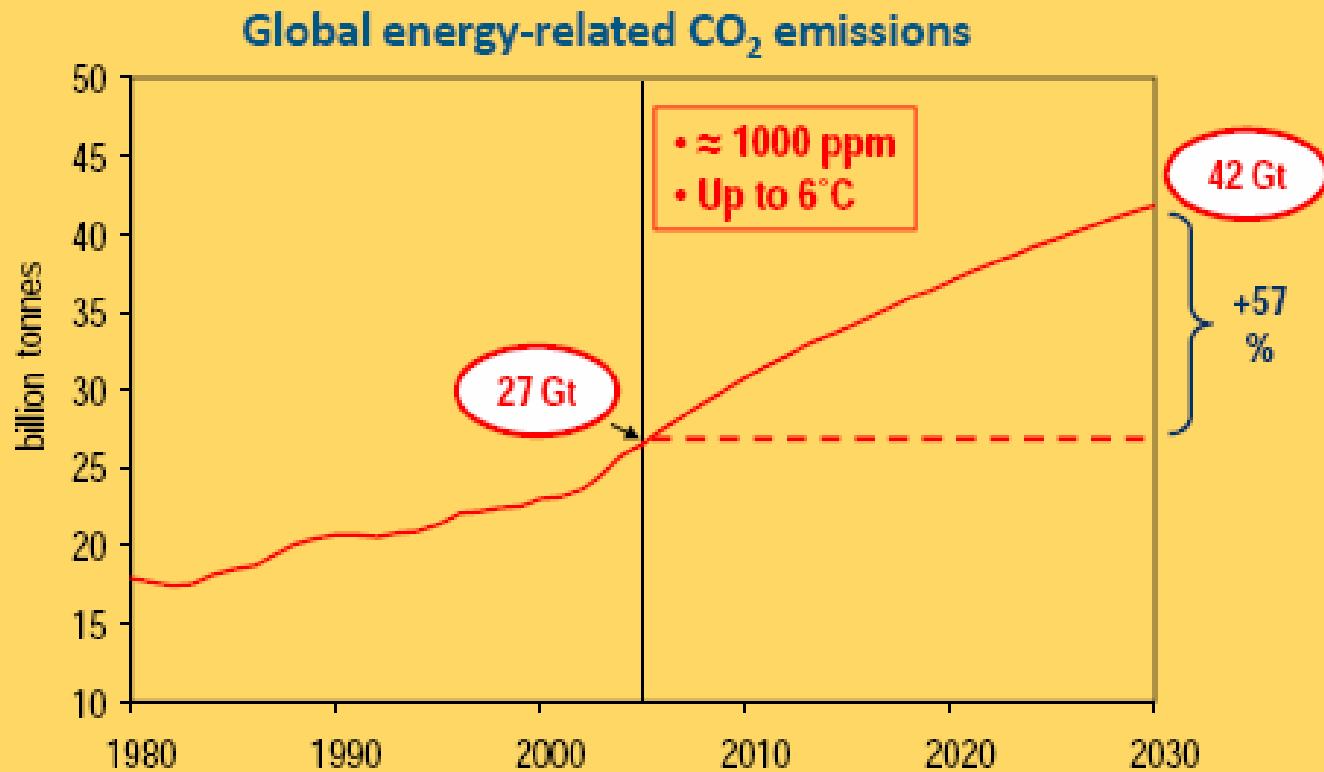


URGENCY

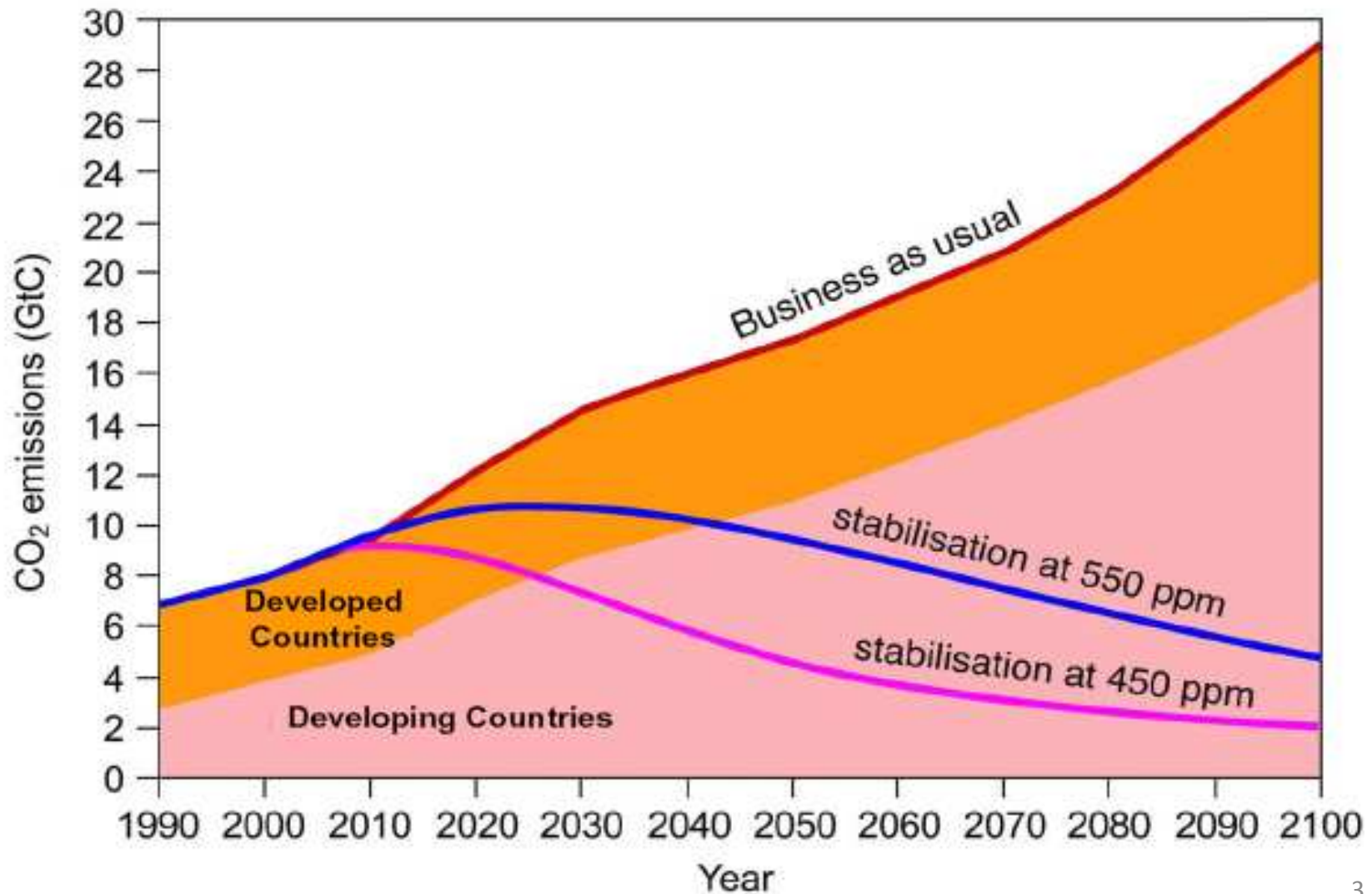


ON THE ROAD TO + 6°C



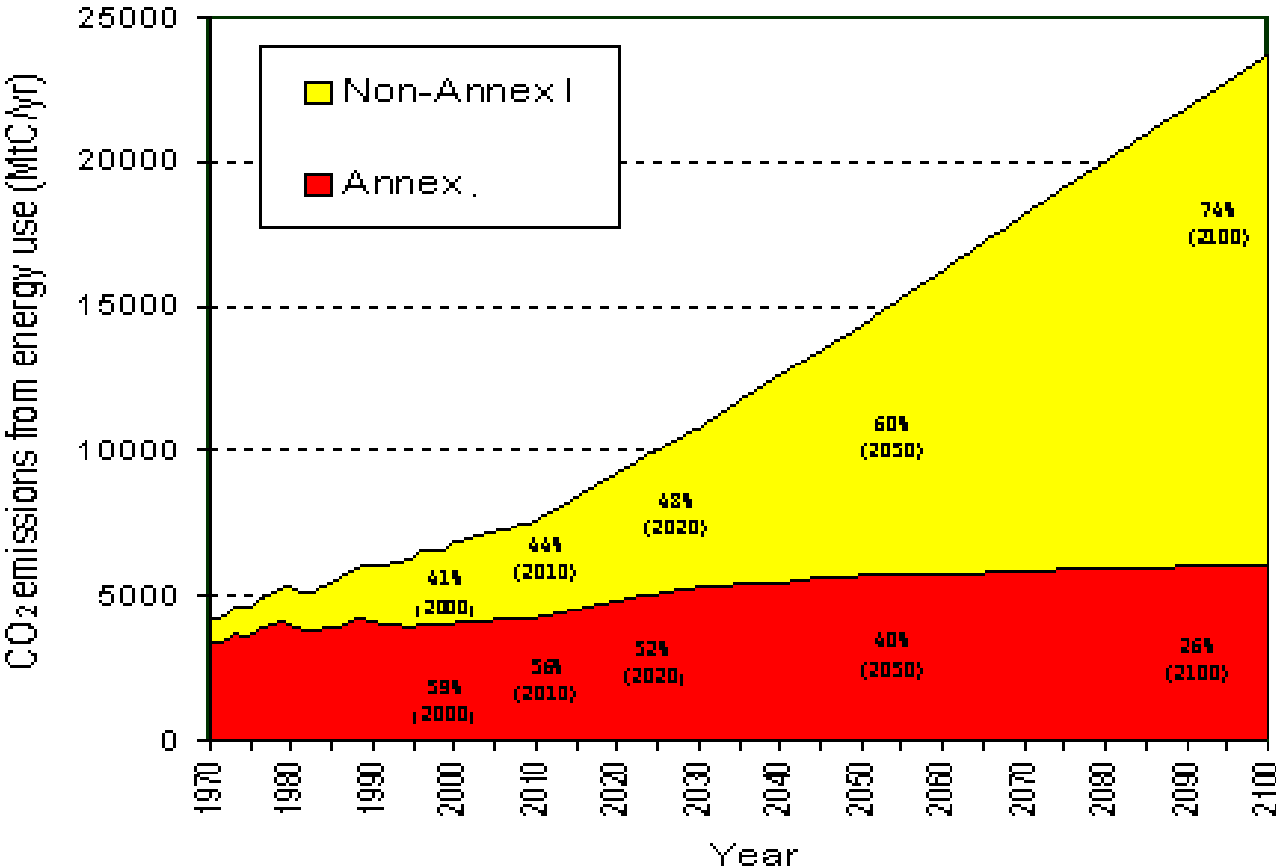
Global emissions rise inexorably on current policies, driven mainly by coal use in China, India and other developing countries

