

The Ever Changing Natural Gas Market

Crisis or Renaissance? The State of America's Energy
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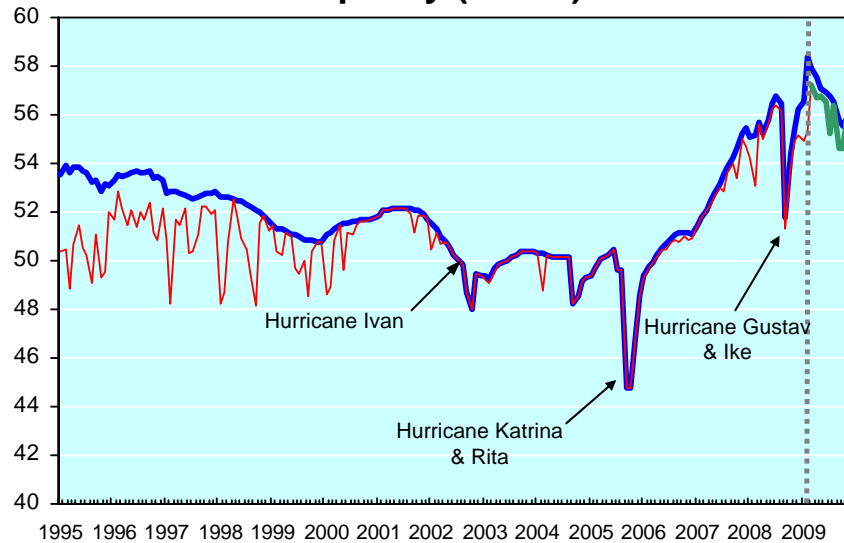
Contents

- Brief Review of Recent Market Conditions
- Long-Term Outlook for U.S and Canada Gas Markets
 - Gas Demand
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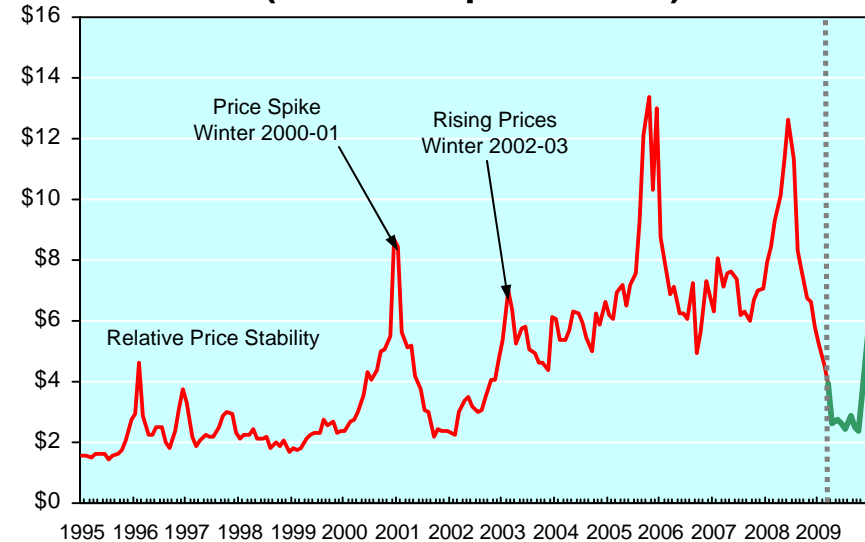
Note: Unless otherwise referenced, all conclusions and results are based on ICF's gas market fundamentals analysis.

The Natural Gas Balance

Lower-48 Dry Gas Production Vs. Dry Gas Capacity (BCFD)



Gas Price at Henry Hub (Nominal\$ per MMBtu)

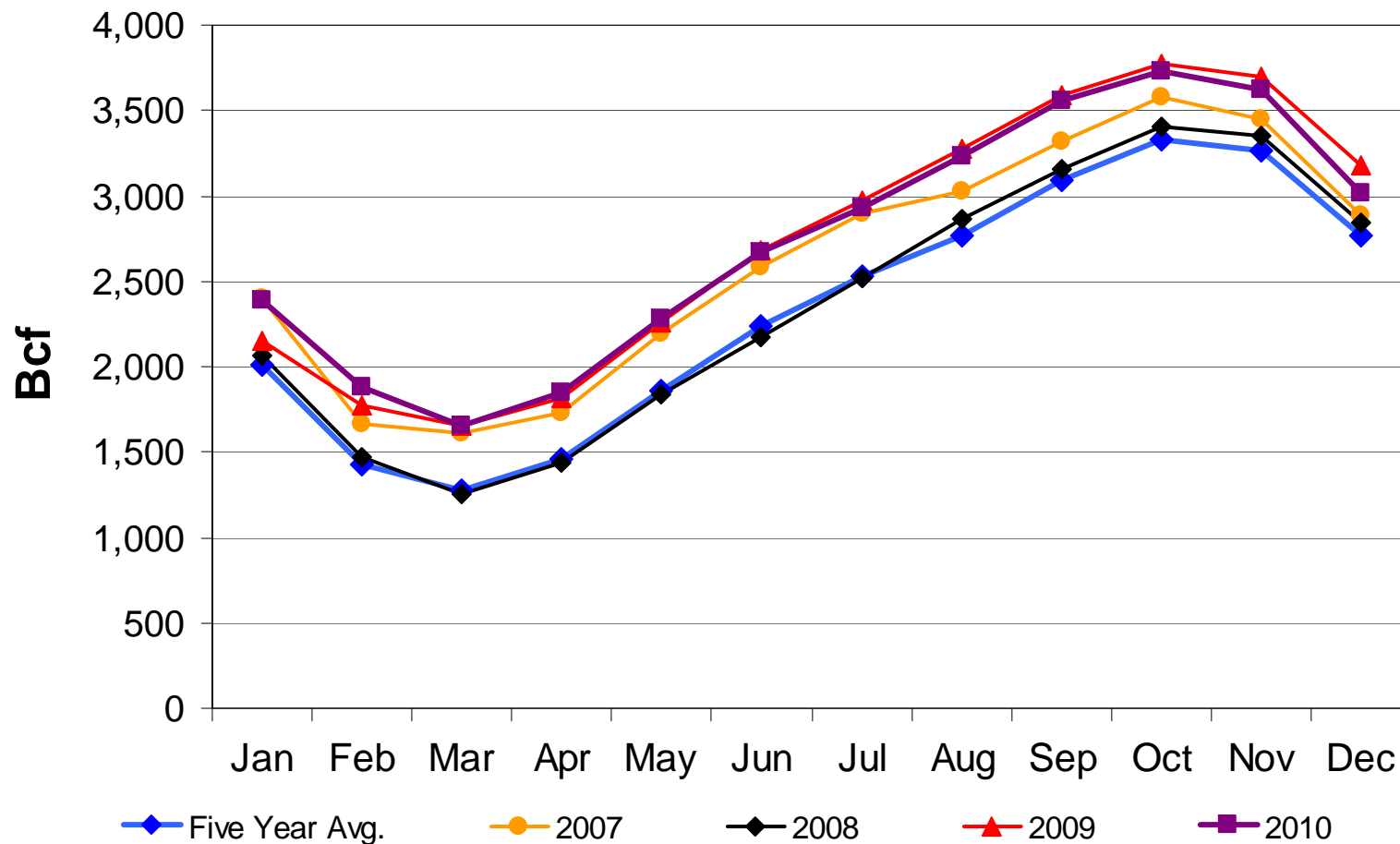


Source for Historic Data: Platts Gas Daily

The recent downturn in the economy will lead to a relatively looser balance between supply and demand over the next year or so.

