

Near Term North American Natural Gas Price Outlook

Fall Energy Symposium

Hosted by Deutsche Bank Securities Inc.

October 3, 2003

Ron Denhardt

Vice President, Natural Gas Services

Strategic Energy & Economic Research Inc.

781 756 0550 (Tel)

RonDenhardt@EnergySEER.com

www.EnergySEER.com

Near Term North American Natural Gas Price Outlook

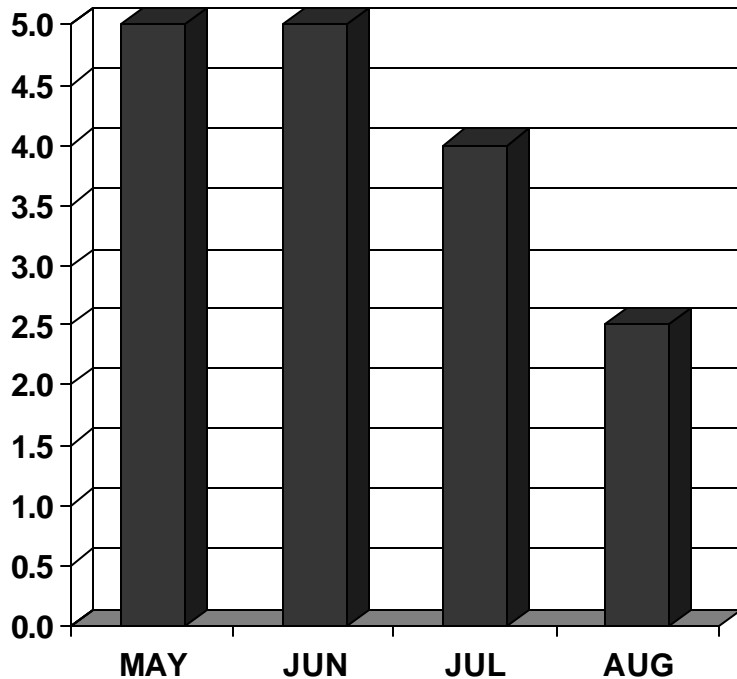
- **New Source Review**
- **Demand Reductions**
- **Industrial Sector**
 - Impact of reduced production
 - Fuel switching
 - Likely growth
- **Prospects for the Heating Season**

August EPA ruling could cause the loss of 3.6 Bcfd of gas consumption (three years of gas consumption growth).

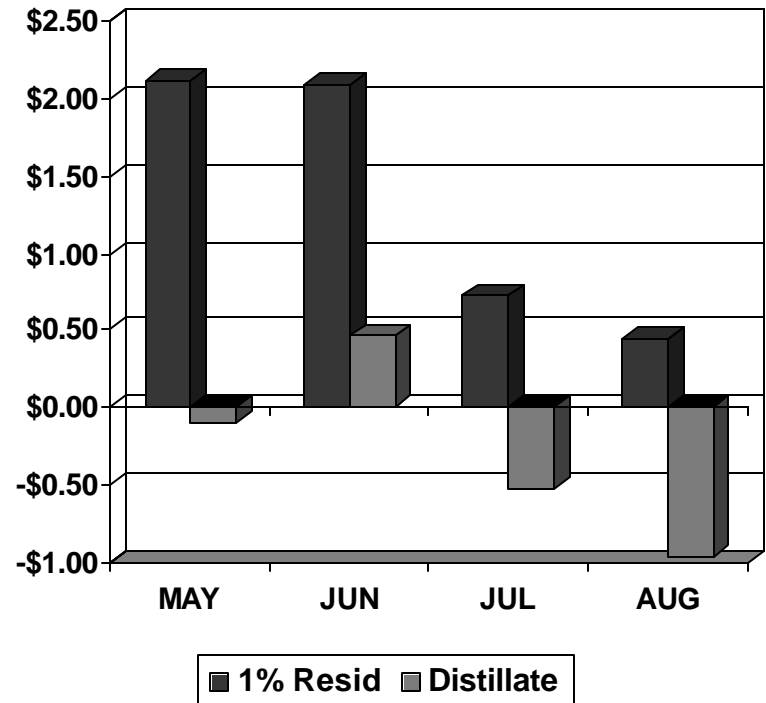
- **The ruling applies to grandfathered plants that were not required to install Best Available Control Technology - BACT (1977 Clean Air Act).**
- **The ruling would allow up to 20% of cost of the plant to be spent on maintenance and not be subject to New Source Review (NSR).**
- **Approximately 110 GW of coal fired plants could increase capacity by 15% to 25%. 70 GW could be expanded within one year.**
- **The ruling is being challenged in the courts and the probability is high that it will be overturned.**
- **Still, some power plants are expanding capacity.**

Weather adjusted working gas storage injections have been substantially higher than in 2002. As gas prices have fallen relative to oil, gas has regained market share.

