California Public Utilities Commission

Universal Service Fund Reform:
An Assessment of Potential Challenges and Opportunities

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1. Introduction

The federal Universal Service Fund is an $8.7 billion program that subsidizes communications services in high cost areas, for low-income customers, and for schools, libraries, and rural health care centers. The Federal Communications Commission will soon begin considering proposals to reform both the manner in which Universal Service Fund revenues are collected from customers, and the types of services eligible for subsidy.[1] The purpose of this paper is to identify the impacts of different reform proposals on California customers.

2. Universal Service

a. History

The United States Congress established universal telecommunications service as a national priority with the passage of the Communications Act of 1934 (Act), which declares in relevant part: "…so as to make available, so far as possible, to all the people of the United States, a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges."[2]

For more than sixty years, universal service was achieved through a system of intra-carrier implicit subsidies, in which communications carriers charged higher rates for some services (e.g., business telephony) in order to keep the rates for other services (e.g., basic residential telephony) artificially low.[3]

With the Communications Act of 1996 (96 Act), Congress directed the Federal Communications Commission (FCC) to establish support mechanisms to ensure that schools, libraries, health care providers, and customers who are low-income or who live in rural, insular, or high-cost areas, have access to affordable telecommunications

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[1] For the purpose of this paper, the Authors assume that the Federal Communications Commission has the necessary jurisdiction to include broadband in the Universal Service Fund, that low-income customers will continue to be exempt from paying USF surcharges, and that California will continue to provide subsidies for telephony in High Cost areas through its in-state High Cost programs.

[2] 47 U.S.C. § 151.

[3] *In the Matter of Federal State Joint Board on Universal Service*, CC Docket No. 96-45, FCC 97-157, (rel. May 8, 1997) at ¶ 10 (USF Order).

services.[4] Congress required that these support mechanisms be explicit, and that "every telecommunications carrier that provides interstate telecommunications services shall contribute . . . to the . . . mechanisms established by the Commission to preserve and advance universal service."[5]

The Universal Service Fund (USF) created by the 96 Act currently supports four programs:

> **High Cost:** provides subsidies to telecommunications service providers in order to ensure that customers in high-cost, hard to serve areas pay rates comparable to rates in easy to serve urban areas;
>
> **Low Income:** provides subsidies to low income customers in order to make basic telephony affordable;
>
> **Schools and Libraries:** subsidizes telecommunications and internet services for schools and libraries; and
>
> **Rural Health Care:** subsidizes telecommunications and internet services for rural health care providers.

Telecommunications carriers contribute a percentage (the "contribution factor") of their interstate and international revenues to the USF, and recover their contributions from customers via a line-item surcharge on customers' bills.

b. USF Reform

Although the USF is only thirteen years old, there are already calls for radical reform. Changes in the telecommunications industry are causing precipitous decline in telecommunications carriers' interstate and international revenues; the increasing use of bundled services blurs the distinction between intrastate and interstate calls, and alternate modes of communication such as email and social networking are replacing long distance calling, further decreasing the revenue stream responsible for supporting the USF at the same time demands on the fund have increased. With the revenue base dwindling and the disbursement side of USF increasing, the contribution factor has risen steadily since the

[4] 47 U.S.C. § 254.
[5] 47 U.S.C. § 254 (d), (e)

USF was established in 1997, rising from 5.7% in fourth quarter 2000[6] to 12.9% in fourth quarter 2010[7] and 15.5% for the first quarter of 2011.[8]

In addition, the USF is not keeping up with advances in technology. The USF is projected to spend $8.7 billion in 2010, $5.8 billion of which will support basic wireline telecommunications services in high cost areas and for low income customers.[9] With the exception of broadband support to schools, libraries, and rural health care providers, the USF is supporting narrowband technology during a broadband revolution.

