

# Bird & Bird & The digital transformation of the energy industry

*Energy 4.0*

2021



# Contents

Energy 4.0 - Energy for the future	1
Digitalising the energy sector: an opportunity for early movers	1
Intelligent grids	1
IT-Security	2
European NIS-Directive	2
European General Data Protection Regulation	2
How Bird & Bird can assist you	2
Our relevant expertise	3
Our Energy and Utilities expertise	4
Our Tech & Comms expertise	5
Case Study: Digitalisation of the Energy Transition	7
Germany	7
The Netherlands	7
France	7
Denmark	7
How can we assist you?	8
Our expertise	8
Case Study: Working with EirGrid	9
Case Study: Smart Metering in Great Britain	10
Selected case examples	11
Did you know?	13

# Energy 4.0 - Energy for the future

*The pace of digitalisation puts present business models in the energy industry under review. Disruption and digital transformation will accelerate and intensify changes in the industry.*

The rise of renewable energy, the changing role of nuclear energy, climate protection and grid expansion as well as smart grids define significant parts of the ongoing transformation of the energy sector. The pace and effect of this 'Energy Transformation' has surprised many.

Beyond the energy sector "Digital Transformation", "Industry 4.0" or "Awakening of the Data Economy" are key issues, describing a rapid and profound transition of our economic life.

There are estimates that approximately 40% of the companies that are around today won't exist in 10 years, because they either did not implement the digital change in a timely manner or they did not implement it at all.

It is certain that the energy industry that we know today will be dramatically different in less than 10 years from now. "Energy 4.0" stands for the potentially disruptive as well as beneficial interaction of digitalisation and Energy Transformation.

## Digitalising the energy sector: an opportunity for early movers

The technological changes that are being discussed under "Industry 4.0" and the Energy Transformation are iterative, coinciding and merging processes.

Governments around the world have already identified various energy topics to put on their growth agendas. Included are, among other things, the development of smart grids and the modernisation of energy distribution networks. Numerous (and diverse) generating plants, storage

facilities and electric vehicles have to be integrated securely and intelligently into the energy supply system whilst those smart grids are also seen as a vital tool to reduce energy consumption in all areas of life and work.

Digitalisation may further help to make low voltage distribution networks more flexible. In return for reduced grid fees, suppliers and end consumers may be prepared to agree with the distribution system operator on the use of controllable devices with a separate metering point. Controllable consumption devices potentially include electric vehicles.

## Intelligent grids

Fluctuating energy generation from renewables imposes particular requirements on the energy supply system: the grid needs sufficient capacity and flexibility to service and balance the markets for volatile renewable energy. Communication becomes a fundamental requirement for intelligent grids and this interlinking of generators, consumers, grids and storage facilities becomes a central element of our future power supply.

However, future grids not only require an efficient, secure and cost-effective communication infrastructure but also standards to ensure data safety, data protection and interoperability of the systems are required.

Governments and market parties are looking for alternative solutions. For example in the Netherlands, the recently presented draft of the Dutch Climate Agreement stresses the importance of demand-response management, energy storage and blockchain. The transmission grid operator in

the Netherlands, TenneT, released its first pilot project with blockchain technology in 2017 (which was also the first pilot of its kind in Europe), using decentralized energy storage systems and blockchain technology to balance the grid. In the pilot, the storage capacity of batteries of electric vehicles were used to help stabilize the high-voltage grid.

## IT-Security

Many countries either already have or are busily introducing rules and regulations to increase the security of information technology systems. In practice their implementation (not only for critical infrastructure) remains challenging for many companies.

Operating a secure energy supply system necessarily includes adequate protection against threats to telecommunication and electronic data processing systems. Operators of critical infrastructure energy plants have to ensure adequate protection against threats to these systems.

Some countries, like Germany, have introduced special IT security catalogues. The German IT security catalogue provides for the establishment of an information security management system according to DIN ISO/IEC 27001 as well as for the certification by an independent and authorised authority. Experience will tell whether such security catalogues can help to establish adequate protection against threats to ICT systems necessary for a secure grid operation.

