Dr Andreas Goldthau

Visiting Scholar, Geopolitics of Energy Project, Harvard Belfer Center

Marie Curie Senior Fellow, European Commission

Prospects of shale gas in Eastern Europe. Evidence from recent field research

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Europe – a new frontier in shale gas?

Source: International Energy Agency

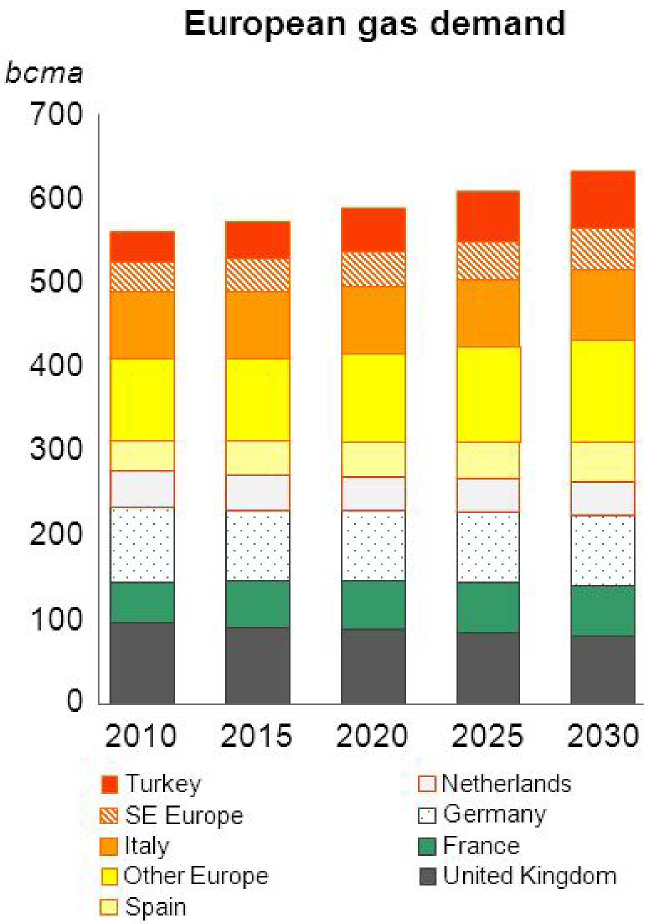
How much is there?

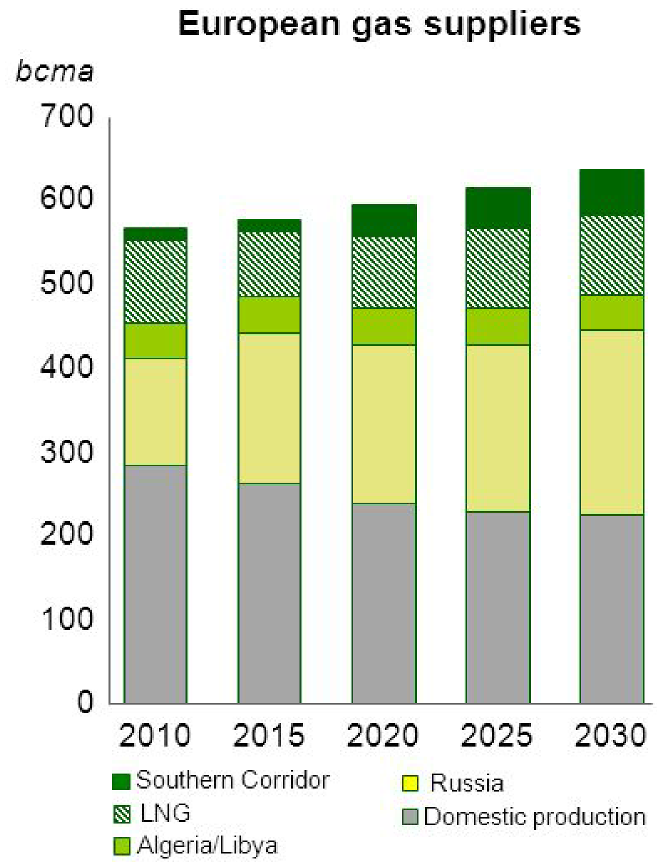
Trl cf

Region totals and selected countries[1]	2011 natural gas production[2]	January 1, 2013 estimated proved natural gas reserves[3]	2013 EIA/ARI unproved wet shale gas technically recoverable resources (TRR)	2012 USGS conventional unproved wet natural gas TRR, including reserve growth[4]	Total technically recoverable wet natural gas resources
Europe	**10**	**145**	**470**	**184**	**799**
Bulgaria	0	0	17		
Denmark	0	2	32		
France	0	0	137		
Germany	0	4	17		
Netherlands	3	43	26		
Norway	4	73	0		
Poland	0	3	148		
Romania	0	4	51		
Spain	0	0	8		
Sweden	-	-	10		
United Kingdom	2	9	26		
Former Soviet Union	**30**	**2,178**	**415**	**2,145**	**4,738**
North America	**32**	**403**	**1,685**	**2,223**	**4,312**

Source: EIA 2013

What difference could shale gas make in Europe?





