

ETNO Policy Note: Licensing Mobile Spectrum

Given the ongoing preparatory work by the European Commission and the RSPG on a new multiannual radio spectrum policy programme and the wider European socio-economic recovery context, ETNO would like to provide its views and suggestions on the common efforts to accelerate the development of digital communications. This brief policy note should be considered as an initial contribution towards the future policy framework on licensing mobile spectrum.

Spectrum demands

Mobile Network Operators (MNOs) need spectrum across low, mid, and high spectrum ranges to deliver widespread coverage and support all use cases:

- Low-bands (e.g. sub-1 GHz) support widespread coverage across urban, suburban, and rural areas and help support Internet of Things (IoT) services. Mobile demand is continuously growing also in rural areas. Thus, further ultra-high frequency (UHF) assignments for mobile should be considered in longer term.
- Mid-bands typically offer a good mixture of coverage and capacity benefits. The majority of commercial 5G networks are initially relying on spectrum within the 3.3-3.8 GHz range. Other bands which may be assigned to or re-farmed by operators for 5G include 1800 MHz, 2.1 GHz and 2.6 GHz. In the long term, more spectrum is needed to maintain 5G quality of service and support growing demand. For example, 3.8-4.2 GHz and 6 GHz may have potential of meeting the urban coverage and capacity demands in longer term.
- High-bands are needed to meet the ultra-high broadband speeds envisioned for 5G. Spectrum in 26 GHz and 40 GHz are expected to address this demand in the near term.

The national European spectrum release plans should be published sufficiently early and they should include clear timelines, licensing approach, amount of spectrum and conditions on whether to clear the band or share the band with the existing use. Operators appreciate clear plans and early decisions for license renewals, as it brings stability and predictability for investment related decisions.

Spectrum assignments

Individually licensed spectrum for exclusive usage is the basis for ensuring widespread and high-quality mobile services, as it provides certainty for making the necessary long-term investments for mobile networks. When demand for spectrum is higher than supply, well-defined auction is the best way to ensure efficient spectrum allocation. Auctioning spectrum is a transparent award mechanism that allows for spectrum allocation at its commercial value if the reserve prices are set correctly. Other award mechanisms may be feasible in case there is less demand than supply, or when the market is well-functioning and balanced. For example, license prolongation may be a feasible approach for renewing existing licenses. Direct assignment may also be used if it is proven that there is no excess demand. This kind of approach may be feasible, for example, if plan

is to issue local licenses in a specific range of mm-wave spectrum. When spectrum awards are being planned, the potential appropriate mechanisms should be evaluated and inputs from stakeholders considered.

Auctions should be designed to secure efficient assignment of spectrum with a clear objective to generate greatest economic value from its use rather than to raise revenues. Auctions should therefore be used to award spectrum as soon as spectrum becomes available, without artificially constraining supply. Available spectrum should be packaged in a way that is optimal for intended use, and where possible, to ensure contiguous assignments to operators. Reserve prices, choice of auction format and obligations attached to licenses all require careful consideration to avoid distorted or sub-optimal outcomes. Regulatory measures such as wholesale or roaming obligations - where needed and appropriate - should not be imposed ex-ante without a market analysis and the detection of a market failure.

Furthermore, the market entry of new entrants should not be based on a discriminatory reservation of spectrum or extra-favourable licensing conditions. For all interested parties, the conditions set by the National Regulatory Authority (NRA) should be objective, transparent, non-discriminatory, and proportionate, as only these principles can provide a basis for sustainable competition and help avoid the risk of severe service interruption. NRAs, who are considering withholding important spectrum resources from national public auctions e.g. for new entrant, local operators, or vertical use, must carry out a full policy assessment inclusive of a cost/benefit analysis for the implications of the planned regulatory approach inducing reduction of spectrum supply for social welfare. This can lead to artificial scarcity and to a tremendous increase of spectrum costs for national network operators. In addition to award processes, spectrum leasing may be an efficient approach for accessing spectrum. License terms should allow leasing based on commercial terms.

In order to ensure efficient spectrum allocation, additional obstacles should not be set at national level. Overly strict Electromagnetic Field (EMF) emission norms that are not based on scientific evidence lead to difficulties fulfilling coverage obligations and increase network densification and deployment costs and should therefore be avoided. Unduly limiting use of specific vendors/equipment in the market risks increasing network investment costs and delaying deployments. Efficient use of spectrum can be supported by ensuring fast processes for deployments permits as well as by enabling access to public sites, fibre and electricity.

As stated above, MNOs need exclusively licensed spectrum to support wide area services, heavy network investment and good quality of service. Thus, exclusive licenses should remain the key method to assign spectrum for MNOs. However, as it is becoming increasingly difficult to completely clear new spectrum bands, shared spectrum can play an important complementary role, if the band and sharing framework are carefully designed. Consultations with all potential spectrum users are vital. MNOs require flexibility in deployment to support urban and rural services, indoor and outdoor use, small cells and macro-cells as well as to serve fixed wireless and potentially in-band backhaul use cases. In cases where spectrum sharing would imply that an insufficient amount of licensed spectrum is available to mobile operators where and when they need it, spectrum sharing arrangements may limit or eliminate the potential for mobile services in a particular band.

