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Open internet access to CATV networks: experiences from the EU

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Abstract: Broadband over CATV networks is flourishing in the EU and in some Member States it even has already made significant impact on the retail broadband market. Our article aims to provide an overview of the regulatory treatment of broadband over CATV under the electronic communications regulatory framework. For this purpose, we carry out a survey of the different approaches within the 27 EU Member States. Based on the comments of the European Commission within the EU consultation procedure, our observation is that open Internet access obligations upon CATV operators remains limited.

Keywords: access regulation, CATV, broadband

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Open Internet Access to CATV Networks: *experiences from the EU*

Peggy Valcke, Liyang Hou and David Stevens*

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[Abstract] Broadband over CATV networks is flourishing in the EU and in some Member States it even has already made significant impact on the retail broadband market. Our article aims to provide an overview of the regulatory treatment of broadband over CATV under the electronic communications regulatory framework. For this purpose, we carry out a survey of the different approaches within the 27 EU Member States. Based on the comments of the European Commission within the EU consultation procedure, our observation is that open Internet access obligations upon CATV operators remains limited.

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Due to the technological convergence emerging at the end of last century, broadband services have been able to be delivered over many platforms, prominently PSTN, cable TV (CATV) and fibre (Spulber and Yoo, 2008). In order to promote competition on the broadband market, regulators in general have two options: inter-platform competition and intra-platform competition (Picot and Wernick, 2007). The former enhances competition between different technologies while the latter promotes competition using the same network technology. The intra-platform competition is featured by open-access obligations on the incumbents to open their infrastructures and associated facilities to new comers. Those obligations in general contain two types: on the one hand, physical access, including local loop unbundling (LLU) and subloop unbundling, and on the other hand, logical or bitstream access. While the vast majority of countries have already imposed open Internet access obligations on PSTN and/or fibre networks (OECD, 2005), there is a universal debate on imposing those obligations upon CATV operators. Two opposite practices can be observed: some countries introduced open Internet access to CATV, *e.g.* Canada (Van Gorp and Middleton, 2010) and South Korea (Wu, 2004); and others preferred to leave CATV networks untouched.

In the European Union (EU), broadband over CATV has become an effective force for the provision of broadband services, and in total accounts for 24.7% of all the broadband offering including DSL, fibre, mobile, satellite and so on (European Commission, 2010). The first part of our article offers a descriptive survey of the general EU legal context of open-access

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regulation on broadband over CATV. The subsequent three parts provide a survey of broadband regulation respective on the retail market (Part 2), the market for wholesale network infrastructure access (Part 3), and the market for wholesale broadband access (Part 4) within the 27 EU Member States. The results of these analyses are reflected in our last chapter, in which we provide an evaluation and some critical reflections on the approach followed.

1. Legal Context

Technological convergence makes it difficult to regulate the electronic communications sector based on platforms or technologies. Already in 2002, the EU therefore adopted a technologically neutral approach for market regulation, which was amended in 2009. This approach is the so-called significant-market-power (SMP) regime, of which the core elements are incorporated in the articles 14-16 of the Framework Directive.¹

According to this regime, EU Member States, in order to regulate an electronic communications undertaking, must conduct a three-step analysis: (i) to define a relevant market, (ii) to assess whether there is an undertaking individually, or collectively with others, having SMP, and (iii) to impose regulatory obligations only upon the undertaking(s) with SMP. It is one of the regulatory obligations upon SMP undertaking to open their networks to third parties. Nevertheless, undertakings that are excluded from a relevant market or do not enjoy SMP should be not regulated.

Consequently, the question whether a CATV network should be obliged to open to third parties can be boiled down to two sub-questions: (i) whether a CATV network can be included in a recommended relevant market; and (ii) whether the CATV operator has SMP on that relevant market. The first question is more important than the second one as an exclusion from market definition means no possibility of having SMP on that relevant market, thus invoking no regulatory obligations. This explains why TV operators focus so much on market definition when arguing that they should not be regulated (Cable Europe, 2006).

In order to enhance harmonisation, the EU does not leave the definition of relevant markets to the sole discretion of Member States. The Commission is required to publish a recommendation on relevant markets that are susceptible to *ex ante* regulation (the Recommendation).² The Recommendation in general summarises the practices under competition law in market definition. Accordingly, electronic communications markets should be defined based on demand-side and supply-side substitution. This is usually performed through a hypothetical monopoly test to examine the reaction of consumers to a small but significant and non-transitory increase in price (SSNIP). This test also implies that market definition and market power assessment are to some extent intertwined (Schwarz, 2007). More specifically, the answer to the hypothetical monopolist test amounts to the answer to the market power assessment itself: if the hypothetical monopolist can profitably raise a SSNIP, it is a monopolist.

