Abastecimiento e infraestructuras gasistas en Europa

Francisco de la Flor García
Director de Regulación

12 de marzo de 2015

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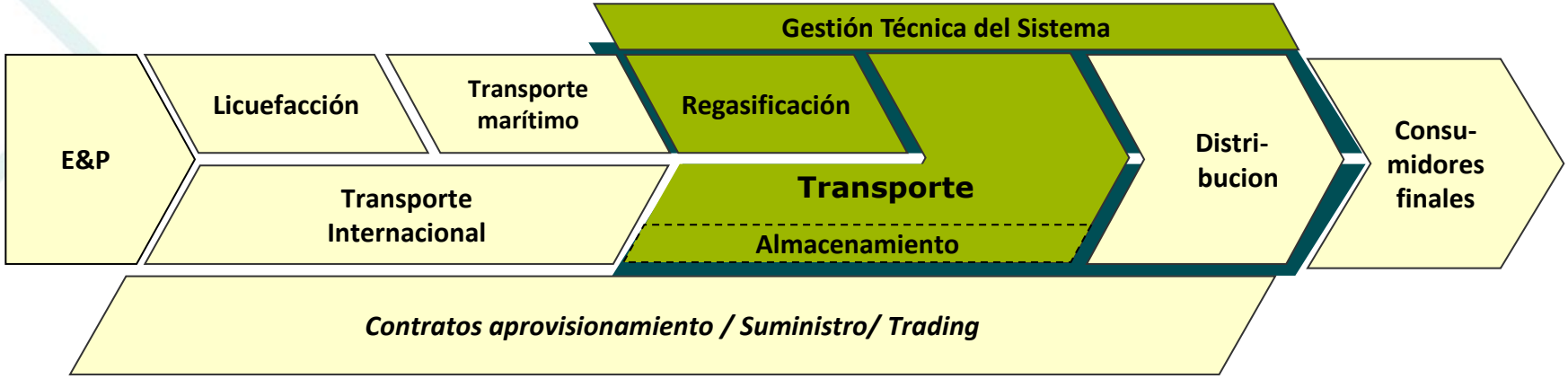
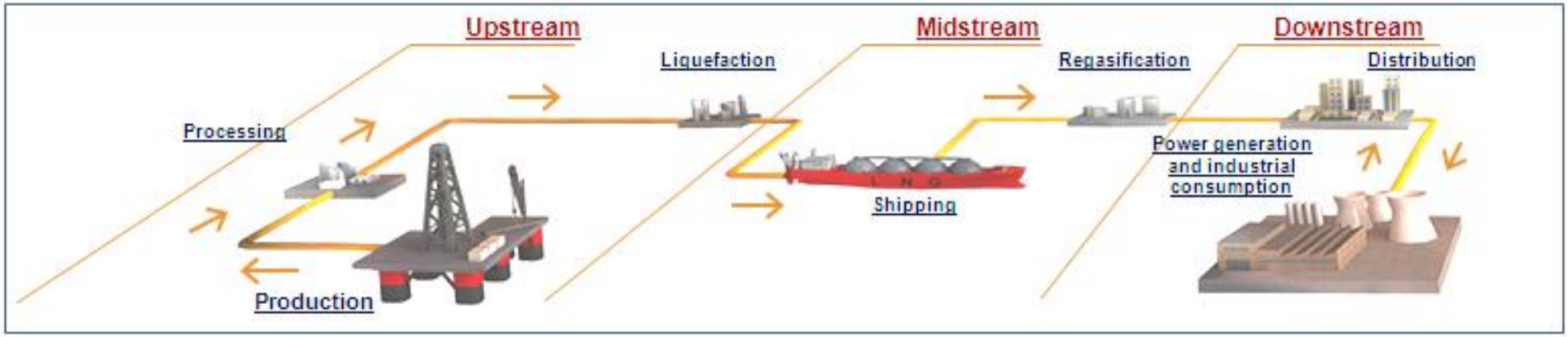
2. Abastecimientos y demanda
3. Infraestructuras necesarias
4. Nuevos usos

Cadena de Valor

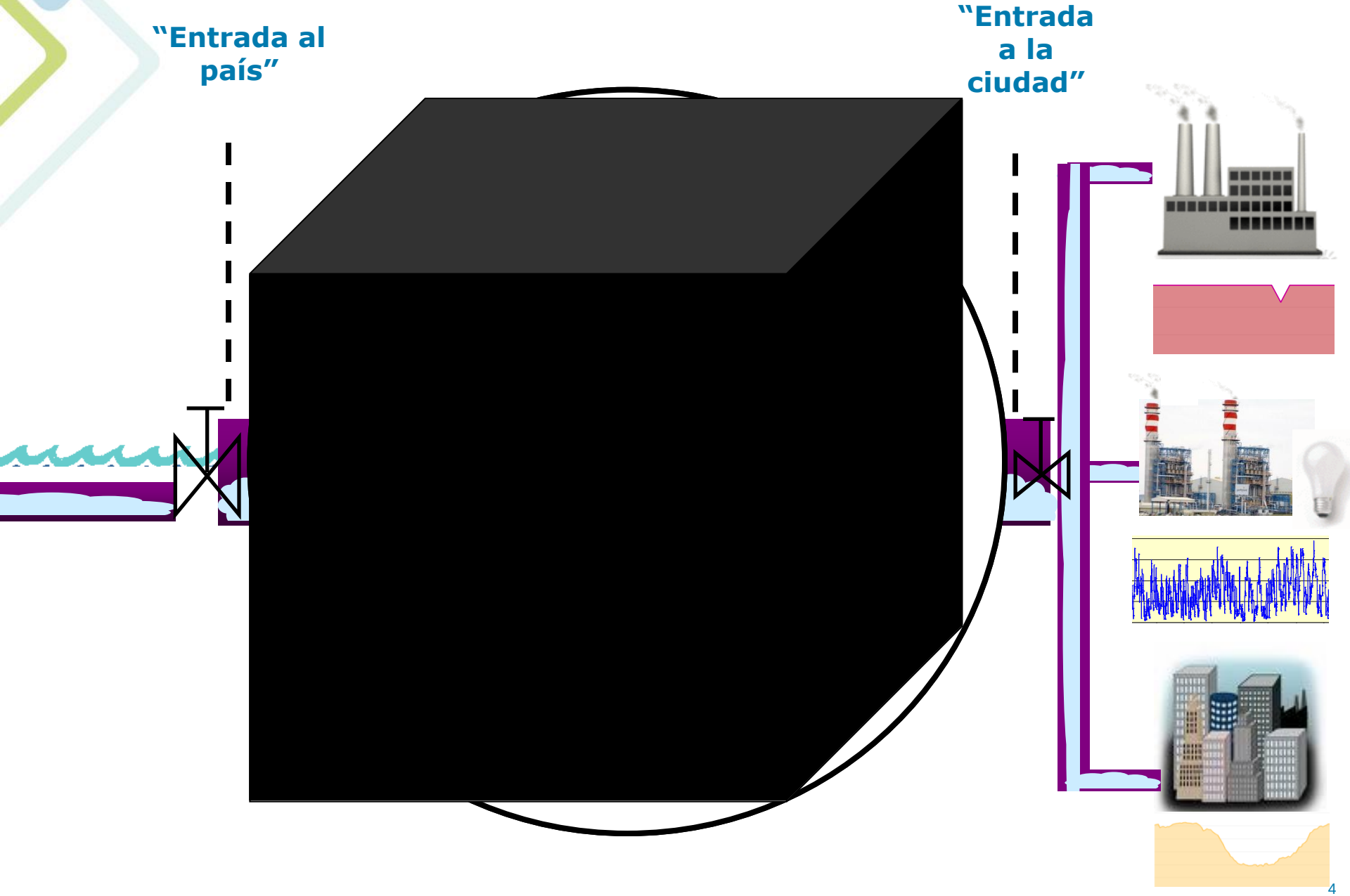




	Upstream	Licuefacción	Transporte Marítimo	Regasificación	TOTAL
CAPEX (USD/t)	250-750	750-1.250+	125-300	125-200	1.250-2.500
Coste (USD/MBTU)	1-3	3-4,5	0,8-1,5	0,4-0,8	5,2-9,8

Fuente: UNECE

Operación integrada de infraestructuras



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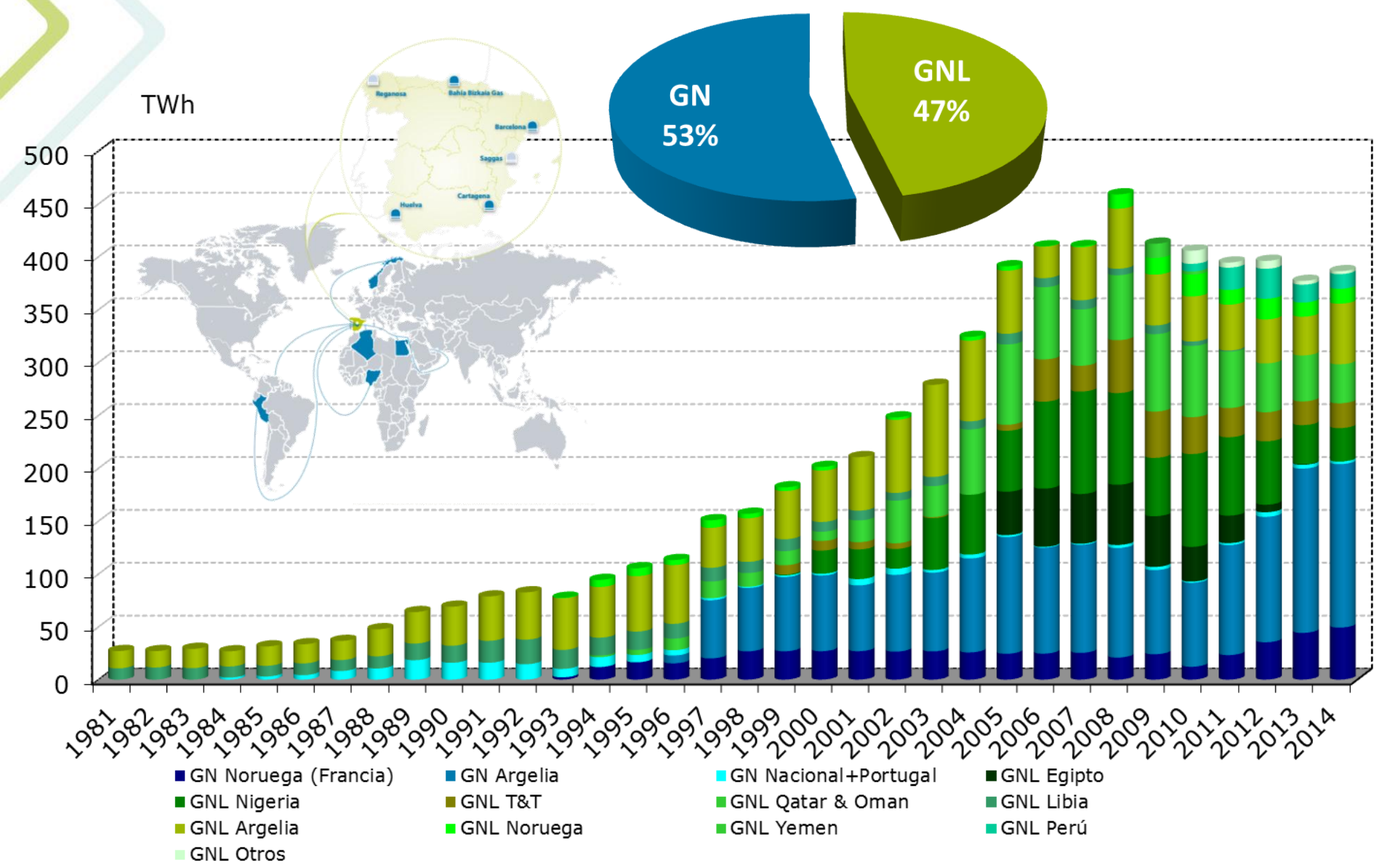
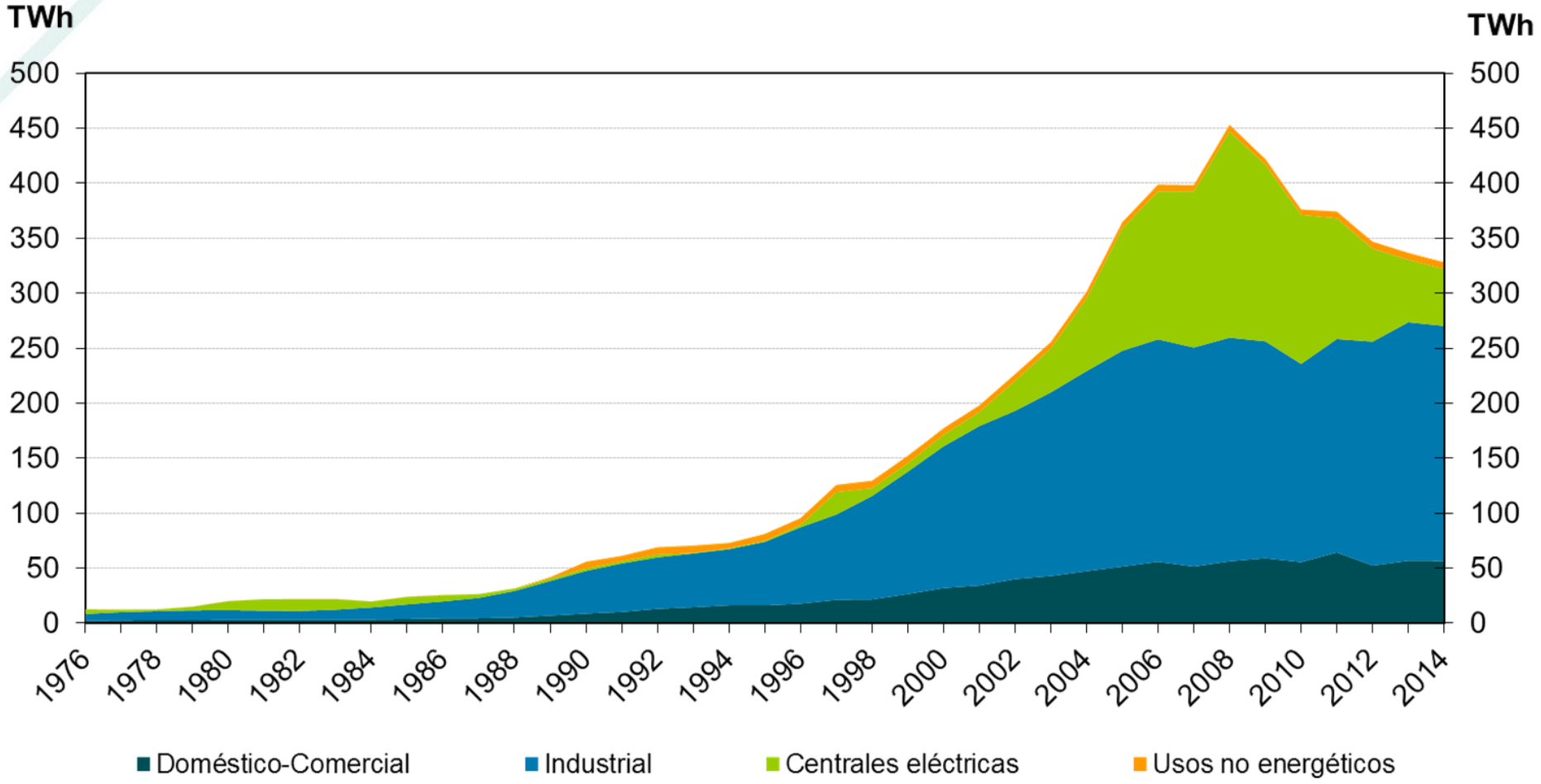
España: Evolución de los aprovisionamientos

