Recent Energy Price Increases and Volatility: Backgrounds and Implications

Ken Koyama

Group Manager, International Trend Analysis Group

Institute of Energy Economics, Japan

This report (presentation) was made by the author at an energy meeting between JETRO and Center for Strategic and International Studies (CSIS) held in Washington D.C. on April 26, 2001. IEEJ would like to thank JETRO, as we are now able to publish this report under permission by JETRO.

Recent Energy Price Increases and Volatility: Backgrounds and Implications

Presentation at JETRO-CSIS meeting

April 26, 2001

Ken Koyama

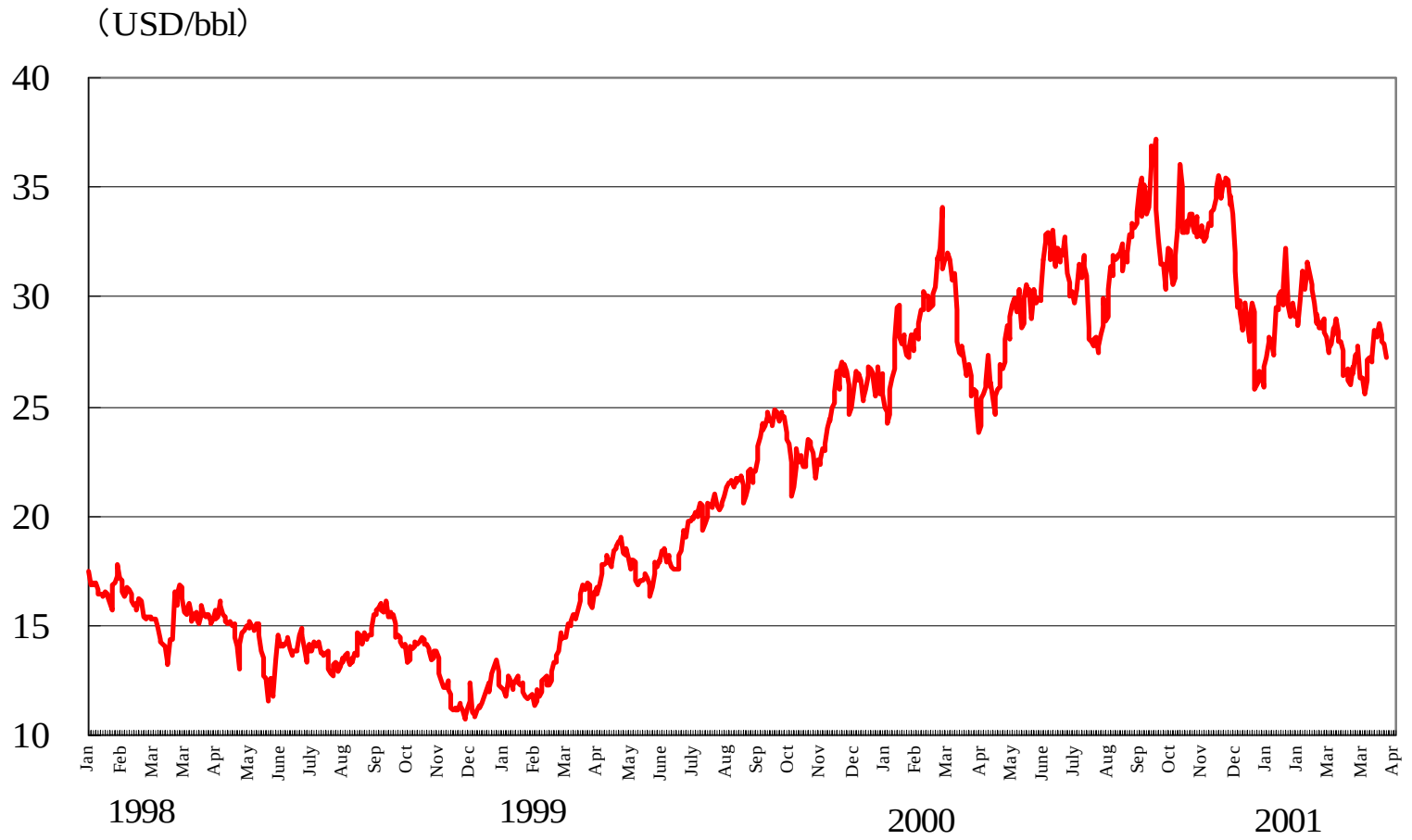
Group Manager, International Trend Analysis Group

