

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

*Energy 4.0*

2022



*Digitalisation of the energy sector can contribute to the creation of growth and jobs, boost European competitiveness and innovation, open new global markets for products and services, and drive innovative solutions by encouraging the development of trustworthy technologies. It also brings along new challenges, for instance related to cybersecurity, data access governance, data protection and privacy, and the growing energy consumption of the IT sector.*

[Action Plan on the digitalisation of the energy sector – Roadmap, the European Commission](#)

*Harnessing the power of data and digitalisation is vital to reaching the UK's world-leading climate change target. Digitalising our energy system will ensure we can support competitive markets, seize economic opportunities, and capitalise on new low carbon technologies.*

[The Rt Hon Anne-Marie Trevelyan MP Minister of State for Business, Energy and Clean Growth, July 2021](#)



# Energy 4.0 – Digital Transformation

As economies across the globe pursue a sustainable low carbon future, fundamental changes are taking place in the way we produce, use, and manage energy. The world is seeing increasing electrification of key sectors such as transport, alongside growing energy demand to support the broader digitalisation of economies globally. At the same time, low carbon policies mean electricity generation is increasingly reliant on renewable technologies, which are intermittent and decentralised in nature.

Together this represents a fundamental shift in the way energy systems work and raises a number of key challenges to manage the complexities and demands of this energy transformation effectively. At the same time, this creates a world of opportunity for companies that can play a key role in enabling the shift to a digital energy future.

## Digitalising the energy sector

Governments around the world have already begun putting in place policies to drive the evolution of energy systems. National scale infrastructure programmes to put in place smart metering and ongoing development of regulation to modernise energy distribution networks and integrate key flexibility technologies help lay the foundation for digitalisation.

At the same time, discrete changes are taking place as companies operating in the energy industry move toward using digital technologies in their business. The transformation toward ‘smart grids’ is therefore best viewed as an iterative process built upon a backbone of appropriate infrastructure and regulation. Each new development adds data to the system, which, if harnessed effectively can create efficiencies and value across the entire industry.

However, using data in this way inevitably creates new challenges: compliance with data protection and security laws is key to the future success of the intelligent energy industry; whilst effective data ownership and management are vital to realising the value of such data.

## A meeting of worlds

Energy systems historically tended to be designed on the premise of centralised generation and relatively unidirectional flows of electricity through the grid to end consumers, with regulation and long-term investment predicated on this model. Digitalisation is increasingly disrupting this status quo as the IT and telecoms industries take on a more fundamental role in the operation and development of energy grids. The interlinking and evolving roles of generators, consumers, and grids will continue to become a central feature of our future power supply. This transformation relies on stakeholders across numerous industry and government sectors working together to realise the benefits of digitalisation.

