January 11, 2016

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions, GN Docket No. 12-268

Dear Ms. Dortch:

The National Association of Broadcasters (NAB) is committed to working with the Commission and other stakeholders to ensure that the repacking of television stations following the broadcast spectrum incentive auction proceeds as efficiently and expeditiously as possible. Broadcasters have no interest in prolonging the uncertainty and disruption associated with repacking. On the contrary, broadcasters seek to make the post-auction repack proceed as smoothly as possible, which will minimize disruption to viewers. At the same time, broadcasters should not be forced off the air if they are unable to make the transition to their new channels due to factors outside their control.

That is why NAB has asked the Commission to establish a repacking schedule after the auction, when the basic facts are known. Once the Commission has determined how many stations must move, and to which channels, it will be possible to establish aggressive, but attainable, deadlines for stations to complete their relocation.

To further the goal of an efficient, timely repack that preserves service to viewers while making spectrum available to winning forward auction bidders as quickly as possible, NAB has taken two important steps. First, NAB commissioned a comprehensive study examining the resources, costs and time needed to perform a nationwide repack of affected broadcasters (the DTC Study).[1] To date, no other party, including the Commission itself, has conducted such an analysis. Second, NAB shared the information in this analysis with other stakeholders, including the Competitive Carriers Association (CCA), more than seven months ago, in May 2015. NAB made a draft of the study available to CCA and even offered, on

[1] Letter from Myra Moore, President, Digital Tech Consulting, Inc. to Marlene H. Dortch, Secretary, FCC, GN Docket No. 12-268 (Nov. 6, 2015), Attachment (DTC Study).

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more than one occasion, to fund a second analysis, overseen by potential forward auction participants, that would examine repacking and confirm, or refute, the conclusions of the DTC Study. NAB has made every effort to be transparent and constructive in examining the repacking challenge and potential means of making the transition proceed as quickly and seamlessly as possible.

That is why NAB was both surprised and disappointed by CCA's recent letter urging the Commission to make no changes to its 39-month deadline for repacked television stations to complete their transition to new channels, and opposing any modification to the $1.75 billion relocation fund Congress established to reimburse repacked broadcasters.[2] Virtually every claim CCA makes is inaccurate.

CCA begins by asserting that broadcasters have had plenty of time to prepare for the auction, and that they "can and should start the transition process now by preparing for the possible 39-month active relocation period."[3] CCA suggests that the FCC has recommended steps broadcasters could take now, before the "active relocation period," to prepare for repacking.[4] This is untrue. In fact, the FCC order CCA cites was referring to steps broadcasters might take *during* the 39-month period, after the close of the auction, once channel assignments are known, but before construction permits are issued. Obviously, stations cannot possibly know in advance whether or not they will be repacked or to which channel they may be reassigned, making the advance efforts CCA suggests potentially unnecessary and wasteful. Indeed, unless the auction closes and funds are allocated for reimbursement of eligible expenses, stations performing such advance work would be assuming the risk that their expenses would never be reimbursed. Notably, CCA does not offer to reimburse broadcasters for expenses incurred prior to the auction.

Indeed, just two pages after arguing that all broadcasters should begin performing work now in preparation for repacking, CCA argues that everyone but CCA is exaggerating the number of stations that will be repacked, and that "far fewer" stations than anticipated will actually need to relocate.[5] According to CCA, then, all broadcasters potentially subject to repacking should assume the risk of non-reimbursement and begin preparing for relocation, even though only a few stations will ultimately need to relocate. NAB hopes that CCA's optimistic estimate of the number of stations that will be subject to repacking proves correct. But the purported disparity in the estimates of how many stations must move is itself a reason to wait to establish deadlines until more facts are known – no one can reasonably assert that

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[2] Letter from Rebecca Murphy Thompson, General Counsel, CCA to Marlene H. Dortch, Secretary, FCC, GN Docket No. 12-268 (Dec. 22, 2015) (CCA Letter).
[3] *Id.* at 2.
[4] *Id.* at 2, citing *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Report and Order, 29 FCC Rcd 6567, ¶ 565 (2014) (Auction Report and Order).
[5] *Id.* at 4, n. 13, citing Letter from Brian Benison, Director, Federal Regulatory, AT&T Services, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 12-268 (Dec. 18, 2015) (estimating that approximately 850 stations may be repacked).

the timeframe to repack 200 stations should be the same as the timeframe to repack 1,200 stations.

