Welcome

Ed Richards, CEO, Ofcom
Agenda

• Mobile Call Termination rates
  Andrea Coscelli

• LLU/WLR charge controls
  Stuart McIntosh

• 800 MHz and 2.6 GHz spectrum
  Graham Louth

• Cost of capital overview
  Craig Lonie

• Questions
  Ed Richards
Mobile Call Termination rates

Andrea Coscelli, Director of Economic Analysis
Mobile call termination rates (MTRs)

Calling party pays originating operator

Terminating operator receives interconnection charge
New rules for MTRs took effect on 1 April

**2007 regime**
- Only large players regulated
- Regulated rates were ~5ppm
- Smaller (unregulated) players generally charged higher rates

**2011 regime**
- 32 players regulated which use mobile numbers ranges
- Charge control for 4 national players
- Rates falling to 0.69ppm (2008/09 prices) by April 2014
- Fair and reasonable rates for 28 smaller players – with symmetric rates a starting point in most cases
Approach reflects our duties and market realities

Direct effects of regulation

- Lower MTRs
- Less F2M payment
- LRIC by 2014/15

Impact assessment needed to consider:

- Efficiency
- Competition
- Effect on consumers

Commercial responses

- Mobile providers seek to reduce impact
- Fixed providers reacting to lower MTRs
- Investment decisions

Statutory duties and legal tests
- European Framework
- Other policy guidance
Rates to fall 37.4% p.a. in real terms for 4 years

The charge control runs from April 2011 - March 2015 (shown in 2008/09 prices)

<table>
<thead>
<tr>
<th></th>
<th>Previous</th>
<th>2011/12</th>
<th>2012/13</th>
<th>2013/14</th>
<th>2014/15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vodafone / O2 / Everything Everywhere</td>
<td>4.17</td>
<td>2.66</td>
<td>1.70</td>
<td>1.08</td>
<td>0.69</td>
</tr>
<tr>
<td>H3G</td>
<td>4.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other providers</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td>Set on the basis of being fair and reasonable</td>
</tr>
</tbody>
</table>

Adjusting for inflation from 08/09, rate for 11/12 is **2.984 ppm** (nominal)
2011 charge control in context
Historical rates, subscription and ownership

Source: Ofcom, 2011. MTR figures are in 2008/9 prices
Outcomes of falling MTRs

• Promoting competition

• Promoting efficiency

• **Cheaper fixed prices** as lower fixed-to-mobile payments likely to be ‘competed away’

• No evidence of shift away from pre-paid services or ‘calling party pays’
Proposed charge controls for Local Loop Unbundling (LLU) and Wholesale Line Rental (WLR)

Stuart McIntosh, Group Director, Competition
Context for our proposals

• Regulation and growth of LLU and WLR are key factors in the competitive provision of the UK’s current generation broadband and telephony services in the UK.

### Growth of LLU lines (millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Lines (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>0.2</td>
</tr>
<tr>
<td>2006</td>
<td>1.3</td>
</tr>
<tr>
<td>2007</td>
<td>3.7</td>
</tr>
<tr>
<td>2008</td>
<td>5.5</td>
</tr>
<tr>
<td>2009</td>
<td>6.4</td>
</tr>
<tr>
<td>2010</td>
<td>7.5</td>
</tr>
</tbody>
</table>

### Growth of WLR lines (millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Lines (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>2.3</td>
</tr>
<tr>
<td>2006</td>
<td>4.2</td>
</tr>
<tr>
<td>2007</td>
<td>4.5</td>
</tr>
<tr>
<td>2008</td>
<td>5.3</td>
</tr>
<tr>
<td>2009</td>
<td>6.1</td>
</tr>
<tr>
<td>2010</td>
<td>6.3</td>
</tr>
</tbody>
</table>

Source: Ofcom and operators
Scope of the proposed controls

- New controls to run to March 2014 (3 years from expiry of last controls)*

- Individual controls on core rental services for MPF, SMPF, WLR

- Separate baskets for LLU ancillary services:
  - MPF ancillaries
  - SMPF ancillaries
  - ‘co-mingling’ ancillaries

- Proposed charges set taking account of:
  - forecast and allocation of Openreach costs, and
  - outcome of appeals of the previous controls

* Openreach has agreed to voluntary charge ceilings for the period between the expiry of the old controls (31 March 2011) and the start of the new ones
### Proposed new charge controls

