Appendix

Modernizing Universal Service
A Design for Competitive Bidding

This appendix illustrates one way the Joint Board and the FCC could implement a competitive bidding process for universal service obligations. This appendix also includes proposals in response to specific questions posed in the FCC's recent Notice of Proposed Rulemaking on reverse auctions. *See High Cost Universal Service Support; Federal-State Joint Board on Universal Service*, Notice of Proposed Rulemaking, 23 FCC Rcd 1495 (2008) ("*Reverse Auctions NPRM*"). New material included in response to the *Reverse Auctions NPRM* is italicized in this document.

1) Summary

The auction design outlined in this appendix would introduce a more efficient framework for the distribution of support to universal service providers in high cost areas. This could be done in a series of steps:

First, immediate measures would be taken to stabilize the fund, and to introduce better incentives for all ETCs, by capping support based on current levels.

Second, the FCC would adopt a framework for competitive bidding, including administrative arrangements and the design of the bidding process itself.

Third, the FCC would initiate the use of competitive bidding.

- *A competitive bidding process would be used to award one-time grants to help fund part of the cost of deploying wireless infrastructure in areas where no wireless service is available today, as proposed by the Joint Board. See Federal-State Joint Board on Universal Service*, WC Docket No. 05-337, CC Docket No. 96-45, Notice of Proposed Rulemaking, FCC 08-22 (rel. Jan. 29, 2008); *Federal-State Joint Board on Universal Service*, WC Docket No. 05-337, CC Docket No. 96-45, Recommended Decision, FCC 07J-4, ¶ 16-18 (Fed.-State Jt. Bd., rel. Nov. 20, 2007) ("*Recommended Decision*"). *The mechanics of competitive bidding for these one-time wireless construction grants are discussed in section 11 below. Except where otherwise noted, the remainder of this appendix focuses on reverse auctions for ongoing support in high cost areas. Reverse auctions for ongoing support are more complex and unique. Competitive bidding for one-time wireless construction grants is a relatively simple process by which the FCC would identify the most efficient price for building out wireless infrastructure into areas that do not have wireless service today.*

- *At the same time, the FCC would prompt auctions for ongoing universal service subsidies in high cost areas where there are multiple wireless CETCs, perhaps beginning with pilot auctions in certain areas.* These auctions would select a single wireless provider of universal service for each area. The incumbent local exchange companies in those areas would continue to receive support based on the capping mechanism. Once the wireless CETC auctions had been completed, the FCC would also nominate any area where there is at least one wireline CETC. These auctions would select a single wireline provider of universal service for each of those areas.

Fourth, after some reasonable period, the FCC would review the experience it had gained with the CETC auctions, and consider developments in technology and rural markets to determine an appropriate method for extending market-based efficiencies to additional areas. These methods could include:

- A single auction in which both wireline and wireless ETCs would participate, which would select a single universal service provider for each area.

- The use of representative bidding, based on statistical analysis of the auction results, to adjust support for ETCs whose support had not yet been determined by an auction.

In reviewing the auction experience, it may also be useful for the FCC to analyze other auction mechanisms used in different contexts and/or by different regulators. Section 10 below discusses one such example from the United Kingdom.

2) Stabilize the Fund

The FCC should start by taking immediate steps to stabilize the fund, bring fund growth under control, and put in place incentives for all ETCs to adapt to changes in the market and become more efficient. This would establish a starting point for the implementation of competitive bidding.

Support would be capped for each study area. There would be two separate caps in each study area, one for wireline ETCs and one for wireless ETCs.

- **Cap for wireline ETCs**. The cap on support for wireline ETCs would be the total amount received by all wireline ETCs in the study area in a base year (which could be the most recent twelve-month period for which data are available when an order becomes effective). The cap would include receipts from all programs for high cost areas (the high cost loop fund (rural and non-rural), local switching, interstate access support (IAS), and interstate common line support (ICLS)).[1] *This is consistent with*

[1] For ILECs, once the cap described here has been applied, it would replace the calculation that is done today to determine support amounts from each of the

the proposal by the Joint Board to establish an overall cap for ETC support as part of long term reform, as well as the proposal to cap each of the existing high cost funds Recommended Decision ¶ 32.

- If there is more than one wireline ETC in the study area, the capped support amount would be apportioned among them on the basis of their relative lines.
- The current cap on the ILEC portion of the high cost fund is producing winners and losers as lines and support amounts change each year. The mechanism described here would minimize those shifts and stabilize wireline support for each study area.

- **Cap for wireless ETCs.** The cap on support for wireless ETCs would be the total amount received by all wireless ETCs in the study area in a base year (which could be the most recent twelve-month period for which data are available when an order becomes effective). The cap would include support from all programs for high cost areas (the high cost loop fund (rural and non-rural), local switching, interstate access support (IAS), and Interstate Common line support (ICLS)*).*[2] *This is consistent with the interim cap on competitive ETC support recommended by the Joint Board in May 2007, and with the recommendation to cap disbursements to wireless ETCs at about $1 billion per year. Id.* ¶ 28. *If the FCC adopts its tentative conclusion and eliminates IAS and ICLS funding for wireless ETCs, which the FCC should do, the wireless ETC cap should be adjusted. High Cost Universal Service Support; Federal-State Joint Board on Universal Service, WC Docket No. 05-337, CC Docket No. 96-45, Notice of Proposed Rulemaking, FCC 08-4, ¶¶ 23-24 (rel. Jan. 29, 2008) ("Identical Support NPRM").*

  - If there is more than one wireless ETC in the study area, the capped support amount would be apportioned among them on the basis of their relative lines.

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existing funds. The exception would be the calculation for rate-of-return ILECs of the support amounts for local switching and ICLS, which would be calculated as they are today. High cost subsidies in each rate-of-return study area would then be adjusted to bring the total amount of support within the study area cap. The current cap on the ILEC portion of the high cost fund would no longer be applied. For price cap ILEC study areas, the total amount of wireline support in each area should simply be capped, and if there are wireline CETCs in the area the support would be apportioned among the wireline ETCs on the basis of their relative lines.

[2] For wireless ETCs, none of the existing funds is capped today. As discussed in Verizon's comments, support to wireless ETCs from IAS and ICLS should be eliminated. Subject to that adjustment, the total amount of funding to wireless CETCs in each area should be capped, and the apportionment among wireless CETCs on the basis of their relative lines would replace the existing fund calculations.

- Increased support for wireless ETCs represents a large proportion of the growth in the federal mechanisms in recent years. The cap would stabilize the fund and provide a starting point for the wireless ETC auctions.

- **Adjustment of the caps**. Each year, the total wireline cap and the total wireless cap in each study area *could* be adjusted by the percentage change in the number of households in the study area. This would allow the cap to reflect changes in the overall need for universal service in the area. However, there would be no adjustment for the total number of lines or handsets in the area. The current rural growth factor (which has been negative in some recent years) would be eliminated.

3) Adopt the Framework

Before any auction takes place, the FCC should adopt a framework for the auction process.

a. Geographic Areas for Bidding

The FCC should designate wire centers as the geographic areas that would be used for bidding with an option for carriers to disaggregate each wire center into two zones. Reverse Auctions NPRM ¶ 20.

- ***Wire Center Serving Areas***

Wire center serving areas, or zones within wire centers, are suitable geographic areas for bidding in reverse auctions because they are small enough to allow support to be targeted where it is most needed, but not so small as to create unnecessary complexity. Moreover, wire centers by their nature incorporate information about where rural populations are clustered, so as to distinguish between high and low density areas. These characteristics will help reduce the heterogeneity of customers within each geographic area and thus target support more precisely. Wire centers could be subdivided into no more than two zones to reflect the difference between the cost of serving customers close to the central office and those farther away.

