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Introduction

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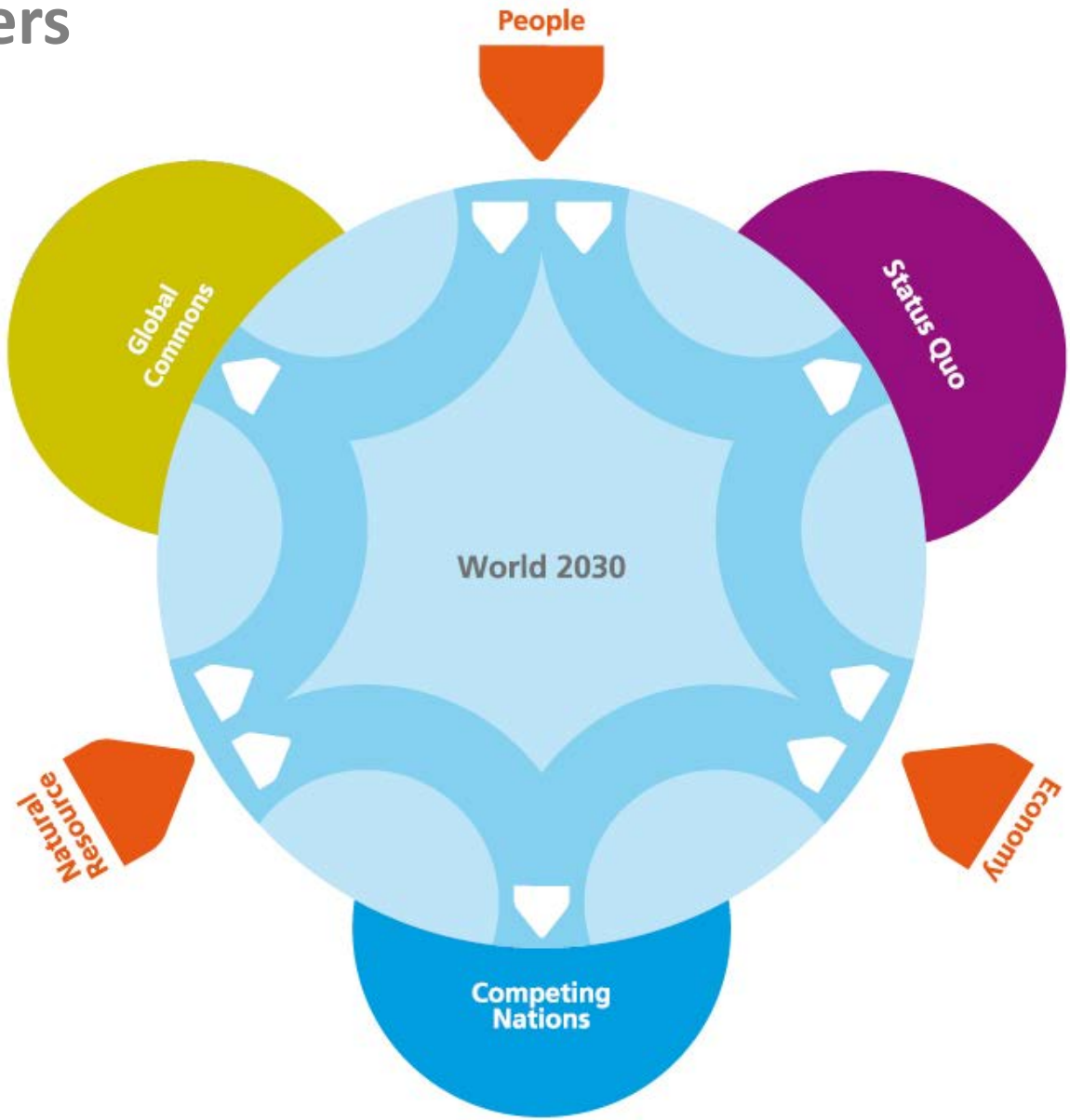
Scenarios and Drivers



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Scenarios

Status Quo

- Business as usual
- Clear economic growth
- No single trade power dominates

Global Commons

- Increased co-operation
- A bit more growth
- Accelerated globalisation

Competing Nations

- Weaker global institutions
- A bit less growth
- Rise in protectionism

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Disruptive Forces

- Russia joins NATO
- Dollar loses its reserve currency status
- Major pollution accident in the Arctic
- Rise of the Green Crescent
- Technology
- Global collapse

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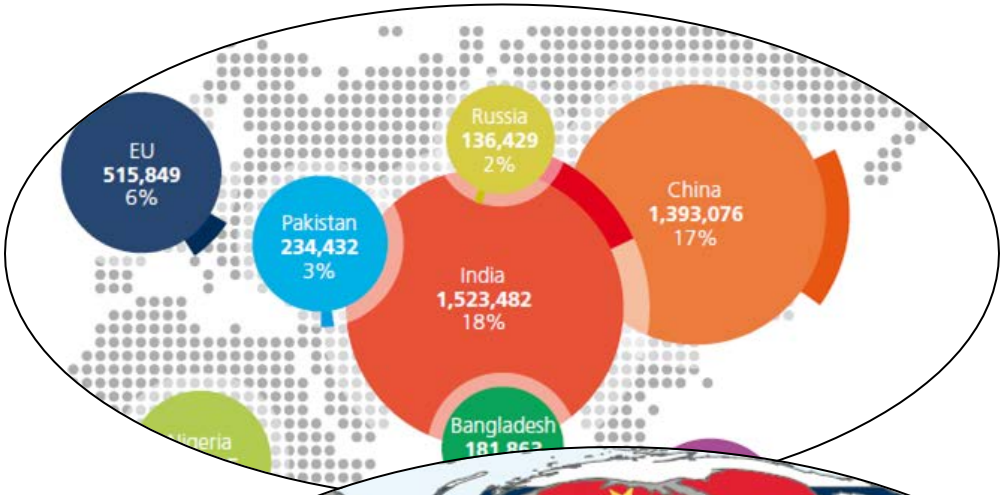
Global Drivers

- Population
- Economy
- Natural Resources



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Commercial Shipping

- Impact of drivers
- Trade
  - Crude Oil trade
  - Coal trade
  - Iron Ore trade
  - Container trade
- Fleet
- Ownership
- Shipbuilding market

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Impact of Drivers

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Crude Oil import and export

Fig. 36 **Crude Oil export (million tonnes)**

Source: MSI / LR

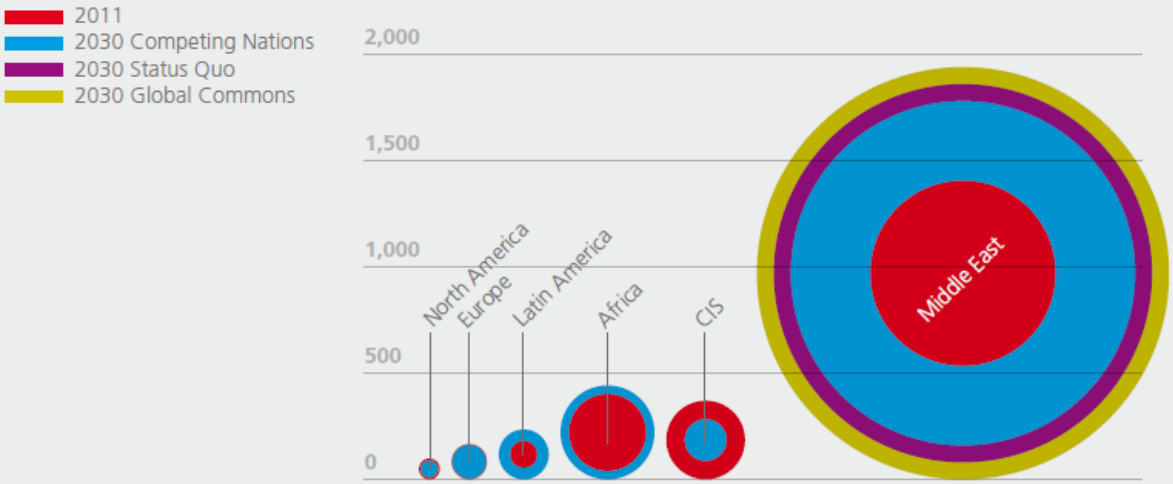
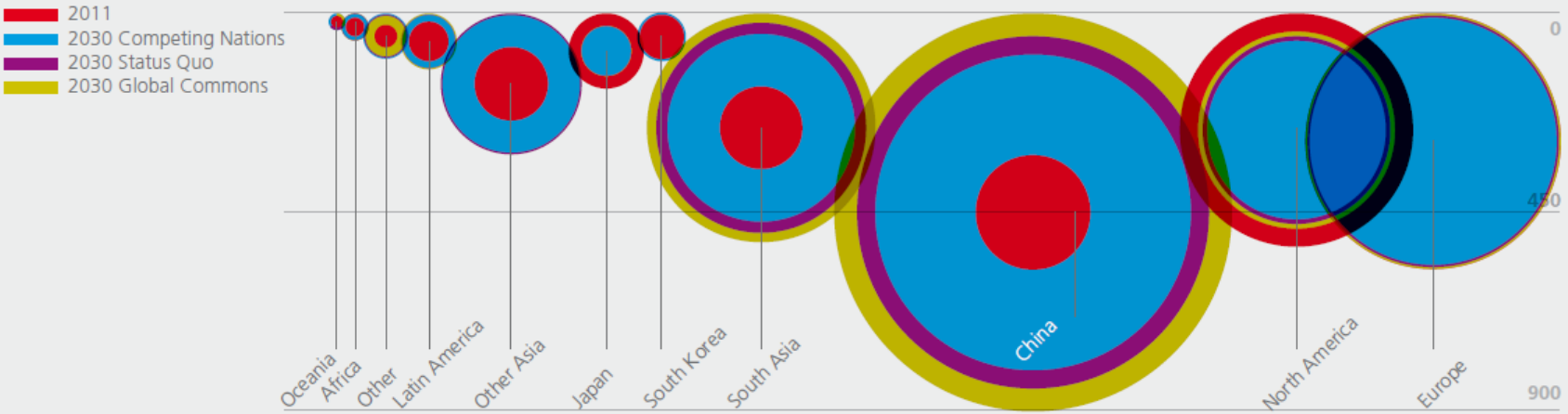


