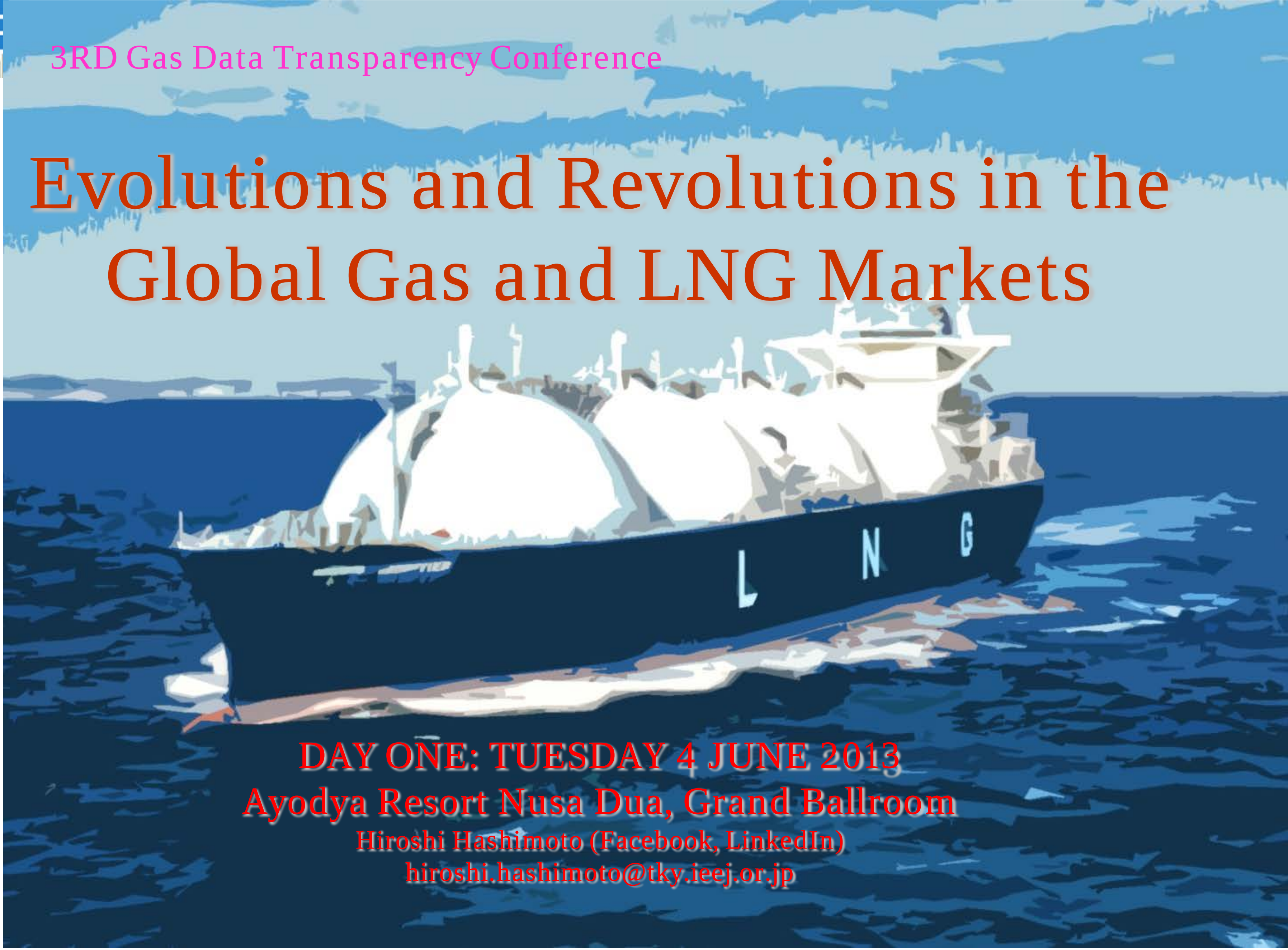
3RD Gas Data Transparency Conference

Evolutions and Revolutions in the Global Gas and LNG Markets



DAY ONE: TUESDAY 4 JUNE 2013

Ayodya Resort Nusa Dua, Grand Ballroom

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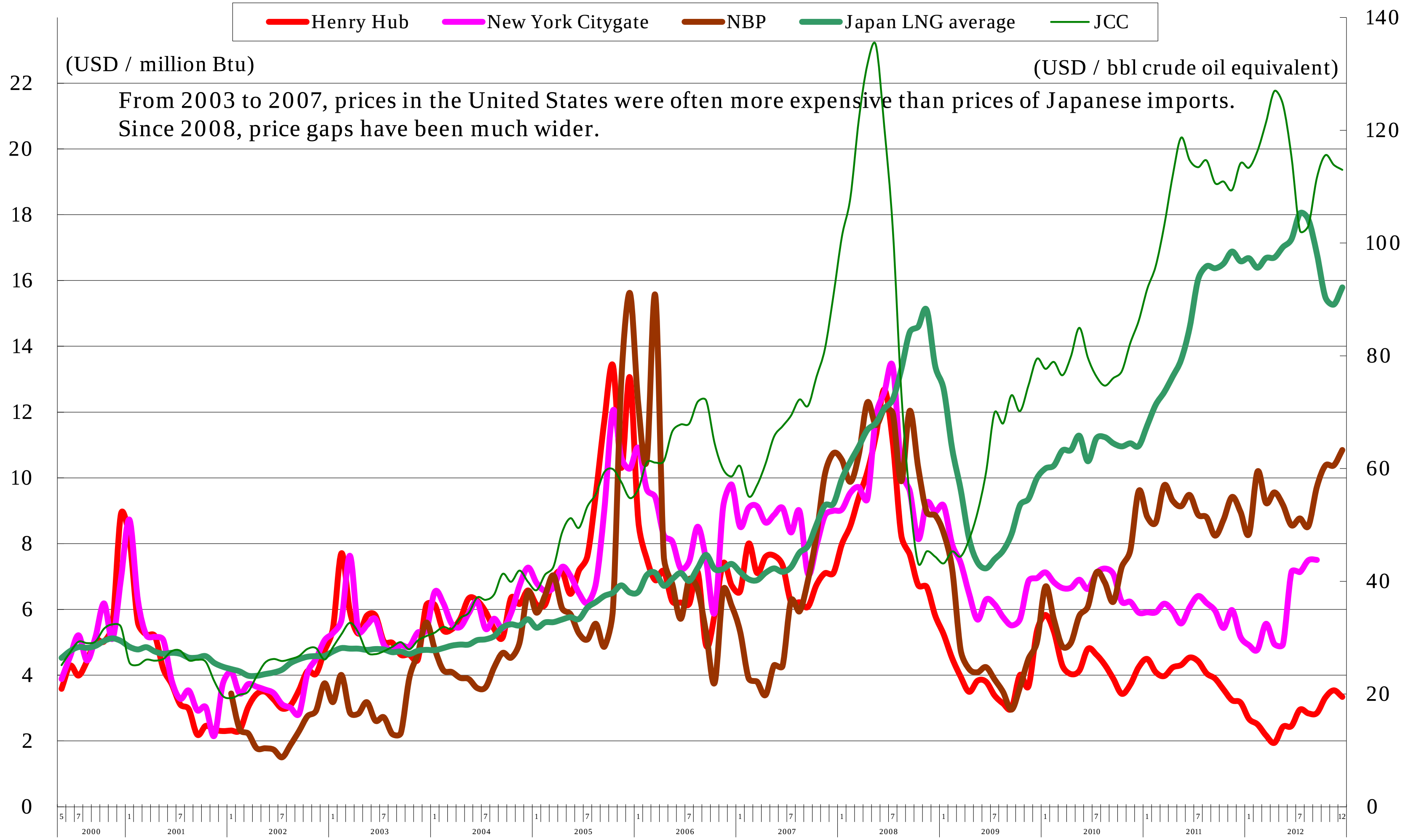
Outline

1. Price convergence and divergence
   – Interaction between regions leads to some convergence
   – Whereas regional price differences are widening
   – Different pricings coexist within the same markets
2. What have happened in recent years
   – Shifts in gas and LNG business (Asia and LNG)
   – Shift to natural gas and LNG in markets around the world
   – Increasing shares of the Asia Pacific markets and Japan
3. Impacts of the revolutions
   – Changing world gas powers
   – Changing prospects

