

The Investment --- Deficit



About Dēmos

Dēmos is a non-partisan public policy research and advocacy organization. Headquartered in New York City, Dēmos works with advocates and policymakers around the country in pursuit of four overarching goals: a more equitable economy; a vibrant and inclusive democracy; an empowered public sector that works for the common good; and responsible U.S. engagement in an interdependent world. Dēmos was founded in 2000.

In 2010, Dēmos entered into a publishing partnership with *The American Prospect*, one of the nation's premier magazines focussing policy analysis, investigative journalism, and forward-looking solutions for the nation's greatest challenges.

About the **Our Fiscal Security Project**

The Our Fiscal Security project is a collaborative effort of the Economic Policy Institute, Demos, and The Century Foundation. Our institutions are dedicated to promoting an economic path that achieves fiscal responsibility without undermining our national strength. Today, the foundation of that strength – a secure and growing middle class – is being tested by falling incomes, lost wealth, high unemployment and record foreclosures. Yet instead of rebuilding the public structures that could fortify our economy, our elected leaders are facing misguided pressure to reduce the federal budget deficit.

We believe the first priority for our nation is to secure the fundamentals of the economy: strong growth and good jobs. We also believe that in order to reduce our long-term national debt we must refuel the engine of our economy: the middle class. Finally, we strongly oppose the idea that America's fiscal challenges can be solved by cutting longstanding social insurance programs that have brought security and prosperity to millions of Americans. Putting our nation on a path of broad prosperity will require generating new jobs, investing in key areas, modernizing and restoring our revenue base and lowering the costs of our health care system. Achieving these goals, however, will require an informed and engaged public to help set our national priorities.

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A Productivity-Progress Paradox

In the post-World War II era, the US saw sustained public and private investment in America's infrastructure and labor force. The nation's institutions and its workers came together under a social contract that created and sustained a new middle class and fueled social progress.

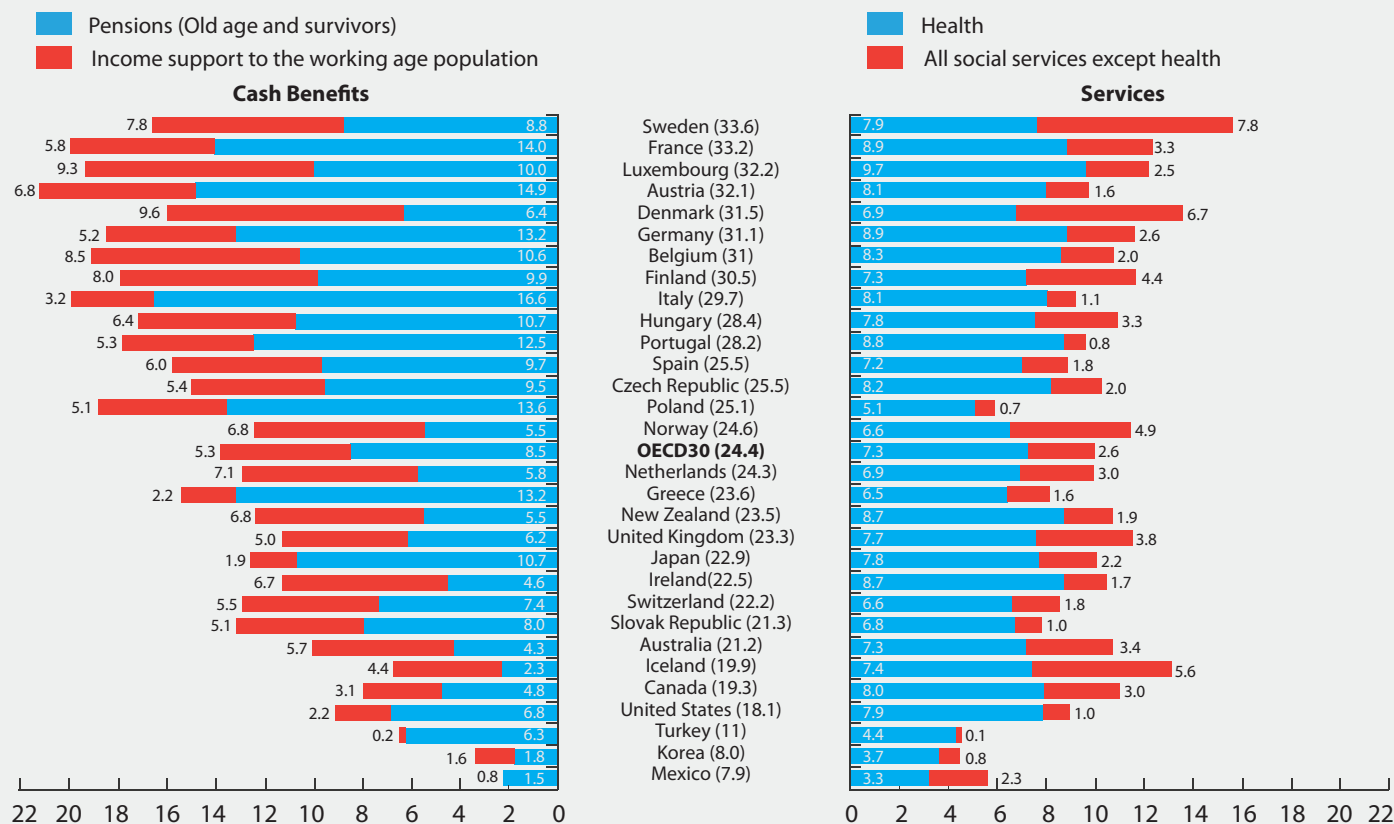
These investments expanded educational opportunity, strengthened our social safety net, and developed a physical and technological infrastructure that helped industry and citizens alike to thrive.