Wire center serving areas are suitable for a number of reasons. They sum to study areas, which are the areas for which support is calculated today. They reflect the serving areas of the ILECs, who are ETCs in all supported areas today. And, because there has always been an economic incentive for ILECs to locate their switches where population is clustered, wire center locations contain information about the geographic distribution of customers.

No other standard geographic unit available to the FCC has these properties. Counties are too large. Census block groups, which are used for a high cost fund in California, are perhaps the closest alternative. But they are much more numerous than wire centers, arbitrary in shape, and often do not correlate well with any company's business plan. Moreover, they often cut across geographic barriers, such as mountains and rivers, and

ignore clustering of customers that would be relevant to any prospective provider of universal service. In contrast, because wire centers reflect population characteristics, they are more likely to be correlated with the network deployment of CETCs, even though these networks may use technology different from the ILEC's. Given the wide variation in conditions across supported areas in the United States, there is no standard, readily available unit that will perfectly capture the characteristics of every situation. But the wire center is the best of the available choices and represents a reasonable balance among these considerations.

Once a geographic unit like wire centers has been selected, steps should be taken to ensure that all potential participants in an auction have ready access to data delineating the boundaries of those areas. An auction design that allows for package bids (as discussed below) makes it possible to use areas that are smaller than a study area.

- ***Controlling the Subsidy Amount***

The FCC notes that the use of smaller geographic areas may lead to a higher subsidy amount. See Id. ¶ 21. This would certainly be the case if the current support calculations were simply applied to smaller areas. This outcome is mainly attributable to the various thresholds that apply within the current formulas, which produce different results when areas are averaged together in different ways. It is not clear that the same conclusion would apply in the context of an auction. Splitting a study area that receives subsidy today, and auctioning it in smaller units, would not necessarily lead to a higher total subsidy than auctioning the entire study area together. While the resulting subsidy may be higher in the most costly portions of the study area, it may also be lower, or perhaps zero, in the less costly portions. Setting aside the possibility of synergies, which should be captured through combinatorial bidding, the same facts that would underlie an ETC's bid for the entire study area would also form the basis for its bids for the individual parts.

However, to the extent that some ETCs may not be in a position to bid for the entire study area, auctioning smaller units will remove an entry barrier, allow greater participation in the auctions, and thus tend to produce a more competitive result. Targeting the support more precisely would also reduce a winner's prospective exposure to cherry-picking, which may allow ETCs to bid more aggressively. And, as discussed above, smaller areas will reduce hetereogeneity among customers in each area, thus making enforcement easier. For all these reasons, the FCC should strike a balance by choosing areas that are small enough to capture differences in density and cost, but not so small as to create administrative difficulties.

The FCC is correct to conclude that support should not be disaggregated below the current study area level unless it is capped in a way that ensures that the total support for all the wire centers within a study area cannot exceed the support provided to that study area prior to the auction. Id. ¶ 21. By increasing the efficiency of the system, auctions should allow the FCC to meet its universal service goals for an amount no greater than it expends today. In its earlier comments, Verizon proposed a framework that would allow

the FCC to cap support at the study area level, while still using smaller geographic units for the auction.

- ***Options for Disaggregation***

The FCC has sought comment on "how one might disaggregate a study area yet ensure the overall support amount does not increase as a result of such disaggregation." Id. ¶ 21. In the framework proposed by Verizon, each ILEC *would have the following options for the treatment of its study area:*

The first option would be simply to leave the study area as a single unit. In this case, the FCC would auction each wire center within the study area separately. The reserve for each wire center would be established on a pro-rata basis, with an additional increment to allow for relative increases and decreases in support among the wire centers. If the auction proceeds in this way, a second reserve would be applied at the study area level, to ensure that the total support produced by the wire center auctions could not exceed the support previously paid in the study area.[3]

The second option would be to propose a zone plan for the study area. Rural ILECs were afforded this opportunity in 2001, and a few carriers took advantage of this window to establish zone plans at that time.[4] *Each of these companies proposed a specific plan to its state commission, which then reviewed and approved each plan, with the opportunity for other parties to participate in the process. Verizon proposes that a new window should be opened that would allow companies another opportunity to propose such plans to their state commissions. The FCC should establish guidelines for state review of these plans. For example, a plan could be limited to splitting each wire center into no more than two zones. And the sum of the support for the zones should be no more than the previous support in the study area, a condition the FCC applied in 2001. If the state*

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3 *See* Modernizing Universal Service: Verizon's Plan for Comprehensive Reform at 4-5, attached to Comments of Verizon and Verizon Wireless, WC Docket No. 05-337, CC Docket No 96-45 (filed May 31, 2007) ("Modernizing Universal Service"); *see also Reverse Auctions NPRM* at n.26.

4 Modernizing Universal Service at 23-24. This procedure has already been used successfully. *See Federal-State Joint Board on Universal Service; Multi-Association Group (MAG) Plan for Regulation of Interstate Services of Non-Price Cap Incumbent Local Exchange Carriers and Interexchange Carriers*, Fourteenth Report and Order, Twenty-Second Order on Reconsideration, and Further Notice of Proposed Rulemaking In CC Docket No. 96-45, and Report and Order In CC Docket No. 00-256, 16 FCC Rcd 11244, ¶¶ 140, 151 (2001) (adopting a method for rural carriers to propose a study area disaggregation plan to their state commission for approval). In addition, it would address the FCC's concern about the possible need to coordinate with the relevant state commission. *Reverse Auctions NPRM* ¶ 22.

commission approves the zone plan, and the FCC finds that it meets the guidelines, then for any subsequent auction in that study area, the items auctioned should be the individual zones. The reserve for each zone would be the support provided there under the zone plan. Since, as described further below, these reserves would sum to the study area total, there would be no need for a second reserve at the study area level.[5]

b. The "Reserve" or Maximum Bid

The FCC would also establish a maximum bid, or reserve, for each wire center. *Reverse Auctions NPRM* ¶ 36. Reserve amounts are widely used in competitive bidding processes to limit the range of possible outcomes. *The FCC should adopt its tentative conclusion that the reserve amount should initially be based on the level of the support provided immediately prior to the auction. Id.* ¶ 37. *The application of the reserve would depend on which of the options discussed above had been selected for geographic areas to be auctioned.*

If the ILEC has selected the second option (a zone plan approved by the state), then the existing support amount will have been distributed to each zone. The sum of the individual zone amounts would also be no more than the total amount previously provided to the study area. In this case, the auction would have a single reserve for each zone.

However, if the ILEC had selected the first option (no zone plan), then the geographic units for the auction would be the wire centers within the study area. In this case, two reserves would be enforced, one at the study area level, and the second at the wire center level:

The aggregate reserve. For the wireless auction, the aggregate reserve for each study area would be the total amount of support provided to all wireless ETCs in the study area prior to the auction. For the wireline auction, the aggregate reserve for each study area would be the total amount of support provided to all wireline ETCs in the study area prior to the auction.

The wire center reserve. In order to allow competitive bidding to proceed at the wire center level, it would be necessary to develop a reserve amount for each wire center. This would be done by disaggregating the existing support at the study area level in the following way:

- First, the aggregate reserve in the study area would be divided by the total lines of all wireless (wireline) ETCs to derive an average per-line support amount.

