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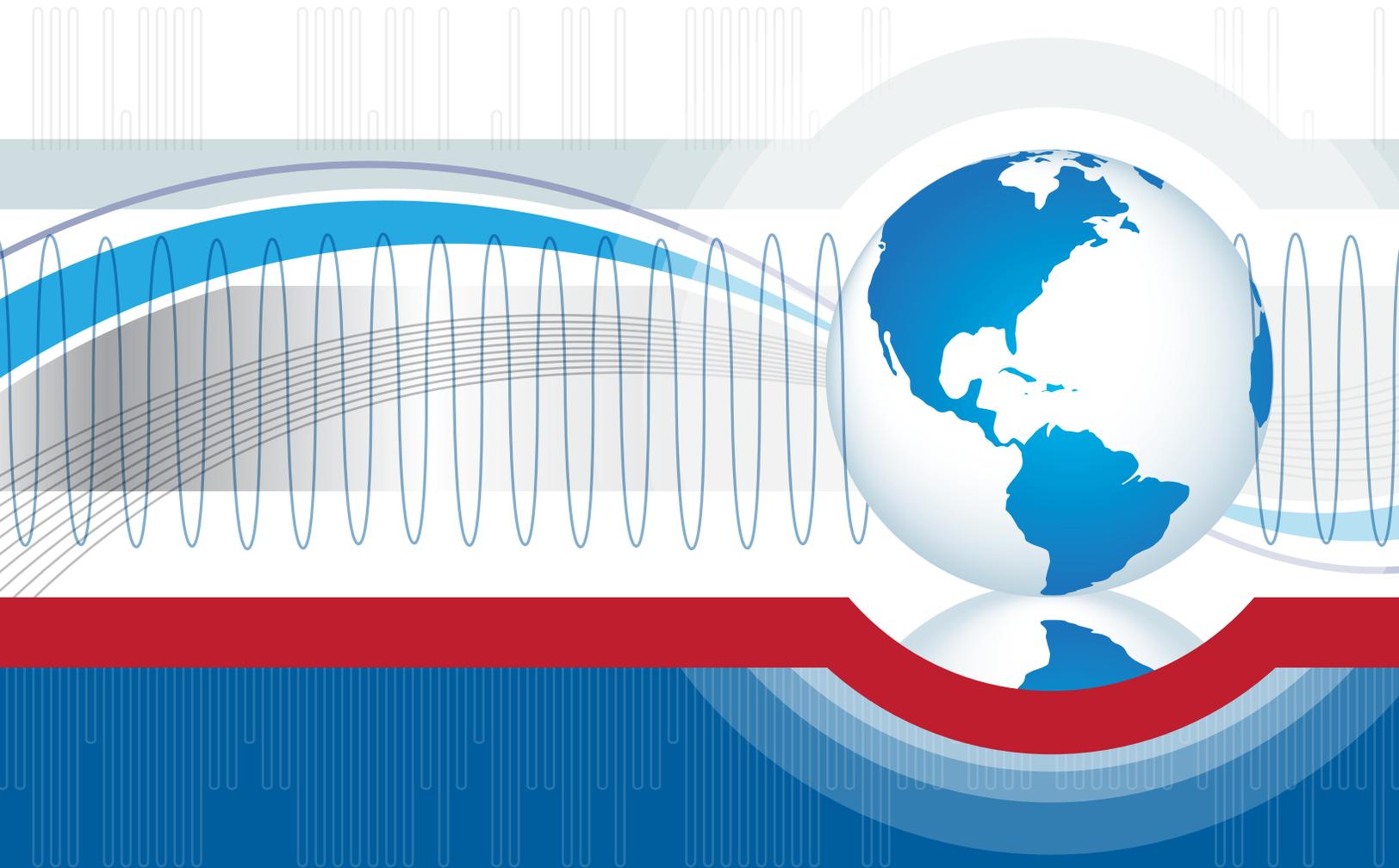


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# The 4th Annual **Americas Spectrum Management Conference**

The meeting point for the Americas spectrum community!



## Post Conference Report

November 12 & 13, 2014 / Washington D.C.

