



Contest design for the 800/2600 MHz bands – a regional approach

Prepared for the ANCOM conference

Richard Marsden

Vice President

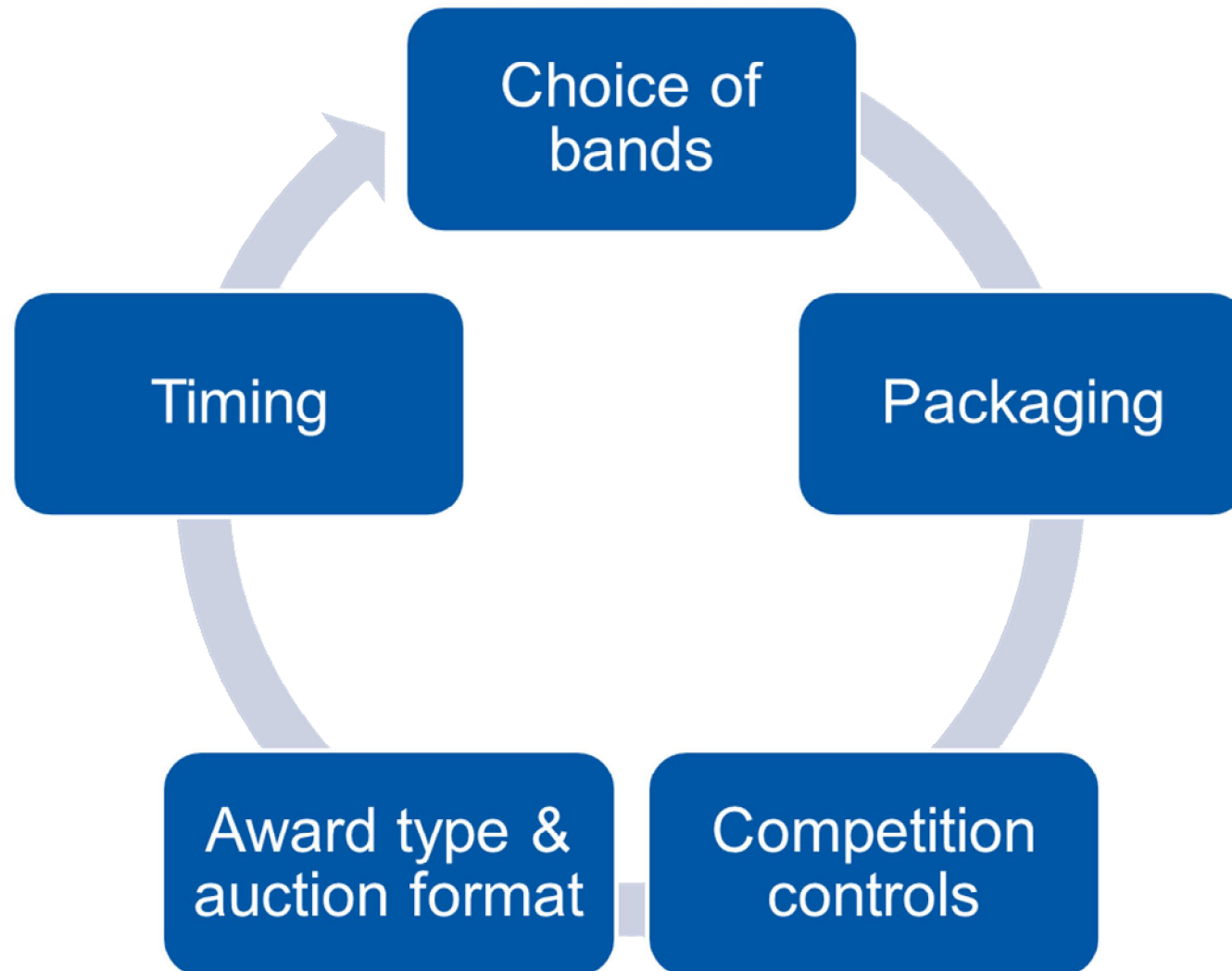
Bucharest

12 May 2011

Issues for discussion



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One award or multiple awards?