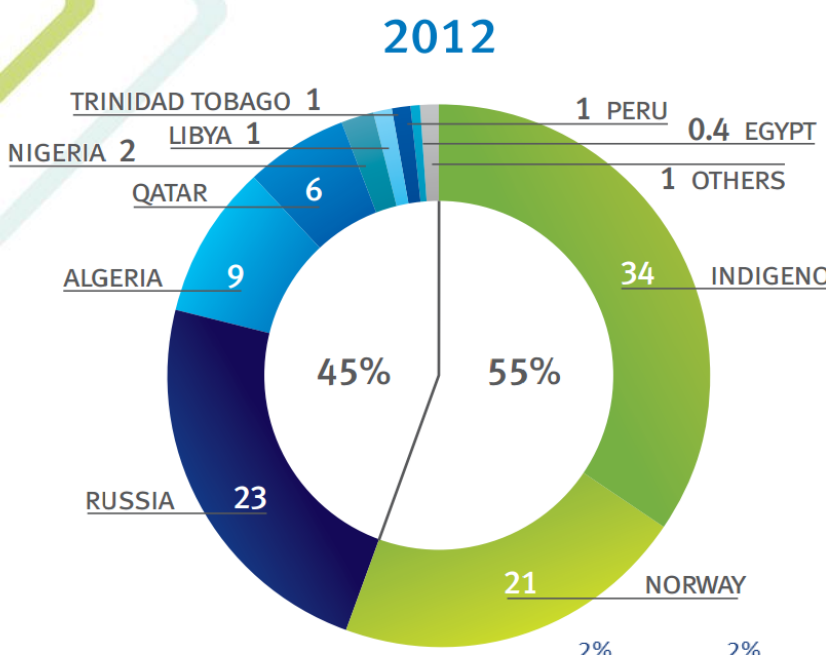


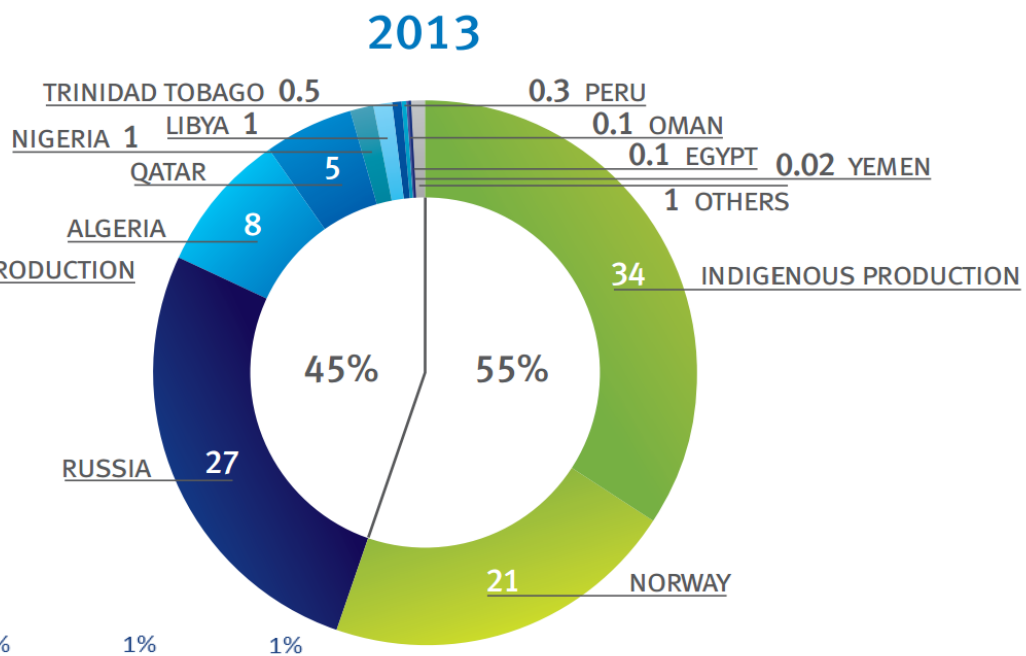
España: Evolución de la demanda

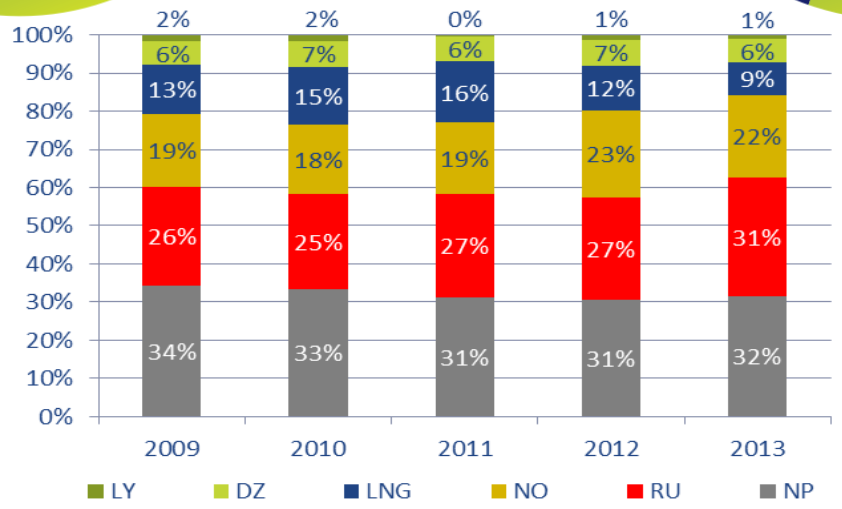


Fuente: Sedigás

Europa: Aprovisionamientos

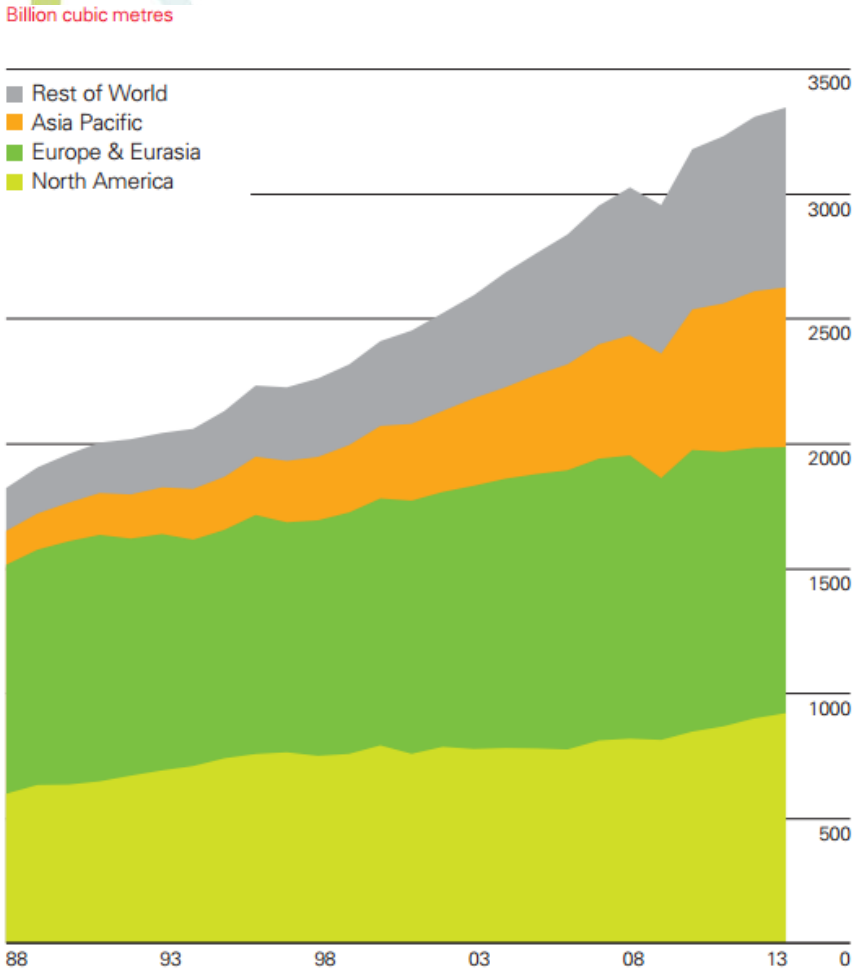


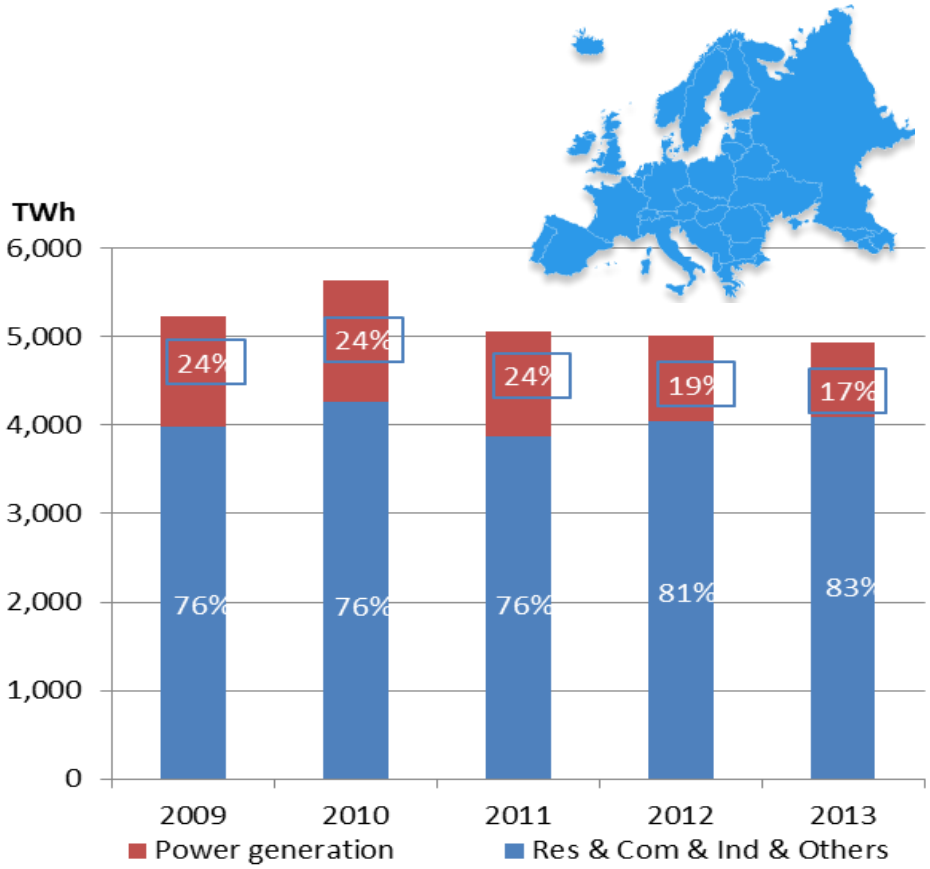




Fuente: Eurogas - Estatistical Report 2014. ENTSOG.

Demanda de gas natural





Fuente: BP - Statistical Review of World Energy - June 2014. ENTSOG

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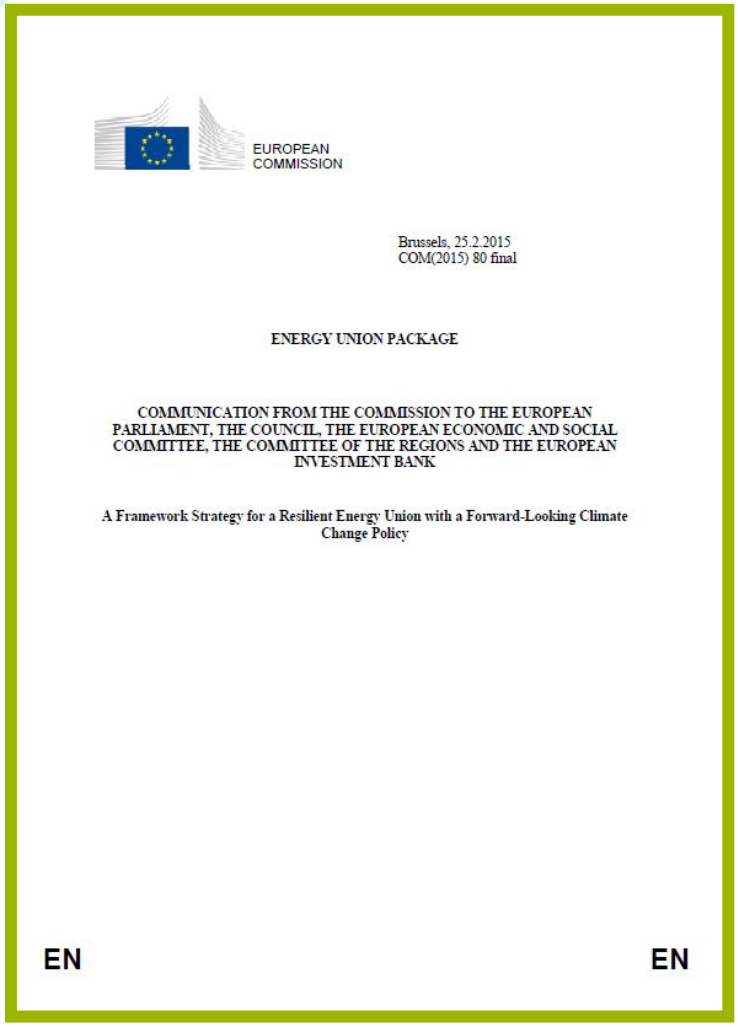
Comunicación de la CE sobre la Unión de la Energía



EUROPEAN COMMISSION

Brussels, 25.2.2015
COM(2015) 80 final

ENERGY UNION PACKAGE

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE, THE COMMITTEE OF THE REGIONS AND THE EUROPEAN INVESTMENT BANK

A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy

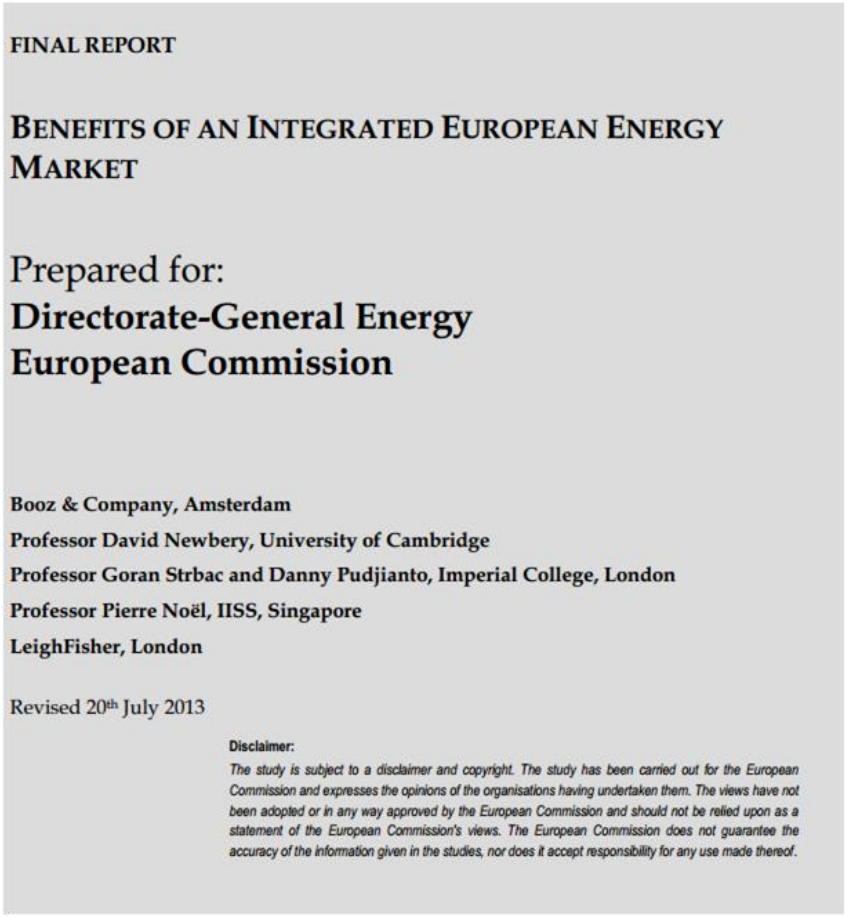
EN EN

*Our vision is of an **integrated continent-wide energy system** where **energy flows freely** across borders, based on **competition** and the **best possible use of resources**, and with **effective regulation** of energy markets at EU level where necessary;*

*Our vision is of the Energy Union as a **sustainable**, **low-carbon** and **climate-friendly economy** that is designed to last;*

Desarrollo de infraestructuras e interconexiones en Europa

