

The Connect America Fund Reverse Auction

The FCC's Connect America Phase II reverse auction gives competitive providers a shot at getting USF support to build broadband networks in unserved rural areas where incumbent providers have chosen not to build. The process is complicated – at best.

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On August 4, 2017, the FCC released its public notice and technical guidance outlining the structure and procedures for the Connect America Fund Phase II (CAF II) reverse auction (“the auction” or “Auction 903”). Up to \$198 million per year for 10 years of ongoing support (“the budget”) for fixed broadband networks will be available in the auction.

Auction 903 has generated extensive interest among diverse groups because it is open to entities such as rural electric cooperatives, wireless internet service providers and municipalities, not only to incumbent local exchange carriers (ILECs).

The areas included in Auction 903 are principally those in the 2015 statewide offers declined by the price-cap ILECs and areas included in qualified, non-winning, category 1 bids under the FCC's rural broadband experiments, subject to the FCC's final determination of eligible census blocks, as discussed on page 63. The funds declined by Verizon for New York state are being distributed in conjunction with an auction being administered by New York. Subject to several important distinctions, the auction procedures will track those followed in the 2012 mobile broadband auction and those for the next mobile broadband auction, referred to as MF-II.

The outcome of Auction 903 will set an important precedent. In four years, the funding accepted by ILECs under the 2015 statewide offers – more than \$1.5 billion per year – expires. If the auction meets expectations in terms of competitive bidding and deployment of broadband networks, a reverse auction may be used to disburse that \$1.5 billion in annual funding.

Finalizing the auction principles took years, as consensus among commissioners proved difficult to achieve. The FCC projects that the auction will be conducted in 2018, as the online bidding system is now under construction.

Aspects of the proposed bidding procedures may be modified based on comments filed in response to questions posed in the public notice, but the core components will be the previously adopted weights for broadband transmission speeds and latency; a single, multiple-round reverse auction; and the budget.

In the auction, bidders will compete against all other bidders looking to secure funding (“cross-area competition”) and against other bidders placing bids for the same areas (“intra-area competition”).

This article outlines a complicated, multistep process but does not address every aspect or permutation of the auction's principles and procedures. It is an introduction to the bidding procedures as currently envisioned and to key

concepts. The public notice and the technical guide total approximately 60 pages, and the FCC will release at least one more public notice or decision prior to the auction. The FCC has conducted one webinar already, will likely conduct others and may conduct a mock auction. In addition, prospective bidders must familiarize themselves with the buildout requirements and the rules governing the rates they can charge for broadband and voice services made possible by support payments obtained as winning bidders.

CENSUS BLOCKS AND CENSUS BLOCK GROUPS

Census blocks and census block groups are the geographical units upon which Auction 903 will be built. The FCC selected census block groups as the minimum bidding area. Census blocks in which no service provider offers 10/1 Mbps fixed broadband service will be eligible for funding. The FCC will release the final list of census blocks at least three months prior to the auction, based on data from the latest Form 477 reports. Bids might not be placed for all

areas, and some areas for which bids are placed likely will not receive funding.

RESERVE PRICES

The reserve price, or minimum bid, for each area will equal the average cost to provide broadband and voice services to the unserved locations in each block of the census block group. There are two sets of census blocks: high-cost areas, for which the average cost exceeds \$52.50 (the amount end users are expected to pay) but is less than \$198.60 per location, per month, and extremely high-cost areas, for which the average cost exceeds \$198.60. The reserve price for extremely high-cost locations is capped at \$146.10 per location per month (\$198.60 minus \$52.50). A separate program, the Remote Areas Fund, will support service to extremely high-cost areas for which there are no winning bids under Auction 903.

QUALIFICATIONS AND SHORT-FORM APPLICATION

All applicants looking to bid in Auction 903 must file a short-form application

with the FCC in advance of the auction. This form elicits information on the bidder's identity, includes the customary certifications required for all FCC applicants, and asks whether the entity is affiliated with other entities bidding in the auction or is part of a joint-bidding consortium. An applicant must also demonstrate its experience in operating broadband or other networks, including electric distribution networks, and demonstrate its financial resources.

Each prospective bidder must also disclose the kind of network it plans to deploy in terms of the transmission speed tiers and latency measures set out in Table 1. To demonstrate that it will use the funds to serve all high-cost and extremely high-cost locations, each bidder must disclose a reasonably detailed network design and a business plan. The FCC staff will review these network and business plans and can request additional information if it identifies gaps. The staff's final assessment will determine whether the applicant qualifies to participate in the auction.