Institute of Energy Economics, Japan

Energy prices increased very sharply since 1999

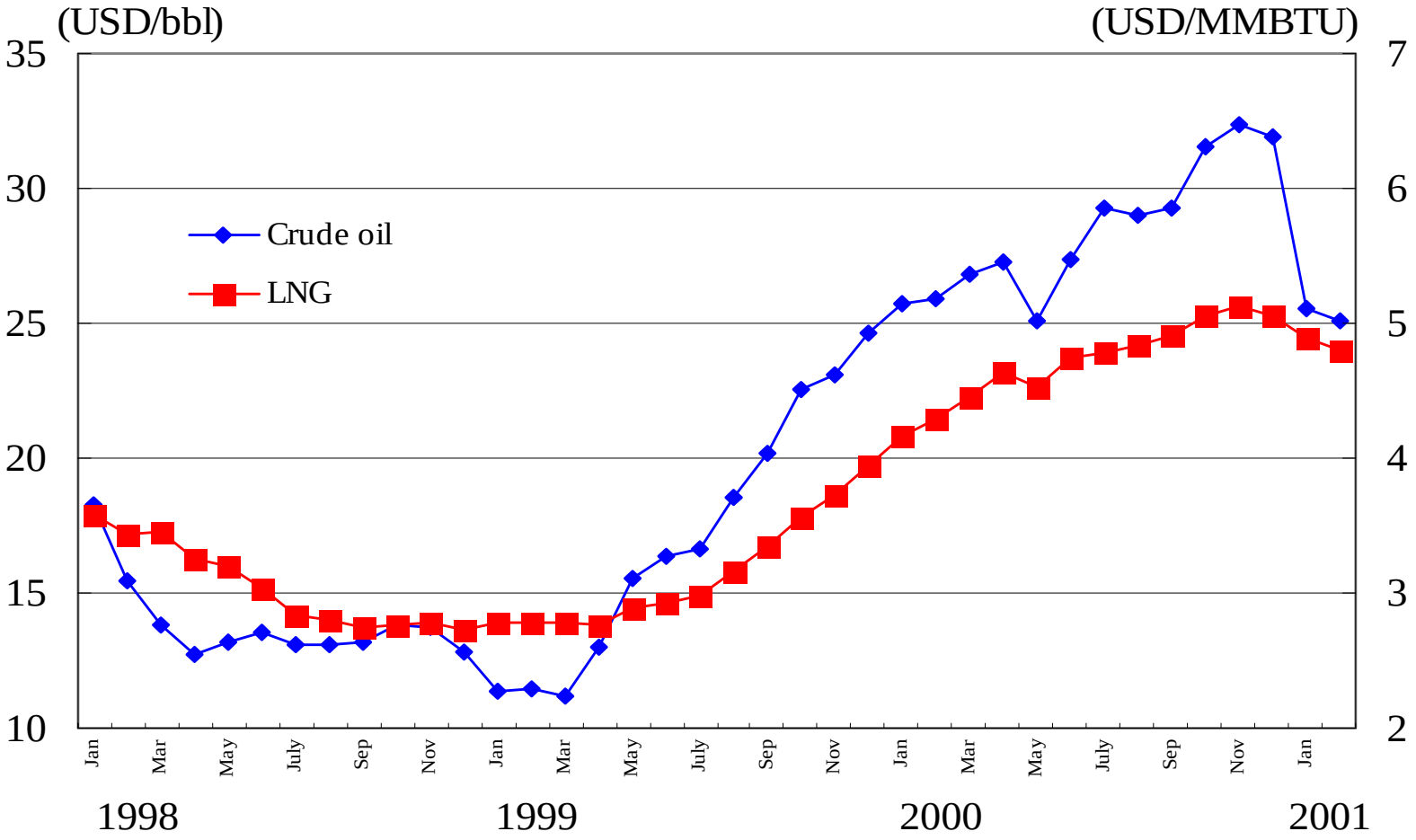
- Crude oil (WTI) price increased from 10$ low in the early 1999 to over 30$ in 2000.
- Natural gas prices indexed to oil price increased accordingly
- (Japan's LNG CIF up from 2.7$/MMBTU in the late 1999 to 5$/MMBTU in the late 2000)
- US spot gas price exceeded 10$/MMBTU (equivalent to 60$/bbl) in the late 2000
- Soaring power (wholesale) price in the US (California) and the rolling blackouts