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- Recent trend towards inclusion of multiple frequency bands in the same award
 - 800 MHz
 - 2600 MHz
 - Expiring licences at 900, 1800 and 2100
 - Unused frequencies at 900, 1800 and 2100
- Mixed approach across Europe:
 - Separate: Austria, Sweden, Denmark, Finland
 - Together: UK
 - Together with other bands: Germany, Spain, Switzerland

Separate
awards



Linkages across 800 and 2600 bands are limited

Timing of availability of bands may vary

Lower exposure to regulatory error / uncertainty for bidders

More complex award design

Bidders can express synergies across bands

Potential to attract entry?

Opportunity to set direction of industry in a single process

Regulatory cost savings?



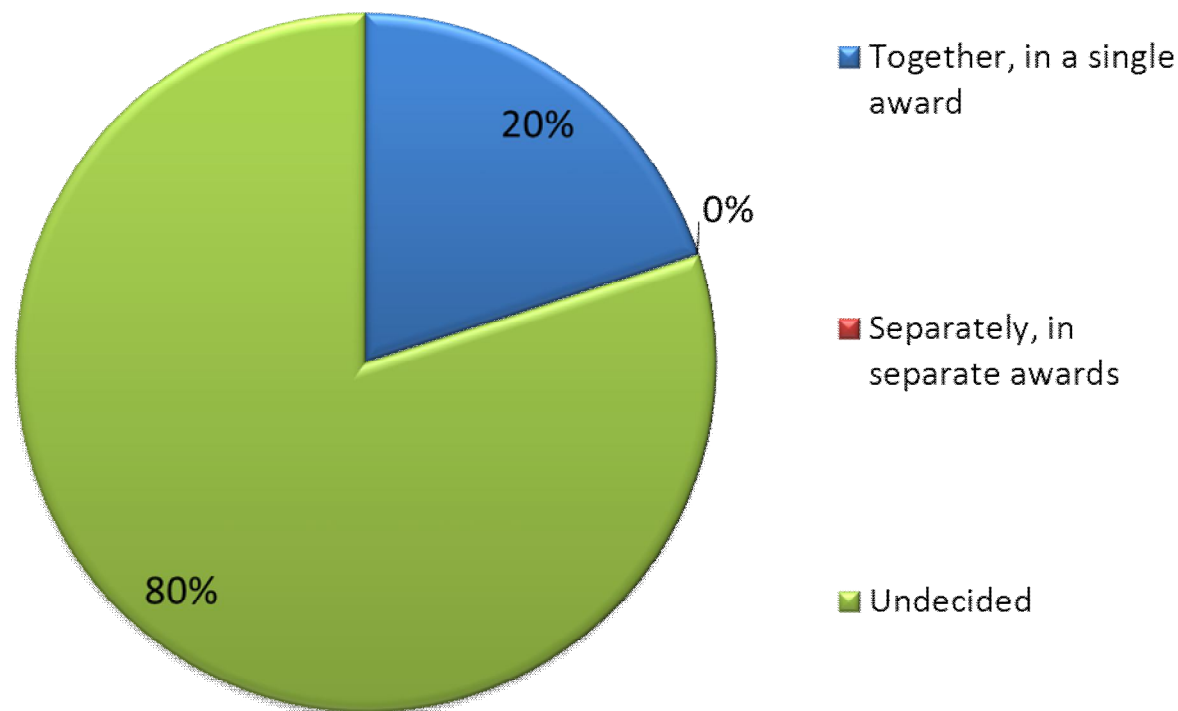
Single
award

One award or multiple awards? What the region is thinking



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- Does your administration plan to award the 800MHz and 2600MHz bands together or separately?



