

## **Annex 2: Answers to the questionnaire related to this report**

### **Part I – Answers (p.2-65)**

The questionnaire has been answered by the following NRAs<sup>1</sup>:

1. Austria
2. Belgium
3. Croatia
4. Cyprus
5. Czech Republic
6. Estonia
7. France
8. Germany
9. Greece
10. Ireland
11. Italy
12. Malta
13. Netherlands
14. Norway
15. Poland
16. Portugal
17. Romania
18. Slovenia
19. Spain
20. Sweden
21. Slovakia
22. Switzerland
23. United Kingdom

### **Part II – Questionnaire (p.65-79)**

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<sup>1</sup> The NRAs of Denmark, Finland, Hungary, Latvia, Lithuania, Macedonia, Slovakia and Turkey have stated that there is currently no information available regarding NGA co-investment.

**Question 1: Overview of NGA co-investment plans and operators involved**

**Austria:** So far we have no information about co-operations, but operators need not report the NRA of co-investment arrangements.

However, the market analysis decision for the wholesale market for access to physical infrastructure (relevant market 4) obliges the SMP operator to invite alternative operators to planning meetings and co-operation talks prior to NGA roll-out for MDF regions. For clarification it has to be noted at this point, that the Austrian market 4 currently is restricted to FTTB/FTTC because for the time being there was no FTTH roll-out by the incumbent (limited pilots exist since recently). Fibre currently only has to be made available for backhauling in the case of sub-loop unbundling (e.g. in an FTTC or FTTB scenario). The obligation mentioned before includes the following:

- Plans for a FTTC and FTTB roll-out have to be made public by SMP operator 4 months in advance (information on website / letter to alternative operators)
- Then, the information on NGA roll-out has to include the following: Detailed area of roll-out; information on technical realisation scenario (FTTC or FTTB) and amount of roll-out; planned date of roll-out start; invitation for alternative operators to state the basis for compensation payments applicable in certain cases of NGA roll-out; invitation to enter into talks for possible roll-out co-operation
- Information on overall planning of NGA roll-out area not later than 2 months after initial information to alternative operators that requested a compensation payment or showed interest for a roll-out co-operation
- Co-operation talks: SMP operator is obliged to enter into talks within the following month with those alternative operators that showed interest in cooperation
- Information on detailed planning of NGA roll-out area and negotiation talks with alternative operators within the month following the co-operation talks.

While the SMP operator due to the market analysis decision mentioned above is obliged to organise planning meetings and to offer co-operation talks, the SMP operator is not obliged whatsoever to enter into any co-operation with other operators. This remains a free decision of the SMP operator.

The draft of the new Austrian telecommunication act, which will be published soon, contains an obligation for operators to notify co-investment contracts to the NRA. However it is not certain whether this obligation will stand.

**France:**

Co-investment plan 1 ; buildings equipped by France Télécom

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France Télécom	Incumbent	FTTH GPON	N	N	Partial public share : French State 26.7% - Institutional shareholders 64.3% - Individual shareholders 5% - Employees 3.7% - Self-owned 0.4%
Free	Altnet	FTTH P2P	N	N	Privately owned: Mister Xavier Niel 65,58% - FMR LLC 5,08% - Mister Rani Assaf 1,73% - Mister Cyril Poidatz 1,23% - Mister Antoine Levasseur 1,02% - Company-owned shares 0,11% - Mister Olivier Rosenfeld 0,45%
SFR	Altnet	FTTH GPON	N	N	Privately owned: Vivendi full control
Bouygues Telecom	Altnet	FTTH GPON	N	N	Privately owned: majority shareholder is Bouygues, with 89.5% of capital

Co-investment plan 2 ; buildings equipped by Free					
Free	Altnet	FTTH P2P	N	N	Privately owned: Mister Xavier Niel 65,58% - FMR LLC 5,08% - Mister Rani Assaf 1,73% - Mister Cyril Poidatz 1,23% - Mister Antoine Levasseur 1,02% - Company-owned shares 0,11% - Mister Olivier Rosenfeld 0,45%
France Télécom	Incumbent	FTTH GPON	N	N	Partial public share : French State 26.7% - Institutional shareholders 64.3% - Individual shareholders 5% - Employees 3.7% - Self-owned 0.4%
SFR	Altnet	FTTH GPON	N	N	Privately owned: Vivendi full control

Co-investment plan 3 ; buildings equipped by SFR					
SFR	Altnet	FTTH GPON	N	N	Privately owned: Vivendi full control
Free	Altnet	FTTH P2P	N	N	Privately owned: Mister Xavier Niel 65,58% - FMR LLC 5,08% - Mister Rani Assaf 1,73% - Mister Cyril Poidatz 1,23% - Mister Antoine Levasseur 1,02% - Company-owned shares 0,11% - Mister Olivier Rosenfeld 0,45%

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France Télécom	Incumbent	FTTH GPON	N	N	Partial public share : French State 26.7% - Institutional shareholders 64.3% - Individual shareholders 5% - Employees 3.7% - Self-owned 0.4%
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Co-investment plan 4 ; buildings equipped by Sequalum					
Sequalum	Altnet	FTTH P2P	Y (SGEI - Service of General Economic Interest - over 25 years, open and neutral network, 100 % population coverage, complete rollout in the first 6 years, approximate subsidy EUR59 millions – around 14% of total investment)	Y (département des Hauts-de-Seine (92))	<i>Délégation de service public concessive</i> (can be regarded as a concession under European law) allocated to consortium made of Numericable (80 %), LD Collectivités (5 %) (now SFR collectivités, subsidiary of SFR) and Eiffage (15 %).
SFR	Altnet	FTTH GPON	N	N	Privately owned: Vivendi full control
Free	Altnet	FTTH P2P	N	N	Privately owned: Mister Xavier Niel 65,58% - FMR LLC 5,08% - Mister Rani Assaf 1,73% - Mister Cyril Poidatz 1,23% - Mister Antoine Levavasseur 1,02% - Company-owned shares 0,11% - Mister Olivier Rosenfeld 0,45%
France Télécom	Incumbent	FTTH GPON	N	N	Partial public share : French State 26.7% - Institutional shareholders 64.3% - Individual shareholders 5% - Employees 3.7% - Self-owned 0.4%

Co-investment plan 5 ; agreement between SFR and Bouygues Telecom					
SFR	Altnet	FTTH GPON	N	N	Privately owned: Vivendi full control

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Bouygues Telecom	Altnet	FTTH GPON	N	N	Privately owned: majority shareholder is Bouygues, with 89.5% of capital
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The list of co-investment plans presented above is not exhaustive.

Outside very high-density areas, several FttH projects have been launched on a local basis. They include, but are not limited to, deployments led by local authorities in the city of Pau (64), the département de La Manche (50), the département de l'Ain (01)... Access to FttH networks in those areas is regulated under ARCEP's decision n° 2009-1106 (December 2009, 22nd) completed by decision n° 2010-1312 (December 2010, 14th). The latter stipulates that the concentration point will gather a minimum of 1 000 lines on the opening day, resulting in a fibre passive access solution technically similar to unbundling. Access must be granted through a co-investment offer (long-term depreciable rights of use) and through a location offer.

Additionally, 6 pilot projects have been launched outside very high-density areas under the "national ultrafast broadband program", a EUR2 billion scheme mostly made of long-term loans on market terms and subsidies to local authorities. Led by local authorities in partnership with national operators, the pilots are planned to extend over a maximum period of 9 months from autumn 2010 to summer 2011. The government has planned to invest up to EUR500 000 per project. Projects selected are based in the cities of Issoire, Chevry-Cossigny, Aumont-Aubrac, Sallanches, Saint-Lô and Mareuil. They cover areas of low and medium density. The feedback from these experiments aims will help finalise the "national ultrafast broadband program".

**Italy:**

Co-investment plan 1: Not still finalised, presently only a Memorandum of Understanding has been signed					
Trentino NGN s.r.l	Altnet	FTTH		Yes district Authority	<b>100% under the control of the distric Authority</b>
Trentino Network s.r.l	Alnet	FTTH	Yes State aid for cabling white area NGA assigned to "Provincia di Trento" (8,4 Million Euro February 2011 (N305/2010)	Yes district Authority	<b>100% under the control of the distric Authority</b>
Telecom Italia	Incumbent	FTTH		NO	

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Co-investment plan 1 **					
Participant operator name	Type (incumbent, utility, altnet, cable)	Operator roll-out scenario (e.g. FTTH GPON, FTTH P2P, FTTB, FTTN/ FTTCab, HFC)	Has this operator benefited from public funding / state aid? If yes, please describe the amount of funding and conditions	Public control (Y/N)? If yes, which public entity (national, regional, local)?	Describe the shareholder structure (shares and control, e.g. private, partial public share, public majority share or public ownership)
The Ministry of Economic Development		The MOU foresees that NewCo rolls out a “neutral” infrastructure which is compatible both with point-to-multipoint (PON) and with point-to-point (P2P) FTTH network architectures.	The Ministry of Economics and Finance foresees Cassa Depositi e Prestiti Participation	The government and these telecom operators signed on November 10, 2010 a Memorandum of Understanding (MOU) for the creation of a public-private partnership (PPP) to roll out shared passive NGA infrastructure, including ducts, dark fibre from the optical distribution frame (ODF) to end-user premises, in-house cabling, and ODF premises.	The MOU foresees the setting up of a new company (NewCo) responsible for coordination of investments.  It will have an executive committee, chaired by the ministry and including one representative from each of the seven telecom operators, which will be in charge of defining the NewCo’s governance and business plan.
Telecom Italia	Incumbent		No		
BT Italia	Altnet		No		
Fastweb	Altnet		No		
H3g	Altnet		No		
Tiscali	Altnet		No		
Vodafone Omnitel	Altnet		No		
Wind Telecomunicazioni	Altnet		No		

\*\* All the project is still in discussion. The MoU is the only signed document at present.

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Co-investment plan 2: Not still finalised					
Provincia di Lucca  It is a state aid case, not properly a co-investment			Yes (6,8 Million Euro February 2011 (N626/2009))  After an open public procedure based on a rough draft of the project a telecommunication operator is chosen as partner for the development of the project that will be financed for 50% (information estimated in the public tender) with public founding. The grant cover mainly the realization of passive infrastructures (duct). Public founding are also used for active equipment in the POP of the chosen operator. A small part of the public founding is also used as contribution to sustain the demand side.	Yes district Authority for passive infrastructure built by public founding	
Telco Operator	alnet	FTTC/H			The passive infrastructure is given without charge to the telecommunication operator

Malta:

Co-investment plan 1					
Participant operator name	Type (incumbent, utility, altnet, cable)	Operator roll-out scenario (e.g. FTTH GPON, FTTH P2P, FTTB, FTTN/ FTTCab, HFC)	Has this operator benefited from public funding / state aid? If yes, please describe the	Public control (Y/N)? If yes, which public entity (national, regional, local)?	Describe the shareholder structure (shares and control, e.g. private, partial public share, public majority share or public ownership)

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			amount of funding and conditions		
Melita plc.	Cable	FTTCab	NO	No	Private
GO plc.	Incumbent	FTTCab	NO	No	Partial Public share

The Maltese government and the Malta Communications Authority (hereafter, referred to as “MCA”) are keen to get the ball rolling with respect to the deployment of the NGA infrastructural set up the country aims to have by 2012.

And even though, to date, no NGA co-investment plans have been forthcoming, local operators have shown significant interest in next-generation high-speed broadband infrastructure across the Maltese islands mainly through upgrading of the network to FTTCab. The cable operator (which owns a nationwide network) will also launch 100Mbps on its network this summer using Docsis 3.

What needs to be determined in the coming months/years is the role Government and the private sector would be ready to take in securing the required nationwide investment. In this regard, the Maltese government has already published a Green Paper projecting preliminary ideas on the routes the country may undertake when going for fibre connectivity. Link to Next Generation Access Infrastructure Paper: <https://mitc.gov.mt/page.aspx?pageid=134>

Lately, the MCA has also published an ‘Outline Strategy for the regulation of NGA networks’. The strategy envisages the regulatory impact of NGANs as far as the MCA remit is concerned. It also dwells on the extent to which the MCA can facilitate the proliferation of NGANs via interaction with other institutional players which, by virtue of their remit may, in some way or another, impinge on the progress of implementation of the access regime. Potential issues dealt in the document relate to rights of way, ducting, wiring in buildings etc.

By way of clarification, the MCA document is distinct from Government policy on the matter. Link to MCA strategy: <http://www.mca.org.mt/newsroom/openarticle.asp?id=963>

**Netherlands:**



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Reggefiber Group BV	Joint venture of KPN BV (incumbent) and Reggefiber holding BV (altnet)	FttH P2P	No	No	KPN holds 41% of the shares and Reggefiber 59%.
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**Portugal:**

Optimus & Vodafone Portugal	altnet	FTTH-GPON	NO	NO	Optimus – Private shareholders; Vodafone Portugal – belongs to the Vodafone Group
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**Spain:**

In-house wiring obligations

On the basis of Spanish law (Royal Decree 1/1998), as of 1998 new dwellings that are built in Spain need to foresee sufficient capacity to ensure that all electronic communications operators (xDSL, cable...) are able to easily deploy their own networks and install their own infrastructure inside the building. The Spanish government has recently enacted new legislation that will extend these obligations to fibre deployments.

For residential dwellings that fall outside the scope of Royal Decree 1/1998 (generally, buildings constructed prior to 1998, and that have not been subject to major reforms), CMT adopted in February 2009 a Decision imposing symmetric obligations on operators that are willing to deploy fibre inside those buildings. It should be noted that the vast majority of residential buildings in Spain were constructed prior to 1998, so the aim of the regulation was to ensure that all operators would be assured equivalent access when reaching an “old” building, in order to deploy fibre.

On the basis of CMT’s Decision, the first operator that reaches a dwelling in order to deploy fibre infrastructure must grant access to the infrastructure that it has deployed upon a reasonable request by a third party operator. The first operator is also the operator that will be in charge of managing the relationship with the owners of the building, to ensure that access by third party operators is guaranteed.

In particular, the following remedies are applicable to the first operator that deploys fibre inside a building (thus regardless of its SMP status):

- (i) Obligation to meet reasonable requests for access to, and use of, network elements and equipments within buildings. This obligation is imposed on the first operator to deploy a fibre access solution in the building, and implies, amongst other, the obligation to sign bilateral agreements within four months of the request, the obligation to ensure that the sharing of the network elements and equipment is available, as well as obligations with regard to permits and management of other tasks;
- (ii) Obligation to set reasonable prices;
- (iii) Transparency obligation, pursuant to which sufficient information should be provided to third parties in order to facilitate the planning and implementation of their requests for access.

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Thus, the symmetric obligations adopted by CMT can be seen as leading to a “soft form” of co-investment, whereby the second and subsequent operators must pay a reasonable “access” price for getting access to the infrastructure that the first operator has deployed inside the building, and that must have foreseen that access to third party operators would need to be granted.

Regarding the information to be exchanged, on the basis of CMT’s Resolution the first operator to deploy fibre infrastructure inside a dwelling must facilitate to third party operators all the information that may assist those operators in making their investment decisions. In particular, the first operator must provide information regarding (i) the characteristics of the dwelling; (ii) the type of deployment that will be undertaken; (iii) the location of the terminal points of interconnection, as well as its capacity.

**Switzerland:**

Co-investment plan 1 – City of Berne					
Participant operator name	Type (incumbent, utility, altnet, cable)	Operator roll-out scenario (e.g. FTTH GPON, FTTH P2P, FTTB, FTTN/ FTTCab, HFC)	Has this operator benefited from public funding / state aid? If yes, please describe the amount of funding and conditions	Public control (Y/N)? If yes, which public entity (national, regional, local)?	Describe the shareholder structure (shares and control, e.g. private, partial public share, public majority share or public ownership)
EWB	utility	FTTH P2P	N	Y, local, City of Bern	Public ownership
Swisscom	incumbent	FTTH P2P	N	Y, Swiss Confederation	Public majority share

Co-investment plan 1 – Commune of Flawil					
Participant operator name	Type (incumbent, utility, altnet, cable)	Operator roll-out scenario (e.g. FTTH GPON, FTTH P2P, FTTB,	Has this operator benefited from public funding / state aid? If yes, please describe the	Public control (Y/N)? If yes, which public entity (national, regional, local)?	Describe the shareholder structure (shares and control, e.g. private, partial public share, public majority share or

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		FTTN/ FTTCab, HFC)	amount of funding and conditions		public ownership)
Technische Betriebe Flawil (TBF)	utility	FTTH P2P	N	Y, local, Commune of Flawil	Public ownership
Swisscom	incumbent	FTTH P2P	N	Y, Swiss Confederation	Public majority share
GGA Flawil	HFC	FTTH GPON	N	Y, local, Commune of Flawil	Public ownership

Co-investment plan 1 – City of Lucerne					
Participant operator name	Type (incumbent, utility, altnet, cable)	Operator roll-out scenario (e.g. FTTH GPON, FTTH P2P, FTTB, FTTN/ FTTCab, HFC)	Has this operator benefited from public funding / state aid? If yes, please describe the amount of funding and conditions	Public control (Y/N)? If yes, which public entity (national, regional, local)?	Describe the shareholder structure (shares and control, e.g. private, partial public share, public majority share or public ownership)
EWL	utility	FTTH P2P	N, ROI expected after [#] years.	Y, local, Commune of Lucerne	Public ownership
Swisscom	incumbent	FTTH P2P	N	Y, Swiss Confederation	Public majority share

Co-investment plan 1 – City of St. Gallen					
Participant	Type (incumbent,	Operator roll-out	Has this operator	Public control (Y/N)? If yes,	Describe the shareholder structure

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operator name	utility, altnet, cable)	scenario (e.g. FTTH GPON, FTTH P2P, FTTB, FTTN/ FTTCab, HFC)	benefited from public funding / state aid? If yes, please describe the amount of funding and conditions	which public entity (national, regional, local)?	(shares and control, e.g. private, partial public share, public majority share or public ownership)
SGSW	utility	FTTH P2P	state credit of 78 mln CHF	Y, local, Commune of St. Gallen	Public ownership
Swisscom	incumbent	FTTH P2P	N	Y, Swiss Confederation	Public majority share

Co-investment plan 1 – Canton of Geneva					
Participant operator name	Type (incumbent, utility, altnet, cable)	Operator roll-out scenario (e.g. FTTH GPON, FTTH P2P, FTTB, FTTN/ FTTCab, HFC)	Has this operator benefited from public funding / state aid? If yes, please describe the amount of funding and conditions	Public control (Y/N)? If yes, which public entity (national, regional, local)?	Describe the shareholder structure (shares and control, e.g. private, partial public share, public majority share or public ownership)
SIG	utility	FTTH P2P	N	Y, local (55% Canton, 30% City of Geneva, 15% other Comunes). <sup>2</sup>	Public ownership
Swisscom	incumbent	FTTH P2P	N	Y, Swiss Confederation	Public majority share
Co-investment plan 1 – City of Zurich					
Participant	Type (incumbent,	Operator roll-out	Has this operator	Public control (Y/N)? If yes,	Describe the shareholder structure

