

60 years
BP Statistical Review



60

BP ENERGY OUTLOOK

2030

LONDON, JANUARY 2011

CHRISTOPH RUEHL, GROUP CHIEF ECONOMIST



OUTLINE

GLOBAL TRENDS

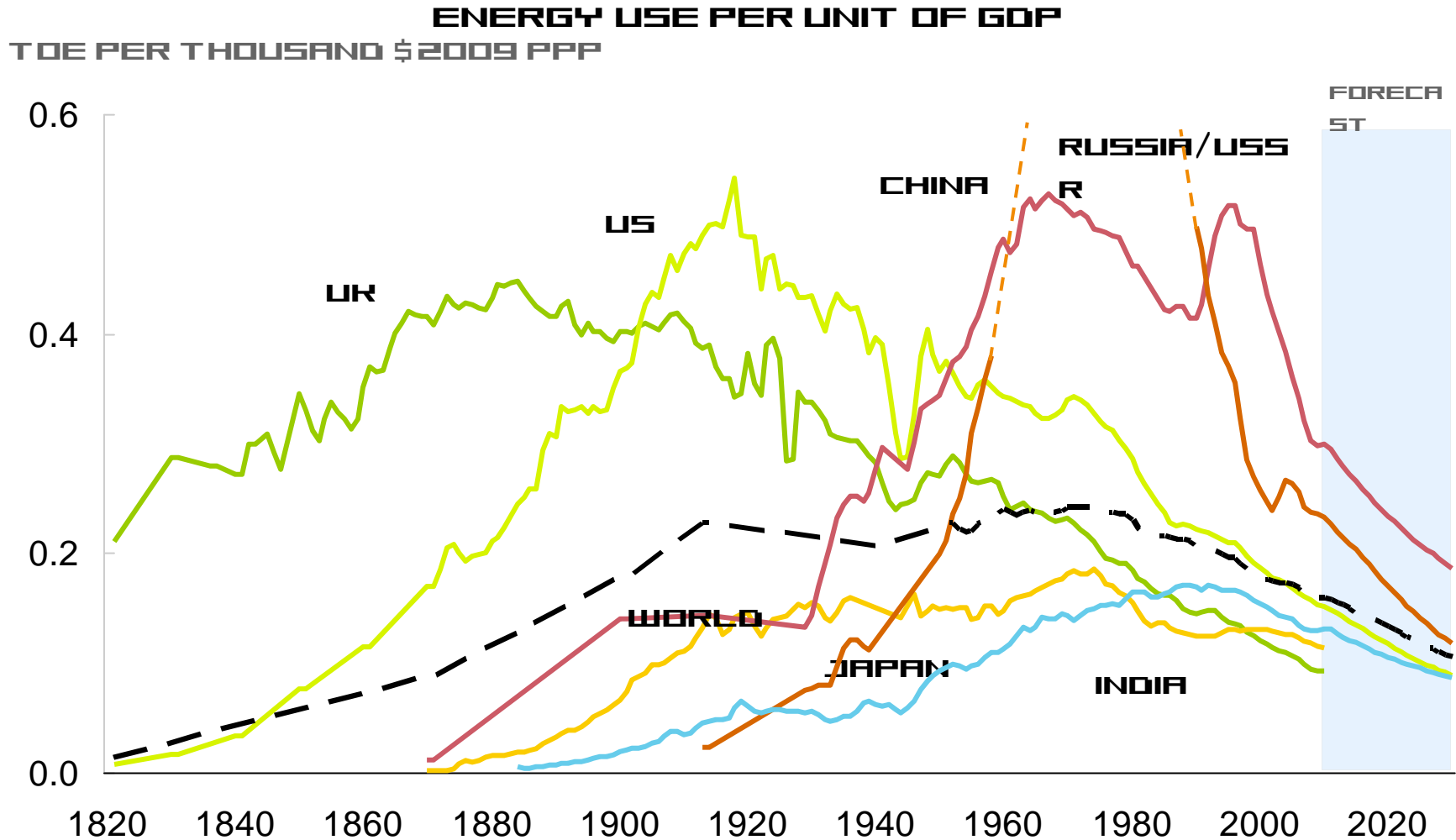
LIQUID FUELS

GAS, POWER AND COAL

WHAT CAN BEND THE TREND?



HISTORICAL TRENDS AND PATTERNS OF DEVELOPMENT

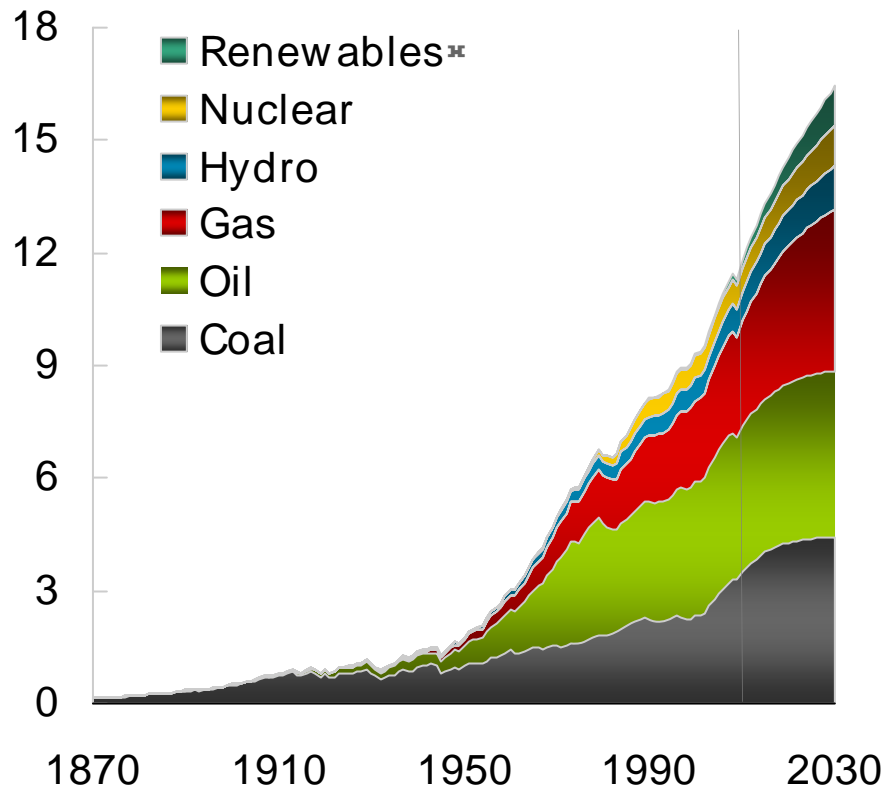




THE LONG VIEW: ENERGY CONSUMPTION AND FUEL MIX

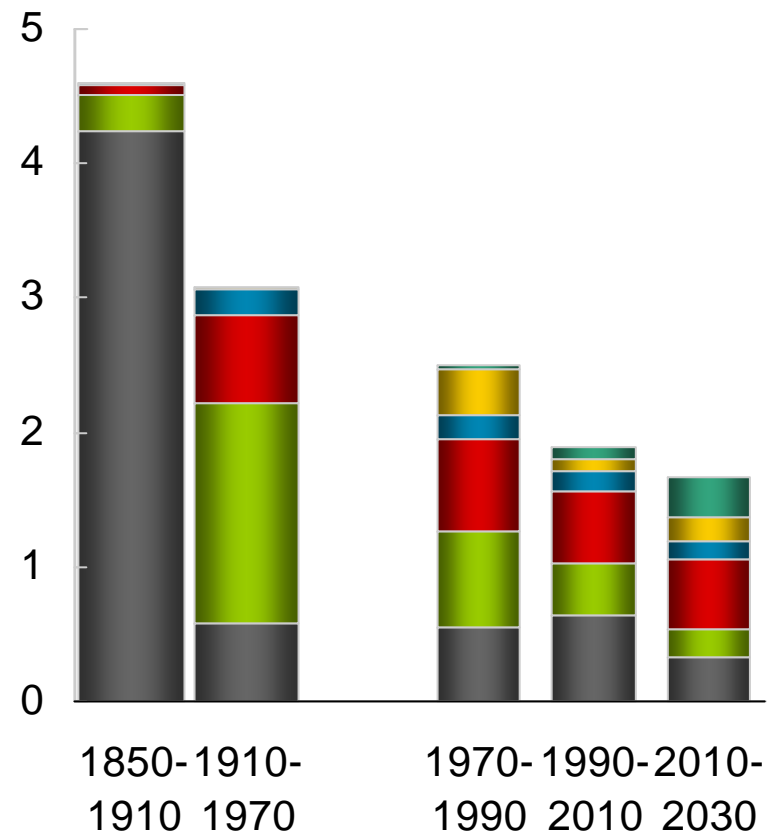
WORLD COMMERCIAL ENERGY USE CONTRIBUTION TO TOTAL ENERGY

BILLION TOE



% P.A.

