THE IMPORTANCE OF MONTHLY GAS DATA - THE PERSPECTIVE OF AN ENERGY ECONOMIST SPECIALIZING IN INTERNATIONAL GAS TRADE

A Presentation to the
The International Energy Forum's
2nd Gas Data Transparency Conference
Doha, Qatar
May 22, 2012

JAMES T. JENSEN
Jensen Associates
49 Crescent Street; Weston, MA 02493 U.S.A.
Website JAI-Energy.com

Phone (781) 894 2362
Fax (781) 894 9130
E Mail JAI-Energy@Comcast.Net

GAS-TO-GAS COMPETITION IN LIBERALIZATED GAS MARKETS HAS INCREASED THE NEED FOR TIMELY NATURAL GAS DATA

- But Unfortunately, the Old Adage Still Applies, "You Can Have Fast Data and You Can Have Accurate Data, But You Cannot Have Fast, Accurate Data"

- In North America, the U.K. and Increasingly on Parts of the Continent, Trading at Hubs has Provided Liquid and Transparent Pricing Information; It Has Been Slow to Spread to Much of the Rest of the World

- Since Supply and Demand Balances are the Fundamental Driving Forces of Market Pricing, Timely Information About Them is Critical to Workable Markets

- Traders Need "Fast Data" and Even Weekly, Let Alone Monthly Information, is Often Too Slow

- The U.S. Experience Provides Some Insights Into How the Compromise Between Speed and Accuracy is Being Handled in That Comparatively Mature Market

- The U.S. Energy Information Administration Provides its Monthly (Preliminary) Supply, Demand and Trade Data with a Two Month Lag in its Publication, Natural Gas Monthly; Thus the Most Definitive Information is at Least Two Months Old

- As a Means of Providing More Up-to-Date Information, the EIA Also Provides a Weekly Natural Gas Storage Report Every Thursday

- Traders Use This to Get a Current View of the Market
- For Example, if the Current Storage Withdrawals are Larger than Expected, it Means Either That Production is Lower or Weather-Adjusted Demand is Higher than Previously Anticipated
- Following the Release of the Report, Prices Respond Accordingly
- And Even That is Not Enough for Many Traders; They Follow Weather Reports to Make Interim Adjustments to Their Demand Estimates
- While Such a Level of Detail is Quite Unrealistic in an International Context, Quality Monthly Data are a Starting Point in Developing Gas-to-Gas Competitive Markets

CLEARLY THE DEVELOPMENT OF LIQUID AND TRANSPARENT MARKET HUBS REQUIRES ENOUGH COMPETITORS TO PROVIDE A WORKABLE MARKET

- And as Those Competitive Hubs Begin to Develop, There Will be Strong Pressure to Provide the Current Data to Make Them More Efficient

- However, For Much of the World, There Are Not Yet Enough Competing Suppliers to Create a Workably Competitive Market

- Trading in 2.5 Bcf LNG Cargo Lots Creates a Very Different Level of Competition From Trading in 10,000 Mcf Contracts for Henry Hub or 400 Mcf Contracts for the NBP

- An Obvious Question - "What Value is There in Monthly Gas Data Where Competitive Trading Markets are Still a Long Way Off?'

ONE OF THE CLASSIC CHALLENGES OF GAS DATA DEVELOPMENT IS THE DIFFICULTY OF REPLICATING THE DATA PUBLISHED BY OTHERS

- The Problems of Measurement, Differing Units and Conversion Factors and the Timing of Data Collection Are the Source of Much of the Problem

- This is Apparent in the Development of Gas Balance Data; In Theory the Addition of Production to Net Imports Should Equal Consumption: It Rarely Does

- The Way in Which the Sources Deal with This Issue In Their Annual Estimates Varies

- To Illustrate for Several Annual Statistical Reports:

  The EIA Includes a "Balancing Item" in its Statistics;For 2008 it Was -0.6% of U.S. Demand
  The IEA in its Energy Balance Series Includes a "Statistical Discrepancy" Item; For 2008 It Was-0.1% of World Demand
  BP Publishes Consumption and Production Figures Separately; In 2008 They Differed by -1.6%
  Cedigaz Uses a Concept of "Apparent Demand" Which Equals Marketed Production Plus Net Imports, so There is No Discrepancy

