

Gas – perspectives

Houston/Paris, 3-4 December 2014



Historic perspective

- **Security of supply and gas Storage**

- Historically 2 key words security and efficiency
- New Energy Transition Statute in 2014 - from efficiency to environmental protection
- Gas review within one year – gas is a means to energy transition
- Storage obligations to prevent short-term crisis
- Mid-term policy : ensure adequate balance between supply and demand (ensure infrastructure development and investments)
- Long-term policy : energy transition

- **Liberalisation**

- EU regulations
- Implemented for industrial sector and electricity production
- Implemented for household and commercial within declining price control
- In favour of non oil & gas price indexation if security of supply can be preserved

Energy Mix in France

- **Primary energy in 2012 :**
 - More than 40 % of nuclear electricity
 - Share of fossil fuel has decreased, still an essential element of the mix (~50%)
 - Growing share of renewable energies (8,8%)

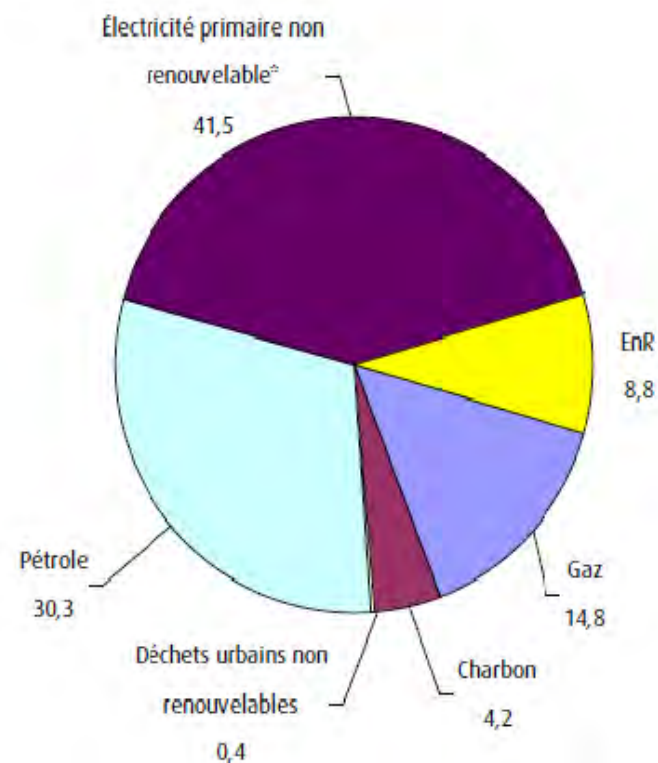
- **Medium term outlook**

- Fossil fuel share will continue to decline
- Growing share of renewable energies
- Uncertainties on industrial activity
- Development of gas for power generation ?

Répartition de la consommation d'énergie primaire

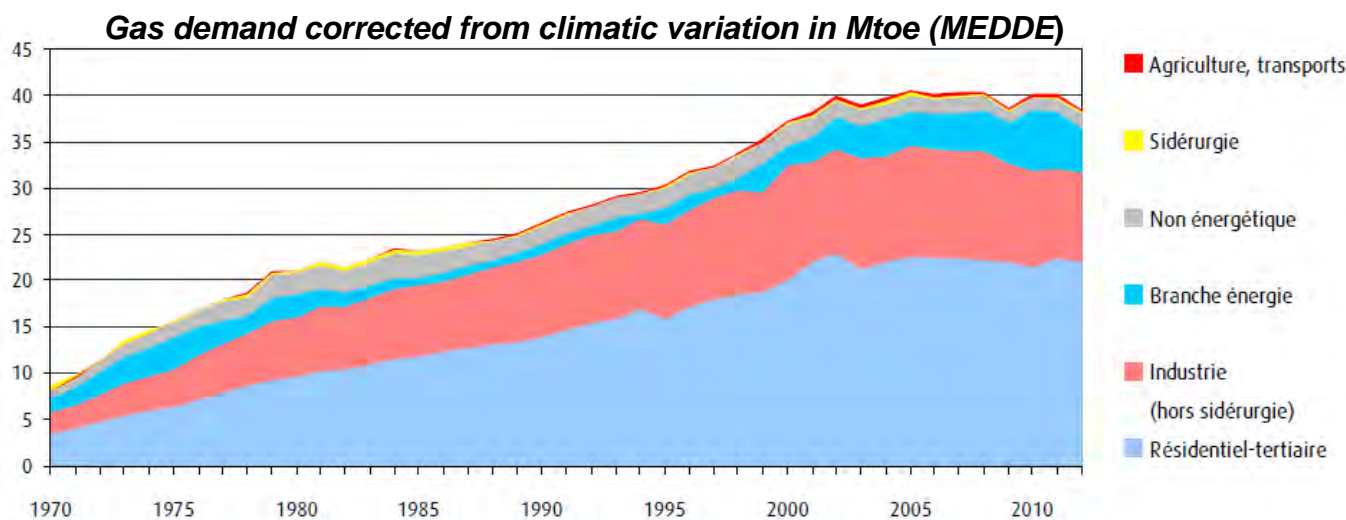
Données corrigées des variations climatiques
(259,4 Mtep en 2012)