The biggest problem: widening gaps

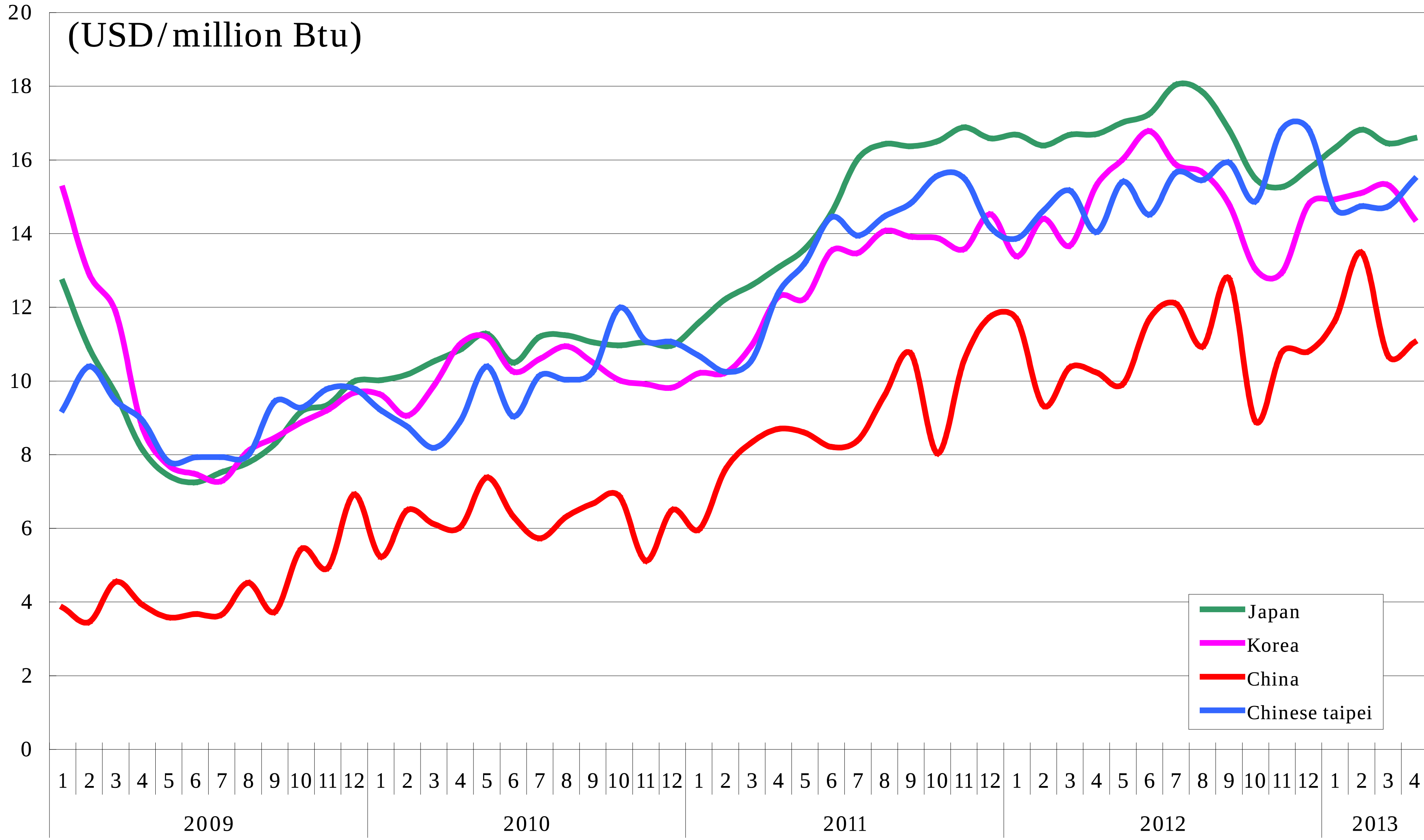


(Sources) Compiled by the author, based on data from Japan's custom statistics, Department of Energy (United States), Energy Intelligence

Japanese LNG buyers' dilemma: misinterpreted both in and outside of the country

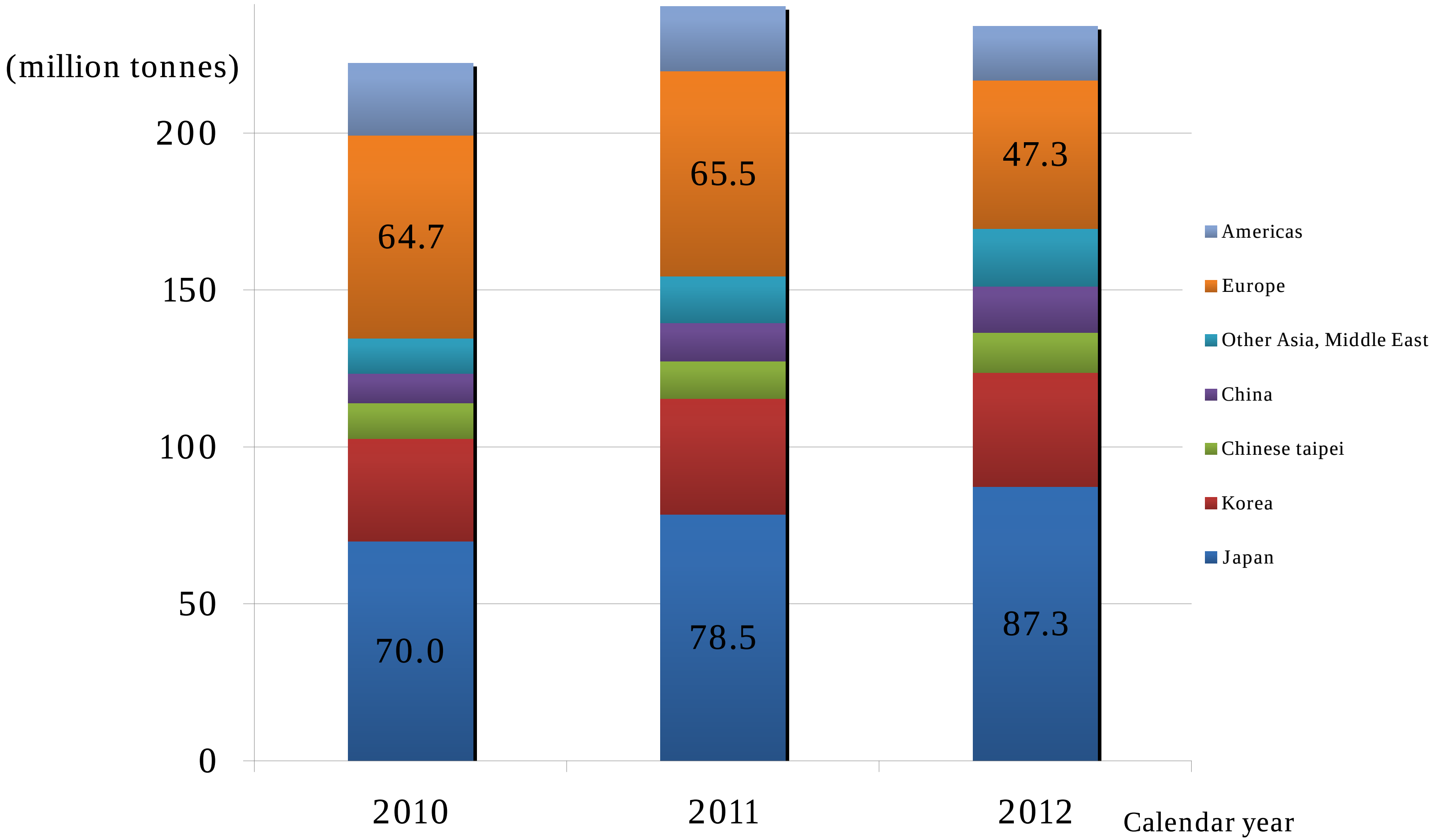
- Ordinary people in Japan tend to think that "Japan buys the most expensive LNG because it is supplied as LNG and because the utility buyers do not work hard to reduce prices."
- Some external experts describe "Asian buyers are willing to pay higher prices for security of supply" and "Utility companies can easily pass incremental fuel costs onto customers."
- Anti-nuclear and pro-nuclear discussions in Japan tend to dismiss global implications of Japanese policy, including those on global LNG supply/demand and pricing.