Recent Gas Storage Trends

U.S. Working Gas



Have Recent Market Events Changed ICF's Views?

- No, recent events have bolstered our views!
 - Recent price volatility demonstrates that a tight supply/demand balance has been in place.
 - While the economic downturn and new gas supplies such as production from shales has loosened the balance in the near-term, expected demand growth, especially in the power sector, will lead to a tighter balance in the long-term.
- In the long run, new supplies will be needed to meet demand growth.

Important Demand Assumptions in ICF's Projection

- In the long-run, U.S. and Canada economic activity continues at levels consistent with levels observed during the past 20 years.
 - **A recession is assumed for 2008 and 2009.** We assume U.S. GDP growth averages -0.8% in 2008 and -2.4% in 2009, with proportional changes in U.S. industrial production and Canadian GDP.
 - The economy bounces back in Q2 2010 to 4.0% growth, and then stabilizes at 2.8% in Q3 2010, which continues throughout the rest of the projection.
- Carbon policy is enacted.
 - Assumed policy is consistent with Waxman-Markey.
- Adoption of DSM programs and conservation and efficiency trends continue, consistent with most recent historical trends.

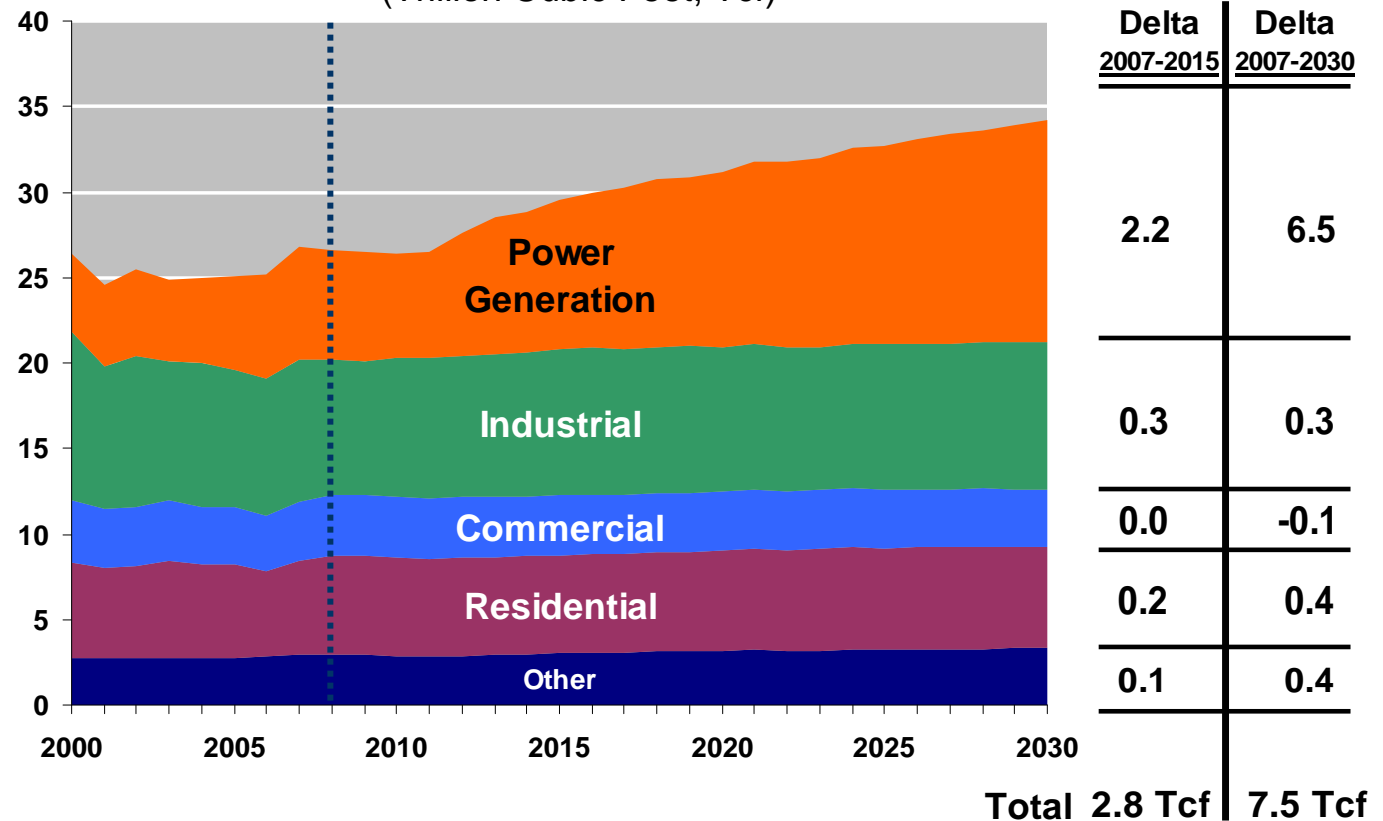
Gas Demand Outlook

The North American gas market may be best characterized as a “demand leads supply market” after economic growth resumes.

- The recent economic downturn will delay growth for a few years.
- Gas consumption in the power sector will grow substantially.
 - Over 400 GW's of new gas-fired generating capacity in the U.S. will be used to satisfy increasing electric load.
- Almost no growth in other sectors.
- When necessary, price-induced demand reductions will balance the market.