<sup>2</sup> <http://www.mieuxvivresig.ch/corporate/nos-activites/index.lbl>

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operator name	utility, altnet, cable)	scenario (e.g. FTTH GPON, FTTH P2P, FTTB, FTTN/ FTTCab, HFC)	benefited from public funding / state aid? If yes, please describe the amount of funding and conditions	which public entity (national, regional, local)?	(shares and control, e.g. private, partial public share, public majority share or public ownership)
EWZ	utility	FTTH P2P	200 mln CHF credit	Y, local, City of Zurich	Public ownership
Swisscom	incumbent	FTTH P2P	N	Y, Swiss Confederation	Public majority share

Co-investment plan 1 – Canton of Fribourg					
Participant operator name	Type (incumbent, utility, altnet, cable)	Operator roll-out scenario (e.g. FTTH GPON, FTTH P2P, FTTB, FTTN/ FTTCab, HFC)	Has this operator benefited from public funding / state aid? If yes, please describe the amount of funding and conditions	Public control (Y/N)? If yes, which public entity (national, regional, local)?	Describe the shareholder structure (shares and control, e.g. private, partial public share, public majority share or public ownership)
Groupe E	utility	FTTH P2P	5 mln CHF participation by the Canton, 20 mln in credits.	Y, local, Canton of Fribourg	Public ownership
Swisscom	incumbent	FTTH P2P	N	Y, Swiss Confederation	Public majority share

Co-investment plan 1 – City of Lausanne					
Participant	Type (incumbent, utility, altnet, cable)	Operator roll-out scenario (e.g. FTTH GPON, FTTH P2P, FTTB, FTTN/ FTTCab, HFC)	Has this operator benefited from public funding / state aid? If yes, please describe the amount of funding and conditions	Public control (Y/N)? If yes, which public entity (national, regional, local)?	Describe the shareholder structure (shares and control, e.g. private, partial public share, public majority share or public ownership)

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operator name	utility, altnet, cable)	GPON, FTTH P2P, FTTB, FTTN/ FTTCab, HFC)	funding / state aid? If yes, please describe the amount of funding and conditions	regional, local)?	public share, public majority share or public ownership)
SIL	Cable	FTTH P2P	n/a	Y, local, City of Lausanne	Public ownership
Swisscom	incumbent	FTTH P2P	N	Y, Swiss Confederation	Public majority share

Co-investment plan 1 – Comune of Pfyn (160 households)					
Participant operator name	Type (incumbent, utility, altnet, cable)	Operator roll-out scenario (e.g. FTTH GPON, FTTH P2P, FTTB, FTTN/ FTTCab, HFC)	Has this operator benefited from public funding / state aid? If yes, please describe the amount of funding and conditions	Public control (Y/N)? If yes, which public entity (national, regional, local)?	Describe the shareholder structure (shares and control, e.g. private, partial public share, public majority share or public ownership)
EW Pfyn	utility	FTTH P2P	n/a	Y, local, Comune of Pfyn	Public ownership
Swisscom	incumbent	FTTH P2P	N	Y, Swiss Confederation	Public majority share

**Question 2:**

France:

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Co-investment plan 1 : buildings equipped by France Télécom	Other (access through usufruct)	Y 1/ install a dedicated fibre line for operators asking for it before the start of the installations work	Buildings with more than 12 dwelling units in very-high density <sup>3</sup> areas that have signed an agreement with France Télécom to lay fibre		Concluded	4	Layer 1	drop segment up to the first concentration point <sup>4</sup>
Co-investment plan 2 : buildings equipped by Free	Other (access through IRU)	2/ financial conditions of access to the concentration point are reasonable, and comply with the principles of non-discrimination, objectivity, relevance and efficiency	Buildings with more than 12 dwelling units in very-high density areas that have signed an agreement with Free to lay fibre		Concluded	4	Layer 1	drop segment up to the first concentration point
Co-investment plan 3 : buildings equipped by SFR	Other (access through IRU)		Buildings with more than 12 dwelling units in very-high density areas that have signed an agreement with SFR to lay fibre		Concluded	2	Layer 1	drop segment up to the first concentration point
Co-investment plan 4 : buildings equipped by Sequalum	Other (access through IRU)		All buildings in the Hauts-de-Seine that have signed an agreement with Sequalum to lay fibre	End of 2010 : 2 000	Concluded (although the European commission State Aid decision is before the General Court of Justice of the	?	Layer 1	drop segment up to the first concentration point

<sup>3</sup> Very-high density areas are defined in ARCEP's decision n°09-1106. They are defined as a list of 148 "communes", or municipalities, with such a highly concentrated population that, in a significant portion of those municipalities, it is economically viable for several operators to deploy their own infrastructure, namely their optical fibre network, in proximity to customer premises. The market's leading players are preparing or have begun deployments in most of these areas.

<sup>4</sup> The access point can be situated within the limits of private property in the case of existing buildings in very high-density areas that have at least 12 residential or office units, or which are connected to a visitable public sewage network through a supply tunnel which is also visitable. In all other cases, the access point has to be located outside the limits of private property.

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					European Union)			
Co-investment plan 5 : agreement between SFR and Bouygues Telecom	Other (access through IRU)	N			Concluded	N / A	Layer 1 (passive)	Concentration point to the ODF

Italy:

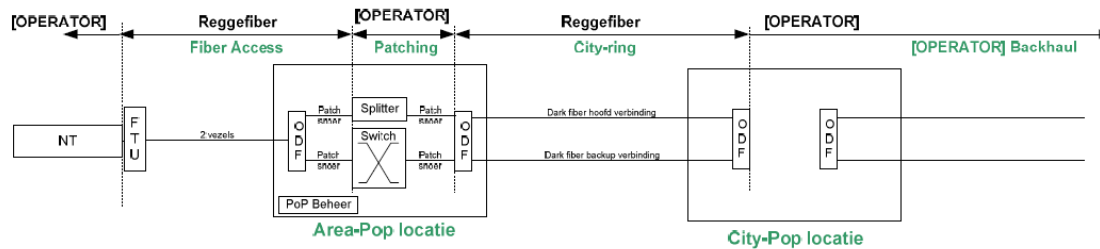
Co-investment plan 1 <i>(Trentino NGN, Telecom Italia..)</i>	Joint venture in the sense specified at pag. 4.	The partners will provide passive wholesale services (ducts and dark fibre and terminating segment)	60-70% of all household of the district by Trentino NGN /Telecom Italia and the rest 30-40% by Trentino Network in white area	Plan for cabling in 7 years	Not still concluded.  There is an ongoing evaluation related to the economic profile of the Newco. Subsequently the Competition Authority in accordance with the antitrust law will give an evaluation of the concentration operation.		Layer 1	
Co-investment 2  Lucca district/Telecom Operator	Public-Private partnership	Passive infrastructure until 300 meters to the household, but also contribution for active equipment <400.000 Euro and contribution to business customer for the adoption of new ultra broadband services	White areas in the district of Lucca (12 municipality), only business customers	1000 home passed			Layer 1 and Layer 2 (contribution for active equipment)	From the central office until 300 meters from the household.
Co-investment	public-		The MOU states that NewCo fibre deployment will cover a					



plan 3 (MOU)	private partnership (PPP)		<p>“significant number of end-user premises”, extending up to 50% of premises in Italy.</p> <p>The exact footprint of the Newco intervention will be defined later, following a consultation that is currently under way to identify areas where operators may invest on their own. These areas would not be covered by NewCo.</p>					
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Netherlands:

Reggefiber Group BV	Joint venture	No	<p>Many cities in The Netherlands.</p> <p><a href="http://www.reggefiber.nl/waar-ligt-al-glasvezel.html">http://www.reggefiber.nl/waar-ligt-al-glasvezel.html</a></p>	<p>Currently approx 700.000 homes passed (+/- 10% coverage in The Netherlands)</p> <p>1,2 mln planned for 2012.</p>	<p>Concluded and cleared by the competition Authority in 2008</p>	<p>Two fibers, but it is currently not possible to buy them separately. One fiber is used for analogue TV.</p>	<p>Layer 1, unbundling at the ODF.</p>	<p>Access network (FTU – Area-Pop with ODF) and backhaul network between Area-pop and City pop. There are about 20 Area-Pops connected to one city Pop. See figure below.</p>
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Figuur 1 REGGEFIBER ODF toegang overzicht

Switzerland:

	Type of co-investment plan (Joint-Venture or other legal form of co-investment)	Does the co-investment plan relate to symmetrical regulation (Y/N)? If yes, which terms are subject to regulation?	Coverage of the network under co-investment plan (e.g. city of Stockholm)?	Homes passed by the co-investment plan <b>today and planned</b> (including by which date)?	Current state of the co-investment agreement (concluded? If need for clearance, cleared by competition and regulatory authority?)	In case of multifibre: Number of fibre lines (please specify also part of the network where multifibre is deployed)?	Type of network under co-investment plan (e.g. layer 1, layer 2, layer 3)?	What segments of the network are jointly built under the co-investment plan (e.g. drop segment up to concentration point or layer 2 up to N regional interconnection points)?
EWB-Swisscom	Other	N	City of Bern	Ca. 20% (end 2010), 90% (2017), 100% (2020)	Clearance by Comp Com under way	4 Inhouse and drop segments.	Layer 1	Layer 1 drop segment, geographical construction agreement.
TBF-Swisscom	other	N	Commune of Flawil	10% end of 2010, 95% 2015	In negotiations	4 inhouse and drop	Layer 1	Layer 1 hierarchical cooperation (100% drop through utility).
EWL-Swisscom	other	N	Commune of Lucerne	0% end of 2010, 100% by 2014	Clearance by Comp Com under way. Critical: L1 exclusivity, investment protection clauses, right of first refusal, compensation mechanism, information exchange.	4 inhouse and drop	Layer 1	Layer 1 hierarchical cooperation (100% drop built by utility).
SGSW-Swisscom	other	N,	Commune of St. Gallen	0% end of 2010, 100% by 2018	Clearance by Comp Com under way.	4 inhouse and drop	Layer 1	Layer 1 hierarchical cooperation (100% drop through utility).

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SIG-Swisscom	other	N	Canton de Genève	n/a <sup>5</sup>	n/a	4 inhouse only	Layer 1	geographical construction agreement.
EWZ-Swisscom	other	N	City of Zurich	15% end of 2010 (probably FTTH), 90% FTTH by 2020	Clearance by Comp Com under way.	4 inhouse and drop	Layer 1	Layer 1 drop segment, geographical construction agreement.
Groupe E-Swisscom <sup>6</sup>	other	N	Canton of Fribourg	n/a	Comp Com has rejected to clear JV and connected contractual conditions saying that it would not go beyond a loose cooperation <sup>7</sup>	4 inhouse and drop and feeder	Layer 1	Layer 1 drop segment, geographical construction agreement.
SIL-Swisscom <sup>8</sup>	other	N	City of Lausanne	n/a	Clearance by Comp Com under way.	4 inhouse and drop (up to first manhole)	Layer 1	Layer 1 drop segment, geographical construction agreement.
EW Pfyn-Swisscom <sup>9</sup>	other	N	Comune of Pfyn	100% in 2011	Already built, Swisscom only invests/buys access to fibres.	4 inhouse and drop (up to manhole)	Layer 1	Construction of whole network by EW Pfyn. Swisscom buying Layer 1 IRU access at manhole.

National target coverage of Swisscom: 33% of households by 2015 (ca. 23% in cooperation); total investment by Swisscom about 2 bln CHF.

### **Question 3: Please indicate how the partners contribute to the co-investment plan**

**France:**

<sup>5</sup> <http://asut.ch/files/pdf947.pdf?3986>

<sup>6</sup> Reference for Groupe E case: [http://www.google.ch/url?sa=t&source=web&cd=1&ved=0CCEQFjAA&url=http%3A%2F%2Fwww.swisscom.ch%2FNR%2Frdonlyres%2FB9D9F78F6-513C-4DB6-B092-0D9B634158B7%2F0%2F20090325\\_Praesentation\\_Groupe\\_E\\_de.pdf&ei=spoUToHyN4XEswa7hJWLDw&usg=AFQjCNEc\\_hNZITpEB7xZAgjX8QU8LNEFXQ&sig2=2hDCXzNI6Zw3sA0qvdsOw](http://www.google.ch/url?sa=t&source=web&cd=1&ved=0CCEQFjAA&url=http%3A%2F%2Fwww.swisscom.ch%2FNR%2Frdonlyres%2FB9D9F78F6-513C-4DB6-B092-0D9B634158B7%2F0%2F20090325_Praesentation_Groupe_E_de.pdf&ei=spoUToHyN4XEswa7hJWLDw&usg=AFQjCNEc_hNZITpEB7xZAgjX8QU8LNEFXQ&sig2=2hDCXzNI6Zw3sA0qvdsOw)

<sup>7</sup> <http://www.news.admin.ch/message/index.html?lang=de&msg-id=38881>

<sup>8</sup> [http://www.google.ch/url?sa=t&source=web&cd=1&ved=0CCQQFjAA&url=http%3A%2F%2Fwww.swisscom.com%2Fcontent%2Fswisscom%2Fen%2Fghq%2FMedia%2Fmediareleases%2F2009%2F09%2F20090909\\_MM\\_SIL%2F\\_jcr\\_content%2Frightpar%2Flinklist\\_0%2Flinks%2Fitem\\_2%2Ffile.dl.res%2F20090909\\_Pr\\_C3\\_A9sentation\\_Hotel\\_Ville\\_SIL\\_de.pdf&ei=Ep4UTvOLJi7Oswbsn72CDw&usg=AFQjCNFRxjKxFyoiCIsWDbzKkTikCIWdCg&sig2=skacFin9dXUcB7nv5huE0Q](http://www.google.ch/url?sa=t&source=web&cd=1&ved=0CCQQFjAA&url=http%3A%2F%2Fwww.swisscom.com%2Fcontent%2Fswisscom%2Fen%2Fghq%2FMedia%2Fmediareleases%2F2009%2F09%2F20090909_MM_SIL%2F_jcr_content%2Frightpar%2Flinklist_0%2Flinks%2Fitem_2%2Ffile.dl.res%2F20090909_Pr_C3_A9sentation_Hotel_Ville_SIL_de.pdf&ei=Ep4UTvOLJi7Oswbsn72CDw&usg=AFQjCNFRxjKxFyoiCIsWDbzKkTikCIWdCg&sig2=skacFin9dXUcB7nv5huE0Q)

<sup>9</sup> [http://www.google.ch/url?sa=t&source=web&cd=2&ved=0CB4QFjAB&url=http%3A%2F%2Fwww.zieglerpartner.ch%2FPortals%2F0%2FContent%2FNews%2FFTTTH%2FBericht\\_ET\\_2010-1b.pdf&ei=tLAUTv7OL4vPsgb0vJXIDg&usg=AFQjCNFHVhL6cLxRPwPqbZcVwDZyEq8aw&sig2=UftaF7hyS0W3856x7jG7WQ](http://www.google.ch/url?sa=t&source=web&cd=2&ved=0CB4QFjAB&url=http%3A%2F%2Fwww.zieglerpartner.ch%2FPortals%2F0%2FContent%2FNews%2FFTTTH%2FBericht_ET_2010-1b.pdf&ei=tLAUTv7OL4vPsgb0vJXIDg&usg=AFQjCNFHVhL6cLxRPwPqbZcVwDZyEq8aw&sig2=UftaF7hyS0W3856x7jG7WQ)

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		Inhouse wiring	House-CP	CP-CP	CP-ODF	Backhaul	
Co-investment plan 1 : buildings equipped by France Télécom	Co-investors buy a long-term right of use, based on the number of co-investors (pay 1/n, n number of co-investors) and whether they have required to have specific dedicated equipments installed for their use	France Télécom	[Redacted]				[Redacted]
		Other partners	[Redacted]				[Redacted]
Co-investment plan 2 : buildings equipped by Free	Co-investors buy a long-term right of use, based on the number of co-investors (pay 1/n, n number of co-investors)	Free	[Redacted]				[Redacted]
		Other partners	[Redacted]				[Redacted]
Co-investment plan 3 : buildings equipped by SFR	Co-investors buy a long-term right of use, based on the number of co-investors (pay 1/n, n number of co-investors) and whether they have required to have specific dedicated equipments installed for their use	SFR	[Redacted]				[Redacted]
		Other partners	[Redacted]				[Redacted]
Co-investment plan 4 : buildings equipped by Sequalum	Co-investors buy a long-term right of use, based on the number of co-investors (pay 1/n, n number of fibre lines in use)	Sequalum	[Redacted]				[Redacted]
		Other partners	[Redacted]				[Redacted]
Co-investment plan 5 : agreement between SFR and Bouygues Telecom	?	SFR	[Redacted]	[Redacted]	[Redacted]	[Redacted]	
		Bouygues Telecom	[Redacted]	[Redacted]	[Redacted]	[Redacted]	

The first four co-investment plans are subject to symmetric regulation.

For each of the regulated co-investment plans, the building operators have to publish a reference offer that specifies, in particular, the terms and conditions of subscription and cancellation, prior information, the technical characteristics, the delivery processes and after-sales service, timetables and advance notice, quality of service and pricing terms and conditions. The building operator is required to establish and keep up to date information on the costs, tracing the expenditures made and containing a sufficient degree of detail that enables ARCEP to perform an audit.

The terms and conditions governing the price of access must be reasonable and comply with the principles of non-discrimination, objectivity, relevance and efficiency. In accordance with these principles, when the operator benefitting from this access contributes at the outset to financing the installation of the lines in the building, its contribution will be composed of financing the costs that are attributable to installations made on its specific request, along with an equal portion of the costs that are to be shared by all of the operators. For later contributions, the rate of return on investment used to determine

the pricing terms and conditions will take account of the risk incurred and will extend a risk premium to the building operator (resulting in a WACC of 10.4% and a risk premium of 4.6%).

Italy:

Trentino NGN/Telecom Italia	n/a	Geographically: all central office that are inside Trento's district.  Network hierarchy level: from chamber in front of the central office to the NTP built by Newco  Level of access produced: duct and layer 1.
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Provincia di Lucca/Telco operator	The district Authority financed for the 50% of the whole investment, leaving at the end the right of use of the passive infrastructure to the granted operator without charge.	Geographically from POP to the street cabinet of access network  Network hierarchy level: trench and duct and 3 sub duct.  Level of access; the granted operator have access to one sub duct and should give to third party operator bitstream access.
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The Ministry of Economic Development	Still in discussion.	
Telecom Italia	Still in discussion.	
BT Italia	Still in discussion.	
Fastweb	Still in discussion.	
H3g	Still in discussion.	
Tiscali	Still in discussion.	
Vodafone Omnitel	Still in discussion.	