Asia has the most transparent LNG price data



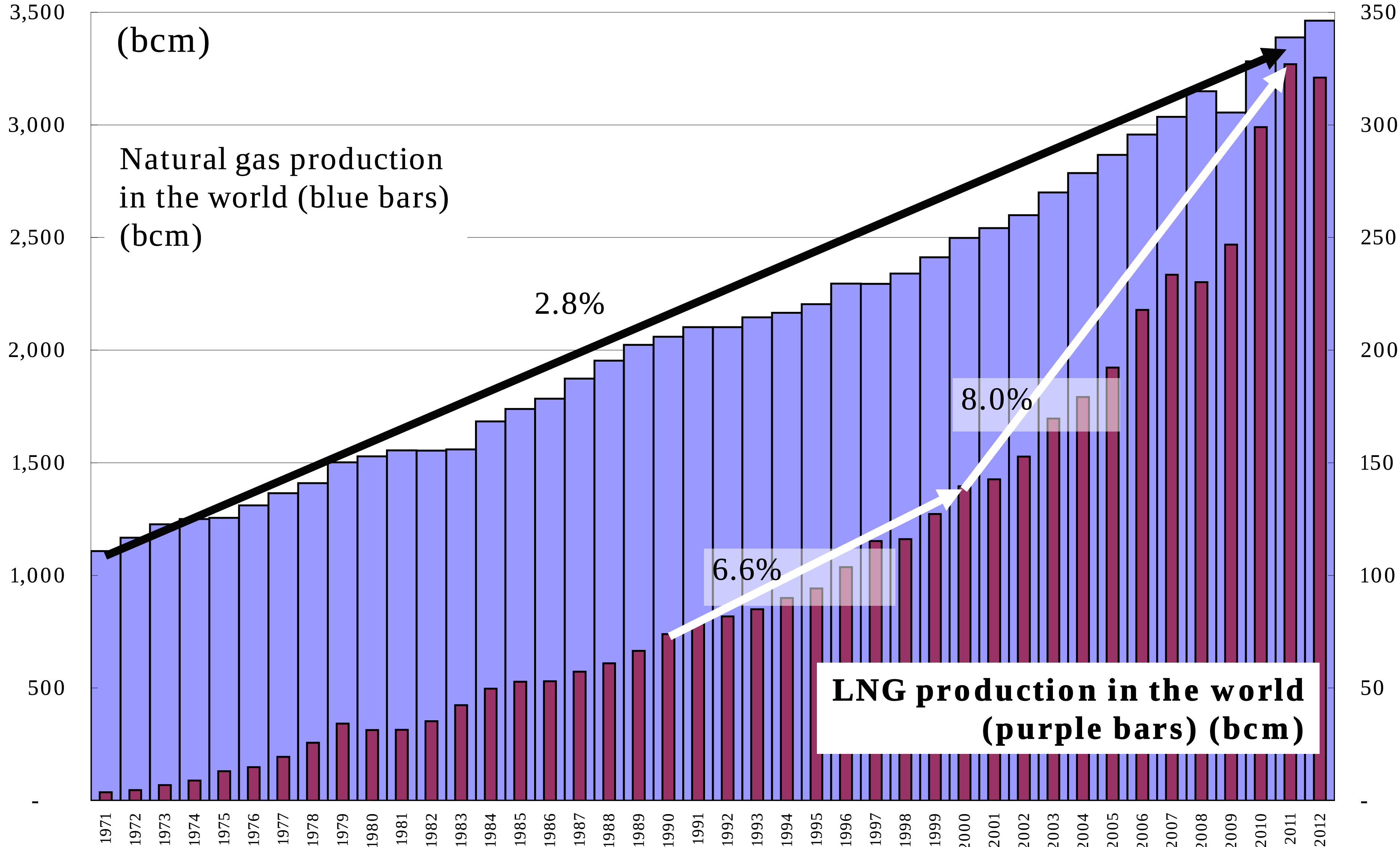
(Sources) Compiled by the author, based on data from custom statistics of the importers

Global LNG trades declines in 2012, whereas share of Asia (Japan) increases



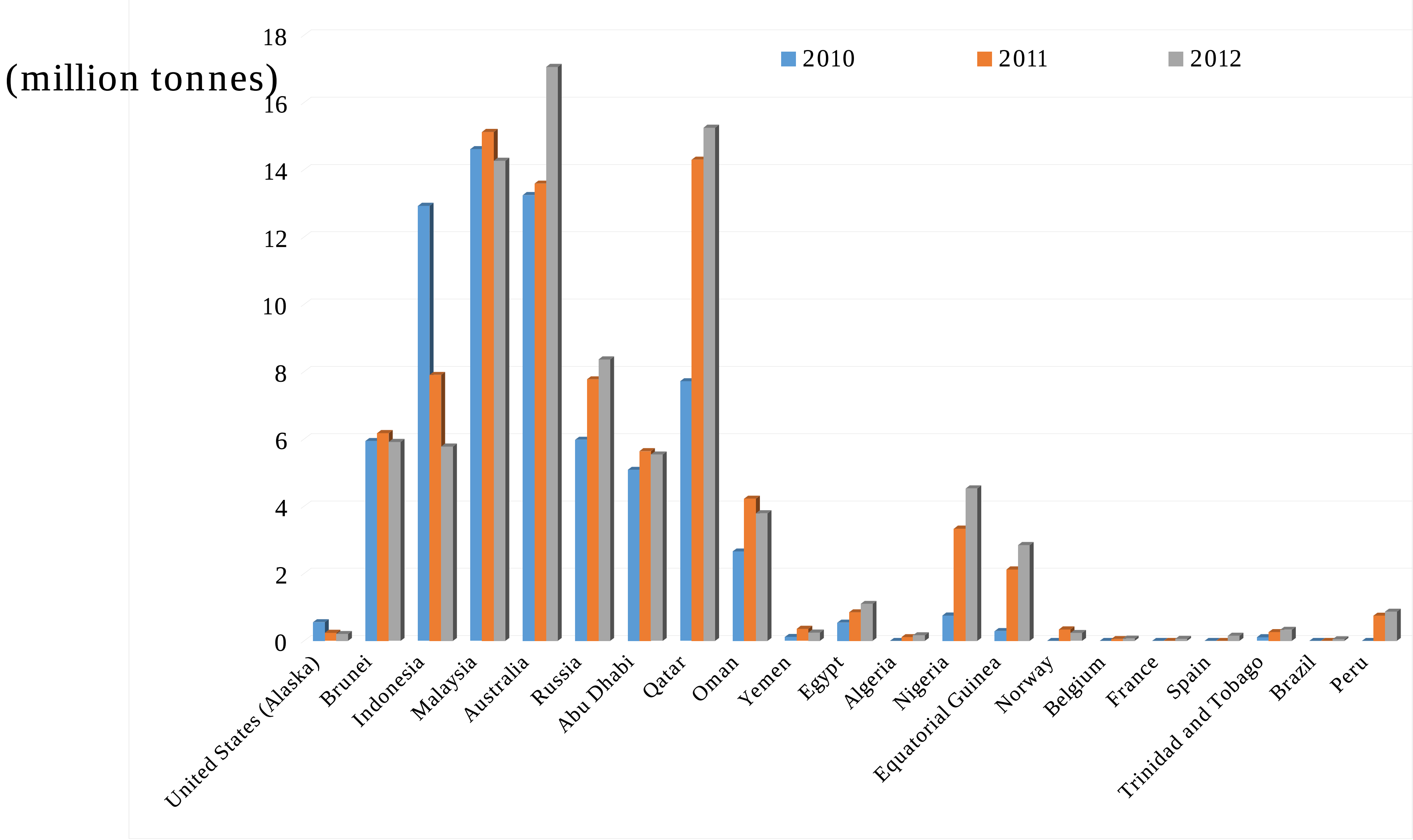
(Data source) GIIGNL, customs statistics, etc.

