Appendix 4 - Consultation responses – second round

Consultation responses on the updated draft principles for margin squeeze tests for fibre access and the draft model in Market 4 and 5

A. Introduction

This appendix summarizes and discusses the responses to Norwegian Communications Authority’s (Nkom's) consultation on the updated draft principles and the draft tool related to margin squeeze tests (MSTs) for fibre access in Market 4 and 5. This was the second consultation round and was conducted from 11 May until 8 June 2015.

The following parties submitted written responses to this consultation round:

- Broadnet
- NextGenTel (initial comments and additional on the comments from Telenor and Broadnet in this round)
- Telenor

The received comments on the principles and model are discussed and, where found to have merits; the comments were used to update the principle document and the model itself. The discussion is structured per principle preceded with a discussion on the general comments not related to a specific principle. At the end, the model is discussed.

B. General comments

Broadnet repeated its comments that the scope of the MST is too narrow and needs to be expanded to copper based products as well.

Broadnet noted that their concerns regarding anti-competitive bundling by Telenor (regulated broadband with non-regulated wholesale products such as leased lines) is not incorporated in the test.

Broadnet also questions why the draft Decision of Nkom did not contain firm guidance on how compliance with the test is enforced as requested by the Efta Surveillance Authority. Therefore it asked Nkom to provide in its final Decision firm guidance on when it will intervene, how and within which deadlines.

NextGenTel finds it positive that Telenor's requests are not accommodated in the updated principles, however would have appreciated if Telenor's comments were discussed in more detail and that unclear issues would have been clarified more.

Telenor noted that it was difficult for them to investigate the draft model in depth due to the confined consultation period and the locking of cells from the Excel spreadsheet. Therefore it requested the possibility to provide input at a later point in time when the model is made available without password protection.

Telenor noted that the proposed approach in respect to Economic Replicability Tests (ERT's) is a very different approach as advised by Charles River Associates and maintained its position that WIK is wrong in its approach if alignment with the Commission`s recommendation on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment (The Recommendation) is an objective.

Telenor suggested that the developed model is in fact a pre-defined model designed for the traditional copper market as some of the proposed principles are more relevant for the copper world but less appropriate for the Norwegian fibre market. In addition, the model has certain features that seem more relevant in a copper context like the static one period and that the modelled network is that of Telenor only.

Telenor confirmed that the developed MST should be in line with the Recommendation objectives for NGA deployment (have a positive impact on competition and investment). However, Telenor argued that the proposed principles merely have the impact of lowering the wholesale rates, which will have a negative impact on investments by the infrastructure owner.

Finally, Telenor asked Nkom to clarify the legal status of chapter 5 as this part seems to belong in Nkom Decision instead of the WIK document on principles.

NextGenTel commented on Telenor's and Broadnet's comments with the following;

It stressed the importance of implementing an efficient mechanism to prevent margin squeezes as soon as possible as currently they are not able to compete effectively with Telenor due to margin squeezes. It referred to Telenor's statement that the main effect of proposed principles and model will be a downward pressure on the wholesale rates and concluded that this confirms that the current wholesale prices do not leave a sufficient margin. NextGenTel noted that Telenor also has the option to increase the retail prices and that the current situation discourages investment incentives of Telenor's competitors.

In response to Broadnet, NextGenTel remarked that it agrees that the effectiveness of the MST relies not only on the substance of the test but also on the enforcement. Hence, it repeated Broadnet's requests to Nkom that new products are tested prior to launch to avoid first mover advantages by Telenor as investigation and intervention by Nkom might take more than a full year.

WIK's assessment of general comments (second consultation round)

Introduction

Although the general comments are discussed as part of this principles document, they relate not only to the principles but also to the model or to general Nkom policy outside the scope of this consultation.

Broadnet's comment on the scope of the MST and bundling is discussed under principle 3. Furthermore, Broadnet's comment on the bundling of regulated broadband with unregulated components is noted. We note that most of Broadnet's (high end) business customers (those business customers with access lines formerly regulated in the old market 14) are outside the scope of Nkom's Market 4 and 5 analysis and therefore also outside the scope of proposed remedies, including this test.

The comments of Broadnet and NextGenTel regarding the importance of the enforcement beside the substance of the test are noted. Nkom will address this aspect in their separate decision.

NextGenTel's and Telenor's request for further clarification are noted. We have expanded the clarification of the different discussion points in this document. We have also lined up the proposed principles from the first consultation round with the second round to show the amendments.

Protection of the model

We note that Nkom has provided Telenor with an extension of time for responding to the consultation to enable Telenor to investigate the principles and the model. Furthermore, we would like to clarify that the protection of the spreadsheet was to prevent changes in the sheet structure, cells and applied formulas while still be able to see the structure, used components and formulas. We acknowledge that it would have been easier to study with an unprotected model, therefore the unprotected model and a more detailed manual have been released to involved market parties by mail from

Nkom at 19 June 2015. Despite the protection, Telenor made two detailed comments on the model in regards to the 'Own network costs' and 'Calculation ODP', which are discussed at the end under model discussion.

CRA report

The CRA report which Telenor is referring to calls for a harmonized application of the Recommendation and gives an overview of a varied approach among EU member states and then recommends ERT standards to achieve the harmonization. Main focus while considering the ERT for the Norwegian broadband market is alignment with the Recommendation itself and the specifics of the Norwegian market. Therefore, although giving useful information, the CRA report is not primary guidance.*Pre-defined model*

Telenor's suggestion that the developed model is, in fact, a pre-defined copper based model is surprising considering the specific fit on Telenor's wholesale services and its Norwegian fibre network. It could be that there are some structural parallels with our previous copper based models; however overall, this model has been built specifically. The presumed 'copper aspect' related to each principle and the model set up, are further discussed in this document under the relevant principle and at the end in regards to the model set up.

