



# La géopolitique des nouvelles sources d'énergie

FFUE

Bruxelles, 23 Avril 2018

**Samuele Furfari**

**Je m'exprime à titre personnel  
Toutes les données sont publiques**

Samuele Furfari



ECOLE POLYTECHNIQUE DE BRUXELLES

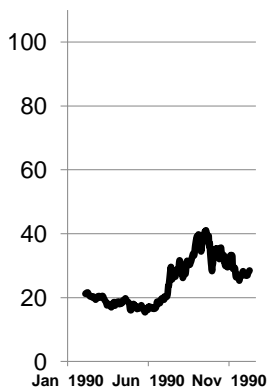
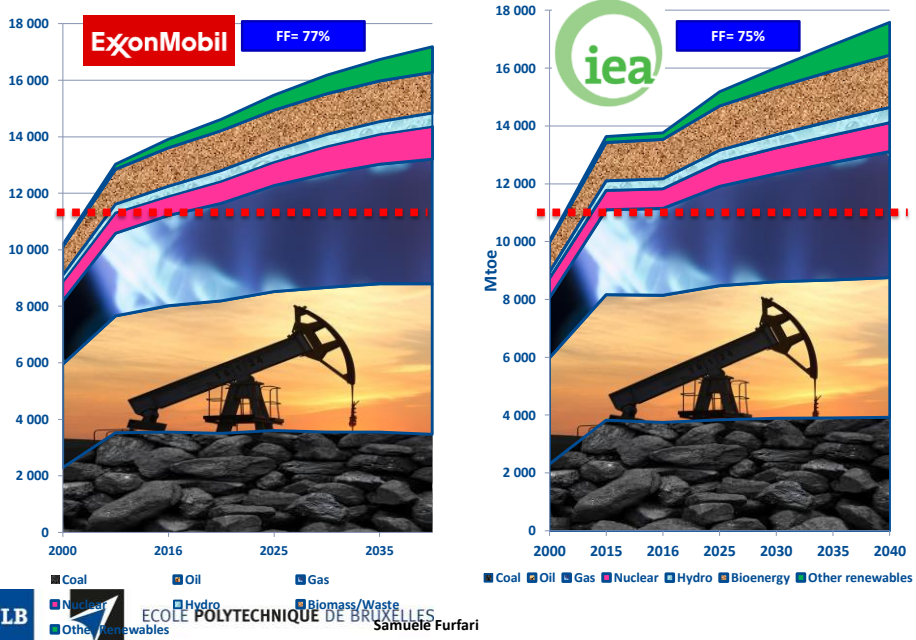
## Le gaz naturel ...une nouvelles sources d'énergie



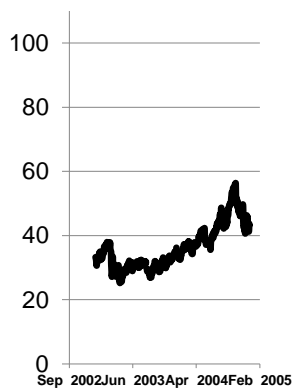
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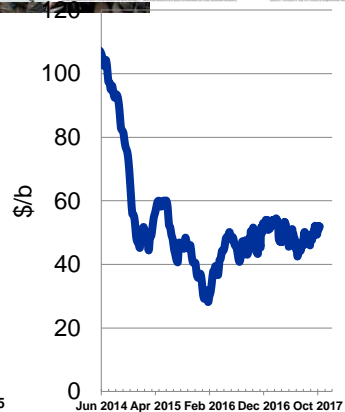
# Demande d'énergie primaire



Data of US EIA



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# 1974 +40 = la quarantaine est terminée...



|                            |                        |                   |                       |        |
|----------------------------|------------------------|-------------------|-----------------------|--------|
| De plus en plus de pétrole | De plus en plus de gaz | Gaz de roche mère | Pétrole de roche mère | UNCLOS |
|----------------------------|------------------------|-------------------|-----------------------|--------|



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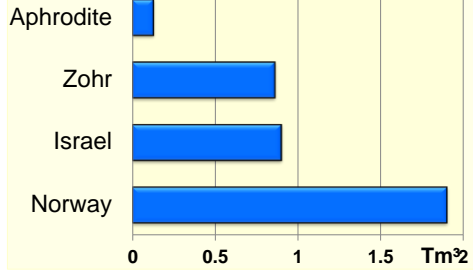


dtc.com/7ab-wmT# N COHEN ©

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[http://farm8.staticflickr.com/7292/10134658063\\_fca4fc3da2\\_o.jpg](http://farm8.staticflickr.com/7292/10134658063_fca4fc3da2_o.jpg)

