



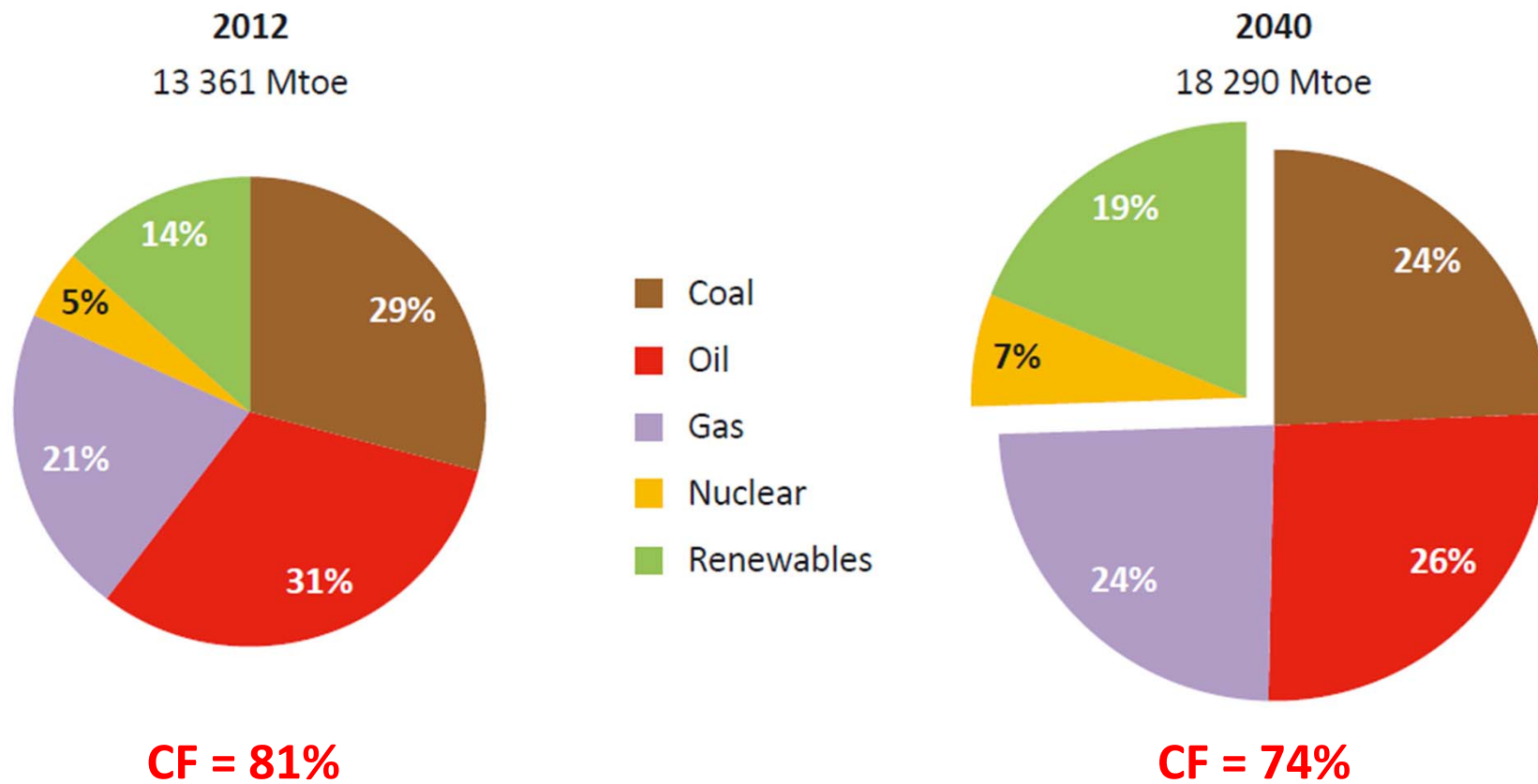
Sesión de debate

**Nuevos mercados del gas:
Efectos sobre la competitividad de las empresas**

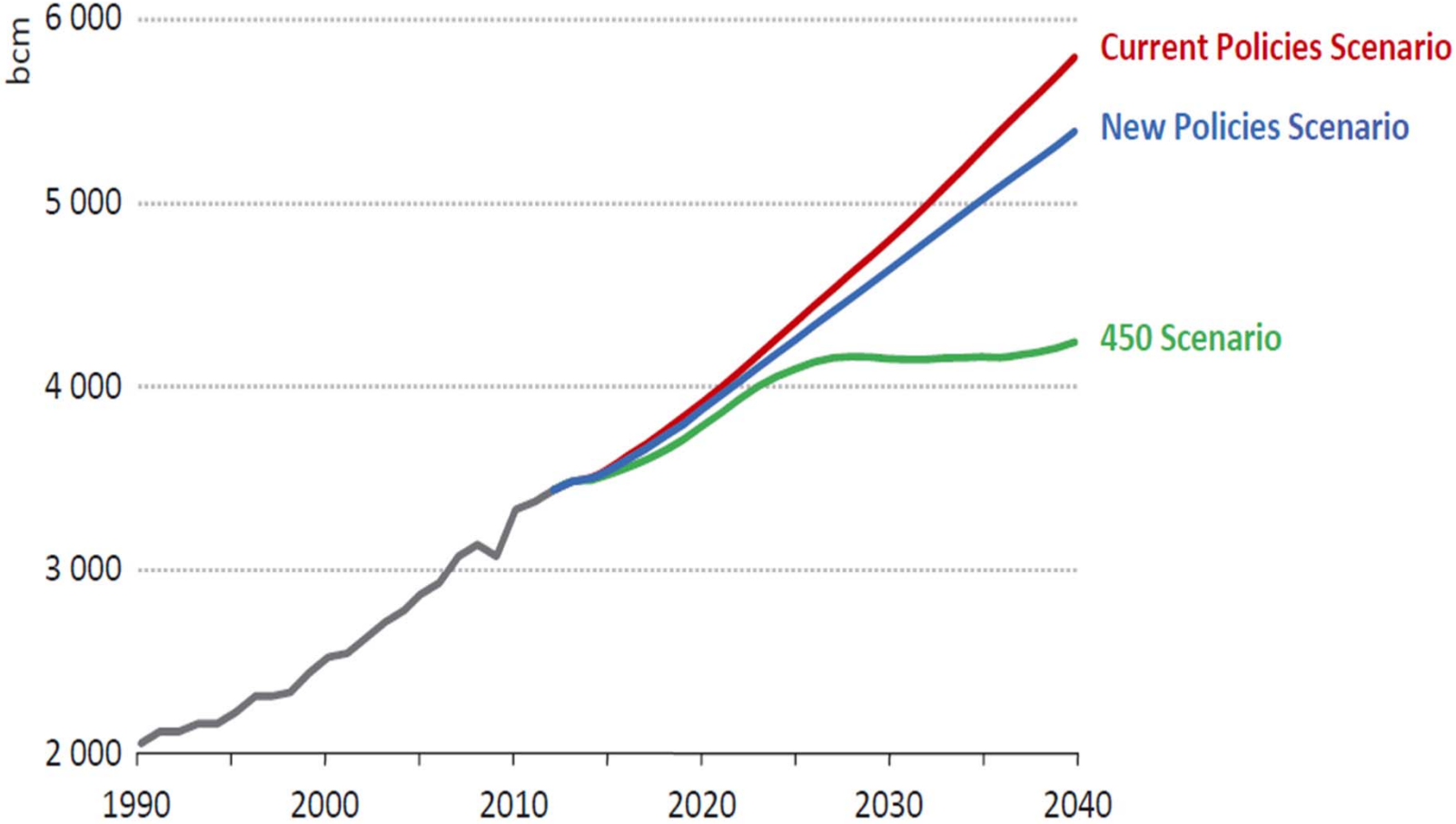
**El mercado global del gas a la luz de los nuevos recursos disponibles
Mariano Marzo (UB)**

Foment del Treball, Barcelona 30-4-2015

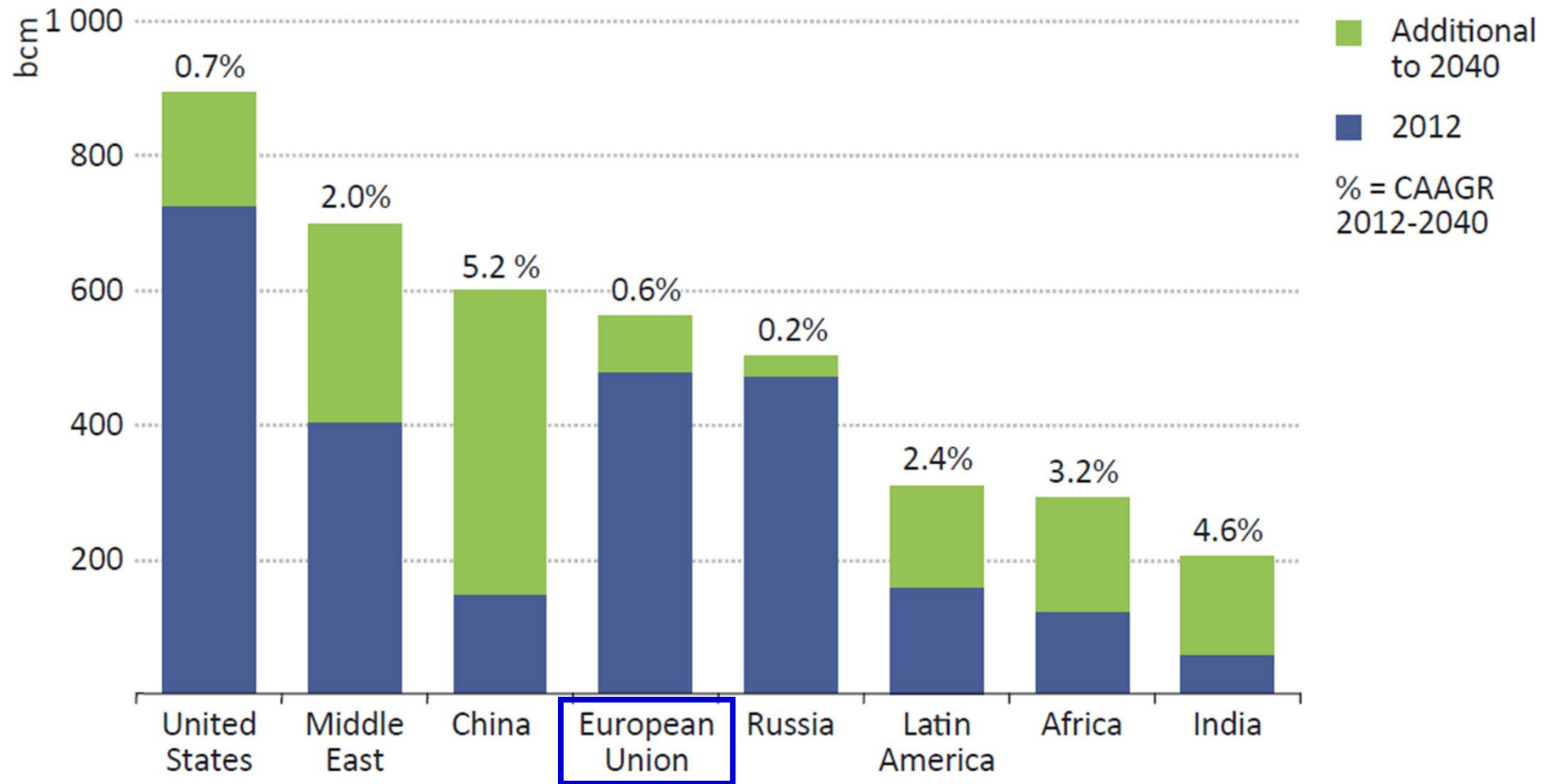
Evolución 2012-2040 en la cobertura de la demanda mundial de energía primaria
El gas natural en camino de convertirse en la principal fuente energética
New Policies Scenario (IEA, WEO 2014)