NYMEX WTI Price



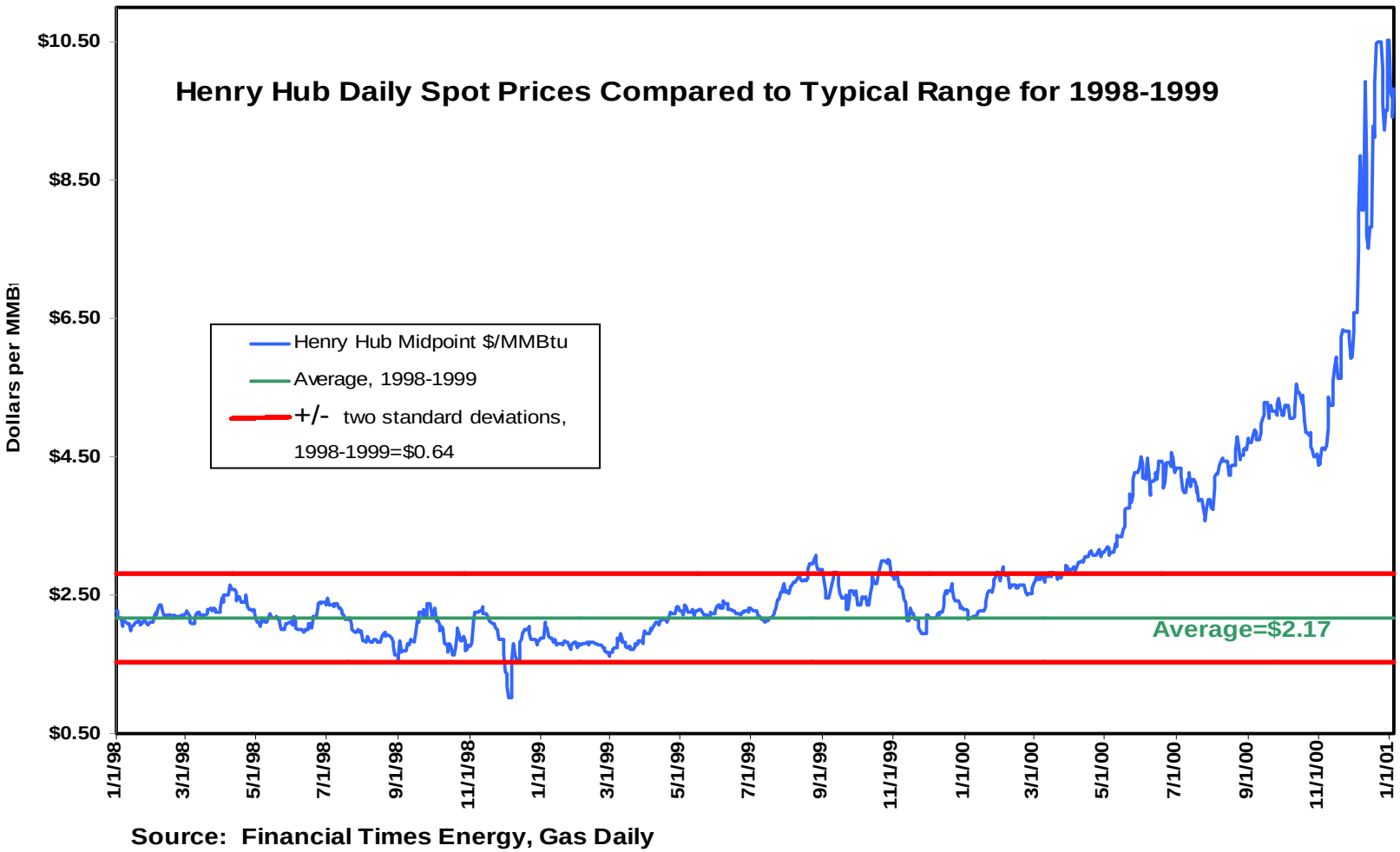
Source: Prepared by IEEJ based on data from NYMEX