¹ Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services, OJ L 108/33, 24.4.2002, amended by Directive 2009/140/EC amending Directives 2002/21/EC on a common regulatory framework for electronic communications networks and services, 2002/19/EC on access to, and interconnection of, electronic communications networks and associated facilities, and 2002/20/EC on the authorisation of electronic communications networks and services, OJ L 337/37, 18.12.2009.

² Commission Recommendation of 17 December 2007 on relevant product and service markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, OJ L 344/65, 28.12.2007.

In addition to the synthesis of competition-law practices, the Recommendation also entails some sector-specific regulatory elements. One of the most important is that it defines wholesale markets based on the demand derived from retail markets. Regarding the provision of broadband, the Recommendation, in order to allow alternative operators without own infrastructures to provide retail broadband services, defines two wholesale products: physical network access (i.e. local loop unbundling and sub-loop unbundling), and non-physical or virtual network access (including bitstream access). The former is referred to as wholesale network infrastructure access (Market 4), while the latter as wholesale broadband access (Market 5).³

Since the open-Internet-access obligation, or access obligation under Article 12 of the Access Directive,⁴ can only be imposed on Market 4 and Market 5,⁵ only if CATV networks can be included in Market 4 and/or Market 5, it is possible to impose access obligations for broadband services on those networks. However, two problems come out when analysing whether CATV should be considered as part of Market 4 and Market 5. First, CATV usually does not pose direct constraints on PSTN at the wholesale level. This lack of direct constraints is often due to the fact of high switching costs that DSL-based wholesale customers have to bear when migrating to CATV-based on products. Therefore, it is unlikely that they will switch to CATV operators in case of a SSNIP. Secondly, CATV may exercise indirect constraints from retail markets. This will be the case if PSTN operators initiate a SSNIP on the wholesale markets, a large number of broadband end-users switches to retail broadband over CATV so as to make the wholesale price increase unprofitable. In this case, PSTN wholesale operators cannot behave independently of CATV operators even though the latter exert no direct constraints. However, the Recommendation asserts that “indirect pricing constraint, where it is found to exist, should be taken into account when assessing if the incumbent DSL operator has SMP on the relevant market”,⁶ hence, not in the stage of defining the relevant market.⁷ This statement seems to imply that CATV networks are not supposed to be subject to *ex ante* regulation as they are not included in Market 4 and Market 5. This view nevertheless has not been well received by all the Member States. As discussed in the following, the treatment of indirect constraints underlies the tension between the Commission and some Member States regarding regulating broadband over CATV.

2. CATV in the retail broadband market

It is important to first take a look at competition in the retail broadband market before examining the two wholesale markets, i.e. Market 4 and Market 5. Considerations for this are two-fold. First, Market 4 and Market 5 are defined based on the demand and the supply

³ *ibid*, Annex.

⁴ Directive 2002/19/EC on access to, and interconnection of, electronic communications networks and associated facilities, OJ L 108/7, 24.4.2002, amended by Directive 2009/140/EC amending Directives 2002/21/EC on a common regulatory framework for electronic communications networks and services, 2002/19/EC on access to, and interconnection of, electronic communications networks and associated facilities, and 2002/20/EC on the authorisation of electronic communications networks and services, OJ L 337/37, 18.12.2009.

⁵ It should be noted that the Recommendation also provides Member States with a possibility to define relevant markets beyond what it recommends. However, since the standard of proof to define new markets is very high, Member States usually follow the Commission’s recommendation.

⁶ Explanatory Note Accompanying document to the Commission Recommendation on Relevant Product and Service Markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, SEC(2007) 1483 final, pp.35.

⁷ Nevertheless, it still remains a debate in economics how to deal with indirect constraints (Inderst & Valletti, 2007.2).

derived from the retail level. Therefore, it is always the first step for Member States to delineate the boundaries of retail markets within the SMP regime. Secondly, Inderst & Valletti (2007.1) indicate that indirect constraints are particularly effective if the retail market is highly competitive, and they become relatively more important than direct constraints if the upstream market is relatively less competitive compared to the retail market. This is exactly the situation in broadband markets in the EU where the retail markets are more or less competitive while the wholesale markets are not. Moreover, although retail market share should not be a decisive factor, it is informative on the effectiveness of indirect constraints. Therefore, we draw the following table 1 to display the impact of broadband over CATV on the retail market in all the 27 Member States.