En %



Gas : Rising Share of France's Energy Mix

- Gas consumption is growing faster than other energy sources : +3.6% p.a. on average vs +1.1% p.a. for other energy sources
- Share in the energy mix increased: from 7.4% (1973) to 14,7% (2013)
- Gas consumption in France is currently stagnant (like other European markets), as a result of economic downturn



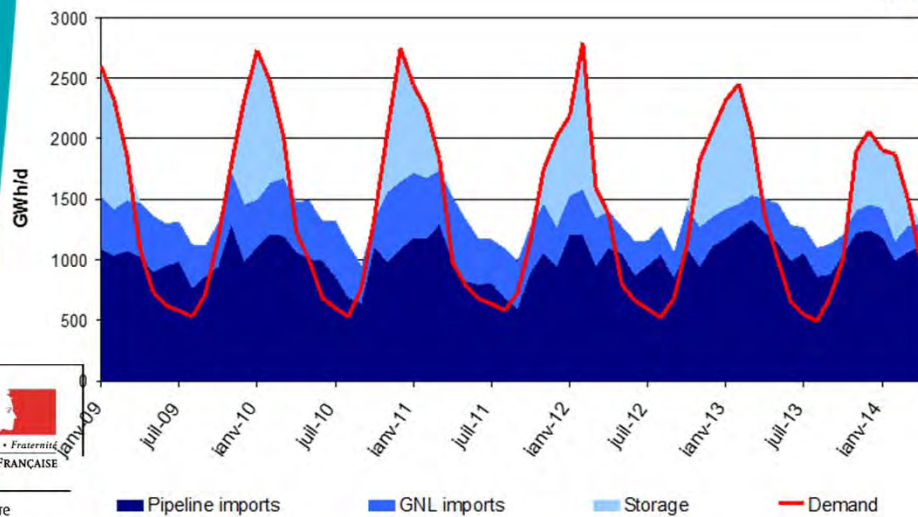
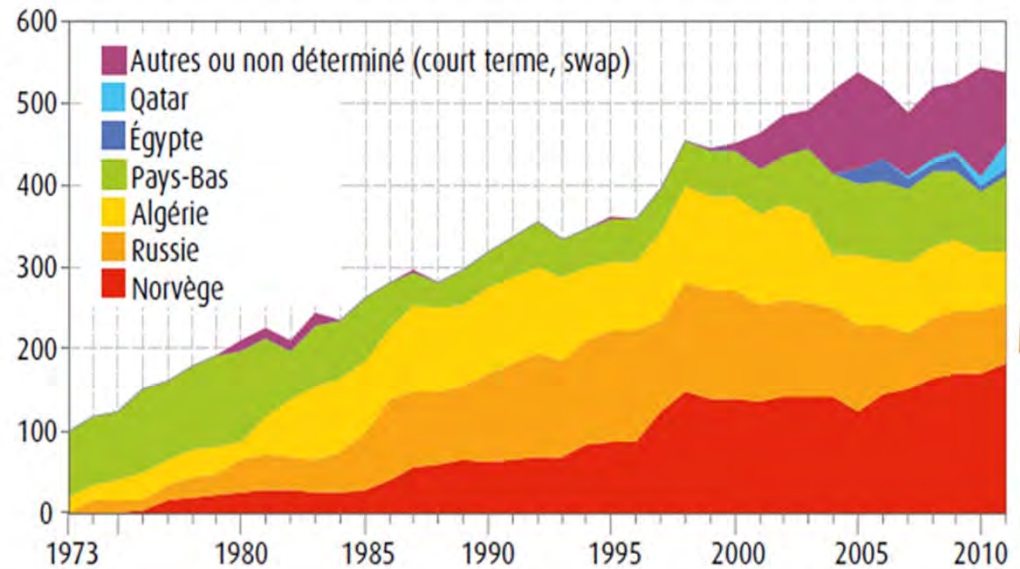
Medium-term trends

