ENERGY EFFICIENCY

Energy Efficiency: The Win-Win Solution for Energy Security and Sustainable Development

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International Energy Agency

Topics

- Future energy demand
- Energy efficiency as a win-win strategy for energy security and sustainability

Emerging economies continue to drive global energy demand

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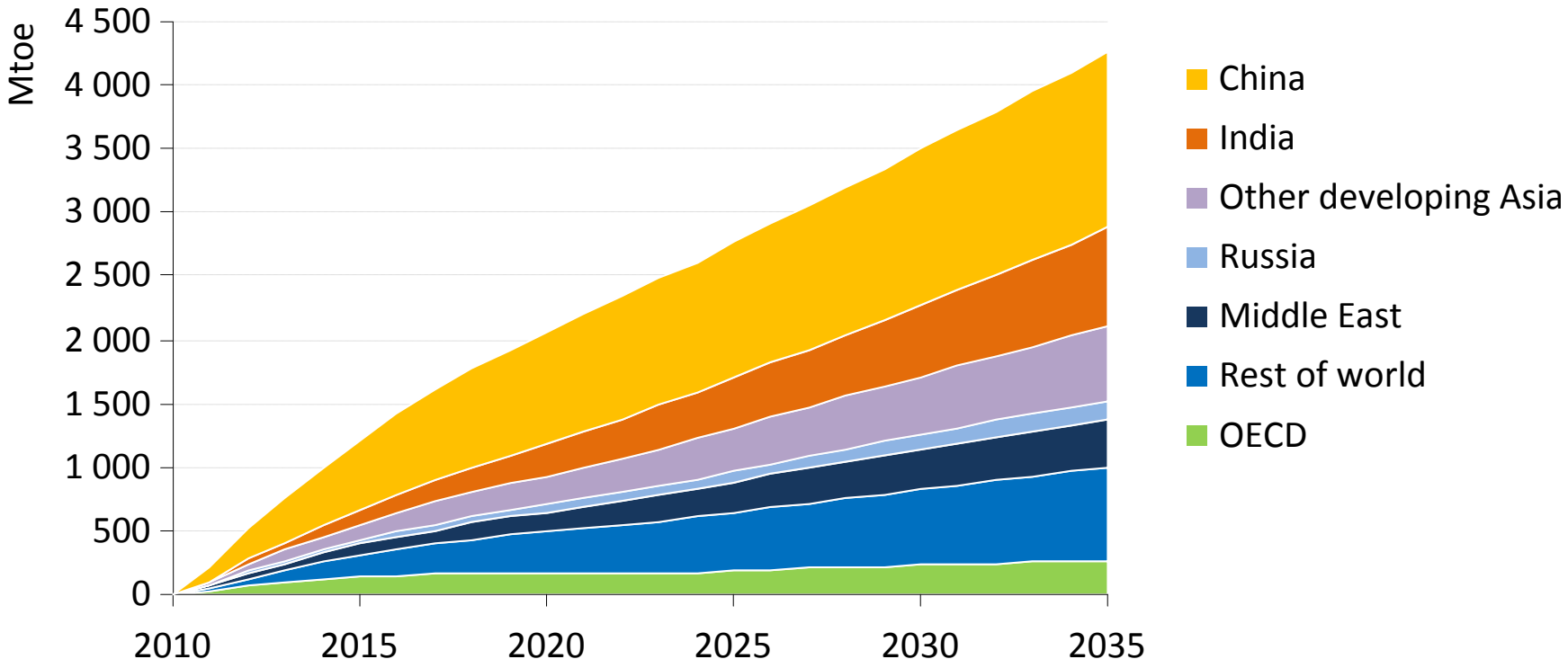
Growth in primary energy demand



Global energy demand increases by one-third from 2010 to 2035, with non-IEA China & India accounting for 50% of the growth

