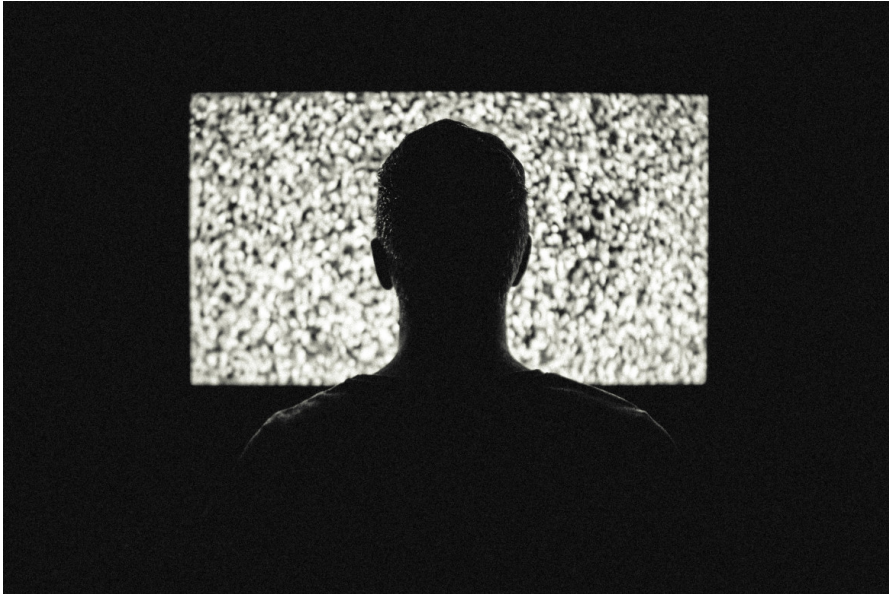


SYSTEM/POLICY

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A guide to the FCC spectrum auction

By **Dru Sefton**



TV channels across the U.S. are in for a shakeup next year. In March, an FCC auction will give broadcasters the chance to sell some or all of their stations' spectrum, to be snapped up by wireless providers who will use it for their transmissions.

For public TV executives and licensees, deciding whether to take part in this auction involves weighing their public-service missions against the payouts from potentially lucrative deals. And even for stations that don't take part, the auction could bring technical disruptions and political complications, while some viewers may lose over-the-air public TV signals altogether.

Complicated FCC proceedings can be baffling, so we've put together this guide to the spectrum auction that we hope will make it a bit more comprehensible. Did we not answer your question? Or does reading this bring up even more questions? Email us and we'll follow up (<mailto:sefton@current.org>). Now, let's get started.

What exactly is the spectrum auction?

Let's first take on the concept of spectrum. Spectrum is the range of frequencies used to transmit sound, data and video. TVs, radios, cellphones, computers, garage door openers, medical equipment and

wireless microphones, among other devices, all use spectrum.

The growth of smartphones, tablets and other wireless gadgets is driving a need for more spectrum for their data transmissions. In 2010, a National Broadband Plan (<https://www.fcc.gov/national-broadband-plan>) developed by the FCC spotlighted the country's spectrum crunch and suggested an auction as a way to make more room for those wireless needs.



(<http://23g9r82j3fid2a63qz3akhv1.wpengine.netdna-cdn.com/files/2015/11/radio-tower-flickr.jpg>)

(Photo: Robert Ashworth via Flickr)

Congress agreed, and the auction process was authorized (<http://current.org/2012/02/fcc-authorized-to-auction-off-tv-spectrum/>) in February 2012. The FCC says (<https://www.fcc.gov/incentiveauctions>) this auction is the first of its kind.

How will the auction work?

The auction is a two-step process. Starting March 29, 2016, the FCC will acquire spectrum from television stations in a so-called “reverse auction.” ([#http://wireless.fcc.gov/incentiveauctions/learn-program/reverse-auction.html](http://wireless.fcc.gov/incentiveauctions/learn-program/reverse-auction.html)) Participating stations will be offered progressively lower payments through a series of bidding rounds. Bidding will end when the FCC reaches targets for the amount of spectrum to be cleared in each market. Stations that remain in the bidding round will receive payments “at least as high” as the last price they agreed to take.

