

RUSSIA Gaz INDUSTRY



Kondratiev, MOSCOW May , 2019.

SOURCES

- BP Statistical Review of World Energy 2016
- Yearbook.enerdata.net
- Oxford Energy Institute
- TOTAL.com
- FT, Reuters, Bloomberg, Le Monde, WSJ.
- Wood Mckenzie
- Annual reports Gazprom, Novatek, Rosneft, Lukoil
- <http://www.energystate.ru/eng/>

Dépenses mondiales pour l'Energie

- Dépenses annuelles mondiales investissement et fonctionnement 2018
- 1,600 Milliards de Dollars
- Hausse des dépenses Oil, Gaz, et Charbon
- Baisse des dépenses annuelles sur le renouvelable

Oil World production (Million Barils per day)

WORLD	91.7	% TOTAL
USA	12.7	14%
SAUDI ARABIA	12.0	13%
RUSSIA	10.9	12%

Soit 144,690,000,000 Litres par jours. + de 2 litres par habitant
(Iran, Iraq, Kuwait, China entre 3-4 Millions barils jours)

Tous les autres:

Afrique, Brésil, Venezuela, Lybie, moins de 3 millions barils jours.





In Booming Oilfield, Natural Gas Can Be Free

Permian Basin producers have had to give away their gas as pipeline bottlenecks worsen

BUSINESS

By *Rebecca Elliott* [+](#)

Updated December 27, 2018 05:30 a.m. EST

American energy companies have spent billions of dollars in the past decade exploring for natural gas. But in parts of Texas and New Mexico, there is now so much of it that it is sometimes worthless. Some companies have even had to pay buyers to take it away.

Shale drillers in the Permian Basin are producing vast amounts of gas as a byproduct of prospecting for oil. But there aren't enough pipelines to take all the gas to market, causing some of it to become landlocked, and sending local prices into free fall.

Gas prices in parts of the prolific region hovered near zero last month and some trades went negative, to as low as a negative 25 cents per million British thermal units, according to S&P Global Platts. The price-reporting agency said it was the first time on record that gas traded for less than zero at the Waha hub in West Texas. While prices have since ticked up, averaging \$1.68 per million British thermal units for the four weeks through Dec. 21, that is still 40% of the \$4.20 per million British thermal units that gas has fetched in that time at the main U.S. benchmark, Henry Hub in Lou-



Flaring of natural gas reached record highs in the Permian Basin last quarter, when companies burned an average of 407 million cubic feet a day.

isiana.

Energy companies say last month's zero pricing could be a sign of things to come in the Permian area next year, as more oil pipelines get built and companies ramping up production of crude, a far more lucrative product, get stuck with more gas that has nowhere to go. The U.S. Energy Information Administration estimates December gas production will top 12 billion cubic feet a day in the region, up about 34% from a year earlier.

"You'll see things get worse and worse as oil production grows and gas production grows alongside it," said J.R. Weston, an analyst for Raymond James & Associates Inc.

Natural gas now helps gener-

ate about one-third of U.S. electricity, and it has become a valuable export commodity as ships take liquefied natural gas to Asia and Europe. For those fortunate enough to be near the Permian, getting it for nothing has been a boon.

Vistra Energy Corp.—an electricity company with a power plant in Odessa, Texas, in the heart of the Permian—got paid last month to take gas.

"We were buying from intermediaries that I think were caught with gas, and they needed to get rid of it," Vistra Chief Executive Curt Morgan said. "As long as we're getting a discount for the gas, our plant is in the money."

Apache Corp., which is developing a new gas field in the Permian,

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Le Gaz une énergie parmi d'autres

% Production Annuelle Mondiale 2017

• Oil	32%	39%
• Coal	27%	15%
• Natural Gaz	22%	40%
• Biomas	10%	
• Electrical	9%	6%

Emission de CO2 par source

TECHNOLOGY	TONS CO2 e/GWh
LIGNITE	1,054
COAL	888
OIL	733
NATURAL Gaz	499
BIOMAS	45
NUCLEAR	29
WIND	26

Pétrole/Gaz Unités de mesures et Equivalence

BOE = Baril Oil Equivalent

- Baril = 40 US Gallons or 159 Litres
- Ton = 7,15 Baril equivalent
- BCM = Billion Cubic Meter of Gaz
- BCM = 0,9 Million Ton BOE
- BCM = 7,150,000 Barils
- 1 Ton LNG = 1,4 BCM

