

C-Band Alliance Q&A on Proposed Commercial Auction Process



What is FUEL for 5G? How does it work?

The CBA proposes a commercial auction to allow bidders to enter into secondary market agreements whereby C-Band Alliance members, the only satellite operators providing C-Band satellite service in the United States, would agree to forego interference protection for their service transmissions in the portion of the C-Band and geographic area covered by the agreement.

To create the Flexible Use and Efficient Licensing (FUEL) for 5G auction, CBA retained Professor Paul Milgrom and his firm, Auctionomics. They have worked with the FCC on auctions for more than two decades. The proposed auction design is based on the FCC's extremely successful secondary market policies and draws from the most effective auction policies employed by the FCC and other countries. The auction process is a *sealed-bid, combinatorial second-price auction* that allows participants to bid on packages of spectrum that best suit their needs.

What are the advantages of FUEL?

FUEL fully complies with the very specific challenges and complexities of a C-Band auction in the U.S., which will offer 9 blocks of 20 MHz across 406 PEAs, resulting in a multitude of bidding combinations.

- It is simple and intuitive for bidders and allows them to bid effectively.
- It solves the exposure problem (which is the risk of winning unwanted subsets of licenses) because it is a package auction, giving bidders the flexibility to shape and package their bids into thousands or even millions of nationwide and regional, large and small, early and later bid combinations.
- It allows bidding for early spectrum, for those who want to build a business in dense, metropolitan areas.
- It allows bidding regionally, giving fair access to smaller, rural and regional bidders.
- It allows discovery of bidders' interest and package targets in an optional early Coordination Round.
- It avoids bidding errors and generates unmatched efficiency
- The auction plan, procedure and outcome would be approved and overseen by the FCC.

What is a sealed-bid, second-price combinatorial auction?

In a package sealed-bid auction, all participants simultaneously submit sealed bids to the auctioneer so that no bidder knows the bid of any other participant. When price is determined by the 'second price' method, also known as the Vickrey-nearest core-selecting rule, the price that a bidder pays is determined primarily by the value that other bidders have offered to pay. In other words, when there is competition over a single license, for example, the winning bidder does not pay the amount of its bid for that license, but instead the bid amount of the next highest bidder.

Does this auction bypass the FCC's regulations?

No. The FCC will be involved every step of the way. We expect and invite FCC oversight of our auction process, which would be approved by the FCC before moving forward. Moreover, nothing about the proposed auction would change the process whereby FCC issues licenses for terrestrial mobile operation.

How is FUEL different from what the FCC has used for auctions in the past and why can't you use past FCC auction design?

The FUEL auction was designed by Auctionomics, which has historically consulted to the FCC on its auction processes. The FUEL auction improves on past FCC practices.

- It uses a sophisticated bidding language to improve time efficiency and accuracy. The FUEL auction can be conducted much more quickly than typical FCC auctions, requiring only two rounds of bids to capture bidders' offers and identify winners.

- The FUEL language allows bidders to easily express many specific bidding packages, essential given the number of alternatives within the C-Band spectrum being made available across the continental U.S.
- It is designed to allow small, medium-sized, and national providers to compete effectively against each other using bids that are designed to fit their individual business models.
- Achieving the FCC's goal of moving quickly towards repurposing this spectrum for 5G, winners can be announced 2-4 weeks after the FUEL auction begins.

How does the CBA's FUEL design satisfy the needs of the national wireless service providers?

- National bidders can bid for uniform amounts of spectrum on all PEAs (Partial Economic Areas), or for any other large package of spectrum blocks, without the risk of winning only some of the blocks.
- They can also bid for incremental spectrum in case the price for that incremental spectrum is low and can accept smaller packages areas in some areas where competition would make that too expensive.
- The FUEL design makes it easy to submit many millions of small variations around a base package, simplifying bidding even for large and sophisticated bidders.
- The FUEL design is fast—the auction will last a couple weeks, not several months—accelerating the deployment of 5G for the benefit of all.

How does the CBA's FUEL design satisfy the needs of the regional wireless service providers?

- Bidders who want spectrum on several PEAs can, if they wish, submit bids for packages without either the risk of winning only some of their desired blocks or the risk of winning uselessly small amounts of bandwidth in any area.
- To maximize simplicity of deployment and operations, the FUEL design guarantees frequency contiguity within a single PEA and minimizes frequency variability across PEAs.
- The FUEL design includes a coordination round in which bidders signal the amount of spectrum and the regions they are interested in. Regional bidders benefit greatly from participating in this round because they can learn where competition is strong and adjust their bids in the main round and because they can encourage larger bidders to accommodate their needs.

How does the CBA's FUEL design satisfy the needs of the rural wireless service providers?

- Our band plan of 9x20, on a PEA basis, allows all auction participants to bid on just 20 MHz on a single PEA. All bidders can bid for more spectrum or larger packages if they so desire.
- The FUEL design creates localized competition: Rural bidders compete against the local adjustment bids ("increments" or "decrements") placed by other bidders – not their regional or national packages.
- Bidders do not have the risk of overpaying; small bidders benefit especially from this feature because they can submit high bids to win but only pay the minimum they need to win.
- Rural bidders also benefit from the coordination round in the same manner as regional bidders.



The C-Band Alliance (CBA) was formed in October 2018 by the four leading global satellite operators – Intelsat (NYSE: I), SES (Euronext Paris: SESG), Eutelsat (Euronext Paris: ETL) and Telesat. The role of the CBA is to implement the safe and efficient clearing and repurposing of mid-band spectrum in the U.S.,

accelerating the deployment of 5G services and innovation, serving all Americans. The CBA is designed to act as a facilitator as described in the companies' breakthrough, market-based proposal to clear a portion of C-band spectrum under a U.S. Federal Communications Commission (FCC) proceeding. Follow our mission...visit www.c-bandalliance.com. Follow us on Twitter at [@cbandalliance](https://twitter.com/cbandalliance) and on LinkedIn at [C-Band Alliance](https://www.linkedin.com/company/c-band-alliance).