- Improved energy efficiency in building and housing
- Uncertain growth for industrial activity and electricity production
- Use in transport is a potential source of growth

Gas : Various supply sources but mainly by pipeline

Gas supply is diversified : only Norway share >20% (39,8 % in 2013), Russia 19,7 %, Netherland 15,3 %, Algeria 11,9 %

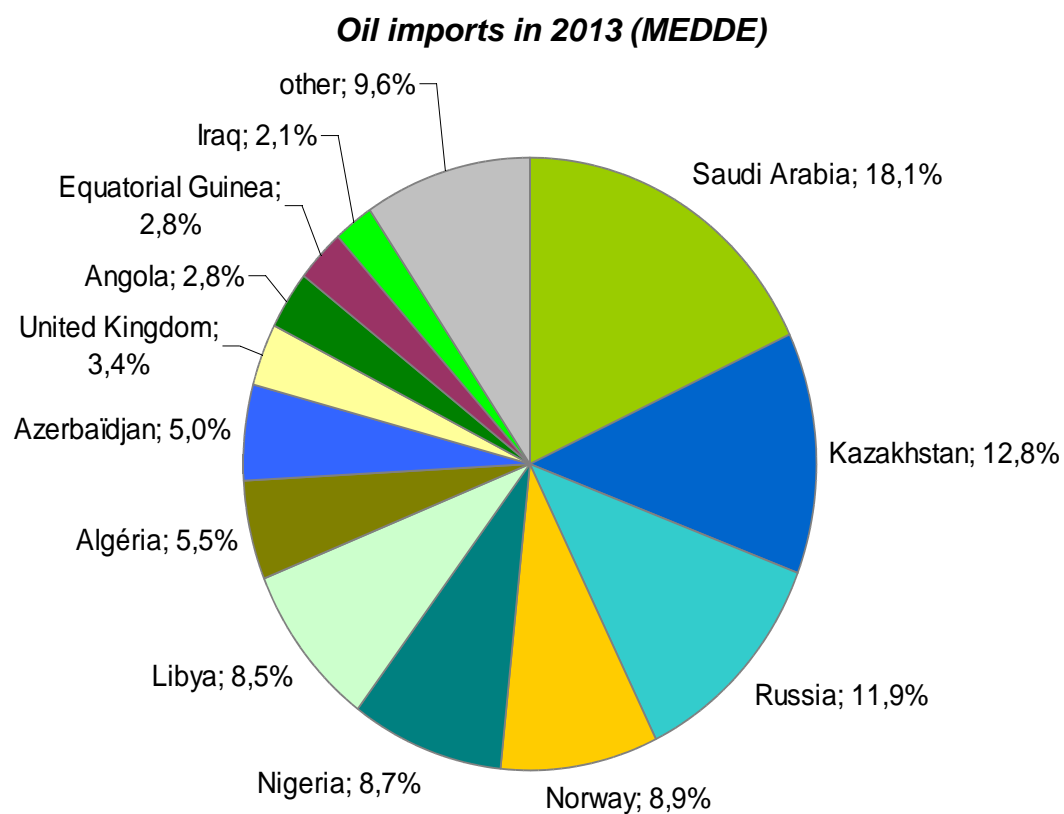
Long term approach with 85 % of supply based on LT contract (~60 % gas market indexation)



- Demand is highly modulated
- Gas imports by pipeline are predominant (84 % of imports)
- GNL share has been decreasing since 2011 (from 27,5 % of total imports in 2010 to 16 % in 2013)

Oil : France's Supply is Diversified

- Supply sources are diversified between OPEC and CIS countries
- No major suppliers (all suppliers shares < 20% of imports)
- but since 2011, the weight of Saudi Arabia has grown because of supply disruption from Libya and embargo against Iran



