Annual usage fees for spectrum

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Nairobi, Kenya

Annual fees – best practice & risks

- Best practice:
  - Primary purpose of annual fees should be to cover costs of spectrum management
  - Such costs are small relative to value of using spectrum
- Two common mistakes:
  - Setting high fees annual fees that reduce flexibility to set for reserve prices in spectrum awards, and may deter spectrum acquisition
  - Setting fees linked to deployment that deter network investment and customer acquisition at the margins

This issue is particularly relevant to Kenya, as:

- Market structure is very asymmetric so high annual fees have disproportionate impact on small bidders
- Investment case for rural mobile coverage is sensitive to small changes in costs

Fees that deter spectrum acquisition
Case study: Mexico

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- Mexico's mobile market is highly asymmetric in subscriber market share – similar to Kenya
- Annual fees are set on a band by band basis by the government through legal statute (*Le Federal de Derechos*)
  - Historically set at high levels
  - Burden of annual fees on operators has % revenues has grown with expansion of spectrum allocation
  - Now widely recognised that historic fee levels are unsustainable as Mexico approaches the 5G era
- Annual fees costs fall particularly heavily on the smaller operators, owing to their relative modest revenue base
- High fees also make spectrum allocation difficult, as:
  - Regulator has no flexibility to set reserve prices:
    - Reserve prices have to be very low given high fees
    - No flexibility to adjust prices to create incentives for operators to pursue other policy objectives, such as coverage
  - Smaller operators deterred from buying incremental spectrum

Mexico Mobile Market Summary

Operator	Subscriber Market Share	Spectrum Share
Telcel	65.6%	48.9%
Movistar	22.7%	17.6%
AT&T Mexico	11.7%	33.5%

Notes: Excludes wholesale operator Atlan's 90 MHz in 700 MHz band

High annual fees likely depressed demand for AWS capacity spectrum

Annual fees comprised 82% of the reserve price	1 of 3 operators did not bid in auction
One block of AWS-3 spectrum went unsold	Largest operator bought maximum allowed under cap

Fees that deter investment: Examples from around the world

- Annual Fees that are **directly linked** to performance metrics may deter investment in higher quality mobile services
- Problematic practices include linking fees for spectrum to:
  - the number of base stations
  - the number of subscribers; or
  - total revenues

Such fees can become a big problem if set at any level above a trivial proportion of incremental revenues from expanding capacity or customer bases

Case studies

Ecuador

Annual Licence fee linked to the number of base stations and the amount of spectrum deployed, potentially disincentivising investment and may promote the warehousing of additional spectrum

India

Annual spectrum charges are calculated as a percentage of Adjustable Gross Revenue (AGR). The charge varies depending on the amount of spectrum owned (in MHz) and can reach as high as 8% of AGR

Uruguay

For terrestrial mobile use, the Annual Spectrum Fee varies based on the amount of spectrum owned, as well as the number of base stations and the number of cellular subscribers

A better approach: Denmark

- Denmark sets modest annual fees that allow the Danish Energy Agency (DEA), which regulates the telecommunications industry, to recover the **administrative costs** associated with spectrum management
- The DEA publishes the frequency charges for each year, and each licence has a fixed component and a variable component calculated based on MHz allocated to each licence. The Annual Frequency Charges for 2017* are:
  - **Fixed Component** of DKK 600 per licence (approximately $94)
  - **Variable Component** (for mobile network operators) calculated using the table below
- Example: For Danish 1800 MHz auction in 2016, Annual Frequency Charges accounted for approximately **6%** of the lump sum final price paid for the licences

Danish Annual Frequency Charge – variable component

Frequency Band (MHz)	Variable Component (DKK per MHz)	Variable Component (USD per MHz)
0-470	56,405	9,024
470-1000	112,811	18,050
1000-3000	56,405	9,024
3000-9500	5,640	902
9500 to 33,400	564	90
Over 33,400	282	45

Lower prices for spectrum below 470 MHz are reduced owing to antenna limitations

Price is highest for sub 1 GHz coverage spectrum

Annual Frequency Charge decreases with rising frequency owing to inferior propagation characteristics

*The Annual Frequency Charge in Denmark can be found in the *Bekendtgørelse af frekvensafgifter i 2017* at https://ens.dk/sites/ens.dk/files/Tele/bekendtgoerelse_af_frekvensafgifter_i_2017.pdf

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