CONNECTED NATION℠

The Economic Impact of Stimulating Broadband Nationally

Executive Summary

February 21, 2008

Key Findings

- Kentucky's broadband adoption rate is higher than the national trends due to Connected Nation's first statewide broadband expansion program, ConnectKentucky.
- Adopting a national policy to stimulate the deployment of broadband in underserved areas of the U.S. could have dramatic and far-reaching economic impacts. For instance, just a seven percentage point increase in broadband adoption could result in:
    - $92 billion through 2.4 million jobs created or saved annually
    - $662 million saved per year in reduced healthcare costs
    - $6.4 billion per year in mileage saving from unnecessary driving
    - $18 million in carbon credits associated with 3.2 billion fewer lbs of CO2 emissions per year in the United States
    - $35.2 billion in value from 3.8 billion more hours saved per year from accessing broadband at home
    - $134 billion per year in total direct economic impact of accelerating broadband across the United States
- If Congress passes legislation (such as S. 1190/H.R. 3627, H.R. 3919, or S. 1492) to empower every state to implement programs modeled after ConnectKentucky and experience an increase in the growth rate of broadband adoption over what should be expected without a broadband focused program, the estimate of direct economic stimulus is more than $134 billion per year for the nation.
- In 2007, the U.S. House of Representatives voted unanimously to pass such legislation, and the U.S. Senate passed a similar proposal as part of a renewal of the Farm Bill. The Senate and the House should complete negotiations on the Farm Bill, including broadband provisions as outlined in the bills listed above.

Affirmations

"The Communications Workers of America has long been pressing for public policies that will allow all Americans to share in today's telecommunications revolution and for our nation to fully utilize the economic engine of the 21st century. Economic growth, quality jobs and the tremendous opportunity for improvement in the personal lives of all Americans depends on substantial improvements in speed, quality and most critically, the build out of true high-speed Internet networks. At the current rates of broadband speed in the United States, the promise of telemedicine, distance learning and civic participation simply isn't possible. And both developed and developing regions – Europe, Korea and parts of southeast Asia, eastern Europe and more – have moved far ahead of us. This economic impact study spotlights not only the positive benefits that will result from the build out of true high-speed broadband networks, but reinforces the critical need for a national broadband policy and the broadband mapping bills that Congress now is considering."

Larry Cohen, President
Communications Workers of America

"Connected Nation provides convincing evidence that the benefits of broadband adoption spill over to society as a whole. Moreover, the report rightly concludes that public policies to spur broadband are critical to ensure the best possible broadband future for the United States."

Dr. Robert D. Atkinson, President
The Information Technology & Innovation Foundation

"Through its experience in Kentucky, Connected Nation provides an incredibly successful model for stimulating broadband build out and demand that should be adopted nationally. Its comprehensive strategy of assessing broadband availability, identifying and aggregating demand through grassroots county planning teams, and bringing providers and users together through a public private partnership has resulted in an expansion of broadband availability that is significant and measurable. Connected Nation's study identifies the economic benefits that can be expected if such a strategy is adopted nationally. This study should strengthen the growing, bi-partisan call in Washington, DC for a national broadband policy and specific legislation that would enable other states to participate in and benefit from this proven and successful model of economic development."

Kenneth R. Peres, PhD, President
Alliance for Public Technology

Affirmations

"The Connected Nation approach to broadband is perhaps the most important public policy innovation for communications services in many decades. In an environment characterized by constant rhetorical divisiveness, Connected Nation pulls people together to share in their relentless focus on expanding broadband availability and subscription. As this new study shows, there is much to gain from expanding broadband availability and use in this country, and Connected Nation has proven itself up to the task."

Lawrence Spiwak, President
Phoenix Center for Advanced Legal & Economic Public Policy Studies

"Connected Nation continues to blaze a trail toward a networked nation that works for everyone. This report demonstrates the powerful economic effects of broadband adoption. More to the point, Connected Nation has proven the tangible benefits of engaging the challenges of 21st Century infrastructure at the community level. The process begun by Connected Nation in Kentucky can and should serve as a model for efforts across the US."

Charles Kaylor, Principal
Public Sphere Information Group

"To retain and gain jobs and to promote learning and earning, every city, town and rural community will need the connected power of broadband. Connected Nation's research shows that job generating power of having people connected to broadband. I look forward to learning more from their groundbreaking work as communities learn how, from them, to use broadband for improving these services and promoting economic development and job gains."

