

REGULATORY FRAMEWORK IN EU **(current issues on energy)**

Regulatory framework and Institutions

KEY LEGAL TEXTS

INTERNAL MARKET:

- D 2003/54/EC (electricity)
- D 2003/55/EC (gas)
- R 1228/2003 (Cross Border transactions)

ENVIROMENT:

- D 2001/77/EC (Renewable)
- D 2004/8/EC (cogeneration)
- D 2003/87/EC (gas emission trading)

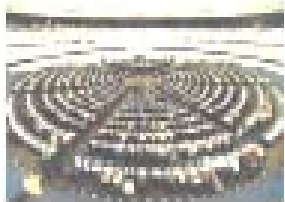
SECURITY OF SUPPLY:

- Proposal for amendment of decision 1229/2003/EC on trans-European network
- Proposal for Regulation on conditions to access to the gas transmission networks

TAXATION:

- D 2003/96/EC T of energy products and electricity.

European Parliament



Council of the European Union



European Commission



European Court of Auditors



Court of Justice of the European Union

Regulatory Authorities

ERGEG

- Established by CE, decision 2003/796/EC, November 2003.
- **Objective**: to facilitate consultation, coordination and cooperation between national regulators, and between these regulators and the European Commission
- **Participants**: Heads of National regulatory authorities. Observers (Norway, Iceland and the candidate countries, as well as representatives from the European Commission).

CEER

- Council of **European Energy regulators**. 24 EU Member States + Norway + Iceland.
- **Established** in may 2000 by signing a Memorandum of Understanding
- In June 2003 established a **non profit organization** registered in Brussels.
- 2004: New members

EUROPEAN SINGLE ENERGY MARKET

- **FIRST DIRECTIVES (96/92/CE and 98/30/CE):** First steps towards the creation of the internal market for gas and electricity.
- **DIRECTIVES 2003/54/CE and 2003/55/CE** of the European Parliament and the Council of the June 2003 concerning common rules for the internal market, and repealing the other directives:

Provide necessary structural changes in the regulatory framework to tackle remaining barriers to the competition of the internal energy market.

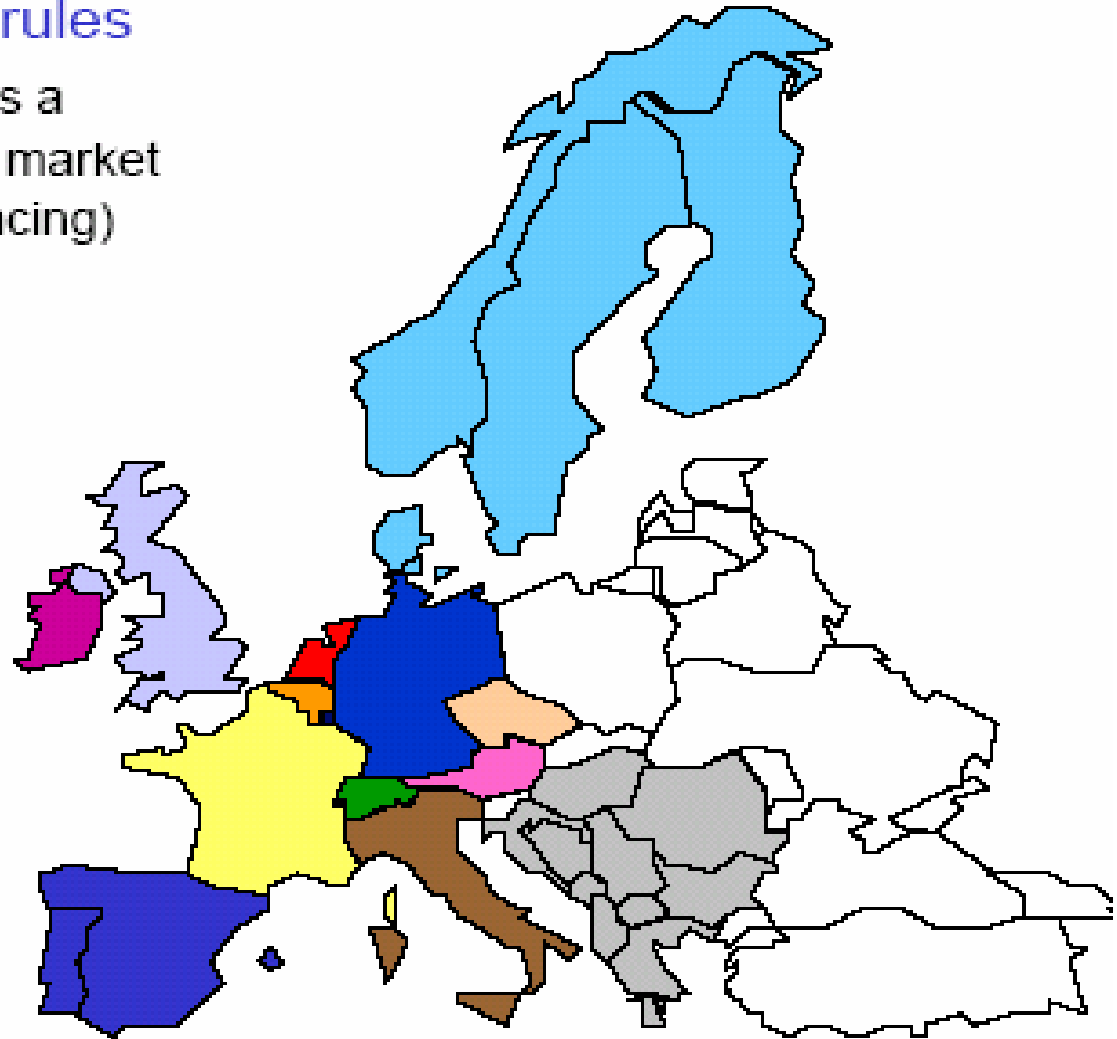
- **Main provisions** 

- Underlying principle: non-discrimination and transparency
- Unbundling of accounts of integrated companies and unbundling of networks
- Network access and tariffs

Internal Energy market

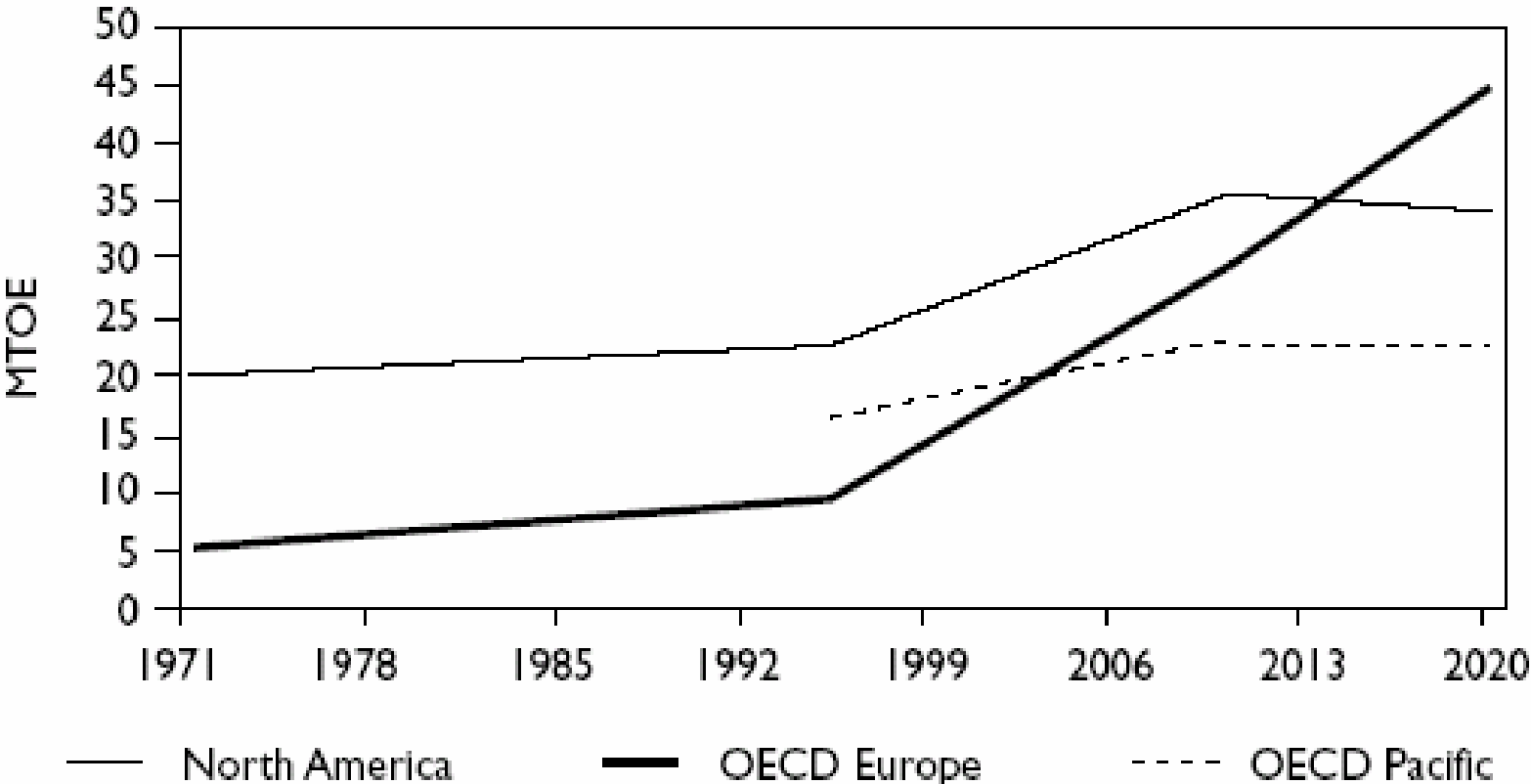
Different markets, different rules

- A regional market is defined as a region with a common energy market (not necessary common balancing)
- Until around 2010, there will be 13 regional markets
- Regions are: GB, Republic of Ireland, France, Iberia, the Netherlands, Belgium, Germany, Switzerland, Italy, Austria, Nordic countries (NordPool), Czech Republic and Balkans