Fig. 37 **Crude Oil import (million tonnes)**

Source: MSI / LR



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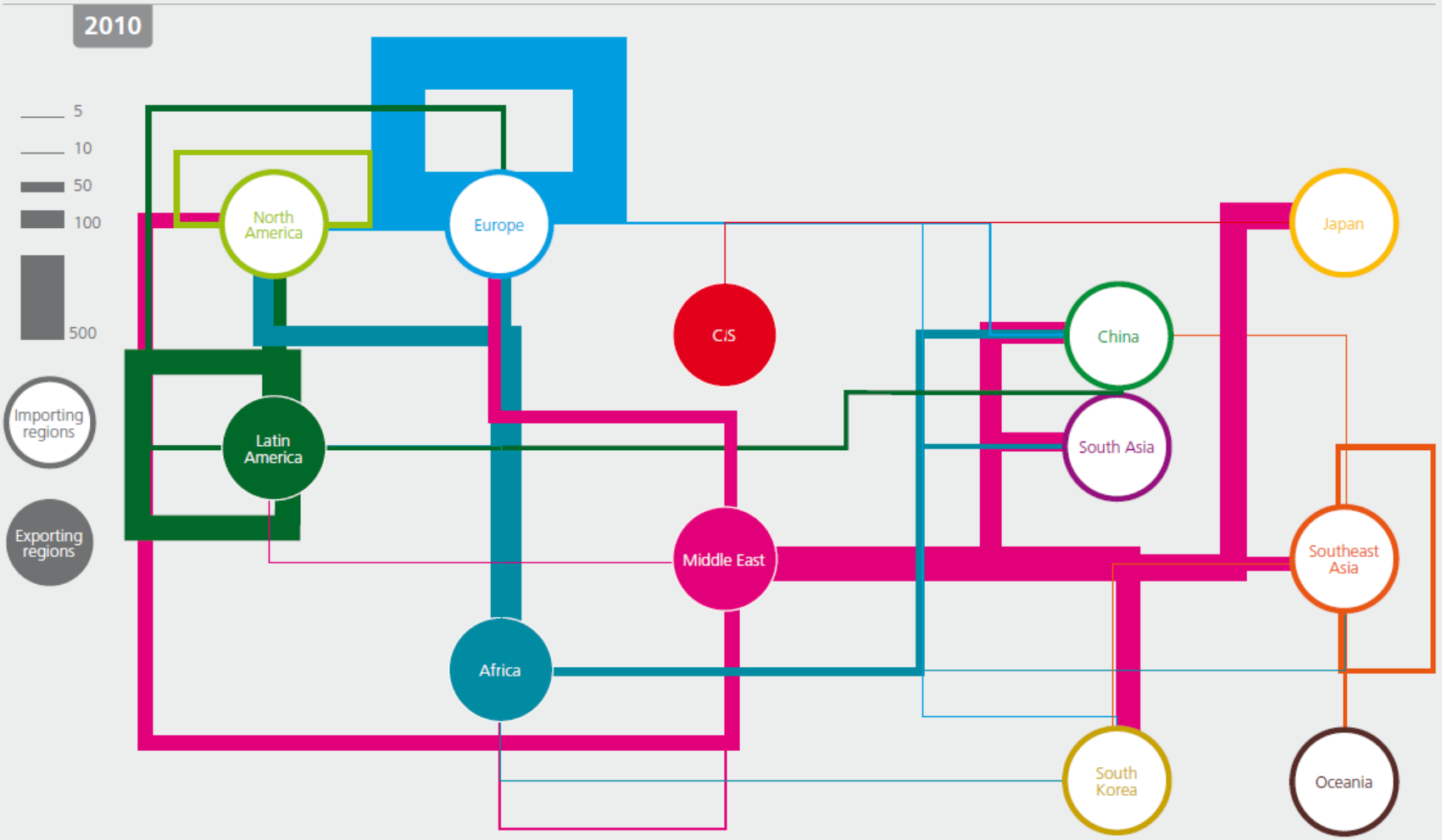
Crude Oil seaborne trade

Fig. 39 **Crude Oil seaborne trade 2010 (million tonnes)**

Source: MSI / LR



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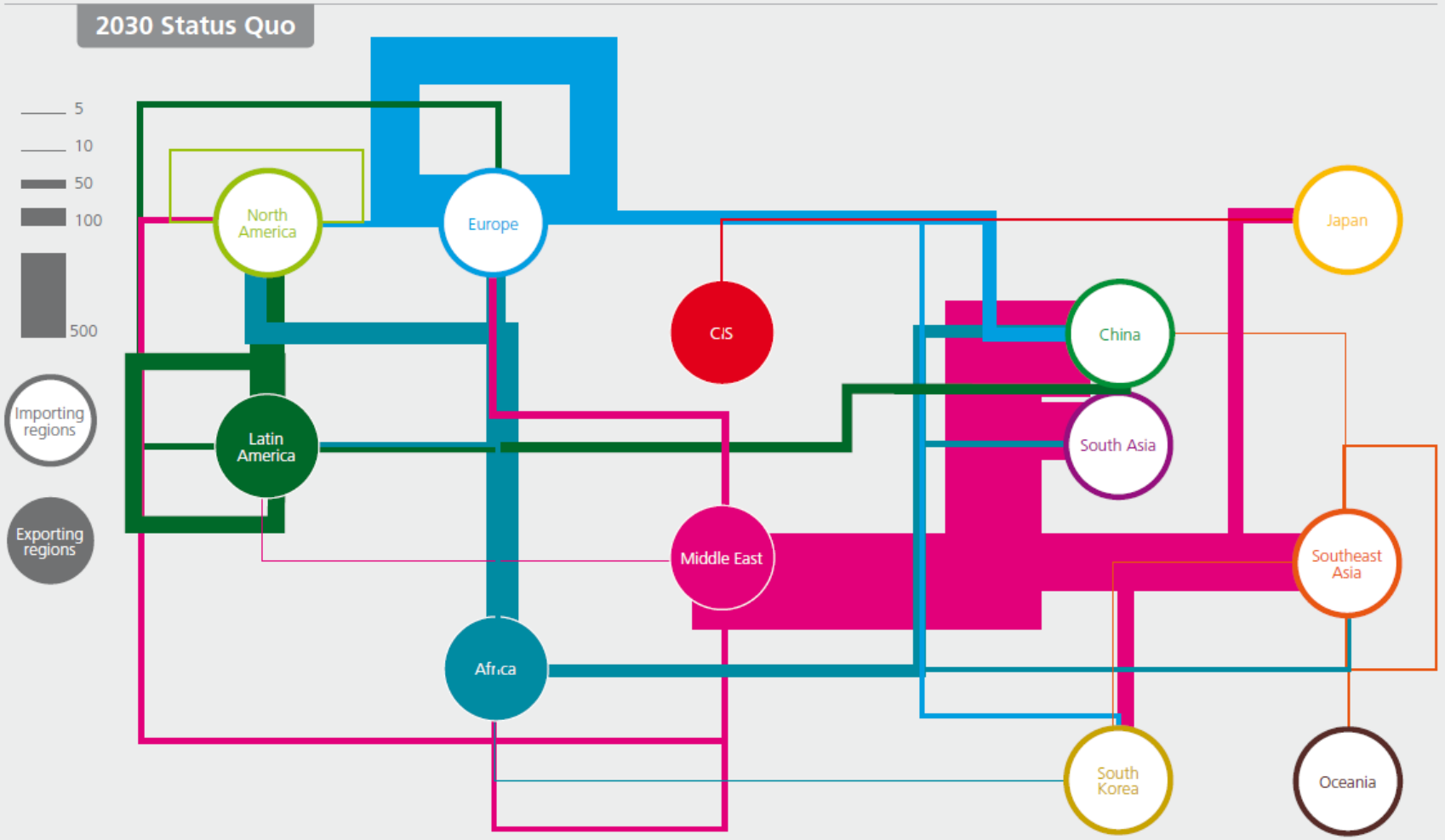
Crude Oil seaborne trade

Fig. 40 **Crude Oil seaborne trade 2030 (million tonnes)**

Source: MSI / LR



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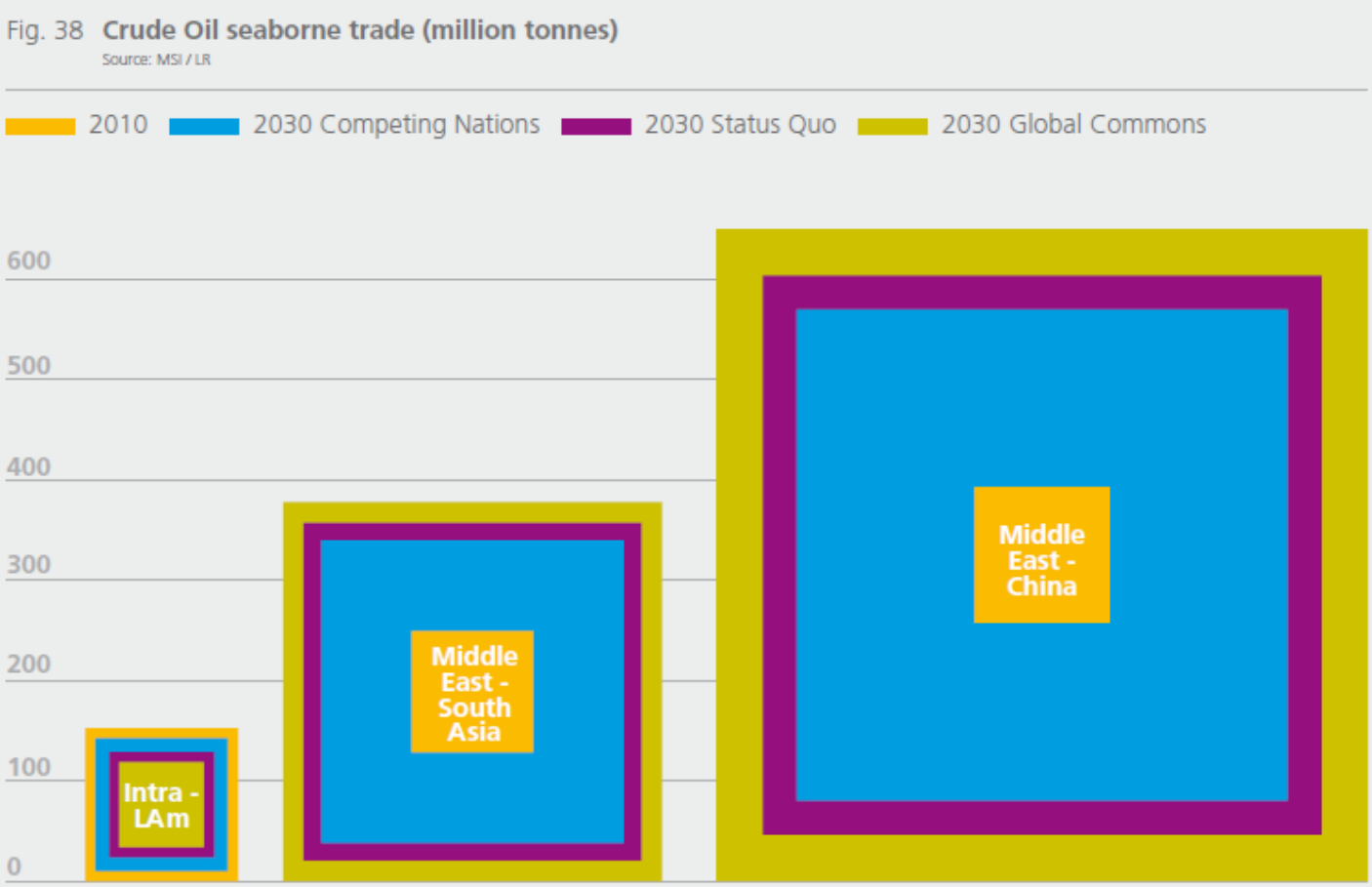
Crude Oil seaborne trade