<table>
<thead>
<tr>
<th>Service</th>
<th>Charge at 31 March 2011</th>
<th>Proposed range for charge controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPF rental</td>
<td>£89.10</td>
<td>RPI-1.2% - RPI-4.2%</td>
</tr>
<tr>
<td>SMPF rental</td>
<td>£15.04</td>
<td>RPI-11.6% - RPI-14.6%</td>
</tr>
<tr>
<td>WLR rental</td>
<td>£103.68</td>
<td>RPI-3.1% - RPI-6.1%</td>
</tr>
</tbody>
</table>
How the regulated rates have changed over time

- **MPF rental**
- **SMPF rental**
- **WLR rental**

<table>
<thead>
<tr>
<th>Year</th>
<th>MPF Rental</th>
<th>SMPF Rental</th>
<th>WLR Rental</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>81.69</td>
<td>100.68</td>
<td>100.68</td>
</tr>
<tr>
<td>2009</td>
<td>86.40</td>
<td>100.68</td>
<td>103.68</td>
</tr>
<tr>
<td>2010</td>
<td>89.10</td>
<td>103.68</td>
<td>103.60</td>
</tr>
<tr>
<td>2011</td>
<td>90.70</td>
<td></td>
<td>13.70</td>
</tr>
</tbody>
</table>

Proposed base-case charges
Our approach to valuation of duct

• BT’s has proposed changes to the value of duct used in charge controls. They argue that:
  – the existing historical valuation of pre-1997 duct is no longer appropriate; and
  – the value for pre-1997 and post-1997 should increase in line with the new valuation in the 2009/10 RFS

• We do not propose to accept BT’s argument on pre-1997 and consider that their approach to estimating post-1997 replacement value is not robust.

• Instead we propose continuation of the current Regulatory Asset Value (RAV) methodology
  – Historical (HCA) valuation for pre-1997 assets
  – Replacement (CCA) valuation for post-1997 assets

• We propose a valuation of post-1997 assets based on indexation of post-1997 capital expenditure
Next steps

- Consultation closes on 9 June

- Subject to consultation, we aim to publish a final statement and for the new controls to become operational in autumn 2011
Proposals for the award of 800 MHz and 2.6 GHz spectrum

Graham Louth, Director of Spectrum Markets
What spectrum is being auctioned?

- 800 MHz and 2.6 GHz bands
- Equivalent to three quarters of the mobile spectrum in use today
- 80% more than was auctioned in 2000

- 800 MHz available across much of UK from end of 2012, available across almost all of UK by end of 2013 (following DSO, and clearance of channels 61, 62 and 69)
- 2.6 GHz band available as soon as practicable – likely from 2012

‘4G’ to be released
(800 MHz & 2.6 GHz)

2G
(900 MHz & 1800 MHz)

3G
(2.1 GHz)
Overview of mobile spectrum bands
Who holds what today?
What are our objectives?

• To secure the best use of this spectrum for the benefit of UK citizens and consumers

• To promote competition, encourage investment and deliver wide coverage of services

• Achieved through a combination of measures to promote competition and ensure good future mobile coverage
What rules are we proposing?

- **Spectrum ‘floors’:** To ensure that at least four parties each hold sufficient spectrum to be credible national wholesalers.
- **Safeguard ‘caps’:** On both sub 1 GHz and overall mobile spectrum holdings.
- **Spectrum for sub-national network operators:** Opportunity for potential sub-national network operators to bid for part of the 2.6 GHz band, to be used on a shared low power basis.
- Consulting on option of **reserving** spectrum for this latter purpose.
Proposed rules in more detail

- Rules guaranteeing that at least four licensees each hold at a minimum one of the following spectrum portfolios after the auction:
  - 2x5MHz of sub-1GHz spectrum plus 2x20MHz of 2.6GHz
  - 2x5MHz of sub-1GHz spectrum plus 2x15MHz of 1800MHz
  - 2x10MHz of sub-1GHz spectrum plus 2x15MHz of 2.6GHz
  - 2x10MHz of sub-1GHz spectrum plus 2x10MHz of 1800MHz
  - 2x15MHz or more of sub-1GHz
Proposed rules in more detail

- Safeguard spectrum caps:
  - 2x27.5MHz sub-1GHz
  - 2x105MHz overall

- 2x10MHz of the 2.6GHz band to be available for up to 10 licensees to use on a shared low power basis if they collectively outbid prospective high power users of this block
Ensuring widely available mobile broadband