GROWTH

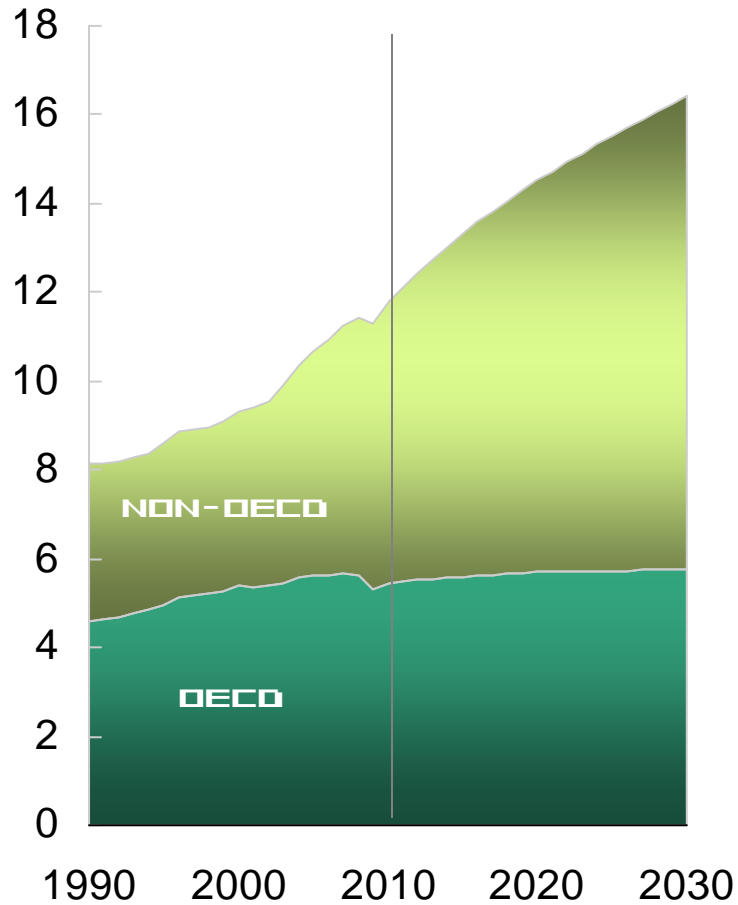


* INCLUDES BIOFUELS

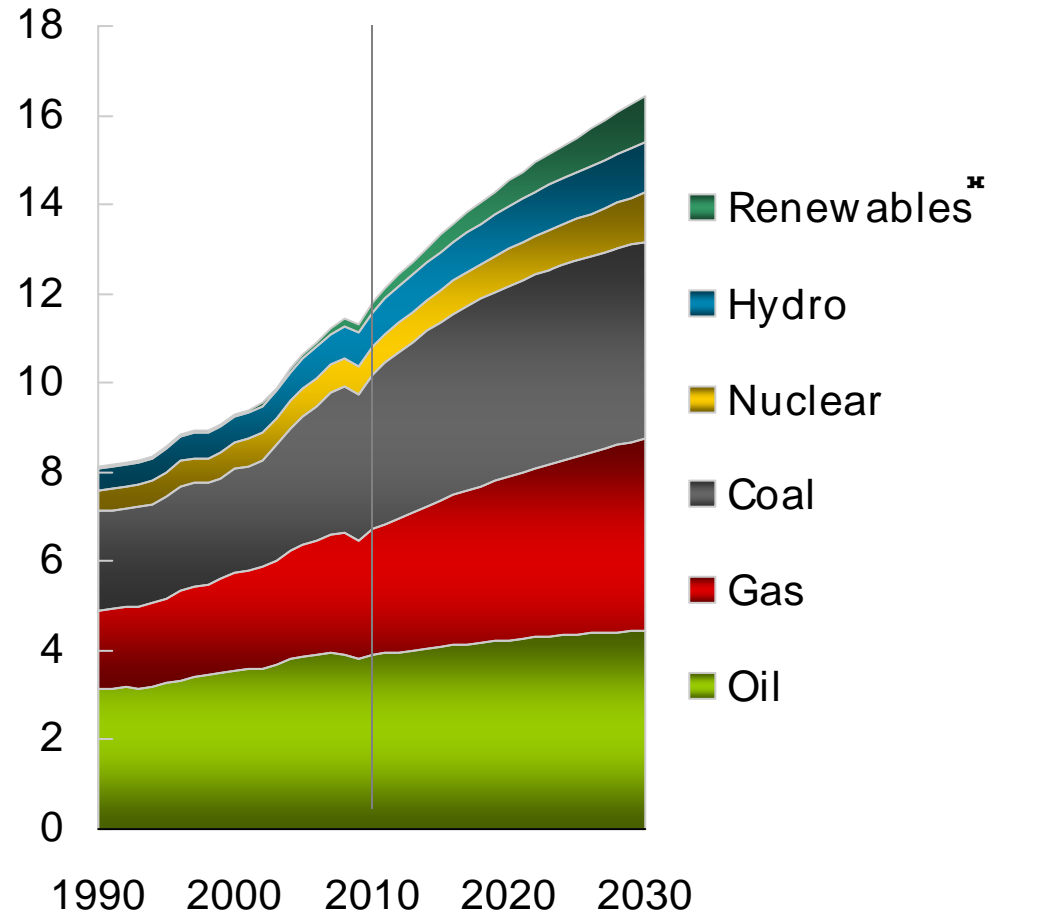


NON-OECD ECONOMIES DRIVE CONSUMPTION GROWTH

BILLION TOE



BILLION TOE

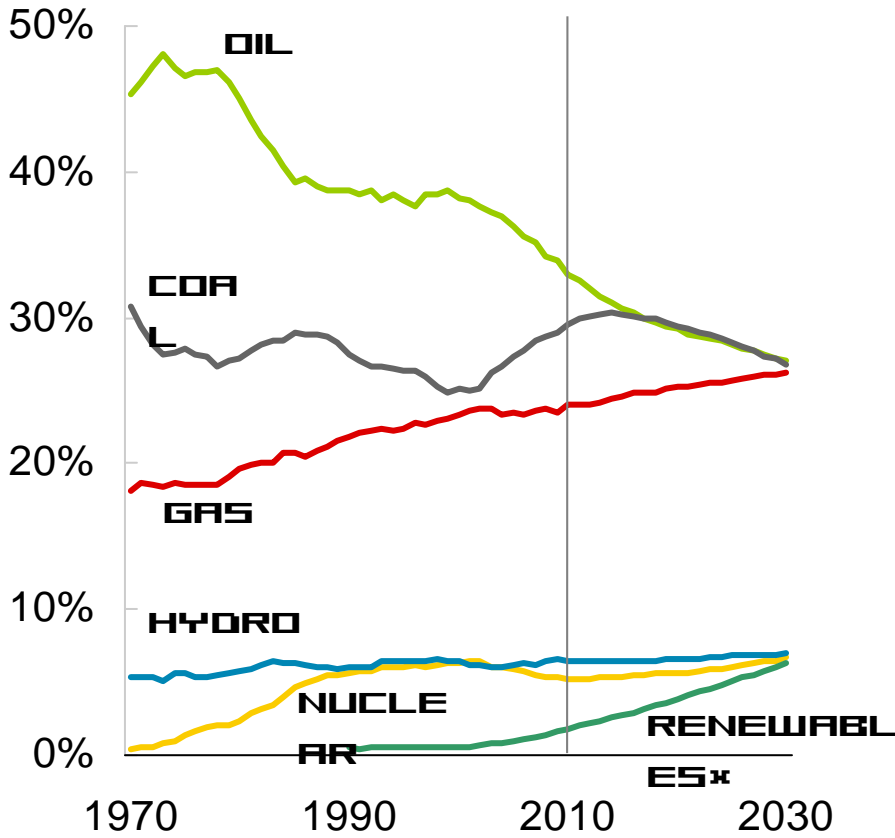


* INCLUDES BIOFUELS

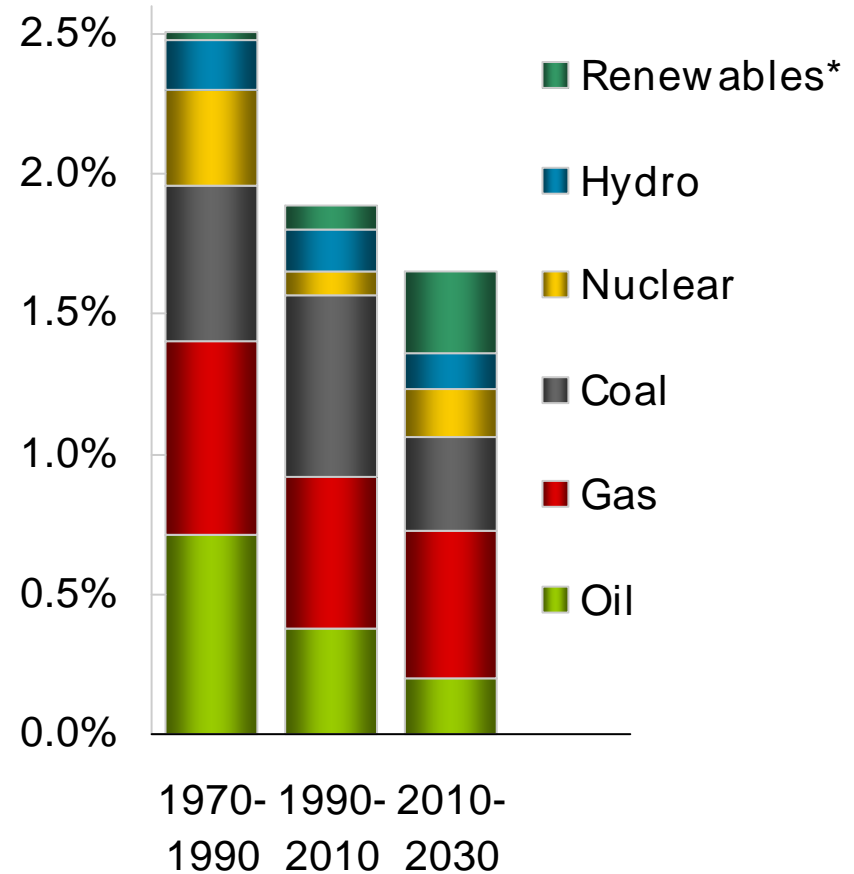


GAS AND RENEWABLES WIN AS FUEL SHARES CONVERGE

SHARES OF WORLD PRIMARY ENERGY