The first observation from Table 1 is that CATV broadband operators in most EU Member States have not been able to make a significant presence on the retail market. Their influence is in general quite weak in the EU, in particular in Greece and Italy where there is no broadband via CATV at all. This also implies that CATV operators should in general not be regulated on the wholesale markets as they hardly enjoy SMP. In contrast, it is observed that there are a small number of Member States where broadband over CATV was able to gain a considerable market share on the retail broadband market. This is particularly true for Malta, Hungary, Belgium, Portugal and the Netherlands where CATV operators account for over or close to 40% market shares. Such large amount of market shares may possibly challenge the market position of those PSTN incumbents. In the next two parts, we will survey how the retail competition has been reflected at the wholesale level.

Table 1: Country Report for the Retail Broadband (as of January 2010)

MS	DSL (%)	Cable (%)	Other Technologies (%)
AT	68	30	2
BE	57	42	1
BG	31	13	56
CY	94	6	0
CZ	39	22	39
DE	90	9	1
DK	60	27	13
EE	42	21	37
EL	100	0	0
ES	80	19	1
FI	76	14	10
FR	95	5	0
HU	44	45	11
IE	72	10	18
IT	97	0	4
LV	49	8	43
LT	36	9	55
LU	83	16	1
MT	48	49	3
NL	62	36	2
PL	56	27	17
PT	59	38	3
RO	28	17	55
SE	59	20	21
SI	62	22	16
SK	46	10	44
UK	79	21	0

Source: Commission Staff Working Document Accompanying the Progress Report on the Single European Electronic Communications Market (15th Report), Part I, pp 25

3. CATV regulation in Market 4

According to the Recommendation, Market 4 comprises physical access products to local loops. In order to impose an obligation of local loop unbundling, NRAs must include CATV networks into Market 4 based on demand-side and supply-side substitutions. The Recommendation maintains that “the unbundling of cable networks at this stage does not appear technologically possible, or economically viable, so that an equivalent service to local loop unbundling cannot be provided over cable networks”.⁸ This has been confirmed by the European Regulators Group (ERG, currently the Body of European Regulators for Electronic Communications, or BEREC). The ERG (2005) suggests a technical possibility that an alternative operator may co-locate equipment of cable modem termination system at cable operators’ headend and interface to the Hybrid Fibre-Coaxial network, which has the same effect of local loop unbundling. However, it also acknowledges that due to spectrum limitation this could only work with a small number of third parties. Since CATV networks cannot be unbundled with the same degree as PSTN, they cannot exert sufficient direct constraints on PSTN networks. Furthermore, the Recommendation makes it clear that even if CATV can impose indirect constraints from the retail level, those constraints should not be taken into account at the stage of market definition, but in the phase of SMP assessment. Consequently, the conclusion of the Recommendation is that broadband over CATV should not be included into Market 4, as long as the unbundling of CATV networks remains technically or economically unviable.

Table 2 contains the information about the latest notifications of every EU Member State with regard to Market 4. This table clearly shows that almost all Member States followed the approach within the Recommendation and excluded CATV from Market 4. However, it is also observed that there are two maverick Member States, Portugal and the UK, which deviated from this approach and included CATV on Market 4. In the following, we attempt to answer two questions concerning the two notifications: (i) how they reached such a conclusion and (ii) why the Commission approved their proposals.

Neither ANACOM nor Ofcom submitted that CATV could exert direct constraints on PSTN. Their analyses of including broadband over CATV in Market 4 focused on indirect constraints. Both of them assumed that the price of wholesale input occupied a significant part of the retail price (50% in the Portuguese notification and 65-75% in the UK notification).⁹ Thus, in case of 10% price increase at the wholesale level there should be more than 5% price increase at the retail level. As a consequence, end users would switch to CATV-based broadband to an extent that would make the wholesale price increase unprofitable. CATV was accordingly considered on the same relevant market as PSTN.

However, the Commission disagreed with this analysis in both of the notifications. In particular, it held that it would not be possible for the price increase to entirely pass on to the end users of retail broadband access products. This was mainly due to the fact that an LLU price increase could also affect other retail products, such as voice telephony and IPTV. Moreover, it was also doubtful that competitors would not be able to partly absorb a 10% price increase in their margins. Nevertheless, the Commission did not disapprove the two notifications. A main reason was that both ANACOM and Ofcom still proposed to designate

⁸ *ibid*, pp.31.

