

Study on Underground Gas Storage in Europe and Central Asia

Chapter 2 **Current UGS Status in Europe and Central Asia**

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United Nations Economic Commission for Europe
Committee on Sustainable Energy



Chapter 2

Current UGS Status Europe / Central Asia

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Objectives

- **Summary of UGS status by location / country**
- **Compilation and technical analysis of UGS data**
- **Summary / analysis of ownership structure**
- **Survey of applied standards**
- **Comparison with previous study**
 - **previously installed UGS capacities**
- **Basis for analysis of trends and outlook**



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Exemplified content of UGS Database

- **Working Gas Volume (WGV)**
- **Cushion Gas Volume (CGV)**
- **Withdrawal / injection rates**
- **Performance losses**

- **UGS location**

- **Use of UGS capacities**
- **Annual cycling capability**
- **Ownership / SSO structure**
- **QHSE standards**

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Data sources

- Use of existing data base
- World UGS Data Bank of International Gas Union (IGU)
use existing extensive data base agreed
- GSE data
- Data questionnaire to be send to nations/companies

Active support from nations/companies crucial !!!



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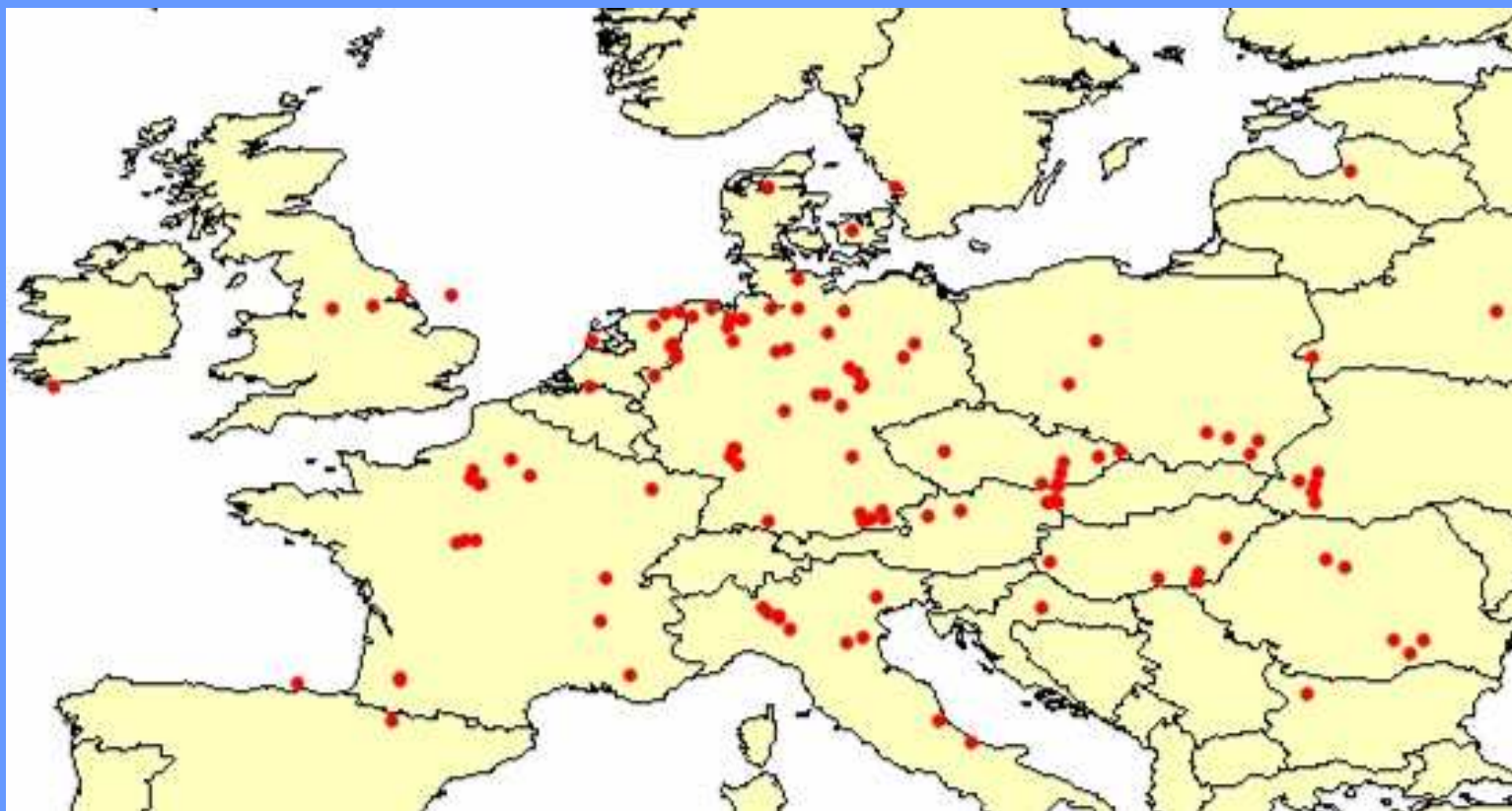
Wal		essential data	optional data
Underground Gas Storage (UGS) in operation			
General Storage Data	Name of UGS facility		
	Nation		
	Company for Contact/ Operator		
	Actuality of data (year) / Reference year		
	UGS in operation (X)		
	Year when storage facility was commissioned		
	Storage type (tick X):		
	gas field		
	oil field		
	aquifer		
	salt cavern		
	rock cavern		
	mine/cavern		
	abandoned mine		
	Location/distance (km) of next biggest town relative to storage facility		
	Ownership		
	Technical Operator		
	Name 1. Owner /Share (%)		
	Name 2. Owner /Share (%)		
	Storage System Operator (SSO)		
Storage Capacity Data	Installed max. working gas volume of UGS facility	[10 ⁶ m ³]	
	Total cushion gas volume / base gas (incl. indigenous gas)	[10 ⁶ m ³]	
	Nominal withdrawal rate (plateau capacity) of surface facilities	[10 ³ m ³ /h]	
	Injection rate of surface facilities	[10 ³ m ³ /h]	
	Performance loss (WGV reduction,...)	[10 ⁶ m ³ /a]	
	Annual cycling capability	[n/a]	
Technical storage data	Name of storage formation horizon		
	Min. depth (below surface) to the top of the structure / cavern roof	[m]	
	Initial reservoir pressure at datum level (in pore storage)	[bar]	
	Pressure datum level below surface	[m]	
	Min. storage pressure at datum level	[bar]	
	Max. allowable storage pressure at datum level	[bar]	
	No. of storage wells/caverns		
	No. of observation wells		
	No. of disposal wells		