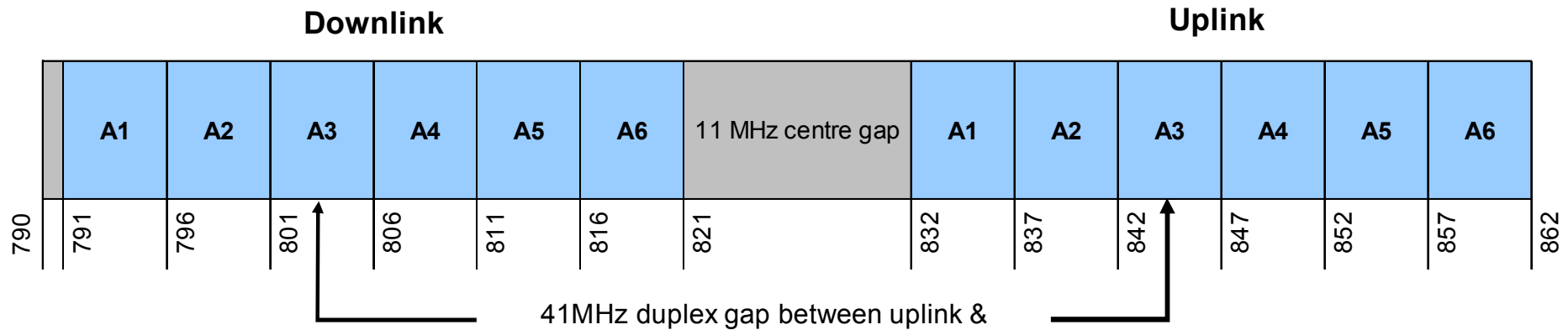
Source for all pie charts in this presentation: NERA anonymous survey of selected regional regulators

Regional regulators are still undecided on the best approach

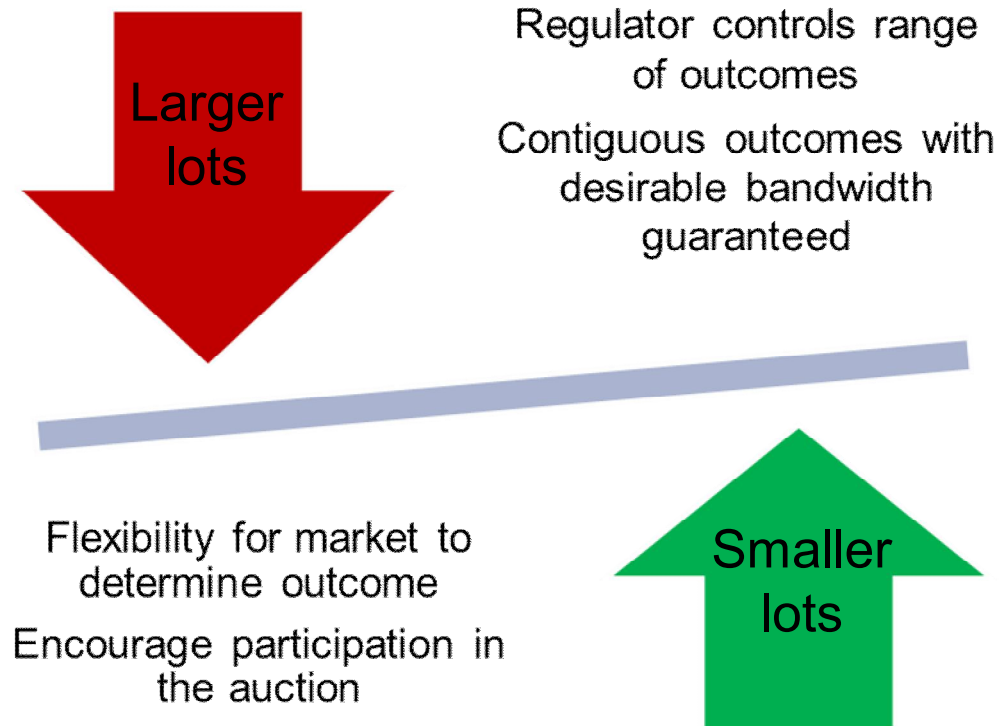
800MHz packaging



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- Basic unit is 2x5MHz, but scope for larger lots
- Small lot approach favoured in most countries (e.g. Germany, Spain, Sweden, UK)
- Coordination with DTT is big issue, as may affect value of individual lots



