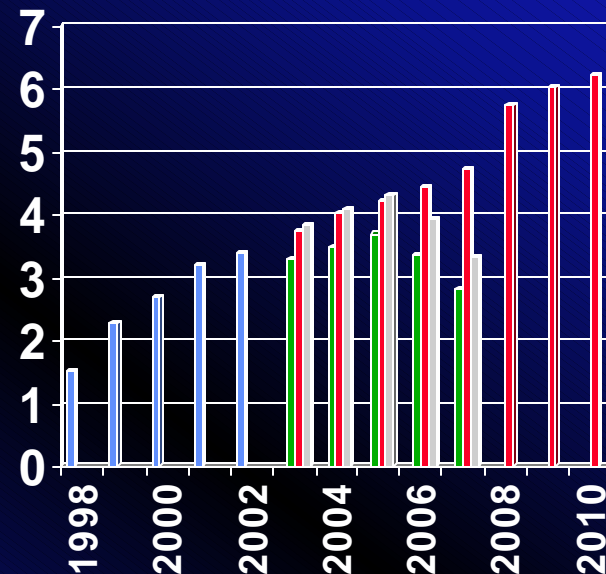


Declines on the shelf are expected to offset growth in the deepwater. Deepwater is still immature, so there is a great deal of uncertainty about the prospects. 2003 deepwater new field wildcats were about 30% of 2002 finds (BOE).

Offshore Production (Bcfd)



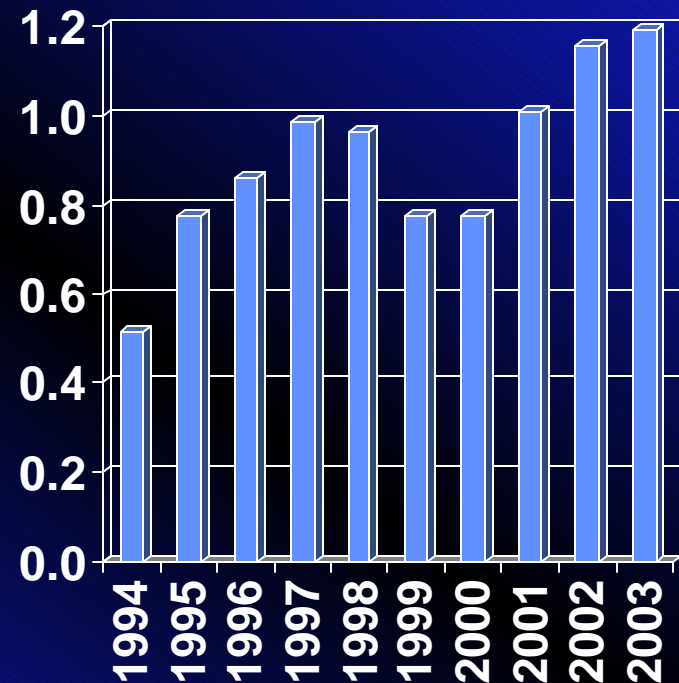
Deep Water Production (Bcfd)



Deep Shelf could maintain shelf production. Ultra deep, 30,000 feet, offers additional potential. In late 2003, the MMS increased recoverable reserve estimates by 150%

- **Initial potential recoverable reserves estimates were 5 to 20 Tcf with a mean of 10.5 Tcf but the potential has been raised to 55 Tcf.**
- **Wells can be brought on quickly – Timbalier Block 204 was discovered in 2000 and reached peak production of 350 MMcfd in 2002.**
- **Mean size of wells is 30 MMcfd.**
- **Finding cost \$1.67 per MMBtu (El Paso)**
- **There is potential for ultra deep play (25,000 feet) but there are imaging problems.**

