



Ukraine's continuing critical role in European Energy Supply

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Introducing Mott MacDonald

- **The Mott MacDonald Group is a management, engineering and development consultancy**
- Over 14,500 staff world-wide across 140 countries
- 2011 revenues exceeding US\$2 billion
- 9th largest employee owned firm in Europe
- Voted Public Private Finance Award's **“Best Technical Advisor”** - *fifth time in six years*
- The Sunday Times **“Best Big Companies to Work”** – *4th consecutive year in Top 10*
- Ranked 43rd in The Sunday Times Fast Track 100 league table
- **Completely independent and impartial – no external shareholder and industry interests**



Mott MacDonald have had presence in Ukraine since 2006

- **United Kingdom** Croydon
(30 UK offices)
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- **Czech Republic** Prague
- **France** Paris
- **Hungary** Budapest
- **Ireland** Dublin,
Cork
- **Netherlands** Utrecht
- **Norway** Stavanger
- **Poland** Warsaw
- **Romania** Bucharest,
Buzau
- **Russia** Moscow,
St. Petersburg
- **Spain** Barcelona
- **Turkey** Istanbul,
Ankara
- **Ukraine** Kiev



Our Oil, Gas & Petrochemicals unit is one of the largest of any firm

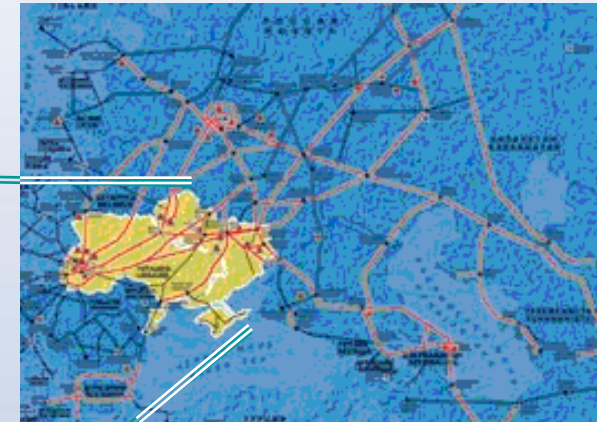
- 40 years' experience in Oil & Gas projects, with our heritage dating back to offshore operations in the North Sea
- Over 1,300 dedicated Oil & Gas staff, making us one of the largest Oil & Gas units of any firm
- Headquartered in UK with technical offices in Abu Dhabi, Dubai, Malaysia, Mumbai, Nigeria, Oman and Qatar
- Supporting other divisions Power, Maritime, Environment, Water, Telecommunications, Tunnels and Buildings.
- Cover all major disciplines in Oil & Gas, including refining, pipelines, production, gas gathering, gas storage, LNG, fuel and crude storage and carbon



Ukraine's Gas Transit System (GTS) is the largest in the world

- 37,000 km high-pressure pipelines
- 72 compressor stations
- 32+ bcm of underground gas storage facilities
- Entry Design Capacity c. 290 bcm per annum
- Exit Design Capacity c. 170 bcm per annum
- Flow to Europe(2011) c. 120 bcm per annum

Ukraine has two key gas transit corridors – “Western” and “South”



“Western Transit Corridor”

- Soyuz
- Urengoy–Pomary–Uzhgorod (UPU)
- Progres

“South Transit Corridor”

