



May 17, 2019

**Ex Parte**

Marlene H. Dortch, Secretary  
Federal Communications Commission  
445 12th Street SW  
Washington, DC 20554

Re: *Transforming the 2.5 GHz Band*, WT Docket No. 18-120

Dear Ms. Dortch:

On Wednesday, May 15, 2019, Dr. Raul Katz, President of Telecom Advisory Services LLC and Director of Business Strategy Research at the Columbia Institute for Tele-Information; John Windhausen, Executive Director, Schools, Health & Libraries Broadband (SHLB) Coalition; Mark Colwell, Director of Telecommunications Strategy at Voqal; Katherine Messier, Executive Director, Mobile Beacon; Missy Green of the State Educational Technology Directors Association (SETDA); and Paul Caritj and Stephanie Weiner, Counsel for Voqal and Mobile Beacon met with Wireless Telecommunications Bureau (WTB) Chief Donald Stockdale and the following WTB and Office of Economics and Analytics (OEA) representatives: Evan Kwerel, Patrick DeGraba, Paul LaFontaine, Christiaan Segura, Blaise Scinto, John Schauble, Matthew Pearl, Catherine Schroeder, Martha Stancill, and, via telephone: WTB Deputy Bureau Chief Dana Shaffer, Nadia Sodos-Wallace, and Nancy Zaczek. Separately, Dr. Katz, Mr. Windhausen, Ms. Messier, Mr. Caritj, and Ms. Weiner met with Erin McGrath, Wireless Legal Advisor for Commissioner Michael O’Rielly.

In these meetings, Dr. Katz presented the preliminary results of his analysis of the social and economic impacts of allocating the approximately 4,000 EBS licenses that remain available through priority windows as compared to an overlay auction.<sup>1</sup> While the full study will be available and added to the record shortly, these preliminary results conclusively demonstrate that licensing EBS through priority windows, as compared to commercial auctions, provides significant benefits with respect to reducing the digital divide, increasing GDP by an estimated \$70.93 billion, shrinking the homework gap, reducing high school dropout rates, and increasing consumer surplus. By contrast, using the BRS 2.5 GHz auction as a model, Dr. Katz’s analysis

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<sup>1</sup> See attached presentation. Dr. Katz presented these results earlier in the day as a part of the 2<sup>nd</sup> National Annual Summit on Digital Equity and Economic Inclusion held at the National Education Association on May 14-15. See National Collaborative for Digital Equity, *2nd Annual Invitational Summit on Digital Equity & Economic Inclusion*, <https://www.digitalequity.us/national-summit.html> (last visited May 17, 2019).

Ms. Marlene H. Dortch

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estimates that an overlay auction of the similarly encumbered EBS spectrum would raise only approximately \$52.25 million.

In light of this new analysis and the other issues raised in recent filings,<sup>2</sup> we reiterated that the Commission cannot reasonably move forward on the EBS rulemaking until it has a complete record on which to base its decision. Specifically, we urged that WTB and OEA issue a joint public notice requesting additional comment in this proceeding, including on Dr. Katz's analysis. Dr. Katz's economic study is the only authentic economic analysis on the record, and an opportunity for formal comment and reply is needed to develop a record on this evidence. Given the importance of the public interest issues raised by this proceeding, the Commission should take the time to get EBS right.

Sincerely,



John Windhausen, Jr.

Executive Director

Schools, Health & Libraries Broadband (SHLB)  
Coalition

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Washington, DC 20036

[www.shlb.org](http://www.shlb.org)

Attachment

Cc: Donald Stockdale  
Evan Kwerel  
Patrick DeGraba  
Paul LaFontaine  
Christiaan Segura  
Blaise Scinto  
John Schauble  
Matthew Pearl  
Catherine Schroeder  
Martha Stancill  
Dana Shaffer  
Nadia Sodos-Wallace  
Nancy Zaczek  
Erin McGrath

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<sup>2</sup> See Letter from John Windhausen, Jr., Executive Director, Schools, Health & Libraries Broadband (SHLB) Coalition, et. al., to Marlene H. Dortch, Secretary, FCC, WT Docket No. 18-120 (filed May 13, 2019); Letter from Candice Dodson, Executive Director, SETDA & Keith Krueger, Chief Executive Officer, CoSN, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 18-120 (filed May 15, 2019).

# THE ECONOMIC BENEFITS OF KEEPING THE “E” IN EBS:

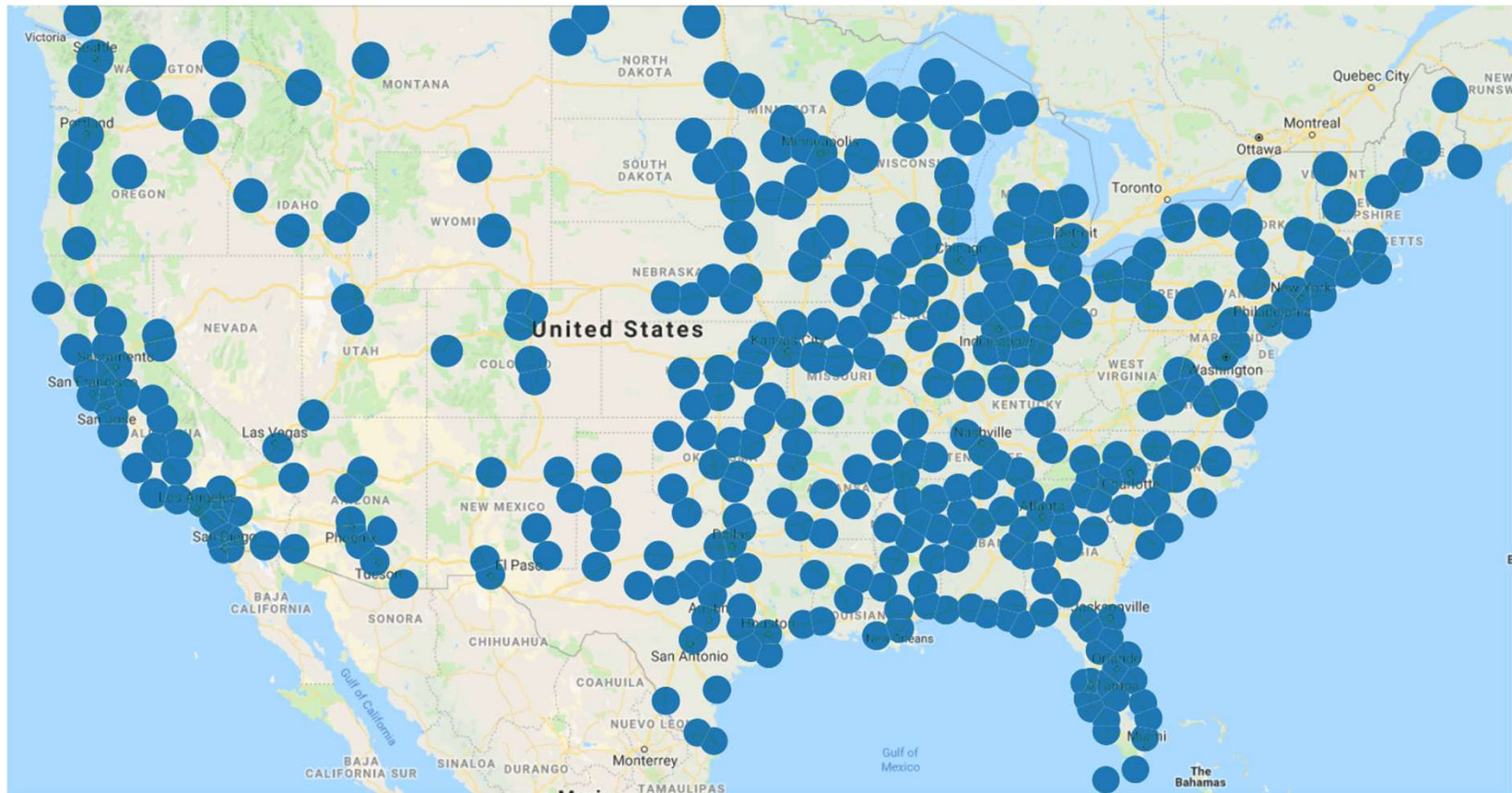
## A COMPARISON OF LICENSING UNASSIGNED EBS TO EDUCATORS AND NONPROFITS VS. COMMERCIAL AUCTIONS



