

GLOBAL ENERGY & CLIMATE POLICY

- EU PERSPECTIVES FROM A MULTINATIONAL



STX YOUEVENT 2010
Amsterdam
28th October 2010

Russel Mills
Global Director Energy & Climate Change Policy
Dow Chemical



1974 - President Nixon



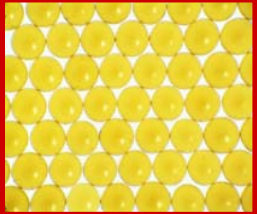
... “in 1980, the United States will not be dependent on any other country for energy” ...

1978 - President Carter



... “this nation's first solar bank will help us achieve 20 percent of our energy from solar by 2000” ...

In fact from mid last decade US net imports hit new records (about 700 Mtoe) and solar represents < 1%

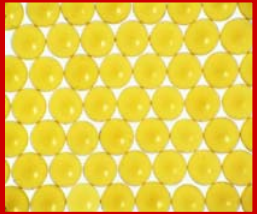


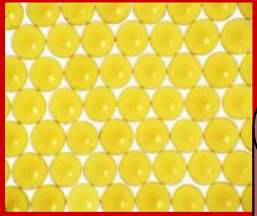
Connie Hedegaard - European Commissioner



... told meeting (11 May 2010) that a move to strengthen the target could be the only way to boost Europe's carbon price (ETS) to levels high enough to drive green investment

In fact ETS is specifically designed to deliver at lowest costs and increasing EU costs will decrease EU investments

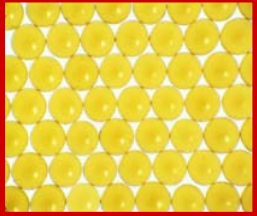




Slogans don't build sustainable energies
..... Markets and Technologies do

AGENDA

- ➔ Chemistry & Climate
- ➔ Carbon Costs and Price Signals
- ➔ Building Low Carbon Economies



Previous Expectations. . .



Transition to a Low Carbon Economy

Global Consensus on Science

Large But Clear Cost Expectations

Market Certainty For New Products

Global Carbon Market

Canada, Mexico, Australia, Japan, act

US Cap and Trade

Dow's Historical GHG Reductions

EU Establishes ETS

Dow Sets 2015 GHG Intensity Goal

Path moving forward. . .