Specific USF reform proposals have included FCC then-Chairman Kevin Martin's 2008 Draft Proposal,[10] and the Federal-State Joint Board's 2007 recommendations to expand the program to support broadband.[11] USF reform gained traction recently when Congress included provisions in the American Recovery and Reinvestment Act of 2009 (Recovery Act) requiring that the FCC create a National Broadband Plan that "shall seek to ensure that all people of the United States have access to broadband capability and shall establish benchmarks for meeting that goal."[12]

During the FCC staff's work on the National Broadband Plan, in response to comments received in the National Broadband Plan Notice of Inquiry, the FCC issued a Public Notice soliciting focused comment on USF reforms, including, *inter alia*, expanding the

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[6] *In the Matter of Proposed Fourth Quarter 2000 Universal Service Contribution Factor*, CC Docket No. 96-45, DA 00-2065 (rel. September 8, 2000).
[7] *In the Matter of Proposed Fourth Quarter 2010 Universal Service Contribution Factor*, CC Docket 96-45, DA 10-1716 (rel. September 10, 2010).
[8] *Proposed First Quarter 2011 Universal Service Contribution Factor*, CC Docket No. 96-45, DA 10-2344 (rel. December 13, 2010).
[9] Federal Communications Commission staff, *Connecting America: The National Broadband Plan* (rel. March 16, 2010).
[10] *In the Matter of High Cost Universal Service Support, Federal-State Joint Board on Universal Service, Lifeline and Link Up, Universal Service Contribution Methodology, Numbering Resource Optimization, Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Developing a Unified Intercarrier Compensation Regime, Intercarrier Compensation for ISP-bound traffic, IP-enabled Services*, WC Docket Nos. 05-337, 03-109, 06-122, 04-36, CC Docket Nos. 96-45, 99-200, 96-98, 01-92, 99-68, Order on Remand and Report and Order and Further Notice of Proposed Rulemaking, FCC 08-262, Appendix A-Chairman's Draft Proposal (rel. November 5, 2008).
[11] *In the Matter of High-Cost Universal Service Support, Federal-State Joint Board on Universal Service*, WC Docket No. 05-337, CC Docket No. 96-45, FCC 07J-4, Recommended Decision (rel. November 20, 2007).
[12] American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 (2009).

support mechanism to include broadband deployment and a possible modification to the current USF contribution methodology.[13]

The resulting National Broadband Plan (NBP), an FCC staff product, recommends significant USF reform, including broadening the USF contribution base to include assessments on broadband services, shifting funds from the High Cost program into new programs designed to support broadband, and expanding the Lifeline and Link Up programs to subsidize broadband service for low-income customers.[14]

The NBP estimates that it will cost $24 billion to close the broadband availability gap, and recommends shifting $15.5 billion from the High Cost fund over the next decade to support broadband deployment, eliminating the High Cost Fund entirely in 2020 in favor of support for deployment and provision of advanced services, e.g., broadband that offers high quality voice service.[15]

In a statement released concurrently with the National Broadband Plan, the FCC affirmed staff's recommendations for USF reform, stating that "the nearly $9 billion Universal Service Fund (USF) and the intercarrier compensation (ICC) system should be comprehensively reformed to increase accountability and efficiency, encourage targeted investment in broadband infrastructure, and emphasize the importance of broadband to the future of these programs."[16] Subsequently, the FCC added rulemakings examining USF transformation and contributions methodology reform to its action agenda and implementation schedule, and on February 8, 2011, the FCC unanimously approved an NPRM which will modernize the USF by migrating High Cost Support to broadband services and reforming intercarrier compensation.[17]