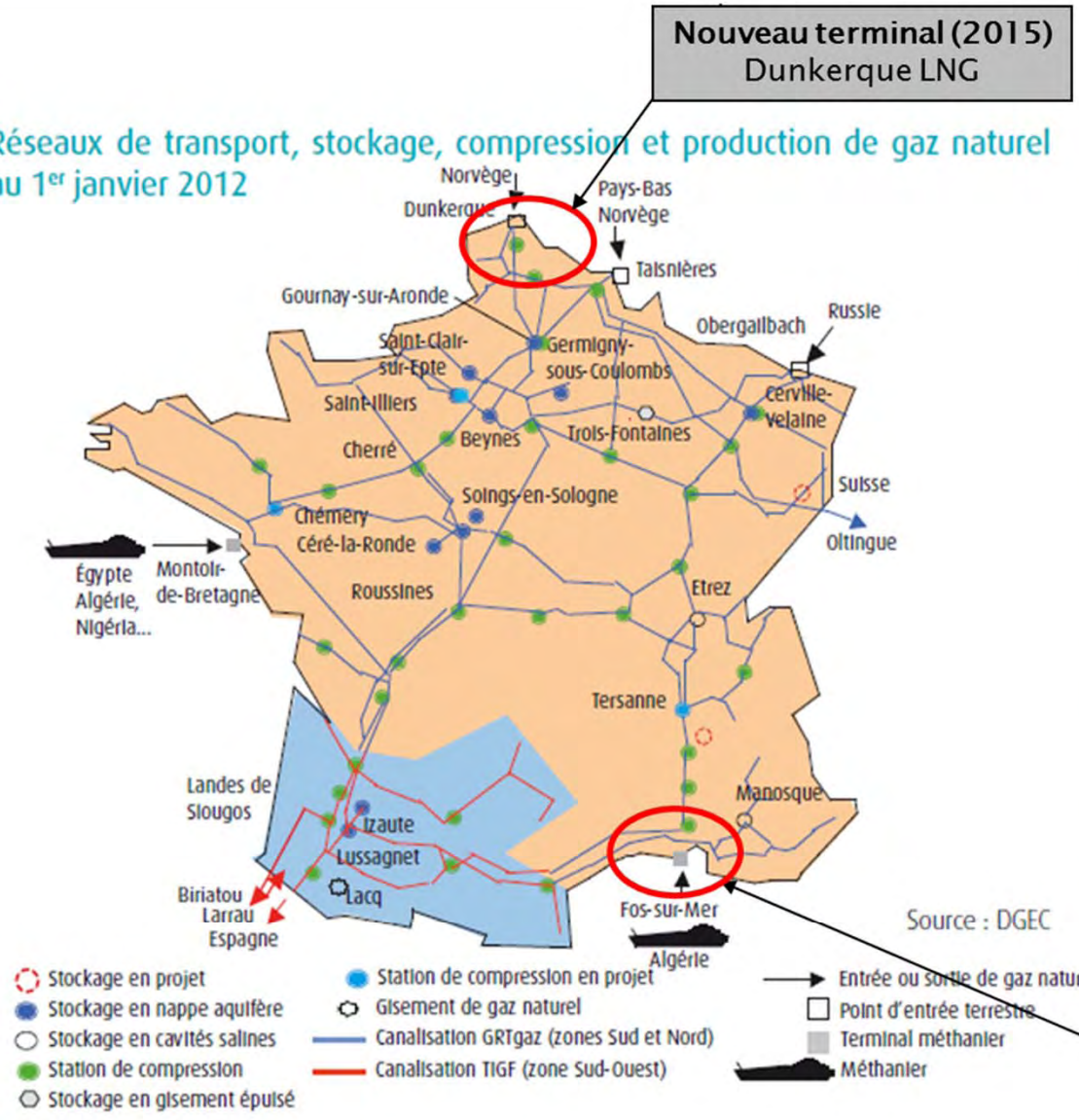
Gas: a developed infrastructure

Europe du Nord

TRANSIT
 nationale
 (Espagne, Italie principalement)
 Volume : 10-15% de la consommation

Espagne, Italie

Réseaux de transport, stockage, compression et production de gaz naturel au 1^{er} janvier 2012



2 opérateurs
 GRTgaz (orange)
 TIGF (bleu)

RESEAU NATIONAL
 (dont Réseaux locaux de distribution)
 230,000 km

RESEAU PRINCIPAL
 7,200 km

CAPACITE TOTALE AUX POINTS D'ENTREE
 2,800 GWh/d

CAPACITE de STOCKAGE
 146 TWh

Nouveau terminal projet Fos-Faster



Gas: LNG imports in France

- In France, regasification terminals activity is reduced due to a growing Asian demand (Fukushima impact) that supports prices.

