



High performance. Delivered.



Green Strategy

April 9th, 2010

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Asia Pacific, Energy Managing Director

Accenture is the largest business consulting firm in the world, focusing on future technology which will impact the business



2008 Global Revenue
\$21.6 billion



of Employees
184,000



Accenture Clients
96 of Fortune 100 companies



*Smart Grid
PoV*



Biofuels PoV



*Disruptive
Technologies in
Transportation
Fuels*



*Energy Consumer
Survey on Climate
Change*



*Demand Side
Management
Point of View*



*Resources
Executive Survey
on Climate
Change*



*End-Consumer
Climate Change
Research*

과거와 현재의 경제불황: 1. WORLD INDUSTRIAL PRODUCTION



WORLD INDUSTRIAL PRODUCTION





POLICY REACTIONS TO RECESSION

The Great Depression (1929-32) **The Great Recession (2007-09)**

Monetary policy

Allow banks to fail
Curtail liquidity



Monetary policy

Rescue banks
Add to liquidity

Fiscal policy

Balance the budget



Fiscal policy

Cut taxes, raise expenditure

Trade policy

Smoot-Hawley legislation



Trade policy

Protect at the margin

Economy Outlook: Short Term Prospects for Global

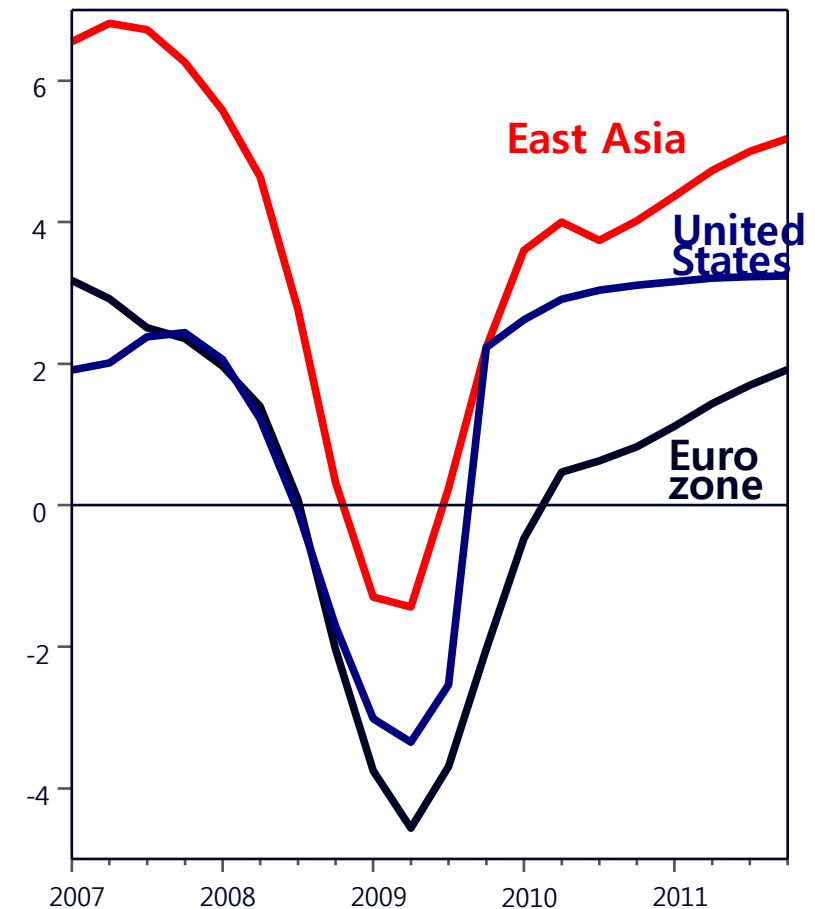


RECESSION AND RECOVERY

(GDP; percent changes; 3 quarters moving averages)

	Weight	2007	2008	2009	2010	2011
United States	23.7	2.1	0.4	-2.7	2.3	3.1
Eurozone	22.3	2.7	0.6	-4.0	0.5	1.6
East Asia*	19.4	6.7	3.3	0.1	4.2	4.9
World	100.0	3.8	1.6	-2.3	2.5	3.6

* Including Japan.

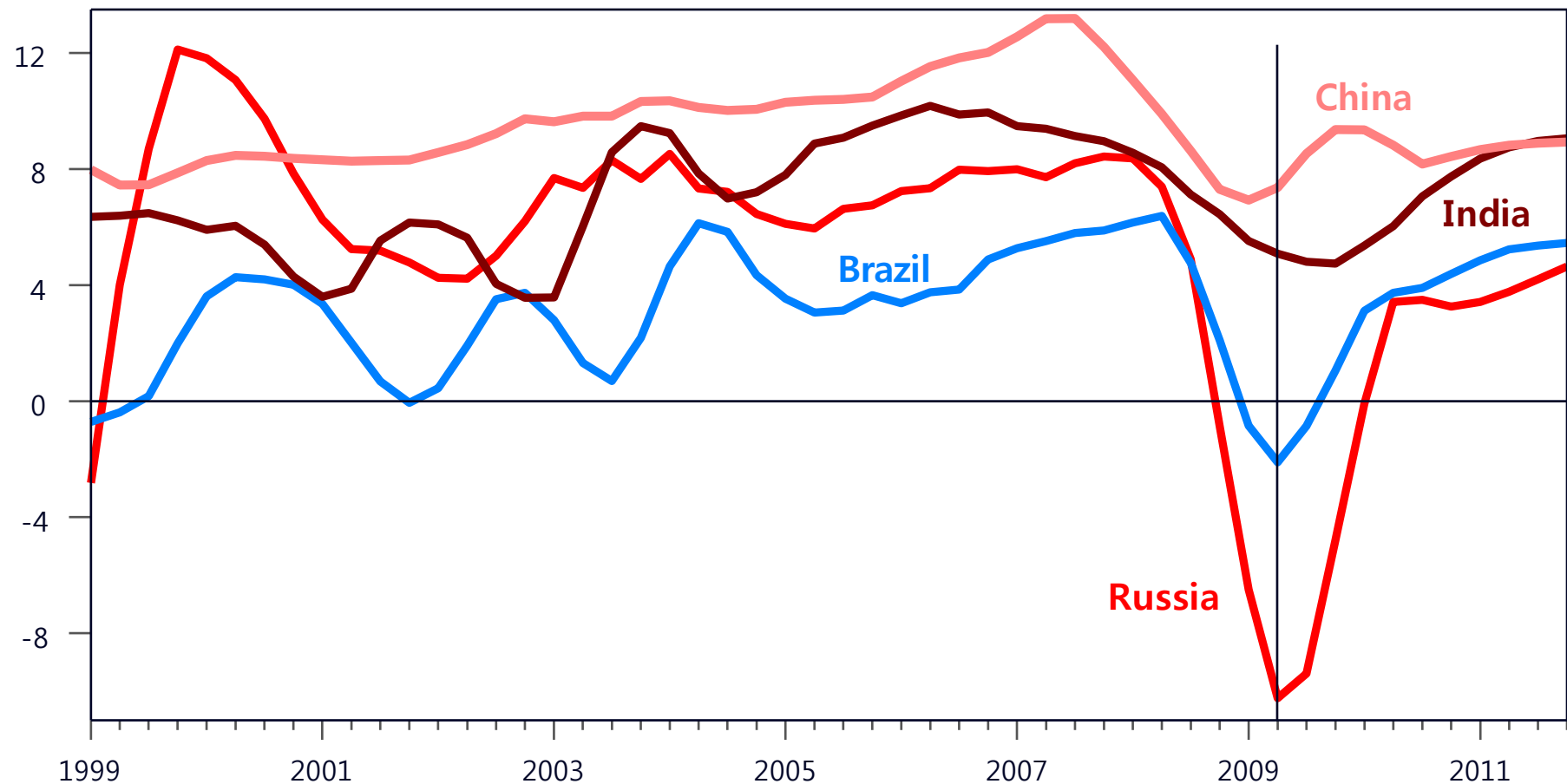


Economy Outlook: Short Term Prospects for BRICs



RECESSION AND RECOVERY

(GDP; percent changes; 3 quarters moving averages)



Mid Term Consequences of the Recession?



