Germany: New Market Design Examined

Platts 7th Annual European Power Summit

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Dr. Matthias Lang
Overview

1. Introduction
   Maintaining the Transition
2. New Market Examined
3. Purpose of the Lignite Reserve
   Delivering on the Grid
4. Conclusion
5. Q&A
1. Introduction
Maintaining the Transition
1. Introduction
Maintaining the Transition

Development of Electricity Generation from Renewable Energy Sources

Source: Federal Ministry of Economic Affairs and Energy, Paper on Renewable Energies in Germany, page 3
Expansion Targets

40 – 45 % by 2025
55 – 60 % by 2035
80 % by 2050

Renewable share in electricity generation

Bird & Bird
1. Introduction
Maintaining the Transition

More Than 100% Renewables already Reality in Regions
1. Introduction

Maintaining the Transition

German Power Production Week 36 2015

Source: Fraunhofer ISE Energy Charts https://www.energy-charts.de/power.htm
1. Introduction
Maintaining the Transition

<table>
<thead>
<tr>
<th>Key projects of the energy transition</th>
<th>2nd amendment, January 2016</th>
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<tr>
<td><strong>Renewable Energy Sources Act</strong></td>
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<td>RES Act 2.0</td>
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<td>Ordinance on</td>
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<td>pilot auctions</td>
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<td>Pilot auctions</td>
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<td>Report on effects</td>
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<td>ETS reform</td>
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<td>(market stability reserve)</td>
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<td>RES Act 3.0 (auctions)</td>
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<td>Start of auctions</td>
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<td><strong>EU 2030/ETS</strong></td>
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<td>EU 2030 targets</td>
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<td>Development of governance 2030</td>
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<td>ETS reform post-2020</td>
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<td>Negotiation of new EU legal framework</td>
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<td><strong>Electricity market design</strong></td>
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<td>Expert report</td>
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<td>Green Paper</td>
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<td>White Paper</td>
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<td>Electricity Market Act/</td>
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<td>Capacity Reserve Ordinance</td>
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<td>Implementation of legislation</td>
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<td><strong>Regional cooperation</strong> (in EU)/internal market**</td>
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<tr>
<td>More regional cooperation in the electricity sector</td>
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<td>Concept to open up PV auctions to installations in other MS</td>
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<td>Discussion of EU electricity market design</td>
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<td><strong>Transmission grids</strong></td>
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<td>Scenario framework 2015</td>
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<td>2024 Network Development Plan</td>
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<td>Revision FRP Act</td>
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<td>2025 Network Development Plan</td>
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<td><strong>Distribution grids</strong></td>
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<td>Evaluation of Incentive Regulation on Ordinance</td>
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<td>Drafting of Act on the Digitisation of the Energy Transition</td>
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<td>Revision of Incentive Regulation Ordinance</td>
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<td>Act on the Digitisation of the Energy Transition</td>
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<td><strong>Efficiency strategy</strong></td>
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<td>Energy Efficiency Action Plan</td>
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<td>Green Paper on energy efficiency</td>
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<td><strong>Buildings strategy</strong></td>
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<td>Drafting of Renovation Roadmap</td>
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<td>Drafting of Energy Efficiency Strategy for Buildings</td>
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<td>Revision of Energy Conservation Act/ Ordinance &amp; Renewable Energies Heat Act</td>
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<td><strong>Gas supply strategy</strong></td>
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<td>Development of a gas supply strategy</td>
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<td>Implementation of strategy in coordination with international partners</td>
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<td><strong>Monitoring/Platforms</strong></td>
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<td>Progress Report</td>
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<td>Monitoring Report 2015</td>
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<td>Monitoring Report 2016</td>
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Source: BMWiwww.bmwi.de/English/Redaktion/Bilder/Infografik/wichtigste-projekte-der-energiewende-ganze-breite,property=bild,bereich=bmi2012,sprache=en.jpg
1. Introduction
Maintaining the Transition

The Environment Ministry Connection

- German energy politics are driven by former and current ministers of the environment (or state secretary)
  - Angela Merkel, CDU, 1994 – 1998 (Chancellor)
  - Sigmar Gabriel, SPD, 2005 – 2009 (Minister Economic Affairs & Energy)
  - Peter Altmaier, CDU, 2012 – 2013 (Minister Chancellery)
  - Barbara Hendricks, SPD, since 2013 (Minister Environment)
- Combined Ministry: Federal Minister for Economic Affairs and Energy
  - No institutional opposition from Ministry of Economic Affairs
  - Nor from Chancellery
- Grand coalition CDU/CSU and SPD, Green party opposition
  - No significant opposition in Bundestag
2. **New Market Design Examined - Electricity Market 2.0 -**