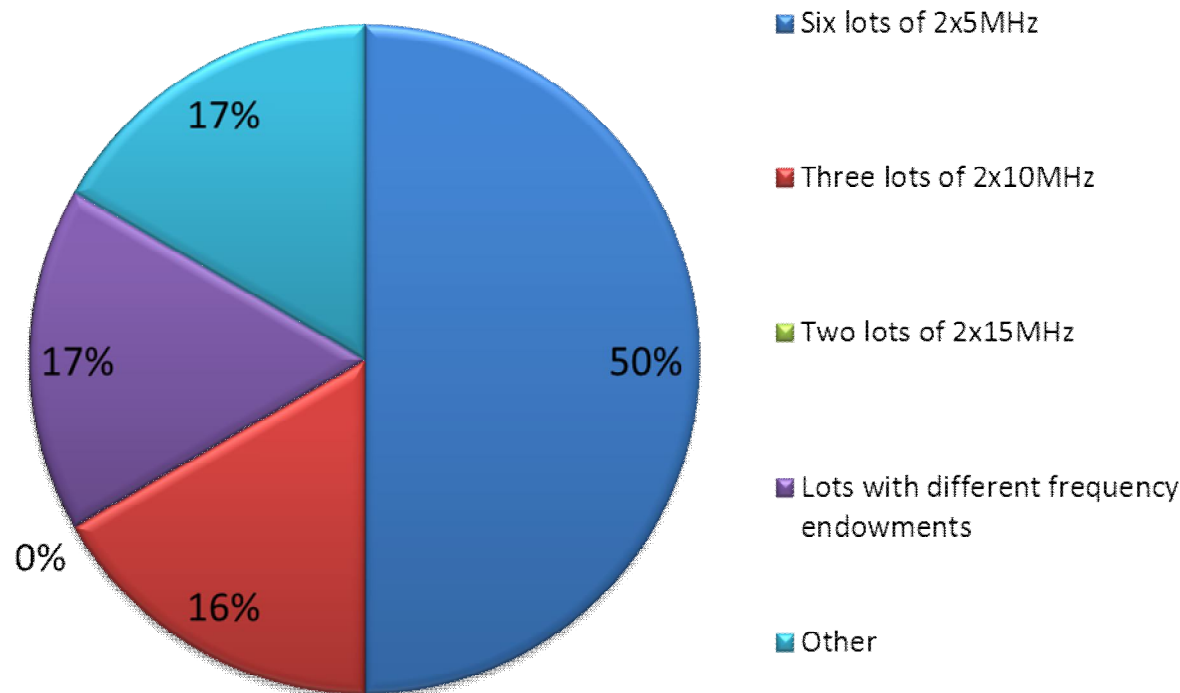
800MHz packaging

What the region is thinking



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- Which of the following approaches to spectrum packaging are you considering for 800MHz?

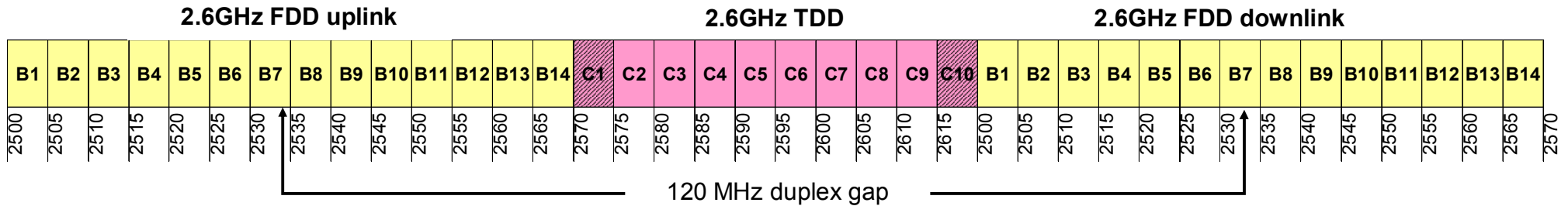


A majority of respondents favour having 2x5MHz lots that can be aggregated by bidders

