

3rd India Spectrum Management Conference

Spectrum Planning for Sub-1 GHz

October 16, 2023

Madeleine Noland, President ATSC



About ATSC (Advanced Television Systems Committee)

Standards development organization for digital television

- Founded in 1983 by CTA, IEEE, NAB, NCTA, and SMPTE
- Focused on terrestrial digital television broadcasting

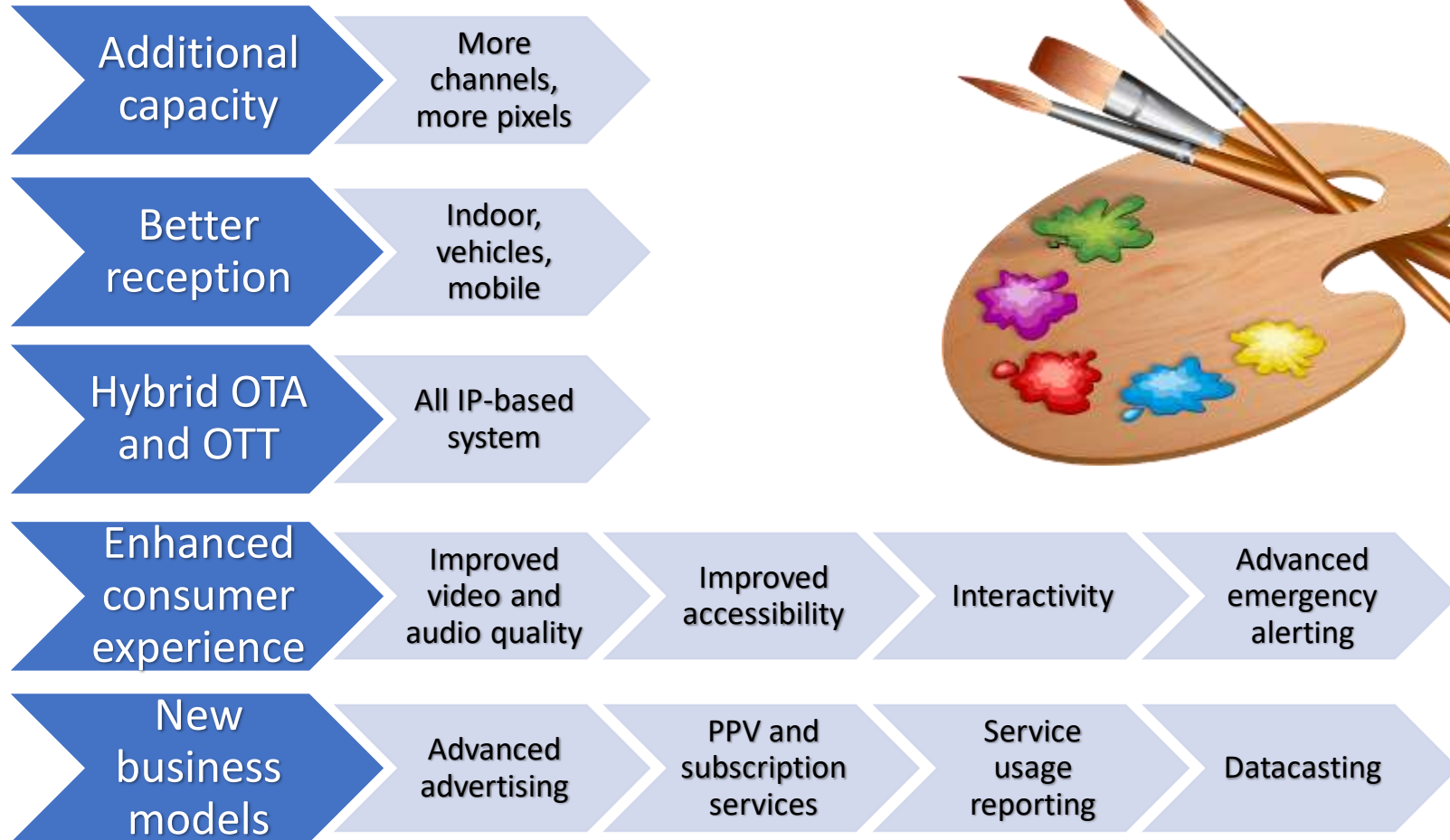
ATSC is an open, due process organization

- Approximately 180 member organizations
- Broadcasters, broadcast equipment vendors, cable and satellite systems, consumer electronics and semiconductor manufacturers, universities

ATSC Mission Statement:

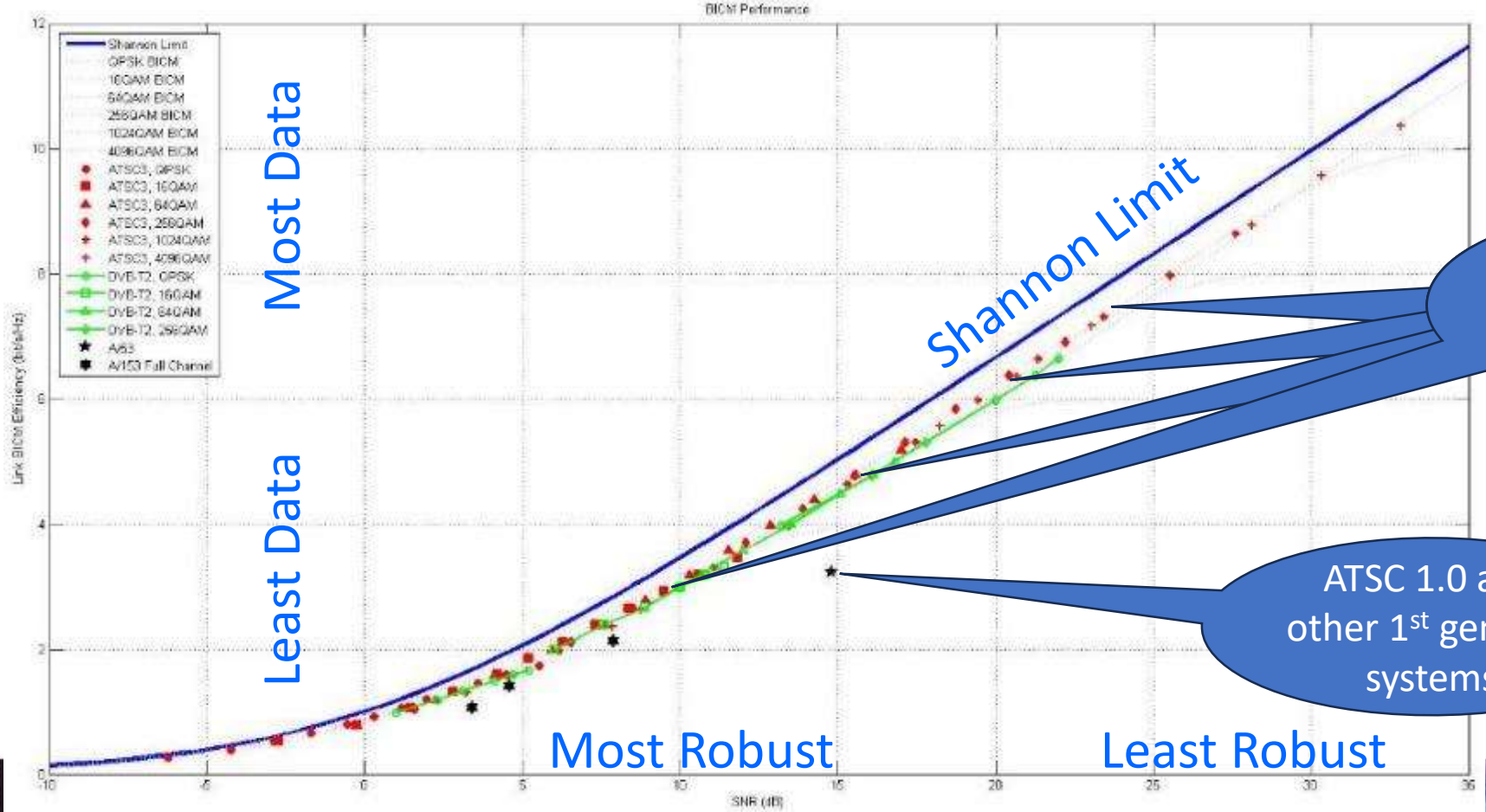
- To create and foster implementation of voluntary Standards and Recommended Practices to advance terrestrial digital television broadcasting, and to facilitate interoperability with other media.

