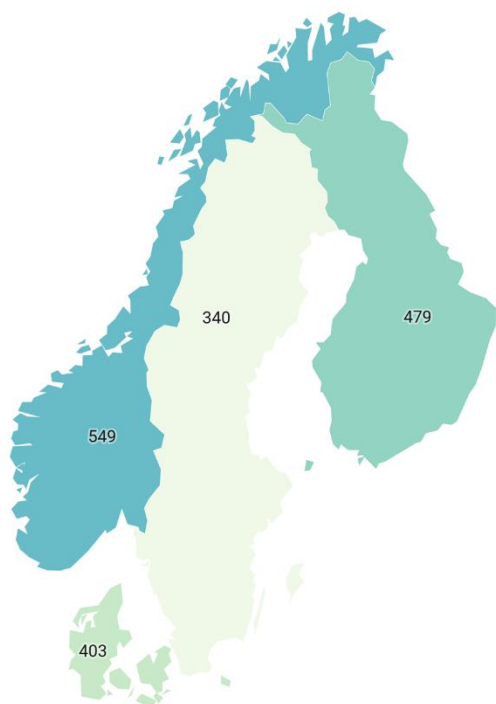


Assessment of Norwegian fixed broadband pricing in a Nordic context – 2023, September update

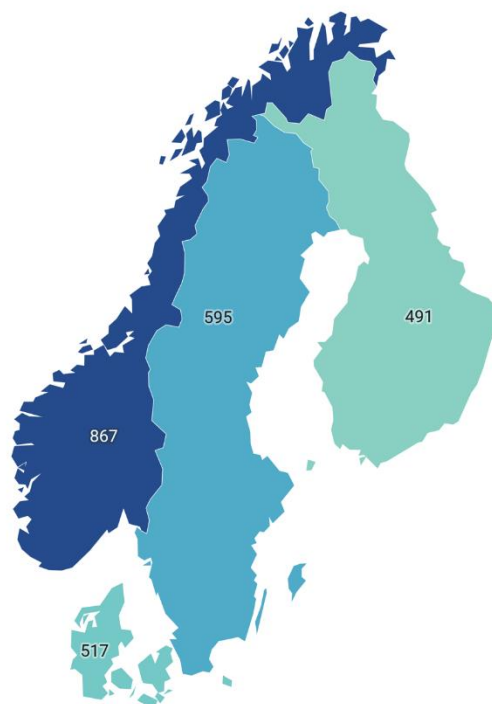
Lowest fee

Average monthly subscription fee for 100 Mbit/s broadband, 5 years [PPP NOK]



Highest fee

Average monthly subscription fee for 100 Mbit/s broadband, 5 years [PPP NOK]



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1. Executive summary

This is an update of the previous 2023 analysis version dated 27 June 2023.

The basis for purchasing power parity (PPP) adjustment has been changed to use OECD's PPP conversion rates. The previous version used IMF's GDP per capita in international USD (i.e. PPP) to derive a PPP adjustment – a method that led to larger differences in purchasing power. Whereas the previous version only showed graphs with purchasing power adjustment, this updated version shows graphs both with and without purchasing power adjustment.

The change in methodology has no effect on Norway's numbers, only on the PPP NOK numbers of Denmark, Sweden and Finland. Norway's position *relative* to the other three countries is however influenced when measured in PPP NOK.

The two analyses issued in 2021 and 2022 have not been updated. This means that the outcome measured in PPP NOK in the two older analyses should not be compared with this analysis.

This analysis is commissioned by Kommunal- og distriktsdepartementet (KDD). It investigates Norwegian broadband prices, comparing them against three other Nordic markets: Denmark, Sweden and Finland. It provides another update the original analysis dated 23 February 2021 and the follow-up analysis dated 31 January 2022.

Fixed broadband, fixed wireless access (**FWA**) and discounted **bundled broadband & basic TV** plans for consumers are compared for the largest providers – representing 70% to 87% of base depending on country. A threshold of 100 Mbit/s download throughput is applied for fixed broadband – whereas 1000 GB per month is the threshold for FWA.

The analysis compares both the **monthly subscription fees** (for services and mandatory equipment) and **one-off fees** for new build and existing connections. It combines all fees (recurring and one-off) in a comparison of total 5-year fees. Foreign prices have been adjusted to **Norwegian purchasing power**.

With regards to **monthly subscription fees for fixed broadband**, Norwegian plans are generally – with few exceptions – more expensive than same-speed plans in Denmark, Sweden and Finland.

The reporting of **fixed broadband ARPU** (average revenue per user) nuances the picture a bit as the two reporting Norwegian providers report quite different levels: Telenor Norway has the highest full-base (B2C and B2B) ARPU of reporting providers in our four markets, but Telia Norway is at a lower level more comparable with Denmark, Sweden and Finland.

When it comes to **new build one-time fees**, the Norwegian fees are reasonable in comparison to the Swedish and Finnish examples. Only Denmark seems to generally operate with lower new build one-time fees. One-time fees for *existing connections* are often much lower than for new build.

When summing up the **total fees during a 5-year period**, the Norwegian *new build* customer will pay a similar amount as a Swedish customer but a higher amount than a Finnish and Danish customer after purchasing power adjustment.

Many, if not most, households are however already connected to modern broadband infrastructure. If comparing the total fees during a 5-year period for a customer with an *existing connection*, the Norwegian customer generally, with few exceptions, pays a higher amount than customers in Denmark and Sweden after purchasing power adjustment.

Norway has fixed broadband networks with **high median throughput**, but so have Sweden and Finland. Denmark has twice the speed of others. With Norway's generally higher subscription fees, the willingness to pay for a faster throughput tier might not be as present as in Denmark.

Fixed wireless access (**FWA**) over mobile networks is – except for Finland – a niche proposition, but due to Telenor's decommissioning of the copper network in Norway, FWA has quickly grown its base in Norway and is, de facto, the only available broadband solution for some households.

The FWA take-up in Norway has happened although the Norwegian FWA plans are more expensive than same-speed plans in Denmark, Sweden and Finland.

Unlike in the other countries where an **external antenna** is optional or not even offered, Norwegian FWA providers are currently requiring an external antenna to be installed, something that adds to the total fee without necessarily improving the customer experience. It also limits the location flexibility for the customer.

The Norwegian new build FWA one-time fees are comparable to the Swedish examples *with external antenna* – and generally lower than in Finland. The one-time fees *without external antenna* have the potential to be lower, but so far, no such options are offered in Norway.

When summing up the **total fees during a 5-year period**, the Norwegian FWA customer with external antenna will always pay a higher amount than all Swedish and Finnish customers for the same speed. Some Norwegian plans are however still limited to 2000 GB of full-speed data per month. It is a restriction compared to fixed broadband plans. Providers in Sweden and Finland have not made that restriction: All FWA plans are unlimited there.

This updated analysis compares the pricing of all five FWA providers currently on the Norwegian consumer market. The total 5-year fees are generally similar – but **NextGenTel and Brdy always offer FWA at a lower total cost** than Telenor, Telia and Allente. Shortly, the Norwegian FWA market might have two new providers, Altibox and Chilimobil.

It is quite common to offer combined, discounted, **broadband & TV bundles**. In Norway such bundles always come with a higher average monthly subscription fee than similar plans in Sweden and Finland.

Telenor Norway has the third highest **TV ARPU**¹ among reporting Nordic operators. Telia Norway is at a lower level – closer to the Nordic median.

¹ Since broadband and TV sometimes are bundled together, operators are distributing part of the bundle revenue into broadband ARPU and part into TV ARPU

Trends over three analyses

Since this is the third analysis of its kind – February 2021, January 2022 and June 2023 (updated with new PPP methodology in September 2023) – spanning over 2.5 years, we can identify certain **trends** when it comes to Norway's position. Due to the change in PPP methodology, the trends below are based on unadjusted NOK.

-
- **Norway's fixed broadband subscription fees are still – with few exceptions – more expensive** than same-speed plans in the other markets.
 - Fixed broadband subscription fees have **increased** somewhat in Norway. They generally increased in the other three markets too – but **at a higher rate**. In combination with the weakening of the Norwegian krona in 2023, the relative difference between Norway and the other markets lessened.
 - Norwegian **new build fibre one-time fees continue to be reasonable** in comparison to the Swedish and Finnish examples. Only Denmark generally operates with lower new build one-time fees.
 - The **total 5-year fee** for a new fibre build is not much higher in Norway than in Sweden but is still much higher than in Finland and Denmark.
 - The **fibre adoption has increased somewhat** in Norway and in the other three markets.
 - Norway's **FWA subscription fees are still more expensive** than same-speed plans in the other markets. Telenor has, since last analysis, withdrawn its speed throttling after 2000 GB.
 - The Norwegian FWA customer with external antenna **will still always pay a higher amount over 5 years** than all Swedish and Finnish customers – for the same speed.
 - The FWA (with external antenna) take-up was fast in Norway in 2020 and 2021 but growth has slowed down since even though the number of providers increased. Although no apple-to-apple comparison exists, the **FWA take-up has likely been faster** than in the other three markets. Two new providers have said they will start offering FWA during the summer of 2023.
 - Norwegian **bundled broadband and TV plans** still come with a higher average monthly subscription fee than similar plans in Sweden and Finland.
-

2. Background

This analysis is commissioned by Kommunal- og distriktsdepartementet (KDD). It provides another update to the original analysis "Assessment of Norwegian fixed broadband pricing in a Nordic context", dated 23 February 2021 – written to support Kommunal- og moderniseringsdepartementet's² white paper to the Norwegian Parliament covering electronic communications issued 9 April 2021³ – and the follow-up analysis "Assessment of Norwegian fixed broadband pricing in a Nordic context – 2022", dated 31 January 2022⁴.

² The ministry changed name from Kommunal- og moderniseringsdepartementet to Kommunal- og distriktsdepartementet 1 Jan 2022

³ <https://www.regjeringen.no/no/dokumenter/meld.-st.-28-20202021/id2842784/>

⁴ The report can be downloaded from <https://www.regjeringen.no/en/dokumenter/assessment-of-norwegian-fixed-broadband-pricing-in-a-nordic-context-2022/id2909628/>

3. Peer group

Just like in the original and the updated analysis, the peer group consists of the four Nordic countries **Norway, Denmark, Sweden and Finland**.

Tefficient has documented the currently publicly offered **fixed broadband consumer⁵ prices** of the largest providers in Norway, Denmark, Sweden and Finland.

Who the largest providers are is derived from official statistics from the respective national telecom regulator – Nkom, SDFI, PTS and Traficom – for December 2022.

Norway (8 largest providers, representing **75%** of the consumer fixed⁶ broadband subscriptions):

- Telenor (**also FWA**)
- Telia (**also FWA**)
- Viken Fiber (Altibox partner)
- GlobalConnect
- Lyse Fiber (Altibox partner)
- Eidsiva Bredbånd (Altibox partner)
- NextGenTel (**also FWA**)
- NTE Telekom (Altibox partner)

Denmark (6 largest providers, representing **70%** of the overall⁷ fixed broadband subscriptions and 3 providers for just FWA):

- Nuuday (former TDC) using YouSee as consumer brand (**also FWA**)
- Stofa (owned by Norlys)
- Fibia
- Hiper (owned by Nuuday)
- Eniig Fiber (Norlys)
- DKTV (owned by TDC NET)
- Norlys
- Telenor (**only FWA**)
- Telia (**only FWA**)
- 3 (**only FWA**)

Sweden (4 largest providers, representing **79%** of the consumer fixed broadband subscriptions and one provider for just FWA):

- Telia (**also FWA**)
- Tele2 (**also FWA**)

⁵ Many consumers, living in apartments, will typically subscribe to broadband services through a group agreement administered by the landlord or the housing association. These agreements are not public and the pricing of these could therefore not be included in this analysis. Effectively, this means that the analysis primarily captures the pricing of broadband services delivered to consumers living in detached housing.

⁶ For Norway the percentage includes FWA – not the case for the other three markets

⁷ Consumer not broken out in the reporting of SDFI and Traficom

- Telenor (**also FWA**)
- Bredband2
- 3 (**only FWA**)

Finland (3 largest providers, representing **87%** of the overall⁸ fixed broadband subscriptions):

- DNA (**also FWA**)
- Elisa (**also FWA**)
- Telia (**also FWA**)

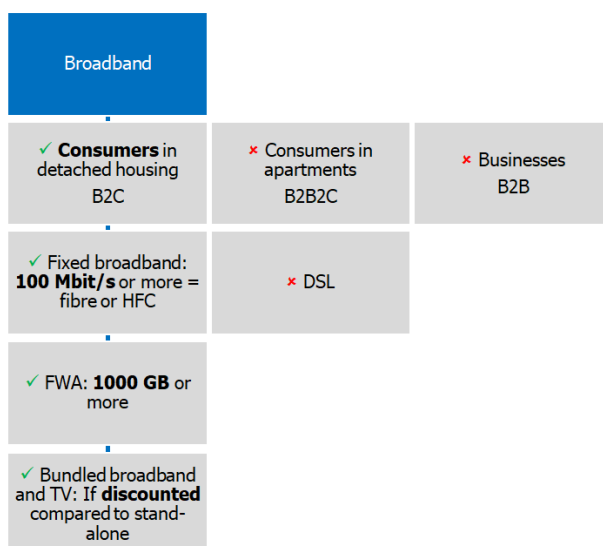
Across these 25 providers, the pricing of **276** different fixed broadband and fixed wireless access (FWA) via 4G or 5G networks plans has been gathered. Recurring subscription fees as well as one-off fees have been gathered and documented. As a general remark, there are more of extra fees (and hidden fees) in fixed broadband and TV if compared to mobile. Key advance purchase information on e.g. binding periods is also more often omitted or hidden in general terms and conditions compared to mobile.

For fixed broadband, a threshold of **100 Mbit/s** in download throughput has been applied, effectively ruling out DSL-based broadband, leaving **hybrid fibre coax** (HFC) and (pure) **fibre** options in.

For FWA, no download throughput threshold has been applied, but instead a threshold of at least **1000 GB** of full speed allowance per month as the data usage of a modern household easily can reach 500 GB per month with the use of streaming services, videoconferencing and downloading of software to connected devices such as game consoles and PCs.

The pricing of fixed broadband or FWA plans that **bundle in basic TV services** have also been gathered – if that bundling provides the consumer with a lower price than buying broadband and TV separately.

The following figure summarises these thresholds and limitations:



All prices have been gathered between 7 and 9 June 2023.

Although many market parameters are similar in our four countries, the **purchasing power** differs. Norway has higher purchasing power than the other three Nordic countries.

The input (and for 2022 also output) parameters for the PPP adjustment are shown in Figure 1 below.

| | Input: Purchasing power parity (PPP) Total, National currency units per US dollar 2020 | Input: Purchasing power parity (PPP) Total, National currency units per US dollar 2021 | Input: Purchasing power parity (PPP) Total, National currency units per US dollar 2022 | Output: Exchange rate adjusted to Norwegian purchasing power level [national currency to PPP NOK] 2022 |
|----------------|---|---|---|---|
| Norway | 9,879879 | 9,512157 | 8,882011 | 1 |
| Denmark | 6,551107 | 6,589808 | 6,404699 | 0,721086587 |
| Sweden | 8,668483 | 8,721548 | 8,750849 | 0,985232849 |
| Finland | 0,823022 | 0,82669 | 0,813035 | 0,091537266 |

Figure 1. Comparison of purchasing parity (in international USD) in Norway, Denmark, Sweden and Finland 2020, 2021 and 2022 and the PPP adjusted exchange rates used for 2022 [source: OECD]

An introduction to PPP is given in the box below⁸.

Measuring economic activity in a country is difficult, since ‘the economy’ is a complex system with lots of moving parts. A common way to deal with this is to focus on aggregate indicators, such as total national output: “the monetary value of all goods and services produced within a country (or region) in a specific time period”. That’s what economists call the Gross Domestic Product (GDP).

GDP is measured using prevailing national prices to estimate the value of output. In other words, GDP is calculated using local currency units. This means that in order to make meaningful cross-country comparisons, it is necessary to translate figures into a common currency – i.e. use a consistent ‘unit of measure’.

One option is to simply translate all national figures into one common currency (for instance, US dollars) using exchange rates from currency markets. But because market exchange rates do not always reflect the different price levels between countries, economists often opt for a different alternative. They create a hypothetical currency, called ‘international dollars’, and use this as a common unit of measure. **The idea is that a given amount of international dollars should buy roughly the same amount – and quality – of goods and services in any country.**

The exchange rates used to translate monetary values in local currencies into ‘international dollars’ (int-\$) are the ‘purchasing power parity conversion rates’ (also called PPP conversion factors).

⁸ From Our World in Data: <https://ourworldindata.org/what-are-ppps>

In this updated version of the 2023 analysis, all revenue and pricing diagrams are produced in two versions:

- A comparison in NOK *without* adjustment for purchasing power
- A comparison in NOK *with* adjustment for purchasing power

Since purchasing power parity (PPP) is calculated on a generic basket of goods and services – not specifically for mobile services – it should be regarded as indicative. Different institutes, e.g. OECD, IMF and the World Bank report different PPP conversion rates. The rates are sometimes revisited and adjusted meaning that what today is a 2022 value might be changed next year.

4. Observed data issues

Address-based pricing

Most fixed broadband providers are only stating prices after a **specific address** has been inputted. This is done to make sure a provider can deliver services to the exact address but also since the pricing may depend on who (the provider or a regional infrastructure partner) is delivering the underlying broadband infrastructure. In some few cases, Tefficient has been able to obtain complete price lists, but in most cases **example addresses** have been used to generate prices. Although hundreds of price plans have been gathered, we can't guarantee that every single address would be covered pricing-wise.

New build connection fees sometimes hard to find

New build connection fees (for new connections into homes) are more difficult to find than monthly subscription fees. The reason is that they vary according to region and neighbourhood. Some providers do not state connection fees in their price lists. With growing fibre adoption and network reach, it has become increasingly difficult to guess an address to find a house which is a prospect for a new build. Providers without this information in their price lists have been asked to, at least, give indications of what the connection fees *typically* are.

In Sweden and Finland, consumers could apply for a **tax reduction** on certain new build connection fees. Such tax reductions have not been considered; the analysis will always show the full price before any possible tax reduction. We realise though that such tax reductions could affect how providers decide to distribute fees in between e.g. recurring subscription fees and one-time installation fees.

Currency fluctuations

In the previous update, there was an issue with currency fluctuations affecting the comparability. This year is no different. Figure 2 below shows the relation between the Norwegian krona (NOK) and the Euro (EUR). Since the Danish krone (DKK) is tied to the Euro, the curve looks very similar vs. DKK and hence not displayed here.

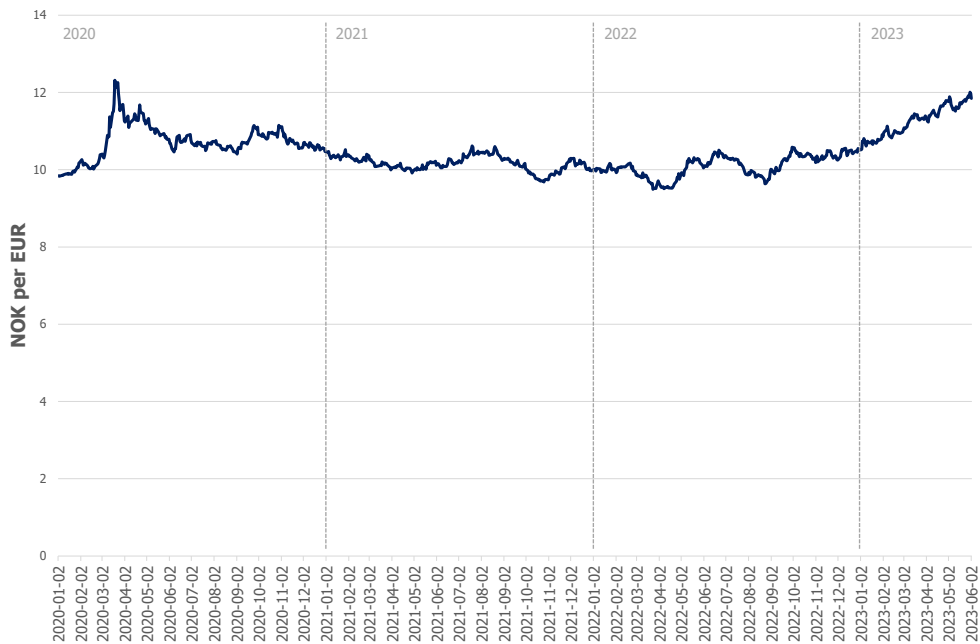


Figure 2. Development of the daily exchange rate between NOK and EUR from 2020 to date [source: ECB]

Although nothing much happened to the NOK/EUR rate in 2021 and 2022, the NOK started to weaken in late 2022/early 2023. Since the pricing comparison starting in section 0 is based on present, 2023, pricing, we should remember that the NOK has weakened much vs. EUR and DKK between January 2022 (on which the previous analysis update was based) and today.

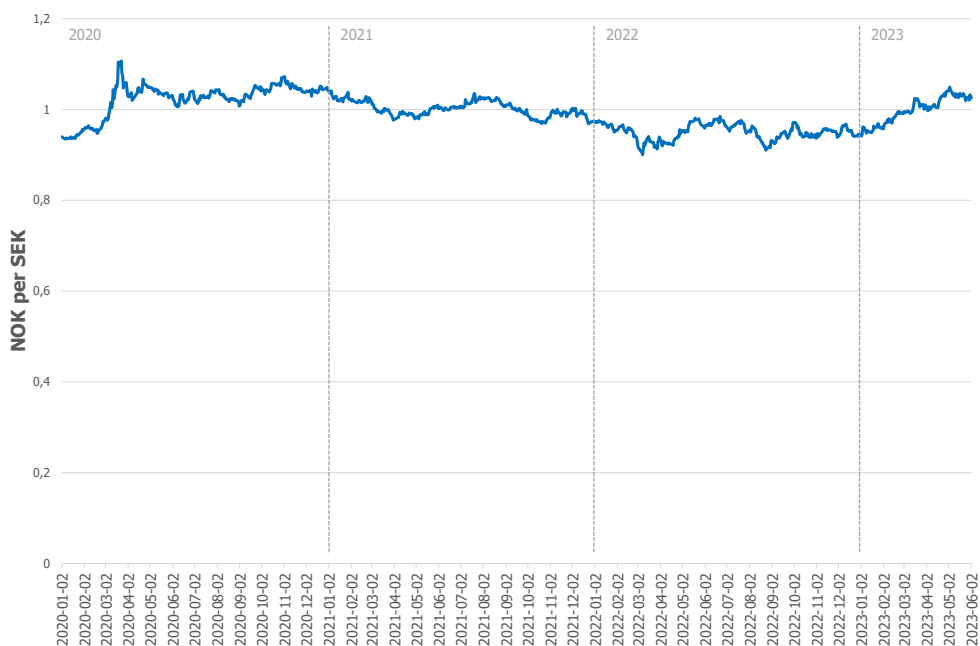
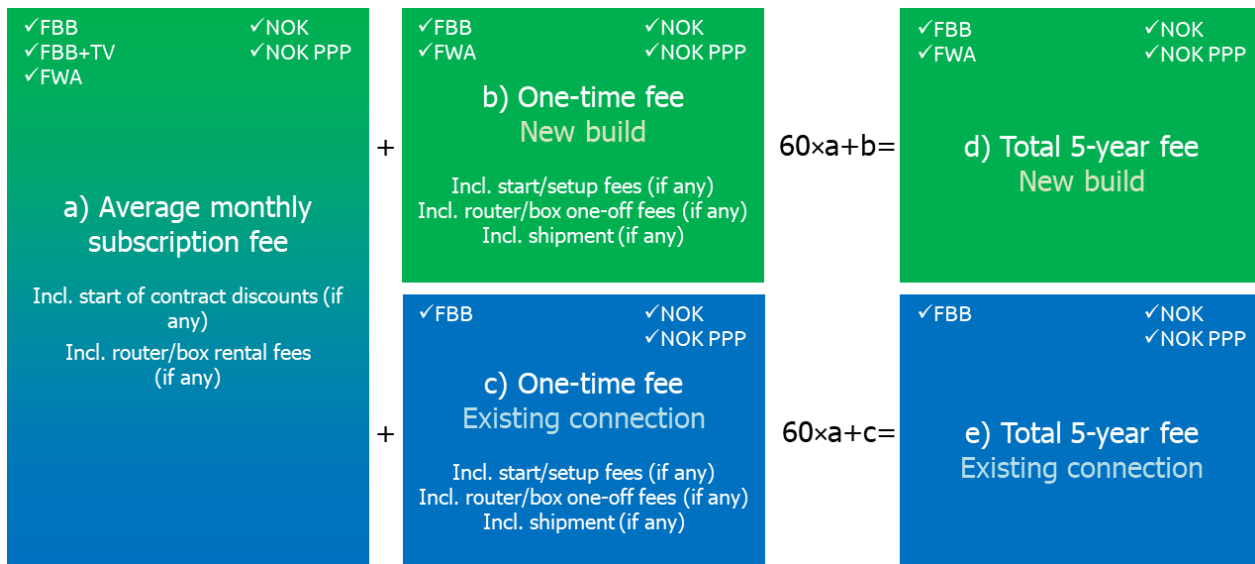


Figure 3. Development of the daily exchange rate between NOK and SEK from 2020 to date [source: ECB]

The Norwegian krona has also weakened vs. the Swedish krona (SEK) in 2023, see Figure 3. The SEK did have a weak period vs. the Norwegian krona in 2022, though, so the difference between January 2022 is not as obvious as for EUR/DKK.