booz&co.



FINAL REPORT

BENEFITS OF AN INTEGRATED EUROPEAN ENERGY MARKET

Prepared for:
Directorate-General Energy
European Commission

Booz & Company, Amsterdam
Professor David Newbery, University of Cambridge
Professor Goran Strbac and Danny Pudjianto, Imperial College, London
Professor Pierre Noël, IISS, Singapore
LeighFisher, London

Revised 20th July 2013

Disclaimer:
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Booz & Company – 2013:

Beneficios para UE de la integración de mercados:

30 billones €/año

- Diversidad de suministros
- Seguridad de suministros
- Desarrollo de la competitividad
- Integración de renovales
- Contribuir al desarrollo del Mercado Interior

Fuente: Comisión Europea

Inversiones en infraestructuras de energía en Europa

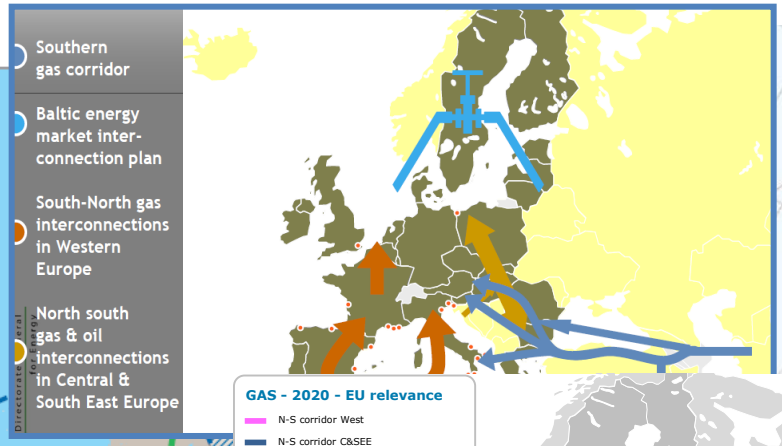
Necesidades totales de inversión en los sectores de la electricidad y el gas entre 2010-20: 1 trillón de € (apróx.)

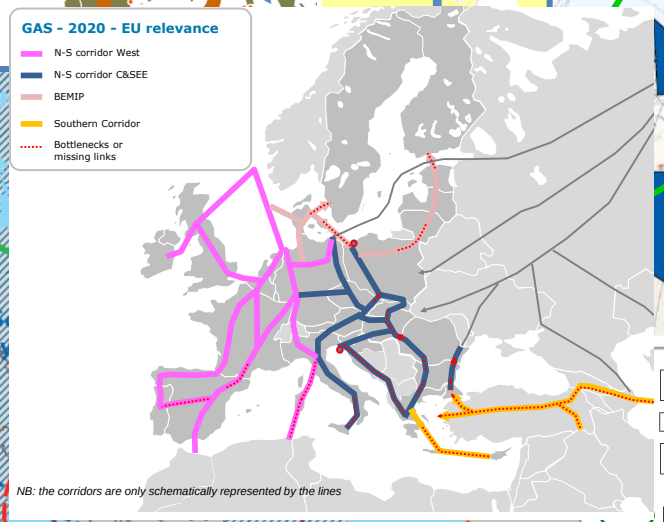
- Generación: 500 bn
  - RES: 310 – 370 bn
- Transporte y distribución: 600 bn
  - Distribución: 400 bn
  - Transporte: 200 bn
    - Electricidad: 140 bn (interconectores: 70, red offshore: 30, instalaciones "smart grid" en transporte: 40)
    - **Gas: 70 bn (gasoductos de importación, interconectores de flujo inverso, almacenamientos y GNL)**