Next, CCA points to a previous NAB filing, in which NAB supported a 30-month timeframe for repacking.[6] This is misleading. In the filing CCA cites, NAB relied on the assumption that the Commission would repack perhaps 400-500 stations.[7] But, a year and a half after NAB filed these comments, the FCC's released sample repacking scenarios suggesting two to three times as many stations could be repacked. Thus, since NAB filed its initial comments three years ago, the FCC changed its repacking baseline and DTC submitted the first and only comprehensive analysis of a nationwide repack.

On the subject of reimbursement, CCA opposes any increase in the $1.75 billion fund Congress established to compensate broadcasters for costs incurred in repacking.[8] It is baffling why CCA has chosen to weigh in on this issue. CCA claims that this funding level reflects "careful stewardship of the nation's financial resources,"[9] which is ironic given CCA's support of a spectrum reserve to ensure that its members pay below-market prices in the auction, which will result in lower revenues for the U.S. Treasury. CCA also asserts that the $1.75 billion fund is reasonable.[10] However, the DTC Study, which is the only current and comprehensive effort to analyze the costs of repacking available, suggests that actual costs will exceed this amount, perhaps substantially.[11] In any event, the Commission will only reimburse broadcasters for legitimate repacking expenses actually incurred. As a result, if CCA is correct, expanding the fund will prove harmless. But, if CCA is incorrect, there is simply no good reason why broadcasters should not be fully compensated for their involuntary relocation.

With respect to the DTC Study itself, CCA's criticisms simply do not reflect any engagement with the substance of that study. CCA states that the infrastructure market to support repacking "is not static, but rather will respond to the financial rewards of offering new products and services to incumbents."[12] But, the DTC Study does not assume a "static" market of services and manufacturers. Rather, the DTC Study examines "the current and likely future levels of equipment and services that will be available to stations moving to a

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[6] CCA Letter at 3, n. 9, citing Comments of the National Association of Broadcasters at 50, GN Docket No. 12-268 (Jan. 25, 2013) (NAB Comments).
[7] NAB Comments at v.
[8] CCA Letter at 2-3, 5-6.
[9] *Id.* at 3.
[10] *Id.*
[11] DTC Study at 3 (repacking will cost between $1.98 billion and $2.94 billion).
[12] CCA Letter at 3.

new channel assignment."[13] The DTC Study expressly assumes increases in capacity in its analysis.[14]

CCA claims that 16 tower crews will be able to complete repacking work in 39 months because, "even assuming between 600 and 900 stations will need to be repacked over the transition period, each installation crew would only need to work on slightly more than one station per month – a reasonable workload with proper coordination."[15] CCA's cocktail napkin analysis (16 tower crews x 39 months = 624 stations) assumes that tower crews can begin installation on day one, ignoring all of the administrative, engineering, production and delivery activities leading up to delivery of replacement antennas at a station's transmission site.[16] It also ignores the DTC Study's estimate that each tower crew will be able to complete eight to nine projects per year – not more than one per month (a workload CCA asserts is "reasonable" with no explanation).[17]

CCA also questions the DTC Study's use of "undefined qualifiers" in discussing resource capacity, such as "qualified" tower and antenna installation crews, and "industry-accepted" antenna manufacturers. But these terms are not undefined. With respect to tower crews, the DTC Study explains that only a small number of firms have the experience, the necessary rigging equipment and the skill required to install heavy antennas (weighing as much as several tons) on tall towers. Other tower and installation crews are qualified and equipped to operate in wireless and microwave markets, where antennas are lighter and towers are shorter.[18] With respect to antenna manufacturers, the DTC Study explains that most global manufacturers of broadcast antennas specialize in low power and panel-type antennas, not the types of high power antennas that make up nearly 97 percent of the U.S. market.[19]