**Telecom Advisory Services, LLC**

*Washington DC, May 15, 2019*

## CURRENT EDUCATIONAL BROADBAND SERVICE LICENSES



Source: FCC Universal Licensing System Data

## PURPOSE OF STUDY:

### ASSESS THE ECONOMIC AND SOCIAL VALUE OF EXTENDING THE CURRENT LICENSING REGIME

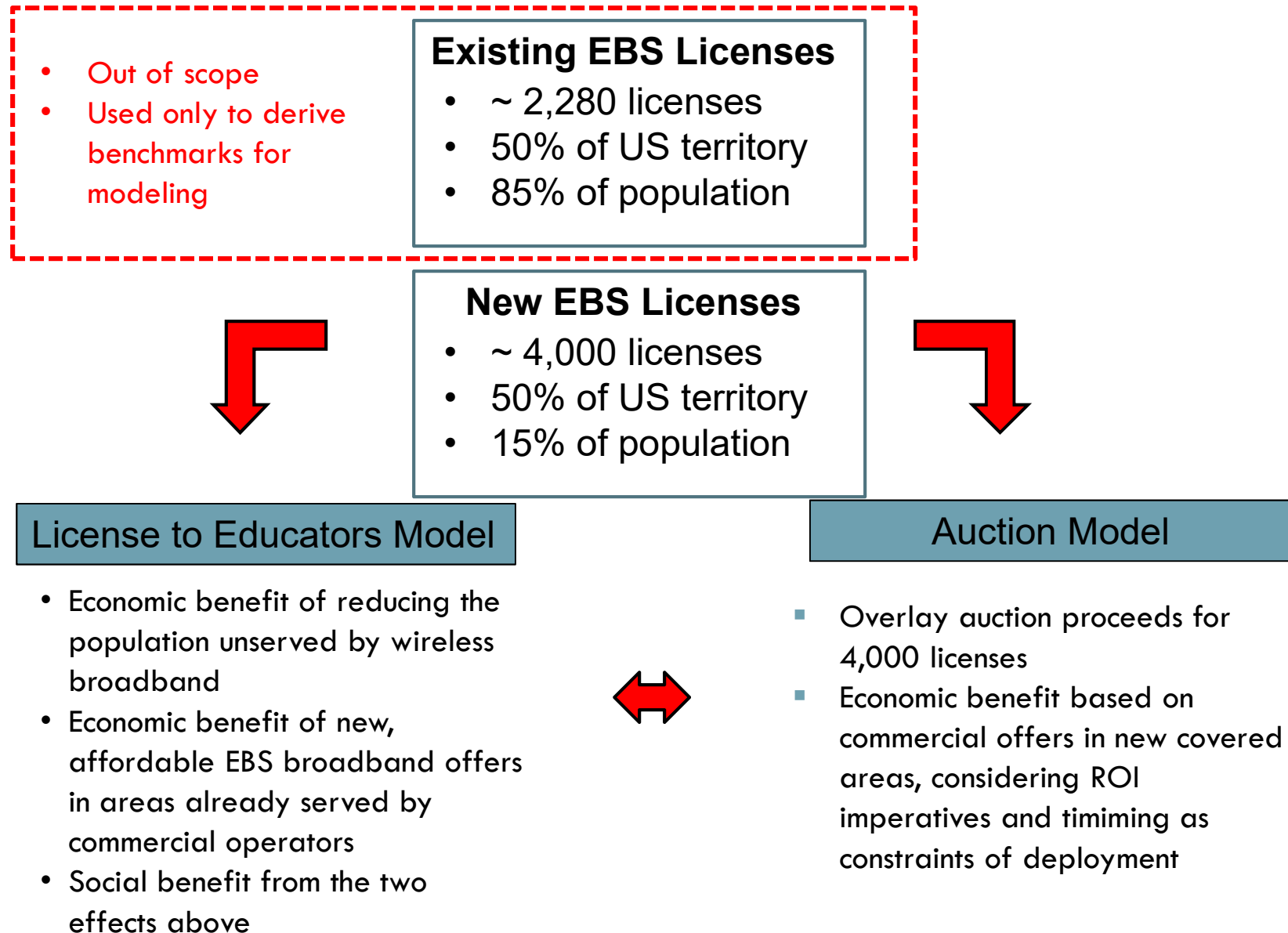
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- The FCC is considering various proposals for licensing the remaining 4,000 EBS licenses (“EBS white space”)
- This study considers two proposals:
  - A baseline proposal would **assign the remaining licenses to educational organizations and/or tribal nations**, as it was done before
  - As an alternative, others propose that remaining EBS white space be **auctioned to commercial providers** while simultaneously eliminating all requirements that this spectrum is used for educational purposes
- The FCC also recommends that current EBS licensees be allowed to sell their licenses to commercial operators

## KEY STUDY ISSUES

- What is the economic and social value of extending the current EBS licensing regime to educational institutions/tribes?
- What comparable value would be generated if the licenses are auctioned to commercial operators instead?

THE STUDY IS BASED ON ESTIMATING SOCIO-ECONOMIC TRADE-OFFS OF ASSIGNING ~4,000 2.5 GHZ LICENSES THROUGH EITHER CURRENT EBS RULES OR AN OVERLAY AUCTION



## SIX SOURCES OF SOCIAL AND ECONOMIC VALUE TO BE ASSESSED

	Current Situation	Key question
Reduction of digital divide	<ul style="list-style-type: none"> <li>• Wireless broadband penetration: 85% (GSMA)</li> <li>• 78 unserved counties and 141 partially served counties (Form 477)</li> <li>• Rural county coverage: 50% (Opensignal)</li> </ul>	<ul style="list-style-type: none"> <li>• Which option more effectively reduces the digital divide?</li> </ul>
Increase in GDP	<ul style="list-style-type: none"> <li>• US GDP \$ 19.39 trillion (World Bank)</li> </ul>	<ul style="list-style-type: none"> <li>• Which option generates the largest externalities impacting the GDP?</li> </ul>
Reduction of homework gap	<ul style="list-style-type: none"> <li>• 5,013,242 children under 18 years old no broadband subscription (ACS 2017)</li> <li>• 2,036,753 children under 18 reside in a household without a computer (ACS 2017)</li> </ul>	<ul style="list-style-type: none"> <li>• Which option has the highest reduction of the homework gap?</li> </ul>
Reduction of high school attrition	<ul style="list-style-type: none"> <li>• 7.4% high school dropout rate (National Center of Education Statistics)</li> <li>• 70% of high school graduates apply to college but 1 in 5 quit (Dept. of Education)</li> </ul>	<ul style="list-style-type: none"> <li>• Which option has the highest impact on reduction of high school attrition?</li> </ul>
Economic Surplus	<ul style="list-style-type: none"> <li>• Most affordable LTE plan: \$20(*) (3.5% of monthly income of first decile)</li> <li>• Public libraries use 266 GB per month, interested in saving in data consumption</li> </ul>	<ul style="list-style-type: none"> <li>• Which option increases wireless broadband affordability?</li> </ul>
Contribution to Treasury	<ul style="list-style-type: none"> <li>• The FCC collected \$21.267 billion in 2017-18 spectrum auctions</li> </ul>	<ul style="list-style-type: none"> <li>• What is the contribution to the Treasury of each option?</li> </ul>