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[13] FCC Public Notice No. 19, *Comment Sought on the Role of the Universal Service Fund and Intercarrier Compensation in the National Broadband Plan*, GN Docket Nos. 09-47, 09-51, 09-137, DA 09-2419 (rel. November 13, 2009.)
[14] *Connecting America: The National Broadband Plan*, Chapters 8 and 9 (rel. March 16, 2010).
[15] NBP at Chapter 8.
[16] *In the Matter of Joint Statement on Broadband*, GN Docket No. 10-66, FCC 10-42 (rel. March 16, 2010) at 2.
[17] Federal Communications Commission Broadband Action Plan Agenda Implementation Schedule, available at http://www.broadband.gov/plan/chart-of-key-broadband-action-agenda-items.pdf

3. Factors Influencing USF Reform in California

a. Complementary programs

California maintains separate, complementary in-state subsidy programs for communications services, including Life Line low-income and High Cost programs, which are funded with a percentage of communications carriers' intrastate telecommunications revenue and collected via surcharges on customers' bills.

The USF currently subsidizes basic telephony in hard to serve, high cost areas via the High Cost fund, and the NBP recommended shifting support away from the High Cost fund in favor of subsidizing broadband services.

California customers are therefore contributing to two High Cost programs: a federal program based on interstate and international revenues and supporting high cost services nationwide, and a state program based on intrastate revenues and supporting High Cost services in California. The California High Cost program for small carriers makes carrier recipients whole in the event of a reduction of federal USF support, and unless California revises its High Cost program, California customers will have to pay higher in-state subsidy surcharges to reimburse small carriers for any USF High Cost support withdrawn and reallocated to broadband.

b. Demographics

California has unique demographics which will magnify the effects of any alteration in federal communication support. California has 12% of the country's population, but one third of the nation's welfare recipients, suggesting a heavy subscribership to telephony and broadband low-income subsidy programs and a disproportionate burden on California customers paying state and federal surcharges and undiscounted rates.[18]

[18] California population: 36,756,666; USA population: 304,059,724 (2008 estimates) http://quickfacts.census.gov/qfd/states/06000.html. USA TANF caseload: 4,027,328; CA TANF caseload: 1,307,832 (2009 prelim) http://www.acf.hhs.gov/programs/ofa/data-reports/caseload/2009/2009_recipient_tan.htm

In addition, in 2011, the first members of the Baby Boomer age cohort turn 65. According to the California Department of Aging, California's elderly population is expected to grow more than twice as fast as the general population between 1990 and 2020, with the oldest age population (aged 85 years and over) growing twice as fast as the overall elderly population.[19] The increase in the elderly population, especially the over-85 population, will likely be accompanied by an increased demand for services supported by the USF and California's in-state surcharges, including the LifeLine low-income subsidy program and the Deaf and Disabled Telecommunications program, and will further challenge the funds' revenue balances.

4. Opportunities for Reform

USF reform may have significant impacts on California customers. California is already a net payer state; in 2009, California contributed $822,527,000 to the USF (11%) and received $583,849,000 back in distributions (8%), for a negative dollar flow of $238,678,000.[20]

Changes in the contribution methodology will redistribute the burden of supporting the USF, potentially resulting in some customers paying increased USF fees, some customers paying reduced USF fees, and some customers paying USF fees for the first time. Changes in the USF contribution methodology may also result in California customers as a whole being responsible for a greater share of the national USF fund.

In addition, changes in the services supported by USF may adversely impact customers who rely on currently supported services, and expanding the USF to include broadband support may increase the financial burden on California customers if the size of the USF increases or if the USF's distributions to California decrease.

[19] http://www.aging.ca.gov/stats/fact_about_elderly.asp
[20] *Universal Service Monitoring Report 2010*, Prepared by Federal and State Staff for the Federal-State Joint Board on Universal Service, CC Docket No. 98-202, CC Docket No. 96-45, Table 1.12.

At the very least, USF reform must not increase California's share of national USF payments; ideally, USF reform will equalize California's USF balance, so that California customers benefit fully from their USF contributions.