세계경제는 불황에서 벗어나기 시작했다는 시각도 많이 있지만 민간 실물경제와 기업 투자의 실질적인 회복이 되었다고 말하기는 이르며, 더블딥을 걱정하는 시각도 상당히 존재하고 있다.

Less growth ?

More inflation ?

A lower dollar ?

Mid Term Consequences of the Recession?



Less growth ?

- The recent declines in investment and employment will have a negative effect on potential growth
- Greater risk aversion could penalize future investment
- Heightened protectionist pressures should unemployment continue to rise

More inflation ?

- Higher inflation would make it easier to reduce public debt
- It is, however, much less likely in the Euro Zone than it is in the United States
- Higher American inflation would weaken the dollar

A lower dollar ?

- A medium-term weakening of the dollar would seem plausible
- The current account deficit could well continue
- And downward pressures may also come from the various proposals that have recently been put forward on how to reduce the role of the dollar in the international monetary system

한국 기업은 세계 경제의 불안정성 증대에도 불구하고 기본을 충실히 하며, 또한 Global 기업으로의 성장을 지속적으로 추구하여야 함



친기업 환경 조성

총액 출자제 폐지
금산법 및 지주회사 조건 완화
노동 법치 강화

Multi-Polar World

BRICs, 산유국, 신흥
경제국의 급성장

2009년
한국기업

세계 경제 불안정성 증대

금융시장의 붕괴 및
실물경제의 침체
Inflation/Stagflation의 우려
자원가격의 변동성 심화

Global 化

Small/Flat World 관점에서
생산(자본, 노동, 자원) 및
소비변화

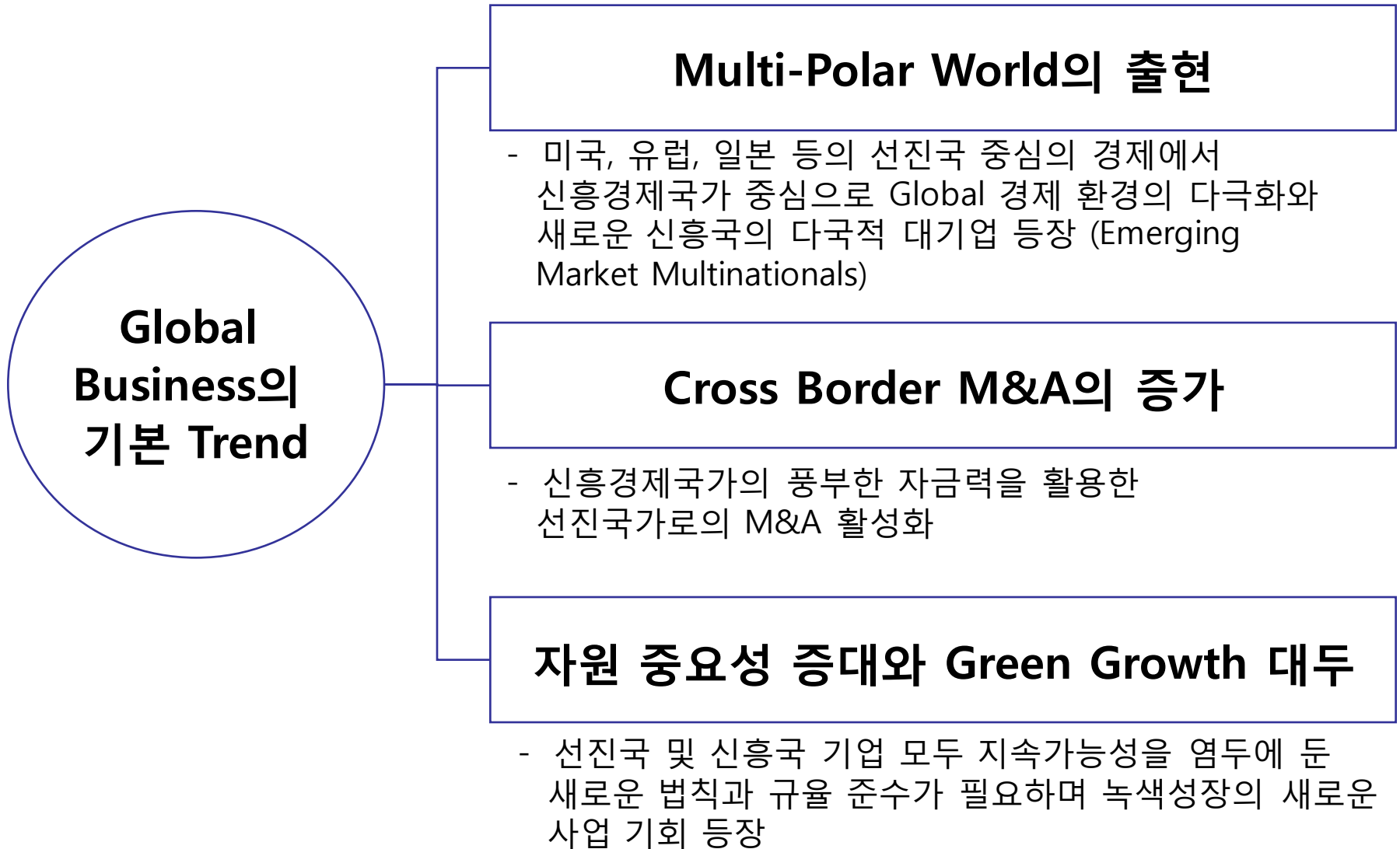
技術 革命

새로운 영역의 기술 개발 증대
(신재생에너지, 전기자동차)

新 人本主義

인간 삶의 질 향상 추구
사회에 책임과 조화가 가능한
기업의 지속가능 경영

현 경제 위기 상황 속에서도 기회 요인이 될 수 있는 Global Business Trends 상의 큰 변화는 Multi-Polar World의 출현, Cross Border M&A의 증가, 기후변화와 녹색성장임