- Eurogas Also Publishes Annual Supply Figures

- The IEA and Eurostat Provide Monthly Figures; An Analysis I Have Seen Shows Differences in the Numbers From a Number of Sources for Individual Countries

- While on a Total Level, These Differences May Not be Large, For Individual Countries in the International Estimates, the Discrepancies Can be Much Larger

- And the Above Sources are Available Only After Significant Time Lags; For Monthly "Fast Data" the Problem Can be Much More Severe

MY PERSPECTIVE IS AS A CONSULTANT IN PLANNING AND ECONOMICS, NOT AS A TRADER

- Thus, I Most Commonly Work With Annual Data Derived From the IEA, Cedigaz or the BP Annual Statistical Review

- I Supplement This by Monthly Price Data from Trade Press Sources and a Database of Potential LNG and Pipeline Projects Around the World

- But While Annual Data are Sufficient in an Orderly World, Gas Markets are Far From Orderly

- Thus When Potentially Disruptive Market Events Occur it is Necessary to Dig into Short-Term Market Information in Order to Understand What is Happening and its Implications for the Future

THE FUKUSHIMA DISASTER PROVIDES A GOOD EXAMPLE

- The Progressive Shutdown of Japan's Nuclear Plants (The Last Unit Shut Down on May 15th) Has Placed a Great Burden on the Replacement of the Lost Generating Capacity

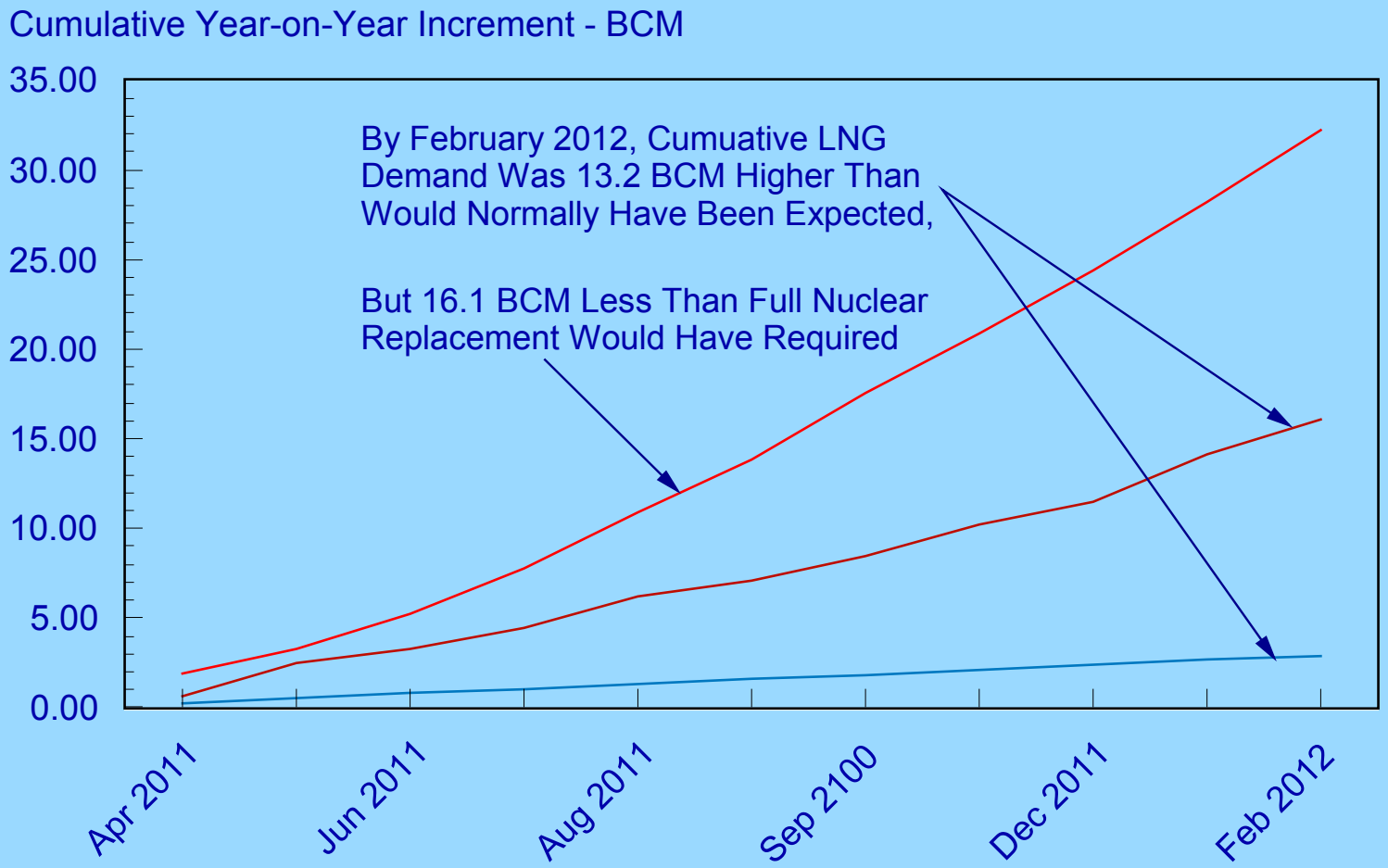
- It Was Expected That Some Combination of Conservation, "Economic Shock" and More LNG and Oil Would be Needed to Balance Energy Markets

