Autorità per l'energia elettrica il gas
e il sistema idrico

Corso dell'Istituto diplomatico
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Energy Union

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The World around the EU…by 2040

- Global energy demand is set to grow by 37% by 2040 in IEA's scenario, but the economy is less energy- intensive than it used to be
- However energy use will be essentially flat in much of EU, Japan, Korea and North America,
- By 2040 the world's energy supply mix divides into 4 almost –equal parts: oil, gas, coal and low-carbon sources.
- The world will be on a path of a long-term global average temperature increase of 3,6°C
- Power sector is leading the transformation of global energy contributin more than any other to the reduction in the share of fossil fuels in the global energy mix

Source: World Energy Outlook 2014

European Energy system in figures

- EU imported 53% of its energy at cost of around € 400 Billion, around 3% of EU GDP in 2013.
- Today 23,5% of the electricity produced in the Union and 14% of final energy consumption over all sectors is from RES.
- The increased competition on the wholesale market has significantly impacted prices, in electricity , wholesale prices have fallen significantly – between 35% and 45% between 2008-20 12. In gas they have remained stable
- Collectively the EU spend over 120 billion per year directly or indirectly- on energy subsidies

Source: IEM Communication COM (2014) 634 final

	Security of energy supply															
	Import dependence**				HHI energy imports			Non-EEA share of imports			Gross inland energy consumption, shares by fuel					
	Gas (%)	Oil (%)	Solid fuels (%)	Total Primary (%)	Gas	Oil	Solid fuels	Gas (%)	Oil (%)	Solid fuels (%)	Gas (%)	Oil (%)	Nuc-lear (%)	Rene-wables (%)	Solid fuels (%)	HHI energy sources
	2008-2012	2008-2012	2008-2012	2008-2012	2008-2012	2008-2012	2008-2012	2008-2012	2008-2012	2008-2012	2008-2012	2008-2012	2008-2012	2008-2012	2008-2012	2008-2012
AT	87	91	100	66	0.47	0.12	0.32	86	55	18	23	37	0	27	10	0.27
BE	99	100	96	77	0.27	0.17	0.21	30	57	89	26	40	20	4	6	0.28
BG	91	99	28	42	1.00	0.53	0.53	100	87	99	13	22	22	7	39	0.27
CY				97		0.08	0.96		45	100	0	95	0	4	0	0.91
CZ	97	96	-16	27	0.78	0.28	0.62	85	72	12	16	21	17	6	42	0.28
DE	84	95	39	61	0.30	0.13	0.15	45	58	86	22	34	10	9	24	0.24
DK	-78	-47	96	-13		0.18	0.28		23	91	20	39	0	19	18	0.27
EE	100	61	0	18	1.00	0.28	0.75	100	42	99	10	19	0	13	61	0.44
ES	100	99	79	77	0.21	0.06	0.18	89	83	99	23	46	12	10	9	0.30
FI	100	96	68	51	1.00	0.59	0.45	100	84	90	10	28	17	26	16	0.21
FR	98	98	99	50	0.20	0.07	0.15	46	73	87	15	32	42	7	4	0.31
EL	100	98	3	68	0.41	0.15	0.39	98	88	83	12	52	0	7	28	0.37
HR	20		98	54	0.78	0.33	0.31	57	71	95	29	46	0	11	8	0.31
HU	78	81	40	57	0.83	0.67	0.31	96	84	61	37	26	16	7	11	0.25
IE	95	99	61	88	1.00	0.49	0.48	0	12	85	29	51	0	5	15	0.37
IT	90	92	99	83	0.21	0.11	0.18	83	95	95	38	40	0	10	9	0.33
LT	99	93	94	70	1.00	0.83	0.66	100	95	98	33	33	12	14	3	0.29
LU	100	100	100	97	0.34	0.59	0.58	36	0	100	24	63	0	3	1	0.46
LV	96	99	97	56	1.00	0.24	0.67	100	48	92	28	33	0	33	2	0.30
MT		100		100							0	100	0	0	0	0.99
NL	-68	95	107	32	0.38	0.08	0.25	14	62	95	43	41	1	4	9	0.36
PL	72	97	-5	31	0.69	0.61	0.41	87	83	81	13	25	0	7	54	0.38
PT	101	100	99	79	0.43	0.08	0.44	100	81	96	18	50	0	20	10	0.33
RO	21	51	18	23	0.88	0.29	0.23	94	86	64	30	26	8	15	22	0.23
SE	98	99	88	35	1.00	0.22	0.18	0	40	72	2	27	31	34	5	0.29
SI	100	101	21	51	0.35	0.22	0.52	73	17	78	11	36	21	14	20	0.25
SK	100	89	83	64	1.00	0.67	0.29	100	84	41	27	21	23	7	22	0.22
UK	37	19	68	32	0.40	0.18	0.27	26	40	97	37	35	8	3	16	0.29
EA											24	37	15	9	13	0.25
EU28	64	85	42	54	0.17	0.09	0.14	59	67	87	24	35	14	9	17	0.24