The post-war social contract began to dissolve in the 1980s. This shift – characterized by tax cuts, deregulation, and decreased public spending – also resulted in radical disinvestment in the nation's infrastructure and workforce.

In the last thirty years, our nation has experienced a paradox of productivity and progress. Productivity, driven by extraordinary growth in technology and an increased push towards consumption, has nearly tripled. Meanwhile social, environmental, and educational progress has stalled.

Over the past three decades, American median income has stagnated and job quality has declined for many workers. Health care costs have eaten into wage growth and tuition costs have risen. Poverty and environmental pollution have become more prevalent. Affordable, quality childcare and accessibility to higher education have grown more elusive.

Figure 1. Type of Public Social Expenditures, As Percentage of All Net Income Earned in Production, 2005



Source: OECD (2008), Social Expenditure Database, 1980-2005

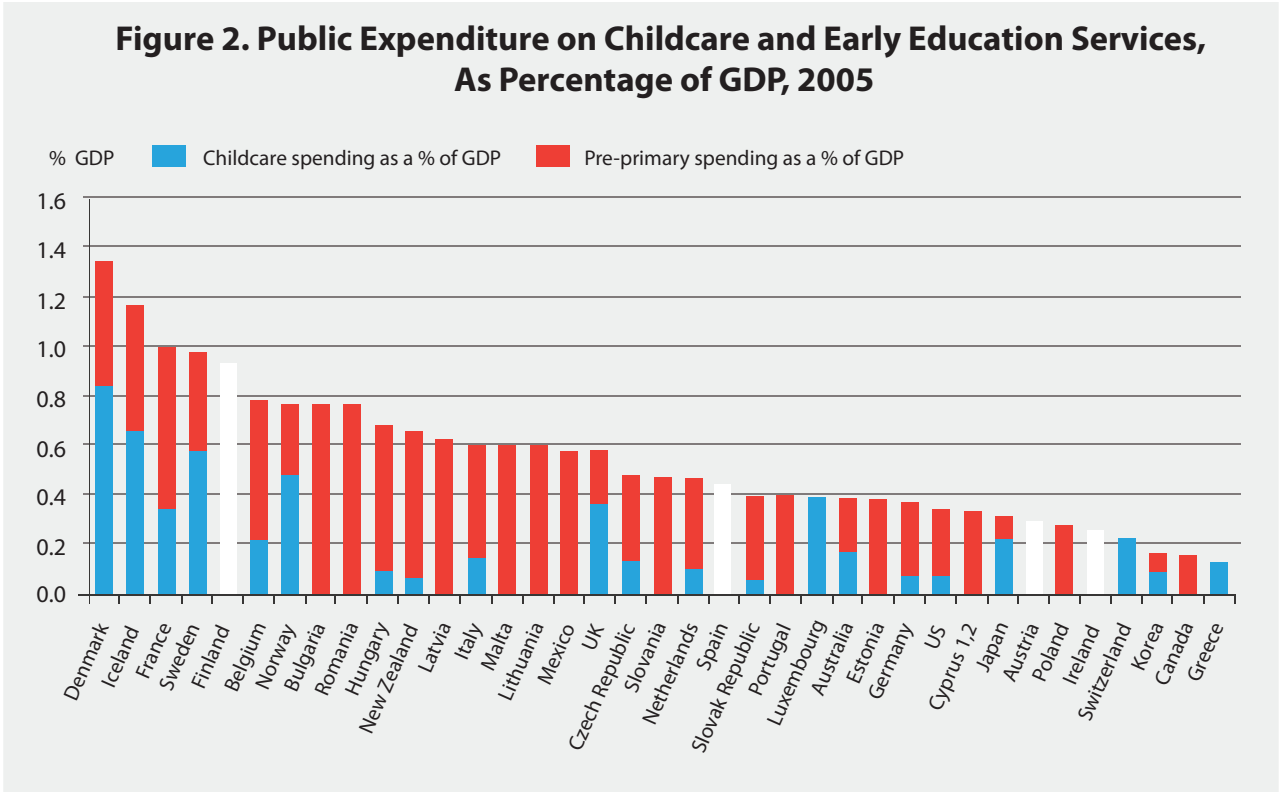
Panic over our rising national debt receives ample attention in Congress and in the media, and deficit spending is often branded as the greatest threat to our nation's future. While ignoring our fiscal challenges could undermine our security and economic flexibility, the ongoing lack of investment in American infrastructure and workers has and continues to severely threaten our competitiveness and future economic prosperity.