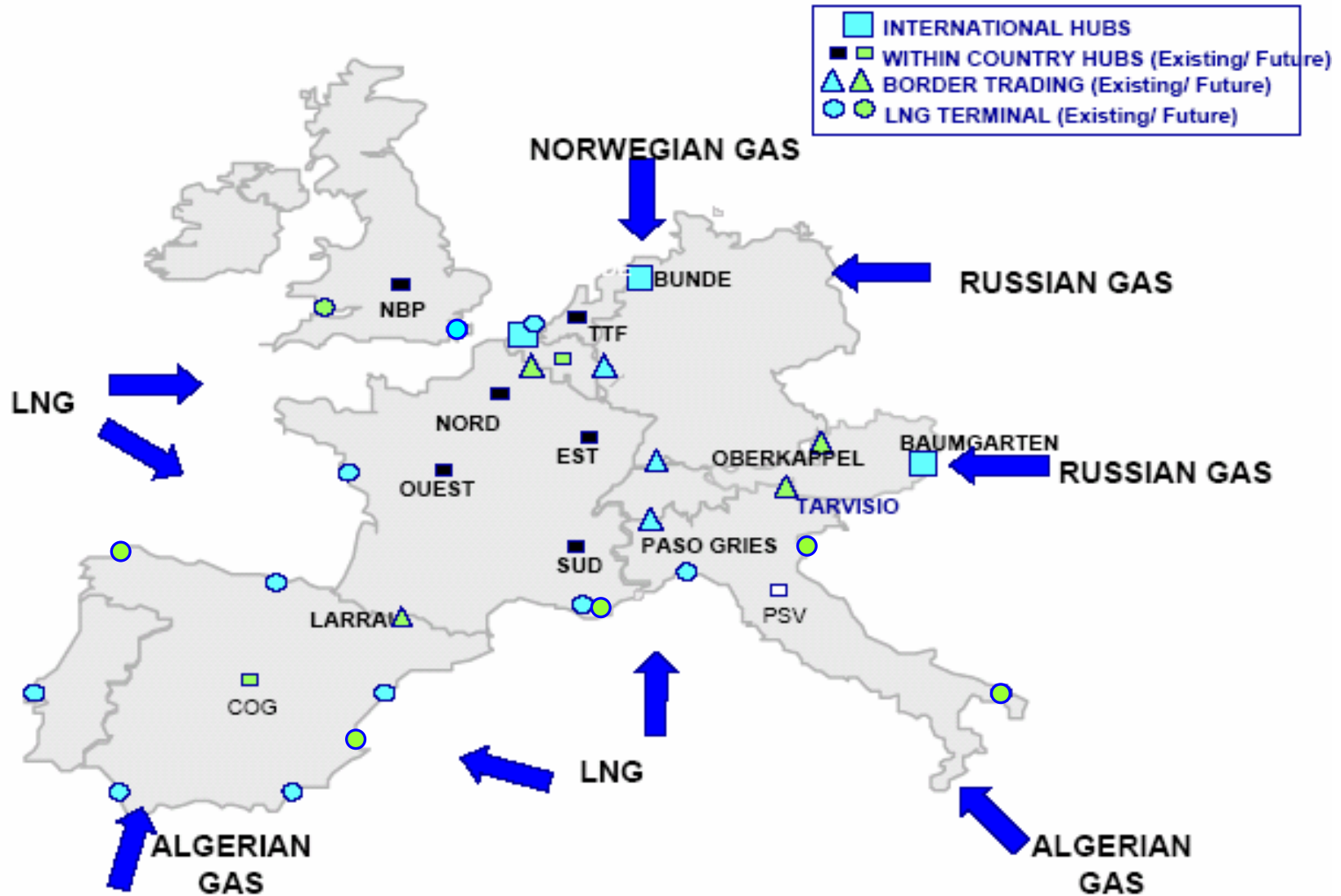
IEM. Gas: some figures

Natural Gas in Power Generation

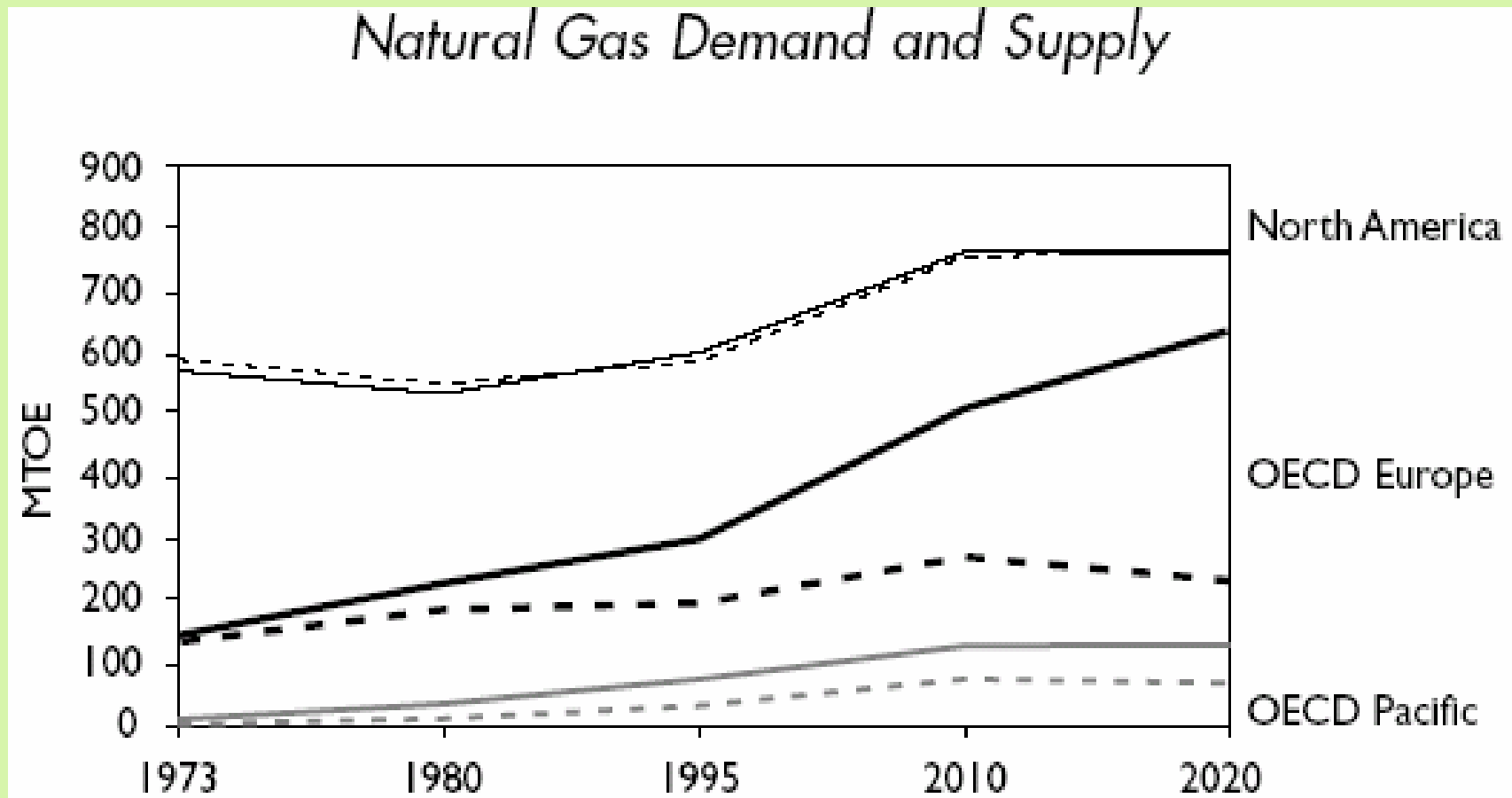


Source: IEA

IEM. Gas: some figures



Gas: some figures



Source: IEA

IEM. GAS: Gas Directive 2003/55/CE

- **Third party access:**

- ▶ Regulated for the transmission and distribution system and LNG facilities
- ▶ Regulated or negotiated for storage
- ▶ Major new infrastructures may be exempted of TPA subject to certain conditions.

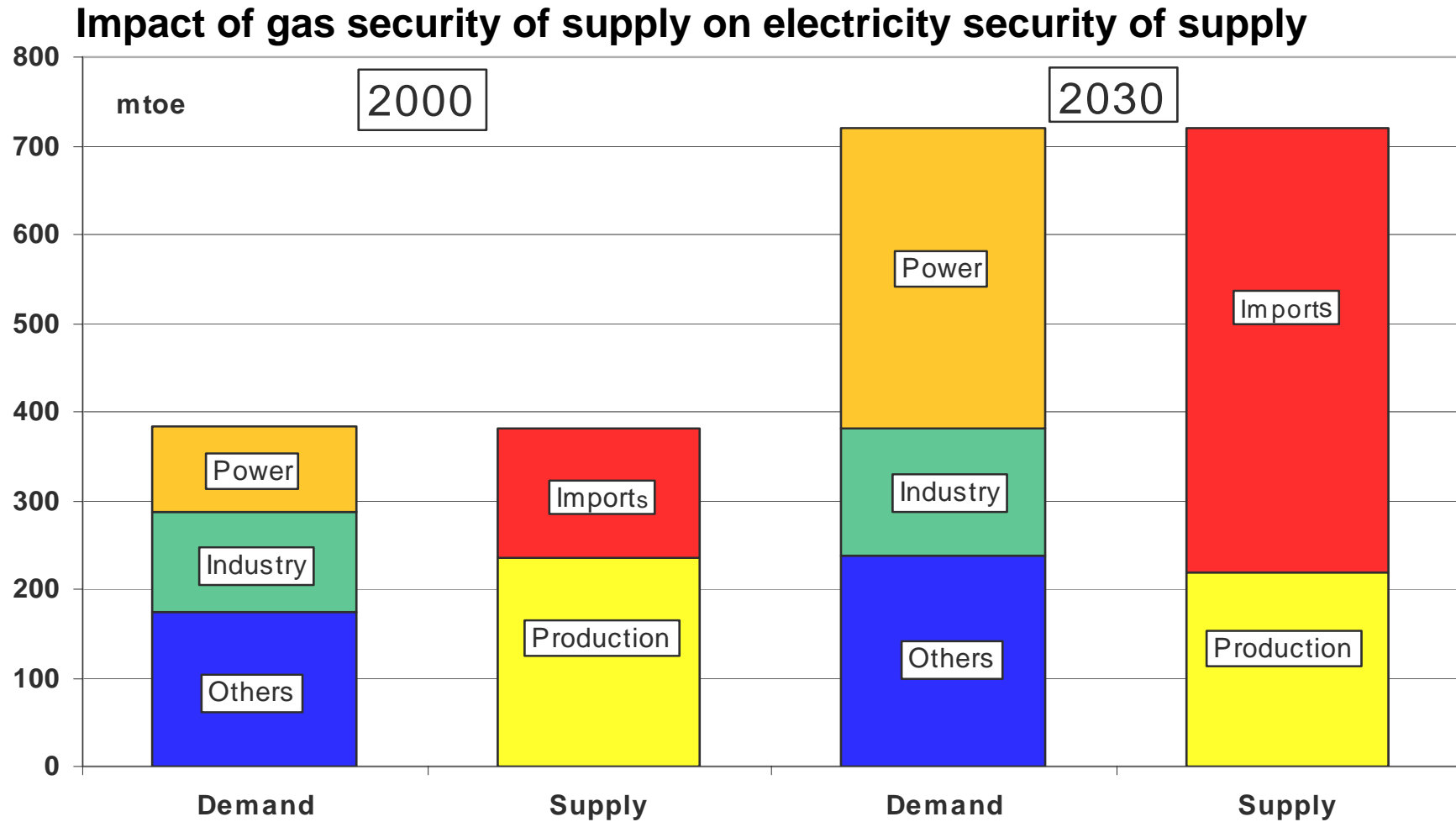
- **Main issues proposed:**

- ▶ TPA Services
- ▶ Capacity allocation and congestion management
- ▶ Transparency requirements
- ▶ Tariffs
- ▶ Balancing
- ▶ Secondary Markets

Gas: security of supply

- **Council Directive 2004/67/CE of April 26th 2004**, *concerning measures to safeguard security of natural gas supply*
 - ▶ **Objective:** Establish general policies for security of gas supply:
 - ➔ Clarifying general roles and responsibilities of market actors
 - ➔ Specify minimum standards that must be complied
 - ➔ Standards shall be implemented in a non-discriminatory and transparent way.

Gas: security of supply



Interrelation gas-electricity through TGCC

Madrid Gas Forum: Conclusions

- **Guidelines for Good TPA Practice for storage Operators** as a set of minimum requirements to be met with respect to non discriminatory and transparent access conditions to storage facilities. The key elements to be covered by guidelines for storage Operators should include:
 - ➔ The range of services
 - ➔ Capacity allocation and congestion management mechanisms
 - ➔ Transparency and confidentiality requirements
 - ➔ Tariffs structures and tariff derivations.
- **Entry-Exit systems:** flexible tariffication mechanisms for network access based on entry-exit tariffs that are reflective of the physical flows and hence cost implied by individual users.
- **Calculation of available capacities:** Transparency to ensure that maximum capacity is made available to the market
- **Interoperability:** There are no reason to have restrictions on free trade of natural gas at the cross-border points. Any contractual limitation in that respect should be removed.

