Selected academics and practitioners have gathered in Florence on June 24th 2016 to discuss the latest developments in the regulation of different network industries, namely transport, energy, communications and media and water distribution. The fifth edition of the Conference on the Regulation of Infrastructures had a special focus on digitalization and the use of data, which is a topic that cuts across all network industries and is highly debated.

As usual, the key element of the Conference has been the exchange between young researchers and experienced professors specialised in different fields. Building on the experience gained from the past editions, our ambition this year was to stimulate interdisciplinary as well as cross-sectorial discussions on the regulatory challenges for digitalization in the network industries. As the four sectors are not in the same stage of transformation and different countries are not in the same development phase, a big variety of different questions and different policy options have been discussed. However, the Conference also promoted cross-sectoral discussions and exchanges on the general issues pertaining to all sectors such as the complex interplay between sector specific and competition regulation.

The Conference allowed researches to get high quality feedback from fellow colleagues and to learn from the experience of other network industries. 10 papers have been presented in seven round table sessions each dedicated to one of the discussed industries. All abstracts and powerpoint presentations, as well as the interview with Dr Christa Sys who was awarded for the best paper of the Conference, are now available on the Conference webpage.

Nadia Bert, David Kupfer, Organizers

Selected papers

Data protection code of conduct for cloud service providers and the right to data protection: effectiveness of the self-regulatory instrument and its future

Author

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Keywords

Cloud computing, Data Protection Code of Conduct, cloud service providers, data protection, effectiveness

Abstract

In the contemporary digital age, cloud computing has developed into a cornerstone of various IT infrastructures and plays an increasingly significant role in the provision of cloud services over the Internet offering an array of benefits to both public and private actors. In the European Union, these services must be carried out in compliance with the fundamental rights to privacy and data protection of EU citizens. The decision of the Court of Justice of the European Union in the Maximillian Schrems v. Data Protection Commissioner Case recognized the importance of these rights and declared the Safe Harbour agreement between the European Commission and the United States invalid. This has direct consequences on business operations of many US cloud service providers and leads to uncertainties among corporations from other third countries.

With respect to cloud computing, there is a self-regulatory initiative called the Data Protection Code of Conduct for Cloud Service Providers drafted by a Subgroup of the Cloud Select Industry Group, which includes such major stakeholders as Google and Microsoft, with active participation of the European Commission. Article 27(1) of the Directive 95/46/EC and Article 40(1) of the new General Data Protection Regulation specifically encourage the adoption of these codes of conduct with an intention of contributing to the proper application and implementation of data protection law. The Code of Conduct contains guidelines specifically designed for cloud computing providers that will

stimulate their compliance with EU rules on privacy and data protection. At the moment, this document is being finalized and is considered work-in-progress. Unfortunately, given its nature and current draft status this particular initiative does not receive much attention in legal literature while it potentially constitutes a benchmark for other self-regulation processes in this field and a crucial measure in ensuring that the right to data protection of EU citizens is guaranteed when they make use of cloud services.

This contribution uses desk study on the basis of literature review as the main legal research method. It looks into possible effects that the Code of Conduct has on the right to data protection in the EU and examines the extent of its effectiveness in guaranteeing this right through evaluation of aspects of legitimacy, quality and enforcement. The article also identifies gaps, which cannot be left unaddressed and must be closed, in order to ensure that it will achieve its regulatory objectives. Finally, some changes and modifications of the Code are proposed.

The paradox of setting targets – The case of NGN deployment in Europe

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Abstract

Internet and its connected innovative technologies are fostering the digital economy and society, one of the main objectives of the European Union and by consequence of the new European Commission. In fact, the deployment of Next Generation Networks (NGN) to ensure specific targets in terms of availability and adoption of fast and high quality Internet connections for European households is one of the main pillars of the Digital Agenda for Europe (DAE) 2020. In spite of the relatively wide set of policy tools put in place at the European and national level, profound differences in terms of broadband coverage and adoption do however persist across member States. These disparities have largely contributed to a feeling of dissatisfaction for the level of investment in broadband networks in Europe.