U.S. & Canada Gas Consumption

(Trillion Cubic Feet, Tcf)

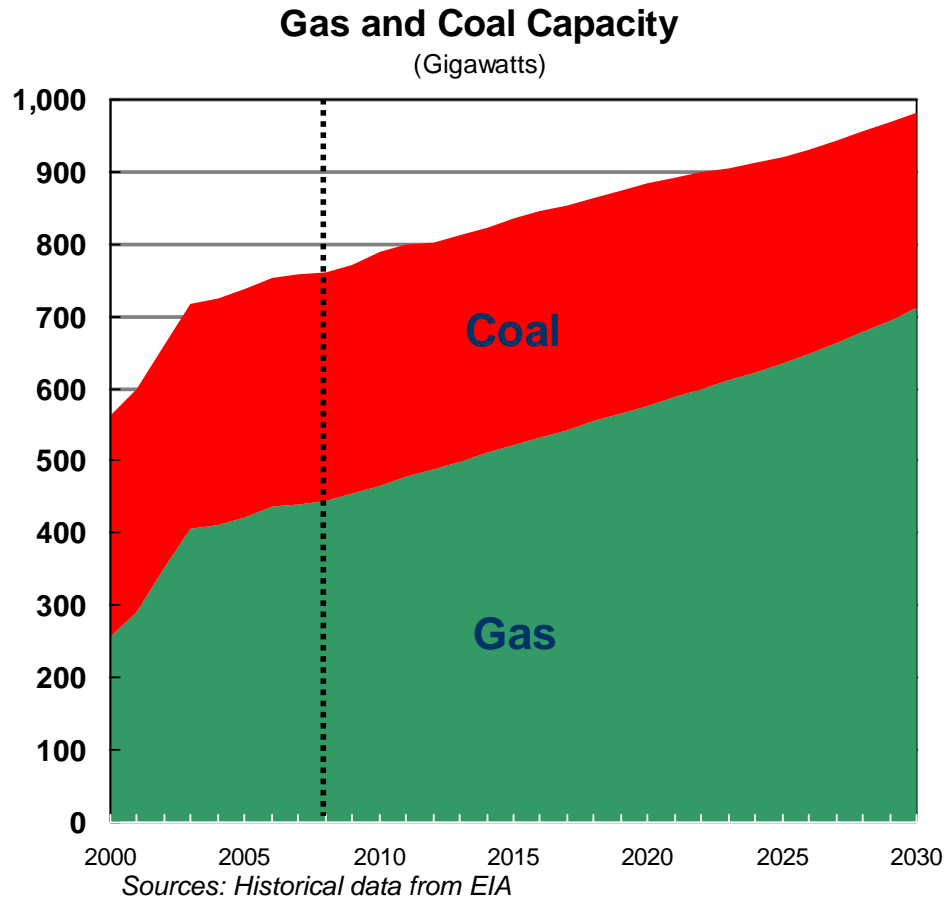


What Drives Growth in Gas-Fired Power Generation?

- Since 1997, over 200 Gigawatts of new gas-fired capacity has been constructed.
 - Gas-fired plants have continued to be favored due to relatively low capital costs and favorable pollutant emissions versus coal plants.
- Gas is an important bridge fuel for carbon policy.
 - Generation from existing coal plants is likely to remain the same or decline.
 - Carbon policy is likely to limit the growth in coal capacity.
 - Coal with carbon sequestration is too costly to be considered a viable option until after 2020.
- Generation from renewables grows at a rapid pace, but is not sufficient to entirely satisfy incremental electric load growth.
 - This is mostly driven by state RPS specifications. The development is further enhanced by carbon policy.
- Significant growth in nuclear generation is not expected until after 2020, and even uncertain then.
- No significant changes in hydroelectric capacity or generation.

A large portion of the incremental growth in electricity demand during the next 15 years will likely be met by gas-fired generation.

U.S. Coal and Gas-Fired Capacity



- Over 200 GW of new gas-fired combined cycle and combustion turbine capacity has been added since 1997.
- The expansion pace has recently slowed and will continue at a similar pace going forward as gas generation is used to meet a significant portion of incremental electricity demand.

Gas-Based Generation

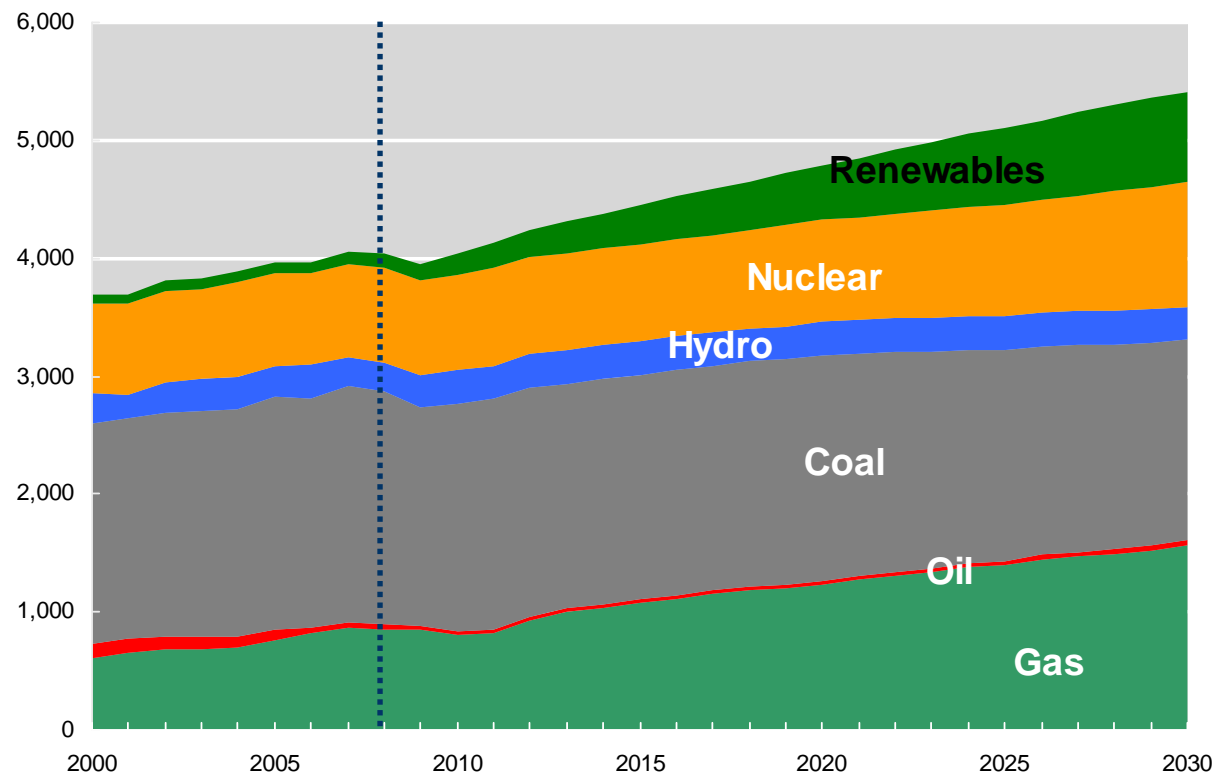
- In the next twenty years, gas-fired generation will grow to almost 30 percent of total generation.