Japan CIF Crude Oil/LNG Price



Source: Prepared by IEEJ

US Spot Gas Price

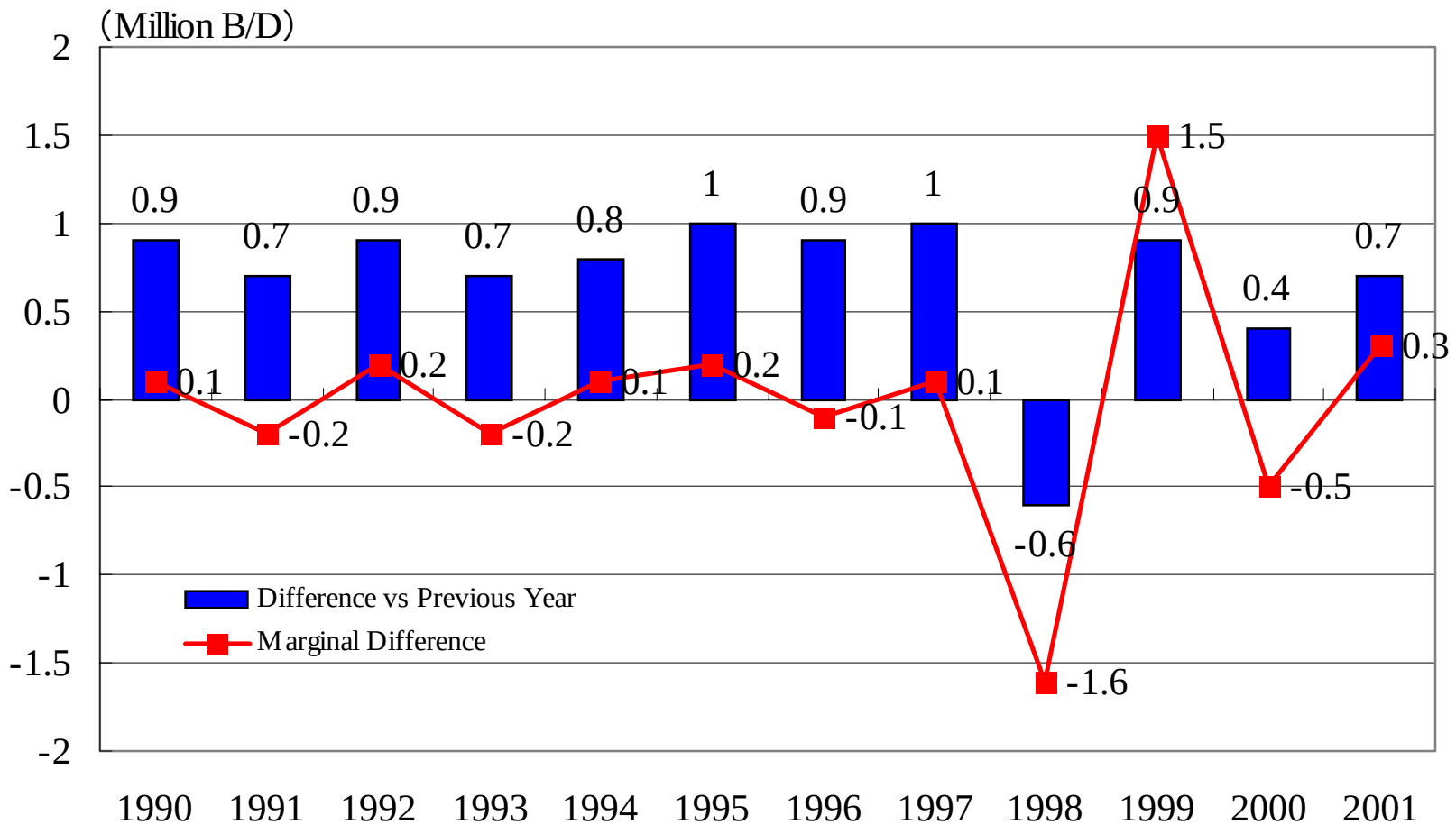


Why it happened?

- Strong demand growth in US and Asia
- Impacts of the preceding “low price” on supply
- “Side effects” of energy market liberalization
- Impacts of environmental restrictions on both demand and supply
- Impacts of “optimization behavior” taken by major market players

  →Reduced “supply cushion” and supply flexibility
- As for the California power crisis, incomplete liberalization worsened the situation
- Impacts of price determination in the futures market ?

Asia's Demand as a Growth Engine



Source: Prepared by IEEJ based on IEA Oil Market Report

Side effects of market liberalization

- Mounting pressure for further rationalization and streamlining of business operation
- Uncertainty in demand and volatility in prices
- Tendency to seek an immediate return on investments

→Avoid and reduce “surplus”

→Lower incentives to investment to increase supply?

→Reluctance to capital-intensive and long lead-time investment

“Green” impacts

- **Stringent environmental standard and energy product quality requirement**

  → Need for investment to produce cleaner products
- **Emerging concentration to a single source of clean energy (coupled with the effect of liberalization)**

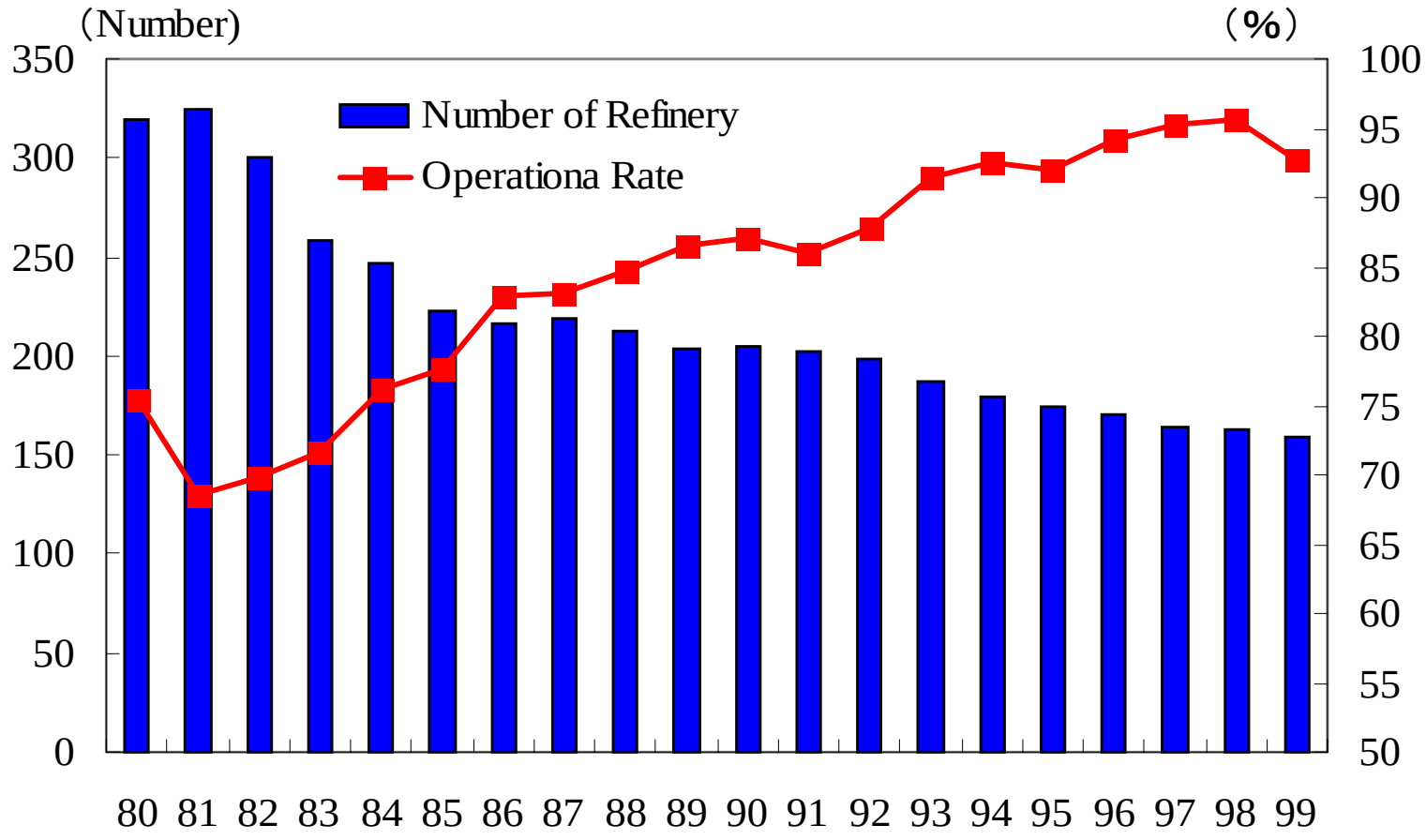
  → “Dash for Gas”
- **Environmental restriction and NIMBY**