In order to evaluate the California-specific impact of USF reform, this paper considers ways of protecting California customers' interests through both contribution-side reform and distribution-side reform, taking into account the interests of the customers who pay USF surcharges and undiscounted rates as well as customers who directly benefit from USF programs. On the contribution side, we examine scenarios that have appeared in prior USF reform proposals, including: a numbers-based contribution methodology, an expanded revenue-based contribution methodology including telecommunications and broadband revenue, and a hybrid numbers-connections based contributions methodology, and compare them to the current revenue-based methodology. Our analysis assumes that the FCC will expand the USF to provide financial support for broadband internet access, and that telecommunications carriers will pass their USF assessments along to their customers via symmetrical line-item surcharges. Where data were available, we evaluate the different contribution methodologies according to their respective impacts on California's USF payment imbalance, as well as according to the following qualitative values:

Proportionality: Contributions and receipts are balanced and proportional within each state and/or each industry segment.

Predictability: The methodology will avoid "surcharge shock," enabling communications providers and customers to know how much they will be required to contribute to the USF each month.

Stability: Near-term technological changes will not require frequent updates to the contribution methodology.

Technological neutrality: To the extent that USF contributions are assessed on a given service, e.g., voice or broadband internet access, contributions are assessed on all technological means of obtaining that service.

Progressivity: The methodology collects less revenue from customers least able to pay, and places a greater share of the surcharge burden on customers with higher incomes.

Administrative ease: The methodology is straightforward, with minimal embedded regulatory assumptions or requirements, e.g. a "safe harbor" minimum

USF contribution for customers whose interstate and intrastate telecommunications usage cannot be distinguished.

On the distribution-side, we consider the impact of certain FCC staff assumptions on the size of the broadband availability gap, the impact of federal reform on state activities, and different options for right-sizing California's USF receipts relative to its contributions.

a. Contribution-Side Reform Proposals:

i. Interstate and International Revenues

The USF is currently funded with a percentage of communications providers' interstate and international telecommunications revenues. The methodology achieves progressivity by keeping customers' USF contributions roughly proportional to their network usage, with low income customers who are the lowest users paying the lowest USF surcharges.[21]

Compared to a methodology based on a flat monthly fee, a revenues-based methodology is not predictable, because communications providers and their customers will see their USF payments change month to month in response to usage. This methodology will cease being proportional if the USF is expanded to support broadband, because the methodology only assesses telecommunications revenues.

This methodology has also proven unstable, as declining interstate revenues have required dramatic increases in the contribution factor. The methodology is not technology-neutral, as some methods of voice communications, including peer to peer services such as Skype, are beyond the reach of USF assessments. Finally, this methodology is administratively cumbersome, and regulatory safe harbors have been imposed to account for the difficulty in distinguishing between assessable and non-assessable revenue streams.

[21] The progressivity of a methodology based on network usage depends on the assumption that income correlates with usage, with low-income customers having the lowest usage rates.

ii. Expanded Revenue Base

If broadband subsidies are included in the USF and the revenue base is expanded to include broadband revenues, the methodology would demonstrate proportionality between the industries and services subject to assessment and those eligible for subsidies. A revenues-based methodology is also progressive, as customers with lower bills pay less than customers with higher bills and higher network usage. Assuming that broadband is jurisdictionally interstate,[22] an expanded revenue base would improve the USF's overall administrability by avoiding the need to distinguish between interstate and intrastate components of broadband revenue. Finally, expanding the revenue base to include broadband revenues would improve the stability of the USF by providing an enduring revenue base and matching the assessable revenue stream with policy objectives.