Impact on investment

In regards to Telenor's remark on the assumed negative investment impact of proposed test, we note that Telenor compares the current (unregulated) situation with the regulated situation (ERT test implemented). This comparison however is not correct as the Recommendation proposes the ERT (under certain conditions) to replace a cost oriented regime. Hence the comparison should have been between a scenario where Telenor was obliged to have cost oriented wholesale prices versus a scenario where the ERT is implemented.

As Telenor surely knows from the CRA report and the Recommendation, the ERT is intended to provide Telenor with more retail/wholesale pricing flexibility so that it can test retail price points and hence increase uptake of the NGA services which will stimulate investments. In addition, WIK has proposed to give Telenor even more flexibility by proposing the portfolio approach instead of the product by product test also envisaged by the Recommendation as an option. Therefore Telenor's argument is dismissed.

Previous chapter 5 on 'Requirements on Telenor' has been shifted into Nkom's decision to clarify the legal status of these provisions.

C. Main design principles of a margin squeeze test

The following part is structured as follows; first the relevant main principles (as stated in the draft principle documents in the two consultation rounds) are repeated in the first blue boxes. Thereafter the relevant responses will be discussed and judged on their merit. The last blue box contains WIK's assessment of the comments from the second consultation round.

C1. The level of efficiency – Principle 1

The principle according to the consultation documents:

Principle 1 (first consultation round)

An adjusted EEO concept by making adjustments for scale, alternative operator specific costs and other parameters will be applied.

Principle 1 (second consultation round)

An adjusted EEO concept will be applied, in order to allow for adjustments for scale, addition of alternative operator specific costs, assessment of reasonable efficiency and the use of market data where input data is lacking.

Consultative input:

Broadnet and NextGenTel did not provide specific input initially for this principle.

Telenor maintained its position that the adjusted EEO approach is not in line with the Recommendation as the criteria for deviating from the EEO standard have not been met (frustrated market entry/expansion alternative operators in the past and/or acquisition of scale not possible). Nkom's Market 4 and 5 decision of 20 January 2014 identify Telenor as SMP operator in these markets. However, Telenor argued that this does not show that Telenor has frustrated market entry/expansion in the past, nor does it demonstrate low volume of lines of alternative operators compared to Telenor's NGA network.

Telenor noted that in the Norwegian market, alternative NGA operators have already achieved the same scale as Telenor's NGA network (as illustrated in Figure 3 below) and is of the opinion that therefore measures (like adjustment for scale in the test) to favor smaller operator are not required to protect competition.

Telenor does confirm that it is reasonable to consider costs in the test that are specific to alternative operators, even if it is not strictly in line with the Recommendation.

NextGenTel commented on Telenor's comments with the following;

It disagreed on Telenor's comments on the scale by explaining that there are different types of competitors in the market; among other things local electricity networks, which have a larger share of fibre connections due to their monopoly position. Therefore, it argued that the market share used in the MST should reflect the actual market share of Telenor's wholesale customers.

WIK's assessment of comments regarding principle 1 (second round)

Inclusion of operator specific costs

Telenor confirmed the reasonability to include specific costs (like co-location) in the MST, which are specific for alternative operators in Norway when using the wholesale services, even if not strictly in line with the Recommendation.

Adjustment for scale in the adjusted EEO-setup

We have considered Telenor's remarks regarding doing adjustments to scale in the adjusted EEO-setup and alignment with the Recommendation.

The Recommendation builds on the Commission's guidance regarding the application of specific obligations in the Regulatory Framework provided in Recommendation 2010/572/EU on regulated access to Next Generation Access Networks (NGA-recommendation) and is consistent with the NGA-recommendation. In order to promote investment in NGA networks while still safeguarding competition in the end user market, the Recommendation allows for the non-imposition of regulated wholesale access prices on NGA networks provided that certain conditions are fulfilled[1].

In order to promote investment, the SMP operator is allowed pricing flexibility upstream and downstream. However, in order to prevent that the allowed pricing flexibility for the SMP operator results in excessive prices, the preamble states that the pricing flexibility should be accompanied by imposition of a stricter non-discrimination obligation, i.e. Equivalence of Input (EoI) and technical replicability, complemented by guaranteed economic replicability of downstream products.

In order to assess whether alternative access seekers can economically replicate a downstream offer provided by the SMP operator with the regulated wholesale input available, the Recommendation states that the NRA should undertake an economic replicability test (ERT). In conjunction with other measures the use of an ERT should safeguard competition and prevent the SMP operator from abusing the allowed pricing flexibility in order to exclude (potential) competitors from the market.

A lack of economic replicability can according to the Recommendation be demonstrated by showing that the SMP operator's own downstream retail arm could not trade profitably on the basis of the upstream price charged to its competitors by the SMP operator. Thus the starting point in the Recommendation for the use of the ERT is an "equally efficient operator (EEO) test". However, the Recommendation also emphasizes that the use of an ERT should be

[1] Cf. recital 48 and 49 in the Recommendation.

realistic. Hence, in order to ensure that economic replicability is a realistic prospect and to ensure that the aim of competition is promoted, the Recommendation allows NRAs to make adjustments for scale to the SMP operator’s costs and revenues, and thus to make use of an adjusted EEO approach.

The conditions for not imposing regulated wholesale prices on NGA inputs, is set out in point 48 and 49 in the Recommendation. One of the conditions is to impose ERT as referred to in point 56. Regarding the details of the ERT, point 56 states a minimum number of parameters that should be set, in accordance with the guidance provided in Annex II to the Recommendation.

One of the parameters which Annex II gives guidance on is the relevant downstream costs. In accordance with the preamble the Annex states that downstream costs should be estimated on the basis of the costs of the SMP operator’s own downstream businesses (EEO test). However, the Annex also states that the NRA may make adjustments for scale to the SMP operator’s downstream costs in order to ensure that economic replicability is a realistic prospect. The Annex mentions two situations where such a deviation from the EEO approach is justified. The first is where market entry or expansion has been frustrated in the past. The second is existence of indications that objective economic conditions do not favour the acquisition of scale by alternative operators, shown by very low volumes of lines and their significantly limited geographic reach as compared to the SMP operator’s NGA network.

