The Scouting Report: Clean Energy Innovation

The climate change bill—titled "The American Clean Energy and Security Act of 2009" and crafted by Henry Waxman (D-Calif) and Edward Markey (D-Mass.)—has passed out of committee and is being readied for the House floor. The bill has significant components dedicated to energy innovation and clean energy technology development and deployment.

In the June 3 edition of the Scouting Report live web chat, Brookings policy expert Mark Muro and Politico senior editor Fred Barbash discussed how the legislation is more than just a cap-and-trade bill. Muro welcomes the bill's current innovation investments but contends they need to get much larger.

The transcript of this web chat follows.

12:31 Fred Barbash-Moderator: Mark Muro, a fellow and director of policy for the Metropolitan Policy Program at Brookings, manages the program's public policy analysis and leads key policy research projects.

He'll take your questions about the climate change bill—"The American Clean Energy and Security Act of 2009,"crafted by Henry Waxman (D-Calif) and Edward Markey (D-Mass.)—which has passed out of committee and is being readied for the House floor. It's popularly known as the "cap and trade bill" but there's a lot more there that Mark will describe.

Welcome Mark and welcome to all of our participants. Thanks for being here.

Let me begin by asking Mark to summarize the legislation briefly.

12:34 Mark Muro: Thanks Fred! But enough of the formalities. What is this bill? It's a landmark effort to limit and ultimately reduce the nation's carbon dioxide emissions by imposing a strict limit on them--the "cap"--while allowing companies and other emitters to decide within a market how they will achieve those limits, including by paying others too. That's the "trade" part. they can trade permits to pollute.

12:34 [Comment From Laurie] Many commentators about the landmark American Clean Energy and Security Act—aka the Waxman-Markey cap and trade bill—seemed to be worried either that the bill is too strict or too lax in its regulations of carbon emissions, or that it gave away too many allowances for emissions to polluters, or that it's too complex and bureaucratic? What's your basic take?

12:36 Mark Muro: Well, I come at this a bit differently. I ask: To what extent will the bill stimulate the vast amount of technology innovation we need to get to a cleaner new economy. And on that

front I feel the current document is insufficient. It provides too little revenue for stimulating scientific breakthroughs and their commercialization.

12:36 [Comment From Juliet] What do you mean by “innovation?”

12:38 Mark Muro: Innovation is the process by which new scientific breakthroughs are made and then converted into technologies that can then be commercialized to generate whole new ways of doing things. Innovation is inventing and selling at the hardware store a solar-active paint that when you put on your house and thereby power your appliances

12:38 [Comment From Jason] Why does innovation matter so much?

12:40 Mark Muro: Innovation is critical because the scale of our carbon emissions problem is so huge that we need to change the game. To avoid really serious climate dislocation we need by mid-century to reduce our emissions world-wide by about 75 or 80 percent. The problem is global energy use is projected to double in that time. So we have a lot to do and we're not going to get it done simply by regulating things. We need those solar paints. We need radically more powerful batteries for new cars.

12:41 [Comment From Ron] What do you think about the idea of simply painting roofs white?

12:42 Mark Muro: Painting roofs white is a great idea, typical of the sort of low-hanging fruit we need to pursue at massive scale. But we still also need new technologies and practices after we get the first 10 or 20 percent reductions.

12:42 [Comment From Adrianna] In your opinion, does the Waxman-Markey bill do enough to promote clean energy innovation?

12:46 Mark Muro: Well, no! As I say, I place that question at the center of assessing the bill, and while it makes some gestures, their scale is way too small. Generously, we estimate that the bill provides about 16 percent of its revenue to things that might contribute to helping generate breakthroughs, which at a likely pollution permit price under the bill, amounts to perhaps $9 billion a year in investments. We think that number should be between $20 and $30 billion.

So we're nowhere near where we need to be.

12:46 [Comment From Elizabeth] Are the penalties sufficient to force significant shifts away from coal?