The Rise of emissions to 2100

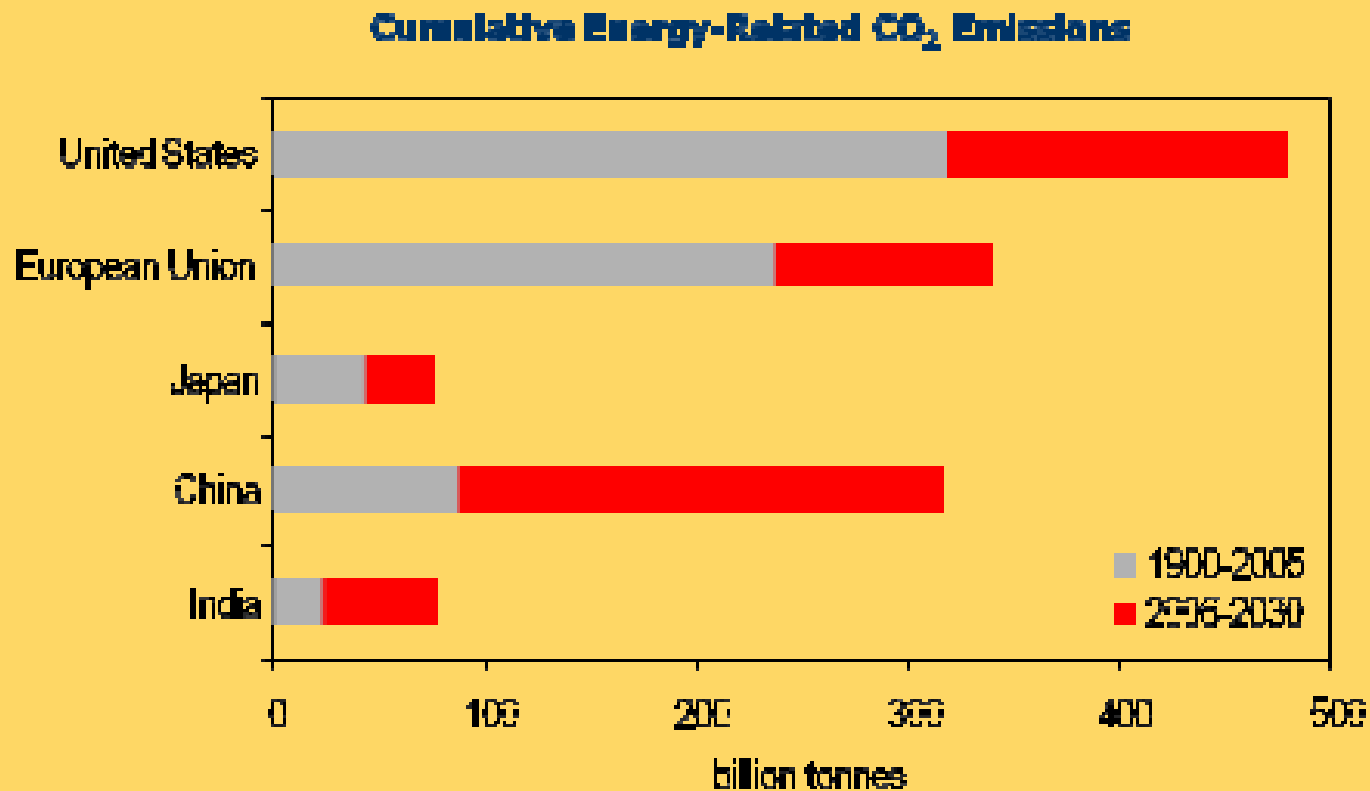


NOT ONLY DEVELOPED COUNTRIES

Emissions Projections



60 % of global increase from China and India

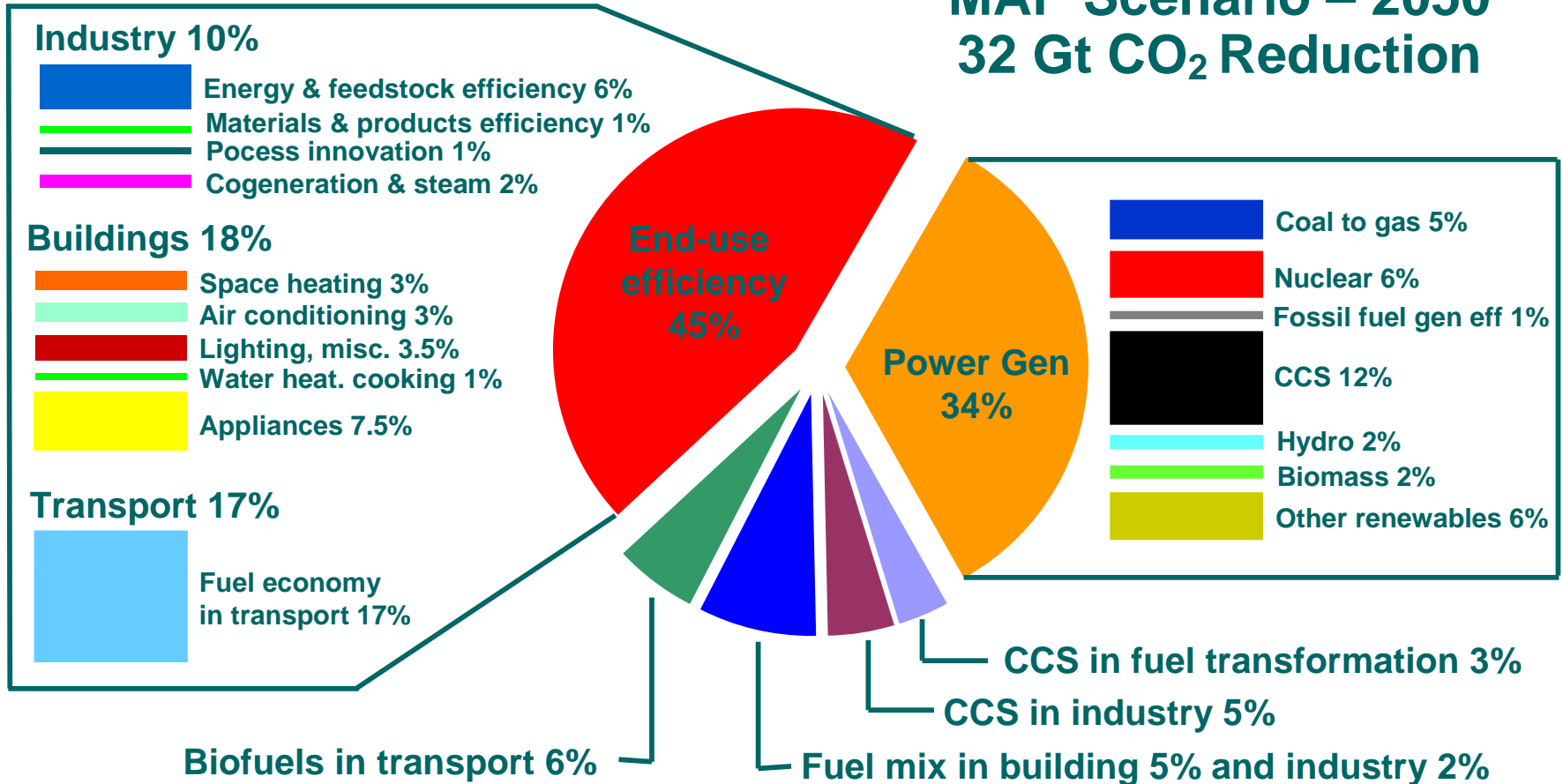


*Around 60% of the global increase in emissions in 2005-2030
comes from India and China*