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Example Storage Locations in IGU Data Base



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UGS Status – by Study/Non-Study Region

	World	Non - UN ECE UGS study Nations	UN ECE UGS Study Nations*
No. of UGS	620	450	170
UGS Nations	34	6	28
Working Gas Volume (Gm³)	346	127	219

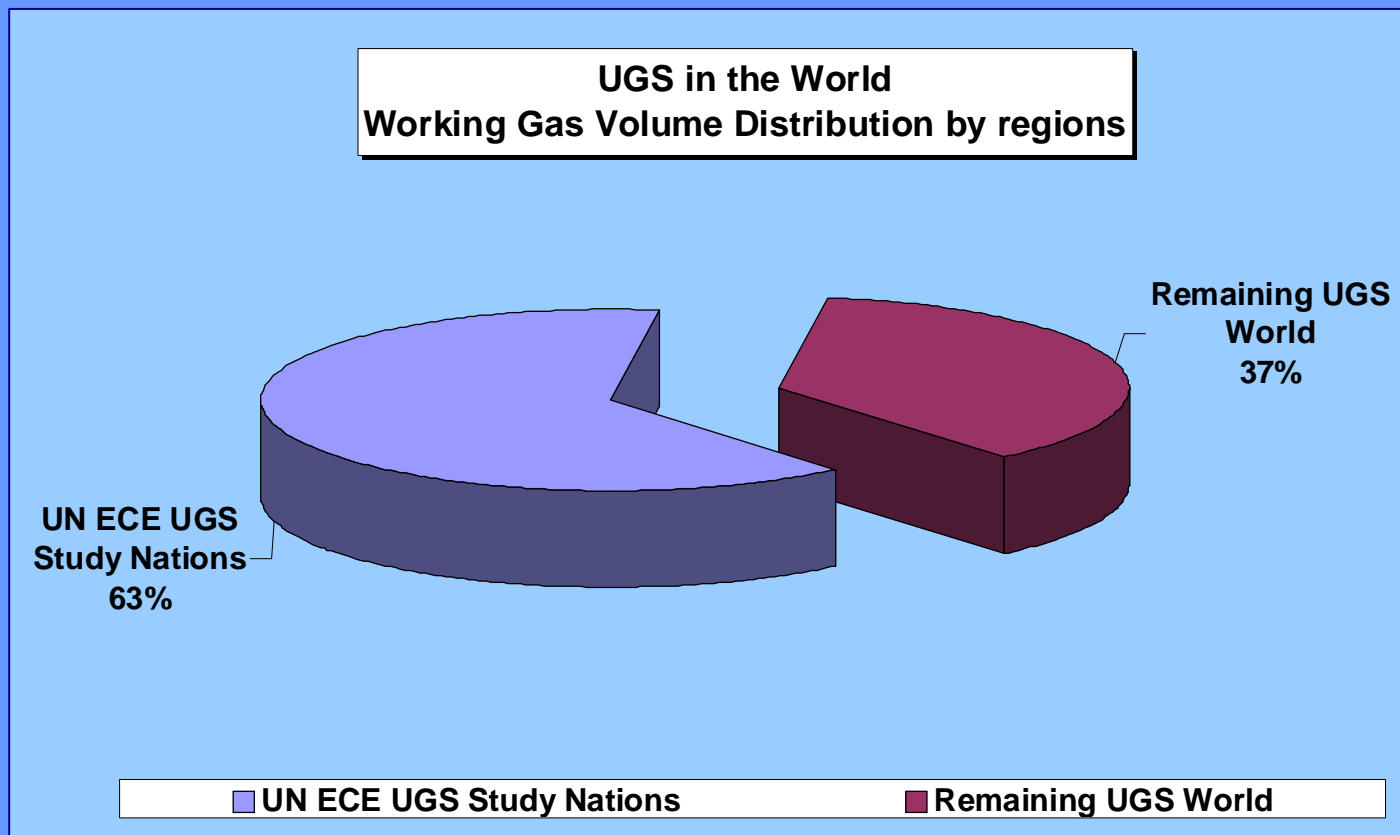
*incl. 30 Gm³ strategic reserves



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UGS Status – WGV by Study/Non-Study Region



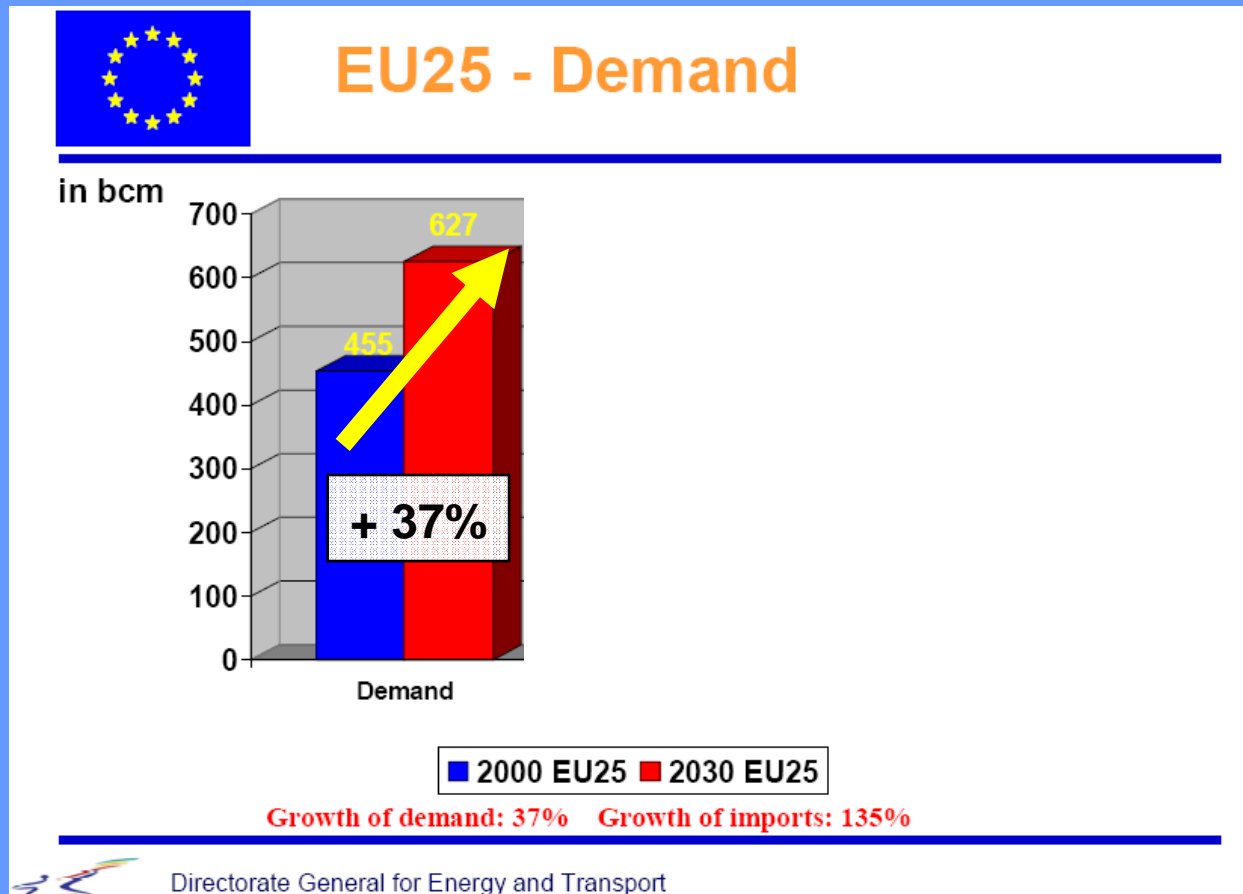
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Gas Supply Trends - Europe