Weather Adjusted Storage Injections vs. 2002 (Bcf/day)



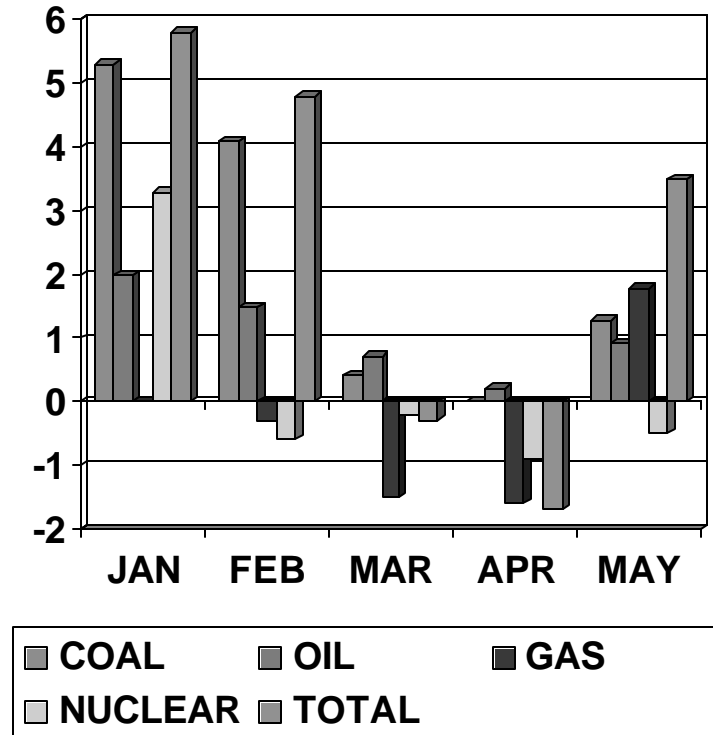
NY Gas Premium over Oil (\$/MMBtu)



As a result of data lags, it is only possible to estimate the causes of the increased injections. (Note weather adjusted storage injections are still running 2.0 Bcfd ahead of last year.)

- **Reduced industrial production in gas intensive industries (.7- 1.0 Bcfd)**
- **Switching et. al.**
 - Industrial sector: 1.5 to 2 Bcfd (mostly distillate)
 - Power: 1-2 Bcfd (residual fuel oil)
- **Increased coal use for power generation (.2-.4)**
- **Improved heat rates?**
- **Change in supply – substantial disagreement**

Generation YOY (Bcfd)



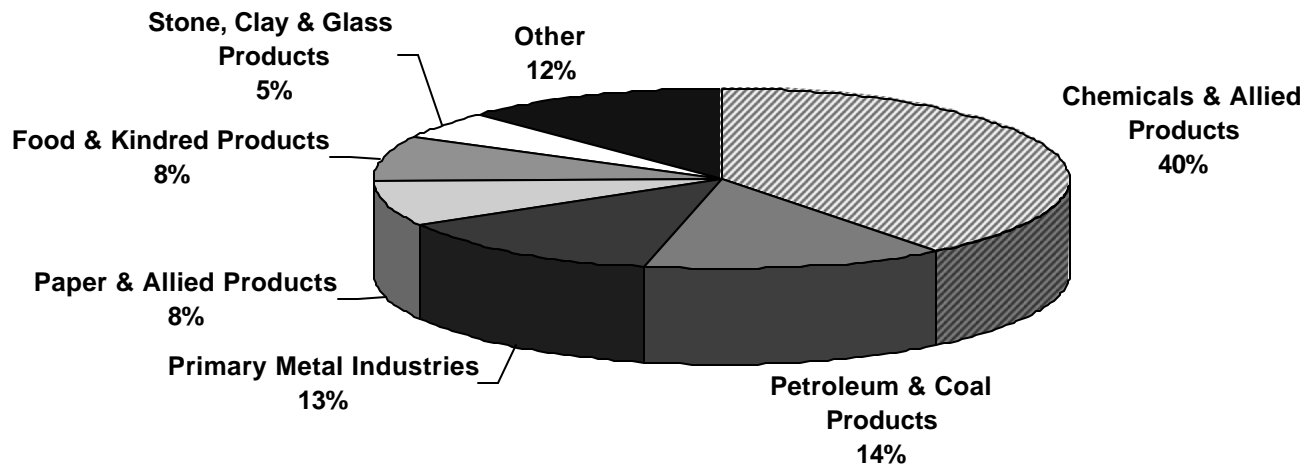
Quarterly report data shows 1st quarter production was down 2% from last year. EIA shows production up 3.2%.