Wind Telecomunicazioni	Still in discussion.	
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	Inhouse wiring	House-CP	CP-CP	CP-last chamber before ODF	ODF-Backhaul
<b>Trentino NGN</b>	"Build and control"	"Build and control"	"Build and control"	"Build and control"	
<b>Telecom Italia</b>	"Build and control"	"Build and control"	"Build and control"	"Build and control"	"Build and control"
<b>Open to other operator</b>					

	Inhouse wiring	House-CP	CP-CP	CP-last	ODF-Backhaul
<b>Provincia di Lucca</b>			"Build and control"	"Build and control"	
<b>Telco Operator</b>	"Build and control"	"Build and control"			"Build and control"

At the moment the regulatory framework don't consider symmetric regulation, but in a near future AGCOM is going to analyze the possibility of imposing symmetric access regulation in execution of revised art. 12 of the Framework directive

**Netherlands:**

Reggefiber Group BV	41% Reggefiber and 59% for KPN (incumbent)	Not relevant.
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**Portugal:**

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Optimus & Vodafone Portugal		
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Territory of partnership	Inhouse wiring - Horizontal*	Inhouse wiring - Vertical**	House-CP	CP-CP	CP-ODF/OLT***	Backhaul
Partner 1 - supplier	Build and control	Build and control	Build and control	Build and control	Build and control	Build and control
Partner 2 - beneficiary	Build and control	Access	Access	Access	Access	Build and control

Notes: \* Horizontal fibre cabling in each of the building floors, towards each flat plus inhouse cabling and ONT.

\*\* Vertical fibre infrastructure within the building.

\*\*\* Bitstream aggregated access at the OLT level.

Switzerland:

Contribution in the co-investment plan		
Name	Investment contribution to the co-investment plan: indicate share/entity/assets of financial contribution and modalities. How is this contribution planned to develop over time?	Construction contribution to the co-investment plan: describe what part of network is built and controlled by each partner of the co-investment plan: <b>geographically</b> (e.g. sub-regional construction plans), <b>network hierarchy level</b> (e.g. construction of different sub-segment of the network such as drop or feeder) and <b>level of access products produced</b> (e.g. ducts, Layer 1, Layer 2 and Layer 3). Please provide “build and control diagrams” (see introduction).
EWB-Swisscom	Total roll-out cost 172 mln CHF split in 60% Swisscom, 40% EWB. EWB targets a market share of 40% in the long run.	<ul style="list-style-type: none"> <li>- EWB builds Inhouse and Drop on 70% of the cities buildings (4 fibres). 1 fibre is given in an IRU to Swisscom.</li> <li>- Swisscom builds Inhouse and Drop on 30% of the cities buildings (4 fibres). 3 fibres are given in an</li> </ul>

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		<p>IRU to EWB.</p> <ul style="list-style-type: none"> <li>- Swisscom builds 100% of the feeder. 1 fibre is given in an IRU to EWB.</li> <li>- Both the Swisscom as well as the EWB Layer 1 Network are terminated in Swisscom PoPs (EWB collocation at Swisscom sites).</li> </ul>
TBF-Swisscom	TBD	<ul style="list-style-type: none"> <li>- TBF builds 100% of inhouse and drop (up to 2<sup>nd</sup> (!) manhole).</li> <li>- Swisscom builds feeder</li> <li>- Layer 2 operated separately by Swisscom, the utility and the local catv player.</li> </ul>
EWL-Swisscom	Total roll-out cost 100 mln CHF split in 60% Swisscom, 40% EWL.	<ul style="list-style-type: none"> <li>- EWL builds 100% of inhouse and drop (up to 2<sup>nd</sup> manhole), Swisscom builds feeder.</li> <li>- Both the Swisscom as well as the EWB Layer 1 Network are terminated in Swisscom PoPs (EWL collocation at Swisscom sites).</li> </ul>
SGSW-Swisscom	Total layer 1 roll-out cost 80 mln CHF split in 60% Swisscom, 40% SGSW	<ul style="list-style-type: none"> <li>- SGSW builds 100% of inhouse and drop up to the manhole, 1 fibre in long term IRU (30-40 years) to Swisscom</li> <li>- Swisscom builds feeder, 1 fibre in long term IRU to SGSW.</li> <li>- Partners are strictly using their own ducts for construction.</li> <li>- Both the Swisscom as well as the SGSW Layer 1 Network are terminated in Swisscom PoPs (SGSW collocation at Swisscom sites).</li> </ul>
SIG-Swisscom	Roll.out cost split in 60% Swisscom, 40% SIG <sup>10</sup>	<ul style="list-style-type: none"> <li>- Swisscom builds full network in the City of Geneva</li> <li>- SIG builds full network in the agglomeration of Geneva. Partners construct each their own feeder</li> <li>- SIG will maintain own PoPs for Layer 1 wholesale products, no collocation with Swisscom</li> </ul>
EWZ-Swisscom	Roll.out cost split in 60% Swisscom, 40% EWZ. Compensation payments if this does not correspond to market shares in the future.	<ul style="list-style-type: none"> <li>- EWZ builds full network in 75% of the City of Zurich, one layer 1 fibre in long term IRU (30-40 years) to Swisscom at the manhole</li> <li>- Swisscom builds full network in 25% of the city of Zurich, one layer 1 fibre in long term IRU (30-40 years) to Swisscom at the manhole</li> </ul>

<sup>10</sup> [http://www.swisscom.ch/de/ghq/media/mediareleases/2010/10/20101026\\_MM\\_Glasfaser\\_Genf.html](http://www.swisscom.ch/de/ghq/media/mediareleases/2010/10/20101026_MM_Glasfaser_Genf.html)



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		<ul style="list-style-type: none"> <li>- The feeder is built by the partners independently.</li> </ul>
Groupe E-Swisscom	Roll.out cost split in 60% Swisscom, 40% Groupe E. Financing through JV	<ul style="list-style-type: none"> <li>- Groupe E builds full network in Area A, one layer 1 fibre in long term IRU (30-40 years) to Swisscom at the manhole</li> <li>- Swisscom builds full network in Area B, one layer 1 fibre in long term IRU (30-40 years) to Swisscom at the manhole</li> <li>- The feeder is built by the partners independently.</li> </ul>
SIL-Swisscom	Roll.out cost split (split unknown)	<ul style="list-style-type: none"> <li>- SIL has an HFC network, co-construction cooperation is more complex</li> <li>- Households A connected by 4 fibres through Swisscom (inhouse, drop, up to second manhole), layer 1 interconnection to SIL network at second manhole (2 fibres in IRU to SIL).</li> <li>- Households B connected by 4 fibres through SIL (inhouse, drop, up to first manhole where Swisscom interconnects (2 fibres in IRU to Swisscom)). The particularity is that SIL is deploying its fibre in the drop segment in large part in Swisscom ducts (a regulated product exists), and even in part of the feeder.</li> <li>- SIL runs an own PoP</li> </ul>
EW Pfy-Swisscom	Roll.out cost split (split unknown)	<ul style="list-style-type: none"> <li>- EW Pfy builds full Layer 1 network in the whole comune. Swisscom buys access at manhole level.</li> <li>- In specific individual spots the utility needed access to Swisscom ducts (a regulated product exists).</li> </ul>

Please indicate if any part of these co-investment plans is subject to symmetric regulation.

In case of loose construction cooperation: On which basis are the financial transfers calculated. If on the basis of cost, how can accuracy be ensured?

If the situation of your country cannot be adapted to the above table, please feel free to describe it here.

[EWB-Swisscom L1 "loose cooperation":](#)

[70% of territory:](#)

	Inhouse wiring	House-CP	CP-CP	CP-ODF	Backhaul
EWB					
Swisscom					

30% of territory:

	Inhouse wiring	House-CP	CP-CP	CP-ODF	Backhaul
EWB					
Swisscom					

TBF-Swisscom L1 “loose cooperation”:

100% of territory:




	Inhouse wiring	House-CP	CP-CP	CP-ODF	Backhaul
TBF					
Swisscom					

EWL-Swisscom L1 “loose cooperation”:



	Inhouse wiring	House-CP	CP-CP	CP-ODF	Backhaul
EWL					

Swisscom	
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SGSW-Swisscom L1 “loose cooperation”:

	Inhouse wiring	House-CP	CP-CP	CP-ODF	Backhaul
SGSW					
Swisscom					



SIG-Swisscom L1 “loose cooperation”, SIG territory (Geneva agglomeration).

	Inhouse wiring	House-CP	CP-CP	CP-ODF	Backhaul
SIG					
Swisscom					



SIG-Swisscom L1 “loose cooperation”, SIG territory (City of Geneva)

	Inhouse wiring	House-CP	CP-CP	CP-ODF	Backhaul
Swisscom					
SIG					



EWZ-Swisscom L1 “loose cooperation”, EWZ territory (75% of connections)

	Inhouse wiring	House-CP	CP-CP	CP-ODF	Backhaul
Swisscom					
EWZ					


EWZ-Swisscom L1 “loose cooperation”, Swisscom territory (25% of connections)

	Inhouse wiring	House-CP	CP-CP	CP-ODF	Backhaul
EWZ					
Swisscom					

Groupe E-Swisscom L1 “loose cooperation”, Groupe E territory



	Inhouse wiring	House-CP	CP-CP	CP-ODF	Backhaul
Swisscom					
Groupe E					

Groupe E-Swisscom L1 “loose cooperation”, Swisscom territory

	Inhouse wiring	House-CP	CP-CP	CP-ODF	Backhaul
Groupe E					



Swisscom	
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SIL-Swisscom L1 “loose cooperation”, Swisscom buildings




	Inhouse wiring	House-CP	CP-CP	CP-ODF	Backhaul
SIL					
Swisscom					

SIL-Swisscom L1 “loose cooperation”, SIL buildings

Layer 1 view:

	Inhouse wiring	House-CP	CP-CP	CP-ODF	Backhaul
Swisscom					
SIL					

Duct use view:

	Inhouse wiring	House-CP	CP-CP	CP-ODF	Backhaul
Swisscom					
SIL					

SIL relays in large part on Swisscom ducts.

EW Pfyn-Swisscom L1 “loose cooperation”:

100% of territory:

	Inhouse wiring	House-CP	CP-CP	CP-ODF	Backhaul
EW Pfyn					
Swisscom					

**Question 4: Access to the future NGA network**

**France:**

Co-investment plan 1 : buildings equipped by France Télécom	Access to in-house wiring is mandated though symmetrical regulation (based on French national law). Location of the concentration point and level of access are regulated.
Co-investment plan 2 : buildings equipped by Free	The December 2009 decision states that an operator installing the in-building wiring is required to grant a passive access to other operators at the concentration point, unless all four fibres installed are already in use. In this case, access may be granted higher in the network on a passive or activated basis.
Co-investment plan 3 : buildings equipped by SFR	This decision also states that when requests for access are made prior to the installation of the lines in the building, the building operator must grant reasonable requests from operators to benefit from access to a dedicated optical fibre for each residential or office unit in the building. ARCEP recommended that a transparent consultation process be put into place on a municipality-wide scale, which would make it possible to identify all those operators wanting to participate in co-financing the installation of lines in the building, then to define from the outset the terms governing the deployment of the fibre and each operator’s access to it (shared or dedicated fibre).
Co-investment plan 4 : buildings equipped by Sequalum	
Co-investment plan 5 : agreement between SFR and Bouygues Telecom	

Building operators publish a reference offer. In-house wiring access products are passive access products and may either be :

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- paid one-shot in the form of an IRU for a long period (often exceeding 60 years) given by the operator of the building. This product is available on a commune per commune basis and include a risk premium. Thus, third parties may enter the co-investment schemes at anytime ;
- building per building access offers (available from France Télécom, SFR and Free) as a long-term lease, either paid as a one-off fee or paid monthly.

The rate of return on investment used to determine these pricing terms and conditions will take account of the risk incurred and will extend a risk premium to the initial co-investors.

Co-investment plan 1 : buildings equipped by France Télécom	Tariffs are calculated similarly as for operators which take part in initial co-investment, except for a risk premium benefitting to these initial co-investors
Co-investment plan 2 : buildings equipped by Free	Tariffs are calculated similarly as for operators which take part in initial co-investment, except for a risk premium benefitting to these initial co-investors
Co-investment plan 3 : buildings equipped by SFR	Tariffs are calculated similarly as for operators which take part in initial co-investment, except for a risk premium benefitting to these initial co-investors
Co-investment plan 4 : buildings equipped by Sequalum	Tariffs are calculated similarly as for operators which take part in initial co-investment, except for a risk premium benefitting to these initial co-investors
Co-investment plan 5 : agreement between SFR and Bouygues Telecom	

**Italy:**

<i>Trentino NGN/Telecom Italia</i>	The access is provided through physical access to ducts, dark fibre and to the terminating segment. In respect of the technological neutrality principle Trentino NGN will give the possibility to all partners and access' seekers to build an FTTH architecture based on GPON or P2P. The Access price are not yet defined
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Lucca district/Telco Operator	The granted operator can have access to 1/3 of the whole capacity of the duct with no charge.
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- 1) Trentino NGN/Telecom Italia: n/a
- 2) Provincia di Lucca/Telco Operator: The district Authority ensures that other two operators can have access to the passive infrastructure with no charge. Every other operator can use 1/3 of the capacity of the whole charge. The first operator should provide access to third party also with bitstream product with a retail minus price.

**Netherlands:**

Reggefiber Group BV	Layer 1 access (unbundling) at the area-pop.																																																																																																															
	<p>The tariffs per line per month are included in the table below. We have different CAPEX areas. The cap varies from 14,50 to 17,50 per month. If the capital expenditures per home passed are for example 800 euro, the price is 14,50 and if the capital expenditures are 990, the price is 17,50. The price cap is adjusted upward by the CPI every year.</p> <p>We will adjust the price cap downwards if the IRR &gt; WACC+3,5 percent).</p> <table border="1"> <thead> <tr> <th rowspan="2">Dienst of dienstelement</th> <th rowspan="2">eenheid</th> <th colspan="8">2009</th> </tr> <tr> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>Vezelpaar per klant capex 775-825</td> <td>euro / maand</td> <td>14,50</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Vezelpaar per klant capex 825-875</td> <td>euro / maand</td> <td>15,25</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Vezelpaar per klant capex 875-925</td> <td>euro / maand</td> <td>16,00</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Vezelpaar per klant capex 925-975</td> <td>euro / maand</td> <td>16,75</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Vezelpaar per klant capex 975-1025</td> <td>euro / maand</td> <td>17,50</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>In the table above the discounts are included. Discounts are determined per area based on total volume of all access parties. If the total number of costumers in an area exceeds 2.000, the discount for all wholesale clients is 2,5%. If the total number of costumers in an area exceeds 26.000, the discount for all wholesale clients is 20%.</p> <table border="1"> <thead> <tr> <th colspan="10">Kortingspercentage</th> </tr> <tr> <th>Aantal klanten per aansluitgebied</th> <th>x 1.000</th> <th>2,0</th> <th>3,5</th> <th>4,5</th> <th>6,0</th> <th>9,0</th> <th>13,0</th> <th>18,0</th> <th>26,0</th> </tr> </thead> <tbody> <tr> <td>Korting</td> <td>%</td> <td>2,5</td> <td>5,0</td> <td>7,5</td> <td>10,0</td> <td>12,5</td> <td>15,0</td> <td>17,5</td> <td>20,0</td> </tr> </tbody> </table>										Dienst of dienstelement	eenheid	2009																Vezelpaar per klant capex 775-825	euro / maand	14,50									Vezelpaar per klant capex 825-875	euro / maand	15,25									Vezelpaar per klant capex 875-925	euro / maand	16,00									Vezelpaar per klant capex 925-975	euro / maand	16,75									Vezelpaar per klant capex 975-1025	euro / maand	17,50									Kortingspercentage										Aantal klanten per aansluitgebied	x 1.000	2,0	3,5	4,5	6,0	9,0	13,0	18,0	26,0	Korting	%	2,5	5,0	7,5	10,0	12,5	15,0	17,5
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In the table below, some additional tariffs are included. The one off fee per line is 100. The one off fee per Area-PoP (ODF-location) is 3000,-. De-patching is 35,- and telco-telco migration is 125,-

Dienst of dienstelement	eenheid	2009
Aansluitbijdrage per klant bij aanwezige FTU	euro	100,00 <sup>37</sup>
Aansluitbijdrage per klant bij aanleg incl. FTU	euro	100,00 <sup>38</sup>
De-patching	euro	35,00
Telco-Telco migratie	euro	125,00 <sup>39</sup>
Aansluitbijdrage per Area-PoP	euro	3.000,00

Backhaul tariff between the area-pop (ODF) and the city Pop is 600,- euro per month. Housing-tariffs (co-location) tariffs are 500,- euro per month on the area pop.

Dienst of dienstelement	eenheid	2009
Verbinding Area-PoP - City-PoP	euro / maand	600,00
Housing per Area-PoP	euro / maand	500,00

Reggefiber is regulated by OPTA on market 4 (LLU). Non-discrimination rules apply (on tariffs, information, quality etc). We have caps for upfront payments per line (100,-) and per area-pop (ODF) (3000,-) and volume discounts per area-pop based on total market volume.

Portugal:

Optimus & Vodafone Portugal	n/a
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The agreement states that third parties may have access to the networks.

Slovenia: APEK has imposed to SMP operator on relevant market 4 access to and use of specific network facilities

- Access to copper loops and sub-loops, optical loops and in-house wiring
- Access to ducts, manholes, dark fibre and active Ethernet connections for the needs of operators for construction of their own network and access to the sub-loop
  - Access to dark fibre (FTTH and FTTC) where Telekom Slovenije replaces copper with fibre loops on individual locations of MDF where one or more AOs is present in the co-location, or where ducts are not available
- Co-location at MDF and street cabinets

For copper network LRIC bottom up model and for optical network:

- Transition period:
  - Optical Local Loop Unbundling - price control - no margin squeeze between wholesale and retail prices. APEK specify the methodology that follows to identify the imputation test and the parameters to be used. (Equally Efficient Operator test)
  - Duct Rental - price control - average rental price of other operators at the international level (benchmark).
  - Dark Fiber, Ethernet Connection and Backhaul - price control – cost orientation
- Later (until 1.10.2011): Telekom Slovenije will have to implement LRIC top down model and adjust prices to new LRIC prices for all services and a prohibition in margin squeeze.