Telenor has very high markets shares in the Norwegian retail markets for both copper based services, cable-TV, fibre and mobile services and does also have an integrated core and aggregation network supplying those services, (see figure 1 below). Furthermore Telenor’s market share in the Norwegian NGA retail broadband market is significantly higher than its competitors (see figure 3 below). It is therefore reasonable to assume that Telenor has economies of scale in respect to its network which can’t be matched by competitors in the NGA retail broadband market. The high markets shares also imply that Telenor has superior economies of scope compared to its competitors related to the provisioning and distribution of NGA retail services.

As Telenor uses its integrated core network and distribution channels also for its fibre connections, this scale advantage applies to the specific fibre segment as well as to the overall NGA retail broadband market. In order to make the ERT for fibre a realistic prospect it is therefore necessary to take into account Telenor’s superior economies of scale.

In Norway the suppliers of fibre based retail services to a large extent consist of smaller energy companies. Such companies serve retail customers in a restricted geographical area, but do often cooperate with other local energy companies with respect to the delivery of fibre based end users services such as broadband internet access, IPTV and voice telephony. The scale of these local energy/fibre companies is mainly below 4% share of the total fibre connections (less than 20,000 connections). The expectation is that the majority of the local energy companies deploying fibre will not significantly expand their scale beyond their current geographical area in the next years. Only the companies Viken, Lyse, Get and NTE have a share of total fibre connections in Norway which is above 5%. Furthermore, Viken is the only company that has a market share on fibre which is comparable to Telenor’s (17%). It seems questionable whether Lyse, Get and NTE could reach a similar level (currently 5-11%, see figure 2). Thus in the Norwegian circumstances it could also be argued that alternative operators’ limited geographical reach indicate that objective economic conditions do not favour the acquisition of scale by alternative operators.

As argued above, we maintain that the specifics of the fibre segment in Norway makes it necessary to apply certain adjustments for scale to Telenor’s cost and revenue in order to achieve a realistic ERT, as well as to obtain that ERT implies modelling of a reasonable business case for a hypothetical, alternative supplier of fibre based broadband connections in Norway. We also believe that this assessment is in line with the Recommendation. We have updated the principle document accordingly.

Figure 1: Telenor's integrated core network

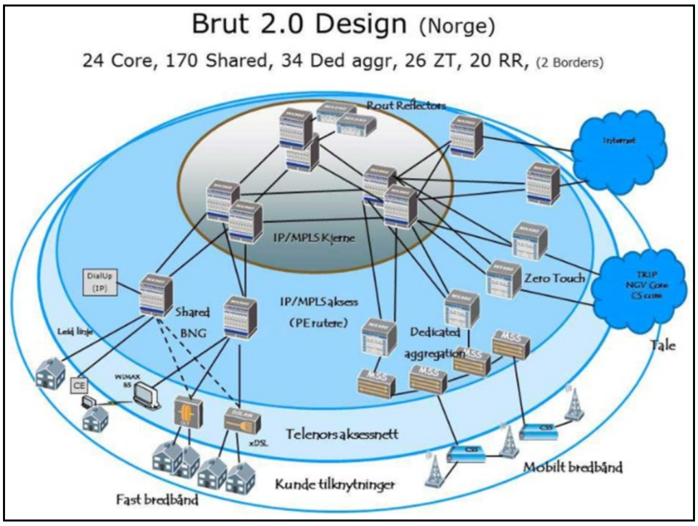


Figure 2: Market share based on number of fibre connections in Norway

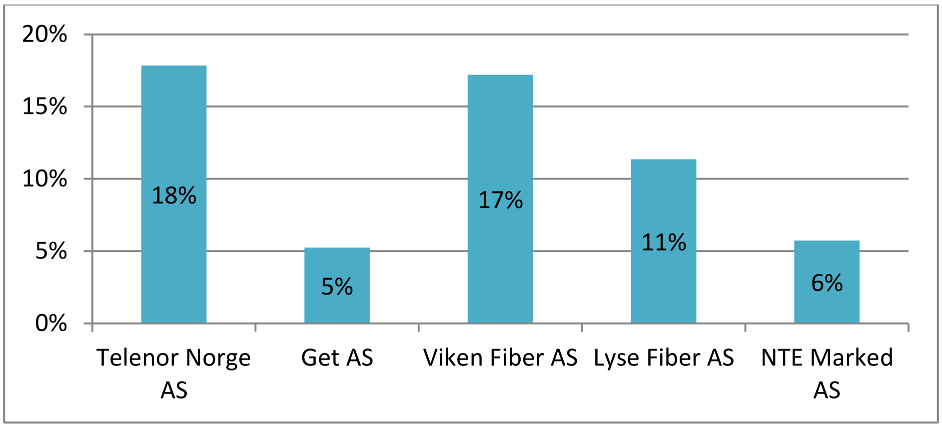
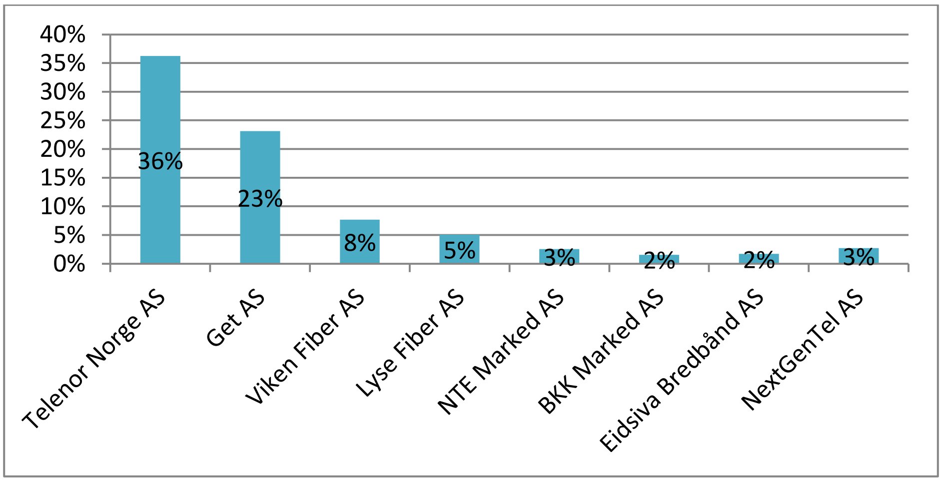


Figure 3: Market share based on number of NGA connections in Norway



Flagship products – Principle 2

The principle regarding flagship products was in the first consultation round called principle 3. For logic, we moved it backward and labelled it principle 2.