	Import dependence**				HHI energy imports			Non-EEA share of imports		
	Gas (%)	Oil (%)	Solid fuels (%)	Total Primary (%)	Gas	Oil	Solid fuels	Gas (%)	Oil (%)	Solid fuels (%)
	2008-2012	2008-2012	2008-2012	2008-2012	2008-2012	2008-2012	2008-2012	2008-2012	2008-2012	2008-2012
AT	87	91	100	66	0.47	0.12	0.32	86	55	18
BE	99	100	96	77	0.27	0.17	0.21	30	57	89
BG	91	99	28	42	1.00	0.53	0.53	100	87	99
CY				97		0.08	0.96		45	100
CZ	97	96	-16	27	0.78	0.28	0.62	85	72	12
DE	84	95	39	61	0.30	0.13	0.15	45	58	86
DK	-78	-47	96	-13		0.18	0.28		23	91
EE	100	61	0	18	1.00	0.28	0.75	100	42	99
ES	100	99	79	77	0.21	0.06	0.18	89	83	99
FI	100	96	68	51	1.00	0.59	0.45	100	84	90
FR	98	98	99	50	0.20	0.07	0.15	46	73	87
EL	100	98	3	68	0.41	0.15	0.39	98	88	83
HR	20		98	54	0.78	0.33	0.31	57	71	95
HU	78	81	40	57	0.83	0.67	0.31	96	84	61
IE	95	99	61	88	1.00	0.49	0.48	0	12	85
IT	90	92	99	83	0.21	0.11	0.18	83	95	95
LT	99	93	94	70	1.00	0.83	0.66	100	95	98
LU	100	100	100	97	0.34	0.59	0.58	36	0	100
LV	96	99	97	56	1.00	0.24	0.67	100	48	92
MT		100		100						
NL	-68	95	107	32	0.38	0.08	0.25	14	62	95
PL	72	97	-5	31	0.69	0.61	0.41	87	83	81
PT	101	100	99	79	0.43	0.08	0.44	100	81	96
RO	21	51	18	23	0.88	0.29	0.23	94	86	64
SE	98	99	88	35	1.00	0.22	0.18	0	40	72
SI	100	101	21	51	0.35	0.22	0.52	73	17	78
SK	100	89	83	64	1.00	0.67	0.29	100	84	41
UK	37	19	68	32	0.40	0.18	0.27	26	40	97
EA										
EU28	64	85	42	54	0.17	0.09	0.14	59	67	87

Source: DG ENER County Factsheets, 2013

Contribution of energy products to trade balance

	Trade balance of energy products (% of GDP)			*Current account balance (% of GDP)*	DECOMPOSITION (related to total energy trade)		
	Petro-leum products	Gas	Total		Relative energy trade balance (%)	Share of energy in total trade (%)	*Macro trade openness (% of GDP)*
	2013	2013	2013	2012	2013	2013	2013
AT	-2.4	-0.9	-3.6	*1.8*	-61.8	6.8	85.8
BE	-2.6	-1.5	-4.5	*-1.4*	-15.9	15.6	181.0
BG	-4.4	-2.4	-6.5	*-1.3*	-28.0	19.4	120.4
CY	-6.7	-0.2	-7.0	*-11.7*	-70.0	26.2	38.0
CZ	-3.2	-1.8	-4.5	*-2.5*	-47.0	6.2	153.6
DE	-2.4	-1.0	-3.6	*7.0*	-59.6	8.3	72.7
DK	0.2	0.1	0.1	*5.2*	1.7	10.0	62.5
EE	-2.2	-1.3	-2.4	*-1.2*	-15.2	11.2	140.7
ES	-2.4	-0.9	-3.4	*-1.1*	-43.3	16.1	48.2
FI	-2.1	-0.1	-2.7	*-1.9*	-26.9	16.8	59.1
FR	-2.3	-0.8	-3.1	*-2.3*	-63.4	10.7	46.1
EL	-2.7	-0.7	-3.5	*-3.1*	-22.4	37.7	40.8
HR	-3.4	-0.8	-5.1	*0.1*	-45.1	19.7	57.0
HU	-3.3	-2.5	-6.5	*1.6*	-52.1	7.8	159.8
IE	-2.4	-0.9	-3.5	*4.9*	-71.8	5.9	82.4
IT	-1.8	-1.4	-3.4	*-0.7*	-58.6	12.1	48.0
LT	-4.0	-2.8	-7.3	*-0.5*	-18.2	27.3	147.4
LU	-4.3	0.0	-4.1	*5.6*	-90.9	6.1	74.7
LV	-3.4	-2.2	-5.2	*-1.7*	-43.1	11.5	103.8
MT	-9.9	-0.2	-10.0	*0.4*	-44.8	22.9	97.8
NL	-3.7	-0.5	-4.4	*9.9*	-14.6	19.1	157.6
PL	-2.9	-0.2	-2.7	*-3.5*	-42.3	8.3	78.7
PT	-2.5	-1.0	-3.7	*-1.5*	-38.5	15.4	62.7
RO	-1.6	-0.2	-1.9	*-4.0*	-33.2	7.8	73.7
SE	-1.4	-0.2	-1.6	*7.1*	-23.7	11.3	58.7
SI	-4.9	-1.0	-5.7	*2.3*	-38.7	10.1	144.3
SK	-2.5	-2.9	-6.0	*2.3*	-37.0	9.3	175.3
UK	-0.4	-0.3	-1.0	*-3.7*	-16.7	12.6	47.4
EA	-2.4	-1.0	-3.5	*1.2*			
EU28	-2.1	-0.8	-3.1	*0.3*	-36.7	12.1	94.2

Source: Member State's Energy Dependence: An Indicator-Based Assessment. Occasional Papers 196

The Energy Union Package, European Commission Feb. 2015

Where we want to go:

Secure, sustainable, competitive, affordable energy for every European

What this means:

1. Energy security, solidarity and trust
2. A fully integrated internal EU-wide energy market
3. Energy efficiency as an energy source in its own right
4. Transition to a low-carbon society
5. Research, innovation and competiveness

How we want to reach it:

1. Energy security solidarity and trust

5 GUIDING DIMENSIONS

Concrete actions:

1) Security of gas supply
2) EU energy diplomacy and climate policy
3) Intergovernamental Agreements
4) Alternative suppliers: Southern Gas Corridor and Mediterranean
5) Comprehensive LNG strategy

2. A fully Integrated Internal Energy Market

Concrete actions:

1) Major infrastructure projects
2) Vulnerable customers
3) Energy infrastructure Forum
4) Energy prices and costs
5) Regional cooperation
6) European Electricity market design

3. Energy efficiency

Concrete actions:

1) Heating and cooling
2) Strengthened financial instruments
3) Energy Labelling & Ecodesign Directives
4) European performance of Building directive
5) Energy Efficiency Directive

4. Decarbonisation of the Economy

Concrete actions:

1) Achieve the 40% GHG reduction target
2) Alternative fuels and clean vehicles
3) Road transport package
4) Renewable Energy Package

5. Research Innovation and competitiveness

Concrete actions:

1) EU global technology and innovation leadership
2) Integrated SET Plan
3) Strategic transport research and innovation R&I agenda

The Commission states that Energy Union also needs an integrated governance and monitoring process

Delivering the Energy Union

A dynamic governance is envisioned by the Commission

Energy Union: PACKAGING VS CONTENT

The Energy Union is a box that must be filled.