Fig. 38 **Crude Oil seaborne trade (million tonnes)**

Source: MSI / LR



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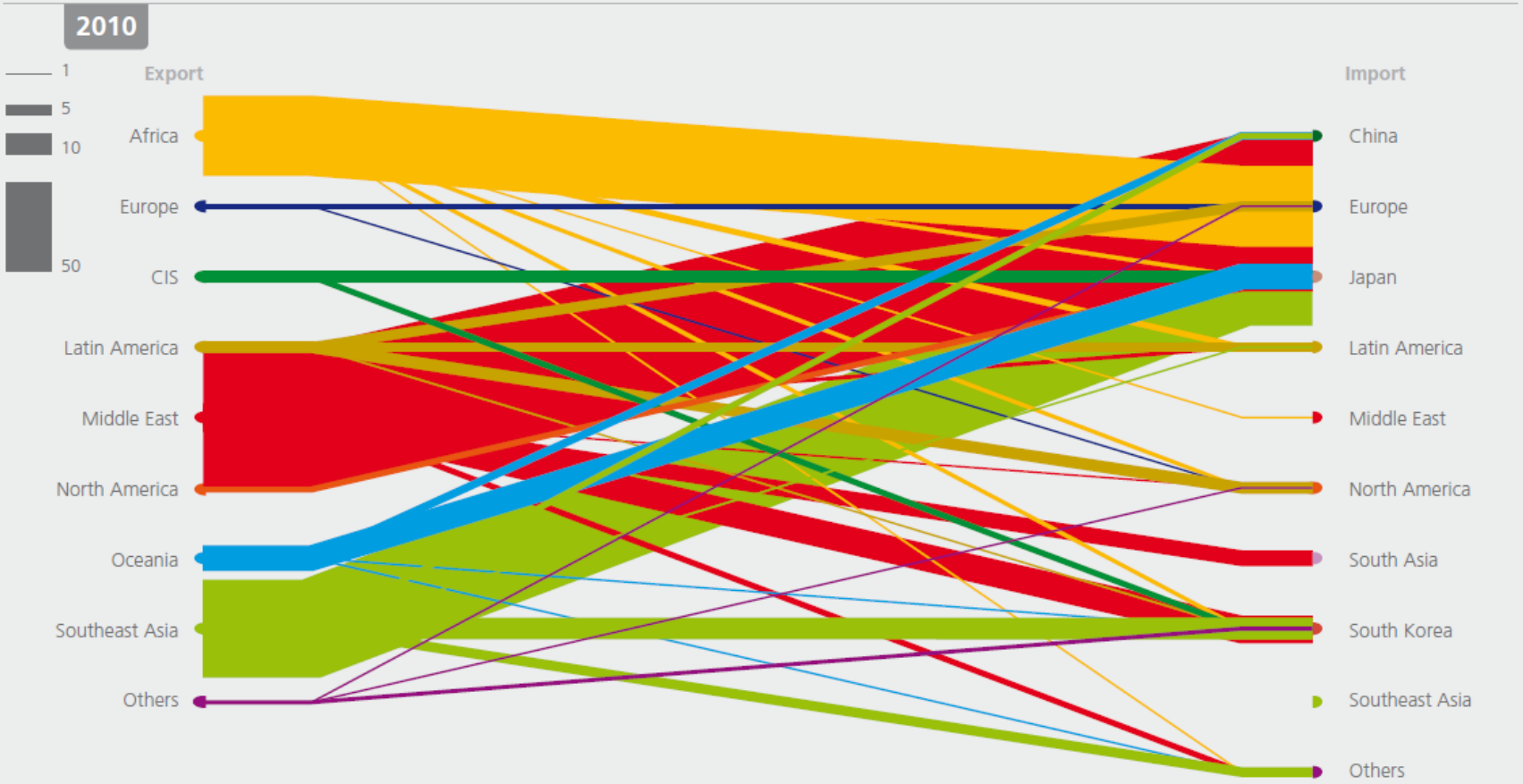
LNG seaborne trade

Fig. 48 **Seaborne LNG trade in 2010 (million tonnes)**

Source: MSI / LR



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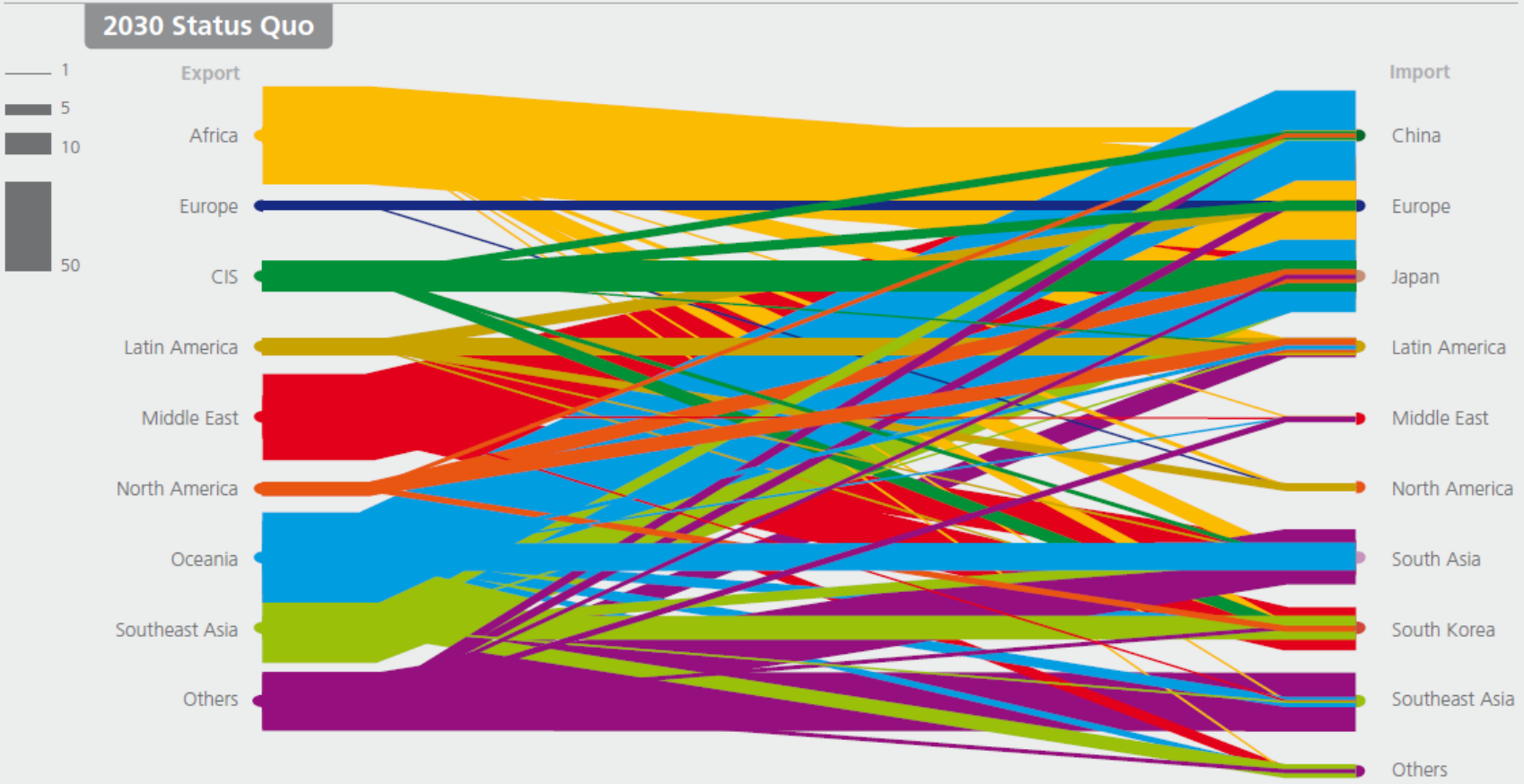
LNG seaborne trade