However, any revenue-based methodology offers less predictability for carriers and customers, as their monthly USF payments rise and fall each month in response to billing. And the telecommunications portion of the expanded revenue base methodology will still require carriers to distinguish between assessable and non-assessable revenue streams or employ a regulatory safe harbor calculation to determine their customers' USF surcharges. Finally, an expanded revenue base would not capture intermodal communications options beyond the FCC's jurisdiction, such as Skype, and therefore this methodology is not technologically neutral.

iii. Numbers-Based Contributions

At its simplest, a numbers-based contribution methodology, such as that proposed by AT&T and Verizon in a joint 2008 ex parte presentation to the FCC[23], would assess communications carriers a flat monthly fee for every working North American

[22] If broadband is not jurisdictionally interstate, then the administrative difficulty in distinguishing between assessable and non-assessable revenue streams will apply to this methodology.
[23] *In the Matter of Universal Service Contribution Methodology*, WC Docket No. 06-122, *In the Matter of the Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, *ex parte* (September 11, 2008)

Numbering Plan (NANP) telephone number the carrier has assigned to an end-user customer ("assigned number").[24]

According to the FCC's most recent telephone number utilization report, there are 80,655,000 telephone numbers assigned in California, and 672,472,000 telephone numbers assigned nationwide.[25]

AT&T and Verizon estimate that a numbers-based USF contribution will be between $1.00 and $1.10 per telephone number, per month. Assuming a monthly USF surcharge of $1.00 per telephone number, and assuming that all assigned numbers are assessed a USF surcharge, the national USF revenue flow would look like this:

(672,472,000 numbers assigned nationally x $1.00) x (12 months) = $8,069,664,000

California's share would be:

(80,655,000 numbers assigned in California x $1.00) x (12 months) = $967,860,000

Under this scenario, California's share of national USF contributions would rise from 11% to 12%, aggravating California's USF payment imbalance, and California's contributions would rise from $822,527,000 to $967,860,000.

However, it is likely that some assigned numbers would not be assessed a USF surcharge. For example, the AT&T/Verizon proposal would exempt administrative numbers and numbers assigned to LifeLine customers from the surcharge, and would collect surcharges from pre-paid wireless numbers and non-primary family plan numbers differently. Therefore, it is likely that the class of assessable telephone numbers will be smaller than the sum of all assigned telephone numbers, necessitating a higher monthly surcharge per telephone number to generate the same $8 billion revenue stream.

Exempting certain classes of telephone numbers from the USF surcharge is unlikely to significantly alter California's share of national USF contributions or alleviate California's USF payment imbalance. For example, in 2009 California received 18.9% of

[24] A working telephone number is a number that allows customers to make and receive calls.
[25] *Number Resource Utilization in the United States*, Federal Communications Commission Industry Analysis and Technology Division and Wireline Competition Bureau, January 2011, at p. 16.

USF Low Income Support distributions,[26] an amount disproportionate to California's share of assigned telephone numbers (12%) and its share of the national population (12%). As of March 2010, there were 1,886,000 Lifeline customers in California; assuming one number per Lifeline customer and a USF surcharge of $1 per number per month, exempting Lifeline customers' telephone numbers from the USF surcharge will reduce California's contributions by $22,632,000 per year, a substantial sum but only 2.3% of California's total projected contribution under a numbers-based contribution methodology.

A numbers-based contribution methodology would be easy for telecommunications carriers to administer, as they would no longer be required to separate out assessable revenue streams within bundled service packages. It would also be predictable for telecommunications carriers and their customers, as their USF charge would be the same each month no matter their charges for interstate and international calling services. A numbers-based contribution methodology would also be relatively stable, because NANP telephone numbers are likely to remain a part of the telecommunications ecosystem for years to come.

However, a numbers-based contribution methodology would still focus the contribution base on one service, voice, even as the FCC considers adding broadband to the services subsidized. Furthermore, services such as Skype[27] that assign non-NANP numbers to allow their customers to make and receive calls would continue to be exempt from USF contributions, and would therefore have a competitive cost advantage over voice services subject to USF assessments. Finally, a numbers-based contribution methodology, in which every customer pays the same USF surcharge per telephone number, is regressive compared to a revenue-based methodology, in which customers who use more revenue-generating services pay a higher surcharge.[28] Numbers-based USF contributions would