\* Verizon Connected Device Ellipsis Hotspot service for US\$ 20 monthly

## ASSESSMENT OF OF ECONOMIC AND SOCIAL VALUE

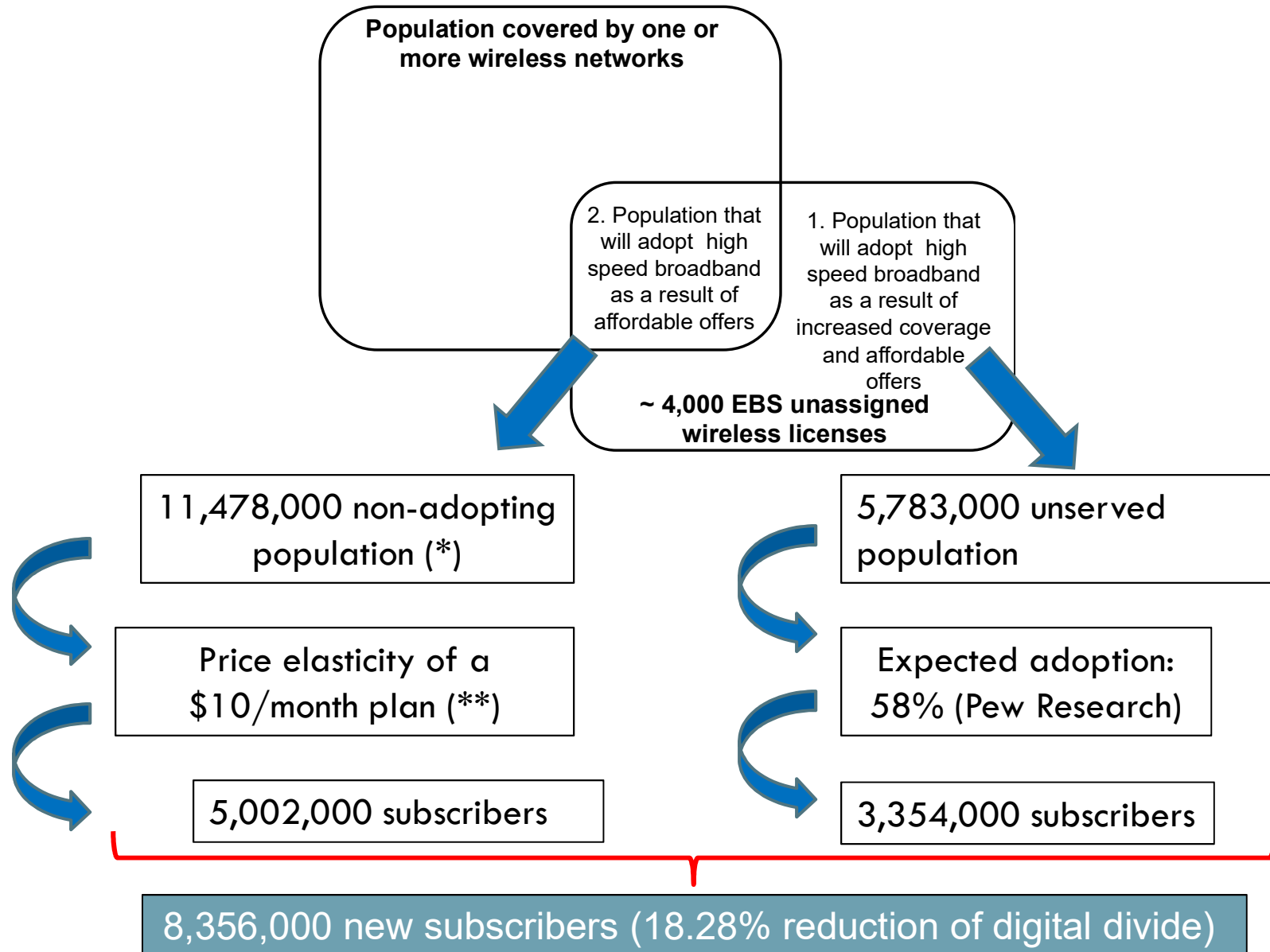
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- Reduction of the digital divide
  - Contribution to GDP
  - Reduction of the homework gap
  - Reduction of high school attrition
  - Economic surplus
  - Contribution to Treasury



## REDUCTION OF THE DIGITAL DIVIDE:

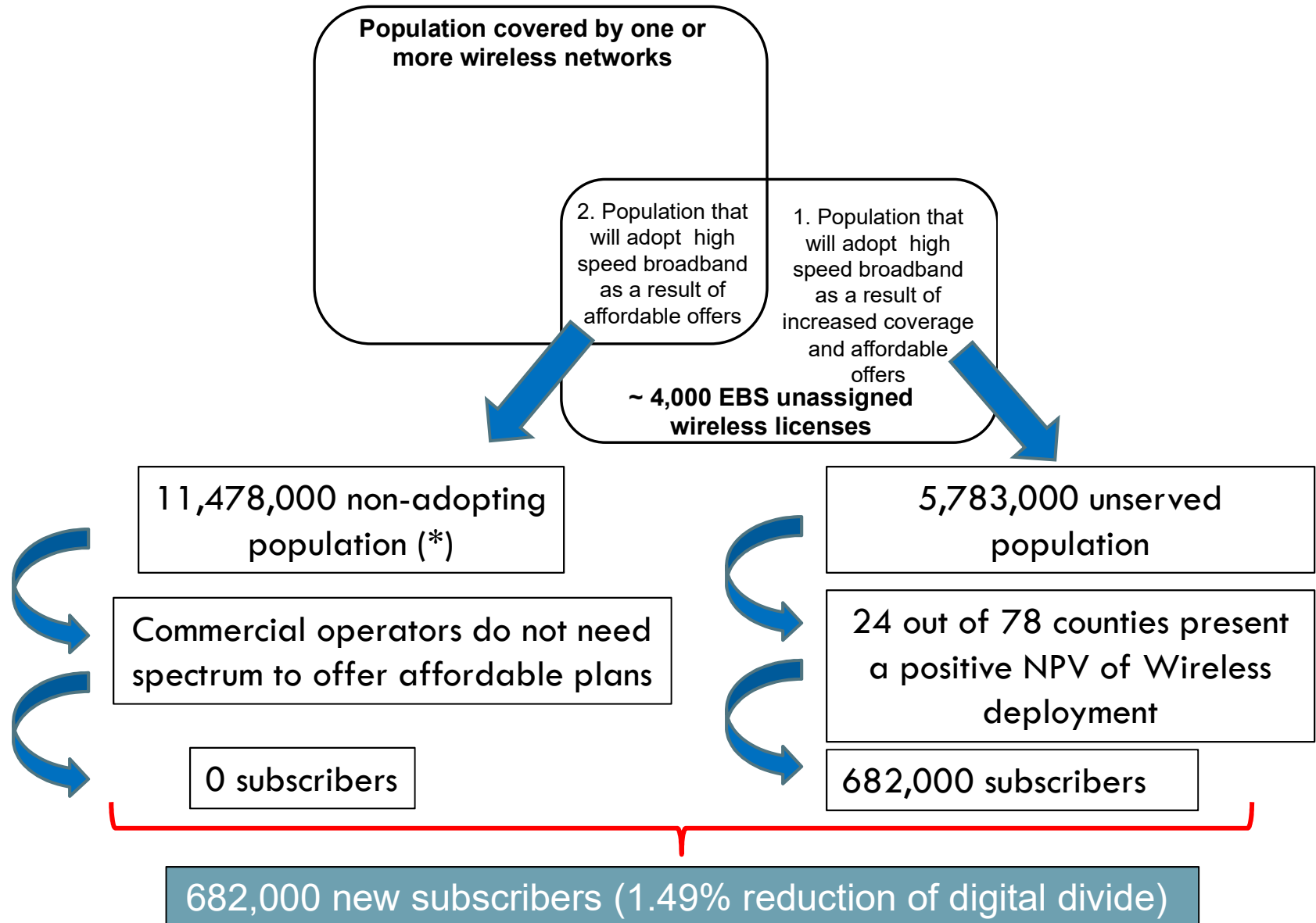
MODERNIZING THE EBS LICENSING MODEL COULD REDUCE THE DIGITAL DIVIDE BY ABOUT 18.28%