Here’s a video from PBS explaining the reverse auction:

After that phase concludes, a “forward auction” begins, in which the FCC will sell the cleared spectrum to wireless providers.

Because an auction like this has never occurred before, no one is sure how long it will take. The FCC has estimated that the entire bidding process could take a few weeks to a few months.

After the auction concludes and before spectrum is cleared for use by mobile providers, television stations’ signals will need to be rearranged, or “repacked,” to consolidate channel assignments within each market. As a result, many stations may move to new channels. This will affect most stations, not just those that participate in the auction.

A PBS video detailing the repacking process:

Congress has mandated that profits from the auction go into the U.S. Treasury to help pay down the national debt.

UPDATE: The FCC launched a website Jan. 8 with a section for consumers (<https://www.fcc.gov/about-fcc/fcc-initiatives/incentive-auctions/consumer-q-and-a>) about the auction.

Why isn’t part of the money being allocated for improved telecommunications infrastructure, such as broadband access, or for a trust fund supporting public-service media?

Talk of a trust fund for public media from spectrum auction revenue dates back decades. Reps. Ed Markey (D-Mass.) and Christopher Dodd (D-Conn.) introduced legislation in 2002 (<http://current.org/2002/05/markey-dodd-will-back-trust-fund-for-digital-content/>) to create such a fund that ultimately failed. And the idea couldn’t get enough traction to be included in the spectrum act.

Work on telecom infrastructure and broadband access expansion comes from a different pot of money. In 2011, the FCC approved an annual \$4.5 billion Connect America Fund for those projects. The money comes from the commission's Universal Service Fund.

So if an owner of a TV station decides to participate in the auction, what are their options?

Stations can either sell all their spectrum and go off the air, or give up spectrum and share a channel with another station. Noncommercial and commercial stations may channel share.

Other options depend on the spectrum a station is currently using. Among public TV stations, 105 broadcast on spectrum designated as "very high frequency" — VHF. VHF covers channels 2 to 13. That spectrum is further divided into "low VHF" — channels 2 to 6 — and "high VHF" — channels 7 to 13. All but three of public TV's VHF stations are high VHF.

And 258 public TV stations broadcast on UHF ("ultra high frequency") spectrum, channels 14 to 51.

In the auction, stations on UHF channels have the option of giving up their spectrum and moving to a VHF channel. Stations on high-VHF channels can give up spectrum and move to low VHF. High VHF channels are less susceptible to interference from other stations, making low-VHF channels less desirable.

A broadcaster would stand to earn the most by giving up all spectrum assigned to its station. Market activity will determine how much the other options will yield.

Broadcasters must decide by Jan. 12 whether or how to take part in the auction. The FCC won't need spectrum from about 15 percent of the nation's 2,198 TV stations and has notified those 324 stations of their ineligibility for the auction.



(<http://23g9r82i3fid2a63qz3akhv1.wpengine.netdna-cdn.com/files/2015/12/giphy-2.gif>)

How does channel sharing work?

A broadcaster could decide to auction a portion of its spectrum and stay on the air by working out agreements to share a broadcast channel with another nearby station. The Association of Public Television Stations offers a template (http://wireless.fcc.gov/incentiveauctions/learn-program/Form_Channel_Sharing_Facilities_Agreement.pdf) for stations interested in striking channel-sharing deals.

The country's first channel-sharing agreement (<http://current.org/2014/09/in-historic-first-los-angeles-pubtv-stations-agree-to-share-spectrum-for-auction-proceeds/>) was announced in October 2014 (<http://current.org/2014/09/in-historic-first-los-angeles-pubtv-stations-agree-to-share-spectrum-for-auction-proceeds/>) between two public television stations: KCETLink and KLCS, both in Los Angeles. KLCS also conducted an earlier technical experiment (<http://current.org/2014/01/l-a-s-klcs-to-participate-in-first-channel-sharing-pilot/>) with a commercial station showing that channel sharing would not degrade a TV signal.

Are wireless providers more interested in spectrum in some areas than others?