*Gas Generation as Percent
of U.S. Total Generation*

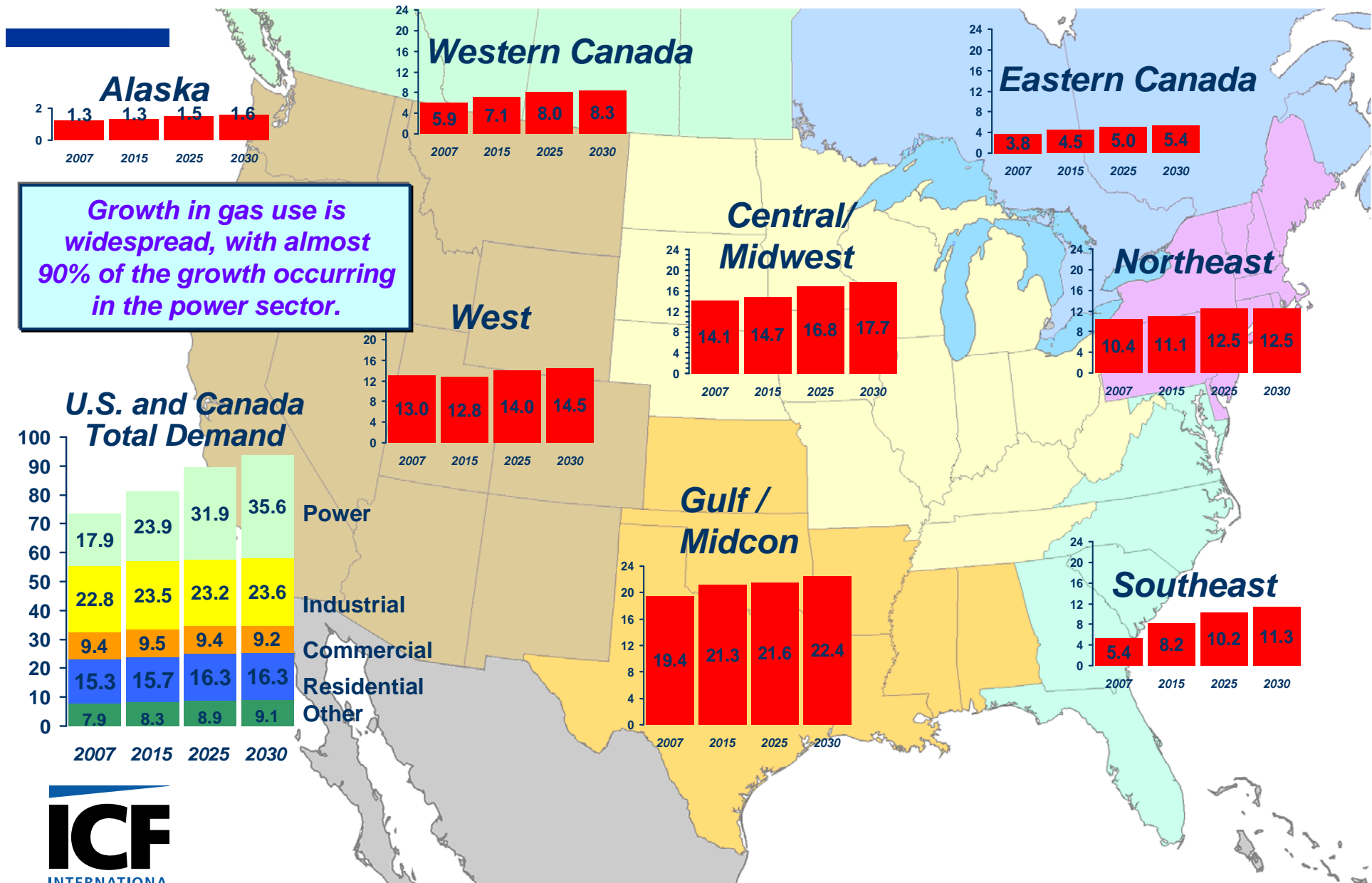
**2006: 20% 2017: 25%
2030: 29%**

Power Generation

(Billion kilowatthours)



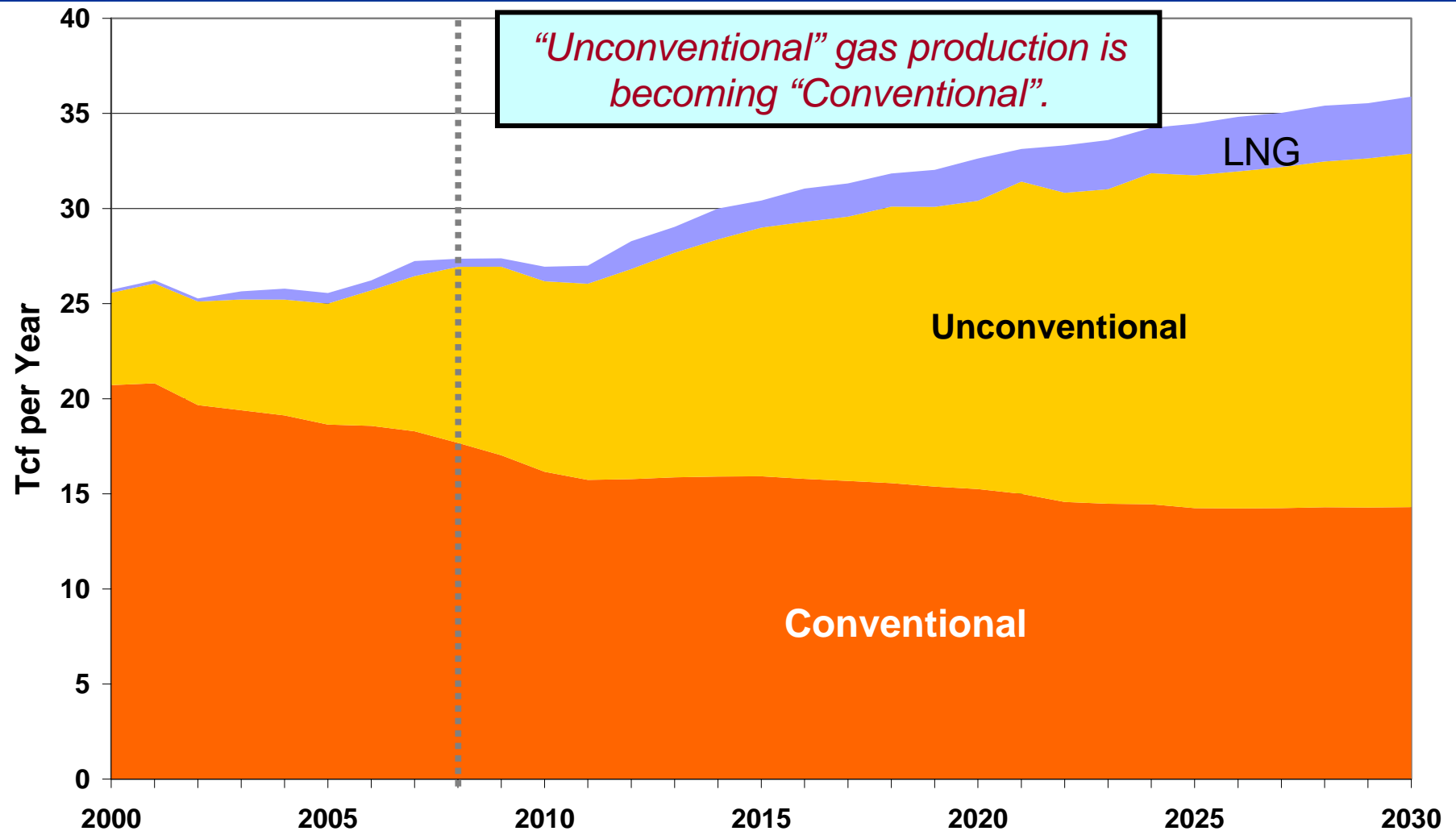
U.S. and Canada Regional Gas Demand (Bcf per day)



