



Prepared for:
The 12th Annual Sustainable Building Symposium
Calgary (07-MAY-09) and Edmonton (08-MAY-09)

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I stand here before you exposed:

- as a hopeless romantic
- as a life-science scientist
- as a corporate capitalist and
- as an obsessive change agent.

Take your pick!

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I go where others dare-not. I see rainbows where others see storm clouds. I champion the underdog – the disadvantaged whether it be in people lost or a wayward corporate enterprise.

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I see the resolution of conflict as THE ULTIMATE CHALLENGE as the source of discovery, learning, and knowledge.

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I see conflict as enriching and once resolved as the essence of life – embracing change in the face of adversity and injustice. I am not about the pursuit of comfort.

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Over the next 30 minutes I will share with you my last seven years - the foreground and the background and then scroll forward to 2042. But first, I need to share with you how I anticipate change and therefore, how I plan – how I go about anticipating the convergence of the forces and source of change as a combination of socio-demographic, economic, technology and regulatory forces.

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And now let me share with you my recent 7-year journey.

The foreground. As the founder of the Alberta Council of Technologies, I vowed to establish a vehicle that might reduce the high death rate among early-stage, technology-based enterprises and in so doing to help diversify Alberta's carbon-based economy through technology. By definition entrepreneurs are change agents, risk takers introducing new service/products usually alone and without support.

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Over the years – university, government, business – I have personally various combinations of circumstances impeding change and the successful commercialization of innovation and technology: namely Alberta's extraordinary success in research and prosperity stemming from the exporting of raw carbon in all its forms.

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Those outside this mold, the entrepreneurs – were often isolated, uninformed and unsupported, overly reliant on money as their elixir and with NIL experience in the timely management of money, manpower, marketing, moxie – essential to their success. Hence the initiative to form Trust Networks across the Province. The local Networks and their activities serve to attract entrepreneurs. By collecting them together, we are able to focus management processes and build awareness while simultaneously advocating for vigilance, anticipating new emerging potentially disruptive technologies. Networking works!

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And now the background. Since 2001 when I retired to the draw of the Geriatric G-force of golf, gardening and grandchildren, I have been accumulating enterprises and building ABCtech. At the same time, we have been experiencing wave after wave after wave of proclamations that “the sky is falling”:

- that the globe is warming, that climate change is advancing
- that if we didn't turn green immediately, that black gold would soon choke us or drown us, and
- that civilization as we know it is responsible.

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The message - while loud, was not convincing until Gore got his Oscar and black gold spiked. That is, it wasn't facts that triggered action, but emotion – the unleashing of fear. Not surprising - the organ of change is not the brain but the pocketbook.

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So what? We are at the cusp of a crisis, our way of life and decision systems are wedded to sustain the status quo. Incrementalism is not the answer, time is of the essence - we need leadership with a long view, and innovation to **conclude the carbon power age.**

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Well, to sum up I want to share with you a personal perspective about change. To do this I have written a letter to my great great granddaughter to be opened on the occasion of my 100th birthday on April 7th, 2042.

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My dearest Lucy,

I truly hope to celebrate my 100th birthday with you today. But just in case, I vowed way back in May 2009 to prepare this letter for you, and to be shared with attendees of the 12th Annual Sustainable Building Council Symposium in Calgary and Edmonton.

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As you are about to finish your first year in eco-energy biologics, I trust you will find this letter illuminating:

- posterity for you to know me and
- insight into the contribution of my generation on the environmental and the economic legacies we have left for you.

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Today is my 100th birthday. I have at my disposal the memories of eight generations, over a century plus of experiences, hopes and fears, events and elections. A century that ended at the peak of a carbon revolution where science and technology, capital and government had merged to capitalize on the Alberta's abundance of carbon: wheat and meat, fibre and timber, oil, gas and no small smidgen of tar.

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My grandmother – saw the horse retired, a depression and the emergence of coal fired furnaces, steam and gasoline powered automobiles. She lived in a rooming house; lived on a farm and her husband had one job – for life.

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And after WWII my mother saw the emergence of the world of domestic consumption – family homes, urban work offices and electric everything, plus massive factories, public institutions of health, education and municipal government and the emergence of an integrated global economy. She also witnessed the merging of power and information, transforming the professions of health and education and how and where we play and learn, shop and work. She lived in the suburbs, her husband commuted and was fired once.

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I witnessed the harnessing of the internal combustion and jet propulsion engines, domesticating air and auto and even space travel, plugging a car or two in every garage, ubiquitous electricity, the advent of the radio and TV, the computer, the cell phone and emergence of Internet. Domestic mobility. Domestic consumption. I lived in a city, worked four careers, and was never fired. But getting out quick - as a change agent, was one helluva skill.

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The changes we witnessed were largely incremental, representing the macro and micro-management of cheap carbon. The transitions were generally pretty smooth other than two depressions. But even so, change didn't come easily – it never does, never should and probably never will. People seek some steady-state, some comfort and when we find it, we want to entrench it. But in 2010, the forces and sources of change were converging - learning was continuous, technological innovations were about to explode. The focus was wrong - we were still micro managing carbon! Few saw what was on the horizon.

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As we entered the 21st Century, carbon was our friend – in all forms. Carbon in partnership with new-technologies was fueling a new age of sustained prosperity on a global scale.

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Then came the warnings – 'the "canary in the mine." Mozart's Jupiter! Carbon, our friend, had become the enemy. There were books and scientists, demonstrations and conferences, media moments, even an Oscar. Warnings that we needed to heed the damage that prosperity was crafting – that carbon-based energy was a pollutant.