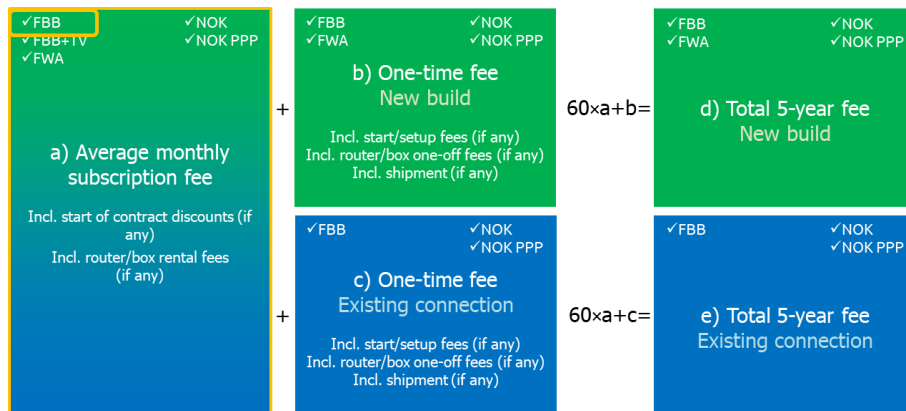
5. Overview of pricing analysis

The following image will be used in the analysis to help the reader navigate between all price comparisons:



The area currently analysed will be highlighted in the beginning of each pricing section.

6. Fixed broadband: Average monthly subscription fee



Broadband providers are generally innovative in making monthly subscription prices look low. The most usual practice is to discount the price during a limited time: We have found providers giving up to 50% time-limited discount – over periods of 1, 3, 6, 12, 24 and 36 months.

This habit to have different fees during different stages of a customer engagement means that it makes a significant difference for the price comparison if we compare the prices during first month of an engagement – or further into an engagement. To make the comparison as fair as possible, this analysis defines a **comparison period of 5 years (60 months)**. We have calculated how much it will cost a customer during that time – and based on that calculated an **average monthly subscription fee** – valid for the first 60 months.

A few fixed broadband providers in Norway (but rarely elsewhere) charge an additional monthly subscription fee for customers who need a **router**. In this analysis, we have taken it into account only when it's mandated. In e.g. the case of Telenor Norway, customers are recommended to use Telenor's router at a subscription price of 49 NOK per month, but as Telenor doesn't require it, it's has not been included. Many other operators require their customers to use the router of the provider, but don't charge a monthly subscription fee for it⁹.

Without exceptions, all researched fixed broadband plans in the four Nordic countries come *without* limits on the volume of data usage (GB). The defining parameter for the monthly service subscription price is instead the download throughput – measured in **Mbit/s**.

Figure 4 below compares the average monthly subscription fee¹⁰ of all offered fixed¹¹ broadband subscription plans to the maximum download throughput in Norwegian kroner (NOK). The prices in Denmark, Sweden and Finland have been recalculated into NOK¹².

⁹ Most often they charge a shipping fee, though, something this analysis takes into account when comparing the total 5-year fees

¹⁰ Excluding connection one-off fees, equipment one-off fees and other one-off fees (if any). The total costs will be compared later in the analysis. All prices include VAT (valid throughout the analysis).

¹¹ Fixed wireless access (FWA) excluded; compared separately later in the analysis

¹² Using the exchange rates of 8 June 2023: 1 DKK = 1,58772 NOK, 1 SEK = 1,01437 NOK and 1 EUR = 11,8291 NOK

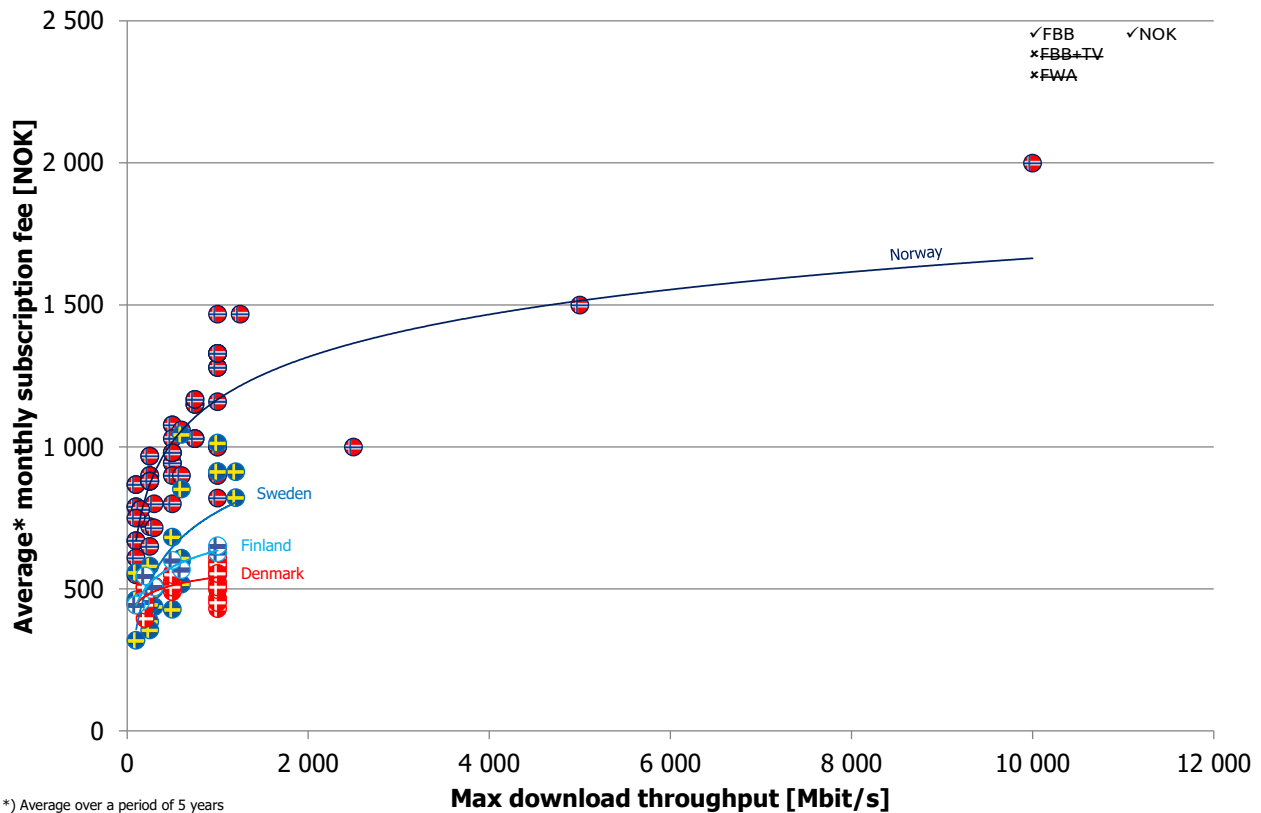


Figure 4. Comparison of the average monthly subscription fee for fixed broadband in NOK during 5 years among providers in Norway, Denmark, Sweden and Finland, June 2023 [source: providers' webpages and pricelists complemented by direct emails to providers when necessary].

To easier compare what is typical for each country, trend lines have been added to the graphs.

The first thing we can note is that one Norwegian provider – GlobalConnect – offers fixed broadband with 2500, 5000 and 10000 Mbit/s. Although impressive throughputs, where the 2500 Mbit/s also has a competitive price, it challenges this visualisation as the differences in the more common speeds up to about 1000 Mbit/s are hard to see. In Figure 6 the horizontal scale has therefore been truncated, omitting GlobalConnect's three superfast plans from the graph. The three plans are still affecting the Norwegian trend line, though.

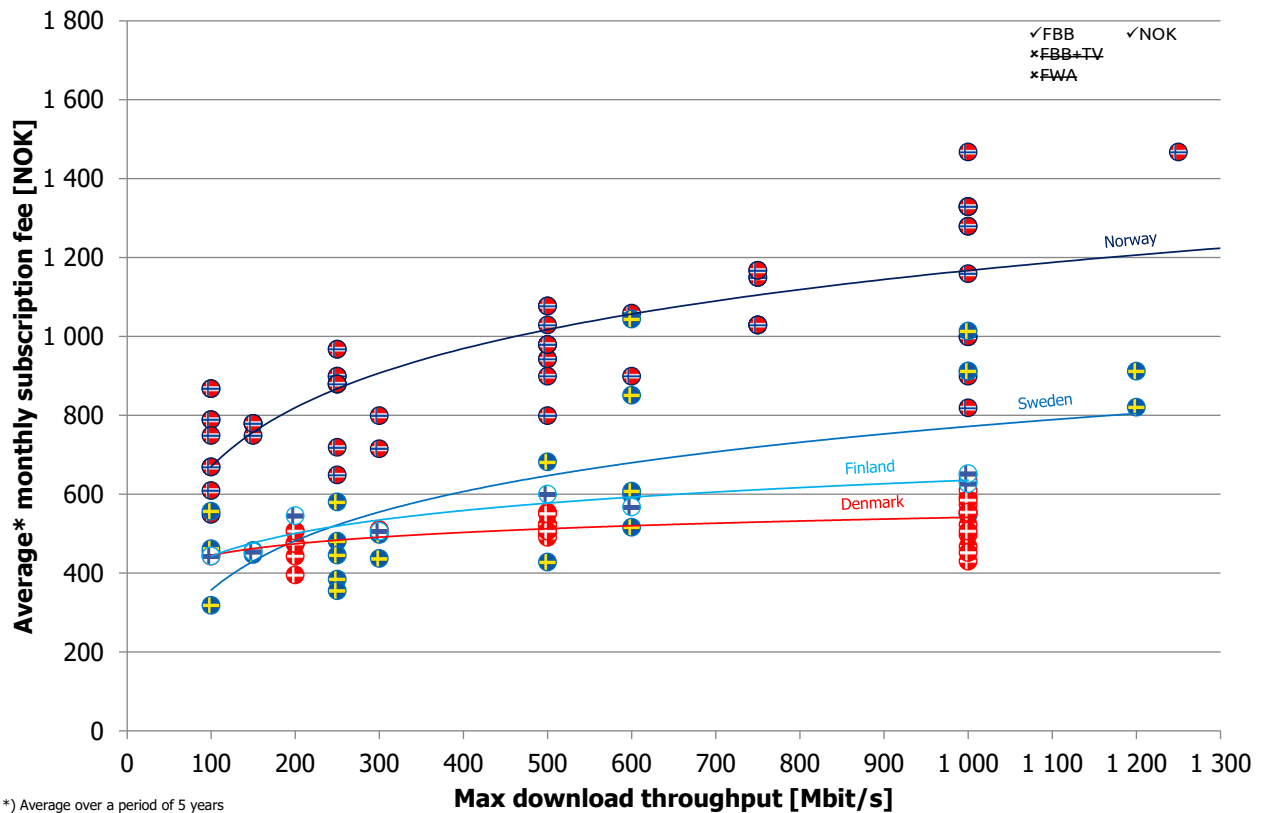


Figure 5. Comparison of the average monthly subscription fee for fixed broadband in NOK during 5 years among providers in Norway, Denmark, Sweden and Finland, June 2023 for plans up to 1300 Mbit/s [source: providers' webpages and pricelists complemented by direct emails to providers when necessary].

Figure 5 shows that, before compensation for purchasing power, Norwegian fixed broadband plans – for the same download throughput – generally, with a few exceptions¹³, have higher average monthly subscription fees than plans in the other countries.

Let's now compensate for purchasing power differences. Since the purchasing power is higher in Norway than in the other three countries, the prices in Denmark, Sweden and Finland will elevate a bit in these graphs to emulate Norwegian purchasing power. The position of Norway will not change.

¹³ Exceptions: Of the providers in the analysis, GlobalConnect and NextGenTel tend to represent the lower price points in Norway

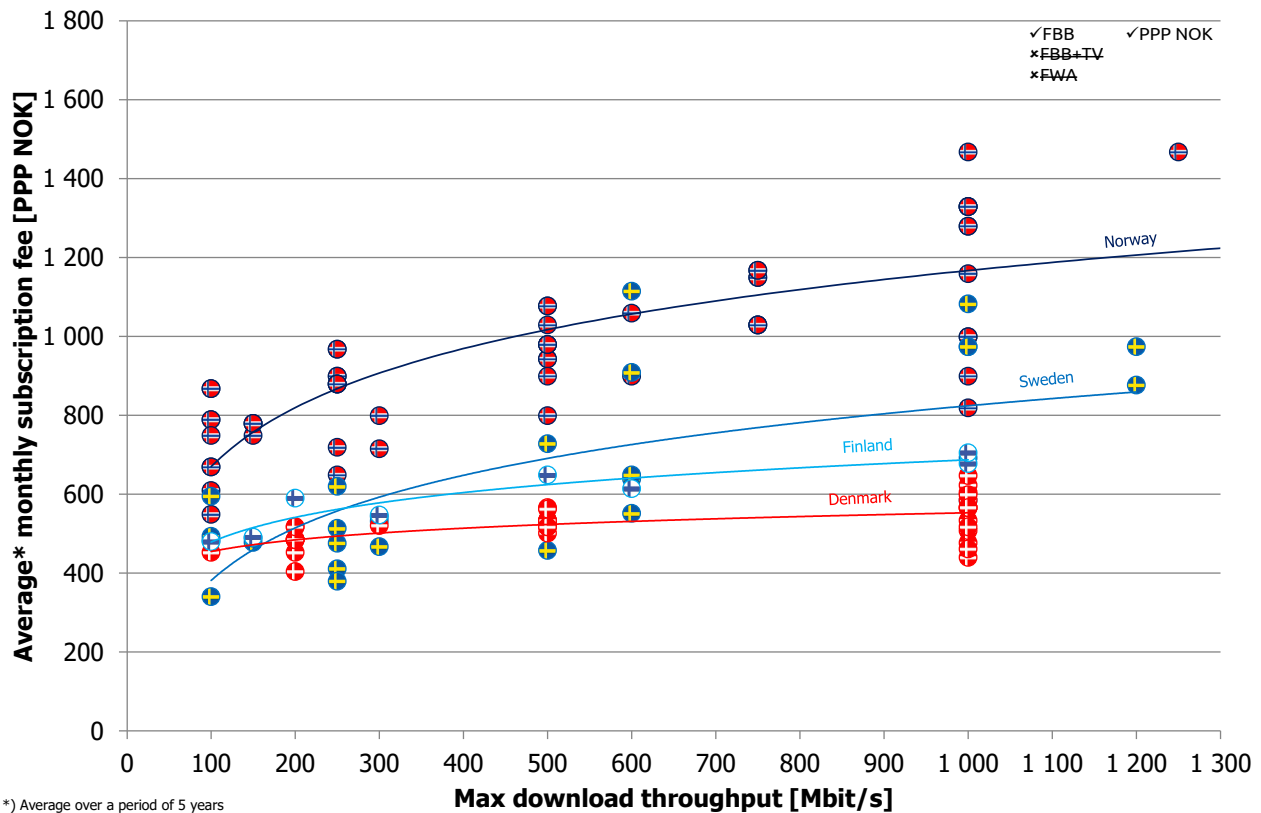


Figure 6. Comparison of the average monthly subscription fee for fixed broadband in PPP NOK during 5 years among providers in Norway, Denmark, Sweden and Finland, June 2023 for plans up to 1300 Mbit/s [source: providers' webpages and pricelists complemented by direct emails to providers when necessary, OECD¹⁴].

Although the trend curves of Sweden, Finland and Denmark move upwards a bit in Figure 6 compared to Figure 6it's visible that, also after compensation for purchasing power, Norwegian fixed broadband plans – for the same download throughput – generally, with a few exceptions, have higher average monthly subscription fees than plans in the other countries.

The Norwegian fixed broadband plans are, after compensation for differences in purchasing power, generally – with few exceptions – more expensive than same-speed plans in Denmark, Sweden and Finland.

¹⁴ The purchasing power parity adjustment is based on OECD's figures for 2022 since 2023 isn't available yet. This is valid throughout this analysis.

7. Fixed broadband: ARPU

Before continuing the pricing comparison with one-time fees and total fees, let’s look at what the operators in the four Nordic countries report as their average revenue per broadband subscriber per month, i.e. the ARPU. Although the exact definition of what different operators include in their reported broadband ARPU isn’t clear, we believe it well represents what the average broadband subscriber pays per month and is comparable with the average monthly subscription fee just covered¹⁵.

Figure 7 shows the development in fixed broadband ARPU in NOK for the nine reporting operators in our four markets.

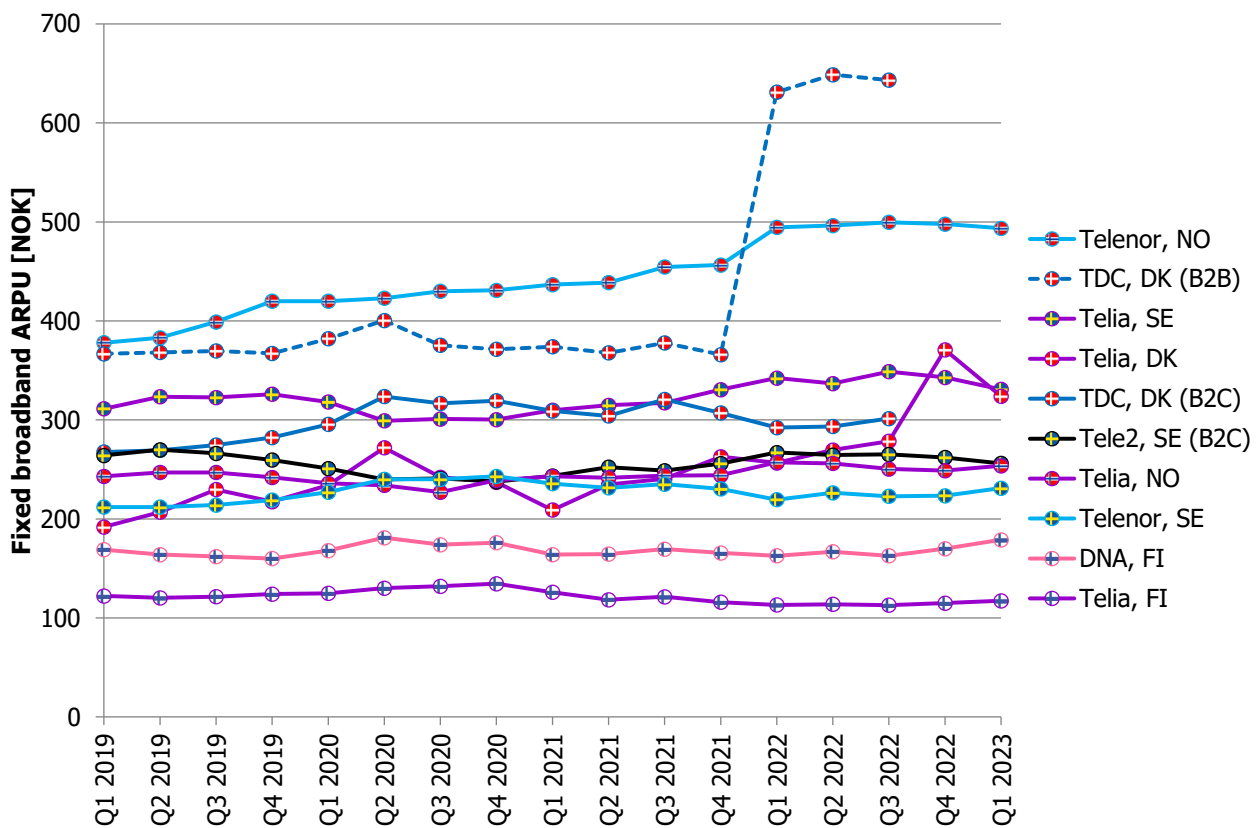


Figure 7. Comparison of reported fixed broadband ARPU in NOK among providers in Norway, Denmark, Sweden and Finland [source: operators’ financial reporting].

We first need to comment to the fixed broadband ARPU of TDC in their B2B segment which almost doubled in Q1 2022. It is as reported and TDC did not comment it. TDC has been split into two companies, Nuuday and TDC NET. Nuuday has not continued to report ARPU, hence the last data point is for Q3 2022.

¹⁵ Have in mind though that the pricing information on fixed broadband in this analysis is limited to download throughput of 100 Mbit/s and higher – whereas the reported ARPU include slower connections such as DSL. This, together with group agreements, explains why ARPU levels generally are lower than the average monthly subscription fees in the previous section.

If disregarding TDC's B2B ARPU, **Telenor Norway** reports the highest fixed broadband ARPU. It increased 38 NOK in Q1 2022 which Telenor didn't comment, but possibly has something to do with Telenor's accelerated DSL discontinuation in 2022. Telenor's ARPU is twice that of Telia Norway, the only other Norwegian provider reporting broadband ARPU.

Based on data from the Norwegian regulator, Nkom, the fixed broadband ARPU in 2022 was **455 NOK**, suggesting that the ARPU of Telenor is more representative for Norway than the ARPU of Telia.

The ARPU comparison is not always like-to-like as e.g. Tele2 Sweden only reports its B2C ARPU when others include also B2B in its ARPU reporting. One reason to Telenor Norway's high broadband ARPU might be a larger share of B2B customers in its base compared to e.g. Telia Norway that entered fixed broadband via the acquisition of the more consumer-oriented cableco Get. Denmark's TDC breaks down its ARPU on B2B and B2C and it's an example of that the B2B ARPU is higher (especially since Q1 2022).

If we apply purchasing power adjustments, we get Figure 8. It affects the curves of Danish, Swedish and Finnish operators, but it does not change the ranking of the operators.

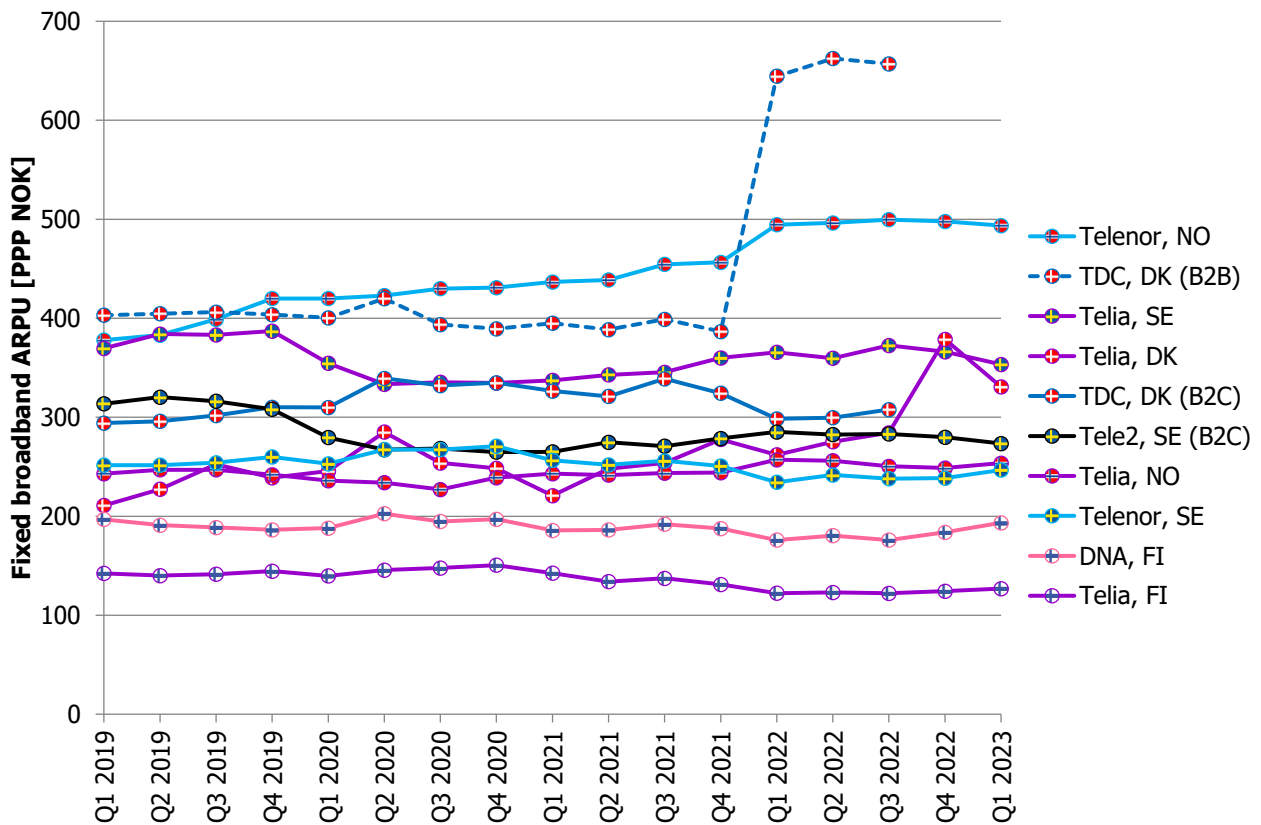


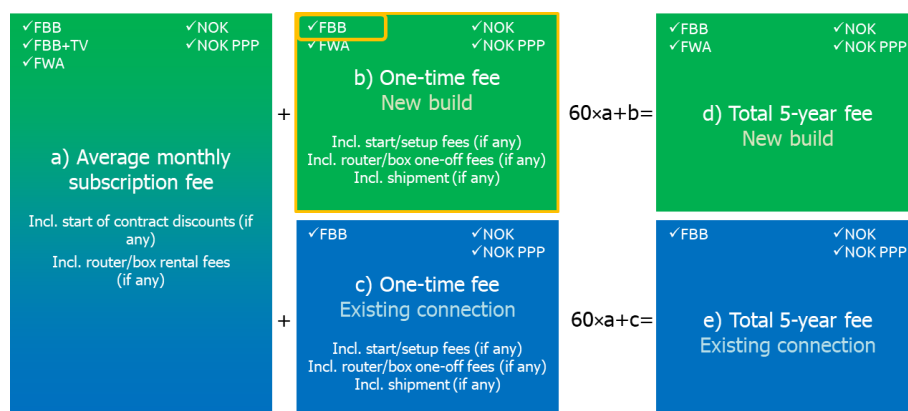
Figure 8. Comparison of reported fixed broadband ARPU in PPP NOK among providers in Norway, Denmark, Sweden and Finland [source: operators' financial reporting, OECD¹⁶]. The PPP values for the respective full year are applied to each quarter in that year.