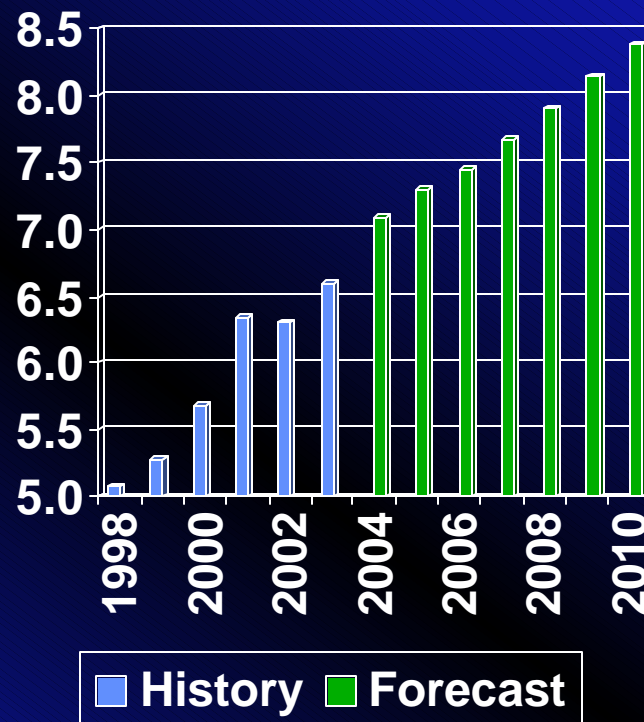
Deep Shelf (Bcfd)



Expected growth from the Rockies is 2 to 4 Bcfd by 2010 but environmental concerns, limited pipeline capacity, and disappointing production results could limit Rockies production.

- **Environmental reviews and a slow down in the issuance of federal drilling permits are expected to keep Wyoming annual production growth to 3% per year for the next three years versus 7% in recent years.**
- **The duration of peak production in WyoDak wells was much shorter, and subsequent well declines much faster than anticipated.**
- **Big George coals require substantial de-watering.**
- **Cheyenne Pipeline will add 730 Bcfd in August 2005 with ultimate capacity of 1.7 Bcfd.**

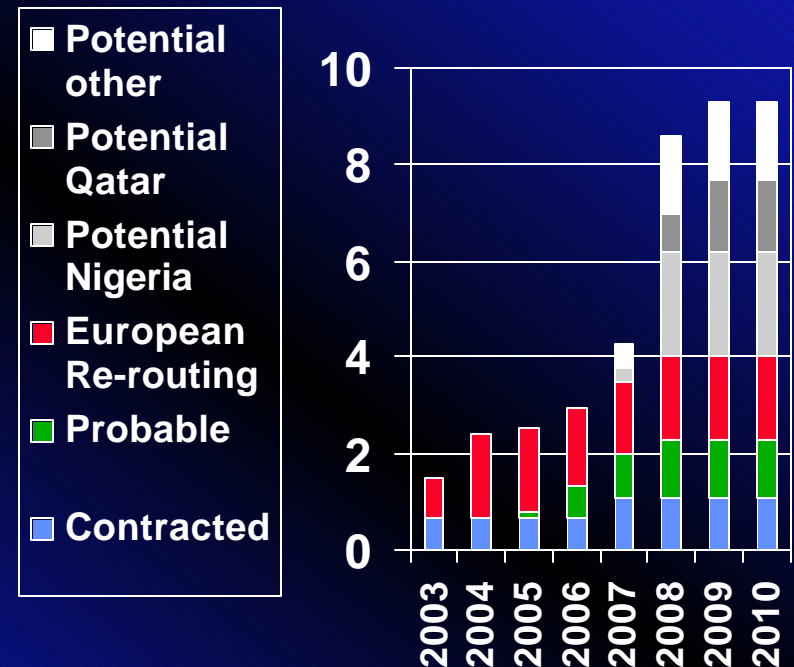
Rockies Production (Bcfd)



Natural Gas Liquefaction capacity is the LNG constraint not terminal capacity. Current world wide capacity is 17.8 Bcfd and probable expansion by 2007 is 4.3 Bcfd(1).