The U.S. ranks 27th – nearly last – among OECD countries when it comes to social spending—such as disability, old age, unemployment, and poverty alleviation—that addresses the well-being of its population.¹ (See Figure 1.) This brief highlights examples of the disinvestment problem, pointing specifically to failures in areas such as education, transportation, technology, and research and development.

The Social Infrastructure Deficit

Early Childhood Education and Care

Most developed nations have recognized that affordable childcare is both a necessity for working parents and a key investment in the cognitive and social development of children. Yet the U.S invests significantly less than many of our peers in this area. In 2005, total public spending in the United States on child care and preschool was 0.4 percent of GDP, ranking 28th out of 37 countries.² (See Figure 2.)



Source: OECD Family Database

Paid family leave for new parents is not guaranteed in the U.S., though it is in every other developed nation today. In the United States, childcare assistance is provided to only about one in seven children who are eligible to receive federal assistance.³ Because the majority of children under the age of 5 are raised by parents in their 20s and early 30s, the lack of affordable, high-quality childcare exacerbates the difficulties of our nation's young workers in the labor market, and of women especially.

The National Women’s Law Center found that, “In many states, payment rates to providers serving children receiving child care assistance are far too low to support good-quality care.”⁴ Despite research that shows the importance of early learning, 39 percent of American children age three to five were not enrolled in any type of nursery school, preschool, or kindergarten in 2008.⁵ With many states cutting Pre-K funding for fiscal years 2010 and 2011, even fewer children will have access to quality care in the near future. (See Figure 3.)

Academic studies have consistently shown that early care and education is critical for child well-being and recoups society's investment up to seven-fold. Recognizing the importance and potential of such an investment, the American Recovery and Reinvestment Act contained about \$4 billion in extra funding to Head Start and the Child Care Development Block Grant.⁶ While certainly a move forward, more federal investment in early education is needed, particularly as state-level investments suffer in the wake of debilitating state budget cuts.

Figure 3. Pre-K Funding in Select States, Fiscal Years 2010-2011

State Pre-K Program	FY10 cuts	FY11 proposed cuts
Arizona	50% (\$6,119,959)	100% (\$6,119,959)
California		0.40% (\$1,755,600)
Colorado	2.3% (\$950,391)	3.5% (\$2,565,500)
Connecticut	5.8% (\$4,187,275)	
Florida		1% (\$3,672,000)
Illinois	10% (\$32,702,446)	15.9% (\$48,431,400)
Kansas (At-Risk Program)	6.8% (\$1,356,767)	5.2% (\$1,716,000)
Kentucky		2% (\$1,502,000)
Louisiana (LA4)	7% (\$5,499,000)	0.8% (\$797,600)
Massachusetts	27% (\$17,474,398)	
Michigan	7.3% (7,537,250)	
New Mexico	3% (\$549,400)	10.4% (\$2,007,200)
New York	8% (\$30,014,097)	3.5% (\$14,493,500)
North Carolina	3% (\$5,114,157)	3% (\$5,000,000)
Ohio	33% ECE (\$11,473,552) 100% ELI (\$116,874,161)	
Pennsylvania (Pre-K Counts & state HdSt investments)		0.9% (\$1,300,500)
South Carolina (4K and CDEPP)	16% (\$6,542,810)	
Washington	3% (\$1,678,289)	0.35% (\$193,000)
Wisconsin	3.5% (\$252,438)	

Source: National Institute for Early Education Research, Rutgers University

K-12 Education

With states facing huge budget shortfalls, cuts have been made in K-12 funding in thirty-three states and the District of Columbia since 2008⁷. Arizona, for example, eliminated preschool for 4,328 children and cut funding for kindergarten in half, while Colorado cut \$260 million in public school spending in FY 2011, signifying a 5% fall from FY 2010 and cuts of over \$400 per student.⁸