Principle 2 (called principle 3 in first consultation round)

In line with the Recommendation only 'flagship products' are considered. A flagship product can be a standalone or a bundled product based on broadband access.

As the basic reference, 'flagship products' will be determined as follows: Flagship products comprises those tariffs with the highest revenue which cover 70 % of the revenue within the relevant 12 months term before the MST is conducted. In addition, products with a market share of 10 % either with respect to subscriber numbers or revenue within this time frame will be included in the MST.

However, in case of substantial changes of retail tariffs, Nkom may deviate from this way of determining the relevant retail 'flagship products'. With a future perspective it might consider new launched retail tariffs as 'flagship products'. In such a case the weights of the individual "flagship products' as part of the portfolio will be determined with a future perspective.

Principle 2 (second consultation round)

In line with the Recommendation only 'flagship products' are considered. A flagship product can be a standalone or a bundled retail product based on fibre broadband access.

Flagship products will be determined as follows; Flagship products comprise those retail tariffs with the highest revenue, which cover cumulatively 70 % of the revenue in the most actual time period. In addition, retail products with a market share of 10 % either with respect to subscriber numbers or revenue will also be labelled as flagship products.

However, in case of substantial changes of retail tariffs, Nkom may deviate from this way of determining the relevant retail 'flagship products'. With a future perspective, it might consider newly launched retail tariffs as 'flagship products'. In such a case the number of subscribers of the individual "flagship products' will be determined with a future perspective.

Consultative input

Neither **Broadnet, NextGenTel** or **Telenor** had input on the second principle.

WIK's assessment of comments regarding principle 2 (second round)

No specific input received on this principle, therefore remains unchanged.

C2. Relevant business model (relevant wholesale/retail products, aggregation level, geographical footprint and relevant market share) – Principle 3

This principle was in the first consultation round called principle 2. For logic, we moved it forward and labelled it principle 3.

Principle 3 (called principle 2 in first consultation round)

Two separate MSTs will be conducted:

- Retail broadband internet access + voice service + IPTV (triple-play) based on Fibre VULA (p2mp/GPON) (portfolio test) and
- Retail broadband internet access + voice services (double play) based on Fibre LLU (p2p) (portfolio test).

Aggregation level: The retail customer segments in both cases comprise all customers who demand the residential marketed products, including the standardised business products. A total fibre portfolio approach is applied, which assesses the entire portfolio of flagship products (incl. bundles (2-play or 3-play) and standalone offers.

The geographical footprint is national, i.e. the geographical footprint of the availability of the regulated wholesale services.

The subscriber numbers of an efficient alternative operator used in the MST should be equal to (forecasted) homes-connected for which the fibre-based wholesale access service is made available to alternative operators by Telenor **x** 0.20. The forecasted roll-out of Telenor is considered for the relevant time period in the test.

Principle 3 (second consultation round)

Two separate MSTs will be conducted:

- Portfolio of retail flagship products based on Fibre VULA; and
- Portfolio of retail flagship products based on Fibre LLU.

Considered retail products are the residential marketed products, including the standardised business products.

Collected subscriber numbers of Telenor are used to determine the relevance of each individual product in the portfolio.

Identified flagship retail products can be (either on a standalone or bundle basis):

- For Fibre VULA: internet access, voice and IPTV.
- For Fibre LLU: internet access and voice.

The geographical footprint of the MST is national. However due to the availability of the wholesale services, this means the footprint of Telenor's fibre GPON/P2P network for respectively Fibre VULA or Fibre LLU.

The estimated subscriber number in the MST is calculated by assuming 20% market share for the modelled alternative operator multiplied by the total forecasted homes-connected on Telenor's GPON/P2P networks. The forecasted rollout of Telenor is considered for the regulation period for which the proposed remedy applies.

Consultative input

Broadnet repeated its opinion that double and triple play offers with IPTV are not relevant for the business market as the end users do not require IPTV. Therefore, it requests Nkom to test single play broadband offers. In addition, Broadnet noted that the model seems to exclude corporate accounts, which however represent the majority of Broadnet's customer base. Therefore, Broadnet asks Nkom to consider this customer segment when finalizing the model.

Furthermore, the portfolio approach gives Telenor too much flexibility to cross-subsidize services to the detriment of competitors. As only Telenor is in a position to offer the whole portfolio, the model overstates the margin of access seekers. Therefore, this approach of the MST is certainly not conservative.

In regards to the market share for the modelled alternative operator, Broadnet feels that the proposed 20% market share is not realistic. Due to the limited scope of the access obligations on Telenor, the excessive wholesale prices and the first mover advantage of Telenor, no alternative operator will achieve more than 10% market share in the market for fibre based services in the medium to long term.

NextGenTel supports Broadnet's previous statement that the portfolio approach gives Telenor too much flexibility to cross-subsidize services to the detriment of competitors. In addition, only Telenor is in a position to offer the whole portfolio, hence the model overstates the margin of access seekers. Therefore, this approach of the MST is certainly not conservative as WIK stated.

Secondly, NextGenTel notes that it has not found a place in the model to put IPTV content costs and then continues to mention likely differences in the IPTV content costs between suppliers.