La demanda global de gas natural aumenta en los tres escenarios del WEO 2014

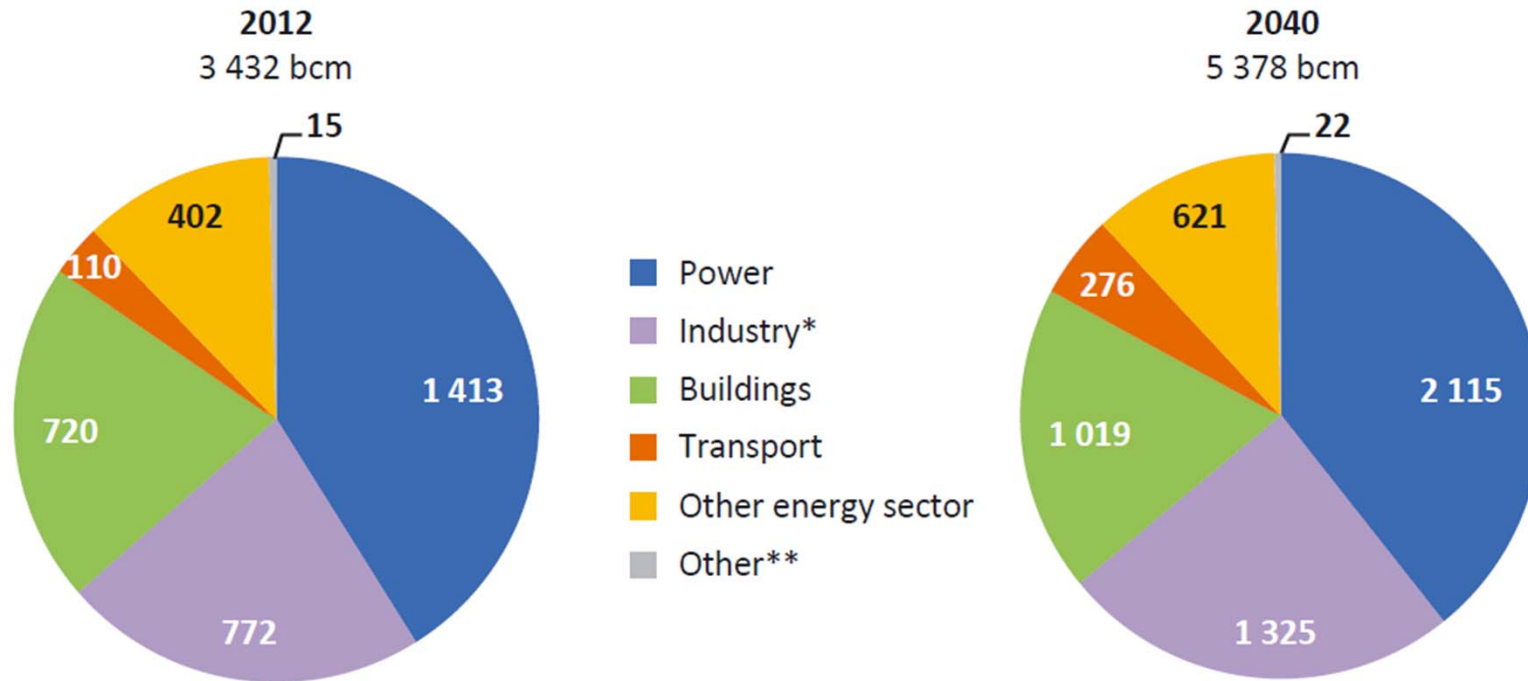


Demanda de gas natural 2012-2040 por regiones. New Policies Scenario (IEA, WEO 2014)



Note: CAAGR = compound average annual growth rate.

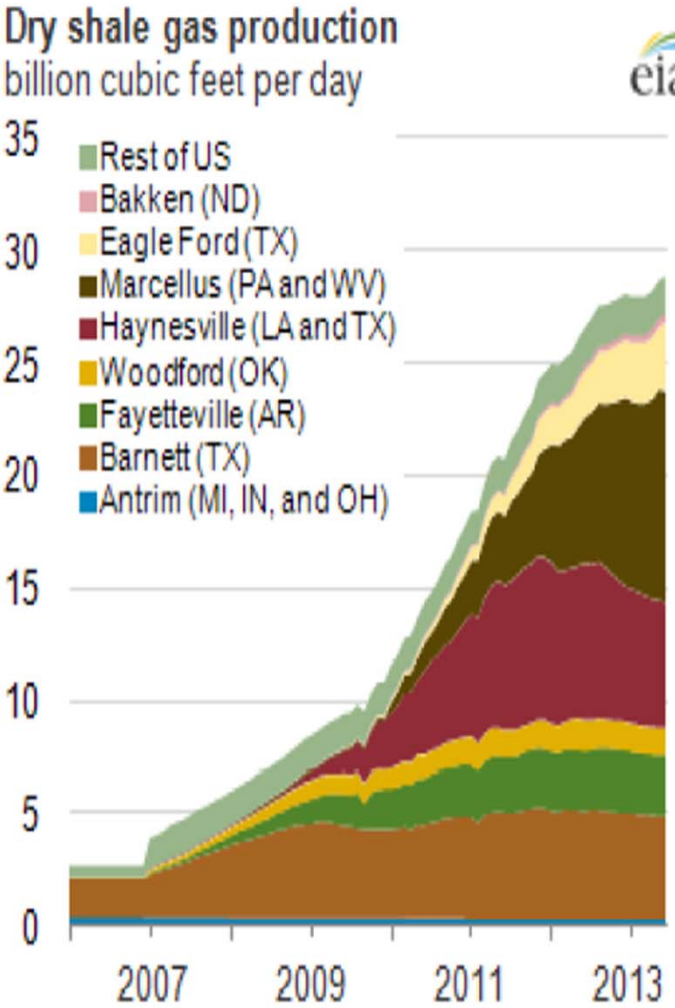
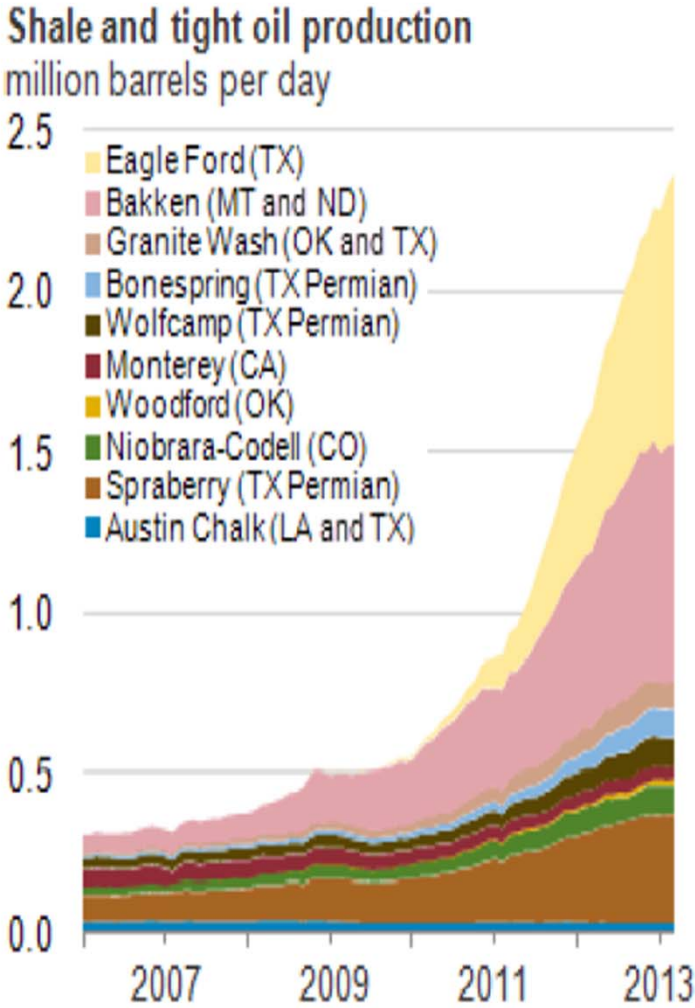
La demanda mundial de gas natural crece en todos los sectores (2012-2040) New Policies Scenario (IEA, WEO 2014)



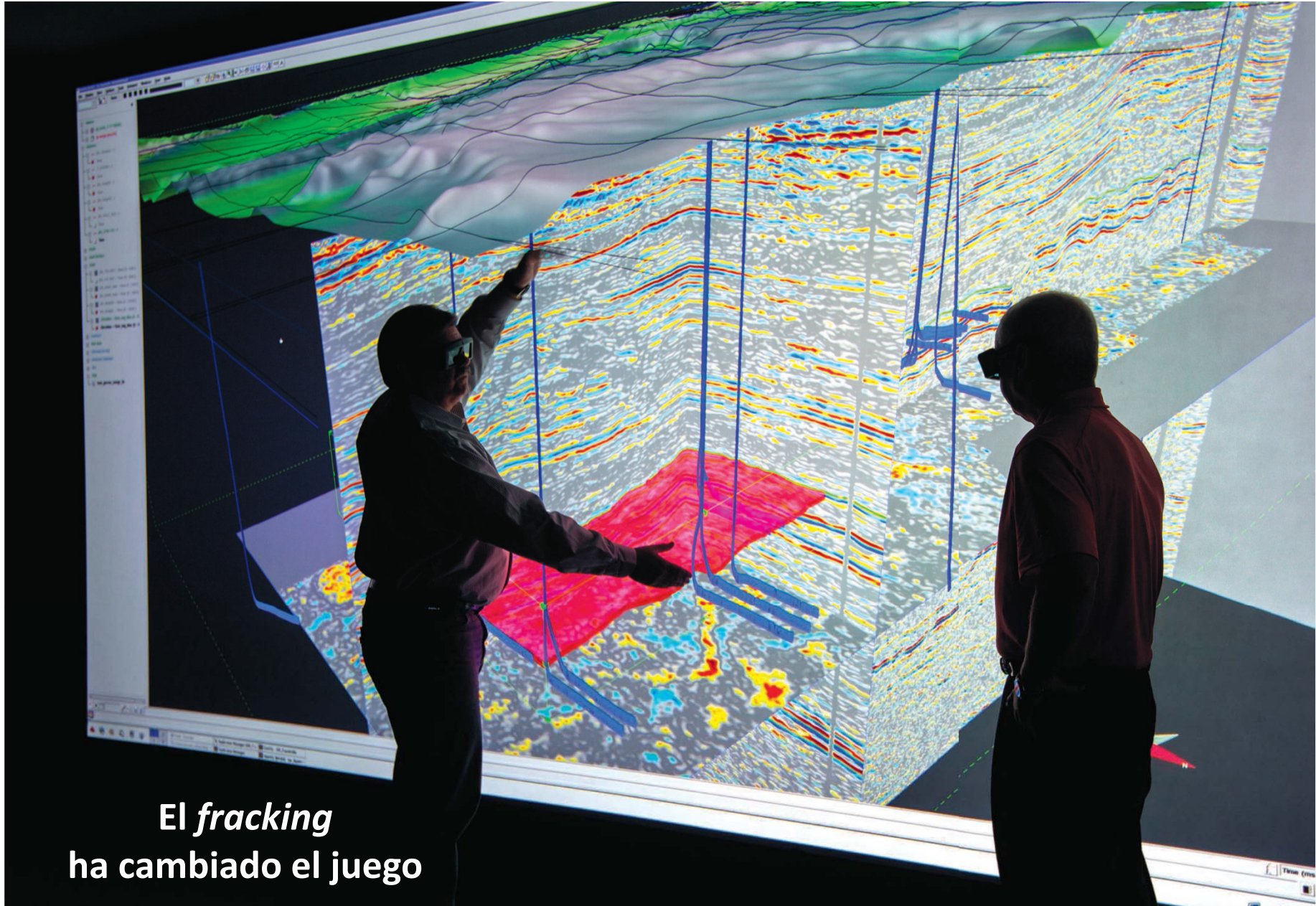
*Industry includes gas used as petrochemical feedstocks and energy consumption in coke ovens and blast furnaces.