Higher Education

Faced with limited opportunities and poor conditions in the job market, more and more young people have rushed onto college campuses. Since 1950, the percentage of high school graduates immediately enrolling in either 2- or 4-year colleges has risen from just under 50 percent in 1980 to over 69 percent in 2008.⁹ But, as tuition at public universities has more than tripled since 1980¹⁰, many students have found completing college financially impossible, dropping out under heavy work and student loan burdens. The main driver of these tuition increases has been a steady decline in state funding of higher education, which today is at a 25-year low. In fact, state funds accounted for 46 percent of the operating support for public institutions in 1980, but just 27 percent in 2005.¹¹ As states confront gaping budget holes today, the trends of increased tuition and reduced student aid continue across the country. Furthermore, states are cutting into many programs traditionally offered to students, in order to cut costs. In one example, UC Berkeley recently announced plans to eliminate four intercollegiate sports in order to cut budget costs.¹²

What has resulted is a middle class squeeze, with tuitions climbing faster than inflation and thus becoming unaffordable for increasingly more middle class families. Policymakers addressed the issue by shifting state and federal financial aid resources away from grant aid for the neediest students toward merit- and loan-based aid. Nevertheless, the average college graduate today leaves school with over \$20,000 in student loan debt, and one in five do so without a diploma.¹³

Further, the weak labor market has meant that students (and their families) who work to finance their tuition and living costs are having trouble finding jobs, and many have delayed or abandoned college plans as a result.

The impact of the reversal in state funding and financial aid is evident in the United States' standing with regards to college attainment. In the past, the U.S. was the global leader in higher education attainment. The College Board now finds the U.S. ranking twelfth out of 36 advanced nations in terms of the number of 25- to 34-year olds with college degrees.¹⁴ In the case of higher education, we have fallen behind in an area in which we once excelled.

The Physical Infrastructure Deficit

The physical infrastructure of a country includes its roads, airports, railroads, water supply, power grid, and telecommunications network. It also includes public institutions such as schools, government buildings, police stations, and the postal system. A well-maintained and evolving physical infrastructure is critical to economic production and consumption. It also enables comfortable living conditions, (heated homes and safe drinking water, for example) not to mention civil society.

Maintaining a physical infrastructure as large as that in the U.S. is a formidable challenge, one that we have not met. Even when combining federal, state, local, and private-sector expenditures, the U.S. currently spends about two percent of GDP per year on infrastructure investment. This is well below the average of what other developed nations spend (3 percent) and significantly less than the estimated nine plus percent spent by China.¹⁵ Our level of investment is inadequate to keep much of our current infrastructure functioning, let alone to improve it. The American Society of Civil Engineers estimates that we will need to invest an additional \$1.1 billion over the next five years in order to adequately improve the condition of our infrastructure.

Figure 4. American Society of Civil Engineers, Report Card for America's Infrastructure, 2009 Grades

Aviation	D
Bridges	C
Dams	D
Drinking Water	D-
Energy	D+
Hazardous Waste	D
Inland Waterways	D-
Levees	D-
Public Parks and Recreation	C-
Rail	C-
Roads	D-
Schools	D
Solid Waste	C+
Transit	D
Wastewater	D-

America's Infrastructure GPA: D
Estimated 5 Year Investment Need: \$2.2 Trillion

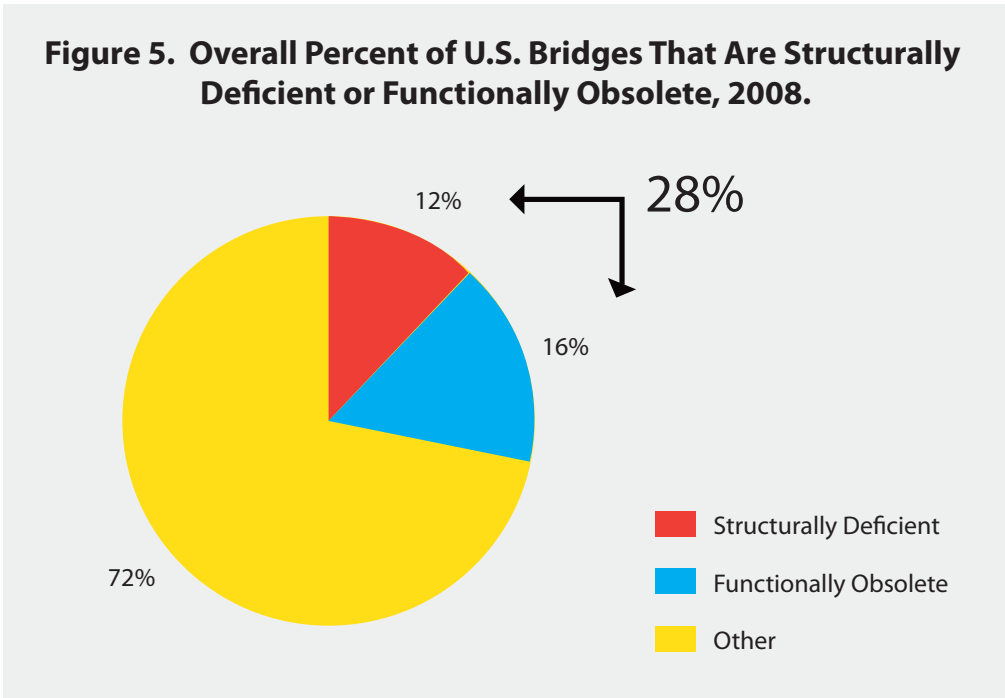
Source: American Society of Civil Engineers