\* 15,852,000 population already purchasing service. (\*\*) PER SHLB proposal

## REDUCTION OF THE DIGITAL DIVIDE:

### AUCTIONING UNASSIGNED EBS YIELD ONLY A 1.49% DIGITAL DIVIDE REDUCTION



\* 15,852,000 population already purchasing service

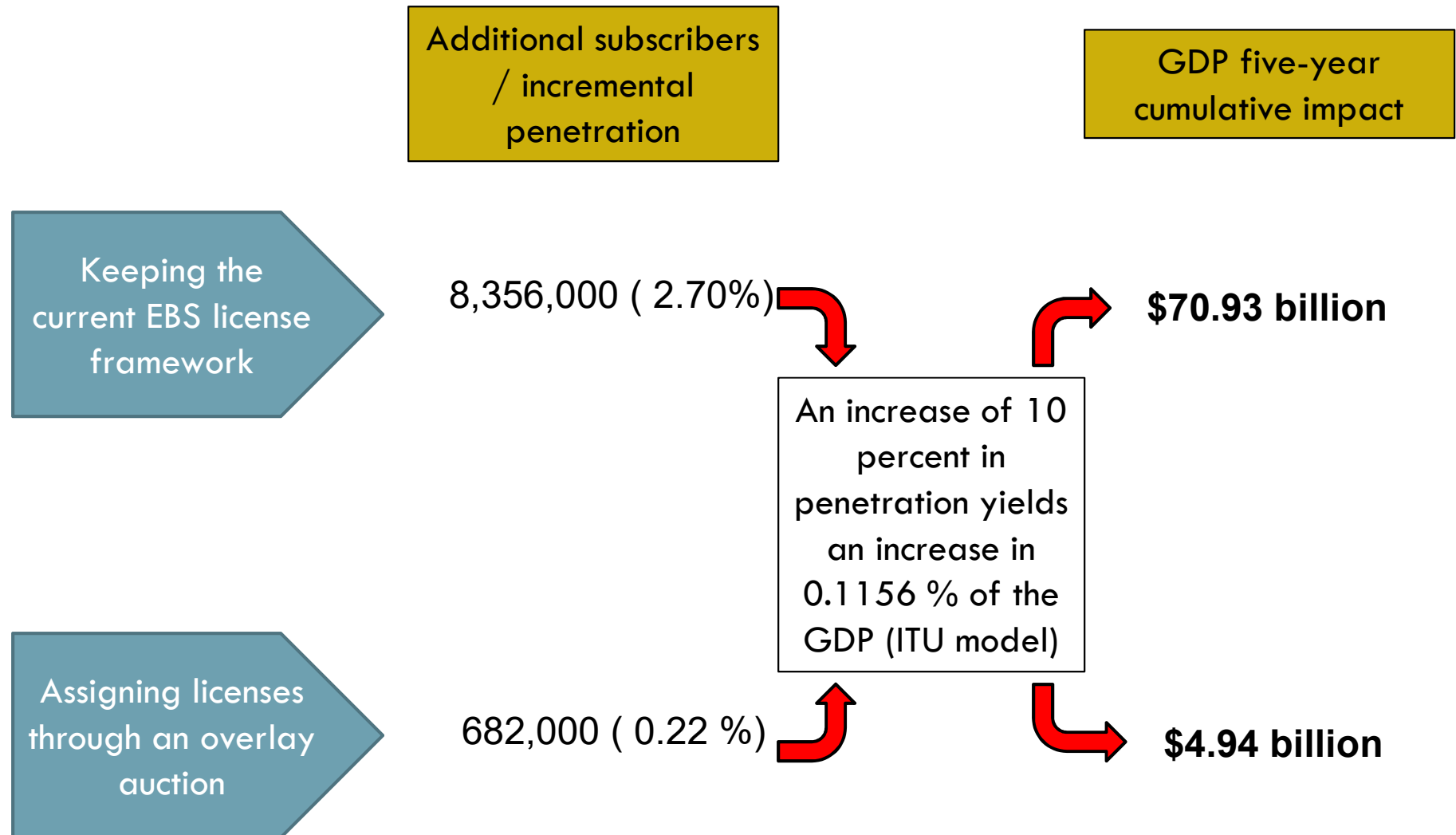
## ASSESSMENT OF OF ECONOMIC AND SOCIAL VALUE

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- Reduction of the digital divide
- Contribution to GDP
- Reduction of the homework gap
- Reduction of high school attrition
- Economic surplus
- Contribution to Treasury

## INCREASE IN GDP:

### THE EBS LICENSING MODEL PRODUCES SIGNIFICANTLY GREATER IMPACT ON GDP



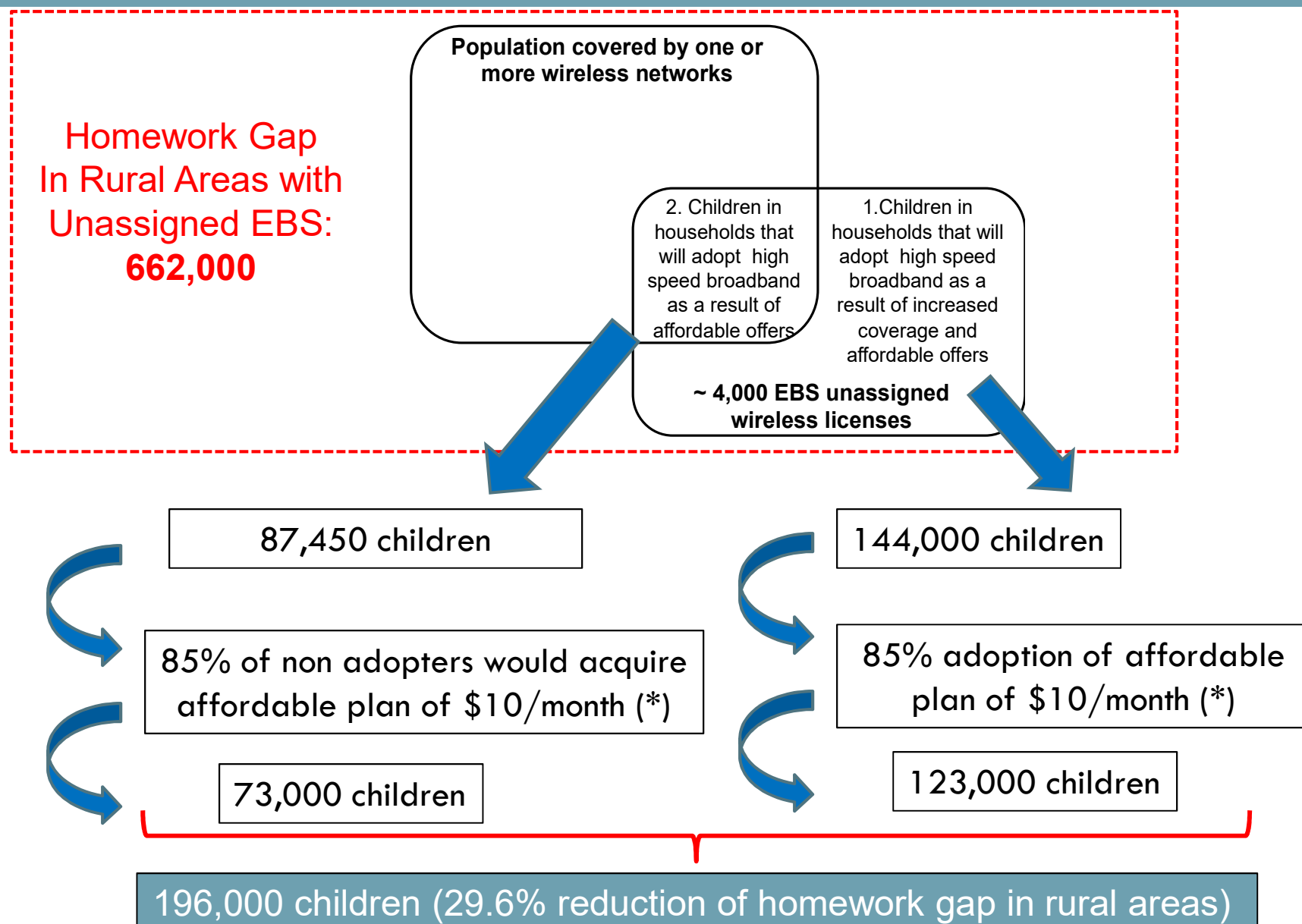
## ASSESSMENT OF OF ECONOMIC AND SOCIAL VALUE