Transition to a Low Carbon Economy

Increased Compliance Costs

US Climate Action

EU ETS Phase III

Increased Market Opportunities

Japan, South Korea, Australia, Canada

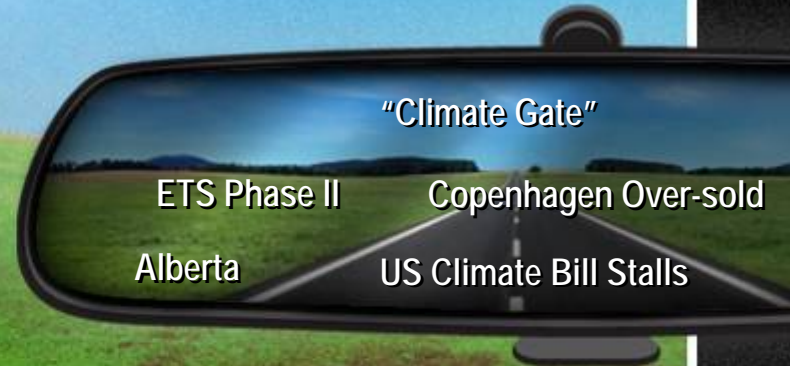
US EPA Action

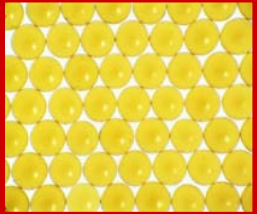
Carbon in China's 5 yr Plan

US National Academies Solidify Science

EU Calls for 30% Reductions

Climate Science In Question

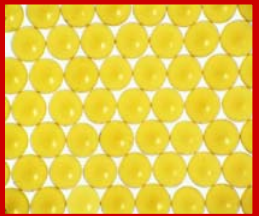




CHEMISTRY & CLIMATE

What we do

Energy



Salt



Gas



Oil



Coal



Biomass



Recycle



Building & Construction



Electronics



Agriculture



Wire & Cable



Coatings



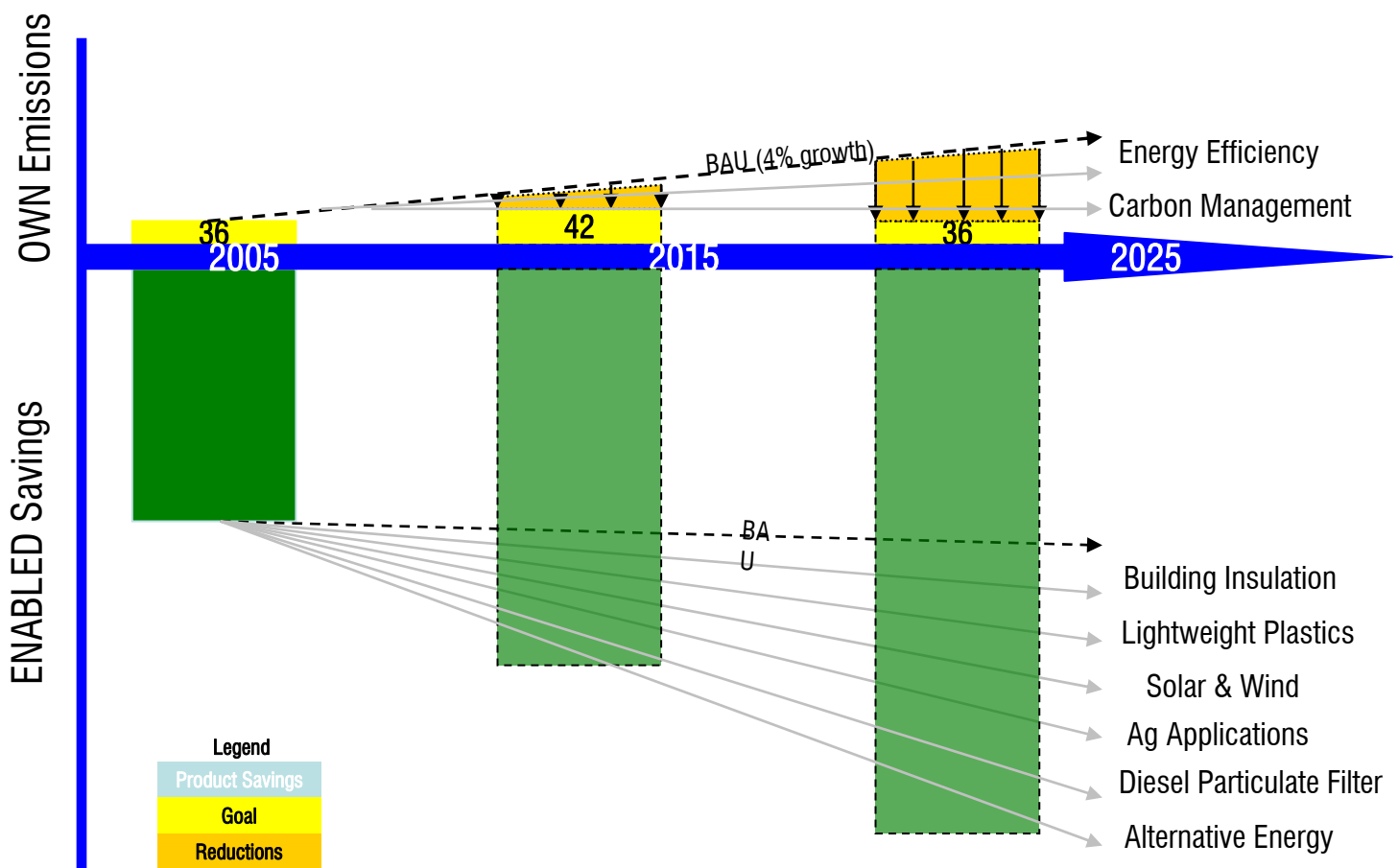
Automotive

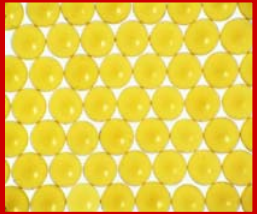


CHEMISTRY: FEEDSTOCKS INTO ESSENTIAL PRODUCTS

Our biggest contribution surprises many

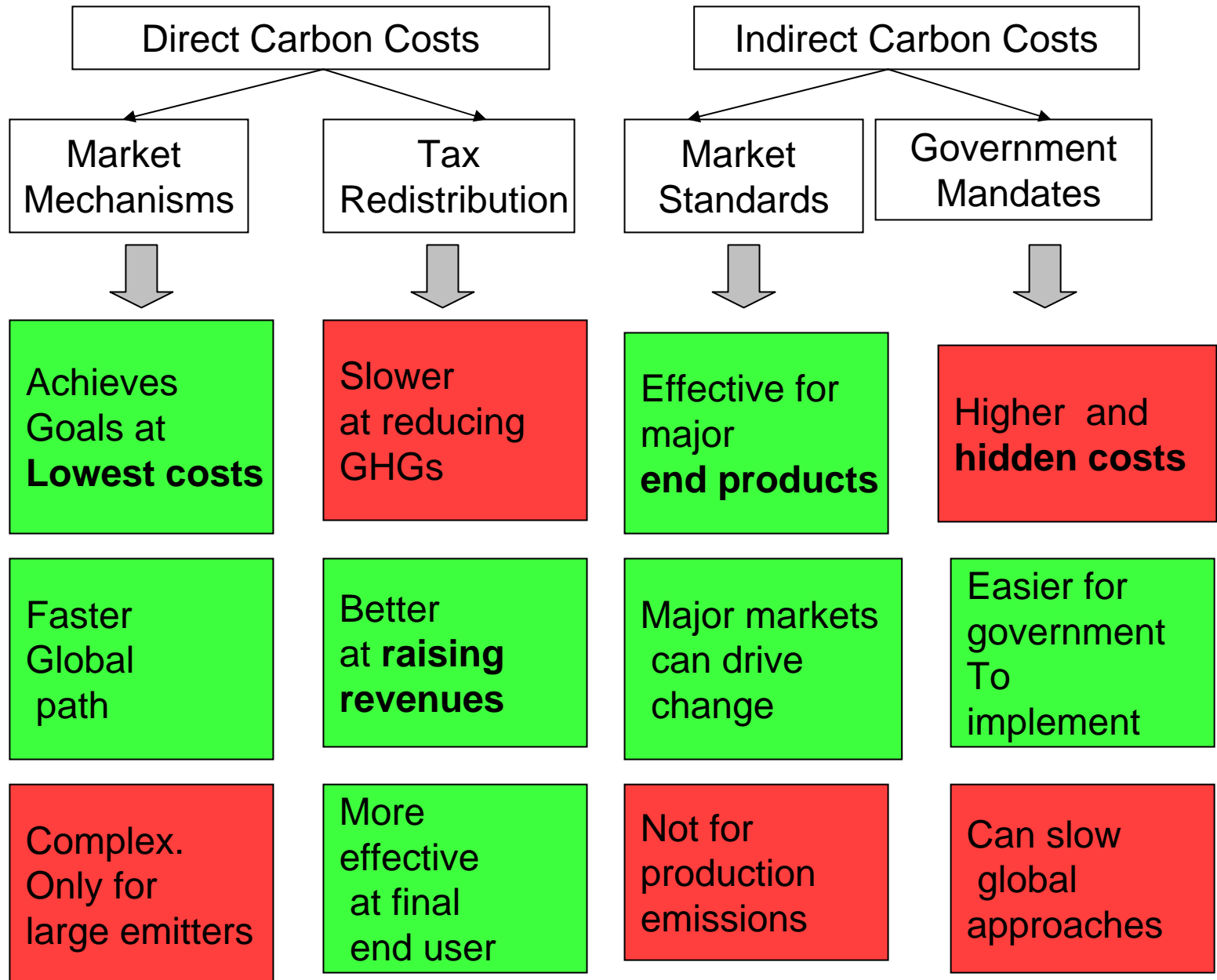
major involvement in Climate Protection with both **Production and Consumption reductions.**

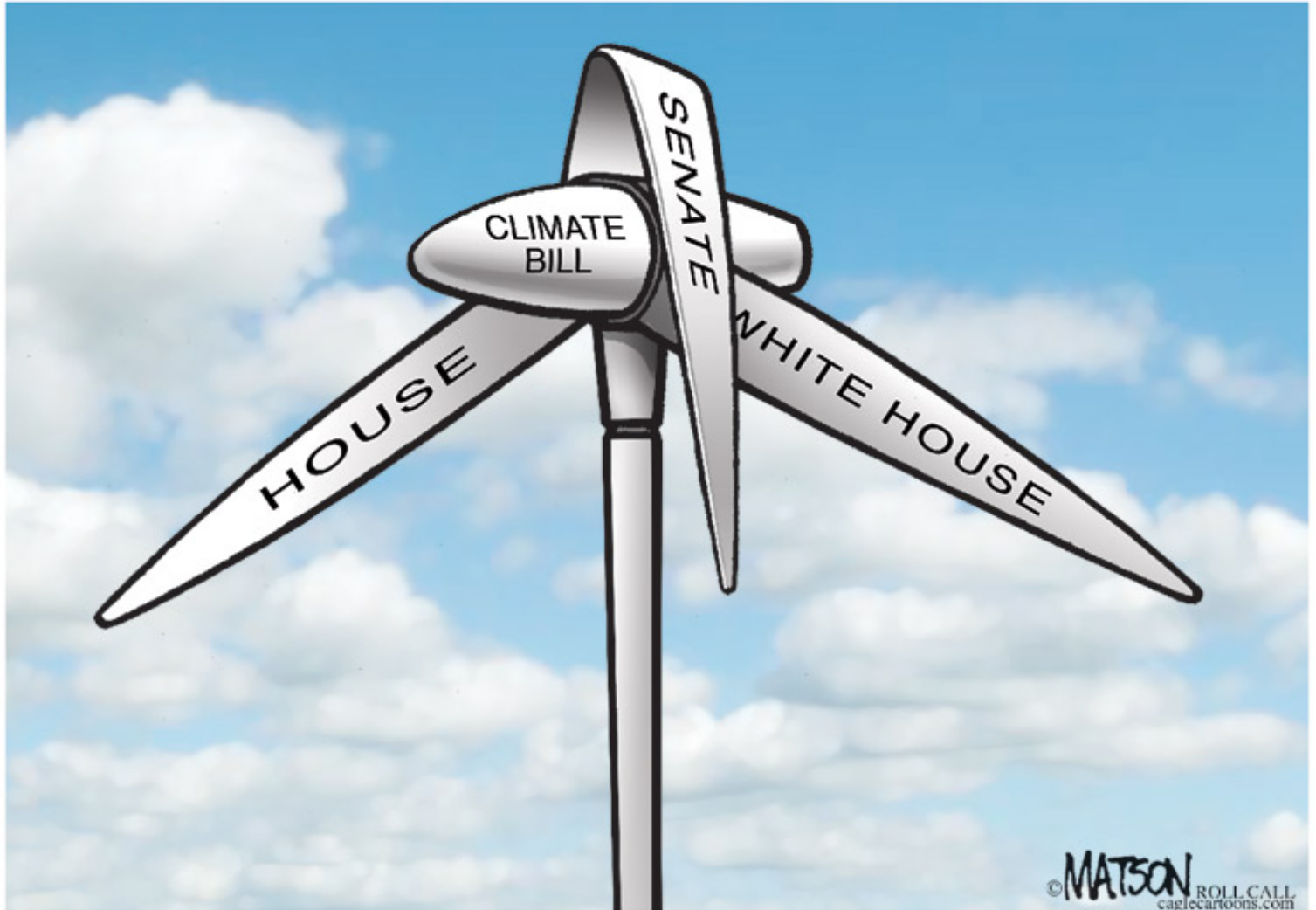
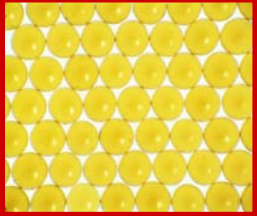