## European NIS-Directive

The objective of the NIS-Directive 2016/1148 of 6 July 2016 is to ensure a high common level of network and information security within the European Union. The Directive provides for a comprehensive approach on EU level by setting common minimum requirements for capacity building and planning, information exchange and cooperation as well as common security requirements for operators of essential services and digital service providers. However, operators of essential services and digital service providers are not precluded from applying stricter security measures than set out in the Directive.

## European General Data Protection Regulation

A new, directly applicable legal basis for data protection entered into force on 25 May 2018 when the General Data Protection Regulation (GDPR) came into force. A number of countries have used the opportunity to further supplement the GDPR with national rules, details of which can be found on our [website](#).

The General Data Protection Regulation is in many aspects similar to the existing national data security laws. However, in numerous aspects substantial differences exist that call for legal examination and will lead to significant changes in data practice and engagement with energy consumers.

## How Bird & Bird can assist you

Bird & Bird connects knowledge of the digital world with that of the energy world in a unique way. We have renowned specialists in the energy field for power, gas and heat as well as in the field of technology and telecommunications, with all their complementary topics. Our profound understanding of the energy industry as well as the regulatory framework in many countries enables us to advise at the relevant cross-roads with key technology developments and to comprehensively assist you during the upcoming transformation of the energy industry.

Beyond specific energy questions, our advice includes classic IT and data protection law, telecommunication law, IP strategies (portfolio, IP asset management, technology alliances), procurement law, infrastructure projects and cooperation, M&A, outsourcing, restructuring, real estate (area reduction, data centres) and labour law as well as a policy-oriented approach in the context of legislative procedures.

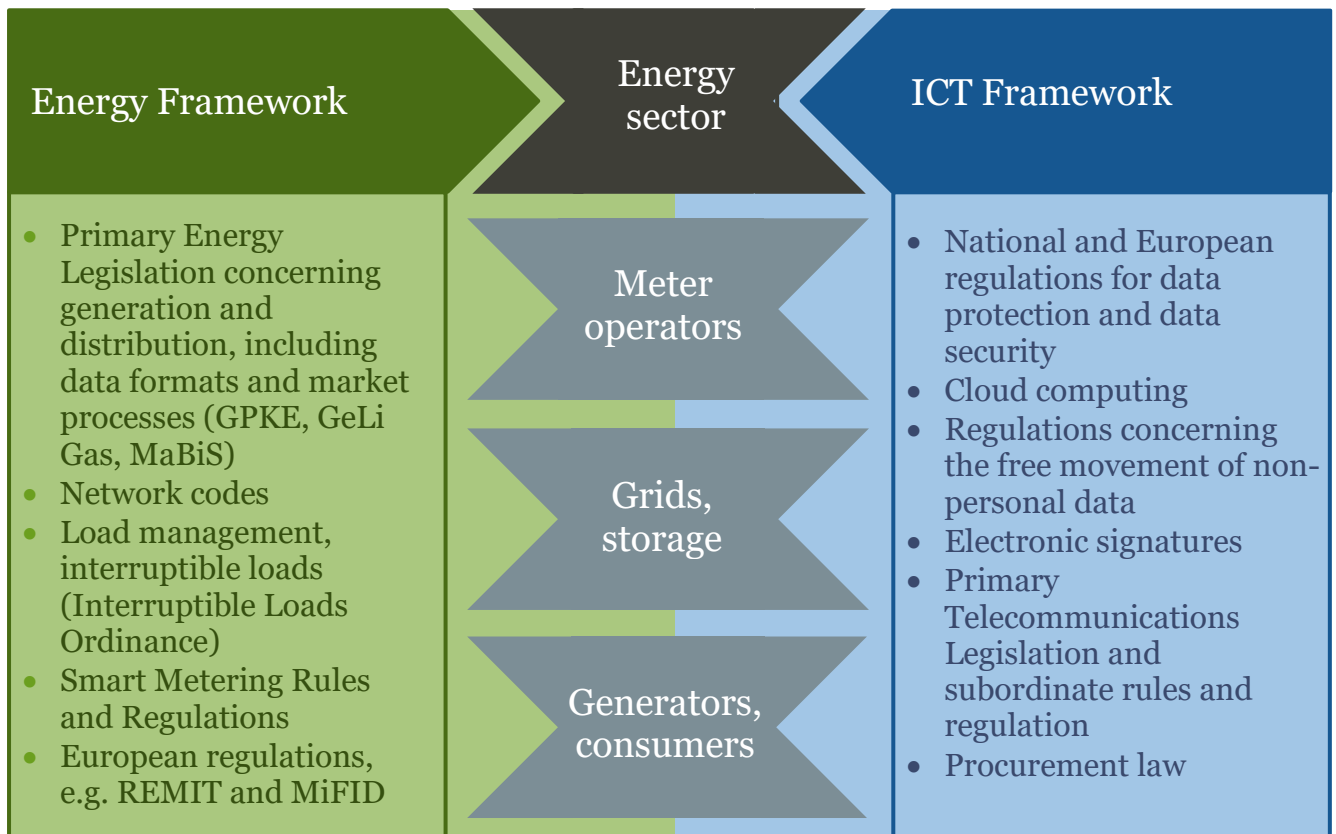
Energy digitalisation requires a combination of expertise and comprehensive "out-of-the-box-thinking". We are proud to have both. And we readily apply it to develop creative solutions to the challenges brought about by the digital change in the energy industry.