Rather than address what the DTC Study actually says regarding resource capacity, CCA assumes away the problem. CCA asserts that the "tower climber workforce can grow to address increased demand."[20] This ignores the singular qualifications that tower crews must have to perform the unique tasks associated with broadcast antenna installations. It also ignores the tragic consequences of the wireless industry's own experience with crash programs of antenna installation using unqualified personnel.[21] Indeed, in the time since CCA submitted its letter, other observers have confirmed the shortage of qualified tower

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[13] DTC Study at 2.
[14] *See, e.g.,* DTC Study at 24 (comparing current antenna manufacturing capacity with ramped up capacity during repacking); DTC Study at 31 (assuming increase in qualified tower crews from 13 to 16).
[15] CCA Letter at 4.
[16] DTC Study at 32.
[17] *Id.*
[18] *Id.* at 17.
[19] *Id.*
[20] CCA Letter at 3-4, n. 11.
[21] Ryan Knutson and Liz Day, *In Race For Better Cell Service, Men Who Climb Towers Pay With Their Lives* (May 22, 2012) (available at: http://www.propublica.org/article/cell-tower-fatalities).

crews, and expressed concern that using unqualified crews or an unrealistically aggressive schedule raises safety concerns.[22]

CCA then claims, in a single sentence, with no further explanation, that the Commission's prioritization of repacking deadlines will "minimize the transition's effect on incumbents."[23] While NAB agrees that a logical transition plan can help both to minimize disruption and speed the completion of repacking, the fact is that the Commission has not yet adopted a transition plan for repacking television stations. Speculating as to the potential benefits of such a plan without knowing how many stations will need to move, where those stations will be located, or how significant the channel changes will be, does not constitute analysis.

For the same reason, CCA's hope that some stations may be able to relocate to new channels in less time than anticipated is unavailing. CCA asserts that some channel changes may be very simple, or that manufacturing time may be reduced by reusing equipment that can no longer be used by other stations. If CCA's optimistic assertions prove accurate, the Commission's transition plan can reflect that. NAB has not asked the Commission for a blanket extension of the transition period; rather, NAB has asked the Commission to establish deadlines only once the facts are in and the scope of repacking work is known. But until the parties, and the Commission itself, know what stations will be moving and where, it is irresponsible and unreasonable to take a "fingers crossed" approach to one of the most complex transitions the Commission has ever undertaken.

CCA also asserts that any extension of the 39-month deadline would "increase the risk of costly delays and disputes because the relocation period would no longer closely align with the three-year period within which the FCC may make relocation payments."[24] CCA argues that adopting a construction period that is longer than the reimbursement window would force the FCC either to reimburse broadcasters for expenses that have not yet been incurred, or deprive broadcasters of reimbursement. This is specious. First, in the very same letter, CCA argues that the $1.75 billion relocation fund should not be adjusted, despite evidence that it will be inadequate. It is absurd for CCA to feign concern over broadcasters potentially being deprived of a mechanism for reimbursement just one page after asserting that the fund should not be adjusted upwards to reflect the reality that costs may exceed $1.75 billion. Second, with respect to reimbursing broadcasters for expenses that have not yet been incurred, the FCC has already committed to do just that. The Commission expressly provides for broadcasters to receive a "final allocation" of costs based on actual *and remaining* estimated costs prior to the end of the reimbursement window.[25] The

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[22] James O'Neal, *Repack Faces Tower Crew Shortage* (Dec. 28, 2015) (attached, and available at: http://www.tvtechnology.com/resources/0006/repack-faces-tower-crew-shortage/277618).
[23] CCA Letter at 4.
[24] CCA Letter at 4.
[25] Auction Report and Order at ¶ 90.