ELECTRICITY: Electricity Directive 2003/54/CE

- **Objective:** “fully open market, which enables all consumers freely to choose their suppliers and all suppliers freely to deliver to their customers.”
- **Main issues:**
 - ▶ **Network access** must be non-discriminatory, transparent and fairly priced.
 - ➔ **distribution and transmission systems:** operated through legally separate entities where vertically integrated undertakings exist.
 - ➔ **transmission and distribution system operators** with effective decision-making rights with respect to assets necessary to maintain, operate and develop networks when the assets in question are owned and operated by vertically integrated undertakings.
 - ➔ **effective regulation**, carried out by one or more national regulatory authorities

Electricity Directive 2003/54/CE

- **Measures to protect final customers:** (eg)
 - ▶ have a right to a contract with their electricity service provider
 - ▶ Service providers shall notify their subscribers directly of any increase in charges, at an appropriate time no later than one normal billing period after the increase comes into effect.
 - ▶ transparent information on applicable prices and tariffs
 - ▶ benefit from transparent, simple and inexpensive procedures for dealing with their complaints
- **Transmission System Operators:**
 - ▶ **Tasks:** (a) ensuring the long-term ability of the system to meet reasonable demands for the transmission of electricity; (b) contributing to security of supply through adequate transmission capacity and system reliability; (c) managing energy flows on the system, taking into account exchanges with other interconnected systems...
 - ▶ independence of the transmission system operator

Electricity Directive 2003/54/CE

- **Regulatory Authorities:** monitoring, in particular:
 - ▶ rules on the management and allocation of interconnection capacity
 - ▶ mechanisms to deal with congested capacity within the national electricity system
 - ▶ effective unbundling of accounts
 - ▶ conditions and tariffs for connecting new producers
 - ▶ the level of transparency and competition

Electricity: Florence electricity Forum: conclusions

- **A competitive and sustainable electricity market:**
 - ▶ Commission's initiative of bringing together national competition authorities and national energy regulatory authorities aiming at improving consistency of application of competition law in energy sector
- Implementation of the new **cross-border regulation** Draft guidelines:
 - ▶ **Congestion management**
 - ➔ All network congestion problems shall be addressed with non-discriminatory market based solutions (more coordination between TSOs, maximising of available capacity and transparency, treatment of congestion rents...)
 - ▶ **Harmonisation of tariffs:**
 - ➔ Guidelines as first step in a progressive harmonisation of the level of transmission charges paid directly by generation in order to reduce unnecessary distortions of the internal market

Electricity: Florence electricity Forum: conclusions

▶ **Inter TSO compensation mechanism:**

- ➔ In order to reflect the Requirement in the regulation for costs to be based on long run average incremental cost.
- ➔ The concepts “Long run average incremental cost” and “cross-border flows” need clarification. Should be quantified by ETSO during 2005

● **Security of supply:**

- ▶ Need for greater coordination of interconnection investments and de involvement of regulators.
- ▶ Need of monitoring security of supply:
 - ➔ *Cover the supply/demand balance on the national market*
 - ➔ *Level of expected future demand and available supplies*
 - ➔ *Additional capacity being planned or under construction*
 - ➔ *Level of maintenance of the networks*

European Gas Transport, Storage and LNG 2005
Mitigating Spain's peak demand problem

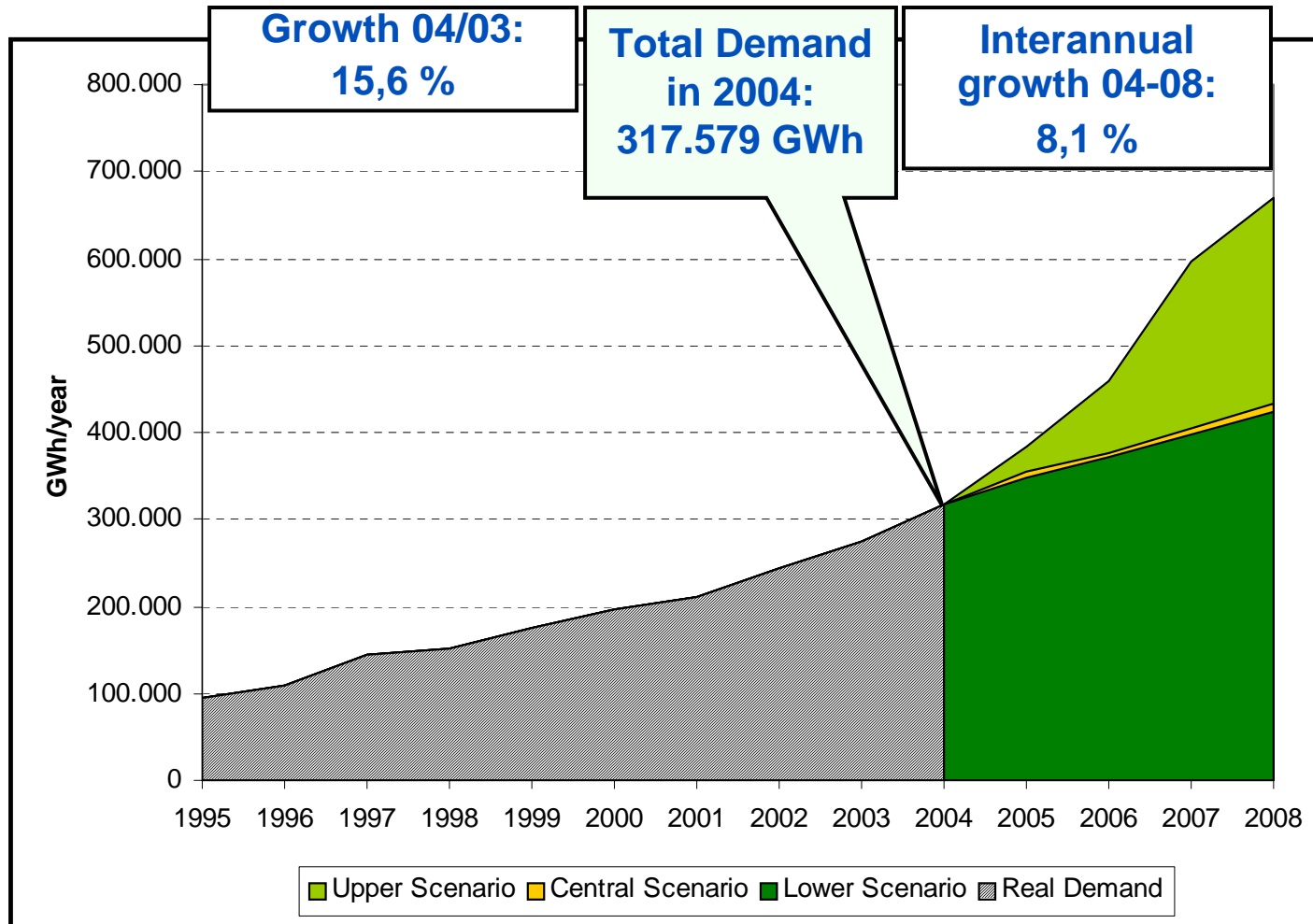
Mitigating Spain's peak demand problem

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2. Spanish SOS provisions
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4. Supply / demand dynamics
5. Winter 2004-2005 facts. SOS concerns arisen
6. Consequences and priorities for the future

Introduction

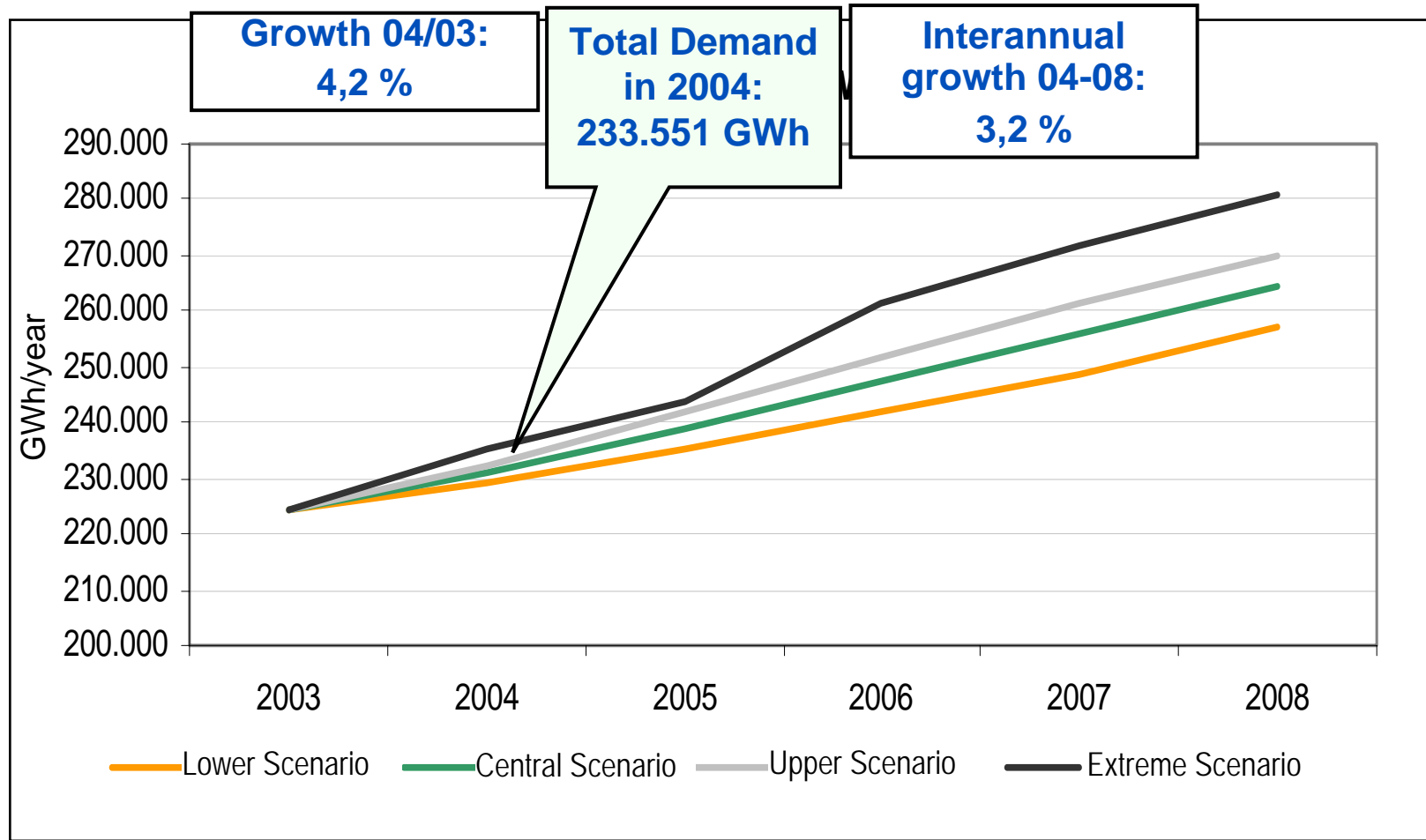
Gas demand evolution. Past and future



Source: CNE

Introduction

Electricity demand evolution. Past and future



Source: CNE

Mitigating Spain's peak demand problem

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Spanish SOS provisions

Measures adopted

Security of supply measures taken in the Spanish Gas Market:

1. Compulsory network planning
2. Supervision of supply-demand balance
3. Diversification
4. Storage
5. Other measures to improve security of supply

Spanish SOS provisions

Compulsory network planning

1. Compulsory network planning

Hydrocarbons Law 34/98. The art. 4 regulates the planning system:

- Shall be **mandatory** in nature and the enforceable **minimum requirement** for :
 - ✓ Basic network gas pipelines (High pressure pipelines)
 - ✓ The determination of the global LNG regasification capacity (Law 24/2001)
 - ✓ Storage facilities for strategic reserves
 - ✓ The determination of general criteria for setting up facilities to supply retail petroleum products.
- Shall be for **guideline purposes** for the rest of infrastructures.

