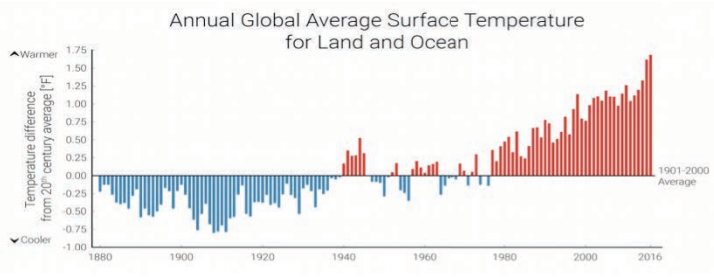
Associated Environmental

CANADA'S BEST MANAGED COMPANIES Platinum member



Climate Change: Risks, Opportunities, Drivers; and AE's response

Brian Guy, Ph.D., P.Geo.

Okanagan Water Stewardship Council; December 14, 2017

- This is the story of how one predominantly engineering company has addressed the challenge of climate change head on.
- We sold our environmental consulting company to Associated Engineering nearly 8 years ago.
- Associated Engineering designs a lot of commercial buildings, water and wastewater infrastructure, and transportation infrastructure.
- The engineers use building codes and other guidelines as the basis for their designs.
- And all these codes and guidelines incorporate climate information.
- For example the engineer who specified the strength of the posts supporting this roof would have used a building code value which included climate information (for example on snow loads) but he or she would not likely have thought very much about the origin of those numbers.
- That is fine if that underlying data comes from a population which is stationary
- But now of course we know that the climate is not stationary …. we're generally seeing less valley-bottom snow, but storms are getting bigger, so maybe the snowfall in the highest dump of the winter will actually get bigger not smaller … which makes me wonder abut this roof …
- So, in a nutshell, the AE President recognized that climate-related issues could affect our engineering business and the infrastructure owned by our clients, and asked me 3 years ago to lead an initiative to embed awareness of climate change and of its implications for our business and our clients into the DNA of the company.
- So in the next few minutes I'll give you a summary of the risks and opportunities related to climate change in our business, as well as the external drivers pushing us towards taking account of climate change in our work; and what we've been doing about it for the past 3 years.

Risks and Opportunities

Climate change affects our work

- We face risk if we ignore it:
  - Legal
  - Financial
  - Reputational
  - Competitive
- Opportunity if we understand it

- Virtually everything AE does interacts with the climate in some way.
- And we (when I say we I mean AE) faces risks if we ignore the role the climate in our work, and also opportunities if we deal with it.
- There are various types of risk: legal, financial, and reputational - if we screw up and under-design something such that it either fails prematurely or fails to deliver its expected level of service;
- and on top of those three – we face simple competitive risk if our competitors start dealing with climate risk sooner or better than we are.
- On the opportunity side of that coin, because of our internal capabilities in climate science and our experience in dealing with climate risk, we are in a good position to help owners of infrastructure (both built infrastructure and environmental or natural infrastructure) assess and deal with the risk posed by the climate and climate change.
- We also have some expertise in energy efficiency and sustainable design – which contribute to climate change mitigation, which is another opportunity.

External Drivers

- Standard of Care
- Professional Organizations
- Owners

- In addition to the risk and opportunities I just spoke about, there are other external drivers pushing us to be aware of climate risk.

- The Standard of Care is the "work that a prudent person would do in similar circumstances"; and this is the test for decisions on the concept of professional negligence. This applies to all professionals – not just engineers but geoscientists, planners, foresters, agrologists, biologists, and others.
- Today, a prudent person ought to know that the climate is changing and furthermore ought to appreciate the possible role that the climate could play in their work.
- And no professional, no matter who your employer is, is immune from this responsibility.

- Second, many professional organizations are now requesting or even requiring their members to consider the climate in their work.
- Engineers Canada has asked each of its member organizations (the provincial and territorial associations) to in turn require their members to take account of the climate in their work. To date only EGBC to my knowledge has done this, as of January 2014.
- But, other professional organization representing agrologists, biologists, and planners for example are doing similar things

- And finally, some owners are asking their advisors and consultants to be aware of the potential for climate change to affect their projects. For example the B.C. Ministry of Transportation and Infrastructure now requires all designers working under contract to the

What does it take to change?