  → Constraints to increase supply capacity (Oil & gas upstream development, refining capacity, power generation capacity, energy infrastructure/network, etc.)

Optimization behavior by market players

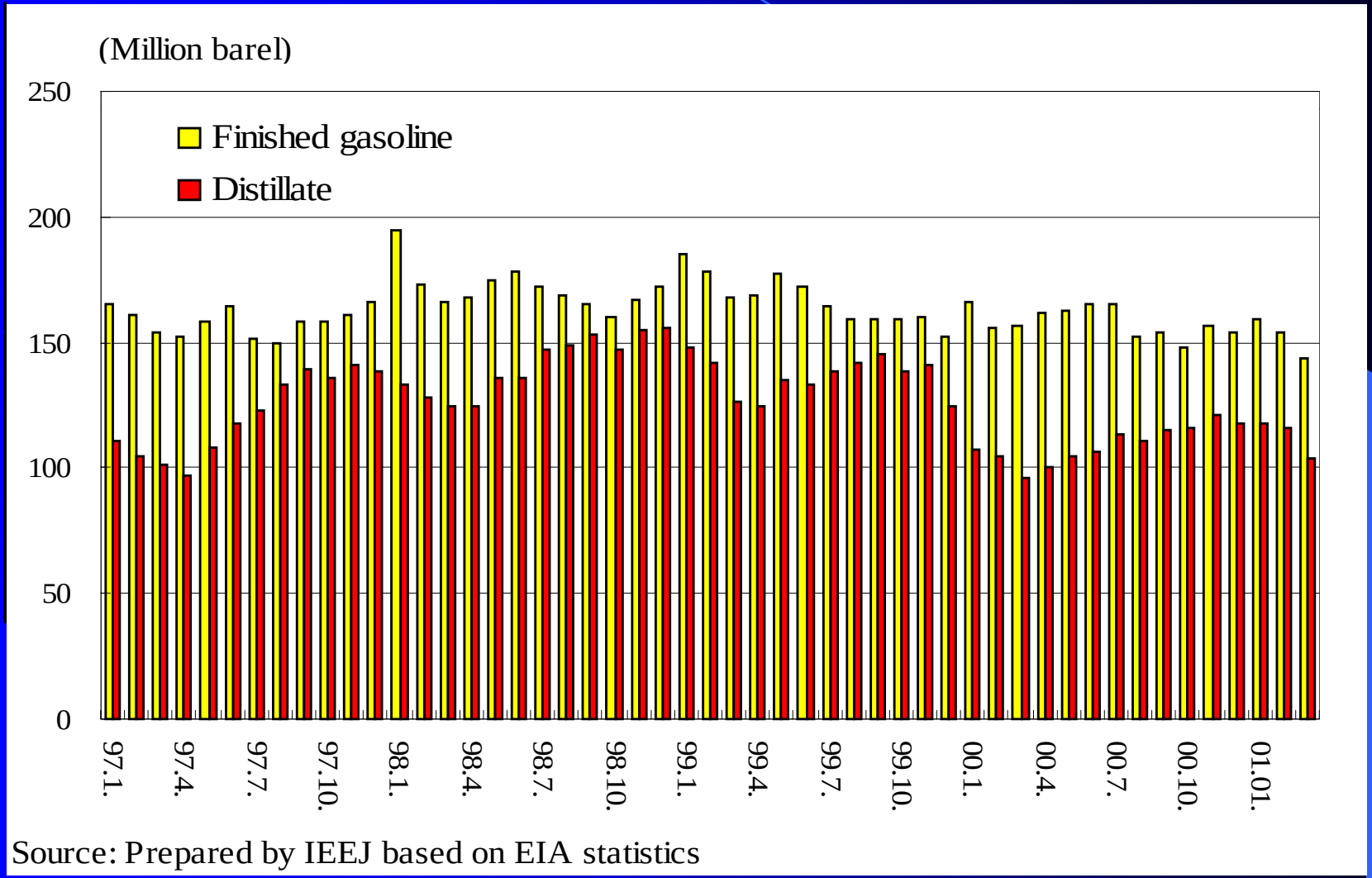
- Slash/avoid surplus production and refining capacity
- “Just-in-time” inventory strategies
- Response to steep “backwardation” in the futures prices
- OPEC production policy to keep oil price at the target level (efforts to fine tune the market)
- “Dash for gas” for both supply and demand sides
- Priority investment with respect to business segment, fuel selection, location, etc.