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## Introduction

The 4th Annual Americas Spectrum Management Conference was held in Washington, D.C. on November 12-13. The conference focused on policy issues concerning the management of radio spectrum and its impact on the essential downstream industries, such as mobile broadband, broadcasting, satellite, and public safety, that spectrum supports. It was attended by approximately 200 delegates from more than 20 countries across the Americas and from Europe and Asia Pacific region. Although the primary focus of conversation was the policy and coordination challenges faced by countries in North America, Latin America, and the Caribbean, the conference also drew on perspectives from other world regions.

The event was organized by **Forum Global**, the international arm of **Forum Europe**, and was part of the 'Global Spectrum Series' – the world's largest and most comprehensive collection of regional Spectrum Management policy conferences. In developing the concept and agenda for the conference, Forum Global was supported by Knowledge Partners, **NERA Economic Consulting** and **Aetha Consulting**. **Coleago Consulting**, **Copenhagen Economics**, **Lemay-Yates Associates Inc**, **Qualcomm** and **Verizon** were Platinum Sponsors of the event, **SES** was a Gold Sponsor, and **Adaptrum**, **Allied Spectrum Associates**, **iconectiv**, **InterConnect Communications** and **LS telecom** were Silver Sponsors. Other associated sponsors and supporting partners for this year's event included **4G Americas**, **GSMA**, **North American Broadcasters Association** and **Global VSAT Forum (GVF)**.

The conference followed a similar format to the previous events, which have been held in Washington, D.C. for the past three years. It involved a mixture of keynote speeches, presentations on topical issues, and extensive panel discussions on each major topic area, plus plenty of scheduled time for formal and informal networking. Uniquely, the conference brings together all the major stakeholders in spectrum management, including policy makers, industry representatives (including mobile, satellite, and broadcasting), equipment manufacturers, and expert consultants, facilitating a rounded discussion with multiple viewpoints, and an exceptionally high quality of debate.

This report, prepared by **NERA Economic Consulting**, summarizes the main discussions held during the conference, including an overview of each of the main presentations. Readers who would like to view specific presentations should contact Tom Chinnock at Forum Global on +44 (0) 2920 783 025 / [tom.chinnock@forum-global.com](mailto:tom.chinnock@forum-global.com).

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November 12 & 13, 2014 / Washington D.C.

## Day 1

The first day of the conference featured keynote speeches on the approach to spectrum management in the Americas, and focused on spectrum sharing issues, policy and technological innovation, and harmonization. The morning sessions were moderated by **Stefan Zehle**, CEO of Coleago Consulting, and Charles Firestone, Executive Director Communications and Society Program at Aspen Institute. The main afternoon session was moderated by **Richard Marsden**, Vice President at NERA Economic Consulting.

### Keynote Presentations

The first keynote presentation was delivered by **Gedeon Santos**, Chairman of the American Telecommunication Commission (CITEL) and Chairman of the Board of Directors of the Dominican Telecommunication Institute (INDOTEL). Mr Santos acknowledged the disparity in broadband connectivity in many Latin American and Caribbean nations, and highlighted the role that efficient spectrum management can play in reducing the digital divide.

**Luis Lucatero**, Chief of Regulatory Policy at IFT Mexico, delivered a keynote presentation on Mexico's plan to allocate the entire 700MHz band to a wholesale carrier that cannot participate in the retail market. Mr Lucatero provided an overview of how this network would operate, as a provider to both MNOs and MVNOs, and highlighted the benefits he anticipates with respect to downstream competition in Mexico.

**Congresswoman Doris Matsui**, Co-Chair of the Spectrum Working Group in the House Energy and Commerce Committee delivered the third keynote presentation. The Congresswoman called on the United States to develop a national spectrum policy that would include unlicensed spectrum and promote revenue opportunities for spectrum sharing. Ms Matsui highlighted the collaboration between the Department of Defense, FCC and mobile operators to bring AWS-3 spectrum to market as a model for future spectrum sharing.

### Panel Session: Spectrum Regulation

Following a Q&A session with the keynote speakers, the conference moved on to discuss whether current systems of spectrum regulation across countries in the Americas are working or if new approaches should be considered.