LNG trades grow faster than natural gas as a whole, natural gas grows faster than energy in general



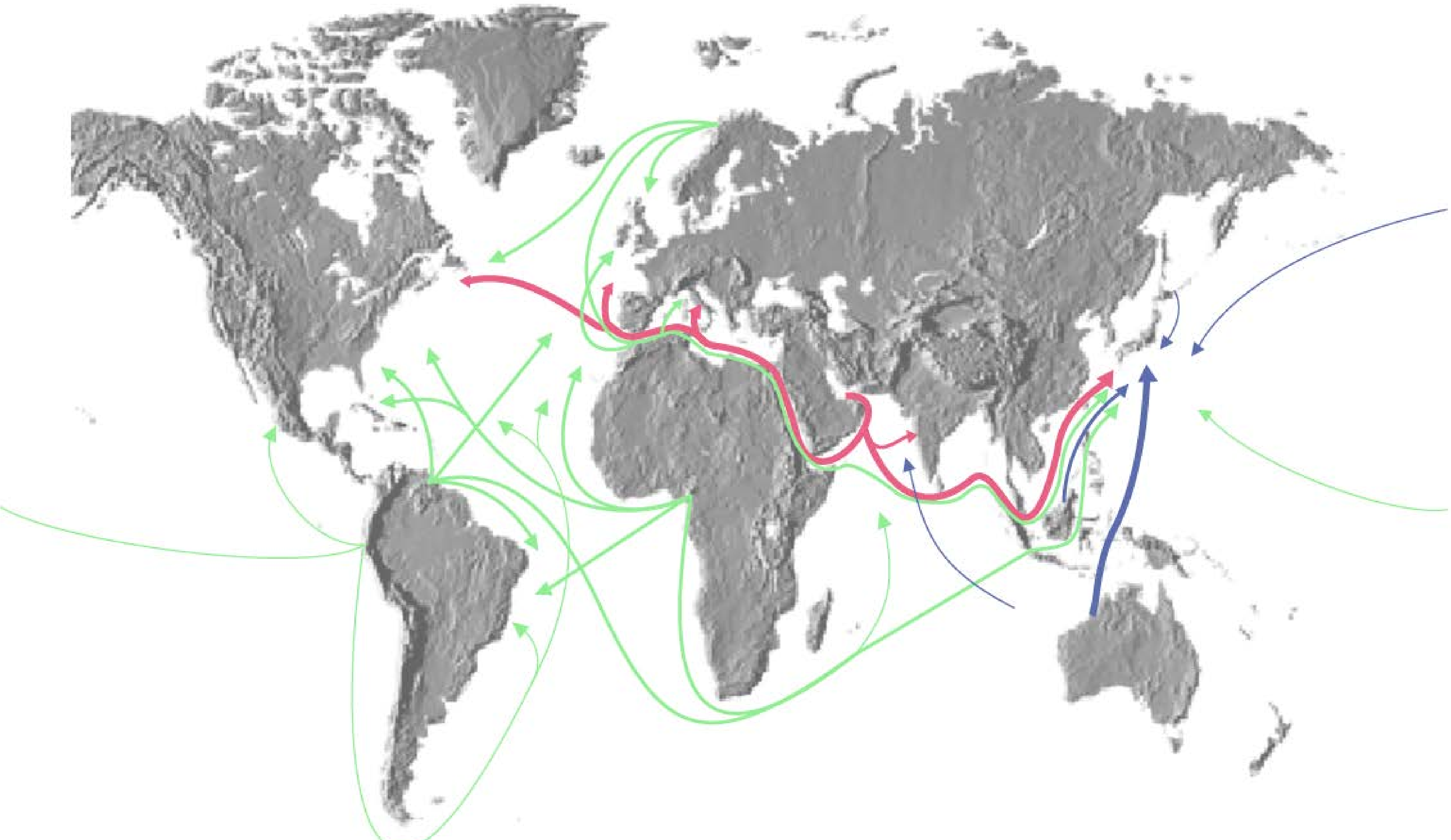
(Source) Compiled by the author based on data from Natural Gas Information 2012, International Energy Agency, August 2012, and other information sources

Changing LNG supply sources to Japan



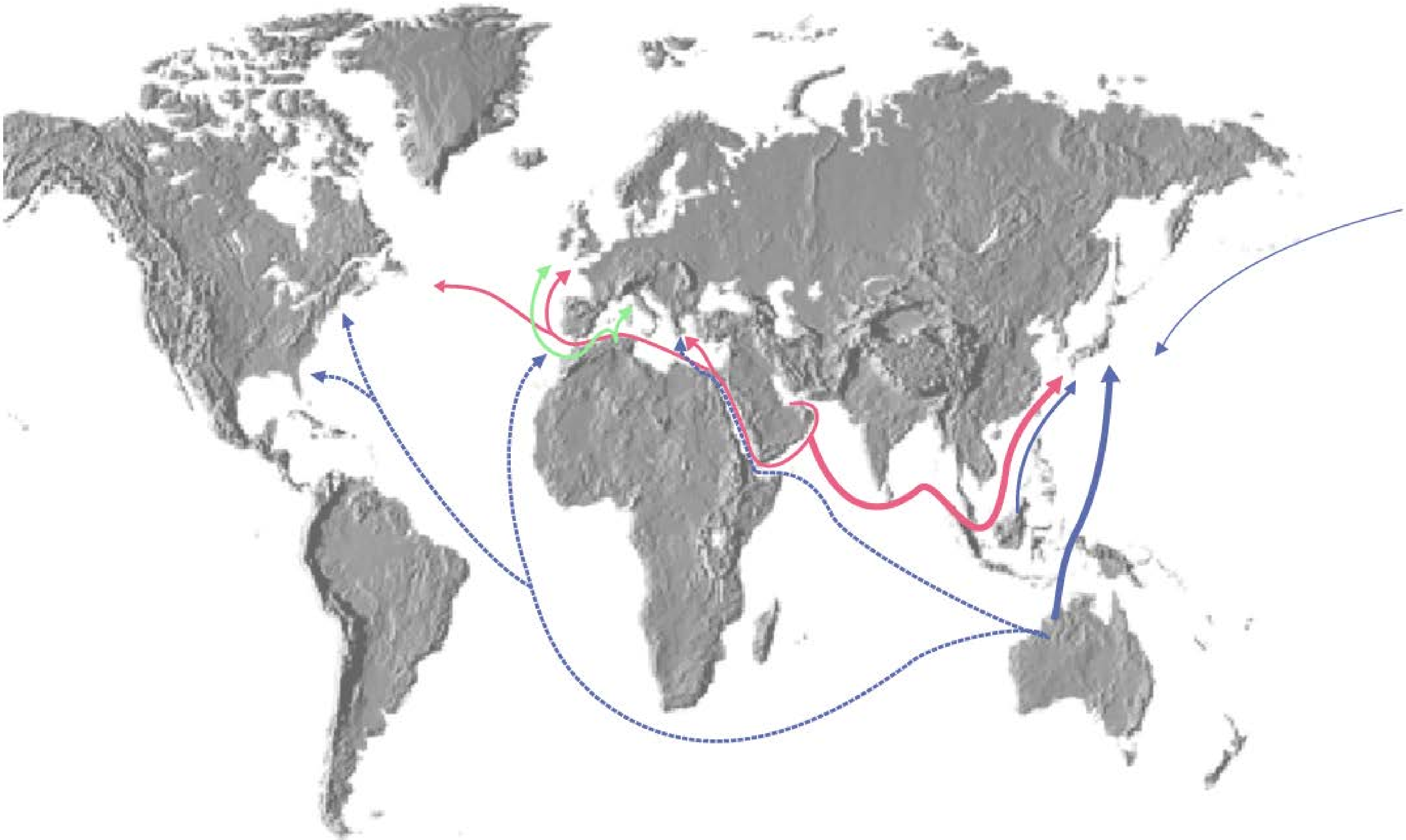
(note) Figures are for fiscal years. (Date source) Japan's customs statistics.