Telenor does not share WIK's conclusions on the defined business model in regards to Fibre LLU, the geographical footprint and market share:

- Telenor argues that a test for fibre LLU is unlikely to justify the effort involved given the limited size of the market (2,000 connections); and when done, that it is unreasonable to exclude IPTV from the tested portfolio as Telenor currently provides IPTV on all these connections. Telenor suggests as practical solution to recognize that any alternative operator targeting the LLU connections will offer

IPTV, but that the costs of TV specific equipment will be shared with a larger network based on own access and/or VULA.

- Geographical footprint; Telenor finds it reasonable that its entire network footprint is subject to the model. It is unreasonable to assume that an alternative operator will use the same footprint. Instead, it assumes that alternative operators will cherry pick the most attractive customers/nodes. Therefore, Telenor suggests to optimise the footprint of the modelled alternative operator within the Telenor footprint and to allow a maximum share per node, which could be significantly higher than the suggested 20% but below 100% as not all connections can realistically be captured by the alternative operator. It remarks that this modelling is unnecessary when the EEO is adopted as efficiency standard.

- Telenor notes that the top 4 fibre providers in Norway (Viken Fiber, Lyse, NTE and GET) have market shares ranging from 18% to 4% and therefore all of them have a market share larger than 20% of Telenor's market share (18%). Hence, it argues that the proposed scale of 20% is not reflecting the market reality. In addition, Telenor quoted a part from the Recommendation that when adjusting for scale "…*the NRA should not go beyond that of marketstructure with a sufficient number of qualifying operators to ensure effective competition, bearing in mind also competition from other platforms*.".

NextGenTel commented on Telenor's and Broadnet's comments by the following;

It stressed the importance of decoupling IPTV from the bundle in the test because several alternative operators, including themselves, don't bundle TV services. If this decoupling in the test is not done, the consequence might be that consumers are deprived from the choice following from decoupling and innovation in the composition of services.

In respect to the geographical footprint, NextGenTel noted that while in general it is true that an alternative operator will pick the most profitable locations, it cannot be assumed that a regulator can objectively determine what locations are most profitable as this depends on technology, business case and the stage an operator is on the learning curve. Furthermore this would imply that alternative operators will be discouraged to invest in locations not found sufficiently profitable to be included in the MST by the regulator. Therefore, any MST based on the assumption that alternative operators will target a different footprint than Telenor will be flawed and deprive customers over the entire Telenor footprint from the benefit of competition.

WIK's assessment of comments regarding principle 3 (second round)

Exclusion of business segment

In response to Broadnet's comments, we do confirm that the test includes the standardized residential marketed broadband packages; hence exclude the non-standardized business products. It is noted that the majority of Broadnet's customers are business customers and hence that the proposed test does not represent Broadnet's business model.

We remark that the modelled hypothetical operator is not meant to represent a specific alternative operator, but more to represent a hypothetical alternative operator which is a good average of the alternative operators in Norway.

Furthermore, it is noted that many of Broadnet's services for the (high end) business market (business customers with access lines formerly regulated in the old market 14) are outside the scope of the market analysis done in Norway for Market 4 and 5, hence proposed ERT as a remedy also does not apply to these services.

Bundling with IPTV

Broadnet's repeated arguments to exclude IPTV and to focus on retail broadband bundles with and without voice are understandable from their perspective. However, as discussed before, the test is based on the modelling of a hypothetical alternative operator which reflects market realities in Norway and not a specific alternative operator. The market reality in Norway in this perspective is based on the choice of end customers (sold retail broadband packages) and hence the 'flagship products'. Furthermore, the test determines the margin between the wholesale and retail price, but does not determine whether or not IPTV should be in the bundle.

Portfolio approach

Broadnet and NextGenTel both claim that the portfolio approach gives Telenor too much flexibility in cross subsidizing between products. This can have an anti-competitive effect as they argue that only Telenor can offer such a broad portfolio of products, which in turn can 'subsidize' margin from products under less competitive pressure to products under competition pressure. Nkom has confirmed that in Norway, generally, alternative operators offer a wide portfolio of products for all customer segments, hence the portfolio approach 'fits' and this argument is dismissed.

The use of the portfolio approach is intended to give Telenor more retail price flexibility (compared to product by product test) and so the possibility to try out more retail price points in order to increase market penetration, and in its turn stimulate their further investments.

Fibre LLU and IPTV

Telenor argues that a test for fibre LLU is unlikely to justify the effort involved given the limited size of the market. At the time, Nkom performed the market analysis, there were still 10,000 LLU connections and currently there are only 2,000 left. As explained in the previous consultation response document, WIK noted that, based on the presumed share of 20%, there would be only 400 potential customers for the modelled operator. Recently we received information from Telenor that these customers are even spread out over 73 handover points. Based on this information, we agree with Telenor that at this point in time, there is limited value in testing the LLU business case as there is most likely little or no demand for the wholesale service in any case. So we propose to abstain from conducting a MST for Fibre LLU at this moment in time. However, this situation might change in the future based on the available LLU connections on Telenor's network and will be monitored by Nkom. The other arguments related to the Fibre LLU business case will not be discussed further at this point in time. The revised principle will cover this issue. Thus, current focus will be on testing Fibre VULA with IPTV.

The content costs of IPTV

NextGenTel noted correctly that IPTV content costs are not considered in the model. The model currently includes the transportation and equipment costs of IPTV. As we consider the complete revenue of the basic IPTV package, ideally all cost components would be considered as well for the basic TV package. Hence the calculated margin for bundles with IPTV is overstated as the content costs still would need to be deducted.

Therefore on 18 June 2015, Nkom has asked market parties to provide Nkom with cost information regarding the monthly costs per subscriber of the TV content for a package equal to Telenor's basic package. After evaluation by Nkom, the IPTV content costs for the basic TV package of Telenor will be included in the test.