PRODUCTION MONDIALE DE Gaz

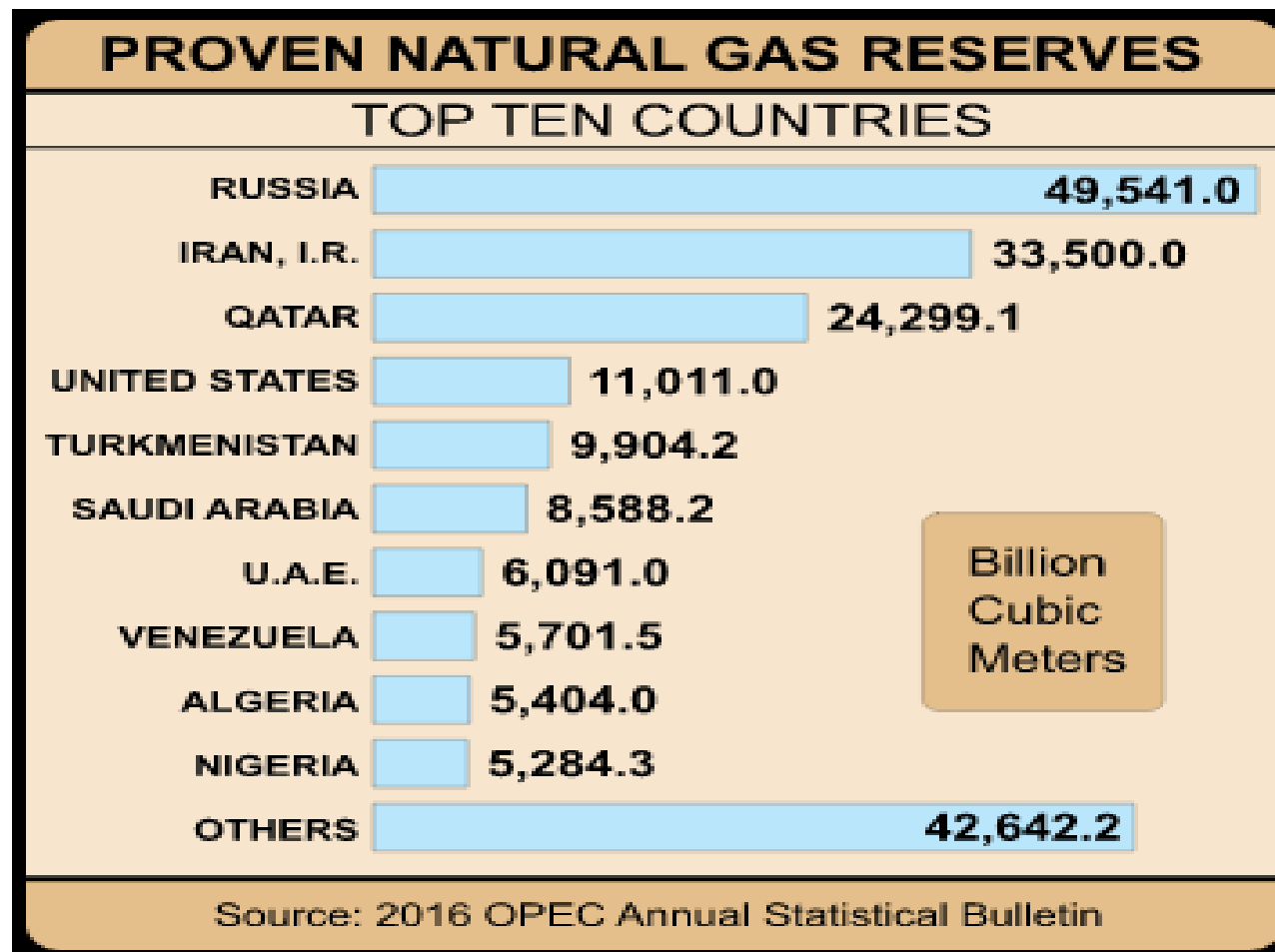
Rank	Country	Continent	Annual NG production (million m³)	Date of information
1	United States	North America	766,200	2015 est.
2	Russia	Eurasia	635,500	2015 est.
3	Iran	Asia	184,800	2015 est.
4	Qatar	Asia	165,000	2015 est.
5	Canada	North America	149,900	2015 est.
6	China	Asia	138,400	2016 est.
—	European Union	—	118,200	2016 est.
7	Norway	Europe	117,200	2015 est.
8	Saudi Arabia	Asia	102,300	2015 est.
9	Indonesia	Asia	86,940	2016 est.
10	Turkmenistan	Asia	83,700	2015 est.

CONSOMATION MONDIALE DE Gaz



Rank	Country/Region	Natural Gaz-consumption (million m ³ /year)	Date of Information
—	World	3,670,400	2017
1	United States	739,500	2017
—	European Union	466,800	2017
2	Russia	424,800	2017
3	China	240,400	2017
4	Iran	214,400	2017
5	Japan	117,100	2017
6	Canada	115,700	2017
7	Saudi Arabia	111,400	2017
8	Germany	90,200	2017
9	Mexico	87,600	2017
10	United Kingdom	78,800	2017

RESERVES MONDIALES



Le Gaz une énergie parmi d'autres

- Nous ne parlerons que de Gaz
 - La Russie est un des grands acteurs du Gaz. Sujet principal.
 - Nous parlerons des relations Russie-Europe pour le Gaz. Sujet d'actualité brûlante.
 - Nous parlerons de Trump.
 - Evorquerons peu l' Ukraine. Sujet trop brûlant.