¹⁶ The purchasing power parity adjustment for Q1 2023 is based on OECD's figures for 2022.

After compensation for differences in purchasing power, Telenor Norway reports the highest fixed full-base (B2C and B2B) broadband ARPU among reporting Nordic operators. Telia Norway reports a much lower level – more comparable with Denmark, Sweden and Finland.

Another comparability issue is how different operators split revenues from customers who subscribe to bundled broadband & TV services. For that reason, we will towards the end of the analysis look also at reported TV ARPU.

8. Fixed broadband: One-time fee – new build



As mentioned, new build connection fees (for new connections into homes) are more difficult to find and track than monthly subscription fees. The main reason is that they vary according to region and neighbourhood. In all our countries, broadband providers can balance the requirement to rollout a fibre network of their own with **commercial agreements to offer services over partner networks**. So called open fibre networks are common in Sweden, Finland and Denmark – but not yet in Norway. But this is about to change: Regulator Nkom and Altibox, Norway's largest fibre brand (in number of broadband subscribers), have communicated¹⁷ that Altibox will open its fibre to other providers. At present, Telenor is – together with providers that received state aid – regulated to offer access to its fibre network for other providers. But Nkom has just finished a new market analysis¹⁸ which recommends that nine providers – Telenor, seven Altibox partners and Eninvest – in 12 regional markets (of 22) should be obliged to open their networks to competition. The hearing deadline is 15 September 2023.

When tracking the pricing of the 25 Nordic operators, you might also – on top of this – get a sense of that the information on the **new build connection fees deliberately are kept out of the public domain**. They seem to be used during negotiations to convince new customers to accept e.g. binding contracts or a subscription to a higher throughput tier.

In the cases where connection fees weren't found online, most providers did provide a range or example indications on request. The following comparison of the one-off cost to connect a detached home to a full fibre network¹⁹ is hence not complete and should be read with some caution.

Since the connection fees aren't dependent on the subscribed throughput of the connection, we here correlate it to the binding period of the contract instead.

¹⁷ <https://nkom.no/aktuelt/bedre-tilgang-i-bredbandsnettet>

¹⁸ <https://nkom.no/aktuelt/myndighetene-mener-du-betaler-for-mye-for-internett-na-varsles-det-endringer>

¹⁹ Although a few providers publish connection fees for HFC (coax) networks, HFC networks are hardly expanded any longer and these connection fees are therefore not included in the analysis. HFC tends to have lower connection fees compared to full fibre.

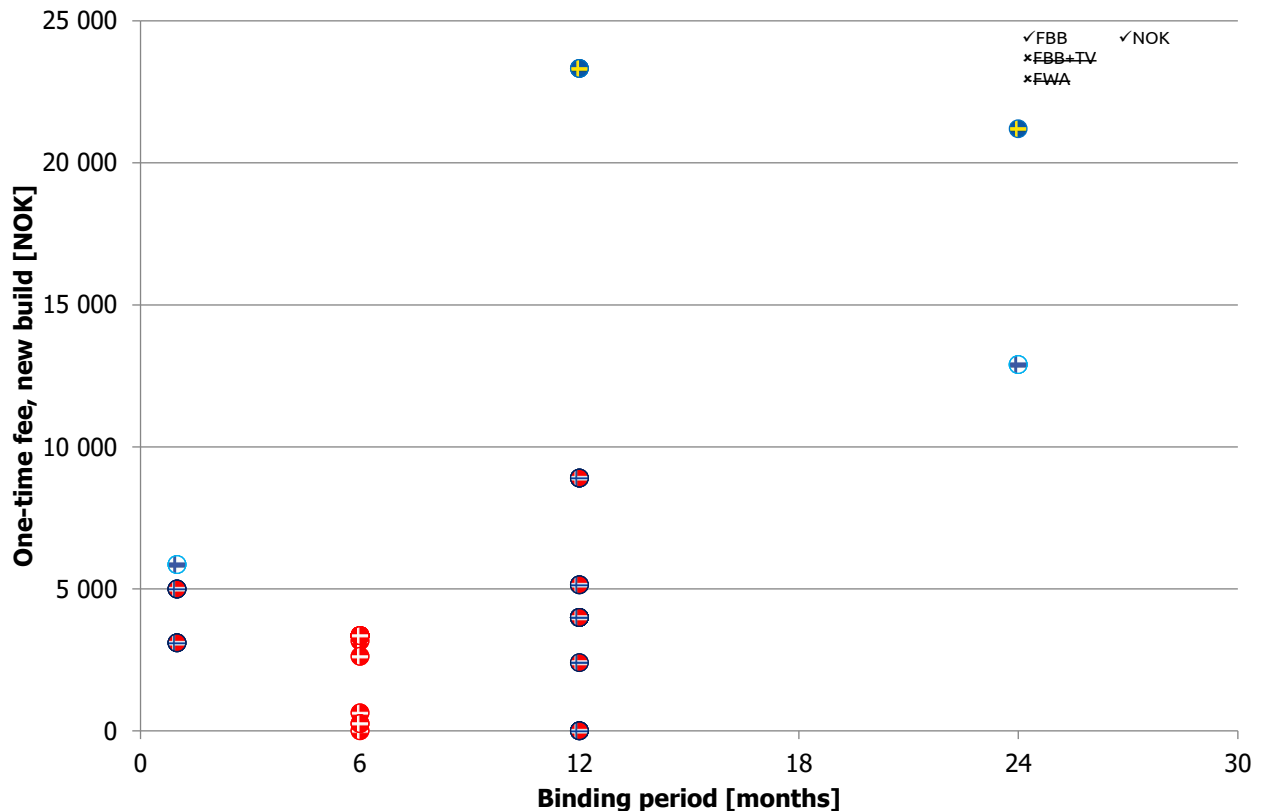


Figure 9. Comparison between one-time fees in NOK for new fibre broadband into a detached home among providers in Norway, Denmark, Sweden and Finland, June 2023 [source: providers' webpages and pricelists complemented by direct emails to providers when necessary].

In **Norway**, the one-time fee for a new build is often 5000 NOK or lower – most typically if signing up for a contract with 12 months binding period. The overall market leaders Telenor and Telia are however confident enough to rely on non-binding contracts (here shown as 1 month binding period). When comparing the one-time fees, we note that the requirement in Norway most often is that the house owner is responsible for any digging on own grounds. This is typically included in the one-time fees in Denmark, Sweden and Finland.

Denmark operates with one-time fees that tend to be a bit lower (below 3500 NOK) than what is typical for Norway although the binding time is limited to 6 months²⁰.

In contrast, the new build connection fees are much higher in **Sweden** – often above 20000 NOK although the binding period might be as long as 24 months.

The examples from **Finland** are also more expensive than in Norway – although, in some cases, with 24 months binding.

If we apply purchasing power parity, we get the following graph.

²⁰ The maximum allowed in the consumer market in Denmark

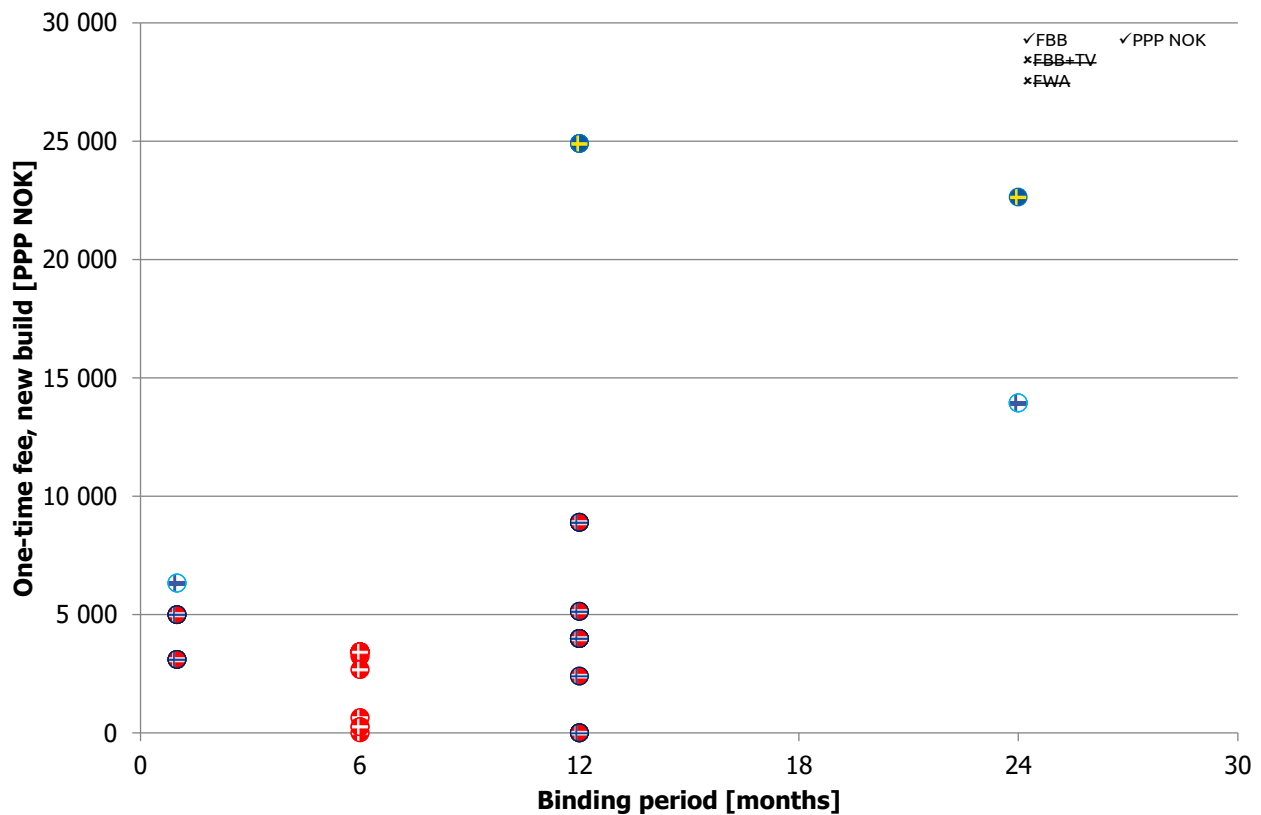


Figure 10. Comparison between one-time fees in PPP NOK for new fibre broadband into a detached home among providers in Norway, Denmark, Sweden and Finland, June 2023 [source: providers' webpages and pricelists complemented by direct emails to providers when necessary, OECD].

This does not change the findings.

With purchasing power adjustment, the Norwegian new build one-time fees of around 5000 NOK or lower are reasonable in comparison to the Swedish and Finnish examples. Only Denmark seems to generally operate with lower new build one-time fees.

But we must question how important the new build one-time fees are for the average broadband subscriber of today. According to "Telecommunications Markets in the Nordic and Baltic Countries 2021²¹", most fixed broadband subscriptions were already fibre in Norway (66%), Sweden (78%) and Finland (60%) in December 2021. Only Denmark with its 44% was lower – in part explained by HFC (coax) network generally having wider spread.

²¹ <https://statistik.pts.se/nordic-baltic-telecom-market/graphs/3-broadband-services/3-7-share-of-fiber-subscriptions/>. The 2022 report was issued 15 September 2023, i.e. after the issuing of this analysis in June 2023. This September 2023 update is only revised with regards to the PPP methodology and outcome.

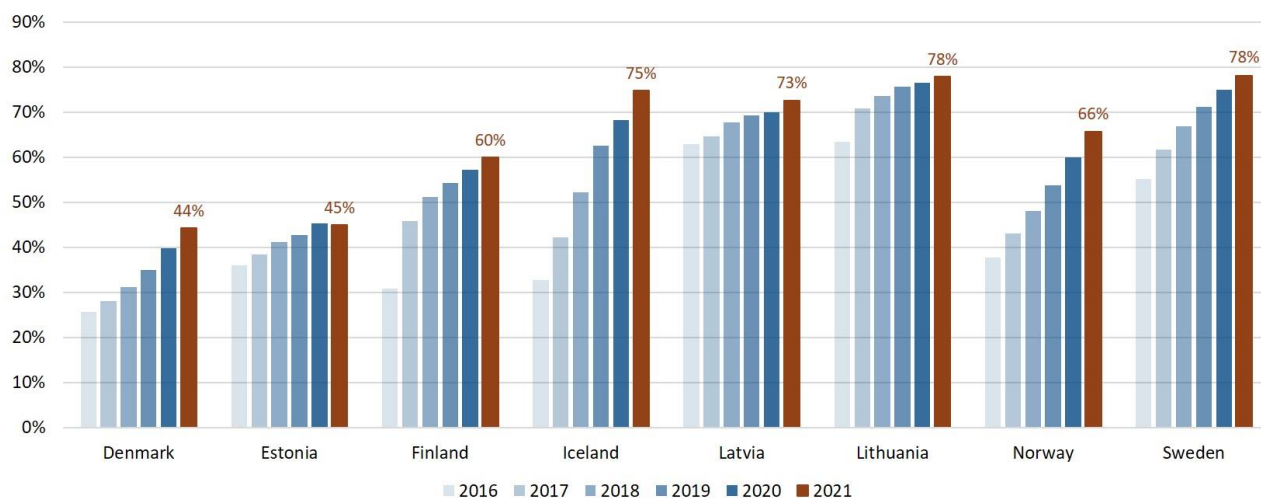
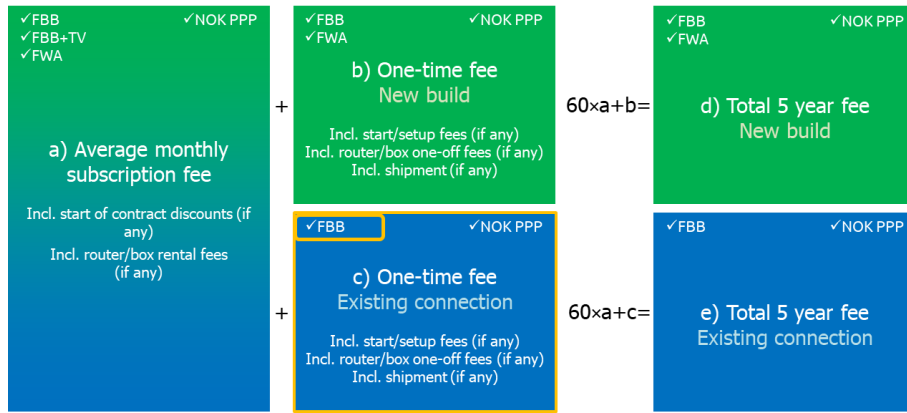


Figure 11. Share of fibre subscriptions per Nordic and Baltic country, December 2021 [source: PTS].

Most of these fibre subscriptions are delivered to apartments, though. The take-up in detached homes is lower since the *homepass* (how many homes that could get fibre would they like to) generally, due to the cost to build networks, is much lower in detached housing areas than in apartment housing areas. Taking the yet unconnected detached homes into account, it makes sense to also compare the total fees – including the new build one-time fee – over our selected 5-year period. That comparison follows, but first the one-time fees for existing connections.

9. Fixed broadband: One-time fee – existing connection



With the growing adoption of fibre, the likelihood of a detached house already having a fibre connection is increasing. When a new owner moves in, he/she typically doesn't need to pay as high one-off fee as in the new build case – since the fibre is already installed and pulled into the house.

The graph below compares the one-time fees for an existing connection against the binding period of the contract. No existing connection cases have been found for Finland.

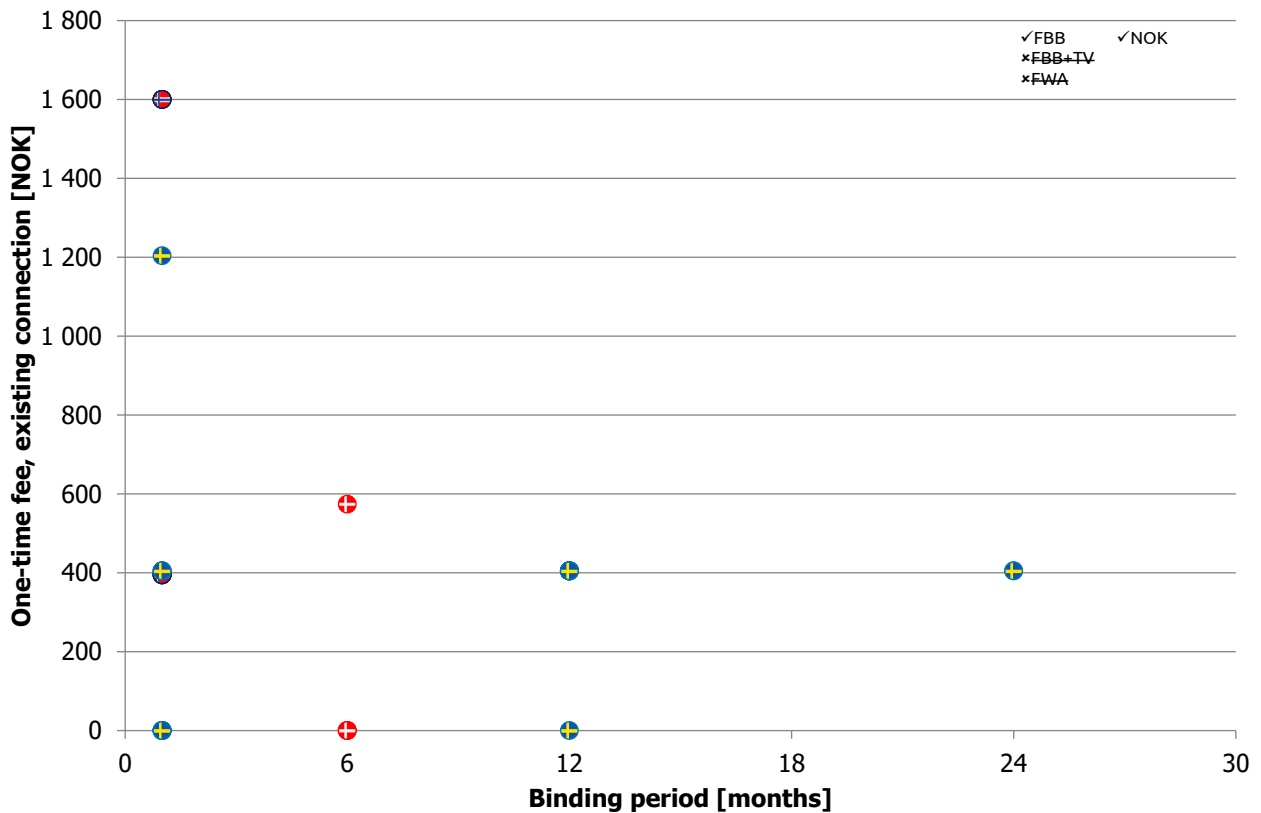


Figure 12. Comparison between one-time fees in NOK for fibre broadband reconnection of a detached home among providers in Norway, Denmark and Sweden, June 2023 [source: providers' webpages and pricelists complemented by direct emails to providers when necessary].

The first take-out is that the **one-off fees for existing connections often are much lower** than for new builds. Many providers don't charge anything whereas some providers see an opportunity to recover some of the cost of administrating a new customer although the connection is already established. The bidding periods vary – Figure 12 could suggest that providers are keener to charge low existing connection fees when binding periods are longer.

In the next graph, purchasing power parity is applied.

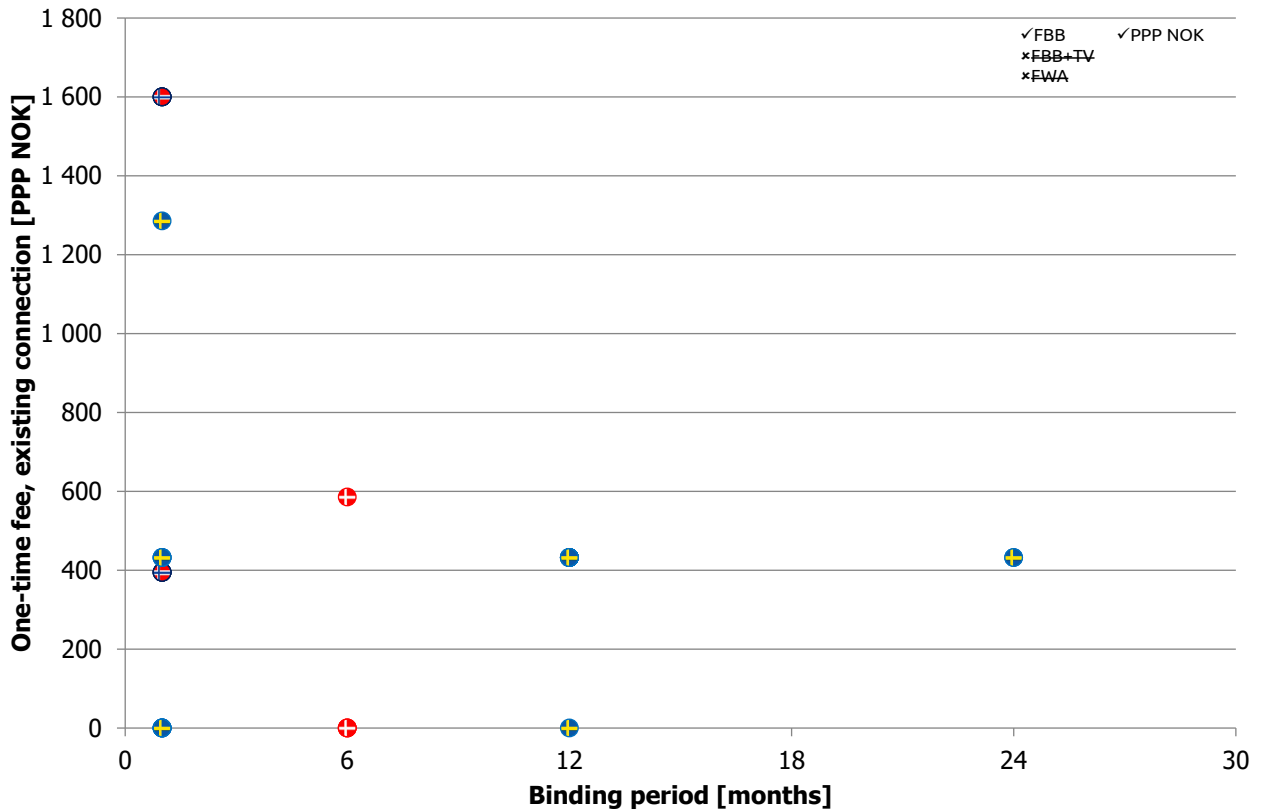
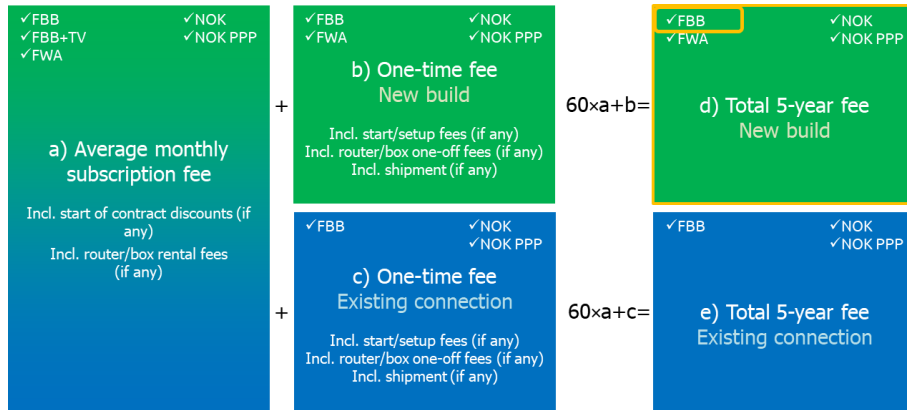


Figure 13. Comparison between one-time fees in PPP NOK for fibre broadband reconnection of a detached home among providers in Norway, Denmark and Sweden, June 2023 [source: providers' webpages and pricelists complemented by direct emails to providers when necessary, OECD].