- The Problem Has Been to Figure Out How Much Extra Demand LNG Would be Expected to Carry

- Fortunately, Japan is a Contained Destination Market with Excellent Statistical Reporting, Not Only for Gas But for Competing Fuels, so That Estimates of the Likely Increased LNG Use Are Relatively Manageable

Figure 1

THE CUMULATIVE INCREMENTAL INCREASE IN LNG UTILIZATION IN JAPAN FOLLOWING THE MARCH 2011 FUKUSHIMA DISASTER



[1] From IEEJ Primary Energy in EDMC Energy Trend

[2] Growth at Five Year Average Rate

- The Actual Increase in LNG Demand Was Considerably Less Than a Full Replacement of Lost Nuclear Power
- The Drop in Demand Both from Lessened Economic Activity Following the Shock and From Conservation/Rationing Efforts Had a Greater Effect Than LNG; Oil Use Was Also a Factor
- The Statistical Relationship Between Nuclear Reductions and Increased LNG Use Suggests that Zero Nuclear Generation Would Require 27 BCM More Than Normal; This is a Similar Estimate to Ken Koyama's (IEEJ) Estimate for This Year of 28 BCM

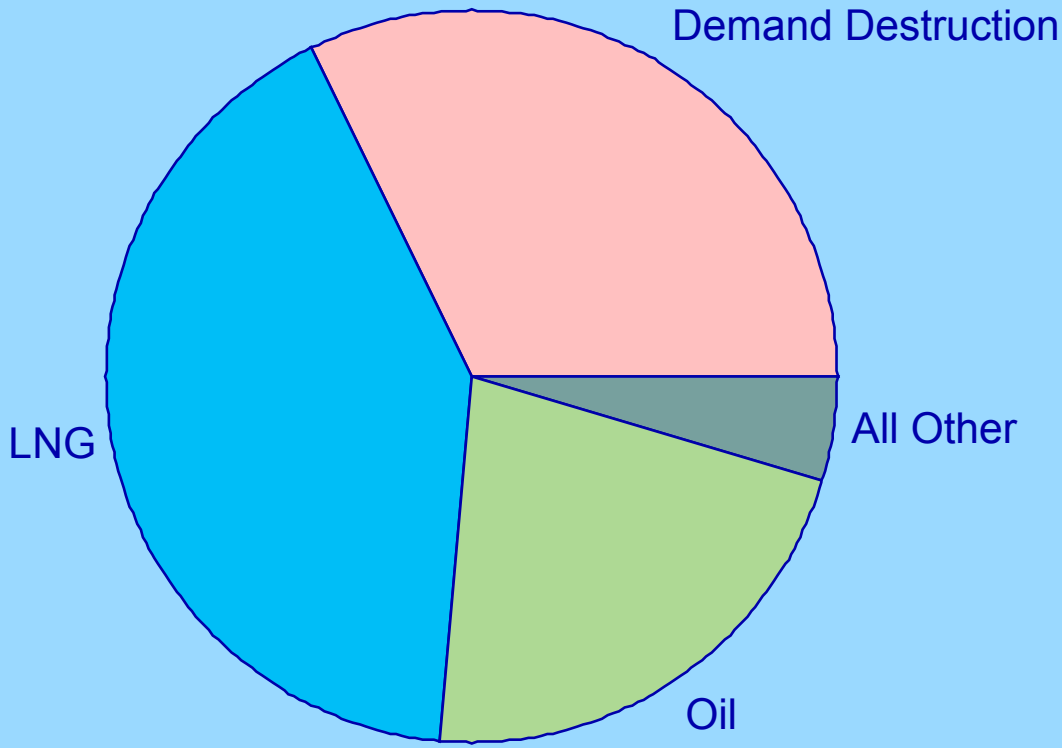
- But Some Utilities Argue That Gas-Firing Capacity is Running Near Capacity and That Will Limit Further Gas Use