The European Commission, also with the support of a public consultation, is tackling the issue. This paper will focus on a particular approach the European Commission could use and which could open a number of debates and questions: the setting of targets. These are the meta-instruments preceding the implementation of more traditional policy instruments, such as national plans, sector-specific regulation, competition policy and direct public intervention. In particular, the paper aims at exploring the impact of setting future targets for ultra-fast broadband, also considering the opportunity, and the risks, of formulating targets that specifically favor higher performing technological solutions, i.e. FTTH, which enables connection speeds well above 100 Mbps, over others, i.e. cable, copper, wireless technologies or a mix of them.

The reason why broadband targets of the kind that have so far been set at the EU level deserve a special attention is that, being voluntary and non-binding, they may appear relatively innocuous. Yet, they are susceptible of driving the direction of future policies and consequently investment to a significant extent. Targets influence each of the policy tools that have so far played a role in

broadband promotion, particularly national broadband plans, regulation and public investment. These policy levers, in turn, exert material effects on competitive dynamics and incentives to invest of private operators.

However, targets inspired by political desiderata shape both private and public operators' expectations in ways that are not necessarily compatible with the very objectives that those targets are meant to pursue, even if they do not involve strict enforcement or commitment of public resources. First, private operators' expectation that public resources will be found, sooner or later, to back the EU-level targets may result in a waiting game, whereby private investment may be delayed even in areas where a business case would otherwise exist, because to wait promises to deliver benefits in terms of a public subsidy that substitutes in part for private investment. This may give rise to sub optimal results from the perspective of the DAE objectives from two, equally troubling, perspectives: either investment does not happen at all, or it follow too late, in case of scarce public funds; or investment occurs, but simply with public money crowding out private investment.

The effects of targets on public decision-makers' expectations and policy choices in the heterogeneous EU member States may be equally problematic. To bring concrete results, ambitious targets should find support in significant amounts of public investment. An outcome where public investment increases substantially is, however, not only relatively unlikely, but also by and large undesirable, since public investment, as is well known, carries a concrete risk of crowding out or else distorting private investment.

Moreover, higher targets would induce public decision-makers to make possibly misguided choices as regard the trade-off between coverage and performance. In particular, uniform targets focusing public investment on ultra-fast broadband technologies almost automatically reduce coverage, because more resources are required to meet the targets in any given area. Finally, there is a risk that far-reaching targets induce public investment to be biased towards supply-side policies, at the expenses of demand-side policies, so that coverage would be promoted at the expenses of adoption. Since, however, it is actual use of technologies rather than availability of networks per se that generates social welfare, it is doubtful that this outcome can be considered truly desirable.

Finally, moving to how targets are set, the soft law nature of voluntary targets entails that their decision making process is often extremely simplified, at least if compared to the lengthy process of legislation. Sometimes, to take a decision, it is considered sufficient to undertake a rapid, even relatively informal, consultation of the stakeholders and some minimal information gathering. Clearly, however, such an informal process is exposed to risks, if the analysis is rapid but superficial, that the targets may easily turn out to be unreliable or unrealistic. Furthermore, in this instance, the very fact that whoever is setting the targets does not have to carefully plan their practical realization, may backfire by worsening the credibility of all the process. Moreover, also in cases where concrete indicators of achievement, i.e. the ultimate benchmarking, are left to the final actors, the member States, setting unrealistic targets, may introduce a bias that is difficult to overcome at a later stage.

In conclusion, a soft industrial policy in favor of the development of the NGNs throughout Europe can be certainly considered a worthy policy objective, but its concrete declination and application must pass all the necessary examinations of economic rationality and industrial realism and setting targets might not be the best solution.

User-centered innovation and regulatory framework: energy prosumers' market access in EU regulation – working title

Author

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Keywords

Energy law, energy regulation, user-centered innovation, consumer, prosumer, energy market

Abstract

The traditional European energy system in terms of its technical and commercial/ market design, as well as the regulatory framework supporting it, is organized according to the value chain from energy production, to transport, storage and then distribution. This system has formed in the 20th century; however, the current European energy market is far from static. In the recent years many developments have shaped its structure: First, liberalization and drive towards integrated internal market push the dynamics of the energy market towards a pan-European, harmonized and coordinated model. Secondly, the intensifying security of supply and climate change concerns trigger the emergence of renewable energy sources (RES) in the energy mix of the Member States. RES are usually produced in a more decentralized manner compared to traditional fossil energy sources. Combined with an increased level of energy-related awareness of the population, as well as technological progress (including increasing digitalization) and respective increasing affordability of technology, this creates a bottom-up pull in the energy market towards distributed and smaller-scale energy production. Thereby the European energy market is experiencing somewhat conflicting forces: push towards more centralization on European level, and at the same time pull towards more decentralization on national level.