CONTRIBUTIONS TO GROWTH



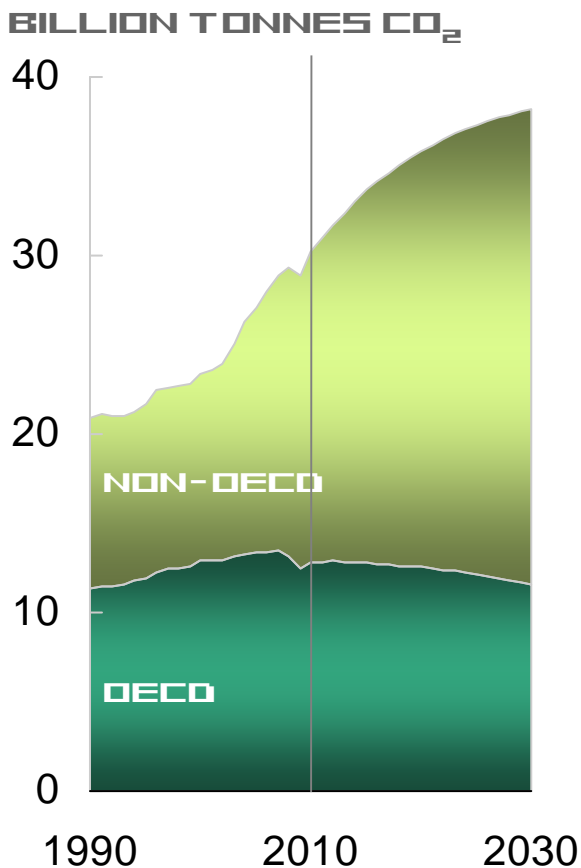
* INCLUDES BIOFUELS

POLICIES TO CONSTRAIN CARBON EMISSIONS GRADUALLY TIGHTEN

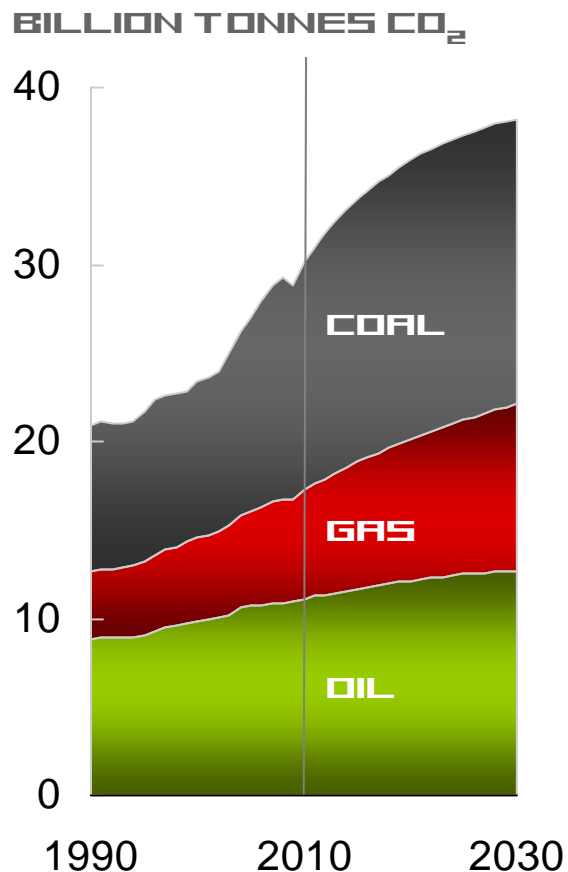


GLOBAL CO₂ EMISSIONS FROM ENERGY USE

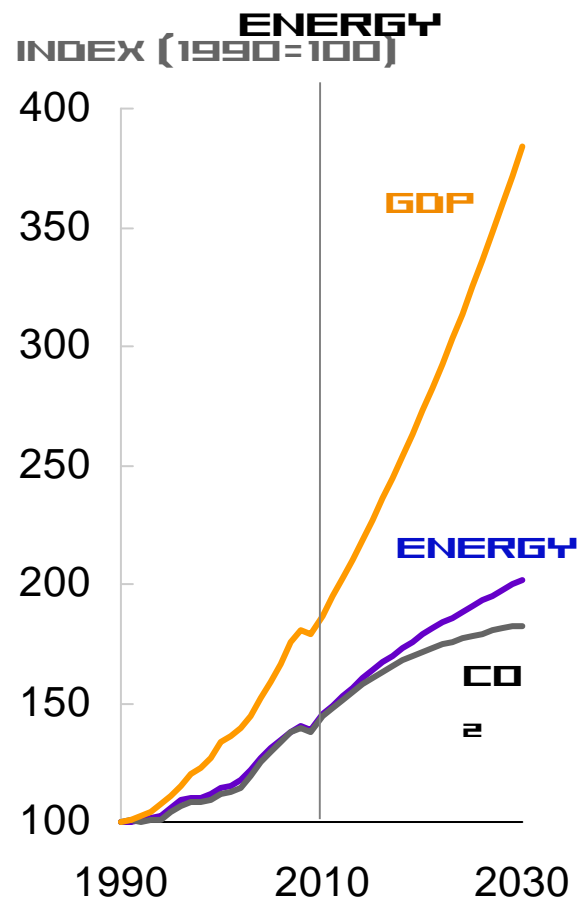
BY REGION



BY FUEL



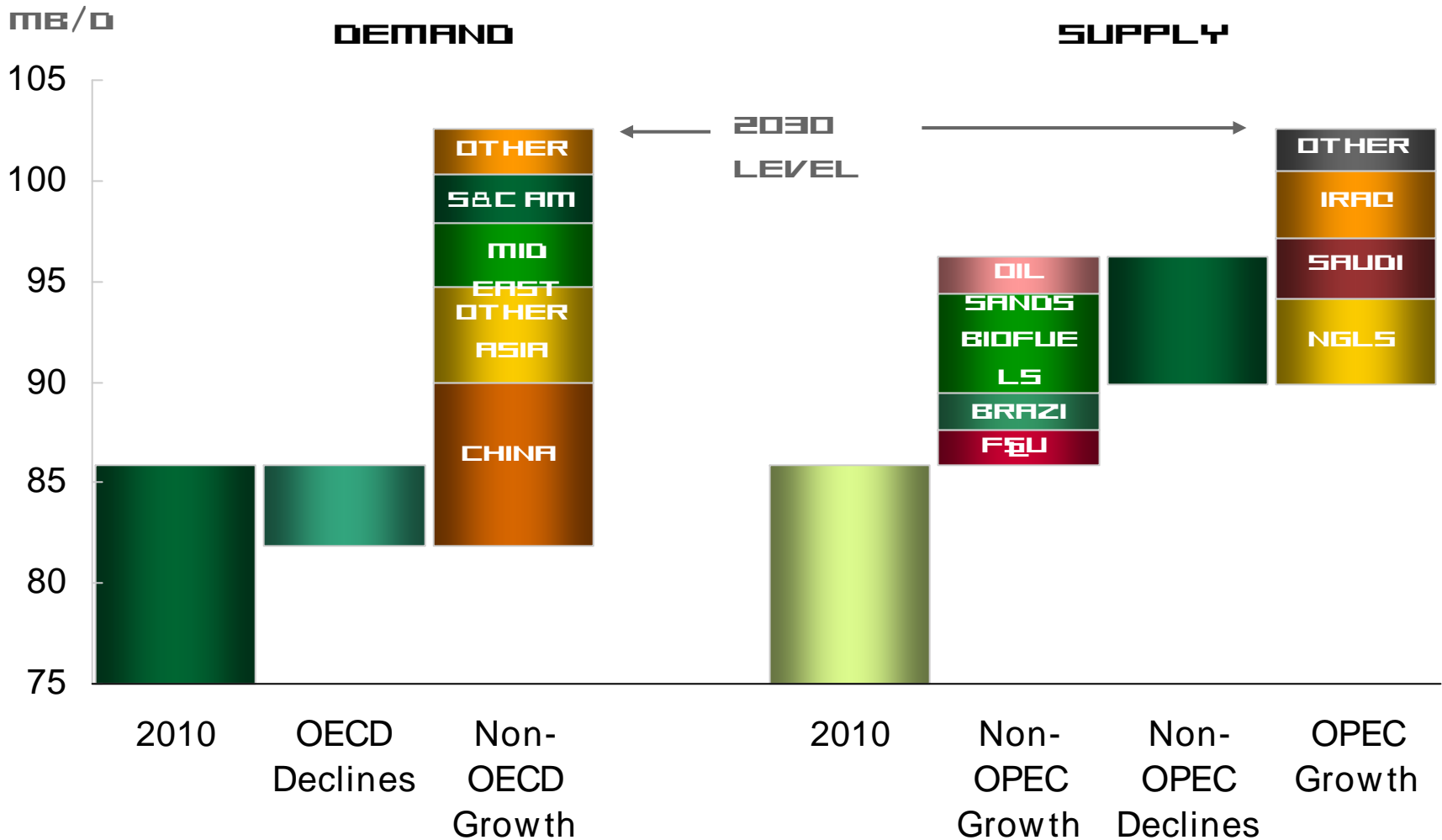
VS GDP AND



OIL (AND OTHER LIQUID FUELS)