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- Reduction of the digital divide
- Contribution to GDP
- Reduction of the homework gap
- Reduction of high school attrition
- Economic surplus
- Contribution to Treasury

## REDUCTION OF THE HOMEWORK GAP:

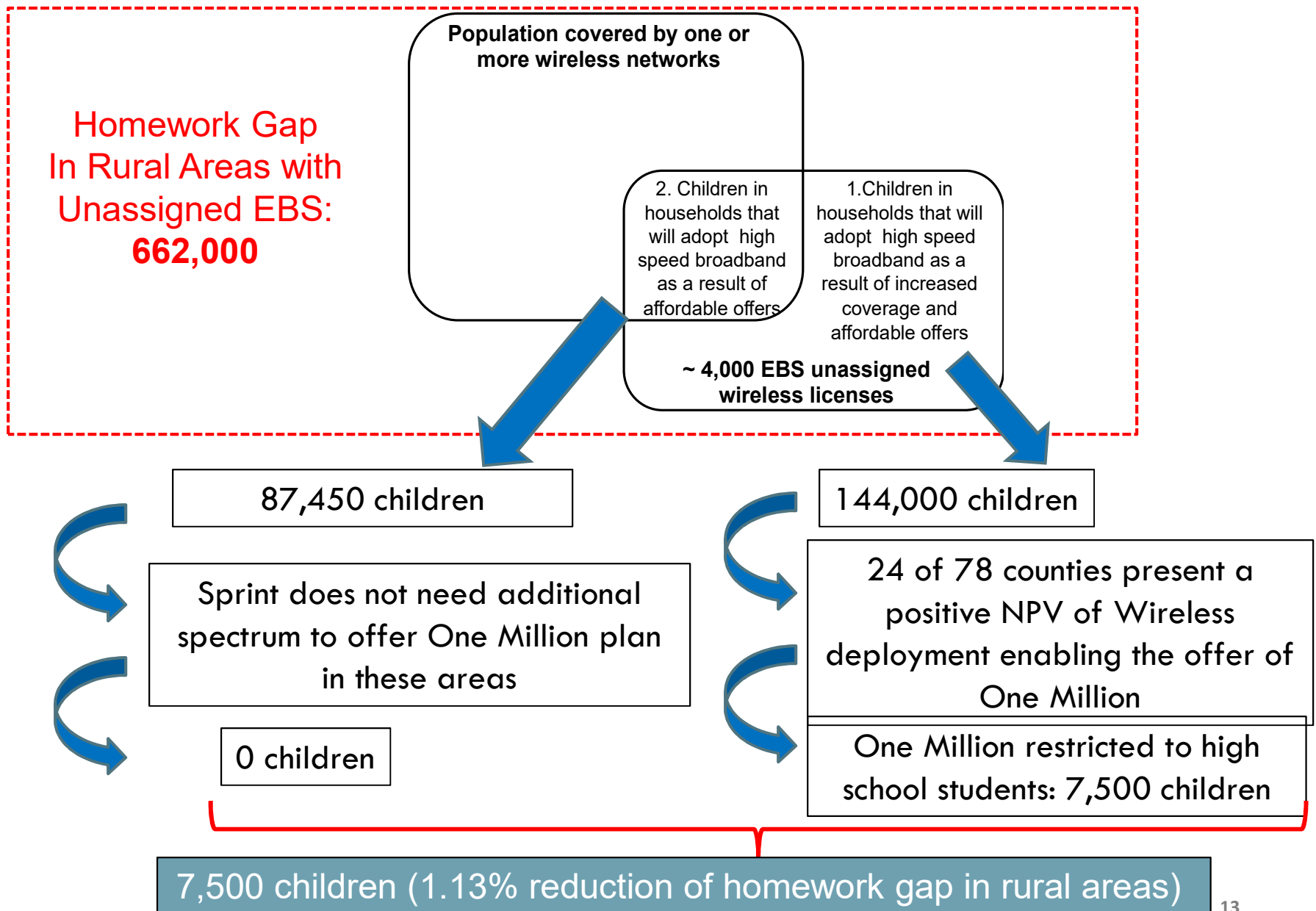
THE MODERNIZED EBS LICENSING MODEL COULD REDUCE THE RURAL HOMEWORK GAP BY ABOUT 29.6%



(\*) PER SHLB proposal

## REDUCTION OF THE HOMEWORK GAP:

COMMERCIAL-LED HOMEWORK GAP PROGRAMS WILL REDUCE THE RURAL HOMEWORK GAP BY 1.13%



## ASSESSMENT OF OF ECONOMIC AND SOCIAL VALUE

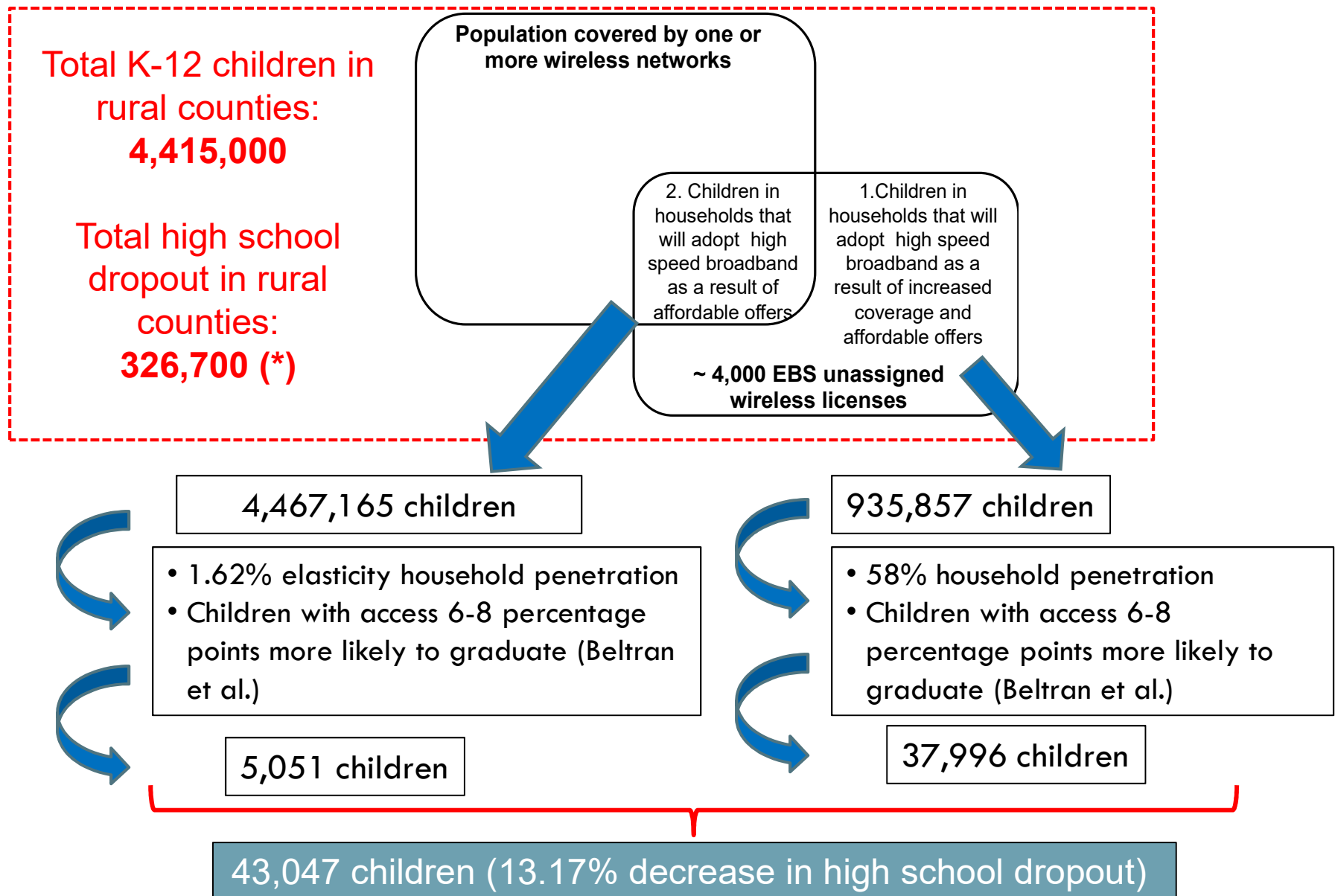
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- Reduction of the digital divide
- Contribution to GDP
- Reduction of the homework gap
- Reduction of high school attrition
- Economic surplus
- Contribution to Treasury