Fig. 49 **Seaborne LNG trade in 2030 (million tonnes)**

Source: MSI / LR



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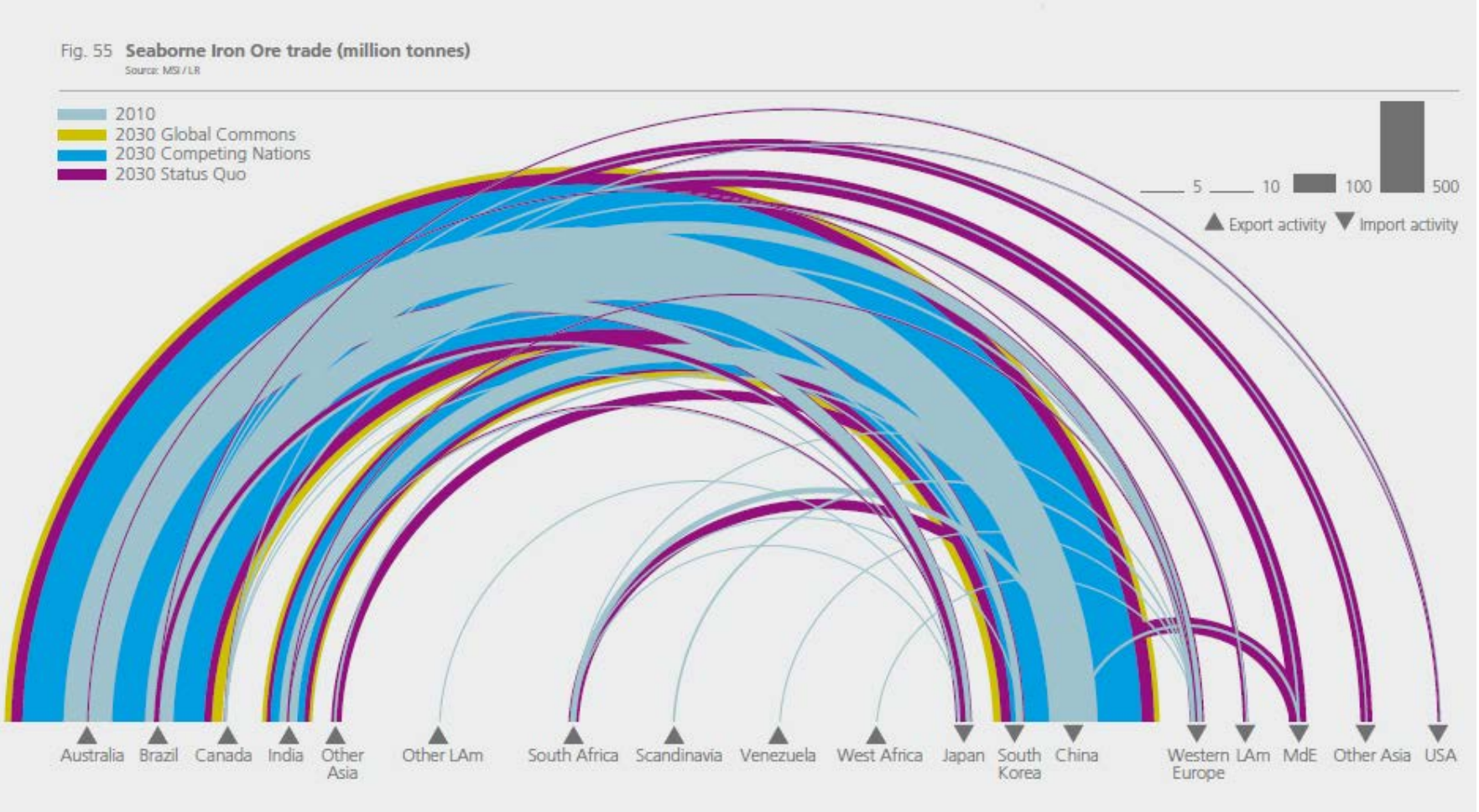
Iron Ore seaborne trade



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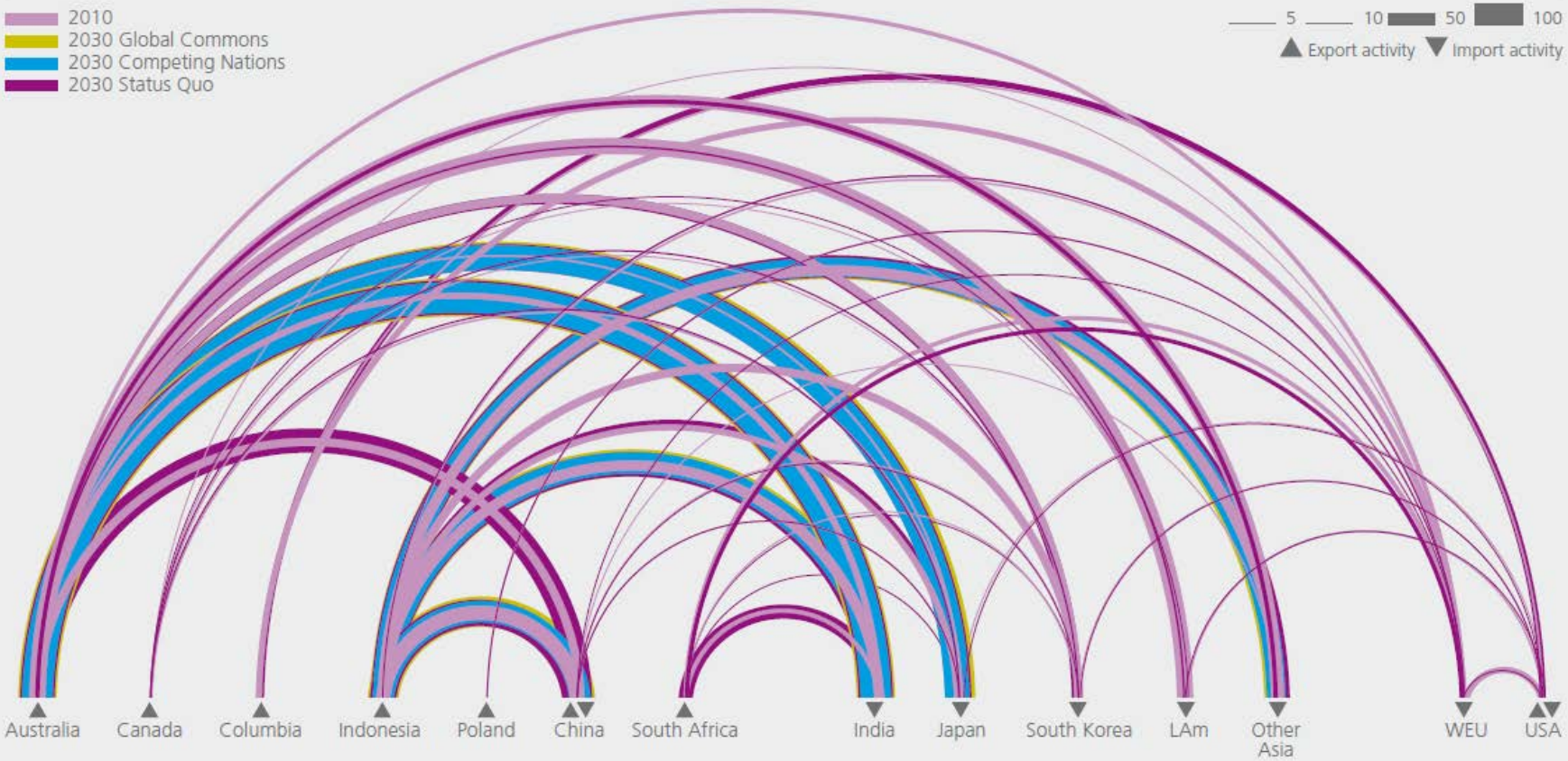
Coal seaborne trade

Fig. 52 **Seaborne Coal trade (million tonnes)**

Source: MSI / LR



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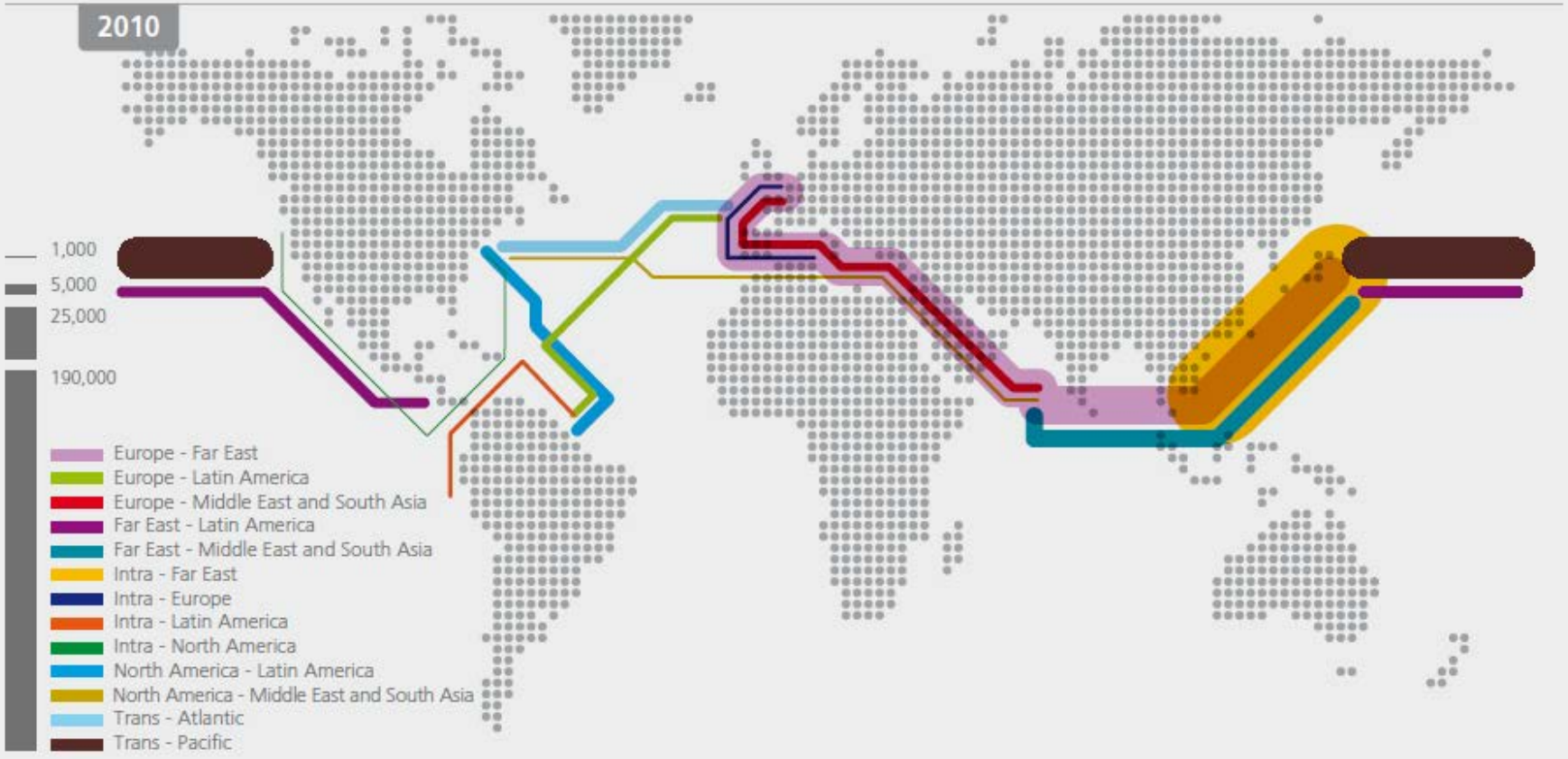
Container trade