Geographical footprint

When the tool is fine-tuned as suggested by Telenor (cherry picking the most attractive areas and being extremely successful in these areas as well), this implies that an alternative operator only in these conditions can economically replicate Telenor's service. However, the initial aim of the MST was to ensure that competition at a national level is possible to offer all end customers the advantages of competition. However, also in the light of the information that an alternative provider needs to connect to 76 handover points to reach all of Telenor's GPON fibre connections, we propose to strike a balance between reasonable business behavior and normative prescriptions. Therefore, currently, we do not see a realistic business case for connecting ODPs with less than 1,000 homes connected with Telenor fibre. The MST thus leaves aside these areas in the MST calculations and we propose to focus on the most attractive 17 ODP's. Once the GPON network of Telenor further develops, there could be more ODP's which qualify as having more than 1,000 fibre connections.

Applied share of available Telenor fibre connections

Based on the responses, we would like to clarify what is meant by *"…market share for the modelled alternative operator multiplied by the total forecasted homes connected on Telenor's GPON/P2P networks."* For the purpose of modelling the potential numbers of customers for the hypothetical alternative operator, a share of Telenor's fibre network for the next regulation period was proposed. This "*Telenor fibre network share*" is not equal to what could be called "*market share of the fibre segment*", which is share of the total fibre connections in Norway. We have amended the description to represent more clearly what is intended.

Broadnet seems to refer to what can be called "market share of the fibre segment" and felt that the used 20% market share should be more in the direction of 10% due to the strong market position of Telenor. Telenor's comment seems to refer to the "Telenor fibre network share" as they suggested that it should be much higher to align with the reality in the fibre market where alternative operators have at least an absolute market share which is equal to Telenor's (18%) or at least 24% of Telenor's market share.

What is important with MST's in general, is the estimated number of connections of the modelled operator as the fixed costs in the modelled business case will be spread over this number of connections. In general, the number of connections is derived via an assumed realistic market share of the alternative operator.

Based on the current market data on fibre connections in Norway (see figure 2 above), we acknowledge that 20% share of fibre connections would be too ambitious while the largest alternative operator in the fibre segment (Viken Fiber AS) has a lower share (17%) and the average share of the largest four (4) alternative operators in the fibre segment is only 10%. And then the many (80+) smaller fibre companies below 20,000 connections are not even considered. In the overall Norwegian NGA broadband market (see figure 3), roughly the same average share (10%) of the largest four (4) alternative operators is observed.

Telenor quoted a statement in relation to the used 'market share' from the Recommendation that when adjusting for scale *"…the NRA should not go beyond that of market structure with a sufficient number of qualifying operators to ensure effective competition, bearing in mind also competition from other platforms."* If we would assume that the current situation is judged by Nkom as sufficiently to ensure competition, then the Recommendation suggest that a market share between 10% and 18% is reasonable.

However, due to the Norwegian specifics, and as described above under geographical footprint, we have decided only to consider ODPs with at least 1,000 customers connected. Therefore, a share of 20% of the available Telenor fibre connections on this limited geographical footprint is reasonable.

A last aspect regarding the considered number of connections for the modelled operator is whether it is based on a forecasted number or a current number of connected fibre customers on Telenor's network. In order to reflect the reality better, it is decided to use the current available fibre connections in Telenor fibre network. Nkom will monitor this data on a 6 monthly basis.

C3. Retail price components – Principle 4

The principle according to the consultation documents:

Principle 4 (first consultation round)

All price elements of the flagship product(s) of the SMP operator for which the test is being conducted form the basis of the relevant revenues. All relevant service revenues have to be considered including recurring and non-recurring price elements.

If retail (list) prices are discounted permanently or are temporarily reduced in the form of promotions, such discounts or price reductions will be taken into consideration to calculate relevant revenues.

Nkom will in advance define user profiles needed to determine relevant revenues. Such parameters will be based not only on profiles provided by Telenor but also by alternative operators.

Principle 4 (second consultation round)

All price elements of the flagship product(s) of the SMP operator, for which the test is being conducted, form the basis of the relevant revenues. All relevant service revenues have to be considered including recurring and non-recurring price elements.

If retail (list) prices are discounted permanently or are temporarily reduced in the form of promotions, such discounts or price reductions will be taken into consideration for the respective time period while calculating the annualised monthly revenues.

For the determination of the relevant revenue, Nkom may use additional information provided by the alternative operators or market data to complement Telenor's data.

Consultative input:

Neither **Broadnet, NextGenTel** or **Telenor** had input on this principle.

WIK's assessment of comments regarding principle 4 (second round)

No specific input received on this principle, therefore remains unchanged.

C4. The relevant time period and methodology for running the test (period-by-period, Discounted Cash Flow (DCF) or Steady State) – Principle 5

The principle according to the consultation documents:

Principle 5 (first consultation round)

A steady-state approach with following characteristics will be used to conduct the MST:

- It discounts/annualizes one-time costs and revenues.
- A steady-state approach is highly transparent and practical.
- Is conducted periodically appropriately taking into account market developments. It allows Nkom to adjust subscriber numbers, price changes etc. according to real market data instead of basing a calculation on uncertain forecasts.

Principle 5 (second consultation round)

A multi-period, steady-state approach with following characteristics will be used to conduct the MST:

- It discounts/annualizes one-time costs and revenues considering customer life time and asset life time where applicable;
- It is conducted periodically and therefore allowing the consideration of market developments.

Consultative input:

Broadnet did not provide input on this principle.

NextGenTel mentioned that the timeframe for allocating costs to be used in the test to be too vague. Generally they do not see what will constitute the basis for determining the adequate lifetime and further note that customer equipment might depreciate at a higher rate than assumed in the test.

Telenor concedes that it is possible to replicate the outcome of a DCF approach with an appropriate implementation of a steady state approach. However withholds judgment on this principle until it can investigate the model sufficiently to establish whether the proposed model has comparable flexibility as a DCF model.

WIK's assessment of comments regarding principle 5 (second round)

Economic lifetime

NextGenTel comment relates to the applied economic lifetimes for spreading costs related to equipment used in the tool. We would like to clarify that for distributing the revenue components we have used the customer life time. For the distribution of one-time costs related to assets (equipment etc.) we have used the economic asset life time (which might be shorter than the customer lifetime).