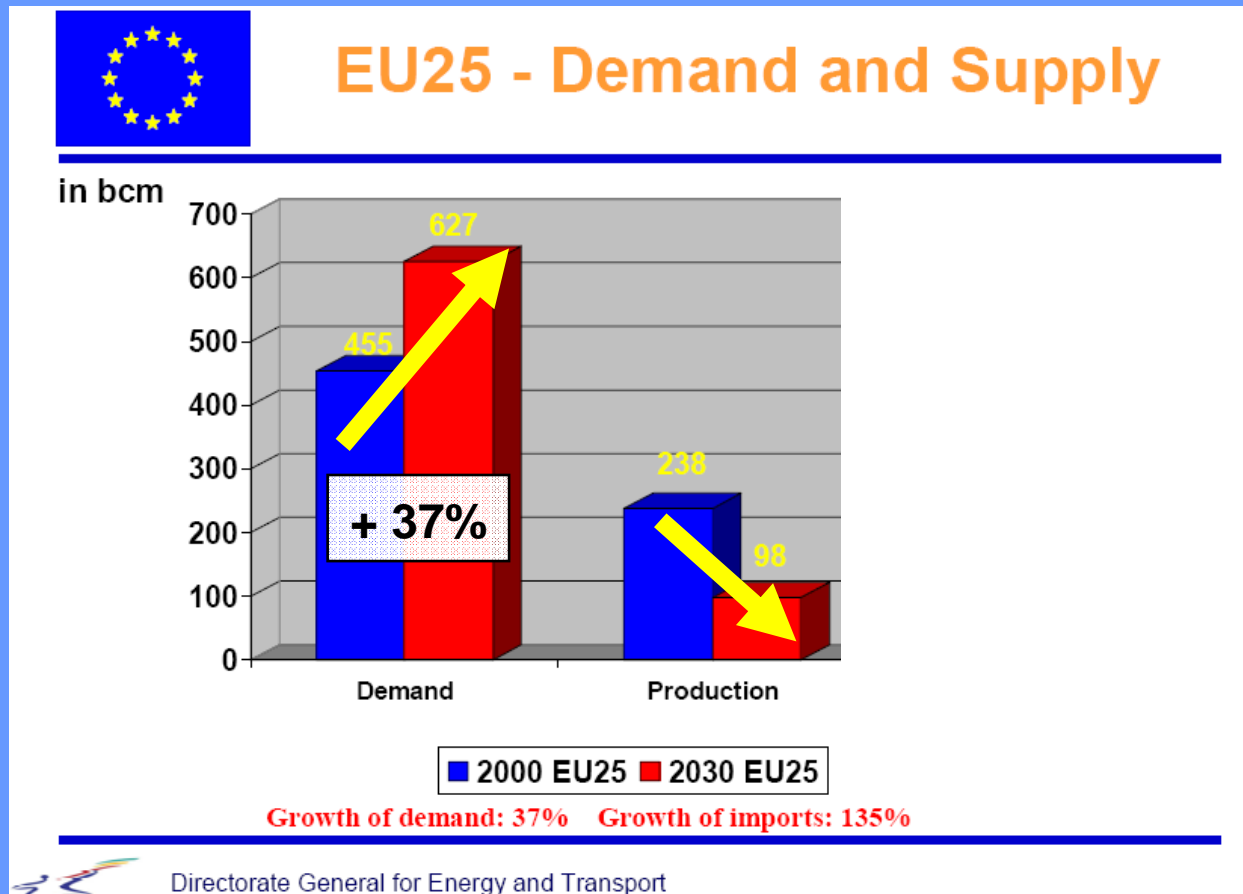
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Gas Supply Trends - Europe



