

## Balancing loyalty

I read the article by Jim Ridler on “Downsizing—still an ethical challenge” (pp. 42-43) in the November/December 2003 issue with some personal interest. Over 40 years ago, after graduation and six months into my first position with a multinational company, over half of the engineering department was laid off during an economic downturn. I was green and naïve and my family background had not provided me with any insight into the way business worked. Another new graduate was not as fortunate as myself to survive the cuts. It was a lesson I never forgot over the next 40 years of employment.

In the early '90s after a career with another multinational company, always with above average performance appraisals, I was laid off along with several thousand other employees. It was expected. I had no illusions about where management's interest lay.

Still having a young family, I was forced to seek employment in the oil industry in the U.S. and overseas in an Arabic speaking country. Despite the hardship of living and working away from home and my family, it was a relief not to have to endure the hypocrisy of management. My new employers knew why I was there and I provided them with my technical skills for their money.

My son, now an engineering student, knows exactly where his loyalty should lie. Perhaps this gives new meaning to the term continuing education.

*Kevin Doyle, P.Eng.  
Toronto, ON*

## Lesson not learned

As I follow the progress of PEO from *Engineering Dimensions*, I am troubled that five years after a membership effort that changed PEO culture for what seemed to be the better, we seem to be falling back into the old way, as in the November/ December 2003 “In Council” report on “Council finalizes Governance Principles” (pp. 24-25).

There is something deeply troubling about “finalizing” Governance Principles, about which there is such concern that the

committee entrusted with studying this matter produced a minority report. Council's approval with the caveat to “a review and re-approval in not more than four months” is more disquieting than reassuring.

In the insert box “To be or not to be? That's the question for PEO” in the “In Council” report, there is a disagreement between PEO's designated governance expert (DGE) and a lay Councillor (LC).

The DGE argues “isn't PEO's purpose really to be the trustee for the profession?” which he defines and which seems to me to express the enlightened role of a modern profession, and to respond practically to the yearnings of engineers who see themselves as true professionals.

The LC argues that PEO's core role is to “assure the public of the competence of its members” by “defining competence and defining standards through consultation” which, as I read between the lines, is the philosophy that has driven the majority report which Council finalized. It is basically a setting of standards process that could be applied to any government licensing (e.g. of retail establishments) and hardly relates to the noble aspirations of self-governance, as real professionals would demand.

This lesson should have been learned five years ago; that these defining points of view need the input of engineers before Council should finalize any governance model.

*Pat Quinn, P.Eng.  
Mississauga, ON*

## Get rid of the grid

I read with utter amazement the statement attributed to Hydro One that “all the systems worked as designed” (November/ December 2003, p.12).

If this is really the case, then speaking as a mechanical engineer, and thus possessing a few grains of common sense, I would like to see each town with its own steam engine driving its own generator, and to blaze with the stupid grid.

Failing this, perhaps the government should call in the Tooth Fairy to re-design it properly.

*John C. Tysoe, P.Eng.  
Cheltenham, ON*

## Take full ownership

One of Mr. Nigel Histon's concerns (“Proceed with caution: outsourcing engineering services abroad”, November/ December 2003, pp. 44-45) is that the offshore engineers do not have the requisite Canadian engineering experience with which to deliver correct and proper detailed engineering with sufficient quality to meet Canadian standards. Having “locally” trained or experienced engineers is a definite benefit; however, it is not necessarily a prerequisite for delivering quality engineering services.

Engineering services are also successfully exported from Canada by engineers who do not necessarily have “local” engineering training nor experience.

I worked on an engineering project that designed a high vacuum, cryogenic system to be installed in Germany. This system was to be designed and constructed to German technical standards. Not one of the Canadian engineers, to my knowledge, was trained in Germany.

The Canadian engineering team received the pertinent German technical standards from the customer. The engineers compared these standards with Canadian standards to discover what was different and what was similar, and designed accordingly. The Canadian engineering group delivered a working system that met or exceeded “local” standards.