# The Levantine Sea surprise



INNOVATION AND NETWORKS EXECUTIVE AGENCY

European Commission

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Eastern Mediterranean Natural Gas Pipeline - Pre-FEED Studies

7.3.1-0025-ELCY-9-W-13

CEP-ENERGY Part of Energy Priority Cluster 7

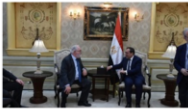
|                                          |                               |
|------------------------------------------|-------------------------------|
| Estimated cost of the action: €4,000,000 | Percentage of EU support: 50% |
| Maximum EU contribution: €2,000,000      |                               |

<https://ec.europa.eu/inea/en/connecting-europe-facility/cef-energy/projects-by-country/multi-country/7.3.1-0025-elcy-s-m-15>

## (طباعة) Sada El Balad : Petroleum Minister discusses cooperation with European Commissioner for Energy

### Petroleum Minister discusses cooperation with European Commissioner for Energy

محمد عماد • 05:10 22/04/2018 آخر تحديث: الأحد



.Minister of Petroleum and Mineral Resources Tareq Al-Mulla received the European Commissioner for Energy and Climate, Miguel Arias Canete on Sunday

.Al Mulla seeks to support the dialogue between the European and Egyptian sides on strategic cooperation in the field of energy

.The Egyptian minister met Canete last year in the Belgian capital Brussels

.Al Mulla pointed out that the visit of Canete comes within the framework of the ongoing dialogue between Egypt and the EU

.The visit aims at boosting cooperation in the field of energy, which is the most important pillar of Egypt's economic development," Al Mulla said"

.He stressed that the EU is a key partner of Egypt in many fields, and the petroleum sector in particular

to stimulate the energy sector which aims to achieve sustainable development



Hier en Egypte



## Eni strengthens partnership with Algerian Sonatrach

POLITICS

Mi piace
  Condividi
  Tweet
  Condividi



Publicato il: 17/04/2018 16:36

Italy's oil and gas giant Eni and Algeria's state Tuesday inked a raft of accords including in the sector as the company moves to extend its alliance, Eni said.

"The renewed collaboration between our companies, enshrined in today's agreements, allows Eni to make a further important step forward in a key country like Algeria and to consolidate further our strategic partnership with Sonatrach," said Eni's chief executive officer Claudio Descalzi.

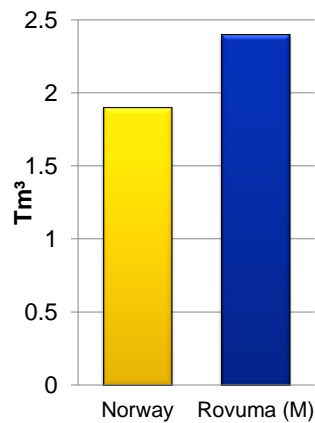
The forthcoming construction of a renewable energy laboratory and of a photovoltaic plant at the Bir Reban North production site is

another step in Eni's decarbonisation process, Descalzi said.

"This process includes the development of green businesses through increasing commitment to renewable energy sources and to scientific and technological research," he said.

### IL CEO DESCALZI

«Abbiamo bisogno di investire di più perché l'Algeria ha ancora molto gas. L'offshore è molto interessante qui, stiamo lavorando su questo»





**Eni completes sale of 25% interest in Mozambique Area 4 to ExxonMobil**

**San Donato Milanese (Milan), 13 December 2017** – Eni has completed today the sale of a 25 percent indirect interest in the natural gas-rich Area 4 of the Rovuma Basin to ExxonMobil Development Africa B.V. (“ExxonMobil”). The terms of the sale, agreed in March 2017, include a payment of \$2.8 billion subject to a contractual adjustment until the date of closing. Eni East Africa, to be renamed Mozambique Rovuma Venture, which owns 70 percent of the Area 4 concession, is now co-owned by Eni (35.7 percent), ExxonMobil (35.7 percent) and CNPC (28.6 percent). The remaining interests in Area 4 are held by Empresa Nacional de Hidrocarbonetos E.P. (ENH, 10 percent), Kogas (10 percent) and Galp Energia (10 percent).