Regasification terminal utilisation

	Capacity <i>Bcm/an</i> 2013	Utilisation rate Gm3			
		2010	2011	2012	2013
France	24	56%	57%	38%	31%
<i>Fos sur Mer</i>	14	52%	62%	50%	46%
<i>Montoir de Bretagne</i>	10	62%	51%	22%	10%

- Situation was particularly critical in South of France : spread between PEG-Nord price and PEG-Sud price reached 12 €/MWh in December 2013.

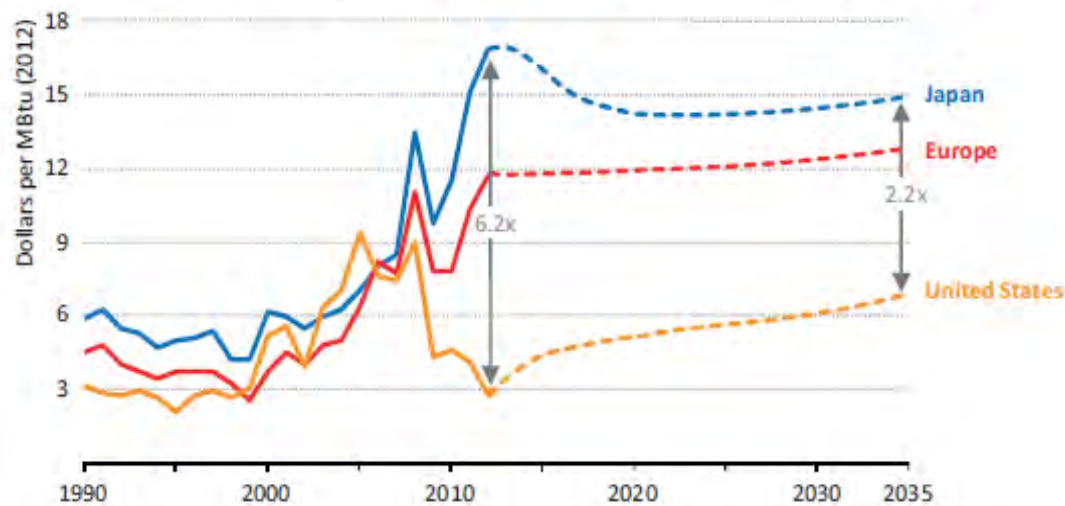


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Gas : New paradigm for gas markets

- **Important imbalances between gas markets since 2010**
 - North America takes advantage of non conventional gas production : commercial balance and industrial activity benefit from lower prices
 - Growing demand in Asia and Fukushima accident support demand and asiatic prices
 - Europe with demand stagnation is in intermediate situation
- **Despite recent rebalance in the first semester due to exceptional climatic conditions, situation is not foreseen to change in medium term**

Figure 1.3 ▶ Natural gas prices by region in the New Policies Scenario



Source : AIE- World energy outlook 2013

Gas : Impacts of unconventional development

- **GNL : United States export projects**

- Will provide more gas to LNG market

- 4 projects validated by FERC representing 55 Mt LNG/y (76 Gm³/y) of capacity compared to 240 Mt (330 Gm³) traded in the world in 2013

- Uncertainties on impacts of US export projects

- Increasing US prices ?
 - Liquefaction and transportation costs
 - Exports volume limit, 20 bcf/d (150Mt LNG/y) or more ?
 - Increasing Asian demand (development of Asian production ?)

- **Unconventional development in Europe will not be equivalent to North American boom**

- Regulatory : American subsurface right in favor of Oil&Gas exploration and production

