

German Approach To Shale Hydrocarbons Development ("Fracking")

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C H A N C E

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I. Economic perspective of fracking

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- High demand for gas in Germany
 - Used for heating, in the chemical industry, for power production etc.
 - Current share of gas in primary energy consumption: 20.5 % (2014)
 - Total consumption: 85 billion m³ (2014)
 - German import rate of gas: 90 % of Germany's demand (2014)
 - Russia (38 %)
 - Norway (22 %)
 - The Netherlands (26 %)
 - Other (4 %)
 - Domestic production (10 %)
- Germany is highly dependent on imports, while domestic production is in decline (from 11.9 to 9.8 billion m³ between 2011 and 2013)

I. Economic perspective of fracking

- “EU imported 53% of its energy at a cost of around EUR 400 billion, which makes it the largest energy importer in the world. Six Member States depend on a single external supplier for their entire gas imports and therefore remain too vulnerable to supply shocks (...). Wholesale gas prices are still more than twice as high as in the US.”

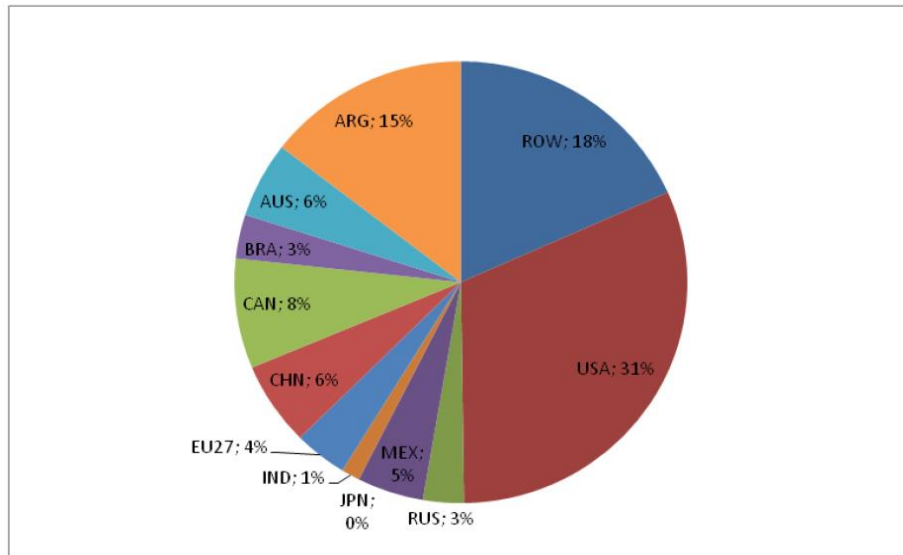
(Communication from the Commission: "A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy", COM/2015/080)

- 0.7 to 2.3 trillion m³ of shale gas technically exploitable in Germany
(Study by the Federal Agency for Geoscience, BGR, 2012)

→ Unconventional fracking may deliver additional gas supply from yet unexploited sources

→ Germany and the EU may gain higher independency from gas imports

I. Economic perspective of fracking



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In 2050 Europe will cover only 4 % of the predicted global shale gas production.