2600GHz packaging



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- Consensus is on fixed CEPT bandplan with 2x70MHz paired available and 1x50MHz unpaired spectrum
- Two key packaging issues to be resolved:
 - Lot sizes for paired and unpaired
 - Interference restrictions between paired and unpaired
- Great variety of approaches:
 - Most countries have opted for smaller lots for paired (but Belgium an exception)
 - Most countries have placed restrictions exclusively on TDD spectrum (again Belgium is an exception)
 - No consensus on approach to unpaired spectrum

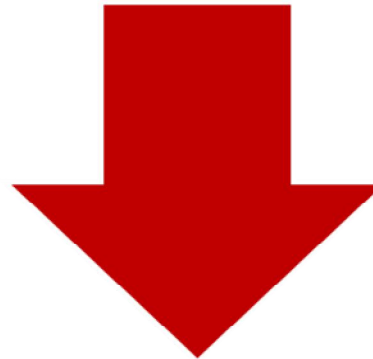
2600MHz paired packaging



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- Expected use is LTE
 - 2x20MHz currently recognised as optimal spectrum
 - Smaller configurations can also be viable
- 2x70MHz is not divisible by 2x20MHz – so some smaller licences necessary
- Coordination with unpaired use is big issue, as may affect value of individual lots

Pre-packaged
lots



Can guarantee outcomes with fixed number of winners
Ensure contiguous spectrum for high-speed services



Flexibility for market to determine outcome
May encourage participation in the auction