The Moscow Times

INDEPENDENT NEWS FROM RUSSIA

NEWS OPINION BUSINESS

Ukraine Faces a Bleak Winter as Russia Prepares to Cut Off Gaz

The head of Ukraine's state Gaz company Naftogaz expects deliveries to stop on January 1, 2020.

By **Ben Aris** for bne IntelliNews

May 6, 2019

Le Gaz et le LNG

- Le Gaz s' obtient par Forage
- Le transport représente 50% du coût final
- 2 technologies de transport
 - Pipe terrestre ou Maritime
 - Nécessite des stations de compressions pour créer le flux
 - Des turbines utilisent une partie du Gaz du pipe pour créer la pression
 - LNG
 - Le Gaz est refroidi à -161°C et se transforme en liquide. Réduit 1/600th de son volume d' origine
 - Transport par bateaux. Le Gaz reste a température naturellement
 - Regazification au point d'arrivée

Le Gaz et le LNG

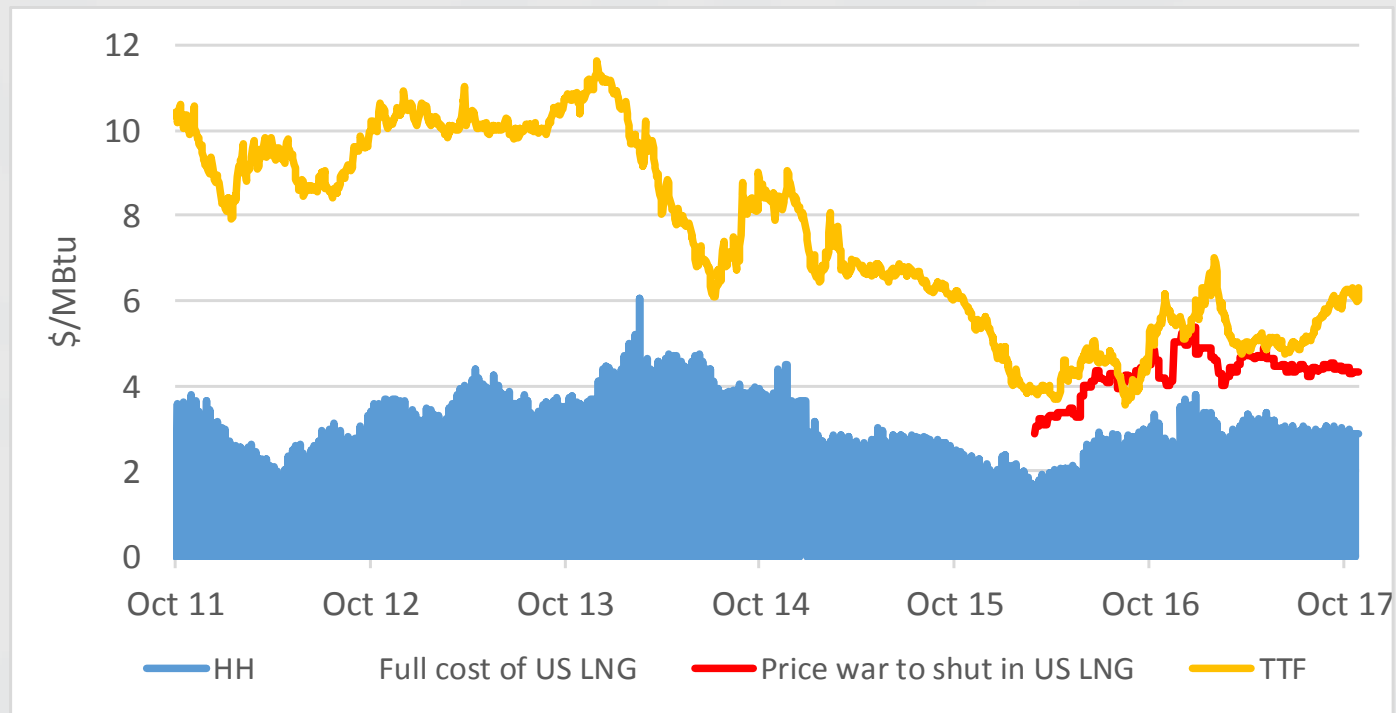
- Ces 2 technologies sont très gourmandes de capitaux
 - Pipe terrestre ou Maritime
 - 1 pipeline de 3,800 kms entre le Canada et les US, 120 bars de pressions, DN 36'' revient a 3 Milliards de Dollars
 - LNG
 - NOVATEK a investi 30 Milliards de Dollars pour le projet Artic 1 pour des quantités équivalentes à 500,000 barils jour environ. (16,5 M Tons de LNG)
- Le choix du transport dépend de la distance et de la nature du terrain