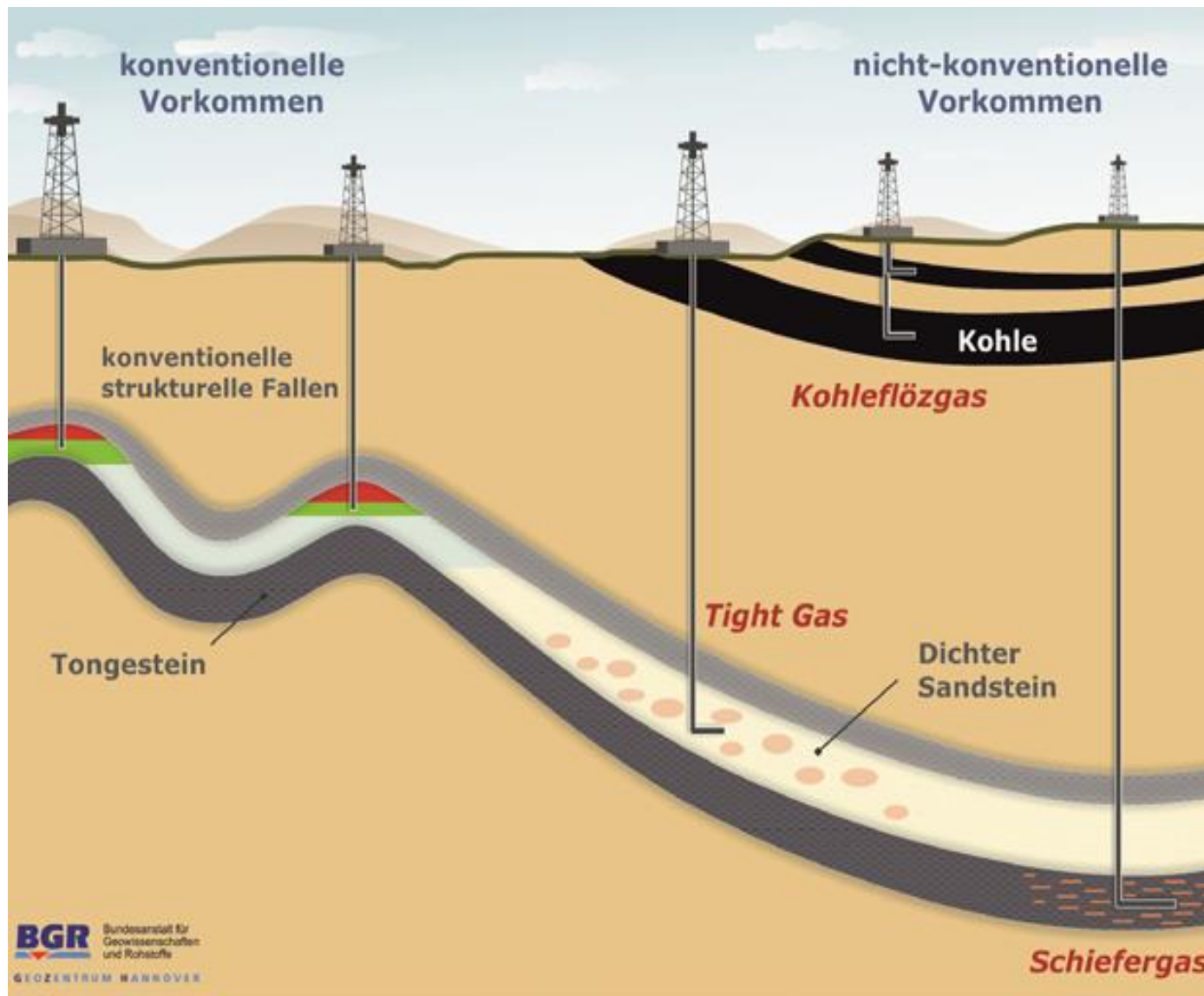
Reason: Focus is on renewable energies rather than on shale gas

Fracking is also exposed to economic shocks:

- Decrease of oil & gas prices
- Some U.S. fracking companies are already experiencing a crisis

II. Public and political discussion in Germany

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Conventional fracking

- Procedures applied to gritstone
- Significant experience: applied in Germany since the 1960s, mainly in Lower Saxony (96.7 % in 2013)

Unconventional fracking

- New procedures applied to shale and coal bed
- No significant practical experience in Germany

II. Public and political discussion in Germany



“Fracking in Germany is a synonym for something evil: destroyed environment, contaminated water, citizens in fear.”

“Fracking, das ist in Deutschland eine Art Synonym für das Böse: zerstörte Umwelt, verseuchtes Wasser, Bürger in Angst.“ („Ausgefrackt“, Süddeutsche Zeitung, 20.11.2014)



II. Public and political discussion in Germany

- **Possible environmental risks for water and health**
 - Contamination of aquifers during the drilling process
 - Use of chemical substances as frack fluids
 - Flow-back (pressing and disposal): millions-of-year-old water, potentially contaminated by heavy metals
 - "Fracking is and remains a risky technology. (...) As long as we cannot predict and control the main risks of this technology there should not be any fracking of shale and coal bed gas in Germany."
(Maria Krautzberger, President of the Umweltbundesamt, 30.07.2014)
- Claim to explore the risks and apply at least stricter rules on unconventional fracking
(Federal Environmental Agency – Umweltbundesamt- 2012 and 2014)

II. Public and political discussion on EU level

- “This hydraulic fracturing technique raises specific challenges, in particular for health and environment.”