Smaller
lots

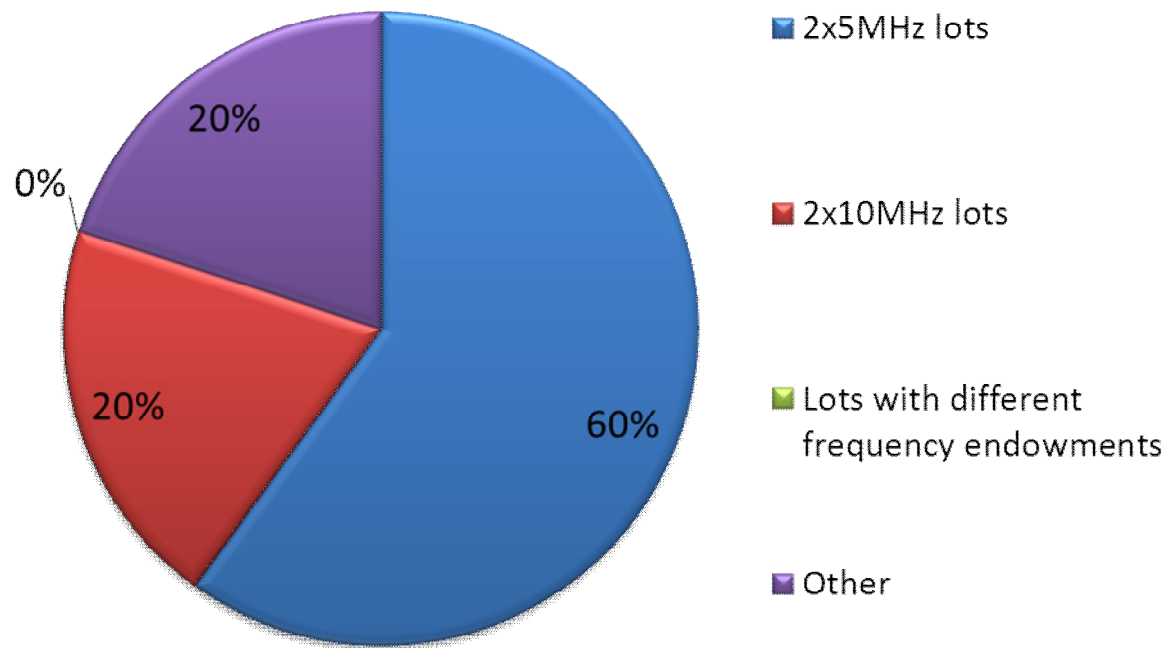
2600MHz paired packaging

What the region is thinking



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- Which of the following approaches to spectrum packaging are you considering for 2600MHz PAIRED spectrum?



As with 800MHz, a majority of respondents favour having 2x5MHz lots that can be aggregated by bidders

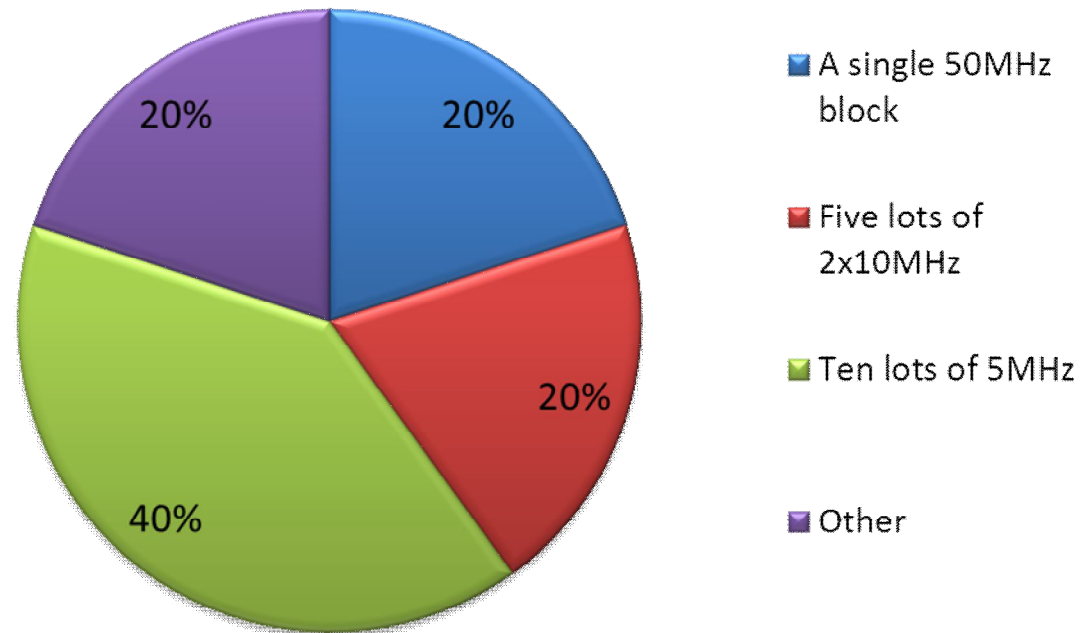
2600MHz unpaired packaging

What the region is thinking



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- Expected use is uncertain:
 - LTE TDD
 - WiMax
 - LTE could work with smaller lots but WiMAX needs a larger block
 - Unclear if multiple operators are viable
 - Packaging must take account of value differences between lots
- Which of the following approaches to spectrum packaging are you considering for 2600MHz UNPAIRED spectrum?