- Second, the aggregate study area reserve would be disaggregated to each wire center on a pro-rata basis by multiplying the number of wireless (wireline) ETC lines in each wire center by the average per-line support amount.

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[5] *See* Modernizing Universal Service at 4.

- Finally, each wire center amount would be multiplied by a constant greater than one to arrive at the wire center reserve amount.

This approach allows a reserve to be developed for each wire center *in study areas where no zone plan has yet been adopted.*[6] Because each wire center reserve is greater than its pro-rata share of the current level of support in a study area, it also provides room for the bidding process to provide more support to higher cost wire centers, and less support to lower cost ones. However, this also means that the sum of the individual wire center reserves will be greater than the aggregate reserve at the study area level. The application of the aggregate reserve ensures that the bidding process cannot result in an increase in support for the study area as a whole. *This approach is consistent with the FCC's tentative conclusions. Id. ¶ 39.*

The Reverse Auctions NPRM also suggests that "the winning bids in the most recent prior auctions could be used to establish a reserve price in the next auction." Id. ¶ 40. *This is a useful idea, which would draw on the same data and the same statistical analysis used for representative bidding, which is discussed in section 5 below.*

c. Qualification Process

Qualified bidders that would be eligible to participate in the bidding process would be providers who have been designated as ETCs in the area. This is consistent with section 214(e), which requires a carrier to be an ETC in order to be eligible for support. *Id*. ¶ 12.

The process for certifying ETCs also should be used to qualify bidders for an auction. Under section 214(e), however, "eligibility" for support does not imply any entitlement to receive universal service funding. Instead, in areas where auctions are held, an ETC would have to win the auction in order to obtain support.

As a starting point, it is reasonable that current ETCs should be considered eligible to participate in auctions held in those areas where they are now certified. However, if an auction mechanism is adopted, then going forward it may be useful for states, and for the FCC where it certifies ETCs, to take into account the different dynamics of an auction process when certifying eligible carriers.

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[6] The FCC does not need to engage in detailed cost analysis in order to establish reserves. In fact, part of the reason to use competitive bidding is to reduce reliance on traditional measures of cost. However, auction results might be improved if some simple indicator could be developed, perhaps based on the size or density of the wire center, to differentiate between higher and lower cost wire centers. Support from the non-rural high cost fund is already disaggregated to the wire center level. There is also a process in place for ILECs to develop and submit proposals to disaggregate study areas for USF purposes, and where such plans have been approved, they could be used to calculate a reserve at the wire center level.

In the current system, designating an additional carrier as an ETC automatically entitles that carrier to receive support, which contributes to the growth of the fund. Under a competitive bidding system as proposed by Verizon, the number of supported carriers resulting from the auction will always be the same: one. Having more eligible bidders will not increase the amount of the subsidy.

Certification of a carrier to participate in an auction should focus primarily on whether the carrier has the technical and financial capability to fulfill the requirements of the contract that would be awarded if it were to win the auction. See Reverse Auctions NPRM ¶¶ 26-32.

Today, providers are generally designated as ETCs on a study area basis. Going forward, it may be useful to consider an ETC as eligible over some wider area – perhaps an entire state. This would give bidders greater flexibility to shift the focus of their bidding from one area to another between rounds of an auction, much as bidders in the FCC's spectrum auctions have done. This would allow scope for a wider variety of bidding strategies, and would increase the potential number of bidders who might contest an auction in any particular area.

d. Obligation of the Auction Winner

In any competitive bidding process, the ETCs would be bidding for the obligation to serve as the provider of universal service in a high cost area, in return for which it would receive financial support equal to the amount of its bid.[7] The FCC, in cooperation with the states, would develop a statement that would define the winning bidder's obligations. This would, in effect, serve as a request for quote (or RFQ).

In return for the universal service support, the winning bidder would be required to offer service in the entire area, and to meet any other terms of the RFQ. If a wireless CETC bids for an area and loses, then that CETC would no longer have an obligation to serve that area.

The winning bidder in each area should enter into a contract that reflects the terms of the RFQ, under which the winner would provide universal service in the area, and receive compensation in the form of the flat amount of subsidy it had bid. Id. ¶ 24. The FCC should recognize that some areas which lie within the service areas of ILECs today have no customers who have ever requested service. States define the obligations of an ILEC in cases where a new customer requests service in such an area. In most states, the ILEC must provide service without any additional charges if the new service location is within some specified distance of existing ILEC facilities. If the customer is farther away,

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[7] Some of the universal service mechanisms, such as Lifeline, Link-up, schools and libraries, and rural health care, are not related to high cost subsidies, and would not be determined through the competitive bidding process outlined here.

usually the ILEC may quote some line extension charge to extend facilities to the new location. Verizon proposes that the obligation of any ETC that wins an auction should be to provide service to any customer at a location that would have been served by the ILEC without a line extension charge. Id. ¶ 28.

The winning bidder should be able to enter into a commercial agreement to transfer its obligations under the contract to any other carrier that would have been qualified to bid.[8] *There is no reason why a secondary market should not be allowed to develop in universal service obligations, just as such a market has developed for spectrum. While the auction allows the FCC to select the ETC best suited to serve as the universal service provider, a secondary market would allow adaptation to find the best ETC as conditions change over time. Transfer of a contract should not affect its term.*

e. Schedule and Organization of the Bidding

In this design, competitive bidding would not take place simultaneously in all areas. Instead, bidding would be introduced gradually through a series of transitional steps.

The FCC would establish a regular schedule of events leading up to an auction. This would include nomination of areas for bidding, registration of bidders, posting of deposits, and the bidding process itself (this series of events is referred to here as a "bidding cycle"). This flexible framework would allow the FCC to manage the transition to competitive bidding in reasonable steps, and, at the same time, provide ETCs themselves with the opportunity to decide when an area is ready for competitive bidding. *A separate framework would be established to manage competitive bidding for infrastructure grants to extend the availability of wireless service. This process is described in section 11, below.*

- A bidding cycle would be held twice each year. The first bidding cycle would begin six months after the adoption of an order establishing the plan.

- In any cycle, a wireless CETC would be able to nominate for bidding any area for which it is qualified, and where there is at least one other wireless CETC, except in areas where an auction had already been held and the term of the contract resulting from that auction had not yet expired. A wireline ETC would be able to nominate an area where there is at least one wireline CETC for a wireline auction, except in areas where an auction had already been held and the term of the contract resulting from that auction had not yet expired.

At certain points in the transition process, the FCC would, on its own motion, nominate areas that meet certain criteria. For example, as discussed in section 4, it would nominate

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[8] This qualification would in turn reflect the terms under which the auction was held. For example, if the auction selected a single wireless provider of universal service, then the winner of that auction could transfer its obligation to another wireless ETC that would have been qualified to bid in that area.

areas with more than one wireless CETC to begin the wireless CETC auctions.

- Dates would be established for the events in each cycle. For example, if a wireless CETC wished to nominate an area for bidding in the first half of a given year, it might be required to file its nomination by February 1 of that year.

- Once an area has been nominated, a second window would be established for ETCs to register to bid in areas that had been nominated, and to nominate additional areas. This would prevent an ETC from gaining a first-mover advantage by nominating an area, would ensure that all ETCs interested in a given area are able to participate, and ensure that all areas related to those initially nominated can be included in the bidding process.

- The FCC would set a firm date for bidding to begin. As described in section 6 below, bidding would be dynamic, which is to say it would involve multiple rounds.

- By grouping all of the bidding processes for each six-month period together, this framework would simplify administration. And, by announcing a clear schedule of events in advance, the framework would also make it easier for ETCs to plan their participation in the bidding process.