Key Advancements in 3.0



Reaching the Theoretical Limit of Efficiency

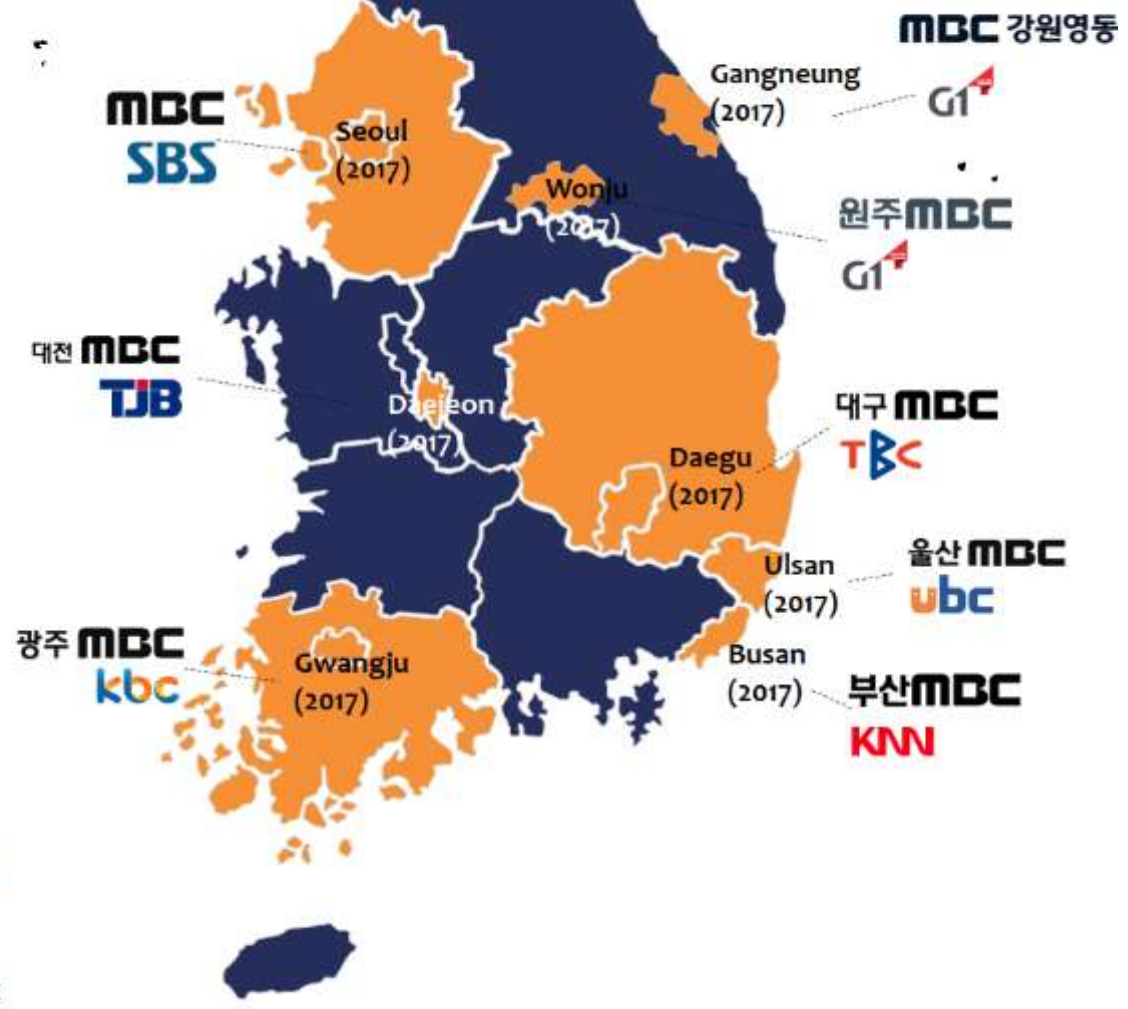
- The Shannon Limit is the theoretical limit to the amount of data a spectrum band can carry relative to the robustness of the signal