**Fernando Carrillo**, Director General for Spectrum Planning at IFT Mexico provided an overview of different ways technology and spectrum sharing can help relieve the spectrum crunch while highlighting the obstacles these changes face. Mr Carrillo presented the case for spectrum management regimes that promote spectrum sharing, including Dynamic Spectrum Access, but acknowledged that these changes would require a transformation of current spectrum regulation. **John Leibovitz**, Deputy Chief of the Wireless Telecommunications Bureau & Special Advisor to the Chairman for Spectrum Policy at the FCC provided an overview of the steps the FCC is taking to build a comprehensive plan of action to make more spectrum available, including regulatory reform and liberalization of spectrum, next-generation spectrum auctions, dynamic spectrum sharing, and advanced spectrum sharing.

# The 4th Annual Americas Spectrum Management Conference

November 12 & 13, 2014 / Washington D.C.

The conference moved onto a roundtable discussion regarding the need for change in spectrum regulation. Each panel member gave a short presentation on their view of the subject before the panel was open for questions:

- **Daniel Duguay**, Director General of Engineering, Planning and Standards Branch at Industry Canada stated the case for a new approach to spectrum sharing owing to the fundamental shift in the demand and supply dynamics of spectrum. Mr Duguay also recognized that technology now arrives faster and is more disruptive than regulators are accustomed to, and it is necessary for regulators to stay in tune with all of the innovations in order to efficiently manage spectrum resources.
- **Robert Thelen-Bartholomew**, Whitespace Subject Matter Expert at LS telcom, posited that the certainty of spectrum allocation and use of spectrum has become a hurdle to the efficient use of spectrum, and dynamic spectrum sharing will play a key role in managing this finite resource.
- **Pierre de Vries**, Co-Director of Spectrum Policy at Silicon Flatirons Center at the University of Colorado at Boulder outlined the need to decentralize and delegate spectrum management to the operators themselves by using harm claim thresholds, band agents that can negotiate on behalf of an operator, and more effective adjudication of disputes by allowing parties to act directly with one another instead of coordinating with the FCC.
- **Charla Rath**, Vice President of Wireless Policy Development, Verizon Wireless, spoke of the need to empower incumbent federal users by giving them more influence on what spectrum will become available in future auctions. Ms Rath also stated that giving more negotiating power to the authorized users and licensees will advance spectrum management even further.

Following the presentations, the audience was invited to raise questions and points with the panel members. Discussions primarily focused on the impact of international coordination on policy reform and the need protect users from interference.

## Breakout Session: Future of Terrestrial Broadcasting

The first day concluded with two breakout sessions. The session on "The future of terrestrial broadcasting: Reverse auctions and beyond" was chaired by **Dr. Jeffrey A. Eisenach**, Senior Vice President & Co-Chair, Communications, Media, and Internet Practice, NERA Economic Consulting.

**Howard Symons**, Vice Chair, FCC Incentive Auction Task Force, spoke about how the FCC is trying to design an auction that will present itself as a business opportunity for broadcasters. Mr Symons also noted that the Incentive Auction and the future of broadcasting can coexist and will work in parallel.

**Eddie Hernandez**, Director of Operations & Engineering, KJLA-TV, presented the results of a recent KLCS and KJLA channel sharing pilot. Mr Hernandez showed that broadcasters can successfully signal two major and several minor channels on a single block of spectrum. Mr Hernandez also emphasized that bandwidth management is critical for stations to successfully channel share.

**Preston Padden**, Executive Director, Expanding Opportunities for Broadcasters Coalition, urged the FCC to release information

# The 4th Annual Americas Spectrum Management Conference

November 12 & 13, 2014 / Washington D.C.

on any adjustment factors that influence the pricing and valuation of stations. Mr Padden also highlighted the benefits of broadcasting in a post-Incentive Auction broadcasting industry, including obtaining a larger share of advertising revenue.

**Mark Aitken**, VP Advanced Technology at Sinclair Broadcasting Group emphasized the impact that the Incentive Auction will have on all broadcast stations, not only stations that participate in the Incentive Auction, as all remaining stations will need to move channels. Mr Aitkin also commented that as a repack of stations is inevitable, stations should transition to the most advanced technology which will benefit consumers the most.

**Simon Edkins**, Senior Economist, Copenhagen Economics provided an overview of the novel features of the Incentive Auction including using a market based mechanism to determine the bandplan, and posited that the Incentive Auction will impact all future spectrum auctions throughout the world. Mr Edkins also illustrated the need for broadcasters to familiarize themselves with the auction process through the use of mock auctions and simulations.