Commission has already severed the link between the statutory reimbursement window and the completion of construction, a point CCA actually acknowledges in a footnote.[26]

Next, CCA asserts that the success of the auction depends on certainty with respect to when spectrum will become available. Remarkably, as an example of the importance of rapidly clearing broadcasters from their channels, CCA cites the AWS-3 auction.[27] According to CCA, "despite some long-lasting encumbrances," the AWS-3 set a new revenue record for spectrum auctions in part because it provided certainty as to when bidders would be able to access their spectrum.[28] What CCA neglects to mention is that some of the "long-lasting encumbrances" are as long as *ten years*.[29] In other words, the AWS-3 auction was by far the most successful auction the FCC has ever conducted, dramatically exceeding all revenue expectations, despite transition timelines that in some cases are three times longer than the Commission's current repacking deadline.

CCA ultimately resorts to mischaracterizing previous Commission orders. According to CCA, previous FCC relocation efforts, such as the reconfiguration of the 800 MHz band, "have suffered from less definitive deadlines."[30] In reality, the Commission did establish a firm, definitive deadline for the completion of 800 MHz reconfiguration.[31] The Commission specifically committed to completing 800 MHz reconfiguration within 36 months, established interim and final benchmarks to ensure timely completion of reconfiguration, and threatened sanctions if reconfiguration was not completed on time.[32] The lesson of 800 MHz reconfiguration is not that the Commission should have established firm deadlines – the FCC did just that. Rather, the lesson is that all stakeholders are best-served by realistic deadlines that reflect the reality of the scope of work for relocation. All NAB has asked is

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[26] CCA Letter at 8, n. 33. CCA asserts that final allocations are only necessary because the three-year reimbursement window ends three months before the 39-month transition deadline. This is untrue. In fact, in declining to require the completion of international coordination prior to the auction, the FCC noted that this would not put stations at risk of non-reimbursement, because those stations could receive final allocations for estimated costs not yet incurred. *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Second Order on Reconsideration, 30 FCC Rcd 6746, ¶ 90 (2015).
[27] *Id.* at 6.
[28] *Id.*
[29] NTIA, Transition Plans and Transition Data for the 1755-1780 MHz Band, available at: https://www.ntia.doc.gov/other-publication/2015/transition-plans-and-transition-data-1755-1780-mhz-band.
[30] CCA Letter at 6, n. 23.
[31] *Improving Public Safety Communications in the 800 MHz Band*, Report and Order, 19 FC Rcd 14969, ¶ 11 ("We require band reconfiguration to be completed through a phased transition process within thirty-six months of release of a Public Notice announcing the start date of reconfiguration in the first NPSPAC region."). *See also id.* at ¶ 28 ("We are committed to having band reconfiguration completed through a phased transition process within thirty-six months of release of a Public Notice announcing the start date of reconfiguration in the first NPSPAC region.")
[32] *Id.*

that the FCC establish deadlines only once the scope of repacking work is known. Unduly optimistic projections cannot simply be willed into existence.

The depth of CCA's unwillingness to engage in a factual discussion of the repacking challenge is laid bare by CCA's final recommendations: a series of punishments for broadcasters that are unable to complete relocation within 39 months.[33] None of the sanctions CCA proposes depend on whether a broadcaster's inability to complete its transition was within its control; rather, CCA proposes to fine stations, withhold reimbursement, and force stations off the air regardless of whether delays are reasonable, foreseeable or avoidable. CCA's position is unreasonable and unbalanced.

NAB remains interested in working with both the Commission and wireless carriers interested in participating in the auction to ensure the most expeditious, efficient repack possible. To that end, NAB has been as cooperative as possible with CCA with respect to the potential challenges associated with repacking. Unfortunately, CCA's letter calls into question CCA's interest in playing a serious, constructive role in this process.

