

argued that the size of service areas should be tailored to the wireless service in question.

54. We seek comment on the costs of partitioning post-auction as compared to the costs of aggregating spectrum during or after the auction process. We observe that spectrum aggregation within auctions is fairly common. While we recognize the concerns of small carriers regarding their access to spectrum in rural markets, especially when large geographic areas are used, we note that partitioning also is relatively common. Partitioning appears to be occurring across all regions of the country and includes many counties that fall within the various definitions of "rural" that are proposed above.

55. We seek comment on the lessons we should draw from the Commission's experience in choosing initial service area sizes. Is there evidence of net aggregation towards nationwide service areas for certain services such as cellular and PCS? Is there evidence of net partitioning for other services? To the extent partitioning is more common in some services and less so in others, is this trend indicative of some miscalculation by the Commission in choosing the initial size of service areas? Alternatively, could this activity reflect changes in the demand for services that could be provided in this band, or changes in technologies or other factors that affect what services could be supplied in this band? We also seek comment as to whether the difference in the level of partitioning across services could reflect the application of different Commission rules, such as build-out requirements. Finally, we note that there are certain transaction costs associated with any partitioning. Should we expect that licenses for highly valued spectrum, in highly valued services, will be more likely to be partitioned, given the greater likelihood that the value created by this trade will exceed the transaction costs? Similarly, as secondary markets develop and transaction costs decline, should we expect that partitioning through leasing arrangements will become more feasible in more services? To what extent might such partitioning be limited by a hold-out problem? That is, might licensees with large geographic areas refuse to make spectrum available to small providers that want to serve small or niche markets, which tend to be in rural areas?

56. We tentatively conclude that it is in the public interest for the Commission to balance the needs of different providers, including the larger carriers' need for economies of scale and the smaller carriers' need for license

areas that more closely resemble their service areas. We recognize that, since users of spectrum have a variety of needs, one size of service area does not fit all. We intend to continue establishing geographic areas on a service-by-service basis, and we seek comment on steps we can take to effectively balance the competing needs of different users as we make these service area decisions. Would such an approach produce economically efficient results? Is such an approach necessary, given our expectation that secondary markets will become more prevalent in the future? We especially encourage commenters to use empirical evidence to support their assessment of partitioning costs, aggregation costs, and the efficiency of any approach they recommend.

57. In addition, while the largest geographic service area the Commission may adopt would be a nationwide area, there is some question as to what would be the smallest size that would still be functional. That is, at what point is it more appropriate for the Commission to use site-based licenses instead of very small geographic area licenses? Also, to the extent we believe small license areas are appropriate for specific bands, what size is most appropriate? Are there particular frequencies that are better suited for allocations to small license areas? We also inquire as to whether it is possible that use of relatively small geographic areas would introduce an unreasonable risk of another type of hold-out problem. In particular, might such an approach result in many small incumbent licensees who could then frustrate post-auction attempts to aggregate licenses efficiently by refusing to sell except at excessive prices?

58. We also seek ways to make it easier for providers in need of larger areas to acquire them with minimal transaction costs. One way to achieve this objective may be to adopt bidding design mechanisms that permit the aggregation of geographic areas or spectrum blocks during an auction. Typically, the Bureau uses a simultaneous multiple-round auction design, which facilitates aggregation by making all licenses in the auction available at the same time. Recently, the Bureau selected a package bidding design for two auctions. This relatively new approach to auctions allows bidders to submit all-or-nothing bids on combinations of geographic areas or spectrum blocks in addition to bids on individual licenses or authorizations. We believe that, in instances in which the Commission has determined that smaller size license areas are appropriate, a package bidding format

may be helpful to bidders seeking to acquire larger geographic areas or spectrum blocks. We recognize, however, that in such circumstances, the use of package bidding may introduce significant computational complexities.

59. We also observe that choosing a geographic service area that represents a "middle solution" may be an inefficient approach. We note that, as an alternative to such a "middle solution" in which service area size represents a compromise that may not be ideal for either small or large service providers, there may be situations in which it is possible to create geographic service areas of mixed sizes. In particular, if there is sufficient bandwidth available, both large regional (or even national) and small local license areas can be created. We inquire as to whether such a mixed plan may reduce the aggregation/disaggregation transaction costs inherent in a single size geographic licensing scheme, and we seek comment on what other costs, as well as benefits, may be associated with such an approach. We recognize that, while a mixed approach may be useful in some bands with spectrum users that have very different needs, it may not be appropriate in other bands, and we conclude that our approach must be tailored to the needs of each band or service in question.

F. Facilitating Access to Capital

1. Rural Utilities Service

a. Rural Loan Programs

(i) Background

60. The U.S. Department of Agriculture's RUS Telecommunications Program assists the private sector in developing, planning, and financing the construction of telecommunications infrastructure in rural America. Programs administered by RUS include: (1) Infrastructure loans; (2) broadband loans and grants; (3) distance learning and telemedicine loans and grants; (4) weather radio grants; (5) local TV loan guarantees; and (6) digital translator grants. The largest of these programs are the infrastructure loan program and the broadband loan program.

61. The infrastructure loan program is technology neutral, requires broadband-capable facilities, and provides financing for infrastructure (e.g., building and equipment), but not financing for the costs of operating the business. Within the infrastructure loan program, there are four types of financing: (1) Hardship loans; (2) cost-of-money loans; (3) rural telephone bank loans; and (4) federal financing bank