**Other includes agriculture and any other non-energy use.

Desde 2008, algo ha cambiado en el mundo de la energía: El renacimiento de la producción de petróleo y gas en EEUU está redibujando el mapa energético global



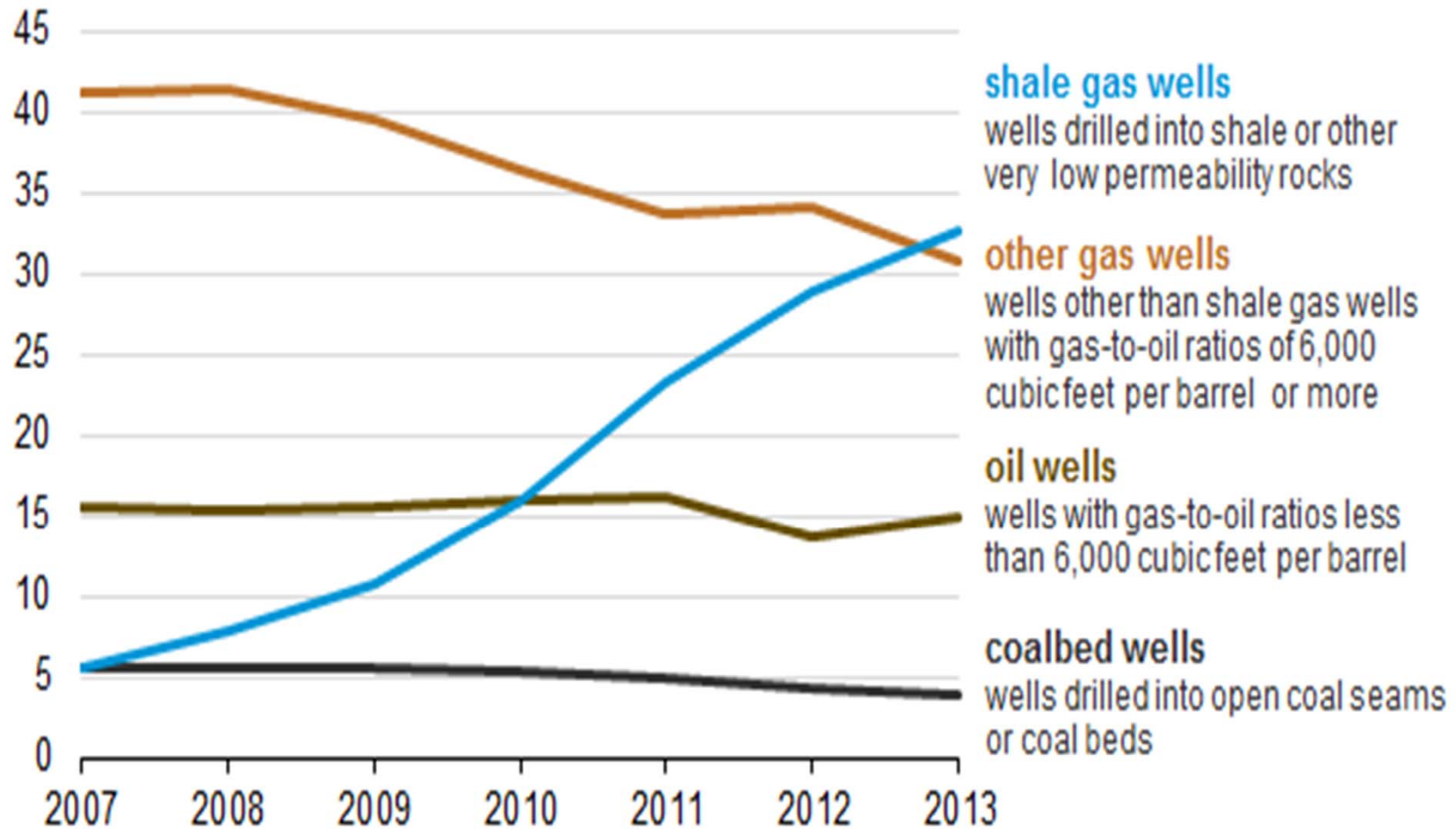
21-10-2013



**El fracking
ha cambiado el juego**

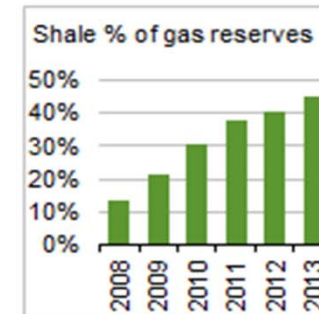
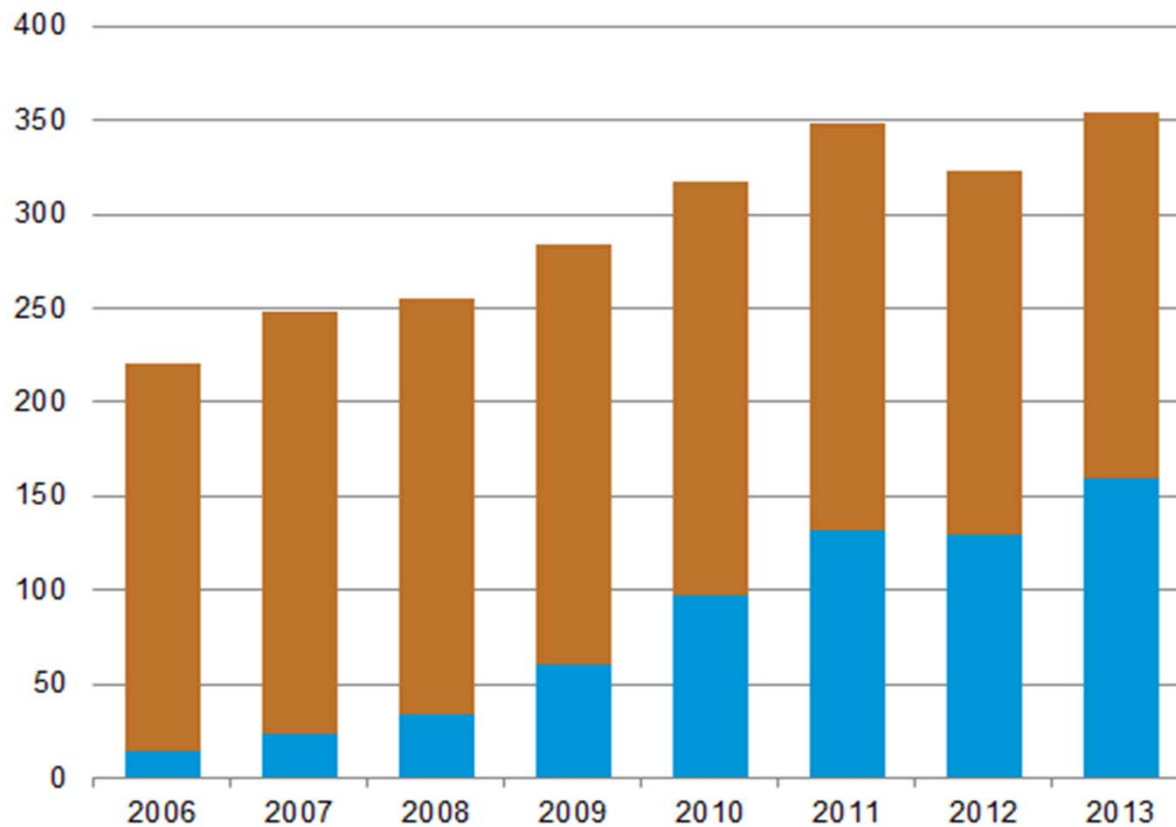
2013: *Shale gas* la principal fuente de producción de gas natural en EEUU

U.S. natural gas gross withdrawals by well type (2007-13)
billion cubic feet per day



Shale gas en EEUU crecimiento de las reservas probadas 2006-2013

total natural gas proved reserves
trillion cubic feet

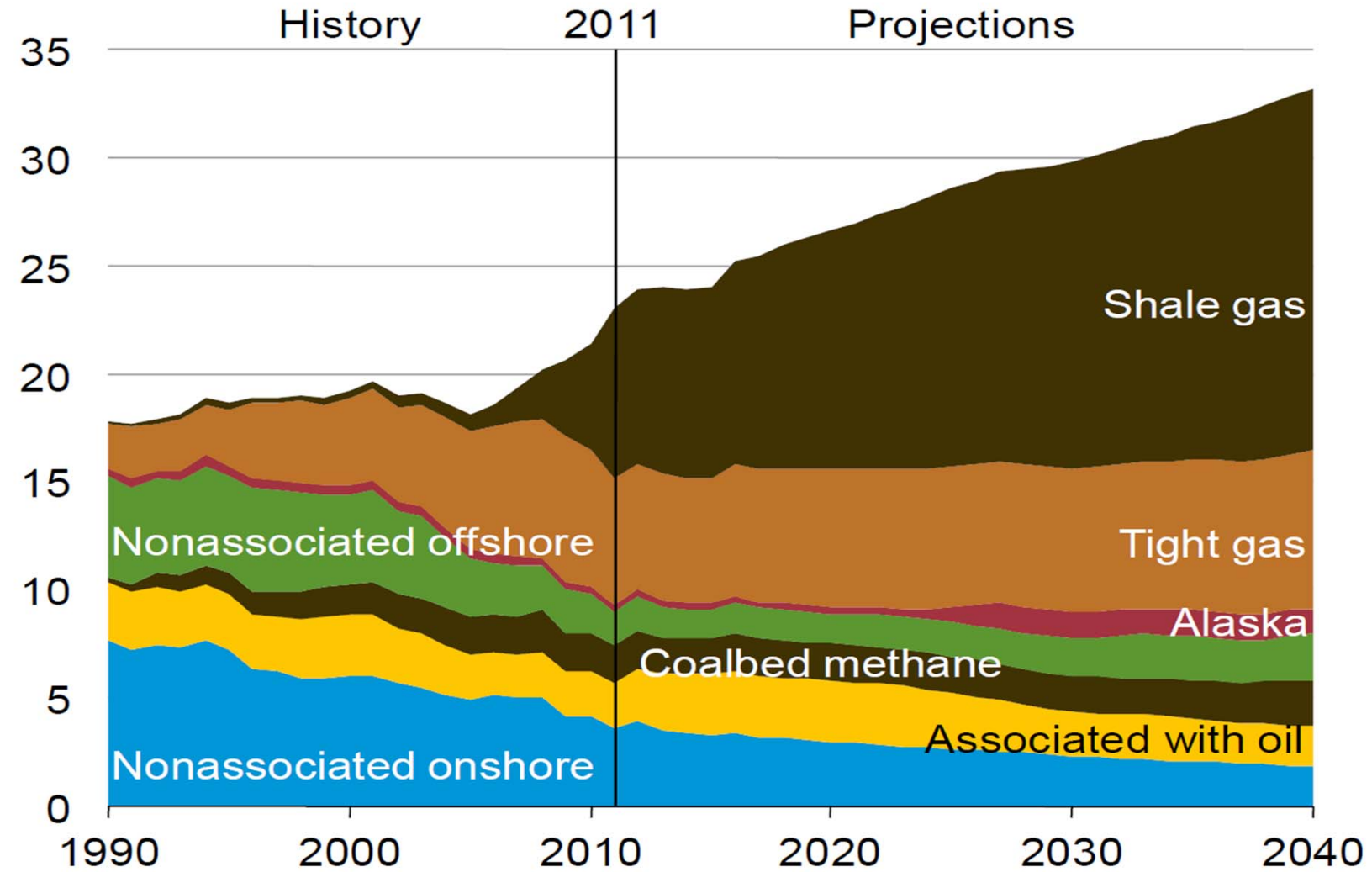


■ other
■ shale



Source: U.S. Energy Information Administration, Form EIA-23L, Annual Survey of Domestic Oil and Gas Reserves, 2006-13.

1990-2040: producción de gas natural seco EEUU (tcf). Un cambio de tendencia duradero



EIA, AEO 2014

Lo no convencional termina por convertirse en convencional

"Everything that can be invented has been invented"



Charles H. Duell,
Director of US Patent
Office, 1899

"Who the hell wants to hear actors talk?"



Harry M. Warner,
Warner-Bros. Pictures,
c.1927

"Sensible and responsible women do not want to vote"



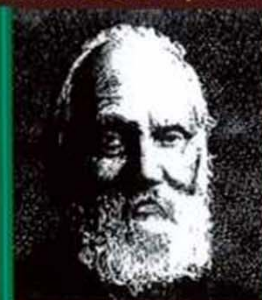
Grover Cleveland,
1905

"There is no likelihood man can ever tap the power of the atom"



Robert Milliken,
Nobel Prize in Physics,
1923

"Heavier than air flying machines are impossible"



Lord Kelvin,
President, Royal Society,
c. 1895

"Ruth made a big mistake when he gave up pitching"



Tris Speaker,
1921

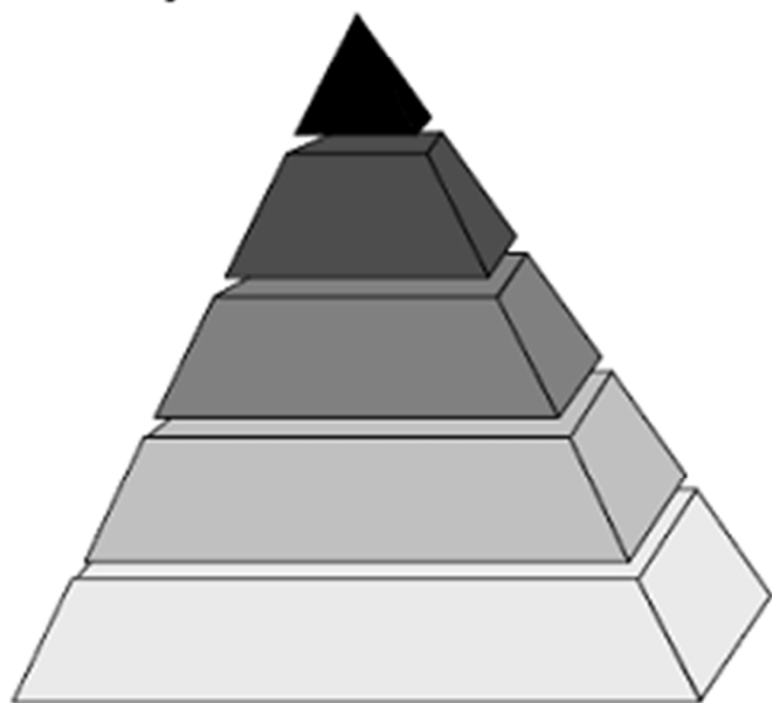
The
future
isn't what
it
used
to be.