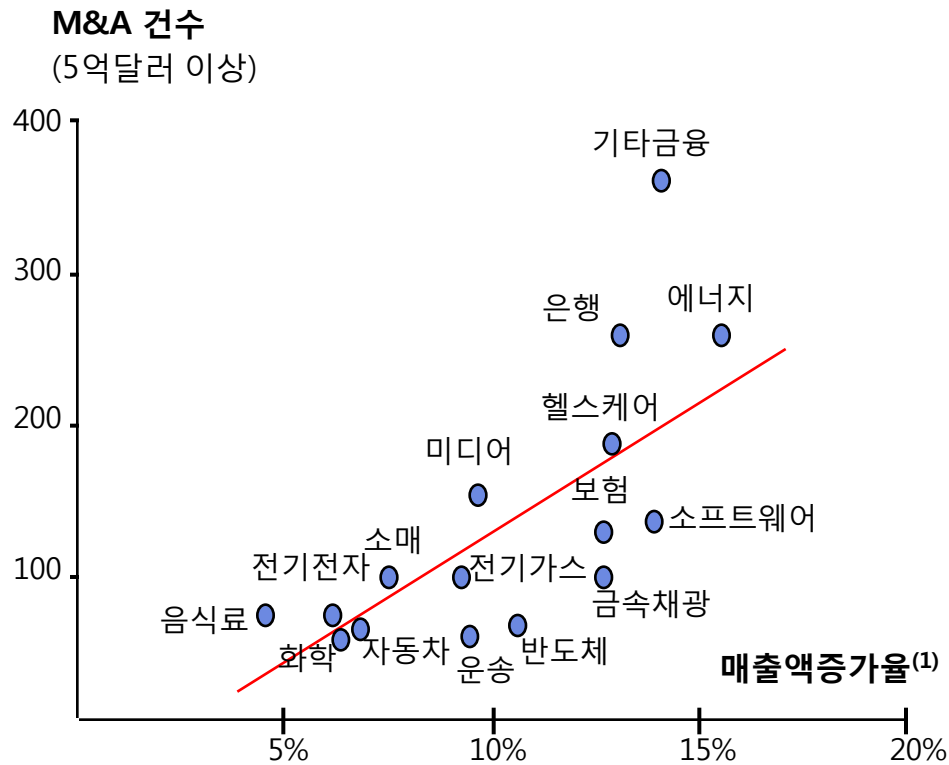
Achieving High Performance in Multi-Polar World



Global 기업들은 M&A를 활용하여 보다 높은 성장성을 확보하고 있음



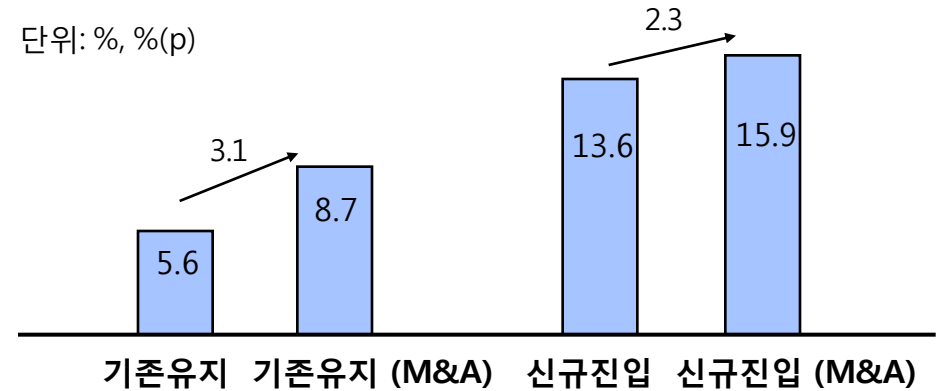
Global기업 업종 별 M&A건수와 매출액증가율



Note (1): 업종별 매출액 상위 Global 100대 기업의 매출액 증가율(CAGR) 1996~2006

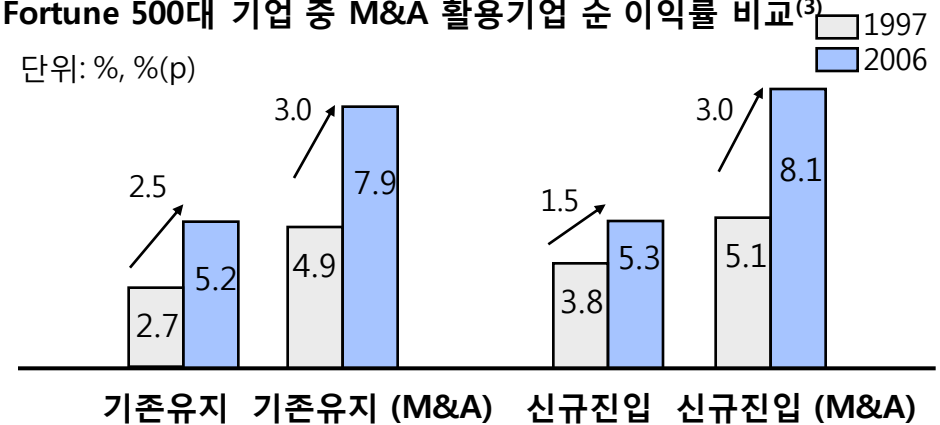
Fortune 500대 기업 중 M&A 활용기업 매출액 증가율⁽²⁾

단위: %, %(p)



Fortune 500대 기업 중 M&A 활용기업 순 이익률 비교⁽³⁾

단위: %, %(p)



Note(2): '97년과 '06년 Fortune 500기업의 매출액 증가율의 Median 값

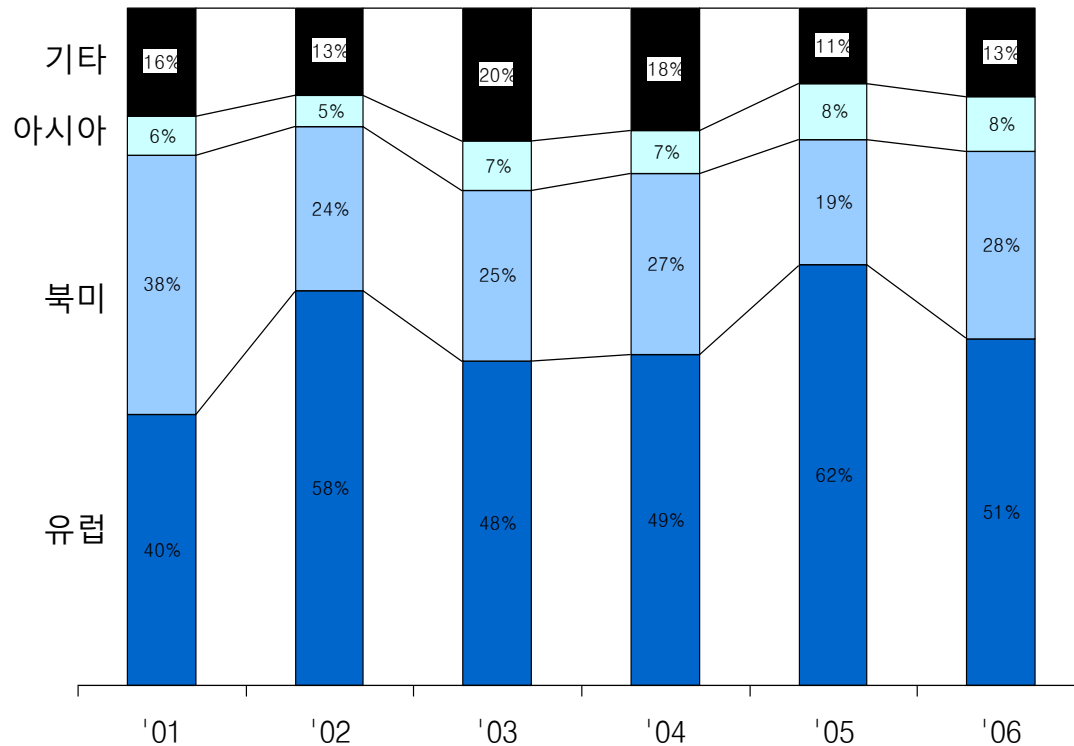
Note(3): '97년과 '06년 Fortune 500기업의 매출액 순 이익률의 Median 값

Source: Fortune, Thomson Financial

북미와 서유럽 시장이 세계시장의 약 80%를 차지하며 최근 일본 및 BRICs의 시장 규모가 증가하고 있음



지역별 Cross-border M&A 비중 ('00~'06)