## How Bird & Bird can assist you

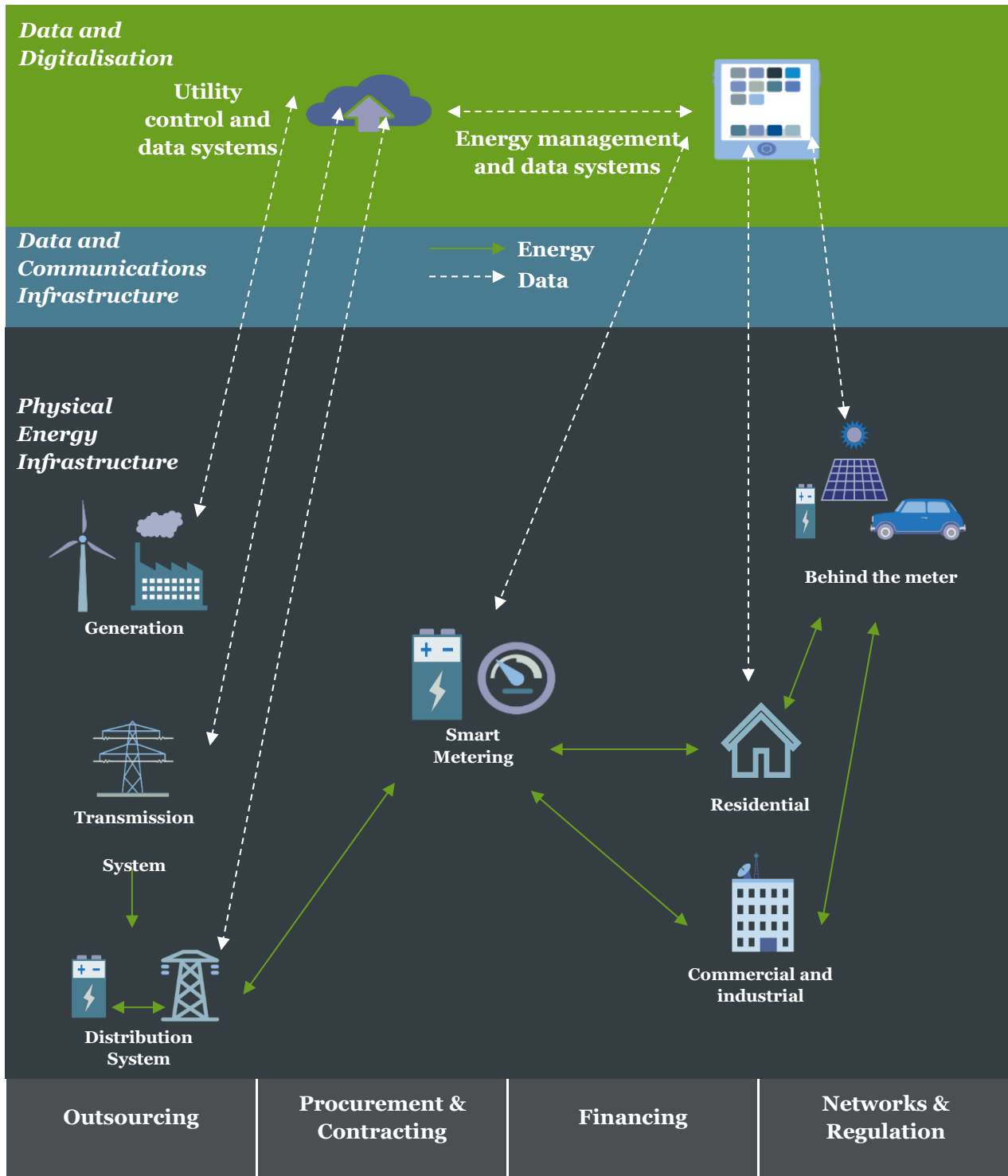
Bird & Bird has a proven track record of working in industries being transformed by digital technologies and a global network of renowned specialists in the energy, telecoms and data sectors. Our profound understanding of each of these industries and the accompanying regulatory frameworks enables us to advise at the forefront of the energy transition.

Beyond this, our sector-based focus and expertise in other key areas such as intellectual property, procurement law, M&A, outsourcing, restructuring, real estate and labour law allow us to provide a holistic service based on our deep understanding of the industry sectors that will play a key role in the transformation of the energy industry.

We are a leading firm for all things digital, and have a proven track record of advising at every scale from discreet projects to national infrastructure and regulation. Our extensive experience in sectors that have undergone analogous transformations demonstrates our ability to provide both comprehensive advice and creative solutions to novel issues.

If you are interested in the digital energy transition, please don't hesitate to contact us.

# Digitalisation of the Electricity System





# Our expertise

## Our Data and Digitalisation expertise

**Energy Management** – Smart technologies and data-driven energy management solutions are key to optimising energy consumption, generation, efficiency and cost. The visibility and connectivity that is afforded by real-time data enables informed decision making, analysis of trends and accelerated response. Energy Management provides an opportunity to maximise not only productivity and profit but sustainable and efficient use of resources. Bird & Bird has advised on numerous heating, cooling, power, retrofit and multi-utility projects in residential, commercial and industrial developments, and has created contract templates used on hundreds of sites.

**Data Protection and Security** - With the continuing proliferation of smart devices across the energy system and in particular within businesses and homes, industry will need to both continue to adapt to the increasing volumes of data and assess the potential uses to which this data can be applied. Compliance with privacy laws and ensuring the security of data will be key to the future success of an intelligent energy industry. Bird & Bird's market leading practice in data protection allows us to comprehensively advise on all aspects of this transition.

**Data Ownership and Management** - Use of, and rights relating to, data will be vital to realising the value of data emanating from an increasingly digitised energy system. Bird & Bird has extensive experience advising clients in relation to data ownership, rights and management across a wide variety of sectors, including in relation to the energy industry.

**Payment Systems** – Automation of payment systems across the industry provides opportunities for established digital technologies and new blockchain based solutions. For example, EV charging payment systems require digital infrastructure and systems that provide payment transparency while fitting within existing data protection and security requirements. Bird & Bird has an established reputation in the development of e-commerce and innovative payment solutions,

which builds upon our expertise in the technology sector, enabling us to provide comprehensive advice on a wide range of payment services and electronic money system.



