DOE Quadrennial Energy Review – Stakeholder Meeting

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As stewards of the nation's infrastructure, civil engineers are responsible for the design, construction, operation and maintenance of our vital public works. With that responsibility comes the obligation to periodically assess the state of the infrastructure, report on its condition and performance, and advise on the steps necessary to improve it. We do this in part by compiling our Report Card for America's Infrastructure.

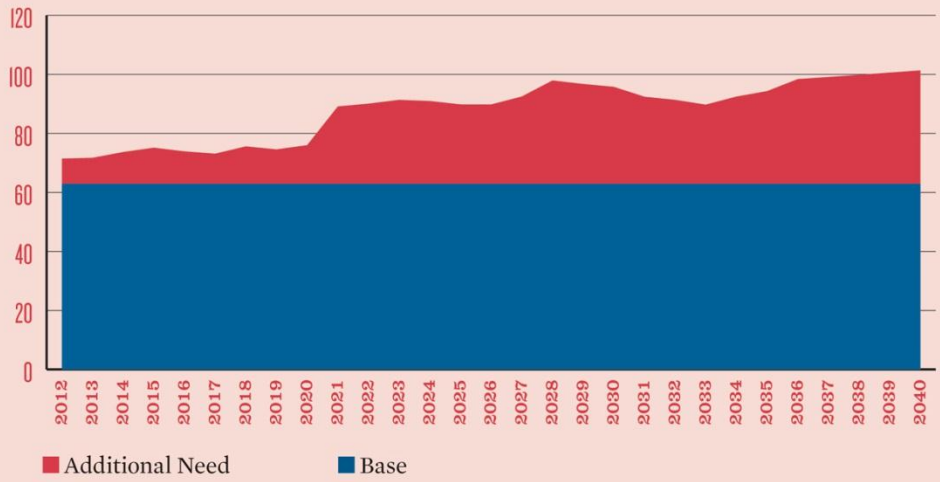
In March of 2013, ASCE released the latest version of its Report Card for America's Infrastructure. This report card, which our organization has released every four years since 1998, is a comprehensive assessment of the nation's major infrastructure across 16 categories. Using a simple A to F school report card format, the Report Card provides an in-depth assessment of current infrastructure conditions and investment needs. America's cumulative GPA for infrastructure rose slightly to a D+ from our last report card in 2009, as six sectors showed improvement. However, a D+ is certainly not cause for celebration. Our underperforming infrastructure is a drag on the nation's economy, leading to lower GDP and fewer jobs for American families.

The Report Card highlights the fact that, like everything, infrastructure has a lifespan. Good maintenance can extend that lifespan, but not forever, and a lack of maintenance can shorten it. This is not something that happens dramatically overnight but a gradual worsening over time.

Far too many of our infrastructure systems lack the funding needed for proper maintenance, and we continue to see categories that simply are not seeing the investment to improve day to day performance and save money in the long-term. The backlog of projects to maintain and modernize our infrastructure keeps growing.

We also know that our energy needs in this country are growing, and will continue to grow. We need safe, reliable infrastructure systems to transport and deliver this energy, and we are facing a growing investment gap in these systems that will become more dramatic after 2020.

FIGURE 2 ★ Projected Needs and Gap by Year Compared with 2001–10 Average Investment Levels *(in billions of 2010 dollars)*



SOURCE EIA Annual Energy Outlook 2011 (years 2008-2035) and NERC 2011 Long-term Reliability Report, Eastern Interconnection Planning Collaborative, Phase I Report, December 2011, Renewable Energy Transmission Initiative Electric Power Research Institute and Federal Energy Regulatory Commission. Calculations by La Capra Associates and EDR Group

On the basis of projections made by the U.S. Energy Information Agency (EIA), electricity use is expected to increase nationally by 26 percent from 2011 to 2040, as seen in Table 6.

TABLE 6 ★ **U.S. Demand for Electric Energy is Expected to Increase 8% between 2011 and 2020**

DEMAND	2011	2020	2040
U.S. demand In terawatt-hours	3,692	3,976	4,658
Percent residential	37%	35%	36%
Percent nonresidential	63%	65%	64%
OVERALL PERCENT GROWTH			
2011–20	8%		
2021–40	17%		
2011–40	26%		

SOURCES EIA, *Annual Energy Outlook 2011* (for 2008–35); calculations by La Capra Associates to extend the analysis to 2040.