# Our relevant expertise

*By focusing on sectors, we have built a profound expertise and comprehensive knowledge of the key issues and developments that shape the energy and Information & Communication Technology (ICT) markets.*

We are especially well-known for and active in advising on legal and regulatory questions in converging areas. A particular focus of our advisory service is in areas where the markets for energy, IT and telecommunications as well as industrial production meet. It is here that clients can benefit in a unique way from our practical experience and our cross-sector expertise.



*Therefore, we believe we can create tangible added value for our clients.*

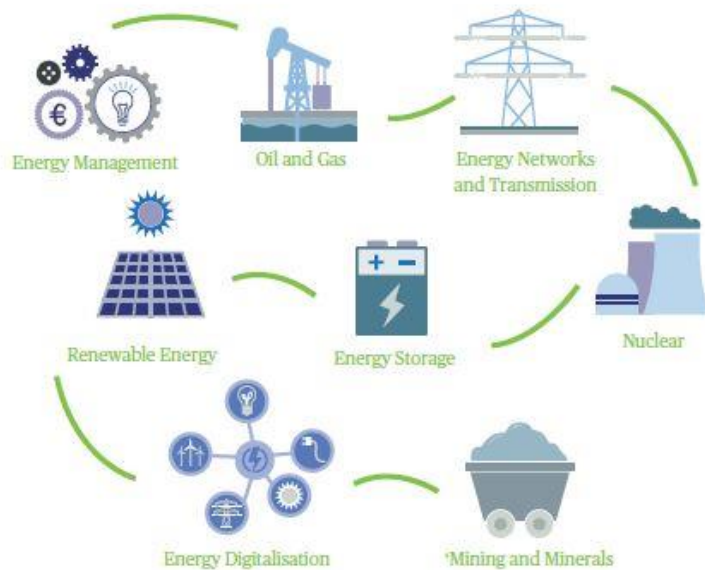
*One source reports: “Their telecoms and tech experience is second to none in terms of the depth and scope, not just in the UK but globally.”*

Chambers UK, 2020

# Our Energy and Utilities expertise

*Clients turn to us for our energy industry knowledge, our ability to solve complex problems, provide commercial, industry focused advice, protect their business and enhance its value in order to meet the transforming needs of the energy sector*