ATSC 3.0 and other 2nd gen DTT systems

ATSC 1.0 and other 1st gen DTT systems





<https://www.atsc.org/nextgen-tv/deployments/>





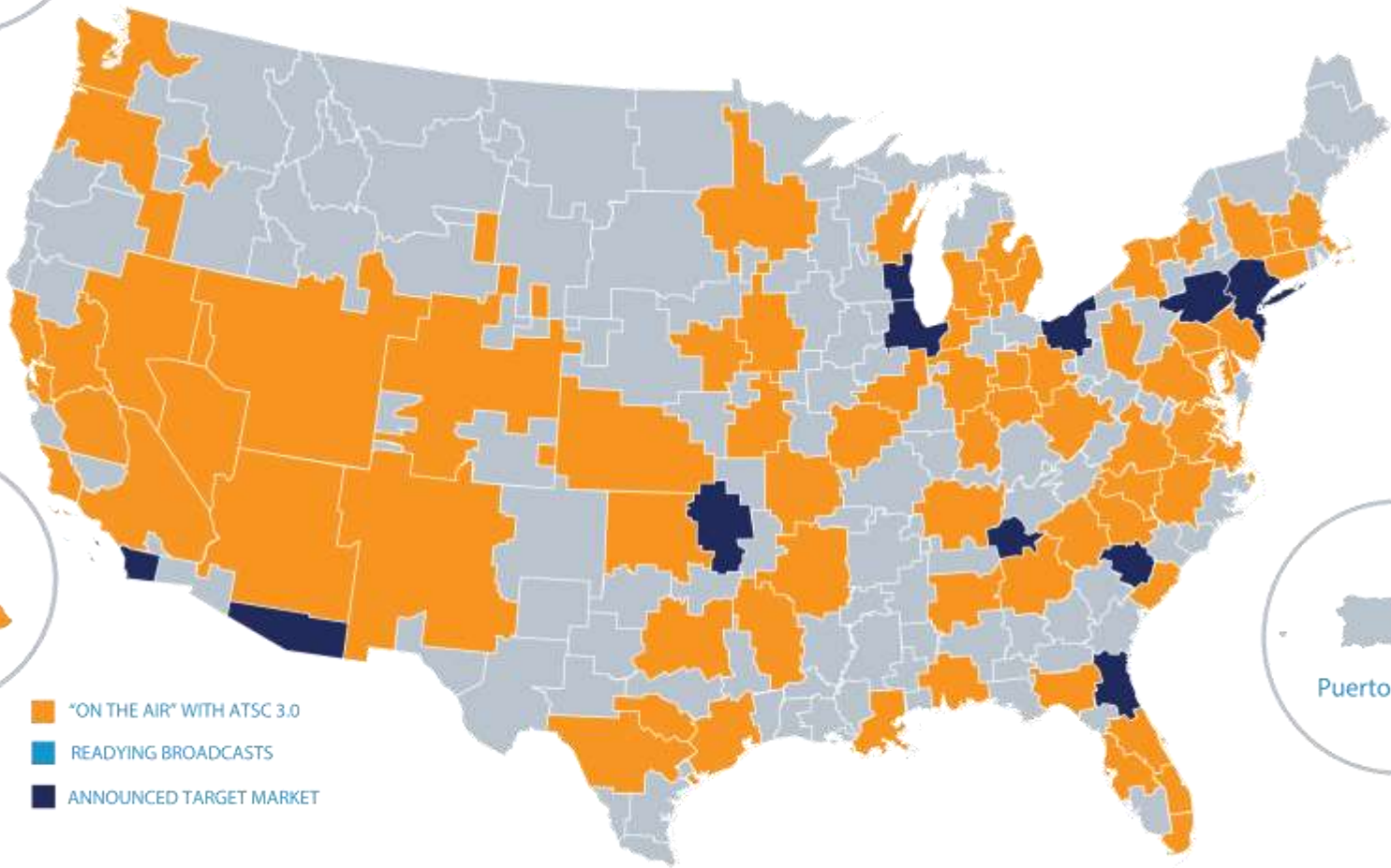
Alaska



Hawaii



Puerto Rico



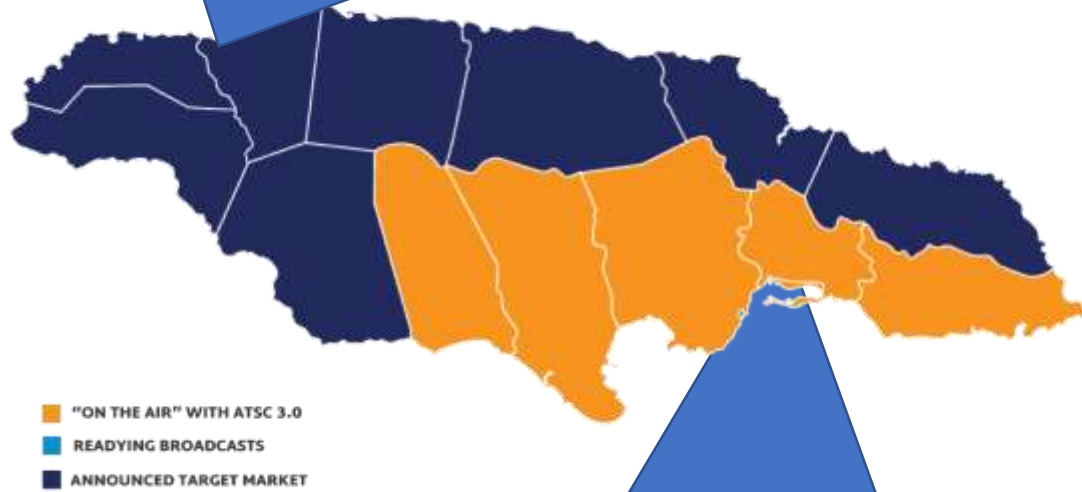
- "ON THE AIR" WITH ATSC 3.0
- READYING BROADCASTS
- ANNOUNCED TARGET MARKET

<https://www.atsc.org/nextgen-tv/deployments/>



Jamaica Launched ATSC 3.0 in 2022

And in Montego Bay in July 2022...