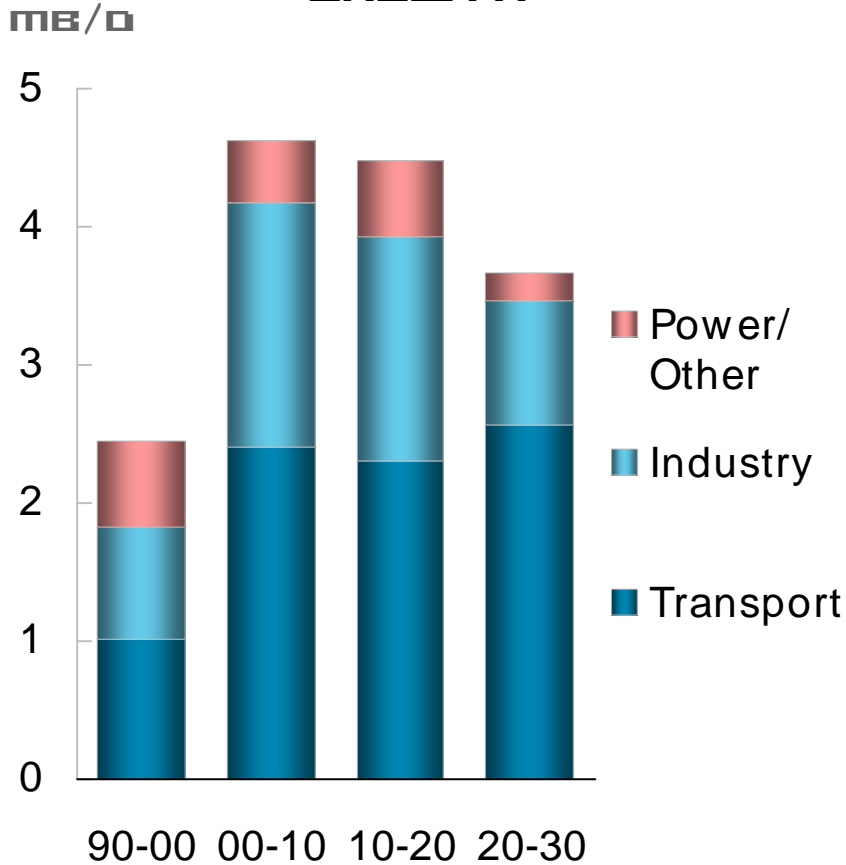
LIQUIDS BALANCE - DEMAND AND SUPPLY



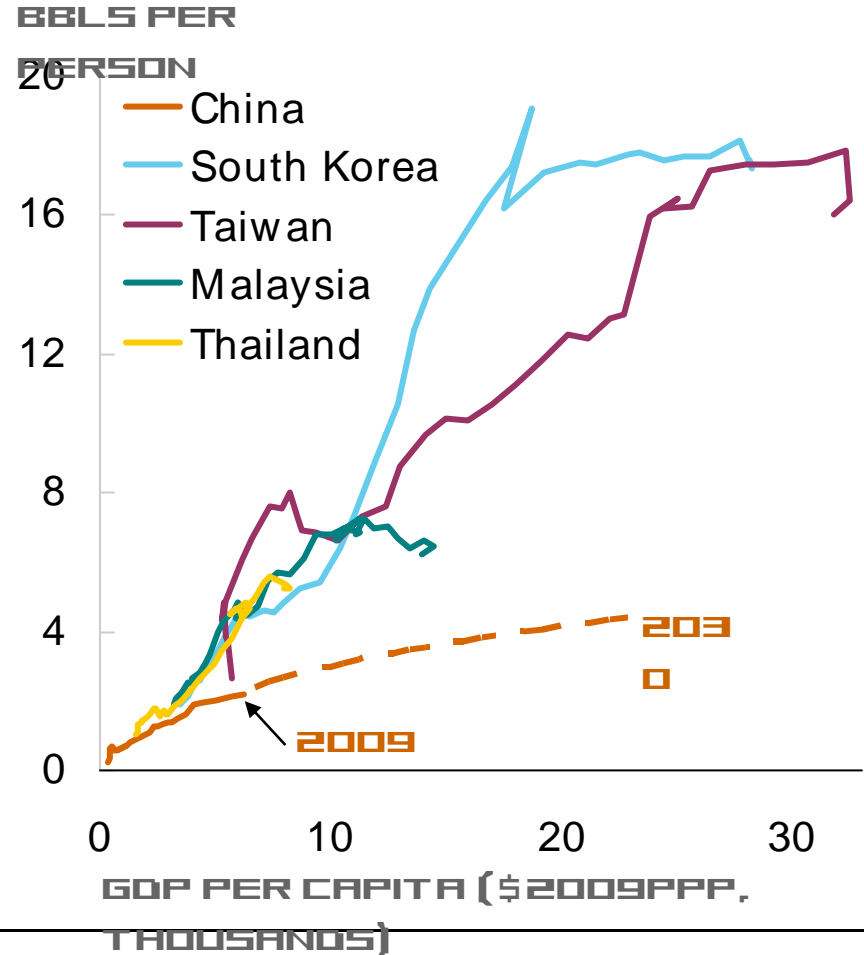
CHINA REMAINS A KEY COMPONENT OF OIL CONSUMPTION GROWTH



