

# DIREITO:

## A PENSAR TECNOLOGICAMENTE

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Do we have one real perception of the true degree of technological intrusiveness into the lives of citizens?

At this «Cyberlaw by CIJIC», 2nd edition, we intend to bring to one legal and technological debate some of the most worrying questions related with the weakness of the traditional concepts of public law. Take, for example, old problems where, alleged, threats to state security compress ordinary individual freedoms. Cyberspace currently dominates daily life. Where can we find the protection of the legal-subjective positions of individuals in it?

Traditional juridical and legal programs will lose all effectiveness, sliding into nominal, if the rule of law gives up to respond to the daily problems of netizens.

We all face new legal dimensions. In face of the ineluctable conclusion that the Internet is a global resource, which we dare say, incompatible, par excellence, with the old concept of territorial sovereignty of State, which scientific criteria need to be included in the construction of a dogmatic approach to the regulation of cyberspace? Furthermore, can it be regulated? Which - if any - new international, worldwide, legal solutions we must strive for?»

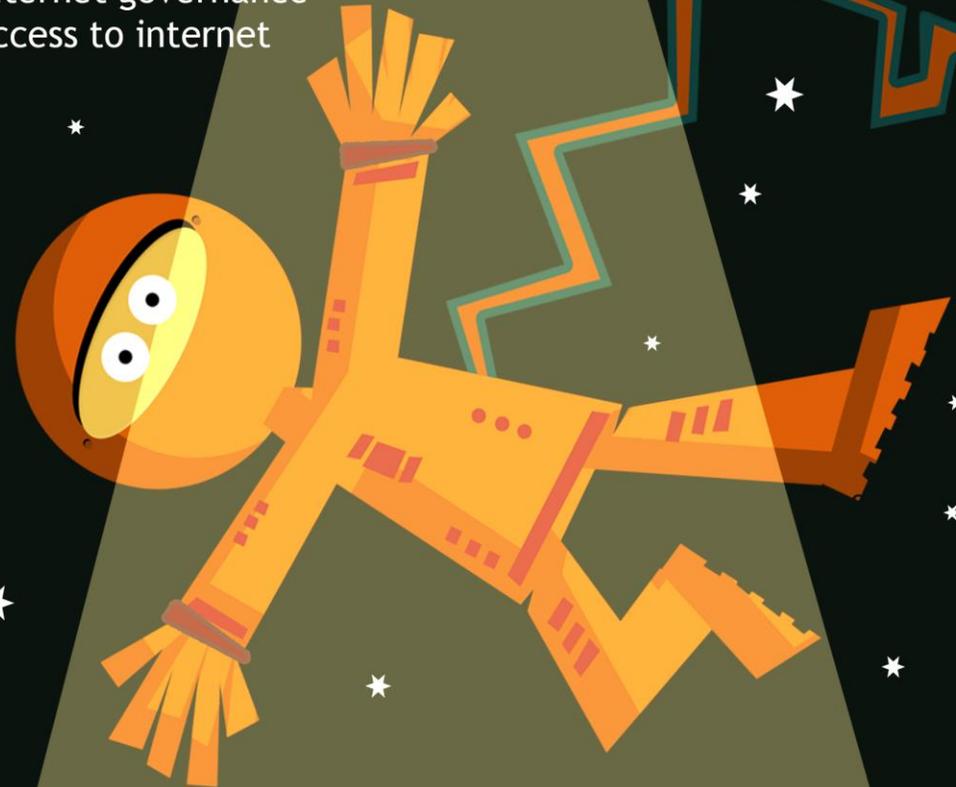


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#### internet:

- international tribunal for the internet
- open and free Internet
- internet governance
- access to internet

#### OUTROS: • international cooperation



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# **CYBERLAW**

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**REVISTA CIENTÍFICA SOBRE CYBERLAW DO CENTRO DE  
INVESTIGAÇÃO JURÍDICA DO CIBERESPAÇO – CIJIC – DA  
FACULDADE DE DIREITO DA UNIVERSIDADE DE LISBOA**

# **CYBERLAW**

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## **A PARTILHA DE RECURSOS PARA O TRANSPORTE DE DADOS E A SUA RELAÇÃO COM A PRIVACIDADE NAS REDES EUROPEIAS DE ENERGIA**

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## **RESOURCE SHARING FOR DATA TRANSPORT AND THE RELATION WITH PRIVACY IN EUROPEAN ENERGY NETWORKS**