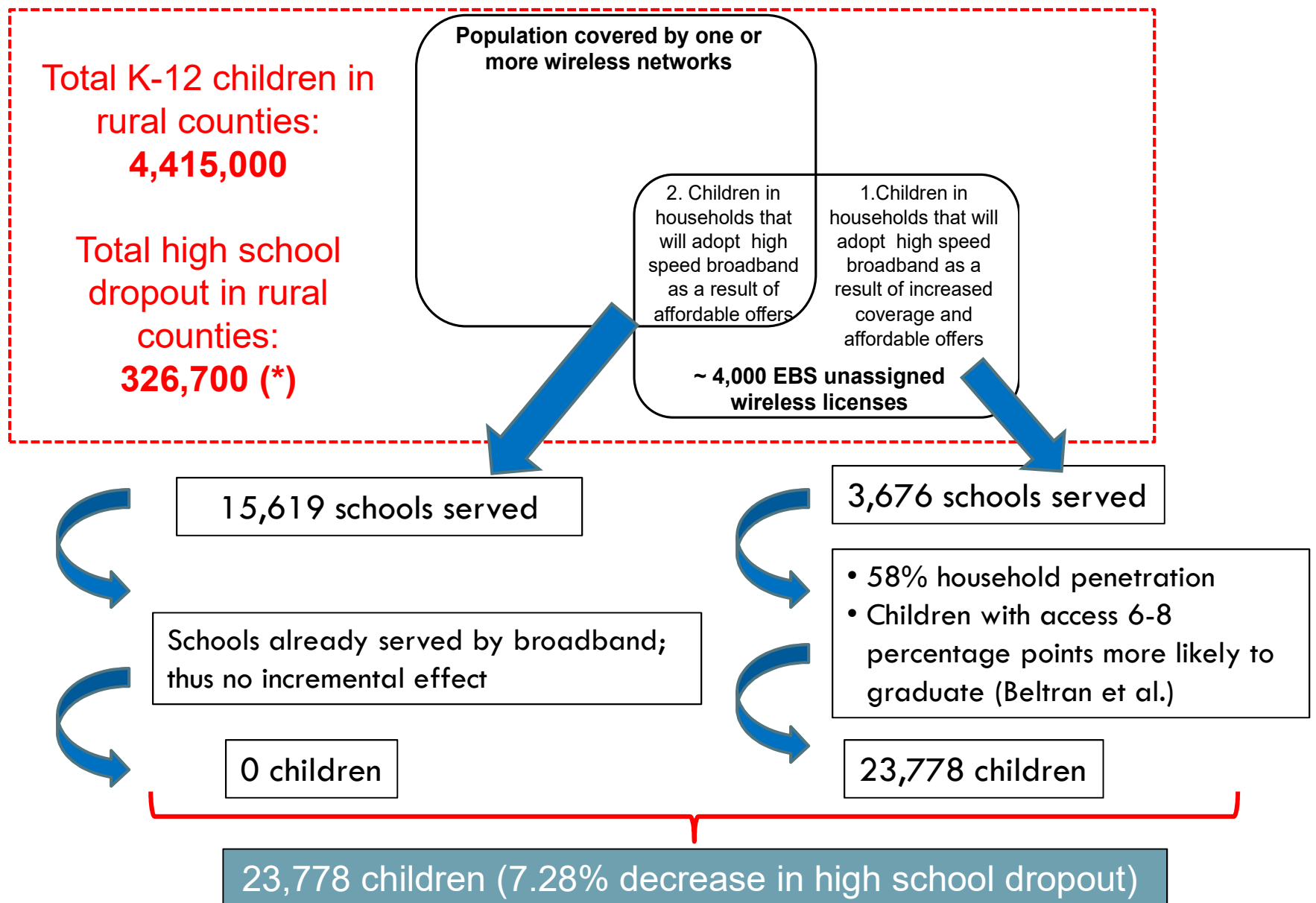
## REDUCING HIGH SCHOOL ATTRITION:

### THE EBS LICENSING MODEL COULD INCREASE HIGH SCHOOL GRADUATION FOR 43,047 CHILDREN



\* Total K-12 children \* 7.4% High school dropout rate

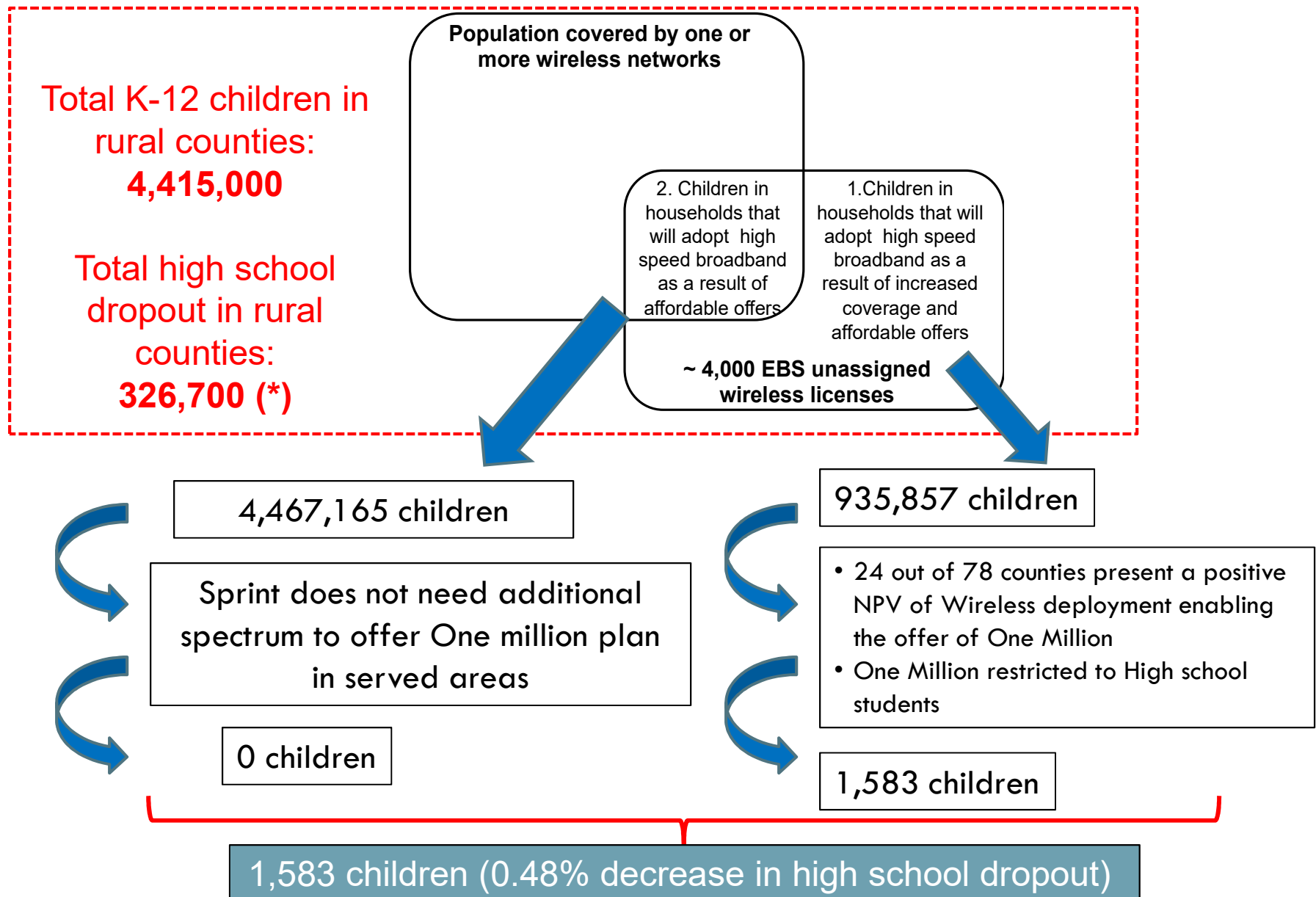
**REDUCING HIGH SCHOOL ATTRITION: THE PROVISION OF BROADBAND TO SCHOOLS  
COMBINED WITH HOT SPOT LENDING COULD INCREASE GRADUATION FOR 23,778 CHILDREN**