Transportation

Thirty-three percent of U.S. roads are in poor or mediocre conditions.¹⁶ Poor road quality is a major factor in congestion and traffic accidents. Americans spend more than 4 billion hours a year stuck in traffic. This costs the country more than \$78.2 billion a year in wasted time and fuel costs.

Even as gas prices have skyrocketed, the total fuel wasted due to traffic congestion climbed from 1.7 billion gallons in 1995 to 2.9 billion gallons in 2005.¹⁷ From 1980-2005, vehicle miles traveled (VMT) by cars increased by 94%. VMT for trucks increased 105%. At the same time, the number of highway lane miles

available grew by less than 4%. This dramatic disconnect creates crowded, rapidly deteriorating roads that are a recipe both for inefficiency, pollution, and increased accidents, injuries and loss of life. We spend \$70 billion for highway capital improvements each year, but experts estimate that we need more than \$186 billion annually to substantially improve the nation's highways.¹⁸



Source: American Society of Civil Engineers

sizes, and weights. In the U.S. about 12 percent of bridges are structurally deficient, and about 16 percent are functionally obsolete.¹⁹ (Figure 5.)

We spend nearly \$10.5 billion a year on the construction and maintenance of bridges. The American Society of Civil Engineers says that we need a \$17 billion annual investment “to substantially improve current bridge conditions.”²⁰ The day-to-day impact of faulty bridges comes in traffic delays, congestion, detours for commuters, and the routine rerouting of trucks and emergency vehicles. Such circumstances may seem like simple hassles, but their aggregate effect is more than superficial. They cause frustration. They raise the costs of commuting and make transporting goods (both for producers and buyers) more expensive. They also waste precious time for emergency responders.

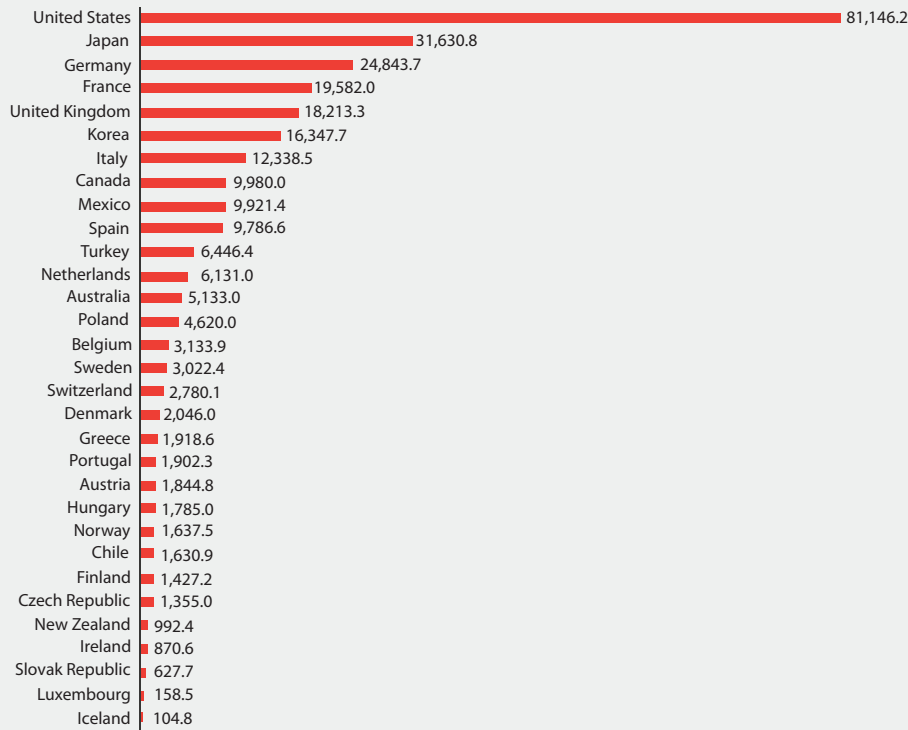
Occasionally the price we pay for structural deficiency is even higher. In the summer of 2007, Minneapolis’ eight-lane I-35 West bridge was packed with rush hour commuters making their bumper-to-bumper way across the Mississippi River. Its collapse killed 13 and injured more than 145. The I-35 West bridge had been rated structurally deficient for 17 years prior to its collapse.