There's no future in believing something can't be done. The future is in making it happen.

Resource Pyramid (for minerals)

Highly concentrated
Easy extraction/access

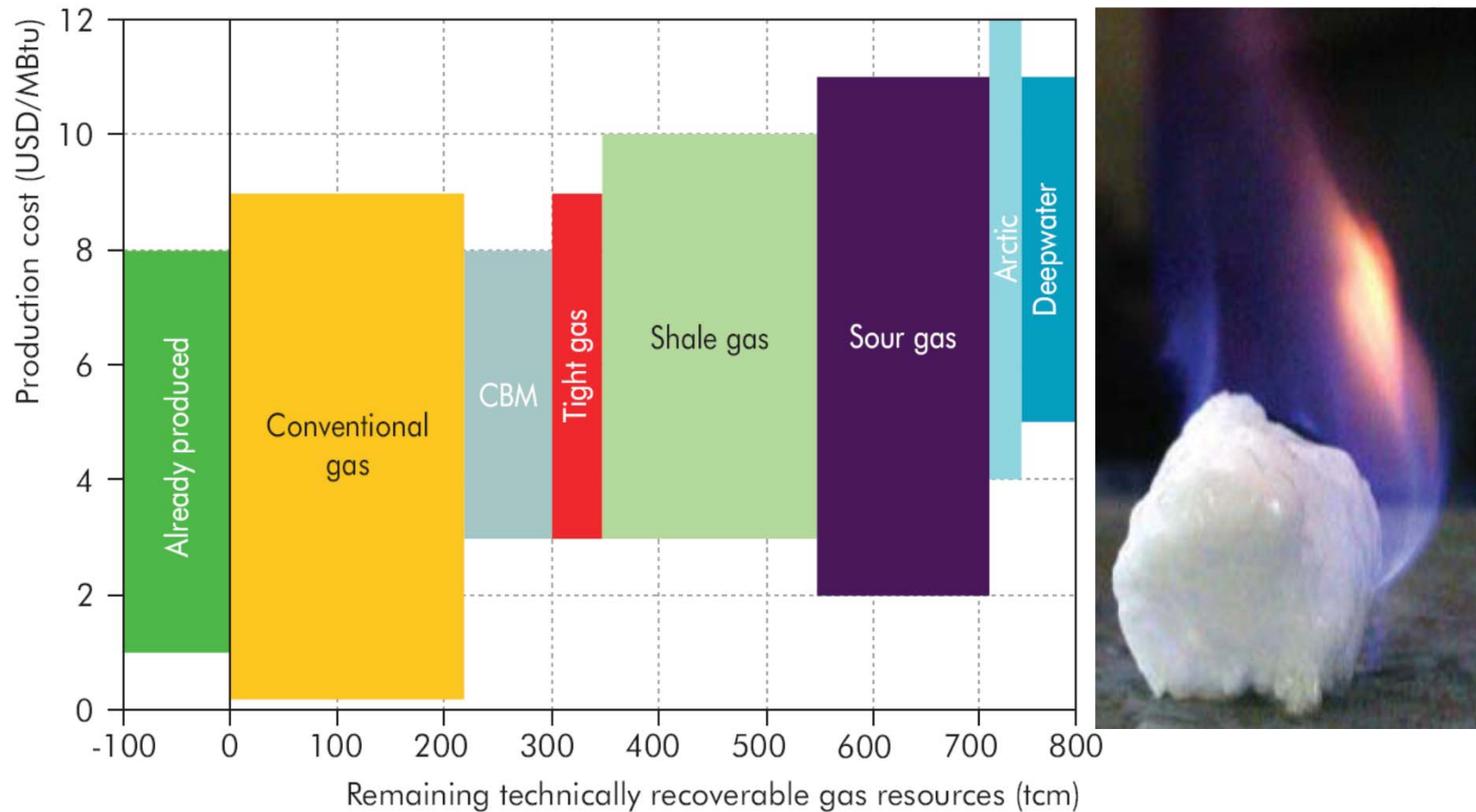
Better quality
resource



Increasing cost
of extraction
(including
MORE
ENERGY)

Low concentration
Difficult extraction/access

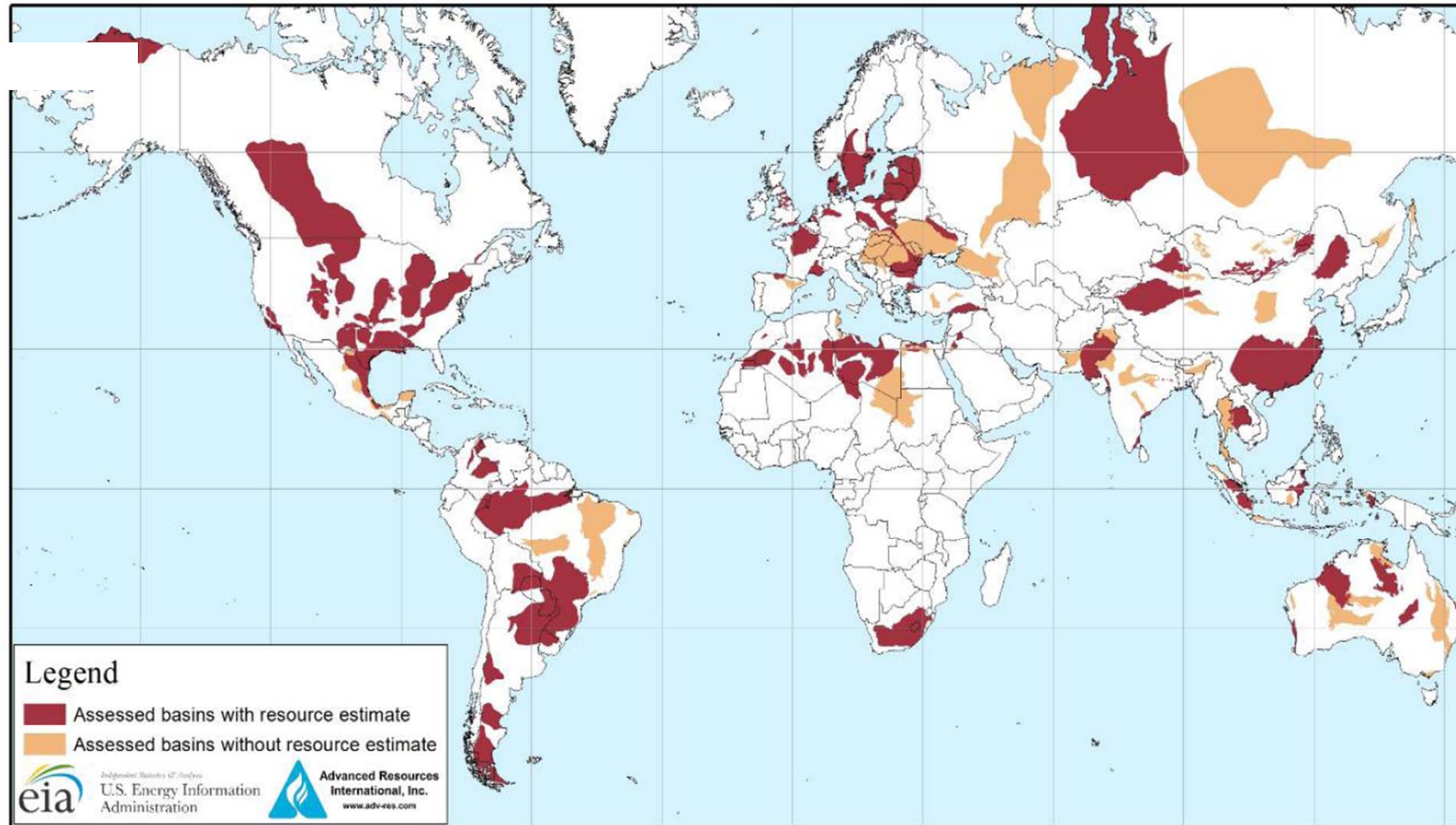
Costes de producción de gas natural y volúmenes técnicamente recuperables a largo plazo (IEA, Resources to Reserves, 2013).



Notes: CBM = coal-bed methane; LNG = liquefied natural gas; Pipeline costs refer to costs per 1 000 km; MBtu = million British thermal units; tcm = trillion cubic metres.

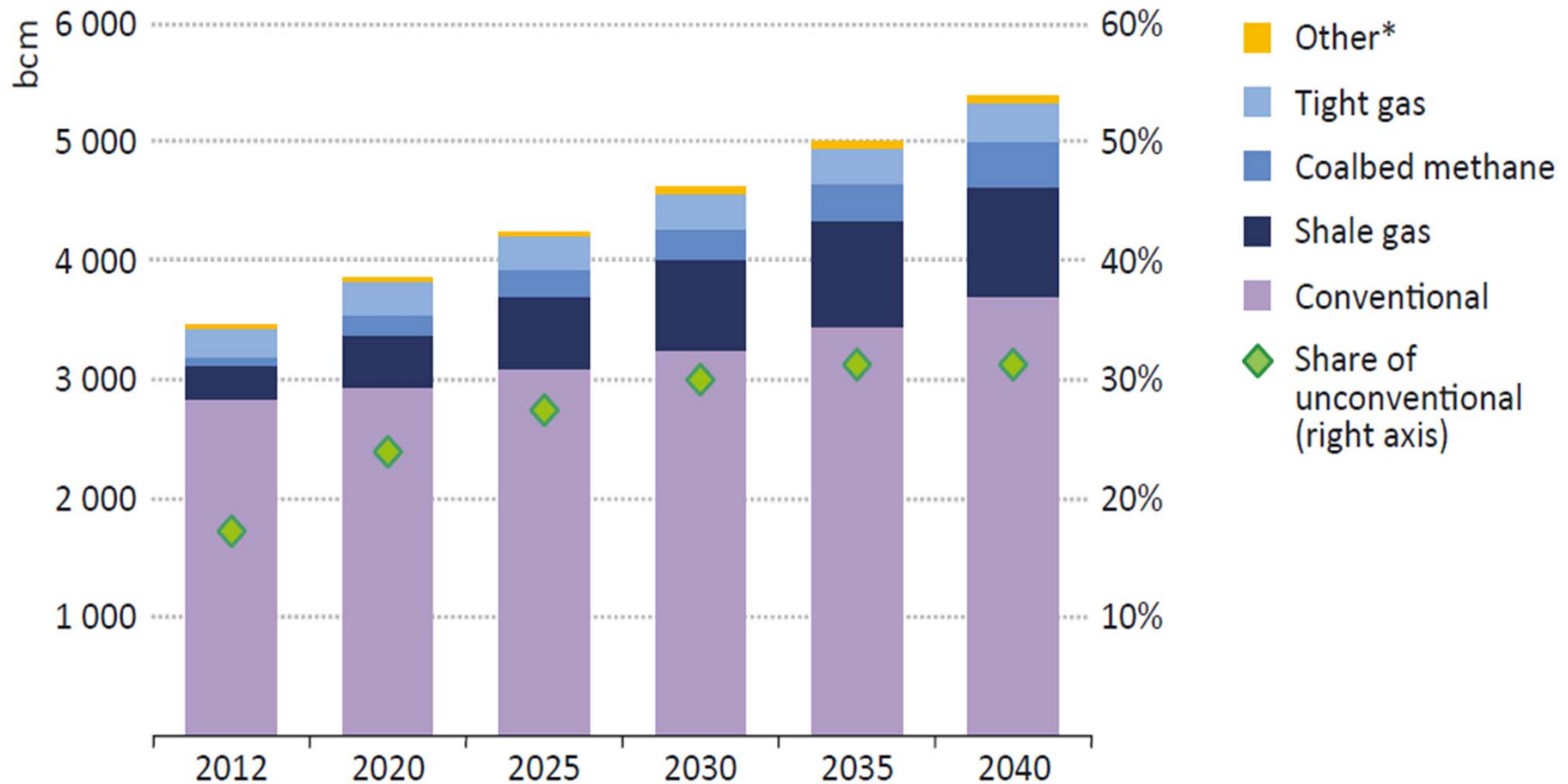
Una industria regional (EEUU y Canadá) Unos recursos globales y uniformemente distribuidos