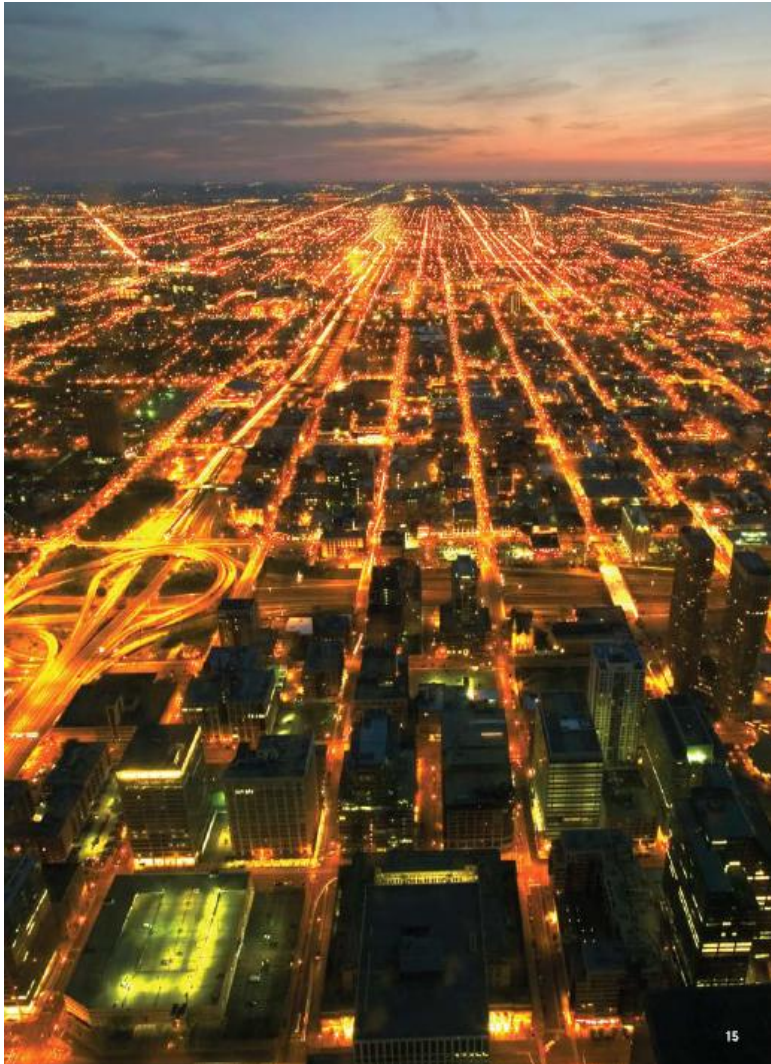


Source: UNCTAD, 2007

Note: Cross-border Transaction 는 Inbound/Outbound M&A를 모두 포함

- 일본은 최근 다양한 산업에서 적극적인 해외기업 M&A를 추진 (최근 3년간 4위)
 - 중국은 정부의 주도하에 에너지, 금융산업 M&A에 중점, 올해 순 매수국으로 부상
-
- 국가별 순위는 미국(27%)이 영국 (13%), 프랑스 (6%)를 상회
 - 미국은 최대 매도자, 유럽은 최대 매수자
-
- 2006년 Top 5 Cross-border Deal 중 3건이 유럽에서 발생
 - M&A 통한 자원, 인프라, 금융 등 기반 산업의 고도화 추진
 - 중장기적으로는 EU 차원에서 지역 별 산업 재배치 예상 (예, 석유/전기는 영국, 제철은 네덜란드 화학은 프랑스)

Can you imagine a world without Energy?








Energy is the key element of

- Human Life,
- National Security
- Business Industry ...

2009 Top 5

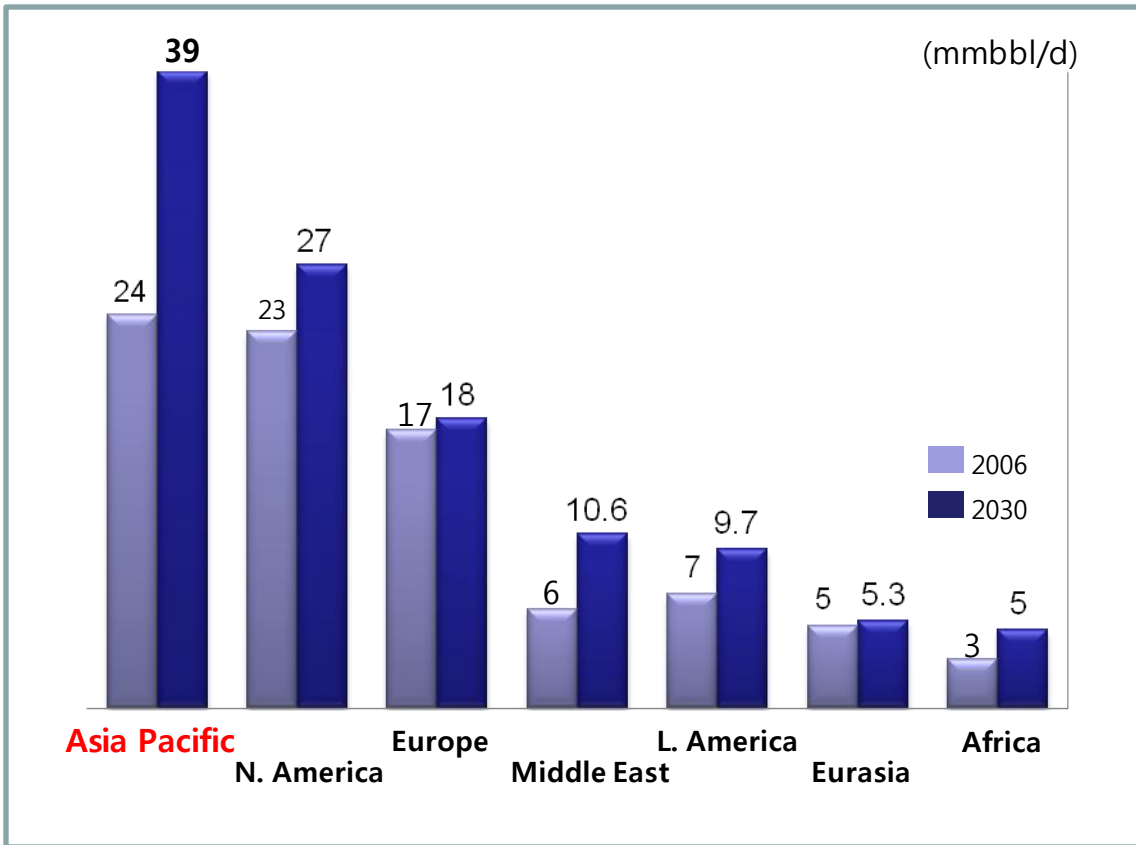
(Billion USD)

Rk	Company		Rev.	Profit
✓1		Royal Dutch Shell	458	26
✓2		Exxon Mobil	443	45
3		Wall-Mart Stores	406	13
✓4		BP	367	21
✓5		Chevron	263	24