[26] Universal Service Administrative Company 2009 Annual Report, available at http://www.lifelinesupport.org/_res/documents/about/pdf/usac-annual-report-2009.pdf
[27] Skype currently carries approximately 20% of all international voice minutes. http://skypejournal.com/blog/2011/01/11/skype-grows-to-20-of-all-international-minutes-called-in-2010/
[28] In their September 11, 2008 *ex parte* numbers-based contribution methodology proposal, AT&T and Verizon estimate that the residential share of the overall USF contribution burden will fall from 50% to 46%, and the business share will rise from 50% to 54%.

be volumetrically progressive, because customers who have more than one telephone number would pay a greater sum of USF surcharges, but regressivity persists at the individual telephone number level because customers with the same quantity of telephone numbers will pay the same USF surcharges regardless of usage.

iv. Hybrid Numbers-Connections

A hybrid numbers-connections contribution methodology has been proposed by the FCC as the Chairman's Draft Proposal, an Alternative Proposal, and a Narrow Universal Service Reform Proposal,[29] as well as by AT&T and Verizon as a less-favored alternative to a pure numbers-based contribution methodology.[30] Although the four proposals varied in their levels of detail, telecommunications carriers would be assessed two separate USF charges: a fixed monthly fee per telephone number (in the FCC Chairman's and Alternative Proposals, the assessment would apply to numbers assigned to residential customers only), and a fixed monthly fee based on assessable connections, defined as:

> *An interstate telecommunications service or an interstate service with a telecommunications component that connects a business Final Customer's physical location (e.g., premises) on a dedicated basis to the Contributor's network. An Assessable Connection, therefore, is any connection that provides bandwidth to connect a business Final Customer to a Contributor's network, independent of the underlying architecture, protocol or the physical transmission media, or how it is used.*[31]

In the AT&T and Verizon proposal, working telephone numbers assigned to end-user customers would be assessed a USF contribution of $0.85 per number per month, and assessable connections would be assessed USF contributions on a tiered basis:

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[29] *In the Matter of High Cost Universal Service Support, Federal-State Joint Board on Universal Service, Lifeline and Link Up, Universal Service Contribution Methodology, Numbering Resource Optimization, Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Developing a Unified Intercarrier Compensation Regime, Intercarrier Compensation for ISP-bound traffic, IP-enabled Services*, WC Docket Nos. 05-337, 03-109, 06-122, 04-36, CC Docket Nos. 96-45, 99-200, 96-98, 01-92, 99-68, Order on Remand and Report and Order and Further Notice of Proposed Rulemaking, FCC 08-262, Appendices A, B, and C (rel. November 5, 2008).

[30] *In the Matter of Universal Service Contribution Methodology*, WC Docket No. 06-122, *In the Matter of the Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, *ex parte*, (October 20, 2008).

[31] *In the Matter of Universal Service Contribution Methodology, WC Docket No. 06-122; In the Matter of Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, AT&T *ex parte*, October 29, 2008.

Tier 1: dedicated connections up to and including 25 mbps @ $2.00 per connection per month;

Tier 2: dedicated connections over 25 mbps up to and including 100 mbps @ $15.00 per connection per month;

Tier 3: dedicated connections over 100 mbps @ $250.00 per connection per month.

A hybrid numbers-connections methodology offers predictability for customers, as their USF surcharges would be the same each month regardless of usage. In addition, by assessing contributions on dedicated connections, this hybrid model anticipates the inclusion of broadband as a supported service, providing greater proportionality between USF's contribution and distribution sides by collecting revenues from both voice and data services. In addition, it is unlikely that the quantity of telephone numbers and dedicated connections will fluctuate as dramatically as interstate and international revenues, thus providing a degree of stability to USF contributions and delaying the date on which technological change will necessitate further USF reform.

By assessing USF surcharges only on the subset of voice services completed via NANP numbers, this methodology will fail to reach voice services provided with non-NANP numbers, such as Skype, thus the methodology is not technologically neutral.