A 2013 analysis by Current (<http://current.org/2013/02/speculators-betting-big-on-fcc-tv-spectrum-auctions/>) showed early interest among speculators for spectrum on either coast. The FCC is expected to purchase spectrum in large, geographically adjacent and congested markets.

Speculators are already paying some participating stations up front in exchange for a share of their actual auction payout. At least two public broadcasters have cut such deals with spectrum speculators. Connecticut Public Broadcasting (<http://current.org/2014/08/conn-network-strikes-deal-with-locuspoint-on-proceeds-from-spectrum-auction/>) will relinquish the spectrum assigned to WEDW-TV in Bridgeport, one of four stations in its statewide network, to spectrum speculator LocusPoint Networks.

And LocusPoint also struck an agreement with KCSM-TV in San Mateo, Calif., to subsidize the financially strapped station for nearly \$1 million a year until its spectrum could be auctioned off. LocusPoint will share proceeds from the auction with licensee San Mateo Community College District.

What do we know about which stations will participate and how?

Most licensees are not discussing these decisions publicly. In addition, after the Jan. 12 filing deadline, the FCC will prohibit stations from discussing their bidding strategies until the auction is completed. Stations are still free to say whether they are participating; most are choosing not to.

Although most public TV station executives have declined to discuss publicly whether they will take part, “given press reports, the high interest in our webinars and individual conversations, we suspect that auction participation will be significant,” CPB SVP Ted Krichels told the corporation’s board in November. CPB said that some 90 percent of public TV stations have taken part in its spectrum auction webinars.

UPDATE: A model released by the National Association of Broadcasters projects that 80 percent of full-power TV stations would remain on the air if the FCC aims to clear 41 percent of current spectrum. That is a “very aggressive” clearing target, said John Lawson, whose Convergence Services advises public TV stations on the auction.

“I’d speculate that, if the NAB model is right, the percentage of public stations that stay on the air will be higher than the 80 percent average for all U.S. stations,” Lawson said.



Several university licensees of public broadcasting stations are considering participating in the auction: Howard University

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WHUT’s studios on the campus of Howard University in Washington, D.C. (Photo: AgnosticPreachersKid/Creative Commons)

(<http://current.org/2015/10/whut-in-washington-d-c-could-lose-spectrum-in-fcc-auction/>) in Washington, D.C. (WHUT); the University of South Florida (<http://current.org/2015/10/florida-public-tv-station-examines->

options-as-spectrum-auction-looms/) in Tampa (WUSF); and Bowling Green State University (<http://current.org/2015/09/board-oks-channel-share-or-vhf-move-for-ohio-station-in-spectrum-auction/>) in Bowling Green, Ohio (WBGU).

CPB is encouraging broadcasters to be transparent about their deliberations and to get community input before making decisions. Howard University asked for online comments (<http://www2.howard.edu/spectrum-discussion>) in November.

UPDATE: In December, three more university licensees (<http://current.org/2015/12/three-more-university-licensees-vote-to-consider-options-in-spectrum-auction/>) voted to consider auction options: WKAR in East Lansing, Mich.; WDCQ, University Center, Mich.; and KNCT, Killeen, Texas.

UPDATE: The Jan. 12 deadline for TV broadcasters to file to participate in the auction prompted announcements from several university licensees (<http://current.org/2016/01/three-more-university-licensees-file-for-fcc-spectrum-auction-a-fourth-declines/>): WHUT will participate, as will WIPB in Muncie, Ind., and KVCR in San Bernardino, Calif. WDCQ in University Center, Mich., will not participate.

UPDATE: In March, the *Wall Street Journal* reported (<http://current.org/2016/03/wnye-tv-wont-participate-in-fcc-spectrum-auction/>) that New York City decided against entering its public broadcaster WNYE in the auction.

If a licensee decides to sell its spectrum, how much money could it make?

