

**Putting the Stimulus to Work**  
by Daniel Gabaldon and Joseph Van den Berg

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# Putting the Stimulus to Work

How to spend \$800 billion and actually improve the nation's infrastructure.

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**T**he American Recovery and Reinvestment Act (ARRA) — the stimulus plan — combines two worthy goals: modernizing the nation's aging infrastructure in the long term and creating new jobs in the near term. In many ways, the bill is tailored to be a model of efficiency, with tactics adapted from the private sector to measure effort and results. For example, US\$3.1 billion earmarked for energy efficiency spending carries a mandate to meet a stringent benchmark of reducing 10 million BTUs per \$1,000 spent. Yet, at different points, these twin objectives may be mutually exclusive or difficult to achieve in tandem unless policymakers first consider the challenges posed across three basic dimensions of the program:

## 1. Which types of projects should get built?

Projects that are best suited to job creation aren't necessarily the ones that deliver the biggest headlines — or that are the most appealing politically. To appreciate the challenge, start with the fact that the labor multiplier — the number of jobs created per dollar of expenditure — varies dramatically among different types of investments. Consider smart grid development: Although a highly popular idea, only one job is generated for every \$125,000 spent. The Obama administration, in proposing the stimulus package, had hoped that the expense for each job would be about \$90,000.

By contrast, other projects are equally valuable from an infrastructure perspective and more valuable from a job creation perspective but might be overlooked because they are not inherently exciting or because of quirks in individual and institutional decision making. These projects tend to be too mundane or provide benefits of too diffuse a nature to garner political support. Energy efficiency is a classic example of a project area long recognized as holding the potential for high-impact, low-cost economic benefits (creating jobs inexpensively) and environmental benefits. But it has been chronically underexploited due to consumer and business resistance (for one, required rates of return on investment are irrationally high), lofty transaction costs, and the sheer ennui that energy efficiency seems to elicit.

Another type of project that is both essential and a job creator but that is by and large neglected is urban infrastructure, such as roads, bridges, water pipes, sewers, and power lines. These projects have a significant impact on at least four basic services: moving electrons (the generation, transmission, and distribution of power), moving goods, moving individuals, and housing people. There is an inherent interaction among these services; choices made in one sector, say in designing roads, affect the others, including the types of houses that are built (which depends on the population density of a region),

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the need for personal transportation, and electricity and other energy infrastructure requirements. Most urban infrastructure is planned, funded, and built one sector at a time. Planning and investment to develop the information, power, and transportation infrastructure that enable smarter urbanization require deliberate coordination across infrastructure and manufacturing sectors.

**2. How fast should they get built?** The “need for speed” is obvious from a macroeconomic perspective, and perhaps politically as well, but the proper pace for infrastructure investment is more measured. The ARRA specifies that funds must be allocated to specific projects by September 2011. To put this effort in perspective, to inject the planned sums of stimulus into the economy, federal agencies must disburse approximately \$600 million per week for the next two years.

Were this program aimed exclusively at enhancing U.S. infrastructure with maximum efficiency and effectiveness, the preferred timing would be slower, at least initially, in order to ensure proper planning and the support of various affected constituencies — such as environmentalists and local communities — in designing rather than litigating a mutually agreeable construction effort. Indeed, the rush to meet arbitrarily imposed deadlines for fund dispersal or project completion will only increase the final price tag. In particular, litigation that causes delays and frequent change orders in ongoing projects has been a recurrent source of cost overruns in the United States. Supply chain bottlenecks, suboptimal sourcing, excessive allocation of risk to general contractors, and subpar design are also common consequences of rushed infrastructure development.

These issues can and should be avoided by making investment more predictable. Although recent growth

rates in the use of renewable electricity throughout the industrialized world have been impressive, shortages in components and skilled labor have generated even more impressive cost increases; in the medium term, these shortages could cause lower penetration rates than might otherwise have been achieved. Policymakers need to anticipate supply shortages created by well-intended subsidies or mandates, and institute reasonable construction ramp-up periods to meet targets. In addition, a blitz of support followed by disinterest discourages suppliers from investing in R&D or scaled production facilities to drive innovation and cost reductions — a situation that has characterized U.S. renewable energy policy that has been built mostly on shifting tax credits over the past decade.