Spanish SOS provisions

Supervision of the supply-demand balance

2. Supervision of supply-demand balance

The CNE supervises the electricity and gas supply-demand balance and the results are published (*Informe Marco sobre la demanda de energía eléctrica y gas natural, y su cobertura*). The conclusions of 2004 Report were:

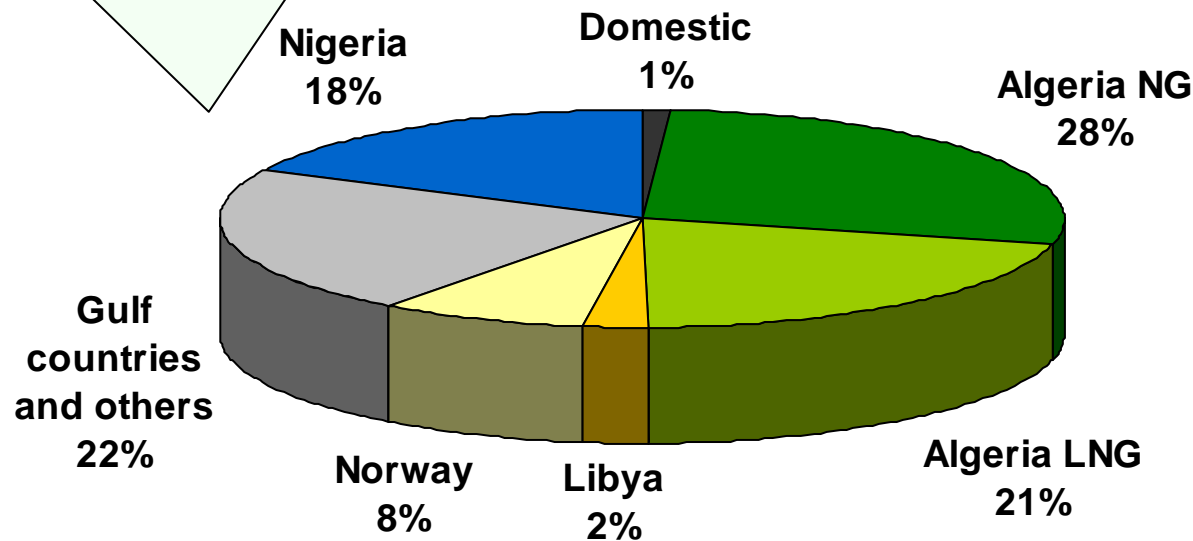
- Potential **risk of LNG availability**, in case of bad weather conditions or other supply disruptions.
- Transmission and storage capability: a considerable **effort in infrastructures should be made** in order to fulfil gas demand growth.
- Necessary development of **new storage capacity** (not only additional volume but off-take capacity).

Spanish SOS provisions

Diversification

3. Diversification

Spanish natural gas supplies in 2004:



► **Supply diversification**

Legislation: *RD 1716/2004 de 23 de julio*

Transporters that deliver gas to the system and **traders** must diversify their provisioning when the proportion of their supplies that come from the main supplier country (Algeria) is over **60 per cent.**

Source: Sedigas

Spanish SOS provisions

Diversification

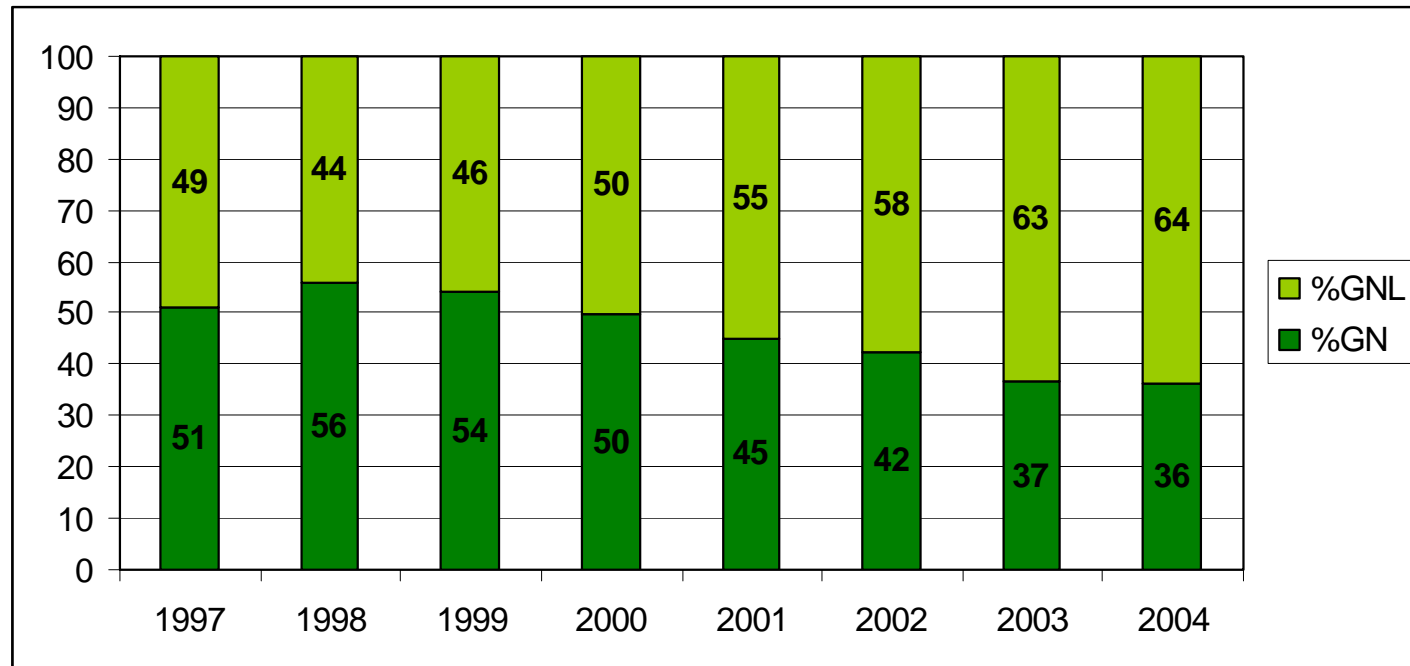
3. Diversification (cont.)

► *Natural Gas /LNG diversification*

LNG plants increase the operation **flexibility** of the gas system as well as the possibility of a greater number of supplies origins.

In 2003, **63%** of gas imported has come as LNG. This peculiarity of the market will be kept as 2 more regasifications plants will operate in the future.

Source: CNE



Spanish SOS provisions

Gas storage

4. Storage

✓ *Hydrocarbons Act:*

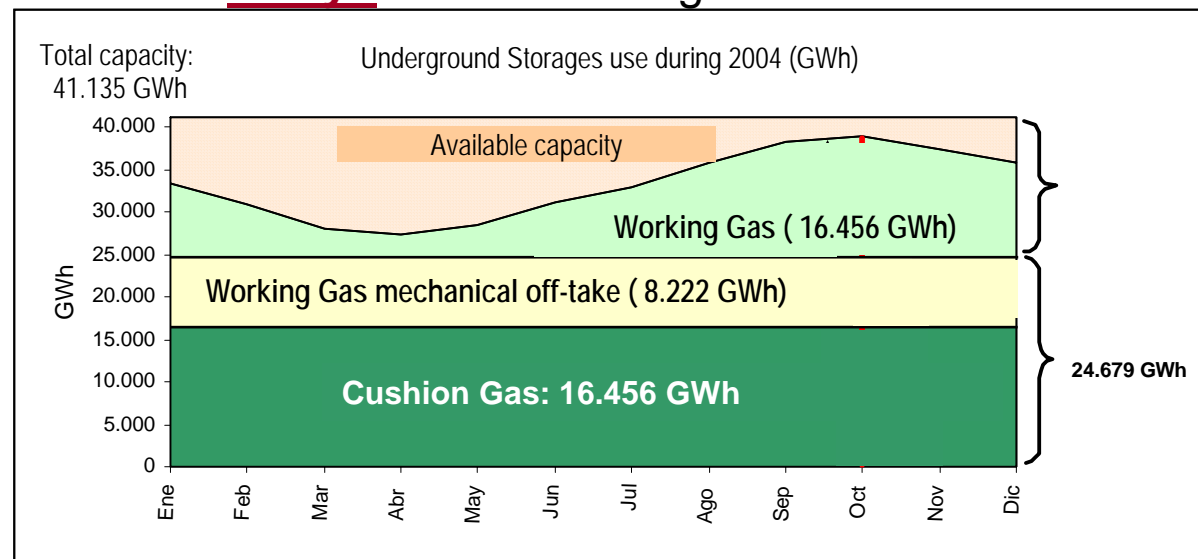
✓ **Transporters** that deliver gas to distributors for the supply to full tariff-paying customers, natural gas **traders** and **qualified consumers** must maintain minimum security stocks corresponding to **35 days** of their firm sales/consumption.

✓ *Royal Decree 1716/2004:*

The transmission and distribution access tariff includes **2 days** of linepack. The regasification access tariff includes **5 days** of tanks storage

Total Spanish Underground Storage 2004:

Source: Enagas



Spanish SOS provisions

Gas storage

4. Storage (cont.)

Maximum useful capacity of underground storage, LNG tanks, and gas pipelines, 2003:

	Total Capacity	
	Gwh	Capacity/gas sales (days)
Undeground storage (excluding cushion) ▶ <i>Serrablo</i> ▶ <i>Gaviota</i>	24.671 9.013 15.657	36
LNG tanks (Nominal capacity)	5.401	8
Linepack	605	1
TOTAL	30.676	45

Royal Decree 1716/2004 allow to consider in the **35 days**, ships in transit to Spain (less that 3 days from unload)

Source: CNE

Spanish SOS provisions

Other measures

5. Other measures to improve security of supply

✓ *The European Internal Market*

The **removal of barriers** of supply-side competition, trade and investments within the internal gas market, as well as closer cross-border cooperation and interoperability of gas systems

✓ *Infrastructure*

The **interlinking of networks** play a fundamental role in the flexibility of supplies.

✓ *Interruptible contracts*

Interruptible contracts give **flexibility** and can **avoid congestions** in the network

✓ *Take or pay contracts*

Key for the development of new gas infrastructures and **guarantee long term supplies**. However, significant elements of the traditional long-term contract will need to be changed.

Spanish SOS provisions

Other measures

5. Other measures to improve security of supply (cont.)

✓ *Liquid gas markets*

Gas **spot markets** throughout the EU should be developed.

✓ *Multiplicity of supply-side agents*

Reduce the dependency of a single supplier.

✓ *Development of Hubs*

Gas price reference for the Mediterranean.

Improve gas trade.

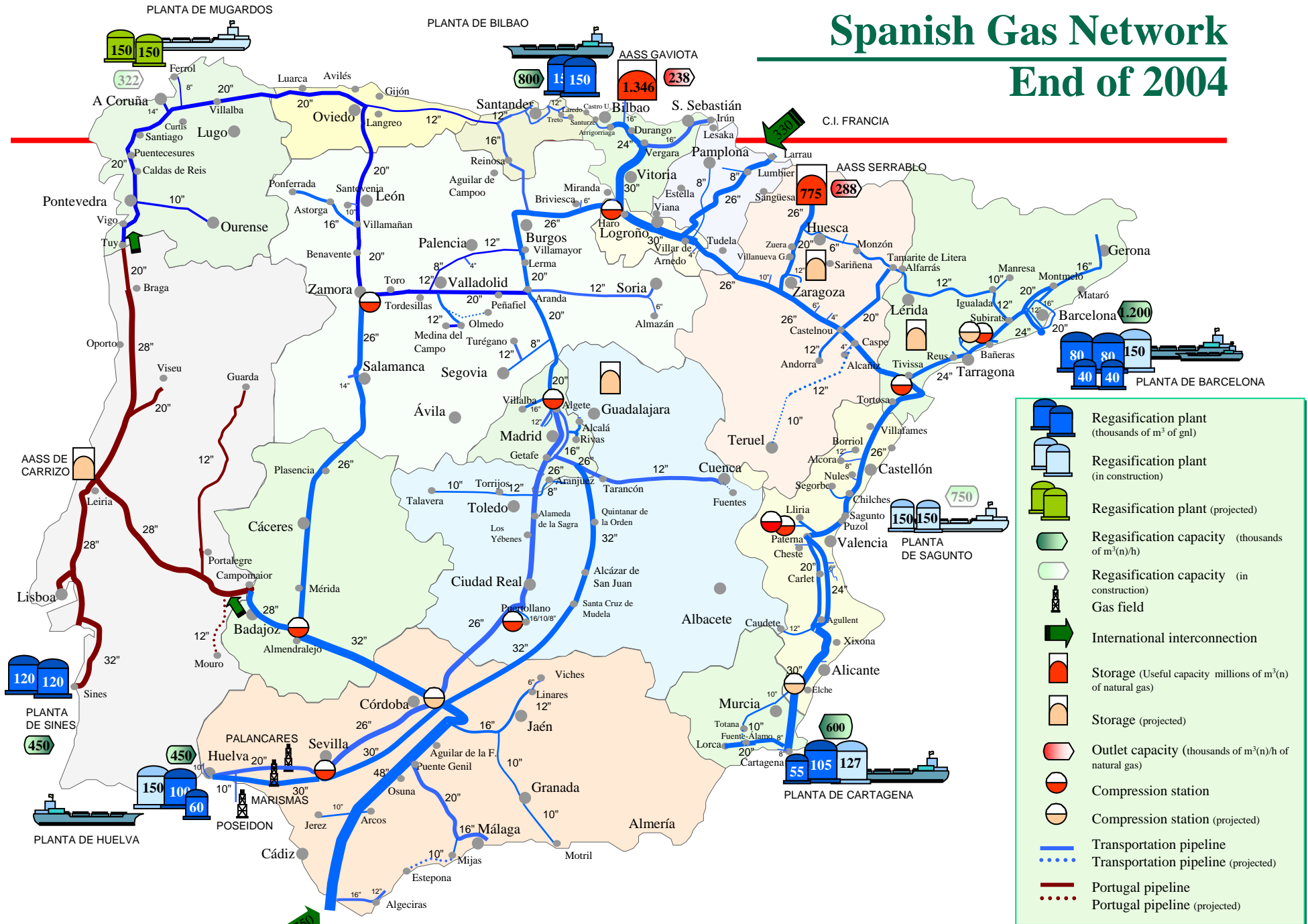
Mitigating Spain's peak demand problem













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Spanish Gas Network

End of 2004



-  Regasification plant (thousands of m³ of gnl)
-  Regasification plant (in construction)
-  Regasification plant (projected)
-  Regasification capacity (thousands of m³(n)/h)
-  Regasification capacity (in construction)
-  Gas field
-  International interconnection
-  Storage (Useful capacity millions of m³(n) of natural gas)
-  Storage (projected)
-  Outlet capacity (thousands of m³(n)/h of natural gas)
-  Compression station
-  Compression station (projected)
- Transportation pipeline
- Transportation pipeline (projected)
- Portugal pipeline
- Portugal pipeline (projected)