Demand for energy is increasing, explosively in China and India



Projected Oil Demand Growth, by Region



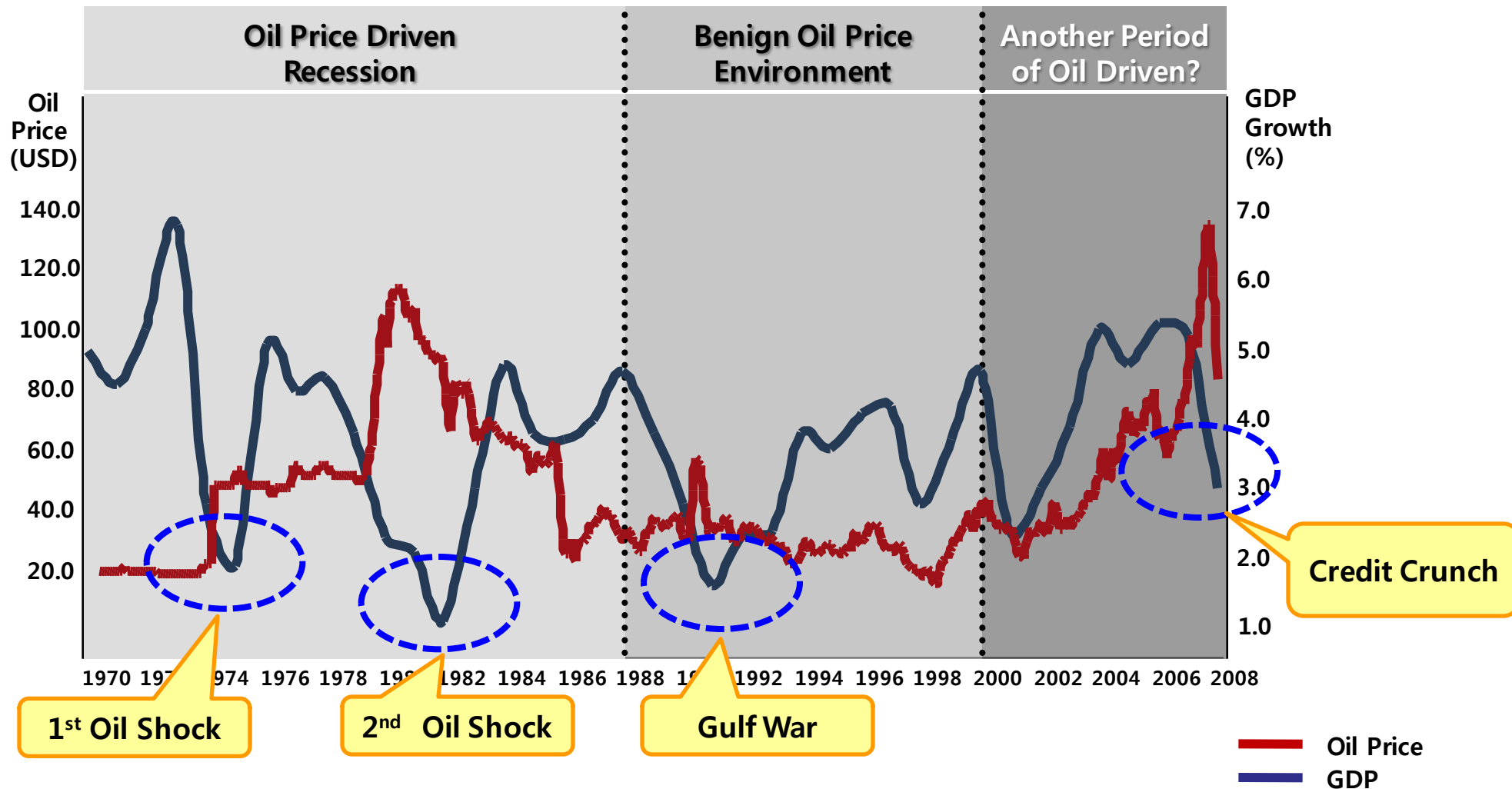
**Asia Pacific dominates:
15 million barrels per day of
additional demand in 2030**

**China's transport fuel demand will
quadruples from 2005 to 2030**

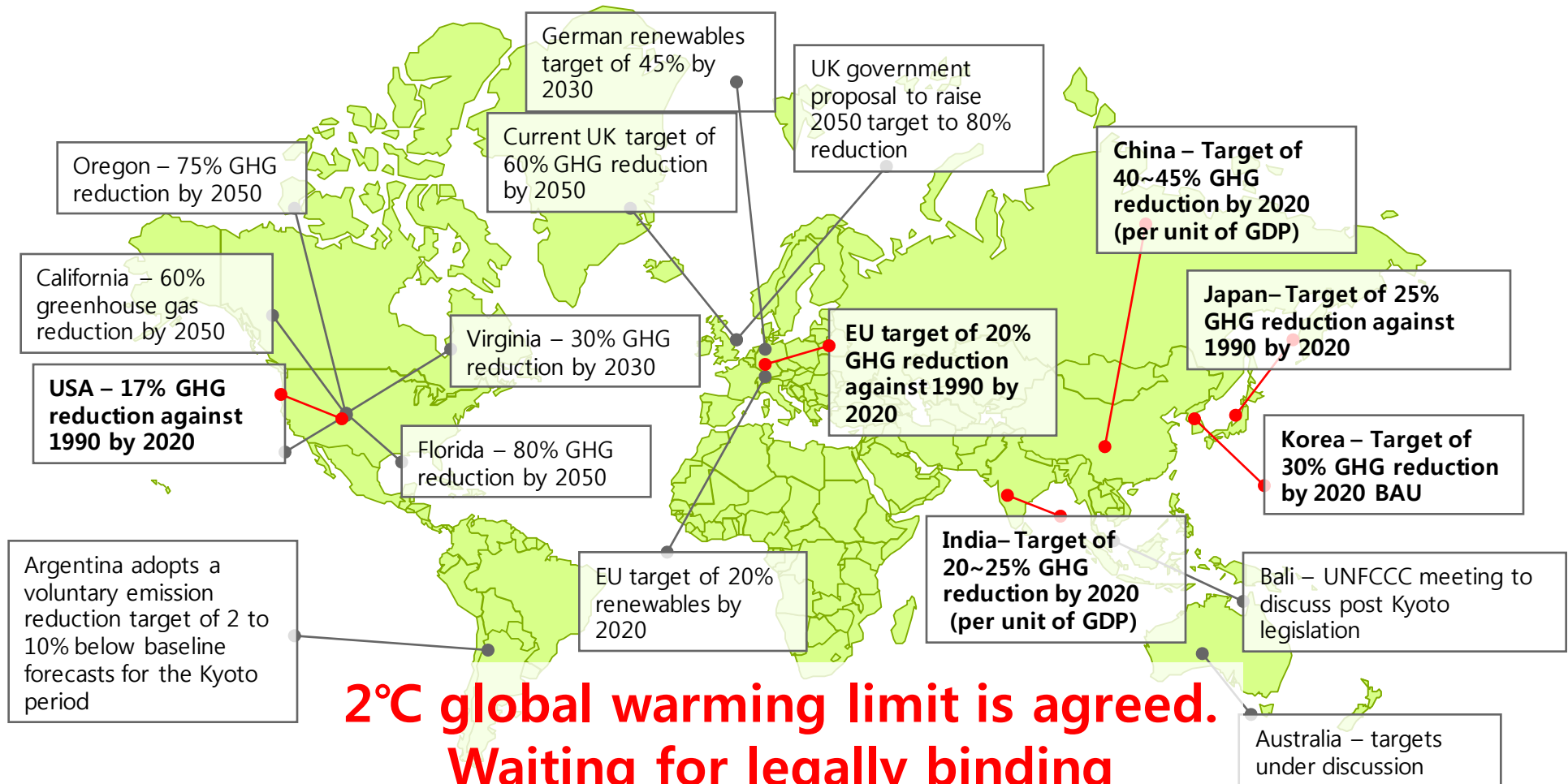
Source: CERA, Accenture analysis

* May not sum to 100% due to rounding and negative values

The global economy has been influenced by the energy price several times in the past