- Proposing a coverage obligation in one 800 MHz licence:
  - minimum 2Mbit/s downlink service indoors
  - covering 95% of UK population
  - by end of 2017

- Recognise this still leaves open possibility of significant differences in coverage across country

- Therefore also consulting on additional obligation to provide a minimum level of coverage across all parts of the UK
Future annual licence fees

• Government Direction instructs Ofcom to revise annual licence fees for 900 MHz and 1800 MHz spectrum to reflect ‘full market value’

• Consultation includes details of how we propose to:
  – Assess competitiveness of auction for purpose of deciding whether bids are likely to reflect true market value
  – Derive estimates of the full market value of 900 MHz and 1800 MHz spectrum from bids
  – Convert those estimates of full market value into annual licence fees
Next steps

• Consultation closes on **31 May**
• Decisions and final statement to be published in the autumn
• Applications invited in Q1 2012 with auction starting shortly thereafter
• Anticipate auction ending in Q2 2012 with licences issued shortly after
• Plan to consult on revised annual licence fees for 900 MHz and 1800 MHz licences reflecting full market value as soon as practicable thereafter
• We expect mobile operators to start rolling-out 4G networks from the start of 2013, and to start offering 4G services to consumers perhaps later that year. We would expect 4G services to be widely available across the UK a few years later
Cost of capital overview

Craig Lonie, Director of Competition Finance
## Cost of capital - Summary

| Cost of capital estimates used in several places | 1) BT charge controls  
2) Mobile Call Termination  
3) Spectrum fees |
| We use a CAPM framework | Based on recognised practice, and precedent. |
| Market-wide factors reduce cost of capital.... | Some factors affect cost of capital for all operators:  
The risk free rate has fallen, and remains low.  
Corporate taxes have reduced, and will continue to do so. |
| ... as do company-specific factors | Perceived risk for all telecoms operators appears to have reduced.  
Corporate debt has also become cheaper for these companies. |
| Our headline estimates have fallen by ~1.5% | Our previous estimates for all operators have been above 10%.  
Around two-thirds of the change is due to market-wide factors. Our fixed line and mobile cost of capital estimates are now at similar levels. |
Broadly speaking, cost of capital makes up 30 – 40% of total costs.

So a 1% reduction in cost of capital typically reduces the ‘end point’ of a charge control by 3 – 4%.

For 900 and 1800 MHz spectrum, converting upfront payments into annual fees requires use of a discount rate. We have proposed use of the mobile operator’s cost of capital.

Here, a 1% reduction in cost of capital would reduce annual licence fees by ~6%.
What is our approach to cost of capital?

We adopt an approach that is consistent over time, consistent with other regulators and certain aspects of which have been tested through the Appeals Process at the Competition Commission.

<table>
<thead>
<tr>
<th>CAPM/WACC approach</th>
<th>We use the Capital Asset Pricing Model (CAPM) to determine a cost of equity. We combine this with the observed cost of debt to derive a weighted average cost of capital (WACC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Cost of Debt x Debt%) + (Cost of Equity x Equity%) = WACC</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key inputs – Market-wide</th>
<th>Risk-free rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Market risk premium</td>
</tr>
<tr>
<td></td>
<td>Corporate tax rate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key inputs – Company-specific</th>
<th>Perceived ‘Risk’ (Beta)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Observed cost of debt</td>
</tr>
</tbody>
</table>
WACC parameters are falling

- The risk-free rate has gone down (and stayed down)

- The corporate tax rate has gone down, so companies can deliver the same post-tax returns from lower pre-tax profits

- The evidence suggests that the risks associated with the companies we regulate has gone down.

- This evidence has been factored into our decisions/proposals.
Our latest estimates are lower

Ofcom estimate of WACC

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT</td>
<td>10.1%</td>
<td>10.6%</td>
<td>8.9%</td>
</tr>
<tr>
<td>Rest of BT</td>
<td>11.0%</td>
<td>8.6%</td>
<td>9.3%</td>
</tr>
</tbody>
</table>

Mobile operators

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>O2</td>
<td>10.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rest of BT</td>
<td></td>
<td></td>
<td>8.8%</td>
</tr>
</tbody>
</table>
Approach ensures fair returns