Spanish SOS provisions

Existing interconnection infrastructures by 2003

LNG Plant	Storage capacity (m3 of LNG)	Emission capacity	
		P (bar)	m3/hour
Barcelona	2 x 40,000 + 2 x 80,000	45	600,000
		72	600,000
Huelva	60,000 + 2 x 100,000	72	900,000
Cartagena	55,000 + 105,000	72	900,000
Bilbao	2 x 150,000	72	800,000
TOTAL	860,000		2,450,000

Interconnection	Capacity (m3/hour)
Larrau (Francia-Spain)	263,000
Tarifa (Algeria-Spain via Maroc)	1,066,000 (for Spain)
Badajoz (Portugal-Spain)	-355,000 (Normally used as exit)
Tuy (Portugal-Spain)	41,450
TOTAL (net entries)	1.015.450

Spanish SOS provisions

New projects of interconnection

New regasification plants of:
Mugardos
Sagunto

New pipeline interconnection
Francia-España
via Irún

Capacity increase of **existing interconnections** (Larrau y Tarifa) and regasification plants (Barcelona, Cartagena, Bilbao y Huelva)

Medgaz project:
New pipeline
Argelia - Europa



Spanish SOS provisions

New entry capacity

New entry capacity	Foreseen start date
<i>New infrastructures</i>	
Sagunto LNG Plant. (6.6 bcm)	2005
Irún interconnection. Francia-Spain.	2005
Mugardos LNG Plant. (4.2 bcm)	2006
Gran Canaria LNG Plant. (1.3 bcm)	2007
MEDGAZ project. Algeria-Spain. (8 bcm)	2008
Tenerife LNG Plant. (1.3 bcm)	2009
<i>Increase of the capacity of new infrastructures</i>	
Barcelona LNG Plant. (14.5 bcm) <i>Final capacity</i>	2005
Huelva LNG Plant. (11.8 bcm) <i>Final capacity</i>	2005
Tarifa. Algeria-Spain via Maroc. (10,2*) <i>Final capacity</i>	2005
Cartagena LNG Plant. (10.5 bcm) <i>Final capacity</i>	2007
Larrau. Francia-Spain. (5 bcm) <i>Final capacity</i>	2007
Barcelona LNG Plant. (15.8 bcm) <i>Final capacity</i>	2009

* It doesn't include transit capacity

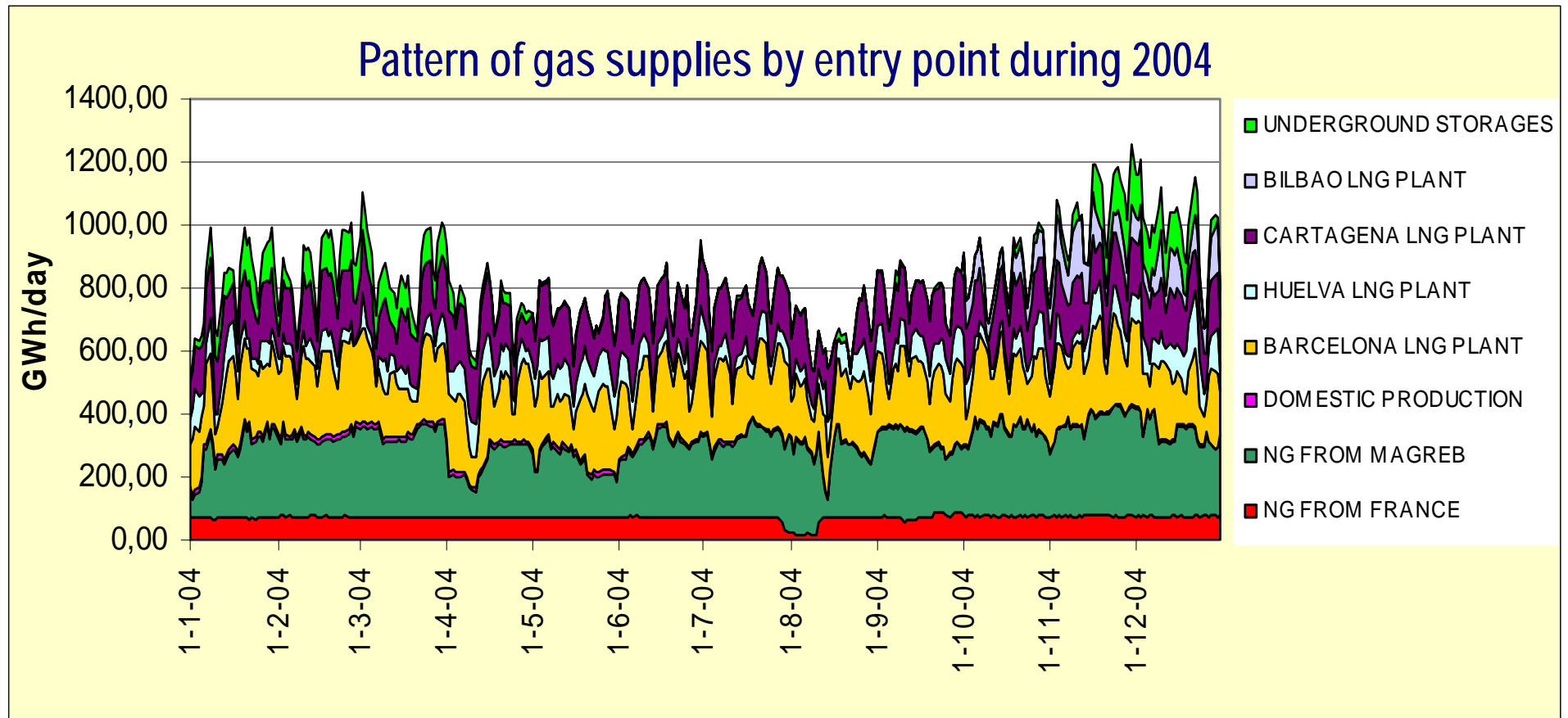
Mitigating Spain's peak demand problem

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Supply / demand dynamics

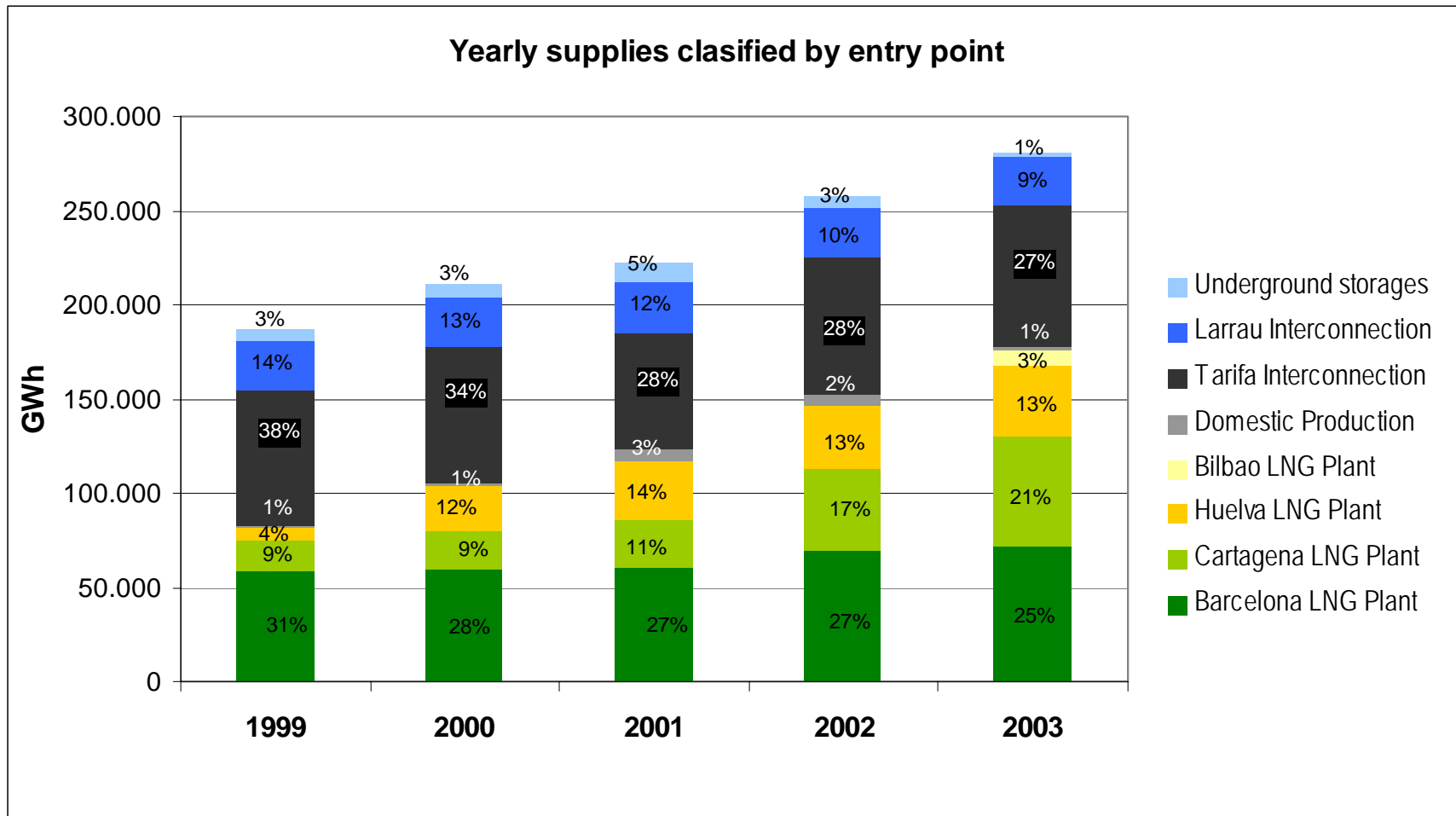
Gas supplies by entry point



Source: Enagas

Supply / demand dynamics

Gas supplies by entry point

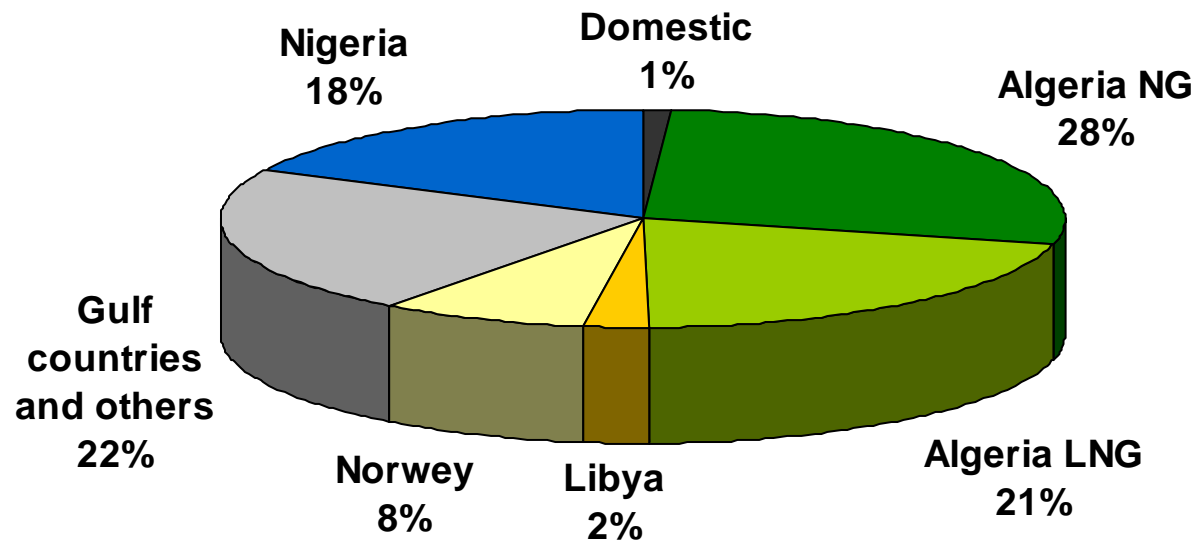


Source: Enagas

Supply / demand dynamics

Gas supplies by origin

Spanish natural gas supplies in 2004:

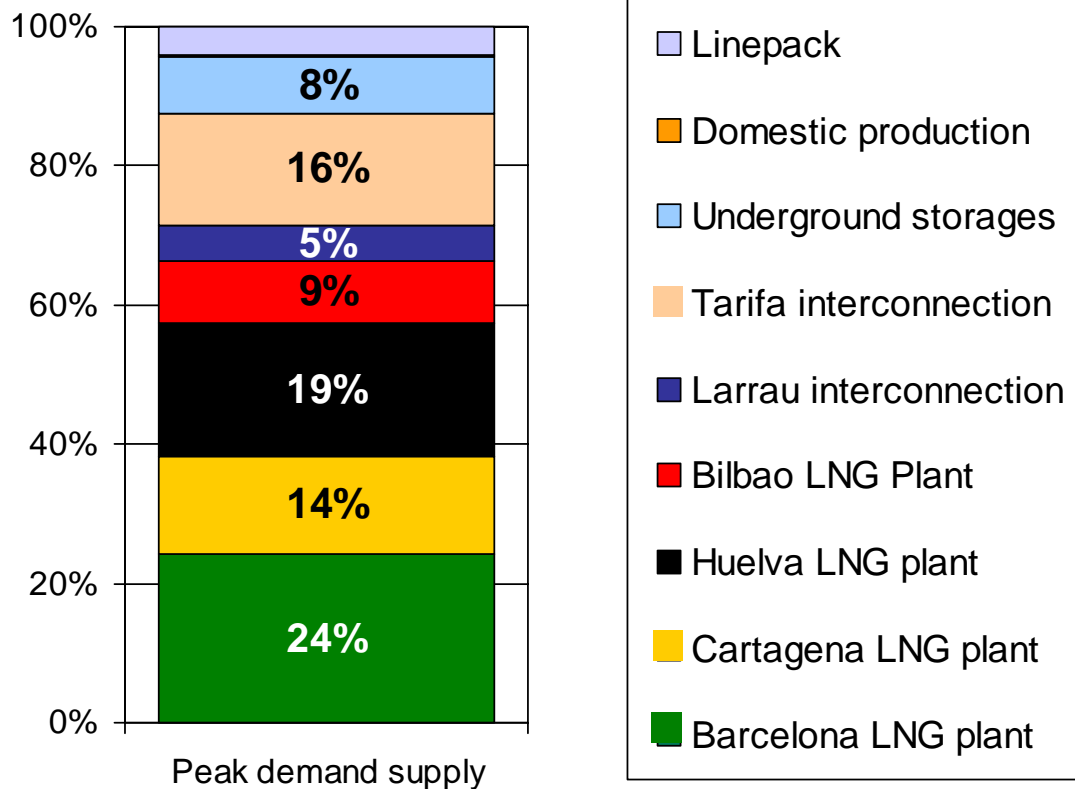


Source: Sedigas

Supply / demand dynamics

Gas peak demand. Winter 04-05

Gas peak demand. (winter 04-05)	Demand (GWh/day)
Industrial and residential	1.103
Satellite plants	45
CCGT's	303
Conventional power plants	52
Total Transported demand	1.503



Source: Enagas

Supply / demand dynamics

Conclusions

- a) Total dependence on natural gas imports (domestic production 1%)
- b) Increase of the participation of LNG in total supplies (64% of total supplies in 2004)
- c) High increase of the total and peak gas demands
- d) Increase of the participation of CCGT's in gas demand. Increasing interdependence between gas and electricity sectors.
- e) High probability of simultaneous gas and electricity peak demands.

Mitigating Spain's peak demand problem

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Winter 04-05 facts. SOS concerns arisen

Causes of gas demand increase

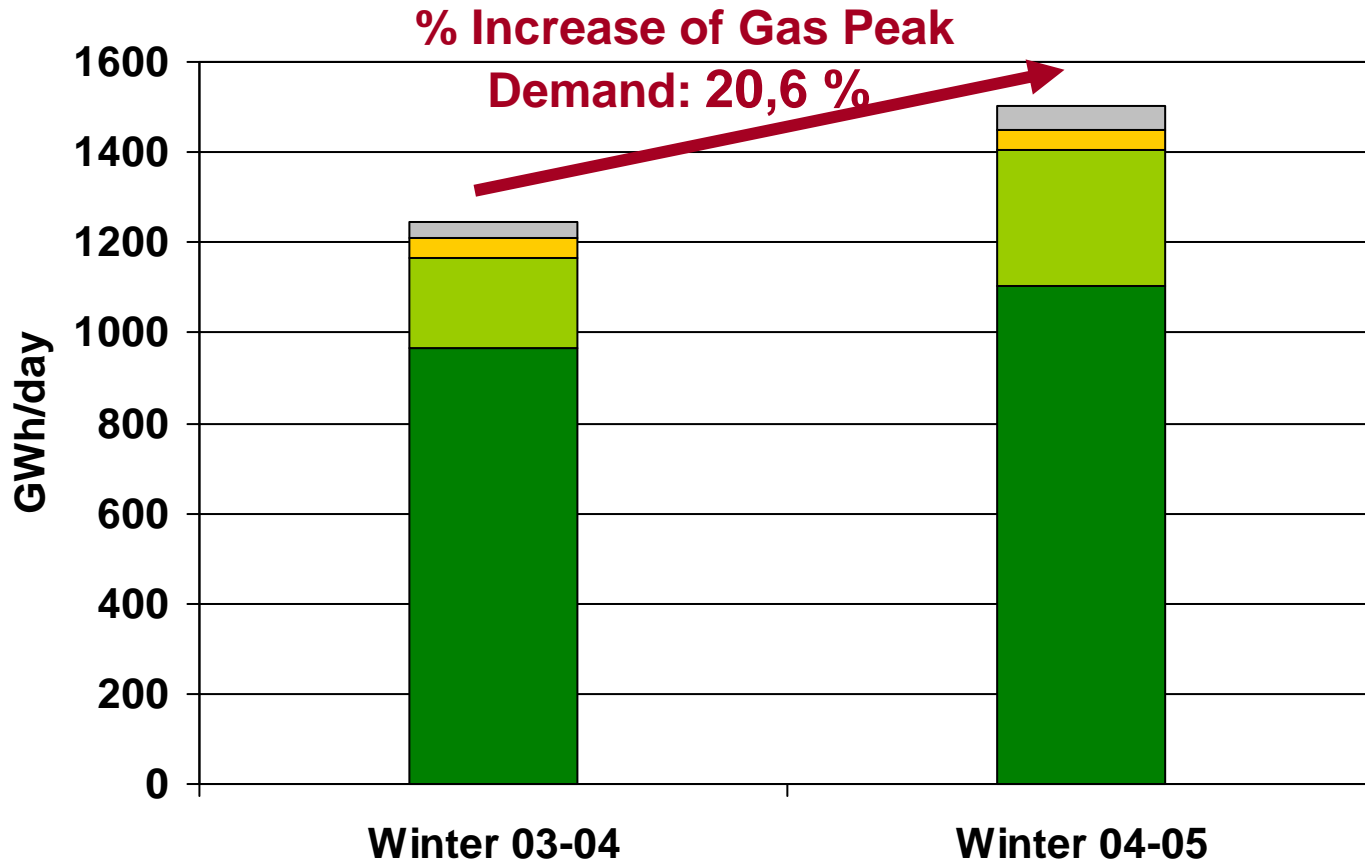
- a) High increase of gas peak demand: 20,6% (winter 04-05 / winter 03-04)
- b) High increase of electricity peak demand: 15,0% (winter 04-05 / winter 03-04)
- c) Increase of new power installed, based on gas consumption. Most of the new electricity plants recently constructed and foreseen are CCGT's plants: 8.259 MW of CCGT's (installed in the beginning of 2005)
- d) Low hydraulic reserves
- e) High wind power (8.500 MW) but not reliable for peak demand situations, due to the unpredictable weather conditions.



CONCLUSION: high increase of gas demand, in part due to the electricity sector

Winter 04-05 facts. SOS concerns arisen

Increase of gas peak demand



Demand	Peak demand increase Winter 04-05/ 03-04
Industrial and houshold	13,9 %
CCGT's	53,3 %
Convention al power plants	50,0 %

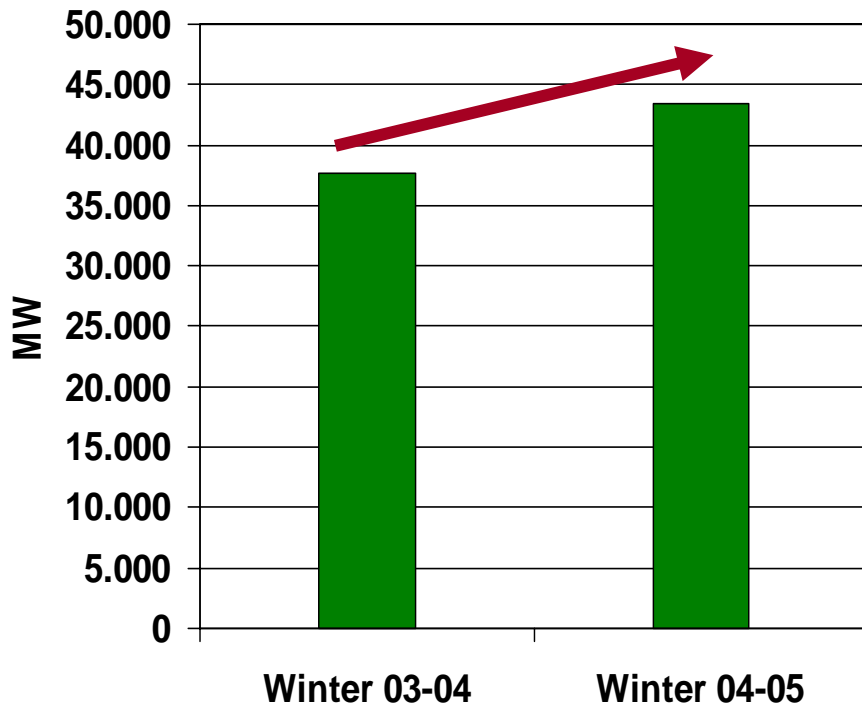
■ Industrial - Houshold ■ CCGT's ■ Satellite plants ■ Conventional power plants