CHINA'S LIQUIDS DEMAND GROWTH



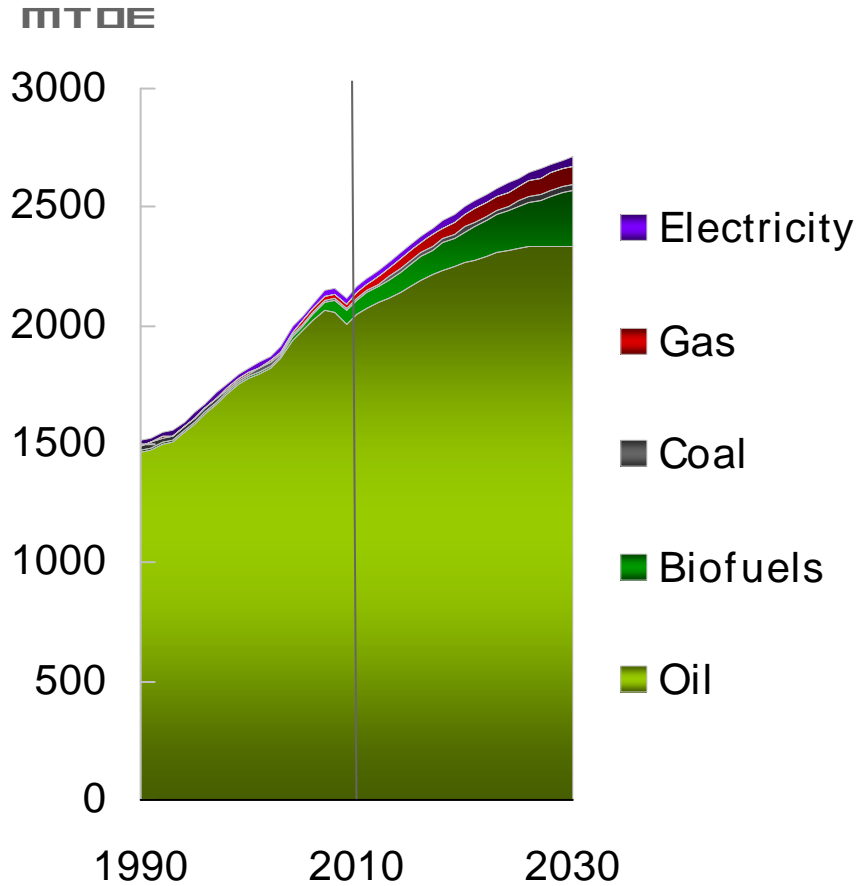
LIQUIDS DEMAND PER CAPITA FROM 1970



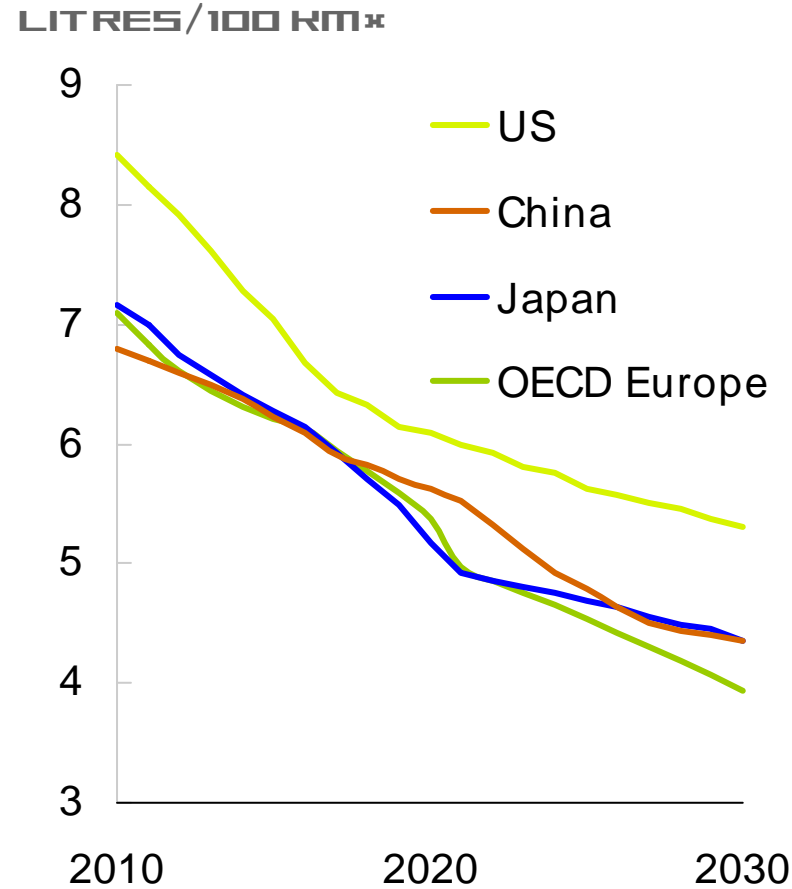


OIL GROWTH IN THE TRANSPORT SECTOR SLOWS

ENERGY IN TRANSPORT



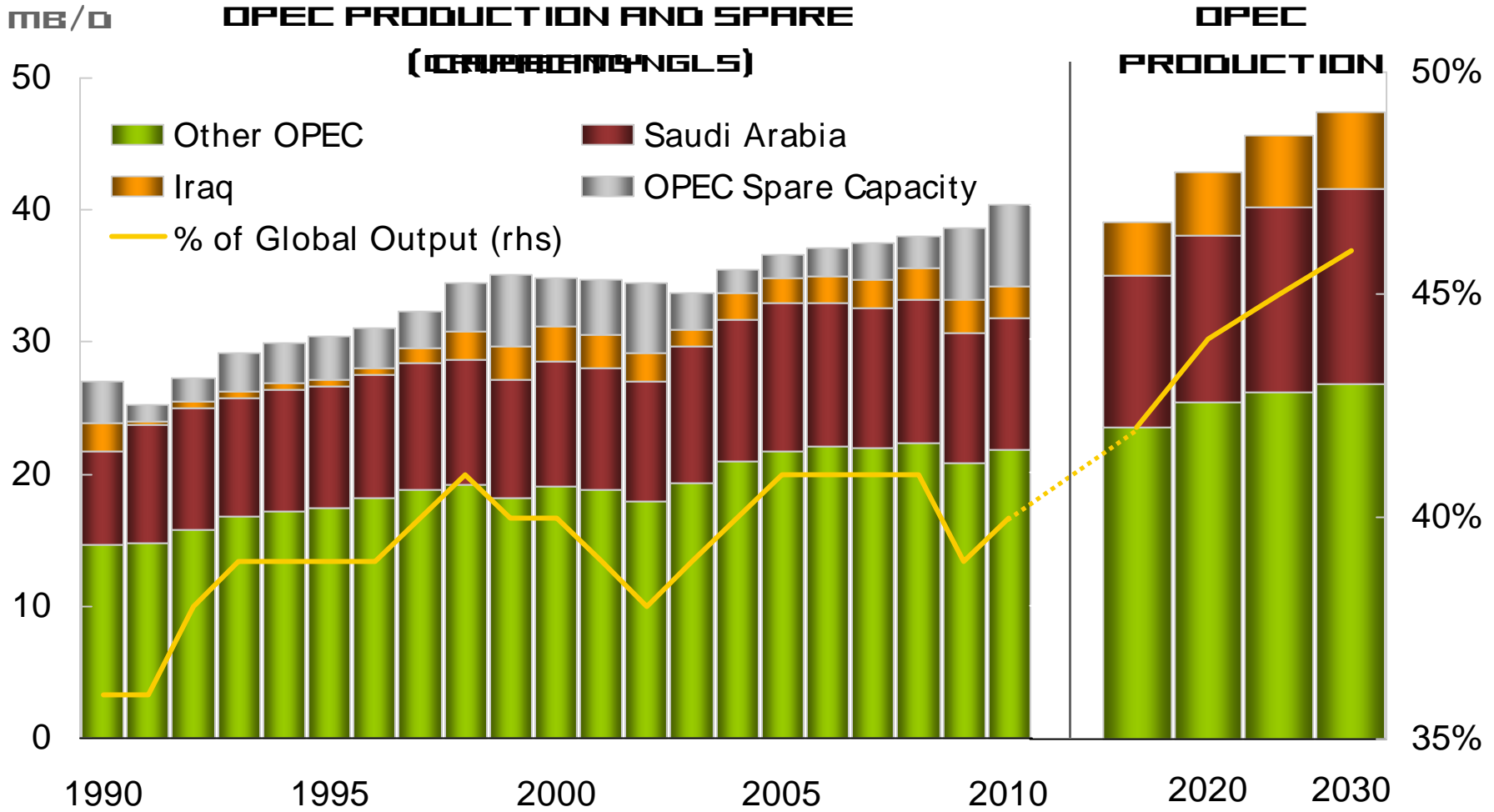
PASSENGER CAR FUEL ECONOMY



* NEW SALES AVERAGE



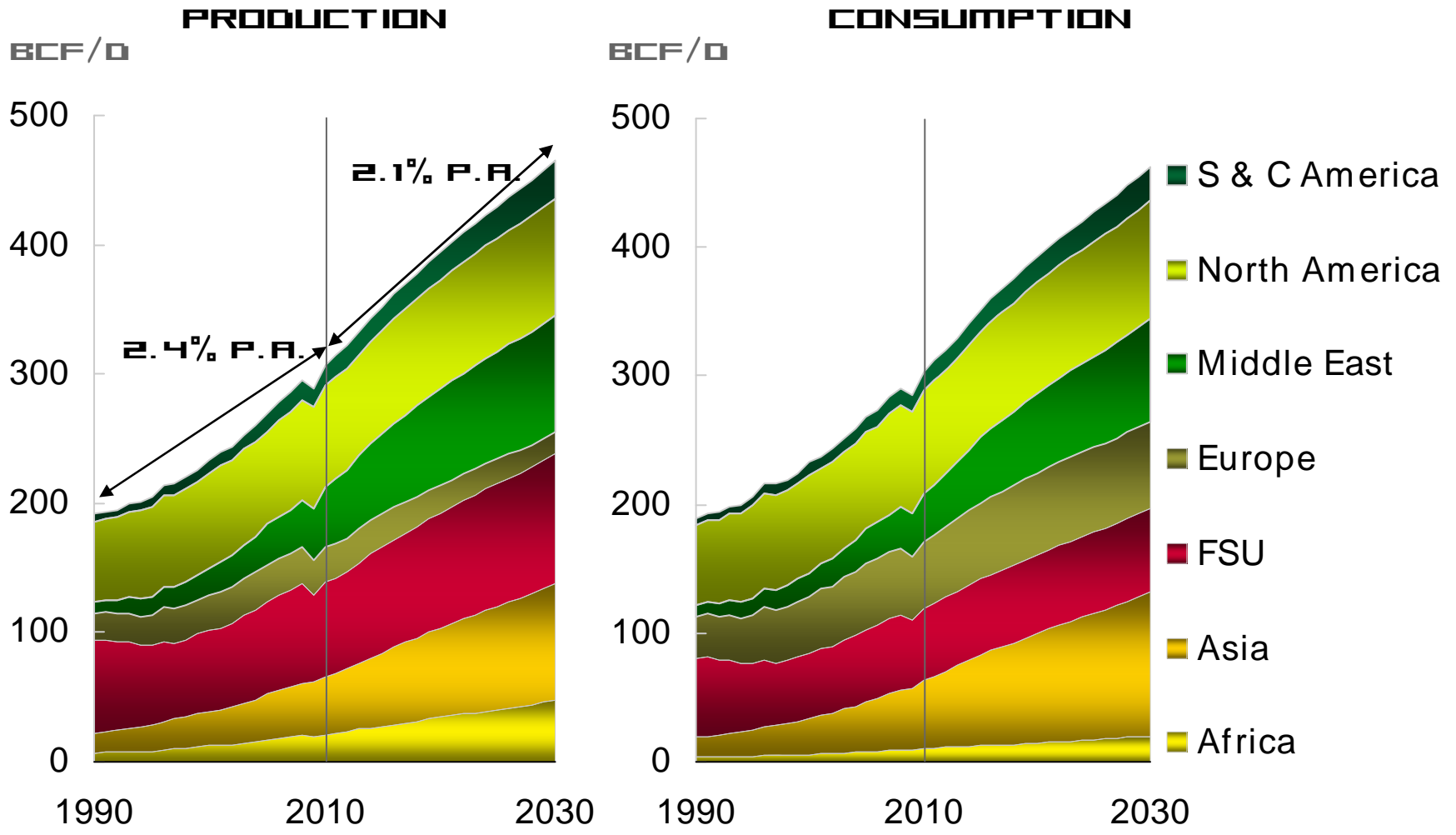
OPEC'S CRITICAL ROLE IN THE OIL MARKET CONTINUES



GAS, POWER AND COAL



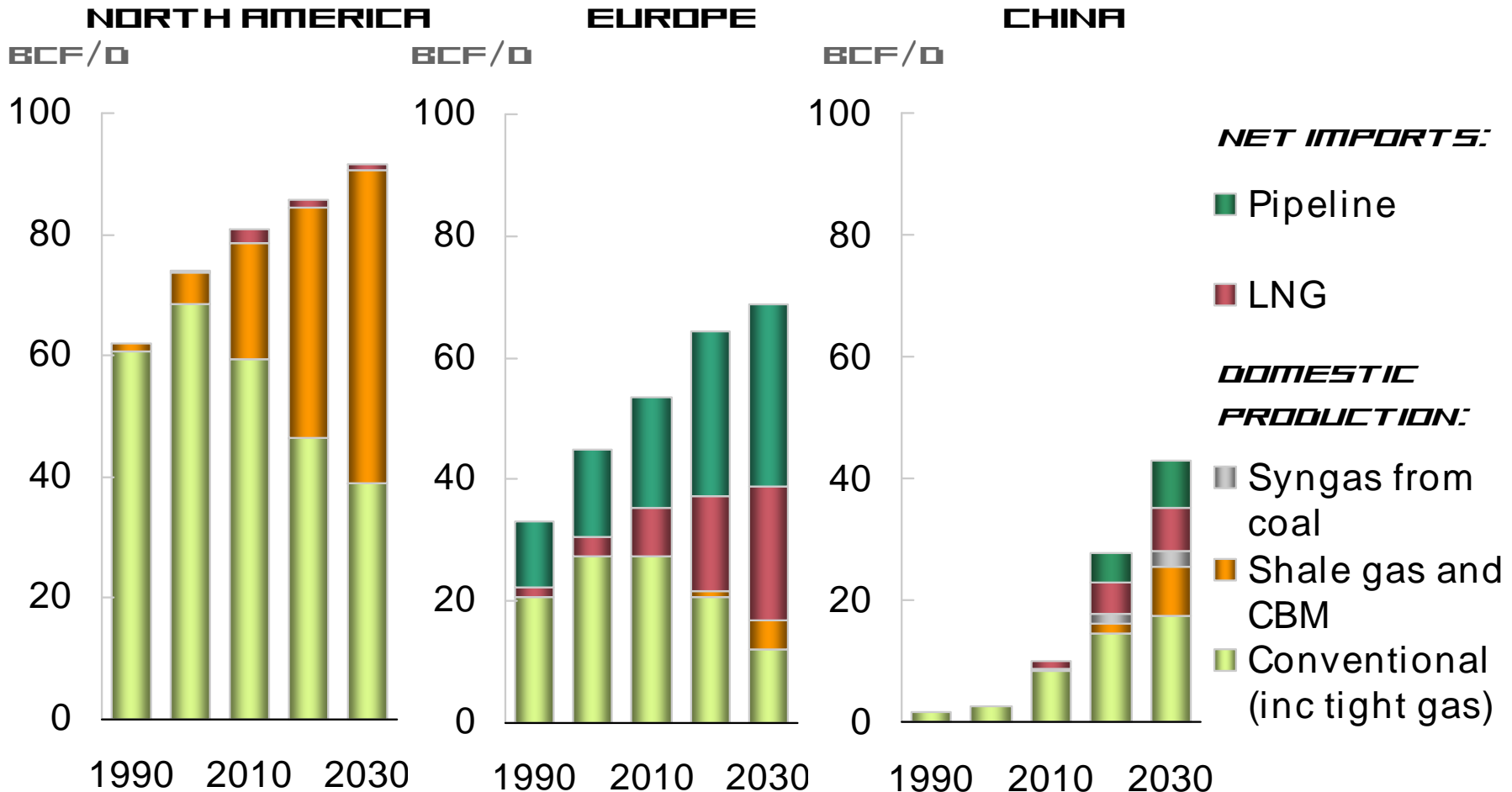
GAS PRODUCTION AND CONSUMPTION GROWTH MODERATES