Changing flows of LNG trade



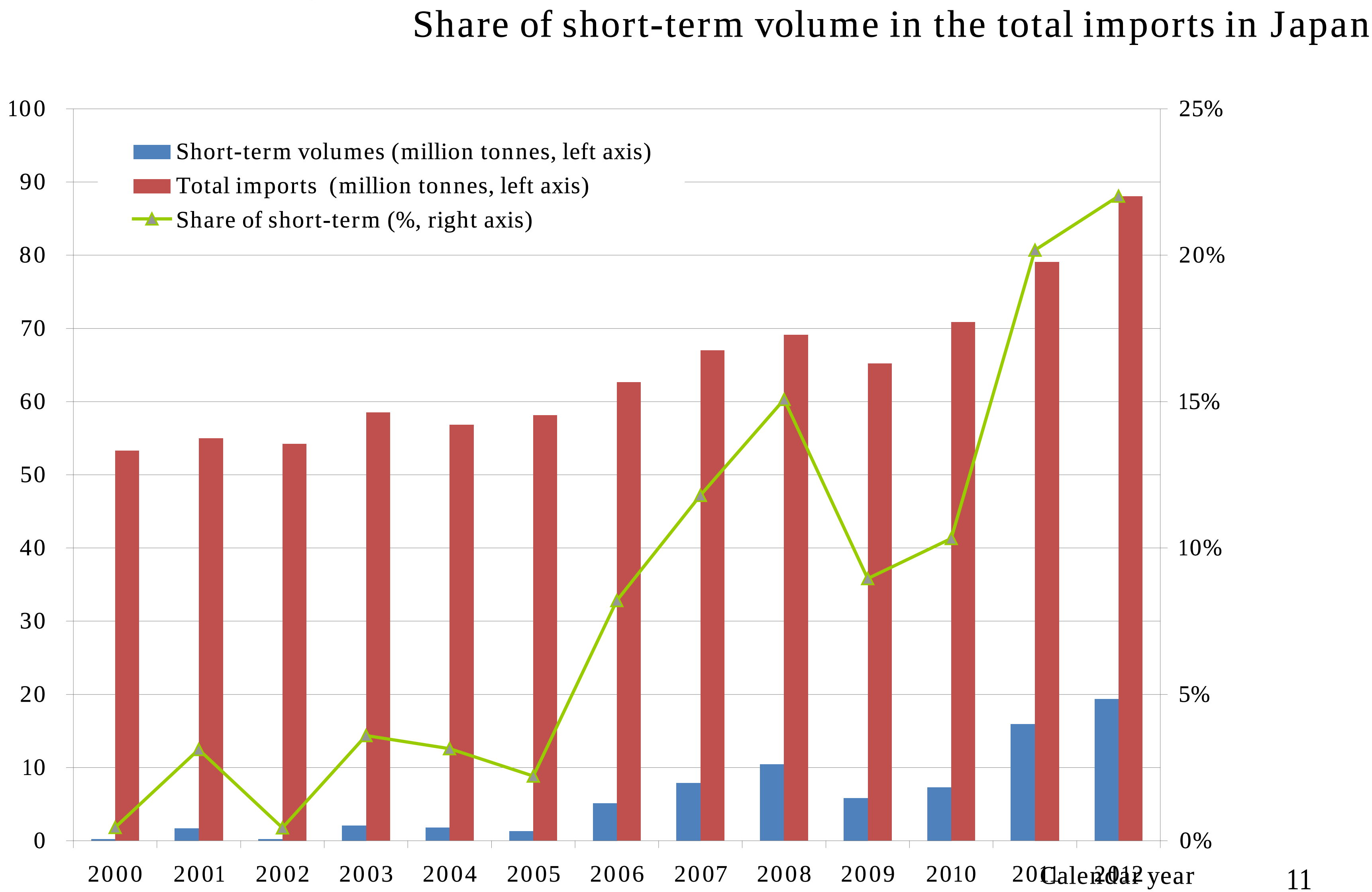
2012 (major shifts of products from the Atlantic to the Pacific)

Changing flows of LNG trade



1997 (before major Atlantic sources began exports)