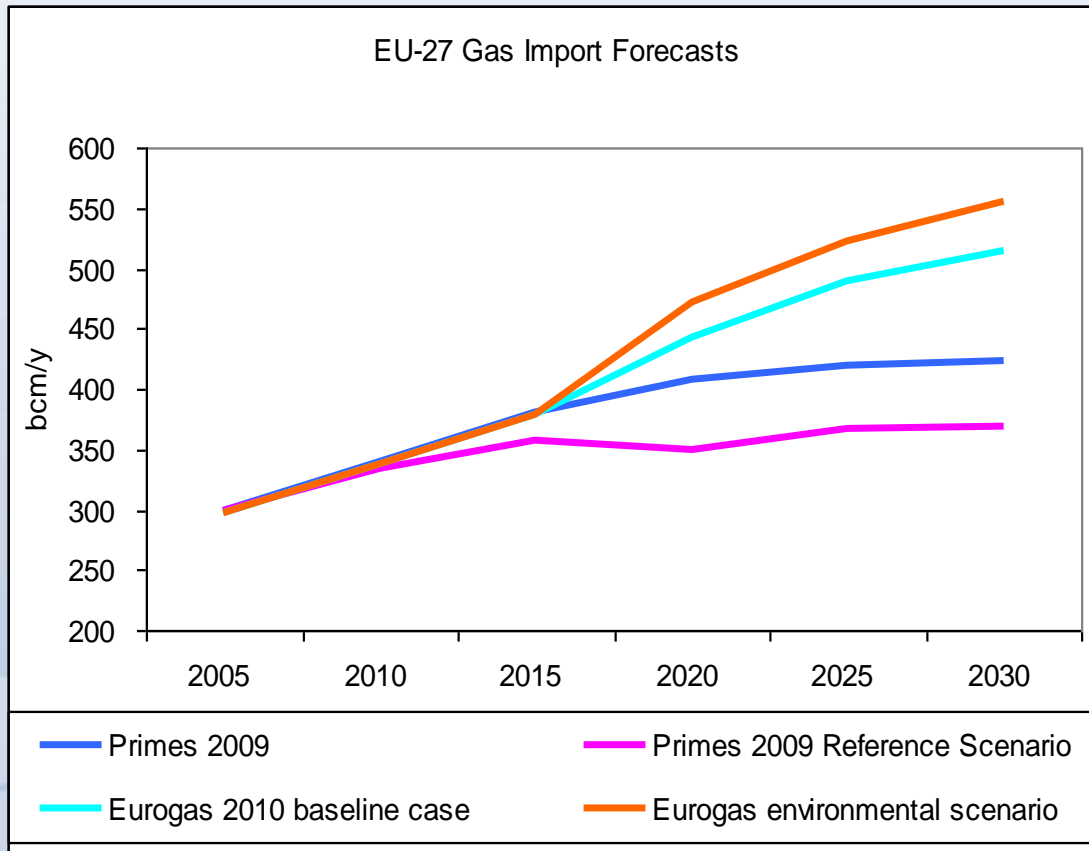
- Elets-Kremenchuk
- Kremenchuk-Ananyiv
- Ananyiv -Tyraspil-Ismail

Ukraine's domestic gas consumption has dropped markedly in last five years



- Domestic consumption of natural gas has declined from 70 bcm in 2006 to an estimated 57 bcm in 2010
- 36 bcm imported from Russia, Kazakhstan, Uzbekistan and Turkmenistan
- 21 bcm produced domestically and will increase significantly

EU demand for natural gas is expected to rise by up to 63% by 2030

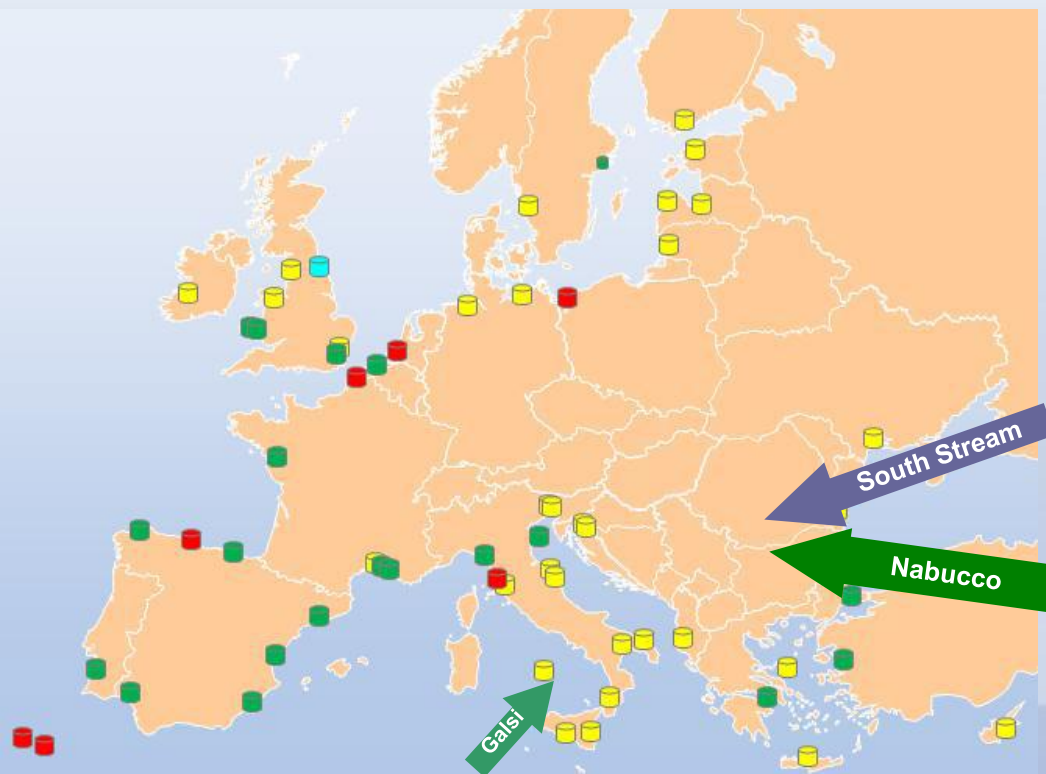


- EU gas demand forecasts for 2030 vary between 370 and 556bcm per year, from c.340 bcm in 2010
- 22% of current European gas consumption supplied by Russia
- 70% of Russian gas exports to Europe transit Ukraine