UNCONVENTIONAL GAS WILL PLAY A GROWING ROLE

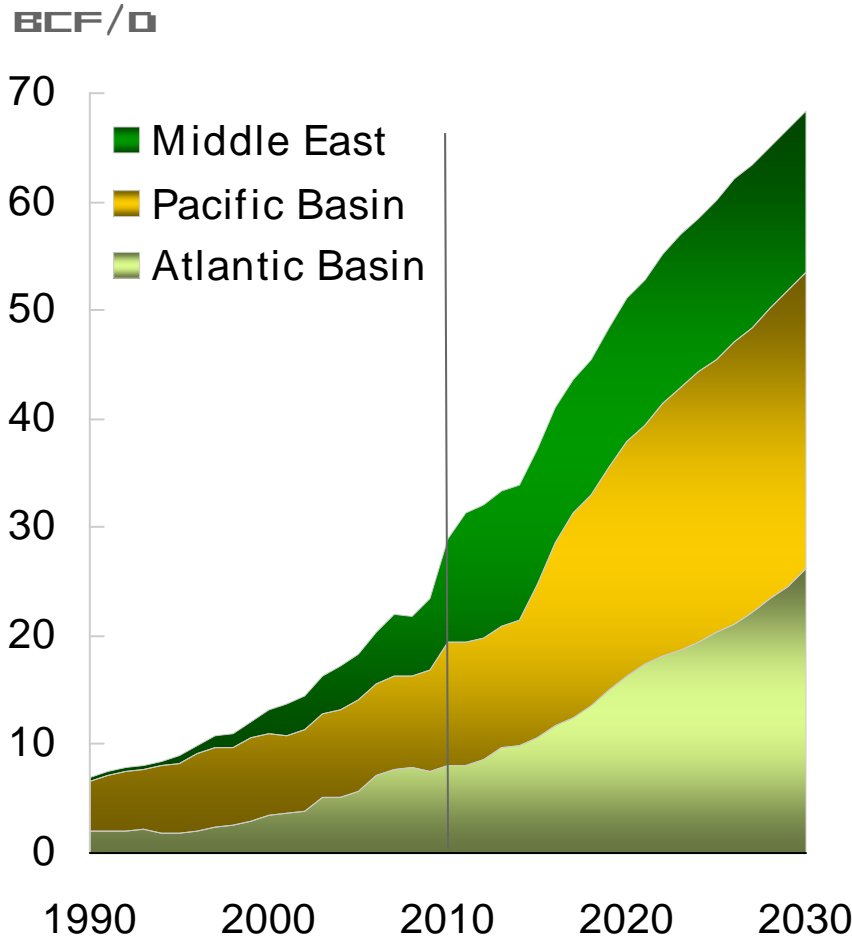
SOURCES OF GAS SUPPLY, BY REGION



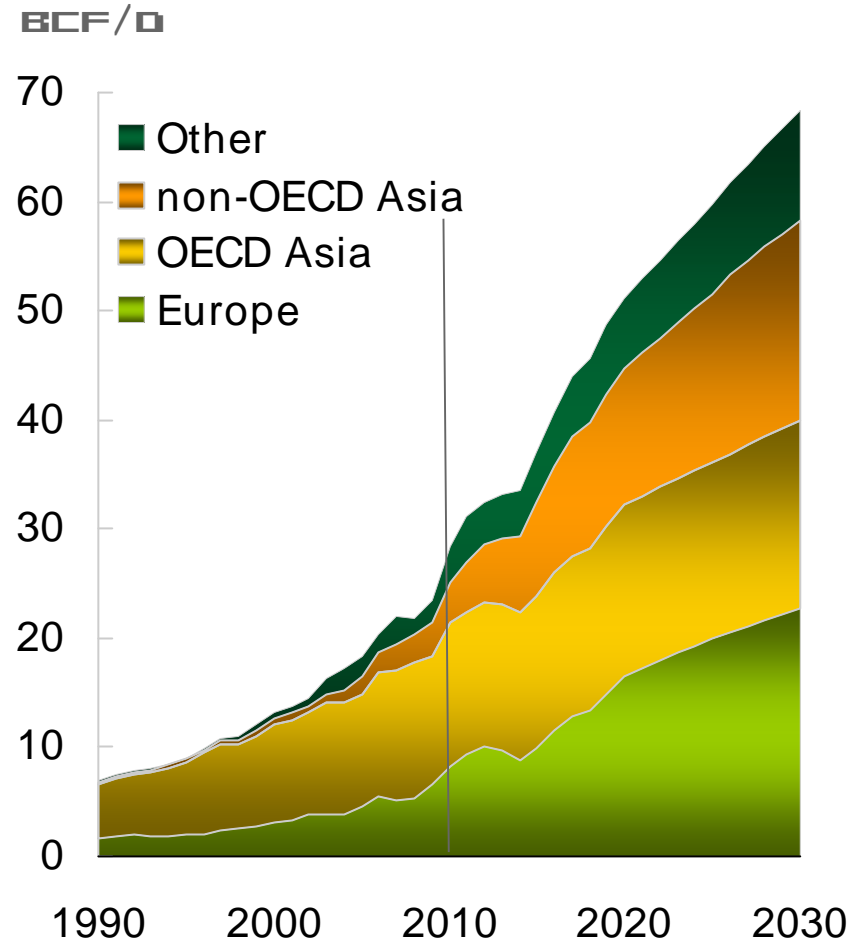
LNG TRADE GROWS TWICE AS FAST AS GLOBAL GAS PRODUCTION