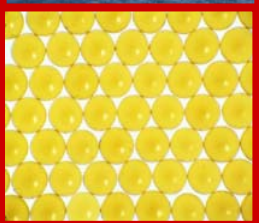
CARBON COSTS AND PRICE SIGNALS

Managing carbon starts with creating carbon costs





© MATSON ROLL CALL
caglecartoons.com



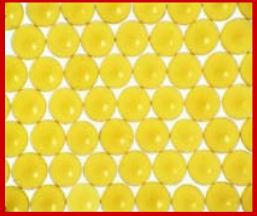
"I was spreading some risk around, and apparently it all wound up in your portfolio."

Expectations are that private business will provide 85% of "climate funding" (and all the technology)

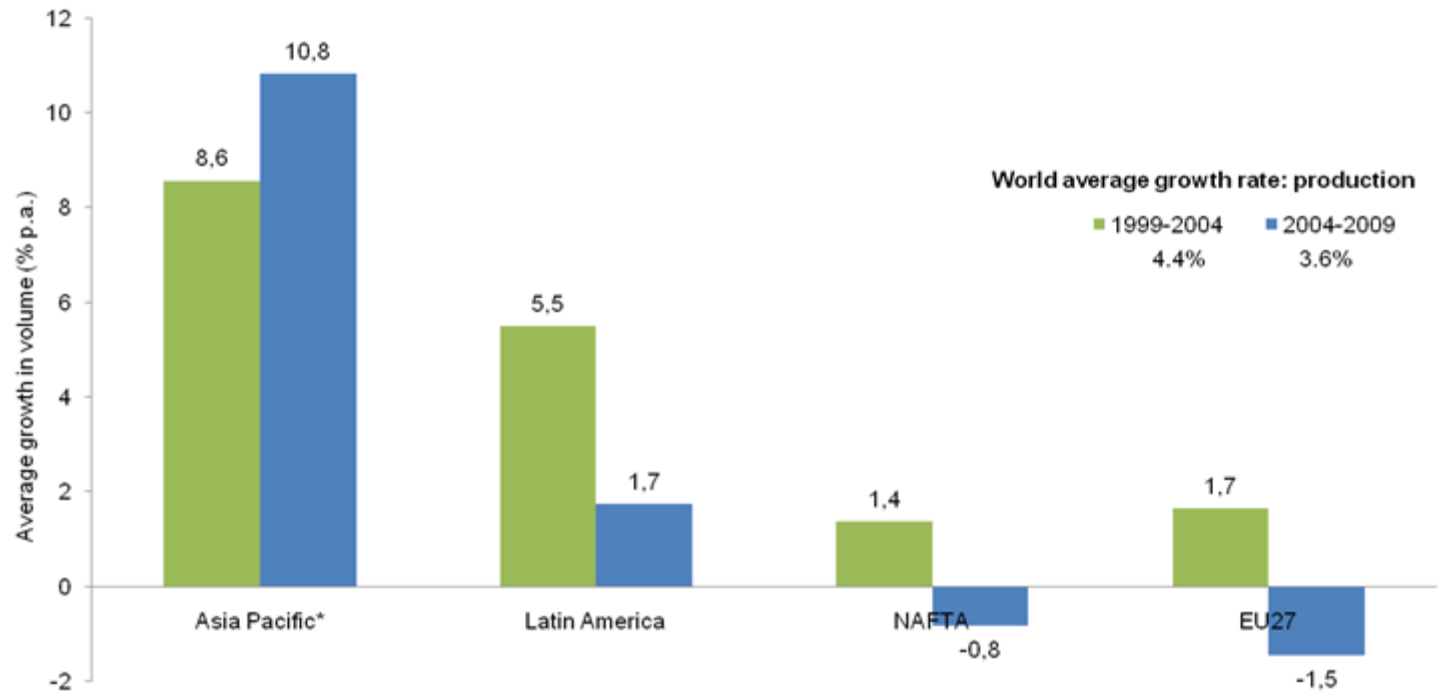
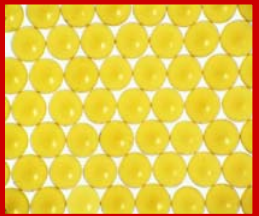
**Financing also finite resource
...but this is primarily investment challenge**

Numbers & timelines are huge:

- ▣ Increased energy-related investments: \$10.5 Trillion (2010-30 cumulative for 450ppm)
- ▣ More than two thirds demand side driven (transport & buildings)



HIGHER PRODUCTION GROWTH IN MORE CARBON INTENSIVE REGIONS



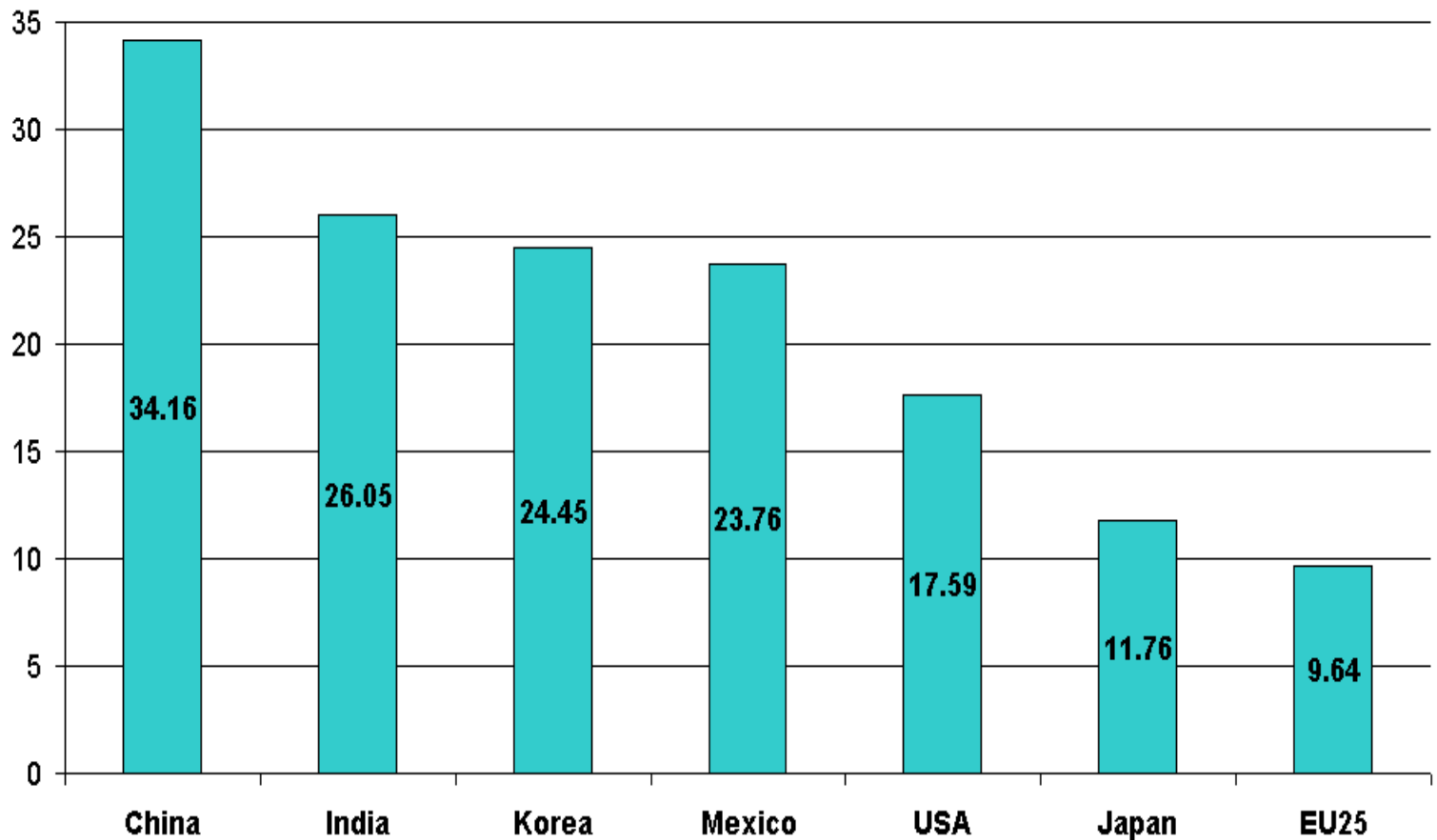
*Asia-Pacific includes Japan, China, India, Korea, Malaysia, Phillipinse, Singapore, Taiwan, Thailand, Pakistan, Bangladesh and Austrial