- Are the 15 action points daring enough?
- Will the Energy Union be able to translate 28 national regulatory framworks into a well-functioning IEM?
- Does Europe need to enpower its intitutions more to pursue an IEM?
- How can national energy policies, with divergent objectives, be coordinated?
- Rethink national independence of fuel mix in light of environmental targets?
- What does solidarity really mean?

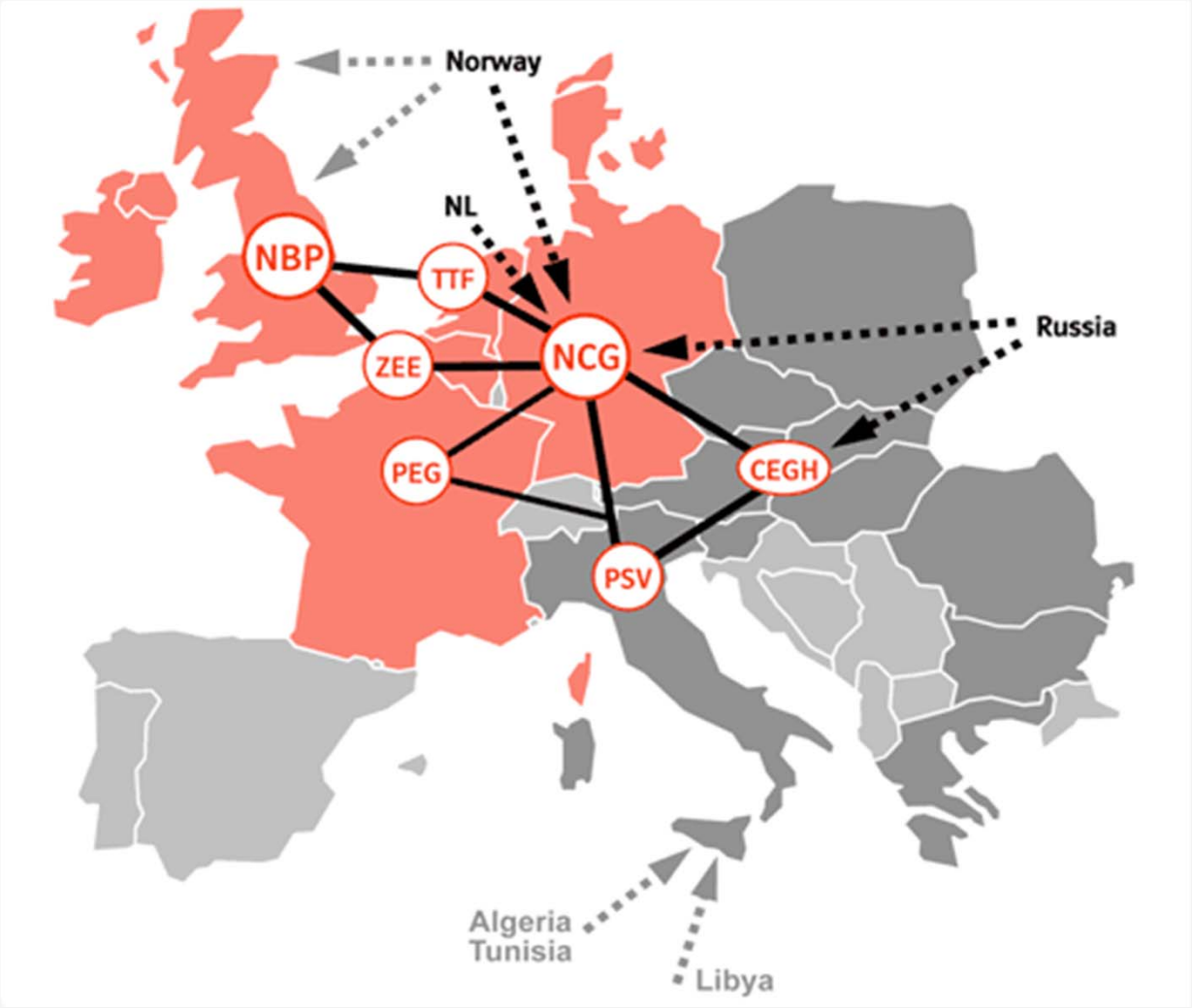
Energy Union opportunity or cost for Italy?

It is an opportunity:

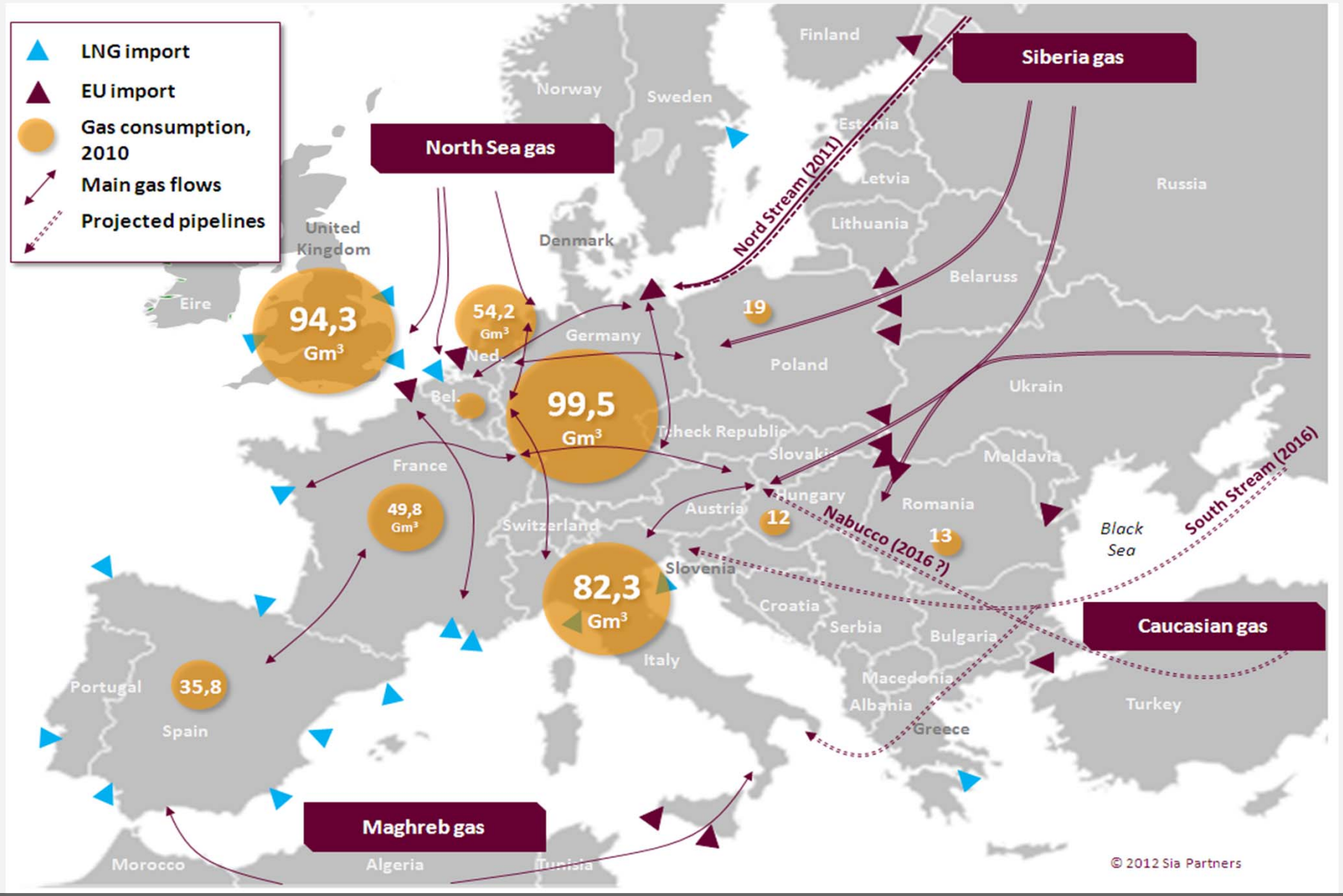
- If the Mediterranean succeeds in positioning itself at the center of the EU initiative
- If regional initiatives are strengthened
- Greater development of hubs and No-So cooperation

However, to avoid costs it is necessary to fully assess the consequences of the Energy Union proposal jointly with the other EU policies on the table at the moment.

European gas hubs



NBP – National balancing point
TTF – Title Transfer Facility
ZEE – Zeebruge Platform
PEG – Gas Exchange Point
NCG – NetConnect Germany
PSV – Punto di Scambio Virtuale
CEGH- Central European gas Hub


LNG import
EU import
Gas consumption, 2010
Main gas flows
Projected pipelines
Siberia gas
North Sea gas
Caucasian gas
Maghreb gas
Nord Stream (2011)
Nabucco (2016 ?)
South Stream (2016)
94,3 Gm³
54,2 Gm³
99,5 Gm³
49,8 Gm³
82,3 Gm³
35,8
19
12
13
Finland
Norway
Sweden
Russia
Latvia
Lithuania
Belaruss
Denmark
United Kingdom
Eire
Germany
Ned.
Bel.
Poland
Ukrain
Czheck Republic
Slovaki
Moldavia
France
Hungary
Austria
Romania
Switzerland
Slovenia
Croatia
Serbia
Bulgaria
Italy
Black Sea
Portugal
Spain
Macedonia
Albania
Greece
Turkey
Morocco
Algeria
Tunisia
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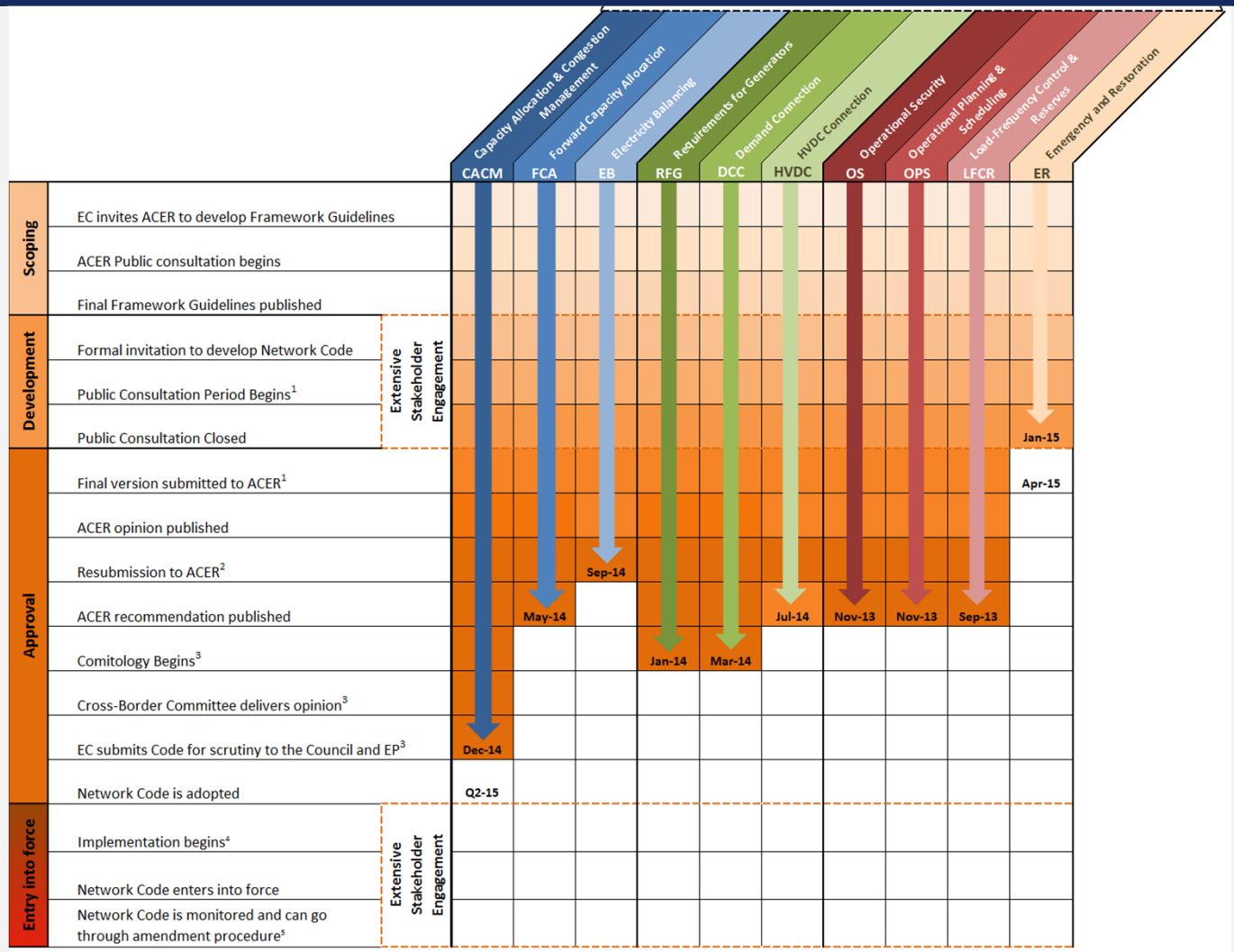
Status of Network Codes