- Vision and leadership
- Identify risks and opportunities
- Consider organizational structure
- Consider workflows
- Training
- Communication

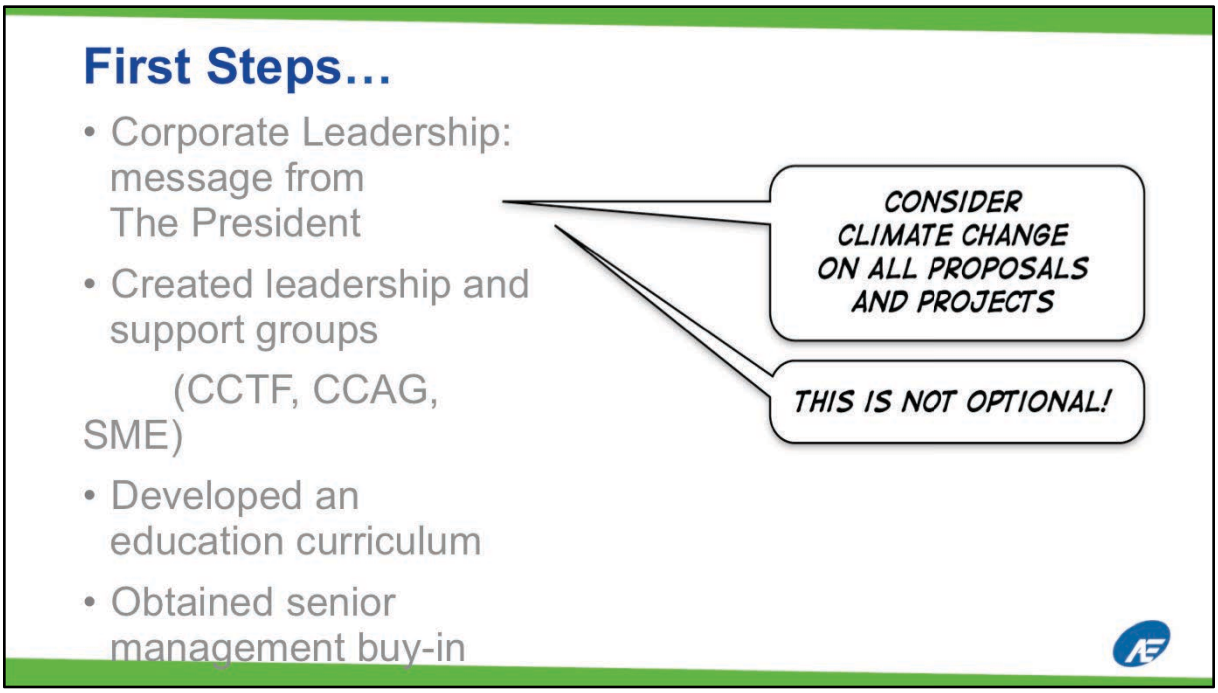
- So, what that bit of background on risks, opportunities, and drivers, what is AE doing about it.
- The point we want to reach is where each of our staff routinely considers the potential influence of the climate on every project we undertake.
- So first we thought about what might be required to make this happen, and we came up with these 6 main points

- We realized that to implement an organization-wide change - it should be led by the President, and the President should be able to clearly articulate a Vision for why the change is necessary.
- The President can't do it alone, so we created a Task Force we call the Climate Change Task Force (which I led until I retired this summer) and a couple of other support groups that I'll introduce in a second.
- We also identified the risks and opportunities facing the organization – which I've just summarized.
- We thought about the organizational structure and reporting relationships, and tried to figure out how best to implement change using a mix of top down and bottom up approaches
- We thought a lot about the processes we use to run projects, and made a couple of tweaks in a key internal guidance document that we call our Project Execution Guidelines.
- Then we realized we'd need to do some training – so we did – more on that in a second.
- And finally we developed an internal and external communication strategy – and part of that strategy was teaching staff how to begin a conversation with a client about the potential role of the climate in a project.
- In the time available I'll focus on a couple of these steps to give you a bit of a flavor of what we've

Internal Climate Change Initiative Launch

Corporate Awareness Seminar, November 2014, Vancouver

- The initiative got rolling with a 2.5 day internal conference that covered a wide variety of topics related to climate change and our business
- And set the stage for the President to push ahead with his drive to embed climate change thinking into everything we do.
- That's when he asked me to lead it - probably because I was fairly vocal about the need to push ahead – and that's what happens to people who talk too much.



- We continued on from the internal conference with a strong message from the top.
- Along with creation of the Climate Change Task Force (or CCTF) early in 2015 to lead the initiative.
- In turn the CCTF created a group known as the Climate Change Advisory Group (CCAG) – a group of mostly senior staff with an ability to guide, advise, and mentor other staff towards awareness of how the climate could potentially be relevant to each proposal and project, and give advice on how to approach this topic with their clients.
- Members of the Advisory Group are located in most of the 22 offices of the company and represent all of the major practices of the company
- We created another support group known as the Climate Science and Modelling Subject Matter Experts (or SMEs) – these are scientific people with an understanding of climate science and modelling, including downscaling, and applying future predictions of the climate to real world situations.
- So there's a difference between these two groups – one are experts in providing advice; the other are experts in using climate information.
- We prepared Terms of Reference for these three groups and distributed them throughout the company.
- Throughout 2015 we also developed an education program we called Basic Awareness Training.
- And finally, I made several presentations to the corporate Boards and the senior Management Committee as we were taking these first steps, to keep them informed, but also to gain their trust and buy-in.
- This was very important as ultimately in the organization the success of any major corporate

Basic Awareness Training Program

- Face-to-face training for 200 senior staff and project managers, over two days
- Video/Audio recording of BAT in "TED Talks" format

- A quick look at the training program we developed:
- It consists of 16 modules – and title was chosen somewhat carefully – you can't teach a bunch of engineers everything they need to know about the role climate change plays in their jobs in just two days.
- We delivered this two-day program in spring 2016 to about 200 senior executives, senior management, senior technical staff, and other project technical and management staff.
- We video-taped it as well, and then edited it to create 16 TED-talk style videos which we use for ongoing internal training.