APEK has imposed to SMP operator on relevant market 5 national access to bitstream as the first rung on the ladder of investment and the necessary condition for competition in rural areas; local access upon request – may become relevant if copper loops are replaced with fibre and co-locations at MDF remain

Price Control Method: retail minus price control and a prohibition in margin squeeze between the retail and wholesale price of all broadband-based packages and cost orientation (LRIC) for other services

**Switzerland:**

a)

Access to the NGA infrastructure to be constructed by <b>the co-investment plan partners</b>	
Name	Describe the modalities of access, in particular pricing, of the <b>partners</b> to each other's infrastructure or to Joint-Venture access products in case of JV (tariffs, volumes, handover point in the network hierarchy (e.g. concentration point, manhole, local exchange), level of access (duct, layer 1, layer 2, layer 3); please also indicate if access is differentiated geographically and how this is done). Add

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	other conditions if relevant (e.g. investment sharing and invoicing mechanism).
<i>EWB-Swisscom</i>	<ul style="list-style-type: none"> <li>- Swisscom accesses manhole-termination point layer 1 segment of EWB on 30% of territory</li> <li>- EWB accesses manhole-termination point layer 1 segment of Swisscom on 30% of territory</li> <li>- EWB accesses CO-manhole layer 1 segment of Swisscom on 100% of territory</li> </ul> <p>No tariffs available. Sharing of investment as indicated.</p>
TBF-Swisscom	<ul style="list-style-type: none"> <li>- Swisscom accesses TBF inhouse and drop fiber on 100% of territory</li> <li>- TBF accesses feeder fiber of Swisscom on 100% of territory. All layer 1 products terminate in the Swisscom CO.</li> </ul>
EWL-Swisscom	<ul style="list-style-type: none"> <li>- Swisscom accesses EWL inhouse and drop fiber on 100% of territory</li> <li>- EWL accesses feeder fiber of Swisscom on 100% of territory. All layer 1 products terminate in the Swisscom CO.</li> </ul>
SGSW-Swisscom	<ul style="list-style-type: none"> <li>- Swisscom accesses SGSW inhouse and drop fiber on 100% of territory</li> <li>- SGSW accesses feeder fiber of Swisscom on 100% of territory. All layer 1 products terminate in the Swisscom CO.</li> </ul>
SIG-Swisscom	<ul style="list-style-type: none"> <li>- Swisscom accesses SIG inhouse and drop fiber in SIG territory</li> <li>- SIG accesses Swisscom inhouse and drop fiber in Swisscom territory<sup>11</sup></li> </ul>
EWZ-Swisscom	<ul style="list-style-type: none"> <li>- Swisscom accesses EWZ inhouse and drop fiber in EWZ territory</li> <li>- EWZ accesses Swisscom inhouse and drop fiber in Swisscom territory</li> </ul>
Groupe E-Swisscom	<ul style="list-style-type: none"> <li>- Swisscom accesses Groupe E inhouse and drop fiber in Groupe E territory</li> <li>- Groupe E accesses Swisscom inhouse and drop fiber in Swisscom territory</li> </ul>
SIL-Swisscom	<ul style="list-style-type: none"> <li>- Households A connected by 4 fibres through Swisscom (inhouse, drop, up to second manhole), layer 1 interconnection to SIL network at second manhole (2 fibres in IRU to SIL).</li> <li>- Households B connected by 4 fibres through SIL (inhouse, drop, up to first manhole where Swisscom interconnects (2 fibres in IRU to Swisscom)). The</li> </ul>

<sup>11</sup> <http://asut.ch/files/pdf947.pdf?3986>

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	<p>particularity is that SIL is deploying its fibre in the drop segment in large part in Swisscom ducts (a regulated product exists), and even in part of the feeder.</p> <p>-</p>
EW Pfy-Swisscom	- Swisscom accesses EW Pfy inhouse and drop fiber at the manhole on the whole territory

b)

Access to the NGA infrastructure to be constructed by <b>operators which are not part of the co-investment partnership</b>	
Name	Describe the modalities of access, in particular pricing, of <b>operators</b> which are not part of the co-investment plan to the NGA infrastructure of the partners or to Joint-Venture access products in case of JV (tariffs, volumes, handover point in the network hierarchy (e.g. concentration point, manhole, local exchange), level of access (duct, layer 1, layer 2, layer 3); please also indicate if access is differentiated geographically and how this is done).
EWB	<p>Conditions N/A.</p> <p>Claim that access on EWB layer 2 will be given under non-discriminatory terms. EWB Layer 1 Products will be available in 7 Swisscom PoPs.</p>
TBF	tbd
EWL	<p>EWL L1 fibre unbundling Prices at about: n/a</p> <p>EWL duct access prices at about: n/a</p>
SGSW	<p>SGSW L1 fibre unbundling Prices at about 30 CHF/month per fibre.</p> <p>SGSW L2 average prices at about 42 CHF/month.</p>
SIG	No indication
EWZ	No indication
Swisscom	Layer 3 Access (up to 100/100 Mbits):

	<p>from 40 CHF/month (50/5 Mbits at 65 CHF/month).</p> <p>Layer 1 Access in CO:</p> <p>1 fibre – 39 CHF/month</p> <p>2 fibres – 117 CHF/month</p>
Groupe E	No indication
SIL	No indication

**Question 5: In case there are currently no co-investment plans in your country please describe the aspects of such plans that would be determined by a symmetric regulation framework.**

**Austria:** For an alternative operators being the NGA first-mover (i.e. being the first to roll out FTTC or FTTB in a certain area) in principle the same rules as stated above apply (organisation of planning meeting, invitation to co-operation talks, offering of compensation payment). In return the alternative operator gains the same advantages as were fixed for the incumbent operator what in the end leads to a regulatory level playing field with regard to NGA roll-out.

As mentioned in the answer of question 1, it is still uncertain whether the operators have to notify co-investment contracts to the NRA under the new Austrian telecommunications act.

**Belgium:** As there is no co-investment in Belgium nor evidence of such plans in the near future, there has not been any reflection on that issue within BIPT.

**Croatia:** Electronic Communications Act and Ordinance on technical conditions of electronic communications network for business and residential buildings regulates shared use of in-house wiring in the case of new buildings. According to Ordinance on technical requirements and conditions of use of optical distribution networks new fibre distribution networks (part of network between end user and distribution point) must be deployed in point to point solution. Part of access fibre network between distribution point and local exchange can be deployed in point to multipoint and point to point solution. Distribution point should be placed in street cabinet or other space for collocation of electronic communications equipment, where it is not necessary to have active equipment. Moreover this Ordinance obliges investors into optical access network (optical distribution network) to inform public on any planned investments. The intention to build an optical access network has to be publicly announced at least 60 days before the beginning of building

works in a public accessible way. The expression of interest to build an optical distribution network has to be delivered by the investor in writing to HAKOM at least 60 days before the beginning of network building, and HAKOM shall publicize it on its official website.

**Cyprus:** In Cyprus there are not any co-investment plans at the moment, for the development of NGA networks. The incumbent operator has deployed 2 small pilot projects based on GPON architecture, the other 2 alternate operators are deploying their infrastructure based on LLU and the 4th one is a cable operator that uses fibre and hybrid fibre coax infrastructure. For existing infrastructures is expected that alternate operators will use the incumbent's ducting system and where is possible the poles deployed by the Electric Authority to deploy their NGAs. For new infrastructures and where there is a redevelopment of an existing area of roads, there is a specified procedure which was published by OCECPR, similar to a co-investment plan but not actually a joint venture, where public authorities are actively involved. All operators have the right to deploy their own pipes in the same ducting system, to construct their own manholes but access to buildings is effective through a common manhole. This procedure is organized by Local Authorities and the Department of Civil Works and the cost of the survey and digging work is divided between the interested operators. Using this kind of procedures and method of digging there are not any restrictions in the technology used by each operator and moreover is feasible for other operator to apply for wholesale products. At the moment there is no public funding for the deployment of NGAs.

**Czech Republic:** NRA is not involved in this matter at this time.

**Estonia:** There is no symmetric regulation framework, since in-building wiring does not belong to operators in Estonia usually; it belongs to building owners. Access to ducts is regulated as a related service in market 4 and the incumbent is the SMP. The incumbent owns over 90% of the ducts infrastructure in Estonia.

**France:** Existing co-investment plans in very high-density areas are described in previous questions.

Outside these very high-density areas, operators are still preparing their co-investment offers. ARCEP's decision n° 2010-1312 specifies the terms and conditions governing access:

- the building operator provides passive access at the concentration point under reasonable technical and economic conditions. A greater part of the network is shared;
- requests to benefit from access to a dedicated optical fibre are not reasonable;
- housing of active equipment at the concentration point is mandatory in order to allow optimization of all technologies (technology neutrality).

It also specifies the obligations of coordination among stakeholders for deployments both competitive and consistent:

- the building operator will define a concentration point area of 1 000 lines or more. When the building operator offers a dark fibre line rental between the concentration point and the MPoPs, the concentration point size may decrease down to 300 lines ;
- coordination of deployments, particularly with local authorities, is necessary to ensure consistency between deployments of different concentration point areas.

Therefore, an operator deploying a network will have to launch a prior consultation in order to consult third operators for co-investment. This consultation can lead to a cost-sharing scheme with several operators. After the initial deployment, it shall be possible for others operators to catch-up and enter this cost sharing scheme. The tariff condition of this long-term right of usage may take into account a risk premium.

Furthermore, in order to ensure the openness of the market for smaller operators, the initial investors shall make an access offer at a smaller scale. In application of the law, this offer shall be at the scale of the building or the line. Considering the size of the concentration points, this offer is technically equivalent to unbundling. These two levels of access offers ensure a ladder of investment for operators entering the market. In very high-density areas, the same principle is applied with two levels of access offers (co-investment at the scale of the commune and a rental or IRU access offer at a building level).

**Germany:** According to actual German Telecommunication Act (TKG) symmetrical access regulation is not possible and beyond TKG there is existing no national legal rule supporting symmetrical regulation. The draft review of TKG (Kabinetsentwurf) foresees in line with Art. 12 framework directive that BNetzA is authorized to regulate the joined usage of inhouse cabling and the lines up the first concentration point/node near the buildings. This addresses telecommunication companies (independent of SMP) or the owners of the cables. Companies with own infrastructure needed for the provision of telecommunication services (Teclco companies and utilities) are then obliged to inform on their adequate infrastructure on reasonable request by BNetzA.

**Malta:**

The MCA has just published an outline strategy on the future regulatory stance that the MCA may take in an NGA scenario. Although the strategy proposes a number of options, so far no conclusions have been taken. Therefore to date no aspects of symmetric regulation have been defined in the case of co investment. Furthermore, no co-investment has been announced and it is likely that this will only happen should the government decide to intervene in helping with NGA investments.

**Norway:** According to our national legislation (more specifically; Electronic Communications Act, section 4-4, second paragraph), the NRA may impose shared utilisation of infrastructure on providers when considerations of effective use of resources, the interest of health, the environment or safety or other societal interests warrant that duplication of infrastructure should be avoided.

However, it is not given that the aspects relating to symmetric regulation as mentioned above would determine possible future co-investment plans in Norway. Considerations of symmetric regulation according to our national legislation are done on a case by case basis.

**Poland:** The following current symmetric regulation framework in Poland would apply to such co-investment plans (infrastructure deployed and provided services by the JV):

According to Act of 7 May 2010 on supporting the development of telecommunications networks and services every owner of ducts located on the

property or in the building and in-building/house wiring (including fibre) is obliged to provide access to those resources to each telecom operator, if there are no other possibilities of ducts access or in-building/house wiring duplication.

Also under article 139 of the Telecommunications Law (implementing Article 12 of Framework Directive), operator of public telecommunications network is obliged to allow access to buildings and telecommunications infrastructures to other operators of public telecommunications networks and the local government units and, in particular, to allow the installation, operation, surveillance and maintenance of telecommunications equipment, where the performance of such activities without such access would be impossible or difficult from the perspective of spatial planning, human health or environmental protection.

**Slovakia:** No specific plans regarding the co-investments for the time being. In the proposed amendment of the Act on Electronic Communications there is an extension of the section regarding co-location and use of facilities. Under the above mentioned proposal, the undertaking authorized to establish and operate a public network will be entitled to use foreign in-house wiring of buildings and premises in which the undertaking is interested in providing public services. Based on this, the undertaking will be obliged to pay the actual costs of maintenance and repair of such wiring, on the basis of rate of use. Moreover, the Office on its own initiative, or at the request of undertakings, which did not agree the terms of arrangement, will determine the joint use of infrastructure including construction, premises and part of lines. Regarding the NGA networks and migration path envisaged, the undertaking will be obliged to provide current information on the availability and geographic location of facilities, including buildings, premises and parts of lines, to get clear picture about the existing infrastructure. Finally, the Office will be entitled to impose obligation of sharing of in-house wiring up to the concentration point, or cabinet, where the duplication of such infrastructure would be economically inefficient or physically impossible.

**Slovenia:** In accordance with Electronic communication act in Slovenia Electronic communications networks and associated infrastructure must, where feasible in terms of technical possibilities, be constructed so as to best facilitate the common use of existing facilities. Any investor into public communications networks and associated infrastructure must, before the start of the investment, notify APEK about the planned construction. APEK then publishes on its website the investors' plans and calls on any interested parties to express their interest for co-investment.

If any parties express an interest, the investor must offer the conclusion of an appropriate contract based on cost oriented prices. If the investor and interested parties cannot agree on the content of the co-investment contract, APEK resolves the dispute.

**Sweden:** PTS imposed obligations on TeliaSonera in May 2010 to open the access network (both fiber and copper) and provide wholesale (physical) network in-frastructure access (market 4) and wholesale broadband access (market 5). Given that the access market is determined by the asymmetrical regulation and there is no basis for a symmetric regulation based on the current market definition it does not change the view on co-investments in Sweden. Despite this, the interest for co-investments would have been different if TeliaSonera would be interested, but so far they have not been. Alternatively, that alternative operators would be prepared to investment more actively in fiber compared to their current plans which is aimed at buying dark fiber from TeliaSonera.



**United Kingdom:** Symmetric regulation does not seem to play a role in the absence of co-investments in the UK. Our regulatory framework does not currently include any symmetric measure in relation with local FTTH deployments.

**Question 6: Please indicate the level of information exchange between the co-investment partners**

**France:**

Co-investment plan 1 : buildings equipped by France Télécom	Annex 2 of decision n° 09-1106 states : “The resources associated with the effective implementation of access under reasonable and non-discriminatory conditions, and which must be provided to operators, pursuant to Article 2 of the present decision, include, in particular:  - hosting at the concentration point and the conditions that guarantee the availability of host infrastructure and accessibility for operators, notably to connect their ultra-fast broadband local loop network and to perform the necessary operations;  - information concerning the building, which must be provided within a maximum of one month after the possible conclusion of an agreement signed with the property owner or the condominium board, in application of Article L. 33-6 of the CPCE, notably: the address of the building in question; the name and address of the owner of the property or the condominium board representing the co-owners; the number of residential or office units in the building; the person whom other operators must contact to submit their request for access, in accordance with Article L. 34-8-3.  - information concerning the concentration point which, unless otherwise stipulated in a decision from the Authority, will be provided within a period of no less than three months before the concentration point becomes operational (i.e. the date upon which users are actually able to connect to this concentration point), notably: the identifier of the concentration point; the address of the concentration point; the technical properties of the equipment installed at the concentration point and the processes for connecting to it; the addresses of the buildings served by the concentration point and those that are likely to be in future, along with the corresponding number of residential or office units.  - information needed to operate the lines;  - the information system used, notably for processing orders, subscriptions and cancellations, maintenance, management of slamming, tracking orders and requests for repair, billing.
Co-investment plan 2 : buildings equipped by Free	
Co-investment plan 3 : buildings equipped by SFR	
Co-investment plan 4 : buildings equipped by Sequalum	
Co-investment plan 5 : agreement between SFR and Bouygues Telecom	

Italy:

Trentino NGN/Telecom Italia	The project is open to all Telco operators.
Provincia di lucca/Telco operator	Publication of notice for expressions of interest and private partner selection direct to telecommunication operators

Netherlands:

Reggefiber Group BV	Not relevant, because it is a joint venture.
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Switzerland:

Information exchange between <b>co-investment partners</b>	
Name	Co-investment plans may require partners to exchange information they would otherwise not exchange. This may include, but is not limited to <b>the number of subscribers, concrete roll-out plans and actual buildings equipped</b> . Please describe the type of information exchanged between partners in view of the implementation of the co-investment plan.
EWB-Swisscom	No indication.
TBF-Swisscom	No indication.
EWL-Swisscom	Only information relevant to the construction of the network are exchanged.
SGSW-Swisscom	Only project coordination: Time at which houses are connected, time of interconnection of the two networks.
SIG-Swisscom	

EWZ-Swisscom	- Coordination of roll-out - Interconnection points
Groupe E-Swisscom	- No indication
SIL-Swisscom	- No indication
EW Pfyn-Swisscom	- No indication

**Question 7: Have co-investment agreements been analysed by the competition authority and/or the regulatory authority?**

**France:** National law has allowed ARCEP to develop symmetric measures and to mandate passive access for all operators rolling out in-building wiring. Thus, the Law on modernising the economy (LME dated 4th August 2008) introduces a system of rights and obligations for operators deploying ultra-fast broadband solutions. First, the process of installing fibre in buildings is facilitated for operators and imposed on property developers in greenfield housing. Second, the party that installs the fibre in the building (i.e. the building operator) is responsible to the property owner for all operations performed on the network on the private property, and must satisfy an obligation to share its infrastructure, allowing other operators to provide ultra-fast broadband services to the residents of the building under non-discriminatory conditions. Furthermore, article L. 34-8-3, created by the LME stipulates that the concentration point must be located outside of private property, “except in instances defined by the Electronic Communications and Postal Regulatory Authority”.

The current regulatory framework implemented in very-high density is based on the December 2009 decision, that requires an operator installing the in-building wiring to grant a passive access to other operators at the concentration point, unless all four fibres installed are already in use. In this case, access may be granted higher in the network on a passive or activated basis.

Outside very-high density areas, the regulatory framework is based on a decision, adopted in December 2010. It stipulates that the concentration point will gather on average 1 000 lines, resulting in a fibre passive access solution technically similar to unbundling.

Decisions n° 2009-1106 and n° 2010-1312 have both been submitted to public consultation, to the French competition Authority for comments and notified to the European Commission. The subsequent comments are publicly available.

Sharing the cost of the “raccordement palier “ (last part of a FttH line, from the hallway of a building to a flat) : see dispute resolution decision n°10-1232.

**Germany:** No decision has been taken up to now. There is however one agreement pending. It refers to a complementary roll-out of VDSL-infrastructure

of two Telecommunication companies in two German cities. Details are not public yet. It doesn't seem to be a co-investment.

**Italy:** 1) No decision has been taken yet.

2) The regulatory Authority has issued an opinion in accordance with the rules on state aid by providing guidance on access rule and pricing.

2) General rules to define state aid procedure

**Netherlands:** YES, approved with accepted remedies. The remedies accepted by the Competition Authority are the same remedies OPTA applied to Reggefiber in its market 4 decision of 21 December 2008.

**Portugal:** ANACOM has not information about any analysis performed by the National Competition Authority.

**Sweden:** There has not been an issue on the fixed side as there has not been any public co-investments agreements that has been analyzed by the competition authority

**Switzerland:**

– Which decisions have been taken?