Source: ACC and Cefic Chemdata International

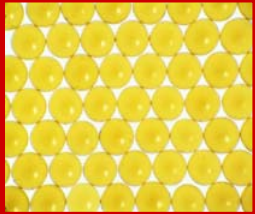
ONE REASON EU CHEMICAL INDUSTRY HAS DELIVERED GROWTH AND ABSOLUTE GHG REDUCTIONS



Energy consumption per sales in the chemical industry in selected countries



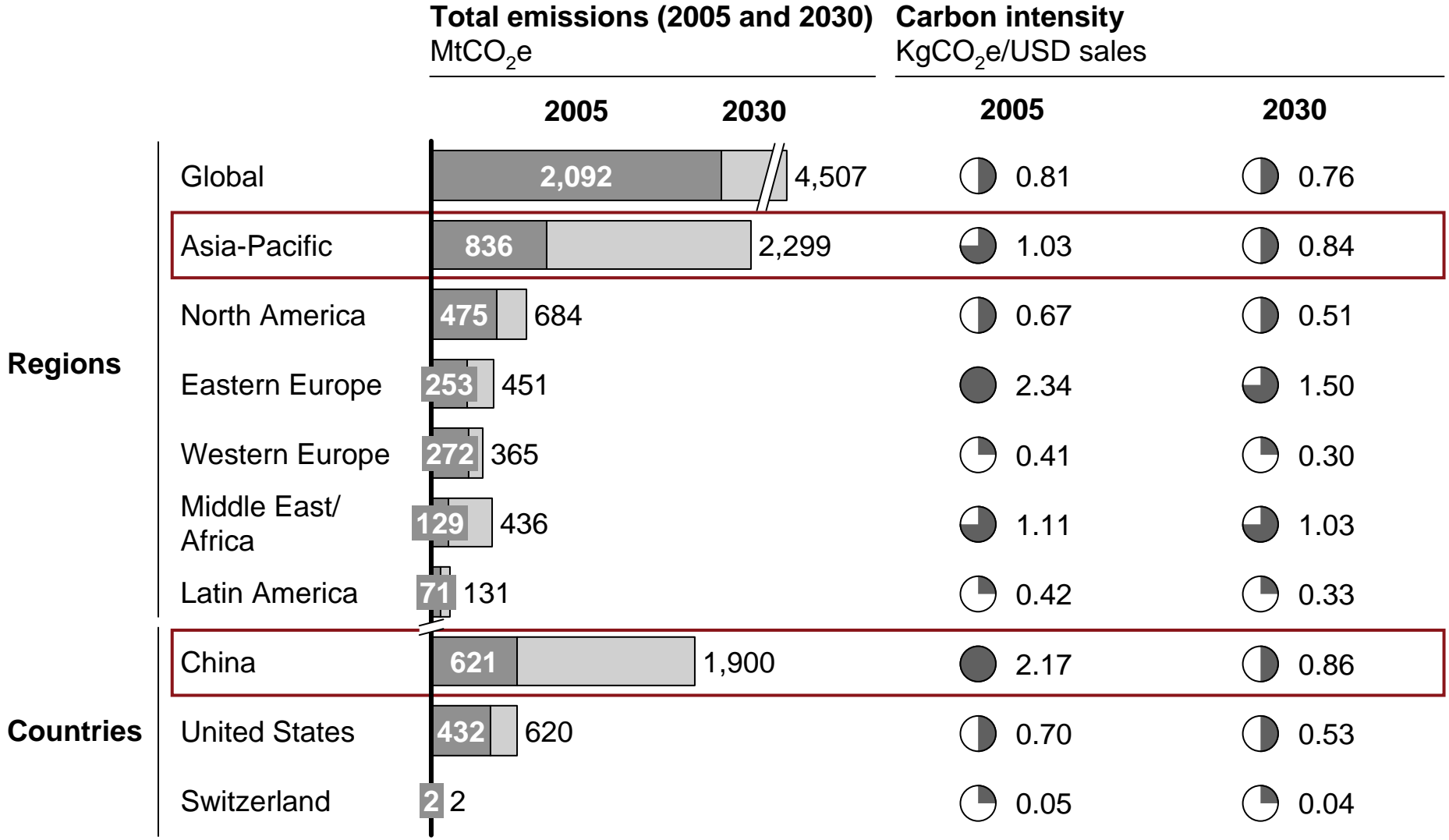
Source: IEA (2007) "Tracking industrial energy efficiency and CO2 emissions", Eurostat and Cefic