Minnesota Governor Tim Pawlenty reminded everyone at the time that the structurally deficient rating “doesn't necessarily mean a bridge is unsafe or in need of replacement. But...anybody who looks at the national picture . . . and says we don't have a problem would be naive.”²¹

According to the U.S. Department of Transportation, about one in four rural bridges, and one in three urban bridges, were structurally deficient or functionally obsolete in 2008. A structurally deficient bridge may not be unsafe in and of itself, but it is subject to intermittent closure, traffic restrictions and weight limits. A functionally obsolete bridge may also still be in use, however it has antiquated design features and geometrics, and cannot accommodate current traffic volumes, vehicle

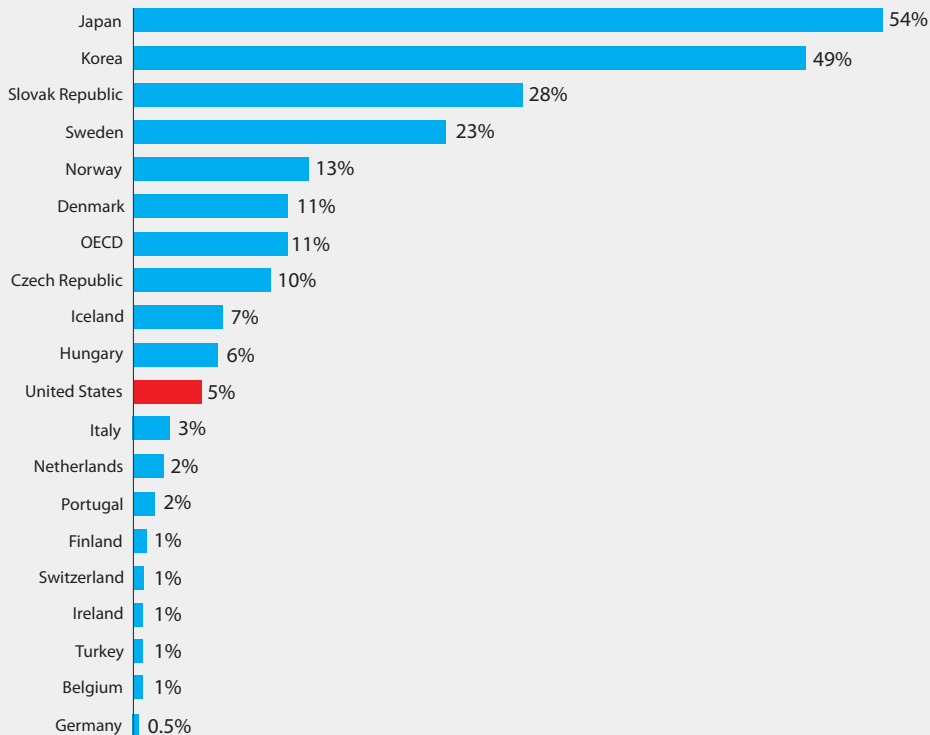
Broadband

Figure 6. Total Broadband Subscribers (000s), December 2009



Source: OECD Broadband Portal, June 2010

Figure 7. Fiber Optic Connections Percentage of Total Broadband Subscriptions, December 2009



Source: OECD Broadband Portal, June 2010

As of 2009, the U.S. ranks first in the world in terms of broadband usage. With 81 million subscribers, the U.S. is more than double the size of the next largest broadband market, Japan (at 31.6 million subscribers). Yet the U.S. ranks 10th in terms of percentage of fiber optic connections, and 24th in terms of download speed of our networks. In 2007 the trade publication Digital Journal summed up the consequences of the U.S. being far behind other nations in this realm: "... Downloading a 4.5 GB file at 5 megabit connection [the U.S. "high speed" connection at the time of publication]...takes 15 minutes, whereas the high-speed 60 megabit connection in Japan can download the file in a mere 1.25 seconds."²²

This dramatic difference in speed not only affects the average consumer who is downloading a movie in a fraction of an hour versus a fraction of a second. It also affects businesses that rely on a high-speed connection, making them more likely to move abroad. Our behind-the-times information infrastructure also puts us at a critical disadvantage when it comes to developing advances such as telemedicine, which rely on superfast connections.