12:49 Mark Muro: Well, that's a good question that gets to another issue here. I am one who predicts the ultimate price-impact of this system will be modest, even notwithstanding the ways industries may game the system. So in that sense this won't be dislocating. But neither will it generate high enough prices to greatly alter behavior in many sectors. And most importantly, it won't by itself generate as much innovation as we need.

12:49 [Comment From Cory] Do you believe that it is possible for our politicians to facilitate the kind of innovation you are talking about, or do you think the public lacks the political will to move forward, which often causes politicians to act in a stagnant manner regarding these issues?

12:51 Mark Muro: It's not only possible for government (which you're right, may be different from the politicians!) but essential. The bottom line is that there are fundamental market failures that cause the private economy to generate too little innovation. If we are to have enough, government has to intervene--but in a smart, limited, commercialization-oriented way

12:52 [Comment From Erin] What are some of the shortcomings of existing federal energy R&D efforts?

12:55 Mark Muro: Well, it's true that the government's past efforts to address the innovation problem in energy suffer from two serious problems that we detail in a recent paper I developed with Jim Duderstadt of the University of Michigan and others. Basically, we say, first, that we invest way too little in energy innovation and commercialization, and second, that we do what do do in a rigid, siloed, ineffective way that doesn't well connect to the private economy, which is where any breakthroughs must be diffused across the world.

12:55 [Comment From Frank] What do you think of the regional tradeoffs being made in Congress to attract votes? Are they making the legislation better or worse?

12:57 Mark Muro: Within reason these are justifiable. If they do not undercut the strength of the cap and do not give away too much revenue they are the price of getting a system in place. But again, a great problem is too much revenue is being diverted away from innovation.

12:59 [Comment From Shuli Goodman] Early research suggests that central to successful adoption and diffusion we will need to engage stakeholders in the planning and diffusion. Secondly, it appears that the behavioral implications of the EERE transition are critical. Does the bill begin to sow the seeds of cultural transformation? How do we build the social aspects, which will enroll both governments at a policy level and "consumers" at a behavioral level in meeting this challenge?

1:04 Mark Muro: One portion of the bill that we like calls for investing 1 percent of the revenue in what are called Clean Energy Innovation Centers. These reflect our Brookings proposal for the nation to launch a network of energy discovery-innovation institutes (e-DIIs), regional, commercialization-oriented, hubs where scientists would work with corporations, venture capitalists, business managers, and others to come up with new killer-apps. With this we're trying to create the culture change we need, that you mention.

1:04 Fred Barbash-Moderator: Mark: Martin Feldstein, in a Post op ed, said this: "The proposed legislation would have a trivially small effect on global warming while imposing substantial costs on all American households."

What's your view? Especially about the costs.

1:07 Mark Muro: There's some truth to the first part, but I don't agree with the second part. The costs as I suggest will be modest. But Feldstein has a point, because we're just a quarter of the world's carbon production. So our achieving big cuts in the next 20 years could well be swamped by growth in world, and especially, Asian emissions. At the same time, I'm less pessimistic...American action--and technology breakthroughs, if they are funded--could change the game.

1:08 [Comment From Brendan] What do you make of Robert Stavins' argument that free allowances do not alter the underlying incentive to move manufacturing abroad to non-carbon cost nations?

1:11 Mark Muro: He is right to the extent that whether the allowances are auctioned or given out and how they are distributed after trading has no impact on the equilibrium distribution of the allowances--and the carbon emissions under the U.S. system.

1:11 [Comment From Karl] We have three new Vestas wind turbine plants here in Colorado. The Pueblo plant gleaned the best and the brightest from existing industry thus raising wages and lowering unemployment. The smart money is betting on renewables. How long before the renewable lobby out spends the coal/oil/lpg lobby?
1:12 Mark Muro: That's a smart point that also gets to the need to consider more dynamic responses and not assume a straight-line future. To an extent a substantial new industry is beginning to cohere.