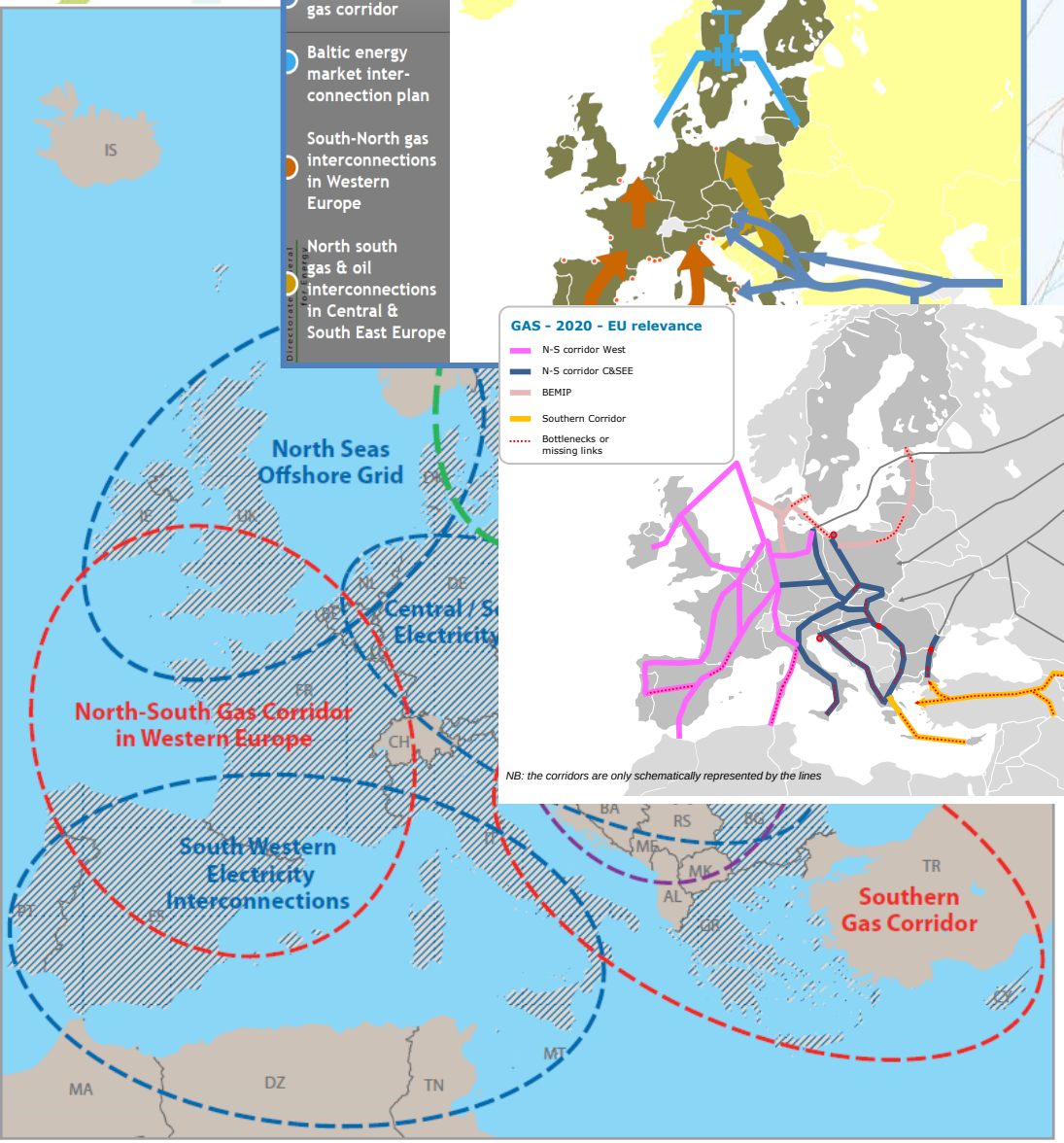
De acuerdo con el TYNDP ENTSOG (89bn Euros)

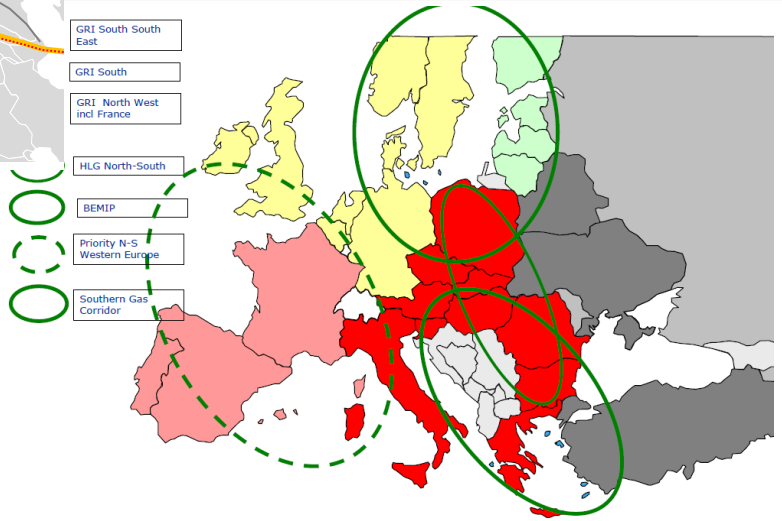
Fuente: Comisión Europea

Desarrollo de infraestructuras en Europa









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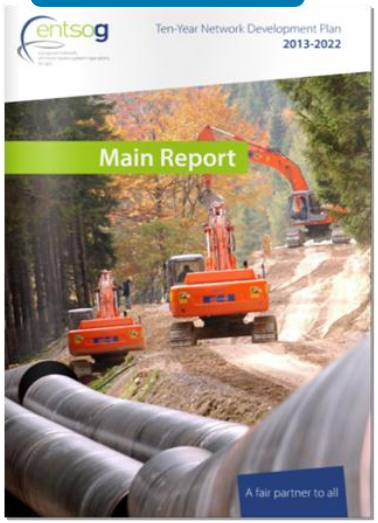
ENTSOG - TYNDP

2010-2019

2011-2020

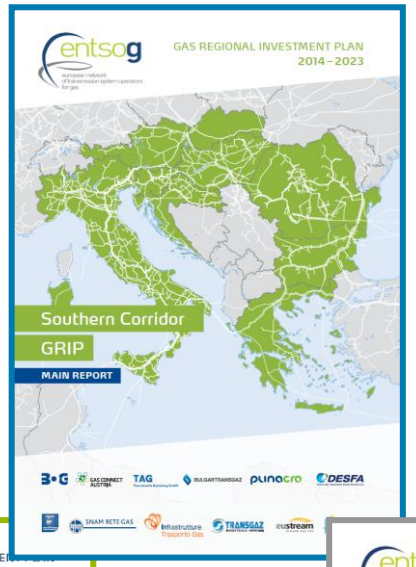
2013-2022

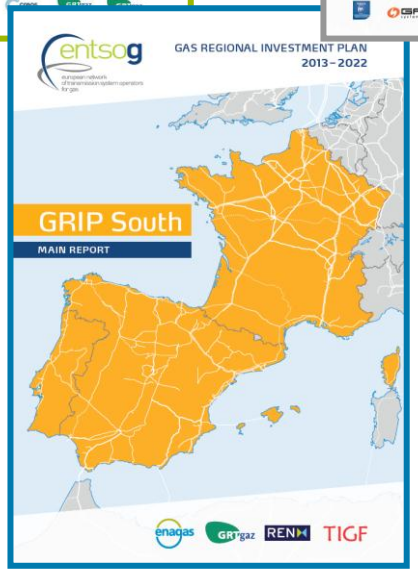


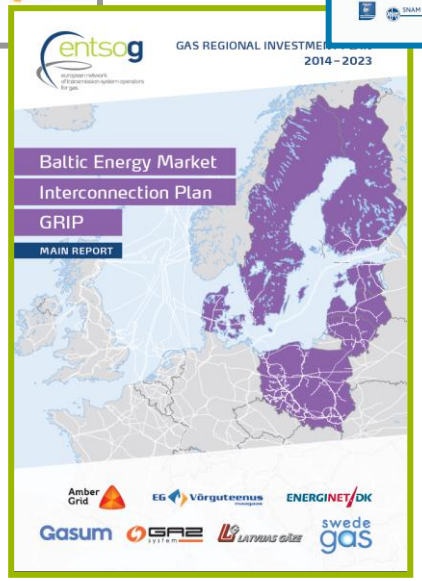
2015-2024

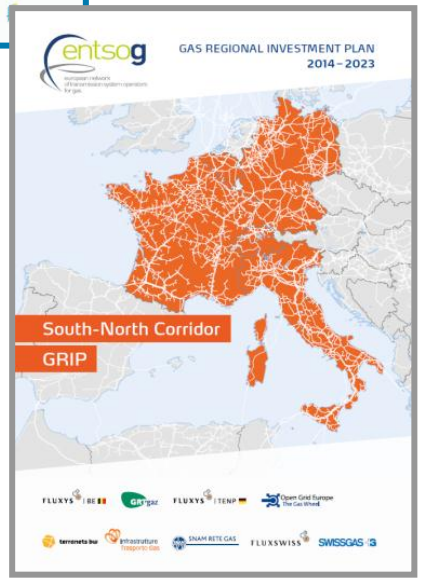
entsog
european network of transmission system operators for gas

Gas Regional Investment Plans (GRIPs)