US Refineries Running at Full Capacity



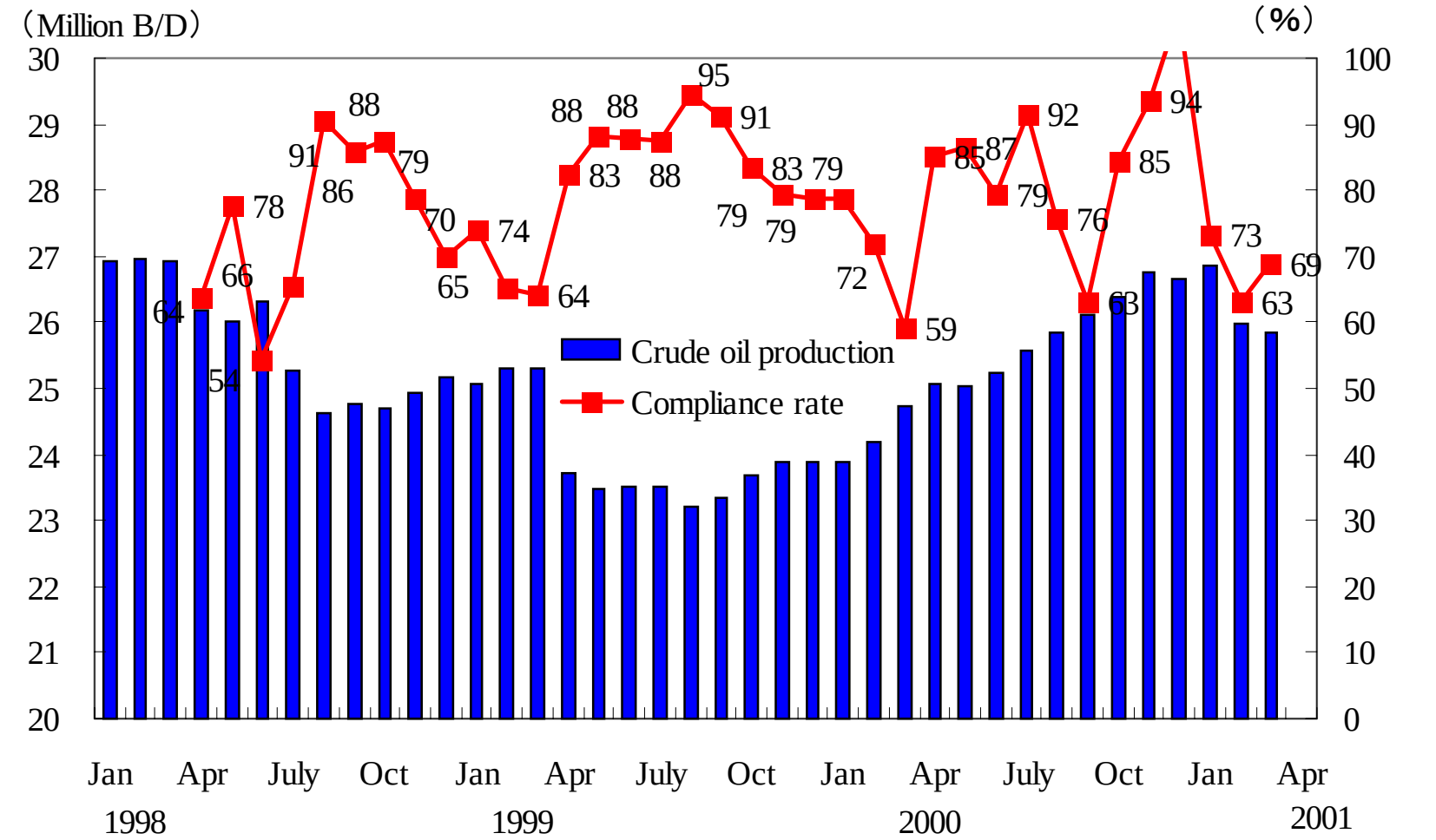
Source: Prepared by IEEJ based on EIA statistics

