Can we shift to renewable energy? Yes. As to how …

By David Roberts on 25 Mar 2013

We will need fossil fuels like oil and gas for the foreseeable future. So there's really little choice (sigh). We have to press ahead with fracking for natural gas. We must approve the Keystone XL pipeline to get Canadian oil.

This mantra, repeated on TV ads and in political debates, is punctuated with a tinge of inevitability and regret. But, increasingly, scientific research and the experience of other countries should prompt us to ask: To what extent will we really "need" fossil fuel in the years to come? To what extent is it a choice?

I don't know Elisabeth Rosenthal, but I could kiss her for this. Her piece in the Sunday New York Times is one of the few I've ever seen in the mainstream media to take the aspirations of climate hawks seriously, at least seriously enough to consider the possibility of a clean energy system an open question. Just by doing that, she bucks the defeatist conventional wisdom being peddled by her colleague Joe Nocera and dozens of other journalists and pundits. So yay for her!

It might seem like a small thing, but it's not. The most potent weapon in the hands of status-quo defenders is an aura of inevitability: We're stuck with fossil fuels for the rest of the century whether we like it or not; it's impossible to change any faster. That aura is an enormous advantage, but it's fairly brittle. Once rapid, positive change becomes (or becomes seen as) a live possibility, the question shifts from "can we do it?" to "should we do it?" "We can't do it" — always delivered in a tone of world-weary realism — becomes "we shouldn't do it," which is much more difficult to defend. When people get the sense that a better future for their children is possible, is real, is there for the taking, they are willing to fight and sacrifice for it, in a way that few will for a lost cause.

So Rosenthal is cracking the door. It almost doesn't matter what's in the rest of her piece (though you should read it). It's enough that she throws the conventional wisdom open to challenge.

The two sides arguing in Rosenthal's piece will be familiar to anyone who follows this area. On the "we can do it" side are folks like Mark Z. Jacobson of Stanford University and Mark A. Delucchi of the University of California, who most recently put out a study [PDF] showing that New York could power itself entirely with renewables by 2030. On the other side is a consultant who points out that "the sun doesn't always shine and the wind doesn't always blow" (seriously — kill me) and an economist who warns that a rapid transition to renewables will be "complicated and costly" (as if maintaining the current power system is not complicated and costly!).

I want to put aside the specific disputes and make a larger point. It strikes me — not for the first time — that those who disagree over whether we can transition to renewables

quickly are not really having a disagreement over technology, though the argument is often phrased in those terms.

Think about it this way. If you want to change the U.S. energy system, there are several levers you can pull on. You can improve clean-energy technology and make it cheaper. You can change people's behaviors and expectations. You can change laws and regulations. Or you can change the way value is assessed. So, using shorthand, these are technological, behavioral, political, and economic change.

To achieve a fully renewable energy system will require some of all these. Most disputes in this area amount to disagreements over how much of these various kinds of change are possible.

What reports like Jacobson and Delucchi's show is that it would be possible to achieve a fully renewable system without substantial technological change, as long as there is substantial social, economic, and political change. In other words, they show how you can hold one lever steady and still achieve your goals by pulling harder on the other ones.

That's what Jacobson means when he tells Rosenthal, "You could power America with renewables from a technical and economic standpoint. The biggest obstacles are social and political — what you need is the will to do it." (More on the "and economic" part of that in my nerdy addendum at the bottom.)

This kind of talk drives some people crazy. They think it downplays the mind-boggling scale of the challenge. They think it lures people into a false sense of security and in particular makes them sanguine about the (abysmal) state of clean energy innovation. "Wake up! We really do need better technology!" they cry.

Which is fine. But let's be clear: The fulcrum of the dispute here is not technology itself. The U.S. could switch to 100 percent renewables, relatively quickly, if we were willing to undertake the enormous upheaval and expense. Imagine WWII levels of mobilization, or larger, sustained over a decade or two.

Rather, the dispute hinges on whether those political and social changes are possible. That's what the innovation crowd disputes. They see those other levers — behavior, politics, economics — as inflexible relative to the technology lever. They don't believe large, rapid changes in social institutions and practices are possible. They do, however, think technology development can be accelerated, and that cheaper technology can eventually overwhelm social barriers. So they focus on technology.

And that's fine. If your assessment of social and political change is dismal, it makes sense to focus on technology and just accept that change will be relatively slow in coming.

Others have a more optimistic assessment of the possibility of behavioral, political, and economic change. As part of driving such change, they make the point that technology is not a deal breaker — change is possible with today's technology.

What I wish, regarding this debate, is twofold:

1. First, I wish our discussions about what kind of change is possible (which of the levers will produce action) was more informed by historical understanding and empirical research. There's a lot of competing gut instincts here, going round and round.

2. Second, I wish the two sides would work in concert rather than at odds, or at least quit talking past each other. When Jacobson says it's technologically possible, rather than saying "no it's not!" perhaps the other side could say, "yes, that's true, but it's premised on a level and pace of social change that is unrealistic." And when the innovationeers say, "we need better technology," perhaps the other side could say, "that's true, but in the meantime we can drive serious, rapid social change."

Can't we all just get along?

The scale of the challenge is enormous. We need to pull every lever available. We may not know in advance which lever will produce the most change, or which combination is the most strategic. But let's be confident that the challenge can be met. Let's join together to puncture the unwarranted aura of inevitability enjoyed by the rigged, filthy, unjust status quo.

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Nerdy addendum:

There's a good lesson about the economics of clean energy lurking in all this. Remember, Jacobson says that economics is not a barrier — all the clean-energy investments his report recommends are economically justifiable.

And yet, on the other side, you have economists saying such a transition would be too costly.

Who's right?

Well, the thing to remember is that there's no one unitary thing called "economics" that measures objective properties of the world. There are many, many different ways of doing economics, i.e., different ways of assessing value.

Jacobson's coauthor Delucchi tells Andy Revkin that the investments they recommend make sense if they are evaluated by a "full social cost-benefit analysis over the entire physical lifetime, at near-zero discount rate."

Yes, if clean-energy investments are evaluated that way, they almost always make sense. But they aren't evaluated that way! That style of economic analysis is far outside the current economic mainstream. It's not the way any business or government currently evaluates investments. Doing economics that way would involve a huge shift in social/political practice. (See my post on discount rates for more on this.)

Which is just to say, whether clean-energy investments are "expensive" is itself a social question, not merely a question about technology. It's a matter of how we evaluate social costs and what discount rate we use.

Innovationeers are convinced — I've had them tell me explicitly — that changing the profession of economics like this is impossible, so there's no choice but to fight on a playing field that is fundamentally tilted against renewables.

I don't know that I agree. But either way, it's good to be clear what we're talking about. When we talk about making renewables "less expensive," that's only partly about making the technology better. It's also about making economics better