Although the numbers-based portion of this hybrid model is still arguably less progressive than a revenues-based model, AT&T and Verizon estimate that under their hybrid numbers-connections methodology, the residential share of USF contributions would fall to 38%, and the business share would rise to 62%. If this distribution obtains in practice, the reduced contribution burden on residential customers restores a substantial degree of progressivity to the model.

v. Summary

	Contribution Methodologies			
Evaluation Criteria	Interstate/International Telecom Revenues	Expanded Revenue Base	Numbers	Hybrid Numbers - Connections
Proportionality	N	Y	N	Y
Predictability	N	N	Y	Y
Stability	N	Y	Y	Y
Technological Neutrality	N	N	N	N
Progressivity	Y	Y	N	Y
Administrative Ease	N	N	Y	Y

The chart above compares the contribution methodology reform proposals against each other with respect to the qualitative evaluation criteria.

None of the proposals are technologically neutral, but only the hybrid numbers-connections proposal satisfies the remainder of the qualitative criteria. The hybrid proposal is proportional, predictable, stable, administratively simple, and is progressive in that it places the majority of the USF support burden on business customers.

The hybrid methodology places USF support obligations on the legacy communications infrastructure (NANP telephone numbers) and on next-generation infrastructure (tiered dedicated connections), making it an ideal transitional support mechanism as communications technologies and government support systems continue the migration away from digital networks to IP. The hybrid methodology provides the communications

industry with a learning curve that anticipates future developments in technology, allowing communications providers to learn from the experience of collecting surcharges from business dedicated connections so that the industry is in a better position to adapt when the legacy network is no longer used by customers nor subsidized by the government.

b. Distribution-Side Reform:
i. Right-sizing Contributions and Receipts

The NBP estimates that closing the broadband availability gap will cost approximately $24 billion. According to a study by the Alliance for Public Technologies and the Communications Workers of America, there is considerable divergence in state efforts to support broadband deployment, with some states acting in a purely advisory role and other states, like California, committing hundreds of millions of dollars toward the effort.[32] As a result, the broadband availability gap is likely to be unevenly distributed among the states, with some states residents' already having borne the financial burden of accelerated broadband deployment and other states' residents having paid little but having a greater unmet need.

California's share of the broadband availability gap is 5.6%.[33] By comparison, California has 12% of the United States' population, so its share of the broadband availability gap is disproportionately low. A disproportionately low share of the broadband availability gap will translate to a disproportionately low share of USF funds flowing back to California, and a worsening of California's net payer status.

The small broadband investment gap in California is not due to chance, but is a function of California's pre-existing commitment to advanced services deployment. For example,

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[32] State Broadband Initiatives (2009), available at www.thebroadbandresourcecenter.org/apt/publications/reports-studies/state_broadband_initiatives.pdf

[33] *The Broadband Availability Gap*, OBI Technical Paper No.1, at http://download.broadband.gov/plan/the-broadband-availability-gap-obi-technical-paper-no-1.pdf p1; supported by the Broadband Assessment Model, at http://download.broadband.gov/plan/fcc-omnibus-broadband-initiative-(obi)-working-reports-series-technical-paper-broadband-assessment-model.pdf. California's share was calculated using the tabular data supporting the Broadband Investment Gap map at http://www.broadband.gov/maps/availability.htm

between 2008 and 2010, California customers contributed $100 million toward the deployment of advanced services in unserved and underserved areas through the California Advanced Services Fund.[34]

If the USF is expanded to subsidize broadband deployment, then the fund must be carefully designed so that it does not result in a disincentive to state and local early actors, such as California, which have already invested state resources in broadband.