Higher carbon intensity in Asia-Pacific and China

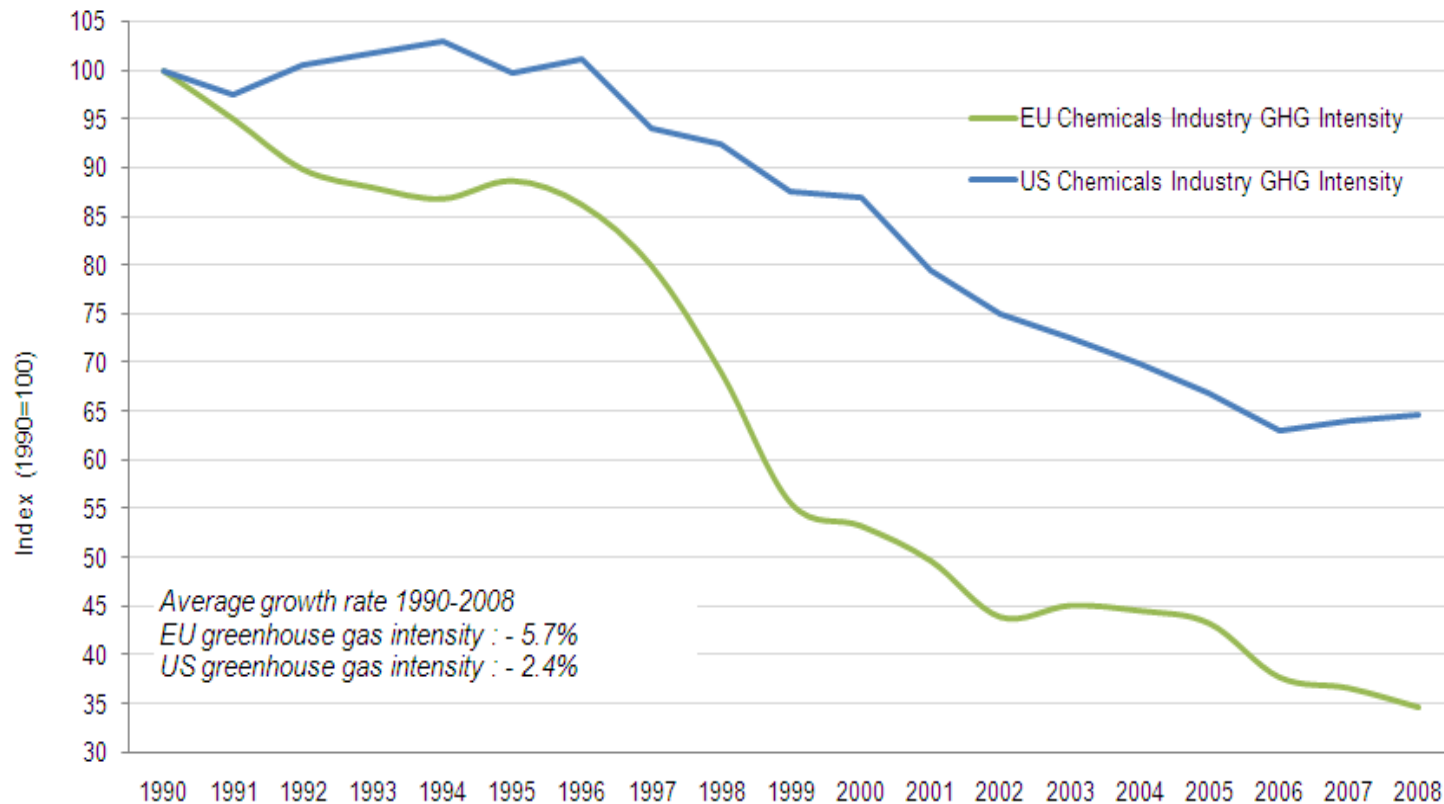
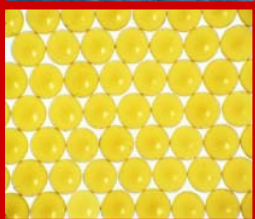
Regional comparison of chemical industry CO₂e intensity*

 Developing regions with strong growth



* Production emissions only, not including extraction and disposal emission
 Source: ACC production forecast (2005-17), SRI, Tecnon; McKinsey analysis

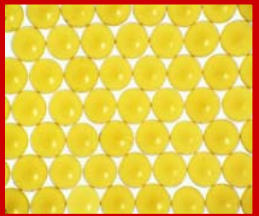
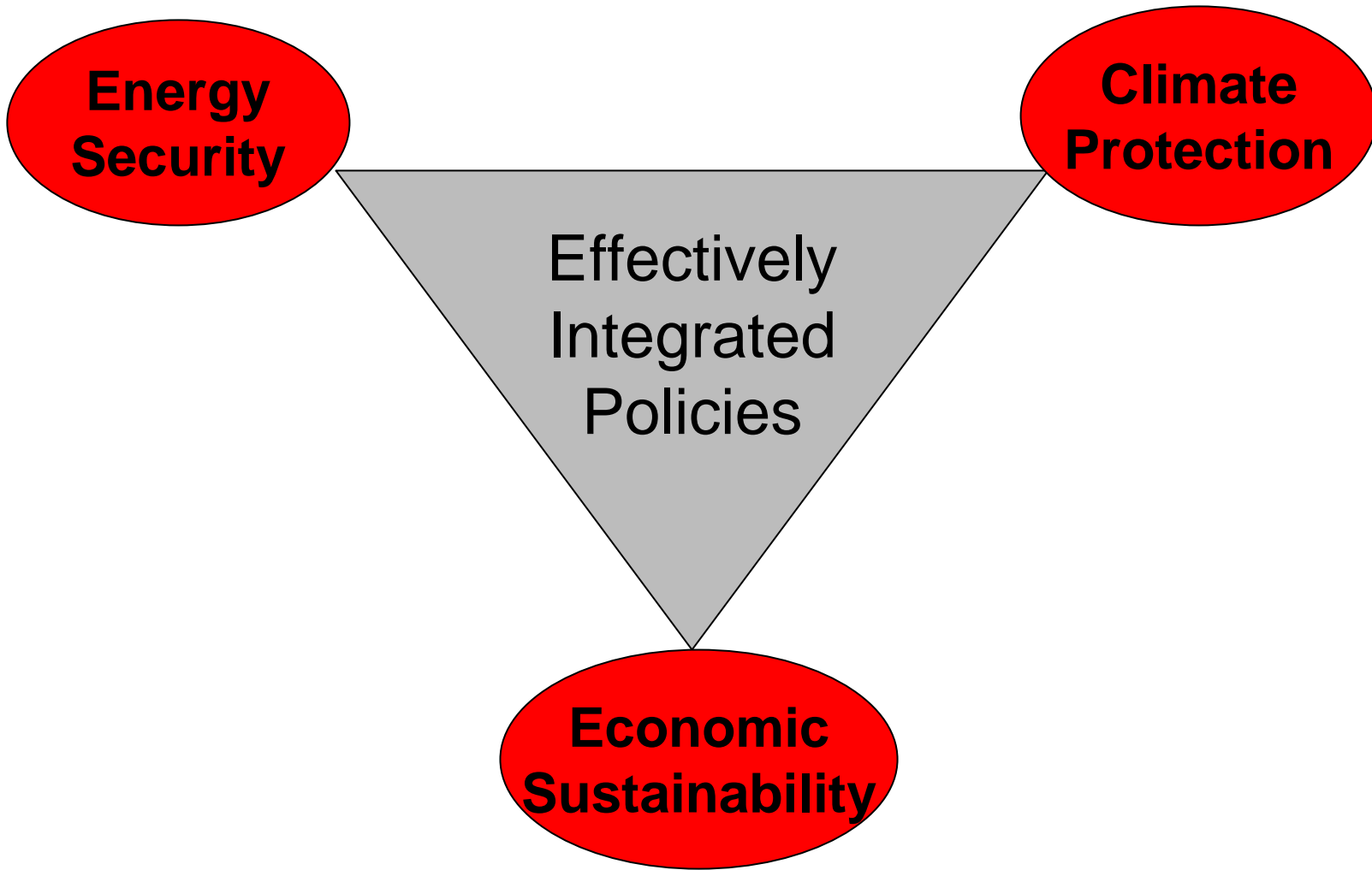
GREENHOUSE GAS EMISSIONS INTENSITY

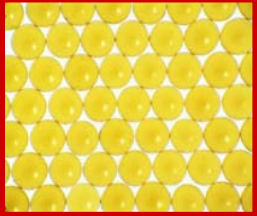


*including pharmaceuticals

Source: Cefic Chemdata International, ACC and European Environment Agency (EEA)

