

1       **Q.     Please explain your first point of contrast. How are the TELRIC and stand-**  
2       **alone methodologies different?**

3       A.     The TELRIC approach is essentially a long run total costing approach, in which the  
4       total cost of a network is disaggregated into categories (e.g., loops, switching), and then  
5       divided by the relevant level of demand, in order to derive total cost per unit for various  
6       network elements. This costing approach can potentially be used in developing and  
7       maintaining a USF mechanism. However, this is not the only option.

8                 There are at least three other types of long run economic cost which can be  
9       considered by the Commission, and which may provide some useful insights into  
10       universal service questions. The first alternative is stand-alone cost. Stand-alone cost is  
11       defined as the total cost to provide a particular item (e.g., service) in a separate  
12       production process, without the benefit of economies of scope. The costs of producing  
13       several products within a single firm may be less than the sum of the analogous costs  
14       that would be incurred if each of the products were produced separately. The savings  
15       obtained in this manner (through joint or common production processes) are known as  
16       *economies of scope*.

17                A stand-alone cost study focuses on a specified group of services, class of  
18       customers, or geographic area. The study models a network that is designed to serve  
19       the specified group, class or area in isolation (none of the facilities are shared with other  
20       services, customers or geographic areas).

21                For example, the stand-alone cost of providing single-line service to customers  
22       would involve modeling a network which does not include multiple lines, thereby  
23       estimating the cost of providing a single line to every customer without the economies of  
24       scale and scope that arise when multiple lines are provided over the same network.  
25       Analogously, the stand-alone cost of serving a high cost rural area would be estimated  
26       by modeling a network that only serves that area, and which does not serve lower cost  
27       urban areas.

1 Not surprisingly, stand-alone costs per unit tend to be higher than TELRIC,  
2 because the specified group, class, or area bears the entire burden of the cost of the  
3 network infrastructure that is needed to serve that area, class, or group. Joint and  
4 common costs, which are spread or allocated across multiple groups or areas in a  
5 TELRIC study, are borne entirely by the specific group, class, or area that is the focus  
6 of the stand-alone study.

7  
8 **Q. How do incremental cost studies differ from stand-alone cost studies?**

9 A. Incremental cost is the change in total cost resulting from a specified increase or  
10 decrease in the quantity of output (the increment). That is, total cost is measured with  
11 and without the subject increment, and the difference is the incremental cost.  
12 Depending on the goals of the study, the increment can be as large as the entire output  
13 (in which case it is the same as total cost), or as small as a single unit of output (in which  
14 case it roughly corresponds to marginal cost).

15 It can be seen that incremental cost will tend to be less than total cost, and per-  
16 unit incremental cost will also tend to be less than per-unit total cost (e.g. TELRIC),  
17 since various fixed costs of production will be excluded from the incremental cost  
18 calculations. Similarly, incremental costs tend to be less than stand alone costs. In the  
19 long run, it's usually cheaper to add an increment of X units to a production process  
20 than to produce that same X number of units on a stand alone basis. In the  
21 telecommunications industry, this is generally true where an additional increment of the  
22 same service is being produced, due to economies of scale and/or economies of  
23 density, and it may also be true where a different product or service is being produced,  
24 if economies of scope apply.

25

1       **Q.     How do incremental costs relate to the stand-alone costs discussed earlier?**

2       A.     A comparison of stand-alone cost estimates in conjunction with a total cost estimate  
3            (where the firm is producing all relevant products or services) provides a means for  
4            estimating the total service long run incremental cost (TSLRIC) of the service or group  
5            of services that is excluded from the stand alone cost estimate.