One of the most important characteristics of such pull is the evolution of the traditional energy value chain into a more bottom-up model. In this new model, energy consumers who previously had a

rather passive, consuming role, and were confronted with top-down determined energy supply options, services, as well as prices, are now assuming a more proactive role, in some cases becoming prosumers of energy. Such evolution of the consumers' roles is due on the one hand to the increasing availability and affordability of 'hard' technology, such as solar panels and wind turbines, and on the other hand to the increasing availability and affordability of 'soft', digital, technology, such as smart meters and appliances, online platforms, etc., which make it easy for consumers. In cases of energy prosumption the traditional energy distribution 'spots' in the historic value chain (e.g. residential areas) are becoming those of production (e.g. due to the solar panels on the roofs). This phenomenon is referred to in the literature as 'local sustainable energy' initiatives (LSEs). The LSEs trend is a specific kind of bottom-up innovation, usually referred to as 'user-centered innovation', describing the situation when users of products/ processes/ services innovate themselves in order to suit their specific needs, rather than rely on the manufacturers/ suppliers to do so for them.

LSEs can assume different formats, ranging from an individual household, to organized collectives, cooperations, etc. The development of LSEs initiatives in Europe highlights the possibility of different types of transactions in the national energy markets of the Member States, such as e.g. small energy prosumers participating in balancing and flexibility markets, traditionally reserved for large industrial players. Moreover, LSEs' development creates opportunities for a different type of energy market, and namely local energy market characterized by peer-to-peer transactions between the different types of prosumers/ consumers (sharing economy). Again, such types of transactions are partially enabled by the progress in digital technologies, such as smart meters and online trading platforms. The emergence of these new types of transactions catalyzes other formats of cooperation, services, market structures and cost-benefit allocation than previously existing in the market. Another result of LSEs initiatives is the emergence of new actors in both national and local markets who fulfil new roles and have new responsibilities, as well as changing roles and responsibilities of the existing actors.

At the moment the contribution of local energy to the total energy demand in Europe is marginal. However, given the right conditions- namely technology progress and price decrease (e.g. for small-scale energy storage, such as batteries), further digitalization, and wide adoption of these technologies- the LSEs could potentially have drastic consequences for the design of energy market as we know it. This could for example be the case for the so-called 'grid-defection' (disconnecting their household from the energy grids).

The European regulatory framework relevant to the development of LSEs quite naturally reflects the traditional, top-down, centralized, and predominantly fossil, energy value chain. In other words, the respective regulatory framework is 'geared' towards the existing level of technology and market design. Moreover, this framework reflects certain assumptions about the energy market structure (such as e.g. the perspective upon consumers as passive customers of the energy suppliers). However, as technology progresses and the formats of market design evolve, as is the case with the LSEs initiatives, the problem of 'regulatory disconnection' could arise, meaning that the existent regulatory framework might not be 'fit for purpose' any longer due to its disconnection from rapidly developing innovation. Hence, not only the regulatory framework itself does not correspond to the current reality, but the same is also true regarding the underlying assumptions: e.g. as the consumers become prosumers, the perspective of 'a passive consumer' is not relevant any longer. In such cases the existing regulatory framework (perhaps unintentionally) represents obstacles for (further)

development of the LSEs initiatives in Europe. The LSEs are recognized as a desirable development, aligned with the policy goals. Thus, the legal provisions of the current European regulatory framework representing, perhaps unwittingly, unjustified obstacles for the innovation taking place at the level of local sustainable energy initiatives are problematic, as they could hamper the reaching of the EU policy goals.