**Aim of New Electricity Market Act**

- **Issue:** Electricity design for renewable energy/no nuclear/less coal world
- **Bill for new Electricity Market Act (Strommarktgesetz) currently in parliamentary process**
- **Aim:** To create a market that is able to guarantee a secure, "low-cost" and environmentally compatible electricity supply when an ever increasing (at least partially outside of market) share of renewable energy
- **Additional legislation**
  - **Renewable Energy Sources Act (EEG):** Being revised, tendering of new capacity for PV, onshore and ultimately offshore wind
  - **Act on the Digitalisation of the Energy Turnaround:** Smart metering in distribution grids
  - **Revision Interruptible Loads Ordinance (AbLaV):** Revision demand side response for large scale consumers
2. **New Market Design Examined**  
- **Electricity Market 2.0** -

**Overview**

- Staggered legislative process for Electricity Market Act with green paper, white paper and now bill for Parliament
- **Key elements**
  - No capacity market (but: new and revised capacity mechanisms)
  - Key principle: free price formation on electricity market, allow scarcity pricing
  - Further development of the existing market
  - Flexibility of supply and demand
  - Issue: How to guarantee security of supply
    - No issue: Cost of energy turnaround
2. New Market Design Examined - Electricity Market Act -

Way to the Electricity Market Act

Legislative Development

Green Paper
Published in 2014
Discussion paper on electricity market

White Paper
Published in 2015
Contains proposals on implementing the electricity market 2.0

Electricity Market Act
Draft published 2016
Implements proposals of the White Paper
2. New Market Design Examined
- Electricity Market Act -

Way to the Electricity Market Act - State of Play


- Cabinet decision
- 1st Reading Bundestag
- Public hearing in Committee on Economic Affairs and Energy
- Next step: 2nd and 3rd reading in Bundestag
- Objection law, in principle no consent Federal Council required
- Promulgation scheduled for May 2016
2. New Market Design Examined - Electricity Market Act -

Key Measures According to the White Paper (1)

- Guarantee free price formation (freie Preisbildung): as prices send important information to all market players, new measures shall strengthen free competitive pricing and allow price peaks on the electricity market.

- Monitor security of supply (Versorgungssicherheit): Monitoring shall be improved to guarantee security of supply. Contribution of European internal electricity market to security of supply shall be taken into greater consideration.

- Strengthen balancing group fidelity (Stärkung Bilanzkreistreue): responsible electricity suppliers and traders shall be further encouraged to buy electricity according to demand – less balancing by TSOs.
2. New Market Design Examined - Electricity Market Act -

Key Measures According to the White Paper (2)

- Revise reserve power regime, increase capacity mechanism toolbox
  - Extend network reserve (Netzreserve): network reserve will be extended after 31 December 2017
  - Introduce a capacity reserve: will be established outside the electricity market to ensure security of supply

- Improve electricity market transparency: national platforms and a central market master data register will be established

- Reduce and allocate grid expansion costs more fairly: efficient network expansion planning shall reduce network expansion costs
  - Onl ancillary provision
  - 3% top capping for grid expansion
  - Change avoided grid fee (vermiedene Netzentgelte) concept
3. Purpose of the Lignite Reserve
Delivering on the Grid
3. Purpose of the Lignite Reserve
   - Delivering on the Grid -

Lignite Reserve as Political Instrument

- Official reason: Additional element in capacity mechanism toolbox
- Real reason: Political instrument to initiate coal exit
  - CO2 reduction
  - Increase German power prices?
  - Constitutional law requirements for compensation in case of forced closures
    - Nuclear power exit litigation

Increasing Role of TSOs for Security of Supply

- And not only grid stability
3. Purpose of the Lignite Reserve
- Delivering on the Grid -

Capacity Mechanisms: "Traditional" Balancing Power

- Balancing power
  - TSOs need balancing power to counteract imbalances between generation and operation in the grid
  - 3 types of "traditional" balancing power
    - Primary balancing power
    - Secondary balancing power
    - Tertiary control reserve
  - "Traditional" balancing power not sufficient to address challenges from massive changes to energy mix (renewables, nuclear)
3. Purpose of the Lignite Reserve - Delivering on the Grid -

Capacity Mechanism: Fairly Recent Additions

- Interruptibility scheme
  - Demand side management, monthly tenders for certain large scale consumers
  - AbLaV scheme under revision

- Network reserve ("winter reserve")