- Quarterly report data is biased – large producers overstate production decline.
- Last year the EIA revised initial production estimates down 2%.
- OCS is the big question.
- Substantial deepwater came on the 1st quarter. However, the first quarter data are estimates and the rig count has not changed from 2002.
- Texas is up 3% in June, Rockies up close to 1 Bcfd (15%), New Mexico is growing.
- Canada will be down about 3% this year.

1st Quarter Production (Bcfd)

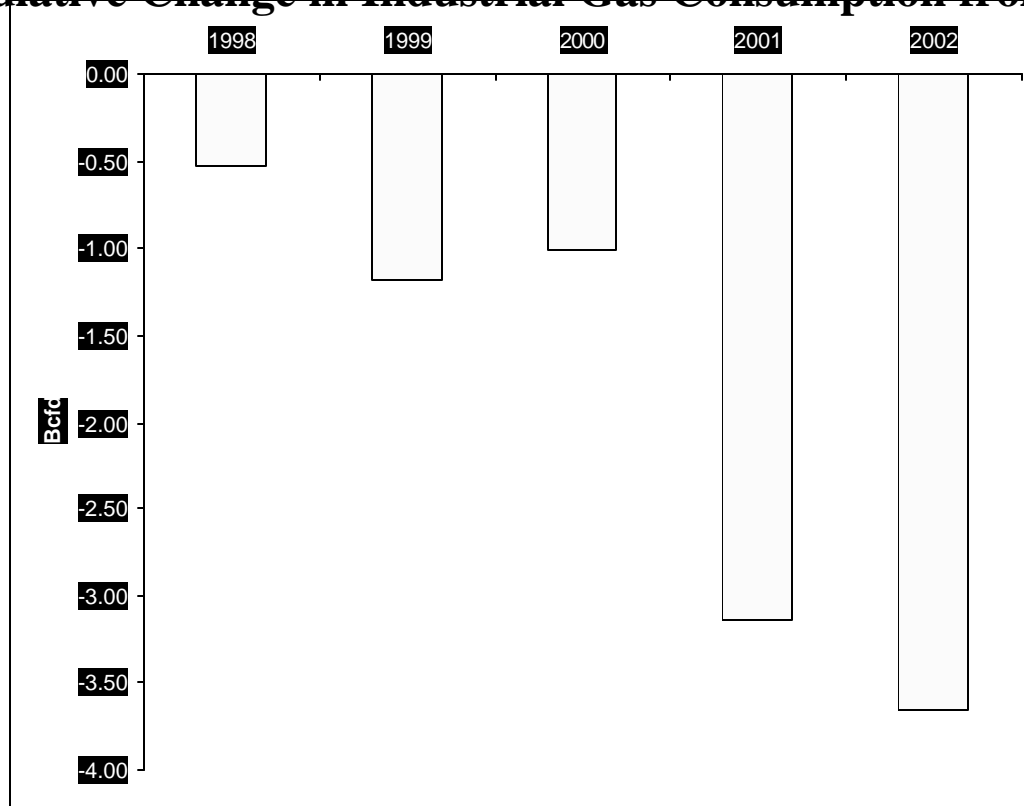
AREA			2003	%CH 03
	<u>2002</u>	<u>2003</u>	<u>-2002</u>	<u>02</u>
NM	4.17	4.40	0.23	5.4%
LA	3.69	3.59	-0.10	-2.7%
OCS	12.59	12.93	0.34	2.7%
TX	15.85	15.48	-0.38	-2.4%
SUBTOTAL	36.31	36.40	-0.39	0.3%
<u>EIA</u>				
ROCKIES	6.61	7.19	0.58	8.8%
OK	4.40	4.56	0.16	3.6%
SUBTOTAL	11.01	11.75	0.74	6.7%
TOTAL	47.32	48.15	0.34	1.8%