Graham Richard, Former Mayor
Fort Wayne, Indiana

Executive Summary

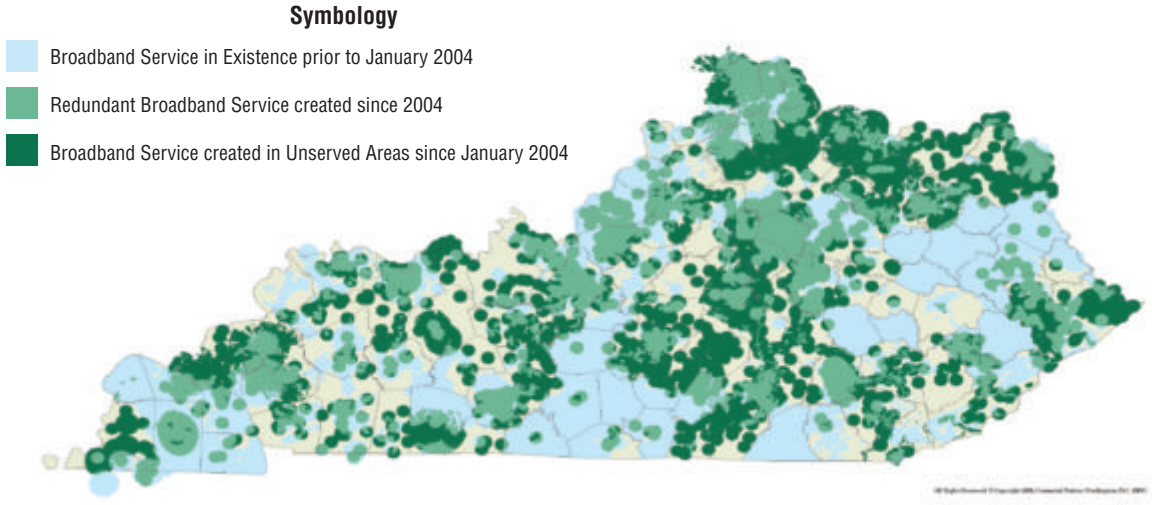
If Congress passes legislation to empower every state to implement programs modeled after ConnectKentucky and experience an increase in the growth rate of broadband adoption over what should be expected without a broadband focused program, the estimate of direct economic stimulus is more than $134 billion per year for the nation.

It has been widely established that broadband networks provide a constructive platform for addressing a variety of public challenges including healthcare, education, homeland security and workforce/economic development.[1] Yet, at the beginning of 2008, many United States residents still cannot access broadband Internet service.

One state, Kentucky, has made measurable strides in expanding broadband networks. The broadband initiative in Kentucky led by ConnectKentucky brings together partners in the public and private sector to foster both the supply of and demand for broadband. The primary goal of ConnectKentucky is to increase the availability of technology by ensuring broadband service is available to each household and business in the state and to measurably improve computer literacy, ownership and overall technological literacy.

In 2004, only 60% of Kentucky households had broadband available for subscription. Three years later, in December 2007, 95% of households could subscribe to broadband, a statewide increase of nearly 60%. The map below identifies the growth of broadband investment from 2004-2007 (Figure 1)[2]. It is the result of a cooperative mapping effort among more than eighty Kentucky broadband providers (Table 1).

Figure 1: Broadband Service Growth in Kentucky 2004-2007
Household Coverage Grew from 60% to 95%



[1] Robert W. Crandall, Robert E. Litan, and William Lehr, "The Effects of Broadband Deployment on Output and Employment: A Cross-Sectional Analysis Of U.S. Data," *Issues in Economic Policy: The Brookings Institution*, No. 6, July 2007, p. 1.

[2] ConnectKentucky Broadband Service Growth Map, January 1, 2004 to December 31, 2007.