(Recommendation of the Commission, 22 January 2014)

- Directive 2014/52/EU has introduced stricter rules on the environmental impact assessment for certain projects (EIA-Directive)

→ Economic potential of fracking recognised on the European level, but approached cautiously

III. Legal perspective

III. Legal Perspective

Suitable Areas and existing Mining Rights



- Orange: suitable areas
- Yellow: mining rights for prospecting unconventional hydrocarbon resources

(Source: BGR 2012)

III. Legal perspective – Status quo

- No prohibition of fracking according to current federal law:
 - Mining law
 - Permissions required to prospect for and to extract natural resources from the ground (par. 7 and 8 of the Federal Mining Act)
 - Differentiation between freely mineable ("bergfreie") and freehold ("grundeigene") resources; only freehold resources are owned by the property owner
 - Gas is a freely mineable resource and therefore **not** owned by the owner of the property!
 - Water law
 - Requires additional permission for drilling, fracking and pressing of the flow back (par. 8 ff. of the Federal Water Act and the particular Federal Water Act)
- Approval is a state rather than a federal matter
- “De facto moratorium”: in the recent years no permissions for fracking have been granted

III. Legal perspective – Coalition agreement

- Coalition agreement of 2013 between the CDU, CSU and SPD takes a clear stance:

Fracking

Nach den vorliegenden Untersuchungen zur Umweltrelevanz ist der Einsatz der Fracking-Technologie bei der unkonventionellen Erdgasgewinnung – insbesondere bei der Schiefergasförderung – eine Technologie mit erheblichem Risikopotential. Die Auswirkungen auf Mensch, Natur und Umwelt sind wissenschaftlich noch nicht hinreichend geklärt. Trinkwasser und Gesundheit haben für uns absoluten Vorrang.

- “Fracking is (...) a highly risky technology (...). Drinking water and health concerns have utmost priority.“