CAF AUCTION 903: SUMMARY

- This auction will award \$1.98 billion over 10 years to connect underserved areas in which price-cap carriers declined to build broadband, as well as some areas originally listed in the Rural Broadband Experiment.
- The auction is open to all types of entities, public and private, that have experience operating networks and can meet other requirements. Bidding consortia are allowed.
- The minimum bidding area is a census block group, but bidders can propose to serve multiple and extended areas.
- The auction is a reverse auction, in which the winning bidder is the one that requires the lowest amount of support funds. Bidders start high and bid lower in each round until the aggregate support requested fits within the overall budget.
- Bidders cannot propose to receive more than the average connection cost for each census block (less in extremely high-cost locations).
- Bidders must demonstrate basic technical and financial competence.
- Bids are weighted to favor networks with high bandwidth, high data caps and low latency.
- Applicants have some flexibility to change the areas they bid for in each round.
- If bidding areas overlap, the FCC has some flexibility to reduce the sizes of bidding areas to eliminate overlaps.
- The second-price rule dictates that the winning bidder actually receives the support payment bid by the runner-up. This saves bidders from having to guess what others are going to bid. In addition, bidders receive information to let them know how close the budget is to clearing.
- If two bidders bid equal amounts in the clearing round to serve the same area, bidding continues for that area on an intra-area basis until a winner emerges.
- The successful bidder for each area must complete a long-form application and obtain eligible telecommunications carrier status.

Competitive providers can now win CAF support to build broadband in high-cost rural areas where price-cap incumbents declined to build.

Each applicant’s short-form application must disclose the state or states in the which it plans to bid. There is no restriction on the number of states and no maximum number of areas in which an applicant can bid, although the FCC asked whether a maximum should be established. An applicant is not required to disclose the areas in which it plans to bid. This short-form application information will not be available to the public.

BIDDING BASICS

A bidder can bid for a single area or multiple areas. It can submit a separate bid for each area, one or more bids for multiple areas (referred to as package bids), or a combination of single-area and package bids. A bidder’s single-area and package bids cannot include the same area. Package bids must be limited to areas in a single state. As discussed below, the FCC adopted rules for package bids to prevent all-or-nothing bidding and because of the likelihood that multiple package bids could cover the same areas (overlapping bids).

The auction is described as a multiround descending clock auction.

Bidders must understand the bidding procedures and the FCC’s criteria for selecting winning bids to determine their bottom-line bid amounts. The auction is structured to incentivize bidders to bid in each round. A bidder can place bids for areas for which it did not bid in earlier rounds prior to the clearing round, subject to a maximum switching percentage.

As in other auctions, the FCC will allow multiparty bidding groups and consortia, but applicants must disclose all members of a group in the short-form applications. Affiliates under common control will be subject to the same disclosure requirements. To minimize collusion, only one party to a joint bidding arrangement or one affiliate can bid in a state.

TRANSMISSION SPEED TIERS AND LATENCY WEIGHTS

In February 2017, the FCC determined the weights that would be added to Auction 903 bids, assigning the highest weights to bidders proposing networks having the lowest broadband transmission speeds and high latency technologies. Networks based on the

highest transmission speed tier and the low latency category, typically fiber-based networks, will be given zero weights. (Having a lower weight is an advantage.) Table 1 shows the performance tiers and latency categories.

KEY CONCEPTS AND BIDDING PROCESS

The weights, the budget and the likelihood of package bids with overlapping areas add complexity to this descending clock auction. The FCC uses declining percentage bidding to normalize bids among entities whose proposed networks have different weights. In each round, the percentage of the available reserve price per area will decline at a defined decrement, tentatively set at 10 percent, which the FCC can also adjust between rounds.

Entities can bid at the lowest percentage of each decrement – the so-called base clock percentage – or any intermediate point between the base clock percentage and the previous round’s base clock percentage. For example, if the base clock percentage is 80 percent and the previous round’s base clock percentage is 90 percent, a bidder can bid anywhere from 80 percent to 89.99 percent. A bidder’s percentage bid is referred to as its price point.

After each round, the bidding system calculates the dollar value of each area bid. This is referred to as the implied support amount. The weights and the bidder’s price point are the variables in

TABLE 1: WEIGHTS ASSIGNED TO PROPOSED BROADBAND NETWORKS

PERFORMANCE TIER	SPEED	USAGE ALLOWANCE	WEIGHT
Minimum	10/1 Mbps	150 gigabytes	65
Baseline	25/3 Mbps	150 gigabytes or U.S. median, whichever is higher	45
Above Baseline	100/20 Mbps	2 terabytes	15
Gigabit	1 Gbps/500 Mbps	2 terabytes	0

LATENCY	THRESHOLDS	WEIGHT
Low	≤ 100 ms	0
High	≤ 750 ms and mean opinion score of 4	25

calculating the implied support amount for each bid. The FCC's explanation, slightly paraphrased:

For a given area and a given tier and latency combination, the implied annual support amount in a bid varies with the price point and is calculated using the following formula:

$$\text{implied support} = \min\left\{R, \left(\frac{PP - (T + L)}{100}\right)R\right\}$$

where

- *R denotes the area's reserve price*
- *T denotes the tier weight*
- *L denotes the latency weight.*

For example, if two bidders propose networks with different tier and latency combinations and bid the same price point for an area, such as the base clock percentage, the implied support for the entity bidding the highest tier and low latency combination (lowest weight) will have a higher implied support amount.