Respectfully Submitted,

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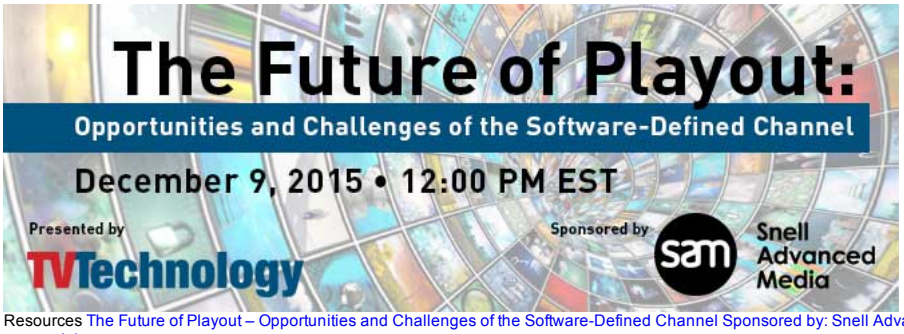
General Counsel and Executive Vice President,
Legal and Regulatory Affairs
National Association of Broadcasters

cc: Gary Epstein
Howard Symons
Bill Lake
Mary Margaret Jackson
Michelle Carey
Pamela Gallant
Barbara Kreisman

[33] CCA Letter at 7-8.



Resources The Future of Playout – Opportunities and Challenges of the Software-Defined Channel Sponsored by: Snell Advanced Media December 9, 2015

Repack Faces Tower Crew Shortage

Post-auction activity likely to strain available resources December 28, 2015

By James O'Neal

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ALEXANDRIA, VA.—Recalling the frantic period of activity to get antenna systems in place leading up to the June 2009 deadline for the U.S. DTV switchover, could it be “déjà vu all over again” when the 2016 incentive spectrum auction dust settles?

Given the number of stations likely to be impacted by an anticipated channel repack, the National Association of Broadcasters commissioned Digital Tech Consulting to examine the matter. Early last month, the Dallas-based research firm released its findings in a 60-page document ("Broadcast Spectrum Repacking Timeline, Resource and Cost Analysis Study") which examined several industry sectors critical in moving the repack forward. One of these was tower workers.

A multitude of qualifi ed tall tower workers will be key to accomplishing the necessary postauction TV station "repack."

CREW CRUNCH

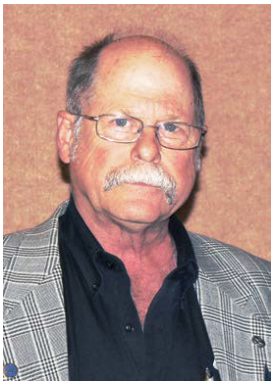
The availability of qualified tower workers has to be a major concern, for no matter how much channel-change hardware (transmitters, antennas, RF components and tower structural modification members) can be delivered, without sufficient installers it will be just so much dead weight languishing on pallets and in packing boxes.

It all seems to boil down to: "Are there enough tall-tower workers to handle the anticipated changes within the three years the FCC has allotted?"

Given the many variables, this is not an easily answered question. No one really knows how many broadcasters will sell out, will remain on the same channel, or will need a new antenna (and in some cases, transmitting facility relocation). The study suggests that 800–1,200 stations will require fairly extensive changes involving new antennas and replacement of associated RF components. It assumes that there may be 16 tall tower crews available when the channel swapping begins, and given this number (and the time required for a typical job), finds that no more than 130 antenna/tower retrofits could be accomplished in one year. It concludes that the repack clock may tick out with perhaps only 360 antenna jobs completed—not even half of the low end number anticipated.

FCC DROPPED THE BALL

Several individuals and organizations likely to be involved in repack activities were contacted for their take on the situation. Tom Silliman, president and CEO at antenna manufacturer ERI (and a tower rigger himself), estimates that the number of qualified crews is about the same as it was prior to the DTV transition.



Tom Silliman

"I'd say that there are around 15 qualified crews," said Silliman. "If a station gets repacked they're probably going to need an auxiliary antenna and reinforcing for the tower, and that takes time; however, the real problem is that people aren't going to start ordering antennas until next summer and it will be a year before things start going out into the field. Immediately you've lost one of the three years due to the turnaround. I told the FCC this myself: 'You're going to need at least five years.'

"Another factor is that the FCC has crippled the TV transmission supply side. There are fewer antenna manufacturing companies than there were a few years ago because of the FCC television 'freeze.' We dropped literally half of our capacity. We didn't lose any of our capability; we just lost a lot of our depth. Where we needed technology we've kept people; but where we could afford to let people go, we did."