Based on the small sample, it's hard to compare the one-off fees for existing connections between the countries.

One-time fees for existing connections are often much lower than for new build. They are also modest in comparison to subscription fees over a longer period. This means that it's not a very important cost component in the bigger picture.

10. Fixed broadband: Total 5-year fee – new build



With focus on connecting the unconnected, we are now adding the new build one-time fee to the monthly subscription fee for 60 months to get the *total* fee for a customer that decides to install fibre into a detached home and then subscribe to a broadband service for 5 years.

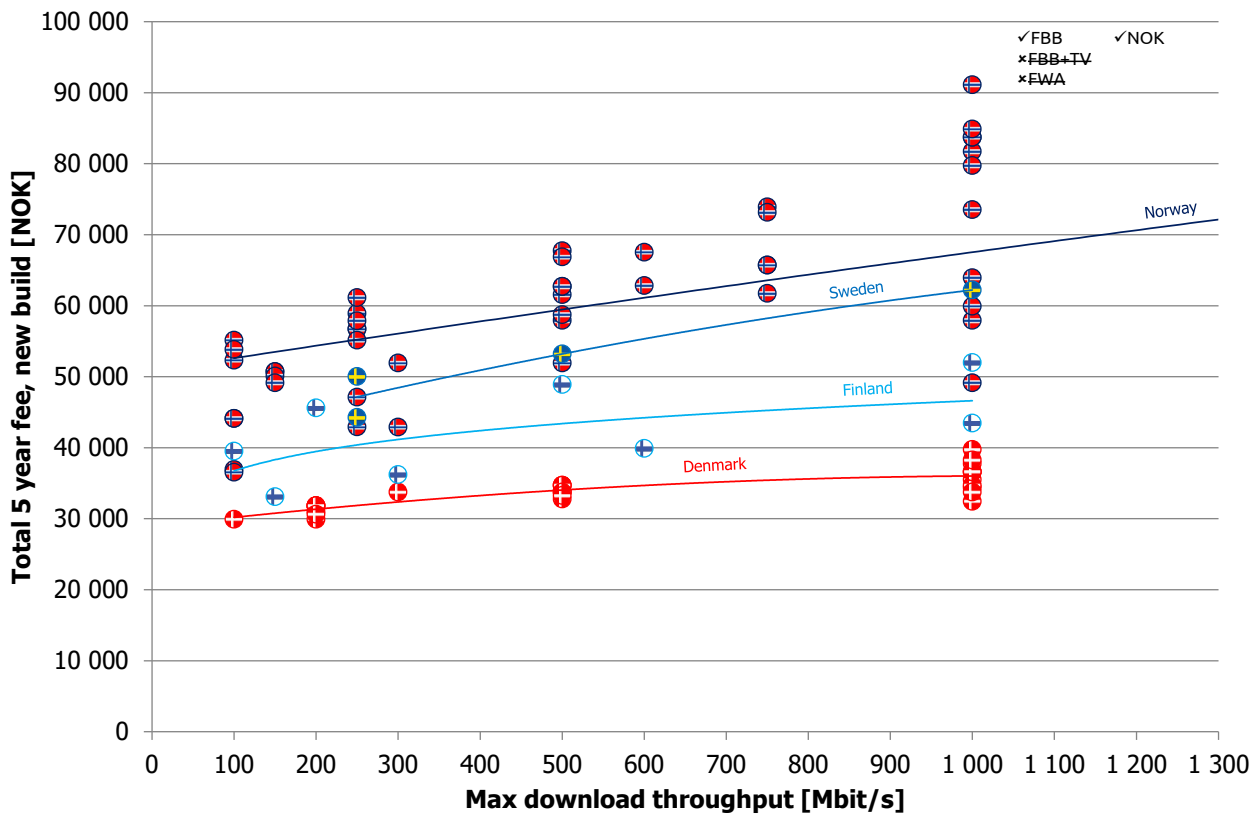


Figure 14. Comparison of the total fee (new build) for fixed broadband in NOK during 5 years among providers in Norway, Denmark, Sweden and Finland, June 2023 for plans up to 1300 Mbit/s [source: providers' webpages and pricelists complemented by direct emails to providers when necessary].

Figure 14 shows that the high monthly subscription fees in Norway dominate over the reasonable new build one-time fees so that the total cost during a 5-year period often becomes the highest. In Sweden it's rather the high new build one-time fees that drive the total cost – since Swedish monthly subscription fees are lower than in Norway. Finland tends to have lower total costs than Norway and Sweden whereas Denmark still operates with the lowest fees – by far.

After having adjusted to purchasing power parity, see Figure 15, the Swedish trend curve moves close to the Norwegian trend curve. Finland and especially Denmark still have much lower total costs (also in PPP NOK) than Norway and Sweden.

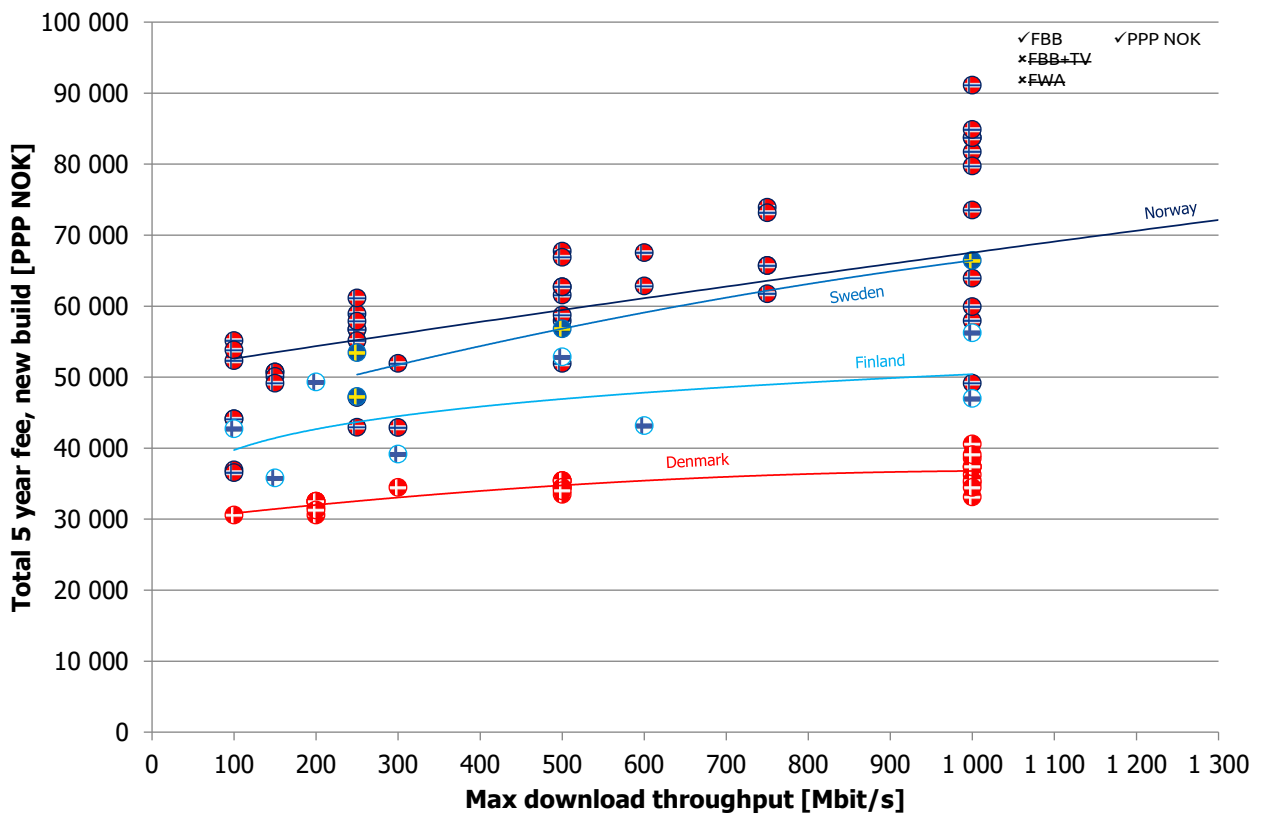
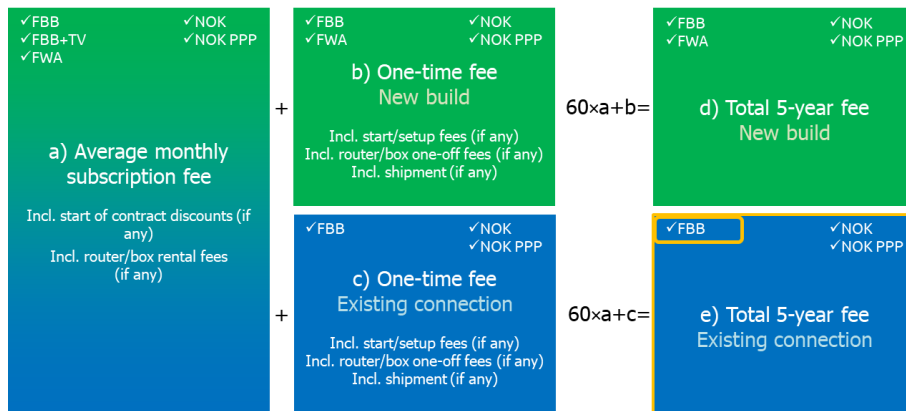


Figure 15. Comparison of the total fee (new build) for fixed broadband in PPP NOK during 5 years among providers in Norway, Denmark, Sweden and Finland, June 2023 for plans up to 1300 Mbit/s [source: providers' webpages and pricelists complemented by direct emails to providers when necessary, OECD].

When summing up the total fees during a 5-year period, the Norwegian new build customer will pay a similar amount as a Swedish customer but a higher amount than a Finnish and Danish customer after purchasing power adjustment.

11. Fixed broadband: Total 5-year fee – existing connection



As mentioned in section 8, most homes overall are however already connected to fibre today. The previous section made sense for the unconnected homes only.

Let's now make the same comparison of total fees but for customers that **already have an existing connection** into the home. A usual case is when people move – unless it's an entirely new house, the previous owner had likely made sure that a broadband connection was installed into the house. But this comparison also makes sense in open networks when the customer decides to change broadband provider.

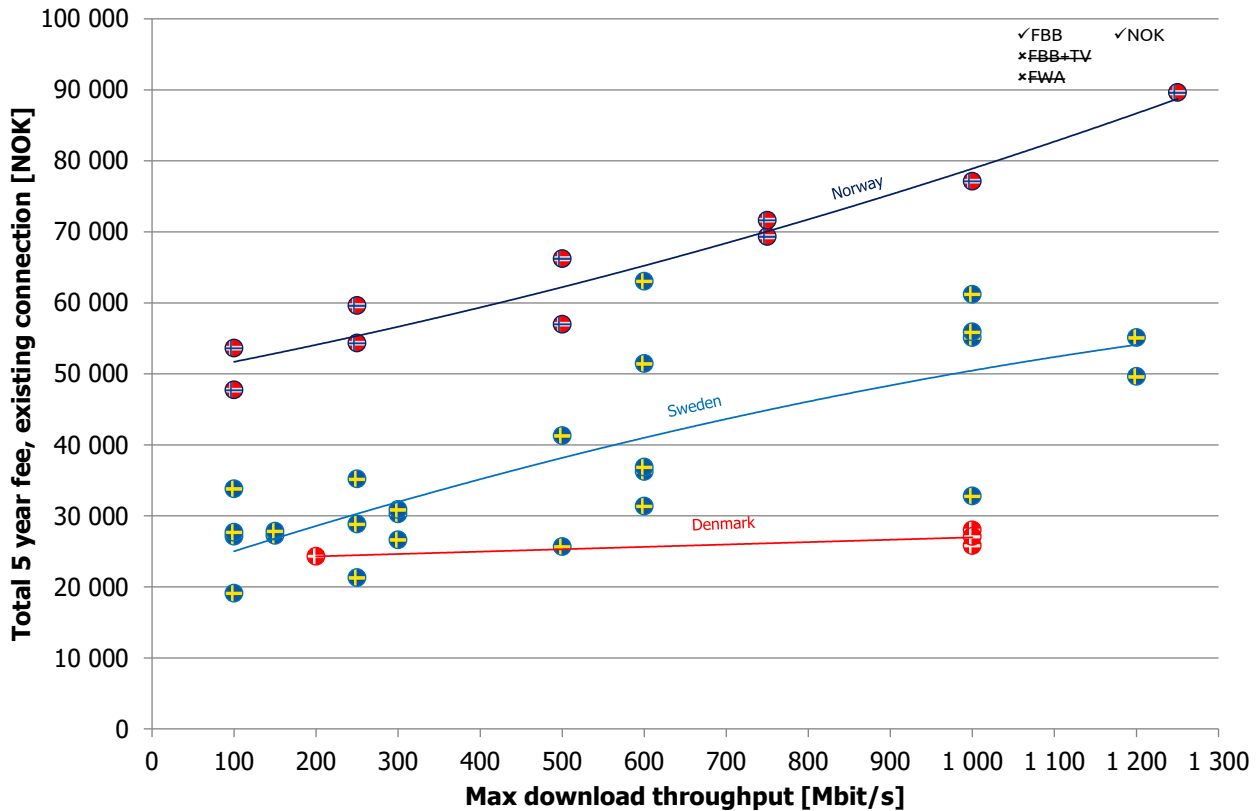


Figure 16. Comparison of the total fee for fixed broadband (existing connection) in NOK during 5 years among providers in Norway, Denmark and Sweden, June 2023 for plans up to 1300 Mbit/s [source: providers' webpages and pricelists complemented by direct emails to providers when necessary].

Based on an existing connection, Norwegian total fees are generally, with few exceptions, the highest as the high monthly subscription fees now dominate over the often low one-off fees for an existing connection.

As usual, Denmark generally has the lowest fees, especially in the higher speed range. Sweden is positioned in between Norway and Denmark. No existing connection cases have been found for Finland.

In the next graph, purchasing power adjustments have been done.

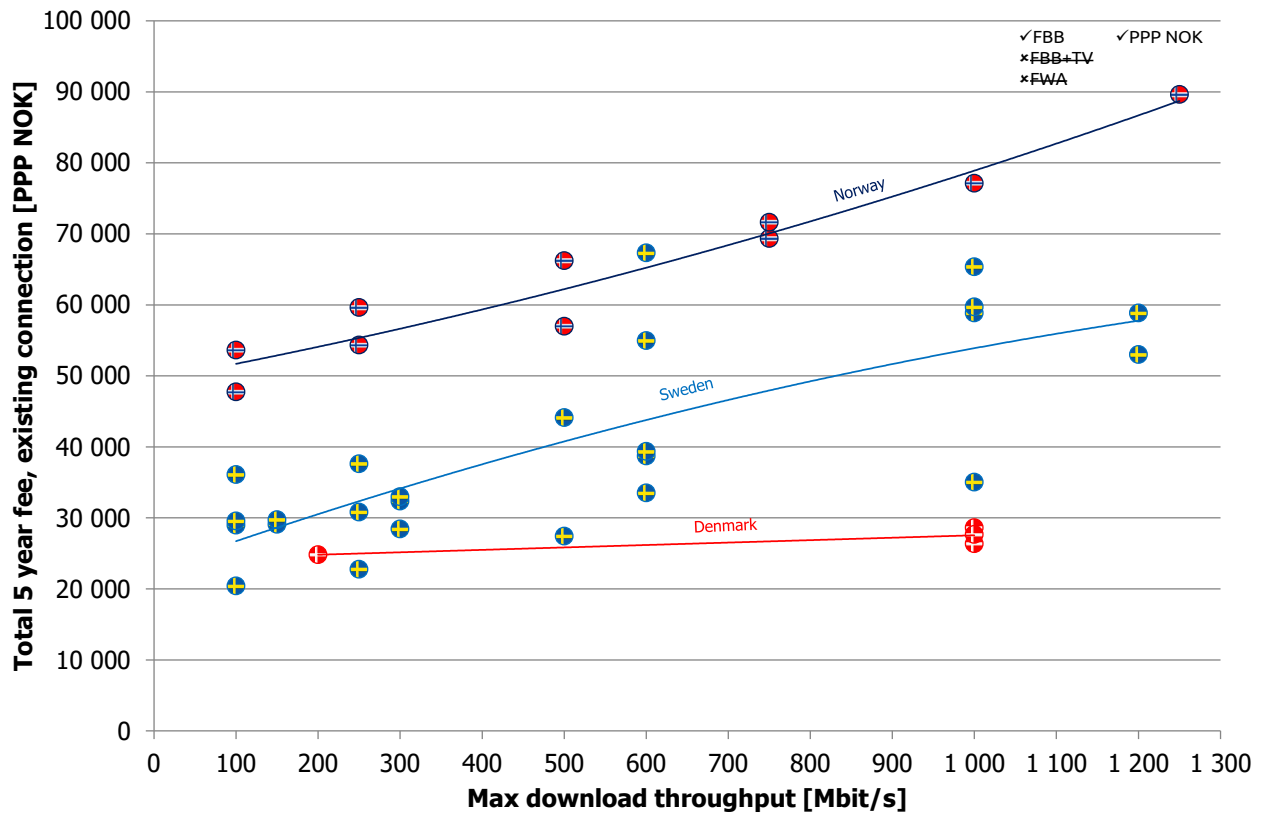


Figure 17. Comparison of the total fee for fixed broadband (existing connection) in PPP NOK during 5 years among providers in Norway, Denmark and Sweden, June 2023 for plans up to 1300 Mbit/s [source: providers' webpages and pricelists complemented by direct emails to providers when necessary, OECD].

It does not change the conclusion.

When summing up the total fees during a 5-year period, the Norwegian existing connection customer will generally, with few exceptions, pay a higher amount than customers in Denmark and Sweden after purchasing power adjustment.

12. Fixed broadband: Actual throughput

We have now analysed fixed broadband pricing in depth. Before going into FWA and packages with TV, let's look at the actual throughput that fixed broadband customers in our countries averagely get. Since fixed broadband is priced based on throughput, this is a combination of two factors:

- What the broadband connection technically delivers
- How much the customers have been willing to pay for the connection

The Nordic and Baltics statistics issued for 2021²² show how large share of the overall fixed broadband base that subscribe to plans with marketed throughput of 100 Mbit/s or more:

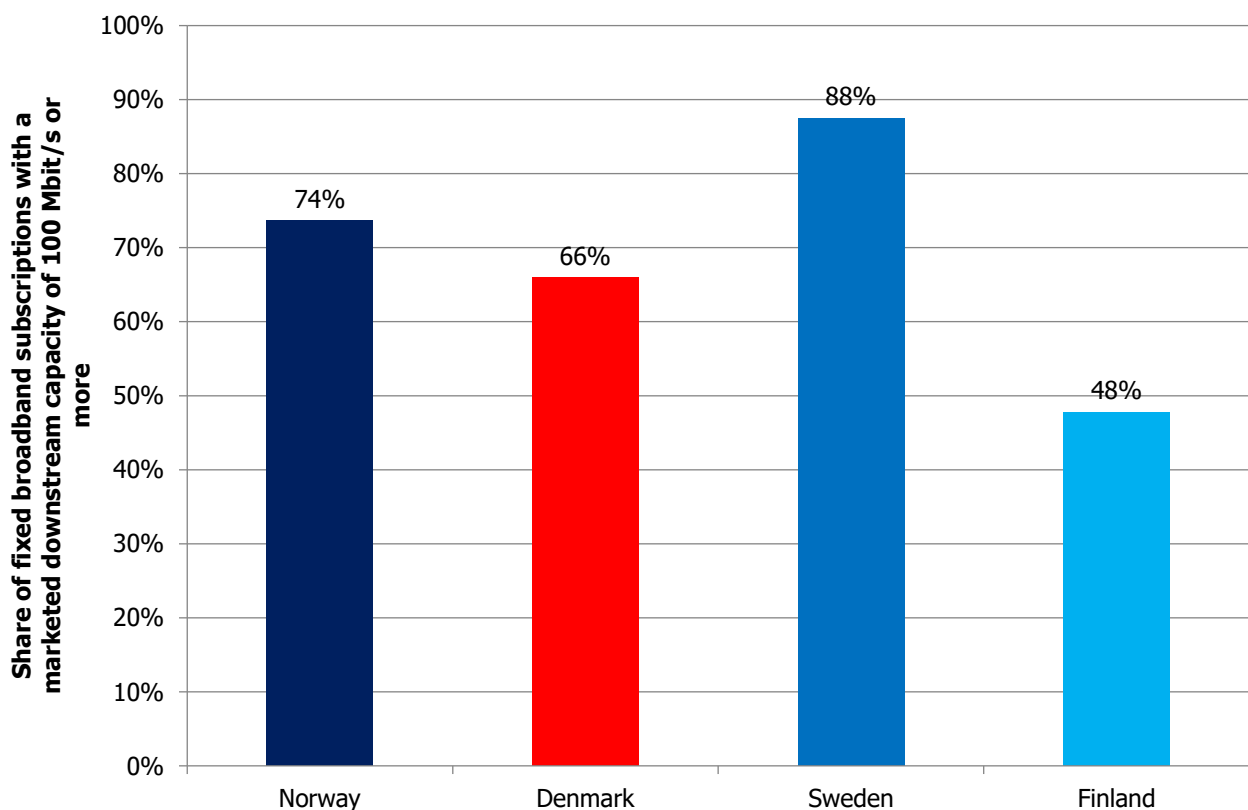


Figure 18. Share of fixed broadband subscriptions with 100 Mbit/s or more marketed download throughput in Norway, Denmark, Sweden and Finland, December 2021 [source: PTS, compiled by Tefficient]

This graph could suggest that Sweden would have the highest actual throughput of these four countries – and Finland the lowest. We don't know how the speeds distribute *within* the 100 Mbit/s or more category, though. As shown, plans with e.g. 500 or 1000 Mbit/s are quite a common offering today.

To try to figure out, we turn to Ookla Speedtest. Ookla uses crowdsourced data based on tests actively done by broadband users. The drawback is that we don't know how representative these tests are. In addition,

²² <https://statistik.pts.se/nordic-baltic-telecom-market/>. Statistics for 2022 is not yet available.

the throughput measured by these tests is affected by the throughput tier paid for by the customers. Finally, they cover *all* available broadband technologies – including DSL which otherwise isn't in the scope of this analysis.

With these words of caution, let's compare the latest available median download throughput in our four countries:

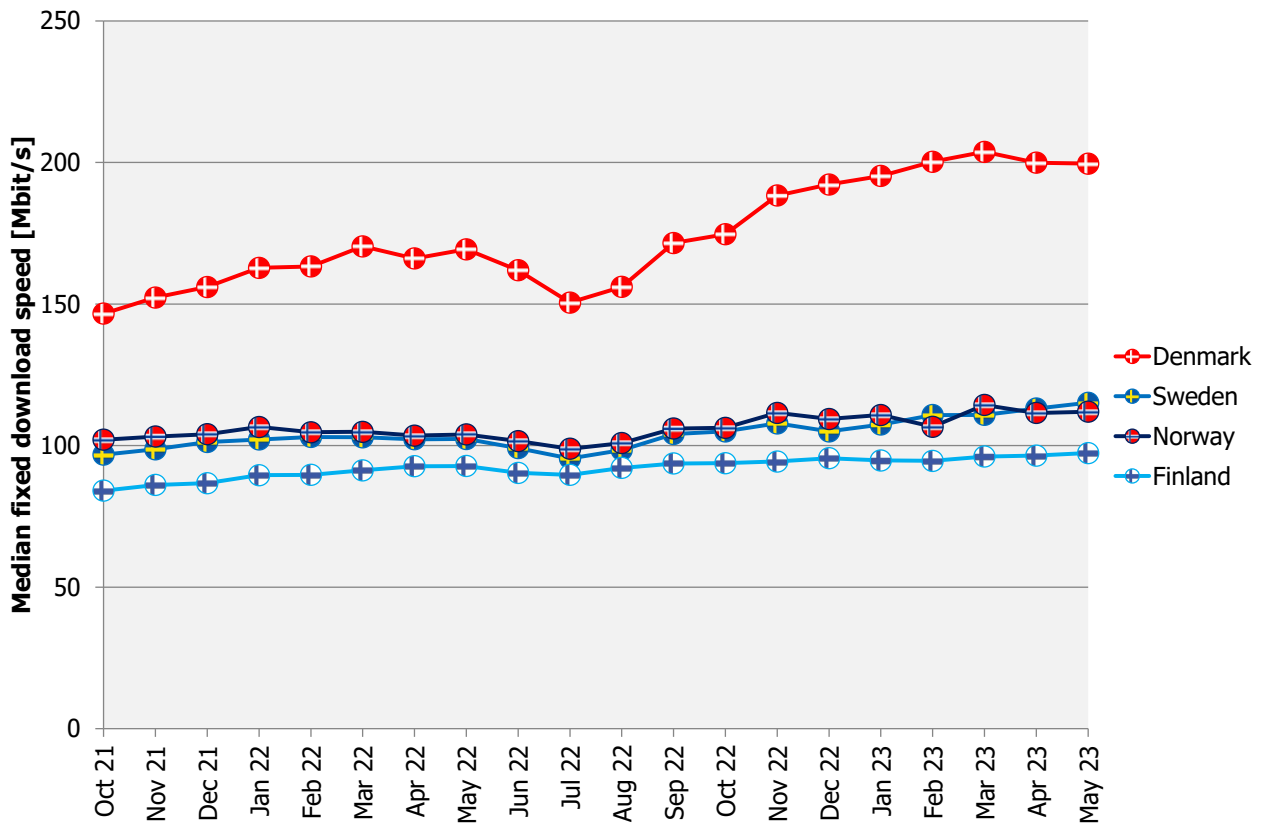


Figure 19. Median fixed broadband download speed across all technologies and subscription types for Norway, Denmark, Sweden and Finland per month Oct 2021-May 2023 [source: Ookla Speedtest]

Perhaps surprisingly, Denmark – with the lowest share of fibre connections²³ and a Nordic-average 66% of broadband users subscribing to 100 Mbit/s or more – has the highest median download throughput²⁴. The speed differential to Sweden, Norway and Finland doubled to almost 100 Mbit/s during the period shown in Figure 19. A key reason to it is that the Danish cable TV networks are well distributed and generally deliver high fixed broadband speeds. The level of competition in Denmark has increased with new players (and TDC NET) aggressively rolling out fibre.

