

NGA Costing Methodologies and Non-Discrimination - Discussion Paper

In fixed telecommunications, the vertically integrated incumbent provider has traditionally been regulated to provide access for competitive providers (CPs) to compete in the delivery of services to consumers.

Over time the regulated access has moved upstream from 'white label' wholesale services, which are rebranded by competitors, to access, to active and subsequently passive parts of the incumbent's network, enabling increased differentiation by CPs. Most recently, over the past 5-10 years access to passive physical infrastructure (PI) has enabled CPs to build competitive fibre networks at cost levels that are competitive with legacy copper (including FTTC¹) networks².

The European Commission (EC) has issued guidelines and regulations for national regulatory authorities (NRAs) to regulate access to incumbent providers at the various levels of the network, including the "Next Generation Access Recommendation"³ (the 2013 Recommendation) which addresses costing of and non-discrimination in access to next generation access (NGA) networks.

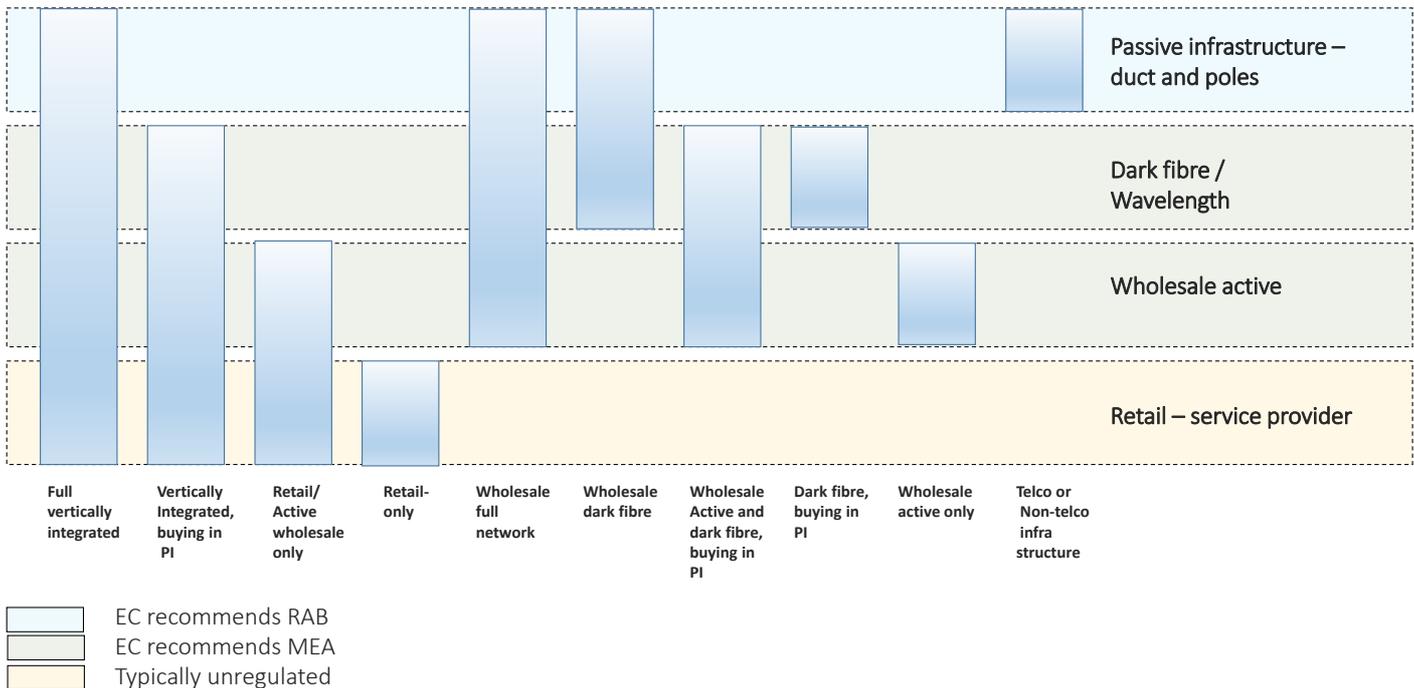
The 2013 Recommendation recommends the use of a regulatory asset base (RAB) approach to value PI assets for determining the price of regulated access to PI (and to value the PI part of the cost stack for active services). It also recommends the alternative modern equivalent asset (MEA) approach to value active network components and fibre optic cables for determining the price of regulated access to active services. The difference in approach suggests an assumption as to whether the economic features of the assets and geographies give rise to significant market power (SMP) that is enduring or whether there is technical progress involving different competing solutions that would enable the emergence of effective competition between operators in specific geographies. That is, it suggests that PI gives rise to enduring SMP, whereas active network components, including fibre optic cables, are replicable and can be used in a range of different technologies with improving capabilities and quality that enables a process of effective competition between operators.

