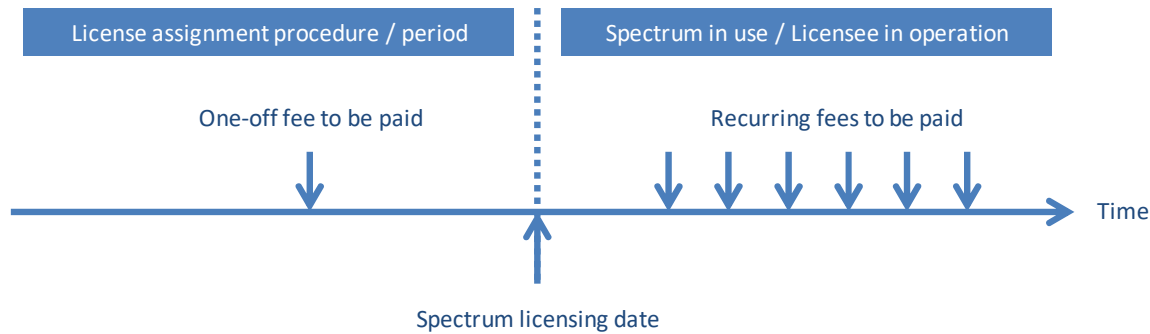


## General approaches for spectrum pricing

A National Regulatory Authority (i.e. the regulator) can charge money for spectrum usage at different moments in time. Figure 1 schematically illustrates this point.



*Figure 1: Timing of charging spectrum usage fees*

The most common form of paying for spectrum licences (i.e. spectrum usage, on the right side of the above figure) is a cost-based system. Spectrum management costs money and these costs are charged to spectrum users or, to be more precise, to spectrum licence holders (as opposed to licence free spectrum usage). By aggregating all spectrum management costs (including overhead costs) and subsequently dividing it between all licence holders, the licence fee is determined.

In recent years new ways of charging for spectrum usage/licences were introduced. In countries such as the UK, Australia and New Zealand, so called 'administrative incentive pricing' regimes have been introduced.

These pricing regimes are not based on costs but on economic value so as to make spectrum allocation more flexible and return this economic value to society at large. For determining the economic value of licences (i.e. the licence fee to be paid each period) complex models are used based on principles of 'next-best-alternative' or opportunity pricing. As these pricing considerations go beyond the scope of these guidelines, more details may be obtained from the websites of Ofcom in the UK ([www.ofcom.org.uk](http://www.ofcom.org.uk)), Commerce Commission of New Zealand ([www.comcom.govt.nz](http://www.comcom.govt.nz)) or ACMA of Australia ([www.acma.gov.au](http://www.acma.gov.au)).

Next to 'administrative incentive pricing' regimes, which are based on economic value, regulators also introduced the assignment instrument of auctions (left hand side of the above figure). Especially for licensing/assigning mobile service licences, auctions were introduced. In an auction, the bidder assigning the highest economic value to the licence and consequently offering the highest price will acquire the licence.

Auctions are used primarily as an instrument to allocate scarce resources (i.e. spectrum) in a transparent manner and are different from the above mentioned 'administrative incentive pricing' regimes. However, licensees having acquired their licence through an auction and hence having paid the economic value of the licence already should not be charged twice by applying also an administrative pricing regime for that licence.

License fees based on cost recovery have the following advantages and disadvantages:

1. Advantages:

- a. Transparent and accountable;
  - b. Relatively easy to determine price levels (as opposed to value-based pricing);
  - c. In line with 'command and control' spectrum management approach;
2. Disadvantages:
- a. Does not reflect economic value of spectrum and can result in allocating spectrum to users/applications not generating most value for society;
  - b. Pricing can vary from year to year as the number of licence holders and/or users change of the years (given a certain cost level), generating market resistance/court cases;
  - c. Needs regular updating as cost levels can change over time;
  - d. Ignores earning capacity of licence holders. Especially the spectrum levies for broadcasters can be relatively high and this can be perceived as unfair.