Interconnection level for electricity in 2014

Member States above 10% interconnection

AT	29%
BE	17%
BG	11%
CZ	17%
DE	10%
DK	44%
FI	30%
FR	10%
GR	11%
HR	69%
HU	29%
LU	245%
NL	17%
SI	65%
SE	26%
SK	61%

12 MSs are still below 10% target and are isolated from the IEM.

Member States below 10% interconnection

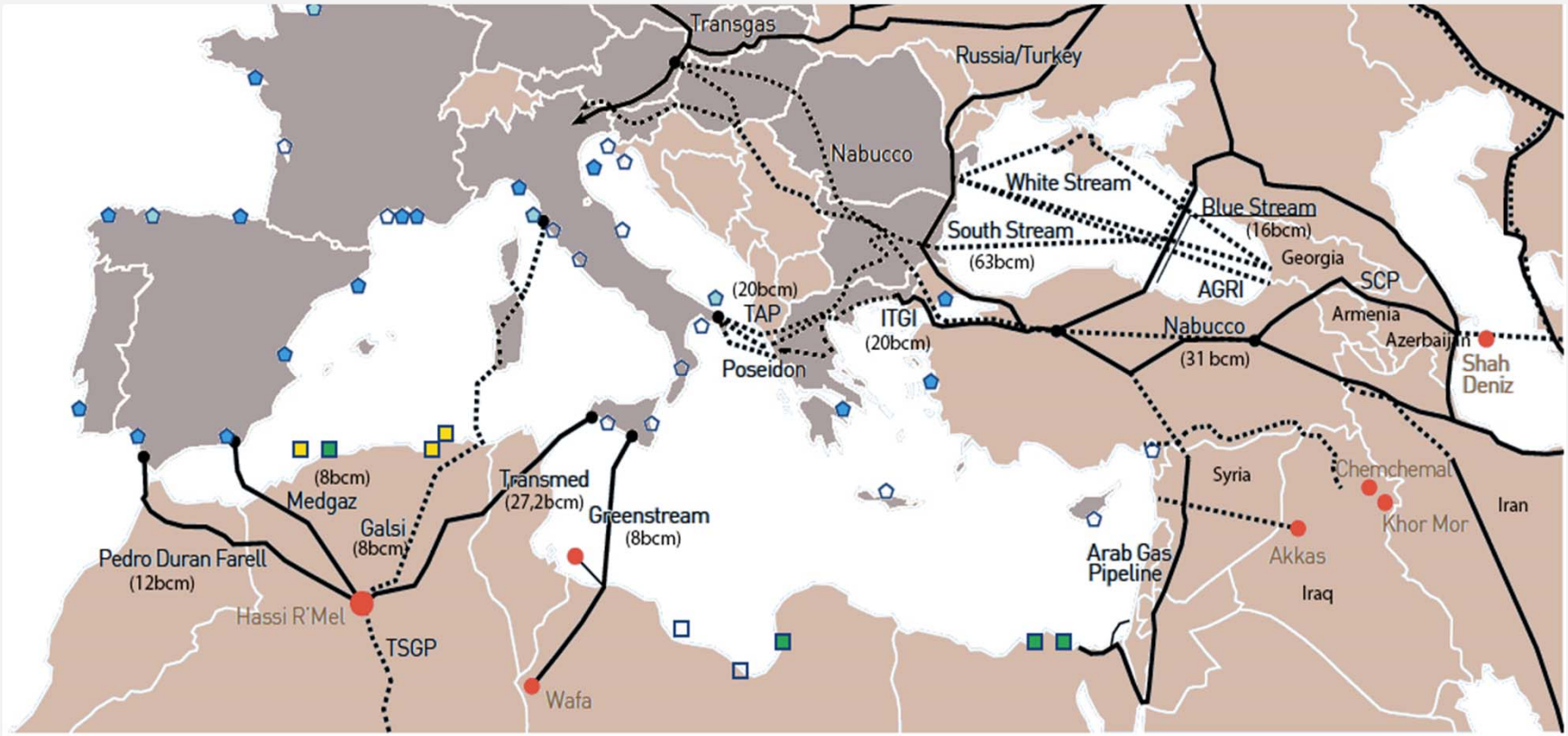
IE	9%
IT	7%
RO	7%
PT	7%
EE[4]	4%
LT[4]	4%
LV[4]	4%
UK	6%
ES	3%
PL	2%
CY	0%
MT	0%