SUCCESSFUL LOW CARBON ECONOMIES





BUILDING LOW CARBON ECONOMIES

TECHNOLOGY SOLUTIONS TO ENABLE ENERGY SAVINGS

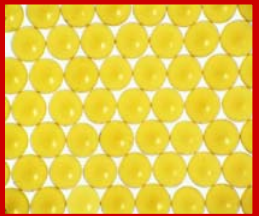
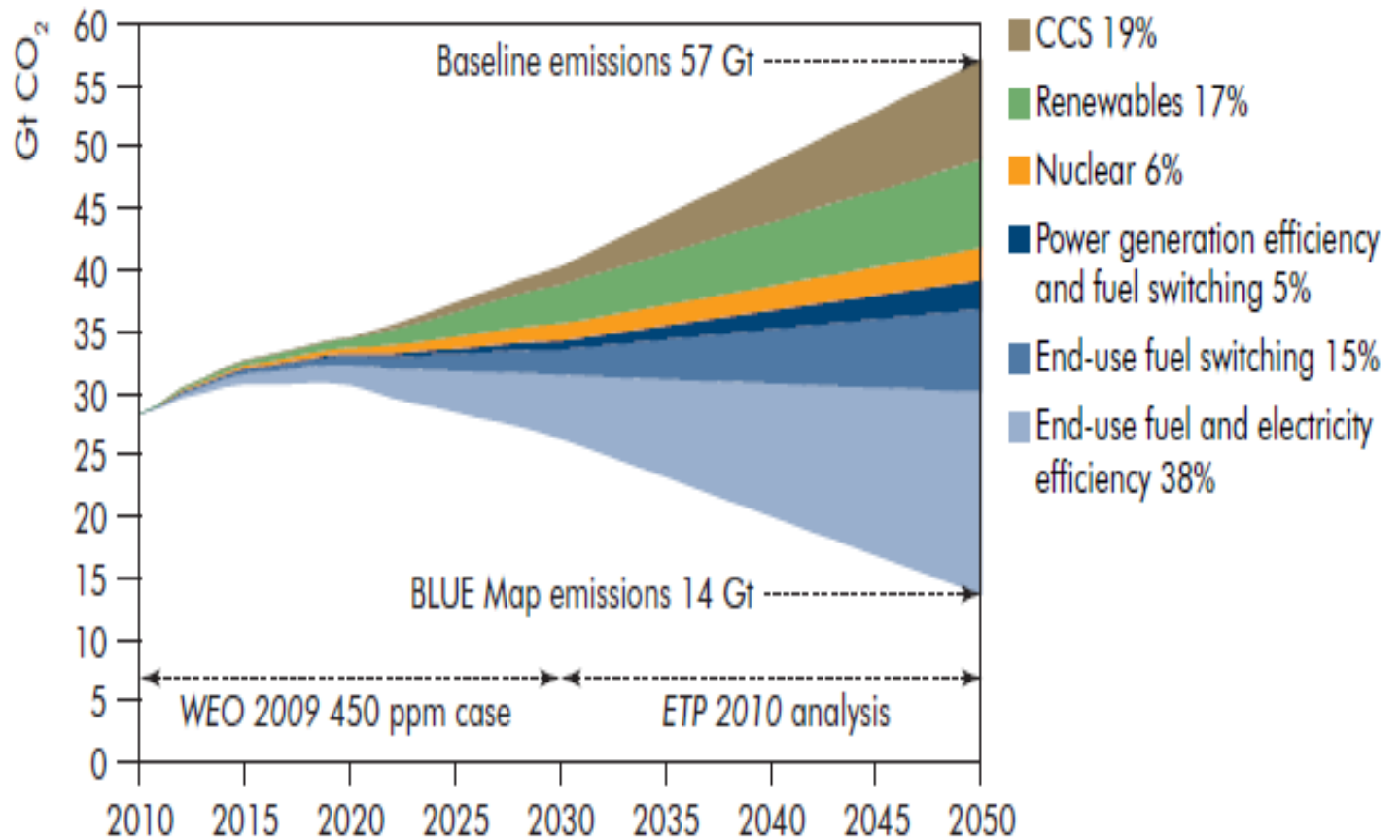
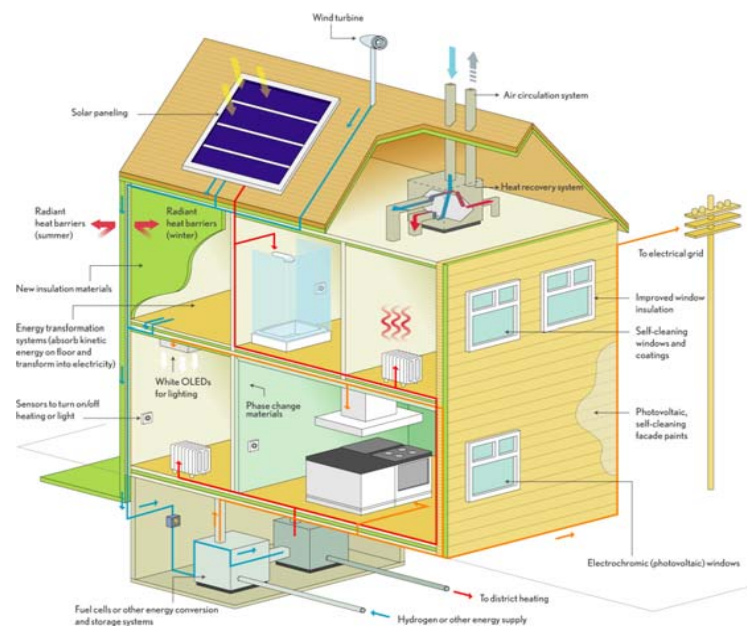
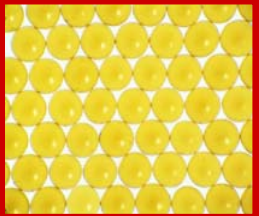


Figure ES.1 ► Key technologies for reducing CO₂ emissions under the BLUE Map scenario

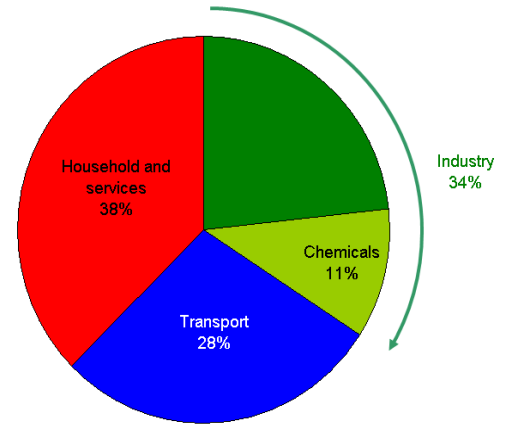


Source: IEA

EU CHALLENGE IS CONSUMPTION (CHEMICAL INDUSTRY CUSTOMERS)



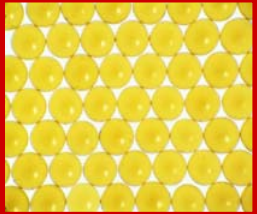
Energy consumption in the different economic sectors (fuel and feedstock)