Emission Reduction by Technology Area ACT Map Scenario

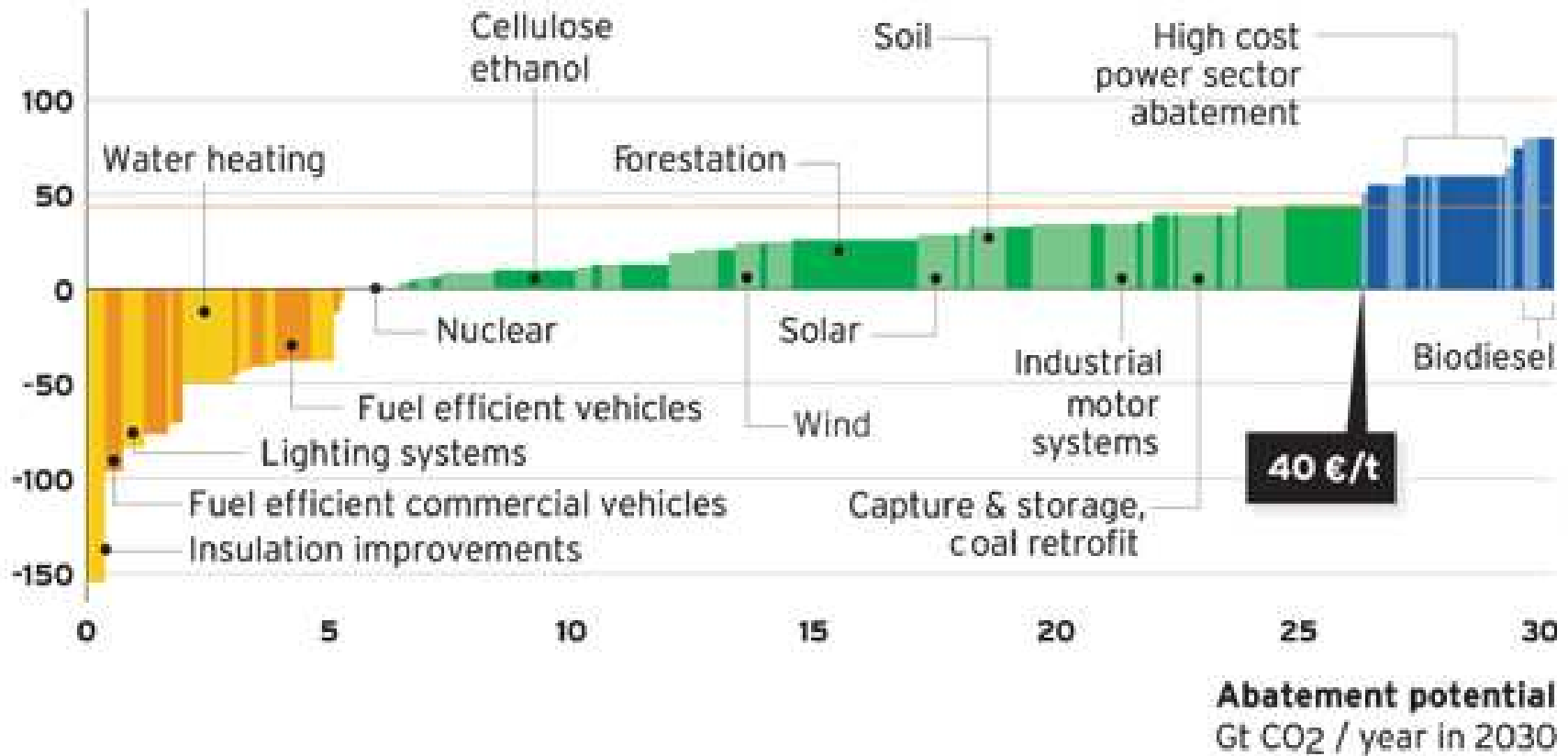
MAP Scenario – 2050
32 Gt CO₂ Reduction



***Improved energy efficiency
is the most important contributor to reduced emissions!***

Global cost curve

Marginal cost of abatement - examples
€/t CO₂