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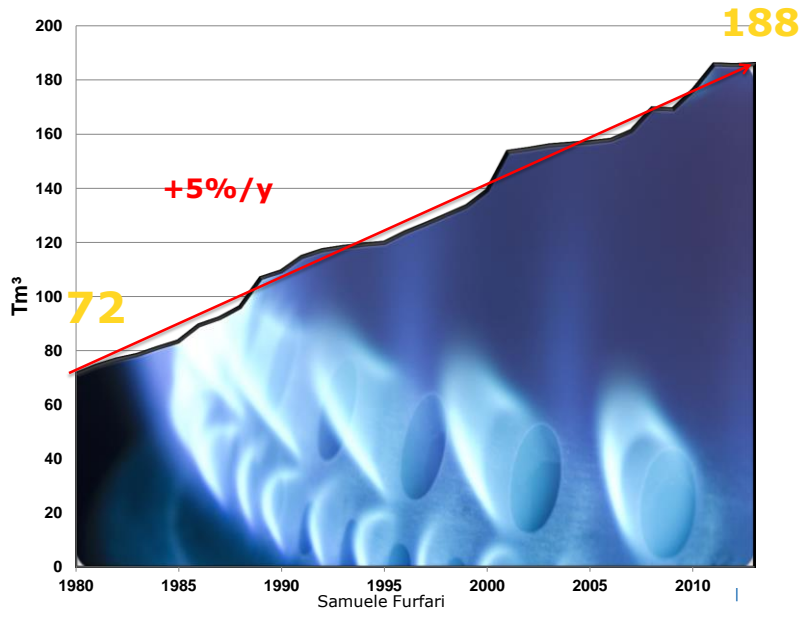
**4 export credits agencies**

1. KEXIM (Export Import Bank of Korea)
2. Korea Trade Insurance Corporation
3. SACE - Italian Export Credit Agency
4. SINOSUREChina Export & Credit Insurance Corporation

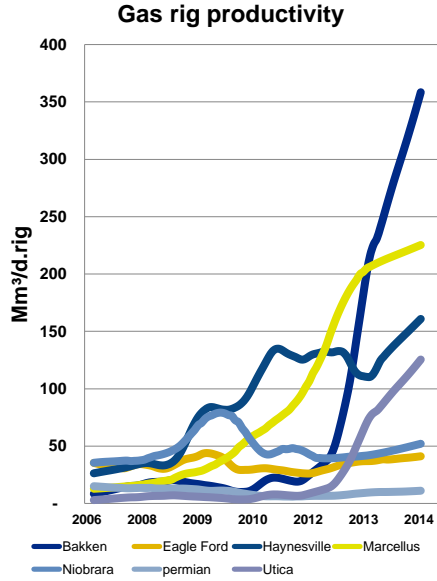
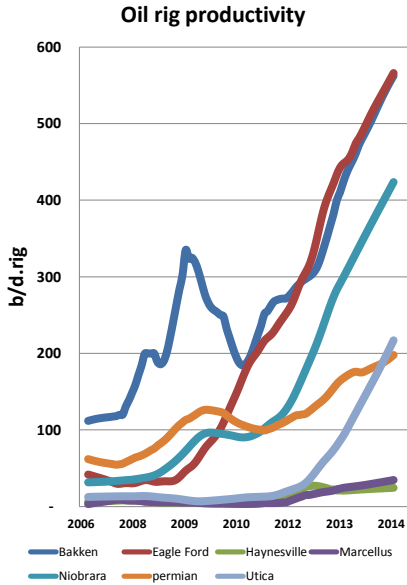
**Pool of banks**

1. Abn Amro
2. BNP Paribas
3. Credit Agricole
4. HSBC
5. Sumitomo-Mitsui
6. Korea Development Bank
7. Millennium BCP
8. Natixis
9. Société Générale
10. Standard Bank
11. UniBanca
12. Unicredit
13. Bank of China
14. China Development
15. ICBC