Television Jamaica launched in Kingston in January 2022...



Trinidad & Tobago Announced Adoption

- The Telecommunications Authority of Trinidad and Tobago is beginning the transition to ATSC 3.0 in 2023 with an expected completion date of 2026.





Brazil TV 3.0 Project

- Brazil has launched a project to implement a new next-gen television system called “TV 3.0”
- Brazil SBTVD Forum will select system elements for TV 3.0 from among the proposed systems
- ATSC 3.0, Advanced ISDB-T2, and enTV (feMBMS) are among the proposed technologies
- Selections have been made for all layers except PHY, which is coming Q1 2024
- **ROUTE/DASH, MPEG-H Audio, IMSC1 Captions, VVC, Ginga, and ATSC 3.0 Emergency Messaging** have all been selected thus far

Canada

- Broadcast-Broadband Convergence B^2C Lab at Humber College in Toronto, Canada
 - ATSC 3.0 – 5G Convergence development lab supported by millions of dollars of grant money
 - 3-site SFN to light up this year with experimental licenses
 - 5G Core procurement underway
- City of Calgary applying for experimental license with focus on Smart City infrastructure



WE ARE
HUMBER

Photo Credit: Perkins & Will / Tom Arban

India: Direct-to-Mobile (DTM) – Broadcast for a Billion



ATSC 3.0 under active consideration by the Public Broadcaster Prasar Bharati

Potential scale is massive

Cellularized network of 30,000+ sites

1 billion+ smartphones, >200 million per year

470-585 MHz exclusively reserved for DTT/DTM

Pure broadcast as well as mobile operator broadcast offload

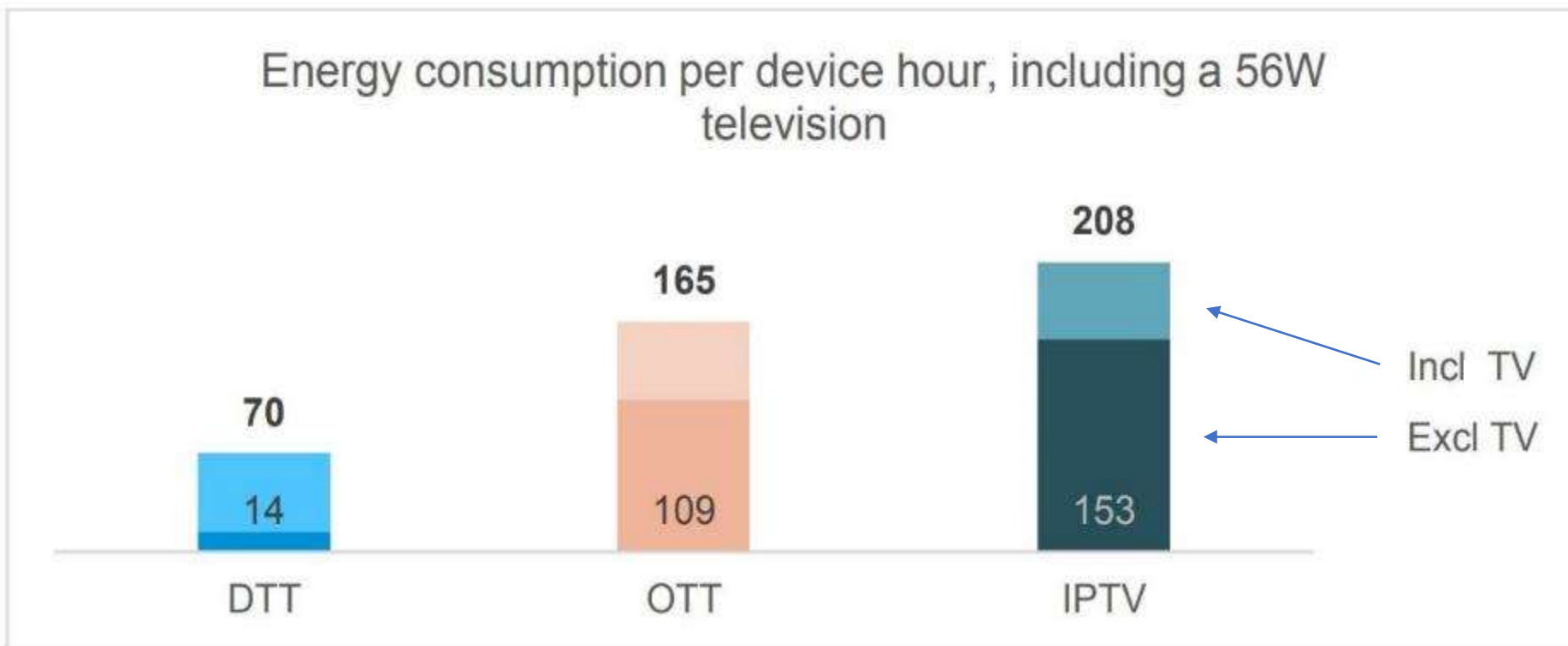
ATSC – TSDSI Adoption paves the way for potential Indian National Standard

