Scenarios for Energy Supplies

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A New Energy World

All important parameters changed in 2008

- Financial Crisis
- Real Economy in Recession
- Energy Markets in Glut
- Industry Consolidation
- Factor Costs in Decline
- Price Risk
- Capital Squeeze

The Background

- High economic growth
- Financial imbalances
- US deficit spending on consumption and warfare, lax monetary policy
- Weakening dollar
- Steady growth of electricity and oil demand, especially in China
- Tightening oil market
- Booming natural gas trade
- Political oil market risk (US, Iraq, Iran, etc.)

The Financial Crisis

- US structural weakness: negative savings, huge budget and current account deficits
- Leveraged financial sector, bankruptcies
- Next wave of problems: hedge funds, local and state governments, manufacturing
- USD strong 2008-09 largely for technical reasons, possibly a dollar bubble
- Outlook for 2009 US budget deficit: 12-15 % of GDP; China hit by US crisis
- Risk of dollar crisis, exchange rate volatility
- Energy industry reduces investment

The Real Economy

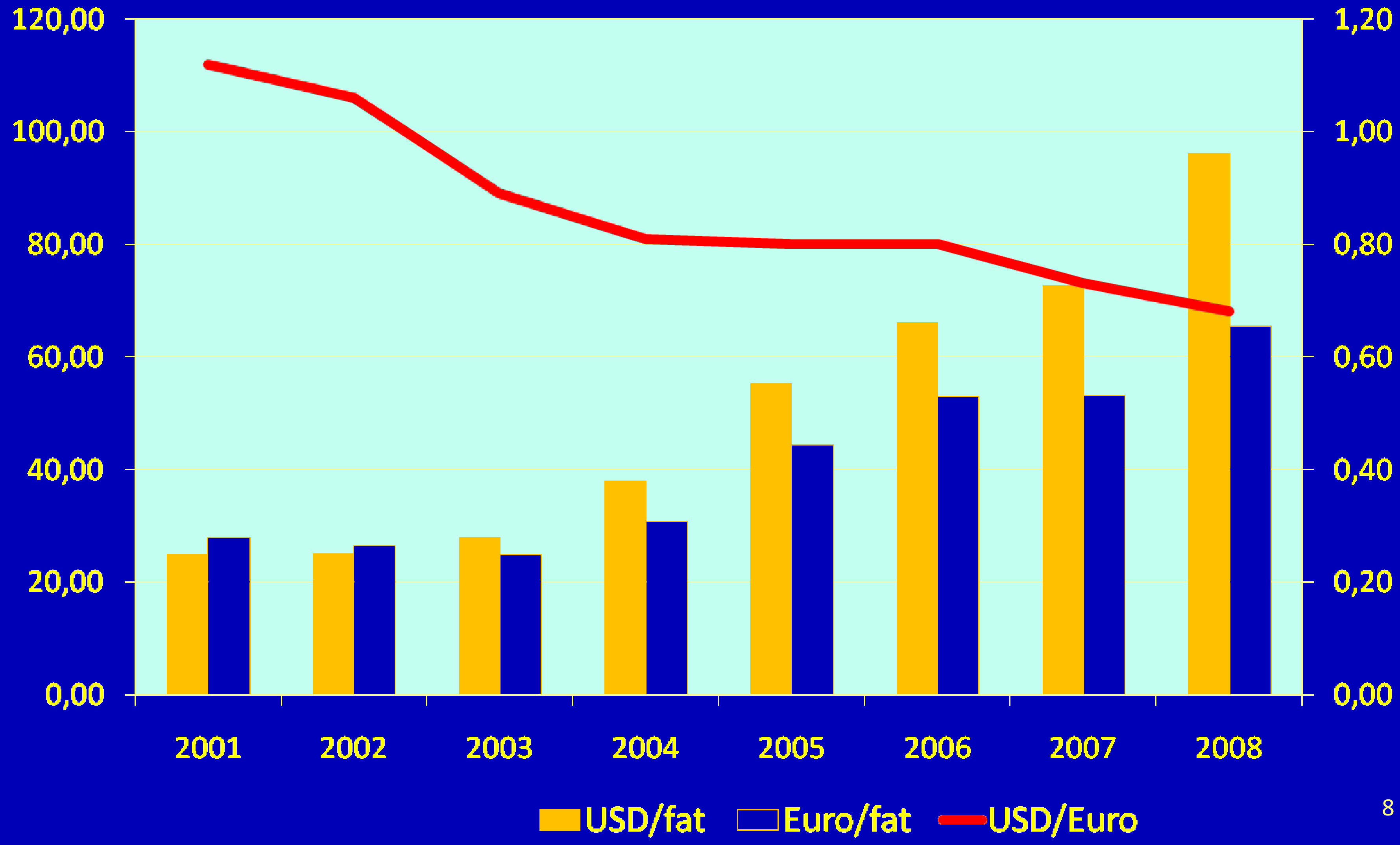
- Recession in the USA, Japan and parts of Europe (UK)
- Reduced growth in Asia, Africa and South America, as well as in parts of Europe and in Russia
- Shift of economic activity from North America and Europe to rest of the world
- Corresponding shift in energy consumption
- Lower overall growth of energy demand, Asia gaining in relative importance