Sources: CERA, BP

What difference could shale gas make in Europe?

Russian import shares, select CEE countries, 2012

Gas	Market size (bcm)	Net imports from RF (bcm)	RF imports as % of consumption
Lithuania	3.4	3.4	100%
Bulgaria	2.7	2.4	88%
Hungary	9.7	7.6	78.2%
Poland	16.6	9.7	58.6%
Romania	13.5	3.2	24.3%
Germany	75.2	27	37%

Sources: BP 2013, Eurogas

What difference could shale gas make in Europe?

Estimated Size of Shale Gas and Shale Oil Resources in CEE

Continent	Region	Basin	Risked Gas In-Place (Tcf)	Technically Recoverable (Tcf)	Risked Oil In-Place (Billion bbl)	Technically Recoverable (Billion bbl)
Eastern Europe	Poland	Baltic Basin/Warsaw Trough	532	105	25	1.2
		Lublin	46	9	0	0.0
		Podlasie	54	10	12	0.6
		Fore Sudetic	107	21	0	0.0
	Lithuania/Kaliningrad	Baltic Basin	24	2	29	1.4
	Russia	West Siberian Central	1,196	144	965	57.9
		West Siberian North	725	141	278	16.7
	Ukraine	Carpathian Foreland Basin	362	72	0	0.0
		Dniepr-Donets	312	76	23	1.1
	Ukraine/Romania	Moesian Platform	48	10	2	0.1
	Romania/Bulgaria		148	37	8	0.4

Source: EIA 2013

Can the U.S. success story be replicated in Europe?

Environment

- Environmental standards (no ‘Halliburton loophole’)
- Access to water and disposal of waste water
- Environmental movements

Regulation

- Ownership of subsoil resources (state not private)
- Land access/ drilling rights
- Population density
- Fiscal regimes for unconventional gas production

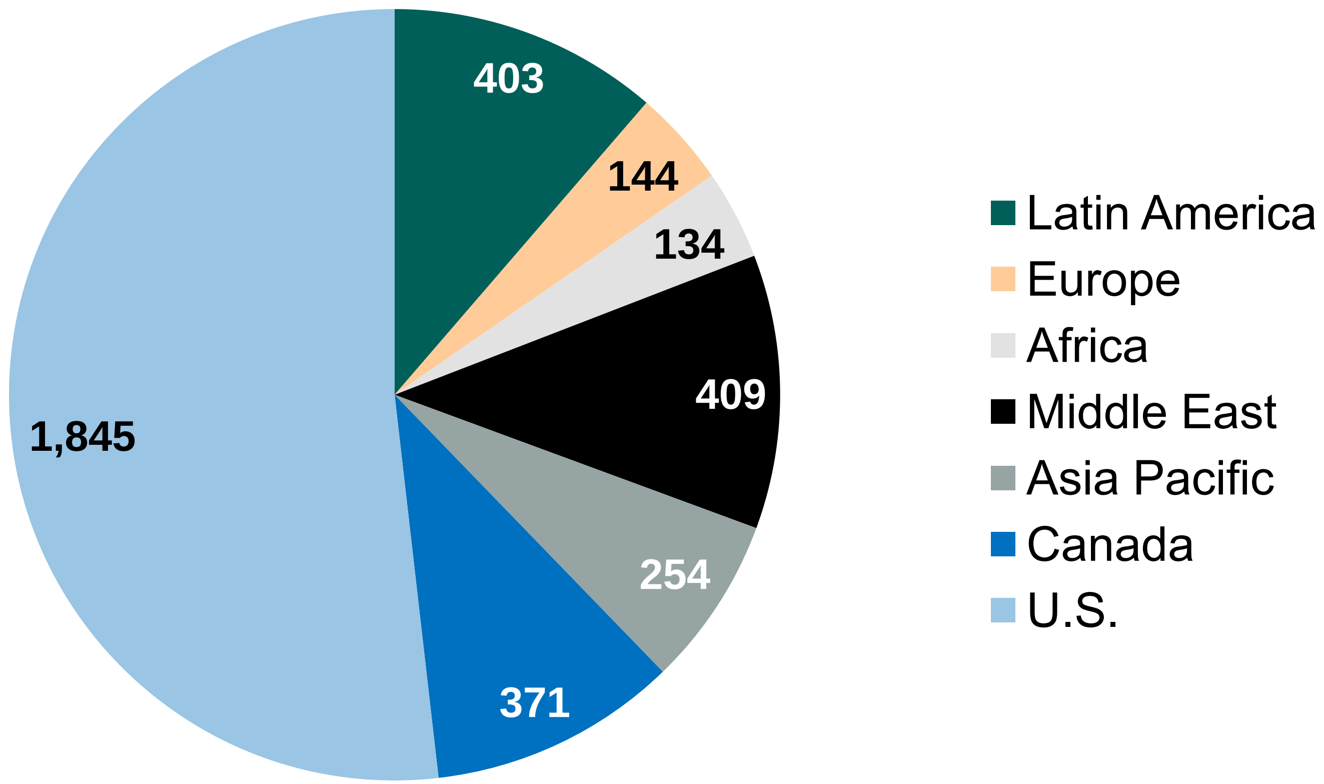
Economics

- Availability of (pipeline) infrastructure
- Depth of energy service sector
- High well costs: $8–$12 Mbtu (US: $3–$7/Mbtu)