Finland is having the slowest fixed broadband. A likely explanation is that with unlimited mobile data totally dominating mobile subscriptions in Finland (84% of non-M2M subscriptions were unlimited in December 2022) the willingness to pay for higher fixed broadband speed tiers is not present in Finland.

²³ 44% in 2021 according to the Nordic and Baltics statistics for 2021 – with Finland 60%, Norway 66% and Sweden 78%

²⁴ Denmark was number 8 in the world (of 181 countries) in May 2023. Sweden was #29, Norway #30 and Finland #36.

Norwegian fixed broadband connections are fast – the median value was **112 Mbit/s** in May 2023 – but the median Danish fixed broadband connection is much faster: 200 Mbit/s. The table below compares these speeds with the broadband ARPU²⁵ in PPP NOK. Finland isn't shown as Traficom doesn't separate fixed broadband revenues from other fixed network revenues.

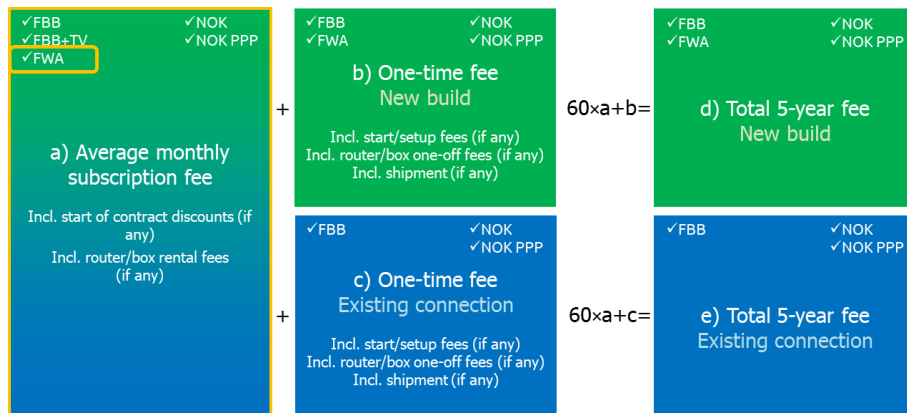
| Country | Median download throughput, May 2023, Ookla [Mbit/s] | Average revenue per fixed broadband user (ARPU), 2022, PPP NOK |
|---------|--|--|
| Norway | 112 | 455 |
| Denmark | 200 | 402 |
| Sweden | 115 | 293 |

Of these three countries, Norway has the highest ARPU but significantly slower median throughput than Denmark – and similar median throughput as Sweden, who has the lowest ARPU in PPP NOK. This suggests that the average Norwegian user chose to subscribe to a slightly lower throughput tier than the average Danish user. Price could of course be a driver for that choice.

Norway has fixed broadband networks with high median throughput, but so have Sweden and Finland. Denmark has twice the speed of the others. With Norway's generally higher subscription fees, the willingness to pay for a faster throughput tier might not be as present as in Denmark.

²⁵ Based on data reported by regulators Nkom, SDFI and PTS respectively

13. FWA: Average monthly subscription fee



In fixed wireless access (FWA), mobile operators can use their regular mobile networks to deliver fixed broadband-replacing connectivity in areas where fixed broadband networks aren't available. In a Norwegian perspective, where Telenor has phased out its traditional copper network, FWA was promoted as a solution that could deliver faster broadband than DSL and, at the same time, avoid an expensive fibre rollout to households and small businesses.

Although FWA is possible already with 4G, the vast amount of spectrum that **5G** offers is making the FWA prospect more interesting. Since an FWA customer might use something like 300 GB of data per month – where the average Norwegian non-M2M, non-FWA, mobile user consumed 9.7 GB per month in 2022 – the fear was always that FWA users would negatively impact the network experience for regular mobile phone users. In the future, 5G will not just offer more spectrum but also the possibility to separate different types of traffic from each other and control the quality for different services independently of each other – so called *network slicing*.

Until 2019, Norwegian providers were careful in offering FWA, but it is now sold as a broadband solution in certain areas. And according to Nkom data, the take-up has been good, see Figure 20.

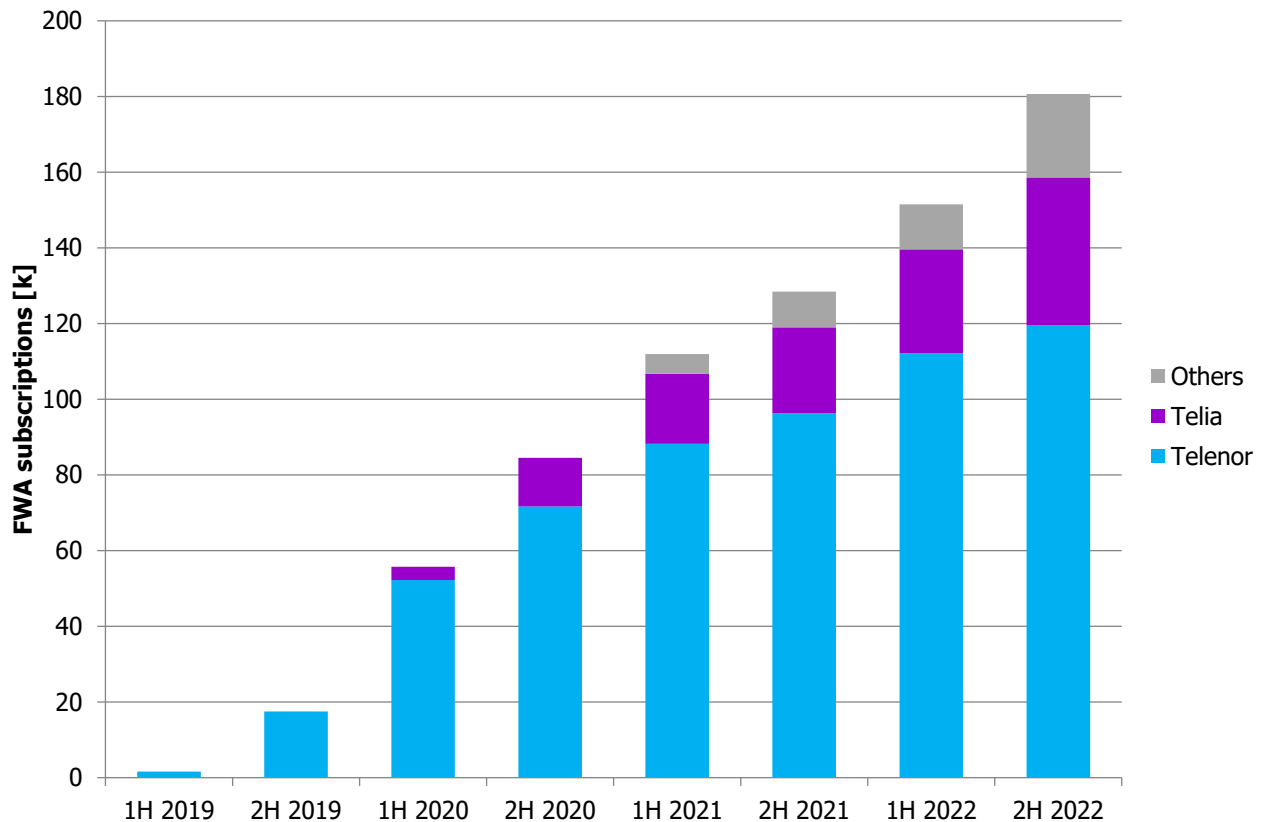


Figure 20. Development in the number of FWA subscribers in Norway 1H 2019-2H 2022 [source: Nkom, compiled by Tefficient]

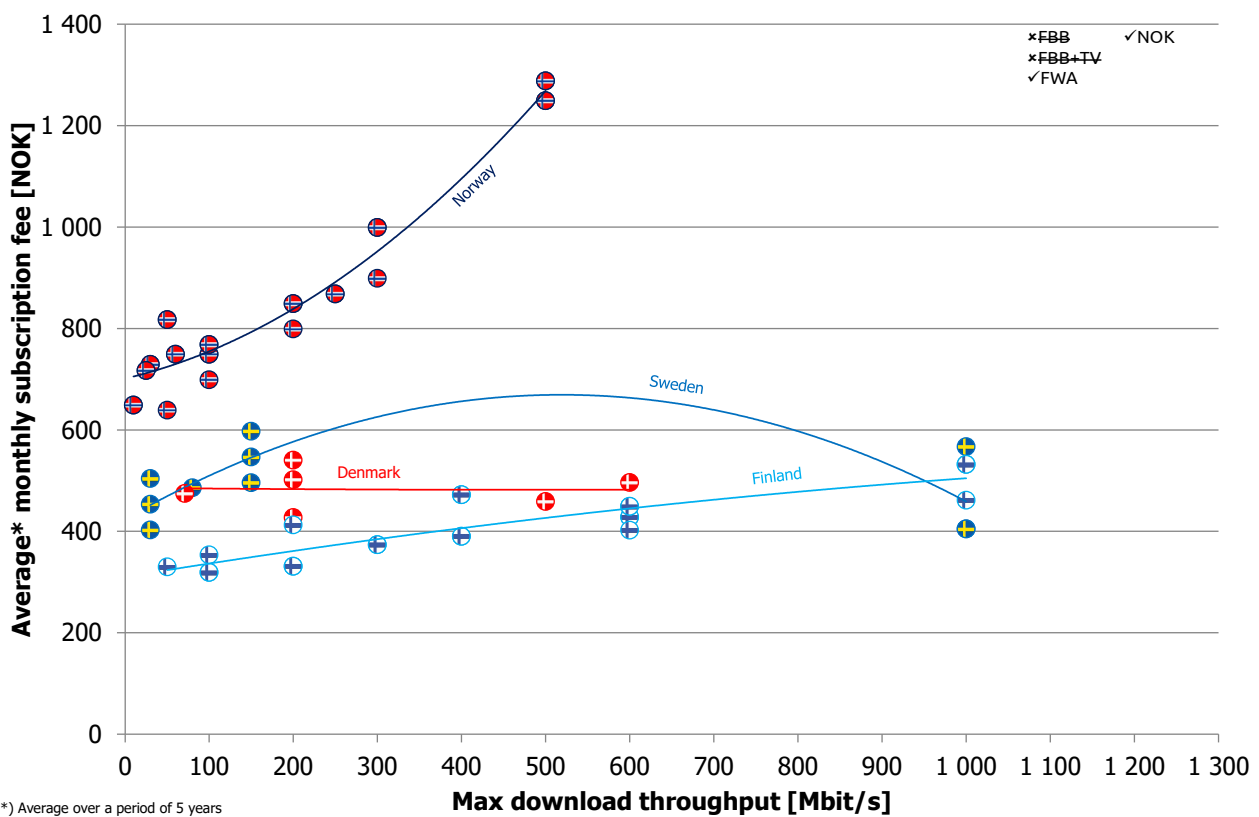
In December 2022, there were almost **181k FWA subscriptions** in Norway, 66% of them with Telenor, 22% with Telia and 12% with others (mainly NextGenTel and Allente). They represent more than **7%** of the total broadband base in Norway. Without a doubt, FWA is a success in Norway, fuelled by Telenor's decommissioning of the copper network.

In comparison, Danish and Swedish providers have had a more cautious approach. In February 2019, the Danish mobile-only provider '3' however launched "Internet til hjemmet" for a set price of 230 DKK to anyone who wants to use 3's mobile network to connect the home to internet. The other Danish mobile network operators, YouSee/TDC, Telia and Telenor followed, launching FWA in conjunction with their 5G launches. Neither the Danish regulator nor the operators report FWA base for Denmark.

FWA has eventually also made it into the offerings from the Swedish operators Telia, Tele2, Telenor and '3'. The Swedish regulator, PTS, reported 280k FWA subscriptions in December 2022, a figure that, after a definition change, increased from just 20k a year earlier. Although Swedish operators have started to offer FWA, Tefficient believes the 280k figure is exaggerated and shouldn't be compared with Norway's definition. Tefficient's calculations give that the largest mobile and fixed provider in Sweden, Telia, had less than 31k FWA subscribers in December 2022.

In contrast to how FWA historically was addressed in Norway, Denmark and Sweden, **Finnish providers have for a long time offered FWA** over 4G networks to any household or business *regardless of location*. The use of an external antenna has, in most cases, been up to the end-user²⁶. In December 2022, **23%** of the Finnish non-M2M mobile subscription base was data-only (FWA or portable mobile broadband) compared to 7% in Norway, 14% in Denmark and 10% in Sweden. The high share of data-only subscriptions in Finland has contributed to that the Finnish mobile data usage is the highest in the world²⁷: Where the average Norwegian non-M2M mobile user consumed 9.7 GB²⁸ per month in 2022, the average Finnish user consumed 38.1 GB.

Let's now look at the comparison of the average monthly subscription fee (over 5 years) for FWA services in our countries. First in NOK:



*) Average over a period of 5 years

Figure 21. Comparison of the average monthly subscription fee in NOK during 5 years for FWA plans with at least 1000 GB of data per month among providers in Norway, Denmark, Sweden and Finland, June 2023 [source: providers' webpages and pricelists complemented by direct emails to providers when necessary].

The maximum download throughput should to a much higher extent than what is the case for fixed broadband be seen as *indicative* for FWA as the mobile capacity is shared between several users.

²⁶ In essence, this is mobile broadband but as there are no limitations on mobile data usage and no speed throttling after a certain monthly consumption, end-users have been able to use them to substitute fixed broadband

²⁷ <https://tefficient.com/high-data-usage-countries-do-better-on-arpu-development-than-low-usage-countries/>

²⁸ Excluding FWA traffic which isn't reported by Nkom

In Norway and Finland, providers are generally using **speed tiers**, i.e. selling FWA subscriptions with a price that links to a certain maximum throughput. In Sweden and Denmark, it's more often just one, defined, maximum download throughput that is communicated.

Norwegian FWA plans are, similar to fixed broadband, more expensive in NOK than FWA plans in the other countries. Finland and Denmark have the lowest fees. Applying purchasing power adjustments does not really change this.

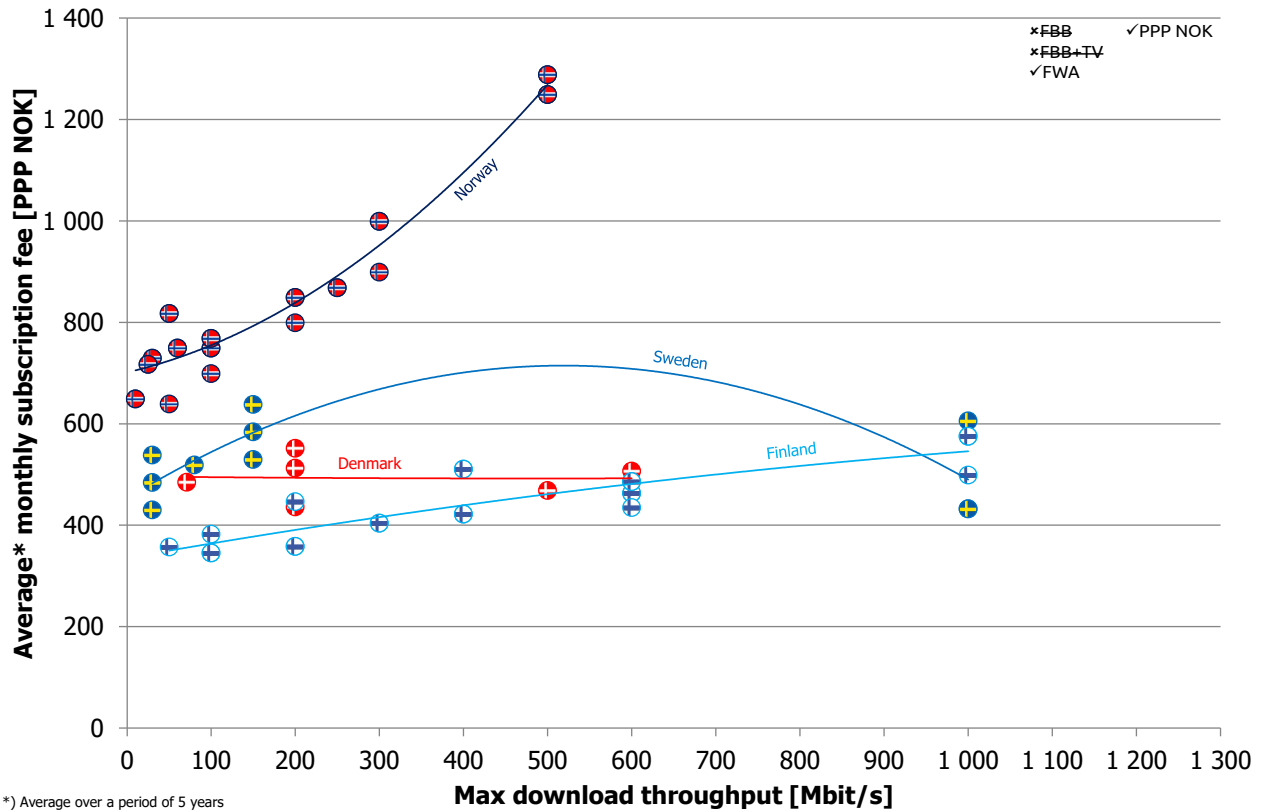
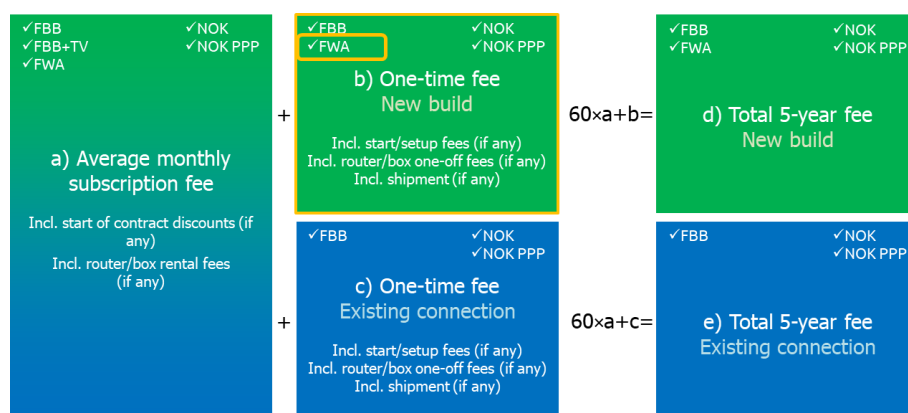


Figure 22. Comparison of the average monthly subscription fee in PPP NOK during 5 years for FWA plans with at least 1000 GB of data per month among providers in Norway, Denmark, Sweden and Finland, June 2023 [source: providers' webpages and pricelists complemented by direct emails to providers when necessary, OECD].

The Norwegian FWA plans are, also after compensation for differences in purchasing power, more expensive than same-speed plans in Denmark, Sweden and Finland. Finnish and Danish FWA plans are the most reasonably priced across the four markets.

14. FWA: One-time fee – new build



In Norway, FWA currently always comes with a requirement of an **external antenna** which is wall or roof mounted. In Sweden and Finland²⁹, an external antenna is sometimes an option, but not a requirement³⁰. Since the one-off fee for an external antenna and installation can be as high as 5000 NOK in Norway and sometimes even higher in Finland, we need to separate between plans that require an external antenna and plans that don't when comparing the one-time fees.

Since the connection fees aren't dependent on the maximum throughput of the FWA connection, we here correlate it to the binding period of the contract instead.

²⁹ But no longer in Denmark

³⁰ For a customer living in an area with good mobile coverage, an external antenna is not necessarily adding much to the network experience. A FWA customer without an external antenna also has higher mobility as he/she easily can take the router with him/her if moving to another location permanently or temporarily. This is possible in Denmark, Sweden and Finland for FWA customers without an external antenna installation. Since the Norwegian FWA providers Telenor, Telia and NextGenTel solely are offering FWA with an external antenna, all their FWA customers are locked to a specific address – the one where the outdoor antenna is installed.

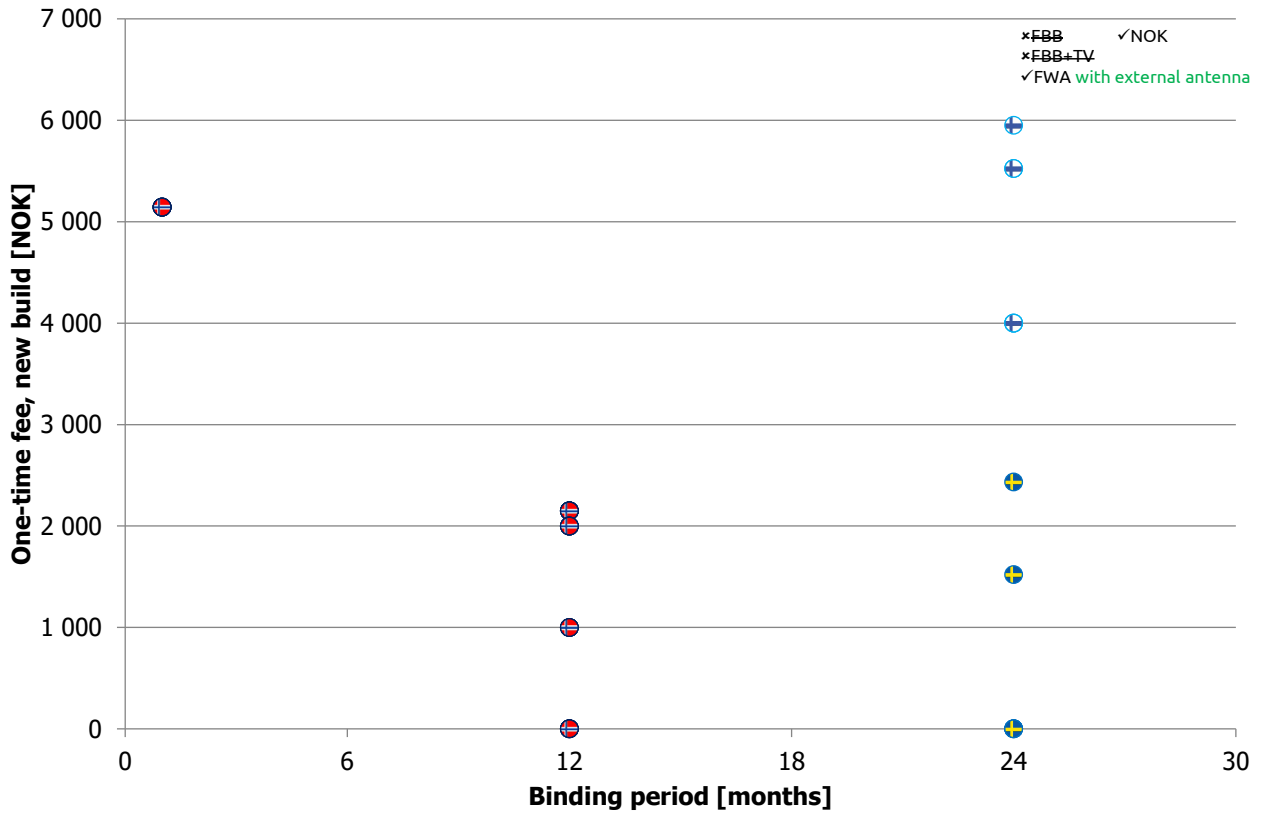


Figure 23. Comparison between one-time fees in NOK for new build FWA with external antenna among providers in Norway, Sweden and Finland, June 2023 [source: providers' webpages and pricelists complemented by direct emails to providers when necessary].

In **Norway**, the one-time fee for a new build FWA with external antenna is at around 2000 NOK or lower – if signing up for a 12-month binding contract. Telenor also offers a non-binding option (here shown as 1 month) for around 5000 NOK. Norway’s one-time fees compare reasonably well with the one-time fees in Sweden. The one-time fees in Finland are often significantly higher than in Norway³¹.