- Our Energy Team has more than 150 energy lawyers across our offices in Europe, the Middle East and Asia-Pacific.
- Our Energy & Utilities sector group has been ranked second globally in the 'Mergers and acquisitions in Renewables' The league tables produced by Clean Energy Pipeline relate to 2019. This builds on our ranking last year of number one law firm for global M&A and projects/project finance deals.
- Strong track record in applying technology innovation between sectors and practices (e.g. smart grids, interconnectors and electric vehicles).
- Deep rooted knowledge of IT and IP and our understanding of key business technology and processes.
- Over 400 solar and wind deals across 17 countries in the last 4 years. Our team includes former officials from EU and national regulators and competition authorities
- Our team includes former officials from EU and national regulators and competition authorities.
- The Co-head of the International Energy and Utilities Sector Group, Matt Bonass and partner Michael Rudd are co-editors of "Renewables: A Practical Handbook" (Globe Law and Business) and authors of chapters in "Clean Tech Clean Profits" (2014).
- We have core strengths in traditional energy, utilities and infrastructure transactions. Our firm strategy is to focus on sectors or industries that are being changed or disrupted by technology, one of those sectors being Energy and Utilities.
- We believe, and our clients have confirmed, that the following are key areas of focus and priority for the energy industry and we have built our teams around them: **energy digitalisation, renewable energy, energy management, energy networks & grids, energy storage, nuclear, oil & gas and mining and minerals.**
- We can offer you a one-stop-shop approach to help to protect your business and enhance its value.



# Our Tech & Comms expertise

*For decades Bird & Bird has been one of the leading law firms when it comes to legal developments in the area of Tech & Comms.*

The extensive expertise ranges from advising smaller innovative projects to some of the largest and most complex transactions and disputes in recent years. Our Tech & Comms team includes lawyers who are specialised in the areas of data transfer, communications, terminal devices & components, online technology solutions as well as software & services.

We have more than 350 lawyers, specialised in Technology and Communication, working in our 29 international offices. We are globally leading in this area: Chambers Global has currently listed Bird & Bird as one of two leading law firms for Technology & Communications in Europe and as one of the six leading law firms in this area globally.

Our comprehensive legal and industry knowledge enables us to assist our clients in technology matters, including regulatory framework conditions, and in their business decisions in the national and international sphere.

Our lawyers are actively involved in working with both government clients and the private sector, in developing new areas of law (for example around data ownership) and negotiating contracts and frameworks that go to the heart of the digital transformation we see around us, whether through developments like cloud, the internet of things or 5G. As advisors, we are trusted by some of the largest, global companies of the Tech & Comms industry.

We are renowned for developing creative and customised solutions for our clients – some of which have significantly influenced the worldwide technology and communications landscape. In the area of dispute resolution, we apply our entire experience to efficiently enforce the interests of our clients in all judicial and extrajudicial proceedings.

## *Advisory focus*

- Industry 4.0
- Smart Metering
- Big Data Analytics
- Blockchain
- Cloud Computing
- Cyber- and IT-Security
- Cybercrime
- M2M
- Internet of Things
- Mobile Payments and Apps
- Open Source und Open Data
- Patentability of Software
- Frequency Regulation and Procurement Procedures
- Agile Programming

*Our clients trust us to take the necessary steps together with them into those innovative areas, in which the added value and competitive advantages are significantly achieved by the use of complex technologies – we assist them with the development of legal solutions and with the hedging of risks.*

*A focus of our advice lies in the area of Industry 4.0, which - like Energy 4.0 – interlinks our Tech & Comms expertise with our in-depth industry knowledge in other areas.*







# Case Study: Digitalisation of the Energy Transition

## Germany

The German Act on the Digitalisation of the Energy Transition regulates an important part of the digital transformation in the energy sector. At its core is the new Smart Meters Operation Act. It includes:

- Specifications for technological minimum requirements for the use of smart meters
- Provisions for admissible data communication to ensure data protection and data security and
- Provisions for the operation of meters and their equipment.

The rollout of smart meters for electricity follows a phased approach. The rollout is staggered by consumer groups and began in 2017 for consumers with an annual electricity consumption of more than 10,000 kWh. In this legal area advice can only be given by those who have truly understood the technological characteristics of the energy industry on the one hand and of the Tech & Comms industry on the other.