Industrial gas consumption is about 20 Bcfd. It accounts for one-third of US consumption. Two-thirds of consumption is in the Chemicals, Petroleum and Primary Metals sectors.



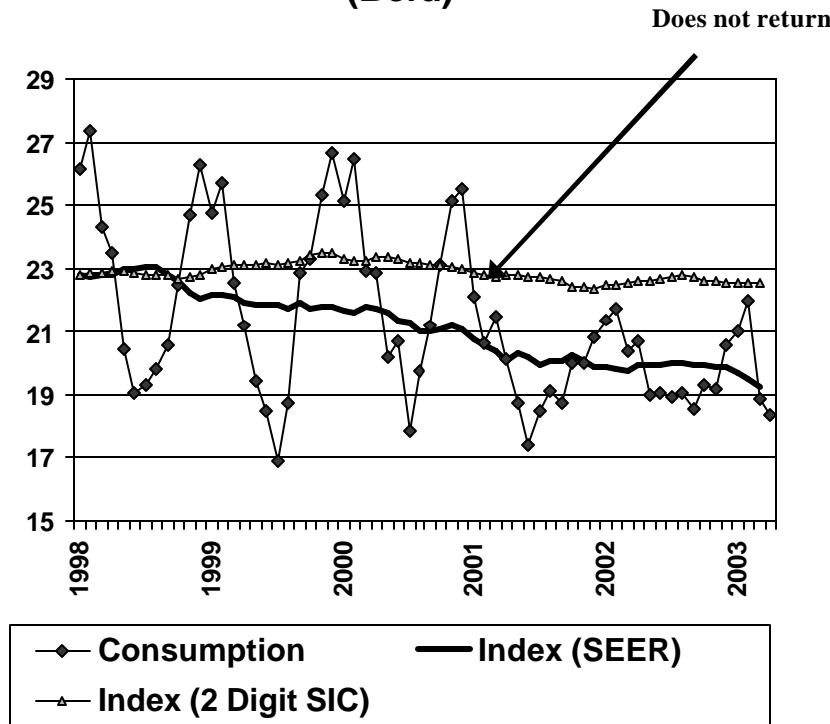
Since 1997, US industrial gas consumption has declined 3.5 Bcfd (5.8% of total consumption).

Cumulative Change in Industrial Gas Consumption from 1997

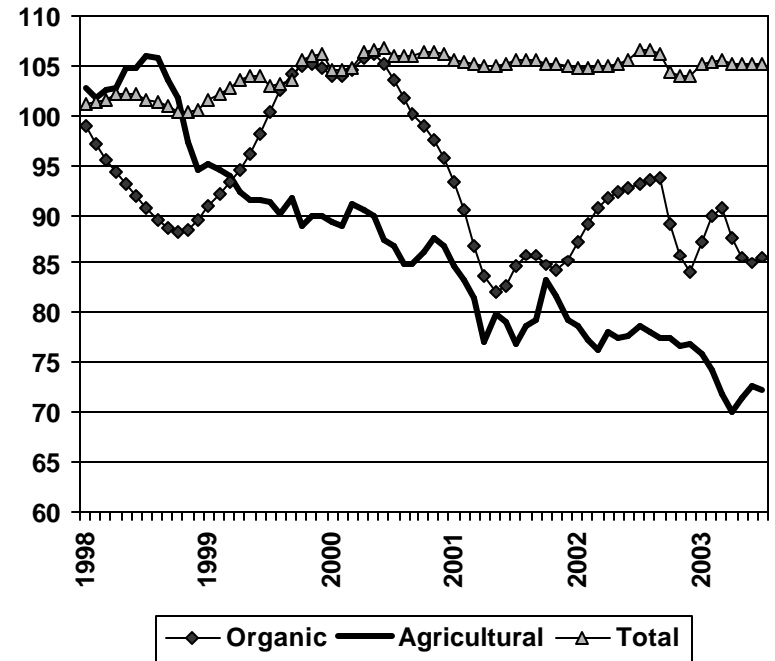


Most of the in industrial gas consumption decline can be accounted for by a reduction in gas intensive industrial production. Production indices need to be disaggregate to understand the relationship.