The telecoms marketplace has evolved over time driven by technological developments, regulatory interventions, and changing market structures. This has resulted in operators adopting an increasingly diverse range of business models. Below is an outline of the most common business models; we have overlaid our understanding of the Commission's current recommendations on the costing approach:

¹ Fibre to the Cabinet.

² It is also important to recognize the existence of near-ubiquitous cable TV (hybrid fibre-coax) – HFC networks and the extent to which they are substitutes to the conventional copper telecoms networks and new fibre telecoms networks. In order to reduce complexity of this note we have not included detailed analysis of HFCs, although it would be important for the Commission to do so in a review of the relevant Regulations and Recommendations.

³ Commission Recommendation 2013/466/EU of 11 September 2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment.



The above diagram illustrates that there is now a wide range of business models emerging which no longer fit neatly into the traditional incumbent-operator/competitive-provider paradigm⁴. It highlights that different CPs are focused on different stages (or combinations of stages) along the value chain from ducts and poles through to retail services.

Why should the 2013 Recommendation be reviewed?

We understand that the Commission is working on a consultation to review the 2013 Recommendation and other relevant Commission guidance,⁵ partially to support the implementation of the EECC⁶ at the end of 2020. We have considered where the main tensions exist between the changes in market structures and activities and the provisions of the 2013 Recommendation. We outline these briefly below.

We believe it is critical that the review considers the market situations that will prevail once copper-based telecoms networks have been discontinued. We also acknowledge that HFC networks may endure beyond the horizon of the revised regulations and should therefore be considered where relevant.

Understanding how the economic features of assets vary across the value chain, in different business models and in different geographies

⁴ The dark fibre/wavelength layer allows for the fact that passive access may be enabled by unbundling of individual fibre or by unbundling of individual wavelengths over shared fibre strands.

⁵ In particular Commission Recommendation 2010/572/EU of 20 September 2010 on regulated access to NGA Networks

⁶ European Electronic Communications Code.

Understanding whether the economic features of an asset would give rise to enduring SMP or effective competition is crucial to the design of regulatory policy. However, it is increasingly unclear where the boundary might fall. It may be that the middle section in the above diagram (dark fibre/wavelength and active wholesale) may give rise to enduring SMP in some geographic locations, whilst that will almost certainly not be the case in other locations.

In order to define a suitable regulatory policy, to start with it will be necessary to analyse whether it is efficient to replicate the assets within each layer in the above diagram.⁷ For some assets this assessment may be clear, for others it may be less so, and then there may be those which have an intermediate position between non-replicable and easily replicable, especially those assets in the middle two layers of the diagram. This group of assets is also the group to be most likely to change status over time with technology developments.

Replicability is driven to a large extent by the economics of network construction, which may vary significantly between different geographic areas, as well as technology developments over time. For example, fibre cables in a PON configuration may now be considered as replicable in urban areas where more than one such network can be supported economically. But in rural areas, due to lower density and increased costs, maybe only one such network could be supported and therefore non-replicable. However, future technological developments such as WDM-PON⁸ might enable multiple operators to operate over the same passive cable infrastructure, such that the active components became replicable, even in rural areas. It is also possible in this scenario that the fibre cables could be regarded as non-replicable in urban areas if the advantages of competition could be realised via the active layer and further downstream. In this case duplicate fibre cable assets would not promote efficiency.

So the complexity of the technological developments increases the risk of unintended adverse consequences should regulatory policy designed for one market structure be mistakenly applied to another, for example by applying RAB costing to asset types/locations where this is inappropriate, or vice versa. In this context, it would be important to understand the potential consequences of either over- or under-regulating in the short term, often referred to as type one and type two errors.

Regulating different providers at different levels of the value chain

An additional challenge is emerging as CPs deploy new fibre networks in locations where only a single physical network is likely to be viable. This results in the single fibre network not owned and operated by the incumbent. When copper networks are discontinued, such CP-operated fibre networks would become the only network and it is likely that the CPs operating such networks could be found to have SMP in those specific geographic locations.