Table 1: List of 81 Providers Represented on the KY Broadband Service Growth Map

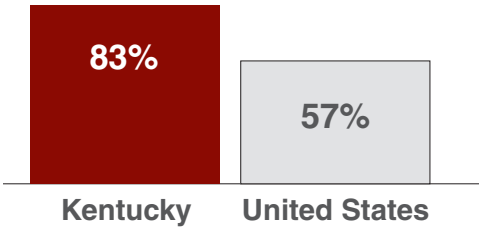
Access Cable Television
Access Kentucky
Armstrong Utilities
AT&T
Ballard Rural Telephone Cooperative
Barbourville Utility Commission
Bardstown Municipal Utilities
Big Sandy TV Cable
Blueone.Net - Pendleton County
Bowling Green Municipal Utilities
Brandenburg Telephone Company
Burgin Wireless
Cainpro Communications
Cebridge Connections
Chapel Communications
Cincinnati Bell Telephone
City Of Bellefonte
City Of Raceland
Coalfields Telephone
Comcast Cable
Duo County Telecom
Duo County Telephone
Cooperative CorpOration
Foothills Rural Telephone
Cooperative Corporation
Frankfort Electric & Water
Plant Board
Galaxy Cablevision
Harlan Community TV
Henderson Municipal Power & Light Co.
Highland Telephone Cooperative
Hopkinsville Electric System
Insight Communications
Intermountain Cable
Irvine Community Television
Ken-Tenn Wireless, Llc
Kvnet
Kywifi
Kywimax
Leslie County Telephone
Lewisport Telephone Company
Liberty Communications, Inc
Limestone Cable Vision
Logan Telephone Cooperative
Lycom
Mayfield Electric And Water Systems
Mediacom
Mega-Wi
Monticello Plant Board
Mountain Telephone Cooperative
Netpower, LLC
Newwave Communications
North Central Telephone Cooperative
Ohio County Direct Net
Owensboro Municipal Utilities
Peoples Rural Telephone
Cooperative Corporation
Princeton Electric And Plant Board
Pritchtech
Riverside Communications
Russellville Electric Plant Board
Salem Telephone Company
SCS Wireless
Shelby Wireless
Sit-Co (Formerly Ohio Valley Wireless)
South Central Rural Telephone
Cooperative Corporation
Southeast Telephone
Speedbeam
Ssinet
Suddenlink
TDS
Thacker-Grisby Telephone Company
Time Warner Cable
Tv Service & United Cable
Us Digital Online
Vortex Wireless
VVDS
Webcats Networks
West Kentucky Networks
West Kentucky Rural Telephone
Cooperative Corporation
Williamstown Catv
Williamstown Utility Company
Wimax Express
Windstream
Worldwide Gap

This important investment in technology infrastructure did not happen in a vacuum. It was fueled by fast growing demand promoted in large part by ConnectKentucky. From 2005-2007, broadband adoption (the number of homes subscribing to high-speed broadband service) in Kentucky increased 83%, a rate that exceeded what would naturally be expected when compared to nationwide trends for household broadband adoption. Clearly something unique has taken place in Kentucky (Figure 2)[3].

[3] KY growth comes from 2 studies: 2005 University of KY E-Commerce Report - statewide digit dial telephone survey conducted March 2005. N=1,102 +/- 3% at the 95% level of confidence. And 2007 ConnectKentucky Residential Technology Assessment - statewide random digit dial telephone survey completed September 2007. N = 10,830 +/- 1.7% at the 95% level of confidence. National growth: "Home Broadband Adoption 2007" by John Horrigan and Aaron Smith, Pew Internet and American Life Project, June 2007

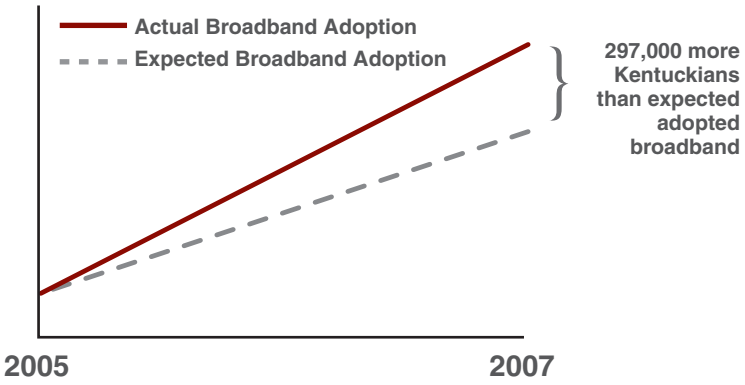
ConnectKentucky's success in promoting broadband adoption is the result of a comprehensive, targeted and locally relevant program that was repeated across each Kentucky county. It is a series of well designed and implemented supply and demand promoting programs that can be readily replicated in other states. Connected Nation, the national non-profit of which ConnectKentucky is a subsidiary, is now implementing the same kind of programming in other states.