Source: ENTSO-E Scenario Outlook and Adequacy Forecast, 2014

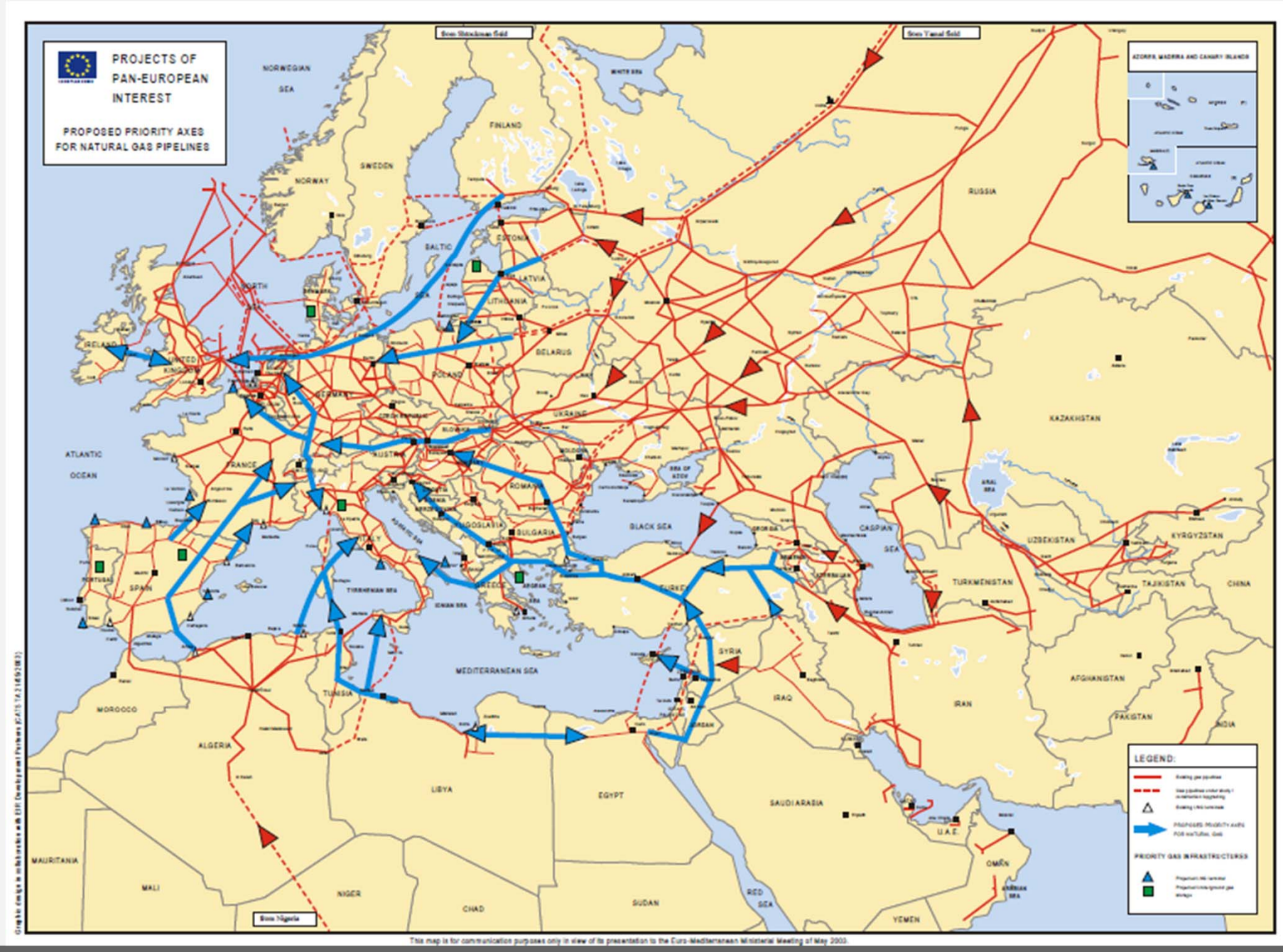
Map showing Russian Gas Transit Pipelines to Europe

Source: J Stern, Chapter 3, in J. Henderson and S. Pirani (eds.), The Russian Gas Matrix (forthcoming 2014)

Gas in Europe



Source: OME.