■ Negative abatement marginal cost

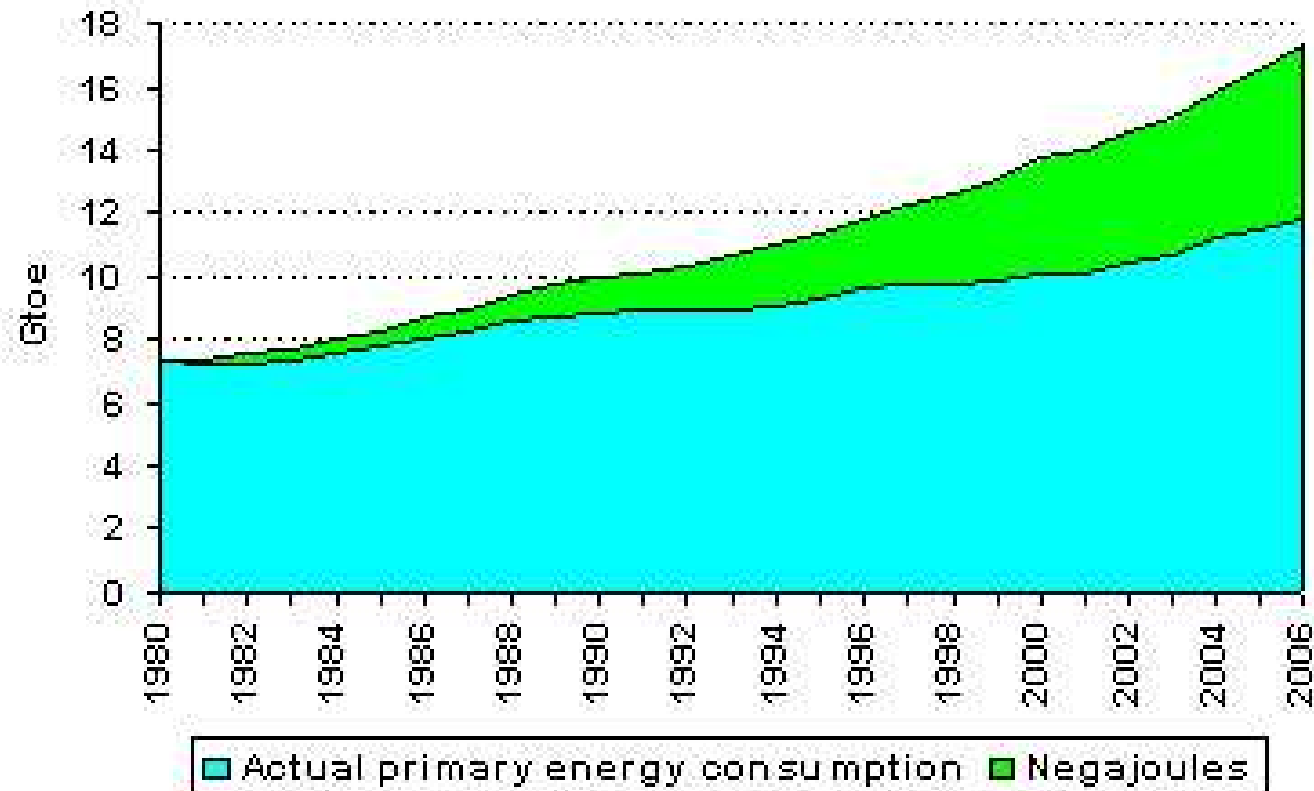
■ Abatement marginal cost below €40/t

■ Abatement marginal cost above €40/t

EFFICIENCY HAS IMPROVED

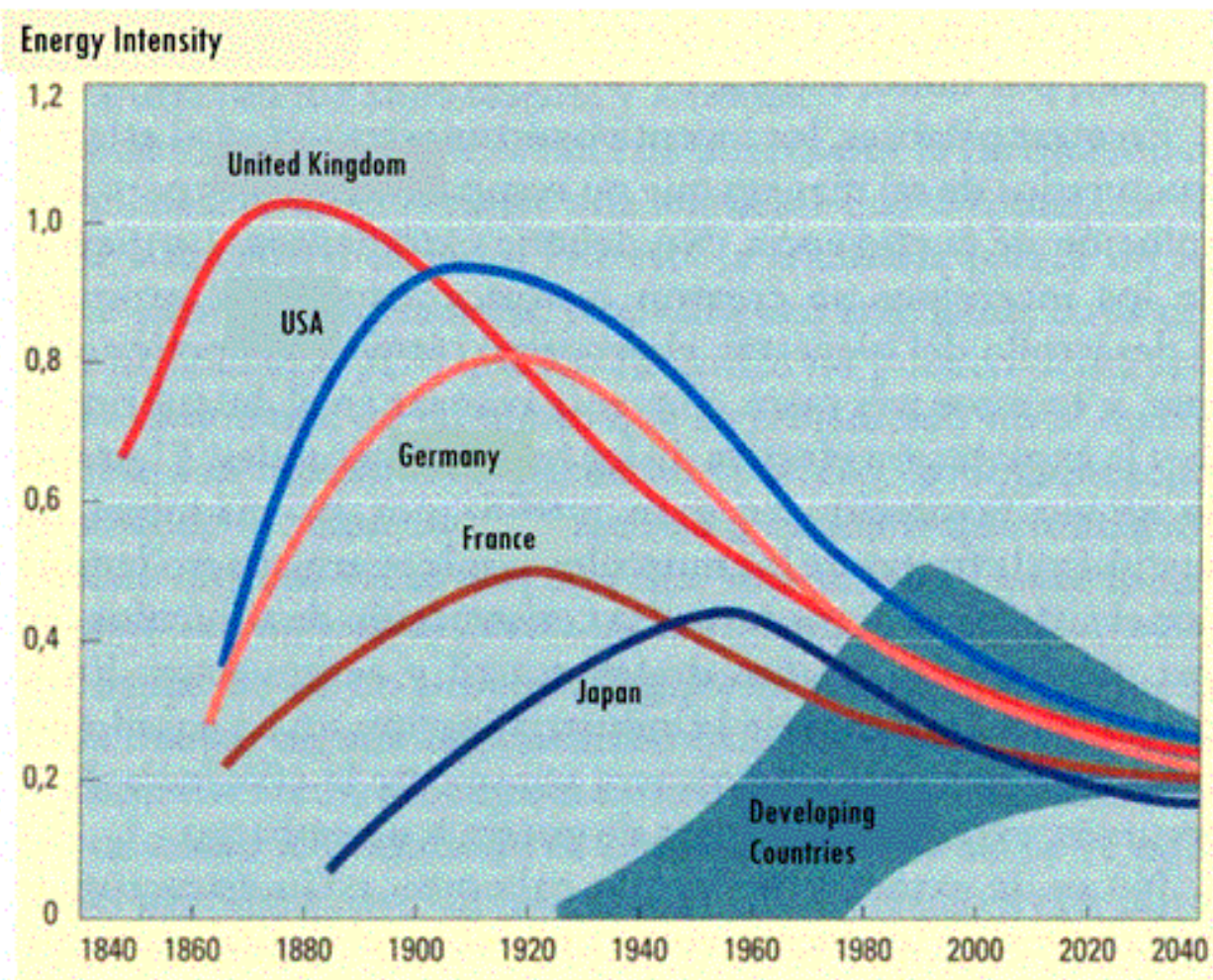
Figure 2.5: Energy savings from energy intensity decrease at world level