Figure 2: Broadband Adoption Growth Rates 2005-2007



Using the device of counterfactual analysis, this paper has conservatively quantified the direct impact of ConnectKentucky as the intervening factor in Kentucky. Additionally, the paper extrapolates this impact to other states to quantify the potential national impact of pending federal legislation that would empower states to accelerate broadband through similar public-private partnerships.

Figure 3: Kentucky's Actual versus Expected Broadband Adoption in 2007



To measure the impact of the ConnectKentucky initiative on broadband adoption in Kentucky, this study compares the growth rate of adoption in Kentucky from 2005-2007 to what one would have expected if no ConnectKentucky program had been in place. In other words, what would we expect adoption rates to be in the absence of a coordinated public-private program such as ConnectKentucky. To this end, we compare Kentucky broadband adoption trends since the start of ConnectKentucky's program with national average broadband growth trends during the same period. In the identified time frame, Kentucky had 297,000 more subscribers than expected when compared to national growth rates.[4] For Kentucky, this means 297,000 more subscribers are participating in the benefits of broadband today than would have without the ConnectKentucky program (Figure 3)[5].

Many have recognized that broadband adoption represents an important source of gaining an economic advantage. A recent Brookings Institution study developed a formula for gauging the growth in jobs that can be associated with growth in broadband adoption.[6] This study uses the Brookings Institution formula along with direct consumer surveys to estimate the direct economic impacts associated with employment,

[4] If national broadband adoption rates between 2005 and 2007 were applied to Kentucky's 2005 baseline broadband adoption rate (24%), then Kentucky's expected statewide adoption would be only 37% in 2007. However, Kentucky's broadband adoption percentage is actually 44% in 2007, which is seven percentage points above the expected adoption rate. This additional 7% translates into approximately 297,000 more individuals accessing broadband in the state of Kentucky than expected.

[5] KY growth comes from 2 studies: 2005 University of KY E-Commerce Report - statewide digit dial telephone survey conducted March 2005. N=1,102 +/- 3% at the 95% level of confidence. And 2007 ConnectKentucky Residential Technology Assessment - statewide random digit dial telephone survey completed September 2007. N = 10,830 +/- 1.7% at the 95% level of confidence. National growth: "Home Broadband Adoption 2007" by John Horrigan and Aaron Smith, Pew Internet and American Life Project, June 2007

[6] Robert W. Crandall, Robert E. Litan, and William Lehr, "The Effects of Broadband Deployment on Output and Employment: A Cross-Sectional Analysis Of U.S. Data," Issues in Economic Policy: The Brookings Institution, No. 6, July 2007.

time saved, direct consumer healthcare savings and economic and environmental impact of fewer miles being driven due to online activity enabled by broadband.

To further understand the urgency of a concerted effort to promote broadband adoption and stimulate infrastructure investment, it is useful to extrapolate economic benefits gained through broadband acceleration onto the nation as a whole. By applying the dynamic equivalents to other state demographics and by assuming a similar higher than expected growth rate in broadband adoption, this study reports that if every state were to develop initiatives similar to ConnectKentucky, the United States could expect to gain:

- $92 billion through 2.4 million jobs created or saved annually
- $662 million saved per year in reduced healthcare costs
- $6.4 billion per year in mileage savings from unnecessary driving
- $18 million in carbon credits associated with 3.2 billion fewer lbs of CO2 emissions per year in the United States
- $35.2 billion in value from 3.8 billion more hours saved per year from accessing broadband at home
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Given the federal government's current search for constructive forms of economic stimulus, Connected Nation encourages the 110th Congress to consider the following bills that directly seek to replicate the ConnectKentucky model nationwide as a relevant means to both short and long term economic stimulus that provides an astounding return on investment.

- S. 1190/H.R. 3627 – the Connect the Nation Act of 2007
- S. 1492 – the Broadband Data Improvement Act
- H.R. 3919 – the Broadband Census of America Act of 2007

Each of these bills in various ways provides legislation that includes:

- Recognition of the critical role of public-private partnerships in broadband expansion
- Federal enabling of state/local response to broadband deployment and demand aggregation
- Recognition of the indispensable role non-profits play in program implementation

Time is of the essence. The United States can ill afford the passing of another year without policies that will stimulate broadband growth, particularly in previously underserved or overlooked areas. Much consensus building has occurred around broadband policy needs during this Congress. The time for action is now.