Summary of Gas Demand

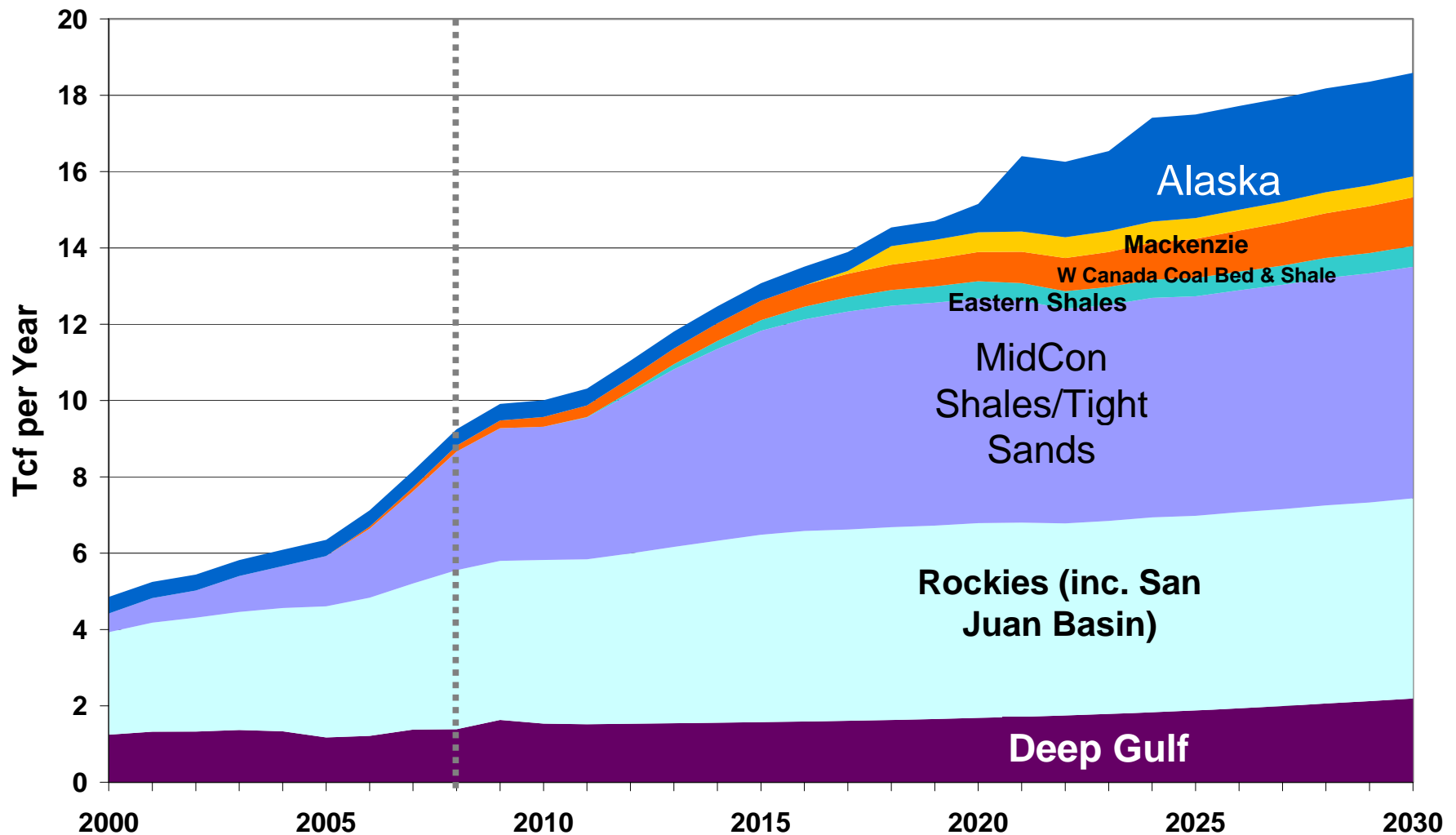
- The recent economic downturn will delay growth in gas demand by a few years.
- Significant growth is expected after the next few years, particularly in the power sector.
- Growth will occur with or without carbon policy, but greater growth is expected with carbon policy.
- Growth outside of the power sector will be more modest. DSM, conservation, and efficiency will limit opportunities for growth.

U.S. and Canada Natural Gas Supply



The unconventional category includes Arctic gas development.

Unconventional and Arctic Natural Gas Supplies



Regional Gas Supply

(TCF/year)