\* Total K-12 children \* 7.4% High school dropout rate

## REDUCING HIGH SCHOOL ATTRITION:

### COMMERCIAL-LED PROGRAMS WILL INCREASE HIGH SCHOOL GRADUATION FOR 1,583 CHILDREN



\* Total K-12 children \* 7.4% High school dropout rate

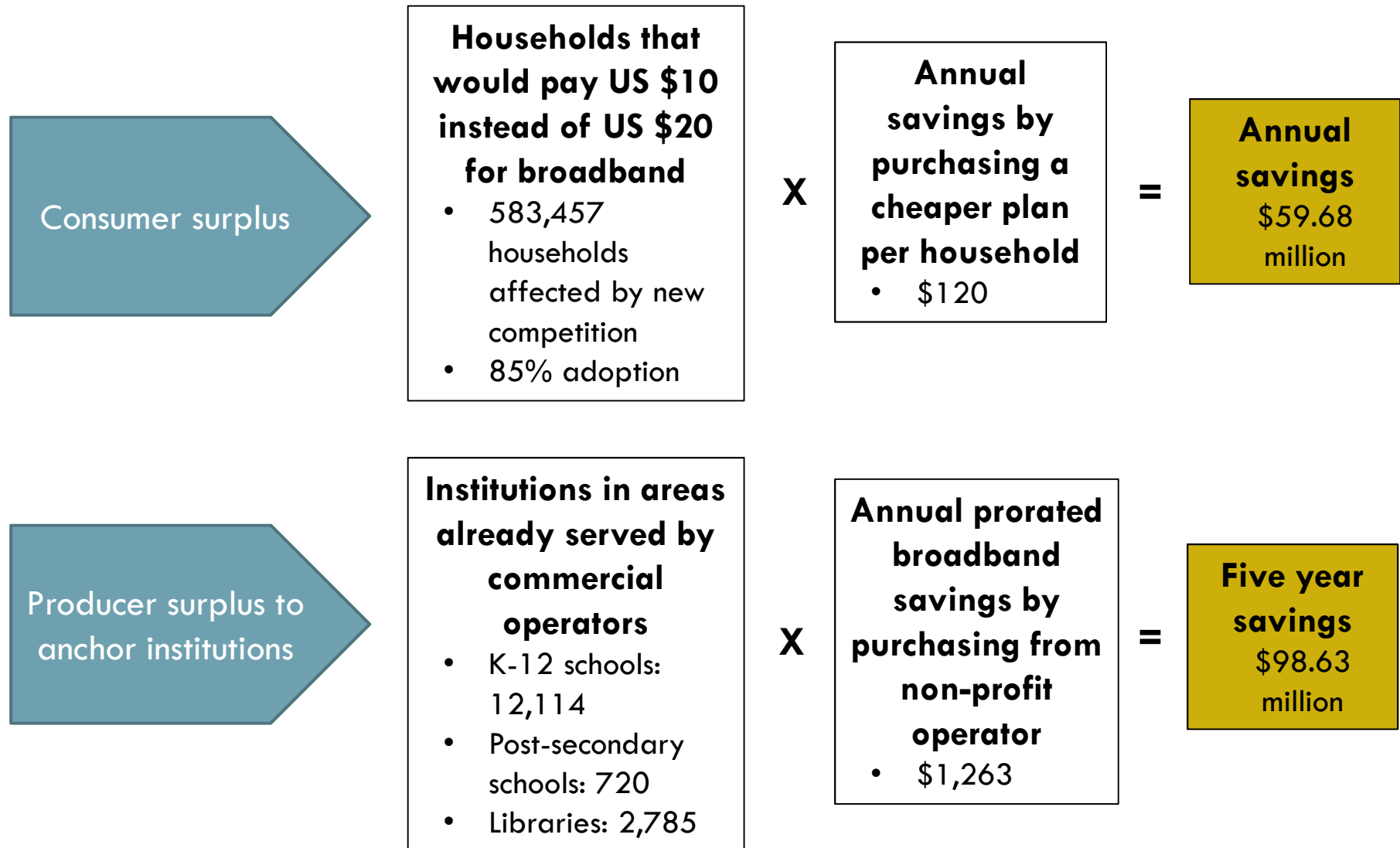
## ASSESSMENT OF OF ECONOMIC AND SOCIAL VALUE

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- Reduction of the digital divide
- Contribution to GDP
- Reduction of the homework gap
- Reduction of high school attrition
- Economic surplus
- Contribution to Treasury

## MEASURING ECONOMIC SURPLUS:

THE EBS LICENSING MODEL WILL YIELD AN ECONOMIC SURPLUS OF \$ 158.31 MILLION



## ASSESSMENT OF OF ECONOMIC AND SOCIAL VALUE

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- Reduction of the digital divide
- Contribution to GDP
- Reduction of the homework gap
- Reduction of high school attrition
- Economic surplus
- Contribution to Treasury

## CONTRIBUTION TO THE TREASURY:

**OVERLAY AUCTION PROCEEDS OF THE EBS LICENSES IS ESTIMATED AT \$52.25 M (\*)**

### AVAILABLE SPECTRUM

	Rural counties	Non- rural counties	Total
>100 MHz	392	38	430
99 - 70 MHz	215	75	290
69 - 50 MHz	6	5	11
49 - 30 MHz	83	62	145
29 - 10 MHz	186	122	308
<10 MHz	10	4	14
Total	892	306	1,198

**AUCTION 86 is the most recent overlay auction of spectrum with similar characteristics and levels of license encumbrance. This yielded proceeds of \$0.027 per MHz-pop**