In this global world, near-shore and offshore outsourcing to low cost countries is inevitable. Manufacturing went offshore, software programming followed, and so has engineering. What really matters is how the “local” company manages the outsourcing contract, and who is given or takes ownership for the engineering from start to finish.

In my example, the German customer put together a very small team of German engineers to oversee the success of this project. Because they were ultimately responsible for the successful installation and operation of the system, this team took full ownership of this project. This team ensured that the “foreign” engineering met their quality and technical stan-

dards without duplicating effort nor relying upon “local” certification.

Very short-sighted managers will dump a stack of drawings on an engineer’s desk and expect him or her to stamp them. Rightly so, the engineer should refuse to stamp these drawings without a thorough and detailed review. Far-sighted managers, and more likely the most successful, will give a subsystem to an engineer or small team, with the authority to carry out their responsibility, even though the detailed engineering has been contracted to an engineering firm elsewhere.

I would suggest to Mr. Histon that he convince his employers that taking full ownership of the engineering, from start to finish, is the best and most efficient way of ensuring engineering quality. It will provide a lasting benefit to the company and its clients.

*Barrie Wallace, P.Eng.  
Mississauga, ON*

### No closet engineers needed

In the “Scanning the Emerging Areas” article (November/December 2003, pp. 32-35), you mention in passing that the word “engineer” gets misused. You better believe it and do something about it. No one dares to “doctor” their organization or “re-lawyer” their organization. Everyone, including well-known consulting firms, re-engineer organizations. The organization that I work for has published an annual report to that effect where senior engineers are working and do not say a thing. I have raised this in organizations I have worked for with mixed results.

But the biggest offender is the term “genetic engineering,” which should be “genetic doctoring” because all the people working in those labs have PhDs in biology. From Greenpeace to CNN, this misuse continues. But I am dismayed that these scientists never come forward and correct the misuse by saying “we are not engineers, we are scientists and there is no such thing as genetic engineering”.

I am beginning to suspect that there are a lot of professionals out there who chose their profession because they could

not get into the engineering curriculum. Our message should be loud and clear to them—don’t try to be a closet engineer. Do not practise engineering if you are not an engineer.

*Peter B. Aikat, MBA, P.Eng.  
Ottawa, ON*

### Engineers and charity

The article “New Foundation for Education President to focus on fundraising” (November/December 2004, p. 18) omits an important but overlooked role of the Foundation, which is to administer the Professional Engineers Benevolent Fund. Since its inception in 1986, this fund has helped over 75 members survive difficult, and often desperate, financial circumstances. The Benevolent Fund has enabled many of these members to return to the workforce as practising engineers. Member donations to the Foundation for Education are needed to help ensure that the Benevolent Fund can continue to meet the needs of our membership who truly need a helping hand. Currently, only 4 per cent of PEO members make an annual donation to the foundation. This level of support is pitifully low and is unacceptable for our profession. I suspect the reason is that most of us don’t know what the foundation actually does for the engineering community.

Visit the foundation’s website [www.penged.ca](http://www.penged.ca) for information on how you can make a donation.

*Stephen Jack, P.Eng.  
Toronto, ON*

### Assumed correlations

Figure 1 on page 34 of the September/October 2003 issue of *Engineering Dimensions* is very remarkable. In the first course in undergraduate statistics for engineers, we teach not to interpret correlation by an assumed cause and effect. But the really stunning part of the graph is that the phenomena, however caused, repeat every 110,000 years or so. We should not be surprised, therefore, that the ice cap on Mars is also showing the effects of global warming.

Kyoto is well grounded in political science, and is both a valuable challenge to

engineering expertise, and a political counterweight to global capitalism. Canada’s mistake is to become the only North American fall guy for the movement.