A more deliberate pace would also enable planning and investment to be better coordinated. In the U.S., regulators, agencies, and jurisdictions responsible for managing infrastructure are highly fragmented. This complexity escalates risks and costs through overlapping rights among municipalities, states, and federal agencies, which in turn heightens the chance that there will be litigation and delays — a not uncommon presence in liquid natural gas pipelines and drilling, electricity generation and utility grid projects, and light rail development efforts. Clarifying the proper scope and oversight of the various interested authorities would be immensely beneficial, but will require a massive amount of patient attention by the Obama administration.

**3. How many projects should be done?** The rules on how stimulus funding is disbursed can make a significant difference in the number of projects that are undertaken — and, in turn, influence broadly the eventual efficacy of the investments. For example, as initially conceived, funds for smart grid developers would have been capped at \$20

million per recipient. The intent was clearly to level the playing field, permitting a large number of smaller companies to participate, and to ensure that a wide variety of different technologies could be assessed. However, because the scale of individual smart grid deployments frequently exceeds \$1 billion per city, it's not clear how \$20 million per project will have much of an effect. Ironically, the cap would have created a nonproportional distribution of funding. In the U.S., the top 15 utilities have roughly 50 percent market share of electric customers. Doing the arithmetic, those utilities would have qualified for only 8 percent of the total funding, creating a gross mismatch in allocation. In response to widespread industry criticism, the administration subsequently increased the cap tenfold, to \$200 million per project, ensuring not only that more of the larger utilities would be interested in participating but that they would get more funding and have a greater impact on the outcome.

The train has left the station. The stimulus plan has passed Congress, applications for funding are being drafted and submitted, and funds will soon start flowing. In the long term there is ample room for policy reform to start to address some of the issues outlined above, but for now it falls largely to the private sector (the companies actually doing the construction work) to ensure that ARRA funds, and the trillions in other stimulus programs being implemented elsewhere around the world, are being deployed as effectively and efficiently as possible. We offer the following suggestions:

### 1. Empathize with the administrators.

Administrators in agencies such as the U.S. Department of Energy confront a tsunami of applications. To best assist the administrators, companies seeking funds should understand how funds will be awarded and be able to clearly state how they will achieve the government's goals.

### 2. Don't succumb to "impulse buying"...

Many companies struggle with the desire to redefine their strategic priorities in order to justify a funding application. After all, who wants to reply "Nothing" when the boss or the board asks, How much are we going to get from the stimulus? Indeed, by making support conditional on submitting only projects that would otherwise go unfunded, the administration reinforces the tendency for post hoc justifications. In the big picture, though, the current round of funding is close to inconsequential in comparison to the underlying needs for infrastructure investment and innovation. For example, the \$4.5 billion earmarked for smart grids represents less than 10 percent of the likely required investment in the nation's

electricity transmission and distribution infrastructure. It's best for companies to stay focused on the market's longer-term requirements in defining priorities.

### 3. ...but do anticipate a post-ARRA landscape.

Despite such shortcomings, the future path of the various U.S. infrastructure sectors may well be redefined, at least at the margin, by ARRA. Through much of the past decade, solar and wind energy witnessed dramatic decreases in cost as production scale and the beginnings of standardization kicked in, largely via European and Japanese subsidy programs. We may well witness the same outcome in smart grid, energy storage, energy efficiency, and other similar areas targeted by the stimulus plan. Furthermore, ARRA is attracting many new and often very innovative players into the energy and infrastructure sectors, which could alter the competitive landscape in the years to come. Thinking through the ramifications of post-ARRA infrastructure markets may be the most important task for both companies and policymakers. +

## Resources

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