Governments are beginning to address the long term issues from climate change. More attentions to global legally binding agreements



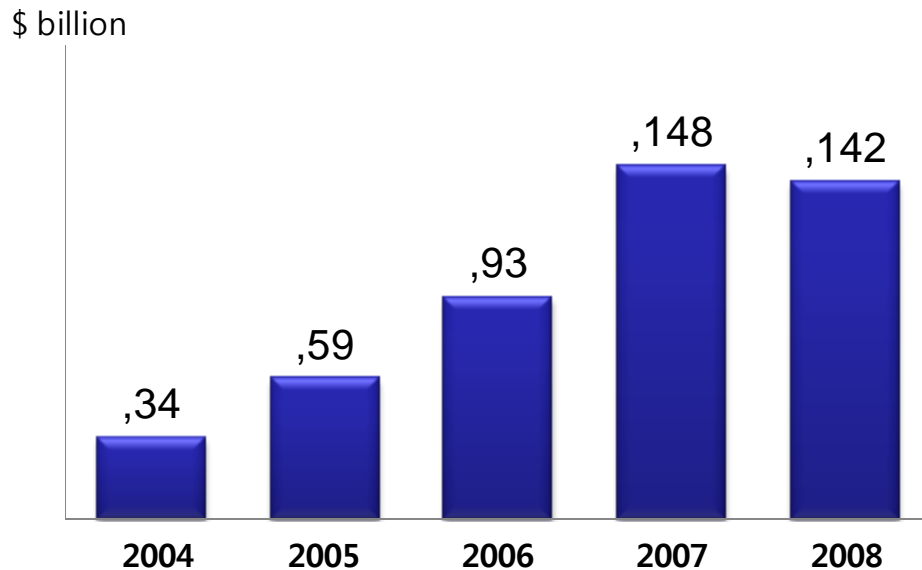
**2°C global warming limit is agreed.
Waiting for legally binding
agreements with global targets**

GHG – Greenhouse Gas

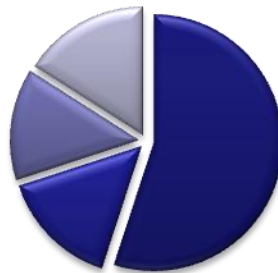
Alternative energy will emerge with strong investment



Global New Investment in Alternative Energy



Investment by Type



Asset (55%)
Project (15%)
R&D (14%)
Others (16%)

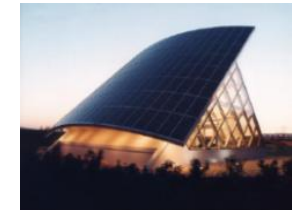
Source : World Economic Forum, Jan, 2009

Big Investment Area ('08)

1. Wind
(\$47 Billion)



2. Solar
(\$38 Billion)



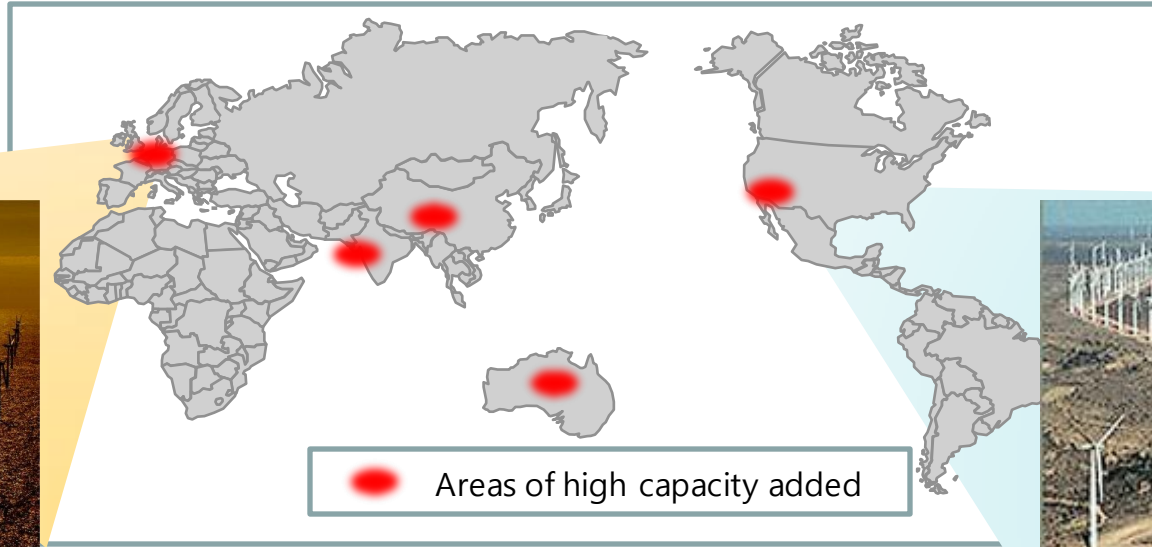
3. Biofuel
(\$35 Billion)



4. Others
(Fuel Cell,
Tidal, etc.
\$20 Billion)

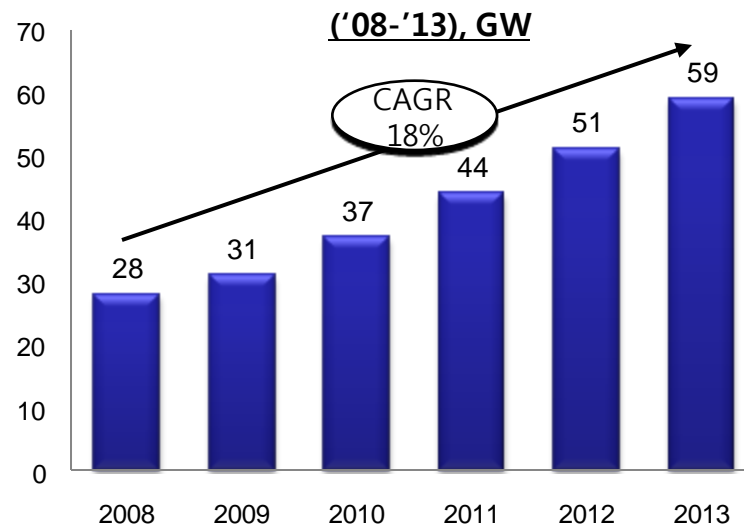


The wind power capacity is expected to increase, resulting in the increase of demand of related material and EPC



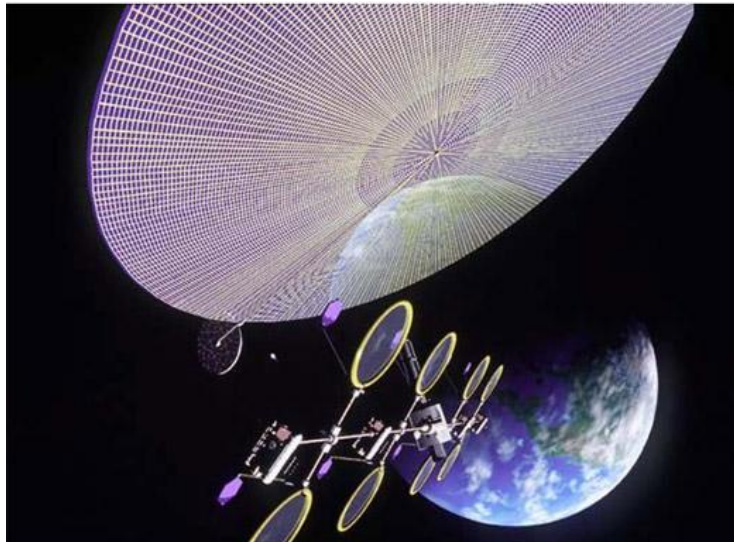
- **Horns Rev Offshore Wind Farm, Denmark. (The Current biggest Off Shore wind power of the World)**
 - Capacity : 10.8 GW, which can support 3.2million household
 - Located in North Sea, 14 kilometers west of Denmark