4) Auctions for Wireless and Wireline CETCs

a. Order of Auctions

To initiate the use of auctions for universal service, the FCC could first prompt competitive bidding among wireless CETCs.

In each area where there is more than one wireless CETC, an auction would select one "winner" to be the wireless provider of universal service in that area. Any area that had not previously been nominated by a wireless CETC, and where more than one wireless CETC is already certified, could be nominated by the FCC on its own motion.[9] Wireless CETCs would bid for a flat amount of support in each area. The design of the bidding process is discussed in section 6. *In order to gain experience with the wireless auctions as quickly as possible, the FCC may wish to nominate a limited number of areas for pilot auctions as soon as an auction design has been adopted. These areas may be those initially nominated by wireless ETCs, or areas selected on some basis, such as the number of wireless ETCs receiving subsidies in the area.* Once a wireless winner is selected, that provider would receive the support amount contained in its bid. The ILEC,

[9] The FCC could decide either to prompt bidding on all such areas in one bidding cycle, or could decide that it would be more convenient to spread the auctions out over time.

and any other wireline ETC in the same area, would continue to receive support under the cap mechanism described in section 1.

The FCC could publish results of all auctions on a web site, where that information would be available for use by any bidder in formulating its bid in subsequent auctions.

Once the wireless CETC auctions have been completed, the FCC should nominate for auction any area where at least one wireline CETC has been designated. In these auctions, both the ILEC and any wireline CETC would participate, and the auction would select a single wireline provider of universal service for the area.

b. Benefits of Single-Winner Auctions

As noted above, each universal service auction should select a single winner.[10] *As the FCC recognizes, a single-winner format will provide the most effective mechanism for determining the support amount that is just sufficient to meet the FCC's universal service policy goals in any given area. Reverse Auctions NPRM ¶¶ 13-17. A single winner auction reduces the potential for collusion and simplifies the method for disbursement, the enforcement of universal service obligations, and the auction design.*

- ***Incentives***

In a multi-winner auction there is no incentive to bid aggressively because even if an ETC does not win the auction it could still receive subsidies. As the number of winners increases, the possibility of any particular bidder being excluded diminishes, and with it the incentive to bid aggressively to avoid exclusion. Further, as the FCC correctly points out, the risk of collusion would be significant in an auction that allowed multiple winners, particularly since the number of potential bidders is likely to be small. Id. ¶ 15. In such a case, the disbursement mechanism itself would provide parties with a mechanism for sharing the gains from such collusion.

- ***Mechanics of Disbursement***

If the subsidy is awarded to more than one carrier, then it will be necessary to have some basis for apportioning the support among the winners, such as relative lines, handsets, or households served. Id. ¶ 18. Experience with the current funding mechanism shows that it is difficult to devise a basis for this apportionment that is competitively neutral and that

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[10] In the wireless auctions which Verizon has proposed as an initial step in the process, the single winner would become the wireless provider of universal service in the area. If the FCC later decides to hold a general auction in which all ETCs are able to compete, that auction would select a single provider of universal service. Similarly, if the FCC adopts the Joint Board's proposal for project-based support to extend wireless service to areas where it is not available today, then that contract should also be awarded through competitive bidding, with a single winner.

does not increase the overall level of funding. For example, the current mechanism counts each wireless handset the same as a wired line. Residential customers usually buy one wired line per household, but it is common for the same household to have several wireless handsets under a "family share" plan. Because of this difference in business models and customer use of the two services, a wireless ETC will receive several times the amount of subsidy provided to the wireline ETC serving the same household. There is no reason to believe that the relative costs of the two services, or their relative market values, as measured by the prices commonly paid for them, would justify this difference in subsidy.

Further, the growth in multiple handsets has been a major factor driving the recent growth in the fund. An auction that selects a single winner will avoid the need to apportion subsidy among different universal service providers in the same area. It will therefore avoid the risk of distorting competition, as the current mechanism does. It also will avoid the risk of artificially inflating the fund, as the current mechanism does. Id ¶ 15.

However, a single-winner format will provide full scope for each bidder to take account of the demand it anticipates it would have to meet over the term of the contract. If the bidder expects to gain or lose lines or handsets during the contract period, it can build in to its bid the effects on costs or revenues in any way it sees fit. Issues relating to how demand should be counted, and how changes in demand would affect the bidder's business, are thus handled by the bidders themselves, rather than by having the FCC make judgments on these matters.

- ***The Universal Service Obligation***

The purpose of the auction would be to select a provider to take on the obligation to provide universal service in a given area. Id. ¶¶ 23-23. This raises the question of whether that obligation can readily be shared. Within any area there are some customers who are more economical to serve, and others who are less so, given the amount of service they buy, their location, and other factors. The universal service provider undertakes to serve any customer, including those who may be less economical to serve. If there is more than one such provider, the distribution of customers among them would depend in part on the availability of service throughout the area, but also on other aspects such as pricing, packaging, marketing, and customer service. Small variations in any of these would allow one of the providers to target more economical customers, while encouraging less attractive customers to take service from another provider. This raises the possibility of a "free rider" problem in which several providers are subsidized, but the burden of the universal service obligation is not shared equitably among them.

- ***Competition and Subsidy***

As Verizon explained in earlier comments,[11] an auction with a single winner will not interfere with the development of competition in those areas that would otherwise support it. Carriers are already free to enter high cost markets, and experience has shown that in many cases they can do so successfully. A study last year found that 98% of the customers in areas where subsidized wireless service is available also have service available from one or more unsubsidized wireless carrier.[12] It is not necessary to subsidize more than one provider in such areas in order to have competition. On the contrary, because of the difficulty of apportioning the support, and of sharing the obligation, discussed above, subsidizing multiple carriers is likely to distort competition. Moreover, high cost subsidies are not necessary at all when it is economical for carriers to offer service in an area without support.

In high cost areas, even those that have attracted competitive entry, carriers may tend to focus their efforts on those customers who have lower costs and/or higher revenues. It may be necessary to subsidize one provider who will take on an obligation to serve all customers. An auction is the best way to determine whether such a subsidy is required. It will also allow the FCC to select the carrier that can perform this task most efficiently, and to determine the amount of subsidy that is just sufficient to make that carrier willing to take on the obligation. A flat amount of support that is just sufficient to compensate for the costs of the universal service obligation will not give the universal service provider any advantage in competing for customers that would otherwise have been served, nor will it prevent competitive entry that would have occurred without subsidy

- ***Auction Design***

Although the questions raised in the Reverse Auctions NPRM with respect to auction design are addressed more generally below, three specific points are relevant here to the question of how many winners the auction should select.

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11 Reply Comments of Verizon and Verizon Wireless, WC Docket No. 05-337, CC Docket. No 96-45, at 3-9 (filed July 2, 2007) ("Verizon July 2007 Reply Comments").

12 *The Availability of Unsubscribed Wireless and Wireline Competition in Areas Receiving Universal Service Funds,* Criterion Economics, LLC, Nicholas Vantzelfde, at 15 (June 13, 2007) (noting that "of the 103.7 million pops covered by wireless CETCs, only 3.2 million people, or roughly 1.5 million households, receive coverage from subsidized carriers that is not duplicated by at least one unsubsidized carrier. This equates to about 2% of the 148 million people living in study areas for which wireless CETCs receive subsidies….").