## The Netherlands

To accommodate the transition to renewable energy, the Dutch government is re-evaluating various aspects of the applicable energy legislation.

One example hereof is the installation of smart meters, which is an important development to support the digitalisation of the grid. The Netherlands aims to replace all electricity meters in Dutch residencies with smart meters by 31 December 2020. To achieve this goal, all newly build construction projects in the Netherlands are as a standard equipped with a smart meter and grid operators are installing many thousands of smart meters per week. In order to protect the privacy of the users of smart meters, the Dutch government implemented a Decree Code of Conduct for Smart Meters (Besluit Gedragscode Slimme Meters), which regulates the use of information gained by the grid operators from smart meters.

## France

French public authorities are supporting all the players from the energy sector to move towards the uses of digital technologies. The installation of smart meters both for electricity and for gas is one of the first solutions for evaluating energy consumption in France as well as the development of smart grid solutions that automatically and autonomously adapt production to demand.

Further developments include:

- The improvement of the productivity of solar power plants through innovative dual-axis horizontal and vertical trackers which generate 30% to 40% more energy than market solutions.
- Various digital solutions for wind turbine maintenance using artificial intelligence to provide "predictive maintenance" or using drones to inspect wind turbines and prevent possible maintenance incidents

## Denmark

The Ministry of Climate, Energy and Utilities is continuously working to increase the digital infrastructure and platforms within the energy sector to create further growth, efficiency and knowledge in the society. The Ministry of Climate, Energy and Utilities plays a key role in the digitalisation of the public sector by being responsible for several digitalisation strategies regarding geological data, property and addresses which promote efficiency gains and contribute to a continuous basis of administration. The Danish Digital Growth Panel estimates that smart meters and smart grid technology can save consumers up to 4 billion Danish kroner in 2025 when all meters are replaced by 2020.

## How can we assist you?

As players on a rapidly changing market, it is indispensable to know the details of German the national and European energy politics as well as German national and European regulatory principles. Beyond that, an advisor needs to be familiar with the typical circumstances „on-site“ in the environment of the respective client. The practical experience of the team of Bird & Bird covers the entire Energy and Tech & Comms sector as well as public procurement law. We are therefore able to assist energy utilities, telecommunications companies, device suppliers and service providers on all significant questions.

## Our expertise

The experiences of our international Energy and Tech & Comms team range from market design on the macro level to advising on detailed questions relating to data protection law, telecommunications law, energy law and laws relating to the permitting of plants up to the delegation of functions and acquisitions of devices and services.



# Case Study: Working with EirGrid

## Background

*This is a classic Bird & Bird project – advising on the regulatory aspects of a market being transformed by technologies such as renewable generation, interconnection across national borders and increased ability for energy users to vary their demand. It's a project that leads the way in Europe and we're delighted to be part of it”.*

Peter Willis, team lead on EirGrid project

*Bird & Bird LLP's “interpretations are based on solid legal analysis. They keep in mind the recent views of the regulator and their approach is business-oriented.”*

Chambers Europe, 2018



We led a consortium providing legal advice to the Irish electricity transmission system operator EirGrid and its subsidiary the Northern Ireland TSO SONI on the implementation of the I-SEM project.

This is the alignment of the all-island electricity market with the new EU electricity market codes, requiring the introduction of new forward, day-ahead, intraday and balancing markets, as well as the development of a new capacity market. It is probably the most complex energy market design project anywhere in Europe, and we have a pivotal role in providing a complete range of legal services, from high-level strategic advice on major design issues to the detailed drafting of individual codes and operational agreements. We were selected because of our recognised track record in EU energy market liberalisation.

We are responsible for advising on the process and detailed drafting for the amendment of licences, Grid Codes, Trading and Settlement Code, Capacity Market Code and metering code, and advising on the entire range of national and EU regulatory arrangements, and drafting some of the 100+ commercial and operational agreements required in order to implement the new market arrangements, as well as certifying the compliance of the end result with relevant EU law.