US LNG vs Russian pipe - Prices



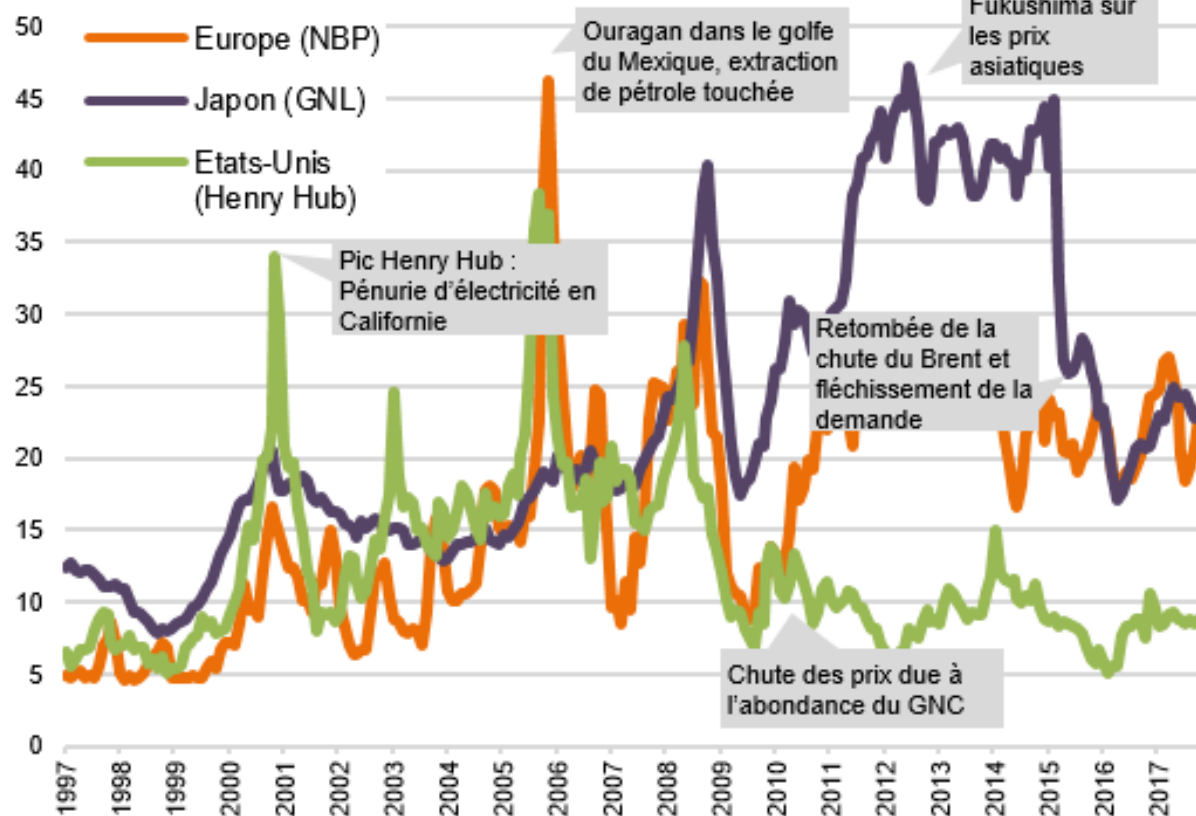
Source: Argus, thierrybros.com



Marchés

Évolution des prix du gaz naturel sur les principales zones de marché

Prix de gros du gaz (€/MWh)



Sources : SDES, World Data Bank, Energy Information Administration (2018)

Matières premières : trop de gaz tue le prix du gaz

L'« or bleu » était autrefois rare et cher, il est désormais abondant et bon marché. A moyen et long terme, il a encore un avenir, veulent croire les pétroliers.

Par [Jean-Michel Bezat](#) LE MONDE Publié le 20 janvier 2018 à 12h34

Russie. Quelques chiffres OIL & Gaz

- La Russie a produit en 2018.
 - 556 Millions de tonnes de Pétrole. Δ 1,6% Y on Y
 - 725 BCM de Gaz. 225 BCM exportés. Δ 5,0% Y on Y
 - (Source NOVAK-PUTIN Meeting Jan 10, 2019.)
- LA RUSSIE EXPORTE \$237 Milliards annuellement de produits pétroliers et Gaz
 - 54% Europe, 34% Asie
 - Soit \$ 3,200 par an par habitant

% Exportation des différentes sources

- La Russie exporte:
 - 70% de sa production de pétrole
 - 30 % de sa production de Gaz
 - 35% de sa production de charbon
- Incroyable Gaspillage du Gaz en Russie
 - France et Allemagne = Population égale, économies cumulées 5 fois plus importantes consomment 3,5 fois moins de Gaz que la Russie