ATSC 3.0 HPHT plus 6-site SFN is set up in Delhi for field trials and demos



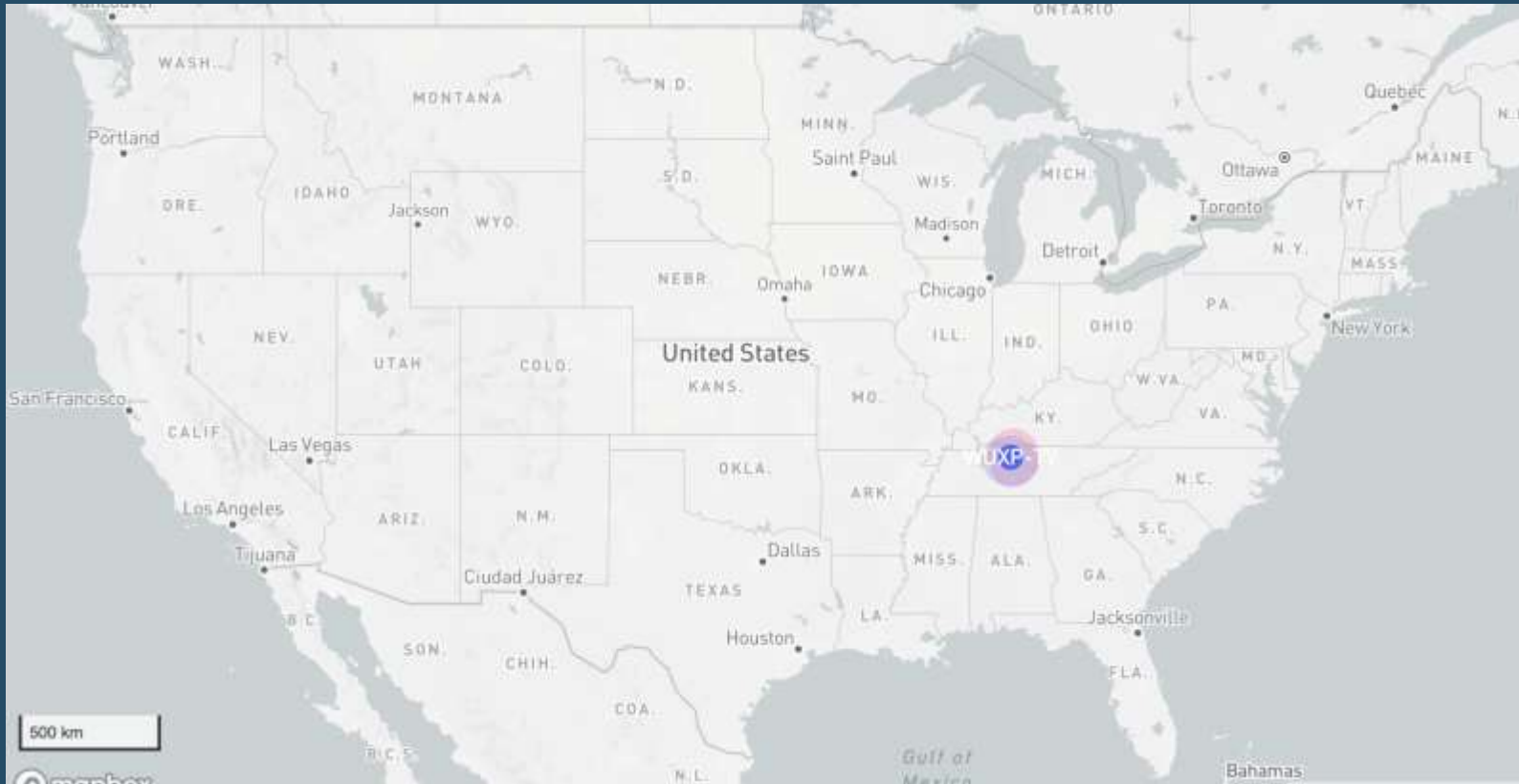
Opportunity to Make a Difference

“...(T)he energy consumption and associated emissions of DTT are an order of magnitude lower than estimates for OTT and managed IPTV.”