source: Inogate, 2013

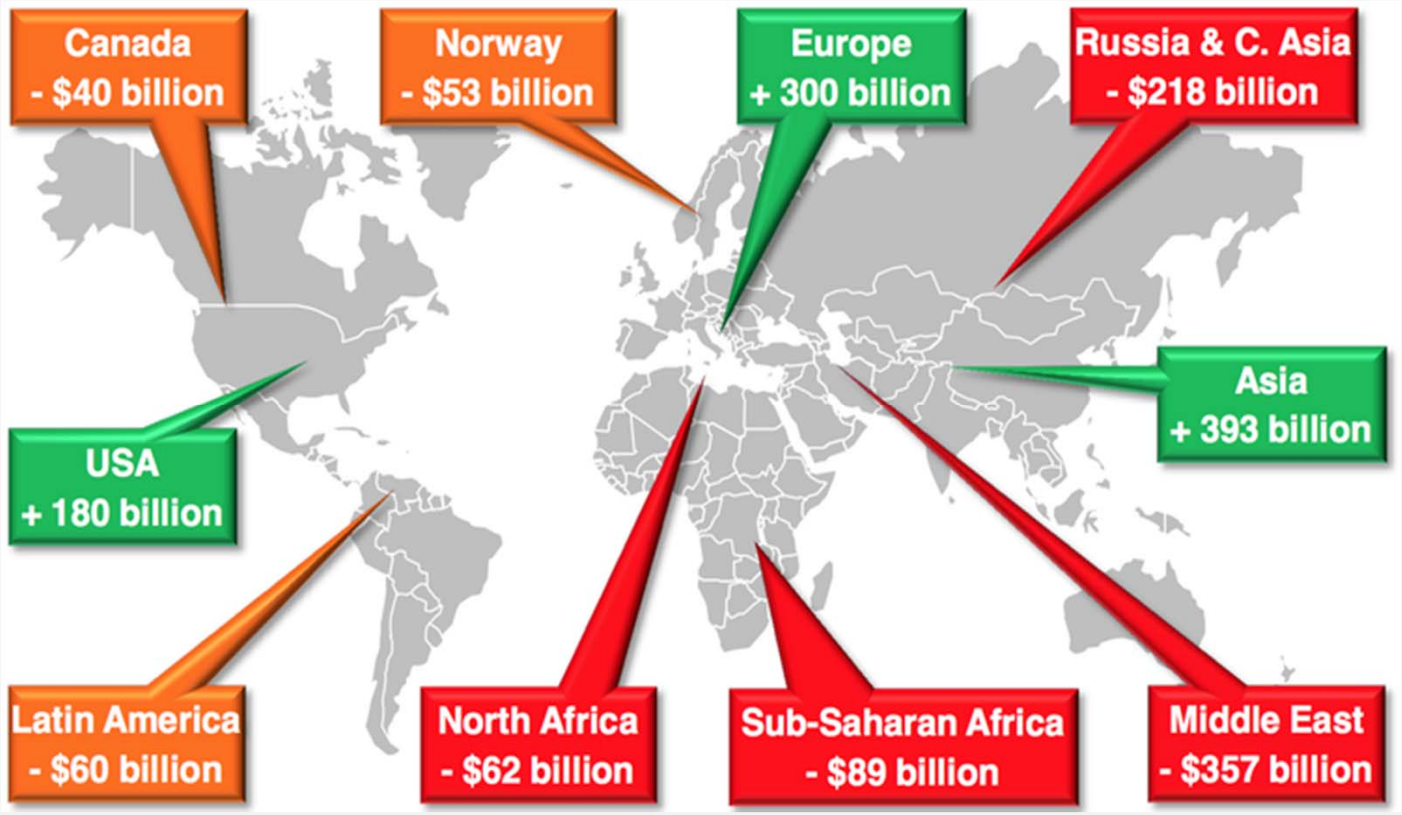
Russian gas transit through Ucraine to Europe countries, bcm

	2013	2012
Italy	25.33	15.08
Turkey	13	14.02
Germany	11.71	21
Czech Republic	7.32	7.28
Hungary	6	5.29
Slovakia	5.42	4.19
Austria	5.23	5.22
France	3.21	3.04
Bulgaria	2.76	2.53
Greece	2.63	2.5
Romania	1.19	2.17
Serbia	1.16	0.74
Slovenia	0.54	0.5
Switzerland	0.37	0.3
Bosnia-Herzegovina	0.19	0.26
Macedonia	0.04	0.08
Total	**86.1**	**84.2**

Sources: Gazpromexport, Ukrtransgaz, Argus estimates in Argus FSU, 27 February 2014, Defensive measures,