⁷ The analysis would need to consider allocative, productive, and dynamic efficiency. This may need to be performed for an extended period as dynamic efficiencies derived from investment in competitive assets may be realised over longer periods than other types of efficiencies but may still result in net-positive effects.

⁸ Wavelength Division Multiplex- Passive Optical Network

At present, there is limited evidence of incumbents and CPs deploying new fibre networks in the same locations (except for minor overlaps at the boundaries) suggesting that there may be significant parts of some member states where the single fibre network is operated by a CP, not the incumbent. This is potentially due to the importance of the first mover advantage each provider seeks when investing heavily in fibre infrastructure. This may, however, change over time as markets mature; certainly large urban locations may well see multiple fibre networks. In such locations it is also important to recognize the role of HFC networks.

These developments could result in a number of market structures which NRAs have not had to address before, including:

1. A single provider with national SMP in the PI market, which is typically the incumbent;⁹ and
2. A potentially highly geographically fragmented network market (dark fibre and/or active wholesale) where SMP is held:
 - a. By the incumbent, or
 - b. By a CP, or
 - c. No one has SMP in cases where there is sufficient competition at the network level.

It is also likely that markets may continue to differentiate between the point-to-point market for high quality business connectivity and the market for broadband connectivity, which is increasingly provided using GPON¹⁰. Additionally, HFC Cable TV networks, where sufficiently ubiquitous, may be deemed substitutes for either or both of these markets, or considered as a separate market.

In either of these markets, NRAs may have to regulate two different fixed telecoms providers, where one supplies access to PI and the other to dark fibre/wavelength and/or active services, in the same location. This is an entirely new paradigm in telecoms. Some precedents exist in other utilities including electricity, where the infrastructure providers are separately regulated at different layers (e.g. energy transmission and energy distribution networks) and in turn these are separate from the retail service provider (e.g. energy retailer). It would be important for NRAs to have clear guidelines on how to address such new market structures in telecoms.

Implementation of the 2013 Regulations is not clear across member states

Despite the Commission recommendation of RAB costing for PI, it is unclear whether all NRAs are following that recommendation in practice. The Commission may therefore need to strengthen its recommendations and provide NRAs with a clear tool-set to determine which costing approach is most appropriate in their market(s).

The key decision for NRAs is how they determine whether to apply RAB or MEA, or indeed another costing approach. It may be that NRAs have different expectations regarding whether SMP will be enduring or there is the potential for effective competitive to emerge. For PI, though, this would seem unlikely as PI is typically technically stable and generally considered to give rise to enduring SMP.

⁹ As HFC networks are often directly buried for at least the customer access portion, these networks may not be considered relevant in the national PI market. That would have to be reviewed and determined by the local NRAs, though.

¹⁰ Gigabit Ethernet Passive Optical Network

Divergence could potentially be overcome by updated guidelines that offer a clear set of criteria for making this decision as well as for how the appropriate costing approach is implemented.

The diversity of business models presented in our diagram above suggests that operators may be trying to gain competitive advantage through either vertical integration or separation of active and passive assets at different stages along the value chain. As it is likely that different business models are prevalent in different member states, it is possible that the variation in approaches taken by NRAs to asset valuation is a response to these different business models.

It should also be recognised that the prevalence of different business models in different member states is likely to be a result of the previous and existing regulatory interventions in those member states. In fact, the telecommunications sector has a history of fluid market structures, driven by the interplay between operators, technological progress and regulatory interventions.

If our assessment above is correct, then a more granular approach to Commission guidelines would possibly be needed to guide NRAs in assessing the markets - perhaps specifying the need to assess the historical impact of regulatory interventions alongside commercial and technological developments. Such assessment could create the backdrop for the analysis to determine the appropriate methodology for valuing the assets at different layers in the value chain.

Specific issues to be addressed in a review

In addition to the need for more explicit and detailed guidelines, there are a number of specific points we believe a review could usefully cover. We outline them briefly below:

Should the Commission recommend the use of separate rates of return for PI and downstream wholesale markets?

This is a very important question, as the expected rate of return, in particular the weighted average cost of capital (WACC), applied to capital-intensive activities will influence the willingness to invest by incumbents as well as CPs.

Perhaps the question should in fact be whether a separate WACC should be applied where RAB, MEA or other costing methodologies are applied, and according to whether the regulated party is the incumbent or a CP? If the choice of costing methodology indicates the nature of the markets in which the relevant assets are deployed, then it would seem reasonable to discuss the appropriateness of applying different WACCs for different costing approaches and, if relevant, provide guidance to NRAs of how such assessments should be performed.