Global Wind Power New Installation



- **Horse Hollow Wind Energy Center, U.S. (The Current biggest On Shore wind power of the World)**
 - Capacity : 735 MW, which can support 1.5 million household

Solar Energy will emerge by technology innovation



NASA/MSFC

- **The Universe Solar PV in 2016 by PG&E**
- **Fox News, April, 16, 2009**

- PG&E announced the plan of implementing the Space Solar PV by 2016 with the capacity of 200 MW, which can supply 60,000 household. The Solar Energy is transmitted to earth by wireless frequency
- Invest \$1.4 billion for 5 years (7 million per MW)

Key Technology Innovation

- **Extend from the roof to desert and spaceship**
- **Reduce the silicon layer**
 - Reduce silicon 200 μm to 50 μm
 - Thin Film (2~3 μm)

- **Next generation cell**
 - **Organic glass film**
(Dye-Sensitized Solar Cells)

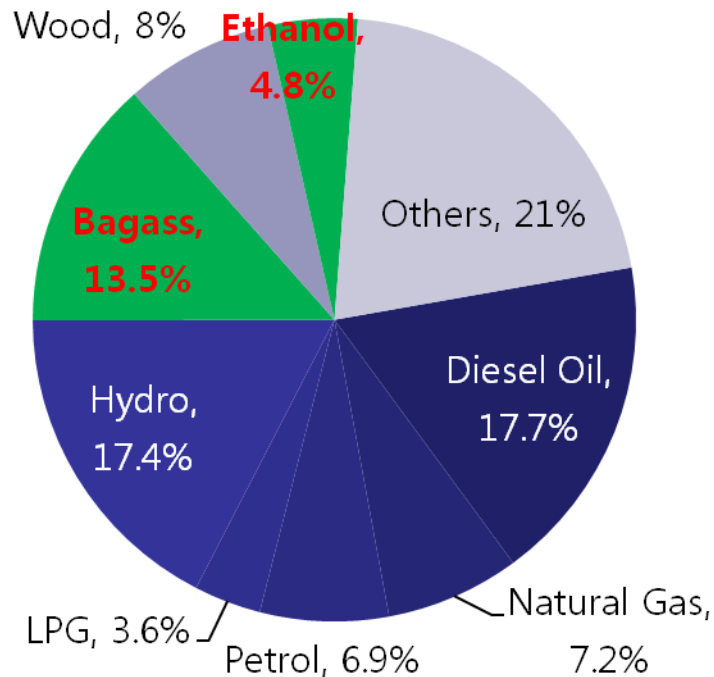


- **High efficient, Cost effective materials**

In Brazil, biofuel already penetrated the transportation fuel

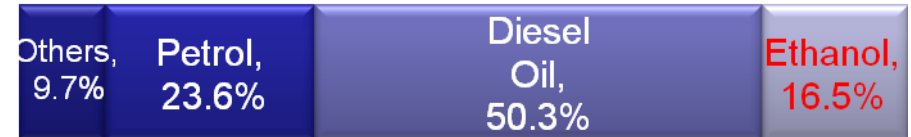


**Brazilian Energy Consumption
by Source (2008)**



Others : Fuel Oil, co3l, refinery gas, others

Brazil Transportation Fuel Split



- Brazil is the most mature biofuels market in the world and views this as an opportunity to become the dominant global supplier of ethanol in Asia, Europe and the Americas
- The world's leading sugar cane producer
- The world's second leading ethanol producer

Innovation in electric vehicle is accelerated



Mitsubishi "i MiEV"



"The first to market with all electric vehicle"

- Driving 160km for one battery charge
- Could be charged at standard outlets in Japan (100 or 200 volt)
- Charge times : 7-14 hours (Now developing fast charging stations)
- Vehicle cost : \$33,000 (Plan to produce half cost vehicle by 2012)
- Electricity Cost : 1 Cent / km (one-third of Prius fuel cost)

Smart Grid is digitalizing the analog electric distribution line, resulting in reducing electricity reserves and increasing energy efficiency



새로운 전력산업의 필요성

- **폭발적인 전력 수요 증가**
(2030년, Electric Vehicle 30% 점유시 10GW의 추가 전력 인프라 필요, 62조의 인프라 구축비용)
- **Renewable Energy의 증가로 발전출력 조정을 위한 쌍방향 전력망 필요**
- **기후변화, 에너지 가격의 변동성 심화로 에너지 소비 효율화 절대적 필요**

Smart Grid의 역할

- **전력망을 지능화하여 전력 수요 및 공급을 효율적으로 관리**
- **예비율의 감소**
- **에너지 소비 효율성의 극대화로 소요 자본의 감축**
- **기후변화 대응, 온실가스 감축에 공헌**

Korea is leading global smart grid roadmap, which will create global business opportunity



MEF Report (9 Low Carbon Technologies)

Smart Grids Korea and Italy

- | | |
|---|----------------------------|
| ▪ Buildings and Industrial efficiency | US |
| ▪ Advanced Vehicles | Canada |
| ▪ Carbon Capture, Use, and Storage | Australia and UK |
| ▪ High-Efficiency and Lower-Emissions Coal Technologies | Japan and India |
| ▪ Wind Energy | Germany, Denmark and Spain |
| ▪ Solar Energy | Germany and Spain |
| ▪ Bio-Energy | Brazil and Italy |
| ▪ Marine Energy | France |

Korea Proposal on Smart Grid



Action Plan

- Cross-country /regional partnership
- 산업체의 현재 기술 및 역량 적극 활용
- 개발도상국 / 선진국간 기술 및 지식 전수 활성화

Smart City toward low carbon & energy efficiency is emerging



Vision of a Smart City

“A city in which citizens, companies and government sustainably live, work and interact, through delivery of integrated, low carbon products and services”

Target CO₂ Emission

Sustainable Life

- Smart Meters
- Energy Feedback Displays
- Energy advice
- Distributed Generation

Sustainable Working

- Smart Buildings
- Smart Lighting
- Smart Plug

Sustainable Municipality

- Sustainable Waste Collection
- Sustainable inner city logistics
- Sustainable facade lighting