Evolving short-term procurement

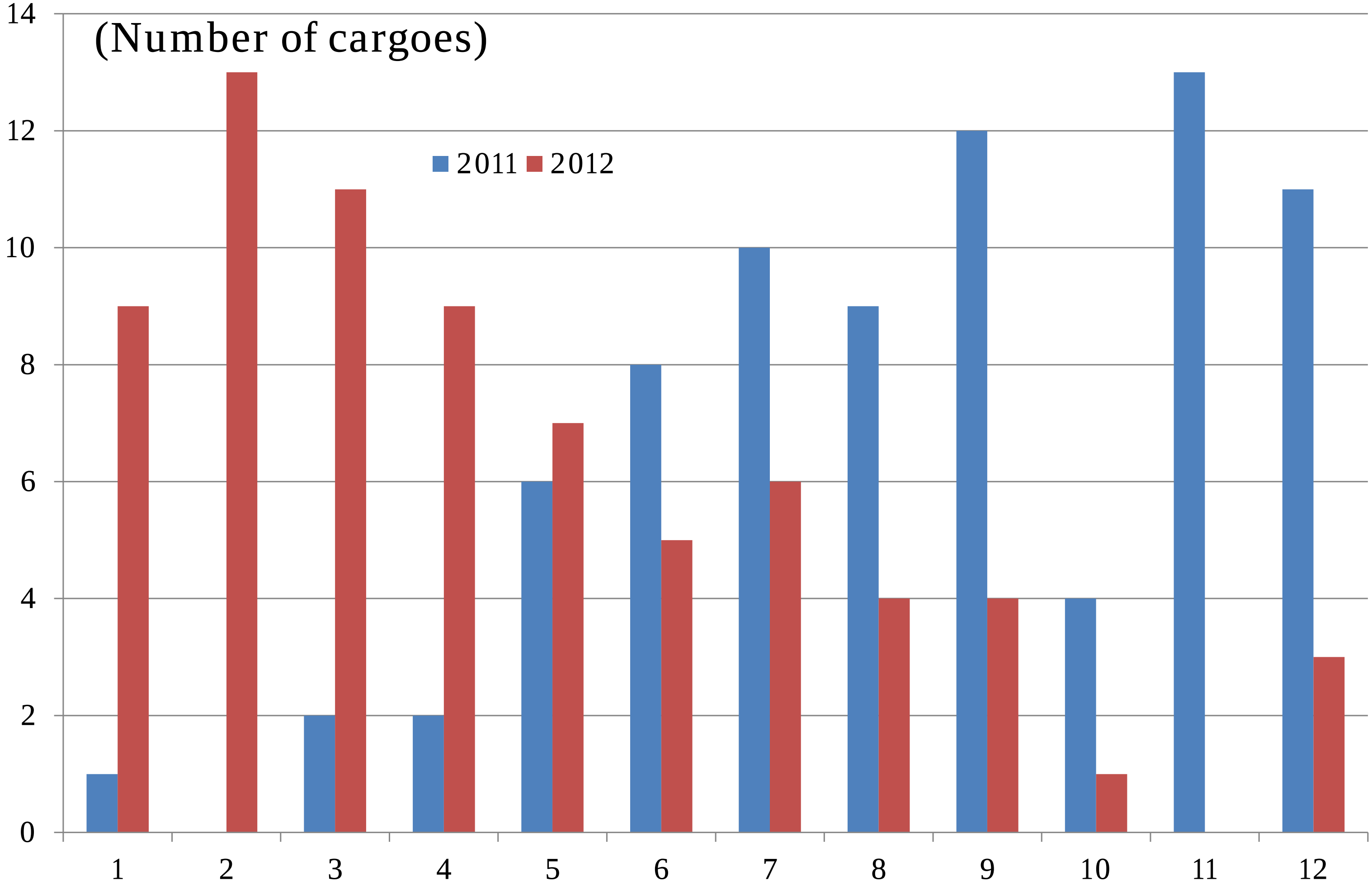


(Data sources) compiled from customs statistics and GIIGNL data

Evolving short-term procurement

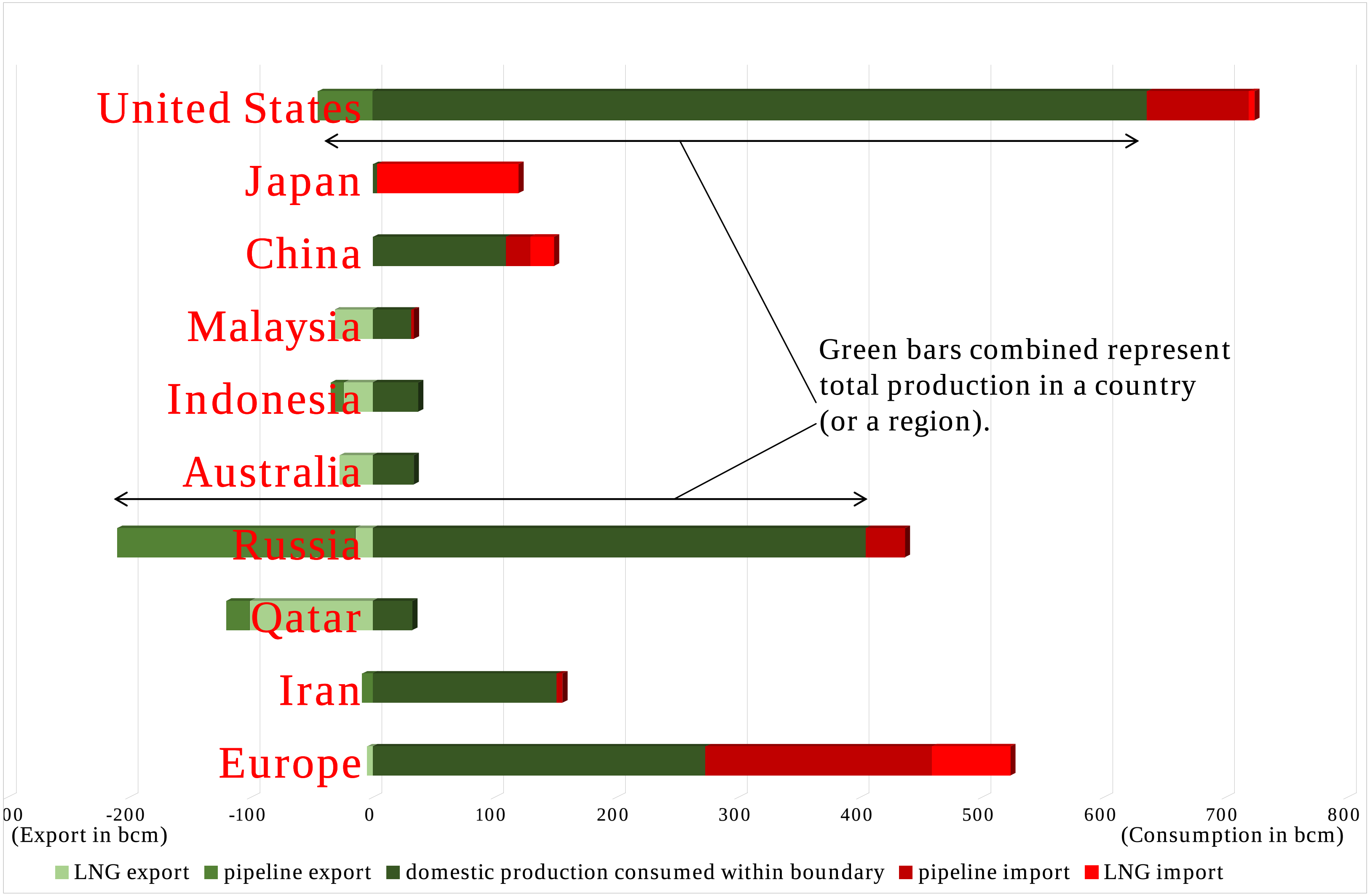
Japan's monthly spot cargo purchase in 2011-2012

- Trading patterns tend to shift back from spot/short-term to term contracts.



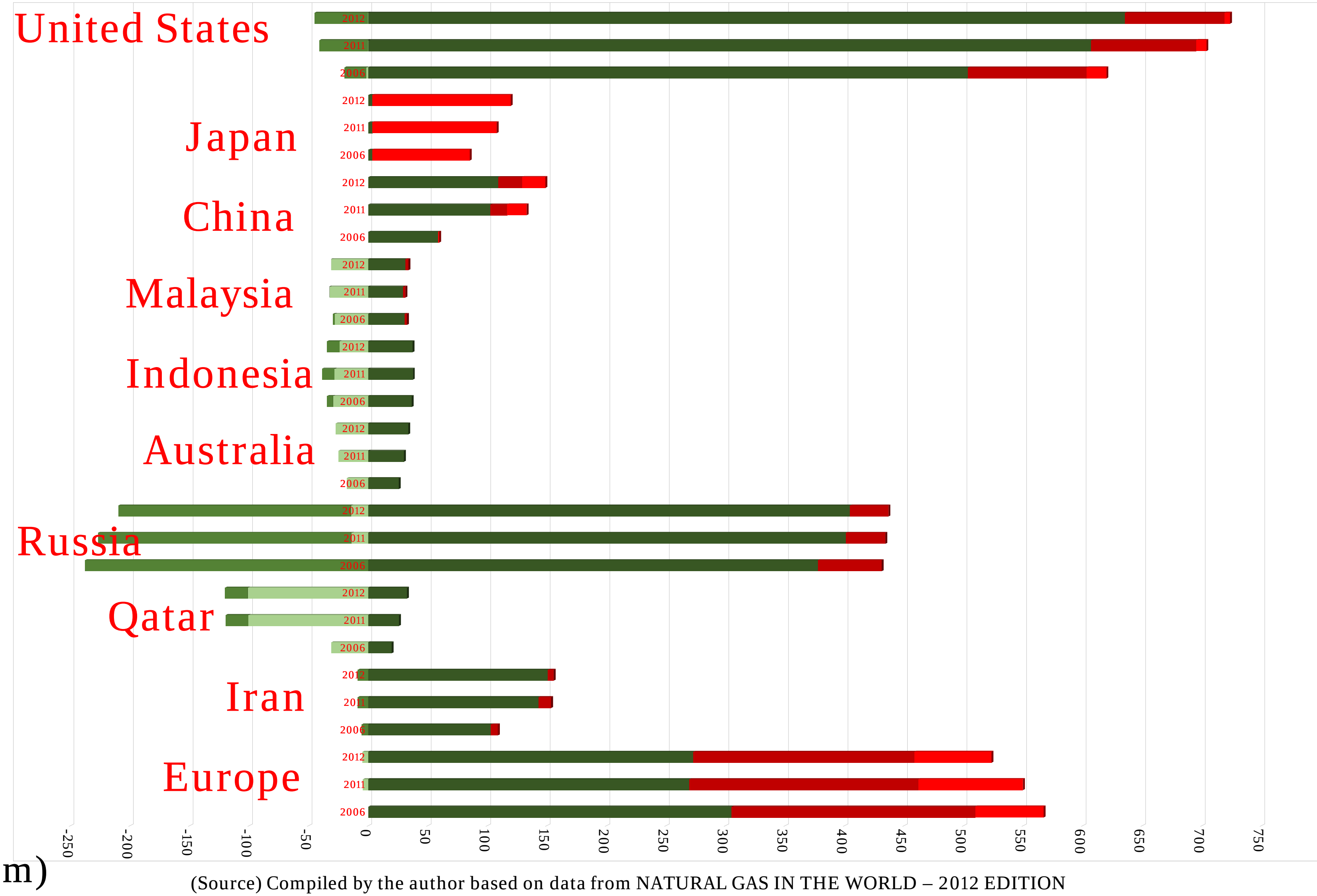
(Data sources) compiled from ICIS Heren, Argus, Platts information

World natural gas powers (2012)