Quantitative Study of the GHG Emissions of Delivering TV Content
Carnstone/The LoCAT Project
[Final Report, v1.1](#), September 2021

Nodes don't make a network

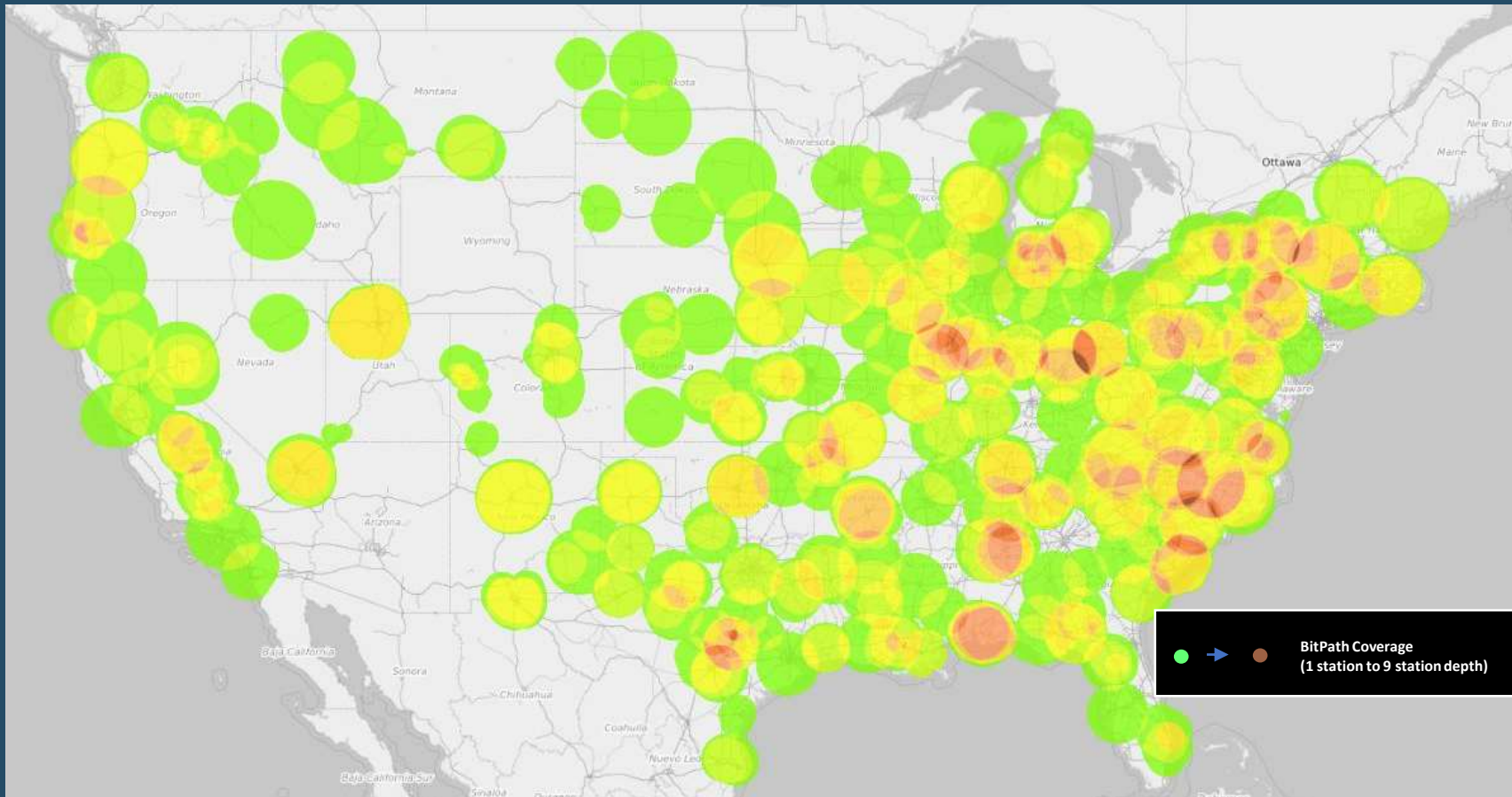


Nashville June 23 Launch

- Two high power stations
- 12 MHz for ATSC 3
- Great coverage
- But not sellable in and of itself

