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‘UK Case Study’

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Recent chronology of spectrum reform

1998  Wireless Telegraphy Act
   - permits licence auctions
   - introduces administrative prices for spectrum

2002  Independent review of spectrum management and
       Government response

2003  Communications Act
   - entrusts frequency management to new regulatory agency
     – OFCOM
   - authorises spectrum trading

2004  Introduction of spectrum trading?

2004  New administrative prices?
Spectrum Management Instruments to be discussed

<table>
<thead>
<tr>
<th>Instrument Type</th>
<th>Individual licensing</th>
<th>Initial assignment</th>
<th>Secondary trading</th>
<th>User price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command and control</td>
<td>Yes</td>
<td>Administrative</td>
<td>No</td>
<td>None (except administrative change)</td>
</tr>
<tr>
<td>Administrative incentive pricing</td>
<td>Yes</td>
<td>Administrative</td>
<td>No</td>
<td>Yes (‘opportunity cost’)</td>
</tr>
<tr>
<td>Primary auctions</td>
<td>Yes</td>
<td>Auction</td>
<td>Not necessarily</td>
<td>Not normally</td>
</tr>
<tr>
<td>Secondary trading</td>
<td>Yes</td>
<td>Auction or administrative</td>
<td>Yes</td>
<td>Not necessarily</td>
</tr>
</tbody>
</table>
OFCOM’s Duties

‘to further the interests of citizens in relation to communications matters
to further the interests of consumers in relevant markets, where appropriate by promoting ‘competition’

OFCOM must, by virtue of above, secure
‘(a) The optimal use for wireless telegraphy of the electro-magnetic spectrum’
OFCOM’s (apparent) overall strategy

- Twin track
  - Some spectrum reserved for public service functions, and subject to administrative incentive pricing
  - Remainder subject to tradable licences, involving (progressively) change of owner, reconfiguration and change of use
Administrative Incentive Pricing

Aim is to provide incentive to economise on demand by pricing at competitive/opportunity cost level. Some spectrum has no opportunity cost, because of international agreements (NATO spectrum, ICAO). Some spectrum, eg. in sparsely populated regions, is in excess supply – has zero opportunity cost and price. Market price of spectrum depends on a) cost reduction potential – degree to which use of frequency reduces costs of production and b) scarcity rent-profits available in downstream market.
The UK approach to administrative pricing

A. Original method – ‘Smith Nera’
   - Spectrum valued on basis of two alternative technologies
     - Substitution between mobile spectrum and base stations
     - Substitution between fixed links and wire-based technologies
   Subject to ‘modifiers’ and introduced progressively.

B. New proposal
   - Also takes into account substitution of one frequency by another.
UK Spectrum Auctions

A. 3G - 2000
   13 bidders for five licences
   Completed after 150 rounds, bidding revenues of £23bn
   Licences gained by four 2G incumbents plus one entrant

B. 28 GHz – 2000
   42 licences for fixed wireless broadband in 14 areas
   Only 16 sold; remainder unsuccessfully re-auctioned later

C. 3.4 GHz – 2003
   15 licences sold after 41 rounds for £7m.
Do auctions make a difference?

- Direct spectrum to most efficient operators
- Do not allow change of use, secondary trading
- May discourage risky ‘all or nothing’ bids
Secondary Trading: issues to be addressed and OFCOM’s proposals

- Protection from interference (new method)
- Duration of licences (5-year rolling)
- Dispute resolution (special institutions)
- Competition issues (‘significant lessening of competition’ test on trades)
- Administrative incentive pricing as well (yes)
- Introduction (gradual over 2004-7)
Unlicensed Spectrum

- Already available on many frequencies
- Problem of choosing future
  ‘commons’ still under debate