Will our energy transportation systems be able to handle this growth?

As the Report Card has shown, we have continued to underinvest in these systems, and consequently, conditions are not good. The "roads" category received a grade of D in the latest Report Card. More than 40 percent of our urban highways are congested, and 32 percent of America's major roads are in poor or mediocre condition, costing U.S. motorists who are traveling on deficient pavement over $300 dollars per driver in additional repairs and operating costs.

The grade for bridges went up as states took the lead in reducing the number of structurally deficient bridges. However, there remain more than 66,000 structurally deficient bridges – that's 11 percent of the nation's more than 600,000 bridges – of 1 in 9. Of note, 22 states have a higher percentage of structurally deficient bridges than that national average.

America's rail sector saw the most improvement, moving from a C- to a C+, due to the freight rail industry investing more than $75 billion since 2009 to modernize its network. Amtrak

continues to beat its own records for ridership, benefiting from federal investments in tracks, bridges, tunnels, and increased capacity from both freight and passenger operations.

While the nation has seen some improvements in pavement conditions due to a short surge of investment from the American Recovery and Reinvestment Act, these were not sustained, long-term investments. Since the first Report Card was issued nearly 15 years ago, the grades have been near failing, averaging only a grade of D, due to delayed maintenance and underinvestment across most categories.

In our 2013 Report Card, we estimate that across all 16 categories of infrastructure, the total investment needed by 2020 is approximately $3.6 trillion dollars. After estimated likely spending, we are left with a shortfall of$ 1.6 trillion dollars by 2020. That's just over $200 billion dollars a year.

For surface transportation alone, we face an investment shortfall of almost $900 billion for our roads, bridges, and transit systems by 2020.

This naturally has implications for freight movement within the United States and beyond. A recent report from the National Freight Advisory Committee, which includes a member recommended by ASCE, echoes the need for investment and the economic consequences of current investment trends and the corresponding deterioration in our nation's transportation infrastructure. Their funding recommendations include:

-Encourage intermodal freight activity through streamlined investment

-Revise federal policies to incentivize the efficient and effective use of available funding for freight projects.

-Address aging infrastructure, bridge weight limitations, and generally poor road pavement conditions within heavy-haul corridors with a priority towards State of Good Repair and asset management

ASCE supports these recommendations, which are critically important to safe and reliable energy transportation.

When our roads prevent trucks from getting from Point A to Point B to deliver goods, we suffer. When blackouts turn off the lights of businesses, we suffer. And when our ports can't keep pace with the realities of international commerce, we suffer. It hurts our GDP, our ability to create jobs, our disposable income, and our competitiveness with other nations. It also affects our quality of life every day.

The four years since our last Report Card have demonstrated that our infrastructure problem can be solved – if we have leadership that commits to making good ideas a reality. Continuing to raise the grades will require that we seek and adopt a wide range of solutions. The American Society of Civil Engineers has developed three key solutions to continue this positive trend.

- First, we need to increase leadership in infrastructure renewal – at all levels of government – local, state, and federal. America's infrastructure needs bold leadership and a compelling vision.

- Second, we need to promote sustainability and resilience. Events like Hurricane Sandy remind us of how vulnerable our infrastructure systems can be to extreme weather. As infrastructure is built or rehabilitated, life-cycle cost and resilience should be a part of the equation.

- And finally, we must agree on how to prioritize and plan for strategic new investments in infrastructure that position our communities for the future.

There is no silver bullet to fixing our infrastructure, but make no mistake: unless we address the backlog of projects and deferred maintenance throughout the country, the cost to each American family will reach $3,100 dollars per year in personal disposable income.

In closing, our roads, bridges, water systems, electric grid and other infrastructure systems are the foundation that connects the nation's businesses, communities and people. They drive our economy and improve our quality of life. For the U.S. economy to be the most competitive in the world, we need a world-class infrastructure system.

In the short term, we need a national commitment to bring existing infrastructure into a state of good repair. In the long term, we must modernize and build in a targeted and strategic manner.