Obligations

Good coverage and quality of service are important competitive advantages for operators and provide a strong incentive to invest in their networks. While it is true that MNOs face difficulties covering specific challenge areas or achieving a high data rates in others, imposing strict coverage obligations may cause inefficiencies and waste of resources as these obligations do not adequately reflect real market needs. It is very difficult to predict where mobile services will develop and consequently where mobile coverage will need to be ensured. In addition, 5G and next generation services will have different coverage requirements from those of traditional services (e.g. automotive equipment will require uninterrupted coverage of all roads, which is different from the coverage required by personal communications). Market dynamics will push operators to install mobile networks as quickly as possible in areas where demand is increasing and also to be able to monetize the investments made in the licensing process. Therefore, the enormous costs often associated with coverage obligations have to be taken into account when fixing auction starting prices and annual spectrum fees. MNOs could be incentivized to cover the challenging, mostly remote areas, for example, by decreasing assignment fees for operators taking the coverage burden and by directing auction revenues for network deployment in these areas or by including these areas in public funding programmes.

Furthermore, ETNO believes that if coverage obligations are set, they should not be linked to a specific band. Operators should have the flexibility to fulfill obligations by any suitable right of use, and based on this viewpoint, obligations already imposed to legacy bands should not be “copy & paste” to new bands. No coverage obligations should be set in mm-wave bands, as these bands are better suited for adding capacity in congested areas rather than for expanding coverage. Despite being used in determined areas, ensuring the availability of mm-wave bands by national licenses is important to ensure operators have access to the spectrum where and when deployment is needed.

Cost of spectrum assignments

When setting license fees, it is important to take into account the socio-economic value of spectrum: the beneficiaries of spectrum stretch far beyond mobile operators, as mobile networks enable remarkable efficiency improvements for many industries and society at large. The need of spectrum has been rapidly increasing and 5G network related investments are high. Therefore, the level of spectrum fees, reserve prices, and annual fees, should be kept at reasonable level based on an efficient market driven assignment procedure and with an objective to maximize investment in infrastructure. Spectrum fees should ensure efficient assignment and use of radio spectrum and reflect economic and technical factors. Maximizing licensing revenue in the 5G context will be damaging for the society in the long run, as deployment risks being carried out at a slower pace.

Reasonable approach should also be promoted for auction payments. Payment should not be required before the license is available for use. Dividing the auction payments over in several instalments over many years may be considered as an approach to support network investments to timely deploy the new spectrum.

Furthermore, a speedy and broad roll-out of investment-heavy 5G networks can only be assured if European spectrum policies support economically sustainable telecommunications market and

receive support from users, citizens, and politicians. Governments and regulators should work towards public acceptance for 5G as health-related concerns linked to 5G have become more prevalent in many European countries. In parallel, governmental intervention is urgently needed to fight against the mis- and disinformation related to 5G. Also, the recent wave of vandalism against telecom infrastructure and attacks against telecom employees across several EU countries must be strictly condemned.

Reserving spectrum for verticals

Reserving mobile spectrum for specific use cases/users is not an appropriate method to address vertical use cases.

A detailed analysis on costs and benefits as well as demands should be carried out before deciding on reserving spectrum for verticals. Spectrum reservation increases the risk for higher auction prices; fragmenting the spectrum potentially for very long time; distorting competition especially, if some users access spectrum at lower prices; and for building campus networks with lower cybersecurity requirements while competing in the same business. These factors lead to higher investment costs, and eventually higher consumer prices and/or worse network quality.

There is no need to reserve internationally harmonized spectrum for private networks serving different verticals and for other players. Operators provide a wide variety of enterprise solutions, including campus networks, some solutions already being offered through the early 5G networks. Most vertical demands can be supported in existing mobile networks. With the rollout of 5G, specific customer needs can be addressed even better by using the network slicing functionality. Approaches for meeting specific customer demands should be considered and tested together with different stakeholders. Regulators should consider how they could facilitate this cooperation, instead of planning spectrum fragmentation in the form of set-asides. In addition of using mobile networks, unlicensed spectrum and spectrum leasing may provide solutions for verticals.

Sustainability - Role of mobile networks to help combat climate change

ETNO members are closely following the trends in energy consumption and exploring innovative ways in which the telecoms and digital sector can help mitigate the impact on climate change at large. Telecom sector is one of the best performing sectors in reporting carbon emissions, direct and indirect carbon footprint as well as plans to reduce this. The importance and potential of mobile networks to reduce emissions while keeping societies and economies running has recently been shown during the COVID-19 crisis worldwide.

Exploring mechanisms by which spectrum policies may affect climate change is important and this work should be carried out in cooperation with different stakeholders. Telecom sector already enables efficient operation and savings in many other sectors, and this also has enormous potential in the future.