At the end of each round, the bidding system sums up the highest implied support amounts for each area (or the implied support amount for the only bid in an area) to determine whether the total clears the budget – that is, whether the aggregate of implied support amounts for all bids is at or below the budget of \$198.0 million x 10. If not, bidding continues to the next round and so on until the budget clears. The round in which the budget clears is referred to as the clearing round.

The opening clock percentage for each area is another key concept. For each area, it is equal to highest opening clock percentage of any bidder for an area: the area reserve price (100 percent) plus the tier and latency weights. Recall that the weights for a minimum-tier, high-latency network equal 90 (the maximum weight combination), and the network design with the gigabit tier and low latency (the lowest weight combination) equals zero.

Thus, in an area in which one bidder proposes a network design with the maximum weight combination, the opening clock percentage is set at 190 percent. If all bidders in an area

Bidding continues for multiple rounds, with bids declining in each round until the aggregate across all areas fits within the overall budget cap.

propose networks with the lowest weight combination, the opening clock percentage for that area is 100 percent. Thus, the implied support amount for the bid that has the highest opening clock percentage in an area declines more quickly in successive rounds than the implied support amount for bids that propose lower-weight networks.

ACTIVITY AND SWITCHING PERCENTAGE

Auction 903 is structured for bidders to bid in each round. This is achieved by setting an activity metric. A bidder's activity equals the implied support amounts for all areas for which it bids during a round. A bidder's activity declines in each round. To provide some flexibility, a bidder can bid in areas in which it did not bid in prior rounds, up to the switching percentage, which is tentatively set at 10 percent of the bidder's activity. However, a bidder cannot bid in a round if it did not bid at all in the previous round.

PACKAGE BIDS

Recognizing that most bidders will prefer to provide service to large geographical areas, such as a county, the FCC adopted a set of rules for package bids, or bids for more than one area in a state. The areas in a package bid do not have to be contiguous. A bidder can bid any combination of single-area and package bids in a state, but it can place only one bid per area. A bidder can reduce the number of areas in a package bid from one round to the next, but it cannot increase the number of areas in the package.

Because of the likelihood that package bids may include some, but not all, areas included in single-area bids or in other package bids, the FCC adopted a mechanism to prohibit "all or nothing" bids that could limit

competitive bidding or inadvertently exclude areas from the auction. Thus, all package bids must include a minimum scale condition: a percentage of the sum of all implied support amounts for the areas in the package. When placing a package bid, a bidder agrees to provide service (at the specified performance tier and latency) to all areas in the package or to a subset of areas determined by the minimum scale percentage. The FCC is considering setting a minimum scale percentage at 80 percent, requesting comment on what this percentage should be.

The subset of areas awarded to a package-area bidder may not correspond to the bidder's priority of preferred census block groups. Table 2, adapted from the FCC's technical guidance document, illustrates this point.

Areas in package bids are assigned per the principles outlined below for single-area bids, subject to the qualification that the uncontested areas in the package bid must meet the minimum scale percentage. Unassigned areas in a (partial) winning package bid are carried forward to the next round for single-area bidding. Potential bidders can gain a fuller understanding of how areas in package bids are assigned by reviewing the examples in the FCC's technical guidance document.

THE CLEARING ROUND

As noted above, the clearing round is the bidding round in which the budget clears. In earlier rounds, bidders engage in cross-area competition against all other bidders for a portion of the budget. During these rounds, each bidder receives feedback from the bidding system for each area in which it is bidding and, between rounds, the extent to which current bids exceed the budget. (This feedback is described more fully below.) The rules governing

TABLE 2: EXAMPLE OF MINIMUM SCALE CONDITION RULE

A bidder develops a package bid for areas 1, 2, 3, and 4, the FCC sets the minimum scale condition at 80 percent, and the bidder places a bid in a round for which the base clock percentage is 75 percent.

