

Licensing of C.E.T.s

The President's message and following articles in the May/June issue about the efforts to provide limited licences to C.E.T.s to provide professional engineering at some level leave me wonder-

ing where this is all heading. Add to this the continuing concern that professional engineers don't get the recognition and respect they deserve from the public and even some government agencies.

OSPE has been set up to promote engineering. Having persons not licensed as professional engineers doing "engineering" will surely further reduce the importance and value of the P.Eng. licence, not to say the need for requiring the services of professional engineers.

In contrast, much of the magazine had articles referring to mandatory specialist certification, certificates of authorization, continuing education assessment upgrades, and other methods of ensuring competency and responsibility. All are worthy objectives if evidence showed that otherwise the profession would be derelict and allow public harm.

So where is all this heading? As an engineer over 65, I was extremely proud to achieve my P.Eng. years ago, and endeavoured to abide by codes of ethics and regulations and laws, while continuing to expand my knowledge and skills. Now it seems both ends of the engineering spectrum are being stretched apart even more, and there is bound to be conflict. Just how wide will this range of accepted engineering competence get? Who will be the judge and how can the public decide?

I am extremely disturbed by what appears to be PEO inconsistency in not setting a core value from which all engineers should work, and which the public would understand.

*William A. Este, P.Eng.,
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Fall protection training mandatory

The article "Construction Concerns: Fall protection and scaffold safety is up there,"



in the March/April 2002 issue of *Engineering Dimensions* addressed the issue of worker training in fall protection. Since that time, questions have surfaced, and the Provincial Construction Labour-Management Health and Safety Committee and Construction Safety Association of Ontario (CSAO) have felt that reinforcement of the message in the article was warranted.

Some engineers and architects seem unclear of their health and safety obligations to their employees on projects. Fall protection training is mandatory for all workers who work in areas where falls are a hazard. This includes workers who may be exposed to the hazards only periodically and for short times. If you are an employer engineer or architect, you are responsible for your staff's safety on projects and to ensure that they be properly equipped, trained, and comply with the requirements of the *Occupational Health and Safety Act and Construction Regulations*.

Employers are responsible for the health and safety of their workers on the job. The must ensure that equipment, materials and protective devices as prescribed are provided; that the measures and procedures prescribed are carried out in the workplace; and that information, instruction, and supervision of a worker is provided to protect the health and safety of the worker.

Falls have consistently been a leading cause of injuries and fatalities in construction and engineering staff. Supervisors have unfortunately been among those hurt over the years.

To help control exposure to continuing fall hazards, the Ministry of Labour has strengthened the requirements of the

Construction Regulations and included specific training requirements on fall protection in Section 26. Included are requirements for training of staff under Section 26.2 as follows:

- ◆ "An employer shall ensure that a worker who may use a fall protection system is adequately trained in its use and given adequate oral and written instructions by a competent person," and;
- ◆ The employer must ensure that the instructor prepares, signs, and keeps a written record of the training including the worker's name and training date.

A training package, available from CSAO, is one of the tools available to construction employers to train their employees in fall protection.

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Construction Safety Association of Ontario*

Tasteless ad

I have always enjoyed reading the various articles and sometimes read applicable advertisements. In the March/April 2002 issue, page 9, one advertisement stood out (probably because it was on the "Letters to the Editor" page). This was the "Bull!" advertisement from the Ontario Concrete Pipe Association. I understand that advertising agencies need to produce eye-catching advertisements, but in my opinion they went too far for an engineering magazine—especially in the issue where the blue pages dealt with condominium engineering advertisements. If the Ontario Concrete Pipe Association wants to advertise, let them push the merits of their product. I ask that the advertising policies be reviewed.

*John Douel, P.Eng.
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Solar-Electrical Power Myths

In the March/April 2002 issue, a picture of a photovoltaic panel appeared on p. 29 with the caption suggesting they may soon become a standard feature on new homes. It's a nice futuristic thought but the reality is that these panels are not as energy efficient, or as environmentally clean, as most people believe.

I did some checking in my hometown of Thunder Bay and an 80-watt panel typically costs about \$760 (including taxes). Adjusting for things like cloud cover, etc. over a 25-year period the power cost works out to 34 cents per kWh, way above the average of 10 cents per kWh from the grid. The actual cost is much higher once you add in other factors like installation, additional equipment like inverters, energy losses due



to conversion (batteries, inverters), and of course the interest cost. On a new home, financed at 7 per cent over 25 years, every

\$1,000 of additional cost results in a net pay-back of \$2,098. However, at least the power is clean and environmentally friendly, right? Sorry, but that is a common myth not borne out once you look at all the facts.

The reason for the high cost of photovoltaic (PV) power becomes clear once the total energy cycle is examined. The higher efficiency panels require computer grade silicon wafers as a base material, which is a very energy-intensive technology, using a lot of electricity. Add up the total BTUs of power needed to manufacture and transport the panels and compare that to how much energy you get back over 25 years. You would end up actually getting back less energy than you initially put in. (You have to include the total energy cycle, for example, fossil-fuel-powered electrical power plants are only about 40 per cent efficient due to fundamental laws of thermodynamics).

A PV-powered solar home in its early years actually accounts for more net carbon dioxide, sulphur, etc. emissions than does a normal house connected to the

grid. It only seems clean because the fossil fuels burned to produce the electricity to manufacture them have been released at a different location. Electric cars are also not as clean as is commonly thought, for the same reason.

Reducing the cost of PV panels will not occur just through the usual assumptions (economies of scale due to mass manufacturing). It will require a fundamentally new manufacturing process, which lowers the energy consumption by an order of magnitude. Unless I have missed some new breakthrough announcement, I don't see PV panels coming down in price by a factor of five as the author suggested.