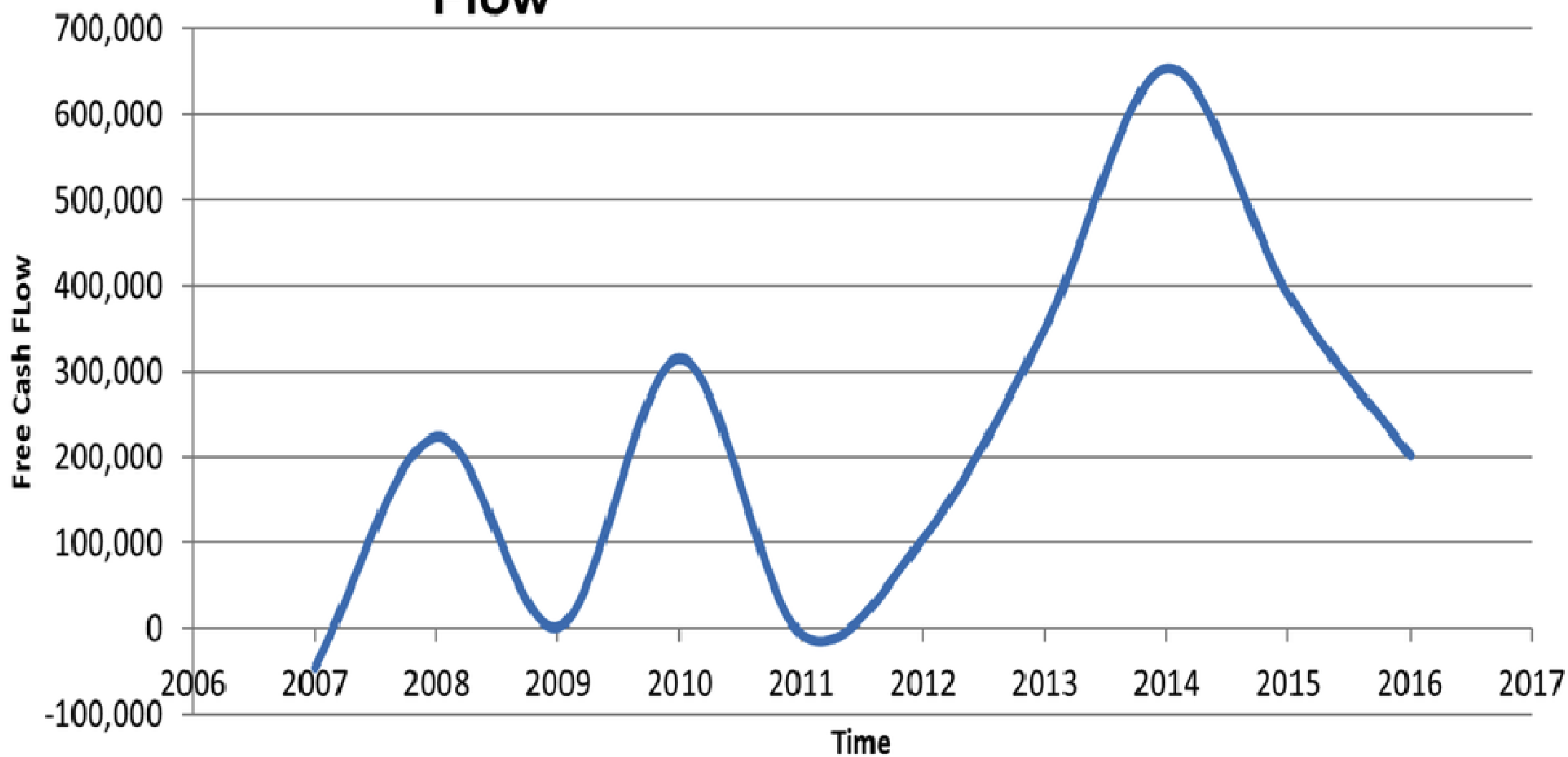
Les besoins de l'Europe en Gaz

- Russia delivered 200 BCM to Europe in 2018
- This is 40% of Europe needs
- **EU Gaz PRODUCTION WILL DECREASE 50% IN THE NEXT 20 YEARS**
- By 2025 Europe will require an additional 77 BCMA
 - This is equivalent to Germany needs today
 - Germany is by far the largest European Gaz user
- Big issue is most European Gaz pipelines import ends up in Slovakia
 - Creates huge bottleneck

GAZPROM. ex Ministère du Gaz de l'URSS

- Established in 1993
- 50.23% détenus par l'état
- Ventes Annuelles \$ 91 Milliards
- Production annuelle 472,1 BCM.
- 75 ans de reserves
- 17% des reserves mondiales de Gaz
- 470,000 employees
- Acteur important également dans le pétrole et électricité....et la banque, et l'audiovisuel

Gazprom (OGZPY) Free Cash Flow



Russia Dominates

Most of the gas imports by EU in trade in value came from Russia in the first half of 2018

