Beyond Cellular
Green Generation
BCG$^2$ – Beyond Cellular Green Generation

CHALLENGE AND BREAKTHROUGHS

• Traditional wireless networks are forced to remain active regardless of traffic

• Unlike traditional architecture, BCG$^2$ is based on small cells, and a complete separation of signalling and data functions

• Most of the many small cells can be put in sleep mode when inactive and thanks to the separation accessibility is not lost

New Network Architecture with Small Cells and Efficient Use of Sleep Mode
**BCG² – Beyond Cellular Green Generation**

**KEY ACCOMPLISHMENT AND RESULTS**

- BCG2 energy efficiency improvement is obtained by exploiting *traffic load variations*
- *On demand connectivity* based on *user context* information
- Energy consumption can be made *load proportional*

**Energy Efficiency gains with respect to 2010 Reference scenario**

<table>
<thead>
<tr>
<th></th>
<th>Dense-urban</th>
<th>Urban</th>
<th>Sub-urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consumption</td>
<td>8118x</td>
<td>9214x</td>
<td>2629x</td>
<td>3959x</td>
</tr>
</tbody>
</table>

**6100x Average Energy Efficiency Improvement Compared to 2010 Reference Scenario**

[Diagram showing energy consumption and power consumption comparison]
BCG$^2$ – Beyond Cellular Green Generation

DEMO DESCRIPTION

• Localization system provides information on terminal positions

• Application status and location are provided to the system by mobile terminals through the **signaling** interface

• Access points are switched on and off based on context information gathered from system and terminals

• Network status and **power consumption** are shown on the map in real time

Live Demo Shows Feasibility of BCG$^2$ Architecture and Small Cell Management