In the current research we focus on the specific type of innovation, and namely user-centered innovation by the local sustainable energy collectives, illustrated by the transactions between individual and collective prosumers of the local energy, be it peer-to-peer transactions or interaction with national energy market players, e.g. energy suppliers. This particular innovation is used as a case study in order to test current degree of 'fit' between the European regulatory framework on one hand and innovation in the energy sector on the other hand. Local energy initiatives are discussed from the Dutch perspective. In other words, the Dutch example is discussed as approximate for the European situation. This is due to the fact that the Netherlands displays a medium level of market maturity regarding local energy: it is behind such 'progressive' countries as Denmark and Germany, but ahead of many Central and Eastern European Member States, such as Poland and Hungary. The expectation is that the findings based on the Dutch example are extendable to the other EU Member States, since EU regulatory framework is assessed. It is also expected that the findings of the paper are extendable to the other areas of innovation in the energy sector.

The paper is structured as follows: First, we discuss the example of local energy as a user-centered innovation and its impact on the energy market on the Dutch example. Furthermore, we establish whether there is, in fact, a regulatory disconnection between the relevant European regulatory framework (limited to energy law) on the one hand and the actual innovation taking place in the market on the other hand. More specifically, we identify the obstacles present in this framework in relation to local energy transactions between individual and collective prosumers on the local and the national energy market. Finally, if such obstacles are identified and deemed significant (regulatory disconnection is present), we provide recommendations as how to alleviate the situation and further stimulate user-centered innovation.

Energy prosumers and infrastructure regulation: some initial observations from Australia

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Keywords

Non-State actors, regulatory reforms, electronic communications, media

Abstract

This paper will present some initial reflections about the rise of 'energy prosumers' and the implications for the regulation of energy infrastructure.

With the decentralized micro-production of energy becoming increasingly available through the declining price of photovoltaic technology (solar panels) and, to a lesser extent, wind turbines, the idea of the 'prosumer' - developed in relation to 'disruptive' media and communications technologies, free software and 3D printing - has also become relevant to energy, since individuals now have the ability and means to produce energy as well as consume it.

Individuals or community groups can sell excess energy that they have generated back to the grid or opt to go 'off-grid' entirely. In addition, going off-grid or being part of a small-scale energy network may have further benefits in terms of promoting energy localization, resilience and sustainability, which may be of particular appeal to communities or individuals in remote areas living far from large population centers. Since these small-scale energy generation technologies usually involve the generation of renewable energy there are additional social benefits to this energy production in terms of contributing towards the reduction of carbon emissions and the promotion of clean and sustainable energy. The digitization of energy grids and smart meters, and the development of household battery storage cross-fertilize this decentralized micro-production of energy and enhance the 'prosumer' experience.

However, the emergence of energy prosumers stands in stark contrast to the centralized model of energy production in developed economies, which forms the paradigm on which existing energy regulation is built. Yet prosumers in other areas of production, such as the Internet and 3D printing contexts, have also proved 'disruptive' to existing laws. Prosumers in the guise of 'user' are recognized to some extent by copyright law but other areas such as competition law have been less willing to acknowledge productive individuals. While the forthcoming net neutrality regulation might go some way to acknowledging and integrating prosumers into EU telecoms regulation the concept would still seem to be disruptive for other areas of existing utilities regulation. Energy would appear to be among these, experiencing only recently issues of decentralization which have characterized and transformed communications since the advent of digitization and the Internet's widespread take-up.

This paper will critically examine the development of energy prosumers and provide some initial reflections on their trajectory within current infrastructure regulation, and what might need to be changed to better accommodate them, particularly in the Australian context. The issue of renewable energy has become highly politicized in Australia, despite the country having some of the best natural resources for this kind of production. Yet Australia's 'tyranny of distance' characterizing many remote communities makes small-scale renewable energy production an even more resilient and attractive option for individuals and small communities. The paper will then identify some developing flashpoints for energy prosumers around issues such as:

- Consumer network charges;
- Disadvantageous energy pricing – both for household-produced electricity being sold to the grid and centrally produced electricity being bought from the grid by household producers;
- Attempts to stop household producers selling electricity back to the grid.

In light of these flashpoints, some observations will be offered on energy prosumers' trajectory under existing Australian regulation, and what insights this may offer to regulators in other jurisdictions, especially the EU, where similar 'disruptive' trends can be observed. Examples from other areas of infrastructure regulation, especially telecommunications where digital-led disruption has created prosumers, will also inform these observations.

This research is being carried out as part of a 3 year project (2016-2019) at Queensland University of Technology Faculty of Law entitled 'New energy technologies, old legal categories – is current Australian and EU regulation an inducement or obstacle to the small sale production of clean energy?'. This paper represents one of the project's first outputs.