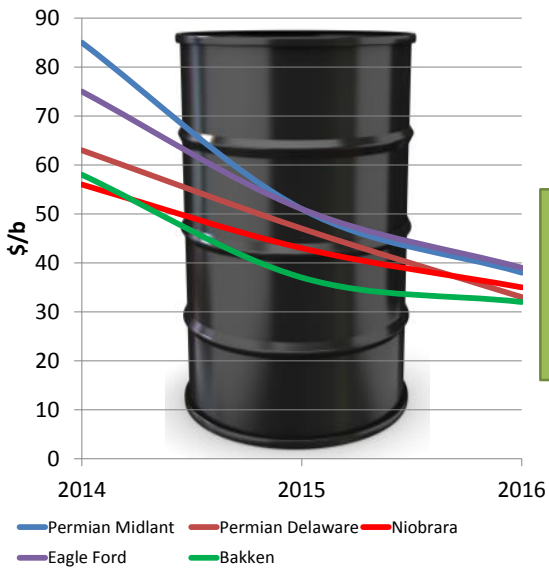
# Natural gas reserves



Vol 1 Fig 7-3



## Shale oil wellhead breakeven cost



$$50\$/b - 35\$/b = 15\$/b$$

$$15\$/b \times 6 \text{ Mb/j} = 90 \text{ M\$/j}$$

ou 33 milliards \\$/a

Source: <http://www.rystadenergy.com/NewsEvents/PressReleases/shale-well-breakeven>



Seven Generations Energy's Kakwa River Project in northwest Alberta, REUTERS



Source Reuters <https://www.reuters.com/article/us-canada-oil-shale-insight/why-canada-is-the-next-frontier-for-shale-oil-idUSKBN1F10G7> Samuele Furfari



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# La Pologne réduit sa dépendance au gaz russe

## Poland receives first shipment of American liquefied natural gas

Published time: 8 Jun. 2017 14:43

[Get short URL](#)



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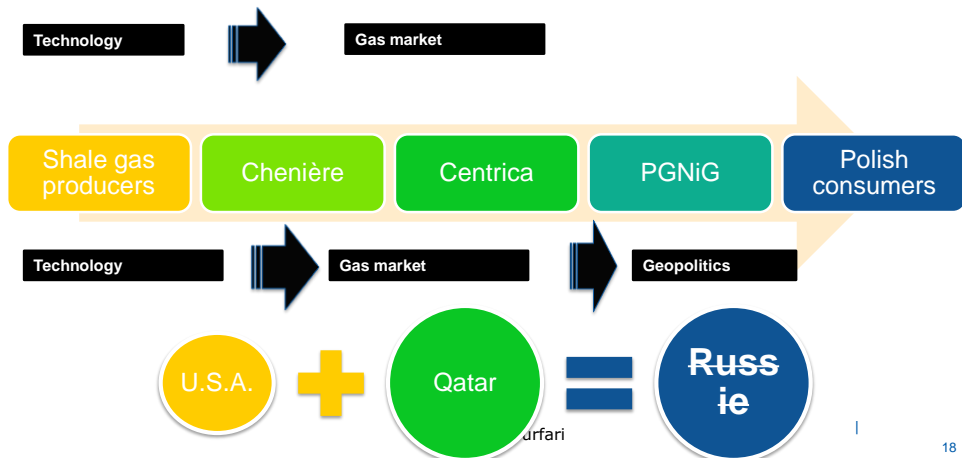
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Posted on November 22, 2017

## Poland's PGNiG inks 5-year deal with Centrica to buy US LNG

Poland's state-owned gas company PGNiG has signed a five-year contract with British utility Centrica to buy liquefied natural gas (LNG) sourced from Cheniere's Sabine Pass liquefaction plant in the US. The LNG will be delivered on a DES (delivered ex-ship) basis and the supplies will start in 2018.

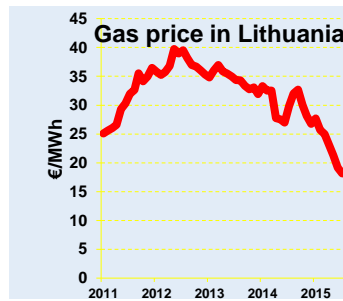
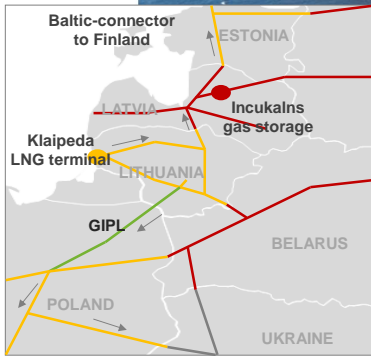


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## Lithuania becomes first ex-Soviet state to buy US natural gas