Regional opinion is divided on the best approach for allocating unpaired 2600 MHz spectrum

Promoting competition



- Outcome of these awards may shape downstream competition for next 15 years+
- Regulators under conflicting pressures:
 - Guarantee incumbents access to sufficient bandwidth (especially sub-1GHz) to provide high-speed services to consumers
 - Increase competition in downstream markets through new entry
 - Promote competition in an auction and generate revenues that reflect fair value of spectrum
- Two main tools available to prevent undesirable outcomes:
 - Spectrum caps
 - Commonly used tool for 800 and 2600 bands to ensure broad access to spectrum
 - Downside is they may make auction outcomes predictable and uncompetitive
 - Set asides for operators
 - Effective way of supporting 'entrants' but may grossly distort SMRA auctions
 - Innovative solution proposed by Ofcom for CCA format in the UK

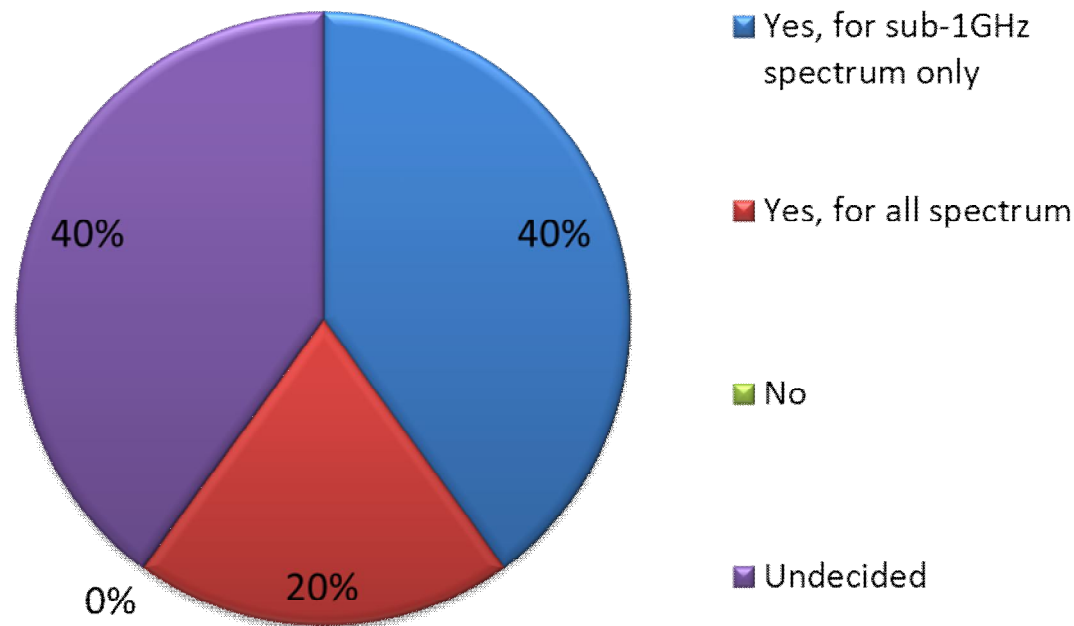
Spectrum caps

What the region is thinking



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- Would you consider imposing spectrum caps on incumbent operators bidding in the auction?



Most regulators appear to favour spectrum caps, especially for sub-1GHz spectrum

The award format



- Historically, governments have used a mix of auctions, beauty contests and direct transfers
- For 800 and 2600MHz, most governments are switching to auctions:
 - Auctions allow market to test range of possible outcomes, so more likely to be efficient
 - Regulators not well placed to choose between competing business cases, so may prefer money as an objective criteria
 - Governments can still prevent undesirable outcomes through control of packaging, spectrum caps and other rules
 - Outcome seen as robust and less vulnerable to legal challenge
 - Auctions provide market justification in case of higher revenues
- This includes countries like Finland and Spain, which previously ran only beauty contests

Which auction format?