Source: Enagas

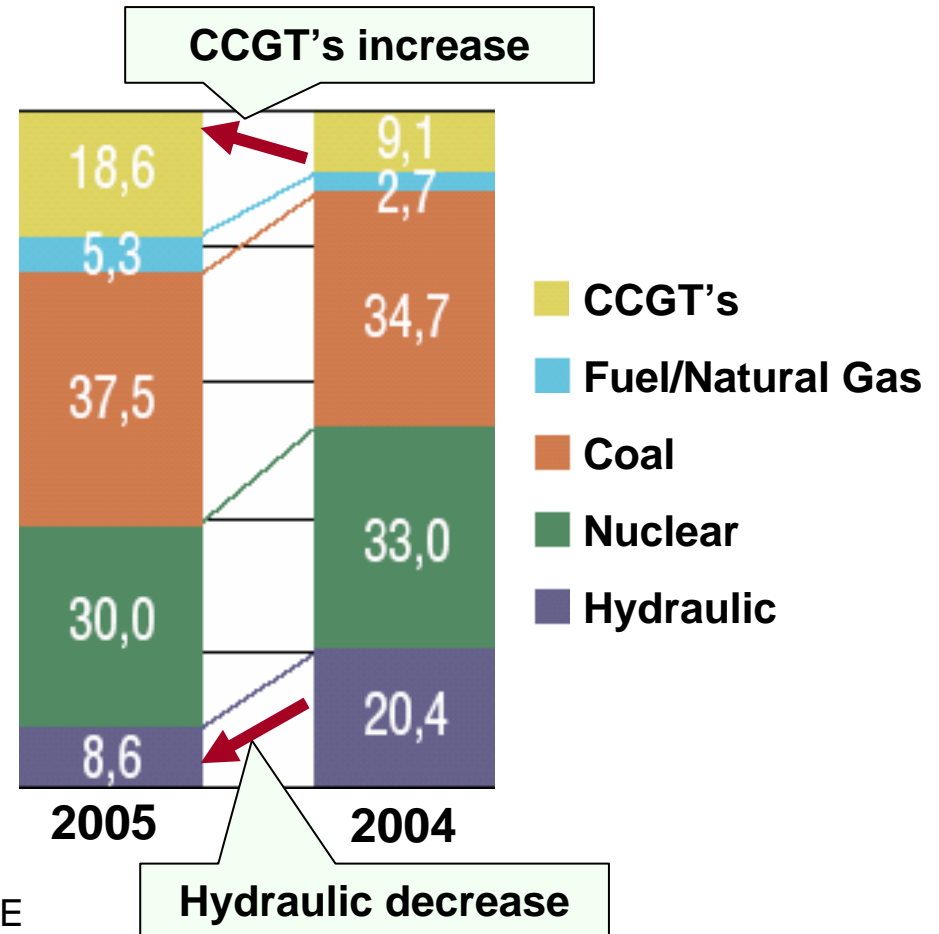
Winter 04-05 facts. SOS concerns arisen

Increase of electricity peak demand and gas power

% Increase of Electricity Peak Demand: 15,0 %



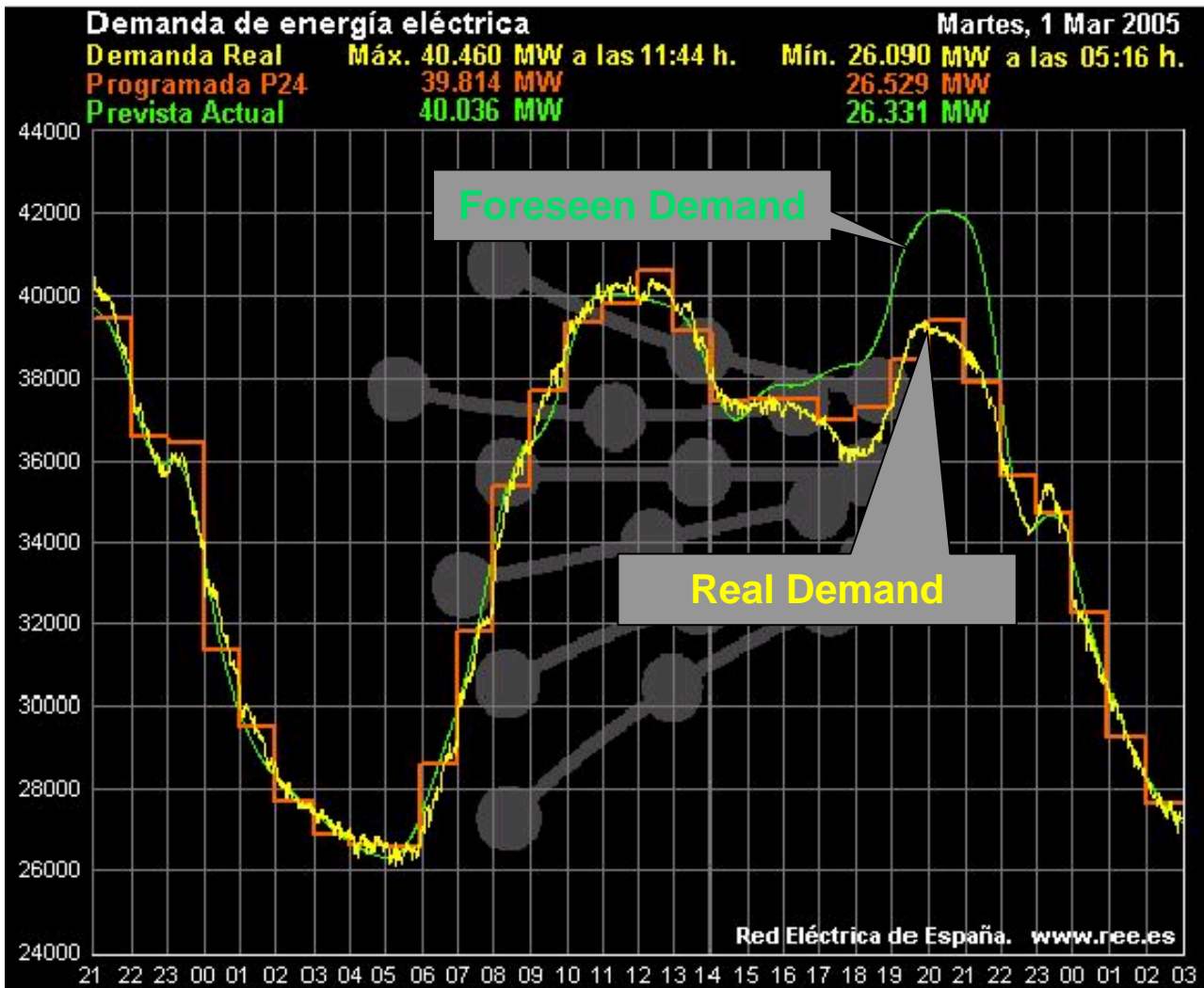
Electricity production structure. Evolution: January 2005 / January 2004



Source: REE

Winter 04-05 facts. SOS concerns arisen

Offer demand balance of electricity. Example



OFFER / DEMAND BALANCE ON 1ST MARCH 2005

Facts :

- High demand due to weather conditions
- Low offer available (fast decrease of wind generation. See next slide)
- Interruptibility of contracts applied during six hours