- **Substantial “potential” projects are needed to meet North American demand.**
- **Potential LNG supply to North American is 9 Bcfd to 10 Bcfd; but it is likely that some projects will be delayed and others not developed.**
- **Marginal supplies are economic at a Henry Hub price \$3.50 per MMBtu.**
- **Until 2008 much of North American supply will depend upon re-routing from Europe.**

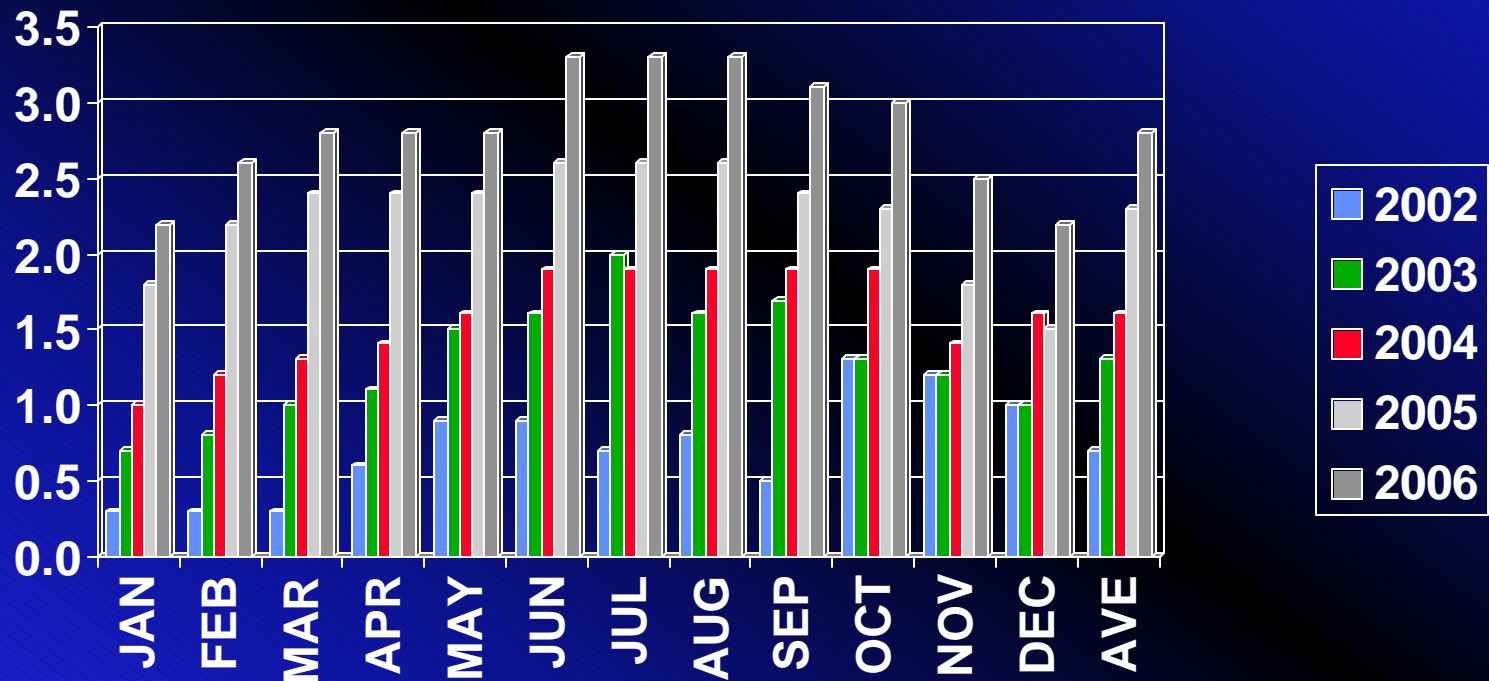
North American LNG Imports (Bcfd)