First, as noted above, an auction that has multiple winners will be subject to collusion concerns. Reverse Auction NPRM ¶ 15. It is not clear that there is any satisfactory way to address these concerns through the design of the auction. Further, measures to minimize the risk of collusion, such as a single-round auction, will involve significant tradeoffs, such as giving up the possibility of price discovery through multiple rounds.

Second, any design with multiple winners will necessarily be more complex. Adding this dimension to the design will again involve tradeoffs with other dimensions, such as the ability to entertain package bids, that would be useful.

Third, selecting more than one winner raises the question of how the payment rule should be established. Aside from the difficulty, discussed above, of establishing the basis for apportioning the subsidy, it is not clear that there is a payment rule that would meet all of the FCC's goals. The FCC identified a similar concern. Id. at n.39. For example, in the design discussed in the Recommended Decision, support is always sufficient in the sense that no bidder is ever required to take on an obligation for less than the amount it bid. However, if losing bidders receive some discounted portion of the winner's subsidy, as some parties have proposed, then this would not necessarily be the case.

c. Distribution of Support

Once each auction has selected a winner, then it will be possible to distribute the subsidy in the form of a flat amount. Id. ¶18. *This might be distributed on a pre-established schedule over the term of the contract, such as a set amount per year. Paying the fixed subsidy in installments would maintain an incentive throughout the contract to live up to its terms, since the FCC could withhold payment for nonperformance.*

A flat subsidy payment is simple, and does not require any reporting of demand units. Moreover, it avoids the difficulty of selecting a unit of measurement, such as subscribers or households served.

As the FCC recognizes, a flat subsidy amount would provide assurance of the funds needed to establish and maintain the infrastructure necessary to provide service throughout an area. Id. Once that infrastructure is in place, an ETC would have the incentive to add customers, whose additional revenues are likely to cover variable costs, even for low-volume customers.

In contrast, while the Reverse Auctions NPRM suggests that a per-unit subsidy might provide an incentive to serve new customers, that incentive is likely to operate in a perverse way. Id. It creates an artificial incentive for an ETC to increase its efforts to market to lower-cost customers in a population cluster, or to sell multiple handsets for each account. But for customers in locations that are difficult to reach, for whom the cost of service is particularly high, the per-unit subsidy is likely to be small relative to that additional cost, and will therefore not provide any meaningful incentive at the margin to add those customers. This has been the experience with wireless ETCs, as the FCC has noted:

> *In addition, the identical support rule fails to create efficient investment incentives for competitive ETCs……the competitive ETC has little incentive to invest in, or expand, its own facilities in areas with low population densities, thereby contravening the Act's universal service goal of improving the access to telecommunications services in rural, insular and high-cost areas. Instead, competitive ETCs have a greater incentive to expand the number of subscribers, particularly those located in the lower-cost parts of high-cost areas, rather than to expand the geographic scope of their networks.*[13]

Where customers are heterogeneous, as is the case in most rural areas, ensuring that an ETC offers service throughout an area is primarily a matter of enforcement, rather than incentives. An average subsidy per line will be too high for the lower cost customers in the area, and not high enough for those who are most difficult to serve. Put another way, if the per-line support amount were set at a level sufficient to cover the incremental costs of extending service to the most remote customers, the total subsidy paid for the area would be much too high, because the FCC would be vastly overpaying for all of the less costly customers in the same area. This is why a per-unit payment is not a desirable substitute for effective enforcement of an obligation to serve.

5) FCC Reviews Auction Experience, Decides Next Steps

After a reasonable period, the FCC could then review its experience with the wireless and wireline universal service auctions.

The FCC would consider this experience, the development of markets in rural areas, changes in technology, and the acceptance of substitutes by customers of different services.

Based on this experience, the FCC would then determine whether it should nominate additional areas for auction.

- **A general auction.** The FCC could prompt a general auction in any area where there is a CETC. Both wireline and wireless ETCs would participate. The general auction would select a single ETC to be the universal service provider for the high cost area and to receive the support determined by its bid. The auction design described here is intended to be suitable for a general auction; the FCC could determine whether any adjustments would be appropriate, based on the experience gained with previous auctions. The reserve for this auction could be the sum of the wireline and wireless support amounts provided on the date of the general auction.

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13 *Identical Support NPRM* ¶ 10.

- **Representative bidding.** As part of its review, the FCC should also consider whether to use the results of auctions, where they have been held, to adjust the support of ETCs receiving support not yet established by an auction. Once it has assembled a representative sample of results from the areas where bidding has been completed, the FCC should either perform or commission an econometric study that would relate these results to the characteristics of the areas, such as size and density. This econometric model could then be used to estimate the likely results of an auction in an area with given characteristics.

  Estimates based on the wireless auctions, or on general auctions, could be used to adjust the support of a wireless ETC in an area where a wireless ETC auction had not yet been completed (because there is only one wireless ETC in the area, or because the area had not been nominated, or because an auction in the area had failed).

  Estimates based on the wireline auctions, or on general auctions, could be used to adjust the support of wireline ETCs whose support had not yet been set by an auction.

  The support would be the lower of the capped support amount or the amount indicated by the econometric study.[14] *In any subsequent auction, the reserve amount would be based, as before, on the subsidy provided just prior to the auction. Thus, the estimate based on prior auction results would provide the basis for subsequent auction reserves, as proposed in the Reverse Auctions NPRM* ¶ 40.

6) Design of the Competitive Bidding Process

The design outlined here is called a "clock-proxy" auction. The bidding process would be a hybrid of two designs that combines the advantages of each. The first phase is a clock auction. The second phase is a proxy auction. This design draws on the latest work of auction experts in this area (including the FCC's own). A similar design has recently been adopted by Ofcom for a major spectrum auction in the United Kingdom.

The design summarized here incorporates the two main design elements on which the Reverse Auctions NPRM seeks comment. It is a multiple round format, which, like the simultaneous multiple round ("SMR") design used in the FCC's spectrum auction,

[14] As Verizon and Verizon Wireless noted in their comments, this approach has been used to extend auction results in other settings, such as the pricing of timber cutting rights in Canada. Comments of Verizon and Verizon Wireless at 27-28, WC Docket No. 05-337 (filed October 10, 2006).

allows bidders to acquire information during the auction itself.[15] *It also allows bidders to bid on packages of areas. Id. ¶ 41.*

a. <u>The Clock-Proxy Hybrid</u>

The last few years have seen significant advances in auction design theory.[16] One of these advances has been the development of a hybrid of two types of auction designs, a "clock" auction and a "proxy" auction. This hybrid is called a "clock-proxy" auction.

The first phase of this design would be a "clock auction." A clock auction is a dynamic, multiple round process in which the auctioneer announces prices and bidders respond with quantities desired at the announced prices. It is called a clock auction because the rounds of bidding are conducted at regular intervals. This design allows the auction itself to generate information useful to the bidders. By observing the results of the early rounds, each bidder gains knowledge of the value of each area and how the areas are related to one another. In this respect, the clock phase of this design is similar to the spectrum auctions. Importantly, a clock auction also limits the opportunities for bidders to engage in strategic behavior compared with a more conventional multiple-round auction in which the bidders themselves formulate the bids. In each round, a bidder can only answer a yes-or-no question for each area or package of areas: Will the bidder be willing to become the universal service provider at the support amount called out by the auctioneer? This kind of design thus makes it difficult, for example, for a bidder to use the amount of its bid to signal other bidders.

The second phase of this design would be a "proxy" auction, which is based on the results of the clock phase. The proxy phase is necessary to make the results from the clock phase more efficient. It provides the opportunity for bidders to create combinations of prices that would not have occurred in the clock phase. This is called the proxy stage because the bidding activity is conducted by a proxy agent (a computer program) following strict rules in order to limit the possibility of strategic behavior by the bidder itself.