Fig. 61 **Seaborne Container trade 2010 (thousand TEU)**

Source: MSI / LR



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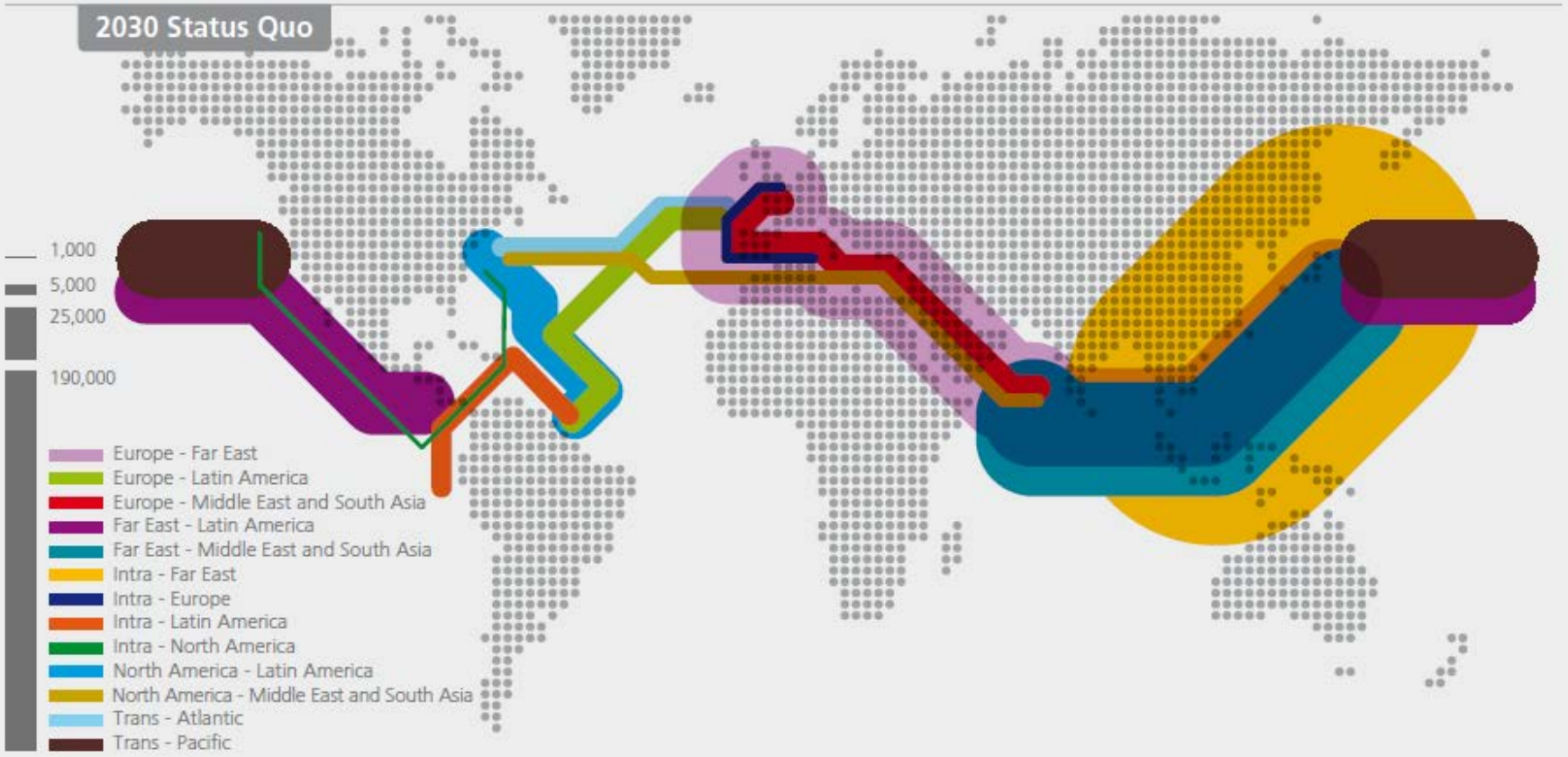
Container trade

Fig. 62 **Seaborne Container trade 2030 (thousand TEU)**

Source: MSI / LR



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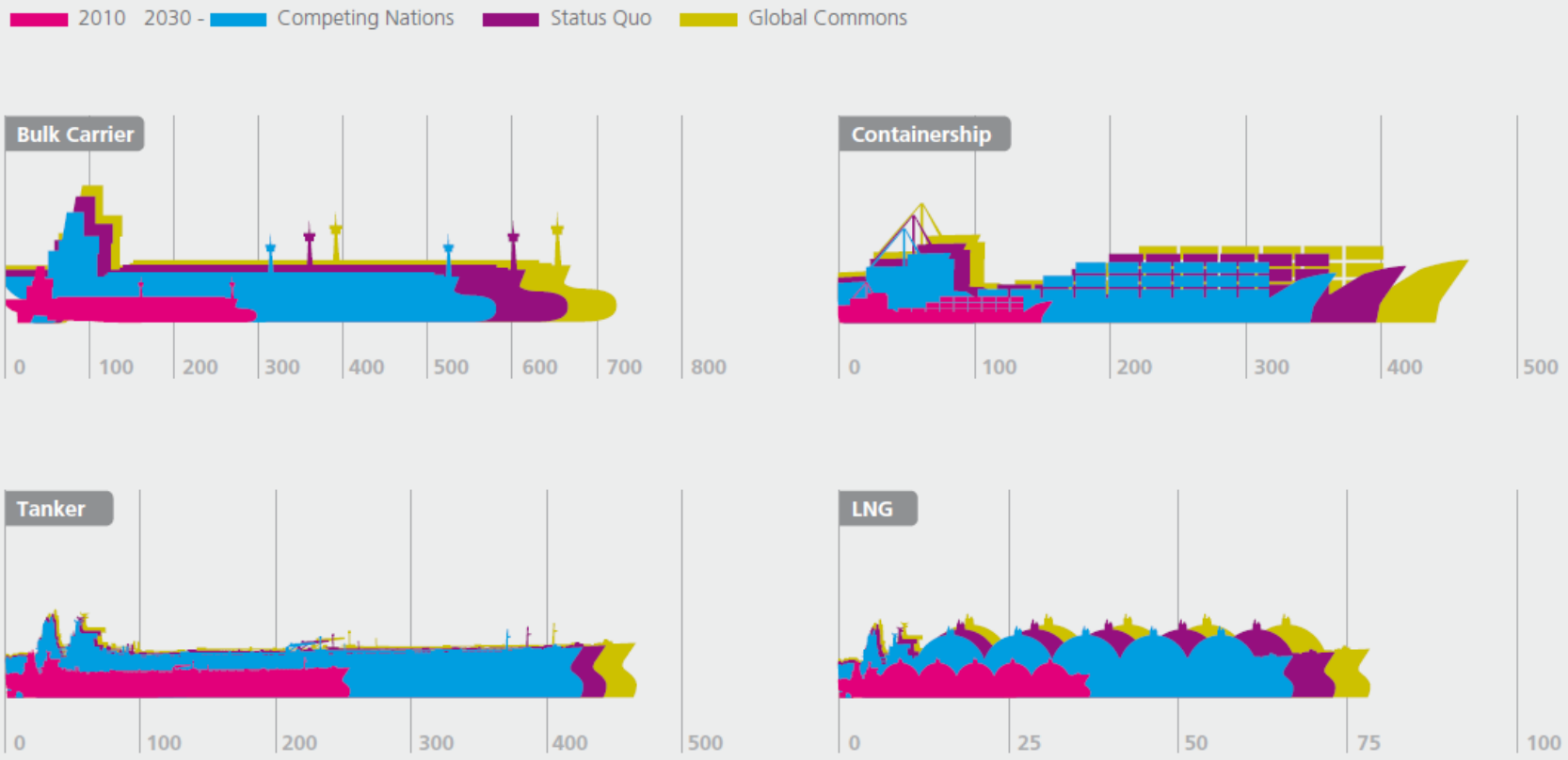
Fleet