- Technical : underground has been far less explored in Europe

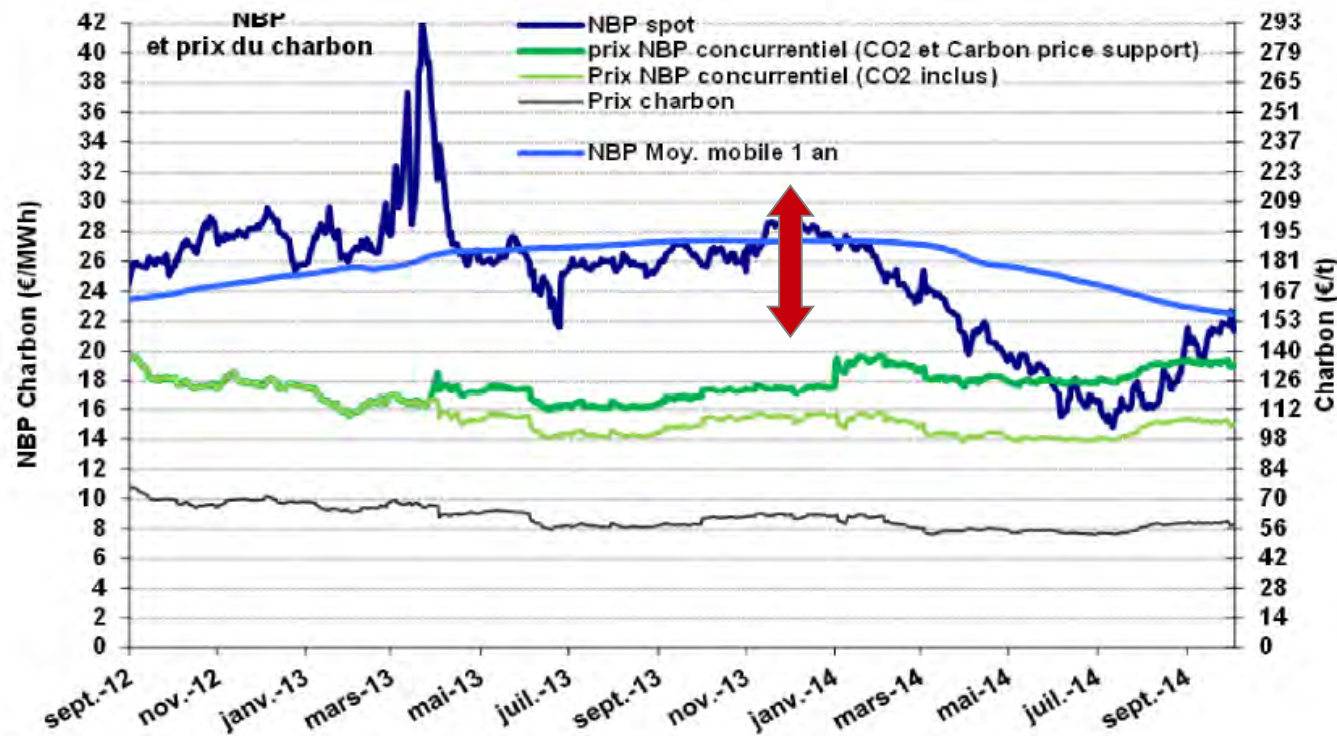
- Industrial : less competition and higher costs in oil & gas services

- Societal : stronger environmental concerns in Europe

- **In France, a statute dated 13th july 2011 has banned the use of hydraulic fracturation**