Efficiency gains can contribute most to emissions reductions

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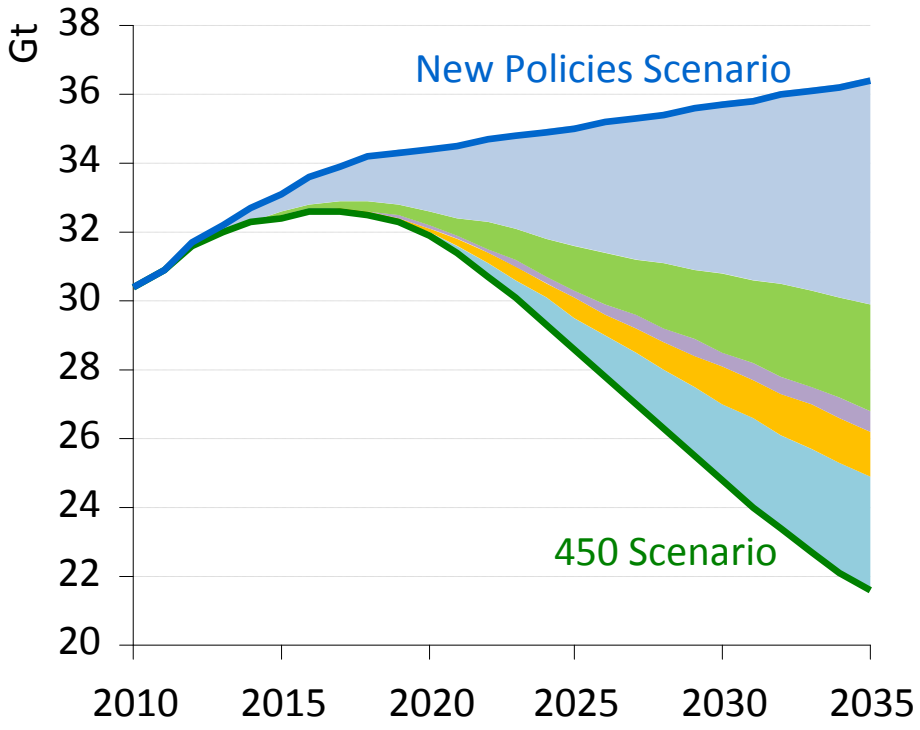
World energy-related CO_2 emissions abatement in the 450 Scenario relative to the New Policies Scenario



	Abatement	
	2020	2035
Efficiency	72%	44%
Renewables	17%	21%
Biofuels	2%	4%
Nuclear	5%	9%
CCS	3%	22%
Total (Gt CO_2)	2.5	14.8

Energy efficiency measures – driven by strong policy action across all sectors – account for 50% of the cumulative CO_2 abatement over the Outlook period

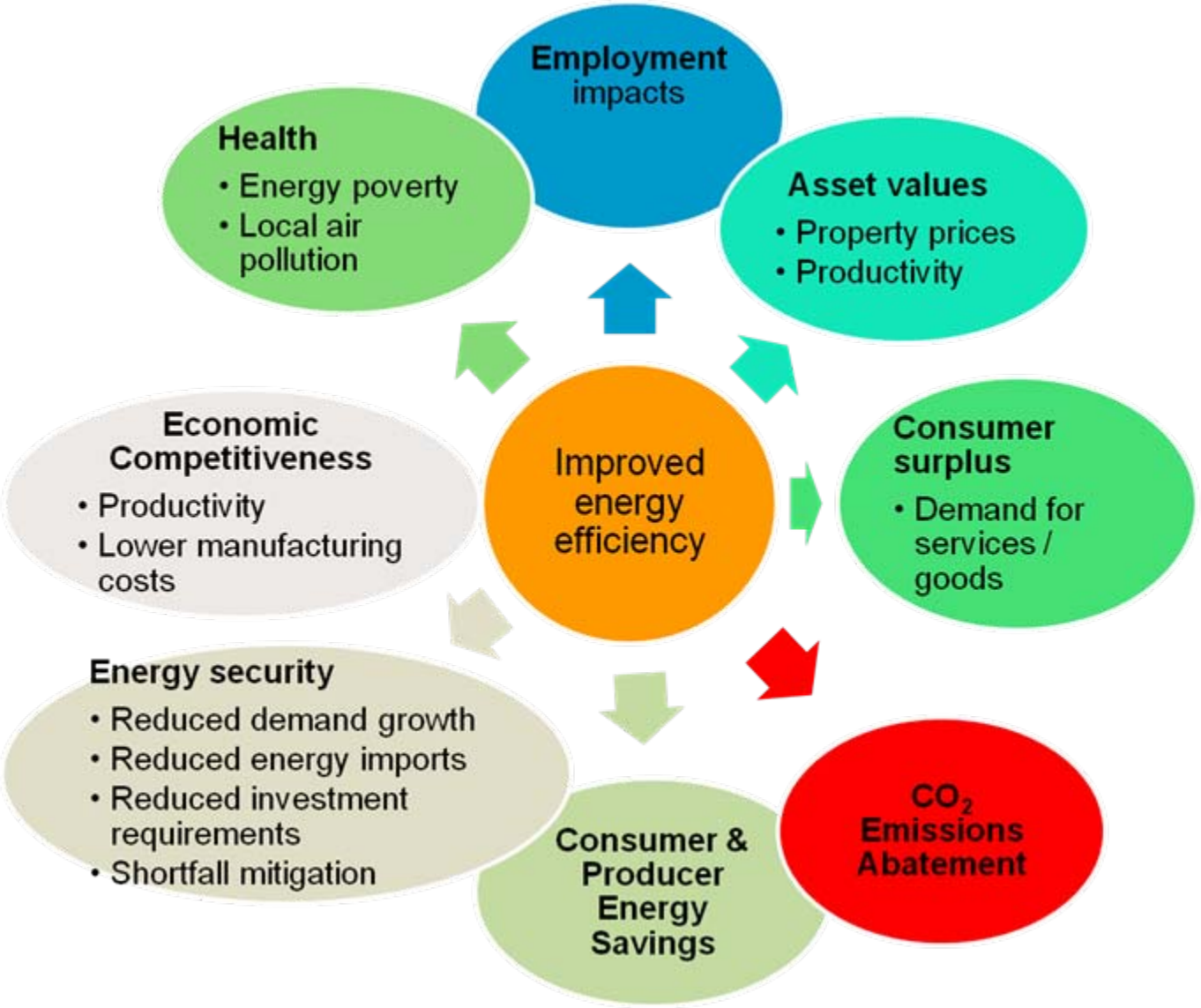
Flattening demand growth through energy efficiency