Fig. 63 **Bulk Carrier/Tanker/Containership/LNG carrier fleet (million GT)**

Source: MSI / LR



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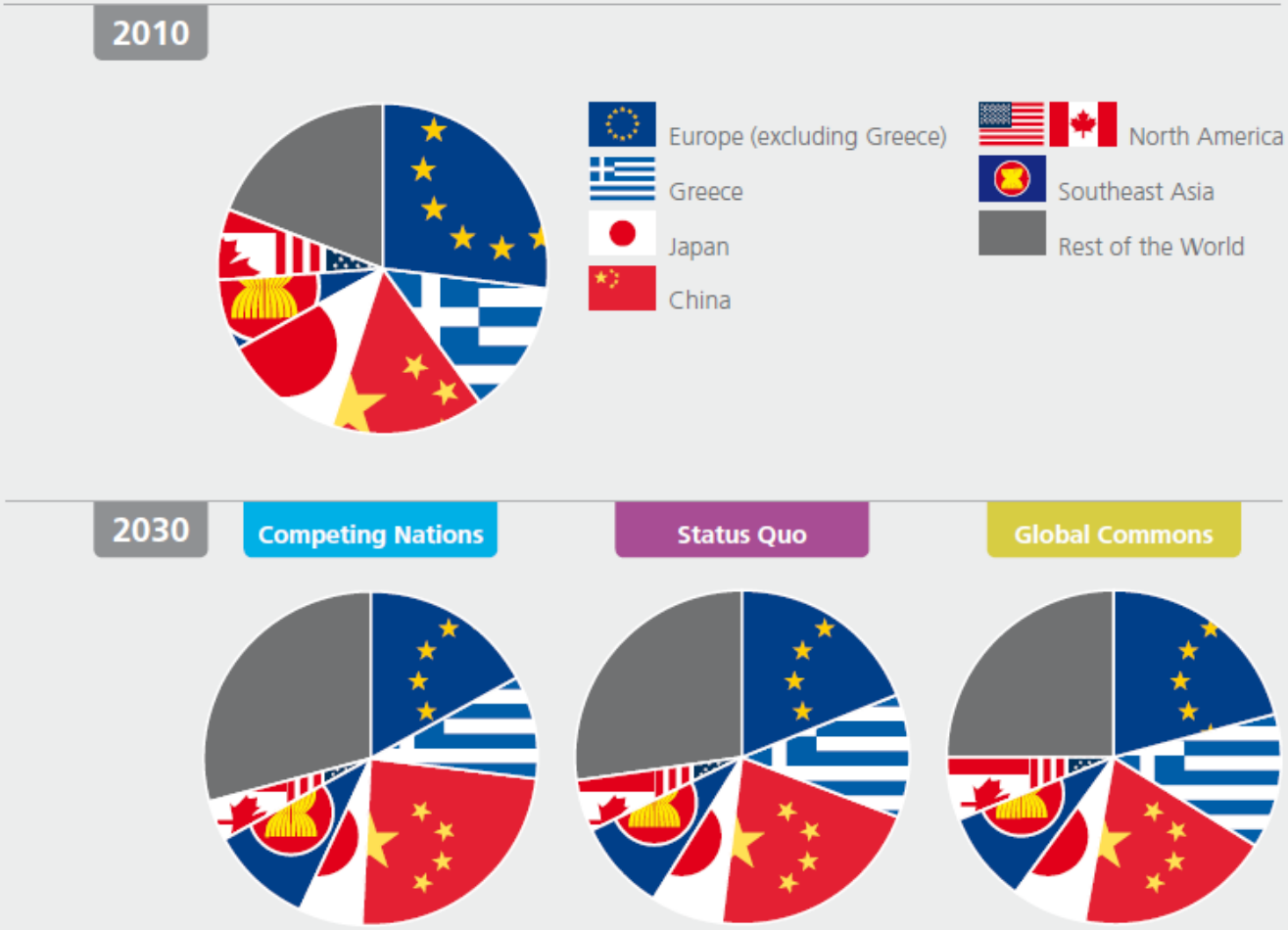
Fleet ownership

Fig. 67 **Major fleet ownership**

Source: MSI / LR



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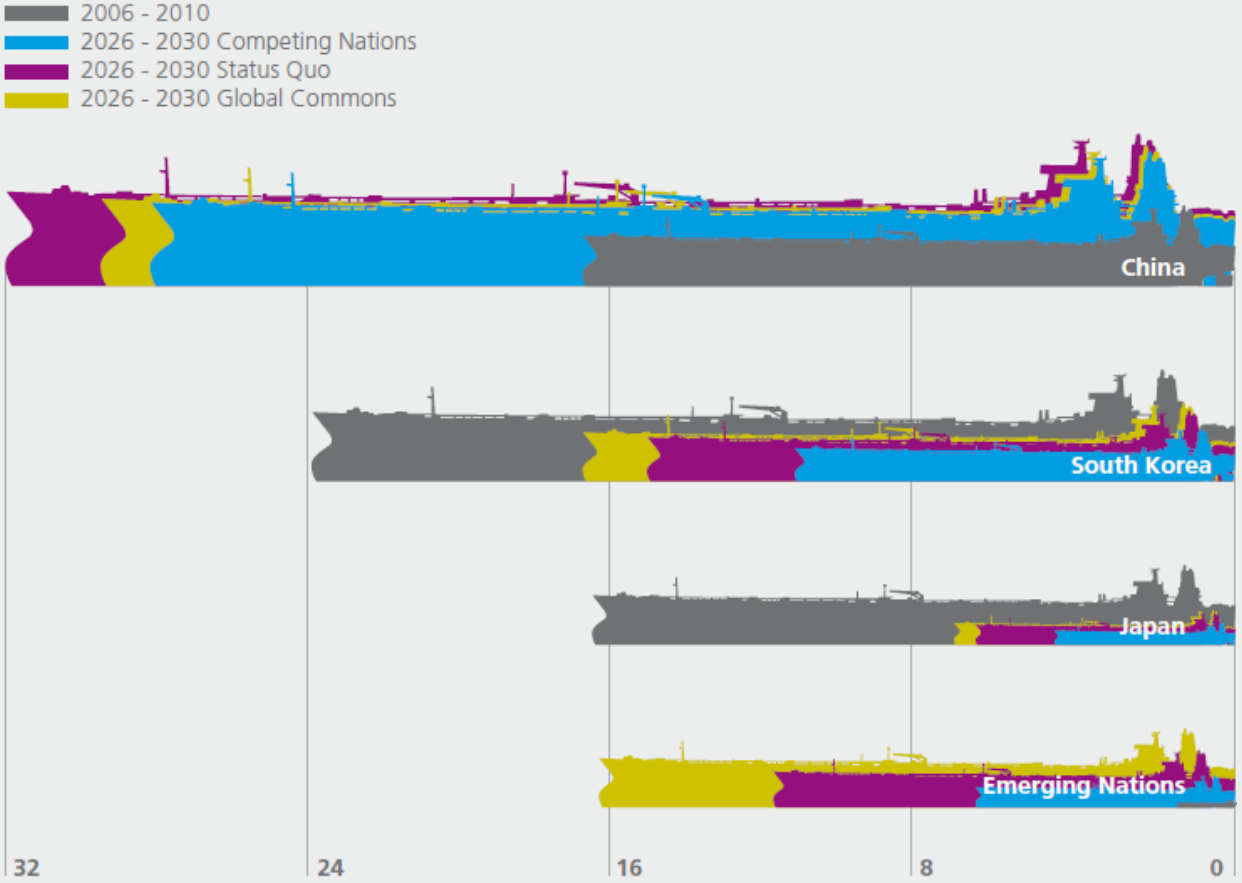
Shipbuilding

Fig. 72 **Bulk Carrier, Tanker, LNG, Containership (million GT)**

Source: MSI / LR



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Offshore Energy

- Drivers & Impacts
- Offshore oil and gas platforms
- Wave power
- Offshore wind turbines

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Drivers & Impacts

- The main driver will be the health of the world economy and a desire to lower carbon intensity
- The rise in demand from emerging countries will drive investment in offshore exploration for oil and gas in regions which are rich in offshore oil & gas reserves
- We will see increased activities in the Arctic and cold climate regions, in west Africa and South East Asia
- We will see an impressive expansion by 2030 in offshore energy supply
- There is also a drive to expand the energy mix with an acceleration in offshore renewables to lower carbon intensity

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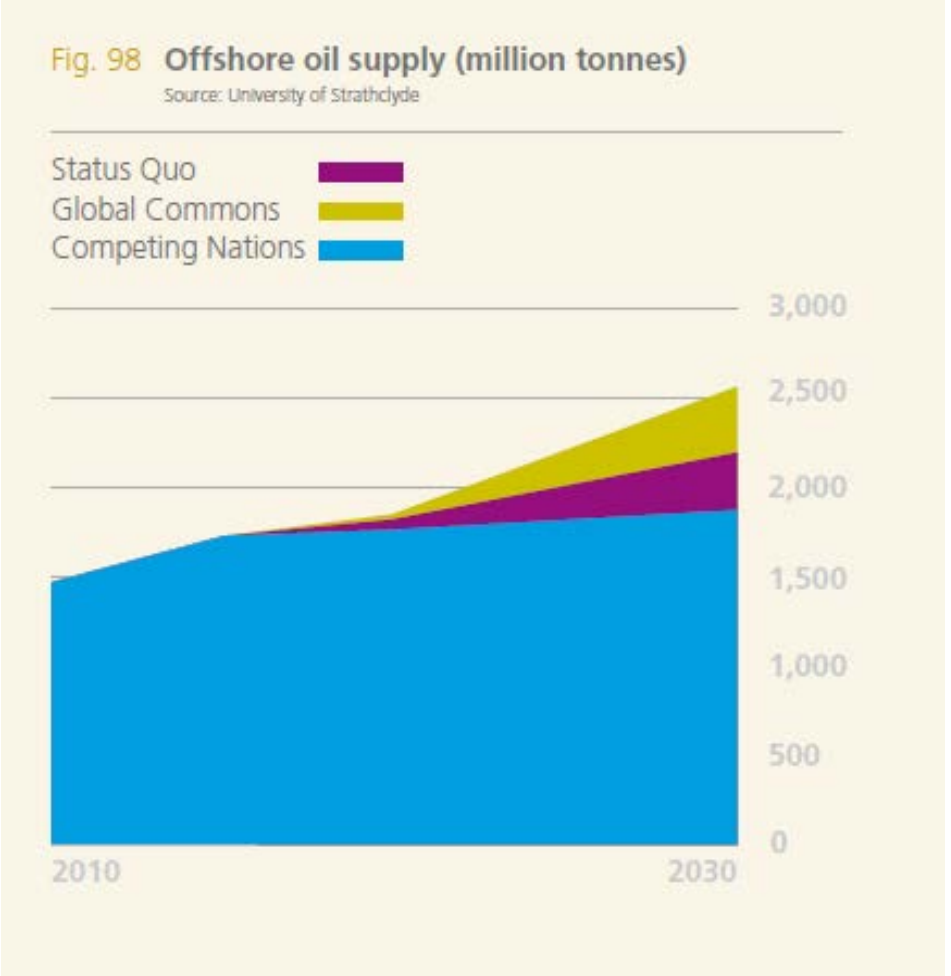
Offshore Oil supply

- 34% of worldwide oil production occurred offshore in 2004. This is expected to increase to 40% by 2015 and to 48% by 2030.
- Production in deep water offshore fields will move from 10% share (2004) to 25% (2015) and to 45% in 2030.
- This will compensate the decline from “traditional offshore” fields.