*Herbert C. Ratz, PhD, P.Eng.  
Waterloo, ON*

### Weak argument for Kyoto

I was intrigued to find the essay “Kyoto: Yes” (pp. 34-35) by Peter Smith, P.Eng., in the September/October 2003 issue of *Engineering Dimensions*. As a follower of the global warming debate since the late 1980s, I was keen to read his arguments in favour of the Protocol. I hoped to find an essay laying out a succinct case in favour. Instead, I was disappointed to read an essay that never actually gives concrete reasons why Mr. Smith thinks that adhering to Kyoto is necessary. He writes that scientists have been warning of increasing atmospheric concentrations of CO<sub>2</sub> due to human activity for over 40 years, that “we are starting to see significant changes in global weather patterns” and that the IPCC says that most of the global warming seen over the last 50 years is human induced. He wonders why we are “still debating the issue.” He takes the obligatory swipe at certain (by implication selfish) “economic and political interests” who delayed action until Kyoto in 1997, and at the profligacy of Canadians compared to the frugal (and by implication virtuous) Swedes, who manage the same lifestyle while emitting only 38 per cent as much CO<sub>2</sub> per head. He warns us that we must implement Kyoto because “the cost of failure is just too high.”

However, Mr. Smith doesn’t actually say what he thinks the “cost of failure” is, which I find odd. The only actual consequences of increased atmospheric CO<sub>2</sub> concentrations that he mentions are a rise in global temperature and the rather vaguer point that we are changing our environment. At no point in his essay does he actually state explicitly why he thinks that this global warming is a “bad thing,” which he clearly does in some (unstated) sense. He seems to assume that its “badness” is a given.

Mr. Smith wonders why we are “still debating the issue” of increasing atmospheric

CO<sub>2</sub> concentrations and global warming, a position that displays an almost theological certainty on what the correct answer is. The answer is that we are debating it precisely because, pace the IPCC, the scientific judgment on the precise nature of the phenomenon, and its causes and effects, is still uncertain despite 20 years of research. His implication that the global warming discussion has been going on for decades is misleading. Although rising atmospheric CO<sub>2</sub> concentrations were noticed as long ago as the 1940s, serious debate on global warming has been going on for 20 years at most. Indeed, one of the (many) fears in the 1970s was that a new ice age was imminent, based on the slight cooling trend that was observed from 1940 until about 1980. Most notoriously, this fear was expressed back then by Dr. Steven Schneider, now one of the leading advocates of taking action to

reduce human greenhouse gas emissions. For example, if you look in *Global 2000* (Pelican, 1982), the section on climate gives five scenarios ranging from much colder to much warmer and seems not to favour any one over the others.

Global warming itself cannot be either a bad or a good thing. Only its consequences can be good or bad, but these are not even mentioned in the essay. Indeed, the fact that the planet has warmed by some 8°C since the end of the last ice age could be considered a “good thing.” If it had not happened then, both the place of my birth, Ireland, and the place of my residence, Ontario, might still be under a hundred metres of ice. I, at least, must consider 8°C warming to be a “good thing.” If Mr. Smith considers global warming to be bad irrespective of its consequences because it is human induced and not “natural,” that is an aes-

thetic or moral judgment and not a scientific judgment. Given that humans have been altering their environment substantially for at least 10,000 years, such a position taken to its logical extreme implies that humans and their works are somehow “unnatural” and would argue for the eradication of humanity to allow the planet to get back to its “natural” fate. I doubt that this is what Mr. Smith is arguing. It would seem to be a bizarre position for any practising engineer to argue in good faith. If altering our environment is not an engineer’s business, I do not know what is.

If we are to assume the costs and consequences of Kyoto and its offspring (Mr. Smith writes that “Kyoto is only the first step in what will have to be a series of such agreements over the next 50 years or more”), we need to be told first what the expected costs and consequences of non-compliance are and conversely, what the expected costs and benefits of compliance are, especially if we are to make an informed decision. If I am to be sold something, I want to know what I am buying, why I am buying it and what I am paying for it. Mr. Smith’s essay does not tell me that. By neglecting the most elementary rules of advocacy, he fails to make his case for implementing Kyoto.

*John Kehoe, P.Eng.  
Tecumseh, ON*

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#### Correction

Michael S. Kallos, PhD, P.Eng., quoted in “Scanning the emerging areas,” is an assistant professor with the faculty of engineering at the University of Calgary, not the University of Alberta. In the same article, Chris Morris, P.Eng., of Industry Canada should have been identified as a professional engineer. We regret the errors.