If distributions are made solely on the basis of need, without regard to a state's prior financial contributions toward broadband, then California residents will pay for broadband twice; once for state-level programs to support broadband deployment in California, and a second time, via USF fees, to support broadband deployment in other states which may have greater need but whose residents have not borne the same burden as Californians. This double burden would act as an early action penalty, and state and local governments would learn that it is better to wait for the federal government to take action on a given issue than to be pro-active and risk forcing their constituents to pay twice for a national goal.

To avoid this perverse disincentive, Universal Service funds intended for broadband could be awarded to states on a block grant basis, to be used for either broadband infrastructure deployment or broadband adoption efforts. In the alternative, states could be awarded a minimum base amount, with additional funds awarded on the basis of state matching funds, unserved households, or some combination of the two.

ii. Technology Mix

The NBP estimates that there are 7 million households in American without access to broadband infrastructure, and that the cost of addressing this broadband availability gap is $24 billion. Although the NBP recommends that the FCC consider "alternative approaches, such as satellite broadband, for addressing the most costly areas of the country to minimize the contribution burden on customers across America,"[35] the $24

[34] *Interim Order Implementing California Advanced Services Fund*, R.06-06-028 (December 21, 2007).
[35] NBP Chapter 8, Recommendation 8.13.

billion estimated cost of closing the broadband availability gap excludes the satellite option and assumes that only terrestrial technologies will be used to close the gap.[36]

By excluding satellite broadband from the options available to close to broadband availability gap, the NBP is classifying some households that are already served by satellite broadband as "unserved," a reclassification which will cost customers billions of dollars.

Remarkably, the cost of deploying broadband to the 250,000 hardest-to-serve households approaches $14 billion, or $56,000 per household. The NBP's Omnibus Broadband Initiative (OBI) Technical Paper estimated that if broadband is deployed to the last 250,000 hardest-to-serve households via satellite instead of terrestrial technology, the cost of addressing broadband availability gap for these households would drop by more than $2 billion, nearly 10% of the total broadband availability gap, to $10.1 billion.

In adopting USF reform, the FCC must be mindful to protect the interests of the customers who are paying into the fund as well as those who are benefiting from the fund. Universal service is a costly goal, and if there are options to reduce the financial burden on customers while still achieving broadband deployment goals, those options should be considered.

Furthermore, excluding satellite broadband from the technology mix will distort the market; by directing subsidies and customers to competing technologies, the FCC will chill investment in satellite services and inhibit satellite broadband's ability to ever compete with terrestrial broadband.

5. Recommendations

A hybrid numbers-connections methodology, specifically one in which all customers pay a flat assessment per number and business customers pay an assessment on each dedicated connection, strikes the proper balance between progressivity, predictability,

[36] NBP Chapter 8, at 137.

technological neutrality, proportionality, and administrative ease, and would provide a stable funding stream for USF programs relatively immune from technological changes.

Although USF contribution methodologies have the potential to redistribute the responsibility for USF contributions among different classes of users, the greatest impact on California customers as a whole will come from distribution-side reform.

USF reform must not disadvantage states that have already invested in broadband deployment by basing broadband distributions solely on unserved households. In order to avoid penalizing states like California which are both net payers and early actors, broadband distributions should be awarded as block grants to be used for broadband deployment or adoption efforts, or should be based on a guaranteed minimum with credit for state matching funds or unserved households.

Finally, the FCC should add satellite broadband to the technology mix for reducing the broadband availability gap.

6. Conclusion

America's enduring commitment to universal service is a success story, albeit a story which is still being written as technological advancements open up new vistas of opportunity in every area of civic life. As the FCC acts to bring the benefits of the technological revolution to every American, the FCC must remain mindful that universal service is not a costless exercise, and that customers who are responsible for paying USF surcharges have interests just as compelling and just as worthy of protection as the customers who stand to directly benefit from the deployment of new technologies. In addition, the FCC must remember that technology is fluid, and although its policy objectives may be accomplished more quickly by concentrating subsidy flows on some technologies and excluding others, this act of picking technological winners and losers will change America's technological landscape forever in ways that we cannot predict.