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15 *Reverse Auctions NPRM* ¶ 41. This information gathering is sometimes referred to as "price discovery."

16 For an overview of modern auction theory, *see* Paul Milgrom (2004), *Putting Auction Theory to Work*, Cambridge: Cambridge University Press. For essays on various aspects of combinatorial auctions, *see* Peter Cramton, Yoav Shoham, and Richard Steinberg (2006), *Combinatorial Auctions*, Cambridge, MA: MIT Press. A discussion of the clock-proxy design is provided in Lawrence M. Ausubel, Peter Cramton, and Paul Milgrom, "The Clock-Proxy Auction: A Practical Combinatorial Auction Design," which appears as Chapter 5 in Cramton, Shoham, and Steinberg.

b. Advantages of the "Clock-Proxy" Hybrid Design

Flexible bidding for individual areas, or packages of areas. This design allows the bidders to place bids on different areas in a very flexible way. A bidder could submit bids on a specific area or areas. The same bidder could also submit a "package bid" on a group of areas, if the bidder found them to be related to one another (for example, if the bidder could serve the "package" more efficiently than the individual areas separately). This type of bidding process is called a "combinatorial" auction.

A design which permits the flexibility of package bidding makes the choice of the area to be auctioned less critical. It would allow the FCC to design the auction around smaller geographic units (such as the wire center areas discussed here) without unduly complicating the bidding process. Rather than having the FCC make decisions about how areas should be grouped together, this approach allows the FCC to elicit information from the bidders about how the areas should be grouped. This design would achieve more accurate targeting of universal service support, and address cherry-picking concerns. These advantages would be gained without inflating the fund, and without giving up the economies of serving larger areas in cases where those are important.

Allowing for different relationships among areas. The auction design outlined here is designed to perform well – in terms of efficiency, and minimizing the need for support – regardless of whether different bidders view a given set of areas as independent, substitutes, or complements. This is important because in bidding for universal service support, all three of these are possible:

- Areas are **independent** if a bidder's willingness to bid for hypothetical "area A" is not affected by the outcome of the bidding for any other area. For example, a small ILEC that serves a single wire center may care only about that area.

- Two areas are **substitutes** if a bidder wishes to win either area A or area B, but not both. This could be the case for a wireless carrier that wants to enter one new market, and is considering A and B as possible alternatives. If in the early rounds of bidding this carrier encounters strong competition for A, it may shift its attention to B in later rounds. This kind of behavior has occurred in the spectrum auctions.

- Two areas are **complements** if a bidder sees some synergies in serving the two areas together, so that it would be willing to accept less support in area A if it also wins area B. For example, a mid-size ILEC that serves several wire centers in a state may view them as complements. In this case, strong competition for A may make this carrier less willing to bid for B.

Some earlier proposals for competitive bidding of universal service have essentially treated high cost areas as independent.[17] For that reason, they do not make any provision for either substitutes or complements. The multiple-round design used in the spectrum auctions performs well when areas are substitutes, but not as well when they are complements. As explained in more detail below, the clock-proxy auction design will perform well regardless of whether different bidders view a given set of areas as independent, substitutes, or complements.

Minimizing strategic behavior. The design outlined here also minimizes the possibility of strategic behavior, such as collusion among the bidders, or an attempt by one bidder to conceal its interest in particular areas by holding back until the late rounds of an auction. This is particularly important in the context of bidding for universal service, where the number of bidders for any given area is likely to be small. Because this design encourages each party to bid straightforwardly based on relevant business factors, such as its expected costs and revenues, it would improve the transparency of the process, and the efficiency of the outcome.

Single winner, flat amount of subsidy. *As described above, this design allows for a single winner. Thus, there would be no need to attempt the difficult task of apportioning support amounts among different providers. As further discussed above,* this would avoid many contentious issues that have arisen in the past, such as whether to support primary lines, additional lines, multiple handsets, and so on. It would also make for a simpler bidding process. Each bidder would bid a flat dollar amount of subsidy – the total amount the ETC would accept in order to take on the universal service obligation for a given high cost area. Each bidder would base its bid on its own business plan, which would include the bidder's own assessment of many factors – including the demand quantities (of lines, handsets, etc.) it would expect to serve within each area.

c. Clock Phase

As discussed above, in the first phase of the auction (the "clock" phase), the bidding would proceed in a series of discrete rounds. Instead of having the bidders submit support amounts, the auctioneer "calls out" a support amount for each area in each round.

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[17] For example, neither Milgrom (Paul Milgrom, "Procuring Universal Service: Putting Auction Theory to Work," Lecture at the Royal Swedish Academy of Sciences, December 9 1996) nor Weller (Dennis Weller, "Auctions for Universal Service Obligations," Telecommunications Policy, Vol 23, 1999, pp. 645-674) allowed for package bidding; instead they proposed a separate auction for each area. Since these designs were also single-round, sealed-bid auctions, they did not allow bidders to shift their attention from one area to another based on results in earlier rounds. The only provision for complementarity was a limited opportunity for a bidder to withdraw if it wins area A but loses some other area it sees as related. Because the design proposed here deals directly with package bidding, and also allows for multiple rounds, there is no need for such a withdrawal provision.

Each bidder then indicates which areas it would be willing to serve as the universal service provider at the specified support amount. The clock phase would proceed as follows:

- The support amount called out by the auctioneer in each round is a flat amount per year. It is constant each year for the duration of the contract. In the first round of the clock phase, the auctioneer calls out the reserve price in each wire center.

- In each round of the clock phase, each bidder may submit a bid on a package that includes any area or combination of areas it chooses. Since the support amounts are being announced by the auctioneer, the package bid is simply a list of the areas the bidder would be willing to serve for the amounts called out in that round. Each bid is also exclusive in the sense that at the end of the clock phase the auctioneer can accept only one bid for each area, and one bid from each bidder. All bids remain in effect for the entire duration of the auction and cannot be withdrawn (even after bidding has closed). At the end of the bidding process, the auctioneer may go back and accept any bid from a previous round. This means that a bidder must carefully consider what it bids in every round, because every bid is a binding offer that the bidder might be called upon to honor.

- At the end of each round, the auctioneer determines how many bids have been submitted for each area. The objective of the auctioneer is to select a single bidder for each area. Therefore, in an area where more than one bid has been received, there is excess supply. In areas where no bids have been received there is excess demand. In areas where there is excess supply (more than one bidder) the auctioneer reduces the support amount called out in the next round by a set amount.[18]

- The auction is held over the Internet, using a software program to administer the bidding.[19] The program includes admission control to ensure that only qualified entities submit bids. The program also checks to see that bids meet the rules, and

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[18] The decrement by which the bid is reduced each round is an element of the auction design. A large, or coarse, bid decrement will make the auction go faster, but may jump over the correct support amount. To address this issue, a device called "intra-round bidding" may be used to obtain finer information from the bidders. Rather than simply drop out of the bidding for an area when the support amount falls below the level it would accept, a bidder could indicate willingness to accept a level of support between the amounts called out in the last two rounds.

[19] Having bids submitted electronically over the Internet, and using specialized software to administer the bidding process, has been used successfully in the FCC's spectrum auctions, as well as many other successful auctions around the world.

prompts the bidder to resubmit a bid if it does not. The rounds occur at some set interval, perhaps every two hours.