Economies d'énergie au niveau mondial



Source: ENERDATA

Low Energy Intensity – an Indicator of Progress



2007 HEILIGENDAMM



16 RECOMMENDATIONS

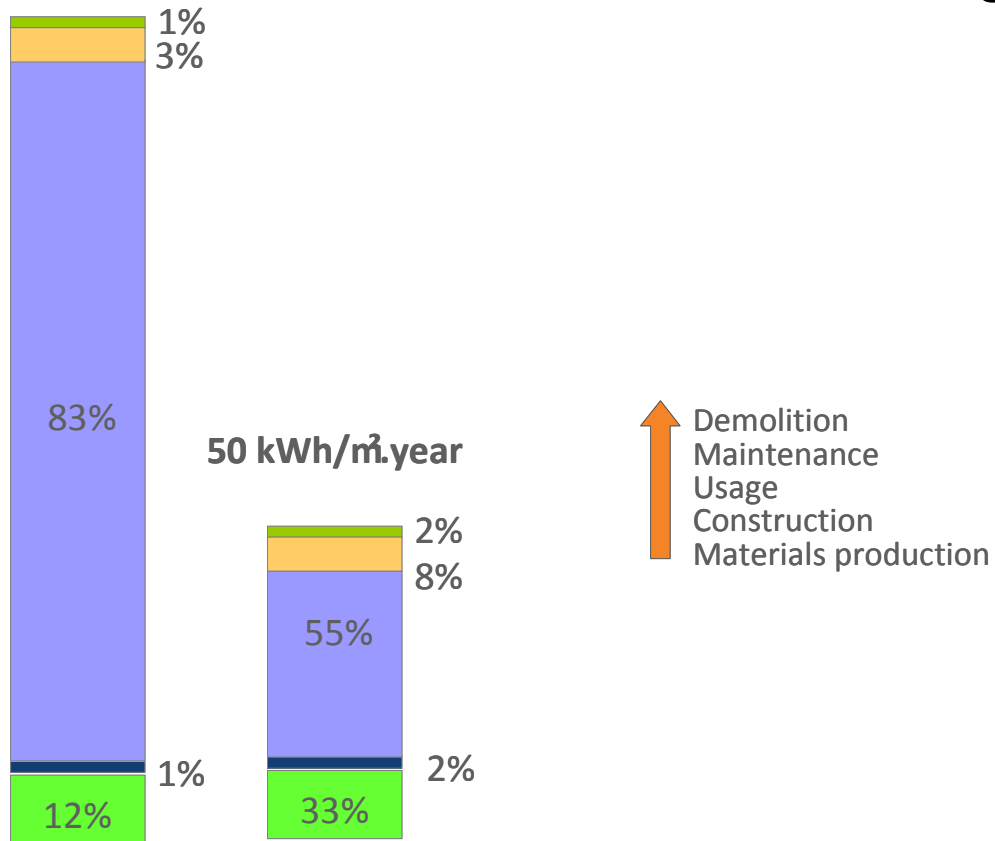
from IEA : *implement!*

- BUILDINGS
- APPLIANCES
- INDUSTRY
- TRANSPORT
- CROSS SECTORAL

Building Life-Cycle Energy consumption

200 kWh/m².year

it shows the value of regulation



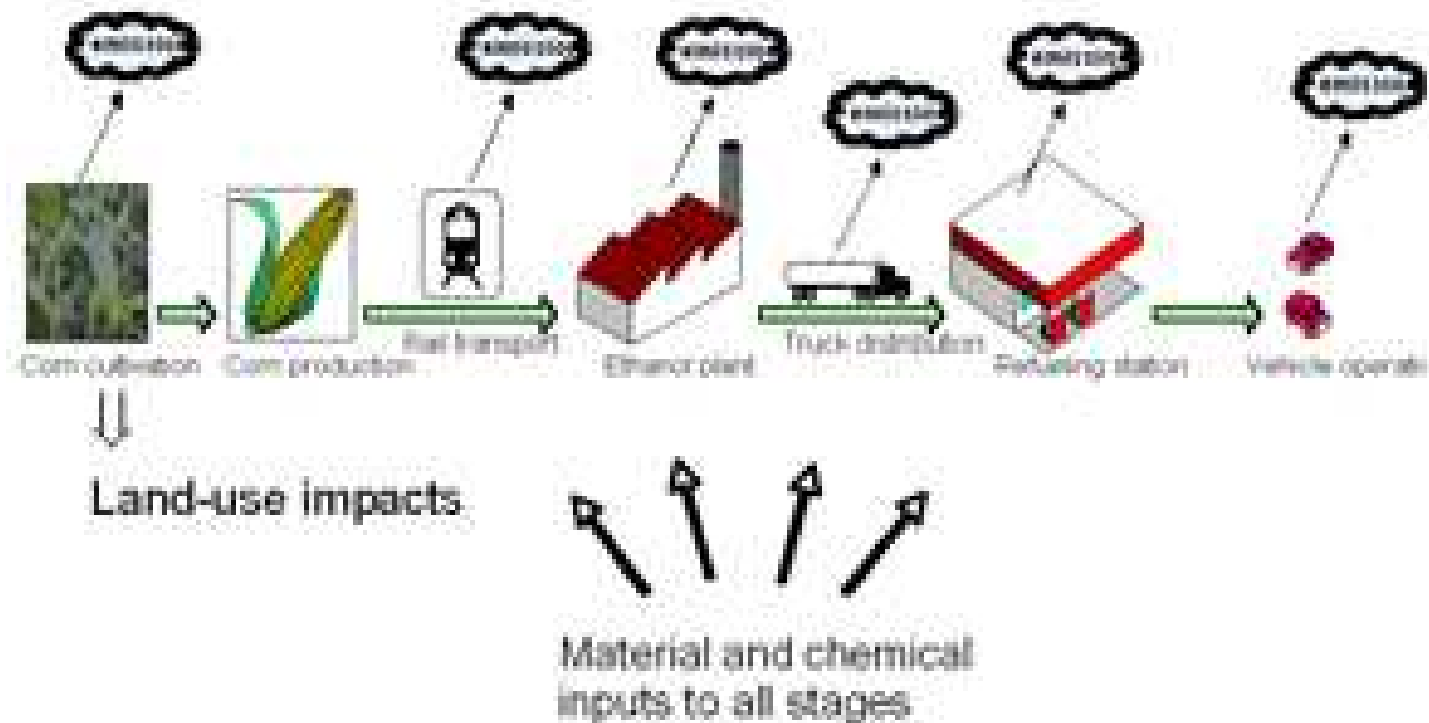
Source: K. Adelberth, Lund University, Lafarge

ECO-CONCEPTION



life-cycle analysis

Corn-to-ethanol fuel pathway



Energy		Air Conditioner
Manufacturer		Logo
Outside Unit		ABC 123
Inside Unit		ABC 123
<p>More efficient</p> <p>Less efficient</p>		
Annual Energy Consumption, kWh in cooling mode <small>(Actual consumption will depend on how the appliance is used and climate)</small>		1750
Cooling output	kW	13.5
Energy Efficiency Ratio <small>Full load (the higher the better)</small>		3.9
Type	Cooling only	←
	Cooling + Heating	—
	Air cooled	←
	Water cooled	—
Noise (dB(A) re 1 pW)		
Further information is contained in product brochures		
<small>Form EN 814 Airconditioner Energy Label Directive YXXXXE</small>		

a successful
policy :
energy
efficiency
labels

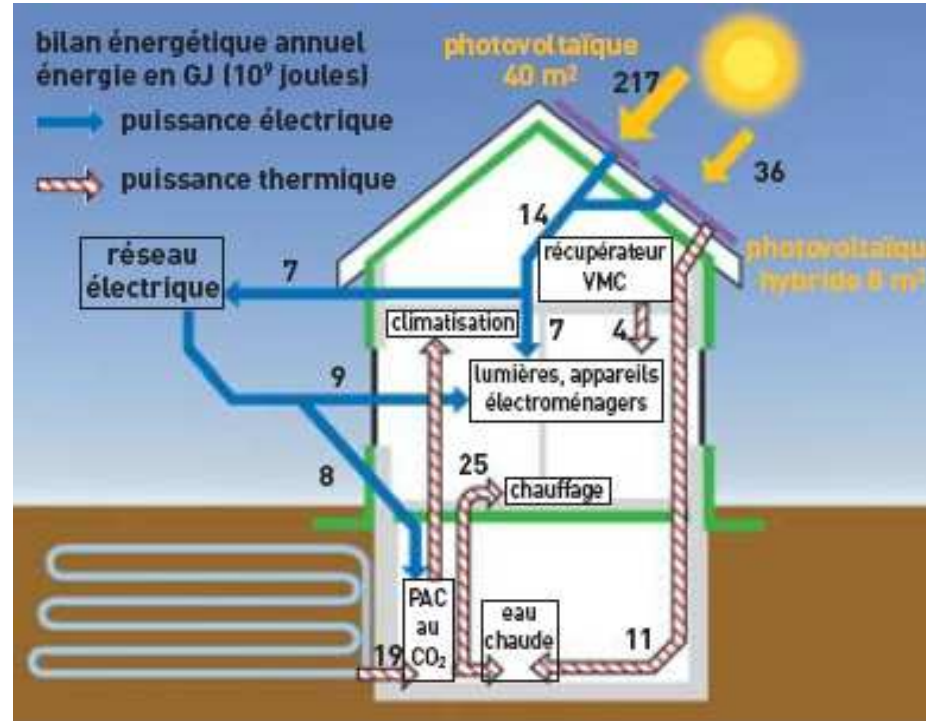
WASTE

recycling metals and glass



Incinerating with energy recovery

Low Energy Consumption Habitat



Switzerland: Minergie, USA: LEED, Building America, Germany: PassivHaus, Ensan, UK: BREEAM, Austria: Haus der Zukunft, Nederland: Compass, EOS, France: HQE

Building energy savings



**Common
sense**

Thermal insulation

Ventilation

Windows

Provencal or Canadian Well

Mitigating the air of a building
by sending it through a 50 meters
long pipe buried underground
at 2 meters deep.