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## RESUMO

Nas últimas décadas, o mercado único da UE tem procurado moldar-se ao mundo digital, ainda que a Comissão Europeia procure, de forma mais ambiciosa, um cada vez maior nível de harmonização. Destacáremos, neste introito e com influência directa sobre o digital, as transições operadas no mercado da energia eléctrica, de geração, distribuição e transporte. Ante o surgimento do prosumidor (produtor-consumidor) na geração de energia eléctrica, cada vez mais as redes de distribuição e de transporte de energia eléctrica exigirão mais e mais dados para equilibrarem o fluxo de energia das respectivas redes. Este procedimento abrirá o caminho para a partilha de dados através de redes eléctricas. Neste conspecto, que implicações materiais suscitará em termos de privacidade?<sup>2</sup>

**Palavras-Chave:** Mercado Único da UE; Protecção de Dados; Distribuição de Energia; Partilha de recursos físicos; redes de dados

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<sup>2</sup> Translation of the summary thanks to Nuno Teixeira Castro.

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## **ABSTRACT**

The single EU market with regard to the digital world has been shaped in the past decades, but the European Commission is even more ambitious with regard to the level of unity that it strives for. Another development that has taken place recently, that influences the digital world, is the transition of the electrical energy generation, distribution and transport market. With the emergence of the prosumer (producer-consumer) in the generation of electrical energy, electrical distribution and transport networks now require more and more data to balance the energy in their networks. This opens the road to sharing of data over electrical networks. What are the implications with regard to privacy?

**Keywords:** EU Single Market; Data Protection; Energy Distribution; Physical Resource sharing; Data networks

## **1. INTRODUCTION**

The European Commission (EC) strives for a further integration of the market for data services [1], and is also investigating cost efficient ways for a more climate-friendly economy [2] but faces the problem of legislation that is not fully harmonised across Europe [3]. Part of the envisioned single market space is Directive 2014/61/EU that enables physical resource sharing for data transport across energy networks: a sort of net neutrality for the energy distribution industry [4].

The new General Data Protection Regulation 2016/679 (full harmonisation) that is expected to enter into force 2018 [5] is being made from a different perspective than the previous legislation from 1995 that was a directive (minimum harmonisation to which the Member States could make additions). For this reason, the European Commission and Parliament have worked on full harmonisation by way of Regulation 2016/679 setting out a general EU framework for data protection [5].

How does this new regulation that has just been published, influence the way energy network operators have to manage their networks? Will the proposed legislation change the entire energy industry and the way the market works? Those are questions yet to be answered. This article focuses on the electricity distribution networks as a starting point for the discussion.

## **2. CHARACTERISTICS AND REGULATION OF DATA IN ELECTRICAL ENERGY NETWORKS**

It is important to realise that electricity cannot be easily stored in great quantities, and this poses a problem for the electrical distribution grid. In the past, electricity generation was done in large power plants and could, therefore, be carefully planned and controlled by single entities. Solar and wind energy are, on the other hand, less predictable. Another development is the recent emergence of many more stakeholders in the energy production chain, now that households can produce their own energy with the use of solar panels or wind turbines.

This means that more data on actual production capacity and actual energy use must be available at any moment to the energy network operator. The network operator needs this data to balance the network, preventing energy shortage or surplus. Shortages lead to possible damage with the customer who may be unexpectedly confronted with a black-out. Surplus leads to inefficiency and thus extra cost for either the energy supplier or the network operator.

Each entity connected to the energy grid is responsible for its own individual balancing of energy consumption and production, but households and small enterprises typically outsource this responsibility to the supplier [2]. Hence the supplier needs the energy consumption and production data to fulfil its responsibility. The data is transported over the electrical grid using Power Line Communications (PLC). The so-called Smart (electricity) Meters that are installed in the home today send the data of the domestic energy consumption to the energy supplier.

This data contains information that can be traced back to natural persons and it is therefore considered to be personal data subject to Directive 95/46/EC, on the protection of individuals with regard to the processing of personal data and on the free movement of such data [6], and its successor Regulation (EU) 2016/679, on the protection of natural persons with regard to the processing of personal data and on the free movement of such data [7]. Further, Directive 2016/680 on the use of personal data for criminal investigation was issued in conjunction with the regulation [8]. The focus of this article is on the regulation, because it has a big impact on the energy sector.