Without energy efficiency improvements since 1973

- **Energy consumption would be 56% higher today in IEA countries***
- **CO_2 emissions would be approx. 4GtCO_2 higher**
- **Energy efficiency is the first fuel**

Countries sampled include: Australia, Denmark, Finland, France, Germany, Italy, Japan, Norway, UK, USA, ~ 80% IEA energy consumption.

Financial and social benefits of energy efficiency policies



But policies are needed….

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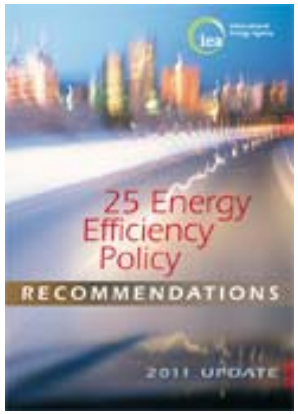
Energy Efficiency Recommendations across **7** Sectors



Worldwide **I**mplementation **N**ow

Cross-sectoral

Buildings

Appliances and equipment

Lighting

Transport

Industry

Energy utilities

IEA 25 Energy Efficiency Policy Recommendations

1. Across sectors

1.1 Energy efficiency data collection and indicators;
1.2 Strategies and action plans;
1.3 Competitive energy markets, with appropriate regulation;
1.4 Private investment in energy efficiency;
1.5 Monitoring, enforcement and evaluation of policies and measures.

2. Buildings

2.1 Mandatory building energy codes and minimum energy performance requirements
2.2 Aiming for net zero energy consumption buildings
2.3 Improving energy efficiency of existing buildings
2.4 Building energy labels and certificates
2.5 Energy performance of buildings components and systems.

3. Appliances

3.1 Mandatory energy performance standards and labels for appliances and equipment;
3.2 Test standards and measurement protocols for appliances and equipment;
3.3 Market transformation policies for appliances and equipment.

4. Lighting

4.1 Phase-out of inefficient lighting products and systems;
4.2 Energy-efficient lighting systems.

5. Transport

5.1 Mandatory vehicle fuel efficiency standards;
5.2 Measures to improve vehicle fuel efficiency;
5.3 fuel-efficient non-engine components;
5.4 Improving operational efficiency through eco-driving and other measures;
5.5 Improve transport system efficiency.

6. Industry

6.1 Energy management in industry;
6.2 High-efficiency industrial equipment and systems;
6.3 Energy efficiency services for small and medium-sized enterprises;
6.4 Complementary policies to support industrial energy efficiency.