Table 2: A State-by-State Summary of the Annual Economic Impact Associated with Accelerating Broadband for Each State

	Total Annual Economic Impact	Jobs Created or Saved Annually	Direct Annual Income Growth from the Increase in Broadband	Average Annual Healthcare Costs Saved	Average Annual Mileage Costs Saved	Average Annual Hours Saved	Annual Value of Hours Saved	Average Annual lbs of CO_2 Emissions Cut	Value of Carbon Offsets
Alabama	$1,692,307,789	33,451	$1,118,595,872	$10,187,810	$99,216,165	57,715,987	$464,036,535	50,255,886	$271,408
Alaska	$317,188,552	4,846	$212,849,167	$1,484,307	$14,018,776	8,408,897	$88,797,954	7,100,920	$38,349
Arizona	$2,498,704,035	46,358	$1,680,954,424	$13,659,679	$129,327,410	77,384,824	$674,408,744	65,508,111	$353,778
Arkansas	$963,684,222	20,577	$635,196,771	$6,226,667	$60,352,819	35,275,319	$261,742,869	30,570,465	$165,097
California	$17,287,110,398	262,042	$11,577,026,715	$80,761,066	$768,277,259	457,527,657	$4,858,943,717	389,154,873	$2,101,641
Colorado	$2,351,248,032	39,665	$1,644,109,297	$10,529,720	$101,888,351	59,652,980	$594,441,946	51,609,426	$278,718
Connecticut	$1,938,746,950	29,765	$1,368,285,351	$7,763,882	$76,465,884	43,983,951	$486,022,659	38,732,204	$209,174
Delaware	$452,660,929	7,796	$324,919,691	$1,890,627	$18,478,024	10,710,782	$107,322,040	9,359,659	$50,547
Florida	$7,531,595,950	143,405	$5,136,752,665	$40,072,871	$399,029,270	227,020,858	$1,954,649,591	202,119,981	$1,091,554
Georgia	$3,907,660,865	71,059	$2,639,837,894	$20,743,080	$197,143,135	117,513,714	$1,049,397,466	99,858,756	$539,290
Hawaii	$578,001,026	10,284	$397,274,880	$2,847,646	$28,011,744	16,132,486	$149,790,130	14,188,767	$76,627
Idaho	$565,942,345	10,859	$378,002,347	$3,248,525	$30,661,907	18,403,549	$153,945,689	15,531,152	$83,876
Illinois	$6,207,888,316	105,622	$4,321,003,997	$28,425,487	$273,919,566	161,036,091	$1,583,789,952	138,748,261	$749,314
Indiana	$2,679,847,808	52,863	$1,860,248,442	$13,985,762	$134,940,477	79,232,151	$670,303,994	68,351,293	$369,133
Iowa	$1,237,290,273	26,064	$866,632,289	$6,605,940	$64,670,465	37,423,974	$299,204,671	32,757,480	$176,908
Kansas	$1,154,893,120	22,828	$798,081,721	$6,123,002	$58,974,133	34,688,036	$291,552,939	29,872,121	$161,325
Kentucky	$1,587,239,467	31,699	$1,061,603,244	$9,317,330	$91,153,941	52,784,546	$424,915,597	46,172,134	$249,354
Louisiana	$1,556,816,993	31,313	$1,030,199,954	$9,498,299	$91,233,861	53,809,773	$425,635,307	46,212,615	$249,572
Maine	$544,607,277	10,577	$371,878,460	$2,927,562	$29,575,200	16,585,225	$140,145,152	14,980,703	$80,904
Maryland	$2,813,857,230	43,922	$1,933,873,816	$12,440,005	$121,232,549	70,475,128	$745,979,225	61,407,827	$331,635
Massachusetts	$3,840,751,425	5,411	$2,765,167,106	$14,259,724	$141,613,044	80,784,197	$919,324,165	71,731,143	$387,386
Michigan	$4,637,508,875 7	6,200	$3,141,722,166	$22,363,953	$217,268,265	126,696,281	$1,255,560,149	110,052,723	$594,343
Minnesota	$2,791,482,532	48,691	$2,021,172,957	$11,446,205	$111,405,012	64,845,051	$647,153,606	56,429,893	$304,751
Mississippi	$905,743,973	18,723	$570,305,184	$6,447,452	$61,452,087	36,526,113	$267,371,146	31,127,277	$168,104