- **Refusal of Groupe E – Swisscom (Fribourg) Joint-Venture 29 April 2011 (not relevant).**<sup>12</sup>

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- **Final report of the Swiss competition authority on local NGA co-investment of 11 November 2011**

A preliminary investigation of the Swiss competition authority has addressed NGA co-investment agreements in Basel, Zurich, Bern, Lucerne and St. Gallen<sup>13</sup>. Under six objection proceedings (article 49 (3a) and 26 of Swiss cartel law) the authority has assessed whether or not the notified clauses of these agreements are compatible with article 5 of Swiss cartel law (comparable to article 101 TFEU regarding agreements restricting competition). In case of compatibility the partners would have been granted exemption from future sanctions under article 5 for the period of the agreements. The competition authority has, however, found that the notified NGA co-investment clauses regarding

- layer 1 exclusivity (notified in all cities)
- investment protection (or non-discrimination of the partner) (notified in all cities)
- compensation mechanisms (notified in all cities except St. Gallen)
- "circumvention" clause (notified only in Basel)
- information exchange (notified in all cities except St. Gallen)
- right of first refusal (notified in all cities)

<sup>12</sup> <http://www.news.admin.ch/NSBSubscriber/message/de/38881>

<sup>13</sup> <http://www.news.admin.ch/message/index.html?lang=de&msg-id=40966>

cannot be granted an exemption of sanctions as requested as it cannot be excluded that they could lead to a restriction of effective competition (except for the right of first refusal which is not assessed). While the majority of these clauses has been analysed in this BEREC report, this has not been the case for the right of first refusal and the “circumvention” clause.

The right of first refusal foresees that if a partner sells its fibre network (fully or partly), the other partner may prevent this action acquiring the stakes in question itself under the agreed terms.

The “circumvention” clause was only foreseen in Basel. It foresees that some layer 1 access products are not to be given access to for third parties. It is therefore similar to the layer 1 exclusivity clause analysed in the report. In particular this seems to apply to layer 1 access at the building entry point to alternative in-house connectivity providers.

On 11 November 2011 the full report including the detailed considerations of the competition authority has been published<sup>14</sup>. The report can be summarized as follows

### **1. Supposition of significant restriction of competition**

In a first step the authority has analysed whether the horizontal agreements notified can be supposed to restrict competition in a significant way. A supposition is given in all article 5 (3) cases.

#### **Layer 1 exclusivity**

From a technical point of view the authority assumes that all partners could offer layer 1 and 2/3 products actively. There is therefore competition between these players (if not actual then potential). The authority therefore judges that a clause whereby a partner commits not to give access at layer 1 constitutes an agreement restricting the production quantity (article 5 (3b)) or a division of the market among partners/producers (article 5 (3c)). Actually in case of such a commitment by Swisscom any spare fibre of Swisscom can be supposed to remain dark.

#### **Investment protection**

This clause foresees that access products cannot be offered at lower prices to third parties than to the partner. While affirming that the partners in the long term should have no incentive to offer products below costs, the authority still considers that this clause constitutes the fixing of a minimum price (article 5 (3a)).

#### **Compensation mechanism**

This clause foresees that from a certain degree of usage of the network a transfer payment between the partners is necessary. In general the effect is to harmonise prices and increase the price level as (marginal) costs “artificially” increase with quantity and undercutting becomes less profitable. This is in particular the case as the costs have already been split in the original agreement and costs would therefore be considered several times by the partners.

Parties may make offers to end customers on 100% of the network at no restriction or extra cost thanks to the agreement (this is one of the

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<sup>14</sup>[http://www.weko.admin.ch/index.html?lang=de&download=NHZLpZeg7t.Inp6l0NTU042l2Z6ln1acy4Zn4Z2qZpnO2Yug2Z6gpJCDdlF3g2ym162epYbg2c\\_JjKbNoKSn6A--](http://www.weko.admin.ch/index.html?lang=de&download=NHZLpZeg7t.Inp6l0NTU042l2Z6ln1acy4Zn4Z2qZpnO2Yug2Z6gpJCDdlF3g2ym162epYbg2c_JjKbNoKSn6A--)

advantages of multifibre). This mechanism limits, however, their freedom of increasing customers and active lines by increasing production costs above a certain amount of end-customers. Similar to the layer 1 exclusivity the compensation mechanism therefore constitutes an agreement restricting production quantity (article 5 (3b)). Also, the authority notes that such a mechanism institutionalises an information exchange on quantities sold which may be problematic (see below).

### **Information exchange**

The authority notes that here is not sufficient detail of the information to be exchanged to exempt this clause from sanctions under article 5 (1). It notes however, that the periodical quantity information to be exchanged under the compensation mechanism may be problematic, most importantly because it may allow competitors to calculate average prices in the market.

### **Right of first refusal**

While this clause may possibly imply an agreement restricting competition under article 5 (1) (i.e. by preventing the entry of new entrant) the authority more importantly notes that any merger would have to be notified under the merges control rules and that the authority would be free to take any possible decision. If this clause would be relevant under article 5 there would, however, be no possible sanctions, which is why the clause is not further investigated.

### **“Circumvention” clause**

It is described that today one fibre line could handle the internet traffic of multi-family dwellings without any problem. An entrant could buy access at the building entry point and resell it to all inhabitants. In such case an alternative operator could provide only in-house connectivity to the end customers (e.g. also only over the air). In such case the parties seem to identify a cannibalisation as actually the traffic of several end-customers could be routed over only one building access line. The agreement foresees that such services to third parties are not to be offered. The competition authority has identified this clause as “refusal of access” according to article 5 (3).

## **2. Market analysis**

In a second step the authority has verified if the prima facie supposition of a significant restriction of competition can be confuted by sufficient competition on the market – be it through the partners in the agreement or partners outside of the agreement (taking into account the agreements as they stand).

### **Market definition**

Markets 4 and 5 are defined in a similar way as usually in the EU (layer 1 versus layer 2/3). However, the starting points of the analysis are the fibre-based products defined in the agreements. It is concluded that copper layer 1 products are not substitutes to such products as the services that may be offered on their basis are far more enhanced (this does not exclude the inverse, i.e. that fibre may be a substitute for copper). Regarding cable the authority assumes that no product compatible with market 4 is technically feasible. This includes virtual unbundling. The relevant markets (4 and 5) are therefore restricted to fibre. Market 4 includes, however, both dedicated fibre lines (e.g. in a multifibre network) and shared fibre lines (traditional “unbundling”). The geographical market is given by the areas of the agreements as usually local players are only active in their areas (different local utilities would with their wholesale products not be able to compete for the same end-customer).

**SMP – General analysis**

The competitive threat through competition of cable operators directly entering fibre markets 4 is judged to be limited for the time being and only possible in the medium/long term. Competition would therefore need to be created only by the partners of the agreement – taking into account the notified clauses of the agreement. This could be the case if parties would infringe the agreement or if competition would be created due to other circumstances. Given that there are common interests of the partners in the agreement and strong interdependencies this is excluded.

**SMP - Indirect effects**

Indirect effects on market 4 and 5 could pass through retail markets. Retail markets need to be divided into a market for private as well as for business customer as the requirements for these products regarding prioritisation, bandwidth, bandwidth symmetry, service level etc. are not comparable/substitutable (this is also the case for market 5). Finally the retail broadband market for private customers is divided into three categories: low, medium and high spending.

The retail broadband market for business customers (copper and cable are not competitive in this market) cannot generate indirect competitive constraints on market 4 because according to the authority today all providers depend on Swisscom fibre access lines as locations on the whole national territory have to be served and utilities are only present locally.

The retail broadband market for private customers might in theory generate indirect effects both on market 4 and 5 where cable and copper based products are supposed to be able for time being to offer competitive products. The intensity of these effects however depends, according to the authority, on the level of competition in the retail market as well as product differentiation.

It is argued that switching costs are very high in Switzerland and that they could limit the competitive indirect effects on market 5 importantly. Finally it is argued that product differentiation on the retail market as well as market 5 (low, medium, high spending) might lead to insufficient indirect effects on market 4 (competitive effects would be absorbed already in specific market 5 products). The authority can therefore not exclude that indirect effects are insufficient to lead to competition on markets 4 and 5.

**3. Impact of the clauses**

If sufficient competition in the market would have been found (which was not the case), a finding that the agreements would still lead to an important restrictions of competition would still justify an intervention of the competition authority. This would seem to be the case as well. The competitive impact of the different clauses according to their importance is assessed by the authority as follows:

Layer 1 exclusivity	Important restriction
Investment protection	Important restriction
Compensation mechanism	Important restriction
“Circumvention” clause	Important restriction

Finally there are doubts of the authority that the cooperation clauses could be justified by efficiencies given that the clauses only concern the operation and not the roll-out of the network. An efficiency defence is therefore not considered.

#### 4. Conclusion

For the above reasons the authority cannot grant an exemption from sanction for the notified clauses. It has further to be noted that the authority has only conducted this analysis under article 5 of Swiss cartel law, which means that any sanction risk relating to article 7 (comparable to article 102 TFEU regarding the abuse of a dominant position) will remain in place for the firms in question. In addition the authority has made clear that - independently of a possible agreement regarding the right of first refusal - in case one partner would take control of another partner a standard merger assessment would be conducted by the authority which could lead to any possible result depending on the circumstances.

This assessment of the authority does not imply that the above clauses are not compatible with the Swiss Cartel law but that the authority cannot exclude at this stage that they would not be. The authority has though announced that it would start formal proceedings against the firms involved if the clauses would be maintained and executed. In such proceedings the Authority would have to take a clear position. At the moment it seems as if the firms would adjust the agreements in a way compatible with the Swiss Cartel law. In Basel for example it has been announced that the layer 1 exclusivity and investment protection clause will be dropped and the compensation mechanism adjusted<sup>15</sup>.

- Please list the concrete issues which were contested or might be contested of the NGA co-investment agreements? If there are no cases yet, are you aware of planned co-investment conditions that may be controversial (such as agreements on geographic coverage, layer 1 exclusivities, compensation mechanisms to reduce risk, etc.) that you have not indicated earlier?

Generally the clauses contested in the FTTH roll-out cooperations are the following in Switzerland:

- Layer 1 exclusivity (one partner commits not to sell layer 1 products to alternative operators in any form).
- Compensation mechanism: If investment shares turn out to be different than market share in the future a transfer payment is foreseen. Such transfer payment can be of any amount/connection.
- Right of first refusal: The partner would be in a situation to take-over the network in case of sell-off of the activity at particular conditions.
- Geographical division of markets. The coordination of FTTH roll-out foresees that the territory is divided between the partners.
- Joint-Venture: In the case of Groupe E-Swisscom (Fribourg) a joint-venture is foreseen to roll-out the network
- Non-discrimination: A contract can foresee that the partner cannot make a better offer to other operators than the one made to the partner.
  - Please specify which national or EC laws are or might be affected

Swiss Cartel Law only. Swiss Telecoms Act excludes any fiber access network regulation regarding market 4 and 5.

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<sup>15</sup> [http://www.swisscom.ch/de/ghq/media/mediareleases/2011/11/20111109\\_02\\_Glasfaserausbau\\_Basel.html](http://www.swisscom.ch/de/ghq/media/mediareleases/2011/11/20111109_02_Glasfaserausbau_Basel.html)



**Question 8: Are there aspects of co-investment agreements that could restrict the independence of the partners from each other in any way in view of competition (e.g. geographical division, exclusivities, compensation mechanisms, etc.)? Please explain.**

**Austria:** Due to the lack of co-investment plans in Austria, RTR has no specific knowledge on such aspects beside the well-known arguments from economic theory against co-operations of competitors (e.g. anti-competitive behaviour).

**Belgium:** There has not been any reflection on co-investment within BIPT and that pertains also to restrictions posed on the independence of the partners.

**Estonia:** Not that the ECA is aware of. It has to be noted though, that the ECA has not looked into the matter of co-investments thoroughly.

**France:** Operators have implemented “droits de suite” in their access offer as a means to protect their investment in specific cases. The aim is to avoid having useless investment in supplementary fibres for future operators while one of the initial co-investors gets all the revenues of the wholesale market by giving an access to new entrants.

Since most operators have indicated that if one operator (or more) asks for a dedicated fibre line per household, they will lay four fibres per household, there is a probability that one of the co-investors decides to offer wholesale services on its fibre. Depending on the price, this offer might be more attractive for a new entrant than co-investing in a free dedicated fibre, resulting in revenues for the wholesale operator and none for the co-investors that paid for the remaining unused fibres.

The “droits de suite” system imposes a sharing of wholesale revenues among initial co-investors. Although this system aims at protecting investment, it should not become a barrier to entry and are therefore limited to:

- an initial rollout phase (during three years maximum) ;
- cases where fibre lines have been laid and are not in use ;
- operators offering wholesale services above a critical scale, in terms of wholesaled lines as a proportion of the lines they have co-invested in, thus depriving other co-investors of the possibility to reduce their share of the costs. As smaller operators will not be able to directly invest in a dedicated fibre, their market entry through a wholesale offer shall not be concerned by the “droits de suite”.

In the access offers published by the operators planning to rollout in-building wiring, this de minimis critical scale has been defined:

- in France Télécom’s and SFR’s offers, ‘droits de suite’ shall be paid by the wholesaler when the ratio of the number of accesses wholesaled divided by the total number of possible lines addressed by the wholesaler exceed 5%, on a per commune basis ;furthermore in SFR’s offer limited ‘droits de suite’ shall also be paid by the wholesaler when this ratio exceeds 1% ;
- in Free’s offer, ‘droits de suite’ shall be paid by the wholesaler when the number of accesses wholesaled exceed a number of accesses

predefined by Free in its pre-consultation (the call to co-invest), on a per commune basis. This number, divided by the total number of accesses, is around 5%.

**Ireland:** While ComReg has no specific experiences regarding NGA co-investment as of yet, in general, yes- depending on how the arrangements are set up there could be scope for issues which reduce the incentives or the abilities for the parties to the agreement to compete with each other at the retail level (or indeed the wholesale level). For example, an agreement which results in the inappropriate sharing of information on, say, costs, markets, output or prices etc could potentially restrict competition through parties' increased ability to co-ordinate their activities. Depending on the technical arrangements adopted it could result in party's freedom to individually innovate being restricted.

The application of Article 101 of the Treaty on the Functioning of the European Union (TFEU) which prohibits anti-competitive agreements would apply generally and, depending on the construct of the arrangement it may also involve the application of national/EU merger rules (for example in the case of a joint venture established between parties).

Any negative effects would need to be considered alongside the potential benefits.

**Italy:** The co-investment agreements should require a specific analysis by the NRA in order to find out the presence of competitive problems.

**Norway:** Exclusivities in terms of attractive content may be such an aspect (if vertically integrated operators should participate in co-investment agreements). For instance, one of the vertically integrated fibre operators have exclusive rights to distribute Norwegian football in IP-networks.

**Poland:** In terms of the SMP assessment criteria there could be dominant relationship between the partners if one of them uses wholesale inputs (eg. LLU, BSA) of the other. This could restrict the independence of the co-investment partners, since one of its business would rely on the agreements with the other. It might have possible impact and consequences in terms of competition assessment and finding the SMP.

**Portugal:** There is no information concerning some kind of territorial exclusivity. These operators involved do not hold SMP on any fixed market (particularly on Market 4).

**Sweden:** It has been an issue in network sharing for mobile networks in order to separate the production of network capacity and end-customer business. But not on the fiber in the access network due to the lack of co-investment projects.

**Switzerland:**

- Often additional fibres are not splices resulting in transaction costs for new players.
- Colocation may not be subject to regulation for fiber. Possible dependencies if utilities want to offer their fiber in the incumbent CO.
- Access to concentration nodes, especially in the building.

**Question 9: Are there any national specificities of your market that may explain the demand (or lack of demand) of stakeholders for NGA co-investment agreements? In particular: are some forms of co-investment ill-suited or impossible in your country? Which form of NGA**

**investment would in your view be the most desirable in your country and why? How does this relate to the national broadband strategy in your country?**

**Austria:** The national incumbent A1 Telekom Austria (A1-TA) is investing in NGA (see question 12) but is also forced to invest (e.g. LTE) in its mobile telephone branch due to fierce competition on the Austrian market. The leading cable operator UPC has rolled out DOCSIS 3.0 and is not investing in fibre at a significant amount at the moment while the strategy of the alternative operator Tele2 is to provide its customers with xDSL from the MDF. Therefore there is no demand for NGA co-investment so far.

As there are no co-investment agreements, we have no ill-suited forms of agreements and the only restriction for co-investment contracts would be the competition law. Overall, we think that there is rather limited scope for co-investment (due to the industry structure) in Austria.

**Belgium:** FTTH has not met with large success in Belgium. Individual network operators are not rolling out fibre networks at a non-negligible scale and neither do co-investors. The main investors in fixed infrastructure, the incumbent and cable companies, are competitors and as such not keen on signing co-operation agreements.

Some additional factors may explain why Belgian co-investments have not come about:

1. due to the current network structure, co-location in street cabinets is hardly possible;
2. local rules impose procedures to share civil works anyhow, usually making small-scale co-investment agreements unnecessary;
3. duct sharing is not obvious as almost all copper cables are buried;

Moreover, the average distance between the street cabinets and the end users' premises is too small to justify investment in FTTH. As a consequence, investing in the improvement of VDSL (such as vectoring) is a more appropriate strategy, but even this strategy has not led - up to now - to co-investment projects by multiple infrastructure operators.

**Croatia:** The main reason that explains lack of demand would be the fact that alternative operators do not have sufficient financial resources to invest in NGA. Liberalisation in fixed network started relatively late in Croatia (in 2005) without foreign capital and investment, only domestic (not big) companies started to invest. Also LLU offer was implemented before Bitstream offer, so operators have not been able to gain return on their investment in LLU yet. Also cable operators do not have significant market share so they are not able to drive investment in NGA. On the other hand, the incumbent operator has enough financial resources to invest in NGA so they are not interested in investment with local government or alternative operators.

The final Draft of National broadband strategy anticipates informing and preparing local government for investment in NGA – this should also drive co-investment in NGA.

**Estonia:** Not that the ECA is aware of. There are co-investments with the help of state aid to the backbone network (EstWIN project) but the construction of access network (last mile) is left to operators.

**France:** The national coverage of high-speed networks is a major challenge for the future of the territories. The President of the Republic has decided to assign to this project EUR2 billion in future investments financed by domestic borrowing.

The “national ultrafast broadband program”, which allows the implementation of this project, was released June 14, 2010. It includes, until summer 2011, a start-up phase that is a preliminary step to the opening of financial support for deployment of ultrafast broadband networks.

Under this first phase, the Government has launched a call for expressions of investment intentions in order to collect investment intentions of operators to deploy ultrafast local loop networks, in the next 5 years outside very high-density areas.

Network operators were able to consult the regional consultative bodies established under the Prime Minister's circular of 31 July 2009 on the development of digital territory, to be aware of expectations and priorities of the territories over which they have the intention to deploy ultrafast broadband infrastructure.