7. Energy utilities

7.1 Energy utilities and end-use energy efficiency.

Conclusions

- Energy demand will continue to grow
  - Challenges energy security and sustainable development policy, especially in emerging economies
- Comprehensive energy efficiency policies have been shown to sharply reduce demand growth
- Energy efficiency policies save energy and mitigate CO_2 without subsidies or taxes
- Energy efficiency delivers non-energy co-benefits including energy security, jobs, and improved productivity and competitiveness
- Implementation of the IEA's energy efficiency recommendations will help achieve the 450 scenario and can reduce investments that would otherwise go into increasingly expensive supply sources.

Many thanks!

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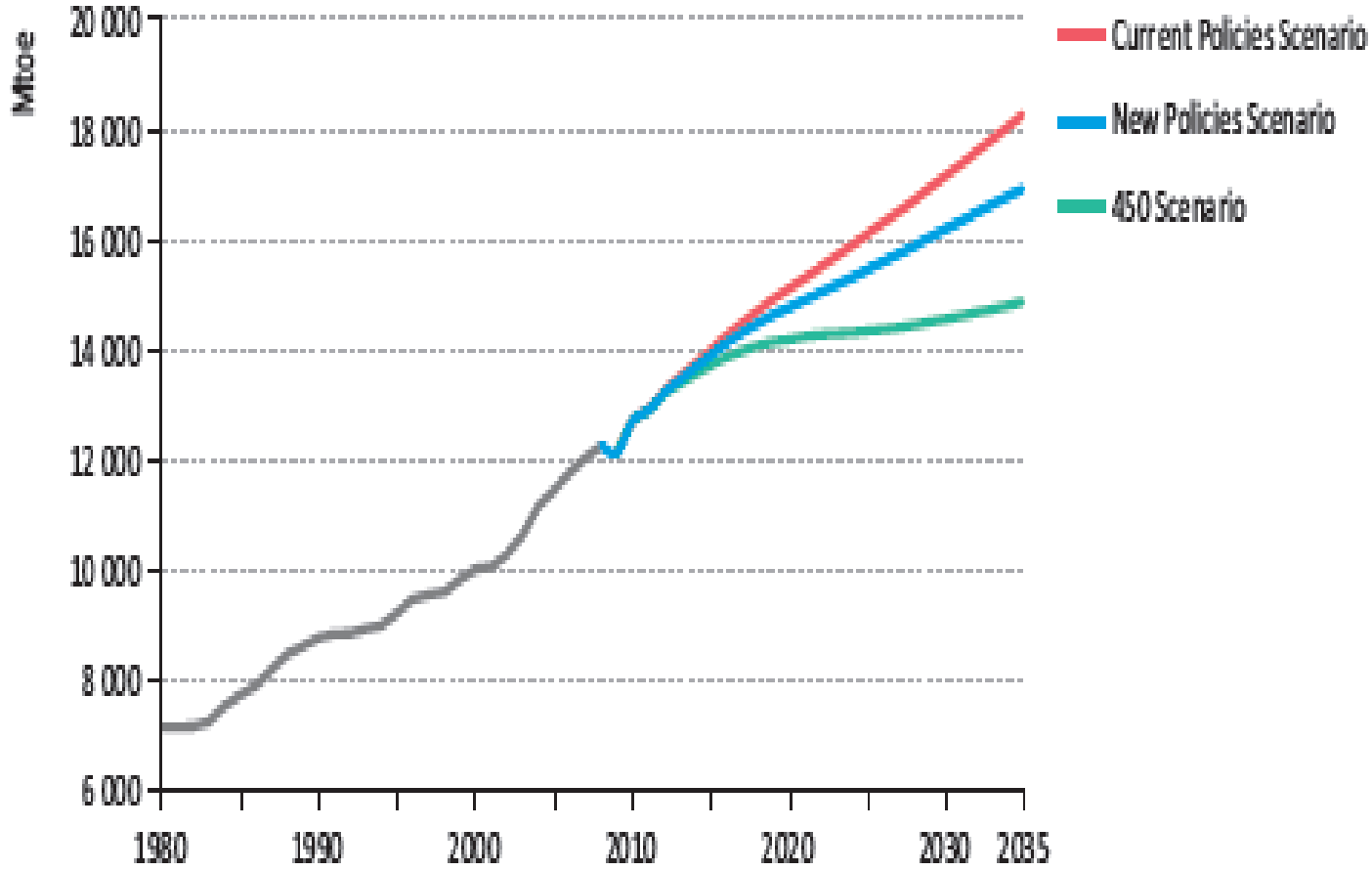
Background slides

World Primary Energy Demand



Will increase by more than half over 25 years, unless new policies are adopted (Source: WEO 2011)