Alaska

*Alaska
always 10
years out.*

*The Rocky
Mountain
Basins
continue to
shine.*

Canada

*Canada declines
even with
MacKenzie Delta
and some shale
development.*

**North American
Total Production**

**Central/
Midwest**

West

**Gulf /
Midcon**

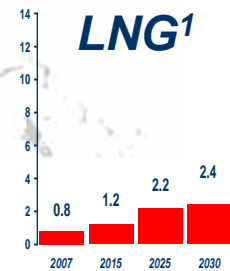
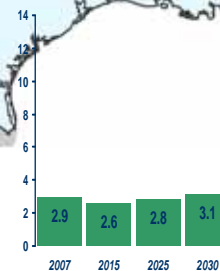
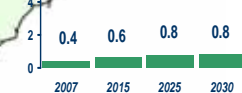
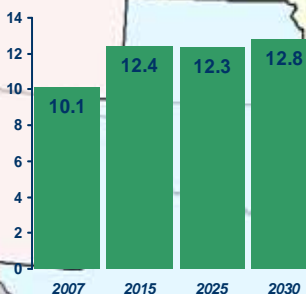
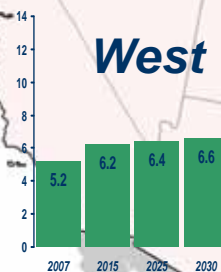
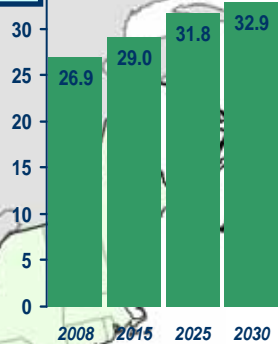
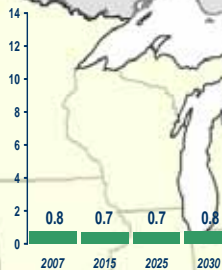
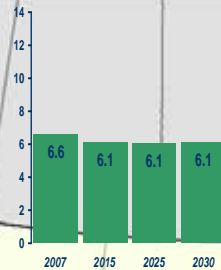
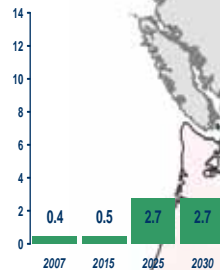
East

*LNG an
uncertain
supply.*

*Shale
production
boosts the
Midcontinent.*

**Gulf
Offshore**

LNG¹

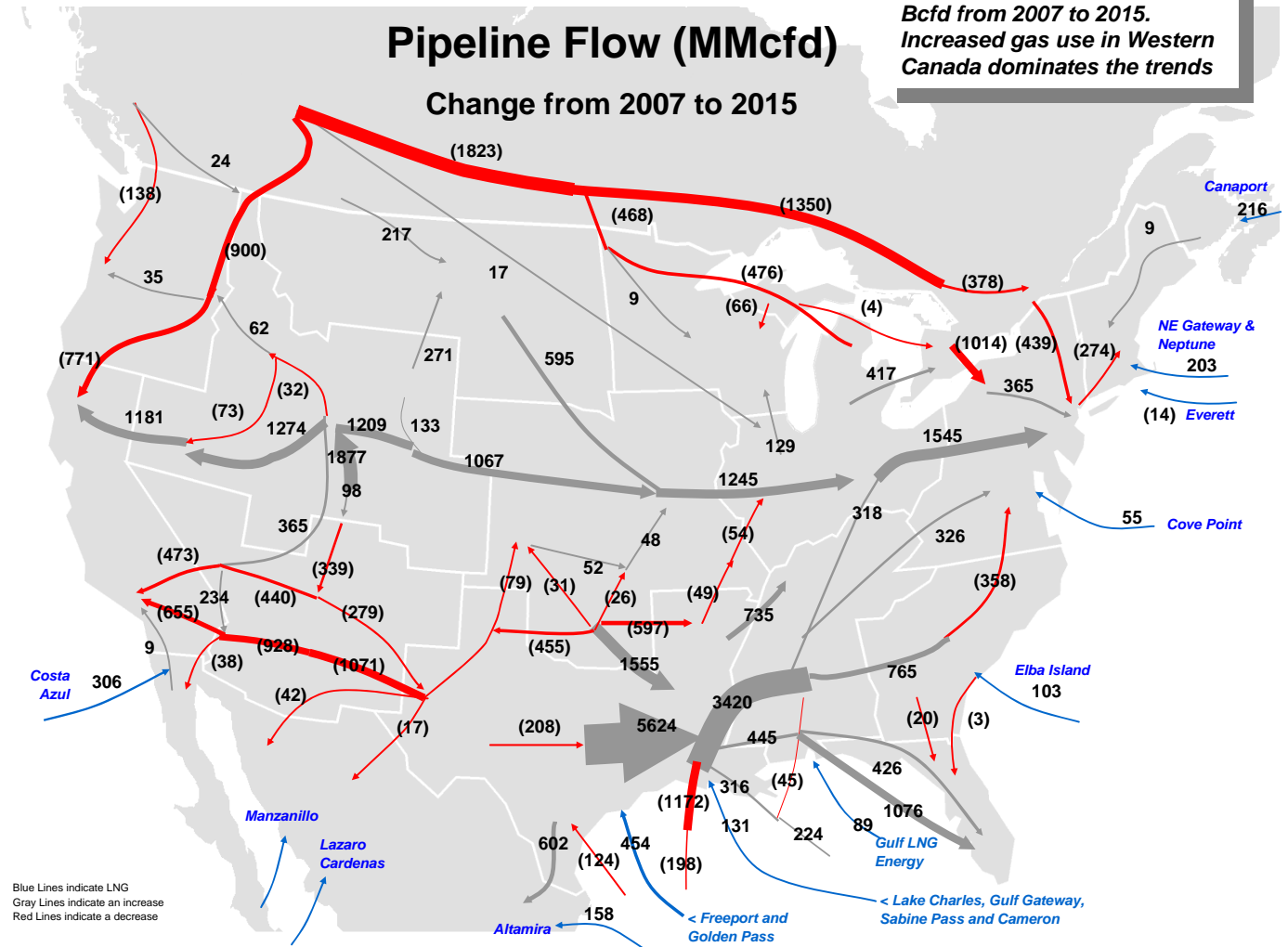


New Gas Supplies Affect Regional Flow Patterns

2007-2015

- Greatest increases in supply are from the Rockies and the Midcontinent shales.
- Exports from Western Canada down due to declining production and increased gas consumption in Western Canada.
- U.S and Canada LNG imports increase to about 3.3 Bcfd by 2015.

Lower-48 Net imports from Canada down by about 3.1 Bcfd from 2007 to 2015.
Increased gas use in Western Canada dominates the trends