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<td>4. Mai 2015</td>
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<td>6700-7800 MW</td>
<td>6600-7700 MW</td>
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<td>1600 MW</td>
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<td>26. Sept. 2014*</td>
<td>-</td>
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<td>545 MW*</td>
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<td>-</td>
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<tr>
<td>2. Mai 2014</td>
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<td>3091 MW</td>
<td>6000 MW</td>
<td>-</td>
<td>7000 MW</td>
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<td>30. Sept. 2013</td>
<td>-</td>
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<td>4800 MW</td>
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<tr>
<td>16. Sept. 2013</td>
<td>2540 MW</td>
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Source: www.bundesnetzagentur.de/DE/Sachgebiete/ElektrizitaetundGas/Unternehmen_Institutionen/Versorgungssicherheit/Netzreserve/netzreserve-node.html
3. Purpose of the Lignite Reserve
- Delivering on the Grid -

Capacity Mechanisms: Electricity Market 2.0 Additions

- Shall be based on two pillars

Existing
- network reserve
- balancing power
- interruptibility scheme

New
- capacity and climate ("lignite") reserve
3. Purpose of the Lignite Reserve
- Delivering on the Grid -

**Network Reserve (1)**

- Established to ensure security and reliability of the electricity system, in particular to handle grid bottlenecks, maintain voltage stability and ensure black start capability
- Network reserve also known as "winter reserve", presently regulated in the Reserve Power Plant Ordinance (ResKV) from 2013
- Based on annual TSO system analysis to determine the reserve power plant capacity necessary for the future grid stabilisation using additional redispatch potential
3. Purpose of the Lignite Reserve - Delivering on the Grid -

Network Reserve (2)

- To consists of 4 different types of power plants (13d EnWG)
  - Currently non-operating installations that upon the request of TSOs have to be made ready for operation due to their relevance for the system
  - System relevant plants for which their operators have notified temporary or final closure (pursuant to Section 13b (1)(1) EnWG)
  - Suitable installations in Europe
  - Plants that are to be built (up to 2 GW)
- Are activated in case of insufficient network capacity to send power from north to south (mandatory part)
- In case the combined capacity of these reserves is insufficient to satisfy the identified need for the network reserve, a tender is organised to attract additional reserve capacity (voluntary part)
- ResKVO shall be extended as to the End of 2023 and further developed
3. Purpose of the Lignite Reserve  
- Delivering on the Grid -

Capacity and Climate Reserve (1)

- Consists of two parts: capacity and climate part
  - Climate part is also known as "lignite reserve"
  - Political decision
- Shall guarantee the security of supply on the electricity market in unexpected situations
- Shall be established gradually from winter half year 2017/2018, outside of the electricity market
- Shall be deployed only if, despite free price formation on the wholesale market and contrary to expectations, supply does not cover demand at a particular time
3. Purpose of the Lignite Reserve
- Delivering on the Grid -

Capacity and Climate Reserve (2)

- Consist of
  - Capacity part (Section 13e EnwG) that primarily fulfils the reserve function and guarantees security of supply
  - Climate part (Section 13g EnWG) that provides CO2-intensive lignite plants to serve climate protection ("lignite reserve")
    - Legality doubtful
    - But political, contractual agreement with affected lignite power plant operators (02.11.2015), similar to original nuclear power exit agreement

- Similarities of both parts
  - TSOs to use capacity reserve as system service after conclusion of all market operations
  - Compensation: through grid charges
  - No way back to the electricity market
3. Purpose of the Lignite Reserve
- Delivering on the Grid -

Capacity and Climate Reserve (3)

- Differences:
  - Capacity part to be based on competitive tendering, lignite part shall be transferred into climate part based on contracts
  - Within capacity market contracts will be awarded to the cheapest plants, lignite plants to receive a cost-based compensation
  - Only plants from capacity part are allowed to take part in further tenders, lignite plants shall be closed after 4 years

- Relation to each other
  - Initially lignite plants within climate reserve as from 2017 for 4 years, mandatory closure afterwards
  - 1.8 GW of capacity to start winter 2017/2018, starting winter 2019/2020 5% of average annual peak load in Germany
3. Purpose of the Lignite Reserve

Graphics on Capacity and Climate Reserve (preliminary version)

Source: Federal Ministry of Economic Affairs and Energy, Presentation on Capacity and Climate Reserve, page 7

Note: Current bill provides for 4 stages of lignite reserve, starting 1 October 2016, 2017, 2018, 2019, for specifically identified and contractually agreed plants, for capacity reserve 1.8 GW starting winter 2017/2018
3. Purpose of the Lignite Reserve

Deployment Schedule

Source: Federal Ministry of Economic Affairs and Energy, White Paper, An electricity market for Germany’s energy transition, page 77
4. Conclusion