Slide contents courtesy of BitPath

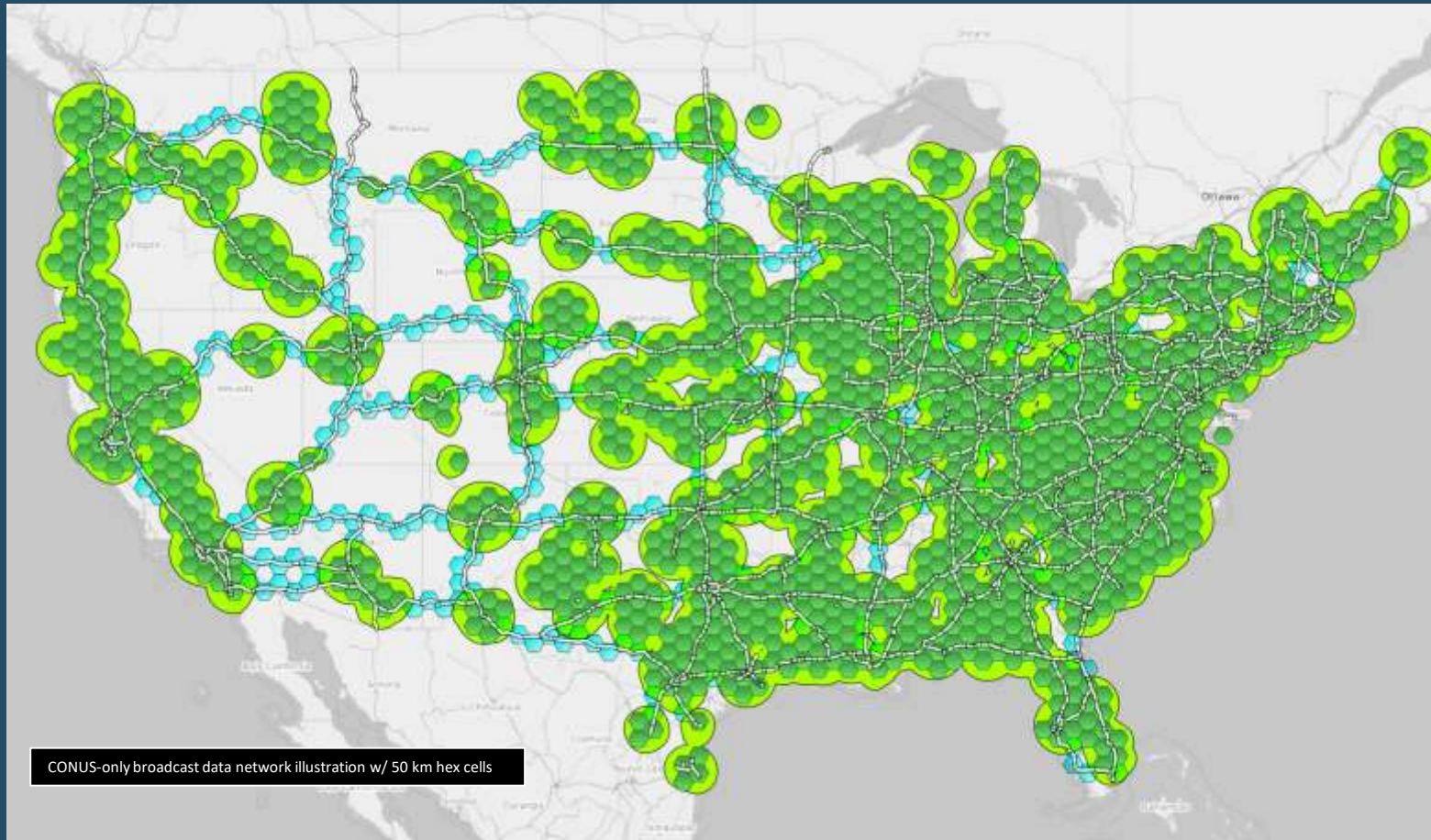
Even lots of nodes don't make a network



- More coverage and more depth expand addressable market and increase value of each bit
- But we still need a network

Slide contents courtesy of BitPath

A Nationwide Network is Possible



The ideal Broadcast Data Network

- Covers all significant markets
- Defines coverage and QoS by wireless industry norms
- Anticipates eventual coverage of major traffic arteries
- Has an evolvable virtual network core
- Uses the same protocols, APIs, devices and device stacks, everywhere
- Provides depth for resiliency and future growth

Slide contents courtesy of BitPath

Thank you

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NEXTGEN BROADCAST
CONFERENCE 2020