Is it appropriate to adjust the expected rate of return for an investment in PI where indirect competition exists from other infrastructure not considered part of the relevant PI network – for example an HFC network that may not be suitable for PI access but which nevertheless enables at least one other provider to compete in downstream markets?

As noted above, the expected rate of return applied to capital-intensive activities will influence the willingness to invest by an incumbent as well as CPs. As such, the determination of a regulatory rate of return should take into account the full range of risks that an operator faces, including the risk of indirect competition from HFC network in downstream markets; otherwise the incentive to invest may be reduced. If the framework sets an expectation that an SMP provider is not fairly compensated for this risk, then this would create a disincentive for investment. However, we also note that if the framework sets an expectation that the SMP provider has guaranteed return, this may result in inefficient investments and excessive prices.

What should be the approach in locations where a CP builds new PI, for example in new housing developments?

It cannot be assumed that all new PI investment will be deployed by the existing SMP provider (typically the incumbent). Even when using access to the existing PI, CPs often have to build PI to bypass existing PI that is not suitable for use and they also deploy new PI in areas of new housing and business developments. It is therefore valid to question whether access to such new PI should be mandated by the NRAs – and, if so, on what terms and using which costing approach?

- Should new PI be treated differently from legacy PI, reflecting the risk of deployment now compared to historical deployments?
- If yes, is that then also relevant to the incumbent or only to CPs?

We believe these questions are critical as the guidelines must look forward to the post-copper retirement period, where PI housing fibre is the only relevant PI (acknowledging the role of HFC networks where relevant).

If regulated, how should charges for access to CP wholesale services (PI and downstream) be determined?

In other sectors, including energy networks, NRAs determine the regulated asset value and prices for individual providers. This may not be proportionate given the large numbers of small CPs involved in fibre deployments across the EU. In the case of the energy sector, however, some countries including Sweden and Germany have a highly fragmented energy infrastructure market and, in these countries, individual costing models are built for each provider. If this approach were taken in the telecommunications sector, then the costs of individual small CPs could result in consumers paying for inefficiencies of these providers, but if uniform national prices are imposed based upon average costs in all regions, it would not be economic for new entrants to serve high cost areas.

It would seem that, again, this is an area where NRAs would need clear guidance. The telecoms precedents here, though, are limited:

1. In the mobile market, some NRAs have imposed symmetrical call termination charges on new market entrants, due to the existence of SMP in the call termination market for each individual customer connection.
2. Other NRAs introduced glide-paths allowing for the new entrant to achieve a certain level of economies of scale before they are required to offer the same termination rate as the larger established mobile network provider(s).

The above approaches, however, only work if the same services are offered by all CPs with local SMP and the incumbent - i.e. using the incumbent service levels and prices as the benchmark¹¹. This may not be the case because the CPs may have invested in different competing technologies to each other and to the incumbent. In fact, taking such an approach may result in the incumbent and CPs conforming to the same technical solutions, in essence "picking a winner", which would not promote dynamic efficiency. In this case the MEA may still be the appropriate valuation method, but it is expected that care would need to be taken when choosing efficiency standards, for example between the equally efficient operator standard or the reasonably efficient operator standard, and to consider how these costs vary between different geographic markets e.g. urban and rural areas.

At what point in the investment cycle should price regulation be imposed?

Certainty for investors is improved and cost of capital reduced where the NRA is clear, in advance of network build, whether price regulation will be imposed, and if so what the methodology for calculating the price ceiling will be. By not indicating clearly where and why price regulation will be applied prior to networks being rolled out, NRAs create uncertainty which may inhibit new investment.

If the NRA clearly selects the dominant local network operator in advance and agrees its revenues and investment plans, as is common in energy network regulation, it should lower WACC and thus accelerate network deployment. However, this approach risks a loss of dynamic efficiency by requiring the NRA, rather than the market, to choose which operator's plans provide the best outcomes for end users. It may also require the imposition of suitable incentive mechanisms within the price formula to ensure that static efficiency is encouraged.

Adopting such an approach would be a significant change to the long-term trend in EU telecommunications regulation but may need to be considered by NRAs if their main goal is to encourage fast and ubiquitous deployment of full fibre networks.

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¹¹ The standard mobile call termination product across all mobile networks has made it possible to use the incumbent's costs to apply to all providers, with or without adjustments.

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