⁹ Commission decision concerning case UK/2010/1064: Wholesale local access market; and Commission decision concerning case UK/2010/1065: Wholesale broadband access market, 1/06/2010. Case PT/2008/0850: Wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location; and Case PT/2008/0851: Wholesale broadband access, 05/01/2009.

the PSTN incumbents as SMP operators. Hence, the Commission declared that an exclusion of cable from the definition of Market 4 would not lead to a different conclusion. This corresponds to the argument made at the beginning of this article that market definition and market power assessment are intertwined. Hence, there was no logic error to take into account indirect constraints at the stage of market definition.

Table 2: Country Report for Market 4

MS	Date of Notifications	Is CATA included?	Other alternative technologies	Direct constraints	Indirect constraints	Wholesale CATA offer	SMP operators	Remedies
AT	17/06/2010	No	fibre	No	No	No	PSTN +fibre	PSTN +fibre
BE	20/05/2011	No	No	No	No	No	PSTN	PSTN
BG	27/01/2011	No	fibre	No	No	No	PSTN +fibre	PSTN +fibre
CY	06/02/2009	No	No	No	No	No	PSTN	PSTN
CZ	03/05/2010	No	fibre	No	No	No	PSTN +fibre	PSTN +fibre
DE	20/09/2010	No	fibre	No	No	No	PSTN +fibre	PSTN +fibre
DK	18/05/2005	No	No	No	No	No	PSTN	PSTN
EE	30/07/2009		fibre	No	No	No	PSTN +fibre	PSTN +fibre
EL	17/07/2009	No	No	No	No	No	PSTN	PSTN
ES	13/11/2008	No	No	No	No	No	PSTN	PSTN
FI	26/11/2008	No	fibre	No			PSTN +fibre	PSTN +fibre
FR	26/05/2011	No	fibre	No	No	No	PSTN +fibre	PSTN +fibre
HU	01/04/2011	No	fibre	No	No	No	PSTN +fibre	PSTN +fibre
IE	20/2/2009	No	fibre	No	No	No	PSTN +fibre	PSTN +fibre
IT	14/04/2009	No	Fibre, wireless	No	No	No	PSTN +fibre	PSTN +fibre
LT	06/05/2011	No	Fibre, twisted pair	No	No	No	PSTN +fibre +twisted pair	PSTN +fibre +twisted pair
LU	27/10.2006	No	No	No	No	No	PSTN	PSTN
LV	08/12/2006	No	No	No	No	No	PSTN	PSTN
MT	22/12/2006	No	No	No	No	No	PSTN	PSTN
NL	15/03/2010	No	fibre	No	No	No	PSTN +fibre	PSTN +fibre
PL	29/10/2010	No	fibre	No	No	No	PSTN +fibre	PSTN +fibre
PT	05/01/2009	Yes	fibre	No	Yes	No	PSTN +fibre	PSTN +fibre
RO	6/08/2010	No	Fibre	No	No	No	PSTN +fibre	PSTN +fibre
SE	19/04/2010	No	fibre	No	No	No	PSTN +fibre	PSTN +fibre
SI	22/12/2010	No	fibre	No	No	No	PSTN +fibre	PSTN +fibre
SK	19/05/2011	No	fibre	No	No	No	PSTN +fibre	PSTN +fibre
UK	01/06/2010	Yes	fibre	No	Yes	No	PSTN +fibre	PSTN +fibre

Source: notifications under EU consultation procedure, available at:

http://ec.europa.eu/information_society/policy/ecomm/implementation_enforcement/eu_consultation_procedures/index_en.htm

4. CATV regulation in Market 5

The Recommendation defines Market 5 as including bitstream access that permits the transmission of broadband data in both directions, as well as other wholesale access provided over other infrastructures, if and when they offer facilities equivalent to bitstream access. Since broadband over CATV can permit the transmission of broadband data in both directions, it is potentially part of Market 5 from a technical standpoint. The ERG (2005) also recognised the technical possibilities to provide wholesale broadband access over CATV through Layer 2 solutions and Layer 3 solutions. In addition, we have also observed that wholesale broadband access over CATV is currently commercialised in Austria, France, Hungary and the Netherlands.