These expressions of investment intentions have a commitment value for network operators and providers of Internet access and serve as a reference in the subsequent phase of financial support for deployments (parts A and B of the national program).

They also are a primary source of information to identify areas where private effort alone, including co-investment, of electronic communications operators, is not sufficient to deploy a broadband network.

A new call for expressions of investment intentions will be held every two years to take account of the update deployment projects actors.

**Germany:** All forms of co-investments enforcing fibre roll-out are desirable, as far as they are in line with competition law or - in case SMP-Providers are involved - with TKG regulation. According to broadband strategy BNetzA and German Cartel office have to clarify the fundamental regulatory and competition law issues with the parties involved as soon as the appropriate documents have been submitted. On the basis of these clarifications, general summaries of ideas and positions were published. BNetzA published a NGA paper, which is a compilation of key elements on general regulatory conditions for the further expansion of modern telecommunications networks and the creation of a capable broadband infrastructure .Key element “three” is dealing with co-operations. German Cartel office published “Instructions on the competitive assessment of co-operations in optical fibre expansion in Germany”. They are to serve as a guide to companies willing to co-operate with other competitors.

**Greece:** OTE (the incumbent) has announced a limited deployment of VDSL2+ deployment. By definition, the other operators cannot contribute in co-investment activities because of the technology chosen.

The Greek state announced in 2007 its strategy for electronic communications and new technologies 2008 – 2013. According to those announcements there was a plan for infrastructure development based on mix FTTH/FTTC next generation access networks. The planned duration of the network roll-out was seven years and aimed at covering two million households i.e. Athens, Thessaloniki and 50 major Greek cities. In the previous (2009) review the related markets (#4, #5), EETT had concluded that for various reasons, this State announcement was not expected to significantly alter the market status for the near future. More specifically EETT reported that probably "there will be no substantial increase to retail broadband Internet access due to State aided fiber optic network within the timeframe of this market analysis." (i.e. 2009-2011 or even 2012).

However, there has been slow evolution to this issue and a recent public announcement regarding a tender that has been concluded. Taking into account the timelines required, we believe that any development NGA on Greek territory in the near future would probably not be an initiative by the Greek state but probably by OTE instead (according to its own press-release).

**Italy:** In Italy there is a strong need of co-investment in NGA, for two reasons: first, Italy is a country without cable operator, (there is only one operator who holds an alternative access infrastructure to the incumbent in high population density conurbation areas) second, the dispersal of population on the territory increases the level of digital divide. In such circumstances every form of co-investment is desirable in order to ensure an higher services NGA penetration.

**Malta:**

National specificity 1 – existence of multiple networks

Communication operators may not be on an equal footing in their NGA readiness. The ownership and access to ducts for operators who already own a DSL or cable network, namely GO in the former case and Melita in the latter, makes it easier for them to deploy fibre in their network than those who do not own such a network, such as Vodafone. Vodafone owns a wireless network (but not a DSL or a cable network).

National specificity 2 – limited size of the market and commercial viability

There is a risk that a fibre-to-the-home nation-wide project would not be commercially viable since the cost per subscriber would be substantially high (considering also demand expectations<sup>16</sup>), irrespective of the size of the Maltese Islands. Still, Malta's geographical size surely provides positive attributions towards a nation-wide scale deployment.

Further to the above, a risk exists that local operators consider improvement in their current networks as next generation access infrastructure (that is adopting the hybrid approach of NGA deployment where improvements to the cable and copper network is considered as next generation infrastructure) and thereby postponing any real significant investment in NGA infrastructure in the short to medium term and falling short of Malta's long term NGN's ambitions.

National specificity 3 – multiple networks and differing preferences

There are indications that preferences vary with respect to which type of NGA deployment is to be carried out: the *multiple network model*, which allows for the deployment of multiple fibre-networks by communication operators, who manage the end-to-end value chain from ownership of the network (the passive and the active layer), to the retail operation through which the service is offered to the end-users

Vs the *equal access model*, which enables/allows communication operators to use the 'common' network by installing their active equipment.

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<sup>16</sup> The Smart Island Strategy (Stream 1) includes a 2010 target of: "at least 20% of households to be connected to the next-generation network". To date, the MCA has no indication of whether such target could even be met by 2012 since no apparent present demand exists and the current infrastructure seems to satisfy the demand. This may raise questions on the need and the viability for such an investment.

**Norway:** In Norway, we experience a lack of demand of stakeholders for NGA co-investment agreements. The largest operator (Telenor) offers services on several platforms (xDSL, FTTH, Cable, DTN, Satellite), and is seemingly in no hurry to speed up NGA-investments (and certainly not co-investments in NGA). In a way, it is understandable, since by investing heavily in NGA, Telenor would in many cases compete with themselves.

Other big NGA-operators (for instance Lyse/Altibox) are vertically integrated, and do not necessarily have sufficient incentives to participate in co-investment agreements.

**Portugal:** The higher incentives to the demand of NGA co-investment agreements is probably linked with the reduction of the investment cost (especially when it is increasingly difficult to have access to funding).

**Sweden:** The reason for the lack of co-investment project in Sweden is primarily explained by the fact that TeliaSonera, which have the largest network that connects almost all of the Swedish households, has not been interested in co-investments for the fiber access networks. Competing operators have primarily established LLU as the vehicle for fixed broadband and they have only made minor investments in fiber giving no basis for co-investment projects. Moreover, local utilities and municipalities collaborate in deployment of fiber networks, which primarily has been covering deployment of metro networks. The public utilities are building access networks in the north region of Sweden (AC-nät and IT Norbotten), however, it cannot be regarded as a co-investment it is rather publicly sponsored investments.

**Switzerland:** N/A. No national broadband strategy.

**United Kingdom:** We do not think there is any specific reason to the lack of interest, so far, for NGA co-investments in the UK. The legal and regulatory framework does not seem to deter any form of co-investment. The stakeholders, when making their business decisions, take account of the relevant economic considerations; if co-investments appear to be an efficient solution for some stakeholders, these agreements will take place. Co-investments in general are compatible with the UK government's broadband strategy.

**Question 10: Please indicate the most important references to public information on the NGA co-investment agreements you have indicated.**

**Austria:** In 2009 RTR has published a study concerning cooperation and financing of a NGA roll out in Austria. The German version of the document can be found here: <http://www.rtr.at/de/tk/Infrastruktur>

The latest market analysis decision of the access market contains the framework described in the answer of question 1. Please note that it was finished before the final version of the NGA recommendation was published: [http://www.rtr.at/de/komp/KonsultationM3\\_09](http://www.rtr.at/de/komp/KonsultationM3_09)

**France:** Decision n° 2009-1106, decision n° 2010-1312, and decision n ° 2010-1232.

**Germany:** The basis for the information given is an own market overview (surely not complete) analyzing print and online media, information of cartel office, actual short request of members of a telecommunication association (VATM) and NGA Forum (request on co-operations in connection with fibre roll-out in September 2010)

**Netherlands:** Reference offer of Reggefiber: <http://www.reggefiber.nl/odf.html>

Tariff decision OPTA: <http://www.opta.nl/nl/actueel/alle-publicaties/publicatie/?id=2976>

Decision of the competition Authority: [http://www.nmanet.nl/nederlands/home/Besluiten/Besluiten\\_2009/6397MCE.asp](http://www.nmanet.nl/nederlands/home/Besluiten/Besluiten_2009/6397MCE.asp)

Regulatory policy note on investment and risk: <http://www.opta.nl/nl/actueel/alle-publicaties/publicatie/?id=3200>

**Portugal:** Vodafone website:

<http://www.vodafone.pt/main/A+Vodafone/EN/Press+Releases/pressreleases.htm?id=2435&year=2010&quarter=4>

**Spain:** Link to CMT's Resolution imposing in-house wiring symmetric obligations for fibre deployments is attached (only version available is in Spanish):

[http://www.cmt.es/cmt\\_ptl\\_ext/SelectOption.do?tipo=pdf&detalles=0900271980075a88&nav=busqueda\\_resoluciones&hcomboAnio=2009&hcomboMes=2&categoria=todas](http://www.cmt.es/cmt_ptl_ext/SelectOption.do?tipo=pdf&detalles=0900271980075a88&nav=busqueda_resoluciones&hcomboAnio=2009&hcomboMes=2&categoria=todas)

**Sweden:** The information is based on PTS market analysis, contact with Broadband Council (<http://www.bredbandivarldsklass.se/en/>), the Swedish Urban Network Association, and Competition Authority.

**Question 11: Are there stakeholders other than the NRA in your country which you feel would be of fundamental importance to our project on NGA co-investment and which should be encountered by the BEREC drafting team for an interview?**

**Ireland:** ComReg is responsible for both ex-ante and ex-post regulation of the electronic communications sector (amongst other things) – mainly telecommunications, broadcasting transmission etc. Both ComReg and a separate organisation, the Competition Authority, are designated as national competition authorities with respect to the ex-post regulation of the electronic communications sector. However, the Competition Authority's remit extends beyond the electronic communications sector into all economic sectors.

Depending on the nature of any co-investment entity it may involve the application of ex post competition law considerations.

**Italy:** Trentino NGN s.r.l.

**Malta:**

Yes. Apart from telecom providers, interested parties could include the Building Industry Consultative Council, the infrastructure authorities including the Malta Environment and Planning Authority (hereafter, referred to as "MEPA"), the Malta Transport Authority (in view of ducting, rights of way issues), and EneMalta which owns significant parts of Malta's ducting infrastructure and all overhead wiring brackets. Links to:

MEPA - <http://www.mepa.org.mt/home?!=1>

Malta Transport Authority - <http://www.transport.gov.mt/Home.aspx>

Building Industry Consultative Council - <http://www.bicc.gov.mt/bicc/home.aspx>

EneMalta - <http://www.enemalta.com.mt/>

**Sweden:** The Broadband Council (<http://www.bredbandivarldsklass.se/en/>) is a meeting place for everyone working in the Swedish broadband market. Representatives of organisations, business, undertakings, public authorities and the Government are part of the Broadband Council. The Council is active in regional projects, although not co-investment schemes, it revolved around public organizations that cooperate.

**Switzerland**

- Swiss Competition Commission

Pioneering utilites are:

- IWB Basel

- SIG Genève

- EW Zurich

- SGSW Saint-Gall

- EW Bern

- SIL Lausanne (CATV operator)

Pioneering incumbent regarding multifiber:

- Swisscom

Of which the biggest progress is currently made in Geneva, Basel, Zurich and Bern. A meeting could be arranged by the NRA.

**United Kingdom:** Broadband Delivery UK (BDUK): <http://interactive.bis.gov.uk/comment/bduk/> <http://www.culture.gov.uk/publications/7906.aspx>

**Question 12: If you have any other interesting data/information on NGA in your country please add this information here (this may also refer to single operator roll-out).**

**Austria:** Regarding NGA roll-out in Austria, the incumbent operator A1 Telekom Austria announced plans to deploy VDSL2 technology in MDF locations allowing to provide broadband with a data rate of up to 30 MBit/s for 750.000 people (i.e. 15% of households) until 2012. Furthermore A1 Telekom Austria has an-nounced four large scale field trial areas for deploying enhanced NGA services. In the southern Austrian province of Carinthia in the cities of Villach and (just recently) Klagenfurt FTTC already has been deployed with services actively offered, while in two districts of Vienna FTTH / FTTB scenarios are currently about to be deployed. In Lower Austria, the small village of Siegenfeld also has seen an FTTC roll-out recently. In general, A1 Telekom Austria aims for FTTH GPON deployment in Vienna, only in the case of in-house cabling restrictions FTTB will be used instead.

UPC Austria is the largest cable operator in Austria, offering services based on their own CATV network infrastructure in selected cities. In addition, UPC



has a large basis of unbundled lines since they acquired the former largest unbundling operator in Austria some years ago. UPC already migrated major parts of their CATV network to DOCSIS 3.0 technology allowing them to offer data rates of up to 100 MBit/s. The so-called Fibre Power services based on DOCSIS 3.0 are currently available in the cities of Vienna, Wiener Neustadt, Graz and Klagenfurt. Regarding deployment of VDSL2 technology in LLU served areas or deployment of FTTx scenarios there has been no official announcement from UPC Austria so far. However, UPC actively participates in the regulator-led industry working group mainly dealing with VDSL2 issues in the incumbent's access network.

Tele2 Austria is the largest alternative operator offering broadband services based on LLU. Currently, Tele2 Austria offers services based on ADSL2+, but is currently involved in a VDSL2 field trial. There has been no official announcement from Tele2 Austria regarding migration to NGA or deployment of FTTx scenarios. Tele2 Austria also participates actively in the industry working group dealing with NGA issues.

Silver Server is the third-largest operator offering broadband services based on LLU. Silver Server also announced the deployment of VDSL2 services from the central office.

In several areas local utility operators have already rolled out FTTH on a small scale basis. Examples are Wien Energie in Vienna, Liwest in Linz, IKB in Innsbruck, 24entertainment in Graz. Typically, the products offered are only available in certain small areas of a town or even only to residents of some buildings. Further deployment is driven by local initiatives starting early with the local deployment of fibre and extending their existing networks into business and residential premises. One such example is the town of Ried im Innkreis, where operator Infotech now has FTTH offers in its portfolio. Other examples are municipalities which deployed FTTH networks serviced by local ISPs (see <http://www.arge-glasfaser.at/>).

**Croatia:** We could present two interesting cases regarding investment in NGA in Croatia:

A) In 2008 the incumbent (Hrvatski Telekom – HT) started pilot project of testing fibre access network and announced 50.000 fibre connections by the end of 2009. At that time HAKOM was analysing markets 4 and 5 and in July 2009 HT was designated as SMP operator on both markets with proper remedies imposed. As HT was deploying point to multipoint (P2M) access network, HAKOM concluded that in timeframe of the analysis unbundling of P2M fibre network will not be technically feasible, so HAKOM obliged HT to provide Bitstream Reference Offer at IP level based on fibre 6 months in advance of commercial offer. The price for Bitstream at IP level (BSA) should be settled based on a retail-minus, where the percentage incorporates risk premium. Unbundling of P2P fibre lines should be available on reasonable demand (a few connections are realized in P2P solution). Since then, negotiations between HT and HAKOM are pending because HT refuses to offer wholesale conditions in line with remedies imposed.

Also, it should be noted that HT was deploying P2M network with distribution point in the building. After passing the Ordinance on technical requirements and conditions of use of optical distribution networks (see question 5) HT is obliged to build distribution point out of buildings closer to the local exchange (e.g. street cabinet).

B) The City of Zagreb rolled out fibre access infrastructure in the city block Sopnica with 2700 residences and 200 business premises, deploying two

fibres per end-user meaning each end-user can have two service providers. This infrastructure is managed by the Zagreb Digital City - branch of Zagreb Holding to which the City of Zagreb has transferred all rights and obligations for the use, maintenance, development and management of the system for ducts and other municipal infrastructure in the area of the City of Zagreb. Zagreb Digital City is registered as operator providing access to electronic communications infrastructure and associated facilities. Each operator willing to provide services to end users rents passive fibre line directly from the Digital City. The price of renting passive fibre line is defined at 40 HRK per fibre (cca. 5,41 EUR per fibre; 1EUR= 7,393749HRK).

There is one distribution point from which fibres are laid towards end-users' premises. Operators are using their own backbone to the distribution point, and from the distribution point to the end-users' premises they are using passive fibre of the Digital City. Currently, five operators are providing services in this city block.

Operators can deploy point to multipoint or point to point solution. In case of point to multipoint operators deploy one fibre to the distribution point where they install splitter and from the distribution point use point to point solution for each end-user. Also, operators can directly deploy point to point solution from their exchange without installing the splitter at the distribution point.

**Estonia:** Find out more about the EstWIN backbone NGN project at <http://elasa.ee/index.php?page=3>

**Greece:** On 11/10/2011 OTE announced in public as well as to the EETT and to the OLOs its plans about a near-future NGA investment. OTE referred to 3 years investment plan based on FTTC/VDSL2 technology aiming to upgrade existing broadband access limit of 24Mbps by adding two new products (30 and 50Mbps). Recently OTE submitted to EETT a proposal for the pricing of the retail and wholesale bitstream over the NGA network as well as a reference offer for the wholesale products. The EETT released a decision focusing on temporal measures as they originate from the requirements set by the NGA Recommendation which is part of the European Regulatory Framework. The temporal measures mainly focused on obligations of OTE (a) to release its wholesale offer 6 months in advance from its own retail offer (b) the level of access to be either at OLO POP or OTE national POP and (c) that the wholesale fees of the WBA over NGA should be cost oriented and resulting by a bottom-up LRIC model.

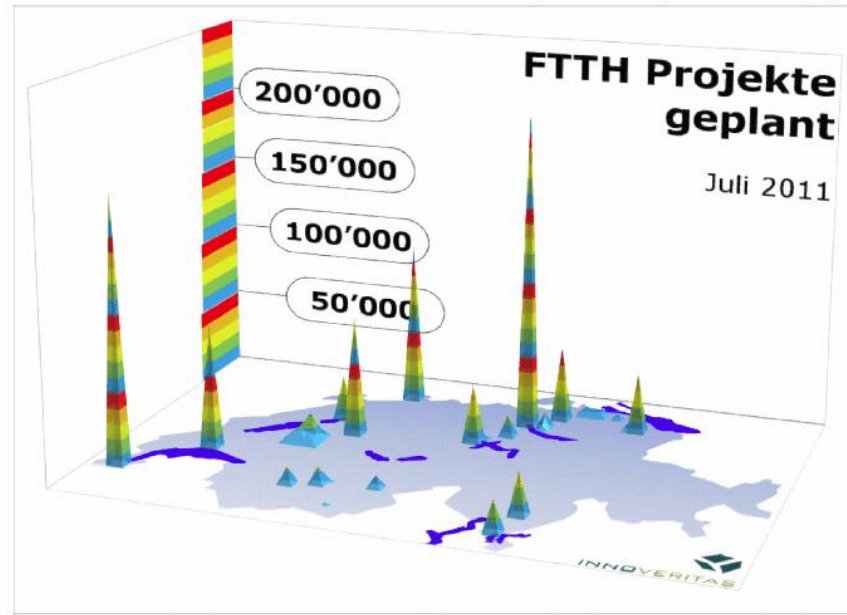
**Ireland:** UPC, the cable operator has engaged in the upgrade of its hybrid fibre-coax network to the DOCSIS 3.0 standard which allows broadband speeds of up to 100Mb/s.

**Norway:** Most of the 250 000 or so FTTH-connections in Norway have been rolled out by local/regional power utilities owned by the municipalities. The Market 4 and 5 SMP-operator (Telenor) has rolled out approximately 10 000 FTTH-connections, but also offer NGA-based services in Cable-tv networks (coverage approximately ¼ of Norwegian households), and VDSL. There is also another Cable-tv operator (Get) offering NGA-based services to approximately ¼ of the households in Norway.

