

P. O. Box 512
Montpelier, Vermont 05601
February 27, 2020

Senate Committee on Government Operations
State House
Montpelier

Re: S.220 - educating specified professional on the State's energy goals

Dear Committee:

I am Thomas Weiss and one of the specified professionals that this bill would affect. I am a civil engineer.

When I began writing this, I had been thinking of this bill in terms of climate change, not energy goals. That is because I conflate the two. On rereading, I did realize the bill is all about energy goals.

I am going to start with a basic tutorial on continuing education for engineers. (I am including the basic tutorial because I have found that committee members often appreciate learning about the context surrounding a bill.) Then I'll continue with some thoughts on this bill more relevant to engineers.

basic tutorial

Until recently, engineers in Vermont did not have to formally document their continuing education to renew a registration. As professionals we have always had a responsibility to maintain our competence in our chosen fields through some kind of continuing education. Many engineers registered in Vermont have long had to formally document their continuing education because they are registered in other states that require formal documentation of their continuing education. As an engineer, I need 30 hours of what are called professional development hours (PDH's) every two years. For example a training session that takes place from 8 until noon will provide 4 professional development hours. After successful completion of the education, I receive a certificate of the course name and number of hours.

Continuing education is available in many forms. Professional societies (such as the American Society of Civil Engineers) provide continuing education through annual meetings, specialty conferences, seminars, live webinars, on-line courses. State agencies sponsor workshops and seminars. Private companies provide seminars and workshops. Some companies provide in-house training. Colleges provide classes. Engineers can get continuing education credit for teaching, for writing papers, for serving as society officers and on society committees, and for serving on groups that develop technical standards.

Continuing education is available for many topics: technical skills and knowledge, project management, leadership skills, and a lot more.

Most engineers obtain their initial license based on a bachelor's degree plus four years of experience. They could get the initial two hours of training during those four years of experience.

thoughts on the bill

I surmise that many of the specified professionals are aware that Vermont has energy goals, although they might not know the specifics. The question though is: which energy goals? Greenhouse gas reduction goals (10 V.S.A. 578)? Vermont comprehensive energy plan (30 V.S.A. 202b)? Electric energy plan (30 V.S.A. 202(B))? Others?

If the intent is to provide training on the energy goals, then it seems to be more appropriate to have whichever State agency is the custodian of the goals. Because the training is mandatory, there would need to be many

sessions. I have not checked how many people would have to receive the training every year. My guess is several thousand, given the number of specified professions. Likely an on-line class would be necessary to meet the demand for this number of participants. (The American Society of Civil Engineers provides on-line training: watch a prerecorded slide show, then take and pass an on-line test, and receive the completion certificate by e-mail.)

Once we have learned the energy goals, what then? Energy goals are not an end in themselves. Neither are greenhouse gas reduction goals. These goals are a surrogate for broader issues, such as reducing greenhouse gas emissions, reducing our contributions to climate change, reducing our reliance on foreign energy (e.g., oil and electricity), adapting our practices to accommodate climate change. We have to change our practices to achieve those goals. And education alone is likely not sufficient to lead to those changes.

Building and electrical and mechanical codes and product standards drive much of what gets built. I had a training once that mentioned that a building built merely to a building code is the most dangerous building that legally can be built. That same thought means an energy code leads to the most energy inefficient building that can be built. So to meet energy goals, we will need to build better than existing codes. Some clients will want to do better than codes; others won't. That leads to a conclusion that meeting energy goals implies changing building codes.

Continuing education might then contain information in the form of learning how to improve the durability and survivability of our built environment in the light of a more demanding climate, such as

- designing buildings that will work both in warmer winters and warmer summers
- designing buildings when flood elevations are increasing at unknown rates and frequencies.

I surmise that many of the specified professionals are aware of these issues and do cover these issues as part of their continuing education.

Summary

I have given a brief tutorial on continuing education from my perspective.

Training on energy codes would better be provided by the State agency responsible for the codes.

Achieving the energy goals seems to be the point of the training. That involves farther-reaching, more extensive changes to practice than this bill contemplates. So some training on implementation might be used instead of training on Vermont's energy goals.

I hope that these thoughts help you as you consider this bill.

Sincerely,

Thomas Weiss, P. E.