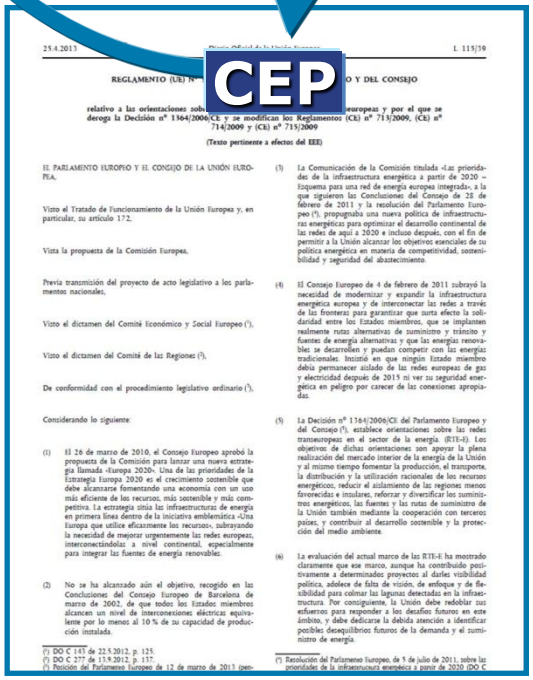


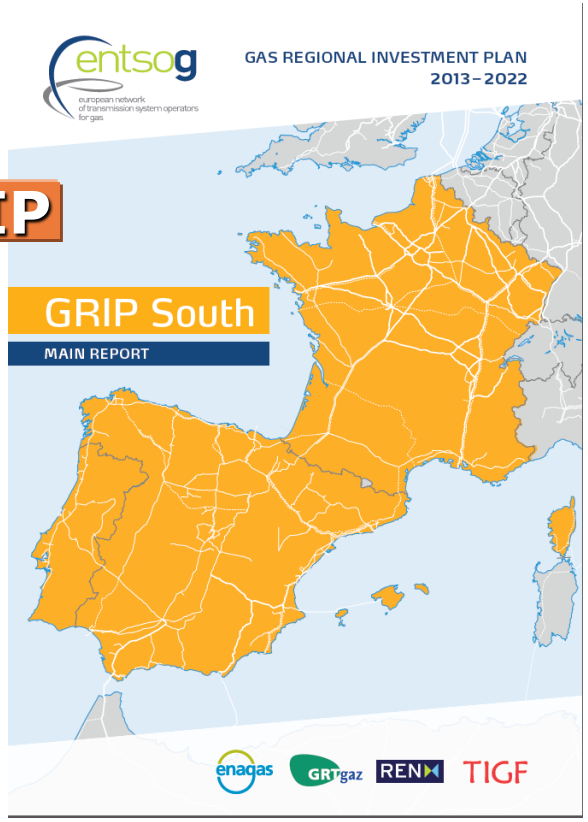


TYNDP, GRIP y Connecting Europe Package

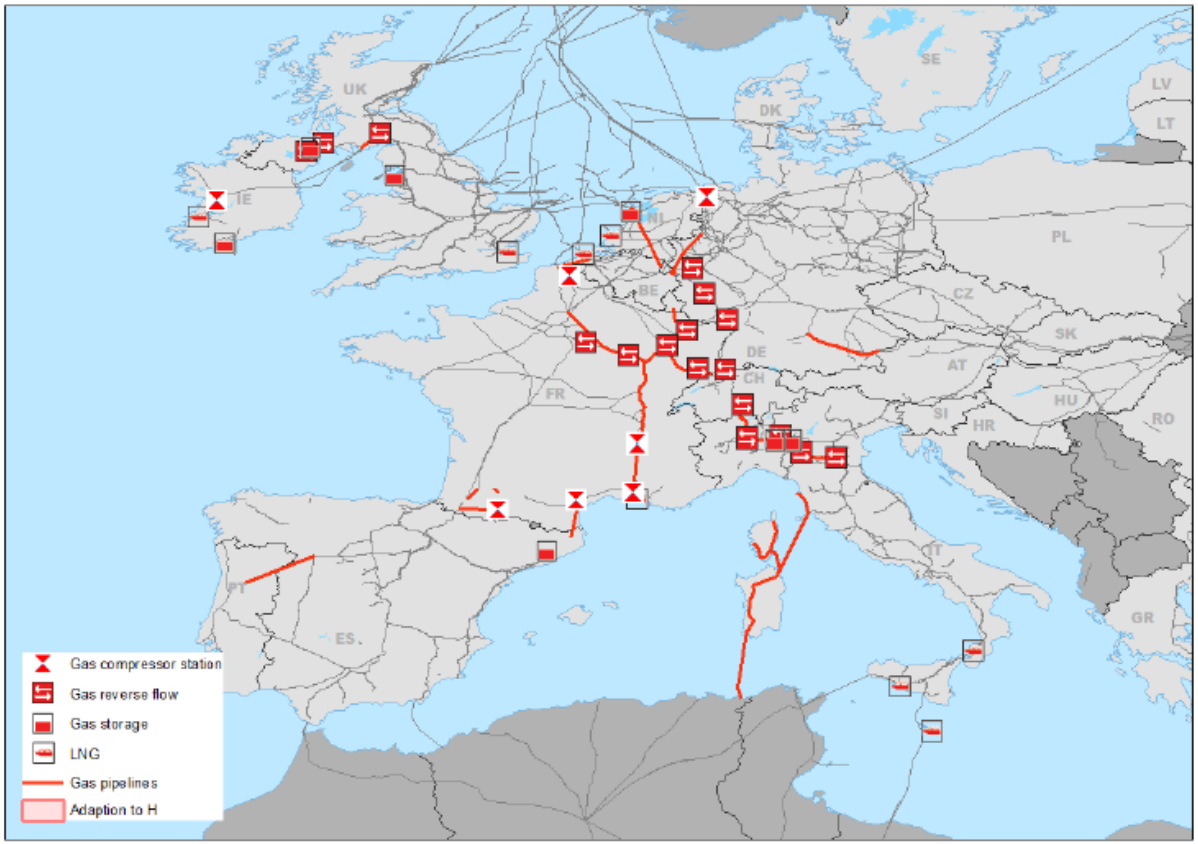
GRIP

CONVERGENCIA y COHERENCIA





Proyectos candidatos a PCIs



49 projects submitted:

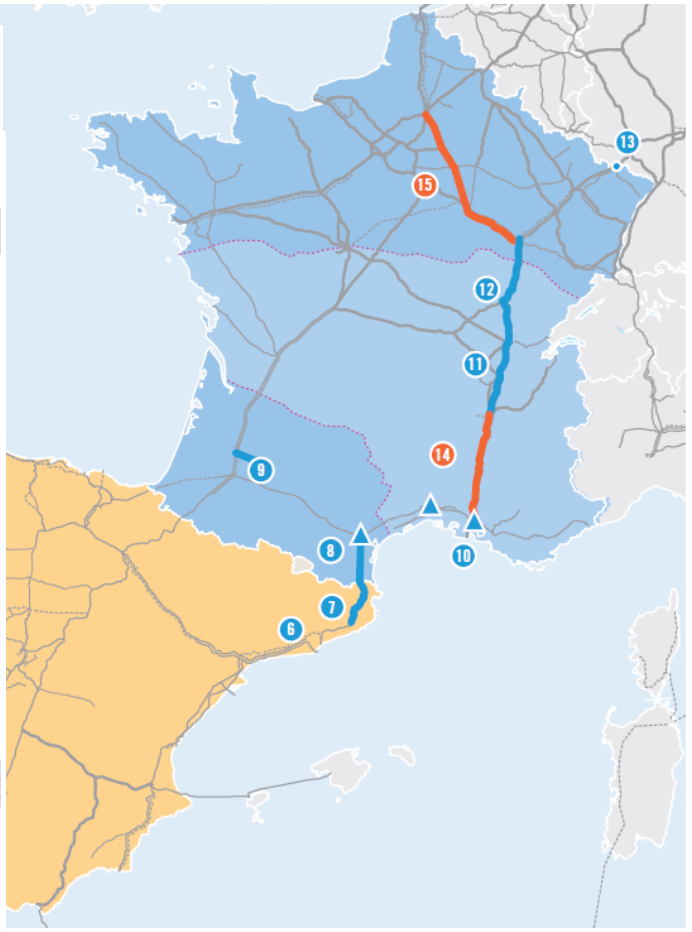
- 8 LNG terminals
- 6 underground gas storages
- 35 pipelines & interconnectors

**Based on TYNDP project codes: it also includes separate applications for the same project*

Gas Regional Investment Plans (GRIPs)

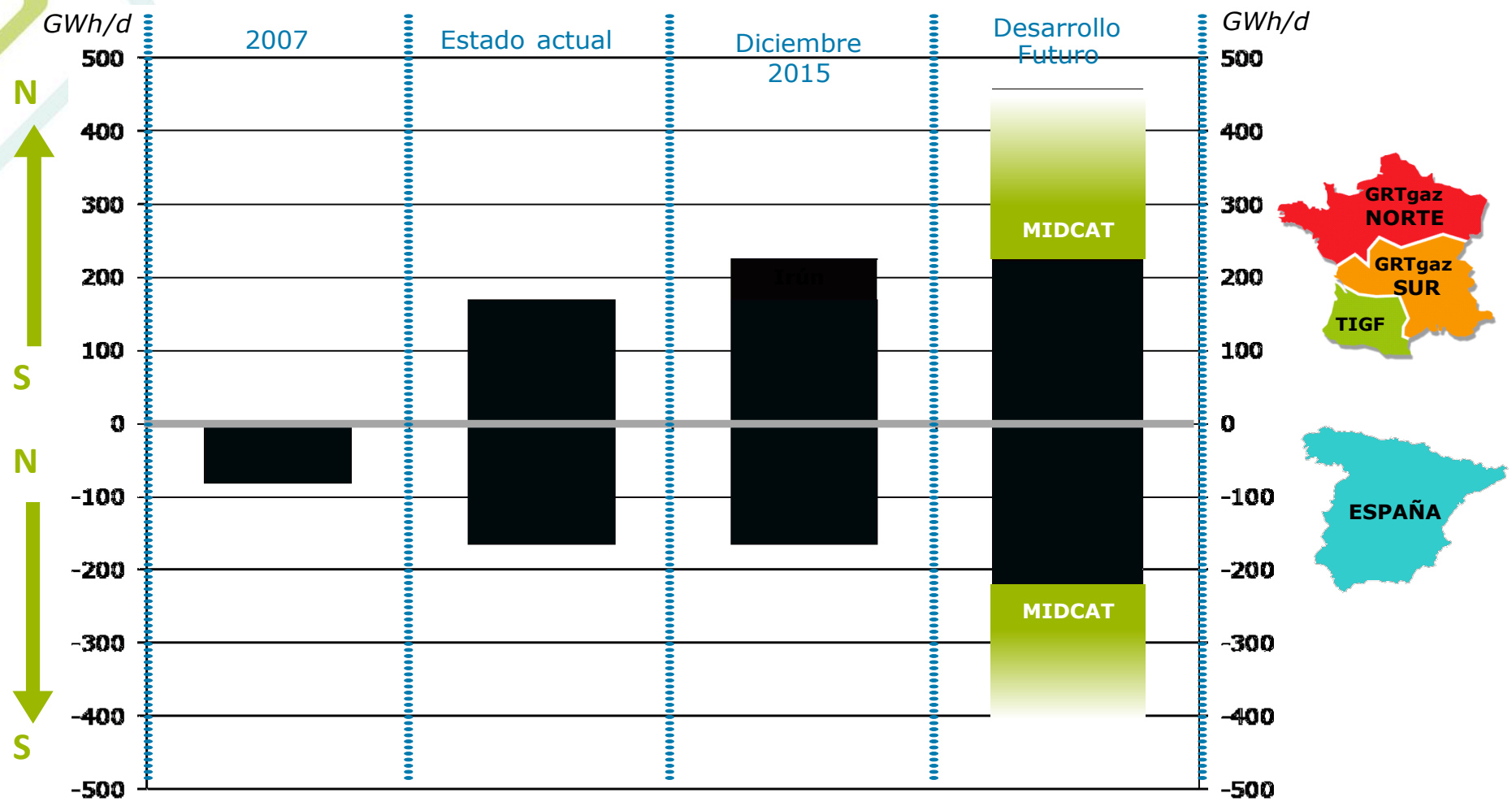
South GRIP

	Infrastructure	TYNDP 2013–2022 Code Project[1)]	Length (km)	Diameter (")	Compressor Power (MW)	Project Status	Commision-ing Date	TSO / Country
3RD INTERCONNECTION POINT BETWEEN PORTUGAL AND SPAIN								
	Infrastructure	TYNDP 2013–2022 Code Project[1)]	Length (km)	Diameter (")	Compressor Power (MW)	Project Status	Commision-ing Date	TSO / Country
IBERIAN-FRENCH CORRIDOR: EASTERN AXIS – MIDCAT PROJECT								
6	Iberian-French corridor: Eastern Axis – Midcat Project (CS Martorell)	TRA-N-176			36	n-FID	2021	Enagás Spain
7	Iberian-French corridor: Eastern Axis – Midcat Project (Pipeline Figueras – French border)	TRA-N-161	25	36		n-FID	2021	
8	Iberian-French corridor: Eastern Axis – Midcat Project Pipeline Spanish Border – Barbaira + CS Barbaira	TRA-N-252	120	32	10	n-FID	2021	TIGF France
9	Iberian-French corridor: Eastern Axis – Midcat Project Pipeline Lupiac – Barran	TRA-N-252	28	32		n-FID	2021	
10	CS Monpellier	TRA-N-256			15/20	n-FID	2021	GRTgaz France
	CS Saint Martin de Crau				10			
	Infrastructure	TYNDP 2013–2022 Code Project[1)]	Length (km)	Diameter (")	Compressor Power (MW)	Project Status	Commision-ing Date	TSO / Country
N-FID DEVELOPMENTS TO MERGER GRTgaz NORTH AND SOUTH ZONES								
11	Est Lyonnais pipeline	TRA-N-253	170	48		Non-FID	2019	GRTgaz France
12	Bourgogne pipeline	TRA-N-043	190	48		Non-FID	2018	
13	Reverse capacity from France to Germany at Obergailbach	TRA-N-047	60	42		Non-FID	2018	