LNG EXPORTS BY BASIN

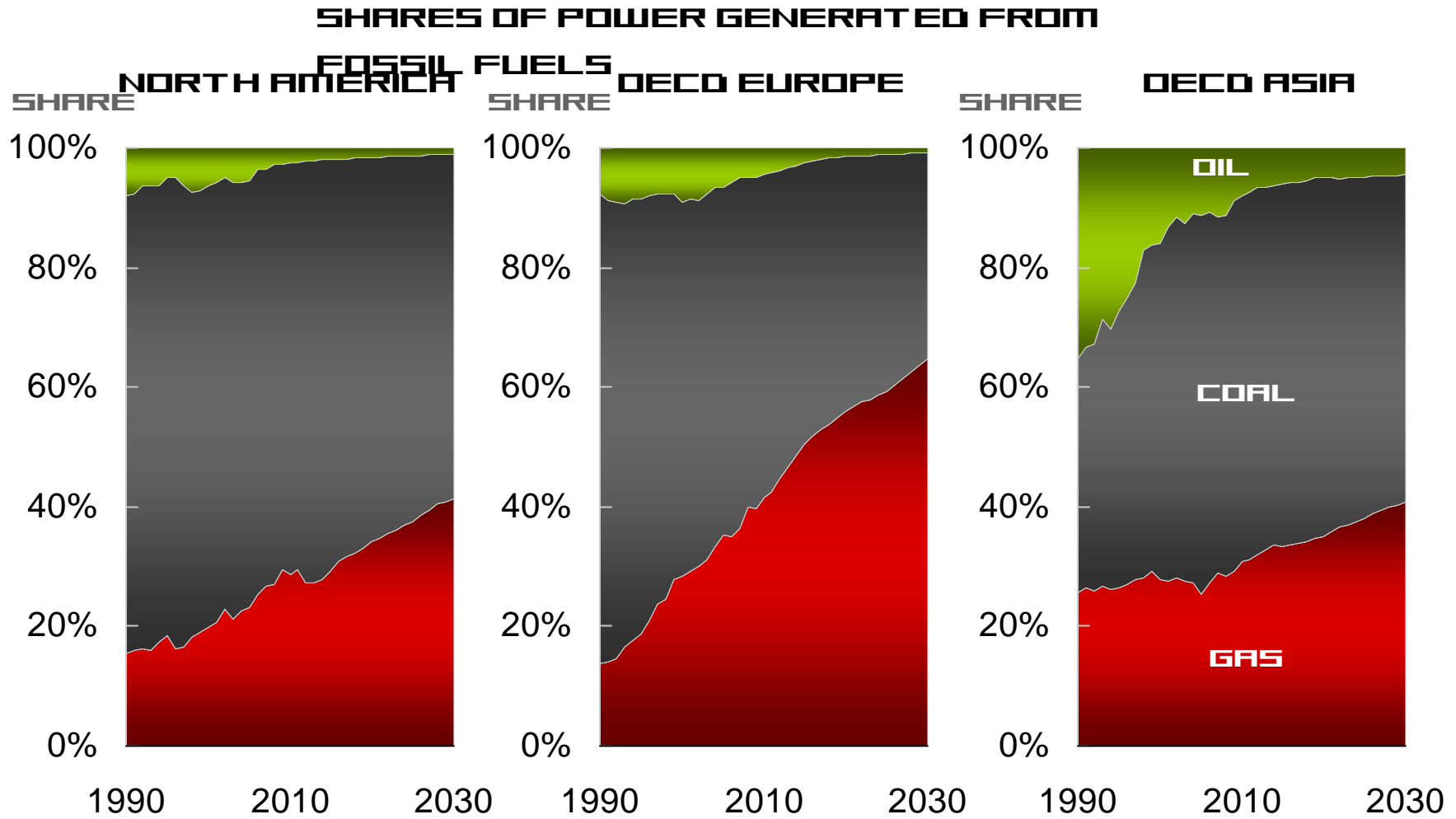


LNG IMPORTS BY REGION





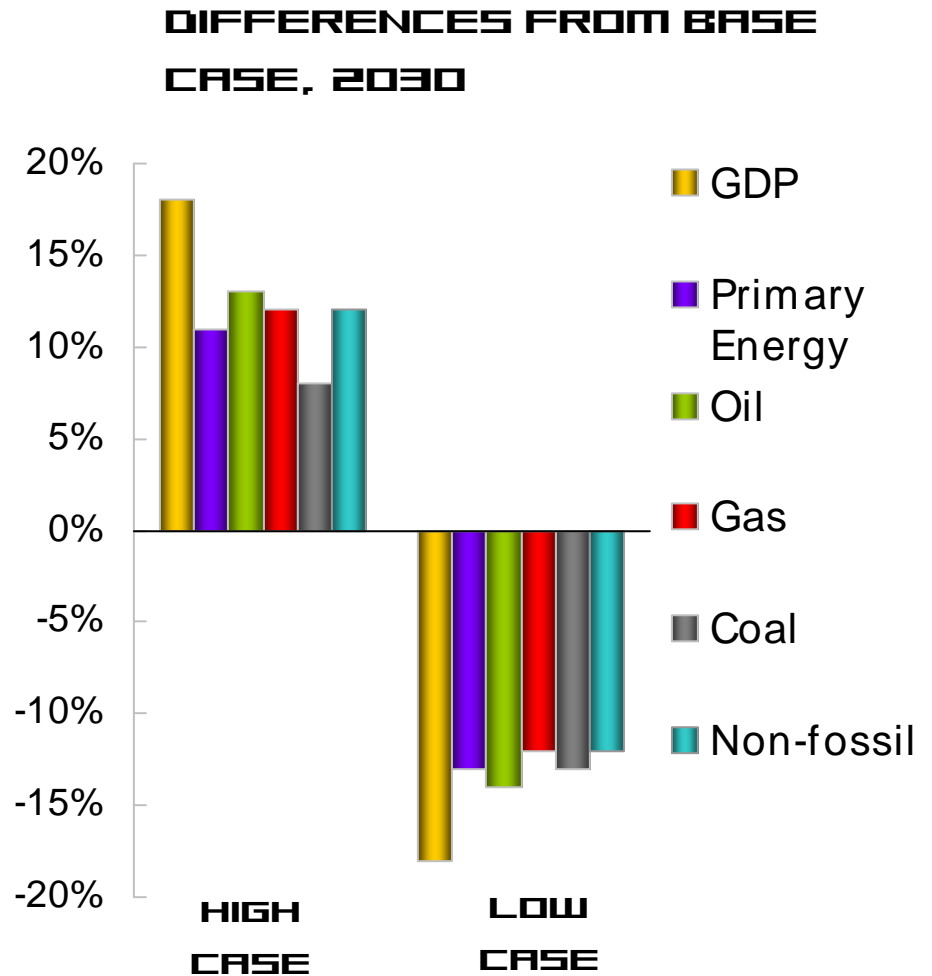
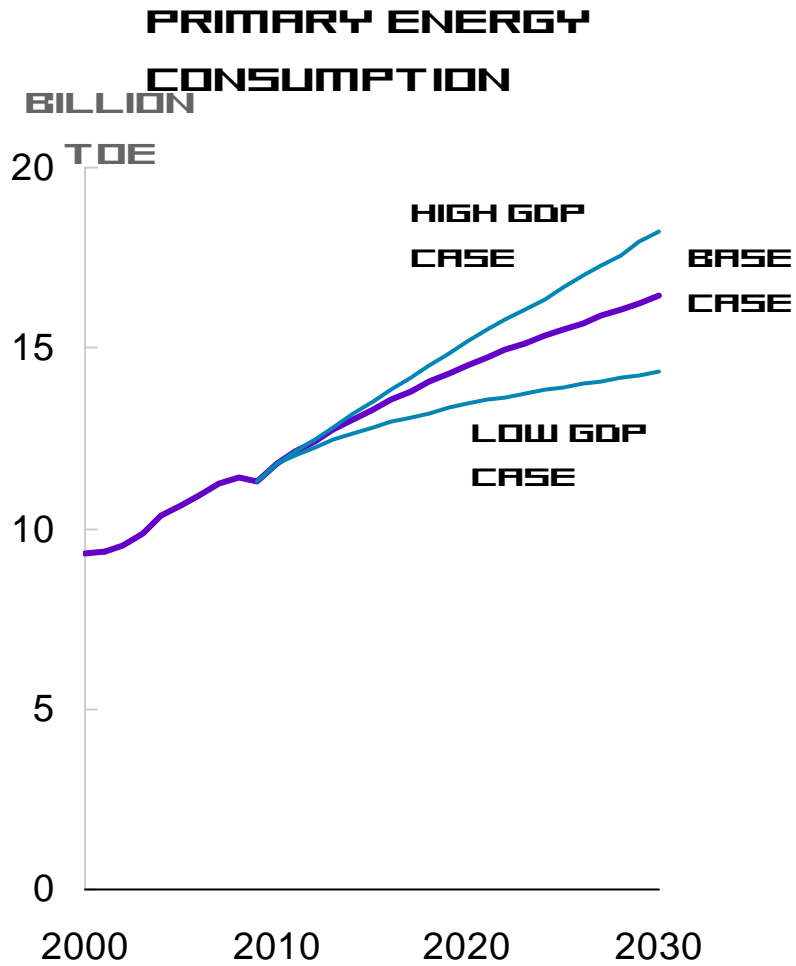
GAS DISPLACES COAL IN OECD POWER GENERATION



WHAT BENDS THE TREND?