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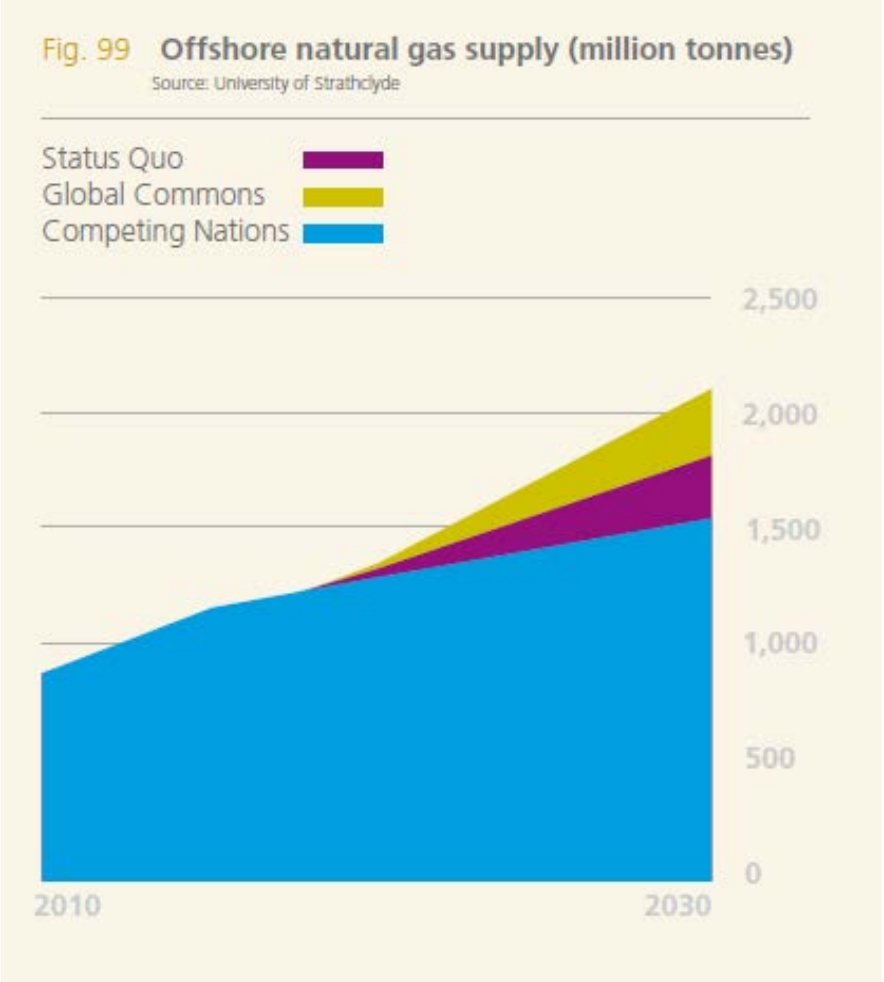
Offshore Natural Gas supply

- Natural gas will be the fastest growing major fuel supply, with demand rising more than 60% by 2030.
- Natural gas production from offshore reserves is expected to increase from 28% of the worldwide natural gas production in 2004 to 34% in 2015 and to 42% in 2030.



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Oil and gas platforms 2010

Floating platforms oil and gas platforms

270 Total platforms in 2010

Fig. 100 **Number of floating platforms**
Source: University of Strathclyde

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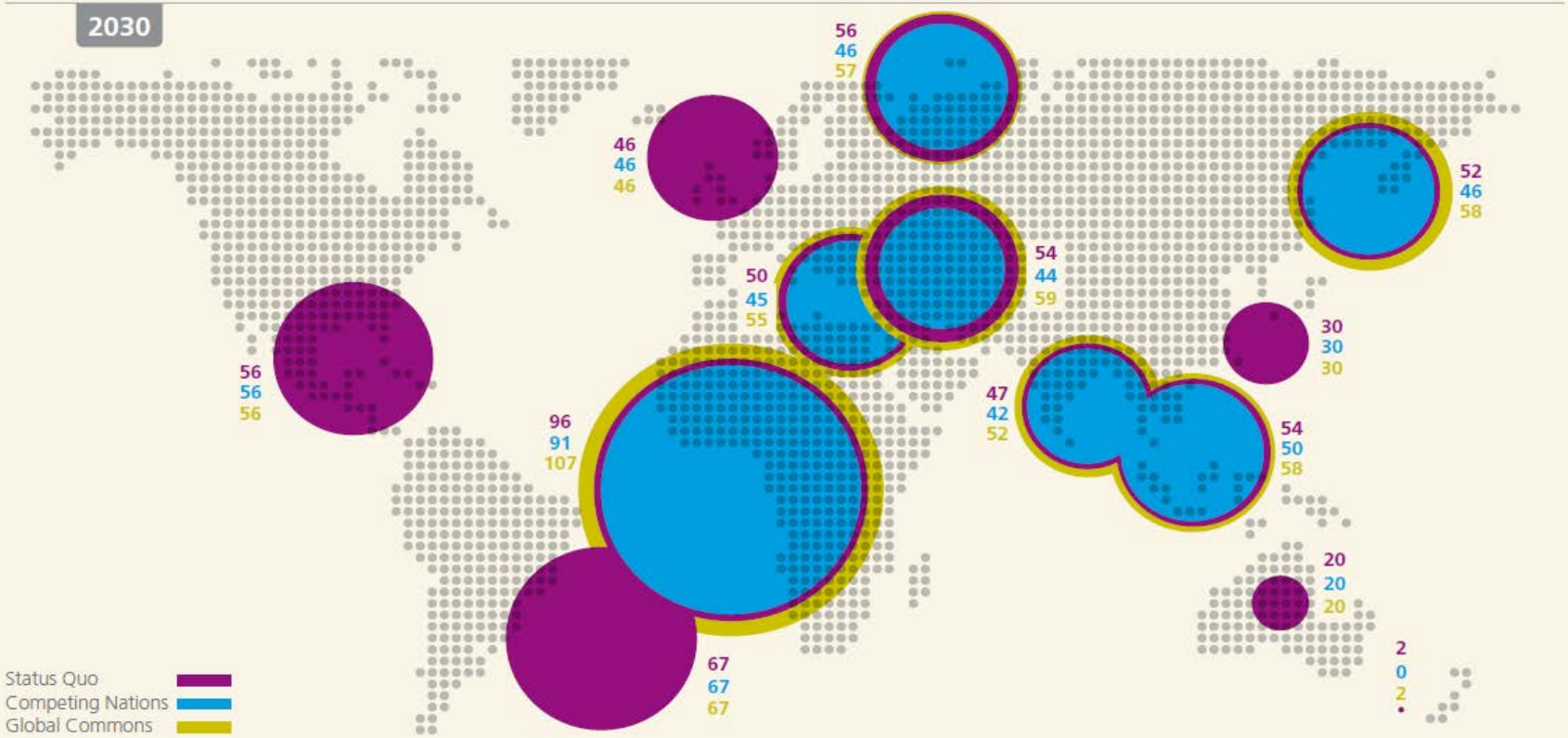
Oil and gas platforms 2030

618 Total platforms in 2030

Fig.101 **Number of floating platforms**

Source: University of Strathclyde



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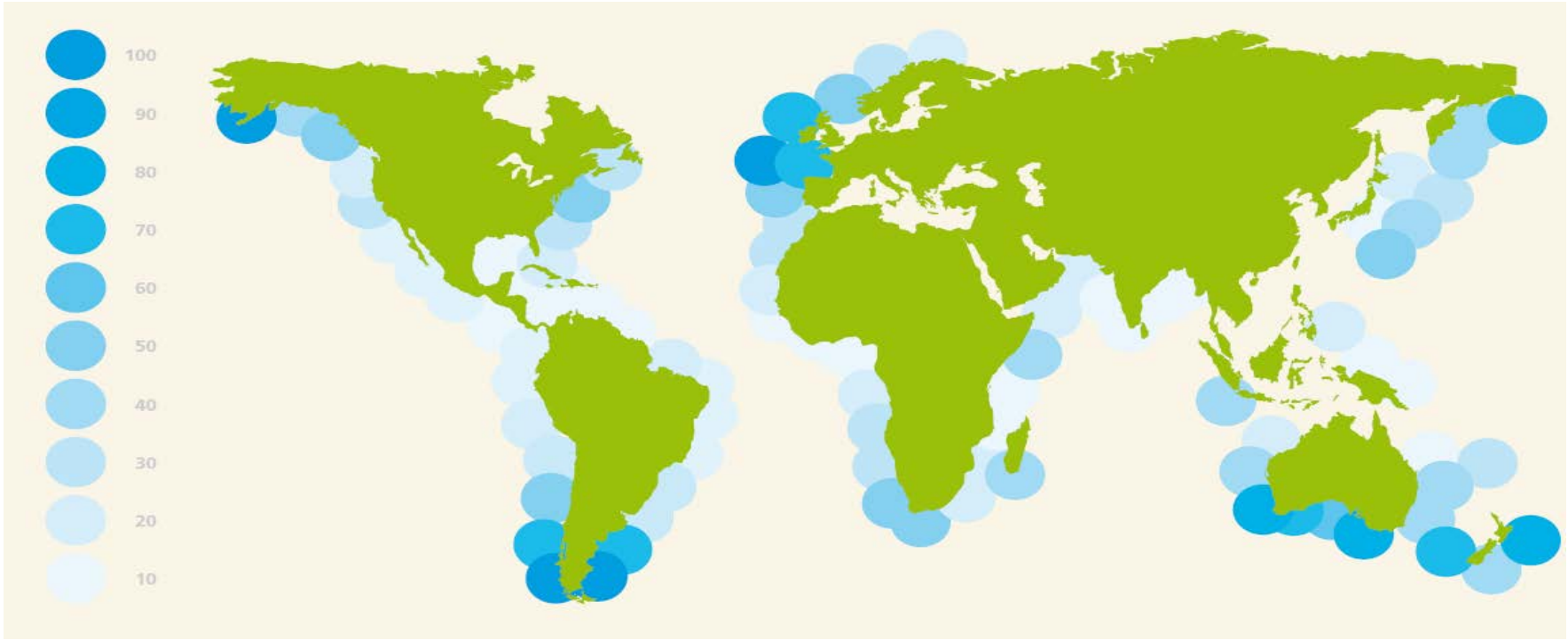
Wave power potential in 2030