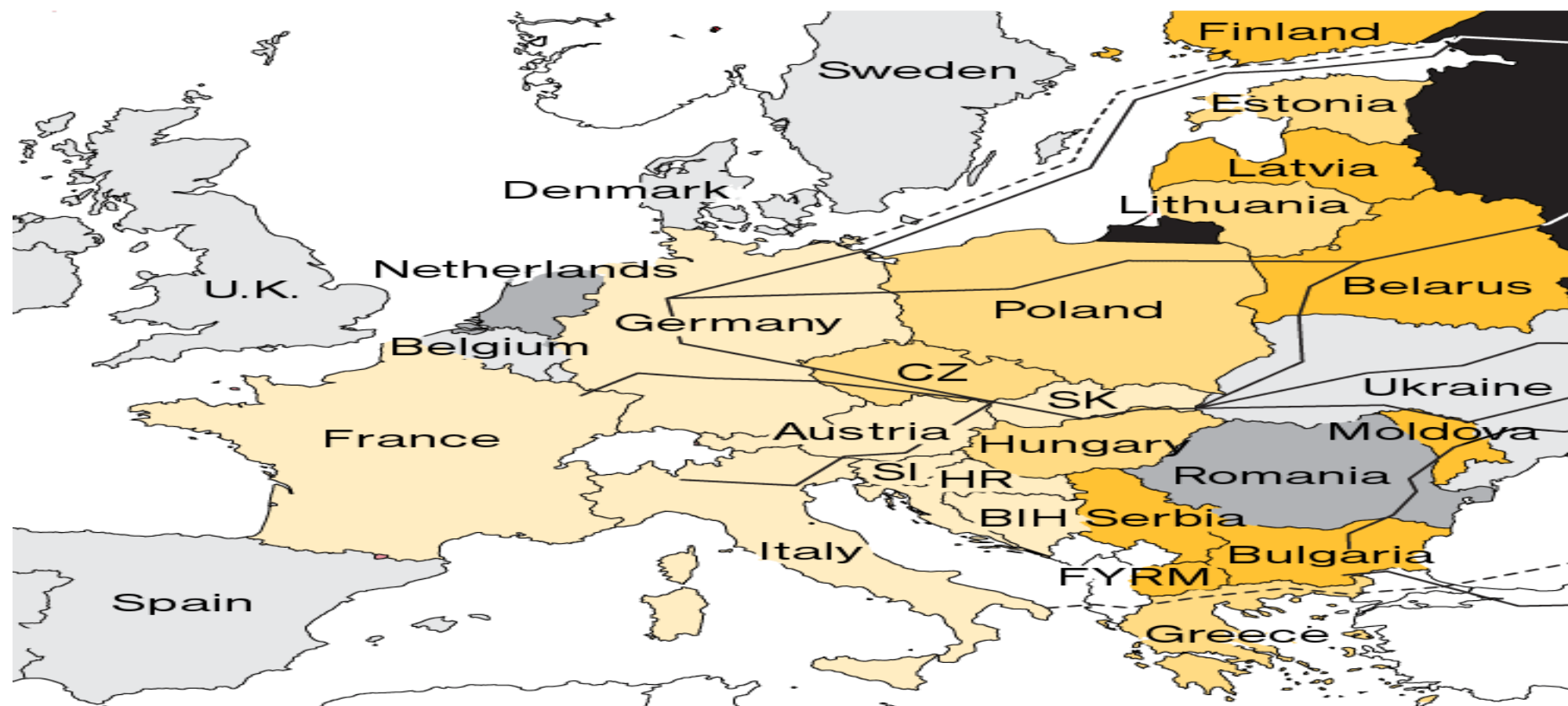
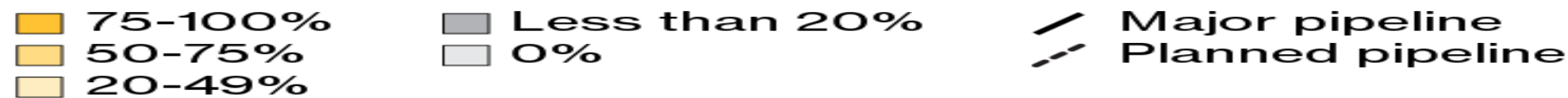


Source: Eurostat

Bloomberg 

Who's Dependent on Russian Gas?