- In Estimating Future LNG Demand in Japan, an Analyst Must Make Some Speculative Assumptions
  - How Much Nuclear Capacity Will Come Back on Line and When?
  - How Much Will Demand Recover Once the Capacity Constraints Ease?
  - And How Much Will Gas Firing Capacity Constraints Limit the Share of Gas in Mix?

- Monthly Data Will Thus be Important Tool for the Analyst to Use in Judging How His Assumptions are Working Out

Figure 2

THE PERCENTAGE OF THE LOSS OF NUCLEAR LOAD IN JAPAN CARRIED BY LNG, OIL AND DEMAND DESTRUCTION FOLLOWING THE MARCH 2011 FUKUSHIMA DISASTER (THROUGH FEBRUARY 2012)



Percent of Nuclear Loss

THE TUMULTUOUS MARKETS OF 2009/2010 PROVIDE ANOTHER EXAMPLE OF THE VALUE OF TIMELY DATA ON GAS SUPPLY,DEMAND AND TRADE

- The Markets Were a Product of Three Coincindent Events That Somewhat Unexpectedly Created a Significant Gas Surplus in 2009

- The Worldwide Recession Significantly Reduced Demand

- The Long-Awaited Surge in New LNG Supply Finally Alleviated a Nearly Decade-Long Tight LNG Market

- And North America Surprisingly Developed a Technology That Would Unlock its Very Large Shale Gas Resource Base, Not Only Taking North America Out of Its Expected Role as a Major Market for Expanded LNG Supply, But Sharply Reducing Regional Gas Prices

THE MARKET EVENTS RAISED TWO KEY QUESTIONS

- How Did LNG Flows Reorient Themselves to Accomodate the Market Decines and the Loss of the North American Market?