- The program will accept only bids that meet the wire center reserve. It also checks after each round to see that the aggregate reserve is met at the study area level, and provides that information to the bidders prior to the next round.

- This aggregate reserve check can only be done after a round is completed, so within a round each bidder does not know if the bids being submitted, taken together, will satisfy the rules. In some cases, not all wire centers in a study area will have been nominated for bidding. In this event, in order to apply the aggregate study area reserve, the auctioneer would include the areas that were not part of the auction in the calculation as if they had received bids at their wire center reserve amounts.

- Each bidder would be subject to an "activity rule," which would require it to bid actively in every round in order to maintain eligibility to bid in subsequent rounds. This rule, which has been used in the spectrum auctions, prevents a bidder from "lying low" in early rounds to conceal its intentions, or to allow rivals to eliminate one another.[20] In areas where there are few bidders, the auctioneer may limit the information provided to each bidder. For example, each bidder may know the number of other bidders, but not the identity of each.

- The clock auction rounds continue until there is no more than one bidder for each area.

- At the end of the clock phase, there may be some areas for which there is no bid. There may also be areas where bids have been submitted, but these do not satisfy the aggregate reserve constraint because, as discussed above, the sum of the wire center reserves will be greater than the aggregate reserve constraint for the study area.

- At the end of the clock phase, the auctioneer runs an optimization program that selects the winning bidder in each area, based on all the bids submitted (this may include bids from earlier rounds, since all bids remain in effect until the auction closes). The optimization seeks to select winners for as many areas as possible, while minimizing the cost to the fund.

d. <u>Proxy Phase</u>

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[20] Specifically, the rule employed here is called a "revealed preference activity rule," which ensures that, as the support amount declines during the rounds of bidding, a bidder cannot shift its bid towards a package whose support amount has fallen more than the support amount from a previously preferred package. *See* Ausubel, Cramton, and Milgrom, op. cit., at page 120.

Once the clock phase of the auction has been completed, a final round or "proxy phase" is held to "fine-tune" the results.

The proxy phase is used to make the results of the clock phase more efficient. The proxy format opens up additional bidding opportunities by allowing each bidder to specify package prices that might not have been announced by the auctioneer in the clock phase. At the same time, the proxy phase limits each bidder's ability to behave strategically by having a proxy agent bid on behalf of the actual bidder according to strict rules.

In the proxy phase, each bidder reports a valuation for each package of areas in which it is interested. This valuation is the "best and final" support amount that bidder would accept. Unlike the clock phase, where each bidder specifies a single package in each round, here a bidder may submit valuations for any number of packages, and the packages may overlap in the sense that a given wire center may be included in more than one package.

The actual bidding is then done on the bidder's behalf by a proxy, which is simply a computer program that bids according to preset rules, given the valuations submitted. Starting with the support amounts produced by the clock phase, each proxy looks for opportunities to make its bidder better off by submitting a bid on the bidder's best package; that is, the package that maximizes the difference between the current bid and the bidder's valuation. Bidding continues until no proxy can find any such opportunity.

- The same reserve rules discussed in section 3.b are maintained in the proxy round. The activity rule is also maintained in the proxy phase, but may be relaxed by a measured amount to allow bidders to increase the number of areas on which they bid.

- In practice, the proxy round is implemented using an optimization program. A winner is chosen for each area by a criterion that minimizes the total amount bid over all areas. The amount of support determined by the optimization is also competitive in the sense that no coalition of bidders can offer the auctioneer a lower-cost plan.

- In the final optimization, there may still be some wire centers for which there is no bid. There may also be study areas for which bids were submitted, but where the auction fails because the bids did not meet the aggregate reserve constraint for the study area. In these areas, the situation would revert to the status quo prior to the auction, and the ETC(s) that participated in the auction would continue to receive support capped by the mechanism described in section 1.

- The proxy phase builds upon the advantages of the clock phase. The information generated in the clock phase helps bidders formulate the valuations they are asked to submit in the proxy phase.

- If the areas are substitutes, the clock auction may also do most of the work of identifying the best bids, leaving relatively little need for "fine tuning" in the proxy phase.

- However, where areas are complements, it is likely that bidders may hold back from making some bids, and the clock phase may end before all of the possible bids have been revealed. Suppose a bidder is interested in a package of areas A, B, and C which it views as complements. Given the particular support amounts called out by the auctioneer, and especially if another party bids aggressively for B, this bidder may choose not to bid for any of the three areas, even though its combined bid might have been superior. By giving the bidder an opportunity to specify a different combination of support amounts, the proxy phase may elicit a bid for the package that would be better, from the auctioneer's perspective, than any combination of bids offered in the clock phase.

7) Transition: Implementation of Auction Results

After the auction results have been announced, a transition period is necessary if a "winner" will be taking on new universal service obligations. For example, if the winner is a wireless CETC not already serving the area, then a transition period may be needed. At some pre-announced point in the transition, the administrator could require the winner to post bonds to ensure performance of the contract. Later in the transition, the winner may be required to file an implementation plan to show how it would plan to fulfill its responsibility. This would create an incentive for the winner to formulate plans in a timely way, and would provide the administrator with an early warning of any potential problems. A transition period would also allow ETCs that had participated in an auction, and had not won, to adjust their business plans.

Transition in the Event of a General Auction. Under this proposal, no general auction would be held unless the FCC took action pursuant to its review in Step 4. If a general auction is held, and the ILEC is the winner, then no transition would be needed, since the obligation it would take on would simply be an extension of what it is already doing. If an ILEC bids for an area and loses, the state commission would decide whether and how to reduce regulation of that carrier and what (if any) obligation to serve would be appropriate. The FCC and/or state commissions, on the other hand, could decide to exercise their authority to remove obligations that the losing ILEC bidder may have to provide unbundled elements or resale.

Although the winner would have the responsibility to provide service, it could fulfill that responsibility by contracting with other parties, including the incumbent. The losing ILEC could choose to continue to operate, selling retail services to end-users. The state commission may reduce retail regulation of such ILEC services. The ILEC could also sell wholesale inputs to the new universal service provider. If the FCC and/or the state commission removed UNE and resale obligations from the ILEC, then these wholesale transactions could be at commercial terms.

8) Terms of the Contract

The contract between the winner and the regulators (FCC and state) would incorporate the terms of the RFQ and the level of annual support to the winner. Like any procurement contract, it would include provisions to ensure that the terms of the contract are met. These could include fines, forfeiture of bond amounts, and being barred from participation in any subsequent auctions.

The contract would be awarded for a set term. The area could not be nominated during that contract period. At the end of the term, the contract would continue until a party – either an ETC or the FCC – nominated it again, at which time another auction would be held.

The length of a universal service contract should strike a balance between providing sufficient commitment to the winner to justify necessary investments and providing the opportunity for a new auction to reflect changes in the market and technology over time. Consistent with the FCC's proposal, five years is a reasonable and sufficient amount of time for the universal service contract. Reverse Auctions NPRM ¶ 47.

The FCC should also not adopt any oversight of asset transfers that may occur when a new winner replaces a previous universal service provider. Id. ¶ 49. The carriers should be free to make agreements based on market principles without additional FCC regulation in the area.