The economic lifetime are input values in the model and are set in the tool on the tab 'common parameters', from line 71 onwards. The choice for the exact values per asset will be made by Nkom based on the received input.

Flexibility of the tool

Telenor did not provide specific input at this point in time, however notes flexibility as an important criterion for the tool. We note that flexibility of the tool has been an important criterion while developing it and has been incorporated in various aspects as explained during the industry meeting of 12 May 2015 with the operators. It varies from reserved fields in the tool when input parameters change to the possibility to update the real fibre network roll-out of Telenor and/or using forecasted number of connected GPON customers. A second important aspect of the flexibility of proposed approach is that every 6 months, there is the possibility of updating the used data to reflect the market reality instead of forecasted numbers in the DCF method.

C5. Reference time – Principle 6

The principle according to the consultation documents:

Principle 6 (first consultation round)
The adequate reference time period for the multi-period analysis of the MST in form of a steady-state analysis will be set in accordance with the estimated average customer lifetime for the fibre-based retail services. As long as there is no empirical evidence on fibre-based services, the average customer lifetime for copper-based broadband services will be used as an approximation for the fibre-based broadband customer life-time.

Principle 6 (second consultation round)
The adequate reference time period for the multi-period analysis of the MST in form of a steady-state analysis will be set in accordance with the estimated average customer lifetime for the fibre-based retail services. If there is no robust data regarding customer lifetime for fibre-based services, the average customer lifetime for copper-based broadband services will also be considered as an approximation for the fibre-based broadband customer lifetime.

Consultative input:

Broadnet had no specific input on this principle.

NextGenTel agrees with proposed approach and stated that it will take some time before fibre customer lifetimes give a balanced perspective. This might be because customers are hesitant to switch to operators still on the learning curve or because Telenor win-back actions or other strategies to prevent customers from switching. This will create a bias towards too long fibre customer lifetimes to the benefit of Telenor.

Telenor understood the updated principle to mean that Nkom no longer commits to use copper customer life as proxy for the fiber customer life. Furthermore, it repeated its standpoint that copper customer lives are an aggressive and poor proxy for fibre customer lives as they reflect churn to a more advanced technology (fibre), which is not relevant for existing fibre customers.

In addition, Telenor suggested two approaches for estimating fibre customer lives:

1) Apply fibre customer lives seen in markets outside Norway with competition on fibre;
2) Estimate fibre live times based on a midpoint between existing copper and fibre customer lifetime and fibre customer lifetime in Norway.

The midpoint in the second option is likely to be closer to actual values instead of relying on copper lifetime. When fibre competition based on wholesale is established, observed fiber lives should take over as the source of these inputs.

NextGenTel commented on Telenor’s comments by the following;

NextGenTel does not see the reason for using the copper lifetime as floor as suggested by Telenor as it points out that aggressive win-back policies of Telenor may result in even shorter lifetimes for fibre. In addition, it notes that such win-back policies might even include (cost/revenue) elements which should be captured in the MST.

WIK’s assessment of comments regarding principle 6 (second round)

Both NextGenTel and Telenor seem to agree that it will take time before the fibre based market (based on wholesale access) stabilizes so that fibre customer lifetime can be used.

Telenor’s understanding of the updated principle is correct in the sense that Nkom not automatically will use the copper customer lifetime as proxy for the fibre customer life time. However, Nkom has the flexibility to do so.

The proposed approaches are constructive and will be considered. In order to enable Nkom to use the first suggested approach of Telenor, we suggest a small amendment in the principle to allow for the use of other data.

C6. The relevant cost standard (LRIC+ or FDC, current or historical costs) – Principle 7

The principle according to the consultation documents:

Principle 7 (first consultation round)

The LRIC+ cost standard will be used to determine downstream costs where available relying on bottom up or top down data from the SMP operator. Where LRIC data is not available (e.g. for retail costs), FDC may be used.

Principle 7 (second consultation round)

The LRIC+ cost standard will be used to determine downstream costs where available relying on bottom up or top down data from the SMP operator. Where LRIC data is not available (e.g. for retail costs), FDC may be used.

Consultative input:

No input received during the second consultation round.

WIK's assessment of comments regarding principle 7 (second round)

Principle remains unchanged.

C7. The reasonable profit – Principle 8

The principle according to the consultation documents:

Principle 8 (first consultation round)

An altnet should be able to earn a reasonable rate of profit. The WACC reflects the risk of the retail business of an altnet. Nkom has determined a reasonable WACC of 8.9 % for a reference operator in the Norwegian fibre line markets and this value will be used in the MSTs.

Principle 8 (second consultation round)

An alternative operator should be able to earn a reasonable rate of profit on its downstream costs. The set WACC of 8,9% by Nkom is considered to reflect the risk of the retail business of an alternative operator based on a wholesale fibre service (i.e. Fibre VULA or Fibre LLU).

Consultative input:

None of the respondents provided input on this principle

WIK's assessment of comments regarding principle 8 (second round)

Principle remains unchanged.

C8. Relevant downstream costs – Principle 9

The principle according to the consultation documents:

Principle 9 (first consultation round)

The following five kinds of cost categories - own network cost, costs for terminating traffic in other networks; other costs (regulatory, number portability etc.), retail costs and common costs will be considered in the MST.

For retail costs a category-by-category approach will be in line with the categorisation presented by BEREC.

An EPMU approach will be employed for marking up other common costs.

Principle 9 (second consultation round)

The following five kinds of cost categories - own network cost, costs for terminating traffic in other networks; other costs (regulatory, number portability etc.), retail costs and common costs will be considered in the MST.

For retail costs a category-by-category approach will be in line with the categorisation presented by BEREC.

An EPMU approach will be employed for marking up other common costs.

Consultative input:

None of the respondents provided input on this principle

WIK's assessment of comments regarding principle 9 (second round)

Principle remains unchanged.