Despite such technical and commercial possibilities and realities, the Commission seems not to support the inclusion of CATV into Market 5. It asserts that the migration from DSL-based access to CATV-based access would give rise to substantial switching costs so that switching is unlikely to occur in reaction to a SSNIP. Furthermore, since the geographical coverage of CATV networks is in general limited, alternative operators need to negotiate with multiple CATV operators in order to offer national-wide broadband provision. Therefore, the Commission expresses concerns on the likeliness that CATV can impose direct competition against PSTN.¹⁰ Moreover, as regards the indirect constraints that CATV operators may exercise on the providers of DSL-based wholesale broadband access, the Commission underlines that “such indirect pricing constraint, where it is found to exist, should be taken into account when assessing if the incumbent DSL operator has SMP on the relevant market”.¹¹

However, the Commission does not consider that the inclusion of CATV networks into Market 5 is *per se* incompatible with the SMP regime. It also provides some guidance for Member States to decide whether CATV can be considered as part of Market 5. When a Member State considers that CATV operators can exert direct constraints, it should give due consideration to the technical, practical and economic feasibility for CATV operators to offer facilities equivalent to bitstream access.¹² As pointed out in the previous paragraph, there is no absolute technical infeasibility to realise wholesale broadband access over CATV networks. The Commission’s focus was accordingly on the practical and economic feasibility. It expects Member States to provide evidence on the capacity of CATV wholesale broadband access to offer comparable critical product characteristics as provided by DSL, notably in terms of service management. In addition, Member States should also assess whether product differences may render it difficult for an ISP to switch from DSL to a CATV wholesale broadband offer, independent of the possible technical substitutability, for example by providing evidence that incentives for a wholesale migration are not significantly limited by necessary modem replacements and reconfigurations.¹³ Secondly, when a Member State intends to rely on the effect of indirect substitution through a SSNIP test, the Commission demands a hypothetical monopolist test. In particular, Member States must demonstrate that

¹⁰ Case NL/2008/0826: Wholesale access to the local loop for broadband and/or voice services; and Case NL/2008/0827: Wholesale broadband access, 08/12/2008.

¹¹ *supra* note 6.

¹² Case EE/2009/0942: Wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location Case EE/2009/0943: Wholesale broadband access, 30.07.09.

¹³ Commission decision concerning case DE/2010/1116: Wholesale broadband access in Germany, 6/09/2010.

- (i) Internet service providers would be forced to pass a hypothetical wholesale price increase on to their consumers at the retail level based on the wholesale/retail price ratio without being able to absorb it;
- (ii) there would be sufficient demand substitution at the retail level to retail services based on indirect constraints such as to render the wholesale price increase unprofitable; and
- (iii) the customers of the ISPs would not switch to a significant extent to the retail arm of the integrated hypothetical monopolist, in particular if the latter does not raise its own retail prices.¹⁴

It should be noted that the standard of proof set up by the Commission is quite high. Table 3 offers an overview of the market definition of Market 5 within the latest notifications of the 27 EU Member States. We can find that there are in total twelve Member States that decided to deviate from the Commission's recommendation and that included CATV in Market 5. Those Member States comprised Austria, Denmark, Estonia, Finland, Germany, Hungary, Latvia, Malta, Netherlands, Portugal, Slovakia, and the UK. While it is striking that neither of these Member States convinced the Commission of their justification, it is even more striking that the Commission did approve all those proposals. In the subsequent paragraphs, we will investigate the reasons of the Commission to accept the deviation.

In order to understand the underlying reasons, we decide to divide those twelve Member States into two groups depending on whether the inclusion of CATV into Market 5 would have changed the final outcome. The first group includes eight Member States, i.e. Austria, Estonia, Finland, Germany, Hungary, Latvia, the Netherlands and Slovakia. The second group comprises four Member States, namely Denmark, Malta, Portugal and the UK.

Within the first group of cases, all those Member States proposed to include CATV into Market 4. However, it turned out that no CATV operators were either designated to have SMP, or were considered to sufficiently constrain the market power of those PSTN incumbents. Consequently, such an inclusion of CATV networks affects neither the result of SMP designation nor the imposition of regulatory remedies. Since the regulatory outcomes would remain the same even in the cases where CATV would be excluded, the Commission found no need to veto those NRAs' proposals. This is similar to its practice with regard to the notifications from Portugal and the UK, and also strengthens the intertwined nature of market definition and market power assessment.

Unlike the first group of cases, the exclusion of broadband over CATV networks could have led to a different regulatory outcome in the second groups of cases. Thus, we raise two questions for an in-depth analysis: (i) why the Commission did not intervene in those cases; and (ii) whether the Commission shifted to other approaches. Since the national circumstances varied in those four cases, the following examination will be carried out on a case-by-case basis.

¹⁴ *supra* note 10.