Directorate General for Energy and Transport

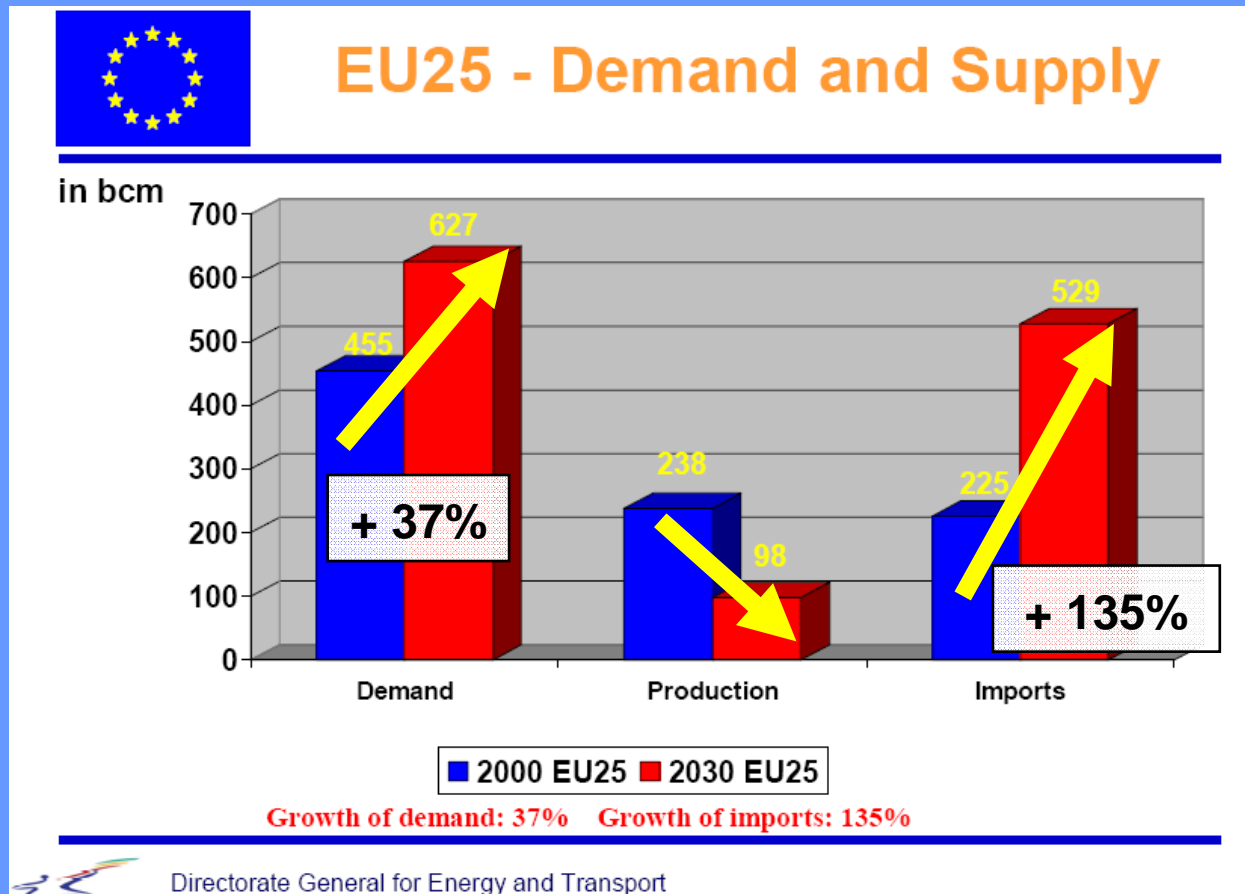
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Gas Supply Trends - Europe