<table>
<thead>
<tr>
<th>Consistent approach</th>
<th>Our approach is well-understood, consistent over time, and those aspects reviewed by the Competition Commission have been upheld</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of capital seems to have fallen</td>
<td>Based on the CAPM approach, our conclusion is that the cost of capital has fallen, and the evidence of this is highly visible.</td>
</tr>
<tr>
<td>The effects are significant</td>
<td>We recognise that the effects of lower cost of capital estimates are significant, but we believe that our approach is the right one.</td>
</tr>
<tr>
<td>Regular review and consistent approach → fair returns</td>
<td>We review our cost of capital estimates on a regular basis. We intend to apply a consistent approach in the future, which should ensure stakeholders earn fair returns in regulated areas over time.</td>
</tr>
</tbody>
</table>
Annex
Mobile call termination
Ofcom’s dispute resolution process

- Disputes between CPs can be referred to us about the terms and conditions of network access, or about obligations imposed under an SMP condition

- A dispute can be referred to us by either party

- For us to resolve any dispute, it will need to fulfil criteria set out in section 185 of the 2003 Act

- We will expect parties to attempt to resolve the dispute first through commercial negotiation

- When we accept a dispute, we must reach a determination within 4 months (except in exceptional circumstances), and we will decide it in accordance with our statutory duties.

- We recently issued guidance on how we might determine whether rates are “fair and reasonable” in a dispute involving mobile call termination
A changing mobile landscape is reducing the significance of voice

Source: Ofcom/operators
Note: Includes estimates where Ofcom does not receive data from operators; data revenue is likely to be understated as it excludes any data element included within standard pay-monthly tariffs.
Growth of smartphones

Number of UK smartphone users and penetration of smartphones

Millions

Source: comScore, Mobilens, December 2007 - May 2010
LLU/WLR charge controls
Key inputs to the LLU and WLR costs

• Volumes
  – we forecast rising MPF volumes and falling SMPF and WLR

• Cost of copper
  – we adopt the balance sheet valuation to reflect changes to commodity prices

• WACC
  – we adopt a base case pre-tax nominal 8.6%

• Efficiency
  – we forecast a base case 4.5% p/a efficiency improvements
## Sensitivity of 2014 costs

<table>
<thead>
<tr>
<th>Input</th>
<th>Ofcom assumption for consultation</th>
<th>Sensitivity</th>
<th>MPF £</th>
<th>SMPF £</th>
<th>WLR £</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duct valuation</td>
<td>Retain existing RAV methodology. CCA valuation of post-’97 assets using indexation of Openreach expenditure.</td>
<td>1. All assets re-stated at CCA.</td>
<td>2.30</td>
<td>-</td>
<td>2.30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Adopt BT’s re-valuation</td>
<td>3.50</td>
<td>-</td>
<td>3.50</td>
</tr>
<tr>
<td>Copper valuation</td>
<td>Adoption of balance sheet valuation</td>
<td>5% reduction in opening value of copper assets</td>
<td>(1.40)</td>
<td>-</td>
<td>(1.40)</td>
</tr>
<tr>
<td>WACC</td>
<td>Pre-tax nominal rate of 8.6%</td>
<td>0.5% decrease</td>
<td>(1.70)</td>
<td>&lt;(0.10)</td>
<td>(1.60)</td>
</tr>
<tr>
<td>Efficiency</td>
<td>5% gross annual saving (equivalent to 4.5% net)</td>
<td>0.5% increase</td>
<td>(0.70)</td>
<td>(0.10)</td>
<td>(0.60)</td>
</tr>
</tbody>
</table>
Proposals for the award of 800 MHz and 2.6 GHz spectrum
Possible reserve prices for 800 MHz and 2.6 GHz spectrum

<table>
<thead>
<tr>
<th>Spectrum</th>
<th>Lot size</th>
<th>Possible reserve price likely to cover costs of clearance</th>
<th>Possible reserve price closer to market value</th>
</tr>
</thead>
<tbody>
<tr>
<td>800MHz</td>
<td>2x5MHz</td>
<td>£30 million</td>
<td>£200 million</td>
</tr>
<tr>
<td>1800MHz</td>
<td>2x15MHz</td>
<td>£15 million</td>
<td>£60 million</td>
</tr>
<tr>
<td>2.6GHz paired – high power</td>
<td>2x10MHz</td>
<td>£10 million</td>
<td>£40 million</td>
</tr>
<tr>
<td>2.6GHz paired – low power shared</td>
<td>2x10MHz (shared)</td>
<td>£1 million</td>
<td>n/a</td>
</tr>
<tr>
<td>2.6GHz unpaired</td>
<td>1x50MHz</td>
<td>£20 million</td>
<td>n/a</td>
</tr>
</tbody>
</table>