We have added significant value to the project by our timely advice on difficult issues, and by our creative approach to the provision of legal support, including for example by embedding a paralegal in the project team in order to coordinate legal drafting instructions at a lower cost.

Like the Switching Programme, a key part of the advice to EirGrid and SONI involved ensuring that obligations under EU and national legislation, and licences, flowed down effectively into the commercial agreements – translating sometimes high-level regulatory obligations into detailed commercial drafting.



# Case Study: Smart Metering in Great Britain

## Background

Our ability to provide in-depth expertise across each of the energy, IT and communications sectors, together with our experience of structuring and managing major programmes, allowed us to successfully deliver the initial procurement of the CSP and DSP contracts in conjunction with DECC.

*“We have been very pleased with Bird & Bird’s support which provided integrated advice across a range of disciplines, a strong team-working ethos and an unwavering focus on meeting deadlines.”*

DECC spokesperson



## Advising the British Government

We were appointed by the British Government in August 2011 to advise them on the Smart Metering Implementation Programme, focusing on the parallel procurement of IT and connectivity services in support of Britain's £11bn national smart metering programme.

Over the 2 year period leading up to contract signature in September 2013, we worked closely with the British Government, drawing on the experience and expertise of many of our practice and sector group specialists, to advise on many aspects of the Programme, including:

- **Contract design and tender support:** We worked closely with the Government and its other advisors to design a bespoke contract for the data and communications services, including some of the key commercial aspects of the Programme.

We also supported the Government throughout the entire tender process and maintained a very high level of contract uniformity between the various contracts, facilitating ongoing in-life contract management.

- **Procurement:** We advised the British Government on procurement strategy, design of the tender process, the evaluation framework and procurement risks. We also advised on the provision of feedback to unsuccessful bidders.
- **Regulatory:** Although we were not directly responsible for the drafting of the Smart Energy Code or the Smart DCC Licence, we were involved in their development, including managing the interface between the Service Provider Contracts and both the existing electricity/gas regulatory regime and the new smart metering regulatory regime.

We have continued to support Britain's central smart metering body (Smart DCC) on a number matters relating to the in-life operation of Britain's smart metering programme of as well as new technology contracts relevant to the energy market generally.

# Selected case examples

*Our experts have advised on many different projects in recent years. Therefore, we have an outstanding knowledge of the industry.*

## Energy market design

- Advising the British energy regulator **Ofgem** on the development and launch of the „British Electricity Trading and Transmission Arrangements (BETTA)“. The advice included the amendment of relevant network and market codices. This mandate involved the complete restructuring of the energy market. We could gain an extraordinary insight in the interaction of the different market actors.

## Smart Metering

- Advising the **British Government** on the implementation of the „Smart Metering Implementation“ program, the largest restructuring project of the British energy market since the seventies. It included the roll out of approx. 53 million gas and electricity consumption measurement devices to British private households and companies. The objective is to prepare for the introduction of energy efficient energy networks and the improvement of energy efficiency.
- Advising a **Regulatory Authority for the Energy Market in Singapore** on the development of a smart grid on Ubin Island.
- Advising a **German Federal Authority** on procurement procedures for meters to measure energy savings.
- Advising a **municipal telecommunications and metering company** on requirements for intelligent metering systems and modern metering equipment.

## National and EU Network Codices

- Advising **EirGrid** on regulatory questions in European laws and the laws of the United Kingdom. The mandate also affected the East-West-Interconnector between Ireland and the United Kingdom. We also advised on Europe-wide network codes pursuant to Regulation 714/2009 and 715/2009. Technologies that were

almost market ready could be tested in practice. Experiences gained on system integration and the management of periodically available energy sources can be used today for the expansion of the transmission grid in Singapore.

- Advising **public utilities** on the implementation of requirements of the GPKE, MaBiS and data formats as well as on dealing with electronic signatures.