Decline in US Oil Product Inventories



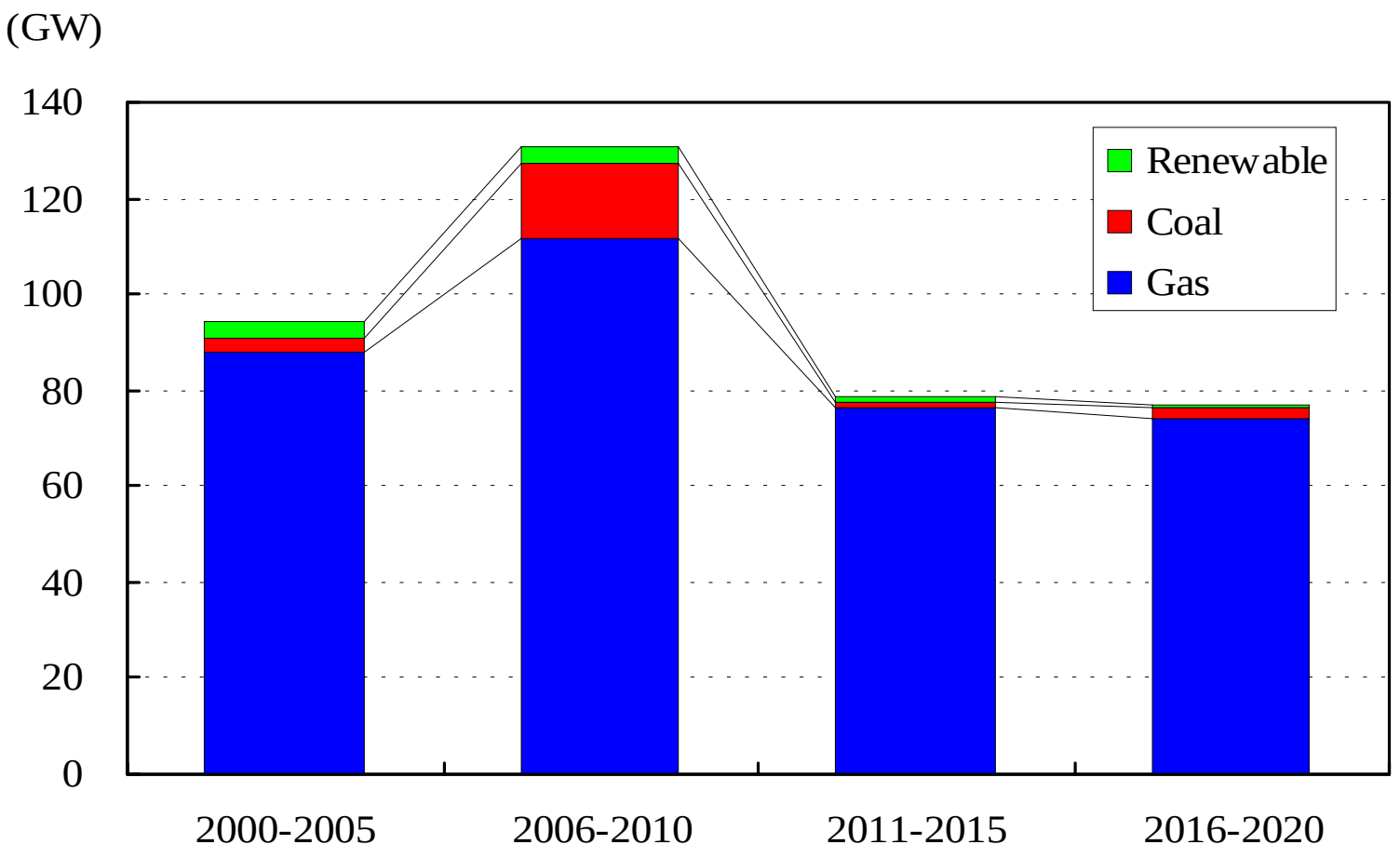
Source: Prepared by IEEJ based on EIA statistics