Applying purchasing power parity doesn’t change the picture much:

³¹ Finnish consumers can get a tax deduction for up to 500 EUR, but such tax deductions are excluded in this analysis

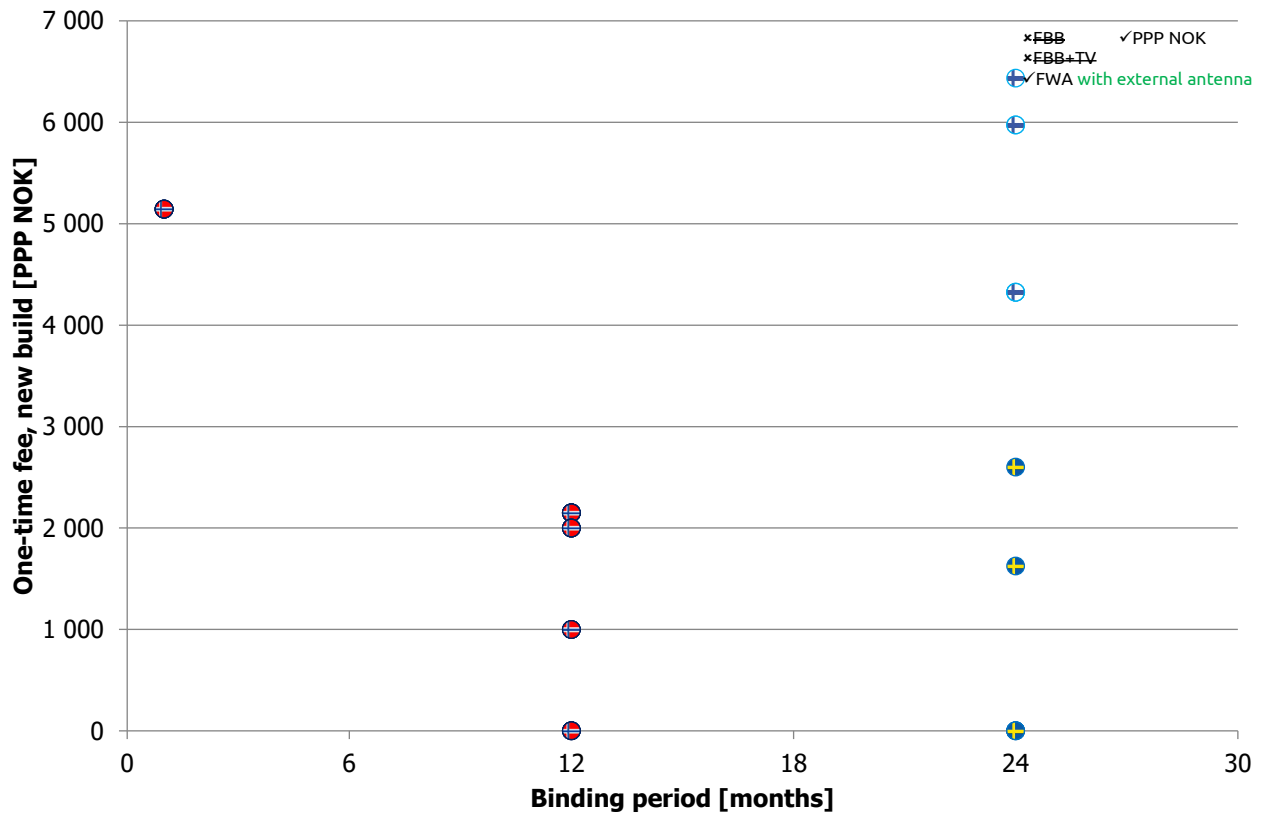


Figure 24. Comparison between one-time fees in PPP NOK for new build FWA with external antenna among providers in Norway, Sweden and Finland, June 2023 [source: providers' webpages and pricelists complemented by direct emails to providers when necessary], OECD].

With purchasing power adjustment, the Norwegian new build FWA with external antenna one-time fees at around 2000 NOK or lower for binding options are comparable to the Swedish examples – and generally lower than in Finland.

There are, as pointed out, no FWA options *without* external antenna in Norway, though. Figure 25 is therefore without Norwegian representation [and since Norway isn't in it, it's presented in a PPP NOK version only].

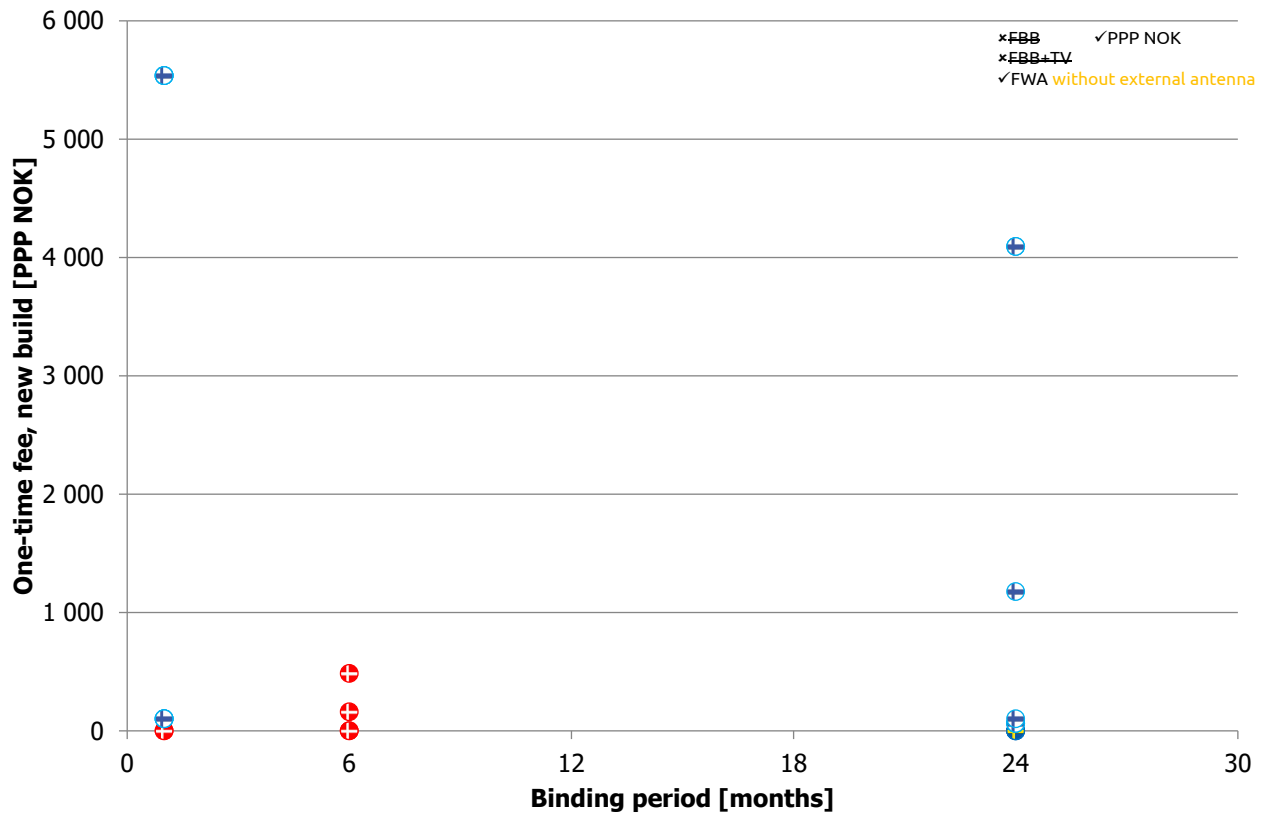


Figure 25. Comparison between one-time fees in PPP NOK for new build FWA without external antenna among providers in Denmark, Sweden and Finland, June 2023 [source: providers' webpages and pricelists complemented by direct emails to providers when necessary, OECD].

The one-time fees when choosing a FWA plan without external antenna should logically be lower than with an external antenna, but some providers in Finland charge the full cost³² of a 5G router in some offers.

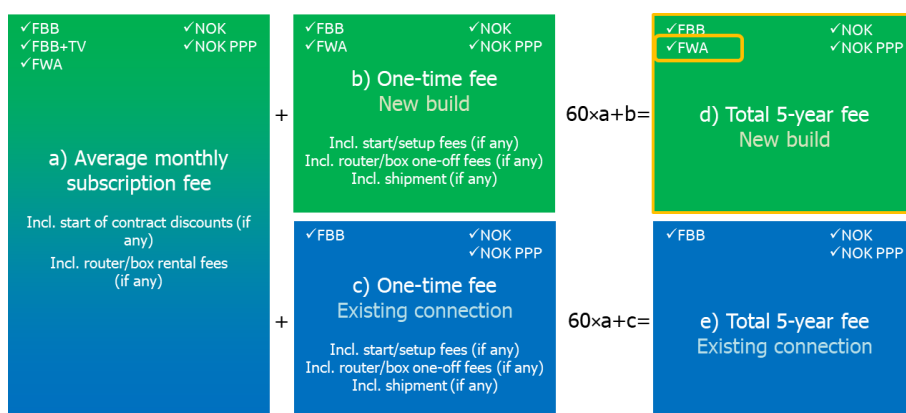
A FWA plan without an external antenna provides the consumer with an **added location flexibility** as the router can be moved permanently or temporarily. That would however mean that the provider no longer has control over where the traffic is generated. This could be the reason to why Norwegian providers so far have avoided to offer FWA options without external antenna. The experience from Finland – where this FWA alternative totally dominates – is however that providers have been able to manage this in their networks.

The new build FWA without external antenna one-time fees have the potential to be lower than with an external antenna, but so far, no such options are offered in Norway.

Since the "existing connection" option doesn't really exist for FWA – the reuse of an existing FWA installation by a new provider would be technically challenging³³ – we assume that the one-time fees are the same as in the new build case and move immediately into comparing the total 5-year fees.

³² Could, as an option, be installed over e.g. a period of 36 months

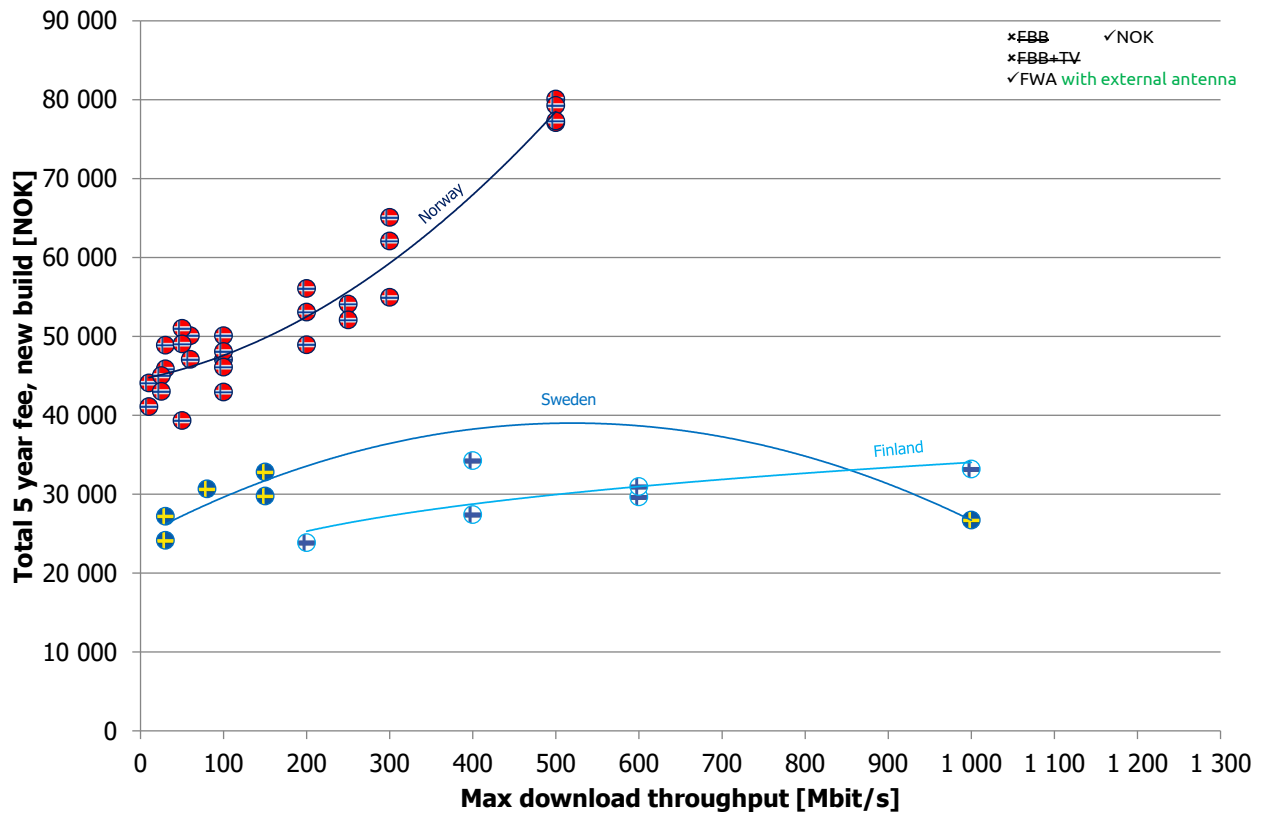
15. FWA: Total 5-year fee

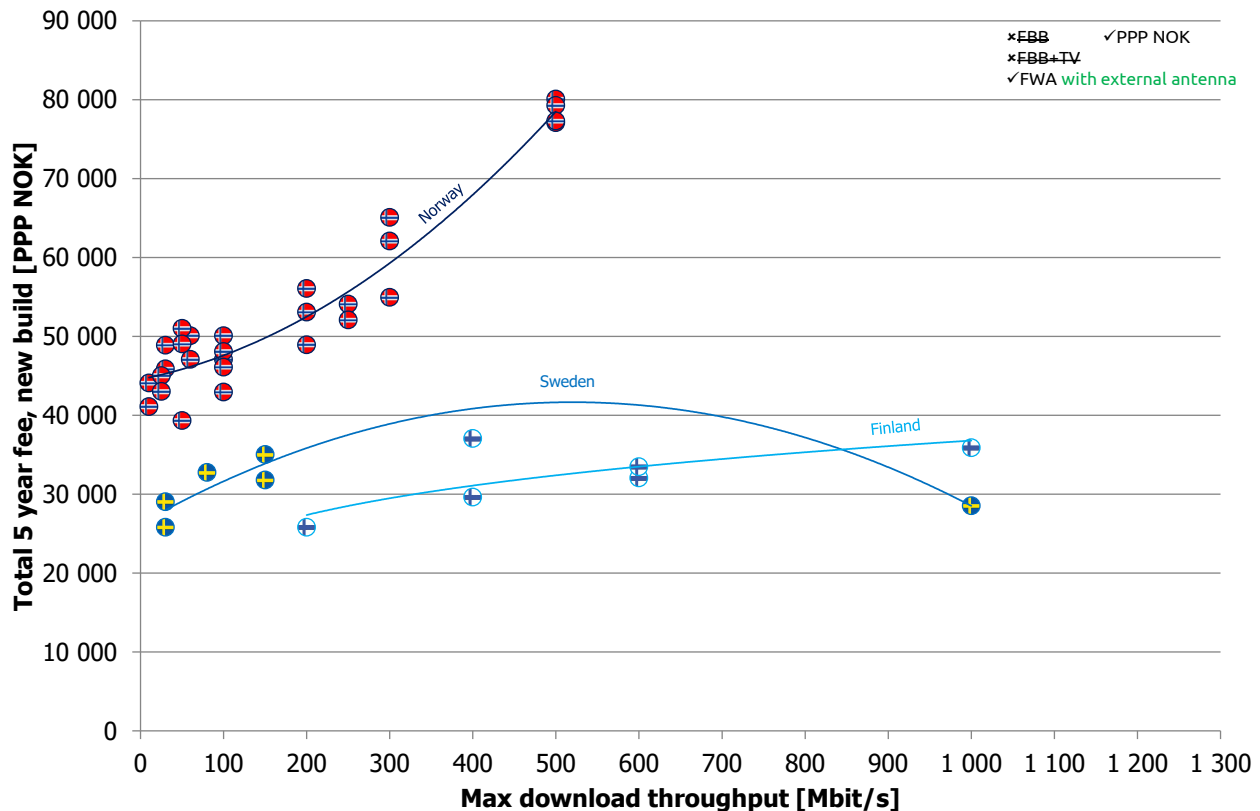


We are now adding the new build FWA one-time fee to the monthly FWA subscription fee for 60 months to get the *total* fee for a customer that decides to install FWA into a home and then subscribe to a FWA service for 5 years.

First, we compare the total fees with external antenna, in NOK:

³³ Nkom did though, in August 2021, propose that Telenor should be obliged to allow reuse of FWA antennas: <https://www.nkom.no/aktuelt/nkom-varsler-endring-av-reguleringen-av-fast-tradlost-bredband>. Tefficient is unaware of further development on this matter.





imposing allowances on FWA. A very significant majority of customers will never reach these allowances anyhow.

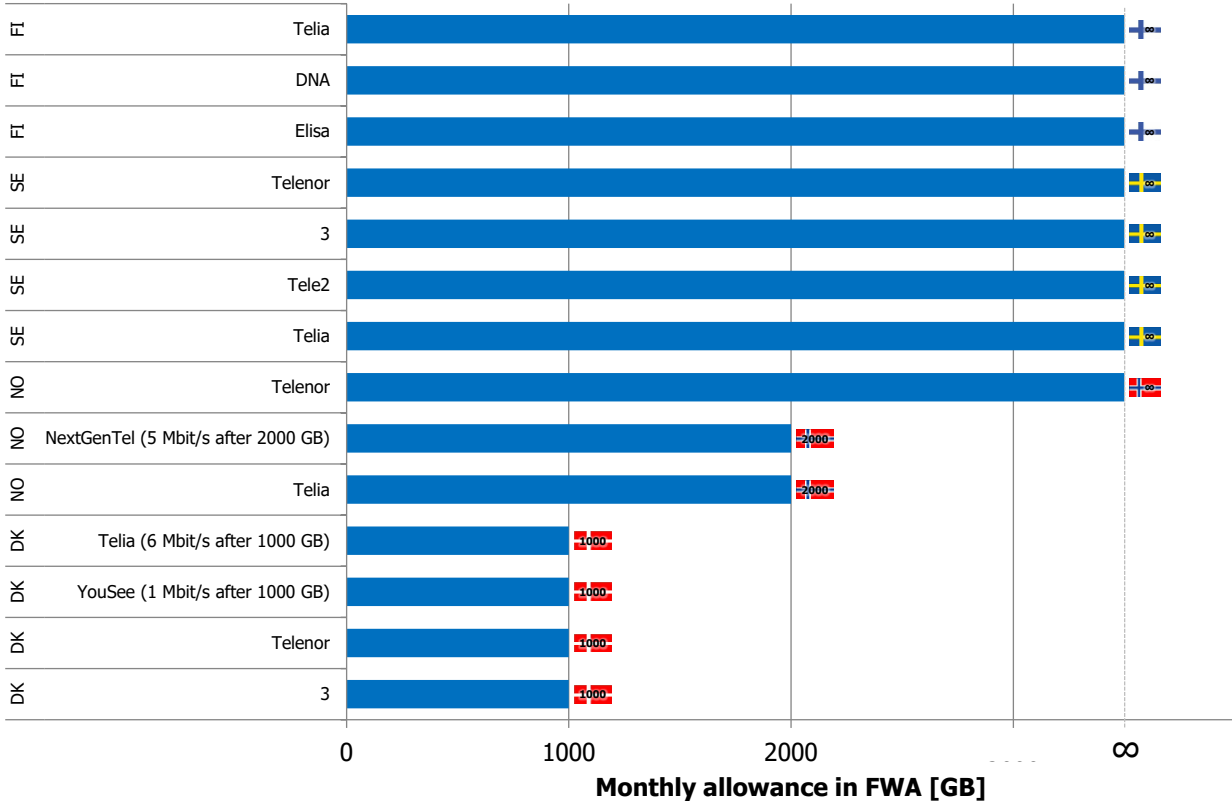


Figure 28. Comparison of the monthly data allowance in FWA plans among providers in Norway, Denmark, Sweden and Finland, June 2023 [source: providers' webpages and pricelists complemented by direct emails to providers when necessary]

Some Norwegian FWA plans are still limited to 2000 GB of full-speed data per month. Although more than sufficient for households today, it is a restriction compared to fixed broadband plans. All providers in Sweden and Finland have decided not to make that restriction: FWA plans are unlimited there.

The 2000 GB limitation on some Norwegian FWA plans is noteworthy in the just-presented context where the total 5-year fees always are higher – also in PPP terms – than in Sweden and Finland.

To end this section, we present the total fees without external antenna – although Norway lacks representation in this graph [hence just in the PPP NOK version].

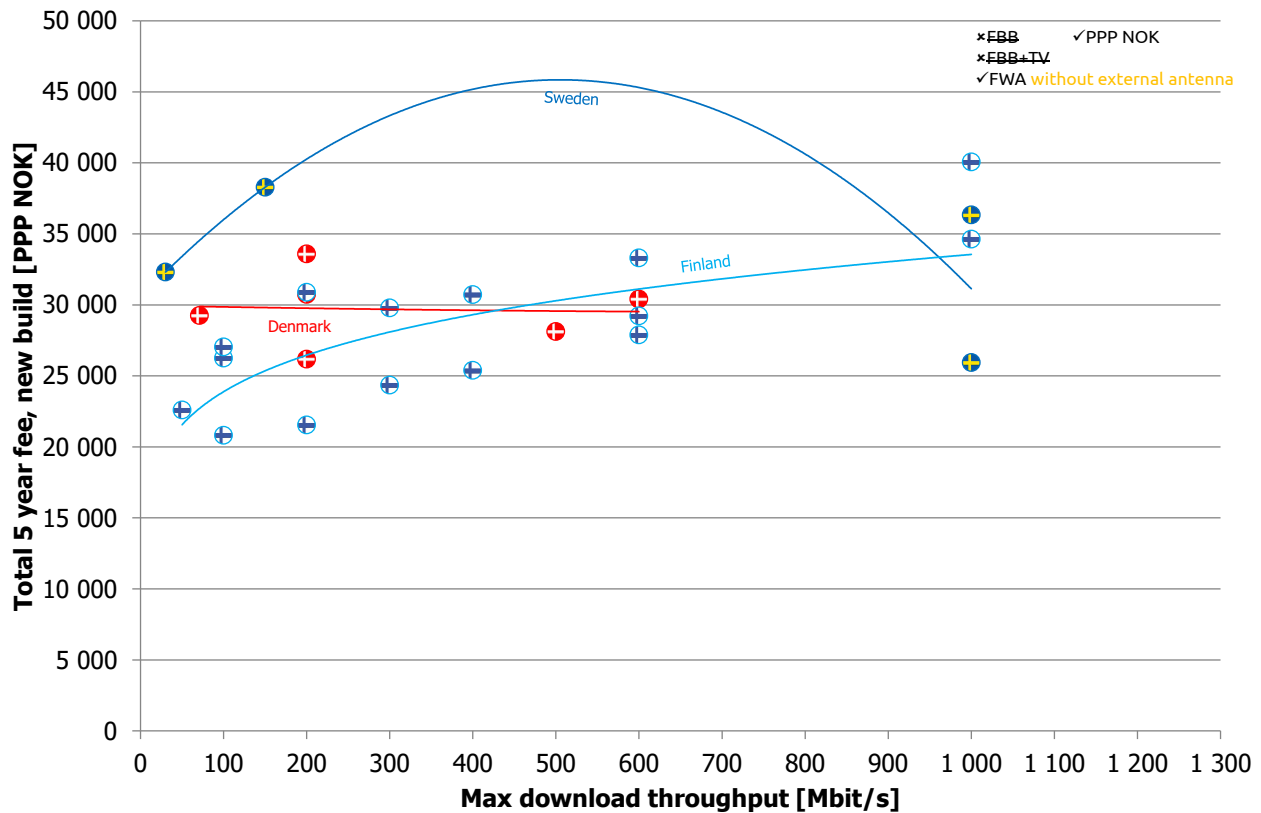


Figure 29. Comparison of the total fee (new build FWA without external antenna with at least 1000 GB of data per month) in PPP NOK during 5 years among providers in Denmark, Sweden and Finland, June 2023 [source: providers' webpages and pricelists complemented by direct emails to providers when necessary], OECD].

If comparing with Figure 28, total fees are generally lower without an external antenna. At lower speed tiers, around maximum 100 Mbit/s, Finnish households can have Internet access via FWA without external antenna for, at best, a total fee of about 21000 PPP NOK for 5 years. That is about 40% lower compared to the cheapest fibre subscription with a similar maximum speed.

The table below compares the best available fibre offer with at least 100 Mbit/s with the best available FWA offers with at least 100 Mbit/s in our four countries³⁵.

³⁵ Due to coverage limitations, it's not necessarily so that every customer can get these offers

| | Norway | Denmark | Sweden | Finland |
|---|--|--|--|--|
| | Lowest total 5-year fee, new build [PPP NOK] | Lowest total 5-year fee, new build [PPP NOK] | Lowest total 5-year fee, new build [PPP NOK] | Lowest total 5-year fee, new build [PPP NOK] |
| Fibre 100 Mbit/s | 37 000 | 200 Mbit/s 31 000 | 20 000 | 150 Mbit/s 36 000 |
| FWA 100 Mbit/s with external antenna | 43 000 | Not offered | 150 Mbit/s 32 000 | 200 Mbit/s 26 000 |
| FWA 100 Mbit/s without external antenna | Not offered | 200 Mbit/s 26 000 | 1000 Mbit/s 26 000 | 21 000 |

Unlike Denmark and Finland where FWA comes with a lower total 5-year fee than fibre, the table suggests that FWA is priced with a premium over fibre in Norway and Sweden. This is remarkable as FWA, as previously discussed, often won't deliver the maximum speed whereas fibre most often does.