Table 3: Country Report for Market 5

MS	Date of Notifications	Is CATV included?	Other alternative technologies	Direct constraints	Indirect constraints	Wholesale CATV offer	SMP operators	Remedies
AT	25/10/2010	Yes	fibre	No	Yes	Yes	PSTN +fibre	PSTN +fibre
BE	20/05/2011	No	No	No	No	No	PSTN +fibre	PSTN +fibre
BG	27/01/2011	No	fibre	No	No	No	PSTN	PSTN
CY	06/02/2009	No	No	No	No	No	PSTN	PSTN
CZ	03/05/2010	No	fibre	No	No	No	PSTN +fibre	PSTN +fibre
DE	06/09/2010	Yes	fibre	Yes	No	No	PSTN +fibre	PSTN +fibre
DK	09/03/2009	Yes	fibre	Yes	No	No	PSTN +fibre +CATV	PSTN +fibre +CATV
EE	30/07/2009	Yes	fibre	Yes	No	No	PSTN +fibre	PSTN +fibre
EL	17/07/2009	No	No	No	No	No	PSTN	PSTN
ES	26/12/2008	No	No	No	No	No	PSTN +fibre	PSTN +fibre
FI	20/04/2009	Yes	fibre	Yes		No	PSTN +fibre	PSTN +fibre
FR	26/05/2011	No	fibre	No	No	Yes	PSTN +fibre	PSTN +fibre
HU	01/04/2011	Yes	fibre	Yes	Yes	Yes	PSTN +fibre	PSTN +fibre
IE	16/05/2011	No	fibre	No	No	No	PSTN +fibre	PSTN +fibre
IT	14/04/2009	No	Fibre, wireless	No	No	No	PSTN +fibre	PSTN +fibre
LT	20/12/2005	No	No	No	No	No	PSTN	PSTN
LU	30/10/2006	No	No	No	No	No	PSTN	PSTN
LV	08/03/2010	Yes	Fibre, wireless		Yes	No	PSTN	PSTN
MT	07/11/2008	Yes	wireless	Yes		No	Competitive	No
NL	08/12/2008	Yes	fibre	No	Yes	Yes	PSTN +fibre	PSTN +fibre
PL	23/03/2011	No	fibre	No	No	No	PSTN +fibre	PSTN +fibre
PT	05/01/2009	Yes	fibre	No	Yes	No	PSTN +fibre	PSTN +fibre
RO	06/08/2010	No	Fibre	No	No	No	Competitive	No
SE	19/04/2010	No	fibre	No	No	No	PSTN +fibre	PSTN +fibre
SI	22/12/2010	No	fibre	No	No	No	PSTN +fibre	PSTN +fibre
SK	28/08/2006	Yes	Fibre, wireless	No	No	No	PSTN	PSTN
UK	01/10/2010	Yes	fibre	No	Yes	No	PSTN +fibre	PSTN +fibre

Source: notifications under EU consultation procedure, available at:

http://ec.europa.eu/information_society/policy/ecomm/implementation_enforcement/eu_consultation_procedures/index_en.htm

The unique feature in the Danish notification¹⁵ is that it is the only case where a Member State proposed to impose open access obligations upon a CATV operator. In Denmark, the broadband market presents a market structure that differs from other Member States in that the incumbent owns both a PSTN network and a CATV network. Before the notification, the

¹⁵ Case DK/2008/0862: Wholesale broadband access in Denmark, 09.03.2009.

Danish incumbent was only subject to access obligations on its PSTN network. However, a market failure was gradually observed as the incumbent began to slow down the upgrade on its PSTN network, and instead made substantial investment on its CATV network. The Danish regulator, NITA, was concerned that DSL-based alternative operators would be left behind by such a circumventing strategy. This was the underlying reason for NITA to include CATV on Market 5. The Commission, while affirming that it was not convinced by NITA's reasoning to include CATV based on direct and indirect constraints, acknowledged that it was justified to extend the remedies to cover also the incumbent's CATV network and to require it to comply with all reasonable requests for access. In exceptional circumstances, the SMP regime allows Member States to impose proportionate and justified obligations in an area outside but closely related to the relevant market under review. Therefore, the question of exact market boundaries could be left open.