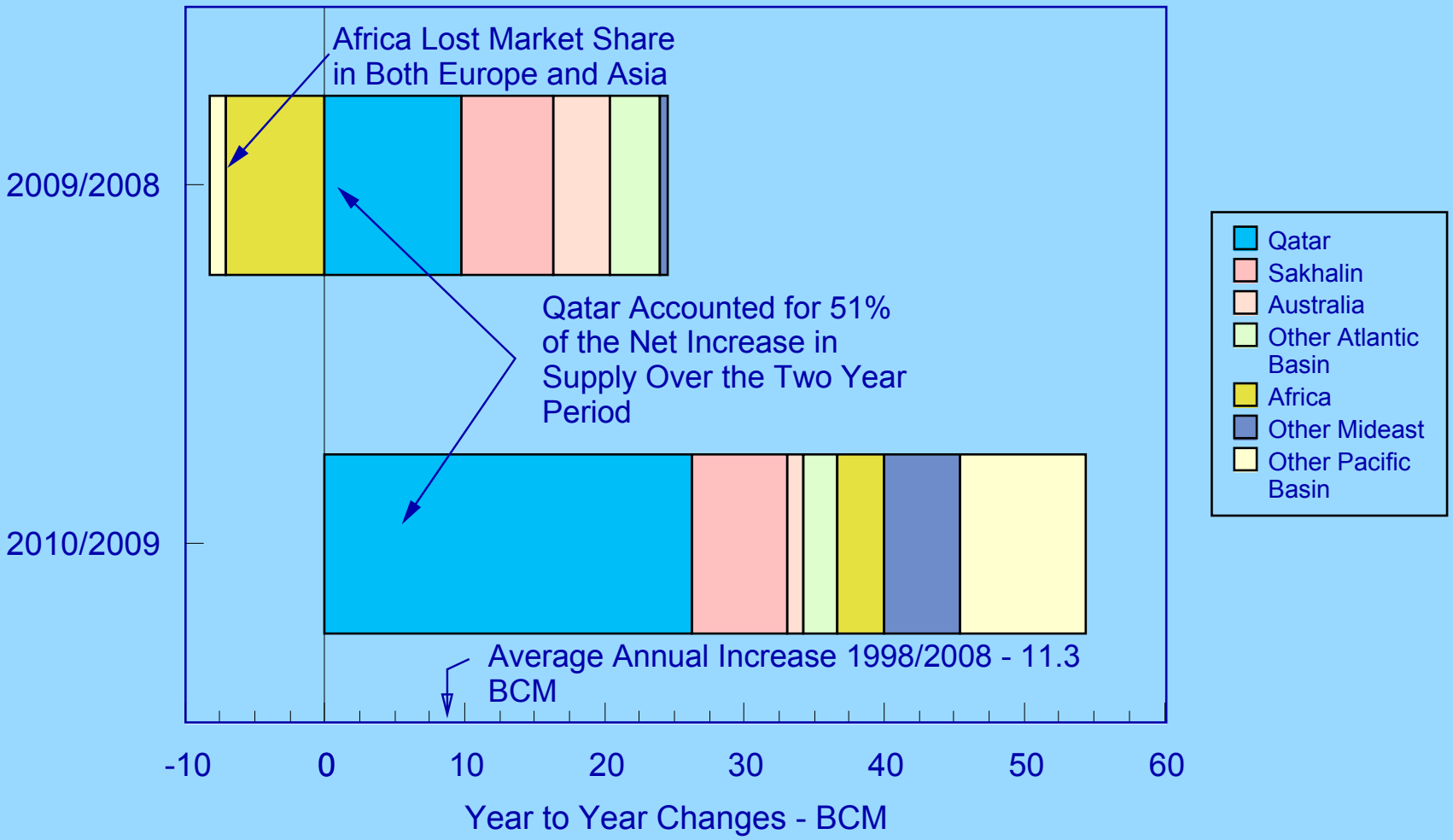
- And, How Did the Surge of LNG into Pipeline Markets Affect Gas Trade Patterns?

- I Did Not Attempt a Comprehensive Monthly Analysis of the Upset, Using Only Spot Checks for Individual Countres; A Comprehensive and Internally Consistent Monthly Database Would Have Made it Much Easier

- But an Annual Analysis After the Fact Showed How Much the Market Had Forced Competition, Both Among LNG Suppliers and Between LNG and Pipelines

- The Surge in LNG Supply Was Dominated by Qatar; 51% of the Expanded Trade for 2009/2010 Came From That Country
- The Startup of Sakhalin in 2009 Added to Asian Supply at a Time When Northeast Asian Demand Was Down Because of the Recession
- Africa Lost Significant Market Share in Both Europe and Asia
- While 26% of the LNG Capacity Which Went on Line During the Period Was Originally Destined for North American Markets, the Resurgence of Northeast Asian Markets in 2010 Aborbed Some of the Supply Originally Targeted for North America

Figure 3
YEAR TO YEAR INCREASES IN LNG TRADE BY EXPORTERS - 2009/2008 AND 2010/2009



- The Effect of the Recession Was Most Pronounced in Europe and in LNG Imports Into Northeast Asia, Which in 2008 Had Accounted for 62% of World LNG Demand

- The Surge in LNG Supply Flooded into Northeast Europe; Belgium and the U.K. Alone Accounted for 81% of the Increase in LNG Trade

- Although Declining North Sea Production Absorbed Much of the Increased LNG Volume, the Decline in Continental Demand Exposed Europe to U.K. Price Competition

- Influenced by the Sharp Drop in North American Prices, Atlantic Basin LNG Arbitrage Undermined Continental Oil-Linked Contract Pricing; the Russians Were Large Losers and Had to Renegotiate Some of Their Contracts