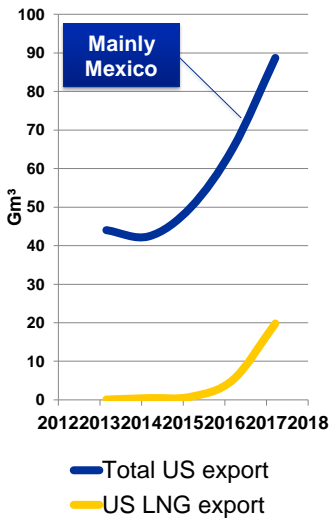


Klaipeda LNG terminal Lithuania

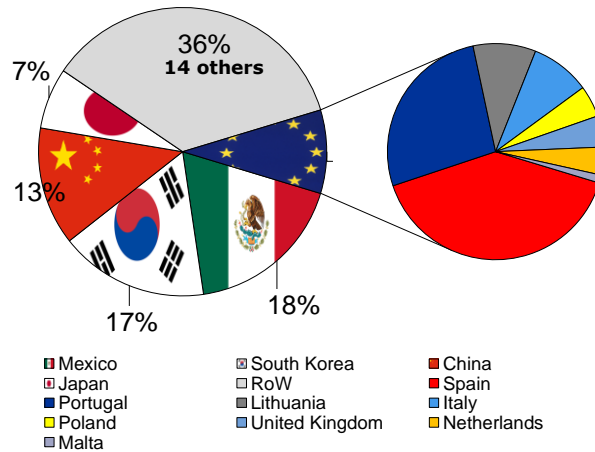


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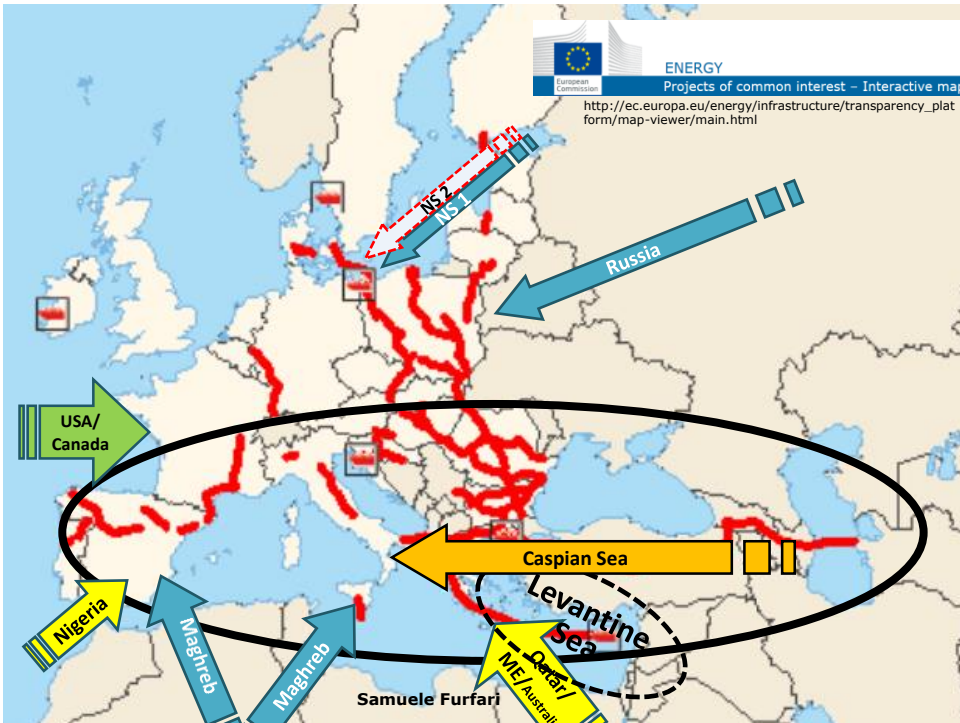
## US natural gas exports



US LNG export - 2017



Data : [https://www.eia.gov/dnav/ng/ng\\_move\\_expc\\_s1\\_a.htm](https://www.eia.gov/dnav/ng/ng_move_expc_s1_a.htm)  
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First cargo loading is scheduled on 8 December 2017, at the Sabetta port

# Russia LNG from Yamal



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## SMALL SCALE LNG

The liquid state is the easiest of the 3 states of matter

➔ valorise the liquid state of LNG as a new alternative fuel • industries, SME & services in areas that are not connected to the gas network