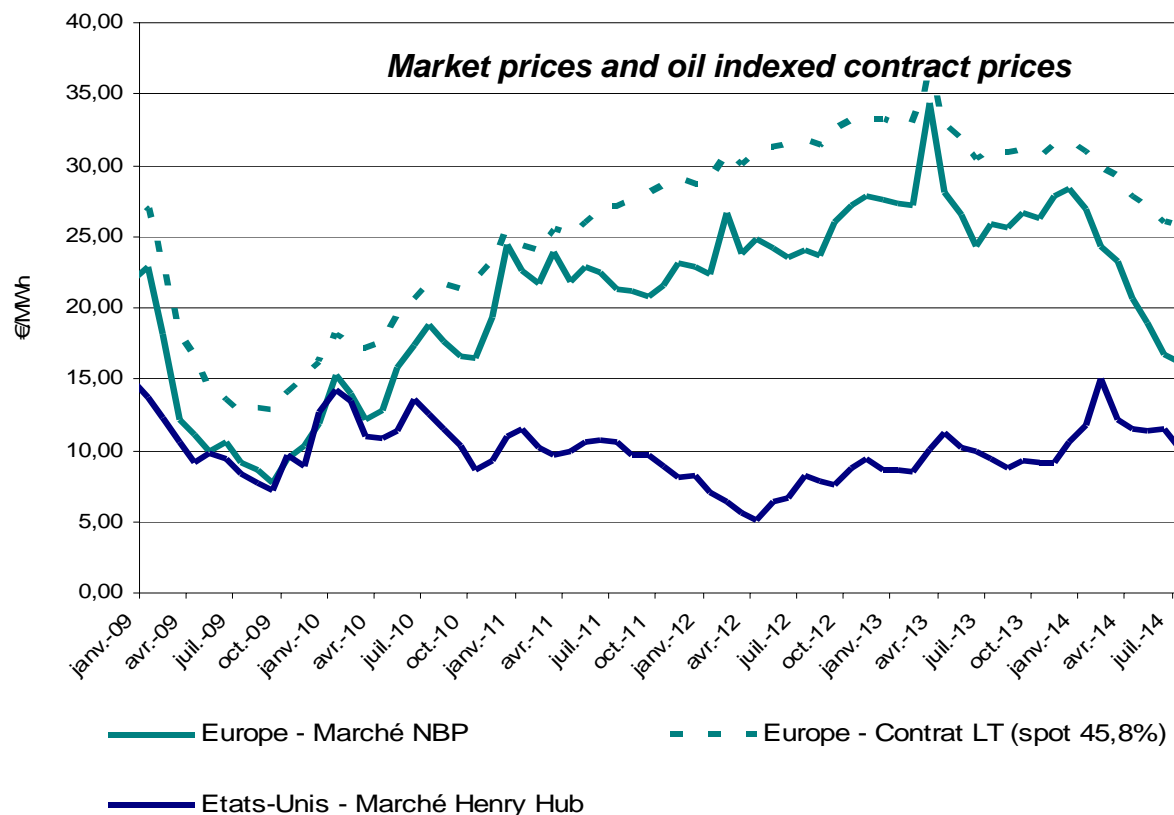
Gas : competition with coal

- Coal is available for European market due to shale gas development in United States
- Since 2011, coal has become competitive compared to gas for power generation despite CO2 market (except from may to august 2014 and unusually low gas prices)
- Potential reduction of coal demand in China could encourage downward trend on coal prices



Gas : Indexation in Long Term Contracts

- Rising crude price brings rising long term contract prices and thus gas trough long term contract indexed on crude oil becomes less competitive compared to gas market price.
- However, long-term contracts are crucial for promoting infrastructure development in production and distribution and to ensure security of supply (85% of the French supply is based on long term contracts).
- Several players are currently raising the question of indexation level



French natural gas markets

- 465 TWh in 2013 : 2/3 are delivered by the 23 public distribution systems operators to the final consumers, SME's and small industry
- Regarding heating : in collective housing, the gas market share in France is currently 56 % and the share of electricity is 33% , the share is smaller for individual houses
- 1/3 of gas consumption is used for large industry : more than 1000 sites are directly connected to transmission networks.
- Regarding liberalisation process at the end of 2013 :
 - Concerning final consumers 13 % of the 11 millions have chosen an alternative supplier
 - Concerning industry and services, more than half of the market has chosen today alternative commercial offers instead of regulated tariffs



LPG : A marginal and stagnant consumption

LPG consumption in tons (MEDDE and CFBP)

- **LPG consumption has stagnated around 2 Mt** for the past 5 years
- 1,4 % of final energy consumption
- 3 types of LPG distribution :
 - Bulk LPG
 - Bottled LPG
 - Autogas (LPG motor fuel)

LPG distribution (MEDDE and CFBP)



French gas markets : legal framework

- - Full implementation of the new European framework since 1st July 2007 : meaning full liberalization of the gas market since 2004 for industry and since 2007 for final consumers –
- - All consumers are free to choose their supplier : the ministry of energy delivers licences to those suppliers which allow them to buy and trade gas. We do verify existence of gas contracts in particular, in order to be sure that security of supply will be assured.
- - More than 100 suppliers are active in the French market although at the end of 2013, the global market share of GDF Suez is still important (60 % of volumes)
- - Liberalization process is still on going : we are on the verge to delete existing regulated tariffs to final consumers by end of 2015



A reduction in the share of fossil fuels

- France has decided to implement a new energy model in order to cope with climate change, that involves with ambitious targets.
- 30 % reduction in final consumption by 2030 compared to 2010 levels
- Efforts are necessary to reduce fossil fuels consumption :
 - **In transportation** (over 70 % of oil consumption):
 - Reduction of transportation demand
 - Reduction of fuel consumption
 - Development of alternative fuels
 - Improvement in **building energy efficiency** (this sector represents 55 % of gas consumption)

FIN