New Gas Supplies Affect Regional Flow Patterns

2007-2030

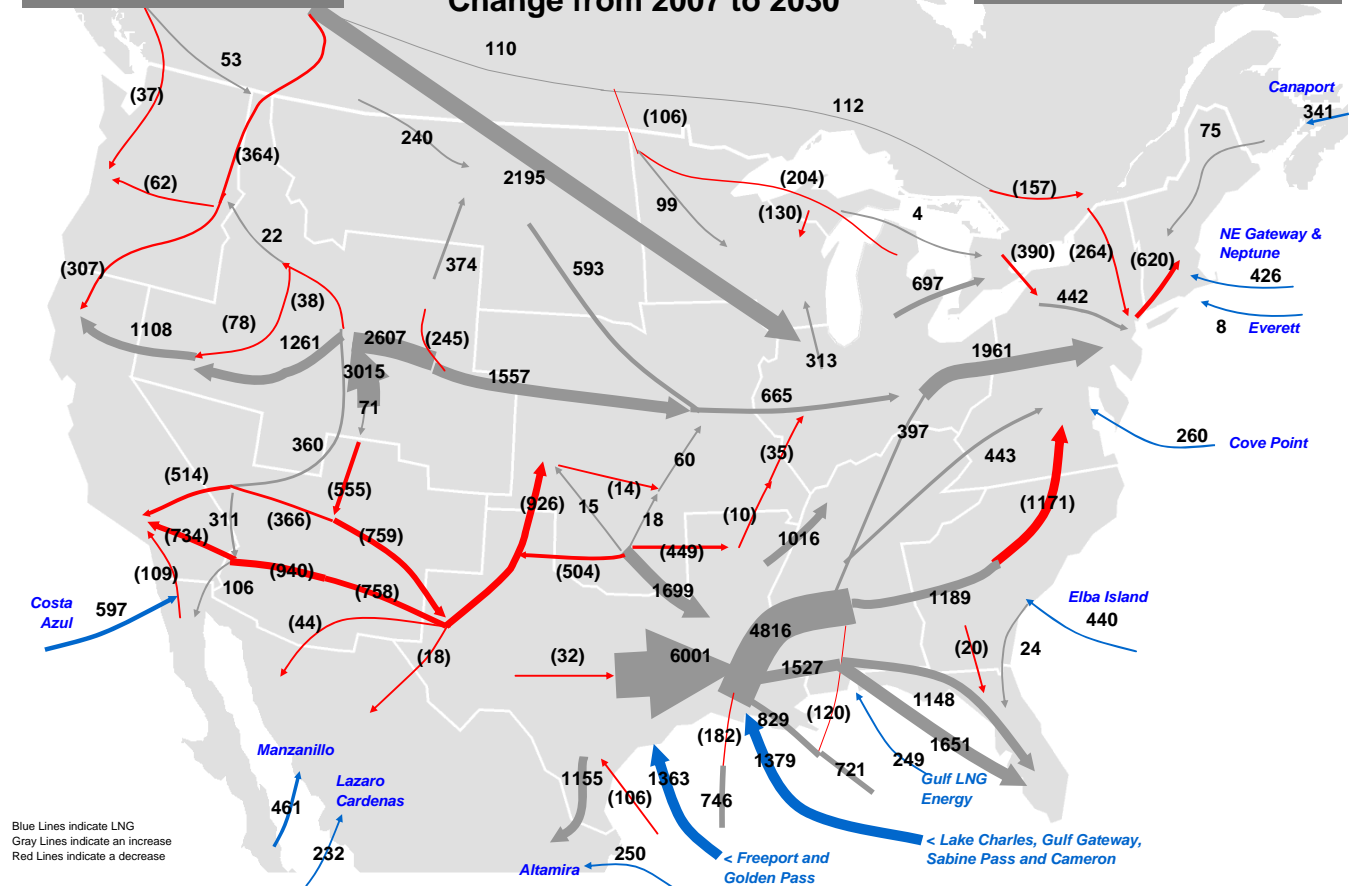
- Greatest increases in supply are from the Rockies and the Midcontinent shales.
- Net exports from Western Canada are only up about 0.7 Bcfd, despite 7 Bcfd of Alaskan and Canadian Arctic gas development.
- U.S and Canada LNG imports increase to around 6.6 Bcfd by 2030.

Net US Exports to Mexico up by about 1.3 Bcfd from 2008 to 2030.

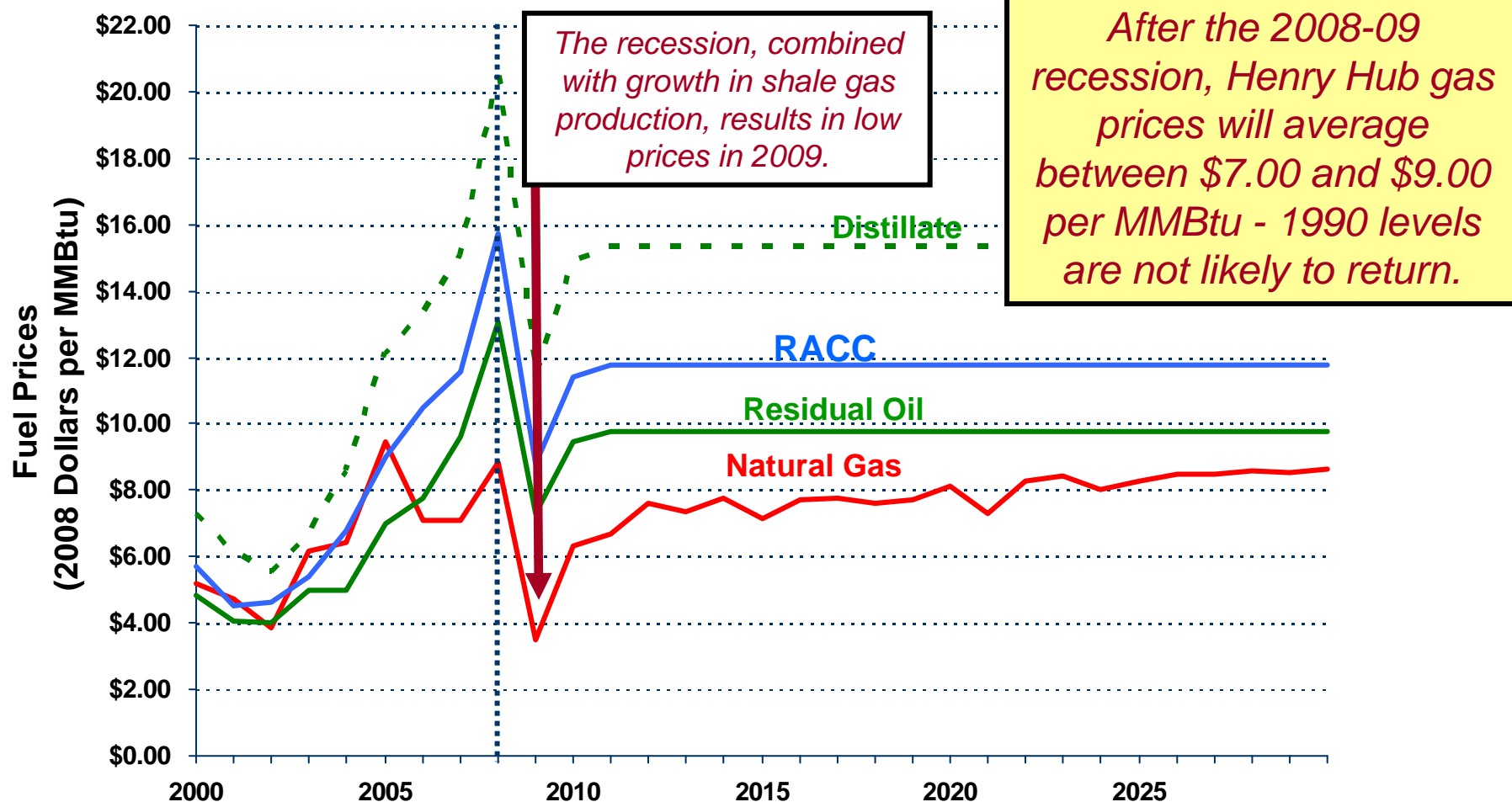
Pipeline Flow (MMcfd)

Change from 2007 to 2030

Lower 48 net imports from Canada up about 0.7 Bcfd from 2008 to 2030.