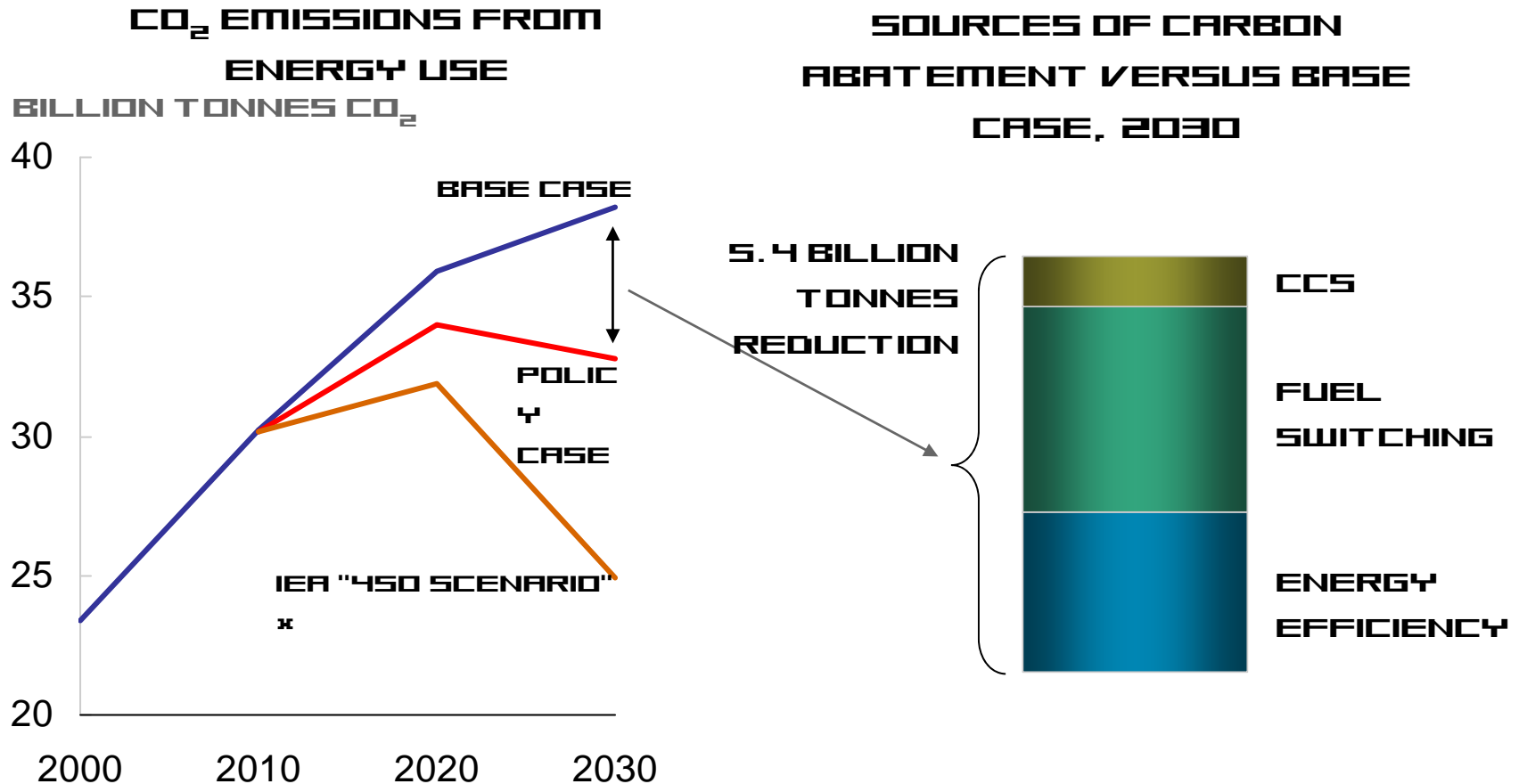


1. THE FUTURE PATH OF GLOBAL ECONOMIC GROWTH





2. STRONGER POLICY ACTION ON CLIMATE CHANGE

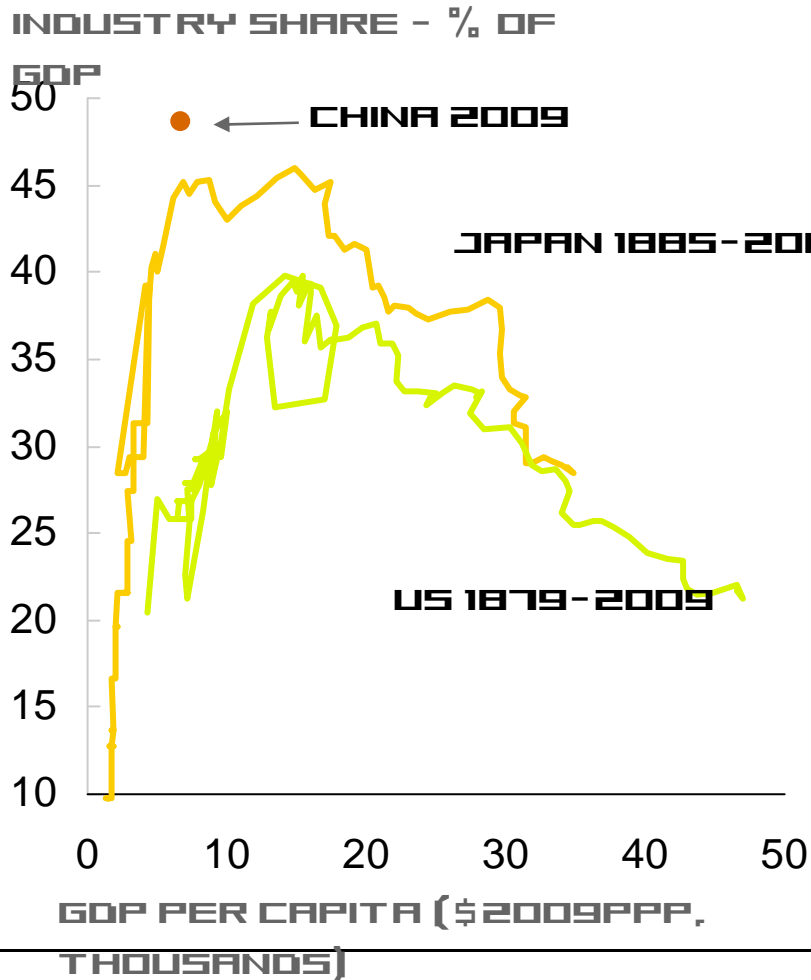


x A BACK-CAST WHICH ILLUSTRATES WHAT IS REQUIRED TO STABILISE GREENHOUSE GAS CONCENTRATIONS AT 450 PPM

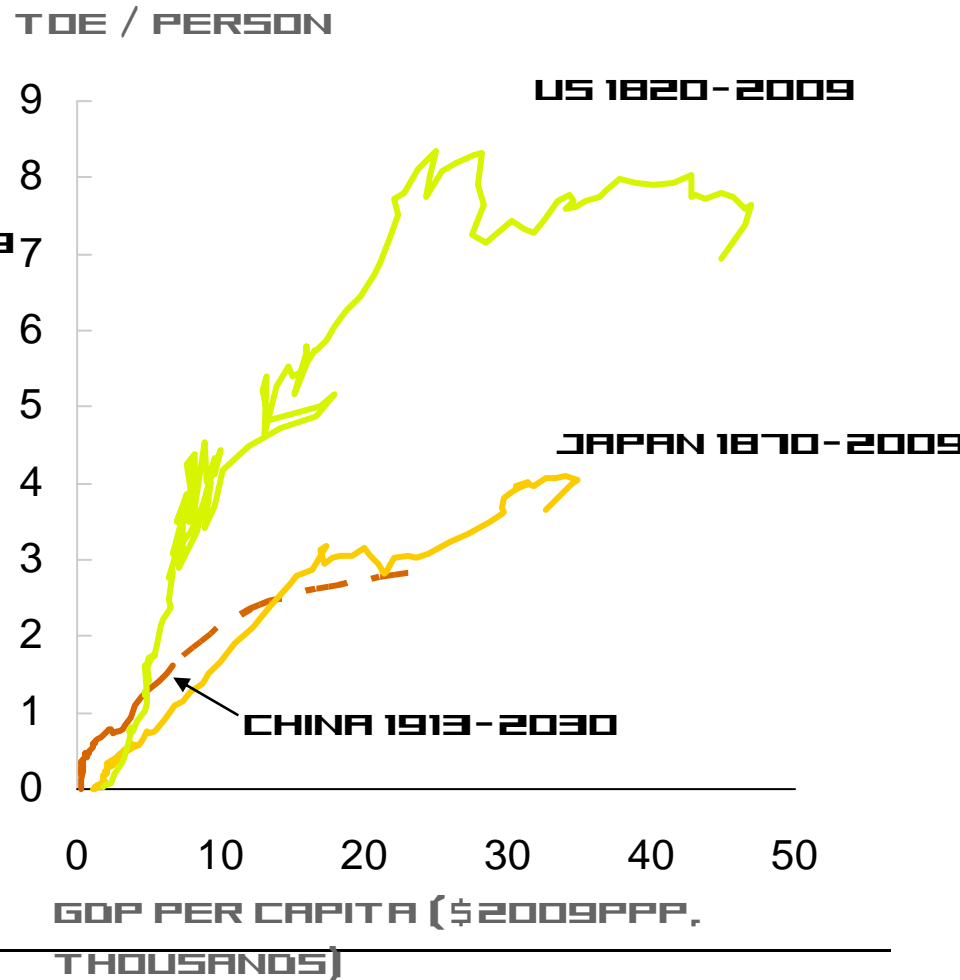
FROM IEA, *WORLD ENERGY OUTLOOK 2010*

3. CHINA'S PATHWAY

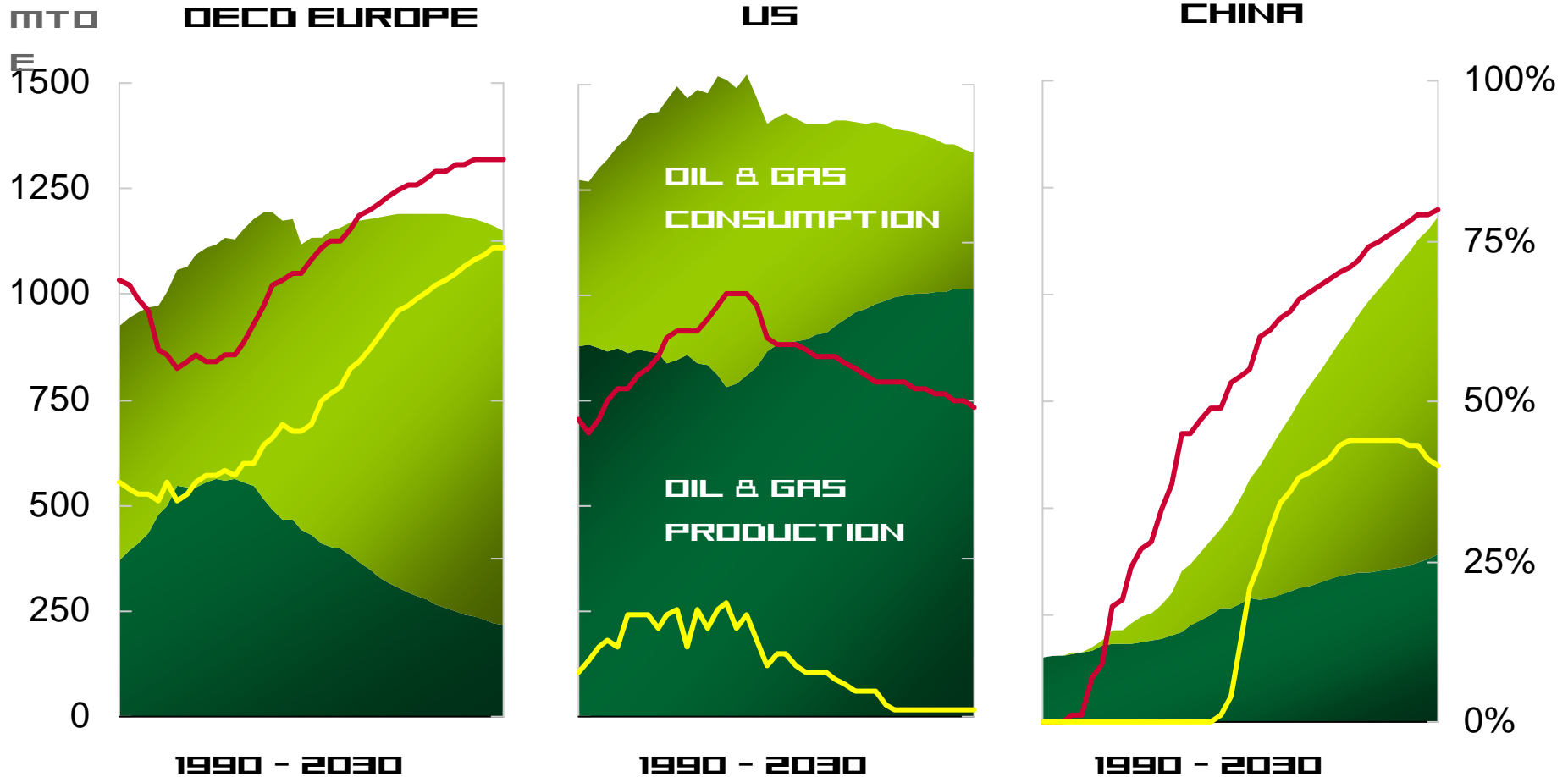
INDUSTRIALISATION



ENERGY PER CAPITA



4. ENERGY SECURITY



Net imports as % of consumption (rhs): — Oil

— Gas

CONCLUSION

- **ENERGY EFFICIENCY - IMPROVING**
- **FUEL MIX - DIVERSIFYING**
- **CARBON EMISSIONS - TOO HIGH**
- **REGIONAL AND POLICY TRENDS - MIXED**



**A TREND IS A TREND IS A TREND.
BUT THE QUESTION IS, WILL IT
BEND?
WILL IT ALTER ITS COURSE
THROUGH SOME UNFORESEEN
FORCE
AND COME TO A PREMATURE
END?**

(ALEC

**24
CHAIRNCROSS)**