Figure 1. Map of basins with assessed shale oil and shale gas formations, as of May 2013



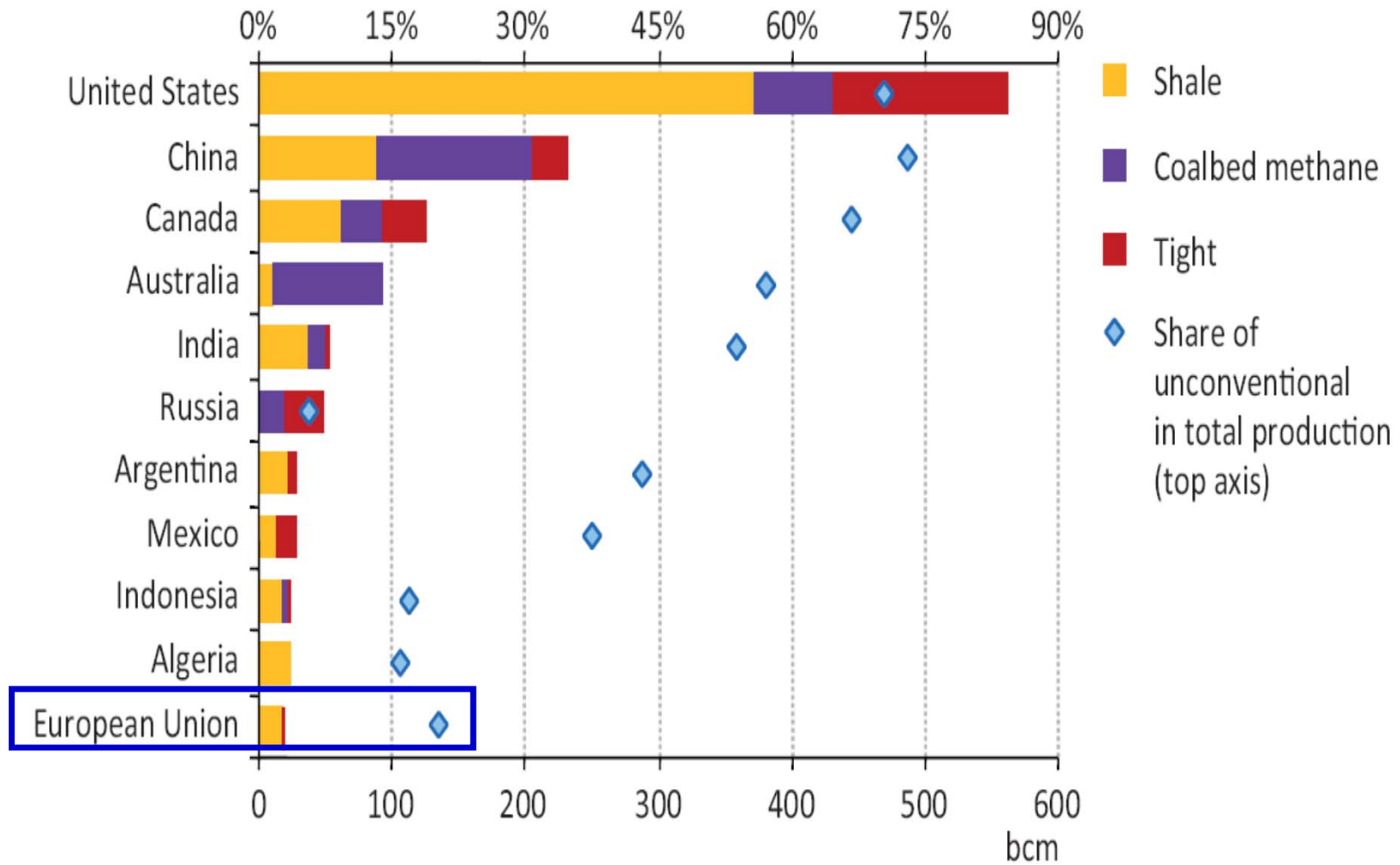
EIA, June 2013

Producción mundial de gas natural por tipo (convencional vs. no convencional) New Policies Scenario (IEA, WEO 2014)

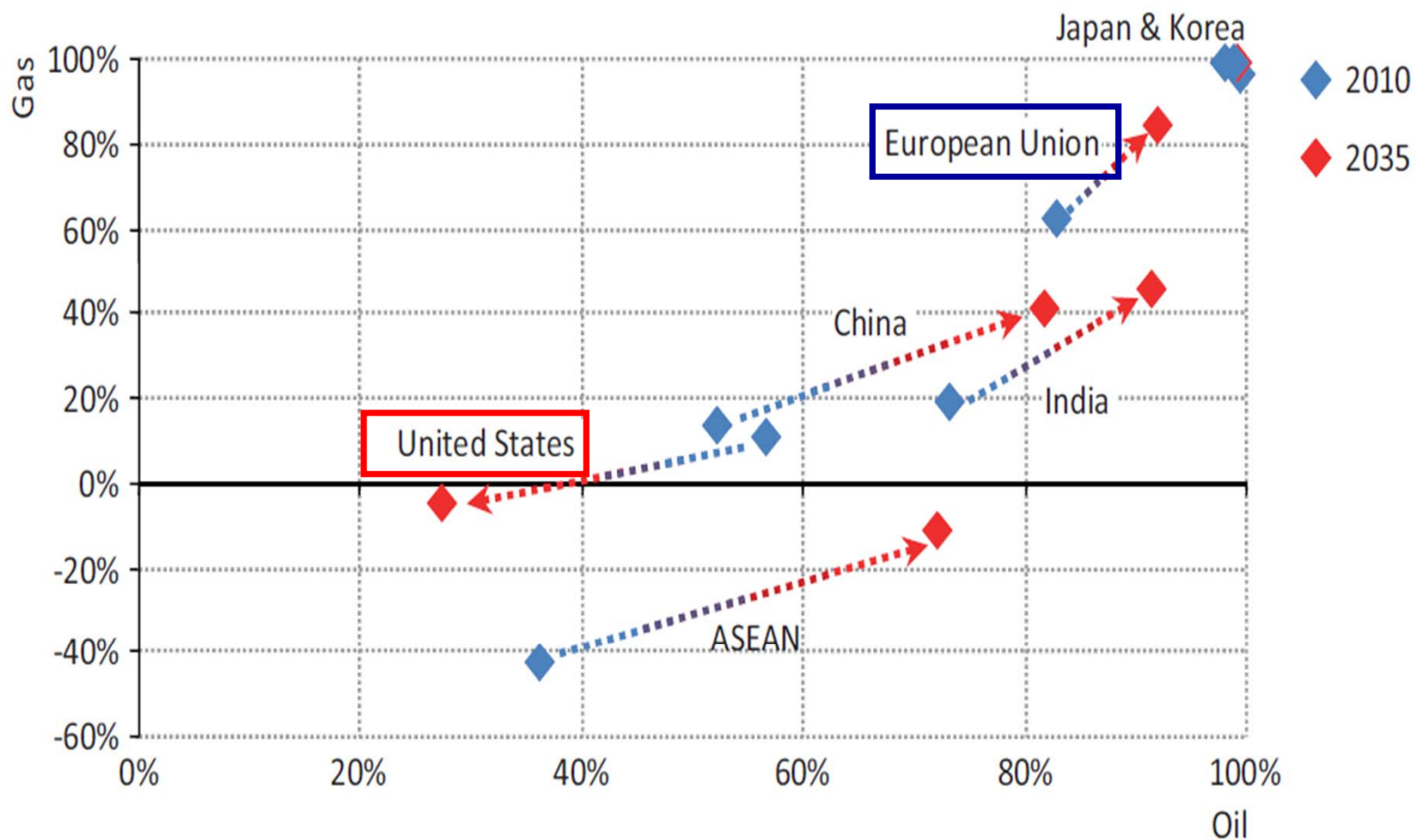


* Includes coal-to-gas and methane hydrates.

Producción de gas no convencional por países en 2035. New Policies Scenario (IEA, WEO 2012)

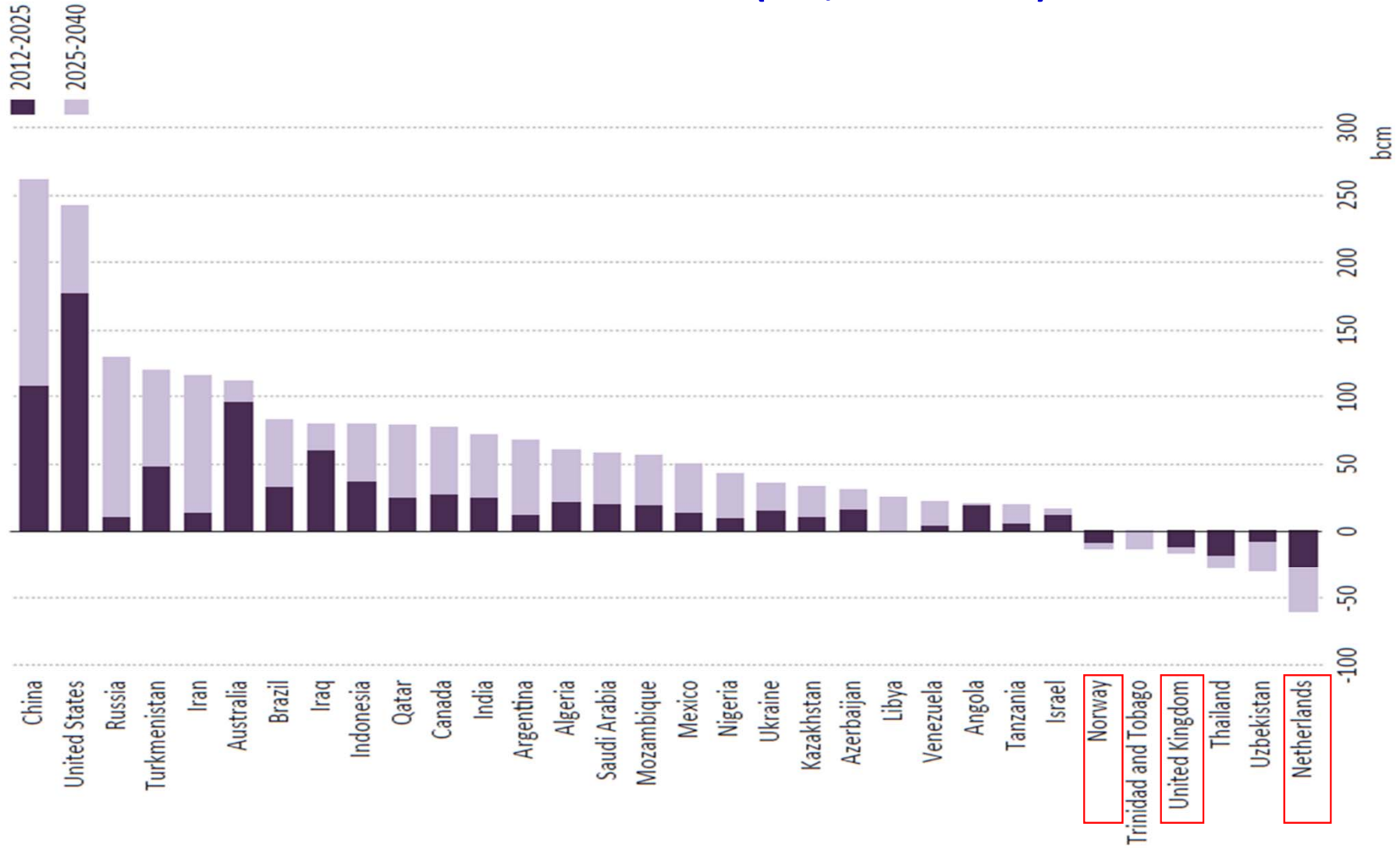


Dependencia de las importaciones de petróleo y gas (IEA, WEO 2012)