Figure 8. Average Advertised Broadband Download Speed, By Country, Kbits/second*, October 2009

Japan	107,725
Portugal	103,718
France	54,551
Korea	52,772
Netherlands	33,679
OECD AVG	30,550
Hungary	27,542
Slovak Republic	26,939
Austria	25,519
Sweden	23,693
Australia	21,823
Denmark	20,397
Switzerland	20,073
United Kingdom	19,681
Poland	19,675
Canada	19,567
Czech Republic	18,788
Finland	18,384
Norway	18,000
New Zealand	17,807
Iceland	17,774
Germany	16,033
Greece	15,945
United States	14,619
Italy	14,336
Spain	12,800
Belgium	10,825
Turkey	10,473
Luxembourg	10,457
Ireland	6,088
Mexico	2,514

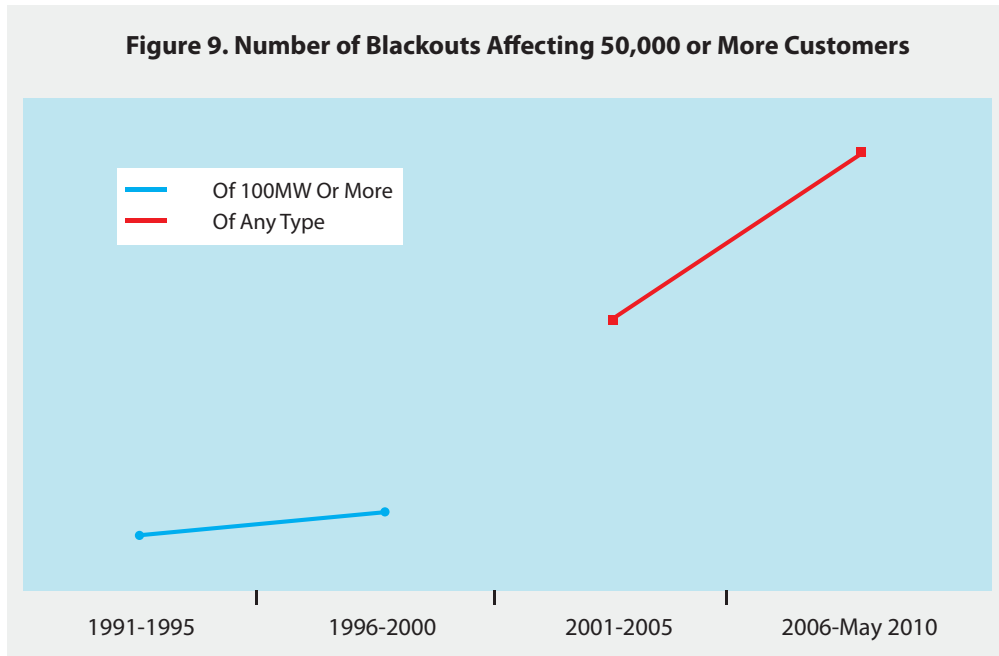
Source: OECD Broadband Portal, June 2010

Note (*): Advertised speeds are typically the theoretical maximum for the employed technologies. Users commonly have lower actual speeds. Also, often only parts of the country have been upgraded to the fastest speeds.

Energy

For the most part, with current technologies electrical energy cannot be stored. Instead it must be generated as needed. A power grid connects generators or electricity with transmission equipment that transfers electricity to meet demand. The U.S. power grid is really three major interconnected sections. It consists of about 3,100 utilities.²³

As most of us have experienced, a heavy snowstorm or lightning strike can cause a blackout. But failures in our antiquated power grid are also increasingly to blame. In the past 20 years, the number of non-natural disaster-related blackouts affecting more than 50,000 customers has skyrocketed. The U.S. experienced 41 of such blackouts between 1991 and 1995. Between 1996 and 2000 we experienced 58 of them.



Source: S. Massoud Amin, "Turning the Tide on Outages," GreenTechGrid

Between 2001 and 2005, we experienced 92 of them.²⁵ These figures apply to outages of 100 megawatts or more. If we look at the total number of outages that have affected consumers in just the last decade, the figures are even higher. The number of outages (of any megawatts) affecting 50,000 or more consumers increased from 197 (during 2001-2005) to 312 (during 2006-May 2010). (See Figure 9.)

(* These are the Eastern Electrical Grid, the Western, and the Texan (or the Electric Reliability Council of Texas). + These are blackouts of 100W or more.)

The blackout that affected the Northeast in 2003 left 50 million people without power for nearly three days and cost the economy about \$10 billion.²⁷ Less than three years later, Queens, New York lost power for nine days. We have learned too often in recent years that blackouts due to infrastructure failure are not only an inconvenience, they are expensive. Many of them are also preventable.