AREA	RESERVE PRICE	TIER WEIGHT	LATENCY WEIGHT	IMPLIED SUPPORT AT THE 75% PRICE POINT
1	\$120	15	0	\$72
2	\$140	15	0	\$84
3	\$160	15	0	\$96
4	\$200	15	0	\$120

The sum of implied support amounts for the whole package is $\$72 + \$84 + \$96 + \$120 = \$372$. For a subset of areas to be assigned, the total implied support amounts must be at least 80 percent of $\$372$, or $\$297.60$. The bidder can be assigned areas 2, 3 and 4, because the sum of the implied support amounts is $\$84 + \$96 + \$120 = \300 , or more than 80 percent of $\$372$, but not areas 1, 2 and 3, because the sum of the implied support amounts is $\$72 + \$84 + \$96 = \252 , less than 80 percent of $\$372$.

the assignment of bids and the amount of support awarded varies depending on whether a bid is assigned during or after the clearing round.

In the clearing round, the bidding system

- Determines which bids can be assigned
- Calculates the clearing price point, the highest price point in the round at which the aggregate cost for assigned areas and the dollar value of bids under the second-price rule is less than or equal to the budget (the clearing price point determination)
- Calculates the support payments based on the second-price rule.

The second-price rule is used to encourage truthful bidding, per economic theory. Under the second-price rule, the support amount equals the clearing price point or the bid of the second-highest bidder. Thus, the actual payment will be higher than the implied support amount of a winning bid.

Bids are first assigned to bidders that bid at the round's base clock percentage if there are no other bids for the area or if all other bids are at higher

price points. Then, bids are assigned in areas in which one or more bids are above the base clock percentage but below the clearing price point. The lowest bid below the clearing price point is assigned. The support payments are calculated under the second-price rule – the winning bidder that bid at the base clock percentage receives a support payment equal to the clearing price point. If two bidders are below the clearing price point, the support payment equals the higher bidder's price point.

In areas in which two or more entities bid at the base clock percentage, bidding continues to the next round. These are referred to as carried forward bids. Bidders that bid above the clearing price point in the clearing round cannot continue to bid.

BIDDING AFTER THE CLEARING ROUND

After the clearing round, all bidding is intra-area. If only one bidder bid at the base clock percentage for the round, its bid is assigned; the support payment is equal to the previous round's base clock percentage. The lowest bid below the clearing price point is also assigned. If

contested (two or more bidders at the base clock percentage), bidding goes to the next round. If no bidding occurs in a round in which the previous round was contested, the bidding system will randomly select the winner among the bidders from the previous round. No switching is allowed after the clearing round. Areas not included in bids assigned during the clearing round will not be funded during Auction 903, except areas in the carried-forward bids.

For package bids during and after the clearing round, the same rules apply; in addition, the minimum scale percentage must be satisfied.

INFORMATION PROVIDED TO BIDDERS

The bidding system provides information to bidders during each round; the information provided in rounds prior to the clearing round is different from the information provided during and after the clearing round. Prior to the clearing round, bidders are apprised of their activity and the number of areas bid. After the clearing round, the data provided includes the annual support the bidder has received, data on implied support for its carried-forward bids and the areas still being bid.

Prior to the clearing round, each bidder is provided between rounds with the aggregate cost (sum of all implied support amounts per bid area) for *all* bids in the round. This gives the bidder an idea of how close the budget is to clearing. For each area bid by the entity, the number of bids at the base clock percentage (0, 1 or greater than one) is provided. After the clearing round and each subsequent round, the feedback includes the bidder's areas assigned and the support amounts, areas assigned to other bidders and the number of bids at the base clock percentage for the areas bid in the previous round.

POST AUCTION LONG-FORM APPLICATION PROCESS AND SUPPORT PAYMENTS

A winning bidder must also submit a letter of credit (LOC) from a qualified financial institution for each state in which it is a winning bidder. The LOC must be maintained until the

winning bidder constructs its network to provide service to all locations before or as it satisfies the six-year buildout requirement, as certified by USAC. Again, prospective bidders should fully understand these requirements *prior to* the auction.

The other significant requirement is that a winning bidder must submit proof of its eligible telecommunications carrier (ETC) designation, as required under Section 214 (e) (2) of the Communications Act, from the relevant state commission(s) within 180 days after the FCC's public notice announcing the winning bidders or from the FCC if a state does not grant ETC designations.

CLOSING THOUGHTS

Reverse auctions have captured the imaginations of policymakers and pundits. These bidding procedures and related rules set a high bar for

participation that prospective bidders should evaluate fully. The best perspective may be that complexity is in the eye of the beholder. Based on the involvement of various interest groups in developing the rules for Auction 903, electric cooperatives, major satellite operators, ILECs, rural cable operators and wireless internet providers want to participate in this auction even though only \$198 million out of the \$4.5 billion high-cost program's annual budget is being offered. If this interest translates into meaningful auction participation and broadband networks are built in unserved rural areas, the time and resources will have been well spent. ❖

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