Other recent regulation with impact on the energy sector is Directive 2014/61/EU on measures to reduce the cost of deploying high-speed electronic communications networks, which imposes obligations on utilities companies in the public sector (of which electricity networks are one) to cooperate with the telecommunications sector on measures to reduce cost

of deploying high-speed electronic communication networks. If they do not agree on issues, national regulators may decide on a resolution which is binding to the parties (preamble 19, 23, and articles 3(5), 4(6), 5(4) and 6(4)) [4] [9]. Under this directive, sharing of public sector physical infrastructure will commence on January 1<sup>st</sup>, 2017.

The Directive 2014/61/EU aims to enable the sharing of public sector physical infrastructure (preamble 4 and article 1(1)) and thus, reduce the cost for civil engineering works (preamble 7 and article 1(2)) by lifting regulatory differences that prevent cooperation across utilities (preamble 10 and 24, article 3(1) and 3(2)). The Directive 2014/61/EU lays down minimum rights and obligations for cross-sector coordination (preamble 11). One of the obligations for public sector bodies is to facilitate the use of utilities such as physical networks for the provision of electricity by new electronic communications network operators (preamble 13 and article 4(2)).

The provision of access should be under fair and reasonable terms (preamble 14 and article 3(2)), and according to the technological neutrality principle (preamble 15 and 29). In the directive there are security concerns explicitly mentioned as for example where sharing the infrastructure jeopardizes the network integrity and security (preamble 16, 17, articles 4(1) and 6(1)). The premises may be visited in an on-site survey (article 4(5)), which means that the provider of the physical infrastructure may have to adapt its on-site procedures to accommodate other parties entering the premises. Given the fact that most companies work with contractors at their sites, that should not be a major issue.

Critical national infrastructure may be exempt from the obligation to sharing of physical infrastructure (articles 4(7) and 6(5)), but it is likely that the bar for denomination of critical infrastructure will be set high.

Further complicating factor in the Directive 2014/61/EU is the fact that by allowing third parties telecommunications access to their critical infrastructure the electricity networks providers become subject to the set directives governing the telecommunications sector (directives 2002/19, 2002/20, 2002/21, and 2002/22) (preamble 12 and article 1(4)). In the past the different industry sectors (media, telecommunications, energy infrastructure) were relatively set apart, each with their own set of regulation (for example the telecommunications directives 2002/19, 2002/20, 2002/21 and 2002/22). The Directive 2014/61/EU provides a further step in blurring the lines and further integration of industry sectors.

In the past, integration of sectors was at times troublesome. In the Netherlands, the national telecommunications provider Royal Dutch KPN was unwilling to open up its network to mobile phone providers. After a number of conflicts on the interpretation of reasonable and fair conditions the market now appears to have settled. Cable companies providing radio and television over their own networks have opened up their networks to competitors since 2000, but apparently not wholeheartedly [10].

### **3. KEY PERSONAL DATA PROTECTION ISSUES FOR NETWORK OPERATORS**

The reform of the data protection legislation in the EU started in January 2012, when the European Commission proposed a comprehensive reform. After four years of discussion, on 4 May 2016, the official texts of Regulation 2016/679 and the Directive 2016/680 have been published in the EU Official Journal in all the official languages. The Regulation entered into force on 24 May 2016, and it is applicable from 25 May 2018. The Directive 2016/680 entered into force on 5 May 2016 and EU Member States have to transpose it into their national law by 6 May 2018 [11] [12].

This reform of EU data protection has some very far-reaching consequences for all those companies that process personal data, and as such for the energy sector. Two trends could be identified: the first is the big data trend, in which more and more personal data becomes available for analysis and use. The second trend is the data protection trend, in which stricter regulation on the processing of all this personal data, with the option of serious penalties in case of data protection breaches. The data protection trend is elaborated in the regulation, which introduces a number of new rights and severe penalties if these rights are infringed upon.

The new data protection regulation builds on the principles of Privacy-by-design. These principles were developed by the Canadian privacy protection officer Ann Cavoukian, and they consist of seven principles. Summarised, the principles are [13] [14]:

- Proactive not Reactive; Preventative not Remedial
- Privacy as the Default Setting
- Privacy Embedded into Design
- Full Functionality — Positive-Sum
- End-to-End Security — Full Lifecycle Protection
- Visible and Transparent
- Respect for User Privacy — User-Centric

These principles can be found in Regulation 2016/679 as the explicit consent requirement (preamble 32 and 42, articles 6(1)(a) and 7), the transparency requirement (preamble 39, 58, 60, 63, and articles 5(1), 12, 13, and 15), the preventative technical

requirements on systems (preamble 67), the data portability right contributing to full functionality (preamble 68 and article 20). The full lifecycle protection principle can be found in the many requirements on the processing security and transfer of personal data (for example preamble 73 or 75 and article 32). Data protection by default and the technical implementation obligations to establish this default are explicitly mentioned in preamble 78, and article 25.