(1) Source James T. Jensen

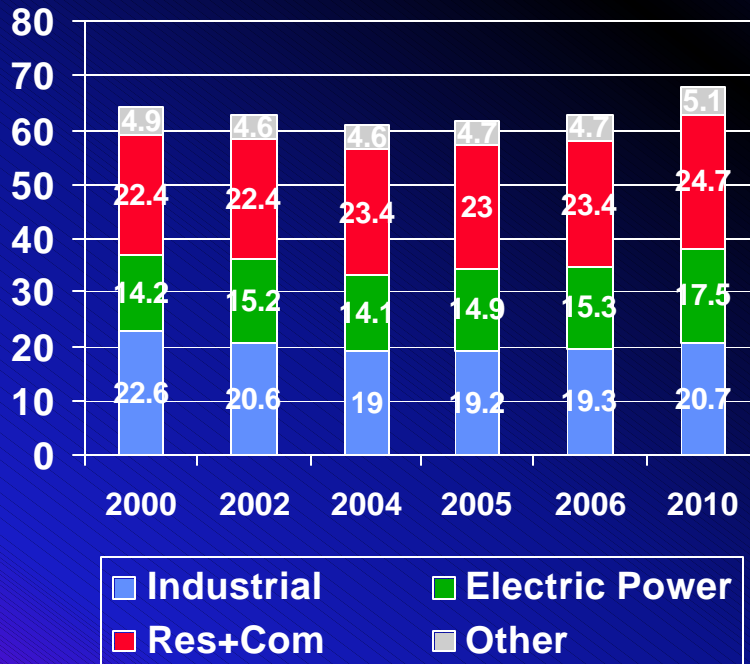
The re-routing of LNG supplies will increase the seasonality of supply and the value of storage.

US LNG Imports (Bcfd)

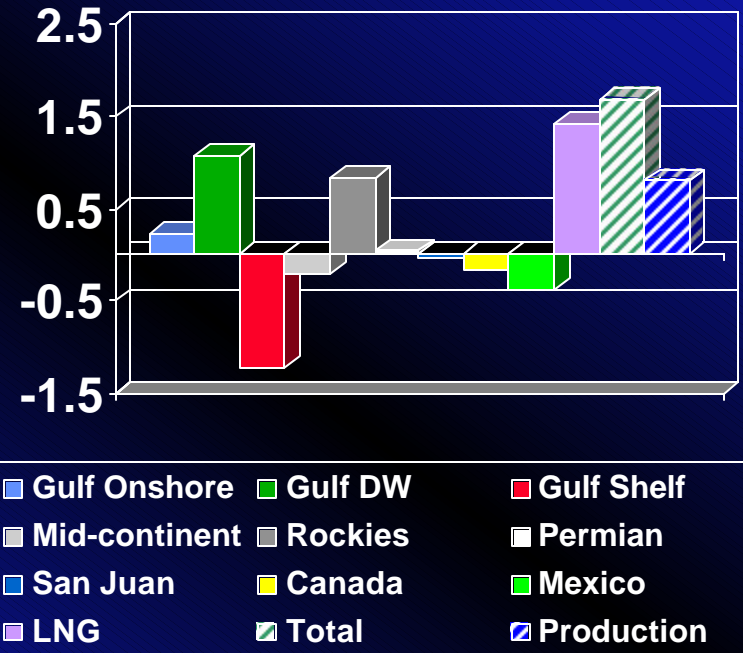


Supply growth is likely to be modest during the next three years and most of the growth will occur in 2006. Prices might have to be high enough to cause further declines in industrial demand.