Capacidad de interconexión España-Francia

Desarrollo de las interconexiones



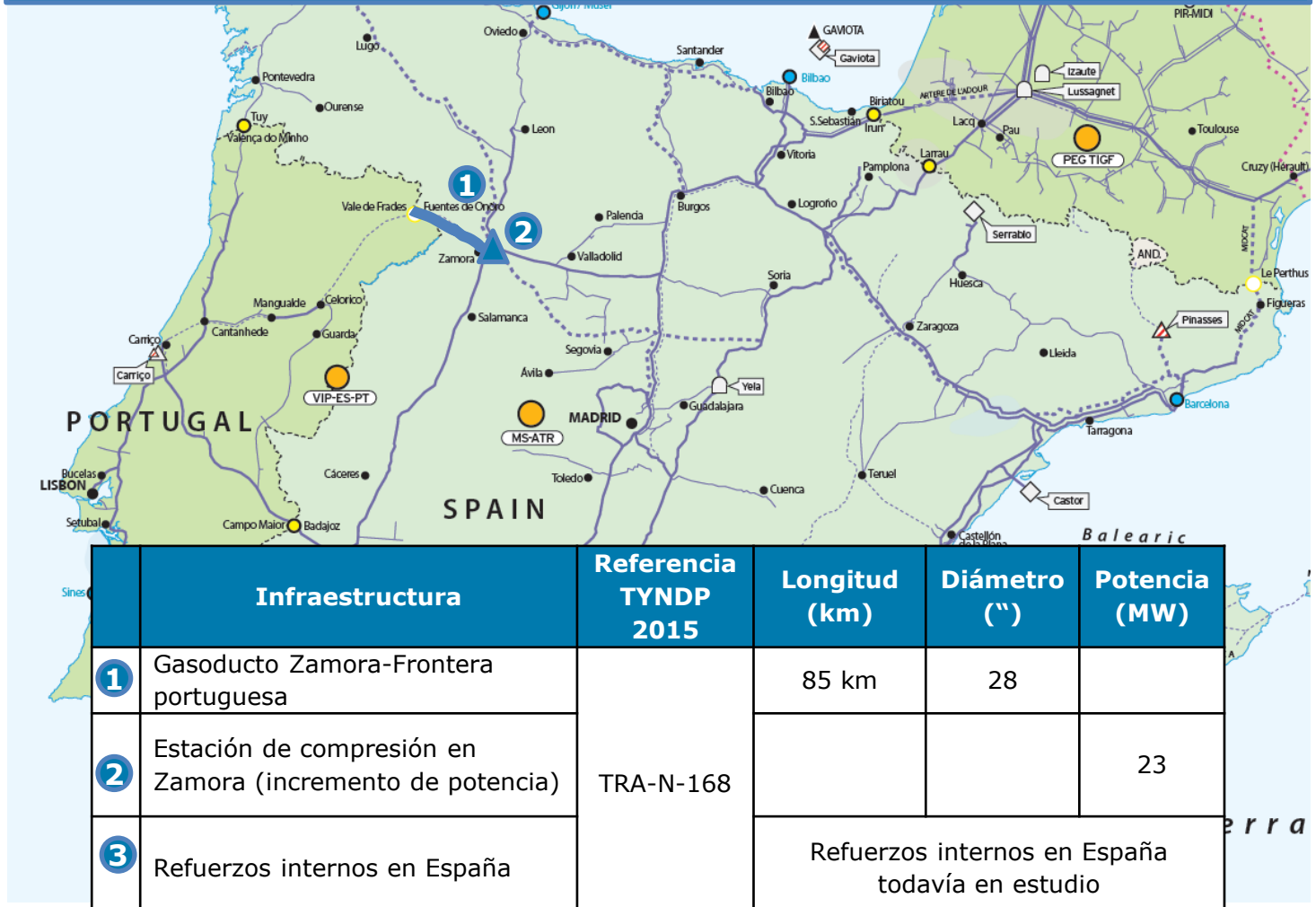
Proyectos candidatos a PCI

PROYECTOS DE INFRAESTRUCTURA ASOCIADOS A MIDCAT (España)

	Infraestructura	Referencia TYNDP 2015	Longitud (km)	Diámetro (")	Potencia (MW)
1	Gasoducto Figueras-Le Perthus	TRA-N-161	25	36	
2	Gasoducto Hostalrich-Figueras		79	36	
3	Estación de compresión en Martorell				36
4	Triplicación gasoducto Tivisa-Arbós		114	30	
5	Duplicación gasoducto Castelnou-Villar de Arnedo		214	26	

Proyectos candidatos a PCI

PROYECTOS DE INFRAESTRUCTURA ASOCIADAS A LA 3ª INTERCONEXIÓN ESPAÑA-PORTUGAL (España)



	Infraestructura	Referencia TYNDP 2015	Longitud (km)	Diámetro (")	Potencia (MW)
1	Gasoducto Zamora-Frontera portuguesa	TRA-N-168	85 km	28	
2	Estación de compresión en Zamora (incremento de potencia)				23
3	Refuerzos internos en España		Refuerzos internos en España todavía en estudio		

Índice

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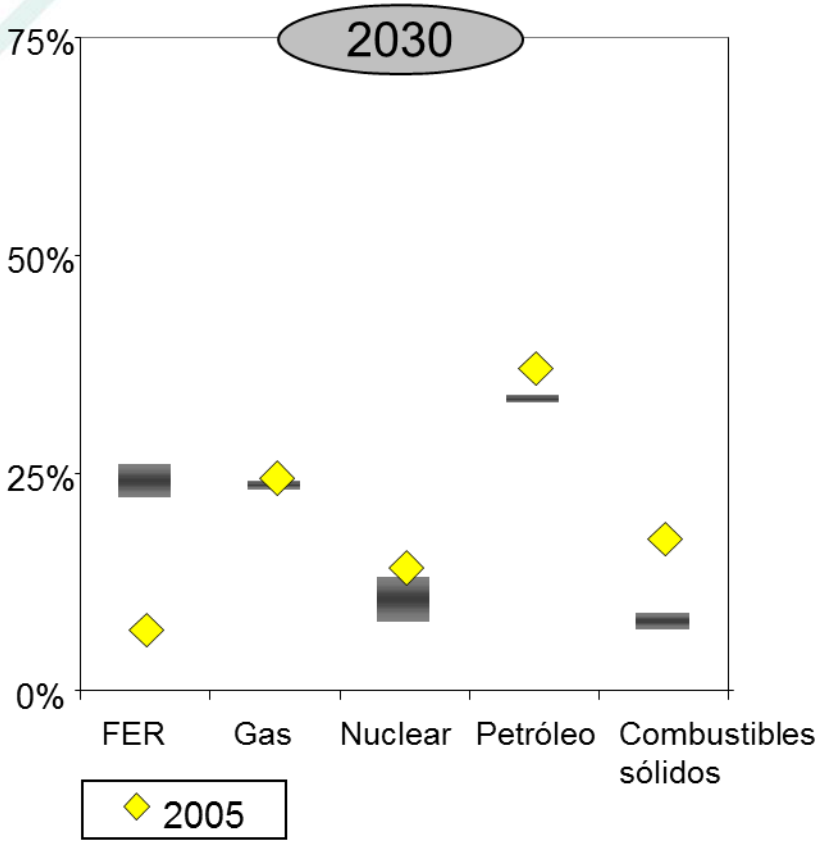
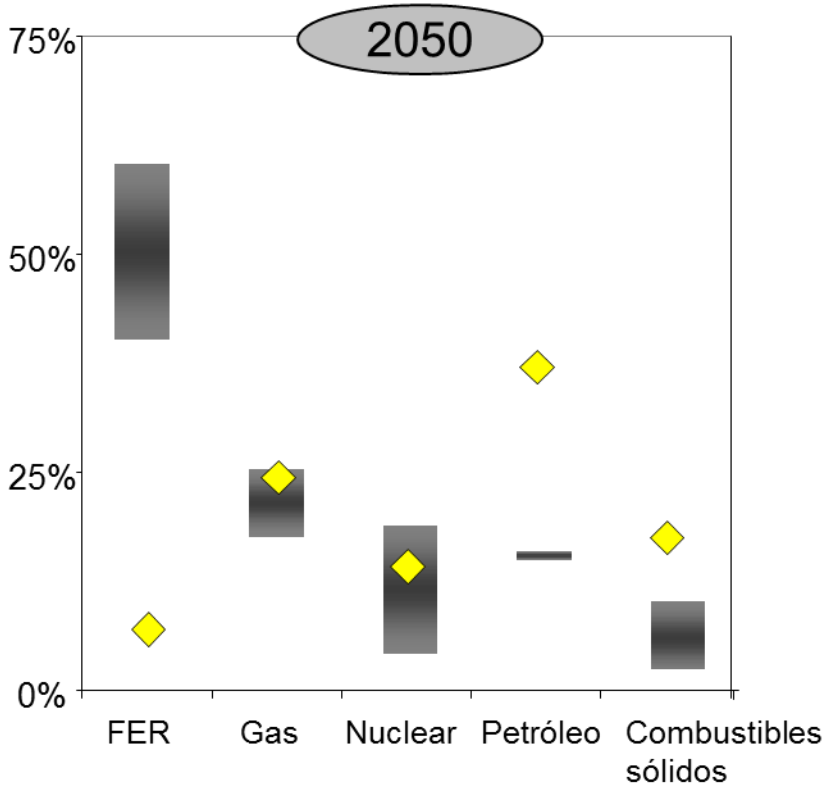
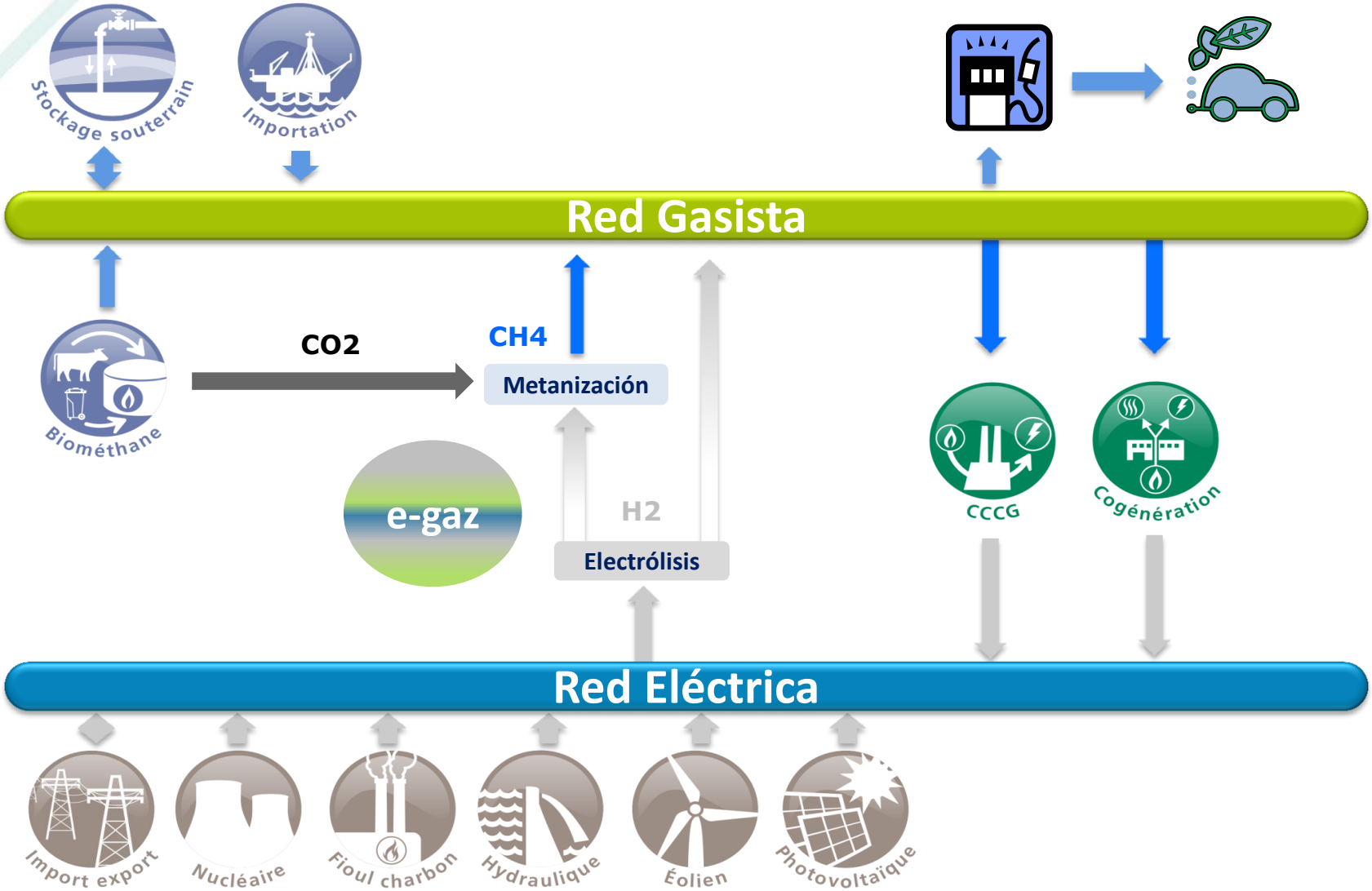
¿Qué rol para el gas en 2050?