## Energy market - Developments

- Advising of a **data center** on significant developments in the German and European energy sector. To that end we compile half-yearly reports.

## New contractual forms

- Advising **public utilities** on the design of online energy supply contracts with end customers and contracts for metering stations as well as on the creation of contracts for interruptible consumption devices.

## Energy trade

- Advising **EFET** with regard to REMIT requirements for energy trading, particularly on data reporting requirements.

## Legislation

- Strategic regulatory and political advice and representation of the interests of an **energy intensive industrial company** for demand side management (Regulation on Interruptible Loads).

## E-Mobility

- Conducted a state aid review of the operations and activities of **e-Mobi**, the state owned company instrumental in the roll-out of charging infrastructure for electric vehicles in Hungary, the related payment platform and the distribution of subsidies to buy electric vehicles.

## Tech & Comms

- Strategic regulatory and political advice and representation of the interests of a **mobile network operator** before the German Federal Network Agency as well as political institutions on their „Project 2016“ (future allocation of the GSM-radio spectrum in the 900/1800 MHz band).
- Advising a provider of **radio network solutions** on regulatory and contractual matters as well as local and regional cooperation partners on the implementation and cooperation with regards to specific radio network solutions for operational communication applications, including their suitability for smart grid and smart metering.
- Advising a **client from the area of convergence of the ICT-markets** on compliance in telecommunications with regards to bundled cloud computing services (e.g. classification of connectivity solutions as electronic communication services), content delivery, **networks (CDN)** und **machine to machine** communication, including advice on data protection laws.
- Advisory project for a trans-regional **energy supplier** on the extensive business process **outsourcing** of the **customer service**.
- Advising one of the leading **global cloud providers** on their offers in Germany, particularly on data protection and regulated sectors.
- Advising a leading **European data center provider** on regulatory and data protection questions, particularly on data sharing and data access via networks.
- Advising the **British Government** on the transition to cloud computing. This included risk assessment, implementation structures and accreditation. Our involvement in the G-Cloud-Initiative shows our commitment to the implementation and design of future IT-marketplaces for the public sector and our competence for strategy and restructuring of highly complex IT-areas.
- Advised a leading **Austrian telematics, tolling technology and telecommunications company**, in connection with the client's on-going bid for the implementation of a new e-toll motorway system in Hungary. The public procurement tender was launched by ÁAK, the state owned Hungarian motorway operator company. Our work included advising on and negotiating all tender and contractual documentation on behalf of the client.

### *We are familiar with all legal questions on energy grids:*

- Smart Grids
- Energy Market Design
- Liberalisation and Unbundling
- National and EU Network Codes
- Gas Compensation Mechanisms
- Network Restrictions
- Tariff and Price Controls
- Interconnectors
- Offshore Networks



- Private Networks and Infrastructure Cooperation
- Advice on Reforms of Applicable Laws
- Contract Design
- Legal Protection in Administrative Courts
- Dispute Resolution
- Acquisitions Compliant with Procurement Laws
- Investigations and Actions for Damages relating to Competition Laws
- Mergers and Acquisitions of Companies



- Cloud Computing
- International Data Transfer
- Data Security and IT Compliance Audits
- Guidelines for Data Security and IT Security
- Dealing with Data Security Breakdowns
- Big Data Analytics
- Location-based Services
- Mobile- and Online-Commerce



- Research and Development Projects
- IT- and Business Process Outsourcing
- Complex IT Application Platforms and Development Environment
- Guidelines for Data Security and IT Security
- Data Centers and Infrastructure Projects
- Regulatory Framework Conditions (ICT, Energy)
- Electronic Payment Systems
- Internet of Things





# Did you know?

## Did you know that Bird & Bird...



...was involved in the advice on all **offshore wind farm projects** in the German North Sea?



...has developed framework conditions for the common frequency utilisation together with the **German Federal Network Agency**?



...can offer you the experience and expertise of some of the **most renowned energy lawyers**? For example, among our advisors are the former vice president of the German Federal Network Agency and the Council of European Energy Regulators.