Keith L. Pelletier, vice president and general manager of antenna manufacturer Dielectric is also concerned about industry readiness.

"If you look at the players that went through the DTV build-out, the range of preparedness varies," said Pelletier. "Dielectric is preparing for the repack, but the proposed timeline is going to be a real challenge. We're being aggressive with the steps we can take to be ready. You need to be aware too that there are a limited number of qualified structural engineers and tower crews. It is going to be a problem, especially considering weather, [in] getting the repack done in the extremely short timeframe while maintaining safety standards."

SAFETY CONCERNS LOOM

Safety issues are on the radar also at a major tower trade association, the National Association of Tower Erectors.

Placing a multi-ton TV antenna atop a 1,000- foot tower is markedly different than installing panel-type cell site antennas.

"The timeline is a concern to us, especially the 36-month window," said Todd Schlekeway, NATE's executive director. "In our industry after the digital conversion there hasn't been much work from a contractor's perspective in that space. The workforce migrated over to the wireless and cell tower side, and all the new workers in the last several years are familiar with [only] that type of work. You start ramping up broadcast again and there could definitely be a shortage of contractors qualified to do work, and broadcast towers are a whole different animal than cell towers. We're concerned about safety. Given the nature of the work and [lack of] familiarity with working on broadcast structures… and the timeline, [there is] a concern from a safety perspective and we've sent correspondence to the FCC that said as much. We're going to be watching things very closely."

Joe Burdette, vice president and co-owner of U.S. Tower Services in Frederick, Md., also believes that there could be manpower shortages and safety issues, and notes that the situation is not the same as when broadcasters were preparing for the DTV changeover.

"Qualified crew availability is much worse," said Burdette. "When the first big change came about there were plenty of companies that did this sort of work. That's not the situation now. Most of the work going on is in connection with cell sites, and those crews aren't necessarily qualified to do tall tower work."

ADDITIONAL CONSIDERATIONS

Even if a much larger workforce could be readied immediately, there are other factors that could slow the overall repack program. Weather can be a big player with windy conditions halting a job and low temperatures greatly impeding progress.

"You can work through the winter," said Silliman, reflecting on a job he did in Chicago. "But it's painful and you're not nearly as efficient."

Another slowdown may come from a pending industry requirement. "There's a new TIA [Telecommunications Industry Association] code that's probably

going to come out within the next year that's going to make things even tougher for tall tower jobs," said Burdette. "There're going to be changes in things like wind loading, metal fatigue and other areas. Even if you install a smaller antenna, you must follow the latest code."

Dielectric's Pelletier also flagged the interrelationship between some television markets as a potential retarding factor.

"The whole eastern seaboard is going to be problematic," he said. "You've got so many large markets in a small geographical area—Philadelphia, New York City, Baltimore, Washington, all the way down the coast—that a change in Boston may trigger changes all the way down to Charlotte, N.C."

ARE THERE ANY SOLUTIONS?
Given the "Mission Impossible" nature of the pending repack, is there anything that broadcasters can do now to speed up matters when the flag drops?

"Do some homework," said Pelletier. "Get a VSWR sweep of your system and determine what is band-limited and what is not, and figure out what channels will work with the transmission line length you have now. It would be good to speak with your RF system and antenna manufacturer to get a high-level understanding of system capabilities and what they may be able to do to help you with a frequency change.

"In some cases the old analog antenna is still on the tower," Pelletier continued. "This could come down in advance to make way for a new antenna. The more things you can do proactively now—structural studies, transmission line inspection and sweeps—the better."

ERI's Silliman also offered suggestions.

"If a station really wants to get ahead of the game and they're worried that they're going to go down in frequency they ought to have someone look at the tower—have it analyzed in terms of capacity and possibly do some reinforcement work."

Asked if ERI will establish a "waiting list" for prioritizing repack work, Silliman was quick to answer.

"It's strictly going to be first-come, first-served."

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