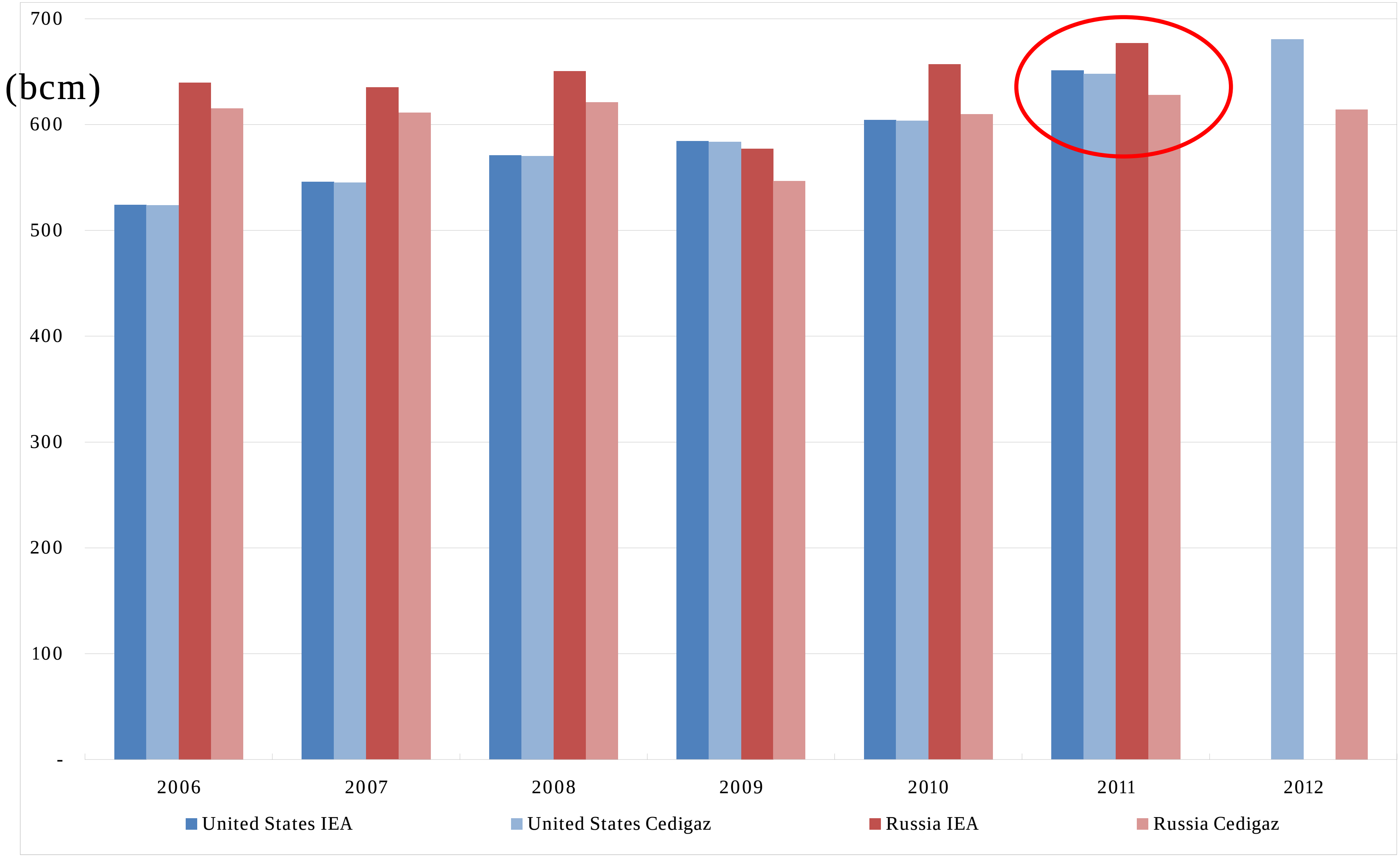
(Source) Compiled by the author based on data from 2012 Natural Gas Year in Review, CEDIGAZ' First Estimates, April 2013.

World natural gas powers (2006, 2011, 2012)



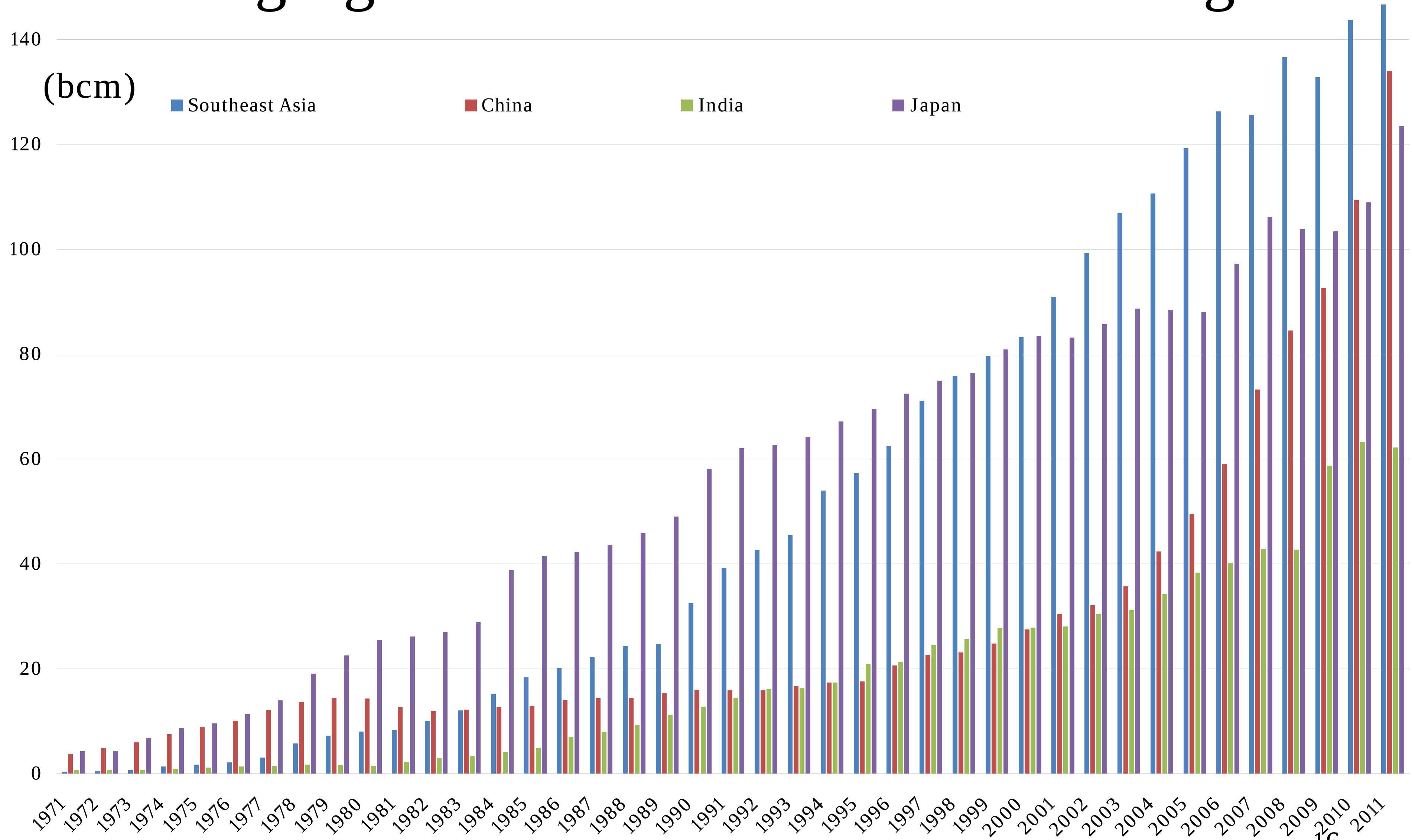
(Source) Compiled by the author based on data from NATURAL GAS IN THE WORLD – 2012 EDITION CEDIGAZ, October 2012, 2012 Natural Gas Year in Review, CEDIGAZ' First Estimates, April 2013.