The presentations were followed by a panel discussion which considered a wide range of topics dealing with both the Incentive Auction and the broadcasting business model in a post-Incentive Auction industry.

## Breakout Session: Traffic Offloading

The session on “Traffic Offloading – Innovative solutions for tackling spectrum bottle-necks” was chaired by **Graham Louth**, Partner at Aetha Consulting. The panellists were:

- **Mary Brown**, Senior Director, Technology and Spectrum Policy;
- **John Kuzin**, Senior Director government Affairs – Regulatory, Qualcomm;
- **Luis Lucatero**, Chief of Regulatory Policy at IFT Mexico; and
- **Gerry Oberst**, Senior Vice President, Global Regulatory and Governmental Strategy, SES.

The panel broadly agreed that traffic offloading using WiFi is already an essential tool for coping with massive data growth, and will only become more important in the future. Additionally, there was broad concern amongst the panellists that the 2.4 GHz band was too small and too congested to provide a comprehensive offloading solution.

Luis Lucatero argued that the future of wireless may depend on wireline connections, as people spend 90% of their time under a roof and have access to wires and potential for offloading most of the time.

Mr Oberst highlighted the role of satellite as a key component for traffic offloading, as data growth is so great that wireline infrastructure cannot cope by itself. Mr Oberst also expressed concerns about using the 5 GHz band for traffic offloading owing to coordination issues with incumbent satellite users.

# The 4th Annual Americas Spectrum Management Conference

November 12 & 13, 2014 / Washington D.C.

## Day 2

The first morning session featured a keynote presentation by **Mignon Clyburn**, Commissioner, FCC which was followed by a discussion on spectrum issues ahead of WRC-15. The morning session was moderated by Fernando Carrillo, Vice Chair of the Permanent Consultative Committee II, CITELE.

Ms Clyburn provided an update on recent spectrum activities at the FCC including how the FCC is planning to meet the spectrum challenges of today's world. Ms Clyburn noted that demand for mobile data grew by 80% in 2013 which provides challenges for spectrum managers to ensure spectrum is allocated efficiently. In order to meet the challenges of today's mobile society, Ms Clyburn explained that the FCC is taking an "all of the above" approach by using licensed and unlicensed spectrum, taking advantage of exciting new technologies such as millimetre bands, and promoting spectrum sharing. Ms Clyburn acknowledged that spectrum sharing is critical to freeing up spectrum for commercial use, and highlighted the AWS-3 auction as an example of commercial operators sharing spectrum with Federal incumbents. Ms Clyburn also noted that mobile operators cannot meet demand for broadband by just increasing spectrum, but need to deploy spectrum more efficiently.

### Spectrum Priorities ahead of WRC-15

Following a Q&A with Commissioner Clyburn, the conference moved on to discuss identifying the 470-698 MHz (UHF) band for IMT/terrestrial mobile broadband. **Winston Caldwell**, Vice President, Spectrum Engineering, Advanced Engineering, Fox Networks Group, representing the North American Broadcasters Association, argued that spectrum sharing between broadcasters and mobile broadband operators is not feasible owing to interference. Mr Caldwell also noted that opposition to designating the UHF band for IMT outweighs support four-to-one among Region 2 countries. Owing to this lack of consensus amongst regional countries, Mr Caldwell believes it will be extremely difficult to achieve global harmonization of the UHF band. **Scott Bergmann**, Vice President, Regulatory Affairs, CTIA believed that we should identify the UHF band for IMT as this will provide the most flexibility going forward. Mr Bergmann furthered his point by declaring that we do not know what spectrum demands will be in the future, so it is imperative to maintain as much flexibility within band as possible.

### Regional Positions

The first morning panel focused on regional positions that meet the needs of all spectrum users across the Americas, and was chaired by **Hector Bude**, Chairman, CITELE Working Group for the Preparation of WRC-15.

Mr Bude told the conference that there is no inter-American proposal yet regarding identifying the UHF band for IMT; he said that the United States, Canada and Mexico support this, while 12 other CITELE countries are against this proposal.

**Scott Blake Harris**, Chair of the FCC's Advisory Committee for WRC-15, maintained that although there is no consensus yet within CITELE, there will be an inter-American proposal by the end of August. Mr Harris stated that the single biggest issue that will dominate all of the upcoming WRCs is how to find additional spectrum for wireless mobile broadband.