The Oil Market

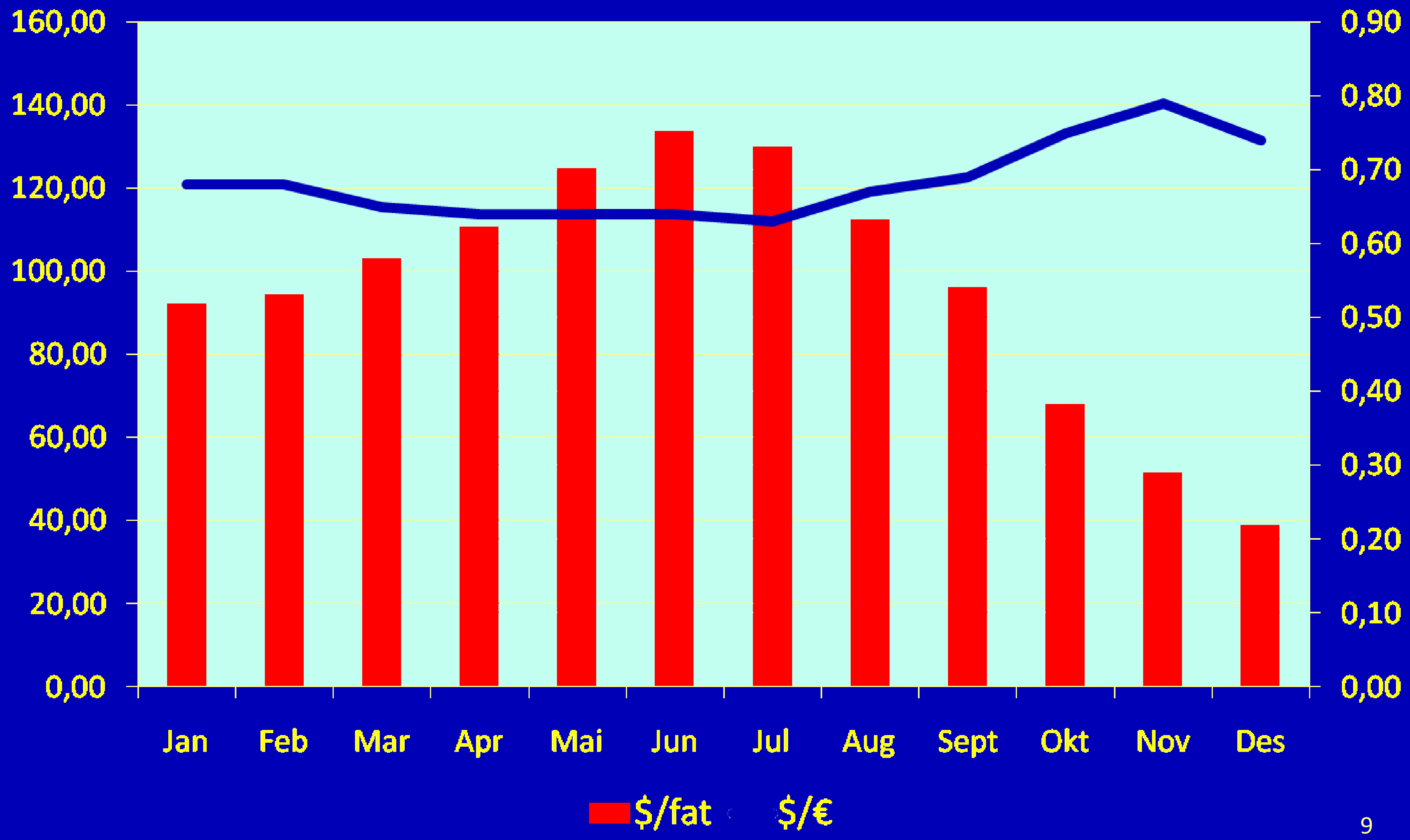
- Oil prices are still the driver for energy markets
- During 2005-08 oil prices were exceptionally high by historical standards
- Oil demand depends more on economic activity than on prices
- Reduced demand growth, chances of absolute decline world-wide for some time
- Possibility of oil prices in the range of $50-60/bl., even lower, but US dollar risk
- Oil prices much higher than current levels could exacerbate the economic crisis, delay recovery, keep oil demand low