Fuente: Comisión Europea

La red gasista es un componente esencial en un sistema global de energía sostenible



Fuente: GRT-gaz

Carga de Cisternas

El Musel
- 8 GWh/d GNL
- 30 cisternas/dia

Bilbao
- 4.5 GWh/d GNL
- 15 cisternas/dia

Reganosa
- 10 GWh/d GNL
- 33 cisternas/dia

CIENTOS DE MILES EN LAS ÚLTIMAS DECADAS!!!

Barcelona
- 15 GWh/d GNL
- 55 cisternas/dia

Sagunto
- 10,5 GWh/d GNL
- 35 cisternas/dia

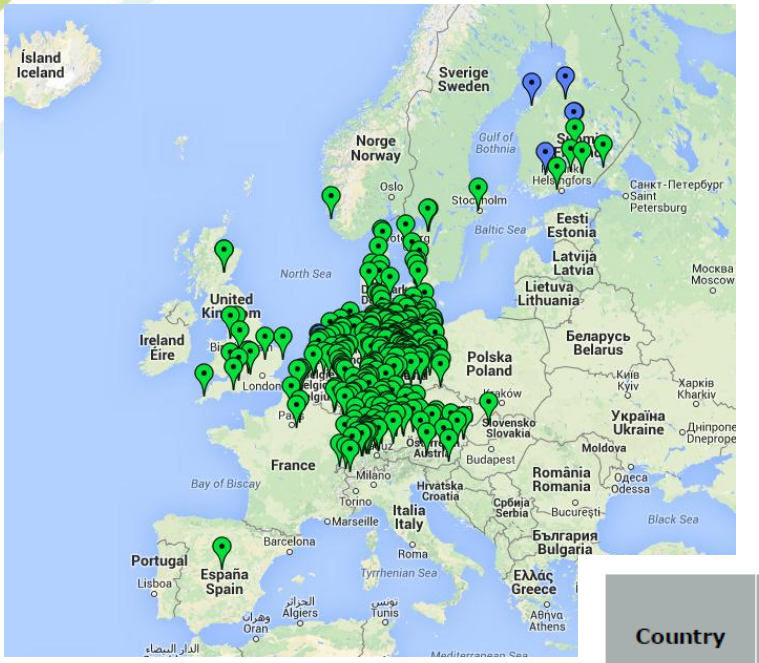
Cartagena
- 15 GWh/d GNL
- 50 cisternas/dia

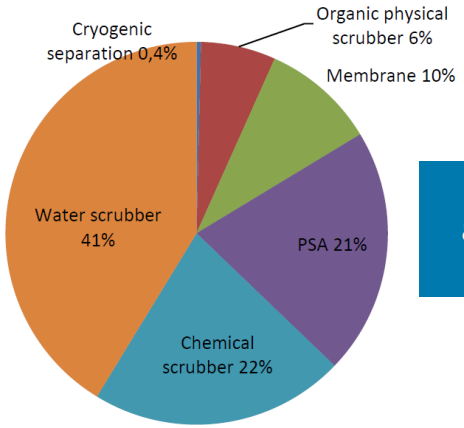
Huelva
- 15 GWh/d GNL
- 50 cisternas/dia

Nº Cargas / año

	2008	2009	2010	2011	2012	2013
TOTAL	36.000	41.000	40.000	44.000	46.000	39.000

Biometano: Desarrollo de experiencias en Europa





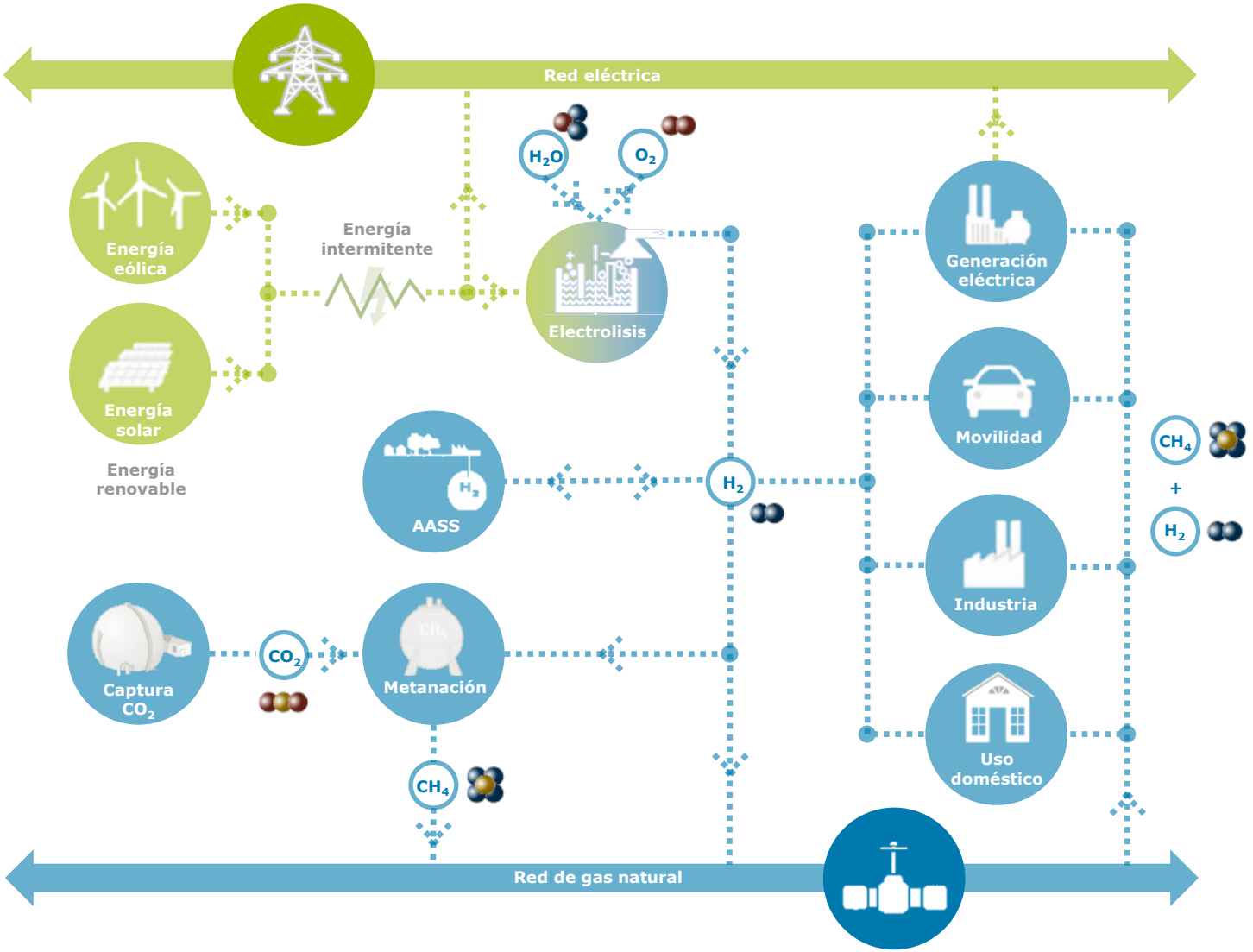
Tecnologías de acondicionamiento del biogás

Country	Biomethane plants	Biomethane plants feeding the grid	Biogas plants total (approx.)	Agricultural	Biowaste (incl. organic MSW)	Sewage	LFG
Austria	10	7	503	approx. 300	55	134	14
Croatia	-	-	4	2	-	1	1
France	3	1	283	40	98	74	71
Germany	84	82	8.792	approx. 7.000	92	1.700	
Hungary	1	-	58	36	-	14	8
Italy	-	-	667	approx. 300	32	135	200
Netherlands	13	13	130				
Poland	-	-	219	17	2	approx. 200	
Slovakia	-	-	24	12	-	12	-
UK	2	2	360	60		100	> 200
Sweden	47	8	229	14	23	135	57
Switzerland	17	15	600	140		460	
	177	128	11.869				

Fuente: Green Gas Grids - Biomethane technology & quality: An overview

IEA Bioenergy - Biomethane Status and Factors Affecting Market Development and Trade

Hidrógeno en la cadena transporte



- Fácil integración ***teórica*** con gas natural

Muchas gracias por su atención

12 de marzo de 2015

….algunas Webs de interés

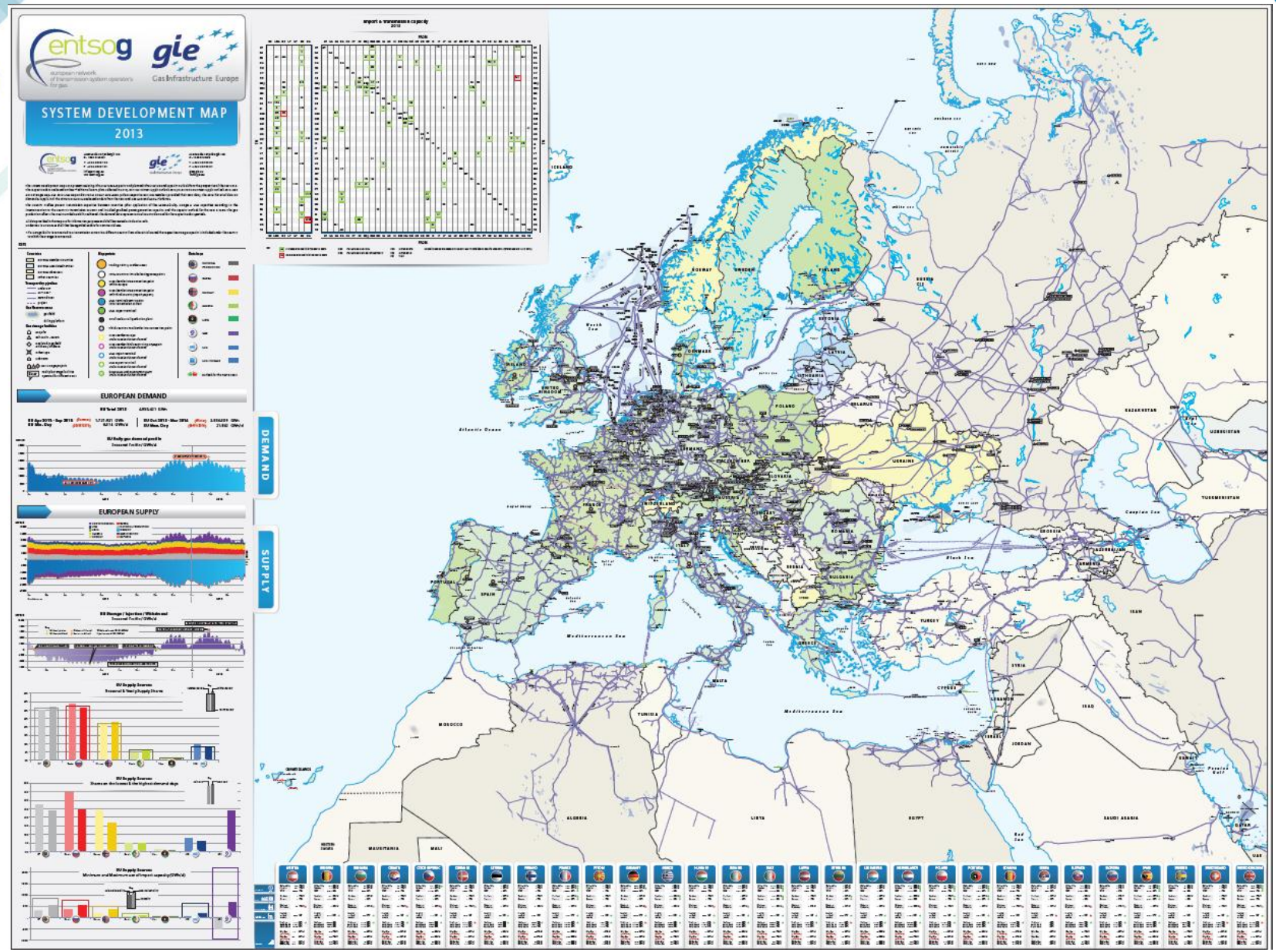
Nacional

- www.enagas.es
- www.minetur.es
- www.boe.es
- www.cnmc.es
- www.cores.es
- www.sedigas.es
- www.enerclub.es
- www.cogen-energia.com