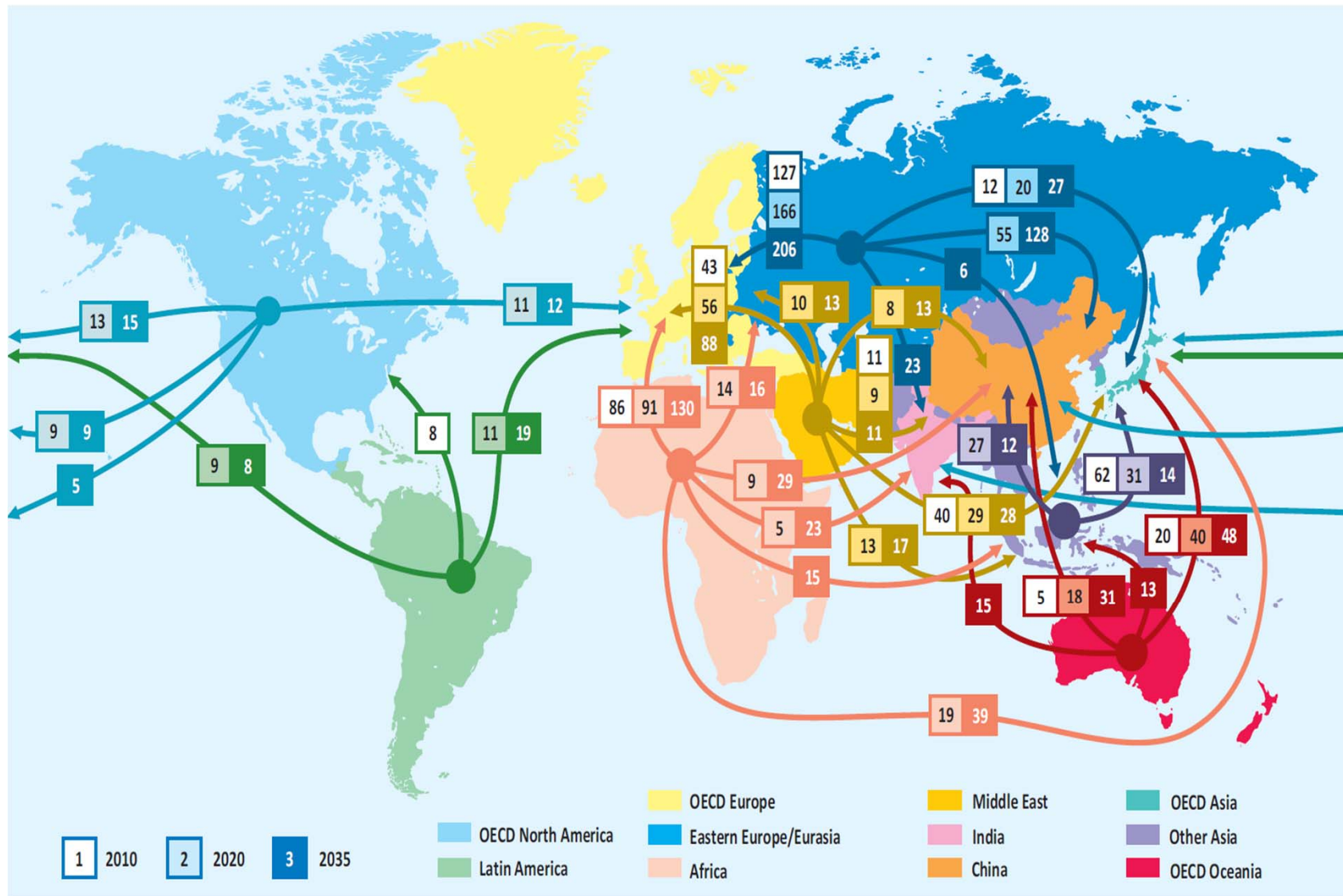


Note: Import dependency is calculated as net imports divided by primary demand for each fuel.

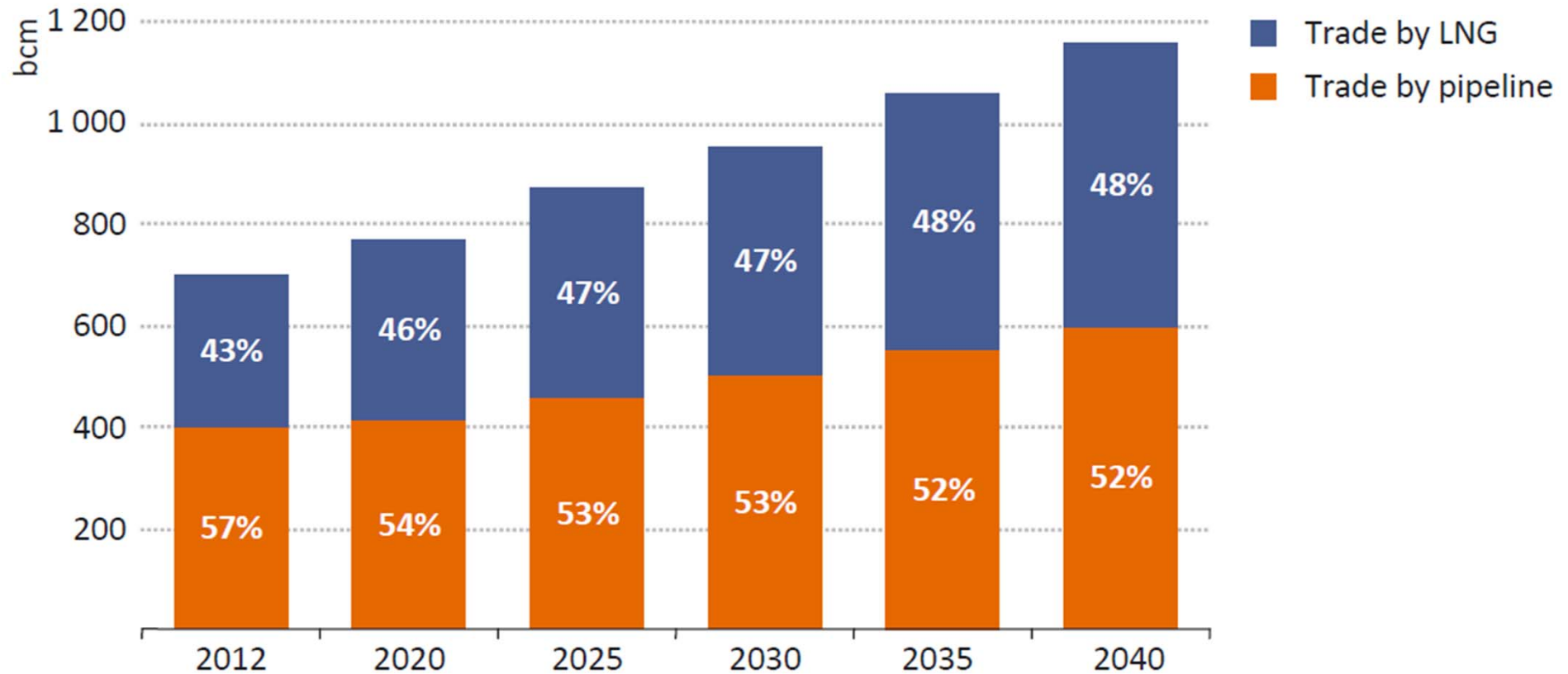
Cambios 2012-2025 y 2025-2040 en la producción de gas natural, New Policies Scenario (IEA, WEO 2014)



Flujo comercial neto de gas natural (bcm) 2010-2035



Comercio internacional de gas natural por gasoducto y GNL. New Policies Scenario (IEA, WEO 2014)

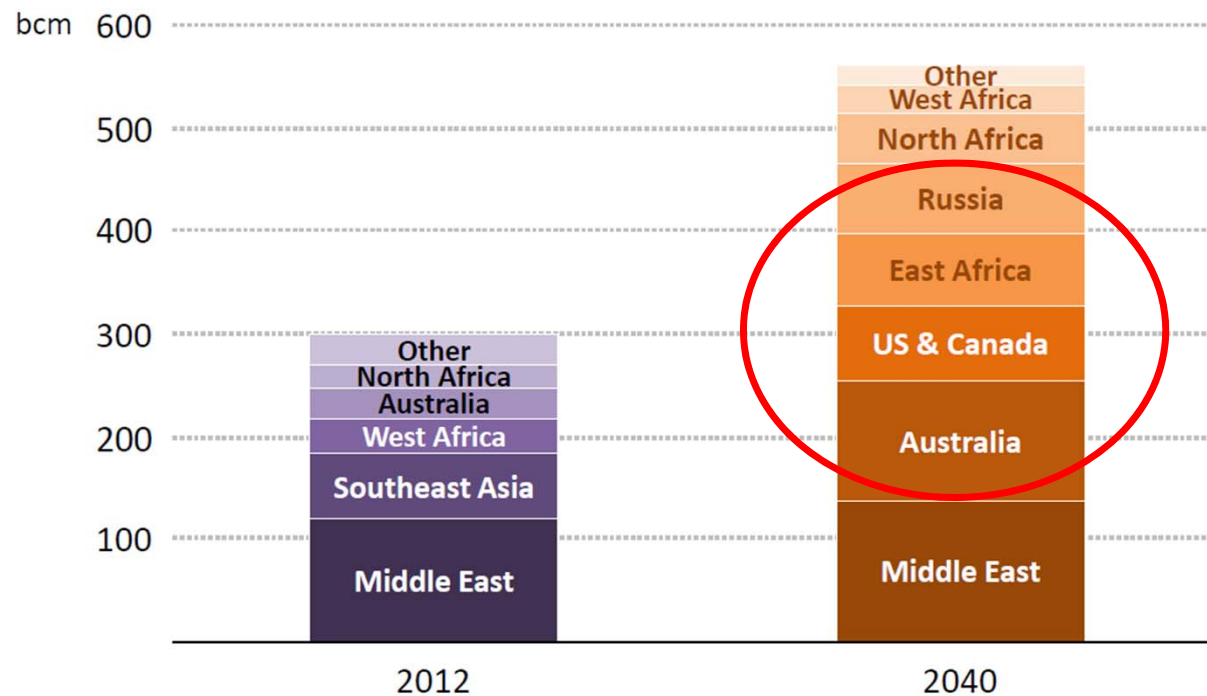


16. The number of liquefaction sites operating worldwide (each of which can contain multiple projects or trains) has doubled since 2000, reaching 26 in 2013. In the New Policies Scenario, the anticipated number of sites increases to more than 70 by 2040.

Gas on the way to become first fuel, with role of LNG on the rise

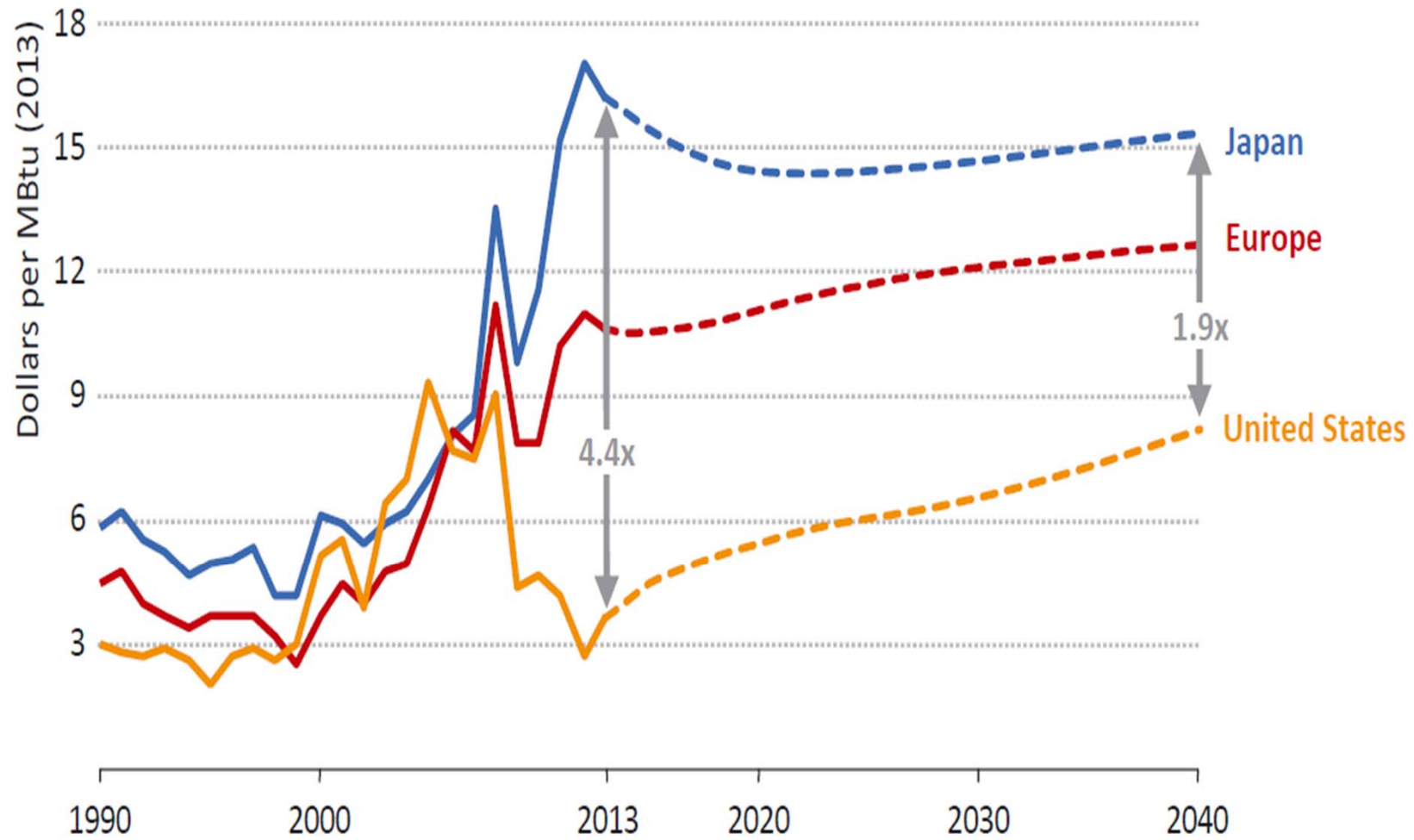
World Energy Outlook 2014

Main sources of regional LNG supply



Share of LNG rises in global gas trade, pushed by a near-tripling in liquefaction sites: LNG brings more integrated & secure gas markets, but only limited relief on prices