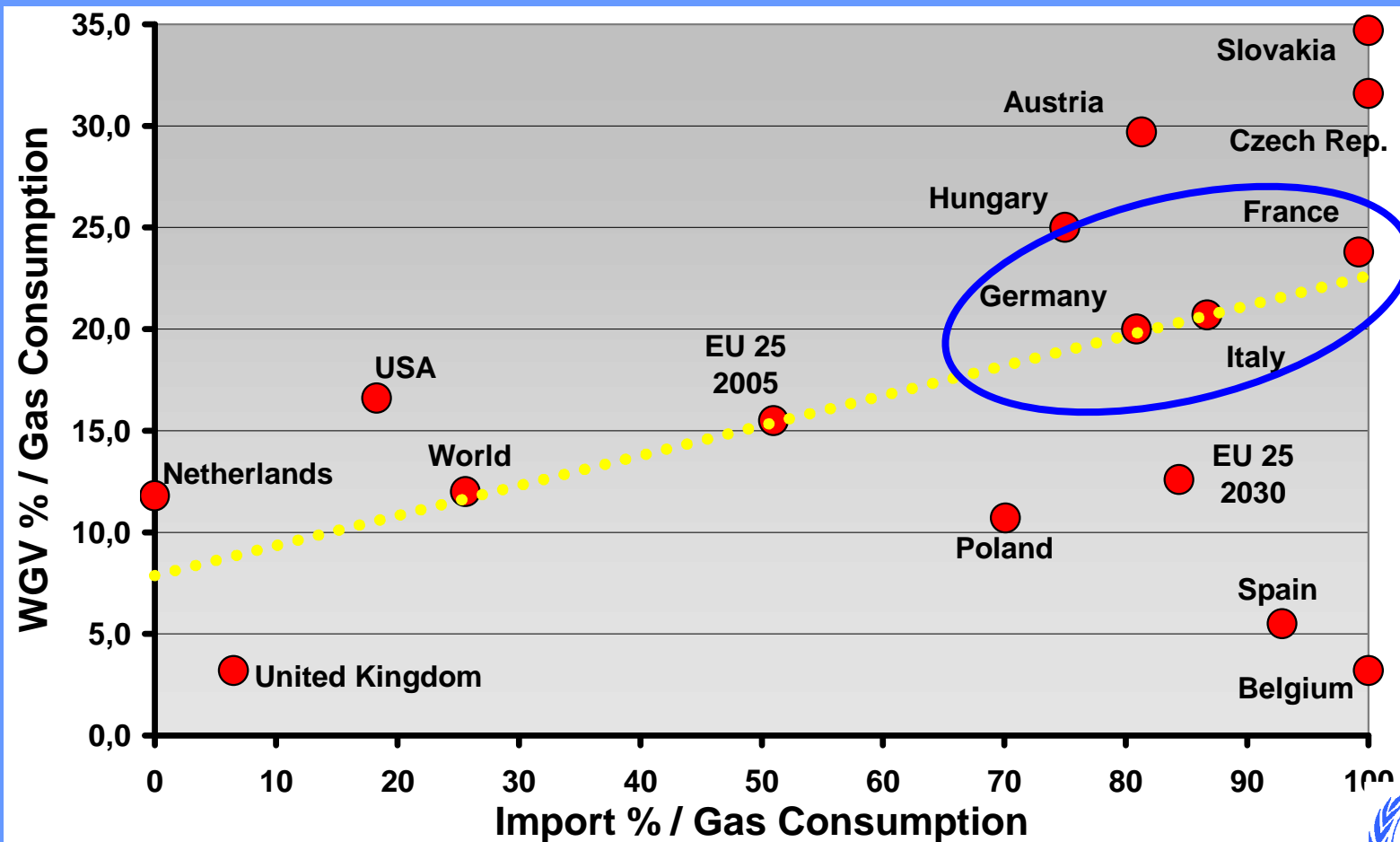
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Storage- / Import-Dependencies



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