Gas production in the two biggest producers



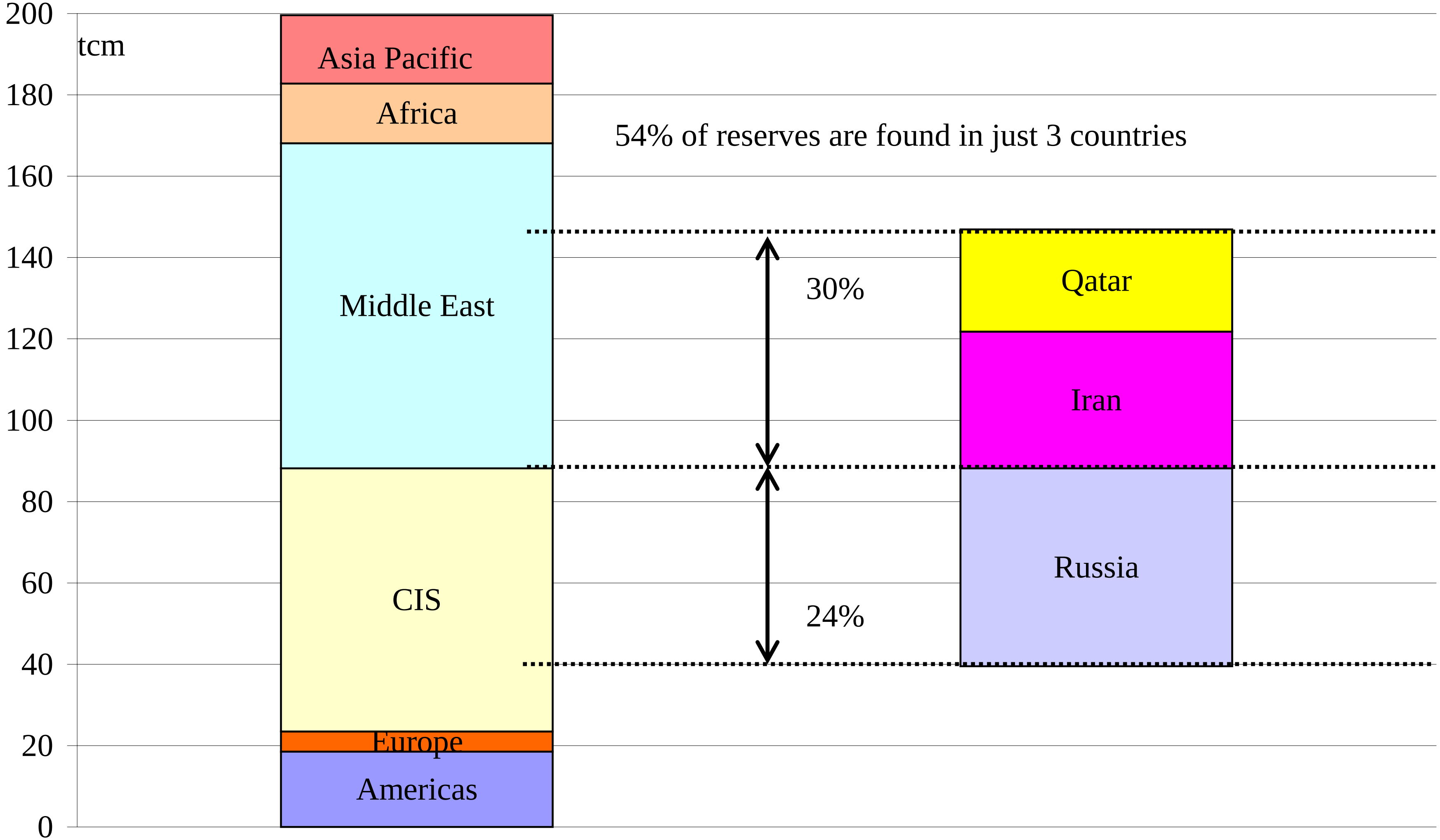
(Source) Compiled by the author based on data from Natural Gas Information 2012, International Energy Agency, August 2012, 2012 Natural Gas Year in Review, CEDIGAZ' First Estimates, April 2013.

Emerging markets in the Asia Pacific region



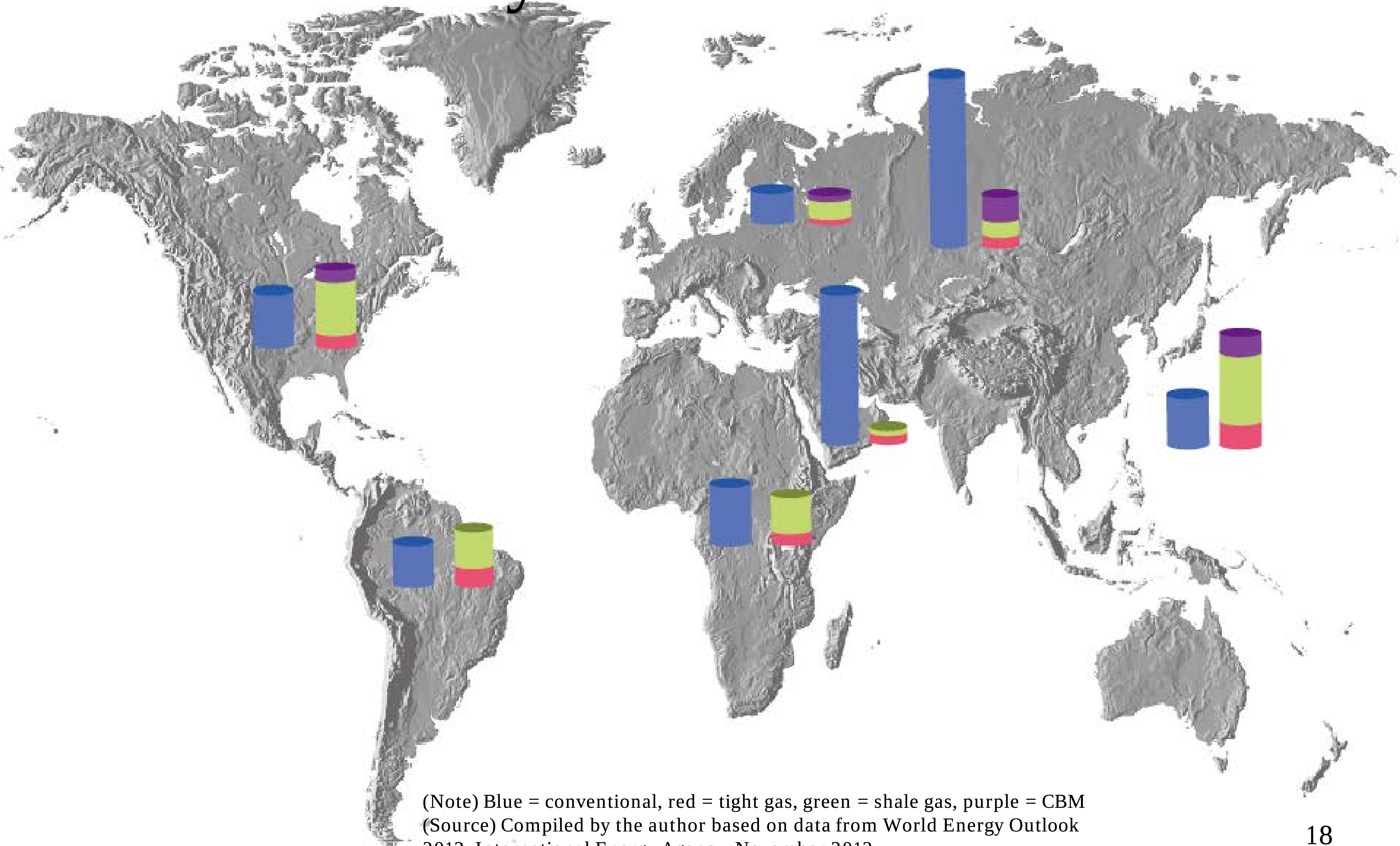
(Source) Compiled by the author based on data from Natural Gas Information 2012, International Energy Agency, August 2012, and other information sources

Proven reserves are concentrated



(Note) As of January 2012
(Source) Compiled by the author based on data from NATURAL GAS IN THE WORLD – 2012 EDITION CEDIGAZ, October 2012

Technically recoverable resources



(Note) Blue = conventional, red = tight gas, green = shale gas, purple = CBM
(Source) Compiled by the author based on data from World Energy Outlook 2012, International Energy Agency, November 2012

Thank you for your attention.

Further changes are on the horizon. . .

1. New supply sources (Australia, North America, East Africa, Russia, more unconventional sources in Southeast Asia);
2. Market dynamics (interaction with other energy sources, business activities, policy decisions, lifestyle changes)

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