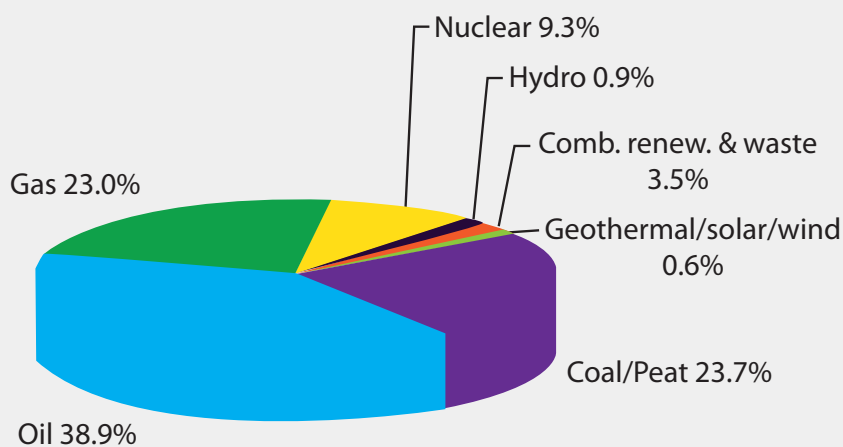
Investments are needed in several areas. First, we need to invest in making the existing grid more efficient in how it generates, transmits and distributes power. This involves making a grid that can heal itself by monitoring and reacting to demand in real-time, by anticipating problems that could lead to larger disturbances, and by being able to isolate and work around parts of the system that have gone offline.²⁸ Testing and implementing such a system would be a major investment -- thought not out of line with investments that have been made in the past. Energy and engineering experts Amin Massoud, of University of Minnesota and Phillip Schewe of the American Physical Society estimate the project would take 10 years and cost about \$13 billion a year -- 65 percent more than the industry currently invests annually.²⁹

Massoud and Schewe put this figure in perspective relative to the size and cost of regular blackouts:

The costs sound high, but estimates peg the economic loss from all U.S. outages at \$70 to \$120 billion a year. Although a big blackout occurs about once a decade, on any given day 500,000 U.S. customers are without power for two hours or more.³⁰

We also need to invest in new facilities to generate and transmit power. The demand for electricity has increased by about 25 percent since 1990. Meanwhile the construction of transmission facilities has decreased by 30 percent. The annual investment in these facilities had declined or been stagnant for nearly 30 years before we finally began to invest in them around 2006.³¹ These investments are promising, but they represent only the beginning of what we need to do.

Figure 10. U.S. Primary Energy Supply by Type of Power, 2007



Source: International Energy Agency

A smarter grid and new facilities to generate and transmit power will only achieve their full promise if we also invest in new sources of power. In 2007, fossil fuels made up 86 percent of the United States' total primary energy supply, while alternative energy sources accounted for just 14 percent.³² (Figure 10.) Our current approach to power generation and usage is not sustainable, in every sense of the world.

In 2009, China invested nearly \$35 billion in clean energy, close to double the \$19 billion invested by the U.S. (Figure 11.) In terms of private equity and venture capital, we still lead the world in dollars devoted to this burgeoning industry. Our lack of investment is mostly in terms of federal dollars and policy priorities. As a percentage of GDP, we ranked eleventh among G-20 countries in 2009. Spain, for example, invested five times more, and China and the United Kingdom three times more.³³

The consequences of being behind other countries are not only felt in an ongoing dependence on oil and other non-renewable forms of energy. They are also felt in large losses when it comes to attracting and retaining high tech employers and producers in one of the fastest growing and most future-oriented industries in the world.

Unless this trend is reversed, corporate investment will continue moving abroad. Applied Materials is a Silicon Valley-based equipment manufacturer for the semi-conductor industry with a market capitalization of more than \$15 billion. In fall of 2009 the company moved its chief technology officer to Beijing and opened a large solar research and development center in the city of Xian. Mark Pinto, the Applied Materials' CTO, told the Chicago Tribune that China's fast-growing solar-energy market, fueled by government investment was a main factor.³⁴ Applied Materials was already a global company before the move. But current trends will likely accelerate its overseas expansion, as well as that other companies.

**Figure 11. 2009 Clean Energy Investment Among G20 Countries, \$ Billions
(Top 10)**

China	\$34.6 Billion
United States	\$18.6 Billion
United Kingdom	\$11.2 Billion
Rest of EU-27	\$10.8 Billion
Spain	\$10.4 Billion
Brazil	\$7.4 Billion
Germany	\$4.3 Billion
Canada	\$3.3 Billion
Italy	\$2.6 Billion
India	\$2.3 Billion

Source: The Pew Charitable Trusts, Who's Winning the Clean Energy Race? Growth, Competition and Opportunity in the World's Largest Economies, March 2010.

Conclusion

With our nation's public finances struggling under the pressures from two unfunded wars, the largest tax cuts in modern history, and the great recession, policymakers are focusing blindly on deficit reduction, myopically shunning investments critical to economic recovery and long-term prosperity. Yet, the greatest chance for creating broadly shared and sustainable economic growth – that is, for securing our nation's fiscal future – is a renewed commitment to investments in our nation's social and physical infrastructure.

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