### Case study

We have advised on key aspects of the UK's Smart Metering Roll-out from its inception, design and subsequent operational phase. For example:

- We advised the UK Government's Smart Metering Implementation Programme on the procurement of IT and connectivity services in support of Britain's £11bn national smart metering programme.
- We have advised Britain's central smart metering body (Smart DCC) in its implementation of Ofgem's Switching Programme and the centralised switching services to allow individual energy consumers to switch providers the next day
- We have also advised Smart DCC on various matters in relation to the in-life operation of the Britain's smart metering programme, including key contract changes with service providers to reflect the requirements of the system as it develops, including in reaction to technological and regulatory change.
- We have further advised Smart DCC and others within Britain's smart metering ecosystem on data ownership and rights, assisting clients to navigate the regulatory and legal environment and allowing them to develop data-based business streams and practices.

## Our Data and Communications Infrastructure expertise

**Data and Communications Systems** – The development of smart grids relies on the integration of smart devices in homes and businesses alongside systems to collect and communicate data. Bird & Bird's market leading TMT practice has extensive experience advising companies carving out the world's digital future, which includes key areas required for the development of a digital energy system, from a public or private, national or project specific basis.

**Digital technologies** – Bird & Bird has been working with suppliers and customers of novel technologies such as blockchain and AI for years as they develop from their infancy. These technologies can play key roles in the digital transformation of the energy system through their ability to automate and provide secure platforms for recording, storing, and utilising information. At their core, these technologies provide the ability to make sense of, and more efficiently utilise the vast amounts of data created by the increasingly digital energy system.

**Data Centres** – As the energy industry becomes increasingly reliant on large volumes of data, the need for storage and data centres surges. Equally the demand for sustainable and secure energy to power the operation of these data centres consequently increases. Bird & Bird has wide-ranging expertise in providing legal services to the ICT sector, operating at the cutting edge of developments relating to the data centre community, including cloud computing, "big data" and energy management solutions.

**Telecoms** – The functioning of a digitalised energy system is entirely reliant on data being effectively communicated across various industry platforms. This requires physical infrastructure, underling software systems, and an awareness and understanding of the regulatory frameworks that inform what various stakeholders are allowed to do (and how they are allowed to do it). Bird & Bird has been at the forefront of developments in international communications law for 3 decades, advising on some of the largest, most complex and ground-breaking transactions, regulatory regimes, and disputes the industry has seen.



### Case study

Bird & Bird provided core telecommunication and energy law advice to 450 Connect, an operator of 450 MHz radio frequencies in its project to rapidly build-out a nationwide high-performance mobile network based on LTE technology (4G and 5G) for the digitalisation of the energy and water industries as well as other critical infrastructure in Germany.

The 450MHz radio network, backed by several energy supply and distribution companies, ensures secure and high availability communication essential for millions of critical machine-to-machine (M2M) applications for the control of critical infrastructure. The blackout-proof mobile network also ensures the functioning of critical infrastructure in crisis situations.

This demonstrates Bird & Bird's key advisory role in the transformational infrastructure required for the digitalisation of the German energy system.



## Our Physical Energy Infrastructure expertise

**Renewables** - An increasing proportion of our electricity comes from renewable resources which are intermittent and decentralised in nature. As a result, there will be a need to manage the impacts of this new generation profile on the grid. We have advised clients on large portfolios of renewable generation assets for over a decade. We are consistently recognised as one of the leading legal advisors in the renewables space.

**Distributed Generation, Storage and EV charging** - The increasing proliferation of distributed low carbon generation and storage technologies alongside the accelerating electrification of the transport network represent a fundamental shift in the way energy networks operate. We have broad experience advising clients in relation to onsite installation and EV charging networks.

**Smart Meters** – Smart metering systems and associated digital infrastructure is a gateway technology for the digitalisation of the energy industry, gathering increasing amounts of data across the network and allowing two-way communications to integrate and more closely connect homes and business to the UK's energy network. Bird & Bird has advised on key aspects of the UK's Smart Metering Roll-out.