Figure 4
YEAR TO YEAR INCREASES IN LNG TRADE BY IMPORTING REGION - 2009/2008 AND 2010/2009

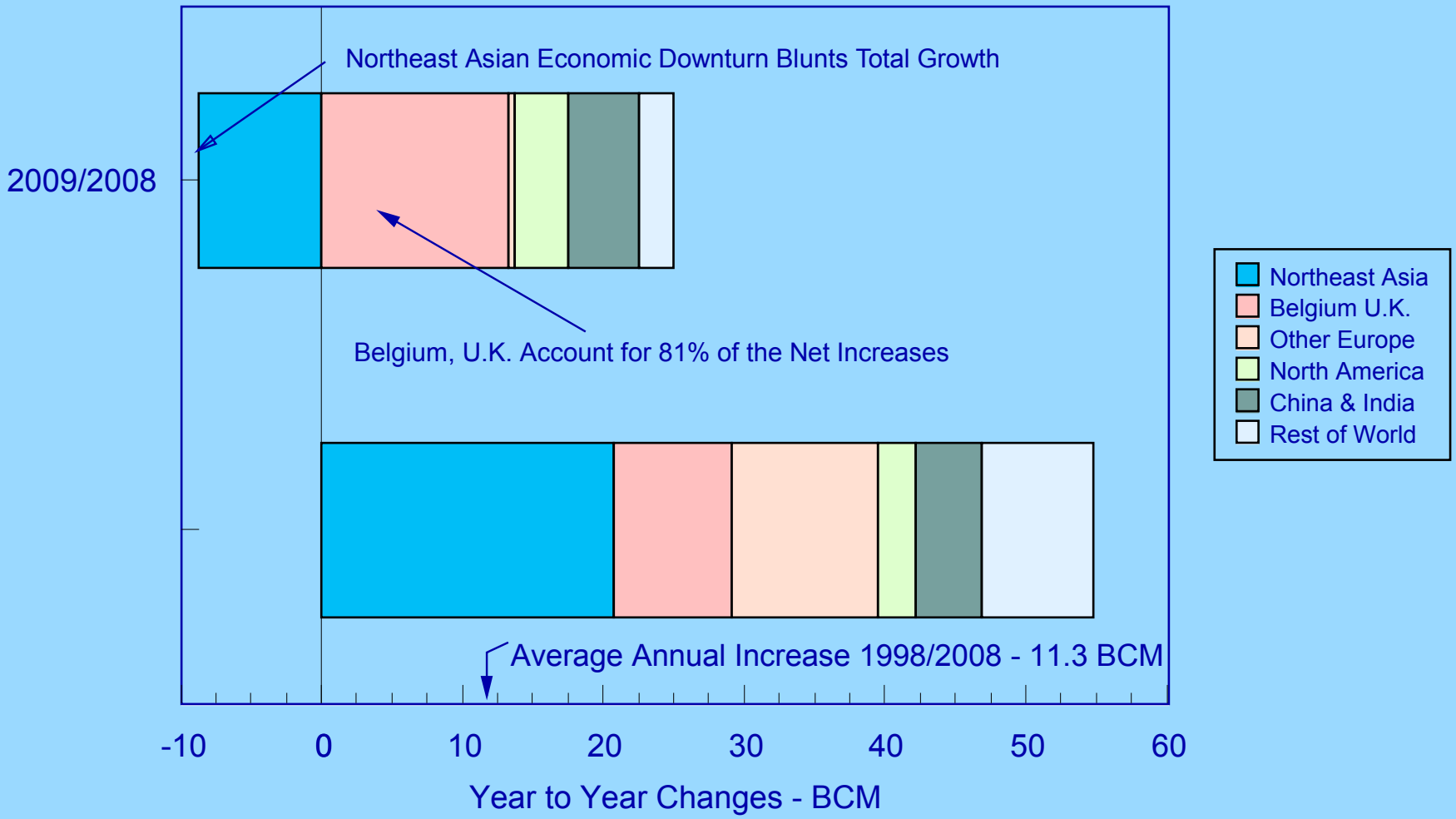
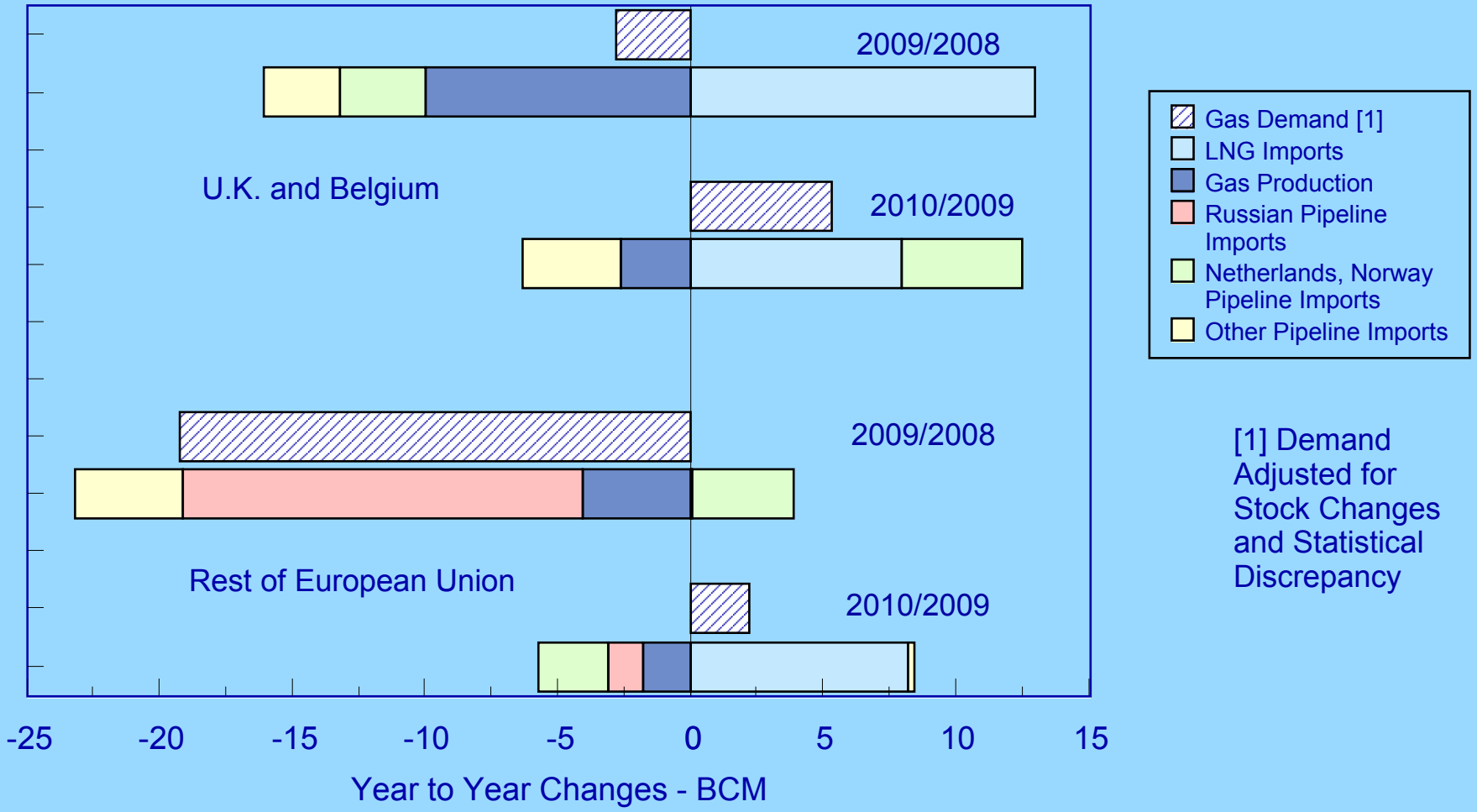


Figure 5

YEAR TO YEAR CHANGES IN GAS BALANCES - U.K AND BELGIUM COMPARED WITH THE REST OF THE EUROPEAN UNION 2009/2008 AND 2010/2009



[1] Demand Adjusted for Stock Changes and Statistical Discrepancy

- This Analysis Was Done Quite a While After the Fact Using a Consistent Set of Annual Supply, Consumption and Trade Statistics
- I Made Earlier Estimates Using Spot Checks of National Data From Various Sources That Were Obviously Not as Reliable
- Clearly, the Available of Timely and Internally Consistent Monthly Data Would Have Provided the Necessary Insights Much Sooner

IN CONCLUSION

- It is Apparent That the Effort to Liberalize Gas Markets and Create the Conditions for Workable Gas-to-Gas Market Competition Will Require Timely and Accurate Data

- But the Two Examples Show How Valuable Such Information Can Be in Quickly Forming a Longer Range View in the Face of Rapid Changes in the Market

- While Information Exists to Do Such Analyses, Scattered Sources - Sometimes Available Only for a Fee - May be Difficult to Reconcile With One Another

- A Comprehensive and Internally Consistent Source of International Monthly Data Would be of Great Value to Traders and Analysts Alike