In the Maltese notification,¹⁶ the direct consequence of including CATV was that Market 5 was found competitive. Malta has the best inter-platform competition among the EU Member States. There are three networks (PSTN, CATV and WiMax) all with fully national coverage probably due to the fact that Malta is one of the most densely populated countries in the world. In particular, as indicated in Table 1, the PSTN operator and the CATV operator have similar market shares at the retail level. Moreover, the switching costs between DSL-based broadband and CATV-based broadband are low because modem deposit and installation fees have been waived by the Internet Service Providers in Malta. However, the Commission still did not believe that wholesale broadband access provided over CATV and DSL could form part of the same market. Nevertheless, it did not use its veto power either. Although the Commission did not explain why it allowed such a proposal, a possible explanation may be that even if CATV would be excluded from the relevant market, its market power must also be taken into account when assessing whether the PSTN incumbent could have SMP. The technical feasibility of wholesale broadband over CATV, the national coverage of the CATV network, the high market shares of the CATV operator and the low switching costs for end users give a strong indication that the PSTN incumbent cannot behave independent of the CATV operator. Since the outcome on SMP designation would possibly remain the same, the Commission approved this notification.

It is interesting to compare this notification with the Hungarian notification.¹⁷ The broadband sectors of the two Member States are very similar. First, both of them have a relatively similar retail market structure between PSTN and CATV. Secondly, broadband over CATV in both countries is the strongest in the EU, with Malta sitting on the top and Hungary following. Thirdly, the switching costs were both considered low. Last but not least, both Member States decided to include CATV in Market 5. However, it turns out that Malta concluded that its Market 5 was competitive whereas Hungary designated the three PSTN incumbents as SMP operators. Despite so many similarities, there is indeed one major difference between the two countries. In Malta, the CATV network, similar to the PSTN network, has footprints all over the country. By contrast, the CATV networks in Hungary are "scattered or fragmented" (Bánhidi & Pápai, 2010). They are disadvantaged to some extent by the ubiquitous networks of those PSTN incumbents. Therefore, they are not considered to constrain those PSTN operators. However, in our opinion, if those CATV networks in Hungary are not considered to be able to compete with PSTN networks, they should not be considered as substitutes at the

¹⁶ Case MT/2008/0803: Wholesale broadband access in Malta, 7/11/2008.

¹⁷ Commission decision concerning Case HU/2011/1190: Wholesale (physical) Network Infrastructure Access at a Fixed Location in Hungary and Commission decision concerning Case HU/2011/1191: Wholesale Broadband Access in Hungary, 1/04/2011.

stage of market definition strictly according to the methods suggested by the Recommendation. Nevertheless, since the regulatory outcome would remain the same, the Commission in the end still approved the notification. This also proves that market definition and market power assessment overlap with each other.

If the overlap between market definition and SMP assessment is not unambiguous in other cases, it cannot be clearer within the Portuguese notification¹⁸ and the UK notification.¹⁹ Both Member States took CATV into account when defining sub-national geographic markets, and deregulated part of their territories based on the competitive constraints of CATV operators. Since the definition of sub-national geographic markets can be considered as a preliminary analysis of SMP (Hou, 2010), it clearly demonstrates that market definition and SMP assessment are intertwined with each other. Within the two notifications, the Commission agreed with neither of their justifications for their inclusion of CATV. However, since both Member States claimed that they took CATV into account only when the presence of CATV was capable of exercising a sufficient competitive constraint, they already kept the assessment of market power into mind when defining sub-national markets. As an inclusion of broadband over CATV would not lead to a different result, the Commission accepted these notifications.

In conclusion, it is found that although many Member State included CATV into Market 5 the Commission's opinion that CATV should be not regulated is in practice largely maintained. In most cases, the inclusion of CATV was only a matter of carrying out market power assessment at the stage of market definition. In view of the intertwined nature of the two analyses, those Member States' practice was not really a deviation from the Recommendation. Furthermore, the imposition of open access obligation to CATV network can be considered as an exceptional circumstance within the Danish notification.

5. Conclusions

Since the open-Internet-access obligation must be imposed according to the SMP regime, the answer to the question whether CATV can be included into the definition of Market 4 and/or Market 5 in view of direct and indirect substitution is a crucial one. The Commission is of the view that (i) broadband over CATV cannot exert direct constraints on PSTN networks on these two wholesale markets; (ii) indirect constraints, even if existing, must be analysed under the stage of SMP assessment, rather than market definition. Since in either cases CATV operators cannot be considered as SMP operators, it seems fair to conclude that broadband over CATV should not be regulated according to the Recommendation.

Based on the survey of national implementation, we have observed that some Member States deviated from the Commission's approach and included CATV into Market 4 and Market 5. The Commission nevertheless still approved their notifications because it believed that the exclusion of CATV network would not result into different regulatory outcomes. The Commission should not be blamed for its "the ends justify the means" practice. It has been pointed out at the beginning of this article that the approach for market definition, i.e. the hypothetical monopoly test, makes market definition and market power assessment to some extent mixed up. Therefore, those Member States did not commit a logical error by already taking into account indirect constraints at the stage of market definition. As long as the whole

¹⁸ Case PT/2008/0850: Wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location; and Case PT/2008/0851: Wholesale broadband access, 05/01/2009.