Missouri	$2,501,367,723	48,592	$1,733,262,586	$12,942,827	$126,066,630	73,323,711	$628,750,822	63,856,431	$344,858
Montana	$337,218,046	7,198	$225,220,226	$2,092,557	$20,700,888	11,854,754	$89,147,748	10,485,604	$56,628
Nebraska	$783,129,301	16,280	$558,411,615	$3,917,222	$37,725,489	22,191,847	$182,971,776	19,109,062	$103,199
Nevada	$1,175,028,256	23,482	$845,359,452	$5,528,117	$52,939,525	31,317,891	$271,056,344	26,815,416	$144,817
New Hampshire	$634,062,329	11,374	$446,419,295	$2,912,766	$28,960,278	16,501,406	$155,690,768	14,669,227	$79,222
New Jersey	$4,636,703,229	71,109	$3,231,890,665	$19,326,718	$188,794,006	109,489,738	$1,196,175,390	95,629,679	$516,451
New Mexico	$694,119,894	13,184	$447,977,912	$4,329,844	$41,293,689	24,529,436	$200,405,489	20,916,460	$112,960
New York	$9,909,345,962	147,884	$6,776,023,161	$42,767,217	$420,637,031	242,284,874	$2,668,767,889	213,064,943	$1,150,663
North Carolina	$3,626,061,051	69,432	$2,466,214,037	$19,619,004	$190,523,446	111,145,595	$949,183,383	96,505,690	$521,182
North Dakota	$264,354,171	5,755	$186,703,927	$1,408,578	$13,960,441	7,979,877	$62,243,037	7,071,371	$38,189
Ohio	$5,165,789,104	96,312	$3,598,197,715	$25,426,175	$247,968,322	144,044,384	$1,293,518,569	125,603,198	$678,323
Oklahoma	$1,270,219,076	25,603	$833,901,696	$7,928,700	$76,474,057	44,917,679	$351,705,426	38,736,344	$209,197
Oregon	$1,653,094,131	29,383	$1,133,296,659	$8,197,950	$80,851,438	46,443,033	$430,526,912	40,953,615	$221,171
Pennsylvania	$5,618,124,596	103,916	$3,905,168,316	$27,558,567	$274,060,290	156,124,817	$1,410,587,724	138,819,542	$749,699
Rhode Island	$517,684,416	8,896	$360,983,164	$2,364,979	$23,573,532	13,398,078	$130,698,255	11,940,682	$64,486
South Carolina	$1,628,562,600	32,629	$1,089,806,446	$9,572,467	$93,461,551	54,229,946	$435,466,470	47,341,006	$255,666
South Dakota	$295,051,946	6,718	$204,642,266	$1,732,113	$16,753,192	9,812,771	$71,878,545	8,485,981	$45,829
Tennessee	$2,450,739,704	49,142	$1,682,608,846	$13,377,207	$130,689,201	75,784,562	$623,706,946	66,197,898	$357,503
Texas	$9,424,006,380	173,117	$6,303,206,537	$52,074,637	$486,029,518	295,013,274	$2,581,366,143	246,188,147	$1,329,546
Utah	$1,066,414,382	20,728	$736,673,777	$5,648,921	$50,494,153	32,002,271	$273,459,402	25,576,764	$138,128
Vermont	$275,359,624	5,270	$191,553,395	$1,382,086	$13,953,557	7,829,796	$68,432,416	7,067,884	$38,170
Virginia	$3,764,632,826	63,344	$2,625,619,577	$16,930,580	$165,834,683	95,915,137	$955,794,341	84,000,111	$453,645
Washington	$3,056,439,915	48,365	$2,075,358,306	$14,168,025	$138,603,982	80,264,707	$827,930,448	70,206,965	$379,155
West Virginia	$616,017,781	12,690	$398,961,244	$4,028,290	$40,504,254	22,821,071	$172,413,192	20,516,588	$110,800
WIsconsin	$2,613,219,462	50,748	$1,863,975,895	$12,308,818	$120,871,181	69,731,928	$615,732,922	61,224,784	$330,646
Wyoming	$215,933,328	4,383	$150,308,706	$1,140,841	$11,197,254	6,463,094	$53,255,896	5,671,736	$30,630
TOTAL	**$134,235,457,615**	**2,352,552**	**$91,927,439,829**	**$ 661,941,807**	**$6,413,230,933**	**3,750,033,246**	**$35,215,301,497**	**3,248,488,796**	**$17,543,549**

CONNECTED NATION℠

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