No ‘copy – paste’ job

European rig counts are small by international comparison

Rig counts, oil and gas, Sept 2014



Source: Baker Hughes

Two CEE shale gas tales: Bulgaria vs. Poland and the social license to extract

- Common supranational regulatory environment (EU)
- Common regulatory past (communism)
- Common dependency on Russia
- History in extractive industry
- Similar exposure to Unconventional Gas Technical Engagement Program

Bulgaria's top-down process ignores incumbents and stakeholders

- Top-down and non-participatory approach, regulatory arbitrariness

"Shale gas got promoted out of nowhere by the former energy minister."

"I have never been asked to look into this matter or to participate in any way."

an Minister

"it is a political decision to proceed with it or not and so much a question of environmental policy or local concerns"

"We only got a letter from the ministry when Chevron was granted a permit for exploration that we need to assist the company first to move their heavy vehicles for the seismic studies and then to provide it with land for the drills."

Mayor of Toshevo municipality

Bulgaria fails to create appropriate institutional framework

- Silo type policy process
- Lack of information
- Distrust in process and actors

"Authorities do not show effective coordination because they resort mostly to control functions."

"It looked like the government had an agreement with Chevron without assessment of the risks and this made many reasonable people in Bulgaria angry."

ary
energy and

"We needed to get informed and we were studying Internet sources for a ***s Gasland. The*** ***orrying."***

anti-shale movement

"Ministers and their advisors do not communicate and do not take the advice from scientists, ***f [political]***

cademy of

"The government was surprised by the intensity [of protests] and [the protesters] ability to engage not only NGOs but also professional business circles.

Former ambassador of Bulgaria in Russia

Bulgaria fails to create pro-shale policy narrative

- Opens floor for environmental narrative against shale
- Opponents create issue linkage with aquifer
- Protests erupt across the country

"Foreign companies […] do not create jobs for the local population. […] Only guards, cleaning ladies and drivers, […] other jobs are for foreign experts."

Green MP

"Nobody is talking about the economic benefits which those people would have, like: working places, new infrastructure, direct financial revenues in the municipal budget from concession fees and from the profits"

Geology, Bulgarian Academy

"We don't have any gains"

Mayor of Toshevo municipality

May 2011: Chevron wins exploration permit.
Jan. 2012: Government withdraws permit. Shale gas banned

Poland’s comprehensive institutional framework facilitates buy-in of stakeholders

- Comprehensive process
- Information & scientific flanking
- Trust in process and actors
- Economic incentives

“We are in touch with companies [and] PGNiG. The main thing is to bring investors here and extract gas.”

Senior Officer, Department of Strategic Projects, Office of Minister of Treasury

“It is not the case that the government pushes us into this. There is a huge potential for innovation in this sector. It creates experts. […] We can benefit from foreign direct investment.”

“We believe the most important factor is provide the information to people so they … isions based on information … at least from two sources if

…nister of the Environment

“The investor has to provide an information chart to the local municipality and this authority is to issue an decision, but before they send the chart here. [We then encourage companies to] clarify the situation, so it encourages people to participate.”

Deputy Director, Regional Directorate for Environmental Protection

Poland's national shale gas discourse is about security and jobs jobs jobs

- Shale gas as national project
- Shale gas as opportunity

"A second Norway"

"Gas security is a fundamental prerequisite of sovereignty."

"It would be a good source of energy, it would support renewables, can be important drivers for the Polish economy, can produce cheaper gas for chemical industries."

"[s]hale gas is not a priority for our organization, we look at the whole energy mix.
…t absolutely negative
…s - with appropriate
… gas could be better than

…ntal NGO

"This is good for the country and makes us independent. Finally. And it is good for my business."

Local hotel owner, Lublin

Polish Parliament passes shale gas law on 11 June 2014

Lessons learned from CEE shale gas tale

- Stakeholder process matters
  - Poland: multilevel and multi-player
  - Bulgaria: top-down and single player
  - Institutional trust
  - Institutional adaptability
- Discourse matters
  - Environment/ security/ economy
  - Fit with existing national project discourse (yes/no)
- Social license to extract encompasses all policy levels

Take-aways for prospects of shale gas in CEE

- Geology aside….
- **Getting process right** for creating social license to extract matters as much as technology transfer/ import itself
- **Comprehensive shale gas policy regimes** imperative for facilitating adaptation of incumbent regulatory frameworks and inclusion of key stakeholders

  → Absent either of which, shale gas industry will fail

  → CEE shale gas industry will likely see **slow growth** only but comprehensive process is the only way forward

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