Sustainable Transport

- Mobile Charge-points
- New logistic solutions
- Electric vehicles

2025 BAU

2006

1990

TARGET 2025

Missing Part in Smart Grid... Smart Industry

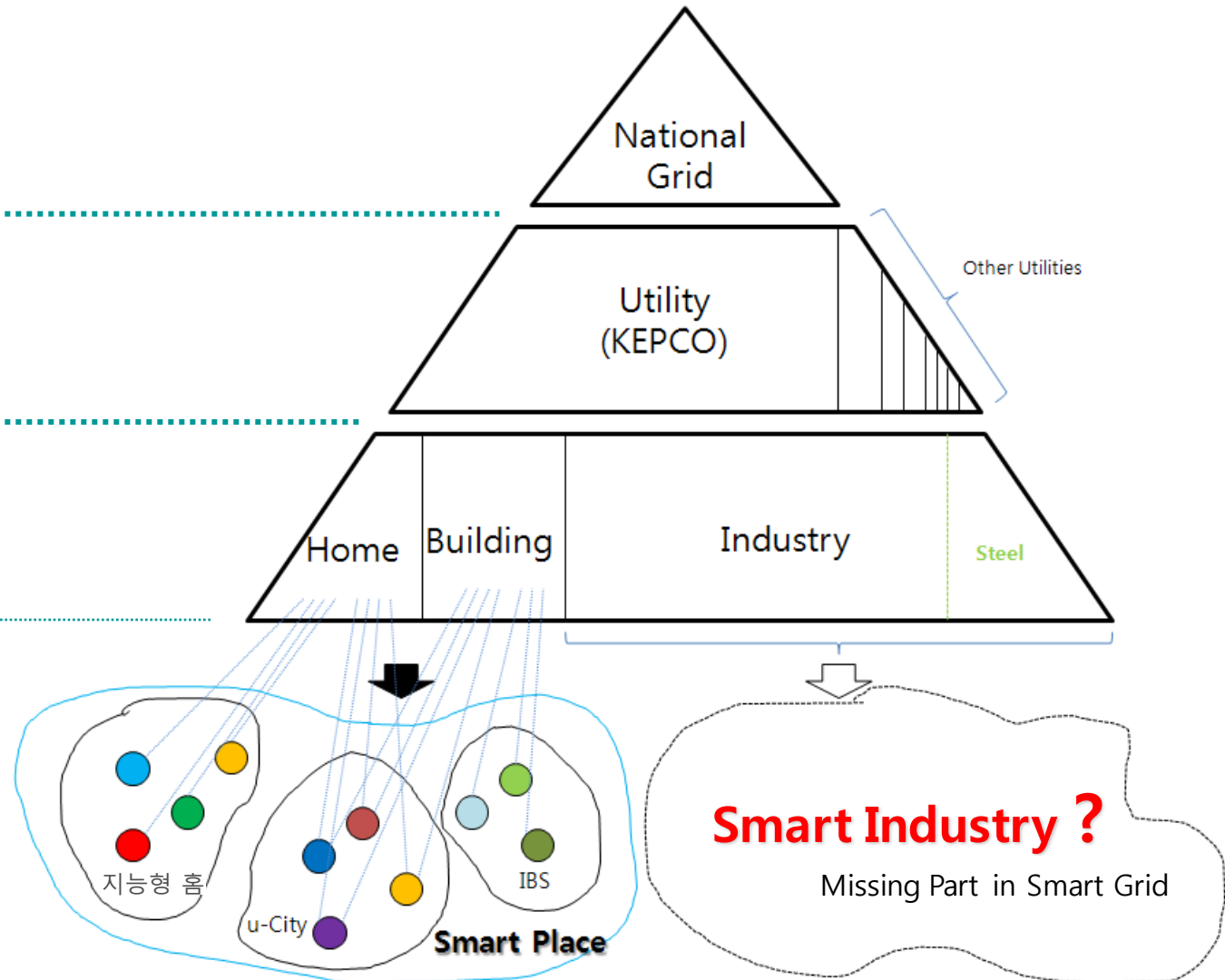


국가 전력망

발전, 배전,
기타 Utility

전력 수요

Smart Grid 기반
변화 모습



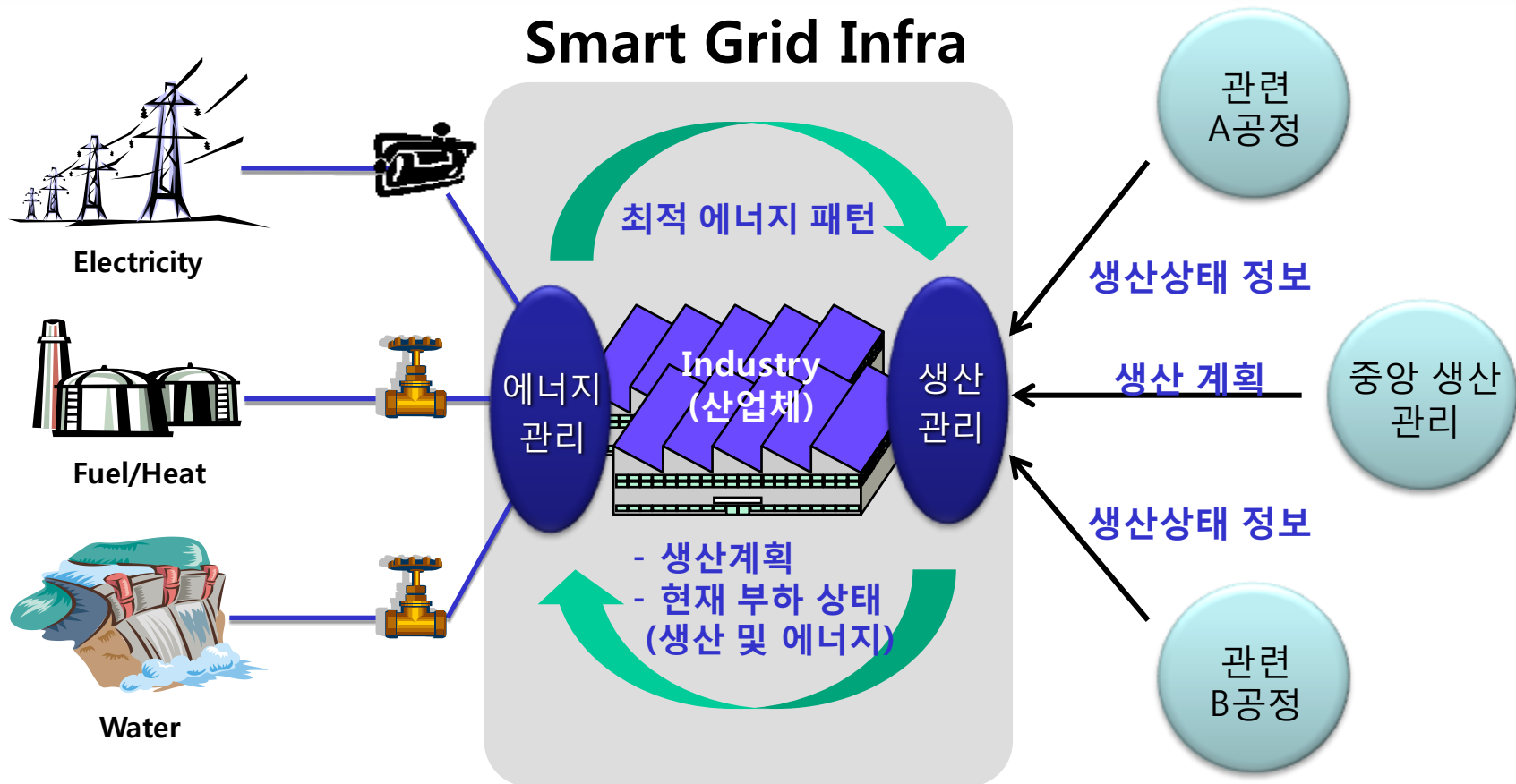
Smart Industry is energy efficient future industrial system through coordination of energy & manufacturing flow



Smart Industry

(Industrial Energy Efficiency & Reliability System)

Smart Grid Infra





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