• ships and trucks

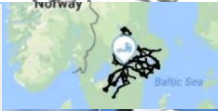


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# LNG BLUE CORRIDORS

31639938 km  
109791 fillings  
13968187 kg



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# IMO : Maritime CO<sub>2</sub> plans

ENVIRONMENT APRIL 13, 2018 / 4:16 PM / 5 DAYS AGO

## U.N. shipping agency reaches deal to cut CO<sub>2</sub> emissions

Jonathan Saul, Nina Chestney

4 MIN READ



LONDON (Reuters) - The United Nations shipping agency reached an agreement on Friday to cut carbon emissions, following years of slow progress.



Shipping: 2.2% of CO<sub>2</sub> emissions = Germany

- 50 % by 2050 compared with 2008 levels
- EU asked 70 to 100%
- A final IMO plan is not expected until 2023
- the initial strategy would not be legally binding for member states
- Revision in 2028

Maritime and aviation are not subject to 2015 Paris Agreement

Method:  
Fuel efficiency  
LNG



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### CONSEIL

DIRECTIVE DU CONSEIL  
du 13 février 1975  
concernant la limitation de l'utilisation de gaz naturel dans les centrales électriques  
(75/404/CEE)

LE CONSEIL DES COMMUNAUTÉS EUROPÉENNES,  
vu le traité instituant la Communauté économique européenne, et notamment son article 103, et  
certains cas d'utilisation des centrales électriques;



considérant que le gaz naturel constitue l'une de ces sources d'énergie communautaires, mais que les quantités disponibles en sont limitées ;

considérant qu'il convient de réserver le gaz naturel en premier lieu aux applications qui permettent la meilleure valorisation de ce gaz ;

### CONSEIL

DIRECTIVE DU CONSEIL  
du 18 mars 1991  
abrogeant la directive 75/404/CEE concernant la limitation de l'utilisation de gaz naturel dans les centrales électriques  
(91/148/CEE)

LE CONSEIL DES COMMUNAUTÉS EUROPÉENNES,  
vu le traité instituant la Communauté économique européenne, et notamment son article 103 paragraphe 4,  
vu la proposition de la Commission (1),  
vu l'avis du Parlement européen (2),

considérant que la directive 75/404/CEE (3) a été adoptée à une époque où les réserves en gaz naturel étaient considérées comme d'un niveau insuffisant au regard de la sécurité d'approvisionnement de cette source d'énergie ;  
considérant que cette situation a évolué et que, compte tenu des développements qui prévalent désormais sur le marché du gaz, il n'y a pas lieu de maintenir la limitation établie par la directive 75/404/CEE,

considérant que la directive 75/404/CEE (4) a été adoptée à une époque où les réserves en gaz naturel étaient considérées comme d'un niveau insuffisant au regard de la sécurité d'approvisionnement de cette source d'énergie ;

considérant que cette situation a évolué et que, compte tenu des développements qui prévalent désormais sur le marché du gaz, il n'y a pas lieu de maintenir la limitation établie par la directive 75/404/CEE,

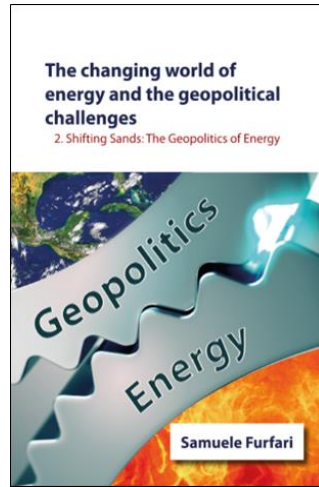
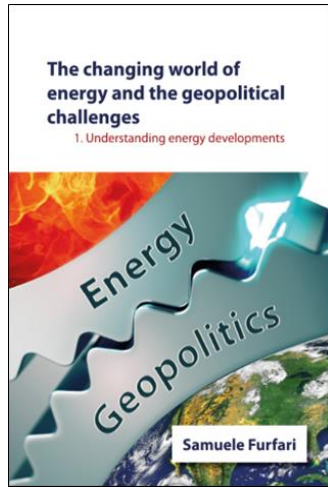
A ARRÊTÉ LA PRÉSENTE DIRECTIVE :

Article premier

La directive 75/404/CEE est abrogée.

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C'est difficile à croire ? Lisez 😊



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