Source: DG Ener and MM Report on "Supplying the EU Gas Markets"

Thus, Ukraine's strategic importance in supplying Europe is assured long into the future

Collectively, new pipelines and LNG projects could meet 30% of Europe's total gas demand



New Pipelines	Est. Capacity	Expected First Gas
Nabucco	31 bcm/a	2014
South Stream	63 bcm/a	2015
Galsi	8 bcm/a	2014
Total	102 bcm/a	

LNG	No.	Est. Total Capacity
Existing Terminals	20	205 bcm/a
Terminals in Construction	6	50 bcm/a
Terminals under study	32	n/a

Uncertainties here can help Ukraine

(Source: Mott MacDonald, GLE MAP)

Ukraine will be competing, of course, with several alternative gas supply routes

Route	Name	Capacity (bcm/year)	Start date
Russia-Germany	Nord Stream	55	2011/12
Russia-Bulgaria	South Stream	63	2015
Norway-Sweden/Denmark	Skanded	9	2012/13
Algeria-Italy	Galsi	8	2014
Caspian-Turkey-EU	Nabucco	31	2014
Turkey-Greece-Italy	ITGI	11	2015
Greece-Italy	TAP	10-20	2013
Georgia-Bulgaria/Ukraine	White Stream	16-32	2016

The IFIs are committed to supporting Ukraine's GTS modernisation

“EBRD is committed to assisting Ukraine with the modernisation of the country's gas transit system under the terms of a March 2009 Memorandum of Understanding (MoU) signed by the European Union, the European Investment Bank, the World Bank, the EBRD and Ukraine. Among the requirements of the MoU is reform of the gas markets and the comprehensive restructuring of NAK NaftoGaz,”

André Küüsvek, EBRD Director for Ukraine , 2012

Our project assessed the feasibility of modernising Ukraine's gas system

- **Feasibility Study For Modernisation Of Ukraine's Gas Transit Corridors And Underground Gas Storage Facilities**
- Task I: Strategic Study of Ukrainian Role as Gas Transit Country
- Task II: Feasibility Study for Western and Southern Transit Corridor Modernization
- Task III: Feasibility Study for Modernization and Rehabilitation of Underground Gas Storage Facilities
- *Project being undertaken by Mott MacDonald, VnpiTransGas and Deloitte*



Shale gas development

- Ukraine has the third highest reserves of shale gas among European countries
- Ukraine awarded first shale gas contract to Royal Dutch Shell (September 2011)
- Royal Dutch Shell and Chevron Corporation were approved for the development of shale natural gas for Yuzivska and Oleska fields in Ukraine (May 2012)
- Eni signed a Share Purchase Agreement with Ukrainian state-owned National Joint Stock Company Nak Nadra Ukrayny and Cadogan Petroleum Plc to acquire a 50,01% interest and operatorship of the Ukrainian company LLC WESTGASINVEST(June 2012)

Offshore development

- Ukraine has selected a consortium led by ExxonMobil and Royal Dutch Shell to develop its Skifska gas and oil field in the Black Sea (August 2012)
- Skifska gas field is estimated to hold reserves of 200 to 250 bcm of gas and is expected to produce 5 bcm a year.

LNG development

- Feasibility Study for LNG Terminal has been completed by Natural Fenosa Engineering (Socoin) (March 2012)
- Planned Capacity of Terminal 10 Bcm
- The project is approved by the government, passed through all the necessary stages, and now there is a process of structuring a consortium of investors
- Construction stage to start on November 15,2012
- Cost of the plant construction is EUR 846 million, at the same time, total amount of necessary funds will be EUR 969 million (with taking into consideration construction of gas pipelines for connection to the GTS)

Future additional gas supplies



Summary

- Ukraine is, and will remain, a major gas supply route for Europe
- The GTS requires modernisation and improvement to remain competitive with alternative supply sources
- Not all the proposed alternative projects will materialise
- Supply of gas from Middle East potentially at risk due to Geopolitical situation
- The investment community is committed to supporting GTS rehabilitation and modernisation
- Domestic production will provide a significant additional volumes of gas

Thank You



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