¹⁹ Commission decision concerning case UK/2010/1064: Wholesale local access market; and Commission decision concerning case UK/2010/1065: Wholesale broadband access market, 1/06/2010.

analysis is performed appropriately, there is no doubt that the conclusions must maintain the same according to either approach.

Consequently, we would like to make two observations based on our survey. First, the current EU electronic communications regulation suggests that CATV networks should in principle not be subject to *ex ante* broadband access obligations. Secondly, the presence of broadband over CATV is able to constrain the market power of PSTN incumbents, and thus can potentially deregulate the latter.

However, the Commission also leaves open the question when and how CATV operators can be considered to effectively restrict PSTN operators. It indeed provides several guidelines on how to reflect direct and indirect constraints when evaluating the market power of broadband over CATV. However, the Commission raises the standard of proof so high that all the attempts from Member States have failed. This in practice makes it impossible to use CATV as an effective counterbalance against PSTN. As discussed before, even in the Hungarian case where the CATV operator has a similar weight as the PSTN operator on the retail broadband market, they are still not able to pose effective indirect constraints. Moreover, such high standard of proof may also account for the fact that Belgium, as a country with strong presence of CATV-based broadband, never took CATV into account when reviewing Market 4 and Market 5.²⁰

It seems that the Commission is hesitant to include broadband over CATV into *ex ante* regulation. This hesitance cannot be less clear when compared with the practice related to broadband over fibre. The Commission, in many events, underlines that CATV networks cannot offer the same level of wholesale broadband access as PSTN networks because most CATV networks are fragmented. However, for the time being fibre networks are also scattered in almost all Member States. The Commission never uses this fact as a basis to deny the inclusion of fibre into Market 4 or Market 5. Furthermore, another concern of the Commission is that the switching costs are too high for DSL-based alternative operators to migrate to CATV-based services. Therefore, CATV cannot exert direct constraints on PSTN networks. Nevertheless, it also involves a huge amount of switching costs from alternative operators to migrate to fibre-based broadband services. The Commission never questions the inclusion of fibre into Market 4 or Market 5 on the basis that Member States does not clarify the extent of such switching costs between PSTN and fibre. In addition, in view of the promising bandwidth provided over fibre, the relationship between fibre and PSTN may be comparable to that between narrowband and broadband. With regard to the latter, the Commission maintains that narrowband and broadband should be on separate markets as the substitution between the two is only unidirectional (in other words consumers seldom switch

²⁰ In a recent notification, the Belgian media regulators, when reviewing the market for wholesale broadcasting transmission, propose to oblige CATV operators to provide alternative operators with a possibility to resell their broadband internet products. The justification behind this approach is that bundle offers, including broadband and TV, become more and more important in Belgium. It is thus necessary for alternative operators to be able to offer broadband services in addition to TV services in order to compete with CATV incumbents: see, Commission Press Release IP/11/761, “Commission concerns on aspects of Belgian regulators' proposal to regulate broadcasting and (to a lesser extent) broadband markets”, 21/06/2011. However, it is uncertain how far this approach can go. First, the open-Internet-access obligation proposed by the Belgian authorities is only resale, and cannot be compared with stricter access obligations imposed on Market 4 and 5, such as Layer 2 or 3 accesses. Most importantly, it means that the alternative operators will have not at all control over the broadband services that they will offer. Secondly, there is still a debate on the appropriateness to extent access obligations from broadband to TV, or *vice versa*, based on bundled products offered at the retail level (Stumpf, 2011).

from broadband to narrowband).²¹ This may also happen to PSTN and fibre as there should not be many fibre consumers that are expected to switch back to PSTN. However, the Commission never raises this question when analysing whether fibre should be included into Market 4 and Market 5. Instead, what we always see is that the Commission constantly questions why Member States do not include fibre into their regulation.

The Commission's prudent approach to regulating broadband over CATV may reflect the concern that service-based on intra-platform competition has a negative effect on broadband penetration. According to Bouckaert, van Dijk and Verboven (2010), countries that focus on inter-platform competition have performed significantly better, and access regulation directly discourages investment. These may explain that the Commission raises such a high standard of proof when evaluating the direct and indirect constraints of broadband over CATV.

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