European Union
On Mode Considerations

ENERGY STAR® Display
Stakeholder Meeting
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What should be included in equation?

- **Main service delivered by the product**
  - We believe size / area
  - Other: Resolution, panel types, technical features

- **Not all product features should have an adder**
  - Get complicated
  - May be open gate, difficult to keep overview of max. consumption

- **Consider at certain level a max. total consumption independently of e.g. size**
  - Not this version
Impact of Resolution
- Design based

- Higher resolution gives a need for more powerful and power consuming electronics
- Higher resolution for LCD backlit panels gives a need for higher light intensity for the same luminance (less aperture)
- Impact on non-backlit panels apart from the electronics part (LED, plasma, O-LED)?

- Panel type has also an impact on the backlit intensity – but is not included – and should not
Resolution vs Power - all

EU Database of registered products (3193 products)
Area vs Power - all

EU Database of registered products (3193 products)
Minimum power consumption is almost the same for typical monitor resolutions

EU Database of registered products < 30” (2932 products)
Area vs Resolution
- Conclusion

- Area is most important for the equation

- Resolution less – but may be included because have importance for main panel types and is important at purchasing selection
### On Mode Equations - 1

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Area</th>
<th>Constant</th>
</tr>
</thead>
<tbody>
<tr>
<td>$d &lt; 12.0$</td>
<td>(6.0 \times r) + (0.05 \times A) + 3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$12.0 \leq d &lt; 25.0$</td>
<td>(6.0 \times r) + (0.0145 \times A) + 4.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$25.0 \leq d &lt; 30.0$</td>
<td>(6.0 \times r) + (0.18 \times A) - 40.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$30.0 \leq d \leq 60.0$</td>
<td>(0.27 \times A) + 8.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How much power is attributed to resolution, area and constant in on mode equation (Watt) based on actual products

Average of products in size bins

EU Database of registered products < 30” (2932 products)
### On Mode Equations - 2

<table>
<thead>
<tr>
<th>Size</th>
<th>Double resolution</th>
<th>Double area</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 12</td>
<td>36</td>
<td>23</td>
</tr>
<tr>
<td>12-25</td>
<td>60</td>
<td>16</td>
</tr>
<tr>
<td>25-30</td>
<td>46</td>
<td>199</td>
</tr>
</tbody>
</table>

**Doubling resolution and area**

**% increase in consumption**

EU Database of registered products < 30” (2932 products)