Oil demand is driven higher by soaring car ownership

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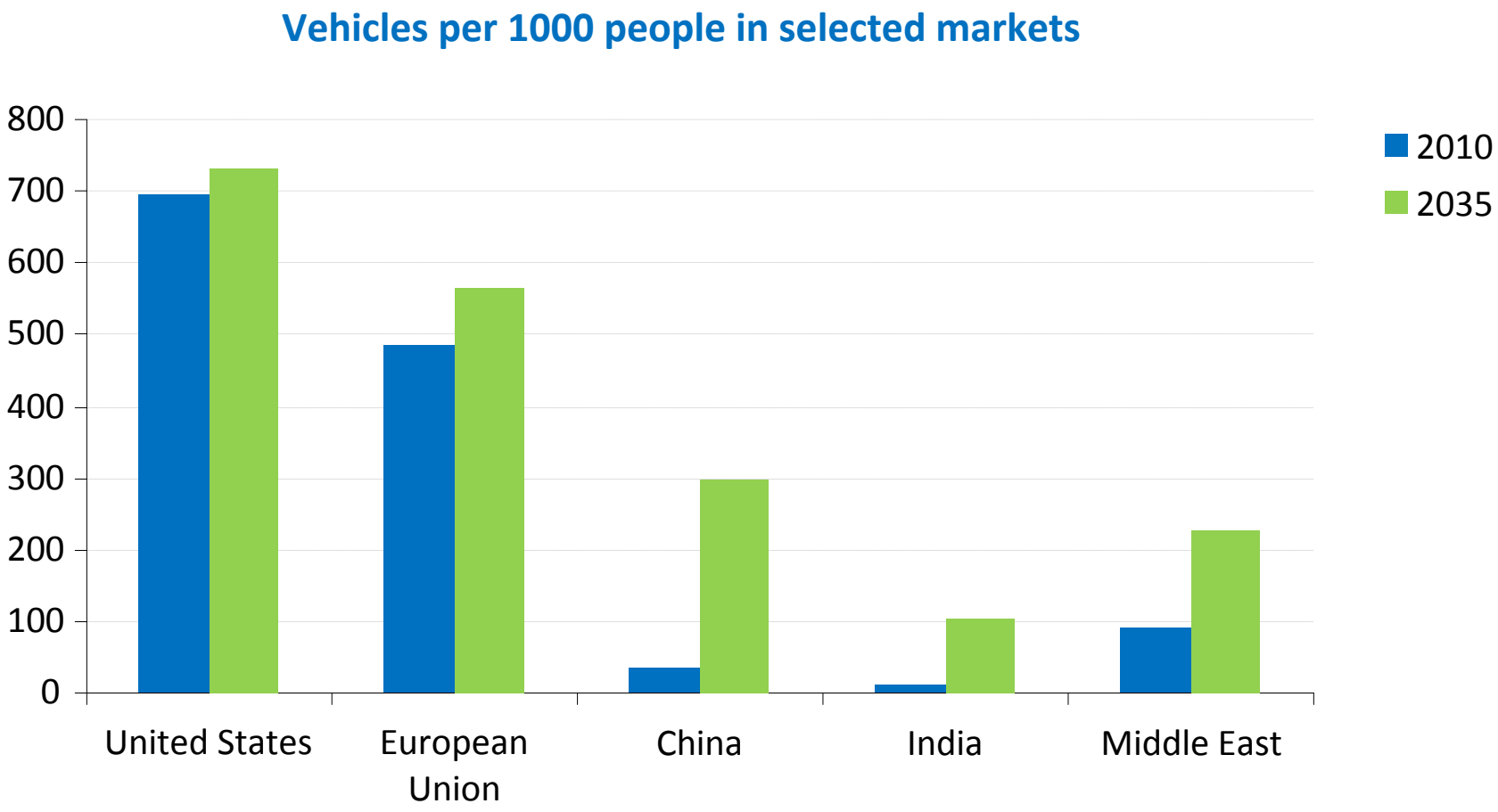

The passenger vehicle fleet doubles to 1.7 billion in 2035; most cars are sold outside the OECD by 2020, making non-OECD policies key to global oil demand