- The global technical potential of wave energy is estimated at 11,400 TWh per year. Its sustainable generating potential of 1,700 TWh per year equates to about 10 per cent of global energy needs.
  - **22** wave energy devices in 2010
  - **22,000** wave energy devices expected in 2030



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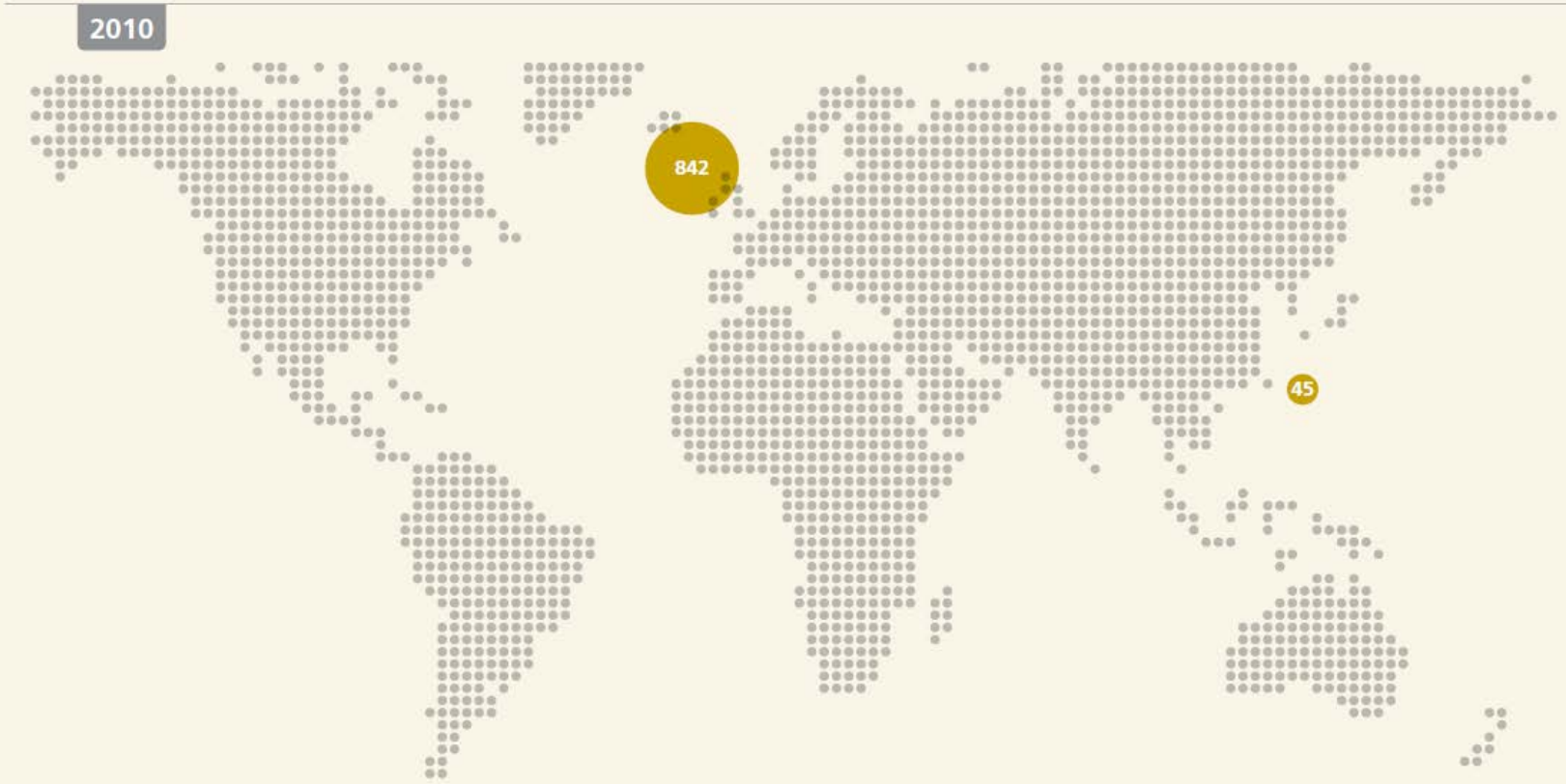
Offshore wind turbines 2010

Offshore wind turbines

100 times more offshore wind turbines

Fig.103 **Number of offshore wind turbines**
Source: University of Strathclyde



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Offshore wind turbines in 2030

More than 65,000 wind turbines are required to provide more than 226,000Mw of wind capacity in 2030

Fig.104 **Number of offshore wind turbines**

Source: University of Strathclyde

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Für alle 3 Szenarien gilt

- Das Weltwirtschaftspotential wird sich von 2010 bis 2030 nahezu verdreifachen (von 9 Milliarden Tonnen auf 19 – 24 Milliarden Tonnen jährlich).
- Die 3 Topökonomien werden China, USA und Indien sein
- Der globale Handel wächst erheblich und mit ihm die Handelsschifffahrt
- Hafenstädte werden zu den wirtschaftlich am wichtigsten Städten der Welt
- China wird zum größten Ölkonsumenten vor den USA
- Der Erdgasimport durch Japan, Europa, Indien und China dominiert.
- China und Indien werden zu den größten Kohle- und Stahlverbrauchern
- Es wird stark erhöhte Investitionen im Offshore-Bereich geben

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Handelsschifffahrt 2030

- Die Handelsschifffahrt wird sich bis 2030 verdoppelt
- China ist 2030 *die* maritime Supermacht (Seehandel, Schiffbau, Eigner- und Managementstrukturen)
- China und Indien sind die Antreiber des globalen Handels (Import und Export von Rohstoffen und Konsumgütern)
- Containertransporte wachsen global, v.a. im asiatischen und indischen Bereich
- Gesamttonnage und die Anzahl der Schiffe steigt über alle Schiffstypen hinweg

  (Tanker ca. x 1.8; Massengutschiffe, Container und LNG ca . x 1.8 – 3)

- China ist größter Flotteneigner vor Griechenland
- China bestimmt den Schiffbau. Japan und Südkorea verlieren Marktanteile. Schiffbau wächst auch in Schwellenländern (Vietnam, Brasilien, Indien, Philippinen)

Offshore-Energie 2030

- Die Offshore-Energiegewinnung wächst sehr stark, vor allem die Tiefseeförderung (circa 50% der Offshore-Förderung)
- Erdgas wird der am schnellsten wachsende Bereich für die Treibstoffversorgung (+60%)
- Weltweit gibt es neue Öl- und Gasplattformen. Die größte Steigerung liegt in Westafrika, der Arktis, Südkorea, Indonesien, dem Mittelmeer und dem Schwarzen Meer. Steigerung circa um den Faktor 2 - 3
- In 2030 wird es ca. 22.000 Wellenkraftwerke weltweit geben
- Offshore Windenergie wird sehr stark anwachsen, vor allem in der Nord- und Ostsee sowie im asiatischen Pazifik, Steigerung um das 100-fache.

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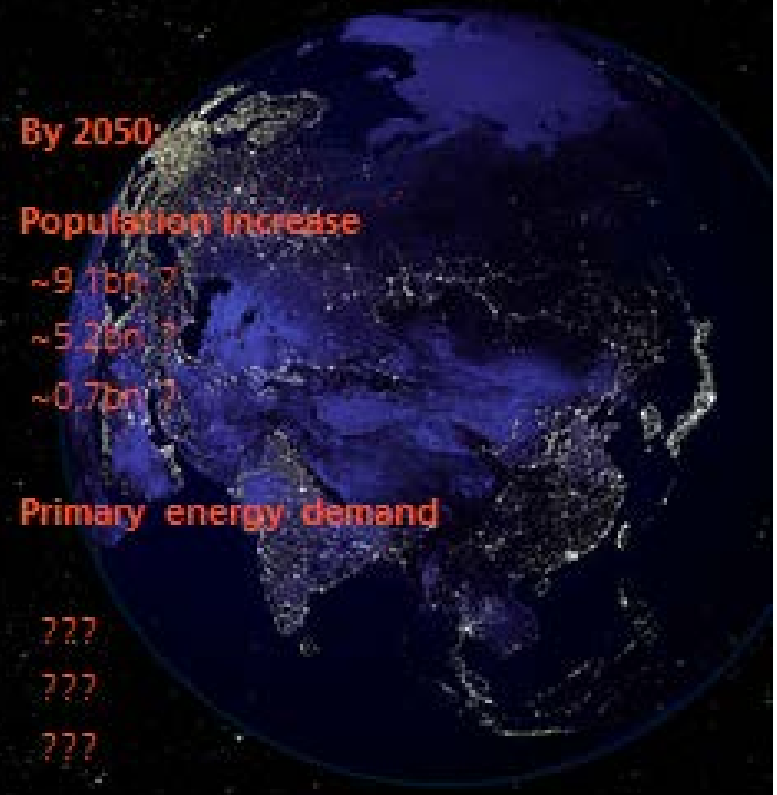
The challenge

	In 2010	By 2035:	By 2050:
	Population	**Population increase**	**Population increase**
World:	6.9bn	7 to 8.6bn	~9.1bn ?
Asia:	4.2bn	4 to ~5bn	~5.2bn ?
EU:	0.7bn	0.5 to 0.52bn?	~0.7bn ?
	Primary energy usage	**Primary energy demand**	**Primary energy demand**
World:	8,700 Mtoe	13,000 to 17,000 Mtoe	???
Asia:	2,600 Mtoe	5,300 to 8,600 Mtoe	???
EU:	1,800 Mtoe	1,600 to 1,700 Mtoe	???



Where will all the required energy, resources for consumer demands and sufficient quality food for all these people come from?

Danke für Ihre Aufmerksamkeit

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Working together for a safer world

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