That remains to be seen. Experts are warning that because the FCC wants as many stations as possible to participate, the opening bids (<http://current.org/2015/10/fcc-issues-initial-bids-for-first-phase-of-spectrum-auction/>) it announced in October should be taken with a grain of salt (<http://current.org/2015/10/in-spectrum-auction-stations-advised-to-take-skeptical-view-of-opening-bids/>). Some of the highest opening bids for public TV stations included \$775 million for New Jersey Public Television, licensed to the state of New Jersey and operated by WNET in New York City; \$672 million for WLIW in Long Island, N.Y., owned and operated by WNET; and \$581 million for PBS SoCal in suburban Los Angeles. **UPDATE:** Technical issues including interference (<http://current.org/2016/01/a-racing-form-for-the-fcc-spectrum-auction/>) also figure into the value of a station's spectrum.

Public television stations will soon get a look at how the auction might play out (<http://current.org/2015/11/simulation-will-predict-impact-of-spectrum-auction-on-broadcasters/>) in each market and across the public broadcasting system. Public Media Co., a consultancy based in Boulder, Colo., has hired Charles River Associates, which provides business services including advice on auctions and competitive bidding, to run computer simulations of the auction. **UPDATE:** That report predicts that television spectrum held by public TV stations could be valued at as much as \$6.8 billion, but the vast majority of stations will receive compensation much lower than the opening bid prices released by the FCC. Read the analysis here (<http://current.org/2016/02/public-television-spectrum-valued-at-up-to-6-8-billion-in-fcc-auction/>).

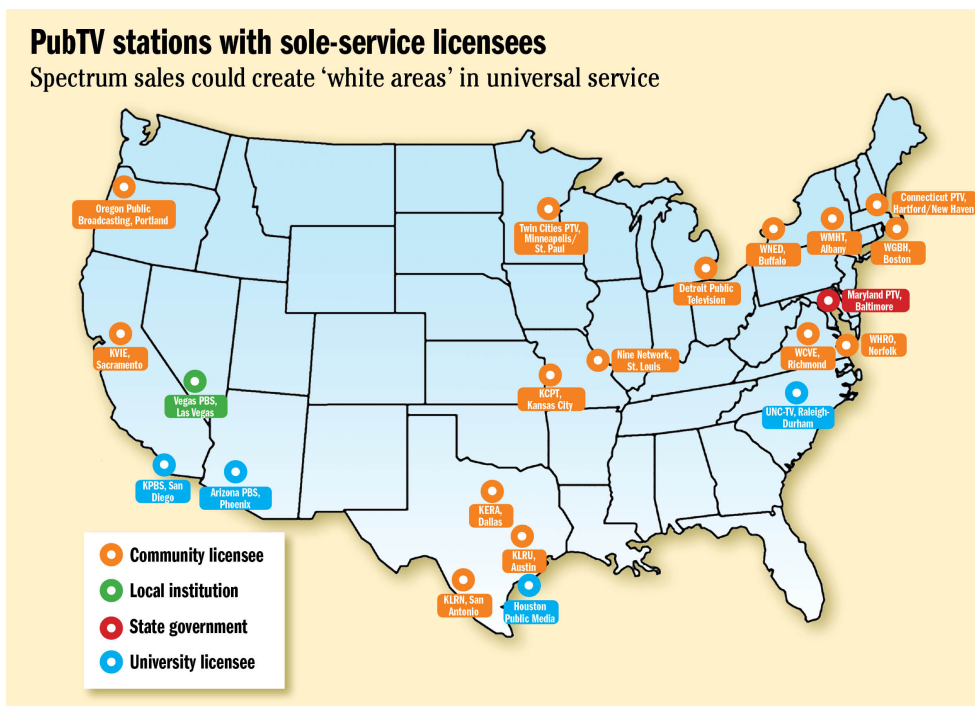
UPDATE: On April 29 the FCC revealed the clearing target (<http://current.org/2016/04/clearing-target-for-spectrum-auction-signifies-strong-interest-possible-high-payouts/>) for the auction is 126 megahertz, which means many stations are interested in participating and could receive hefty payouts.



(http://23g9r82i3fd2a63qz3akhv1.wpengine.netdna-cdn.com/files/2015/12/tumblr_lqo8i8nlmj1qf8fkd.gif)

Other than the potential for broadcasters to profit, how could the auction affect public TV?