Source: Eurostat



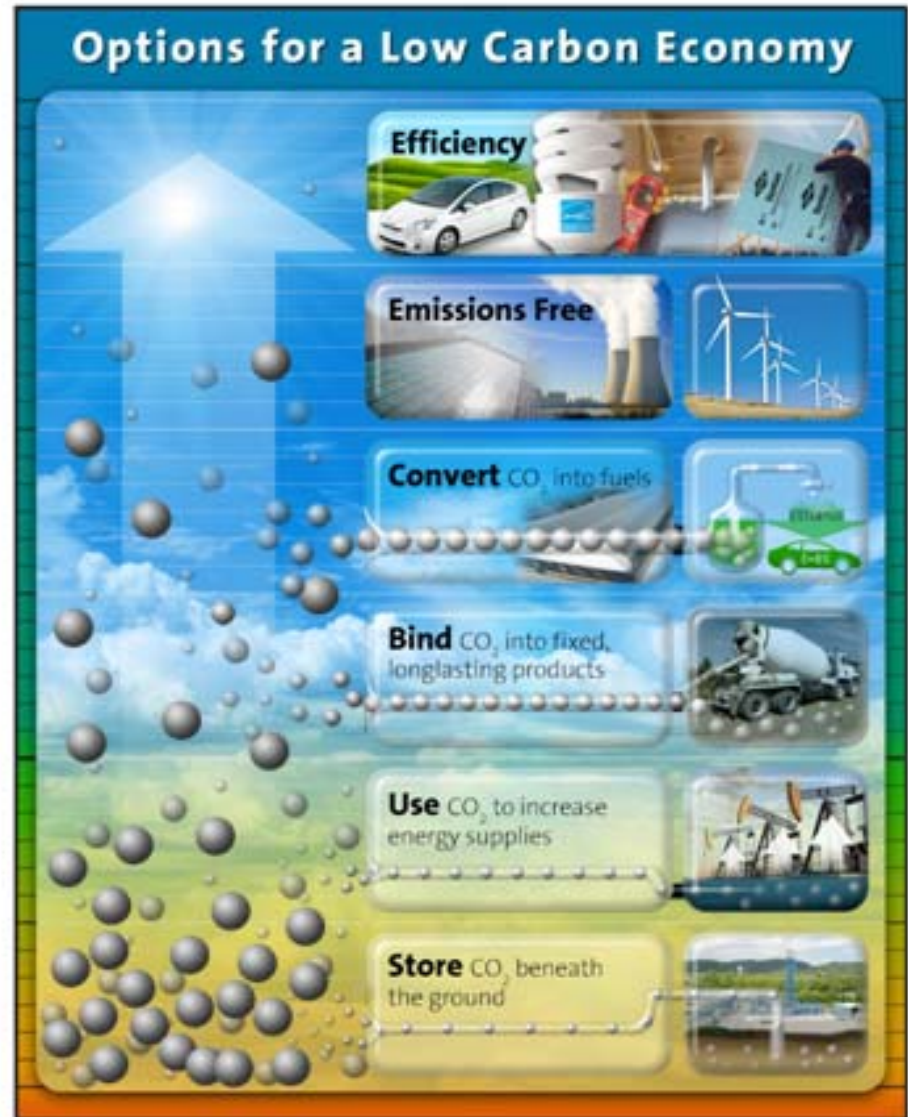
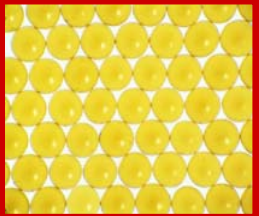
Different Ideas On Making Consumption Less GHG Intensive

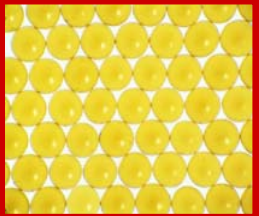


A PORTFOLIO FOR MORE SUSTAINABLE PRODUCTION **AND** CONSUMPTION



Enabling the Green Economy





TECHNICAL DETAILS OF OUR CO₂ SOLUTIONS: (CONFIRMED VIA PROJECT WITH MCKINSEY) CHEMICAL INDUSTRY SAVES MORE THAN 2X WHAT IT EMITS

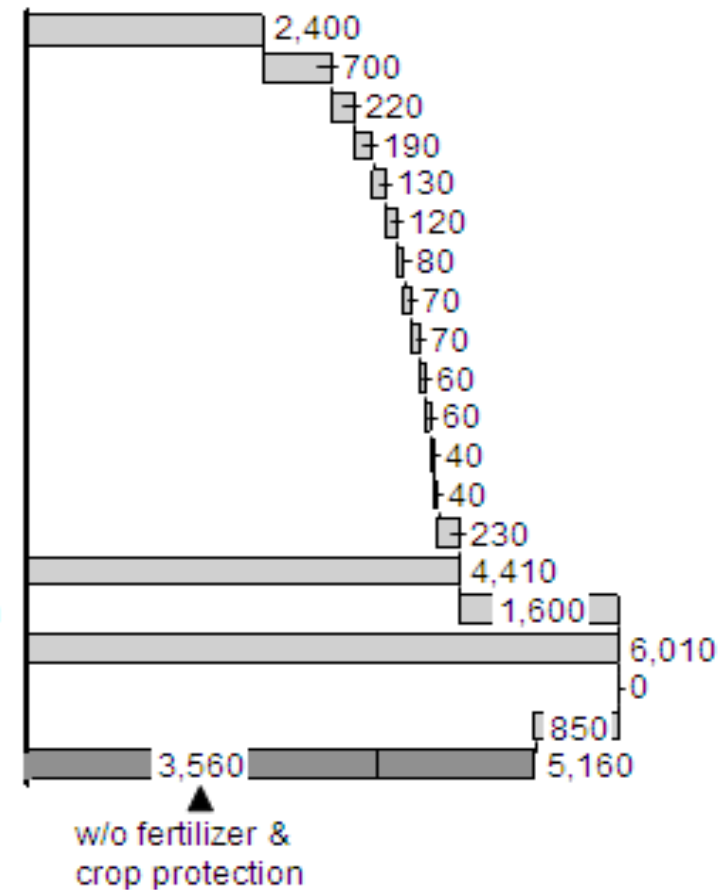
**Net abatement
2005
MtCO₂e**

Net abatement
volume per
chemical
application

Not explicitly calculated
No realistic alternative

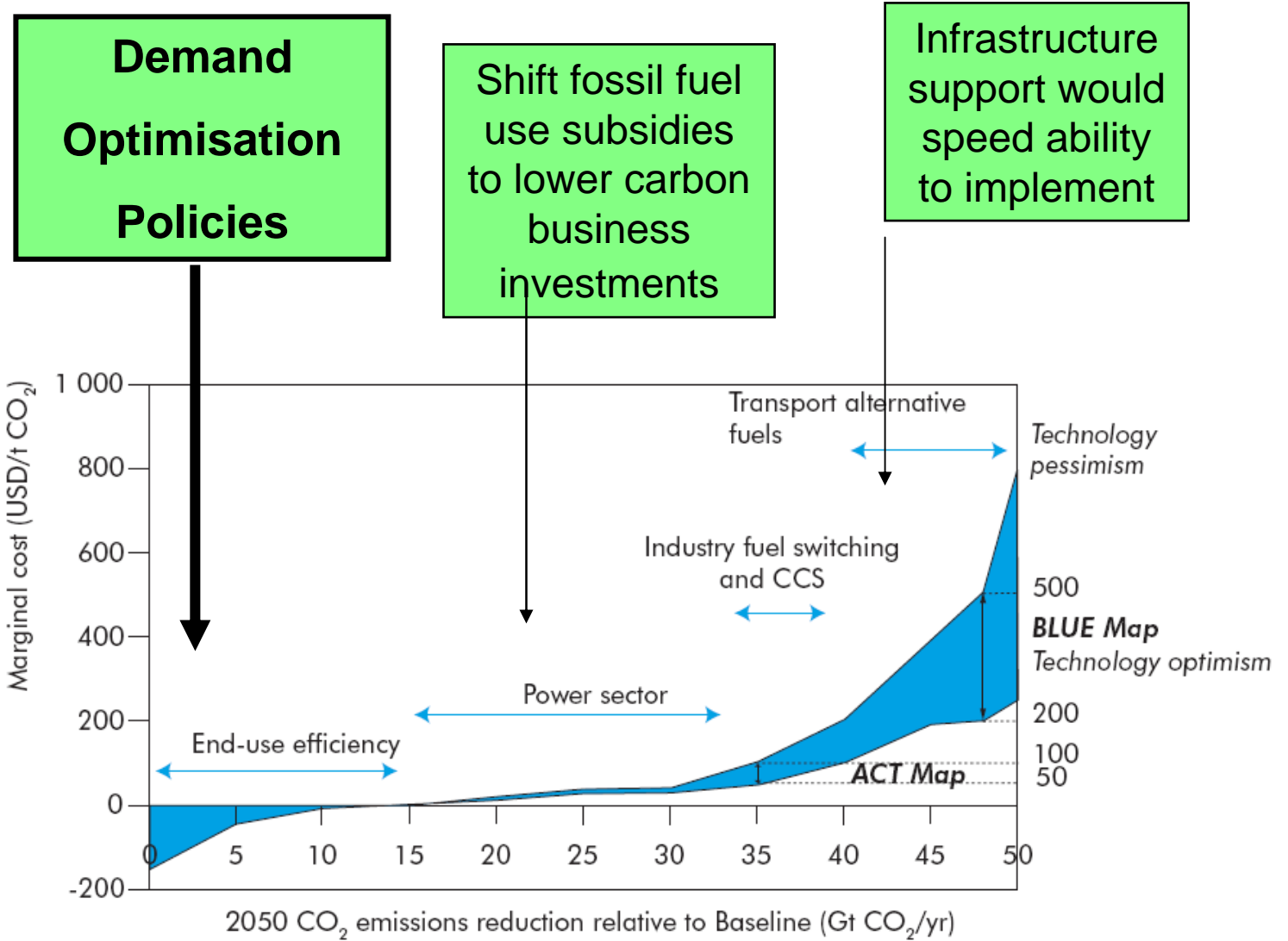
- Insulation
- Lighting
- Packaging
- Marine antifouling
- Synthetic textile
- Automotive weight
- Low-temp. detergents
- Engine efficiency
- Piping
- Wind power
- District heating
- Green tires
- Solar power
- Other
- Sub-total
- Fertilizer & crop protection
- Total
- Net