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- Fairly simple to implement
- Bid strategy is complex / gaming
- Aggregation and substitution risk
- Can be very slow (but this problem could be fixed)
- Spectrum contiguity guaranteed, owing to abstract lots

SMRA with abstract lots



Combinatorial clock auction (CCA)

- Relative complex to implement
- Bid strategy should be straightforward (but bidders dislike revealed full set of valuations)
- No substitution & aggregation risks
- Relatively quick
- Spectrum contiguity guaranteed

- Simple, but only works well with pre-packaged licences
- Bid strategy only a problem if small lots are used
- Aggregation and substitution risk high (unless lots pre-packaged)
- Can be slow
- Spectrum contiguity only guaranteed if pre-packaged

Standard SMRA



SMRA with switching

- More complicated to implement than other SMRA formats
- Bid strategy is complex / gaming
- Aggregation and substitution risk eased by switching rules
- Can be slow
- Spectrum contiguity likely but not guaranteed

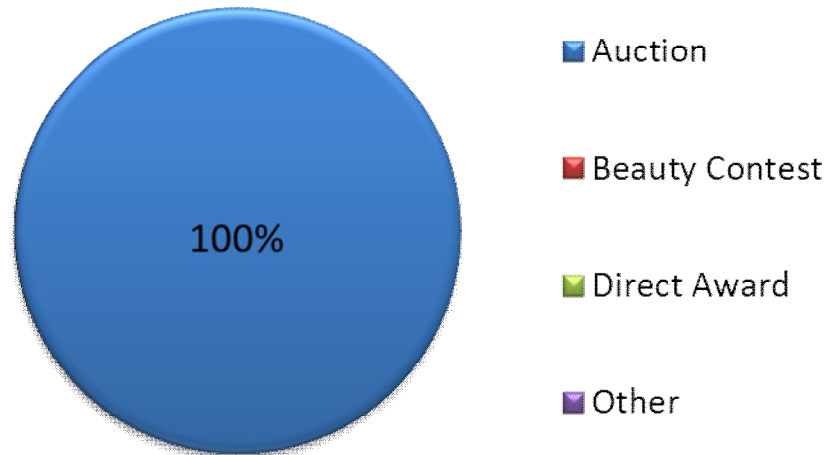
Spectrum auctions

What the region is thinking

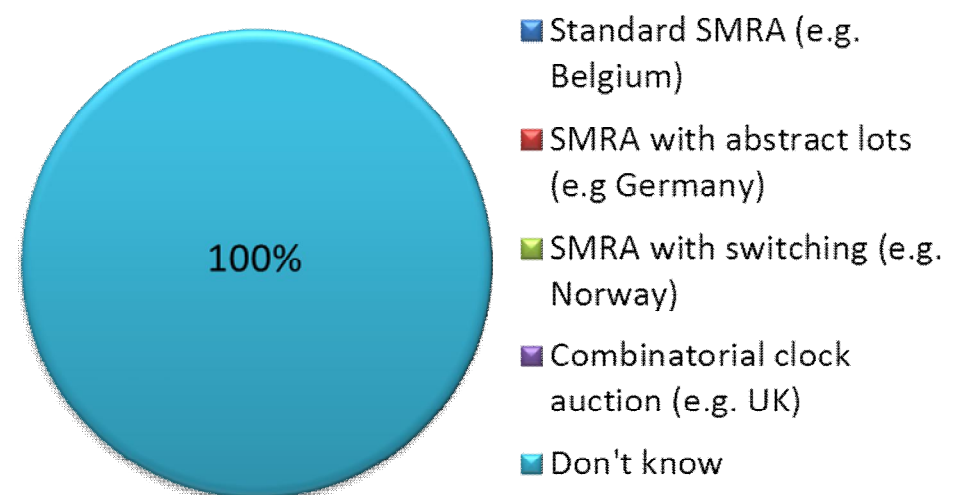


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- Which of the following award procedures are you considering for 800 and 2600MHz?



- If you are considering an auction, what type of format do you think could be implemented in your country?



Regional regulators strongly favour auctions but are undecided on choice of format

Questions for the panelists



- One award or multiple awards?
- How should the 800 and 2600 MHz bands be packaged?
- What auction formats are you considering?
- What rules can be introduced in an auction to preserve competition after the award?
- When do you plan to schedule your award(s)?



Thank you!

Contact NERA:

Richard Marsden

Vice President

NERA

richard.marsden@nera.com

Tel: +1 212 345 2981