6                    The TSLRIC of a service is equal to the firm's total cost of producing all its  
7            services including the service in question, minus the firm's total stand-alone cost of  
8            producing all its services *except* the service in question. In such a comparison, the  
9            service in question is treated as incremental to the firm's other services, which one  
10           assumes would be produced in any event. The implications of this incremental treatment  
11           can be profound, and sometimes surprising. The TSLRIC of a specific service will  
12           typically include few, if any, of the firm's joint and common costs (e.g., general  
13           overhead and administrative expenses), because most of these costs would be incurred  
14           regardless of whether or not the incremental service is produced. And thus, incremental  
15           cost estimates tend to be lower than total or stand alone cost estimates. To the extent  
16           that the addition of a new service (or class of customers, or geographic area) allows the  
17           firm to enjoy increased economies of scope, the benefits of those economies accrue  
18           entirely to the new (incremental) service in such an analysis.

19                   By contrast, the FCC's TELRIC approach, used by the Commission in the  
20           UNE proceedings, tends to spread the benefits of economies of scale, density and  
21           scope across the entire network, including both bundled services and unbundled  
22           elements. This follows directly from the fact that under the TELRIC approach, the cost  
23           of an unbundled element is calculated based upon the entire volume of that element  
24           (including the quantity needed to provide bundled wholesale and retail services), and  
25           the fact that the FCC requires costs that are common to more than one element be  
26           allocated to all such elements. At least in this regard, it is fair to say that the FCC's

1 TELRIC approach is essentially an average or total cost approach, rather than a truly  
2 incremental cost approach.

3  
4 **Q. Is it also possible to apply incremental cost principles to the issues in this**  
5 **proceeding?**

6 A. Yes. Incremental cost principles can be used to compute the additional cost incurred  
7 when a network is expanded (or contracted) to serve (or not serve) virtually any  
8 specified block of customers, geographic area or zone, or specific service. At least in  
9 theory, incremental costing concepts can be applied to virtually any combination of  
10 specific customers, geographic areas, and services. Thus, incremental cost studies can  
11 potentially target whatever portion of the overall telephone network is of particular  
12 interest, ranging all the way down to a contract service arrangement provided to a  
13 single customer at one or two specific geographic locations.

14 Assuming adequate modeling tools are available, it is feasible to analyze the  
15 incremental cost of serving “high cost” (e.g. rural) areas, and/or single line service, or  
16 whatever group of customers or services are the focus of a USF inquiry.

17 Although the guidelines established by the Commission do not require filing of  
18 any incremental cost studies, they do require filing of both total and stand alone cost  
19 studies. In combination, these can be used to develop estimates of the incremental cost  
20 of serving those customers and/or services that are included in the total cost study and  
21 which are excluded from the stand alone cost study.

22 For example, it is possible to model a network that includes all lines (the first  
23 type of study required by the Commission) and compare it to a network that includes  
24 only special access lines plus second and subsequent lines (the second type of study  
25 required by the Commission.) The resulting difference is the incremental cost of  
26 providing just single line service (given that special access and multiple line service  
27 would be provided in any event). Assuming all of the studies are properly developed,

1 the resulting TSLRIC estimate for single line service will be lower than the total cost  
2 estimates (derived from the first type of study) or the stand alone cost estimates  
3 (derived from the second type of study).

4 Similarly, it is possible to determine the TSLRIC of serving the most rural, high  
5 cost portions of the state by modeling two networks—one that provides services to all  
6 subscribers and one that provides services to all subscribers except those in the  
7 specified rural, “high cost” areas. The cost difference between these two represents the  
8 incremental direct costs of expanding the network to encompass these high cost areas.

9 TSLRIC estimates can be useful in public policy and pricing decisions. For  
10 example, any examination of “subsidies” as economists use this term should  
11 appropriately include consideration of one or more TSLRIC studies. TSLRIC estimates  
12 can indicate the presence or absence of subsidies for a specific service or a group of  
13 customers in the aggregate. Similarly, incremental costs can be useful in developing or  
14 examining regulatory or pricing policies applicable to a particular service or group of  
15 customers. Of course, care should be used in interpreting TSLRIC results: joint and  
16 common costs tend to be excluded from TSLRIC estimates, yet these costs must also  
17 be considered in the pricing process, if total costs are to be recovered.

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