Institutional “tetris” in infrastructure regulation: harmonizing governance, regulation and policy-making in the transport sector

Authors

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Keywords

Regulation; Infrastructure; Portugal; Concessions; Public-Private Partnerships

Abstract

The role of regulation in infrastructure development has changed significantly over time. Changes have been carried out at different levels: institutional (changing entities), regulatory model (contractual regulation gaining momentum), and contractual changes. This paper looks at the recent evolution in the Portuguese case for the regulatory institutional arrangement and models developed, in the rail, road, maritime, urban transport and airport sectors. Although there was a clarification of the role of the public and private sector over time, and the political acknowledgement of the importance of a stable and effective regulatory framework, there has been an unstable institutional scenario. Furthermore, the role of the regulators in Portugal is extremely limited, given the predominance of the contractual regulatory model, which thus decreases the level of flexibility needed to cope with the challenging adaptations driven by technology.

Digital Innovation in the Port Sector: Barriers and Facilitators

Authors

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Keywords

Port innovation, Information and communication technology, barriers/facilitators, port-related actors

Abstract

Digital innovation changes industry as a whole, and gradually also the port sector. The present paper examines in detail 32 ICT innovation cases collected between Autumn 2013 and Spring 2015. Leading actors along the maritime supply chain were asked to indicate the importance and to assess the degree of the success achieved in each ICT innovation initiative, to identify the driving forces behind the adoption of innovation and to denote the associated costs and benefits. This input allows identifying the barriers of digital innovation from initiation through to implementation, as well as assessing the impact of facilitators of ICT innovation. To do this, the present research combines four quantitative instruments. The added value of this combined approach is a deeper understanding of the digital innovation process within the port sector.

The research firstly indicates that alignment exists between company strategies and success degrees in the port sector, in contrast to non-ICT initiatives. The ICT innovation initiatives also are profit-driven. Secondly, the port sector should be more open to disclose cost and benefit info, and should conduct more such analyses. Next, there are conditions that improve the degree of success. Overall, terminal alignment with the right ICT infrastructure proves key. But too many divergent interests among the stakeholders entail that digital innovation challenges the ability to cooperate. An important finding: regulation was not identified as a barrier nor as a facilitator.

Factors affecting service quality of water utilities

Authors

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Abstract

Water utilities operate in natural monopoly industry, since a multi-firm production is more expensive than a production made by a single firm. This condition requires a strict regulation in order to overcome the main limitations of monopoly, such as poor level of service, too high prices and low level of investments. The Italian water sector was recently been reformed, starting from 2012 with the institution of a national water authority with the task of tariff setting and control over the performance of utilities. In the last year was developed a new tariff method for 2012-2013, then renewed for the regulatory period 2014-2015 and for 2016-2019; in the last year was stated a regulatory framework for the quality of services, which is going to be in force from the current year. In the light of these reforms, the paper aims to measure an overall performance indicator (OPI) for all Italian water utilities entrusted for the management of water services, including drinkable water supply, wastewater collection, and treatment. The OPI was measured though Data Envelopment Analysis, combining cost items, production values and other indicators for quality of services. In a second stage step the determinants of OPI distributions was studied, observing the effect exerted by variables as ownership structure of water utilities, scale of operations, geographical localization, population density, and amount of realized investments.

Social and nonlinear tariffs in safe water in France: cui bono? An empirical study applied on a natural experiment in France

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Keywords

Tariffs, safe water, public policies, social tariffs, nonlinear tariffs, monopolies

Abstract

This empirical study discusses both efficiency and equity of the nonlinear tariffs in the safe water sector. The management of this specific good is caught in the middle of two objectives: saving this natural resource on the one hand, while ensuring its access to everyone on the other. For this reason, authorities wish to explore innovative discriminatory progressive tariffs clustered with social measures. Using an original panel database, we econometrically explore the impact of tariffs changes on consumption (linear versus non linear) on a natural experimentation in France. We show that this measure reduces global consumption. However, we also find that the cost is not equally shared by all consumers. Public policy implications of such tariffs in safe water may lead to discussions on their real efficiency, reviving the ancient adage: cui bono?