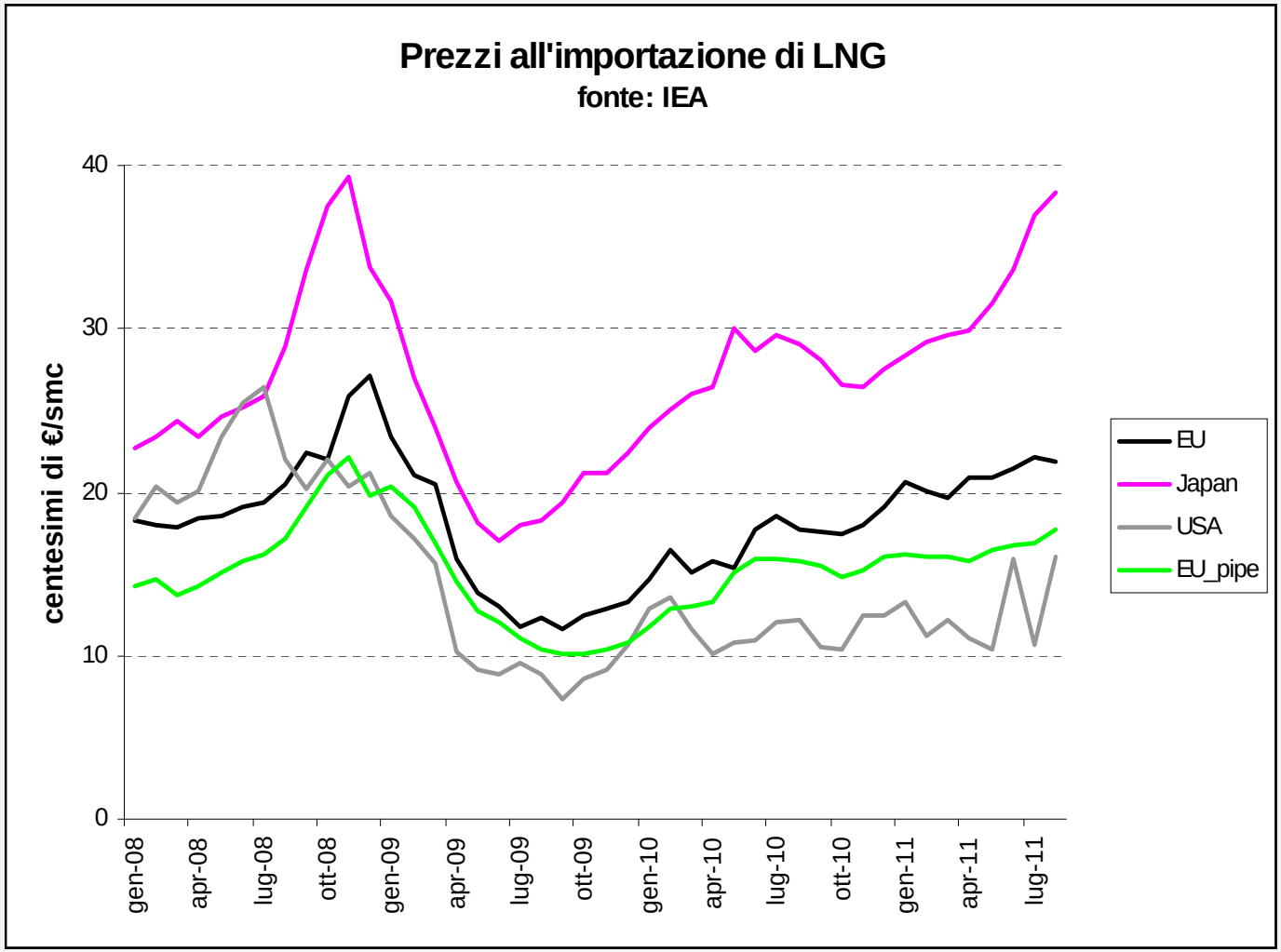
background

Wealth Transfer by Cheap Oil (900 b$)

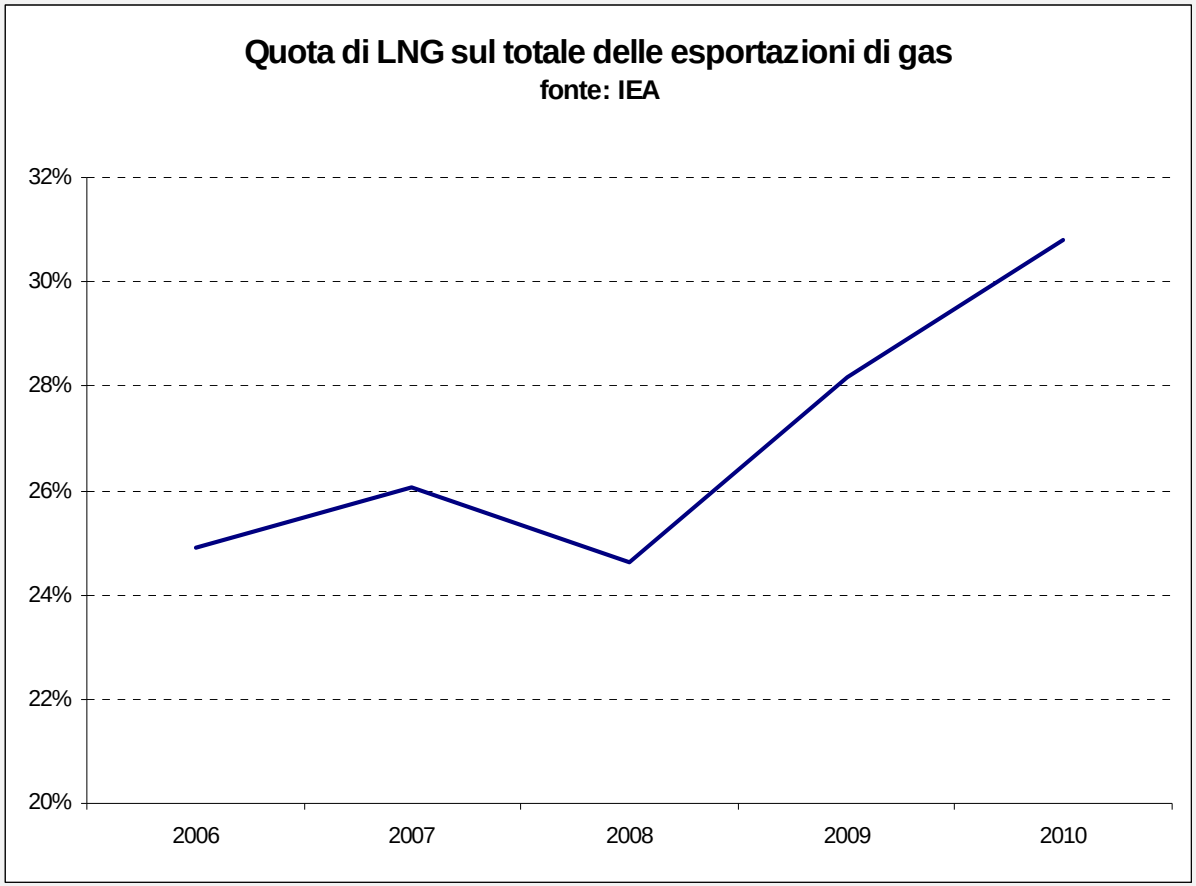


Source, Bloomberg

GNL prices


Prezzi all'importazione di LNG
fonte: IEA
centesimi di €/smc
40
30
20
10
0
gen-08
apr-08
lug-08
ott-08
gen-09
apr-09
lug-09
ott-09
gen-10
apr-10
lug-10
ott-10
gen-11
apr-11
lug-11
EU
Japan
USA
EU_pipe

Growth of GNL



La quota di LNG sul totale export gas è aumentata del 24% tra il 2006 e il 2010.

In volume l'aumento delle esportazioni di LNG è stato del 37%