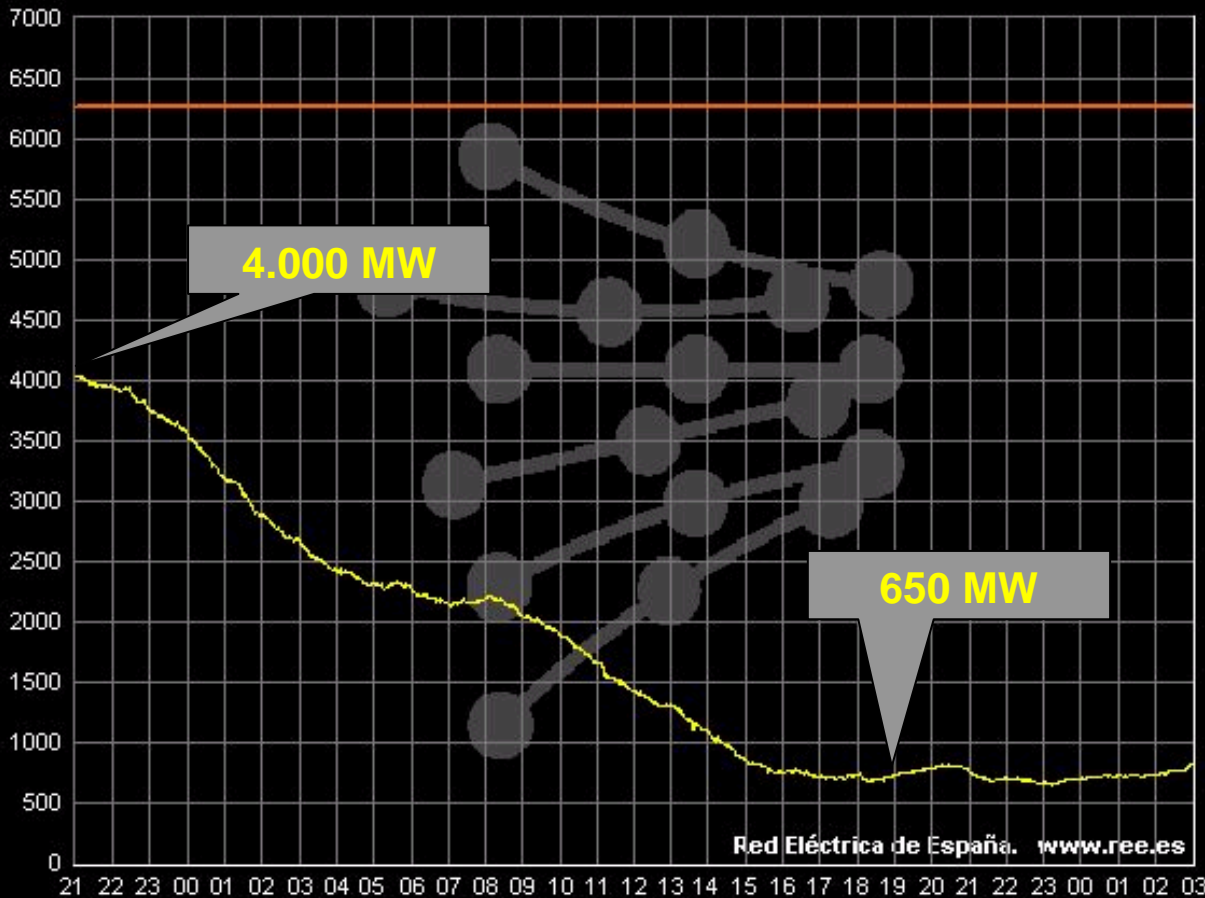
Source: REE

Winter 04-05 facts. SOS concerns arisen

Offer demand balance of electricity. Example

WIND GENERATION ON 1ST MARCH 2005

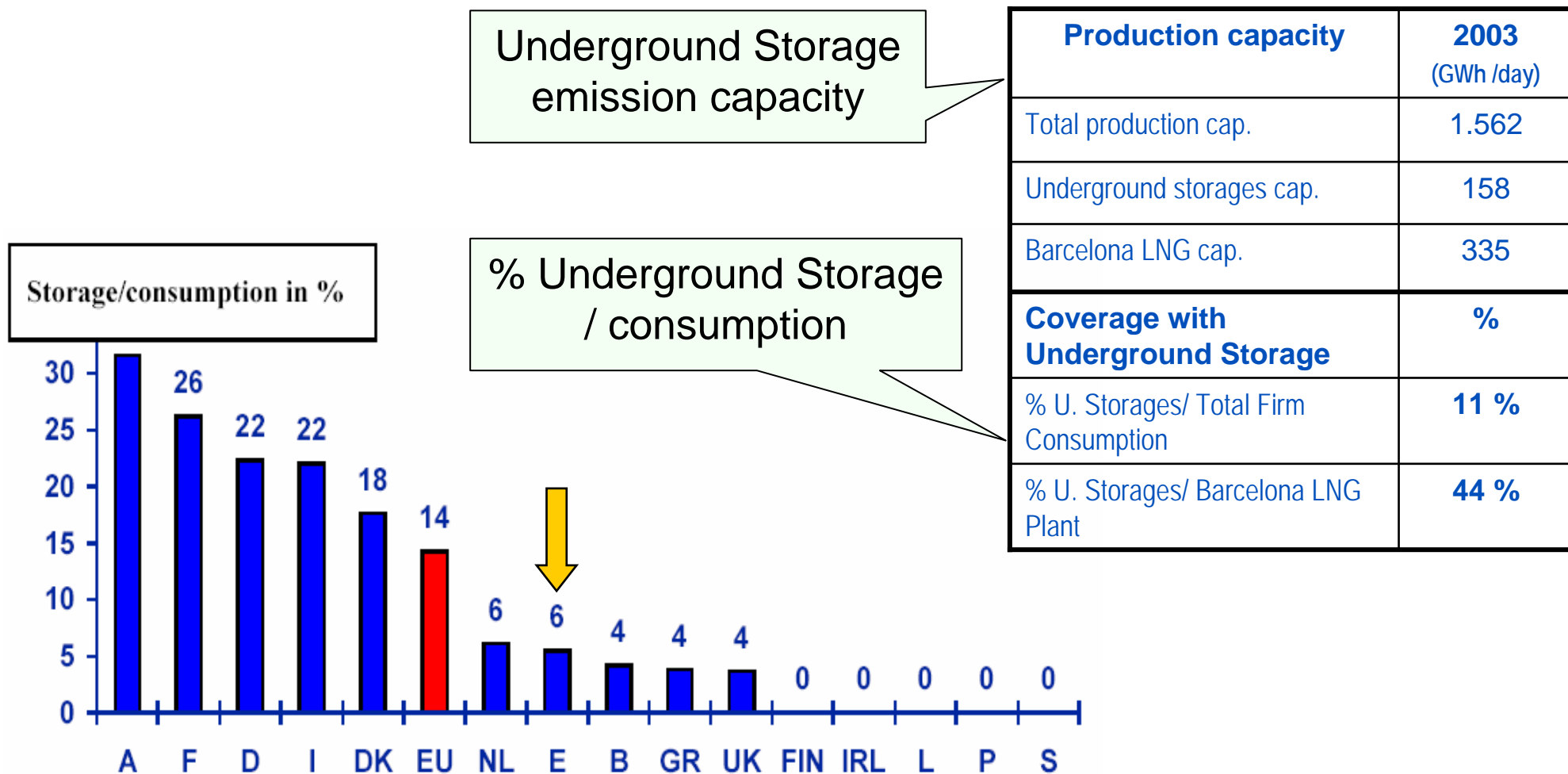
Generación de energía eólica
Martes, 1 Mar 2005
Generación real Máx. 3.517 MW a las 00:01 h. Mín. 651 MW a las 23:12 h.
Máxima teled medida 6.266 MW 6.266 MW



Facts :

- Fast decrease of wind generation in the peak hour (typically from 20-21 hours) from 4.000 MW in the previous day **to 650 MW.**

Winter 04-05 facts. SOS concerns arisen Limited Underground Storage Capacity.



Source: European Commission

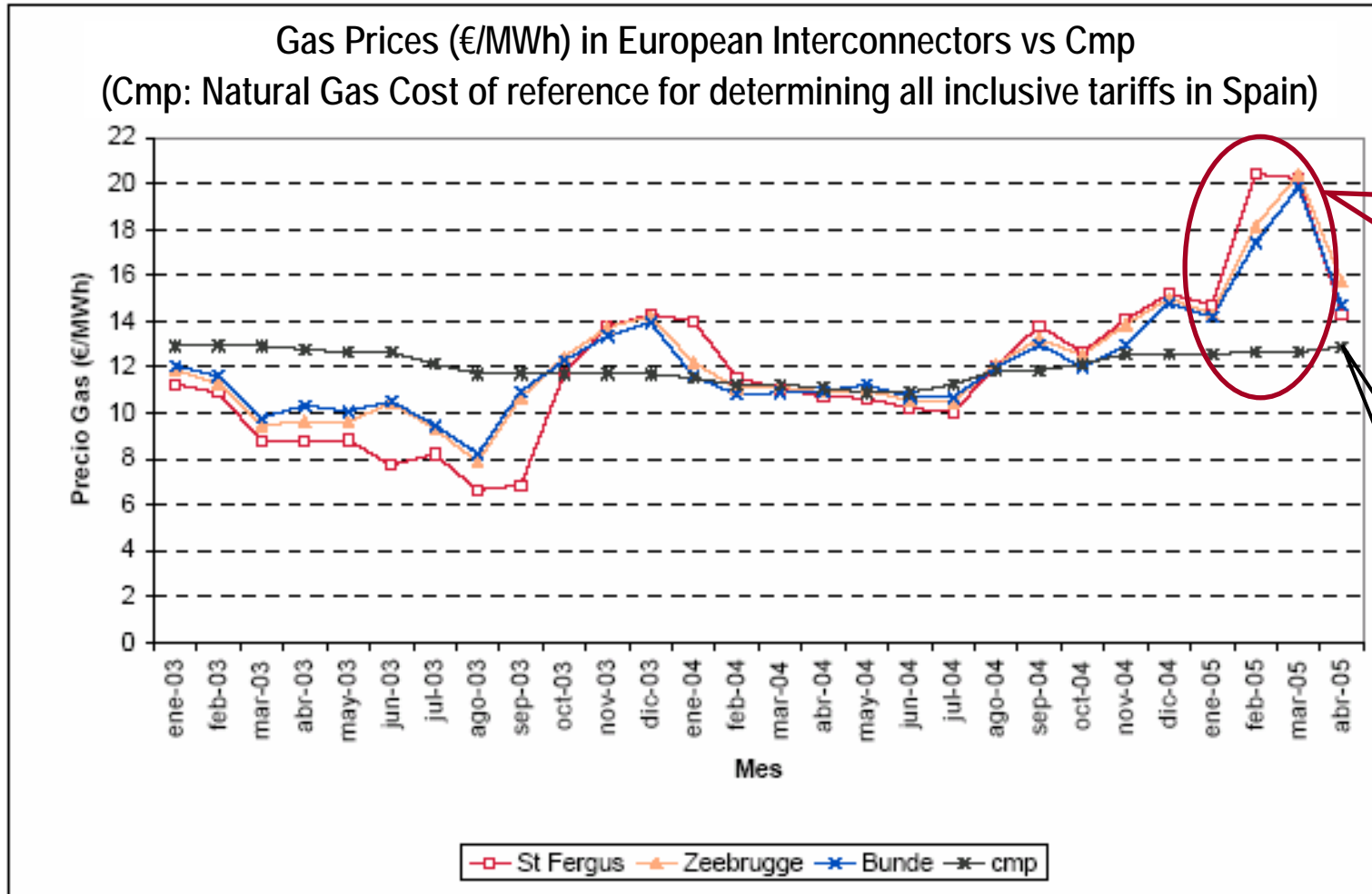
Winter 04-05 facts. SOS concerns arisen Limited LNG Storage Capacity.

Storage Facility	Capacity (GWh)	% / Total
LNG TANKS	6.029	19,3 %
Barcelona LNG Plant	1.507	
Cartagena LNG Plant	1.005	
Huelva LNG Plant	1.633	
Bilbao LNG Plant	1.884	
UNDERGROUND STORAGES	24.671	78,8 %
LINEPACK (In 2003)	605	1,9 %
TOTAL	31.305	100%

LNG Storage capacity represent around 4 days of the system peak day demand

Winter 04-05 facts. SOS concerns arisen

Gas prices comparison



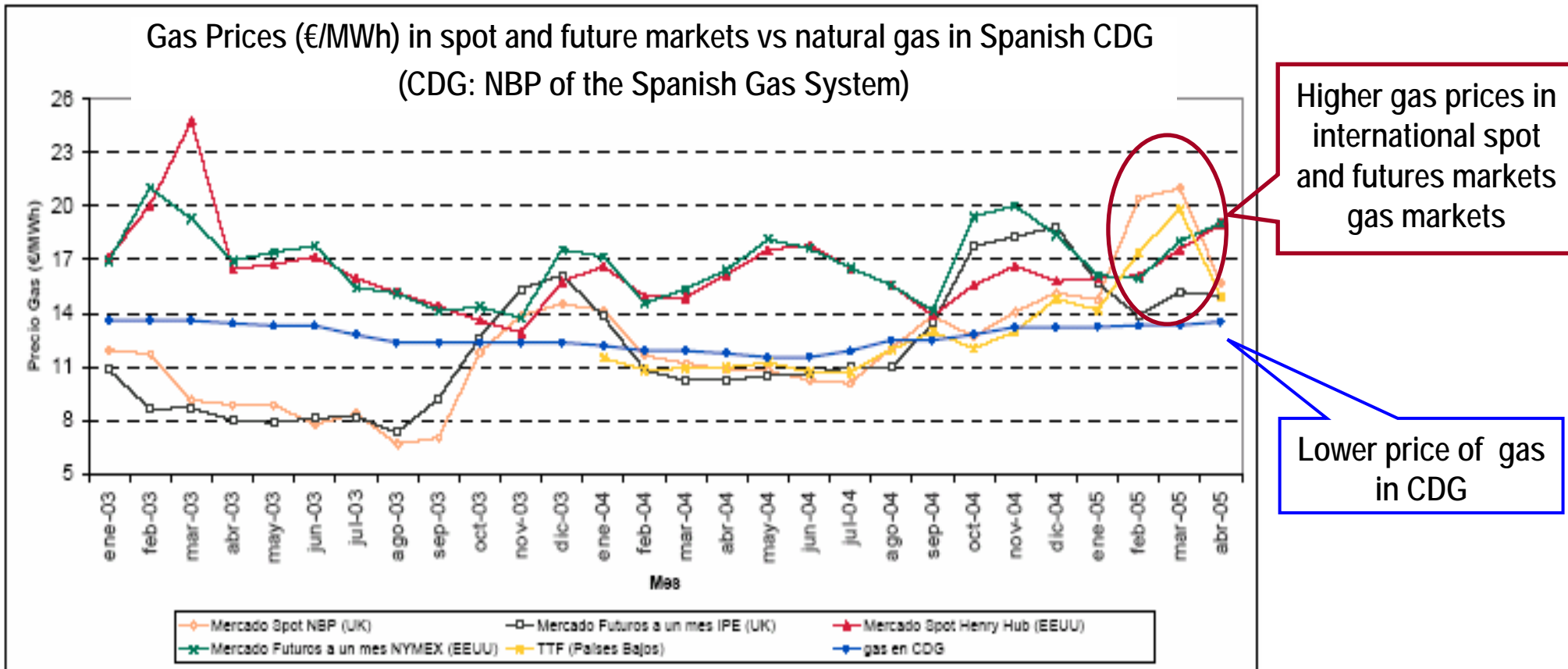
Higher gas prices in European interconnectors during the winter

Stability of Cmp, reference for domestic full tariffs. It doesn't reflect oil prices in international markets.

Source: Platts, CNE.

Winter 04-05 facts. SOS concerns arisen

Gas prices comparison



Source: Platts, World Gas Intelligence, CNE

Winter 04-05 facts. SOS concerns arisen

Circumstances and consequences

FACTS to consider in the context of great gas peak demand increase:

- a) Higher dependence on LNG: 64% of the total supplies in 2004.
- b) Weather conditions can make difficult the normal operation of LNG plants: temporary close of ports during the same days of peak demand
- c) High volatility of Natural Gas prices
- d) Increase of Natural Gas spot prices in the international context, specially during the winter season.
- e) Natural Gas Cost reference in Spain (*Cmp*, that is used for determining the all inclusive tariffs) is indexed to some variables, that reduce the impact of the volatility of the prices in the international market. Moreover, it is revised every 3 months. There isn't a liquid secondary market that provides price references.
- f) Limited storage capacity.



CONCLUSION: incentive for shippers to divert LNG cargoes to markets with higher returns, and the consequent default of gas to supply the Spanish market.

Mitigating Spain's peak demand problem

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6. **Consequences and priorities for the future**

Consequences and priorities for the future

LNG international spot prices are higher than Cmp (reference for regulated prices) in situations of high demand:

- Traders are starting to make **offers above the gas tariffs**. In consequence, some agents have applied to return to the regulated regime. Risk of giving a backward step in the liberalization process.
- There is an incentive for traders to speculate with LNG cargoes in other markets. This can lead to **scarcity of natural gas** in some periods (sensitive periods, as winters). Risk of security of supply.



Need for:

Implementing a cost reflective tariff system.

Removing gas tariffs for large customers (industrial, CCGT's...)

Consequences and priorities for the future

Limited storage capacity

- At present, the Underground storages emission capacity represent the 11% of the Spanish firm demand.



Need for:

Developing **the underground storage capacity** (both volume and emission capacities).

More **LNG storage capacity** (up to 10 days of firm consumption at least).