...has advised the **regulatory authority for the energy market in Singapore** for more than ten years? We assisted on the opening of the energy market and the amendment of the transmission codex.



...can rely on the expertise of **more than 140 lawyers** worldwide for questions on energy and utilities?



... is known for **developing innovative solutions for technologically progressive companies** worldwide?



...is **particularly visible at the German Federal Ministry for Economic Affairs and Energy**? Dr. Alexander Duisberg is involved in working groups for legal frameworks on „Trusted Cloud“ and in sub-working groups for the certification of cloud services, that have been directly included into Article 39, 39a EU General Data Protection Regulation.



...has a **strong focus on finance services and energy** in the area of outsourcing transactions and individual business processes (BPO)? A special focus lies also on new business models (particularly cloud computing, big data).



... has many **leading industry experts**? They are regularly present in relevant publications such as the Berlin Commentary on Energy Law and the data protection provisions of the Energy Act in the „Auernhammer“. We shape the professional discussion and speak at significant industry conferences and specialist events.



...advises landline and mobile network operators in many different projects for **infrastructure building, relocation and sharing** with regards to land law, right of way, regulatory and contractual questions? We also have drafted and co-developed contract designs and structures that have evolved to **market standards**.



...has advised a provider of (remote) reading services and billing services for the billing of expenses on part of the landlord with regard to **regulatory questions** on frequency utilisation as well as on questions on data protection laws and subsequent contract design?



...advises telecommunication companies on the implementation of the **Internet of Things** products and solutions in the automotive sector, including data protection issues?



...has a **market-leading procurement law practice** that regularly advises on acquisitions in the areas of ICT and energy?



... has assisted the **Danish Energy Agency** with the acquisition of an IT system for clearing and settlement of energy subsidiaries?

# Get in touch

## Germany

Dr. Matthias Lang  
Partner

Tel: +4921120056293  
[Matthias.Lang@twobirds.com](mailto:Matthias.Lang@twobirds.com)

## Australia

James Durnall  
Partner

Tel: +61292269850  
[James.Durnall@twobirds.com](mailto:James.Durnall@twobirds.com)

Hamish Fraser  
Partner

Tel: +61292269815  
[Hamish.Fraser@twobirds.com](mailto:Hamish.Fraser@twobirds.com)

## Finland

Tobias Bräutigam  
Senior Counsel

Tel: +35896226670  
[Tobias.brautigam@twobirds.com](mailto:Tobias.brautigam@twobirds.com)

## France

Sibylle Weiler  
Partner

Tel: +330142686000  
[Sibylle.weiler@twobirds.com](mailto:Sibylle.weiler@twobirds.com)

## Hungary

Daniel Arányi  
Associate

Tel: +3613018900  
[Daniel.Aranyi@twobirds.com](mailto:Daniel.Aranyi@twobirds.com)

## UK

Ronald Hendrikx  
Partner

Tel: +442079056228  
[Ronald.Hendrikx@twobirds.com](mailto:Ronald.Hendrikx@twobirds.com)

## The Netherlands

Sophie Dingenen  
Partner

Tel: +31 (0)6 516 07 129  
[Sophie.Dingenen@twobirds.com](mailto:Sophie.Dingenen@twobirds.com)

## Italy

Simone Cadeddu  
Partner

Tel: +390669667007  
[Simone.Cadeddu@twobirds.com](mailto:Simone.Cadeddu@twobirds.com)

## Singapore

Sandra Seah  
Partner

Tel: +6564289429  
[Sandra.Seah@twobirds.com](mailto:Sandra.Seah@twobirds.com)

## Spain

Hermenegildo Altozano  
Partner

Tel: +34917903202  
[Hermenegildo.Altozano@twobirds.com](mailto:Hermenegildo.Altozano@twobirds.com)

Emilio Martinez  
Associate

Tel: +34917903216  
[Emilio.Martinez@twobirds.com](mailto:Emilio.Martinez@twobirds.com)

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