The Reverse Auctions NPRM implicitly assumes that a wireless carrier that loses an auction would necessarily exit the market in the area. Id. ¶ 49. *Given the evidence that unsubsidized carriers are offering service today in almost all of the areas where wireless service is subsidized, it is more likely that a losing bidder would continue to operate in the area without the universal service obligation. It may make sense for the winner to enter into an agreement with another carrier to "buy" rather than "make" some or all of any additional capability it might need to fulfill its new obligation. There is no need to regulate such transactions, however, and to do so would be harmful to the auction process.*

The auction should be designed to elicit bids that reflect each carrier's assessment of the subsidy it would require to undertake the universal service obligation, including the cost if it has to provide the facilities itself. Once the auction is decided, carriers can negotiate the lease, sharing or sale of facilities, and the winner can decide what mix of "make" or "buy" it prefers. If the FCC were to impose obligations on any of the parties, the terms of any such obligations rather than the carriers' costs would inform the bids. This would undermine one of the primary purposes of the auction, which is for the market to determine what universal service should cost, not the FCC. It would also not be equitable for a carrier to lose the auction, lose the subsidy, but gain an obligation to provide capacity to the winner.

9) Areas Not Yet Auctioned

In some areas, support may not have been set through competitive bidding (either because the area was not nominated for bid or because the auction failed to produce a result). These areas would continue under the capped support arrangement described in section 1. In an area that receives no support today, the reserve would be zero, and thus that area would not be eligible for auction.

As discussed above, once a sufficient amount of data had been gathered to permit an econometric model to be created, information from that model could be used to adjust subsidies in areas not yet auctioned, beginning with those study area where there is only one wireless ETC.

10) Other Experience with Government Auctions

Competitive bidding is the way governments generally procure the goods and services they want to purchase. Thus, there has been extensive experience by governments around the world in the use of competitive bidding. Following are two examples, one relating to the combinatorial bidding structure proposed above and one relating to universal service auctions generally.

As auction theory has evolved to provide the means for package bidding, governments have begun to take advantage of this capability. An early example is the contracting of bus routes in London. The London Regional Transport ("LRT"), the agency responsible for the bus system, began using auctions for this purpose in 1985. Today this market covers about 800 routes serving an area of 1,630 square kilometers and more than 3.5 million passengers per day. About 15-20% of the routes in the system are auctioned each year. This system is considered a success, having led to increased quality of service and lower costs.[21]

While LRT establishes the requirement for each route, private fleet owners bid on packages of routes they wish to serve. The winner of each route is given a contract with a five-year term, and receives the flat amount of subsidy it bid. A transition period of eight to ten months is provided before the winning bidder begins to operate its routes, to allow time for any necessary reorganization or the purchase of new buses.

11. Grants for Wireless Infrastructure

The FCC should adopt the Joint Board's recommendation that wireless universal service support be redirected to targeted grant funding for construction of new wireless facilities in unserved areas. For this purpose, the Joint Board defines an "unserved area" as an area with substantial population density but no wireless service.[22] *Competitive bidding*

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[21] Estelle Cantillon and Martin Pesendorfer, "Auctioning Bus Routes: The London Experience," Appears as Chapter 22 in Ausubel, Cramton, and Milgrom, op. cit.

[22] *Recommended Decision* ¶ 16.

should be used to select a provider to construct facilities in these areas and to determine the subsidy that provider would receive.

The pattern of wireless coverage in unserved areas, including in rural areas, is likely to be complex. In order to identify areas where grants should be awarded, the FCC needs to develop a framework to identify and prioritize unserved areas. Verizon proposes that this be based on the following steps and principles:

- *The FCC has access to data from American Roamer, which it used to prepare its Twelfth Report to Congress on the state of the wireless market. The American Roamer data provide "detailed boundaries of the network coverage areas of every operational mobile telephone carrier in the United States."*[23] *Using these data, the FCC was able to assemble data at the level of census blocks. These data should provide the starting point for the identification of unserved areas.*

- *The FCC should define an "unserved area" for this purpose as a contiguous group of census blocks that:*

    - *Lies entirely within a state;*
    - *Has no wireless voice service anywhere in the area;*
    - *Has a population density above a threshold level established by the FCC; and*
    - *Includes a population above a threshold level established by the FCC.*

- *Qualified bidders should be invited to nominate areas that meet these conditions.*

- *Each state commission should be given the opportunity to nominate a small number of areas (perhaps five) that meet the FCC's parameters. The Commission may also choose to nominate some areas.*

- *Each nomination should be put out for public comment. The American Roamer data can be used to establish a rebuttable presumption that the nominated area is unserved. States could be invited at this stage to certify that the nominated areas are in fact unserved. After reviewing the record, the FCC would approve a set of projects for bidding.*

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[23] *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, Twelfth Report, WT Docket No. 07-71, FCC 08-28, ¶ 3 (rel. Feb. 4, 2008) ("*Twelfth Report*").

- *Only "unserved areas" would be considered for construction grants. The FCC should not subsidize additional construction in "underserved areas," however that term is defined.*

Each year, the FCC should adopt an overall budget for its expenditure on construction grants in that year. In each year, efficiency gains from the auctions for existing wireless subsidies should allow the FCC to reduce its expenditure on those subsidies. Part of the savings from the wireless auctions should be used to reduce the burden on consumers and, as proposed earlier by Verizon, could be used to provide ongoing subsidies in deserving but unfunded areas under today's system. Verizon July 2007 Reply Comments at 15-16. But a substantial portion of the savings could be directed to fund project-specific wireless infrastructure grants. In funding the overall annual budget for wireless grants, if the savings realized from reverse auctions for ongoing support is not sufficient, the FCC could also fund the grants by adjusting downward, by a constant percentage as needed, the ongoing wireless ETC support available in unauctioned areas. This would ensure that the total expenditure for the year is no greater than the nationwide cap for wireless ETC subsidies recommended by the Joint Board. Though the grants should be one-time infrastructure grants, the pro-rata reductions in ongoing support should be permanent. In that way, carriers will have incentive to self-nominate areas for an ongoing support reverse auction in order to lock in ongoing support amounts during the resulting contract term. Alternatively, federal funds from sources other than the USF program could be used to pay for wireless construction grants.

A reserve amount should be estimated for each area that has been nominated for a one-time wireless construction grant, and that amount would be made public. For the first series of grants, this would be based on a cost per square mile based on the number of towers required to serve an area, given the characteristics of the area. The FCC could use the results from the initial rounds of competitive bidding for the grants to establish reserve amounts for subsequent rounds.

The areas nominated in a given year would be prioritized, based on the reserve amount per population in the area. A window would then be opened for qualified bidders who had not nominated areas to register to bid. Areas nominated by the states would go to bid if at least one bidder registered. In setting the prioritization, the FCC might give some preference to the areas nominated by the states.

The FCC would then work its way down the prioritized list of areas, summing the reserve amounts, until the sum of the reserves was equal to that year's budget for infrastructure grants. All of the areas above this cutoff point would then be subject to competitive bidding for a grant. If the amounts of the winning bids sum to less than the budget (because areas sold for less than their reserves) then the FCC would move down the list, putting additional areas out for bid until the sum of the winning bids for the year uses up the budget for the year.

Each bid would be for the lump sum grant the ETC would require to invest in the infrastructure. This amount would be paid out over a pre-set schedule, with the last

payment after the facilities had been put in place and service had been offered in the area. The construction grants would be one-time grants that would not fully fund construction, but would merely subsidize it at a level that made the construction an attractive business proposition.

The FCC, together with states, should specify the request for quote ("RFQ"), which would lead to a contract with the grant winner.

- *The bidder would not compete on the basis of the project itself. Instead it would bid to provide infrastructure that meets the minimum requirements set forth in the RFQ.*

- *The contract would go to the lowest bidder.*

- *The winner would have an ETC obligation to provide the defined universal service, using the infrastructure subsidized by the grant.*