To visualise this, we have compared the total 5-year new build fees for FWA in Norway with that of fibre.

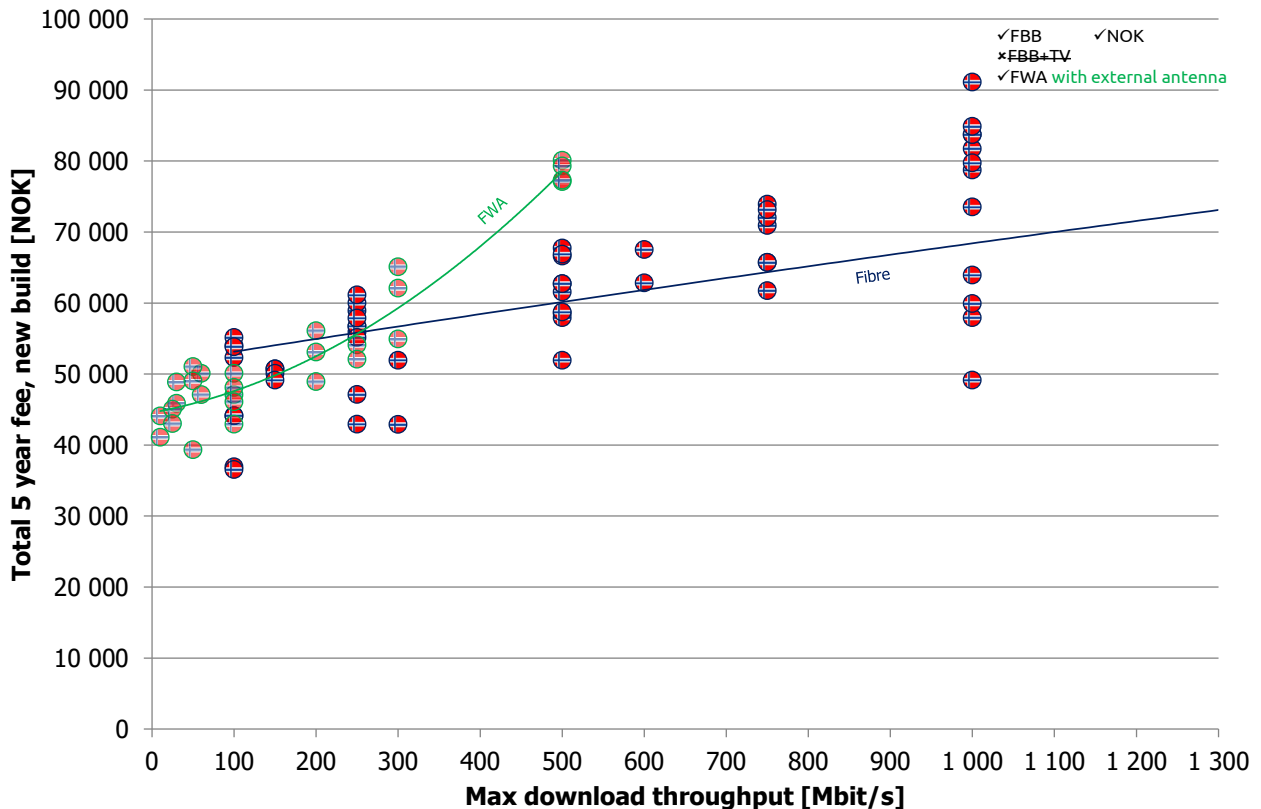


Figure 30. Comparison of the total fee between new build fibre (blue line) and new build FWA with external antenna (green line) in NOK during 5 years among providers in Norway, June 2023 [source: providers' webpages and pricelists complemented by direct emails to providers when necessary].

FWA fees are shown with the **green** trend line whereas fibre fees are shown with a **blue** trend line. Figure 30 is showing that with a maximum speed of 250 Mbit/s or higher, **FWA is priced as high or with a premium** when compared to same-speed fibre. In Finland, it's *fibre* that comes with a premium. This is also the case in other markets outside of the Nordics where FWA is now widely introduced, e.g. the USA. In Austria, a country that resembles Finland and has had FWA for long, FWA and fixed broadband plans are generally neutrally priced (same speed, same price).

In Norway, FWA isn't a lower-cost option to fibre unless speeds are low. This is bad news for the Norwegian households that can't get fibre: On top of that disappointment, they must pay more for a fast FWA solution.

Norwegian FWA plans with 250 Mbit/s or higher maximum speed are, although often more limited in data volume and likely in actual speed, priced as high or with a premium over same-speed fibre plans. In other active FWA markets internationally, it's typically fibre that comes with a premium.

16. Norwegian FWA: Comparison of providers, pricing, speed and other policy parameters

As shown in section 13, FWA has become popular in the Norwegian market after its introduction in 2019. According to Nkom data for December 2022, the providers in the consumer market are – ranked from largest to smallest:

- Telenor: 108821 subscriptions
- Telia: 38663
- NextGenTel: 10740
- Allente: 9172
- Brdy: 1018

Whereas the first three take part in the Nordic peer group (see section 3) for the just-concluded pricing analysis, Allente and Brdy weren't. In this section, all five providers are covered. Information and prices are collected online 12 June 2023.

The table below summarises the offering and policies of the five FWA providers. Stricter policies are highlighted in red, more generous policies highlighted in green.

| Provider | Market share, B2C, Dec 2022 ³⁶ | Speed tiers [Mbit/s] | Binding period [months] | Fixed antenna requirement? | Speed reduced after monthly bucket? | Router requirement? | Option with bundled TV? | Network |
|------------|---|----------------------|-------------------------|----------------------------|-------------------------------------|---------------------|-------------------------|---------|
| Telenor | 65% | 10-500 | 1 ³⁷ or 12 | Yes | No ³⁸ | Yes ³⁹ | Yes | Telenor |
| Telia | 23% | 25-500 | 12 | Yes ⁴⁰ | x ⁴¹ Mbit/s >2000 GB | Yes ⁴² | Yes | Telia |
| NextGenTel | 6% | 50-300 | 12 | Yes | 5 Mbit/s >2000 GB | No | No | Telia |
| Allente | 5% | 10-500 | 12 ⁴³ | Yes | No | No | No ⁴⁴ | Telenor |
| Brdy | 1% | 10-500 | 1 ⁴⁵ or 12 | Yes | No | No | No | Telenor |

³⁶ Based on Nkom data for December 2022

³⁷ Non-binding indicated as 1 month binding. The one-off external antenna and installation fee of 4995 NOK is lowered to 1999 NOK in the case of selecting the 12-month binding option.

³⁸ Telenor previously used 2000 GB with 5 Mbit/s thereafter but is no longer communicating this limitation. The message used today is "Free use - no restrictions".

³⁹ A one-off shipping fee of 149 NOK applies, but no monthly fee

⁴⁰ As the only provider in the Norwegian market, Telia offers a self-installation option, waiving the installation price of 1999 NOK.

⁴¹ Telia doesn't explicitly say at what speed the transmission will continue after 2000 GB per month. Tefficient has asked Telia's customer service and been told that the 2000 GB limitation, in reality, isn't monitored.

⁴² Telia's router can't be deselected. It doesn't cost anything the first 12 months, but 49 NOK per month thereafter.

⁴³ Allente only sells binding contracts online but says that customers could call them to purchase non-binding subscriptions. This could affect pricing, but as not stated, such non-binding alternatives are not included in the analysis.

⁴⁴ Allente sells FWA with a lower monthly fee for customers already having TV from Allente, but does not sell a bundle of FWA+TV online

⁴⁵ Non-binding indicated as 1 month binding. The one-off start fee of 795 NOK is not charged in the case of selecting the 12 month binding option.

Telenor

The market share in B2C was 65% for Telenor in December 2022. At present, Telenor offers seven maximum download speed tiers: From 10 Mbit/s to 500 Mbit/s. The slowest speeds are based on 4G, the faster speeds based on 5G.

| Kampanje med TV | |
|-----------------|---|
| 500 | <p>Trådløst Bredbånd 500 Tilgjengelig med 5G</p> <p>1249,-/md. Inkl. TV fra 1320,-/md. + utstyr</p> <p>Kampanje! Velger du både Bredbånd og TV kan du få dette til kampanjepris 1320,-/md. i 6 måneder + 99,-/md. for leie av TV-boks. Deretter er abonnementsprisen 1698,-/md. Antenne fra 1999,- tilkommer. Det er fri installasjon.</p> <ul style="list-style-type: none"> Hastighet opptil 500 Mbps (forutsetter at vi kan nå din bolig med tilstrekkelig signalstyrke. Enkelte områder oppfyller ikke dette kriteriet, selv om det er 5G dekning der du bor) Fri bruk - ingen begrensning Utendørs antenne - For å få Trådløst bredbånd må du ha en utvendig antenne. Pris 1999,- inkl. montering, ved 12 måneders avtaleperiode på bredbåndet. <p>Sjekk tilgjengelighet</p> |
| 300 | <p>Trådløst Bredbånd 300 Tilgjengelig med 5G</p> <p>999,-/md. Inkl. TV fra 1120,-/md. + utstyr</p> |
| 200 | <p>Trådløst Bredbånd 200 Tilgjengelig med 5G</p> <p>849,-/md. Inkl. TV fra 920,-/md. + utstyr</p> |
| 100 | <p>Trådløst Bredbånd 100 Tilgjengelig med 5G</p> <p>749,-/md. Inkl. TV fra 920,-/md. + utstyr</p> |
| 60 | <p>Trådløst Bredbånd 60 Tilgjengelig med 4G</p> <p>749,-/md. Inkl. TV fra 920,-/md. + utstyr</p> |
| 30 | <p>Trådløst Bredbånd 30 Tilgjengelig med 4G og 5G</p> <p>729,-/md. Inkl. TV fra 920,-/md. + utstyr</p> |
| 10 | <p>Trådløst Bredbånd 10 Tilgjengelig med 4G</p> <p>649,-/md.</p> |

Figure 31. Telenor's FWA offering, 12 June 2023 [source: Telenor's webpage]

Telenor offers **an option without binding and an option with 12 months binding** for each speed tier. Customers who select a binding contract are rewarded with a lower external antenna installation fee: 1999 NOK instead of 4995 NOK. As all the providers in Norway, Telenor requires that their FWA solution always is coupled with an external antenna installation. Usage on addresses other than the installed address is forbidden.

The monthly data usage is now, according to Telenor, **unlimited "without restrictions"**. Telenor, who was first to launch FWA in Norway, had otherwise introduced a logic that the maximum speed was reduced

to 5 Mbit/s after 2000 GB usage in a month. The change in policy has happened since the 2022 version of this report⁴⁶.

Customers buying FWA from Telenor are **required⁴⁷ to use Telenor's router**. There's a 149 NOK shipping fee, but no other fees associated with it.

When Telenor launched FWA, options with bundled TV services were not offered. This was changed by Telenor in 2022: FWA customers can now purchase bundled TV with a favourable price.

Telia

The market share in B2C was 23% for Telia in December 2022. At present, Telia offers five maximum download speed tiers: From 25 Mbit/s to 500 Mbit/s. The slowest speeds are based on 4G, the faster speeds based on 5G.

Pakketilbud

Bredbånd og TV

Fra 915,- md. ▾

Få rabatt på TV samt HBO Max og Telia box inkludert

Bredbånd

Fra 629,- /md. ▲

Ubegrenset data – full fart inntil 2000 GB hver måned
Hvilken hastighet vi kan tilby deg avhenger av din adresse.

- Opptil 25 Mbps – 629,-/md.
- Opptil 50 Mbps – 729,-/md.-
- Opptil 100 Mbps – 729,-/md.
- Opptil 250 Mbps – 829,-/md.
- Opptil 500 Mbps – 1249,-/md.

Kampanje! [Smart WiFi](#) kostnadsfritt i 12 md. Deretter 49,-/md
[Trygg på nett-pakken](#) er inkludert i alle abonnement.

Enkel montering:
En liten, utendørs 5G-klar antenneboks festes på husveggen/vinduet. I tillegg følger router med. Vi kan montere utstyret for 1999,- – eller du kan gjøre det selv og slippe den ekstra kostnaden.

Abonnementet har 12 md. bindingstid.

Sjekk din adresse

For å kunne få Trådløst Bredbånd med hastighet 100, 250 eller 500 Mbit/s via 5G-nettet må det være sterke nok 5G-signaler på din adresse. Ikke alle adresser med 5G-dekning oppfyller disse signalkravene.

Figure 32. Telia's FWA offering, 12 June 2023 [source: Telia's webpage]

⁴⁶ On a direct email question from Tefficient, Telenor's customer service confirmed the change

⁴⁷ Can't deselect in purchasing flow

Unlike Telenor, Telia provides FWA on **12 months binding contracts only**. As all the providers in Norway, Telia requires that their FWA solution always is coupled with an external antenna installation. But as the only provider in Norway, Telia offers a **self-installation option**: Rather than paying 1999 NOK for an engineer to install it, Telia's FWA customers can optionally do the installation themselves, waiving the installation fee.

Telia communicates that FWA customers have full data speed up until **2000 GB in a month**. What the speed is after that isn't communicated. On a direct question, Telia's customer service indicates that the limit isn't monitored. Telia's communication on this matter isn't clear: Is there a limit – or is there not a limit?

Customers buying FWA from Telia are **required⁴⁸ to use Telia's router**. As there's a 49 NOK fee per month – albeit free for the first twelve months – it adds to the total price over time.

When Telia launched FWA, options with bundled TV services were not offered. This was changed by Telia in 2022 so that FWA customers can purchase bundled TV with a favourable price.

NextGenTel

The market share in B2C was 6% for NextGenTel in December 2022. NextGenTel is offering FWA over Telia's network. At present, NextGenTel offers four maximum download speed tiers: From 50 Mbit/s to 300 Mbit/s. The slowest speed is based on 4G, the faster speeds based on 5G.

The image shows a webpage for NextGenTel's FWA offerings. It features four product cards arranged in a row, each with a photo of a woman holding a smartphone. The cards are for different speed tiers: 100 Mbps, 200 Mbps, 300 Mbps, and up to 50 Mbps. Each card includes the price per month, a 'Les mer' link, a 'Sjekk tilgjengelighet' button, and a note 'Inntil oppgitt hastighet'. Below the cards is a heading 'Våre pakker på Trådløst Bredbånd' and a sub-heading 'Velg den hastigheten som passer deg best!'.

Figure 33. NextGenTel's FWA offering, 12 June 2023 [source: NextGenTel's webpage]

⁴⁸ Can't deselect in purchasing flow

Like Telia, NextGenTel provides FWA on **12 months binding contracts only**. As all the providers in Norway, NextGenTel requires that their FWA solution always is coupled with an external antenna installation.

Unlike Telia, NextGenTel clearly communicates that FWA customers have full data speed up until **2000 GB in a month and that the speed thereafter is 5 Mbit/s**.

Unlike Telenor and Telia, NextGenTel’s FWA customers **aren’t required to use NextGenTel’s router**. Instead, a router is offered as an option (129 NOK one-off fee + 39 NOK per month) to those that want it.

NextGenTel does not bundle FWA with TV.

Allente

The market share in B2C was 5% for Allente in December 2022. Allente is offering FWA over Telenor’s network – perhaps not surprising given that Allente is 50% owned by Telenor⁴⁹. At present, Allente offers the same seven maximum download speed tiers as Telenor: From 10 Mbit/s to 500 Mbit/s. The slowest speeds are based on 4G, the faster speeds based on 5G.

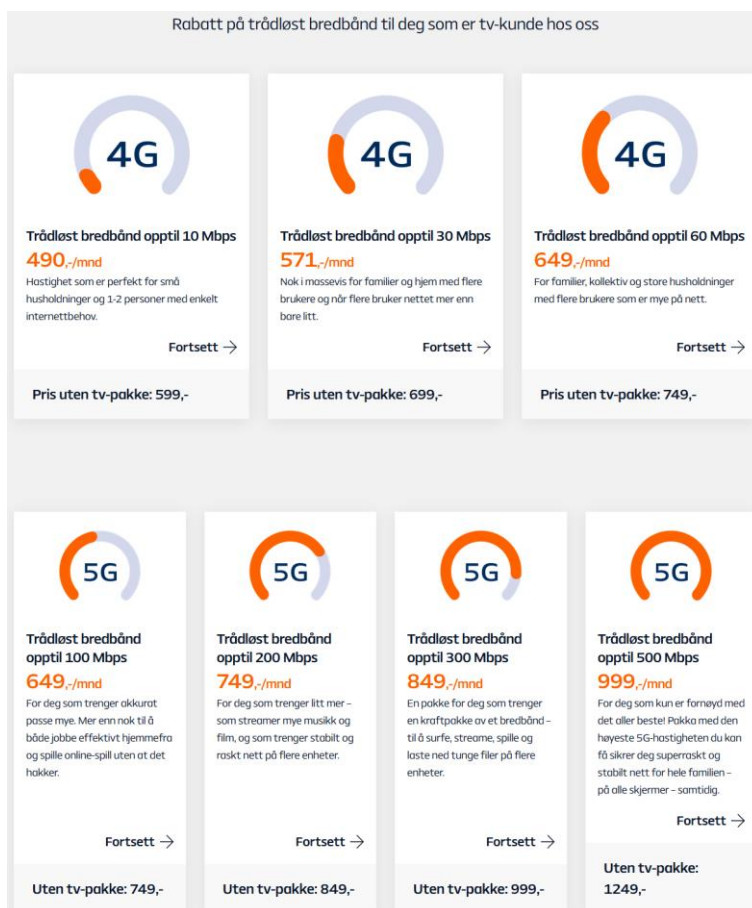


Figure 34. Allente's FWA offering, 12 June 2023 [source: Allente's webpage]

⁴⁹ Viaplay Group owns the other 50%

If purchasing online, Allente provides FWA on **12 months binding contracts only**. Allente says that non-binding options – with a bit higher price – are available if contacting them over phone, but as the prices are not stated online, it falls outside of the scope of this analysis. As all the providers in Norway, Allente requires that their FWA solution always is coupled with an external antenna installation.

Unlike Telia and NextGenTel, **no usage limit** is communicated by Allente.

Just like NextGenTel, Allente's FWA customers **aren't required to use Allente's router**. Instead, a router is offered as an option (30 NOK per month in 24 months) to those that want it.

Allente gives a **discount** between 100 and 250 NOK on the FWA prices for existing TV customers buying FWA. Unlike Telenor and Telia, no pre-packaged bundle including both TV and FWA is offered, though.

Brdy

The market share in B2C was 1% for Brdy in December 2022. Brdy offers FWA over Telenor's network. At present, Brdy offers the same seven maximum download speed tiers as Telenor: From 10 Mbit/s to 500 Mbit/s. Unlike Telenor, all speed tiers – also the lowest – are marked as 5G.

Hastigheter










| | | | | |
|----|-----------------|---|-------------------|---|
| 5G | 500 Mbps |  | 1149,-/mnd | |
| 5G | 300 Mbps |  | 929,-/mnd | |
| 5G | 200 Mbps |  | 749,-/mnd | |
| 5G | 100 Mbps |  | 649,-/mnd |  |
| 5G | 60 Mbps |  | 629,-/mnd |  |
| 5G | 30 Mbps |  | 549,-/mnd | |
| 5G | 10 Mbps |  | 499,-/mnd | |

Figure 35. Brdy's FWA offering, 12 June 2023 [source: Brdy's webpage]

Just like Telenor, Brdy offers **an option without binding and an option with 12 months binding** for each speed tier. Customers who select a binding contract are rewarded with a waived starting fee of 795 NOK. As all the providers in Norway, Brdy requires that their FWA solution always is coupled with an external antenna installation.

There's **no usage limit** with Brdy's FWA – and it is clearly communicated: "Hyperlink⁵⁰ 5G (and 4G) gives you unlimited data at the speed of your choice".

Just like NextGenTel and Allente, Brdy's FWA customers **aren't required to use Brdy's router**. Instead, a router is offered as an option for a one-off fee of 990 NOK to those that want it.

⁵⁰ Hyperlink is the brand name of Brdy's FWA

Total 5-year fee

Having introduced and compared the policies of the present five Norwegian FWA providers, let's now compare the total 5-year fees for the offered plans⁵¹.

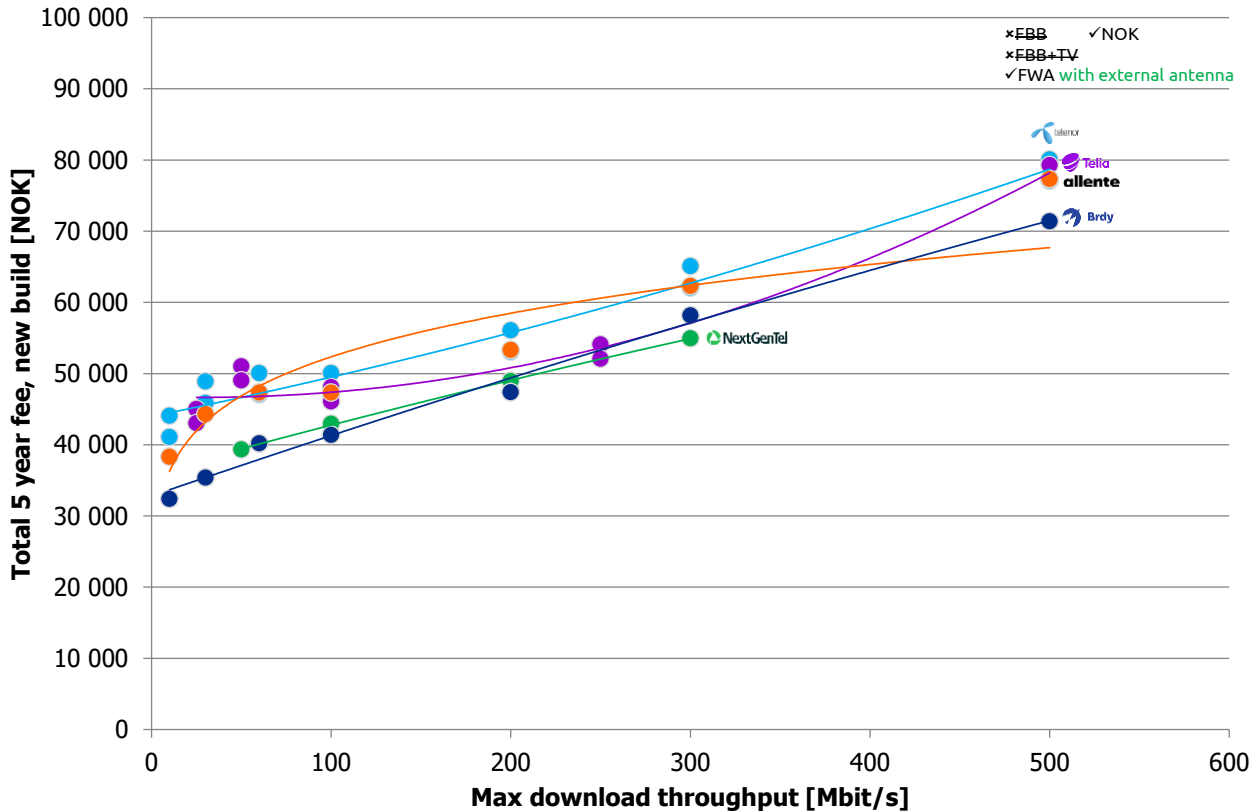


Figure 36. Comparison of the total fee (new build FWA with external antenna with at least 1000 GB of data per month) in NOK during 5 years among providers in Norway, June 2023 [source: providers' webpages and pricelists complemented by direct emails to providers when necessary].

The price differences when comparing the total 5-year fees are generally quite modest between the providers – but two of the non-MNOs, **NextGenTel and Brdy, always offer FWA at a lower total cost** than Telenor, Telia and Allente. Telia has an affordable offering in their 250 Mbit/s tier, especially if taking the self-installation option (representing the lower of the two dots shown).

There should be more Norwegian FWA providers around the corner, though.

Altibox communicated⁵² in June 2022 that it would make a 5G-based FWA offering available in the first half of 2023. It was not commercial at the time of writing, though. With Lyse – owning a majority of the Altibox base – having acquired Norway's third MNO, Ice, an Altibox FWA introduction could likely be based on Ice's mobile network. This would mean that Norway would go from two to three networks supporting FWA which

⁵¹ Bundled FWA+TV offers are excluded

⁵² <https://www.altibox.no/2022/06/03/altibox-kommer-snart-pa-5g/>

potentially could be good for competition and open for more aggressive price points. As shown in section 15, Norwegian FWA options from Telenor, Telia and NextGenTel come with higher 5-year costs than in the other three markets.

Ice is already today offering 5G-based mobile broadband plans – without the requirement of an external antenna or a fixed address but without any communicated speed – with up to 600 GB of data per month⁵³ for a total 5-year cost of 51343 NOK. This would compete well with the 200-300 Mbit/s FWA speed tiers currently offered – would it not be for the limitation of 600 GB⁵⁴.

In addition, in March 2023, the MVNO **Chilimobil** said to Inside Telecom⁵⁵ that it from the summer of 2023 would start to offer 5G-based FWA over Telia’s network. At the time of writing, it was not commercial.