C9. Relevant regulated wholesale input – Principle 10

The principle according to the consultation documents:

Principle 10 (first consultation round)
All elements of the pricing structure which an access seeker has to pay for purchasing the relevant elements of the wholesale input have to be taken care of. This includes recurring and non-recurring charges, charges for termination of the service, service provision, service cancellation if applicable. Non-recurring charges have to be depreciated (or discounted) over a relevant time period. Volume discounts and/or long-term access pricing agreements will be taken into account in case they are representative for the business model of access seekers and/or they are in line with a competitive market structure.

Principle 10 (second consultation round)
All elements of the pricing structure, which an access seeker has to pay for purchasing the relevant elements of the wholesale input, have to be taken care of. This includes among others recurring and non-recurring charges, charges for termination of the service, service provisioning and service cancellation, if applicable. Non-recurring charges have to be depreciated (or discounted) over a relevant time period. Volume discounts and/or long-term access pricing agreements will be taken into account in case they are representative for the business model of access seekers and/or they are in line with a competitive market structure.

Consultative input:

None of the respondents provided input on this principle

WIK's assessment of comments regarding principle 9 (second round)
Principle remains unchanged.

C10. Trigger for applying the test – Principle 11

The principle according to the consultation documents:

Principle 11 (first consultation round)

Three triggers for conducting a MST are identified:

- The ex-ante MST will be conducted each time a new wholesale price in Market 4 or 5 is determined and/or a new wholesale product is introduced.
- A MST for individual wholesale products will be conducted periodically, every 6 months, in line with the existing 6 month collection of subscriber data for Nkom's statistics report.
- Additional MSTs may also be conducted under reasonable and proportionate circumstances. This may in particular be the case if competitors make justified reasoning of major market changes related to costs, prices, and customer distribution which would lead to different results compared to the original ex ante margin squeeze test.

Principle 11 (second consultation round)

Three triggers for conducting the portfolio MST are identified:

1. The ex-ante portfolio MST will be conducted each time a new wholesale price in Market 4 or 5 is determined and/or a new wholesale product is introduced.
2. A portfolio MST per individual wholesale product (Fibre LLU and Fibre VULA) will be conducted periodically, every 6 months, in line with the existing 6 month collection of subscriber data for Nkom's statistics report.
3. Additional portfolio MSTs may also be conducted under reasonable and proportionate circumstances. This may in particular be the case if competitors make justified reasoning of major market changes related to costs, prices, and customer distribution which would lead to different results compared to the original ex ante portfolio MST.

Consultative input:

None of the respondents provided input on this principle

WIK's assessment of comments regarding principle 9 (second round)

Principle remains unchanged.

D. Comments regarding the draft model provided in the second consultation round.

Broadnet commented that it is not in a position to comment on the model in Excel format as it does not possess the relevant data on cost and revenue required to test the model. This is due to the fact this it does not buy these wholesale services currently (due to the excessive wholesale prices and hence unviable business case) and secondly as it has no access to the Telenor data to be used in the test.

NextGenTel remarked that the model in Excel is complex and that the user manual contains few details and provide poor guidance. Furthermore, it argues that it would be an advantage if NextGenTel could use the spreadsheet itself to test the presence of margin squeeze while using publicly available data, own costs and assumptions to populate the spreadsheet.

In addition, NextGenTel remarks that it cannot understand why in the tab "Calculation ODP" the tool uses the 18 counties of Norway where it seems to assume that Telenor has a larger amount of ODPs (handover points) in reality.

Telenor noted that it was not in a position to investigate the draft model in any depth as it is impossible to use and very cumbersome to review as all cells are locked and password protected. Therefore, Telenor requested Nkom to make available the model without password protection and to allow them to provide input at a later point in time.

However, Telenor was able to observe that in the tabs 'Own network costs' and 'Calculation ODP' the calculations do not consider the presence of the alternative operator's own access network, which would absorb part of the altnet's core network costs. Telenor claims this is an omission as the calculated costs are for a stand-alone core network instead of proper LRIC costs.

Furthermore, Telenor questioned the relevance of leased line prices as cost proxy in the tool firstly as the margin on these products might be high and the retail prices are not regulated. Secondly, a core network would be based on concrete needs and therefore instead on standard leased lines based on a (price) tailored solution and/or own IP network. Therefore, Telenor argued that a better solution would be to utilize Nkom's fixed core LRIC model to calculate the costs of the required core net.

WIK's assessment of comments regarding the model (second round)

Broadnet's response is noted and WIK thanks them for their input on the principles.

Access to the model

NextGenTel's remark on the complexity of the model and the limited user manual and Telenor's similar remark have been noted. Based on this feedback, Nkom has decided to release the unprotected tool and the detailed user manual to involved market parties and has sent this information by email on 18 June 2015.

Number of ODP points

The setup of 18 ODP's point for Fibre VULA was based on earlier provided information by Telenor that regional access to ODP points is given. However, it appeared that this was a misunderstanding and that there are 76 handover points for Fibre VULA.

In order to reflect a reasonable business case as explained under principle 3, we have decided to use the most attractive ODP's with more than 1,000 customers connected on Telenor's fibre GPON network.

The developed tool is flexible in allowing more handover points to cater for future developments in Telenor's fibre networks.

Costs of core network

Telenor and the alternative operators have provided limited cost data in regards to core network and aggregation network costs, which proved to be difficult to use in the model. In addition, Telenor's data relate to their own network setup, which might not reflect an efficient network for an alternative provider.

Therefore, we have used a benchmark value for the core network costs per Mbit, which was verified by modelling a hypothetical core network with 2 redundant network nodes connected by redundant links (see description in the detailed user manual as well). In this context the commercial leased line costs have been used as proxy for the link costs. Also for calculating the aggregation link costs, the commercial leased line costs have been used.

Using Telenor's LRIC costs for its core network would constitute of using EEO data and therefore be the lowest value for core network costs and not reflect the reality of an efficient core network for an alternative operator.