1:13 [Comment From Gary] In a recent blog post in The New Republic, you mention that the existing framework for energy research is dysfunctional. What do you mean by this? What projects should energy research focus on? What would be the most productive?

1:16 Mark Muro: What I meant here is that our current approach is poorly funded (we're spending maybe $4 billion a year on innovation research when we need to spend say $25 billion a year) and then we're running that through highly siloed labs that don't have the culture now to address the multi-faceted problems we face and to move solutions to the point where the private economy can mass produce the killer apps that radically reduce energy use.

1:17 Fred Barbash - Moderator: We have time for just a few more questions, folks....

1:17 [Comment From Steve Steckler] Mark, you seem to be arguing, effectively, that the bill won't increase energy prices enough to change consumer -- and thereby producer -- behavior. While I prefer to stay out of the "debate" on global warming itself, I believe advocates of greenhouse gas reductions should demonstrate the courage of their convictions in calling for a large, broad-based carbon tax, or at least a steadily increasing tax on gasoline. With appropriate price signals to consumers, the portion of the tax revenue diverted to research becomes less relevant. So do you support command-and-control regulation via EPA, or taxes that internalize the environmental externalities into the price of fuels? (Cap-and-trade being sort of in-between the two.)

1:20 Mark Muro: I basically buy your argument (although I would want an adequate chunk of the revenue to flow to innovation). However, I fear a carbon tax is politically unfeasible (is that a word?), and itself wouldn't be implemented without "political" considerations. In this sense, I see cap-trade as implementable. But I'm worried about whether the money is going to go. Again, I'm somewhat agnostic about the form so long as we generate money for innovation. And no carbon price alone will generate sufficient innovation to get us where we need to go.

1:21 [Comment From Tom] If Congress did appropriate $30 million for green innovation, how would you want them to distribute it?

1:25 Mark Muro: Important hints about how $30 billion a year for innovation should be distributed can be seen in the Department of Energy's FY 2010 budget, developed by Sec. Chu who understands everything we are talking about. In there is the outline of a powerful energy innovation

system that would broadly engage the pure-science community through the funding of Energy Frontier Research Centers, conduct “disruptive” research through ARPA-E, and start eight of its own “energy innovation hubs” for translational work to get new energy technologies out of the lab and into the market. If there we re $30 billion coming, we could take all those up to really appropriate scale. We could ultimately create a national network of 20 or 30 of those hubs in many regions of the country working on many problems.

1:25 [Comment From Lee MMBJack McCarty] Have you considered building combination of the structure and solar energy collection, both structure and solar heating of water made so that the entire building is a solar energy collection and water converted to steam to drive the electrical generators?
1:26 Mark Muro: This is exactly the sort of problem one of the e-DIIs or "innovation hubs" could tackle and perfect. And indeed one of the requested DOE labs deals with building science.

1:27 [Comment From Karl] I think framing our energy future as a "global warming" issue is a distraction and we should call it what it is a National security issue. Your thought?

1:28 Mark Muro: I have no problem with that. We usually refer to three dimensions of the problem: climate, security, and then transformation of the economy. That's very real too, and especially appealing now given the state of the economy.

1:28 [Comment From Sally] Do you think Congress will really pass climate change legislation this year?

1:30 Mark Muro: I actually do think there will at least be a House bill this year. The important thing is ensuring that it's a good bill, that dedicates enough revenue to the right things, which are above all innovation to change the game.

But meanwhile Congress needs to get to work on the regular appropriation to DOE and start the very powerful new programs that Dr. Chu has requested.

1:31 Fred Barbash-Moderator: Mark: Thanks very much for taking the time to answer all these questions. And thanks to our readers for participating. Same time, same place next week.

And tomorrow, here at POLITICO, we'll have James Carville to chat with you at 2 pm. Join us.