One key newly created obligation for data processors is the data breach notification obligation (preamble 73 and articles 33 and 34). While Regulation 2016/679 aims to give data processors more freedom and responsibility to process the data as they see fit, it also aims for more legal and practical certainty for all stakeholders, including the natural persons it aims to protect, by placing the responsibility and liability on the data processor (preamble 74 and article 28(4)). In the political process of designing the legislation, the data breach notification obligation has been transformed into data protection impact assessments and (implicit) data breach impact assessment (preamble 84, 90, 91 and articles 35 and 33(3)(c)) [7] [15]. The data breach notification obligation is implemented as a general notification obligation to the regulatory authorities (preamble 85 and article 33) and a notification obligation to the data subject in case of serious risk of damage (preamble 86 and article 34).

Newly created rights for individuals are the data portability right, and the ‘right to be forgotten’ for customers of data services (preamble 59, 65, 66 and articles 13(2)(b) and 17). Further, EU rules must be much stricter applied when processing personal data abroad, reducing opportunities for alternative safe harbour regimes (preamble 101-108, articles 28(3)(a) and 44 – 46) [5] [7]. The data portability right means that the energy sector must cooperate on some sort of data standard in order to be able to efficiently implement the new obligation.

The right to be forgotten will probably not have a major impact on the energy sector, as it applies to erasure of data for which there is no longer a purpose, especially applicable to online publications, which is not a core business at the moment. Energy companies should already have policies in place to deal with data erasure of customers that no longer use their services. However, future developments of merging sectors may create a different situation in this regard.

The stricter rules on offshoring of data processing have the potential for impact on the sector depending on the business model for the processing of data that is used. However, the regulation does encourage groups of undertakings by providing for approved binding corporate rules (preamble 110, article 47). Whether Regulation 2016/679 will indeed cause problems for

companies making use of the cloud services of major US cloud providers, for example, remains to be seen. In recent years, some of these providers anticipated Regulation 2016/679 and moved part of their operations to EU Member States in order to comply with the EU data protection legislation. It remains to be seen to what extent this solution passes the bar that Regulation 2016/679 has set. In that regard, the legal certainty that the regulation aims to establish will have to be effectuated in the future.

Infringement of Regulation 2016/679 can have serious consequences, with the regulatory body being enabled to impose an administrative fine of up to 10 million Euro, or in the case of an undertaking, up to 2% of the total worldwide annual turnover of the preceding financial year (article 83(4)). In cases of a lack of baseline security and compliance, these fines may be up to 20 million Euro or 4% of the total worldwide annual turnover of the preceding financial year (article 83(5) and (6)). The wording of these articles seems to indicate that other entities than corporations can be fined, such as natural persons performing the data breach, which is confirmed by preamble 148.

In this discussion, it is important to highlight the broad nature of what the European Commission defines as personal data: any information relating to an individual, be it that individual's private, professional or public life. This may encompass anything from a name, a photo, an email address, bank details, posts on social networking websites, medical records, a computer's or smart phone's IP address [5] [7]. This broad definition means that any service provider will be denoted a data processor under the regulation as soon as the service provider processes only the tiniest bits of data about individually recognisable customers.

#### **4. CONSEQUENCES & CONCLUSIONS**

The new data protection Regulation 2016/679 will have impact on the energy sector, a sector that is in the process of a transition towards durable energy production, which requires much more data in the energy production and distribution chain. Part of the data contains personal data, which is subject to strict regulation in the EU. First of all this means that the collection of data shall be done such that no unnecessary data collection takes place. What was never collected cannot be leaked, after all. This is in line with the privacy as the default setting and embedded into the design, as explicated in preamble 39 and articles 5(1)(a) and 25(2) of the EU data protection Regulation 2016/679.

Where it cannot be avoided to collect certain personal data, the principle of data minimisation requires this data must be aggregated or pseudonomised as soon as possible by the data processor (articles 5(1)(c) and 32(1)(a)). For example the Smart Meter data is collected over a defined period of time and aggregated before it is sent. The aggregation can be done, because the system does not need real-time data for the balancing purposes. A time period of 15 – 20 minutes is adequate for most purposes. Further aggregation on for example 6 digit postal code nearest to the home provides further data protection. However, with more and more information coming online, for example through social media, this may not prove to be adequate to prevent the leaking of personal data in the future.