Changing oil import needs are set to shift concerns about oil security

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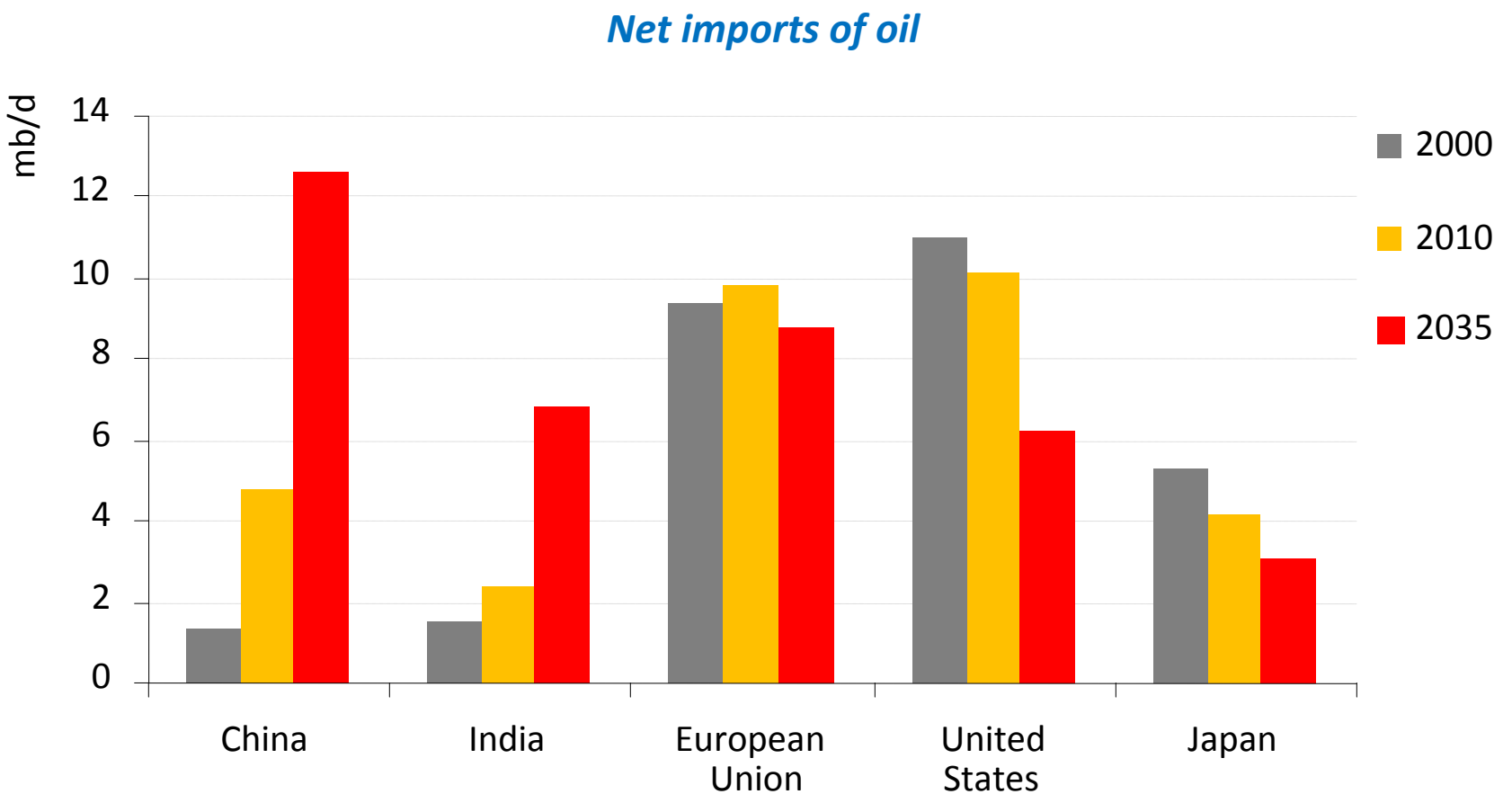

US oil imports drop due to rising domestic output & improved transport efficiency: EU imports overtake those of the US around 2015; China becomes the largest importer around 2020

What impact would deferred investment in MENA have on markets?

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- MENA is set to supply the bulk of the growth in oil output to 2035, requiring investment of over $100 billion/annum
- 'Deferred Investment Case' looks at near-term investment falling short by one-third
  - *possible drivers include new spending priorities, higher perceived risks, etc*
- MENA output falls 3.4 mb/d by 2015 and 6.2 mb/d by 2020
- Consumers face a near-term rise in oil prices to $150/barrel
- MENA earns more initially, but then less as market share is lost