Germany: New Market Design Examined

- Electricity Market 2.0
  - More renewable energy, with limited market exposure/guaranteed prices
    - But: Future EEG 2016 with more market elements for newly commissioned plants
  - Additional power mix change due to nuclear power exit
    - And: Increasing political requests to reduce/exit coal
  - Challenge: Maintain security of supply at "low" cost
  - Reaction to massive changes: Keep energy only market, no capacity market
    - Accept future price spikes
    - Principle: Market shall solve problems by volatile generation from renewables (with only very limited exposure to market price signals)
  - But: Supplemented by various capacity instruments
    - With "lignite reserve" as "dual use" item: new political coal exit instrument with capacity instrument coating (and constitutional law background)

- New market design is old energy only market design, with additional tweaks
5. Q&A
Vielen Dank & Bird & Bird

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6. Back-up
- About Bird & Bird -
6. About Bird & Bird
- Dr. Matthias Lang -

Matthias combines regulatory know how, commercial thinking and cross-border energy expertise.

- Matthias is a partner in the International Energy & Utilities Sector Group at our Düsseldorf office.
- He advises German and international clients on energy, regulatory, and environmental law as well as issues arising from public commercial law. He has additional expertise in corporate law, administrative, European and real estate law, as well as standardisation.
- Matthias advises on infrastructure projects involving conventional and renewable energy generation as well planning and permit procedures for extra high voltage lines and other industrial installations. He has worked on numerous transactions in regulated industries, including energy, healthcare, and water. His work includes representing clients before the Federal Network Agency and other authorities in diverse administrative proceedings, before national and European courts and in arbitration proceedings. With his team, he has also advised on the transposition of European law, such as ROHS or the Third Internal Market Packet.
- Matthias is a regular contributor to conventional and online legal publications. He writes the section on permits for conventional power plants and wind farms for the “Berlin Commentary on Energy Law”. He commentates on international company law in the “Beck Online Commentary on the Limited Liability Company Act”. He has also published articles about renewable energy, disclosure and information obligations for sellers, buyers and banks in contaminated site transactions, on state aid to the coal sector and on the permitting regime for HVDC lines. Matthias also runs the German Energy Blog and frequently speaks at national and international seminars and conferences.
About Bird & Bird
- Energy & Utilities Expertise -

Bird & Bird’s involvement in the energy sector is broad-based. We have a genuine understanding of the key business technologies, processes and regulatory frameworks that underpin the sector.

- The German Energy & Utilities sector group includes more than 30 experts (including 9 Partners) from all relevant legal fields.
- We support our clients on national and international projects in both the growing Single European Market and other areas.
- Furthermore, the sector group comprises experienced career changers from the energy industry. This composition ensures hands-on advice on the basis of tested knowledge of the energy sector.
6. About Bird & Bird
- Facts & Figures -

**International**

- One of the leading international law firms, established 1846 in London
- Deep industry knowledge
- Excellence in client service
- International reach
  - 27 locations worldwide, 18 countries
  - 4 German offices in Düsseldorf, Frankfurt, Munich and Frankfurt
  - Worldwide (excluding US/Canada) extensive advice in all fields of law with a focus on technology orientated and innovative business sectors and companies
  - More than 225 Partners and more than 1,100 lawyers
6. About Bird & Bird
- International Network -

6. About Bird & Bird
- Energy Sector Focus -

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<th>Our clients</th>
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<td>● Utilities</td>
<td>● Renewable and conventional generation</td>
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<td>● Generators and storage operators</td>
<td>● Grid expansion and grid access</td>
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<td>● Transport and distribution system operators</td>
<td>● Grid fees / incentive regulation</td>
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<td>● Trading Houses</td>
<td>● Smart Grid / Smart Metering</td>
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<td>● Operators of renewable energy systems</td>
<td>● Electric mobility</td>
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<td>● Wind farms, solar park, bio fuel producers</td>
<td>● Legislation and standardisation</td>
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<td>● Energy services providers</td>
<td>● Energy storage, carbon capture &amp; storage</td>
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<td>● Regional authorities</td>
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<td>● Federal Republic, Länder, districts, municipalities</td>
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<td>● Manufacturers and suppliers</td>
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6. About Bird & Bird
- Energy Düsseldorf -

Energy and Utility Sector Expertise

- Düsseldorf team with deep sector knowledge
- Experience as lawyers, regulators, in-house counsels
- Advice to national and international clients
- English language blog on German energy: www.germanenergyblog.de
6. About Bird & Bird
- Energy Germany -

Energy and Utility Sector Expertise

- Further energy know how in Düsseldorf, Munich, Hamburg, und Frankfurt
- Multidisciplinary approach to allow comprehensive advice
6. About Bird & Bird
- Energy Europe & Asia & Middle East -

Energy and Utility Sector Expertise
● Close cooperation with colleagues in other European and Asian offices
● Deep understanding of European Community law and procedure
“Sources say: ‘This is a great firm – well situated internationally, and offering brilliant service’”

Chambers Global 2011