Ups and Downs in OPEC 10 Production



Source: Preaped by IEEJ based on IEA Oil Market Report

Dash for Gas in US Power Sector

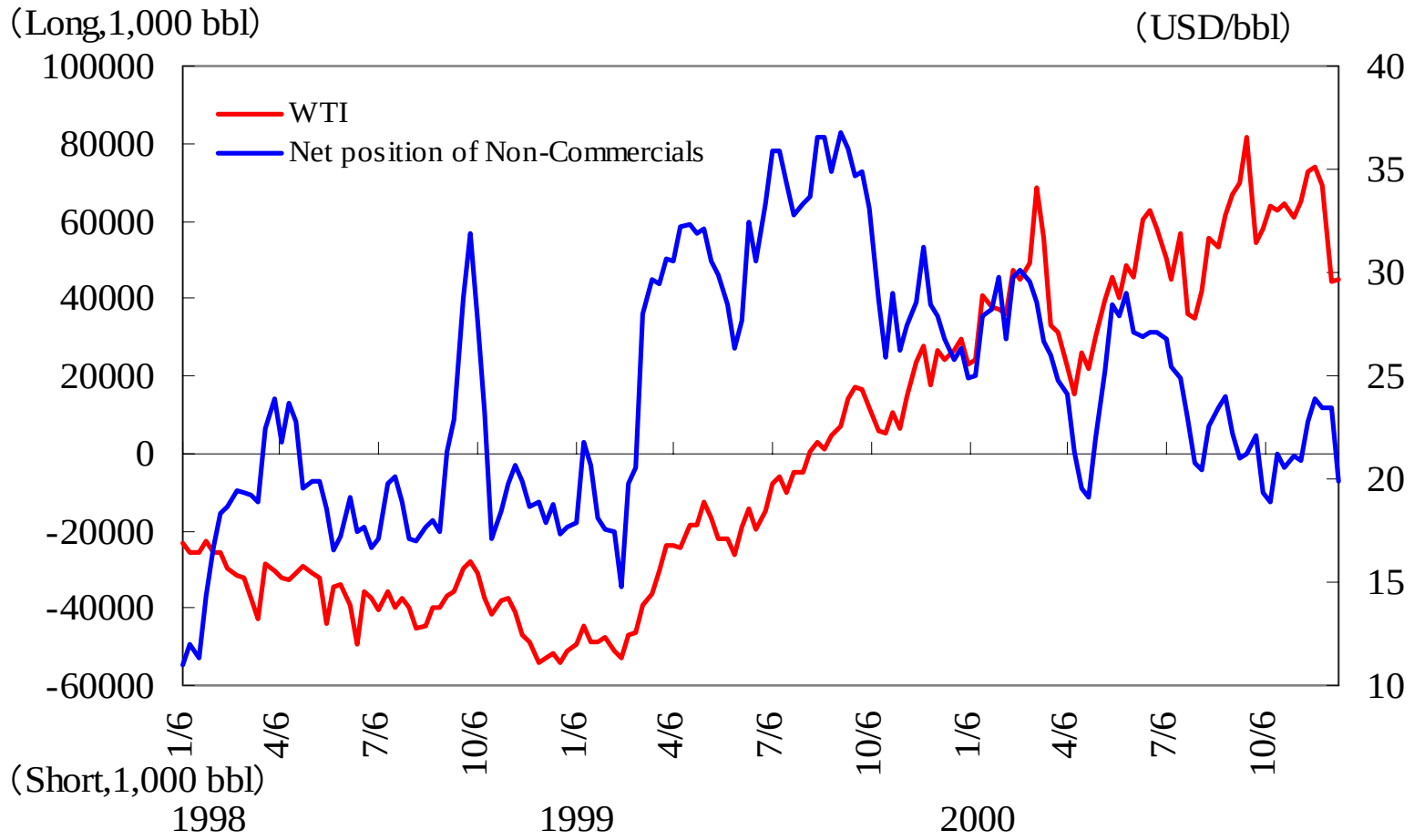


Source: Annual Energy Outlook 2001/EIA, Dec,2000

Issues on energy price determination (1)

- Oil market is globalized, and the NYMEX futures price is a world reference
- In Asia and Europe, gas price is linked to oil price, therefore under the influence of NYMEX
- NYMEX WTI is influenced not only by global fundamentals, but by US (local) fundamentals and expectations (market psychology)
- Non-commercial traders and technical analysis
- Increased price volatility and possibility of overreaction (price overshoot or undershoot)
- This volatile price is the world benchmark

Non-Commercials and WTI



Source: Prepared by IEEJ based on NYMEX and CFTC data

Issues on energy price determination (2)

- Problem regarding reliability of benchmark crude oil (WTI, Brent and Dubai)
- Existence of the "Asian premium"

  (1-1.5$/bbl in 1990-1999 average for crude oil)
- Issues of de-coupling of oil and gas price in the Asian (and European) market
- Increased competition, "spot" LNG trading and commoditized gas pricing in the Atlantic market

Conclusion (1)

- Sharp energy prices increase is possible without major supply disruption
- In the global energy market, the problem would not be resource base constraint
- In the long run, supply and demand will respond to price, and the market can clear in principle
- But under the current situation, supply cushion and flexibility to deal with swings in supply-demand balance in the short term may remain low

Conclusion (2)

- Characteristics in current price determination may also be a factor to exaggerate the price trend
- Thus market system remain “vulnerable” to short-term price spikes and high volatility
- The volatile price (signal) may then distort the market in the medium/long term path
- Energy price determination in the global market is an important issue for further discussion
- Recent energy price increases highlighted the need to revisit and enhance energy security in today’s context