About a third of Europe's gas comes from Russia

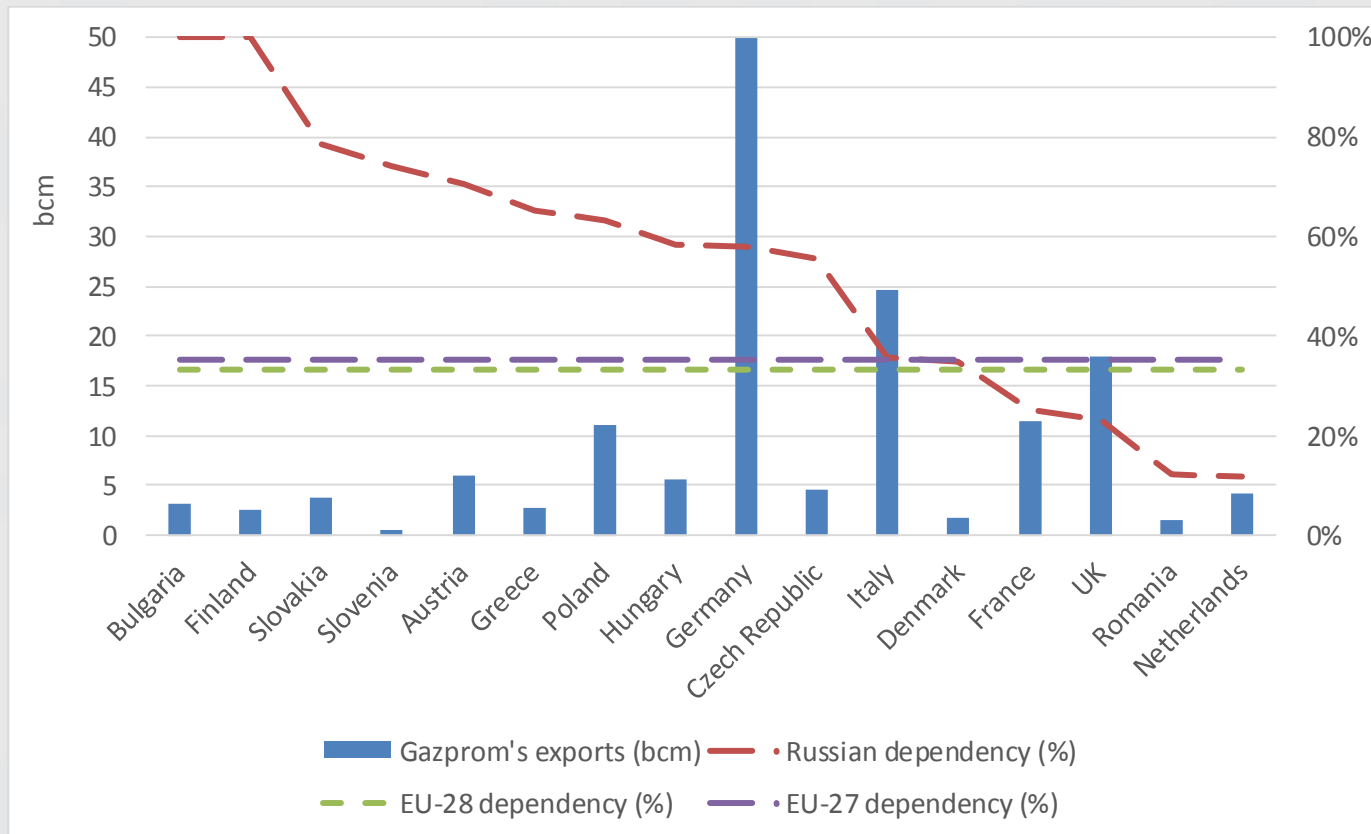


2017 data. Source: Agency for the Cooperation of Energy Regulators

BloombergQuickTake



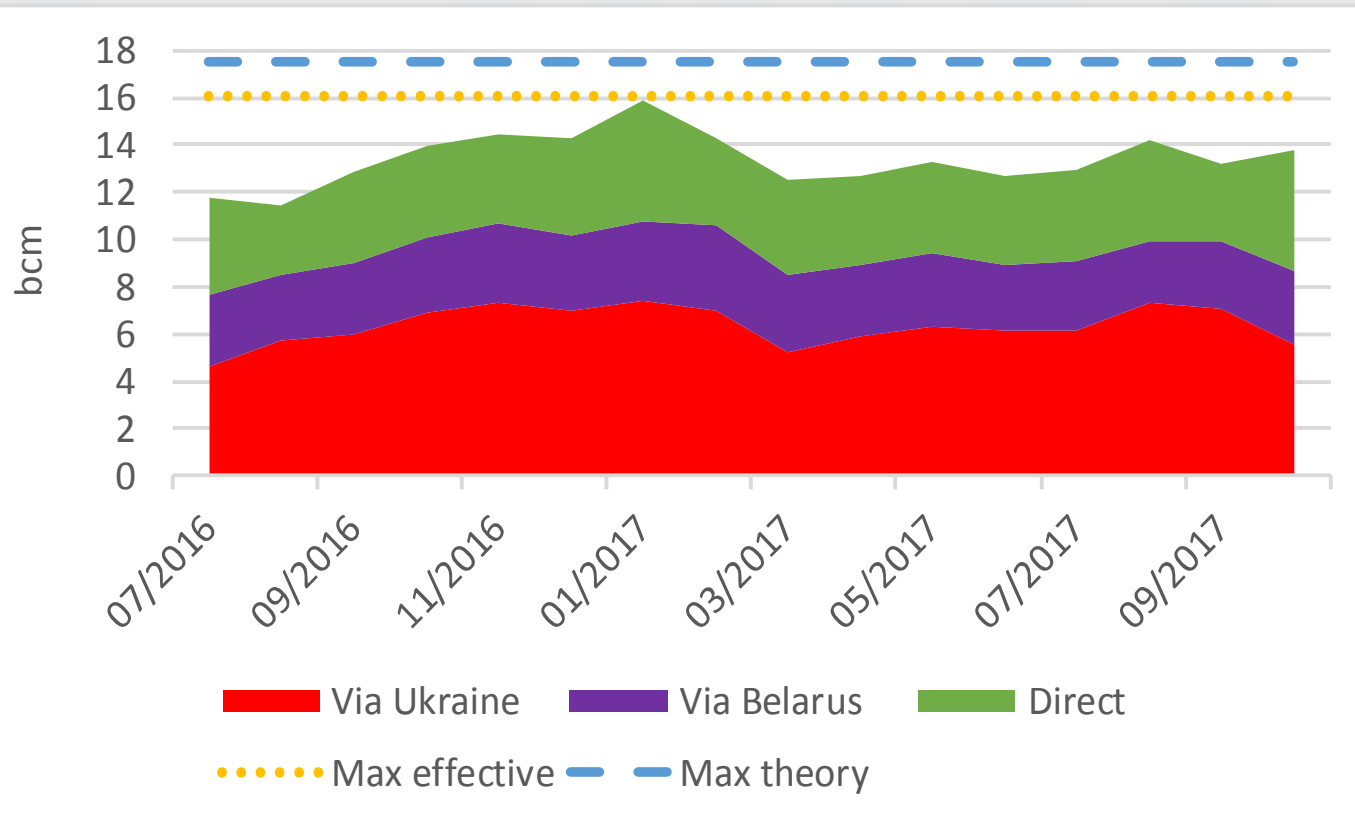
Gazprom exports and Europe dependency



Source: Gazprom Export, thierrybros.com



Gazprom doesn't flood EU



Source: Gazprom, EntsoG, thierrybros.com

NOVATEK. Le petit nouveau

- Established in 1993
- 50.23% detenu par un Oligarch. Leonid Mikhelson. Total détient 20% du capital
- Ventes annuelles \$8 Milliards. Uniquement dans le Gaz
- Production annuelle 472,1 BCM.
- 15,8 Milliards boe reserves de Gaz
- 13,700 employees

NOVATEK. Le projet YAMAL

- The Yamal LNG operating company is a joint venture (JV) between Russian energy firm Novatek (50.1%), France's Total (20%), the China National Petroleum Corporation (20%), and China's Silk Road Fund (9.9%). The bulk of foreign financing came from China, which lent the consortium US\$12 billion
- Yamal LNG has become the world's first LNG project inside the Arctic Circle and is a show case that Western sanctions will not preclude the development of Russian hydrocarbons.
 - Prior to Yamal LNG, Russian companies had very limited experience with LNG: the country's only LNG-producing facility, Sakhalin-2, came under Gazprom's ownership closer to the project's completion. Even then, Shell had to be retained as the operator and technical advisor on the project.

NOVATEK. Le projet YAMAL

- Première tranche opérationnelle depuis le début de l'année
 - Capacité équivalente 500,000 boe jour
 - Coût 30 Milliards de Dollars
 - 95% technologie et produits importés
- Deuxieme tranche en cours Artic 2
 - Capacité équivalente 600,000 boe jour
 - Coûts 25 Milliards de Dollars
 - Poussée des technologies russes?



NOVATEK. Les Marchés et les prix

- Il existe 3 prix principaux du Gaz dans le monde.
 - Le marché US qui est le bas plus du monde