**Sweden:** The city networks have deployed extensive fiber infrastructure in Sweden, and it is primarily driven by local utility companies, of which the largest are independent companies that primarily are publicly owned. The main approach is to provide dark fiber to commercial operators that market services to end customers. It has so far not been any co-investment project between city networks and operators with the target to deploy fiber access networks. But it could certainly be the case if there is a growing demand and in case the incumbent TeliaSonera is not interested to invest.

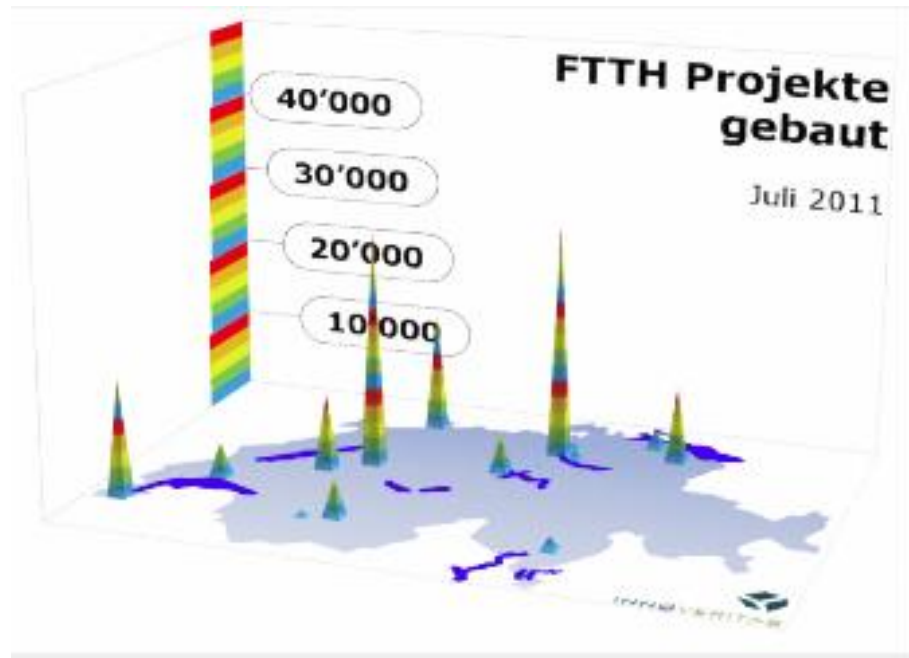
Switzerland Overview roll-out situation in Switzerland (Source: Innoveritas):<sup>17</sup>

FTTH Coverage planned (July 2011):



FTTH Coverage achieved (July 2011):

<sup>17</sup> <http://www.innoveritas.ch/iccRedirect.asp?nam=Glasfaseratlas+Sommer+2011>



Generally this corresponds to BEP ready units, i.e. FTTB.

**United Kingdom:** BT and Virgin Media are the two main infrastructure operators at the national level.

#### Policy overview

In March 2009 Ofcom published its strategy on: Delivering superfast broadband in the UK - promoting investment and competition.

Building on this Ofcom agreed to the following two variations to BT's Undertakings (both aimed at promoting investment in NGA and competition on the back of this investment):

- the fibre-to-the-cabinet (FTTC) variation, concluded June 2009; and
- the fibre-to-the-premise (FTTP) variation, concluded March 2010.

Ofcom has also recently completed two key market reviews in this area:

- the wholesale local access (WLA) review, completed October 2010; and

- the wholesale broadband access (WBA) review, completed December 2010.

Within the context of these reviews Ofcom has introduced a regulatory framework that is designed to both maintain the highly competitive market we have in current generation broadband whilst at the same creating an environment that supports investment in NGA and promotes competition on the back of this investment. In particular Ofcom has decided to:

- not regulate the price of new NGA-based services, thus providing more flexibility to potential investors
- require BT to open up its new NGA networks to other CPs, on equivalent terms, thus promoting competition in the supply of NGA-based services
- require BT to provide access to its duct, pole and cabinet infrastructure to other CPs, on cost orientated terms, thus creating the opportunity for other CPs to invest in NGA themselves

#### NGA rollout status

**BT:** BT plans to deploy NGA to c.40% of the UK (c.10m homes) by end 2012 and to c.66% of UK (c.16.5m homes) by end 2014.

BT will be using two different technologies: FTTC (VDSL) and FTTH (GPON) and expects the mix to be about 75% FTTC and 25% FTTH (FTTH expected to start later this year).

So far BT has deployed FTTC to c.4m homes. FTTC rollout rate is currently c.80k homes per week. BT thus expects to have covered c.5m home by end June 2011.

The FTTC (VDSL) product is advertised as up to '40Mbps' and experience to date shows that the average actual line rate is c.35Mbps. Up load speed is up to 10Mbps. However, as the network fills up (more cross talk) and as the rollout extends into more remote areas the actual line rate is expected to drop.

BT's wholesale price for its entry FTTC (GEA) product is £6.90 per month.

BT's retail price for its entry FTTC product is £18 per month (plus line rental at typically c.£12 per month). At the retail level BT is pricing its FTTC products very aggressively compared with its ADSL (up to 20Mbps) products. Indeed, for the same download limit BT is pricing ADSL (up to 20Mbps) exactly the same as FTTC (up to 40Mbps).

Latest take-up figures (from March 2011) suggest that BT was providing around 100,000 (up to 40Mbps) GEA connections.

BT's next-generation broadband deployment plan: <http://www.btplc.com/ngb/>

**Virgin:** Virgin Media's cable network covers c.50% of UK homes.

Virgin Media started upgrading its network to DOCSIS 3.0 at the end of 2008 and completed this upgrade in July 2009.

It started offering a 50Mbps at the end of 2008 on the back of this upgrade.

In November 2010 it launched a 100Mbps product in selected areas. This product is expected to be available over Virgin's entire network by mid 2011.

Virgin is currently trialling 200Mbps and 400Mbps services.

Virgin has a different pricing strategy to BT and levies a premium for its faster (50Mbps and 100Mbps) products over its standard (10Mbps and 30Mbps)

products. The premium for the 50Mbps product (over the 30Mbps product) is c.£6 per month (depending on package).

Latest take-up figures suggest that 118,000 of Virgin's 4million broadband customer base take the higher speed (50Mbit/s package).

Press release on Virgin Media's next generation broadband deployment plan:

<http://pressoffice.virginmedia.com/phoenix.zhtml?c=205406&p=irol-newsArticle&ID=1539702&highlight=>

**Others:** Survey of next generation access infrastructure providers in the UK in autumn 2010 highlighted scores of local or regional schemes either already in the course of deployment or in advanced planning stages.

Many require financial assistance from public agencies, although there are notable privately funded initiatives, particularly for new-build developments.

Many more schemes are expected as a result of the BDUK initiative.

Analysys Mason's "UK local fibre access deployment" study (January 2011) – commissioned by Ofcom:

<http://stakeholders.ofcom.org.uk/binaries/telecoms/policy/local-fibre-access.pdf>

#### Duct access status

**BT duct access requirements:** BT was formally required to provide access to its duct and poles in October 2010. However, it commenced work on this in May 2010.

As required by Ofcom BT published a draft reference offer for duct and pole access in January 2011. It is currently consulting with industry on this and conducting trials.

The full launch of BT's duct and pole access product is expected in June 2011.

**New powers and non-telecoms infrastructure:** Under Article 12 of the revised European Communications Framework directive, Ofcom expects to be granted new powers to require telecoms infrastructure sharing, beyond the market review remedies noted above (taking into account of the principle of proportionality).

Furthermore, Ofcom is contributing to the wider government initiative to facilitate infrastructure sharing of non-telecoms infrastructure to CPs.

SMP regulation has led BT to agree to undertakings establishing the functional separation of its access network ("BT Openreach") from its service activities. BT Openreach is deploying fibre-optic access networks across the territory of the UK, which will be accessible to other operators under regulated access conditions.

**Question 13: While this questionnaire is about wireline broadband and the focus of the PRD will be on wireline technologies, your experiences with co-investments on mobile broadband networks (such as sharing on passive infrastructure or of radio access networks and core networks) might be of great interest to the group. In this case, please answer the precedent questions as far as possible for mobile technologies and feel free to make any relevant statement in the context of this questionnaire.**

#### **Infrastructure sharing agreements regarding mobile networks**

**Austria:** We see the following forms of „co-investments“ in the mobile domain (not necessarily mobile BB only) on our market:

- Site-sharing: This form of sharing is established on the national market.
- National roaming: One operator uses the GSM network of another operator in rural areas.
- Infrastructure sharing: There is an ongoing discussion about legal and technical issues concerning infrastructure sharing forms which go beyond passive sharing. However, at the moment there are no such sharing agreements in place except for “special” locations like tunnels.

**Netherlands:** Ziggo 4, a joint venture of the two largest cable companies in The Netherlands (UPC and Ziggo) bought 2,6 Ghz licences for mobile broadband services. See e.g. <http://www.broadbandtvnews.com/2010/04/23/dutch-cablers-win-lte-licence/>

**Norway:** Telenor and NetCom each have their own mobile network with national coverage. Two of the challengers (Tele2 and Network Norway) are co-operating and co-investing in a third network through their joint-owned company Mobile Norway.

**Spain:** In Spain, the main mobile network operators (Telefónica, Vodafone, Orange, Xfera (part of the TeliaSonera group)) have agreed on loose forms of cooperation re-garding mobile infrastructure deployment, in particular 3G deployment. The agreements are bilateral in nature (i.e. each operator has reached an agreement with each of the other MNOs) and take different forms, mostly because the agreements (which date as far as 2002) have been extended via addenda to the original agreements.

For instance, the agreement signed in March 2009 between Telefónica and Vodafone (which supersedes the earlier 2007 agreement) includes joint deployment of infrastructure as well as access to the existing masts and premises necessary to host equipment and electric systems. According to public information, the co-operation between Telefónica and Vodafone had led to infrastructure sharing of more than 2.000 sites by 2009. It should be noted that the Telefónica-Vodafone agreement regarding mobile networks in Spain is part of a broader overall mobile network agreement, which also covers other EU countries such as UK, Ireland and Germany.

On the other hand, the agreement between Vodafone and Orange is not limited to infrastructure sharing, but is also extended to the 3G radio access network (RAN sharing agreements).

Some of the bilateral agreements cover both joint deployments planned for the future as well as access to the infrastructure that each of the parties has already deployed in areas that may be of interest for the other party (or even consolidation of redundant infrastructure in particular areas). In practice, infrastructure sharing has usually focused on rural or low-density areas (for instance, areas with less than 25.000 inhabitants). The agreements set out the way by which access will be granted, as well as the economic compensation in return for access.

**Sweden:** Sweden has two joint ventures for network sharing on 3G.

- a) It is SUNAB, which is jointly owned by TeliaSonera and Tele2 which has deployed a national 3G network. The co-owners share the radio access network, radio carriers, but they have separate core networks.
- b) 3GIS is jointly owned by Telenor and HI3G, and it has deployed a 3G network in rural Sweden. The co-owners share radio access network while

not radio carriers, and the operators have separate core networks

Sweden has one network sharing company for 4G and GSM.

- a) It is Net4Mobility, which is jointly owned by Telenor and Tele2, which is deploying a LTE network in combination with upgrading a GSM network by replacing old equipment. Net4Mobility will build a common radio access network, with sharing of radio carriers, while the operators will have separate core networks.

**Switzerland:** Currently none, only site sharing.

**United Kingdom:** Infrastructure sharing of radio access networks (routes, locations, power, roaming arrangements) exists between mobile operators:

- Mobile Broadband Network Ltd, or MBNL (Everything Everywhere and 3: corporate entity - <http://www.mbnl.co.uk/> )
- Clearpoint (Vodafone and O2: trading arrangement -

[http://www.vodafone.com/content/index/press/group\\_press\\_releases/2009/telefonica\\_and\\_vodafone.html](http://www.vodafone.com/content/index/press/group_press_releases/2009/telefonica_and_vodafone.html) )

#### **Question 14: Other points**

**Sweden:** The Swedish government has set out a goal that 90% of the Swedish inhabitants should have access to 100 Mbit/s by 2020, and 40% by 2015. The latest broadband Survey from PTS published in March 2011 show that 44% of the Swedish households have or have the possibility of ordering at least 100 Mbit/s, see <http://www.pts.se/en-gb/News/Press-releases/2011/Four-in-ten-can-get-superfast-broadband/>.

PTS has notified the Commission (April 12, 2011) on a price regulation for the SMP operator TeliaSonera, prices concern for example FTTH and FTTB.



## **Part II – Questionnaire**

The following questionnaire has been sent out to regulatory authorities of IRG and BEREC.

### **IRG/BEREC Questionnaire on co-investment agreements on the deployment of Next Generation Access networks (NGA co-investments)**

This questionnaire is addressed to all IRG members.

Please respond by **18 April 2011**.

You may respond directly in this word document and send your answers via email to:

[roberto.balmer@bakom.admin.ch](mailto:roberto.balmer@bakom.admin.ch); [aurelie.barre@arcep.fr](mailto:aurelie.barre@arcep.fr); [antoine.darodes@arcep.fr](mailto:antoine.darodes@arcep.fr); [simona.schmid@bakom.admin.ch](mailto:simona.schmid@bakom.admin.ch)

Please indicate the contact details of the responsible expert of your NRA

Name:

Telephone Number:

Email address:

## A. Introduction

### i) Context

The deployment of NGA networks brought along new issues related to market definition, the designation of operators with significant market power (SMP) and regulatory obligations. While the transition from copper-based networks to NGA networks may be an opportunity for market players to develop new innovative products, the NGA network rollout is likely to impact also current product and geographical market definitions, as well as the SMP assessment in the future. In the recent round of market analyses, some Member States proposed to exempt fibre-based networks from specific obligations based on their early stage of development. However, a number of issues are likely to rise soon, as NGA deployment progresses.

This PRD aims at taking a step ahead before the next round of market 4 and 5 analyses and analyse in detail conditions that may no longer warrant a finding of SMP in light of effective infrastructure competition resulting from co-investment in NGA networks.

In the NGA recommendation, the EU Commission considered that NRAs would have to look particularly at NGA co-investment plans as they could – regionally – have an impact on the “SMP finding”<sup>18</sup>. More specifically paragraph 28 of the NGA recommendation suggests that in a market analysis not only the number of operators, the structure of the network and the co-investment arrangements should be considered, but also whether the co-investments are based on multiple fibre lines and whether partners enjoy fully equivalent and cost-oriented access<sup>19</sup>. Compared to the second preliminary draft of the NGA recommendation<sup>20</sup> the criteria in the final recommendation are relatively generic. In fact, former annex III had foreseen that a joint deployment of FTTH multifibre networks by four or more co-investors under a set of conditions should normally be indicative of absence of SMP in markets 4 and 5.<sup>21</sup> As the final version of the NGA recommendation no longer specifies guidelines regarding the SMP assessment in case of NGA co-investment plans, it is now the task of the NRAs to provide regulatory certainty and predictability to their national markets, consistently to the general objective of encouraging efficient investment.

BEREC included in the Work Programme 2011 the analysis of the potential impact of co-investment agreements on market definition and analysis,

<sup>18</sup> Recital 28 of the NGA Recommendation specifies: “Arrangements for co-investment in FTTH based on multiple fibre lines may in certain conditions lead to a situation of effective competition in the geographic areas covered by the co-investment. These conditions relate in particular to the number of operators involved, the structure of the jointly controlled network and other arrangements between the co-investors which aim at ensuring effective competition on the downstream market. In such a situation, if competitive conditions in the areas concerned are substantially and objectively different from those prevailing elsewhere, this could justify the definition of a separate market where, after the market analysis according to Article 16 of Directive 2002/21/EC, no SMP is found.”

<sup>19</sup> Paragraph 28 reads “Where the conditions of competition in the area covered by the joint deployment of FTTH networks based on multiple fibre lines by several co-investors are substantially different, i.e. such as to justify the definition of a separate geographic market, NRAs should examine, in the course of their market analysis, whether, in the light of the level of infrastructure competition resulting from the co-investment, a finding of SMP is warranted with regard to that market. In this context, NRAs should in particular examine whether each co-investor enjoys strictly equivalent and cost-oriented access to the joint infrastructure and whether the co-investors are effectively competing on the downstream market. They should also examine whether the co-investors install sufficient duct capacity for third parties to use and grant cost-oriented access to such capacity.”

<sup>20</sup> [http://ec.europa.eu/information\\_society/policy/ecomm/doc/library/public\\_consult/nga\\_2/090611\\_nga\\_recommendation\\_spc.pdf](http://ec.europa.eu/information_society/policy/ecomm/doc/library/public_consult/nga_2/090611_nga_recommendation_spc.pdf)

<sup>21</sup> Former Annex III §2 of the second draft of the recommendation reads: “Conditions under which the absence of SMP would normally be indicated: Joint deployment of FTTH networks by several co-investors under the following conditions would normally be indicative of absence of SMP: 1) At least three operators in addition to the operator having been designated SMP at the time of the market review or, in markets where an alternative operator competes at retail level on the basis of its own network (such as a cable operator), at least two operators in addition to the operator having been designated SMP at the time of the market review, jointly deploy and control FTTH networks; and 2) The FTTH networks are based on multiple fibre lines; and 3) Each co-investor enjoys equivalent and cost-oriented access to the joint infrastructure (the non-SMP operator(s) on the same terms and conditions as the SMP operator); and 4) The co-investors are effectively competing on the downstream market; and 5) The co-investors install sufficient duct capacity for third parties to use and grant cost-oriented access to such capacity; and 6) The co-investors enable third parties currently enjoying unbundled access to the local loop to migrate to comparable NGA

wholesale products in case of de-commissioning of currently used points of interconnection.

taking the utmost account of varying national circumstances. This drafting team will firstly list and describe the different identified co-investment schemes to roll out NGA networks in the Member States. The co-investment schemes, possibly supplemented by some knowledge on cooperation agreements, drawn from those examples will help in the second phase to suggest elements to be examined by NRAs when considering possible national guidance for SMP designation in a co-investment scenario when conducting market analyses of markets 4 and 5. Finally, in a third phase, the team will examine specific sets of conditions and criteria which NRAs might consider as suitable indicators of effective competition and the potential consequences of SMP analysis.

This questionnaire should therefore provide the drafting team on NGA Co-Investments and SMP with an overview of the various forms of NGA co-investment agreements across Europe and facilitate the analysis of their impact on SMP designation (market 4 and 5). Whilst NGA-related questions have been widely analysed in the NGN PT in the past, the CEA drafting team aims at analysing co-investment agreements with respect to the possible application of paragraph 28 in detail.

Furthermore, to have a complete picture, this questionnaire has not been limited to the cases described paragraph 28 of the recommendation. It intends to provide an overview of NGA co-investment projects, including various co-investment technologies in a view to respect the technology neutrality principle and including for example various forms of cooperation agreements between the partners regarding investment as well as construction and related agreements on markets in the value chain. While this questionnaire focuses on wireline technologies, co-investments schemes on mobile broadband networks might also be described at the bottom of the questionnaire.