Electronics for Smart Houses

- Electrochromic devices
(opacity of glass)
- Smart windows
- Window heat pumps
- Programming heating
lighting, ventilation



Low Energy Consumption Habitat

Technologies reduce the need for energy

- Walls fostering natural convection
- Solar devices for heat and electricity
- Geothermal systems and heat pumps
- Phase change materials



paraffin wax

Aiming to energy positive buildings



TWO OPPOSED DESIGNS

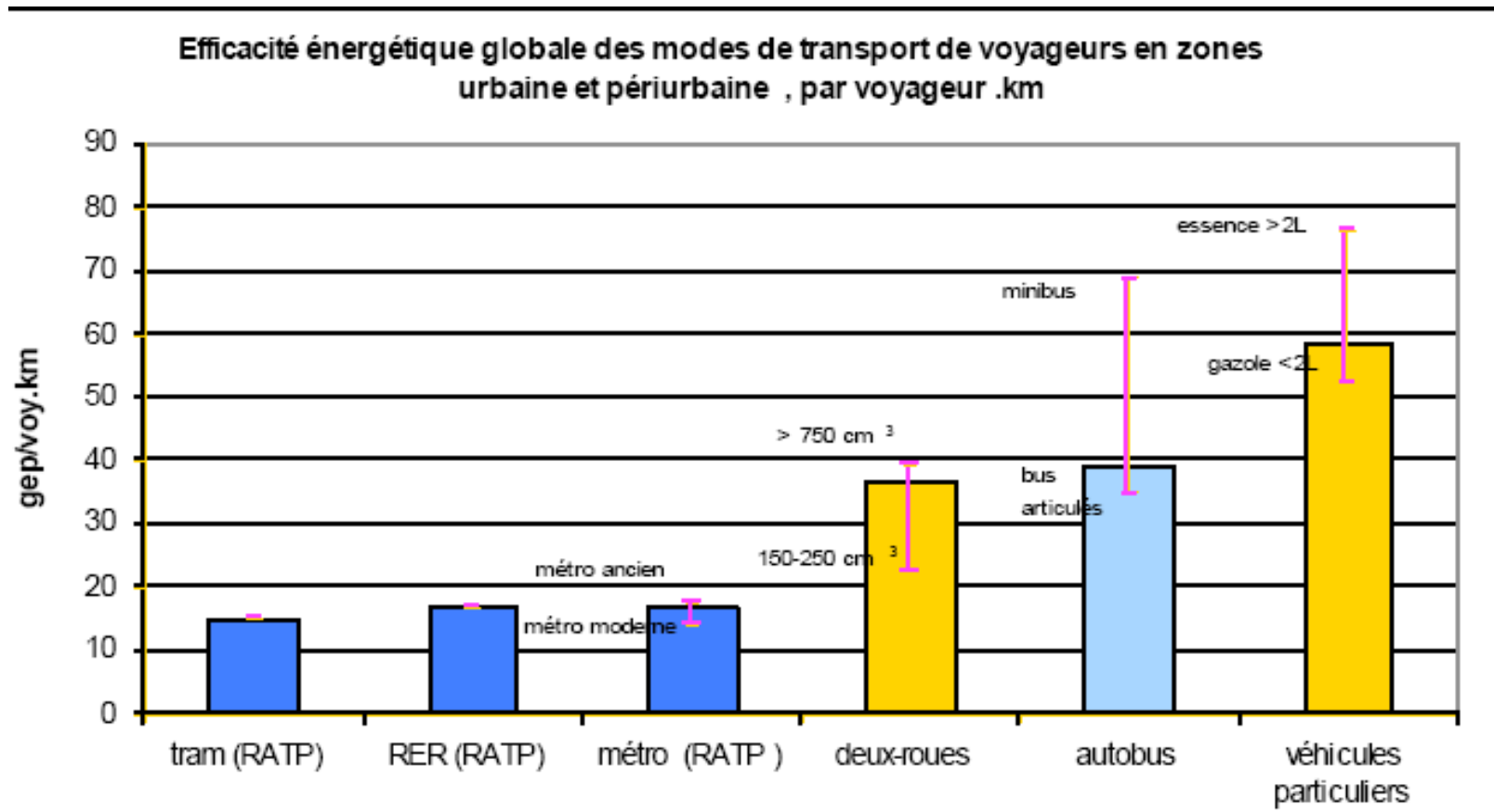
Hong Kong : optimisation
of space. Compact organisation



