

"Secret" Codes for Creating Smart Buildings?

As you may remember, I included a quickly made-up contest in my early August edition of Update asking you to guess where I was going last month. Well, there was no winner since no one guessed that I was going to Mozambique to do some volunteer research by diving with giant manta rays and whale sharks. But while I was there in Africa, I also took a side trip to the capital of Ethiopia, Addis Ababa, and what I saw there made me want to share some thoughts with you.

Addis Ababa is a massive city of 5+ million people, and the word "teeming" is what comes to mind when you are there. But when you go there the thing that hit me first, before the food, music, culture and mix of peoples, was the construction. It seemed every fifth lot or building was under either new construction or rehab. This was not just in one part of the city, but every part of it. Some of the buildings going up were modest; some were really large. Buildings were going up so fast that one day when I took a taxi to a hotel not that far away from where I was, the driver looked at the new hotel and said he had never seen it before, and noted that he works that area of the city every day.

In a column a couple of months ago, I noted the fact that the developing world wants energy, especially electricity to power things like A/C. I noted the conditions to be in place for a rapidly growing penetration of A/C in India, and I said then that from a climate standpoint, we needed to make sure that Western knowledge, technology and practices are transferred to other countries so they can "leapfrog" and install the most efficient "things" in the first instance.

But my trip to Addis made me remember a statistic that we all should remember about buildings. In the U.S., a majority of the buildings that will be in place and operating in the years 2030 to 2040 have already been built or are under construction. The chance to make those buildings clean and smart has been lost in some cases and is disappearing in real time in others.

The point is that unlike some other things, like light bulbs, refrigerators, and even cars, buildings don't get "thrown away" or discarded and replaced by something new (and presumably more efficient). So it is important to ensure that when a building is constructed, or when it undergoes major modifications, it is done according to the best and most energy efficient practices. So how do we do that?

Welcome to the world of building codes and standards, one of the unsung front lines in the fight for energy efficiency and reduced emissions. Most of us are familiar with the fact that such codes are out there, and if you have built a house or done major modifications to a house, then you are probably very familiar with them.

I think building codes and standards do not get enough attention in terms of how they can contribute to making our buildings - and our overall electricity sector - smarter. That is probably due to the fact that they are challenging to work with. It is primarily a state and local responsibility, and anytime things are disaggregated and dispersed, policy and practices are likely to diverge, and it obviously becomes hard for advocates, stakeholders and private sector actors to do a "one fell swoop" type of action that the action at the federal level sometimes allows. Moreover, codes and standards are often only examined for modifications on set intervals,

which can be years apart. (This is not to say that DOE is not continually working in this area, for more see here).

When codes are reviewed, one of the chief topics for discussion is always, i.e. how much more will a building cost if these changes are made to our code. Cost can be a particular concern to a local government that may have one eye on bettering its building stock and the other eye on economic development and how additional costs may hamper that.

And then there is the new world of performance standards. By that I mean standards that don't just focus on the static pieces and components that are put into a building, but also how those components work together to meet a performance goal. That sounds like it would be a good thing, right? But there is plenty of experience in the energy efficiency area to show that anytime something is dynamic with a lot of "moving parts" it is that much harder to establish and implement.

Also avenue towards better codes and standards is to focus on the methodology that can be embedded in how they are developed and implemented. My favorite example on that front is what California did a couple of years ago, when it updated and revised its Title 24 Building Standards. It included a component that differentiates the value of a kWh according to when it is saved, i.e. it recognizes the fact that saving a kWh during the peak period can be worth more than one that is saved during the off-peak period.

So as all of us in our electricity community rush to create a smarter, more efficient and lower emitting electricity sector, let's not forget about the single biggest user: buildings. Let's look for opportunities to support efforts to improve codes and standards. They may not be as glamorous and interesting as some of the other fronts on which we work, but they can be really important - not only for the developing world and all of what is and will be happening there, but for meeting the efficiency and emissions goals of the US as well.

Glad to be back. Thanks for reading!

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