III. Legal perspective

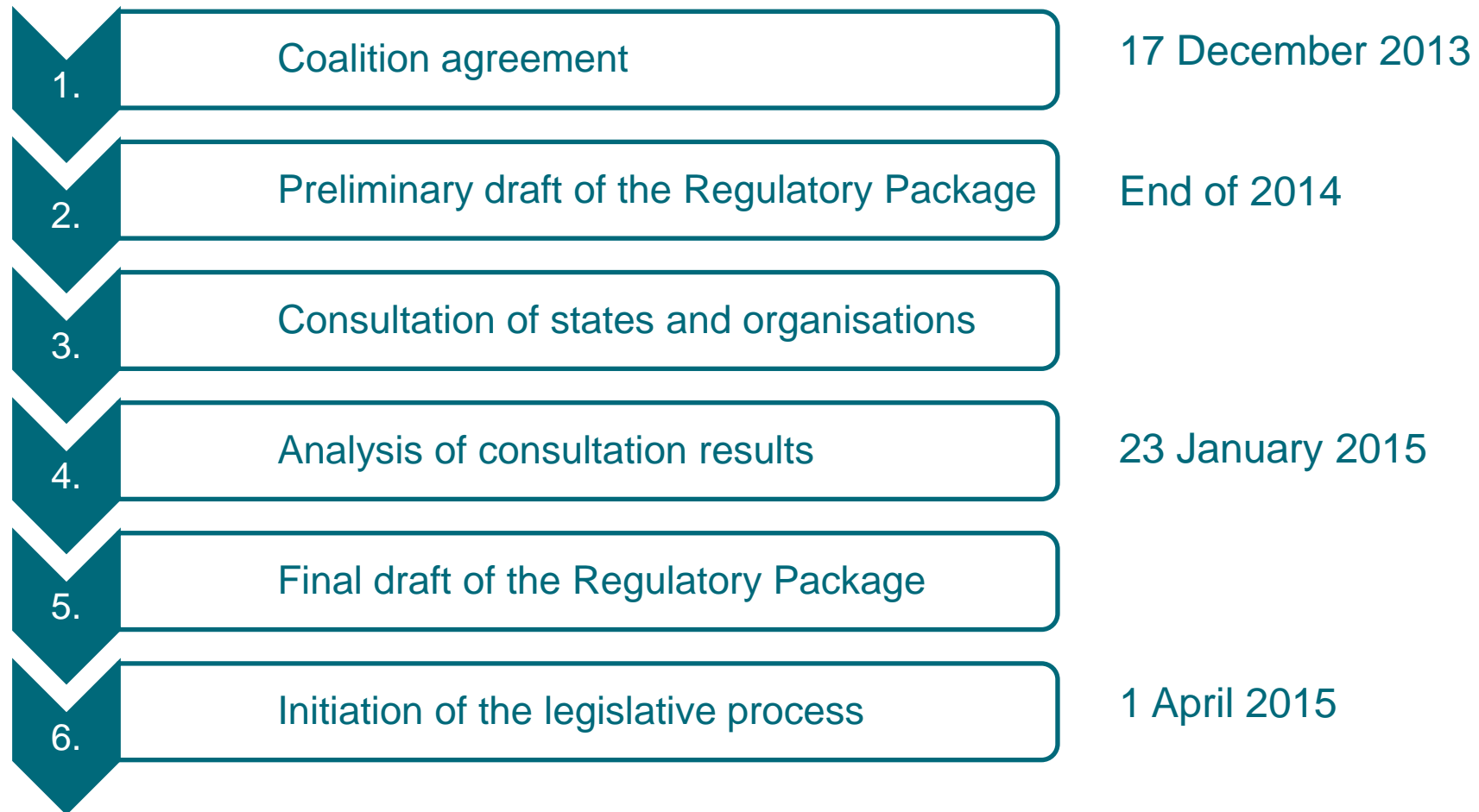


„To be honest, we do not need that [fracking].“

„Um ehrlich zu sein, wir brauchen das [Fracking] nicht.“

(Barbara Hendricks, German Federal Environment Minister, ARD interview, **24 March 2015**)

III. Legal perspective – Recent Development



III. Legal perspective – Legislative procedure

- Draft legislative framework: Regulatory Package “Fracking” (End of 2014)
- Federal Ministry for the Environment (BMU)
 - Adjustment of provisions relating to water law and nature protection
 - Legislative procedure to be started on 1 April 2015
 - **Strategy: Allow fracking only to the extend required by constitutional law**
- Federal Ministry for Economic Affairs and Energy (BMWi)
 - Introduction of environmental impact assessment and mining requirements
 - Mining liability law

III. Legal perspective

Regulatory Package “Fracking”

Conventional fracking

- Stricter rules than before:
- No fracking in environmentally sensitive areas (national parks, nature reserves, sources of drinking water)
- Federal States may even extend prohibition

Unconventional fracking

- No fracking for shale and coal bed gas above 3.000m
- Exemption: testing measures, if fracking fluids do not harm drinking water
- Independent expert commission to annually assess risks
- No unconventional (commercial) fracking before June 2018 in any case

General requirements

- Obligatory environmental impact assessment for fracking (see EU-level)
- Extension of mining liability to fracking, shifting burden of proof entirely to respective energy companies (§ 120 BBergG)

III. Legal perspective

- Consequences: Overall stricter rules for fracking!
 - Stricter rules for conventional fracking
 - General prohibition of unconventional fracking with exemptions for testing measures
 - Expert commission to assess risks
 - First possible commercial fracking in June 2018 – only after environmental impact was assessed and proved to be harmless
 - Overall stricter rules for both forms of fracking (like mining liability for fracking)

IV. Conclusion

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- Fracking is likely to remain a medium-term solution for Germany's energy supply, if at all
- The fracking debate reflects Germany's focus on renewable energies
- Germany does not allow unconventional fracking and sets out strict standards for conventional fracking
- While the U.S. is seeking a balance between the development of fracking and environmental best practices, Germany's development of fracking is determined by environmental aspects as the starting point of the discussion

Thank you for your attention!

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