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Suddenly the automobile and airplane, buildings and cows, factories and furnaces, and the hope of emerging countries were questionable. The very engines of prosperity had become pollutants, personal and environmental killers. Our way of life, our imperial design, our destiny were in peril. But the carbon industry and appetite had huge momentum.

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Well, you know how it ended – you maybe even participated in the transition. But before I thank you, I want you to see how we set the stage. First, if I am with you today – I will have survived, which is a huge achievement given the threats from the odd US President, politicization of health, education and welfare programs, privatization-socialization and global warming, and a daily media mania of imminent threats of radical religion, communism, the A and H bomb, polio and cancer, Y2K and swine flu. It is daily and never-ending, but it was profitable and stirring. Breathtaking from some. Horrifying for others. And prompting many to just hunker-down and tune-out.

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Here Lucy are some of the survivor's rules we change agents came to live by:

- Network obsessively, but think for yourself.
- Weigh the evidence and be careful not to draw conclusions from daily events. Trends are not measured in days.
- Be humble, nature is a huge, deep force, quite able to take care of herself. But abuse her at your peril.
- Respect the big picture but pick up your room.

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Take a deep breath – Now about Alberta.

When I arrived in Alberta, by train in 1964 from New York, I was astounded at how fresh were the prairies, the rivers and lakes, the majestic mountains and the odd (already receding) glacier. The woods and Wapati, the deer and the fish were plentiful - mink farms populated the borders of Lesser Slave Lake. Ft. McMurray had a pristine trap line. Alberta held extraordinary promise.

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I wasn't disappointed, a combination of vision - government plus active leadership, private and public capital ("carbon" taxes), immigrants and hard work, an appreciation of

the importance of health and education, science and an abundance of resources, and social progress transformed Alberta from the home of the Calgary Stampede and Gretsky's playground to an energy giant - ALWAYS on the verge of diversifying to a knowledge-based economy.

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While Alberta was pre-occupied with progress - a long way away, someone discovered the power of a message that there was a shortage of black gold, that the finite world's supply was running out. AND prices went up – Alberta prospered. And later, the message changed that the black gold was bad and that we needed to completely rethink how we lived and what we consumed. AND prices went down.

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The resulting economic dip helped trigger a transition. Alberta got very nervous but not too late to realize that sustained prosperity meant a transition off carbon – they called this “diversification. (Check a 1976 National Geographic and you will see this was formerly the policy of the Lougheed government when the tar/oil sands were first commercialized.)

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At first diversification meant biofuels, but that proved to be short-lived: expensive and a consumer of farm land. Then we figured we might bury the carbon, a not-so-subtle diversion; but at least we could go on harvesting. Soon after - the US, our best raw carbon consumer, declared it was hell-bent on alternatives and forecasting to be free of the oil sands by 2050!

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Then we considered nuclear – but we found out that the fuel stock was inadequate, besides we needed a means of disposing of the residual radioactive waste. Wind and solar – both of which I viewed enmasse in Germany in 2008 held out lots of promise, depending on location – but they too proved to be but a bridge, and at best a domestic option, but inadequate in the long haul to fuel an economy.

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What to do? Woe is me? Well little-one, there was a whisper that some new technology was on the horizon. Something so magnificent, that energy would no longer be a finite phenom, but like the universe, power would be plentiful, accessible, and safe without pollutants. Well I need not tell you about fusion; YOU see it every day.

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We narrowly avoided the forecast energy wars, the water wars, the power coalitions. The economies of the Middle-east and Russia, the Arctic and Alberta stopped.

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Fusion brought with it a truly “new age” and it came fast, very fast. With plentiful, cheap, accessible energy – entire national economies were transformed. No longer were those with natural resource endowments solely empowered ...in fact the very economics of power, were transformed.

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So today, on my 100th birthday, I celebrate with you the new age, and reflect as my grandmother did, as my parents did, a turning point, for today - Alberta's first fusion energy plant is being commissioned. And the coal fields, and the oil sands, the methane beds and the gas reserves, the forests, the farmland and the future will use carbon not as a fuel-stock NOT for power, but for fueling new value-added industries ... using and converting carbon into wheat and meat products, fibre and timber products, and petroleum-by-products.

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Alberta's spin-off economy is now central to knowledge-based photonics, health science, fusion generation. (By the way, along the way, Alberta also made its contribution to stem cell therapeutics contributing to another revolution in regenerative medicine and opening of an entirely new science “Ponce’s Promise. But that is the subject for my 200th birthday.)

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So stay-tuned little one and remember it was respect for the environment that guided the revolution, fueled by a dose of panic over proclamations that the sky was falling. In fact, I wonder if we will ever know if global warming was for real. I, like most, found the hype trying with too much time and talent wasted on the debate and regulatory processes to enforce behavioural change. Democracy was at its best, when innovation and enterprise ultimately trumped autocratic, faith-based socialism. Technology proved to be a unifier, and the rate of change was tempered to enable the electric grid, the professions, and the regulations to anticipate the transition to avoid the very disruptive implications.

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So now you know, we were caught in 2010 in a turbulent no-win argument. Science was manipulated, media was manipulated and people were largely helpless in sorting out the truth – if there was such a thing. The truths were:

Respect the environment regardless

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Trust enterprise and innovation

Expect government to regulate excesses

Devote some effort to the future

Never assume the past will prevail

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And for you – do unto others what you would have them do unto you. Read, read, read. Build trusting networks. And - appreciate that the Geriatric G-force is not what it is cut out to be: golf, gardening and grandchildren are each sources of great pleasure, but very elusive in a world of change. And it looks like you may have to put up with a great great great grandfather from some time yet.

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