

February 2010 newsletter from Building Diagnostics

Welcome to the February newsletter. Thanks for the continuing feedback. I hope you will keep letting me know that you are reading it.

This month it's back to energy and buildings. There is a lot of stuff happening both legislatively and in the realm of public interest. This month I'm going to concentrate on the latter, but I do want to mention what I think could be the most significant piece of energy efficiency legislation I've seen in a while.

I don't mean the unfortunately monikered "Cash for Caulkers" on the federal level, which, name aside, will provide an important boost to energy efficiency. The best, in my opinion, is New Hampshire HB1554, "AN ACT allowing municipalities to establish energy efficiency and clean energy districts." The title is a bit of a let down, the muscle in the bill is in sections 53-F:2 Authority, II and III which allow the municipalities to borrow money and use it to finance energy efficiency and renewable energy improvements for homes and businesses.

There are some similarities with the SmartSTART program that PSNH and NHEC run but it allows longer terms and perhaps greater flexibility. This could reduce the problem of lack of capital as well as the problem of short tenancy, the 'I'll be in another building long before this pays for itself' syndrome.

There are some potential pitfalls but if this gets ingrained into the system it could be a major game changer. I may get into more depth on this topic in a later newsletter. In the mean time it wouldn't hurt to get in touch with your State Rep and Senator to let them know how useful this could be.

Don't forget to send any ideas or announcements you would like to have included.

Don't forget to send in your icicle pictures. This past month was very hectic but I will get the icicle page up and running soon.

This Month's Topic: Net Zero in the Mainstream

- The latest issue of Fine Homebuilding has an article featuring three net zero homes, including one in Holderness.
- California has announced a target of 2025 to have all new homes be net zero; in Canada a group of builders thinks they can do it by 2030.
- Google tells me there are 22,400,000 references to net zero energy on the web.
- [General Electric](#) is designing systems for net zero homes.
- [NREL](#) and [LBL](#) are both researching and disseminating information about net zero buildings.
- At a recent meeting a principle from a major construction firm here in Concord told me he thought net zero would be the standard in 10 years.

So with all this buzz has the net zero concept truly taken over peoples thinking? Not really, what we are seeing is the early realization that we *can* do it by a rather limited subset of people, most of the population doesn't even register the concept. The good news is that the group that *is* embracing the idea is diverse and includes some very influential types.

What is a net zero energy building? Definitions vary, but all include very efficient buildings and building systems. Most include the concept of generating, on site, energy from renewable resources (solar, wind, biomass) an annual equivalent amount to what is consumed in the building. This allows for net metering to smooth out those periods when on site generation is insufficient. Some definitions allow for purchase of renewable power generated off site in lieu of on site generation.

Why is it important? It's a shift in thinking. We buy a building for a home or business and we expect that we will be paying utility bills as long as we own it. Suppose the assumption was different, suppose part of the purchase price was a fee for the utility connection and the only charge was a small monthly fee based on the demand potential of that connection (as long as you produce as much as you use). The idea is that you would be more secure in the knowledge that you had paid your energy bills up front. If you wanted to avoid the connection fee altogether you could rely solely on your own generation capacity, although it would open you up to a bit more uncertainty.

What *will* bring it into the mainstream? Innovations, some of which are available now such as better insulation and ventilation techniques, more efficient lighting, appliances and office equipment and better renewable energy systems. We still need breakthroughs in energy storage and we need to implement a more flexible electric grid.

Financial considerations are paramount, we have such deeply ingrained expectations about initial cost. The good news here is that this is changing too (read my opening note again).

And people like to own things, imagining owning your energy for the rest of your life. That could be a powerful marketing tool for the concept.

Did I mention the environment? As the reality of global warming begins to descend more and more people are noticing. I recently had a surprising conversation with an elderly acquaintance who is well known for his vehement right wing rhetoric. I visited him when his grandchildren and great-grandchildren were with him. He surprised me by saying that whether I was right about global warming or not it wasn't worth risking his precious babies to take the chance. Besides, as a good Yankee farmer he knows the value of saving money where you can and spending it wisely when you have to. He also misses the crystal clear skies he remembers from when he was a kid. I took the opportunity to introduce the concept of net zero building to him, he thought it was "damned clever".

Can we get a significant portion of our new and existing buildings to net zero? Yes, a 2006 LBL [paper](#) says that over 50% of our commercial floor area nationally could be zero energy, New England could reach up to 40%. Read the study for all the assumptions, but frankly I don't think their assumptions were at all unreasonable. I am not aware of any studies that do similar evaluations on residential buildings but net zero should be an easier task in homes.

There are still some significant barriers, not the least of which is training the workforce to get the details right. I'm hopeful that the Home Star bill currently working its way through congress will provide some of the training incentive, but nothing will transform the market like consumers demanding better performance from their buildings. That is an educational challenge that will take more time.

The key is to make zero energy everyone's base case assumption. The more I look at it the more realistic it seems.

Energy tips:

Smart power strips: I really like these [smart strips](#) for computer applications. I finally have a robust data backup system that automatically backs up my entire hard drive while I work. The problem is I have to remember to turn on the external drive when I power up my computer or I have to leave the external drive on all the time. This strip senses when my main computer powers up and energizes the outlet that drive is plugged into. Absolute genius because I don't have to remember two things at the same time. If you want to be really smart buy it through the [NH Saves](#) web site and save a few bucks.

Education: There are more conferences and learning opportunities in this business than you could attend if it were your full time job. I wanted to give a nod to one of my favorites, [Better Buildings by Design](#), held annually in Burlington VT. It's a very good value, the content is

always good, and there is nothing like fighting the snow and wind driving over Rte 89 in mid February.

Blatantly Commercial Content:

I do have to justify the time spent on this effort, so I am charging myself an exorbitant fee to sponsor this newsletter. I get one ad per newsletter and free coffee refills in the kitchen.

Business update: I continue to do a mix of residential and commercial energy consulting work; I'm looking for more of both. Please visit my website, <http://www.buildingdiagnosticsnh.com/> for information on my capabilities and background.

Special notice. I'm looking for clients who are interested in deep energy retrofits. More specifically I am looking for people who want to do a significant portion of the work themselves. I think that this "one off" approach allows for more innovation.

I am more convinced than ever that this is the best use of our resources. Given the lifespan of our buildings the costs associated with a major energy efficiency upgrade are trivial. If you hear of anyone who is looking for help in this process I'd like the chance to discuss it with them.

Closing thoughts:

As mentioned above, I need feedback for this little venture to succeed. I would like to include notices for events that relate to energy, the environment and community building, so if you have any announcements please send them in to newsletters@buildingdiagnosticsnh.com. I also welcome rebuttals and amplifications for anything I write.

Please forward this to anyone who you think would like it, if you don't like it use the email address above to unsubscribe.

Thank you, I'll see you next month.