Los Angeles : wide city with large suburbs
and an organisation devoted to cars

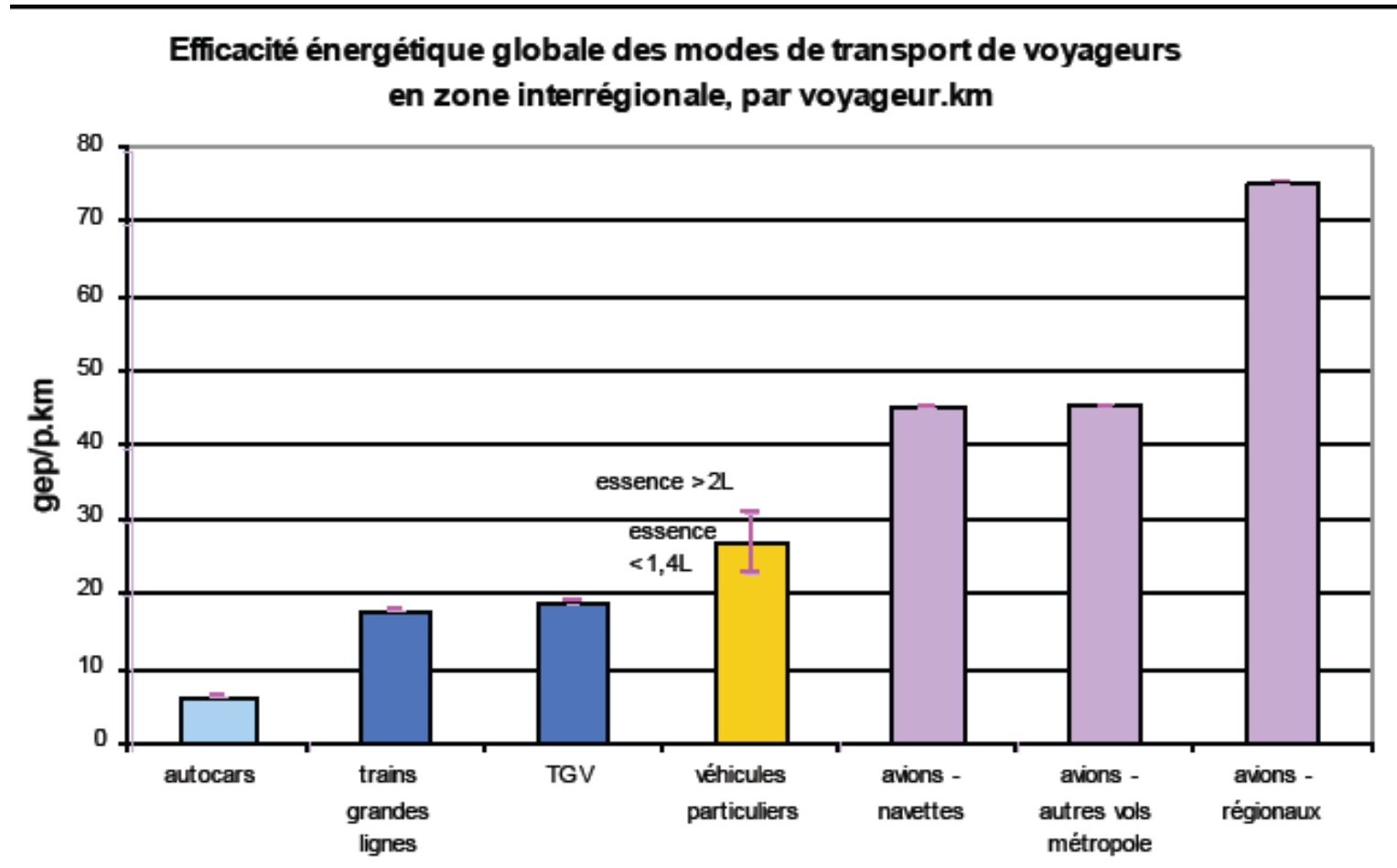
ENERGY EFFICIENCY IN TRANSPORT

at the city level



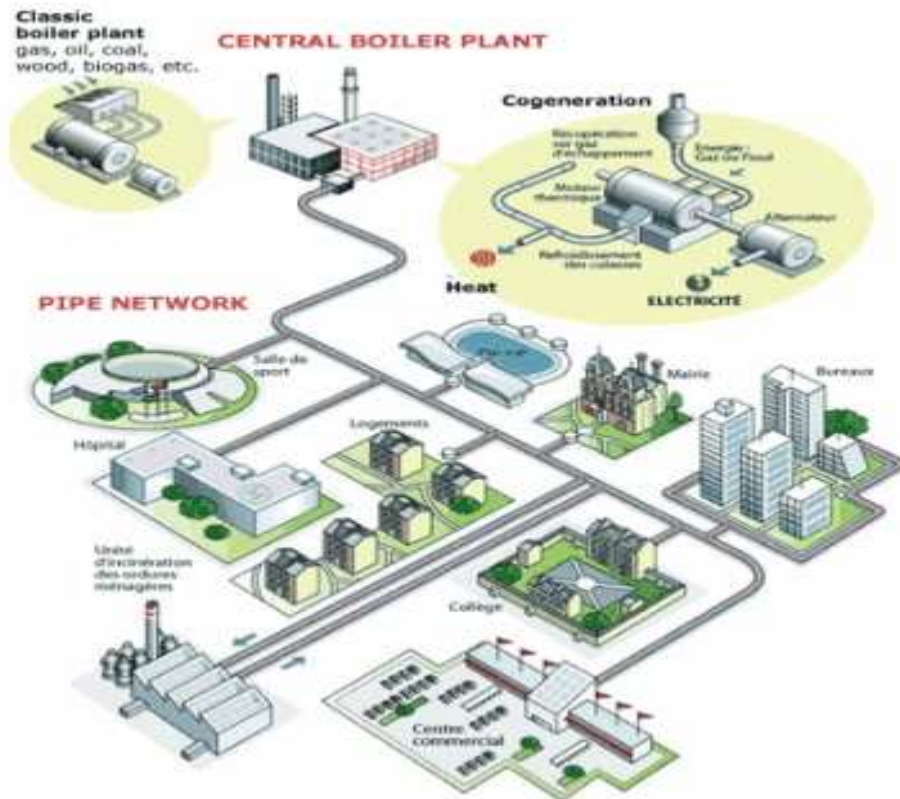
ENERGY EFFICIENCY IN TRANSPORT

at inter-regional level



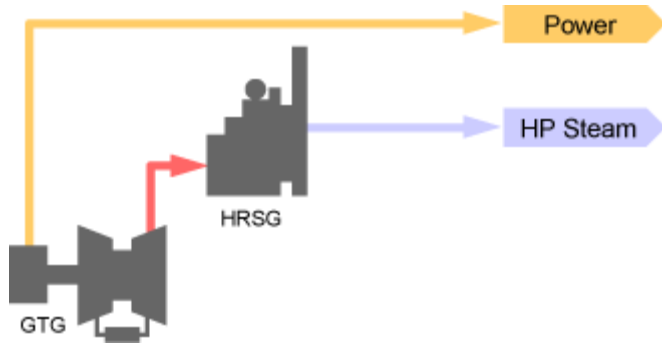
District Heating

A solution to improve air quality



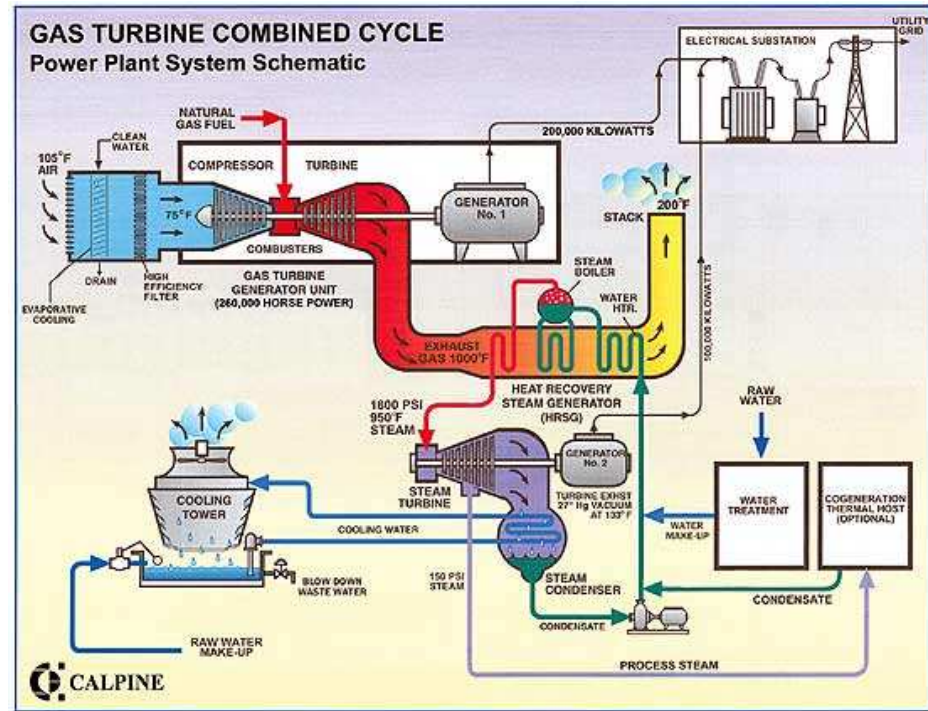
- Environmental protection
 - Reduction in local air pollution
 - Reduction in CO2 emission
- Energy saving
 - Economy of scale in heat production (More efficiency)
 - Reuse of waste energy (Cogeneration, Incineration)
- Other benefits
 - Better use of space
 - Comfort of citizen

INDUSTRY



Cogeneration

Combined cycles



SMART GRID



TRANSPORTS



Dryden Flight Research Center ECN 12604 Photographed 1980
Testing the Gossamer Albatross NASA photo



THE NEW CHAMPIONS



AGRICULTURE



COOPERATION

- TOOLS, standards, certificates, incentives, taxes
- POLICIES, regulations, negawatts
- FLEXIBILITY, market mechanisms
- BINDING COMMITMENTS
- REGIONAL OR INTERNATIONAL CONVENTIONS



COPENHAGEN 2009





MOBILIZATION

THANK YOU

YOU HAVE
the POWER™