Internacional

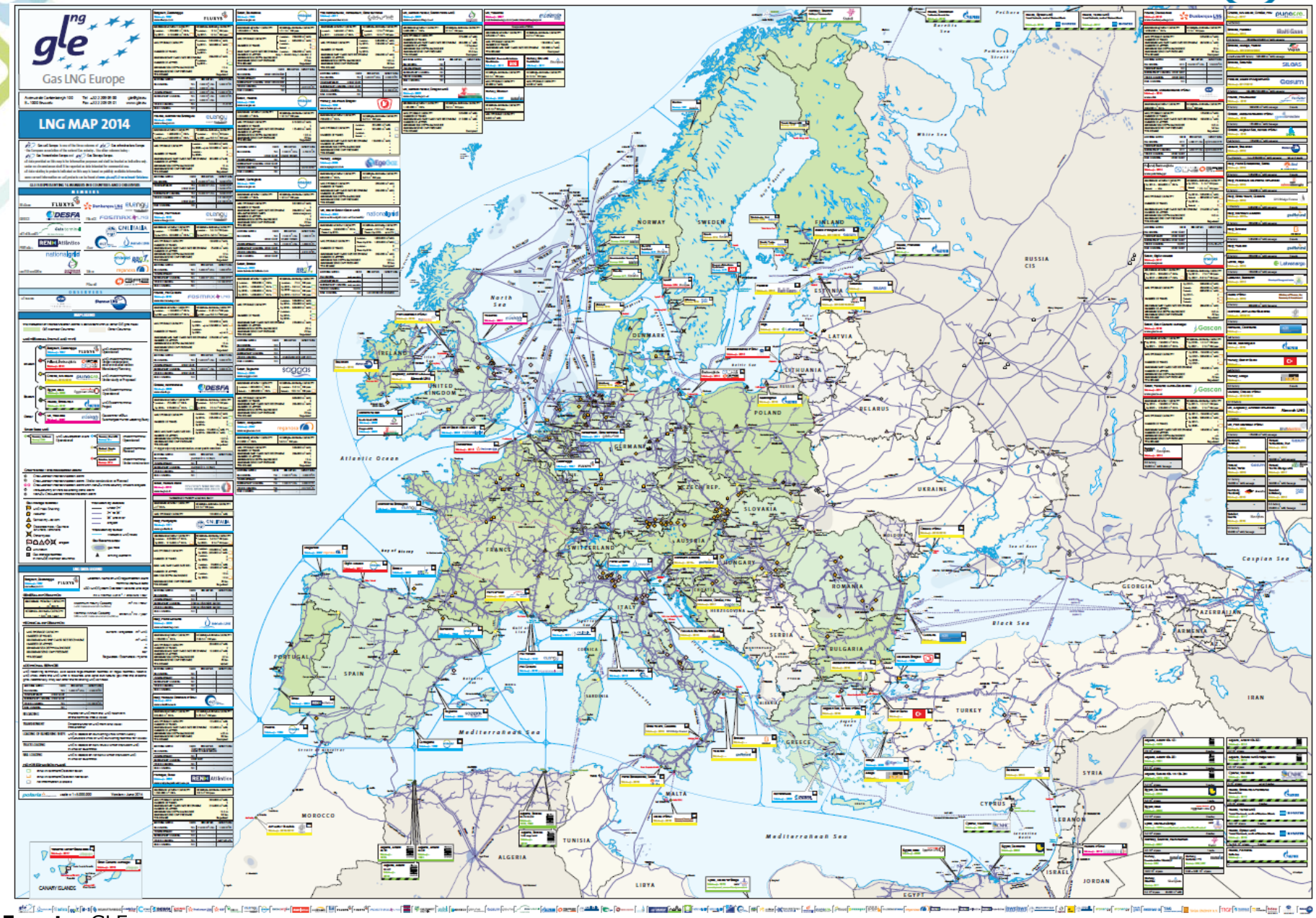
- www.gie.eu.com
- www.entsog.eu
- www.eurogas.org
- www.easee-gas.eu
- www.energy-regulator.eu
- www.acer.europa.eu
- www.icer-regulators.net
- www.iea.org
- www.giignl.org
- www.igu.org
- www.worldenergy.org

Infraestructuras de gas en Europa



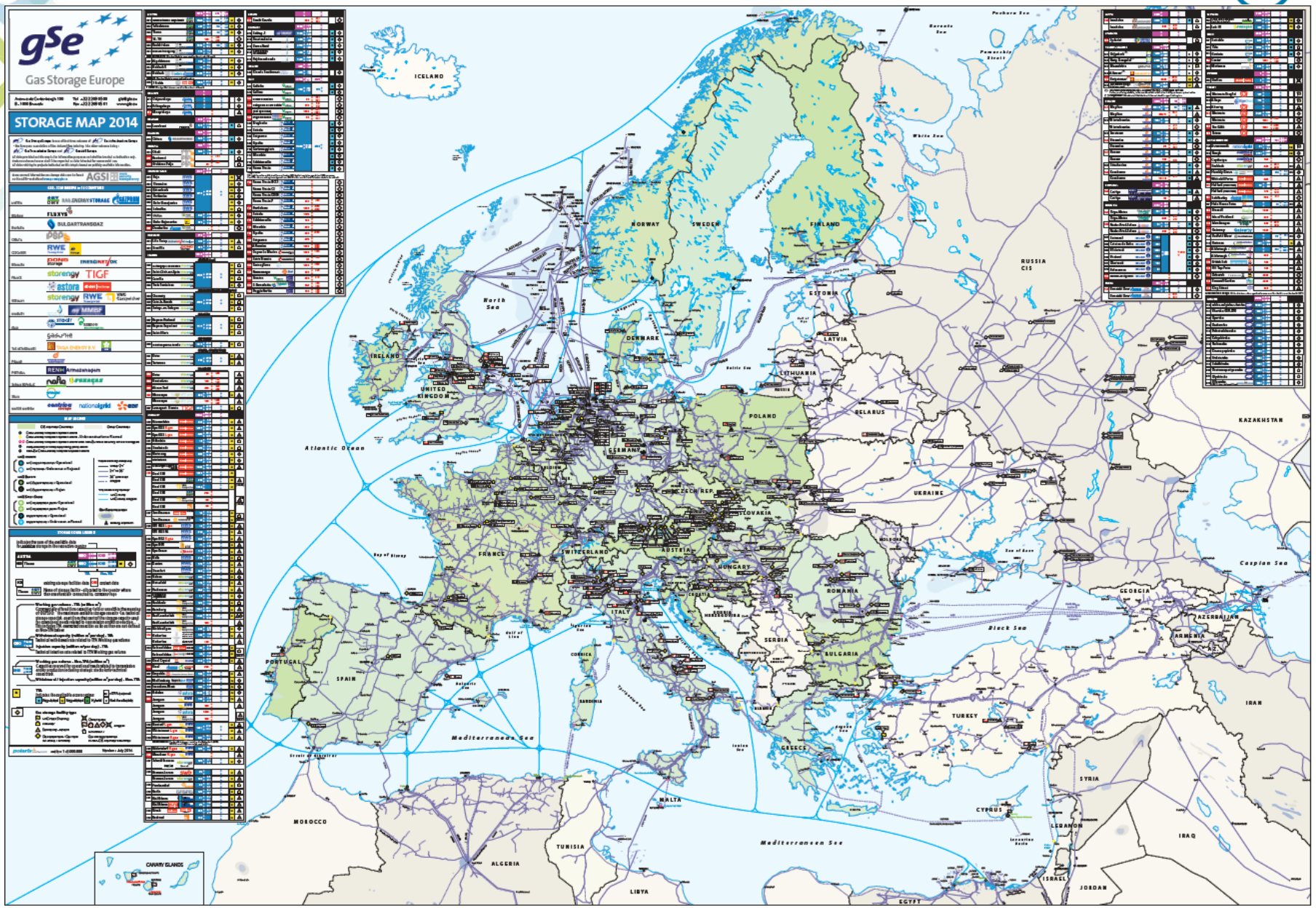
Fuente: ENTSOG
http://www.entsog.eu/maps/system-development-map

Plantas de regasificación en Europa



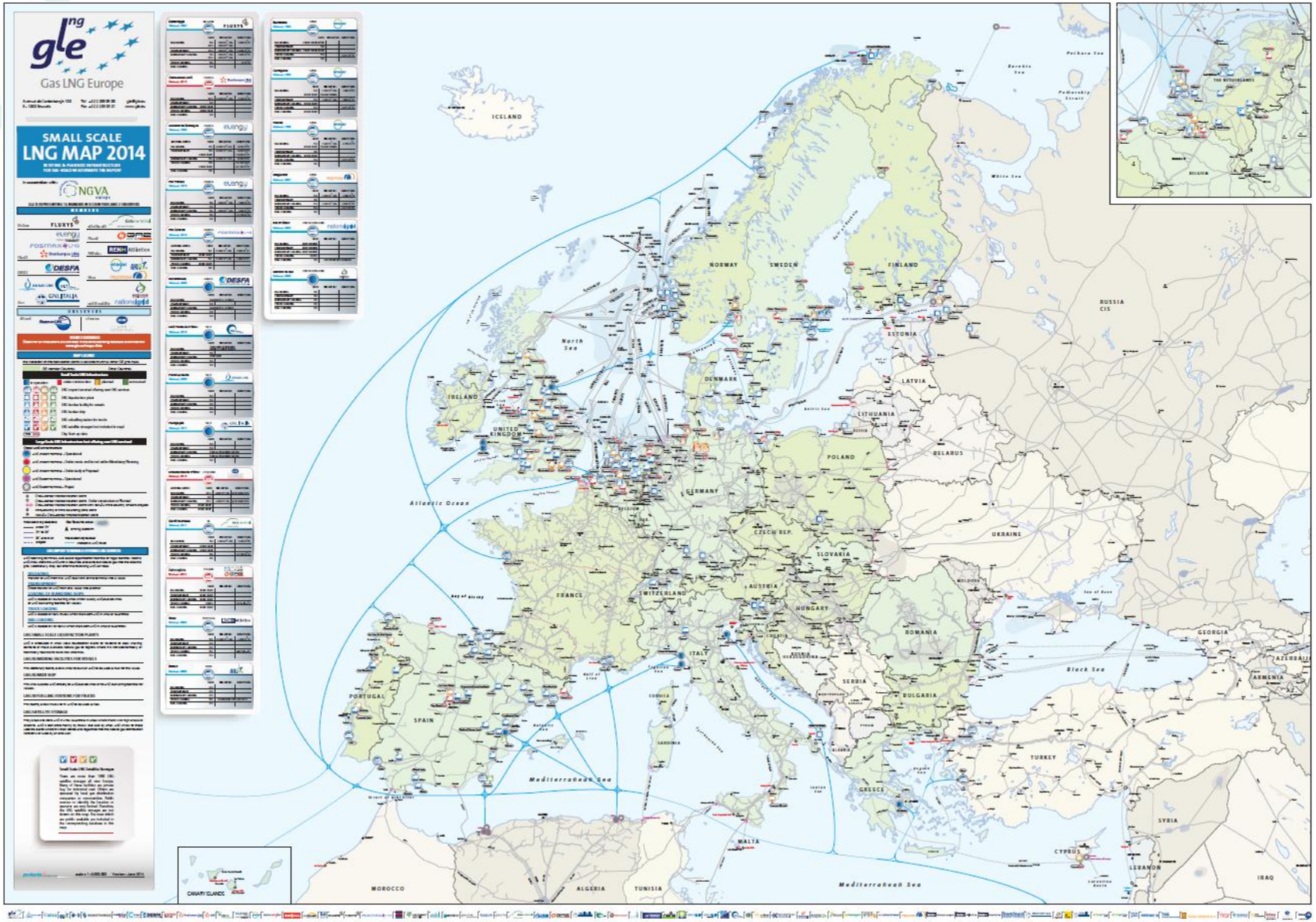
Fuente: GLE

Almacenamientos subterráneos en Europa



Fuente: GSE

Plantas de regasificación en Europa: Small Scale



Fuente: GLE