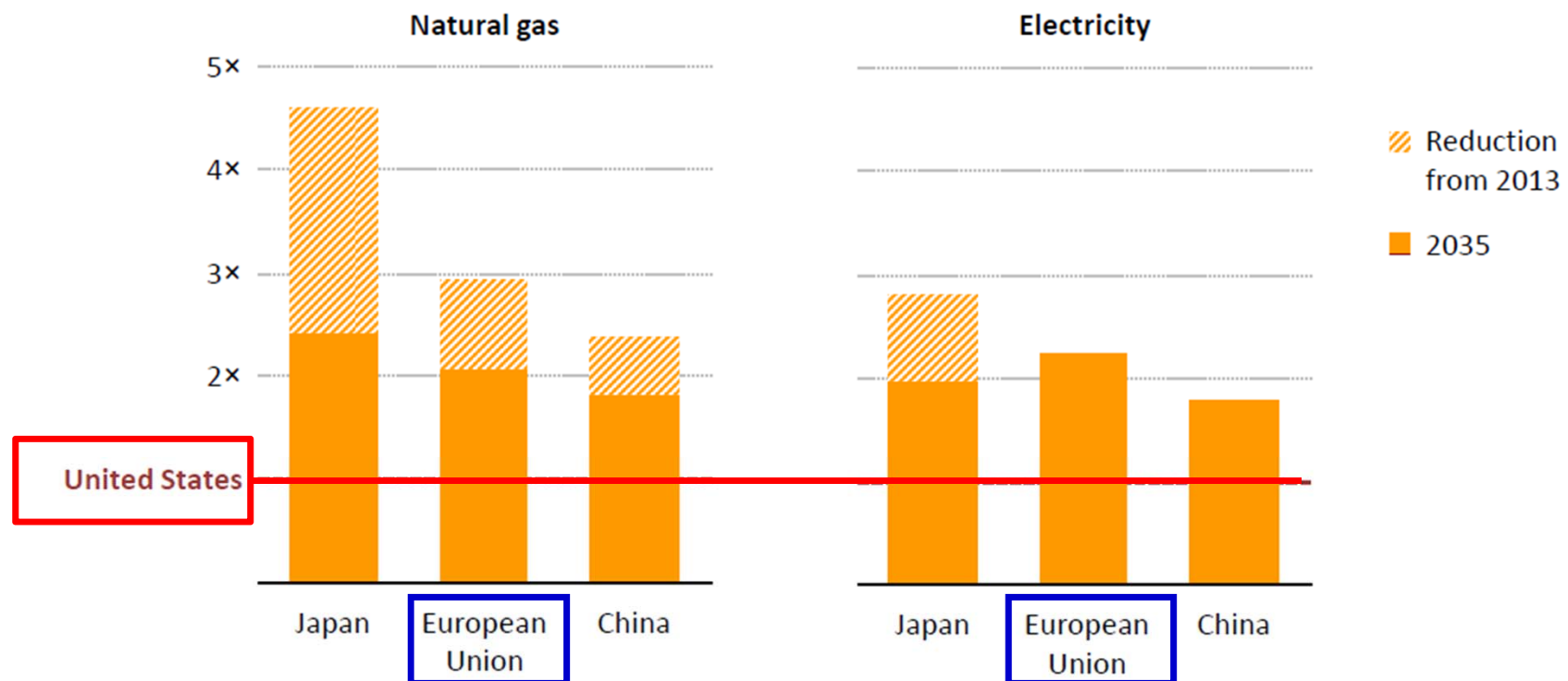
Historia y previsiones sobre la evolución del precio del gas natural New Policies Scenario (IEA, WEO 2014)



Who has the energy to compete?

WORLD
ENERGY
OUTLOOK
2013

Ratio of industrial energy prices relative to the United States

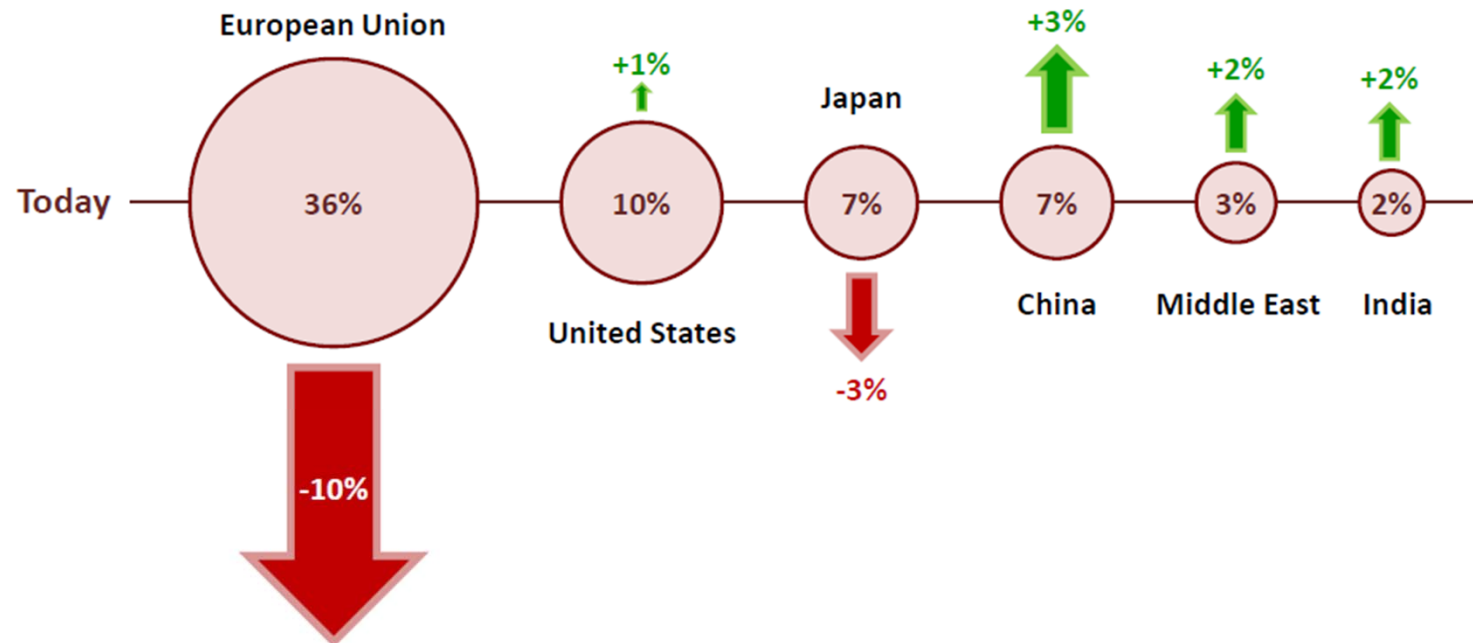


Regional differences in natural gas prices narrow from today's very high levels but remain large through to 2035; electricity price differentials also persist

An energy boost to the economy?

WORLD
ENERGY
OUTLOOK
2013

Share of global export market for energy-intensive goods

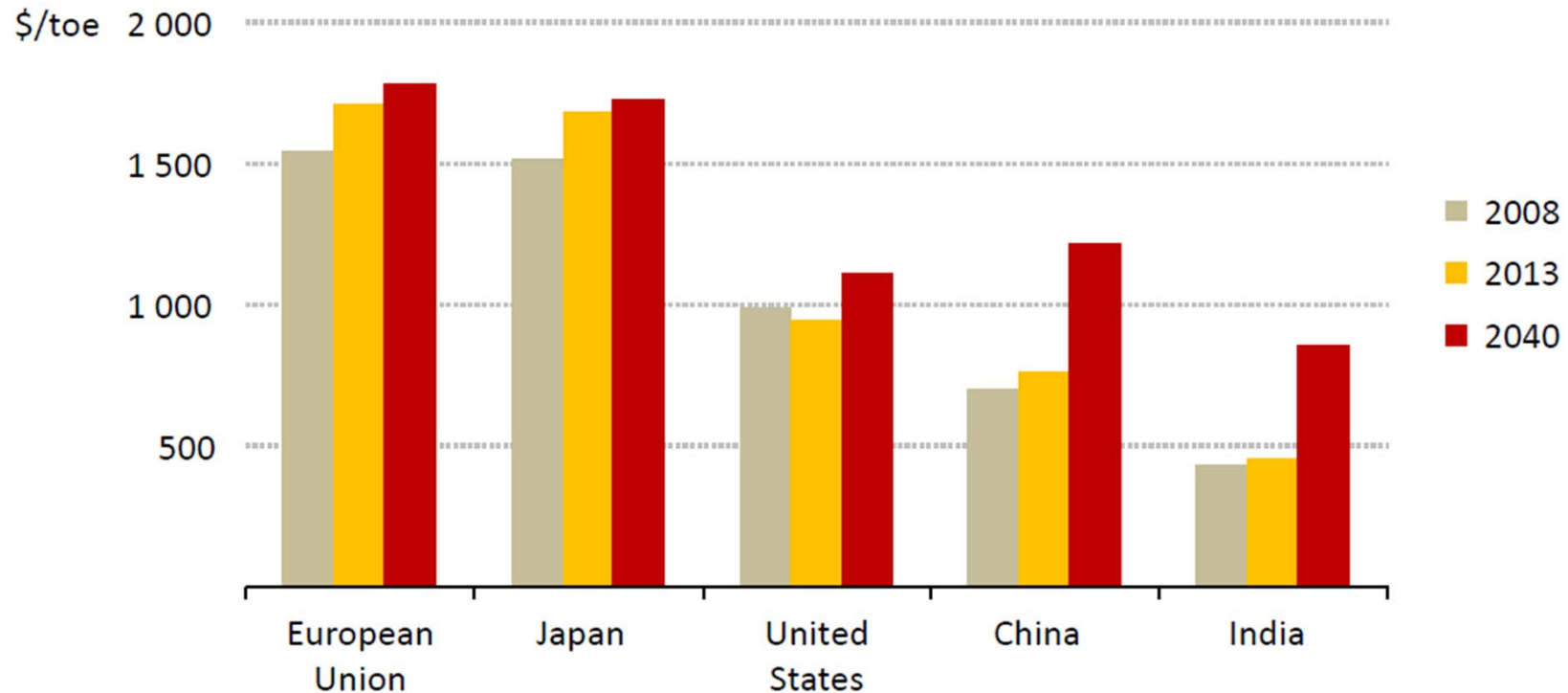


The US, together with key emerging economies, increases its export market share for energy-intensive goods, while the EU and Japan see a sharp decline