# The 4th Annual Americas Spectrum Management Conference

November 12 & 13, 2014 / Washington D.C.

**Veena Rawat**, Senior Spectrum Advisor, GSMA, noted that WRC-15 provides a great opportunity for spectrum harmonization and long-term spectrum planning worldwide, but reminded the conference that we need to deliver positions that meets the needs of all spectrum users across the Americas. Ms Rawat also emphasized that it is important to build trust between countries in order to move forward as an industry.

**Alexandre Jobim**, President, International Association of Broadcasting stressed how critical the UHF band is for Free-to-Air (FTA) broadcasting because there are no other bands dedicated to DTV. Mr Jobim also reminded the conference that it is important to look beyond the United States, as many countries have a huge population dependent on FTA broadcasts.

**Kimberly Baum**, Director, Americas, GVF Satellite Spectrum Initiative, told the audience that the C-band remains a cornerstone of the satellite industry in the Americas. Ms Baum argued that US regulations make C-band usage very difficult when compared to other countries in the Americas.

## Day 2 – Morning Sessions II

The second morning session included brief presentations on the various aspects of innovating to meet the spectrum requirements of 5G. The panel was moderated by **Walter Johnston**, Chief of Electromagnetic Compatibility Division, Office of Engineering & Technology, FCC.

**Darrin Mylet**, speaking on behalf of Austin Broadband, presented his view that regulators should strive to keep a balance between incumbent users of spectrum and lightly shared licenses. Mr Mylet also noted that only a small portion of mobile usage is “on the move”, yet spectrum policy is disproportionately geared toward mobile broadband.

**Jim Kohlenberger**, President, JK Strategies proclaimed that we are on the verge of technological innovation with billions of devices connected, each with their own sensors that are at the heart of this revolution. Mr Kohlenberger outlined his views on massive economic opportunities to transform 80% of the economy that has yet to be modernized by technology, including agriculture and transportation.

**Preston Marshall**, Wireless Networking, Google, emphasized that bandwidth leads to innovation. Mr Marshall maintained that there is lots of spectrum available, but it's not accessible in traditional fixed licenses, but will instead need to be shared with incumbents.

**Octavia Caixeta**, presenting on behalf of Maximiliano Martinhao, Secretary of Telecommunications, Ministry of Communications, Brazil, stated that 5G will be less about connectivity and more about truly wireless solutions while transforming power consumption and increasing battery life. Mr Caixeta also noted that before focusing on 5G, many countries, like Brazil, need to focus on building up their current infrastructure in order to provide better 3G and 4G service.

**John Kuzin**, Senior Director, Government Affairs – Regulatory, Qualcomm, outlined Qualcomm's work on connectivity issues for “internet of things”. Mr Kuzin noted machine to machine devices have different requirements from traditional consumers, and will necessitate changes in the way devices connect to broadband.

# The 4th Annual Americas Spectrum Management Conference

November 12 & 13, 2014 / Washington D.C.

## Breakout Session: Federal and public spectrum

The conference then broke into two groups. The session on “What role can federal and public spectrum play in tackling short and long term spectrum shortages?” was chaired by **Nancy Victory**, Partner, Wiley Rein.

**Paige Atkins**, Deputy Associate Administrator for Spectrum Planning and Policy, Office of Spectrum Management, NTIA, noted that regulators struggle with how to balance federal requirements for spectrum with commercial needs. Ms Atkins acknowledged that our future is sharing between users: commercial users will use Federal bands while Federal incumbents will be allowed to access commercial bands.

**Brent Skorup**, Research Fellow, Technology Policy Program, Mercatus Center, George Mason , highlighted that we need to find ways to incentivize Federal agencies to give up spectrum and be more open about the spectrum they are currently using, as the economic losses of underutilized spectrum are immense and growing.

**Major General Robert Wheeler**, Deputy CIO for C4 & Information Infrastructure Capabilities, Department of Defense, provided an overview of the Department of Defense’s participation in freeing up AWS-3 spectrum. MG Wheeler also explained how DoD spectrum bands are not harmonized worldwide which increases the difficulty in coordination with other countries.