**ii) Definitions**

Definitions for the scope of this questionnaire include:

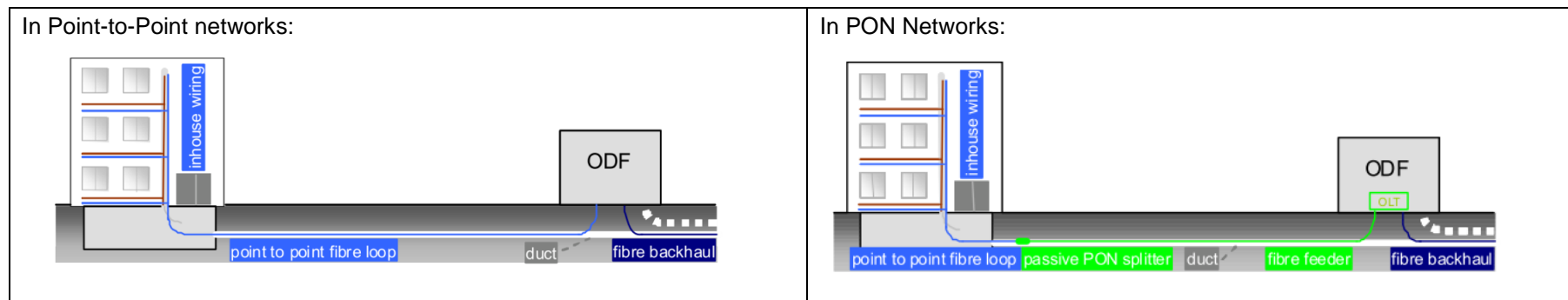
- **“NGA” networks:** Next Generation Access networks are wired access networks which consist wholly or in part of optical elements and which are capable of delivering broadband access services with enhanced characteristics (such as higher throughput) as compared to those provided over already existing copper networks.
- **FTTH or “fibre to the home”** is an access network consisting of optical fibre lines in both the feeder and the drop segments of the access network, i.e. connecting a customer’s premises (the home or in multi-dwelling units the apartment) to the MPoP by means of optical fibre.
- **“Multiple-fibre FTTH”** is a form of fibre deployment in which the investor deploys more fibre lines than needed for its own purposes in both the feeder and the drop segments of the access network in order to sell access to additional fibre lines to other operators, notably in the form of indefeasible rights of use (IRU).
- **“Co-investment in NGA”** means an arrangement between independent providers of electronic communications services with a view to deploying NGA networks in a joint manner. Co-investments covers different legal arrangements, but typically co-investors will build network infrastructure and

share physical access to that infrastructure.

For the scope of this questionnaire NGA co-investment projects include various co-investment technologies in a view to respect the technology neutrality principle. More specifically, such projects may include for example various forms of cooperation agreements between the partners regarding investment as well as construction and related agreements on markets in the value chain.

- **“NGA co-investment forms”** may include, but are not necessarily restricted to:
  1. Joint-venture: the most “solid” form of co-investment implying the creation of a new, separate firm controlled by the partners to deploy the network, where partners bring in assets and activities<sup>22</sup>.
  2. Other legal forms of co-investment (“loose cooperations”): specific forms of collaborative agreement leading to the deployment of NGA networks in a joint manner, not involving a joint-venture<sup>23</sup>
- **NGA deployment scenarios:**

1. **FTTH (Fibre to the home)** – Connections which are fully fibre-based<sup>24</sup>.

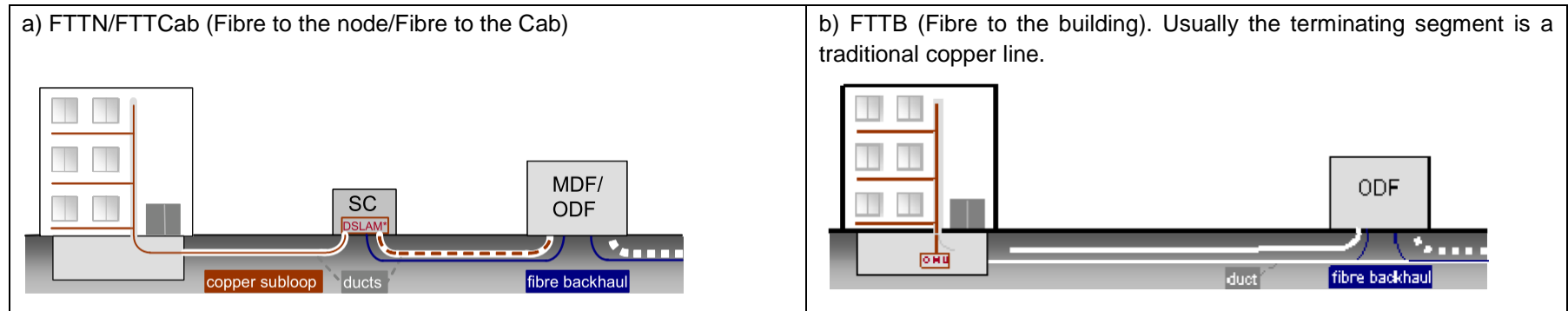


2. **FTTx (Fibre to the X)** - where fibre is rolled out from the local exchange towards the households<sup>25</sup>. This includes

<sup>22</sup> e.g. as proposed in the Netherlands: <http://www.reggefiber.com/history.html>

<sup>23</sup> e.g. as proposed in Basel (Switzerland): <http://www.grosserrat.bs.ch/dokumente/100365/000000365810.pdf>

<sup>24</sup> For more details on FTTH see BEREC BoR 10 (08) Next Generation Access – Implementation Issues and Wholesale Products.



**3. Cable (HFC, Hybrid Fibre Coax)** – In cable network a terminating Coax segment is connected to fibre at some point in the network; the further fibre is rolled out, the higher is the potential performance of a Cable network.

- **Generic access products**<sup>26</sup>

1. “Ducts”: underground pipes or conduits used to house cables of either core or access networks.
2. “Layer 1” or “unbundling” products: physical access from a connection point/distribution frame independently of the technology adopted to the copper or to the fibre or a portion of the bandwidth (wavelength).<sup>27</sup>
3. “Layer 2”: access to active products, whereby the freedom of the competitor to control quality parameters is reduced, compared to the LLU case, where the authorized operator gets access to the physical line (layer 1 access), e.g. bitstream or leased lines. With layer 3 products flexibility is even further reduced.<sup>28</sup>

**iii) Co-investment agreements**

This questionnaire is dedicated to NGA co-investment agreements that are taking place in your country.

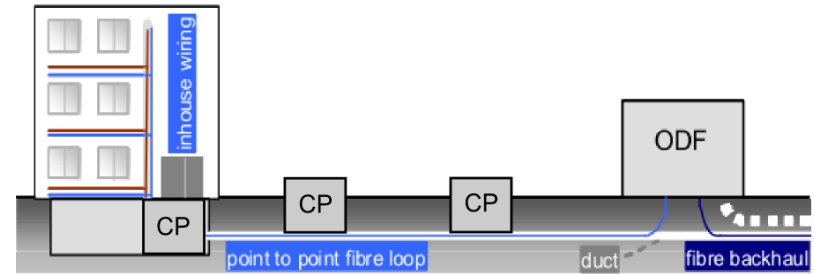
<sup>25</sup> For more details on FTTx see BEREC BoR 10 (08) Next Generation Access – Implementation Issues and Wholesale Products.

<sup>26</sup> According to NGA ladder of investment, p. 14, [http://erg.eu.int/doc/publications/erg\\_09\\_17\\_nga\\_economic\\_analysis\\_regulatory\\_principles\\_report\\_090603\\_v1.pdf](http://erg.eu.int/doc/publications/erg_09_17_nga_economic_analysis_regulatory_principles_report_090603_v1.pdf)

<sup>27</sup> A overview over the OSI Layers we refer to here can be found here: [http://en.wikipedia.org/wiki/OSI\\_protocols](http://en.wikipedia.org/wiki/OSI_protocols)

<sup>28</sup> Idem.

The complexity of co-investment agreements varies according to the architecture deployed: for instance, point-to-point FTTH networks allow several possible concentration points (e.g. manholes or building entry point) between the ODF and the house, where layer 1 access is possible. This results in various possible layer 1 co-investment forms regarding the split of construction work and access to the infrastructure at handover points. An example of such a co-investment agreement can be described by the following scheme:



- One of the partners builds and controls a layer 1 network up to the first manhole (“inhouse wiring” and “House-Concentration Point (CP)” segments) where the layer 1 product is accessed by both co-investment partners (another agreement would for instance be possible with access at the building entry point or the 2<sup>nd</sup> manhole or the ODF).
- The partner not constructing the above network segment builds and controls the feeder segment (e.g. “CP-CP” and “CP-ODF”) where he provides physical access to the other partner.<sup>29</sup>
- Partners dispose then of an own Backbone network.

In the above example the co-investment agreement could be described as follows :

	<b>Inhouse wiring</b>	<b>House-CP</b>	<b>CP-CP</b>	<b>CP-ODF</b>	<b>Backhaul</b>
<b>Partner 1</b>	“Build and control”	“Build and control”	Access	Access	“Build and control”
<b>Partner 2</b>	Access	Access	“Build and control”	“Build and control”	“Build and control”

Parts of the network may be deployed in parallel (usually not part of the co-investment; in the example Backhaul). This allows to draw a fibre layer 1 “build and control” diagram, which may also be laid down for other layers (ducts or layer 2):

<sup>29</sup> The cooperation therefore would usually not only cover the investment but also the condition of long term operation and maintenance of the accessed network.

**E.g. FTTH Layer 1 “loose cooperation”:**

	Inhouse wiring	House-CP	CP-CP	CP-ODF	Backhaul
<b>Partner 1</b>	_____				_____
<b>Partner 2</b>			_____		

Where nothing is indicated, the partner that does not have own infrastructure needs to access the other partner’s infrastructure in order to dispose of a connection to the end-user.

**E.g. FTTH Layer 1 Joint-Venture:**

In case of joint-venture, please indicate the joint-venture itself as a separate entity in addition to the operators that have set it up and control it.

	Inhouse wiring	House-CP	CP-CP	CP-ODF	Backhaul
<b>JV Partner 1&amp;2</b>	_____				
<b>Partner 1</b>			_____		
<b>Partner 2</b>			_____		

**iv) Multifibre**

In the case of multifibre, the operator rolling out infrastructure in a given area gives access to other partners (either in a passive or an active way) to one or more dedicated or shared fibre lines in one of the possible co-investment forms. Whilst access is usually granted through flexible long-term agreements (such as indefeasible rights of use), the partner is still “accessing” a multifibre network “built and controlled” by the building partner (e.g. only the multifiber building partner may have access to ducts (especially inhouse) in case of failures etc.). This should be represented accordingly in the diagram. Indications on multifibre can, however, be made at various other stages of the questionnaire which are not related to “build and control” diagrams.

**B. Questionnaire on co-investment agreements on the deployment of Next Generation Access networks (NGA co-investment) in ..... (your country)**

- *If there is a large number of NGA co-investments in your country, please feel free to choose to indicate only the projects that you judge most interesting for our analysis. However, in such case please try to cover all different co-investment forms. If questions are not applicable, please indicate N/A.*
- *If there are no plans for co-investment agreements in your national market, please go to question 5 and then jump to question 8.*
- *This survey focuses on wireline networks. If there are (also prospectively) only NGA cooperation agreements based on mobile technologies in your country, please jump to question 12.*

Please highlight in grey if information provided is **confidential**.

**1. Overview of NGA co-investment plans and operators involved**

**Please list the co-investment plans for NGA network roll-out in your country and the operators that participate in it.**

Consider the following aspects:

- List the name and type of operators participating in the co-investment agreements. Please indicate whether these operators have received public funding and if they are controlled by a public entity.

Co-investment plan 1 (e.g. Swisscom – Groupe-E SA, Region of Fribourg, Switzerland)					
Participant operator name	Type (incumbent, utility, altnet, cable)	Operator roll-out scenario (e.g. FTTH GPON, FTTH P2P, FTTB, FTTN/ FTTCab, HFC)	Has this operator benefited from public funding / state aid? If yes, please describe the amount of funding and	Public control (Y/N)? If yes, which public entity (national, regional, local)?	Describe the shareholder structure (shares and control, e.g. private, partial public share, public majority share or public ownership)



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			conditions		

Please add tables here for any additional NGA co-investment plan.

If the situation of your country cannot be adapted to the above table please feel free to describe it here.

**2. For each of the co-investment plans under 1. please specify the key mechanisms of the agreement**

	Type of co-investment plan (Joint-Venture or other legal form of co-investment)	Does the co-investment plan relate to symmetrical regulation (Y/N)? If yes, which terms are subject to regulation?	Coverage of the network under co-investment plan (e.g. city of Stockholm)?	Homes passed by the co-investment plan <b>today and planned</b> (including by which date)?	Current state of the co-investment agreement (concluded? If need for clearance, cleared by competition and regulatory authority?)	In case of multifibre: Number of fibre lines (please specify also part of the network where multifibre is deployed)?	Type of network under co-investment plan (e.g. layer 1, layer 2, layer 3)?	What segments of the network are jointly built under the co-investment plan (e.g. drop segment up to concentration point or layer 2 up to N regional interconnection points)?

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Co-investment plan 1  (e.g. <i>Swisscom - Groupe-E SA Region of Fribourg</i> )								

Please add rows as necessary. If the situation of your country cannot be adapted to the above table, please feel free to describe it here

Definition: In case of “loose cooperation”, with which exact words would you eventually define the cooperation agreement in your country?

3. Please indicate how the partners contribute to the co-investment plan

Contribution in the co-investment plan		
Name	Investment contribution to the co-investment plan: indicate share/entity/assets of financial contribution and modalities. How is this contribution planned to develop over time?	Construction contribution to the co-investment plan: describe what part of network is built and controlled by each partner of the co-investment plan: <b>geographically</b> (e.g. sub-regional construction plans), <b>network hierarchy level</b> (e.g. construction of different sub-segment of the network such as drop or feeder) and <b>level of access products produced</b> (e.g. ducts, Layer 1, Layer 2 and Layer 3). Please provide “build and control diagrams” (see introduction).
Co-investment plan 1		

Please indicate if any part of these co-investment plans is subject to symmetric regulation.

In case of loose construction cooperation: On which basis are the financial transfers calculated. If on the basis of cost, how can accuracy be ensured?

If the situation of your country cannot be adapted to the above table, please feel free to describe it here.

4. **Access to the future NGA network**

A) Access by the partners

Access to the NGA infrastructure to be constructed by <b>the co-investment plan partners</b>	
Name	Describe the modalities of access, in particular pricing, of the <b>partners</b> to each other's infrastructure or to Joint-Venture access products in case of JV (tariffs, volumes, handover point in the network hierarchy (e.g. concentration point, manhole, local exchange), level of access (duct, layer 1, layer 2, layer 3); please also indicate if access is differentiated geographically and how this is done). Add other conditions if relevant (e.g. investment sharing and invoicing mechanism).
<i>Co-investment plan 1</i>	

Please indicate if any part of these co-investment plans is subject to symmetric regulation.

B) Access by third parties / Discrimination issues

Please describe the modalities of access for third parties as detailed as possible, in particular if the conditions of access differ between operators. Describe if access to the installed infrastructure is granted under traditional regulated ULL style commercial agreements (monthly payment for pay as you go access, which is non-discriminatory to all access seekers) or if there are particular risk sharing agreements such as regional Indefeasible Rights of Use (IRU)<sup>30</sup>, upfront payments or volume discounts offered to third parties. Moreover, please indicate if access conditions to those networks are similar between third parties and the partners. If not, in which aspects do they differ (e.g. openness)? Is information provided in the same way to the partner(s) as to third parties? Feel free to add any relevant information here.

<sup>30</sup> which may grant the possibility of access in a certain region over longer time periods and can be valued in financial statements

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If you have specific indications on the modalities of access to the NGA network infrastructure for operators which are not part of the co-investment partnership please fill out the form below:

Access to the NGA infrastructure to be constructed by <b>operators which are not part of the co-investment partnership</b>	
Name	<u>Describe the modalities of access, in particular pricing, of <b>operators</b> which are not part of the co-investment plan to the NGA infrastructure of the partners or to Joint-Venture access products in case of JV (tariffs, volumes, handover point in the network hierarchy (e.g. concentration point, manhole, local exchange), level of access (duct, layer 1, layer 2, layer 3); please also indicate if access is differentiated geographically and how this is done).</u>
<i>Co-investment plan 1</i>	

If the situation of your country cannot be adapted to the above table please feel free to describe it here.

5. **In case there are currently no co-investment plans in your country please describe the aspects of such plans that would be determined by a symmetric regulation framework.**
6. **Please indicate the level of information exchange between the co-investment partners**

Information exchange between <b>co-investment partners</b>	
Name	Co-investment plans may require partners to exchange information they would otherwise not exchange. This may include, but is not limited to <b>the number of subscribers, concrete roll-out plans and actual buildings equipped</b> . Please describe the type of information exchanged between partners in view of the implementation of the co-investment plan.

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Co-investment plan 1	

7. **Have co-investment agreements been analysed by the competition authority and/or the regulatory authority?**
  - Which decisions have been taken?
  - Are there decisions to be expected shortly?
  - Please list the concrete issues which were contested or might be contested of the NGA co-investment agreements? If there are no cases yet, are you aware of planned co-investment conditions that may be controversial (such as agreements on geographic coverage, layer 1 exclusivities, compensation mechanisms to reduce risk, etc.) that you have not indicated earlier?
  - Please specify which national or EC laws are or might be affected
  
8. **Are there aspects of co-investment agreements that could restrict the independence of the partners from each other in any way in view of competition (e.g. geographical division, exclusivities, compensation mechanisms, etc.)? Please explain.**
  
9. **Are there any national specificities of your market that may explain the demand (or lack of demand) of stakeholders for NGA co-investment agreements? In particular: are some forms of co-investment ill-suited or impossible in your country? Which form of NGA investment would in your view be the most desirable in your country and why? How does this relate to the national broadband strategy in your country?**
  
10. **Please indicate the most important references to public information on the NGA co-investment agreements you have indicated.**
  
11. **Are there stakeholders other than the NRA in your country which you feel would be of fundamental importance to our project on NGA co-investment and which should be encountered by the BEREC drafting team for an interview?**

If yes, please indicate such stakeholders.

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12. If you have any other interesting data/information on NGA in your country please add this information here (this may also refer to single operator roll-out).
13. While this questionnaire is about wireline broadband and the focus of the PRD will be on wireline technologies, your experiences with co-investments on mobile broadband networks (such as sharing on passive infrastructure or of radio access networks and core networks) might be of great interest to the group. In this case, please answer the precedent questions as far as possible for mobile technologies and feel free to make any relevant statement in the context of this questionnaire.

14. Other points

Please feel free to indicate any other point you judge important in view of the analysis of NGA co-investments.