 - Le marché Européen qui est 1, 5 plus haut
 - Le marché Asiatique qui est 3 fois plus cher que le US
- Novatek tire sa grande profitabilité de sa capacité a server les besoins des marchés asiatiques
 - Le LNG se transporte facilement



La Question du Transport

- Ukraine
- Northstream 1
- Northstreams 2
- Southstream

US va doubler sa capacite d'exportation de LNG en 2019

US. liquefied natural Gaz (LNG) export capacity will reach 8.9 billion cubic feet per day (Bcf/d) by the end of 2019, making it the third largest in the world behind Australia and Qatar. Currently, U.S. LNG export capacity stands at 3.6 Bcf/d, and it is expected to end the year at 4.9 Bcf/d as two new liquefaction units (called trains) become operational

$$(4,9\text{Bcf}\times 365\text{jours}/35.3) = 50,66 \text{ BCM An}$$

NORTHSTREAM 2

- 1,200 Kms de pipes sous la mer baltique
 - Capacité 55 BCM an (représente 700 LNG tankers)
 - 2 pipelines 45". 1000 tubes de 12 mètres 24 tones chacun
 - Une seule station de compressions au départ en Russie
- Financement
 - Gazprom 50%
 - Balance
 - Engie, OMV, Shell, Uniper, Wintershall

NORTHSTREAM 2 LE DEBAT

- Quid du reseau existant passant par l'Ukraine?
- L'Europe va-t-elle trop dépendre de l'énergie Russe
- Les Polonais, Baltes et Suédois sont par principe opposés à tout ce qui vient de la Russie
- Les Ecolos veulent une économie décarbonnée
- Les US veulent vendre leur Gaz et menacent de taxer les importations BMW et surtout **imposer des sanctions sur les sociétés participantes**

U.S. and Russian Energy Officials Discuss Gaz Pipeline, Sanctions

By Reuters June 27, 2018

Mikhail Metsel / TASS

Russian Energy Minister Alexander Novak said on Tuesday he discussed U.S. sanctions on Russia and Moscow's plan to expand its Nord Stream Gaz pipeline to Germany, which has irked Washington, in talks with U.S. Treasury and Energy Secretaries.