United States holds a strong position on energy costs

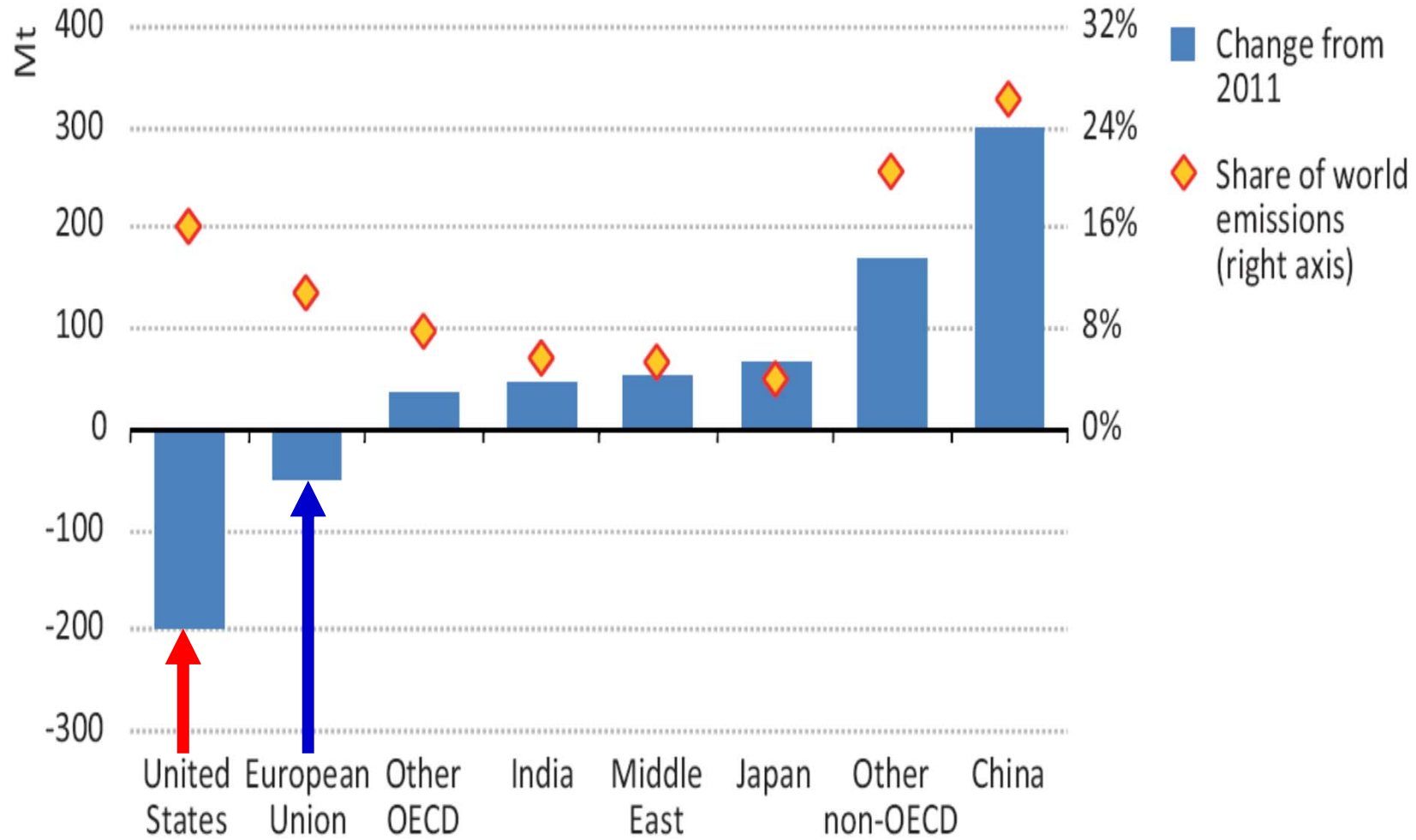
World
Energy
Outlook
2014

Weighted average cost of energy paid by consumers



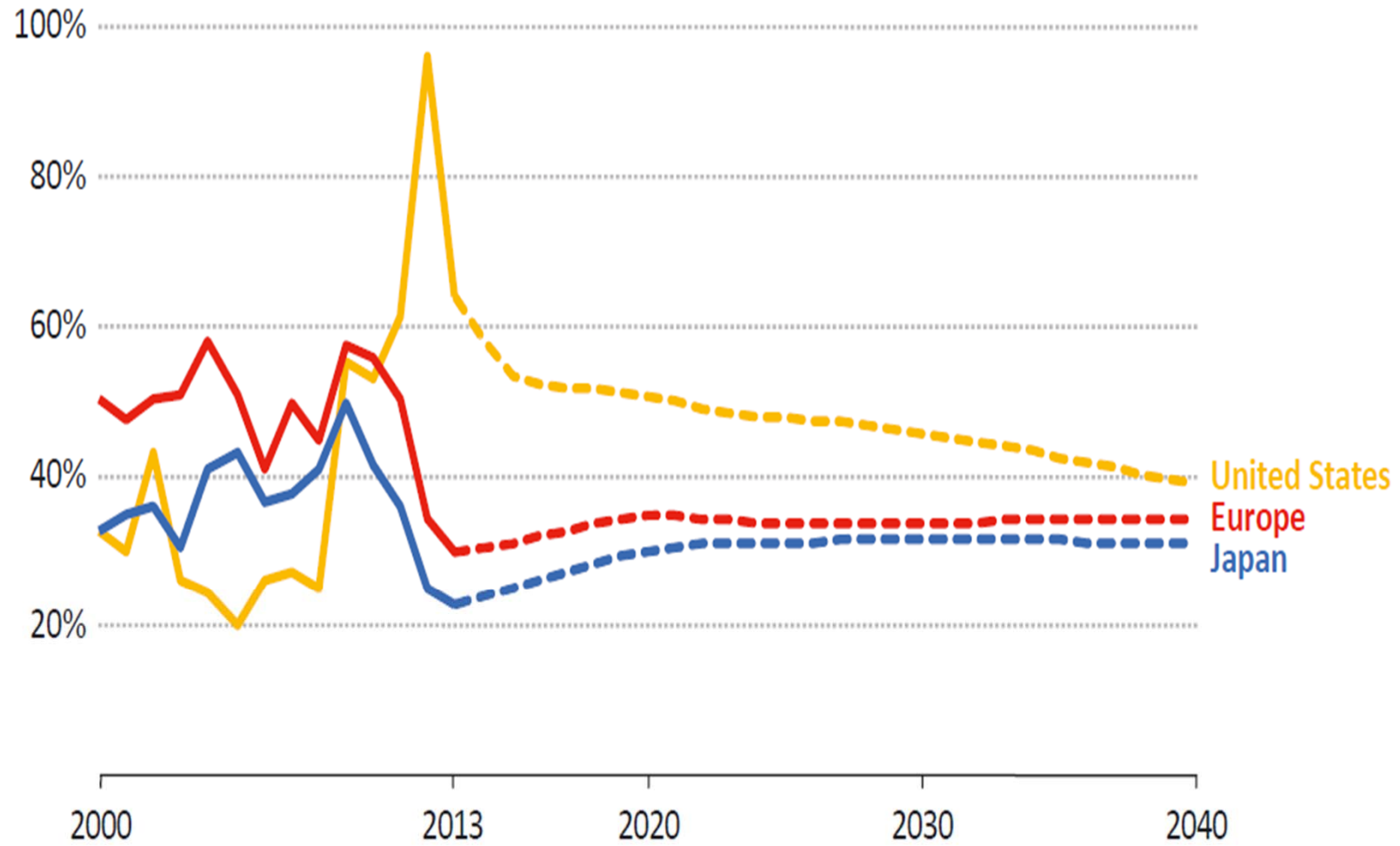
Economies face higher costs, but the pace of change varies: China overtakes the US, costs double in India & remain high in the European Union & Japan

2011-2012: emisiones de CO₂ La UE peor que los EE.UU.

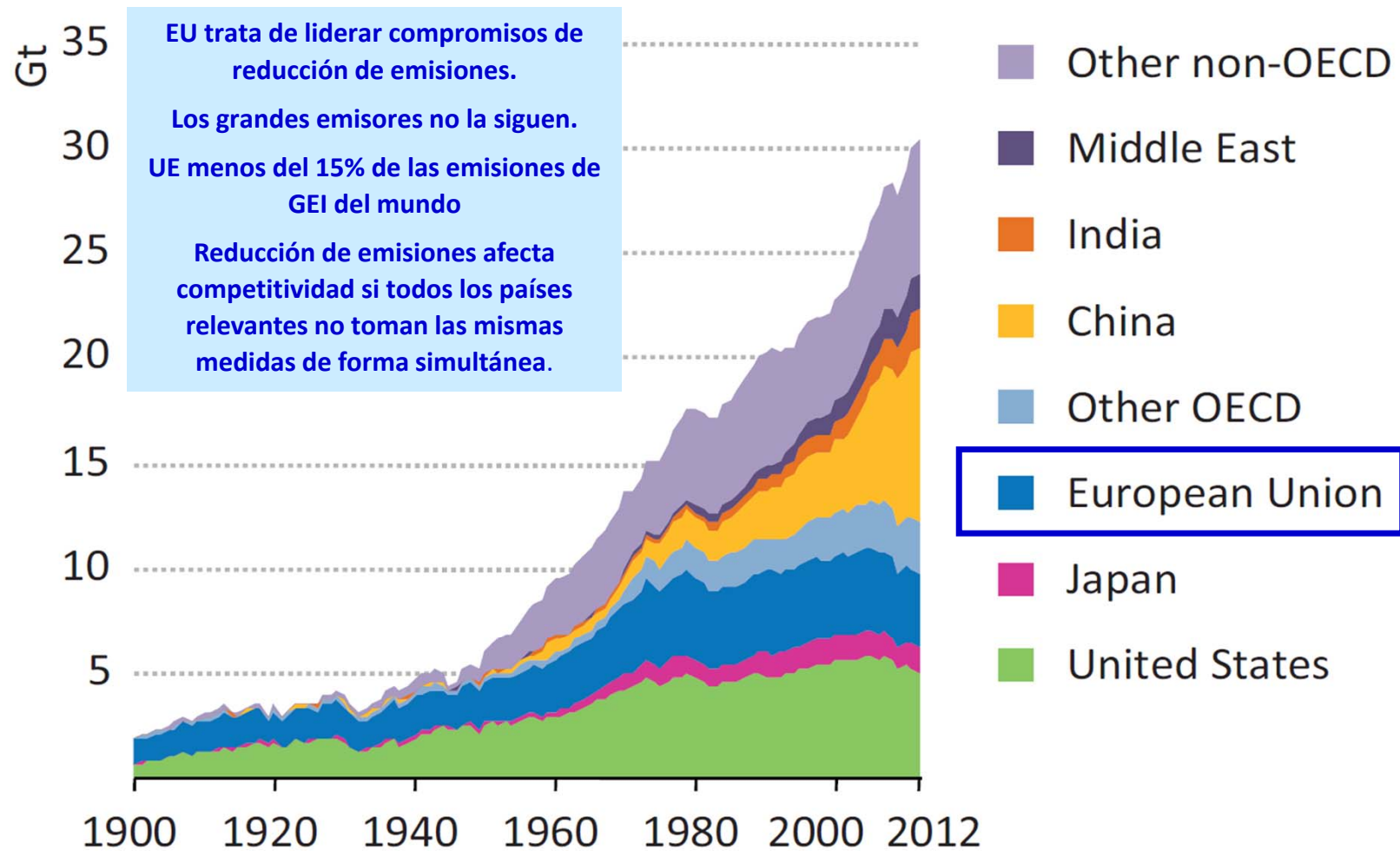


Redrawing the Energy-Climate Map, IEA June 2013

Precio del carbón respecto al del gas (en términos de energía equivalente) New Policies Scenario (IEA, WEO 2014)



Emisiones de CO2 relacionadas con la energía La soledad del corredor de fondo.



Sources: IEA databases and analysis; Boden *et al.*, (2013).

IEA, 2013

La UE enfrenta un serio problema energético



The Economist, 25-1-2014

¿Qué hacer?

Las mejoras en eficiencia pueden mitigar los altos costes de la energía al mismo tiempo que permiten ganara posiciones en los frentes de la seguridad de suministro y del medioambiente

Los políticos deben impulsar la competitividad energética apoyando el desarrollo de las fuentes de suministro autóctonas, tales como las renovables maduras y competitivas, la nuclear y los hidrocarburos convencionales y no convencionales

Sea cual sea la composición del mix energético de un país, la existencia de unos mercados eficientes y competitivos pueden minimizar los costes de la energía para su economía.

Mas allá de las políticas de cada estado, es importante alcanzar un acuerdo internacional bien diseñado en materia de cambio climático. Este podría constituir una potente herramienta para lograr que las industrias energéticamente intensivas de los países activamente comprometidos en la reducción de emisiones de gases de efecto invernadero, como es el caso de la UE, no experimentasen una merma en su competitividad en relación a la industria de aquellos países menos comprometidos, como es el caso de los EE.UU.

Estemos preparados o no, los cambios son imparables



Shale gas extraction: issues of particular relevance
to the European Union



European Academies' Science Advisory Council



PRESS RELEASE

No scientific or technical grounds to ban fracking – but it
won't guarantee Europe's energy security, say European
Science Academies