**Jonathan Spalter**, Chair, Mobile Future, commended the AWS-3 auction as a substantial movement forward in spectrum sharing. Mr Spalter emphasized that spectrum sharing should only happen when relocation of incumbent users is technically infeasible.

**John Leibovitz**, Deputy Chief, Wireless Telecommunications Bureau & Special Advisor to the Chairman for Spectrum Policy, FCC provided an overview of dynamic spectrum sharing in the 5GHz band. Mr Leibovitz also stressed that the FCC and WTB look at how they can incentivize industries and incumbent users to move to new technological platforms and vacate spectrum.

## Breakout Session: License duration and geographic area

The second breakout session on “Spectrum Licenses – is there a need to rethink length and geographical aspects of license awards?” was chaired by **J. Armand Musey**, Managing Director, Goldin Associates, LLC. The speakers were:

- **Blaise Scinto**, Chief of Broadband Division, Wireless Telecommunications Bureau, FCC;
- **Erin Fitzgerald**, Associate, Bennet & Bennet PLLC;
- **Johanne Lemay**, Co-President, LYA International Inc;
- **Scott J. Wallsten**, Vice President for Research and Senior Fellow, Technology Policy Institute.

The session highlighted the need for flexibility in geographic license areas to balance the needs of diverse groups of bidders. In particular, smaller wireless operators often seek smaller license territories so they can narrowly target

# The 4th Annual Americas Spectrum Management Conference

November 12 & 13, 2014 / Washington D.C.

spectrum acquisitions for their areas of need. On the other hand, larger operators seek larger spectrum territory sizes to facilitate nationwide networks. The FCC was praised for its flexible approach for the 600 MHz Incentive Auction, where it has developed a new regional structure called partial economic areas which divide the United States into 416 territories. This was a compromise between previous FCC territories that included Cellular Market Areas (734 territories) and Economic Areas (176 territories). There was also a discussion of the optimal length of licenses, and whether the current length of 10-12 years typically used for FCC licenses (albeit subject to an expectation of renewal) was long enough to support investment in new technologies. After considerable discussion, the group believed the 10-12 year length was sufficient, given the renewal expectations. Some of the panellists suggested that given the complexity of the 600 MHz Incentive Auction, that the FCC should have considered having a "practice run."

## Final Session: Competition measures in spectrum awards

The afternoon session was moderated by Graham Louth, Partner, Aetha Consulting. This session focused on competition measures in spectrum awards.

**Stefan Zehle**, CEO Coleago Consulting presented on how policy choices can lead to suboptimal outcomes in spectrum awards. Mr Zehle commented on how policy should be used to try to allocate spectrum in the most efficient way, not to encourage entrants into a mature industry.

**Nese Guendelsberger**, Deputy Chief, International Bureau, FCC, presented on competition and spectrum holding policies in the USA. Ms Guendelsberger outlined the tools that the FCC uses to safeguard against spectrum concentration, including in-depth reviews of spectrum purchases on the secondary market, and Mobile Spectrum Holdings Order which established spectrum reserves in the Incentive Auction for operators with a low share of low-band spectrum.

**Hector Bude**, Head of Spectrum Management Department, URSEC, Uruguay, presented a case study on recent auctions in Uruguay. Mr Bude highlighted how different countries will face different spectrum needs from operators, and argued that each country should base their policy decisions on what benefits their country. Mr Bude noted that Uruguay is refarming 2.5 GHz spectrum, but that operators are not interested in the spectrum at this time.

**Otavio Caixeta**, again presenting on behalf of Maximiliano Martinhao, Secretary of Telecommunications, Ministry of Communications, Brazil, presented a case study on 700 MHz auctions in Brazil. Mr Caixeta reported on Brazil's refarming efforts of 700 MHz spectrum, which is still occupied by DTV. As FTA broadcasts continue to be a big part of everyday life, Brazil will distribute new set-top boxes to many Brazilians for free.

**Graham Louth**, Partner, Aetha Consulting, detailed how regulators need to manage risks and analyse the likelihood of adverse outcomes before determining policy. Mr Louth also expressed his opinion that an asymmetry in spectrum holdings amongst operators in a country can potentially provide greater competition and innovation.

The discussion after the panel presentations focused on how regulators can ensure the protection of competition in spectrum auctions, and when and how regulators should adopt pro-competition measures.



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