Basic Awareness Training Modules

- M1: Overview of the Program
- M2: Climate Science
- M3: Implications and Future
- M4: Standard of Care
- M5: Adaptation & Mitigation
- M6: AE Project Experience
- M7: AE Consistent Approach
- M8: Supporting Staff Resources

Here's the first 8 modules

Basic Awareness Training Modules

- M9: Illustrative Project Examples
- M10: Illustrative Pursuit Examples
- M11: Client Conversations
- M12: Supporting Resources and Tools
- M13: PIEVC Protocol
- M14: Envision Rating System
- M15: Implementation & Monitoring
- M16: Next Steps

- And here's the second 8 modules.
- I won't go into the modules.
- Suffice it to say they cover everything from climate science, to the two human responses to climate change (adaptation and mitigation), to our corporate experience, and to tools and resources that are out there to help us (including the great PCIC website).
- We developed id all this in 2016

Climate Change Training by video: January 2017 and beyond

- Objective: extend the BAT training to all staff (total 900)
- Two-stage training approach
  1: core videos
  2: supplementary videos
- Use Pinnacle Learning Management System for delivery
- Commitment to updating
- Long-term competency training

- The videos were produced in 2016 and by January 2017 we were ready to extend this training to the entire staff.
- We subdivided the 16 modules into two – a core group and a supplementary group.
- Some staff saw only the core group and others saw both (depending on their roles)
- And all new staff see the videos as part of their orientation.
- We use a computerized Learning Management System to deliver and track the video-based BAT training.
- And finally there is a commitment to regularly update the BAT training as required.
- And we are now developing a long-term competency training program to ensure we have sufficient staff in all of our major practice areas that maintain ongoing competency in the various aspects of this issue from climate science and modelling, to performing vulnerability and risk assessments, to incorporating climate change predictions into municipal drought and flood management plans, and energy efficiency, GHG reduction, and considering climate change in an overall sustainability context.

Managing the Uptake

- Developed metrics for measuring uptake
- Track & report uptake
- Produce & share "stories" that resonate with Project Managers and other staff

- So, the mandate is to "consider" the influence of the climate on each project - which by the way is the same requirement that EGBC has of its 30,000 members – the engineers and geoscientists in B.C.
- Our definition of the word "consider" is to consult with a member of the Climate Change Advisory Group – and we have given this group a little extra training on effectively delivering their advisory role.
- (By the way, we ENCOURAGE but do not REQUIRE our staff to consider opportunities for climate change mitigation – the main driver is managing risk, so we only REQUIRE staff to think about the influence of the climate on the project, not the other situation).
- And we've developed metrics to track the uptake on the initiative
- And we continue to compile the statistics from across the company on a monthly basis.
- I mentioned a bottom-up component to implementation and one of the ways we are encouraging uptake is to create opportunities for staff to share their stories and examples with others in their offices through internal "Lunch and Learn" sessions and with others across the company through the internal intranet site.

Challenges

- Understanding how climate can be relevant
- Developing confidence in discussing the issue with clients
- Overcoming resistance to change
- Ensuring adequate resources
- Recharging the change process

- What started out as a relatively simple proposition – to get 900 people to start doing something slightly differently in their day to day work – has turned out to be much more challenging than I thought it would be.
- Maybe that's because I was a bit naïve and had not previously been involved in corporate "change management" on this scale (probably any MBA student would have understood the challenges better than I did), but whatever the reason we've faced some challenges.
- The first is to get staff to see just how the climate could be relevant to their work.
- For me as a hydrologist, the link between the climate and hydrology has been very clear for close to 40 years, but I've realized that professionals in other practice areas often have to think it through on a case-by-case basis.
- Second, its taking more work than I initially thought it would to help staff develop the confidence to engage their clients in conversations about climate change.
- I've learned that "resistance to change" is a very real psychological phenomenon, and we've faced some challenges in gaining buy-in from all levels of the organization.
- We've invested half a million dollars every year for three years in this, and the training and mentoring and other activities take time, so there's some commitment involved that needs to be recognized.
- And finally, our initial plan, developed nearly three years ago, was revisited and rejuvenated last summer, and
- We surveyed all staff this fall on their understanding of the drivers, the corporate requirements, the roles of the CCTF and the support groups, their ability to find the corporate resources we've created, amongst other topics, and we're using the results to further refine our approach to embedding climate change thinking into the DNA of the company.

BLANK SLIDE
FZ and SS to follow