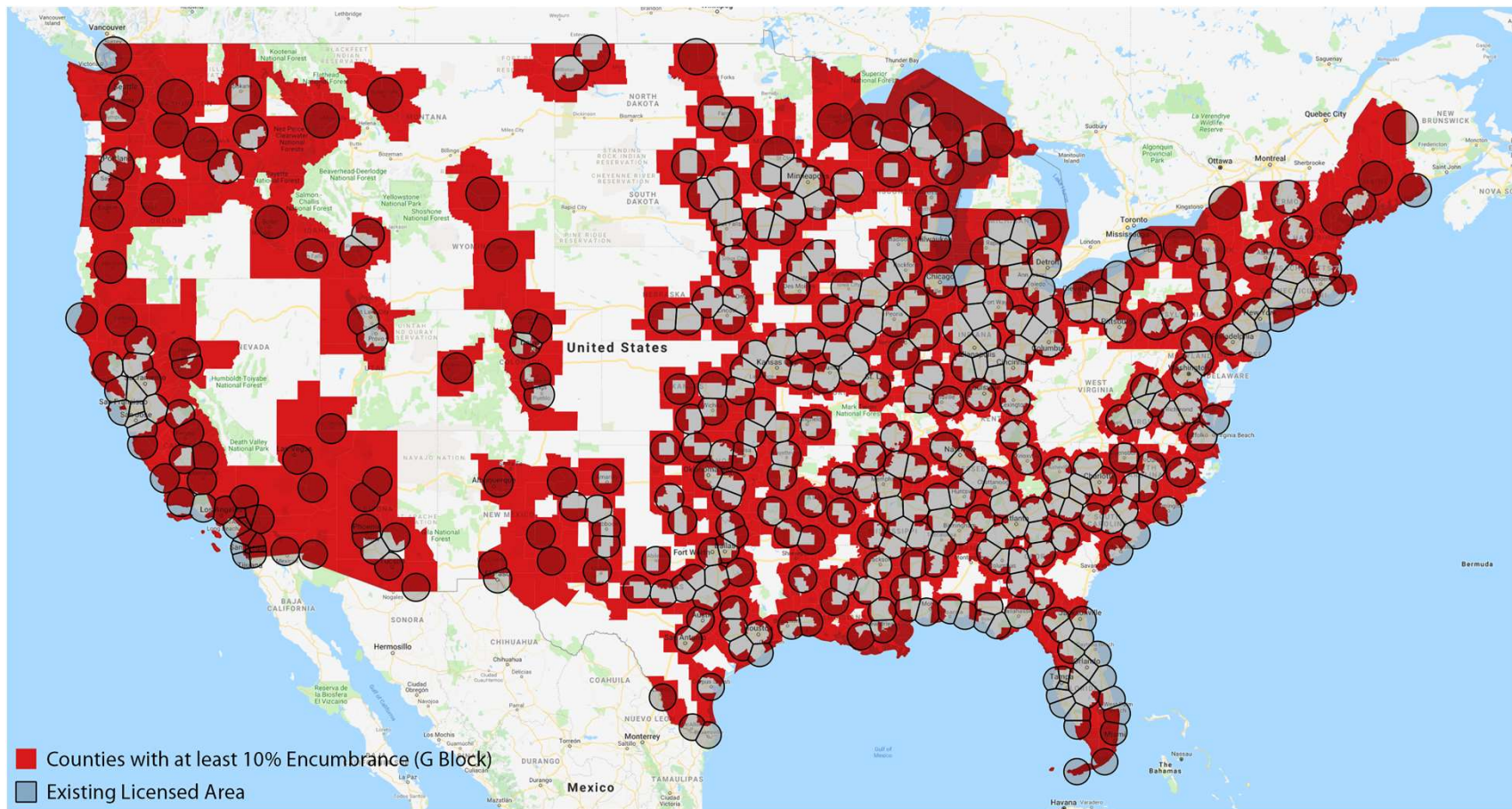
### AVAILABLE MHz/POP

MHz per POP	Rural Counties	Non-rural counties	Total
Higher than 10 million	2	13	15
9,999,999 – 5,000,000	22	43	65
4,999,999– 3,000,000	41	41	82
2,999,999 – 2,000,000	67	45	112
1,999,999 – 1,000,000	173	70	243
999,999 – 800,000	65	20	85
799,999 – 600,000	103	18	121
599,999 – 400,000	111	20	131
399,999 – 200,000	165	20	185
199,999 – 100,000	86	9	95
99,999 – 50,000	46	5	51
49,999 – 30,000	7	0	7
29,999 – 20,000	3	0	3
19,999 – 10,000	1	1	2
9,999 – 5,000	0	1	1
Lower than 4,999	0	0	0
Total	892	306	1,198

(\*) Even if 2.5 GHz spectrum has tripled in value since 2009, total revenue would still be only \$156.75 million

THE TYPICAL LICENSE WOULD BE HEAVILY ENCUMBERED IN ANY POTENTIAL OVERLAY AUCTION, WHICH RESULTS IN ARTIFICIALLY DEPRESSED PRICES DUE TO BIDDING ADVANTAGES FOR EXISTING INCUMBENT

## LICENSE ENCUMBRANCE IN POTENTIAL EBS OVERLAY AUCTION



Source: FCC Universal Licensing System Data



## COMPARATIVE ECONOMIC AND SOCIAL VALUE ANALYSIS SHOWS LICENSING EBS TO EDUCATORS AND NONPROFITS YIELDS GREATER BENEFITS THAN AUCTIONS

	EBS Licenses	Overlay Auction
Reduction of digital divide	<ul style="list-style-type: none"><li>• 18.28% reduction in digital divide</li><li>• 8,356,000 new subscribers</li></ul>	<ul style="list-style-type: none"><li>• 1.49% reduction in digital divide</li><li>• 682,000 new subscribers</li></ul>
Increase in GDP	<ul style="list-style-type: none"><li>• \$ 70.93 billion from increased penetration</li></ul>	<ul style="list-style-type: none"><li>• \$ 4.94 billion from increased penetration</li></ul>
Reduction of homework gap	<ul style="list-style-type: none"><li>• 29.6 % reduction in rural homework gap</li><li>• 196,000 children</li></ul>	<ul style="list-style-type: none"><li>• 1.13% reduction in rural homework gap</li><li>• 7,500 children</li></ul>
Social effects	<ul style="list-style-type: none"><li>• 66,825 additional children graduating from high school</li></ul>	<ul style="list-style-type: none"><li>• 1,583 additional children graduating from high school</li></ul>
Economic surplus	<ul style="list-style-type: none"><li>• Consumer surplus from affordable offers: \$59.68 million</li><li>• Producer surplus for anchor institutions: \$98.63 million</li></ul>	<ul style="list-style-type: none"><li>• Consumer surplus from affordable offers: \$0</li><li>• Producer surplus for anchor institutions: \$0</li></ul>
Contribution to Treasury	<ul style="list-style-type: none"><li>• \$ 0</li></ul>	<ul style="list-style-type: none"><li>• \$ 52.25 million</li></ul>

## WHY IS THE DIFFERENCE IN SOCIAL AND ECONOMIC VALUE BETWEEN OPTIONS SO SIGNIFICANT?

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- Wireless broadband deployment economics (not a lack of available commercial spectrum) constrain the development of network in rural, unserved counties.
  - Additional spectrum will not change the economic constraints that disincentivize investment in sparsely populated areas
- Commercial wireless carriers do not have an offer focused on increasing adoption by low income population [especially in rural areas]
- Commercial-led homework gap offers (e.g. Sprint's One Million plan) have limitations that comparable EBS offers do not (e.g. data caps and available only to high school students)
- There is no commercial carrier offer comparable to EBS offers like those available from Mobile Beacon and Mobile Citizen, which focus on affordable service to anchor institutions (schools, libraries, nonprofits) and their users (such as hotspot lending models)
- Proceeds of an overlay auction are limited due to significant encumbrances and the majority of unencumbered spectrum is limited to rural licenses, which generally yield lower proceeds than bids for spectrum in more populated areas

## **TELECOM ADVISORY SERVICES, LLC**

For more information please contact:

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