1 : 1
0 : 1

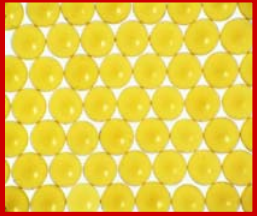


<http://www.icca-chem.org/>

ENERGY TRANSITIONS: MULTI DECADE EVENTS



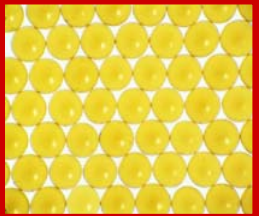
Source: IEA



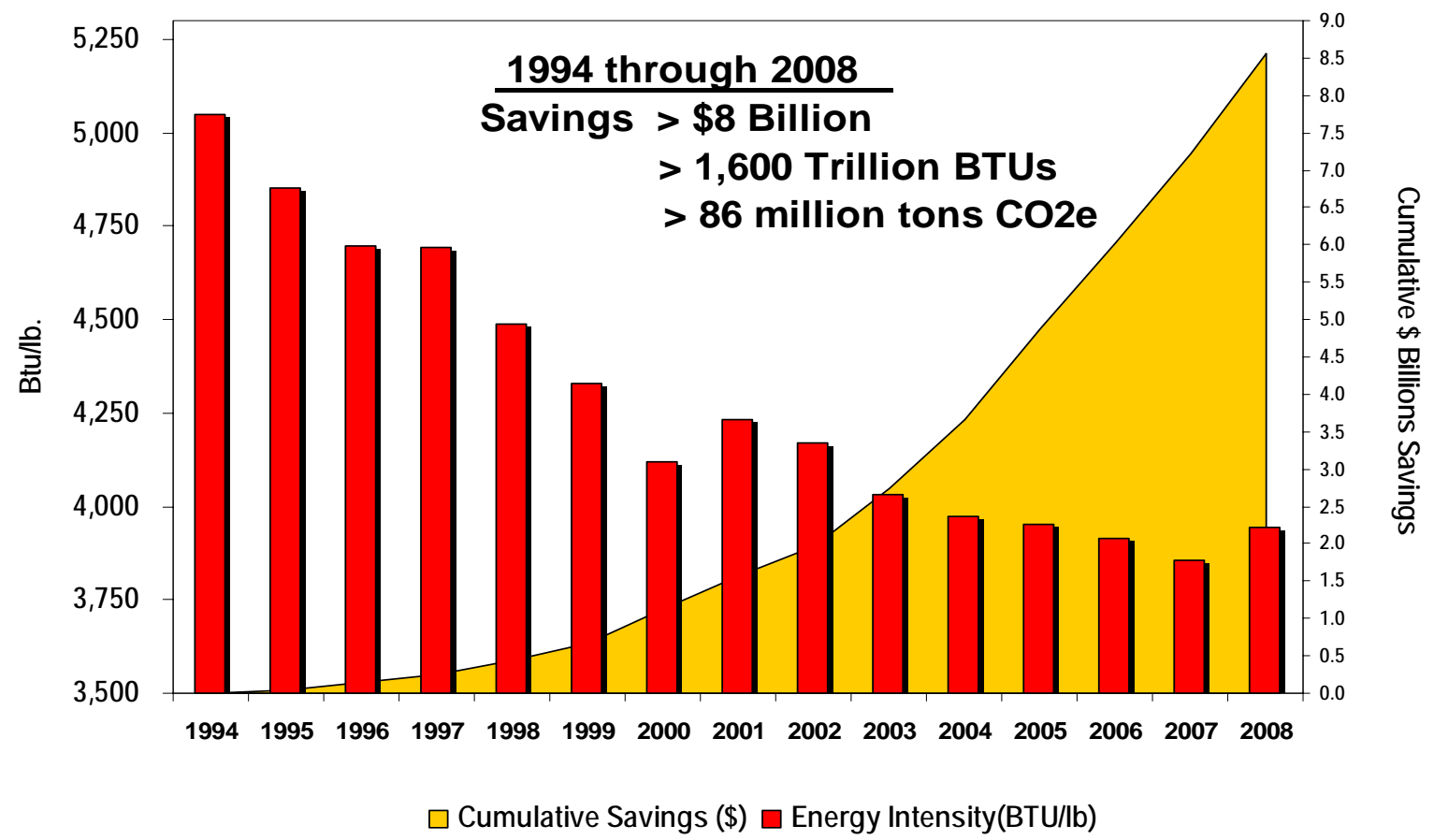
“I’d put my money on the sun and solar energy. What a source of power! I hope we don’t have to wait until oil and coal run out before we tackle that.”

— Thomas Edison
The year – 1931.

LONG TERM INVESTMENT BENEFITS



Energy Intensity Performance



Source: www.Dow.com

REALITIES OF GLOBAL MITIGATION TARGETS

IEA figures on required 2020 CO₂

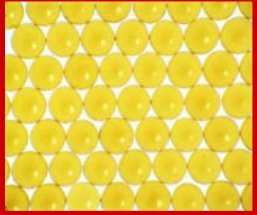
emission reductions:

OECD only ex US: 48%

OECD + US: 27%,

OECD, China, India, Russia, ME: 12%

All countries: 10%



SUMMARY

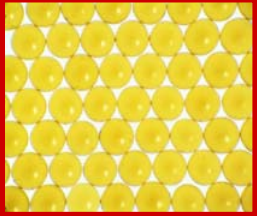


Chemical industry is committed to further reduce emission intensity AND **improve substantial net savings** enabled by its offerings

Carbon markets have key role to accelerate proven technologies AND **globalise low cost abatements**. Misuse of tool will slow both.

Europe's low carbon economy **must tackle consumption** AND incentivise (not punish) more sustainable production.

Get Global
Leverage Markets AND Technology
Start NOW but start SMART (lowest cost options - first)



Track our progress at
www.dow.com/commitments

THANKS!