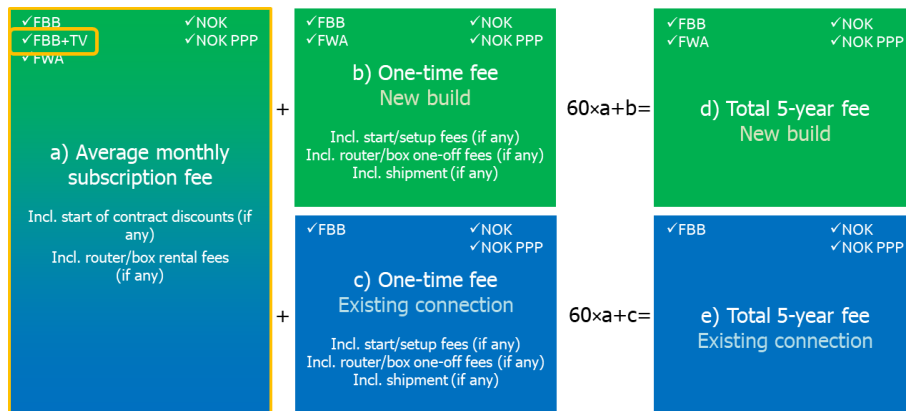
Policy differs between the five FWA providers currently on the Norwegian consumer market. The total 5-year fees are generally similar – but NextGenTel and Brdy always offer FWA at a lower total cost than Telenor, Telia and Allente. Shortly, the Norwegian FWA market might have two new providers, Altibox and Chilimobil.

⁵³ 64 kbit/s thereafter

⁵⁴ A minimum requirement on 1000 GB applies to this analysis

⁵⁵ <https://www.insidetelecom.no/artikler/chilimobil-qar-inn-pa-bredbandsmarkedet-til-sommeren/528697> (behind paywall)

17. Broadband & TV bundle: Average monthly subscription fee



Some broadband providers offer customers a *discounted* bundle between broadband and TV. As TV services today can be delivered over broadband with high quality, broadband providers see TV services as a method to increase revenue from one and the same customer. Telecom providers are also taking market share in TV from traditional TV providers such as terrestrial TV and cable TV players. At the same time the whole TV market is undergoing a rapid change when new streaming providers such as Netflix, HBO Max and Disney+ challenge the traditional TV.

It is today very easy for a consumer with a broadband connection to subscribe to the content (TV and streaming) that he/she wants. This means that fewer consumers see the need for telecom or TV providers to create packages of channels for them. Whereas the traditional telecom and TV providers have had the tendency to lock customers in on long binding contracts, the new streaming providers have, in contrast, made it easy for customers to flexibly come and go, committing only to one month at a time.

Hence, we have in this analysis, as mentioned, only captured broadband plans that bundle TV services if that bundling **provides a discounted price** to the customer. Otherwise, that bundle isn't providing any additional value; the customer can do that bundling him/herself whenever he/she feels for it.

Figure 37 shows the average monthly subscription fee during the first 5 years. The exact TV content will of course vary between countries and between providers, but we have selected the **basic, entry level, TV option** for all providers. Typically, that means all free-to-air national channels plus 10-15 additional TV channels and occasionally also one streaming service.

Denmark is no longer offering broadband & TV bundles with a discounted price and is therefore not in Figure 37.

Note that FWA plans with bundled TV are included in Figure 37.

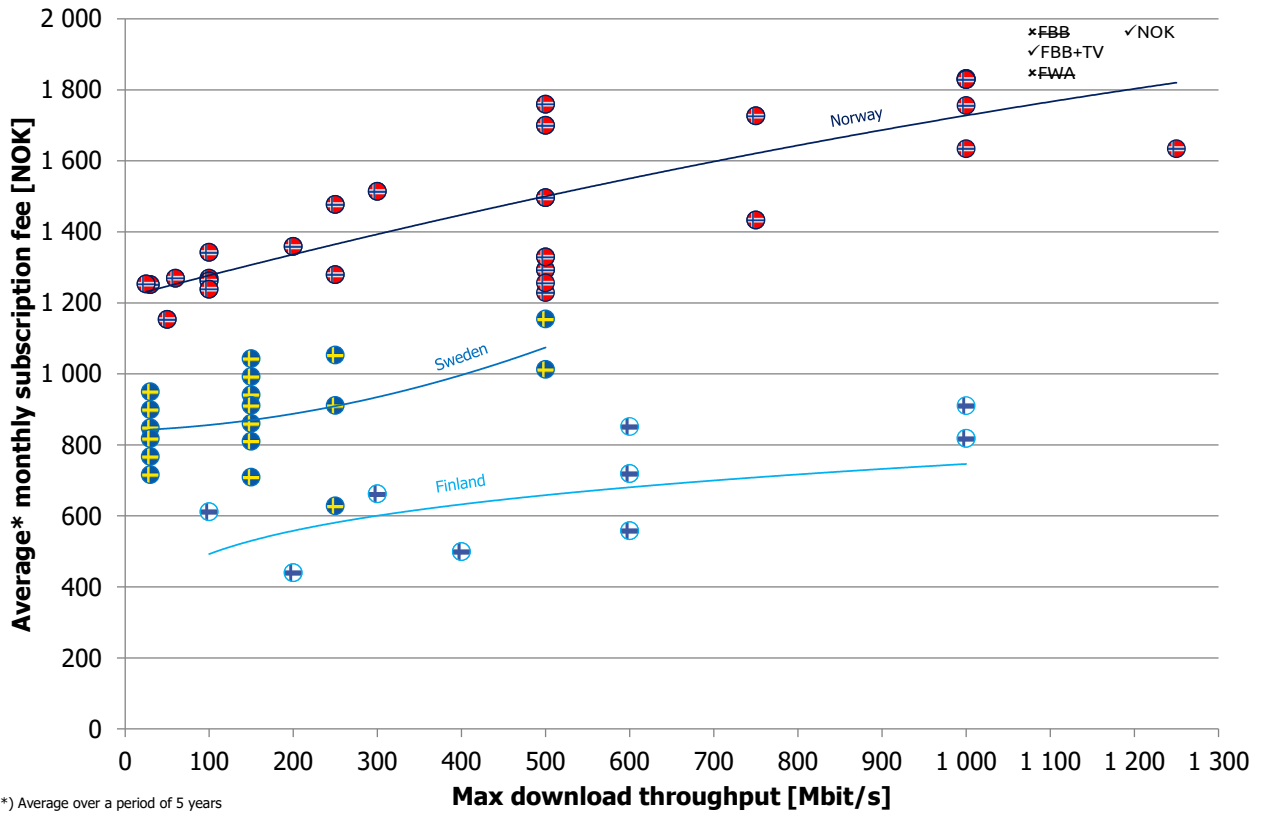
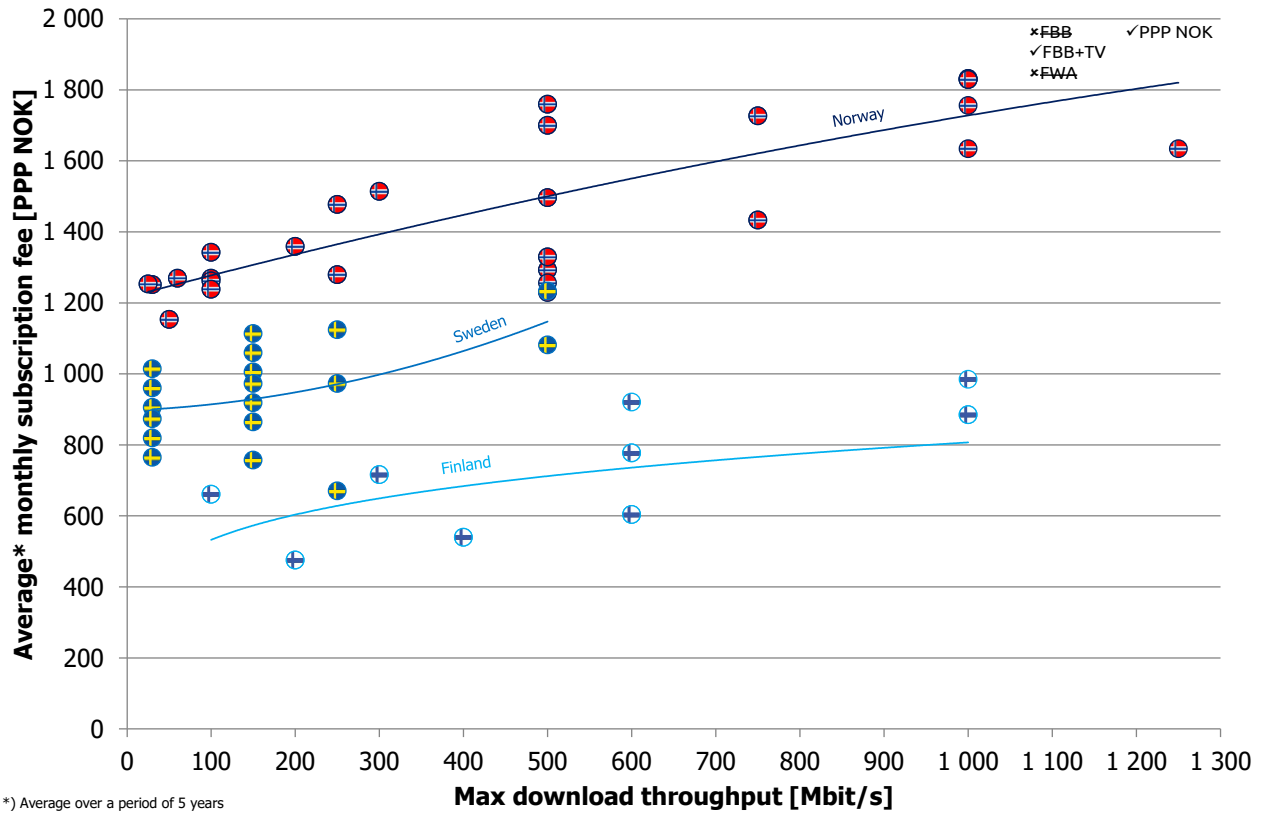


Figure 37. Comparison of the average monthly subscription fee for a discounted broadband & TV bundle in NOK during 5 years among providers in Norway, Sweden and Finland, June 2023 [source: providers' webpages and pricelists complemented by direct emails to providers when necessary].

Like how it looked for pure fixed broadband, see Figure 5, Norway's broadband & TV bundles are more expensive – for a given throughput – than similar bundles in Sweden and Finland. The TV content will, as said, differ between the markets but we can see that it's **the broadband component that explains the difference in price** as the trends are similar to Figure 5.

The next graph shows the same after purchasing power adjustments.



*) Average over a period of 5 years

Figure 38. Comparison of the average monthly subscription fee for a discounted broadband & TV bundle in PPP NOK during 5 years among providers in Norway, Sweden and Finland, June 2023 [source: providers' webpages and pricelists complemented by direct emails to providers when necessary, OECD].

Also after purchasing power adjustment, Norwegian bundled broadband & TV plans always come with a higher average monthly subscription fee than similar plans in Sweden and Finland

18. TV: ARPU

As with fixed broadband, some Nordic providers report TV ARPU (average revenue per user per month)⁵⁶. It provides an additional comparison to the just-concluded comparison of average monthly subscription fees for broadband & TV bundles. As usual, we first look at it in NOK:

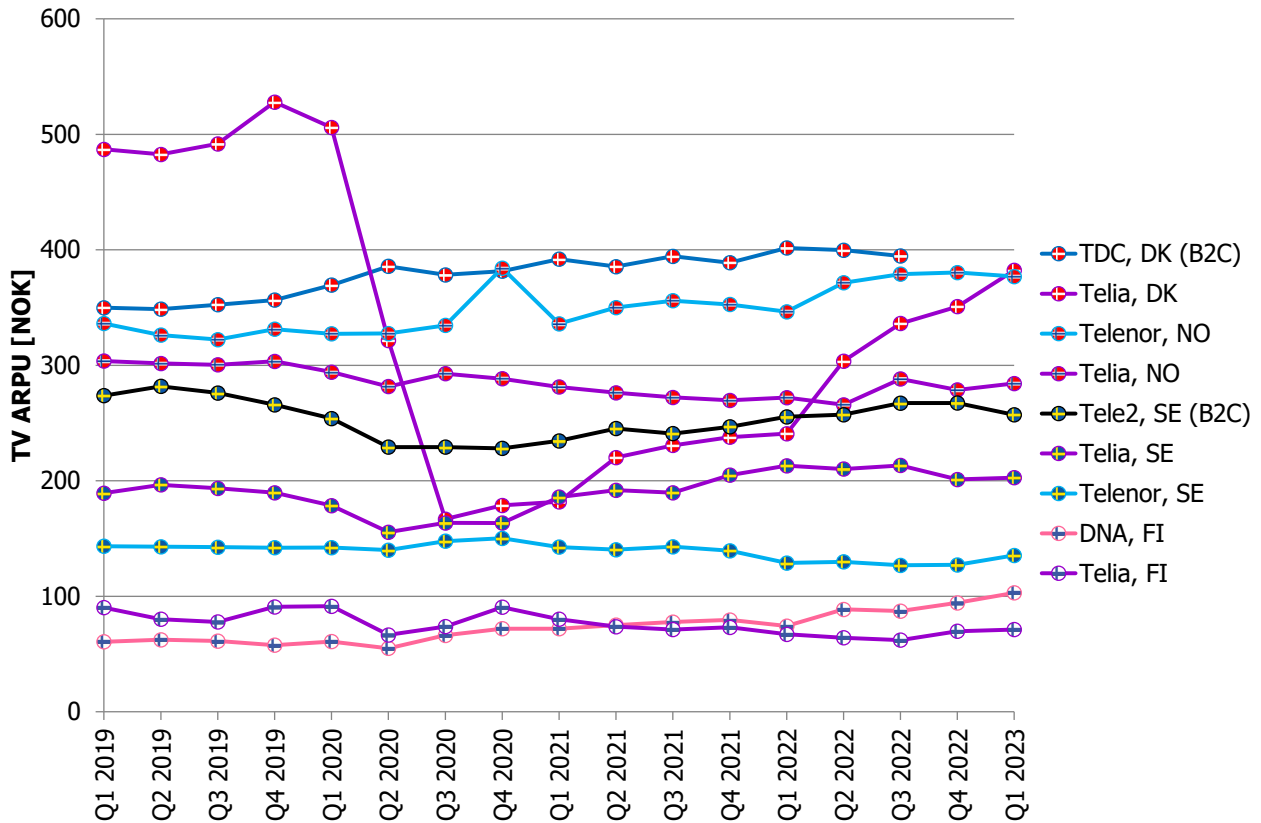


Figure 39. Comparison of reported TV ARPU in NOK among providers in Norway, Denmark, Sweden and Finland [source: operators' financial reporting].

And then in PPP NOK:

⁵⁶ Since broadband and TV sometimes are bundled together, operators are distributing part of the bundle revenue into broadband ARPU and part into TV ARPU.

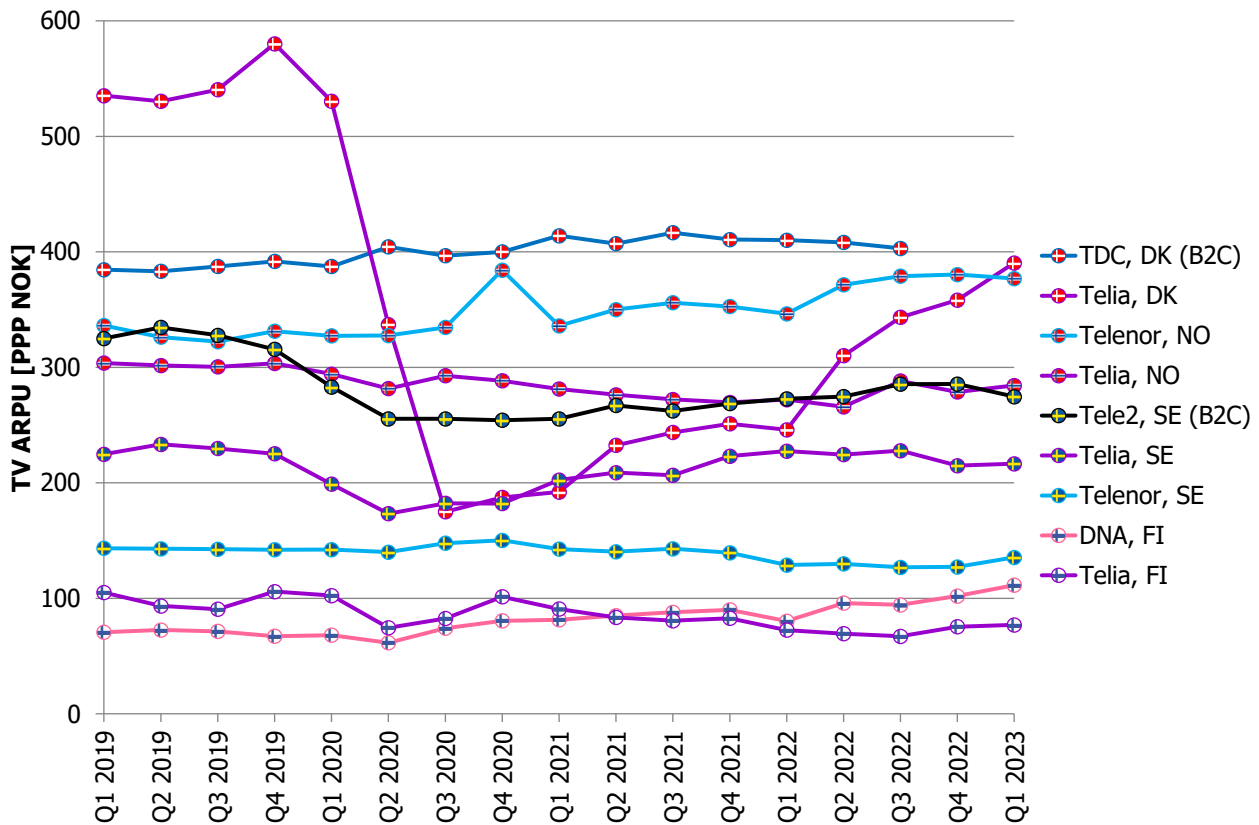


Figure 40. Comparison of reported TV ARPU in PPP NOK among providers in Norway, Denmark, Sweden and Finland [source: operators' financial reporting, OECD⁵⁷]. The PPP values for the respective full year are applied to each quarter in that year.

In PPP terms, TDC had the highest TV ARPU among reporting operators in the region – at least up until Q3 2022 when TDC no longer was reported due to the split into Nuuday and TDC NET⁵⁸. Telia Denmark has the second highest TV ARPU, but the base is small and the reported ARPU has historically had strange swings.

Telenor Norway has the third highest TV ARPU. Telia Norway is more mid-ranked – with approximately the same position as for fixed broadband. If comparing to the broadband ARPU (Figure 8), where Telenor Norway had the highest ARPU in PPP terms (if disregarding TDC's B2B ARPU) and Telia Norway a broadband ARPU lower than median for the Nordics, Telenor's position is less extreme whilst Telia's is around the median. This speaks for that it's the broadband component rather than the TV component that explains Norway's position in the previous section (Figure 38).

After purchasing power adjustment, Telenor Norway has the third highest TV ARPU among reporting Nordic operators. Telia Norway is at a lower level – closer to the Nordic median.

⁵⁷ The purchasing power parity adjustment for Q1 2023 is based on OECD's figures for 2022.

⁵⁸ Nuuday has not continued to report ARPU in its reporting

19. Summary and conclusion

This is the third analysis of its kind – February 2021, January 2022 and June 2023⁵⁹ – spanning over 2.5 years. Although numbers have changed, it re-establishes the main findings from previous years. A few trend shifts can be observed, though⁶⁰:

- **Broadband prices** have increased somewhat in Norway. It generally increased also in the other three markets – but at a higher rate.
- Due to this – and due to the weakening of the Norwegian krona in 2023 – the relative difference between Norway and the other markets shrunk.
- The **fibre adoption** has increased somewhat in Norway and in the other three markets.
- The **FWA with external antenna take-up** has been fast in Norway – and although no apple-to-apple comparison exists, it's likely been faster than in the other three markets⁶¹

The findings of the analysis are:

Fixed broadband: Subscription fee, PPP

- Norwegian plans are generally – with few exceptions – more expensive than same-speed plans in Denmark, Sweden and Finland.

Fixed broadband: ARPU, PPP

- Telenor Norway has the highest fixed full-base (B2C and B2B) broadband ARPU among reporting Nordic operators.
- Telia Norway has a much lower level – more comparable with Denmark, Sweden and Finland.

Fixed broadband: One-time fee – new build, PPP

- Norwegian new build one-time fees are reasonable in comparison to the Swedish and Finnish examples.
- Only Denmark seems to generally operate with lower new build one-time fees than Norway.

Fixed broadband: One-time fee – existing connection, PPP

- One-time fees for existing connections are often much lower than for new build. They are also modest in comparison to subscription fees over a longer period. This means that it's not a very important cost component in the bigger picture.

Fixed broadband: Total 5-year fee – new build, PPP

- The Norwegian new build customer will pay a similar amount as a Swedish customer but a higher amount than a Finnish and Danish customer.

⁵⁹ Updated with new PPP methodology in September 2023

⁶⁰ Due to the change in PPP methodology, the trends below are based on unadjusted NOK

⁶¹ Finland however has a large FWA market *without* external antenna, a solution not provided in Norway

Fixed broadband: Total 5-year fee – existing connection, PPP

- The Norwegian existing connection customer will generally, with few exceptions, pay a higher amount than customers in Denmark and Sweden.

Fixed broadband: Actual throughput

- Norway has fixed broadband networks with high median throughput, but so have Sweden and Finland. Denmark has twice the speed of the others.
- With Norway's generally higher subscription fees, the willingness to pay for a faster throughput tier might not be as present as in Denmark.

FWA: Subscription fee, PPP

- Norwegian FWA plans are more expensive than same-speed plans in Denmark, Sweden and Finland
- Finnish and Danish FWA plans are the most reasonably priced across the four markets.

FWA: One-time fee – new build, PPP

- Norwegian new build FWA with external antenna one-time fees are comparable to the Swedish examples – and generally lower than in Finland.
- The new build FWA without external antenna one-time fees have the potential to be lower than with an external antenna, but so far, no such options are offered in Norway.

FWA: Total 5-year fee, PPP

- The Norwegian FWA customer with external antenna will always pay a higher amount than all Swedish and Finnish customers for the same speed.
- Some Norwegian FWA plans are still limited to 2000 GB of full-speed data per month – a restriction compared to fixed broadband plans.
- All providers in Sweden and Finland haven't made that restriction: All FWA plans are unlimited there.
- Norwegian FWA plans with 250 Mbit/s or higher maximum speed are, although often more limited in data volume and likely in actual speed, priced as high or with a premium over same-speed fibre plans.

Norwegian FWA: Comparison of providers, pricing, speed and other policy parameters

- Policy differs between the five FWA providers currently on the Norwegian consumer market.
- The total 5-year fees are generally similar – but NextGenTel and Brdy always offer FWA at a lower total cost than Telenor, Telia and Allente.
- Shortly, the Norwegian FWA market might have two new providers, Altibox and Chilimobil.

Broadband & TV bundle: Subscription fee, PPP

- Norwegian bundled broadband & TV plans always come with a higher average monthly subscription fee than similar plans in Sweden and Finland.

TV: ARPU, PPP

- Telenor Norway has the third highest TV ARPU among reporting Nordic operators.
- Telia Norway is at a lower level – closer to the Nordic median.

Trends over three analyses

Since this is the third analysis of its kind – February 2021, January 2022 and June 2023 (updated with new PPP methodology in September 2023) – spanning over 2.5 years, we can identify certain **trends** when it comes to Norway's position. Due to the change in PPP methodology, the trends below are based on unadjusted NOK.

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- **Norway's fixed broadband subscription fees are still – with few exceptions – more expensive** than same-speed plans in the other markets.
 - Fixed broadband subscription fees have **increased** somewhat in Norway. They generally increased in the other three markets too – but **at a higher rate**. In combination with the weakening of the Norwegian krona in 2023, the relative difference between Norway and the other markets lessened.
 - Norwegian **new build fibre one-time fees continue to be reasonable** in comparison to the Swedish and Finnish examples. Only Denmark generally operates with lower new build one-time fees.
 - The **total 5-year fee** for a new fibre build is not much higher in Norway than in Sweden but is still much higher than in Finland and Denmark.
 - The **fibre adoption has increased somewhat** in Norway and in the other three markets.
 - Norway's **FWA subscription fees are still more expensive** than same-speed plans in the other markets. Telenor has, since last analysis, withdrawn its speed throttling after 2000 GB.
 - The Norwegian FWA customer with external antenna **will still always pay a higher amount over 5 years** than all Swedish and Finnish customers – for the same speed.
 - The FWA (with external antenna) take-up was fast in Norway in 2020 and 2021 but growth has slowed down since even though the number of providers increased. Although no apple-to-apple comparison exists, the **FWA take-up has likely been faster** than in the other three markets. Two new providers have said they will start offering FWA during the summer of 2023.
 - Norwegian **bundled broadband and TV plans** still come with a higher average monthly subscription fee than similar plans in Sweden and Finland.
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