US Gas Consumption and Supply (Bcfd)

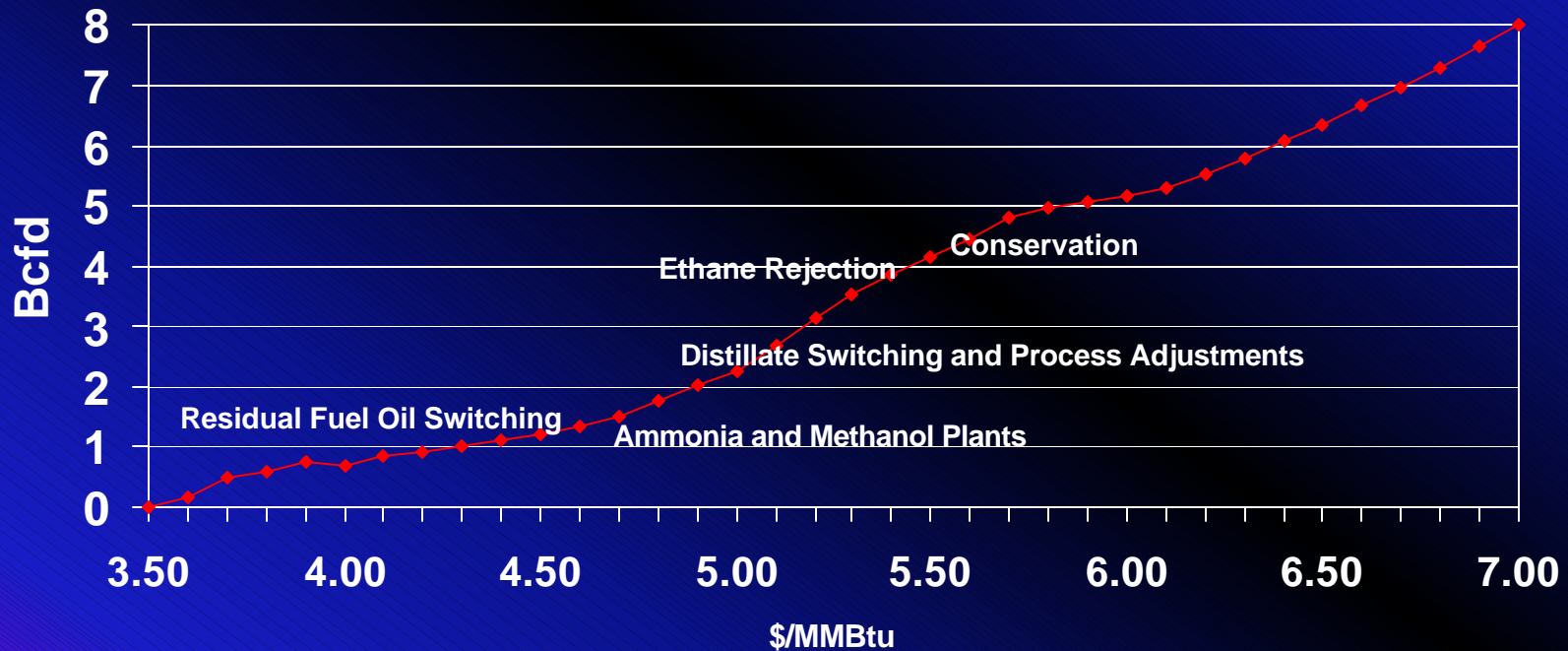


US Supply Growth (Bcfd) 2003 to 2006



Much of the “easy” demand loss has already taken place. Slight changes in the supply- demand balance will cause substantial price changes.

Demand Loss versus Henry Hub Price (WTI=25\$/barrel)



Chicken Little's credibility has improved. Supply looks very tight until the middle of 2007 but there are many potential surprises ahead.

- In 1996 most “experts” were predicting gas supplies from the deepwater and Canada would cause prices to plummet by 2000.
- NSR ruling has been stayed. Implementation could reduce gas demand by 3.5 Bcfd.
- In 1973 the Department of Interior called the offshore Gulf the “Dead Sea”.
- Historically long run supply and demand elasticities have typically been underestimated.

Henry Hub (\$2003/MMBtu)