Industrial Production Indices versus Industrial Production (Bcf/d)

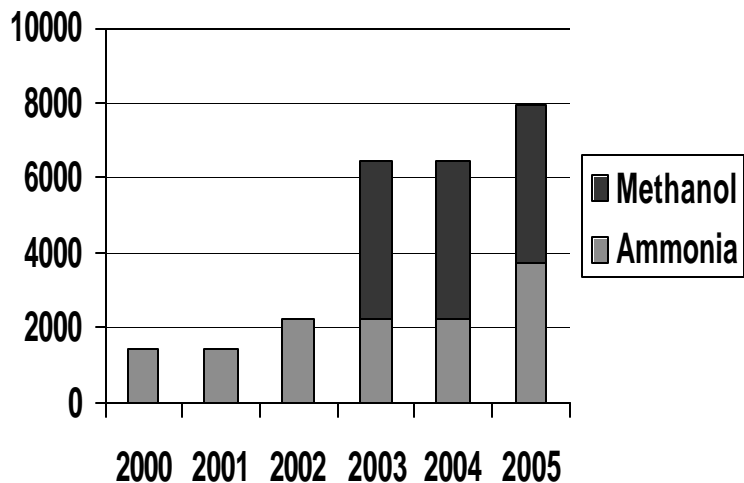


Gas Intensive Chemical Production Indices vs. Total Chemicals

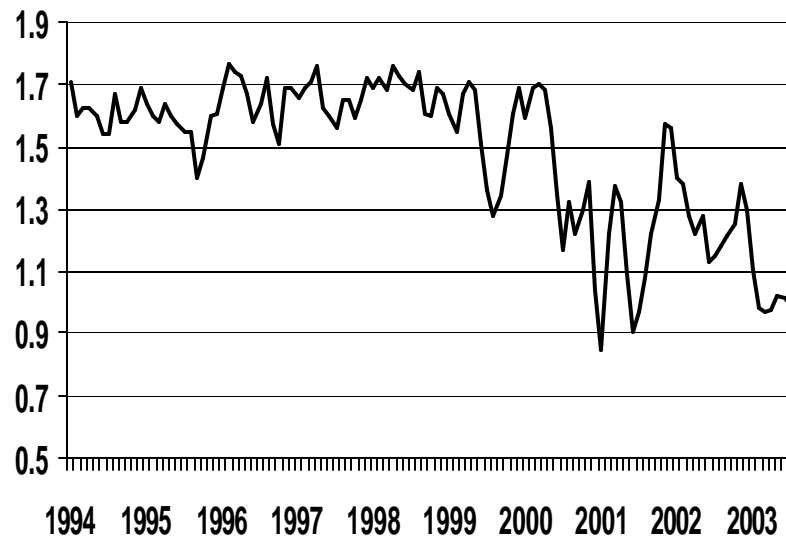


Ammonia and Methanol Capacity in Trinidad and Venezuela is increasing. Proposed capacity amounts to about 1.2 Bcfd of gas consumption. (20% of US Ammonia capacity has permanently closed in the past three years).