Directive 2014/61/EU, which provides for sharing of the physical infrastructure of the energy sector further complicates the data management, because adequate security measures will have to be taken to ensure adequate separation of the data streams of the different data network providers that share the physical infrastructure. For each instance in its physical infrastructure the owner will have to assess the impact of sharing of that facility. This will require some sort of risk assessment in which not only network integrity must be addressed, but also the data protection.

While the trend of resource sharing does offer efficiency opportunities, it also poses significant challenges for the subjects of the new legislation who have to implement it. Companies not traditionally involved in network operations will have to adapt to this new reality. It is likely that this will cause growing pains with regard to security and data protection. It would be advisable for national regulators to carefully monitor this process in order to prevent frequent large data breaches.

## 5. BIBLIOGRAPHY

1. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Towards a thriving data-driven economy*, Brussels, 2.7.2014, COM(2014) 442 final, [http://ec.europa.eu/newsroom/dae/document.cfm?action=display&doc\\_id=6210](http://ec.europa.eu/newsroom/dae/document.cfm?action=display&doc_id=6210)
2. Smart Grid Task Force (2015), Expert Group 3 (Regulatory Recommendations for Smart Grids Deployment), *Regulatory Recommendations for the Deployment of Flexibility*, <http://ec.europa.eu/energy/sites/ener/files/documents/EG3%20Final%20-%20January%202015.pdf>
3. EY (2013), *Mapping power and utilities regulation in Europe*, EYG no. DX0201, <http://www.ey.com/GL/en/Industries/Power---Utilities/Mapping-power-and-utilities-regulation-in-Europe>
4. Directive 2014/61/EU of the European Parliament and the Council of 15 May 2014 on measures to reduce the cost of deploying high-speed electronic communications networks, <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0061&from=GA>
5. Article 29 Data Protection Working Party, *Statement on the 2016 action plan for the implementation of the General Data Protection Regulation (GDPR)*, 2.2.2016, 442/16/EN, WP 236, [http://ec.europa.eu/justice/data-protection/article-29/documentation/opinion-recommendation/files/2016/wp236\\_en.pdf](http://ec.europa.eu/justice/data-protection/article-29/documentation/opinion-recommendation/files/2016/wp236_en.pdf)
6. Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31995L0046:en:PDF>
7. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation), <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32016R0679&from=EN>
8. Directive (EU) 2016/680 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data by competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and on the free movement of such data, and repealing Council Framework Decision 2008/977/JHA, [http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L\\_.2016.119.01.0089.01.ENG&toc=OJ:L:2016:119:TOC](http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2016.119.01.0089.01.ENG&toc=OJ:L:2016:119:TOC)

9. Smart Grid Task Force (2015), *Regulatory Recommendations for the Deployment of Flexibility*, EG3 Report (p.57), <http://ec.europa.eu/energy/sites/ener/files/documents/EG3%20Final%20-%20January%202015.pdf>
10. Peggy Valcke (2004). *Digitale diversiteit: Convergentie van Media-, Telecommunicatie- en Mededingingsrecht*, Larcier (p. 32)
11. European Commission, *Protection of personal data*, <http://ec.europa.eu/justice/data-protection/> (visited May 2016)
12. European Commission - Press Release, *Commission proposes a comprehensive reform of data protection rules to increase users' control of their data and to cut costs for businesses*, Brussels, 25.1.2012, IP/12/46, [http://europa.eu/rapid/press-release\\_IP-12-46\\_en.htm?locale=en](http://europa.eu/rapid/press-release_IP-12-46_en.htm?locale=en)
13. E.M. Wesselingh, P. van Willigenburg, H. Stokman (2015), *DCCPP = Privacy by Design. Direct Current Communications & Privacy Protocol (DCCPP) Proposed for a Privacy Protective DC Smart Grid*, [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2671170](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2671170)
14. E.M. Wesselingh, P. van Willigenburg, H. Stokman (2015), *Proposal for a Transparent Sustainable Energy Market* (Poster), [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2622930](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2622930)
15. Article 29 Data Protection Working Party, Work programme 2016 – 2018, 2.2.2016, 417/16/EN, WP235, [http://ec.europa.eu/justice/data-protection/article-29/documentation/opinion-recommendation/files/2016/wp235\\_en.pdf](http://ec.europa.eu/justice/data-protection/article-29/documentation/opinion-recommendation/files/2016/wp235_en.pdf)