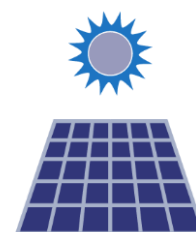
**Storage** – Energy storage technologies are seen as key to developing an energy system based on renewable generation by allowing energy to be dispatched at the most useful time. Bird & Bird has been at the forefront of developments in the storage industry, and we have acted on a number of grid scale and behind the meter storage projects in the UK.

**PPAs** - Energy markets in Europe are seeing the emergence of major corporates as large-scale renewable power purchasers directly from the developers of wind and solar parks. Bird & Bird has been at the forefront of the market in developing the right tools for these relationships.

**Financing** – Creating financing models in a highly regulated industry requires deep industry knowledge and innovative solutions. We regularly advise clients on financing complex energy and digital infrastructure projects.

**Networks and Regulation** - The way energy networks operate within the pre-existing regulatory framework will need to adapt as the system becomes increasingly digitised and to fully realise the potential of new technologies. We have advised a wide range of grid operators, grid users and other parties on agreements to develop, connect, operate, maintain and use transmission and distribution networks in numerous jurisdictions.

**Sourcing & Procurement** – As companies in the energy industry move to using digital technologies that are outside of their core expertise, they will increasingly consider outsourcing and smart procurement processes to boost their capabilities. Bird & Bird has over 20 years' experience advising on some of the most complex and innovative outsourcing & procurement transactions undertaken anywhere in the world, supporting clients in both the public and private sector with their transformation programmes.



*They are experts in commercial and technology matters who deliver clear, digestible legal advice and act as an extension of the in-house legal team.*

Chambers UK, 2021

*“I think they are fantastic and have great insight into the broader industry issues.”*

Chambers UK, 2021

*Individuals are extremely positive and nice to work with, very inclusive as if they're part of your team*

Legal 500 UK, 2022



## Case studies

- We are advising two entities providing charging solutions and charging services for electric vehicles as well as app-based settlement services regarding the performed charging solutions/services on payment regulatory aspects in context of their European expansion.
- We have advised developers, funders, landowners, local authorities, and government bodies globally on numerous solar, wind, energy from waste, biomass and hydroelectric projects. We regularly advise clients in the development and operational stages, and in relation to the secondary market for built projects.
- We have advised numerous investors and developers in the energy industry, in relation to the implications of regulation for their operations and regularly assist our clients in designing their business streams to fit with the regulation as it develops over time. As an example, we have recently advised a solar farm operator on a novel offtake arrangement based on blockchain and AI technologies.
- We have advised on several of the largest energy storage projects in the UK, including on novel financing and offtake arrangements to allow energy storage technologies to be brought to market.
- Bird and Bird has advised on numerous PPA transactions across Europe, including listed companies and large multinationals, both as generators and buyers under the PPA.





# Our Energy & Utilities Sector Group

*Knowledge of the key issues and developments that shape the infrastructure and management of energy*

- Our Energy and Utilities Group of over 200 lawyers spread across our network advise on energy and utilities matters across our practice areas. Our international team is not broken down by offices but into sub-groups that focus around priority areas such as energy digitalisation.
- Our goal is to push the boundaries of where the sector needs to go. Looking ahead means you need to understand what has happened before. Our team have been doing this for a long time.
- As a multi-disciplinary team, we offer you a one-stop-shop approach to help our clients create and shape new opportunities such as cross-sector disruptive business models and technology innovation. Our expertise includes:
  - **Strategic advice:** helping clients to formulate strategies
  - **Regulatory compliance:** including in the areas of energy, telecoms, product compliance, climate change and environment - our team includes former officials from EU and national regulators and competition authorities
  - **Projects:** like those referenced in the “Our Physical Energy Infrastructure expertise” section
  - **Commercial:** including protecting and commercialising a client’s innovative solutions that enhance its value
  - **Corporate deals:** such as acquiring businesses with disruptive business models
- Our clients include many organisations that are developing or investing in projects and technological solutions to the challenges presented by the combined forces of climate change and energy security.



Developers and Operators



Landowners



Funders, including banks and private equity



I&C Consumers



Public Bodies



Technology Companies

- Our expertise has been recognised such as being ranked number 1 globally in the “Top 20 Legal Advisers by Number of M&A Deals” in the ‘Clean Energy Legal League Tables 2021’.



*“It is an exceptional and perfectly structured organisation,” reports one client. The lawyers have “a broad knowledge of smart energy-related laws and upcoming policies.”*

*“On the technological side of energy matters, no other firm comes close”*

Chambers and Partners, Energy & Natural Resources (renewables and alternative energy)

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