Some areas in the U.S. are served by just one public TV station. If those licensees choose to relinquish spectrum, their local viewers could lose access to free, over-the-air (OTA) noncommercial TV signals. At least 21 larger markets are served by just one public TV licensee, according to CPB, including San Diego, Detroit, Dallas and Portland, Ore.



“The decisions stations and their boards make, especially those in sole-service markets, will likely have a profound impact on the public media system,” CPB SVP Michael Levy has said (<http://current.org/2014/10/fcc-report-aims-to-play-up-payout-from-spectrum-auction/>) .

PBS, CPB and APTS tried to convince the FCC to revise its auction rules to set aside spectrum for noncommercial educational television use in every market. The FCC declined that request (<http://current.org/2015/06/fcc-declines-to-protect-public-tv-in-2016-spectrum-auction/>) .

But if a licensee sells spectrum, it could still transmit via cable, right? How many people watch public TV over the air?

Among viewers who watch PBS and public TV at least once a week, the proportion in homes with only over-the-air service is 19.1 percent, according to market research company GfK. That's significantly higher than the general population, at 14.7 percent.

Certain audience members could be especially hard-hit, analysts predict. "The threat to minorities (<http://current.org/2015/08/minority-public-tv-viewers-face-greatest-threat-in-fcc-auction/>) and public television viewers comes from the fact that both groups rely on OTA more than other Americans," notes John Lawson (<http://current.org/2015/08/minority-public-tv-viewers-face-greatest-threat-in-fcc-auction/>).

GfK reports that minorities currently make up 41 percent of all broadcast-only homes, up from 38 percent in 2010. OTA reliance by race and ethnicity breaks down to 23 percent of Asian-American households (down from 30 percent in 2010), 22 percent of African-American households (up from 12 percent in 2010 — an 83 percent increase) and 25 percent of Latino households (up from 23 percent in 2010).

As Lawson noted, "For viewers that are both minorities and public TV viewers, the impact could be devastating."

How else could public broadcasting be affected?

Technical challenges could arise during the repacking phase after the auction. Some stations may have to go off the air temporarily during repacking. Repacking could also disrupt public radio transmitters (<http://current.org/2015/11/why-public-radio-stations-should-care-about-the-tv-spectrum-auction/>), even though radio stations aren't participating in the auction.

The FCC has given stations 39 months to complete the technical work that repacking will require or face fines, but the NAB has estimated that it could take up to 10 years. **UPDATE:** A draft bill (<http://current.org/2016/01/congressman-proposes-more-cash-for-spectrum-repack-after-auction/>) in the House of Representatives would allow the FCC to grant extensions for stations to repack.

Congress has mandated that \$1.75 billion be set aside from auction proceeds to help stations repack. But that money won't cover the costs of repacking translators, which 61 PBS member stations use to expand their coverage areas. That's about 38 percent of all PBS stations.

In a report to CPB, Booz & Co. estimated (<http://current.org/2013/12/cpb-board-hears-troubling-predictions-for-spectrum-auctions-and-repacking/>) that 200 to 250 of public TV's translators may need to move to new channels, at an estimated total cost to stations of \$3 million to \$4 million.

Some observers also warn that an influx of cash to public TV stations could complicate advocacy work on Capitol Hill for federal funding to public broadcasting as a whole, including requests for appropriations to cover the costs of interconnection upgrades.

How will the auction affect digital multicast channels like Create and World?

If a station opts to share a channel, "it would crowd out something, which would probably be the multicast channels," John Lawson of Convergence Services said.

The upcoming digital broadcast standard ATSC 3.0 will allow for more channels to fit into less spectrum, he explained. Adoption of the new standard would allow these multicast channels to upgrade from standard definition to high-definition broadcasts. But the station's main channel will be in 4K/UltraHD, which will become the new "standard" resolution for what is now the main HD channel, and that could take half the bandwidth.

"So, if a station that gives up half of its spectrum then converts to ATSC 3.0, it still would have a major challenge in continuing to carry Create and World, which would need to migrate to HD for competitive reasons," Lawson said. "In a world where the new 'minimum' resolution is HD,

they would struggle in the competitive marketplace if a station had to keep them as SD channels to conserve bandwidth.”