**Million Metric Tons
Cumulative**



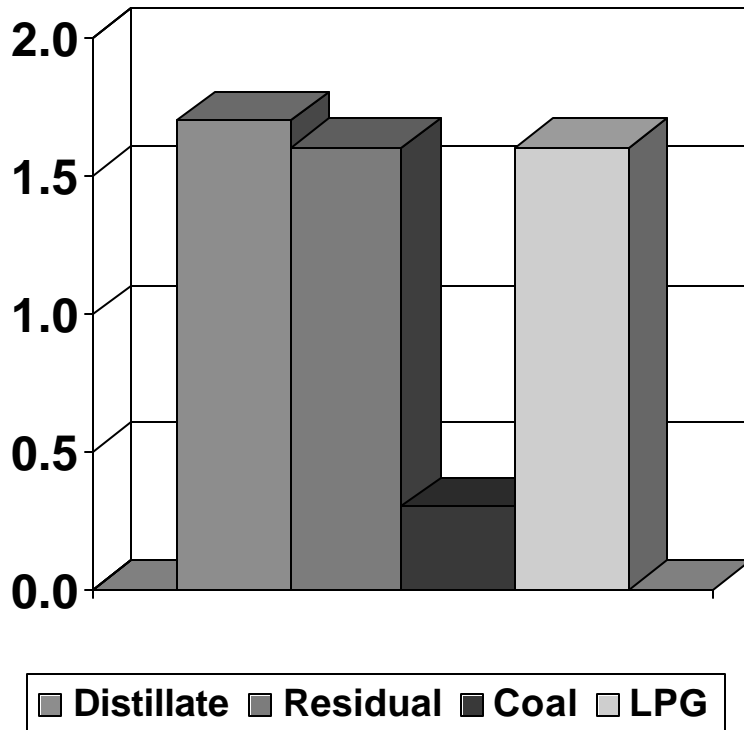
**US Anhydrous Ammonia
Production (Bcfd)**



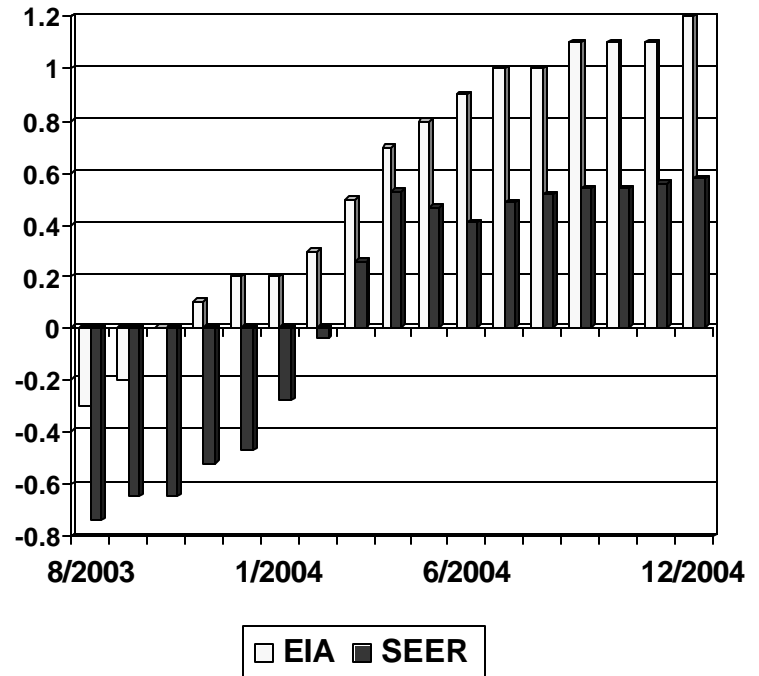
One million metric tons is 150 MMcfd

Industrial gas consumption could increase substantially if the price is right.

MECS Fuel Switching Capability



YEAR OVER YEAR GAS CONSUMPTION CHANGE FROM INCREASES IN INDUSTRIAL PRODUCTION (Bcfd)



The pressures for the coming heating season are for lower prices than last year.

- **Last heating season was 2.1% colder than normal, 4.5% colder than normal in the East + Producing Regions.**
- **This year weather forecasts are all over the map.**
 - a repeat of last year.
 - NOAA - equal chance of above and below normal.
- **WTI \$.60 per MMBtu less than last year.**
- **October working gas storage slightly below last year.**
- **Weather adjusted working gas storage injections are running 2 Bcfd above last year.**

Forward market prices reflect expectations of a repeat of winter's weather.

- 100 Bcfd of storage over the heating season is worth about \$.50 per MMBtu in HH-WTI difference.
- Normal weather would be worth 240 Bcf.
- Assuming normal weather plus lower oil prices yields a Henry Hub price of \$4.10 (versus \$5.90 last year).
- Henry Hub prices with last year's weather would be average about \$5.30 per MMBtu.
- The analysis is overly simplistic but strongly suggestive.
- A good possibility of ending the heating season with above average storage.
- Will next summer be a mirror image of last year?