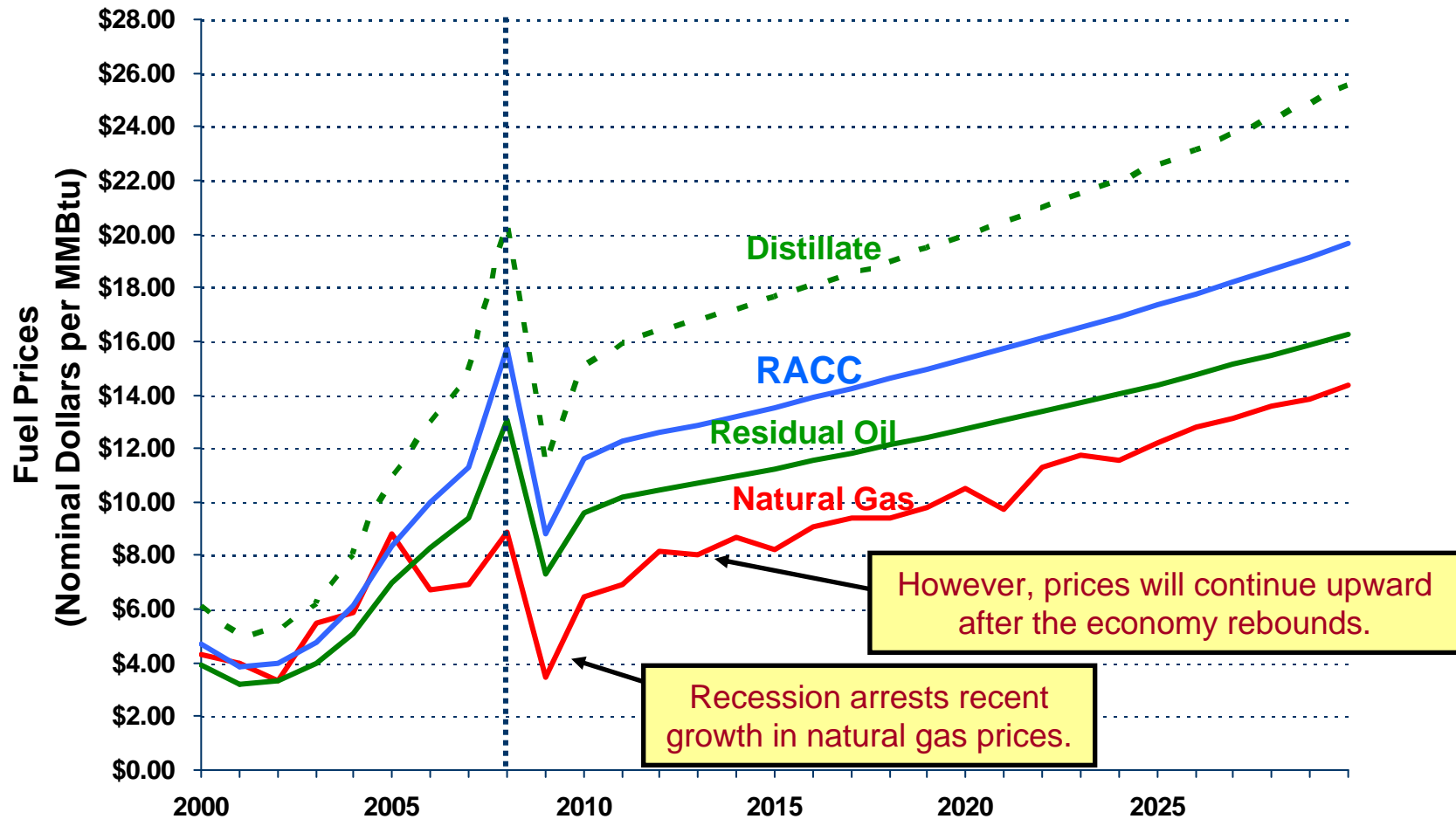
Projected Annual Average Henry Hub Gas Price



Sources: Historical data from Platts Gas Daily and EIA

The gas prices as shown exclude the cost of CO2 emission allowances.

Projected Annual Average Henry Hub Gas Price



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The gas prices as shown exclude the cost of CO2 emission allowances.

Projected Regional Price Differentials (Basis)

	<i>Basis in 2008 \$/MMBtu</i>			<i>Basis in Nominal \$/MMBtu</i>		
	2002 to 2006	2007 to 2015	2016 to 2030	2002 to 2006	2007 to 2015	2016 to 2030
Henry Hub to NYC	0.97	1.00	1.14	0.88	1.04	1.63
Henry Hub to Dominion North Point	0.84	0.55	0.63	0.76	0.58	0.90
Henry Hub to Dominion South Point	0.43	0.41	0.53	0.39	0.44	0.75
Henry Hub to Chicago	-0.10	0.09	0.08	-0.09	0.10	0.11
Henry Hub to Dawn	0.14	0.44	0.58	0.13	0.47	0.82
Henry Hub to South Florida	0.52	0.59	0.90	0.47	0.62	1.29
AECO to Chicago	0.97	0.90	1.06	0.88	0.95	1.50
Opal vs Henry Hub	1.34	1.39	1.16	1.22	1.44	1.65
Opal to Dominion North Point	2.18	1.94	1.79	1.98	2.02	2.55
Opal to Dominion South Point	1.77	1.80	1.69	1.61	1.87	2.41
Opal to Southern California	0.72	1.04	0.90	0.65	1.08	1.29
Southern California vs Henry Hub	0.62	0.35	0.25	0.57	0.36	0.36
Midcontinent vs Henry Hub	0.58	0.48	0.27	0.54	0.49	0.39
East Texas vs Henry Hub	0.29	0.15	0.12	0.27	0.15	0.16
San Juan Basin vs Henry Hub	1.19	0.73	0.58	1.08	0.76	0.82

Conclusions

- In 2009, natural gas prices will be lower than in recent years due to the recession.
- However, natural gas prices will rebound as the economy rebounds.
- After the economy rebounds, natural gas consumption is likely to grow, with significant growth in gas-based power generation.
- Shale gas development will be significant.
- Alaska gas and LNG imports are important sources of natural gas supply.
- Henry Hub gas prices are likely to average between \$7.00 and \$9.00 per MMBtu in real terms after next year.
 - But, high levels of gas price volatility are likely to continue, so at any particular point in time gas prices could be significantly outside this range.

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