JEL Classification

D04 ; D42 ; L11

Interface between competition law and personal data: challenges and possibilities

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Keywords

EU, competition law, personal data, data protection, privacy

Abstract

For many years, discussion on personal data has been led in the context of data protection and, to a certain extent, privacy rules, and up until recently its economic significance has not been considered a topical issue. The development in information and communications technologies (ICT), digitalization of everything, possibility to store and process enormous amounts of data have made data the oil of new economy, the main resource and a competitive issue.

However, application of competition rules to data in general and personal data in particular is not straight forward – as is the possibility of competition law to take other, non-economic values into account. The relation of competition law and personal data is an important problem that requires an urgent clarification because there is a growing number of cases involving ICT undertakings (for example, antitrust investigations of the European Commission in Microsoft/ Skype acquisition, Microsoft/ Yahoo! Case on online advertising, Google/ DoubleClick merger, Facebook/ WhatsApp merger, the ongoing Google case) and because most undertakings of traditional industries are discovering big data analysis for themselves.

So far, the Commission has noticed the raised concerns about personal data and privacy, but dismissed them. It did not deal with the question whether there is a market for personal data, did not analyze the possible effects of the combination of data assets by the companies and did not consider data protection and privacy policy as a parameter of competition. Moreover, the Commission draws a delimitation line by stating that assessment of data protection and privacy issues does not fall into its remit as a competition authority. This de jure correct statement might nevertheless lead to the

ignoring of important emerging competition issue as some opinions suggest (see the Opinion of the European Data Protection Supervisor (EDPS) "Privacy and competitiveness in the age of big data" in 2014 and of several workshops at the EDPS in 2014-2015).

In the described context several questions arise that shall be answered as the result of the planned research. First, what is the relationship between competition law and personal data? Can a conflict of values (economic versus non-economic) be identified? Is the Commission right that personal data and privacy issues should and can be sufficiently addressed by a different set of rules? Second, is there an economic side to personal data and privacy relevant to competition that, therefore, can and should be taken into account when applying competition rules? How can this be done? Ultimately, these questions are about the intersections between competition and personal data (and related privacy matters) and about the necessity of a special regulatory (in a broad sense) response to them.

Herewith, the proposed paper intends to contribute to the important discussion on the interface between personal data and competition law in the context of the European Union. The paper assumes the competition law perspective and studies the value of personal data and its processing for digital economy and competition as well as the potential and limitations of the application of EU competition law to the (big) data related subject-matter. The selected topic is under-researched: only a handful of contributions exists.

The paper adopts a case-based approach and focuses on the analysis of the existing relevant practice of the European Commission and the Court of Justice of the EU. It analyses the EU competition law framework drawing upon the relevant theoretical insights, especially regarding the application of competition law to broader policy objectives. Finally, the paper contrasts the European approach with the experience in the USA where the same cases were subject of antitrust scrutiny. The paper aims at mapping and assessing various interplay possibilities between personal data and competition law, on the basis of which different purposes of and challenges for the competition law application to the relevant subject-matter can be established. Recommendations for policy-makers can be contemplated.

Access to smart electricity systems for final customer

Author

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Keywords

System operator, energy law, telecommunications law, smart energy systems

Abstract

Achieving the EU electricity policy goals of a secure, affordable, and sustainable electricity system available to all final customers requires the deployment of smart electricity systems (SES). The underlying idea of SES is that all actors (e.g. consumer, producers, system operators) in the system are enabled to interact with each other by means of information and communication technology (ICT). Thus, SES can also be described as electricity systems that are enhanced with telecommunication systems. Both, the electricity system and telecommunication systems are network-bound industries with different regimes regulating the access for third parties. The differences between the two access regimes are significant. Whereas in the electricity sector, access entails access to the electricity system, in the telecommunication sector, a variety of communication technologies exists with different qualities and access regimes. However, the goal to ensure a secure, affordable, and sustainable electricity system available to all final customers depends on the deployment of communication systems to the electricity system, resulting in SES. This implies that maintaining effective access for final customers to SES depends not only on access to the electricity system but also on access to communication services. Therefore, this paper addresses the following research question: What are the conditions for final customers to access SES communication services and what are their guarantees for accessing SES communication services? Answering this question is important in order to understand the implications of the changing (smartening) electricity infrastructure for the access regime, and to assess whether final customers are still guaranteed of their right to access and to enjoy universal services in the SES.