Oil prices Brent Spot 1986-2008

Oil prices in USD and euro 2001 -08



Oil prices and $/€ in 2008



The OPEC Response

- OPEC response, cut of 3 mbd not sufficient to stem price decline
- Saudi preference $70-80/bl., Iran and Venezuela want at least $90-100/bl.
- Low oil prices for a longer time might induce OPEC members to cheat on quotas to maximise revenues, as in the 1980s and 1990s
- Larger output cuts might be needed for a real price increase, but difficult for OPEC, might need cooperation from outside

The Non-OPEC Response

- Russia wild card; government might have a strategic interest in moderate oil and gas prices
- Petroleum investment depends on price outlook and financial conditions
- With falling oil prices less petroleum investment
- Oil company equity suffering
- Industry consolidation and restructuring
- Many costly projects are shelved
- Maintenance of installations and infrastructure likely to suffer

The Natural Gas Market

- Natural gas demand will suffer; there is already a US surplus
- Power generation competitiveness will depend on CO_2 measures
- Costly pipeline projects will be deferred
- LNG projects will be delayed or reversed
- Asia is an increasingly important market for natural gas
- Natural gas prices decline with oil prices

The LNG Trade

- North America, until recently seen as the majpr importer, suddenly has a natural gas surplus, for how long time? LNG imports may cede to exports, eventually for how long time?
- Asian gas demand continues to grow, but in China and India gas imports compete against domestic coal
- Europe sees rising gas import needs, but Russia could cover much, like North Africa

The Longer View

- Low oil prices facilitate economic recovery
- Lacking financing and an uncertain oil price outlook will defer energy investment
- Companies with cash will purchase assets at low prices, which does not expand capacity
- For some time, downstream assets may gain in value relative to upstream assets
- The development of non-conventional energy will be considerably slowed down

The Rebound

- Low oil prices are helpful to inflation rates and trade balances in major importing countries, such as China, India and the USA, as well as the EU, spurring economic recovery
- Low oil prices discourage energy conservation
- The combination of low oil and gas prices and tight financing is likely to lead to a supply crunch as demand picks up again with economic recovery

The Energy Indusry

- Financial crisis spurs industry restructuring and consolidation
- Financial muscle key to survival
- Outcome will be a more oligopolistic industry structure
- Major companies will dominate downstream markets even more
- Suppliers will need to cut factor costs when facing fewer buyers of goods and services

Critical factors

- The effect of lower prices on energy conservation and investment
- USA: eventual economic rebound, energy and environmental policies, oil and natural gas demand
- China: economic growth, oil demand and imports
- Russia: oil output, domestic demand and exports
- Saudi Arabia: choice of strategy for oil and money, relations with the US
- Iraq, Iran, Nigeria and Venezuela: stability and volume
- Middle East: stability and US-Iran relations
- The position of the US dollar

Scenarios

1. Brief recession: economic growth takes off in 2010, energy demand resumes growth, oil prices $80-90/bl., followed by strong investment in oil, natural gas and renewables
2. Long depression: economic growth does not take off for several years, energy demand stays flat, oil prices at $30-40/bl., investment suffers
3. Sudden rebound: economic growth takes off, but largely outside OECD area, energy demand grows moderately, oil prices at $50-70/bl., weak dollar, then a leap upwards...