PV panels under present manufacturing methods are neither environmentally clean, nor energy efficient but do have some applications. They are economically feasible when you're in a remote location and can't connect to the local electrical grid. However, PV panels on the roof of every new home would still require a major technological breakthrough, and is not something we are going to see in the near future.

*Gordon Scott, P.Eng.
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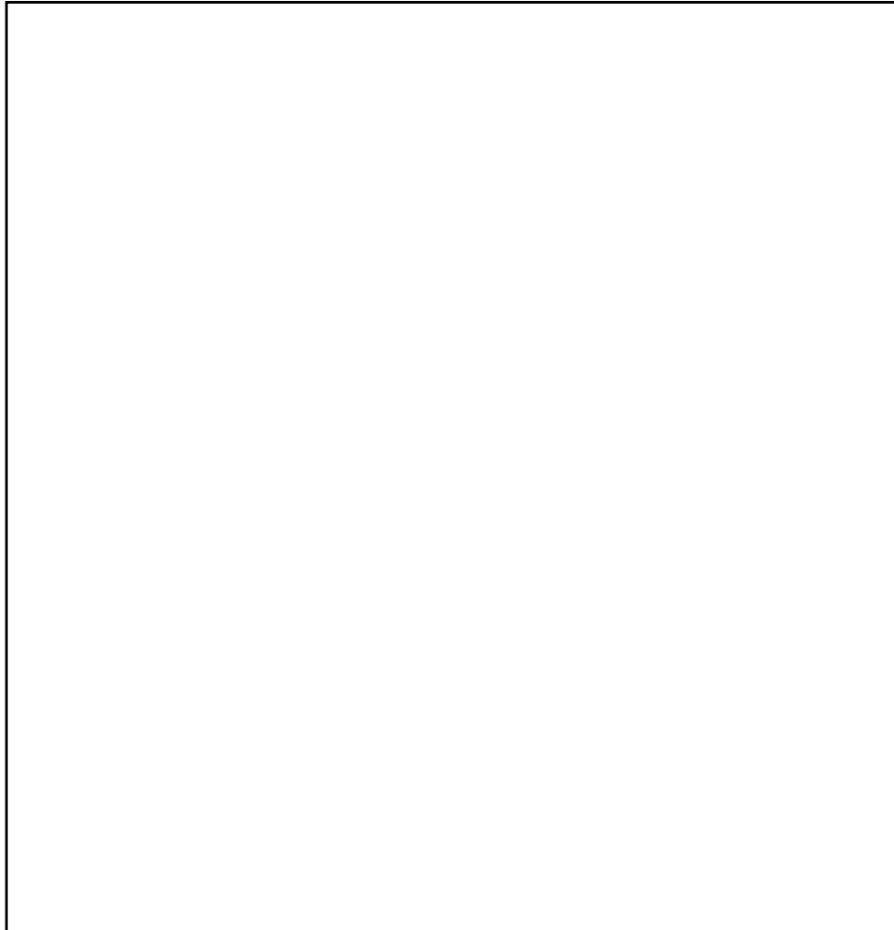
Deregulation disaster in the making

Peter Smith's article titled "Deregulation to spark innovation in changing electricity market" in the March/April 2002 issue contained two important points about prices and the environment that need clarification.

Residential electricity prices in California and Alberta have not returned to normal as the article states. In California consumers are still paying rates that are among the highest in the U.S. In Alberta, prices are still significantly higher than they were before deregulation. Both jurisdictions expect to pay these high prices for the foreseeable future.

California has now ended deregulation and consumers are no longer allowed to choose suppliers. It wasn't the market that caused prices to fall somewhat but intervention by the California government.

According to Greenpeace Canada and the Toronto Environmental Alliance, the environment will suffer greatly if the Ontario government proceeds with its electricity deregulation and privatization pro-



gram. Expect more smog as the proposed new owners of Ontario's coal plants use emissions trading to increase output. Premature deaths, hospital costs and lost productivity will all increase as a result.

Our economy will be financially devastated as Ontarians are forced to compete against wealthier, electricity-hungry Americans to buy our own Ontario-produced electricity. In addition, NAFTA forbids export controls, even in times of shortages. As more transmission is built to connect Ontario with the much higher priced U.S. market, Ontario will become a third-world economy.

Contact the government and tell them to shelve this program as 22 U.S. states have done after learning from California, Enron and other deregulation disasters.

*John F. Wilson, P.Eng.
Toronto, ON*

Spirituality

Your March/April 2002 cover displaying a yogini seated in Padmaasana, lotus posture, is encouraging news. I hope it signifies the beginning of a shift toward including a spiritual dimension to the field of engineering. That would be a good first step, and perhaps other professions would follow suit.

It would not be an understatement to say that the state of our environment and the condition of our world is the result of neglecting the spiritual side of ourselves. Spirituality is not to be confused with institutionalized religions, which are divisive. Spirituality is the path of realizing and experiencing one's self as the universal self. Individuals who have had this experience do not require rules, regulations and law

enforcement agencies to be good. They are naturally good, whatever actions they take are creative expressions of that goodness.

*Edward Atraghji, P.Eng.
Ottawa, ON.*

More discipline may be needed

I read with interest in the May/June 2002 issue of *The Gazette* of Mr. Campbell forging the compaction test results. Of course this is inexcusable and can never be tolerated. However, let me propose this scenario.

A senior staff member of Campbell's employer assures Campbell it is fine to go ahead and pour the concrete even though the test results aren't in. He asserts: "It is done all the time and surely the test results will be fine anyway. Besides, we are behind on the project and if you want to be a successful project manager you have to learn to get the job done."

Campbell goes ahead and gets himself into serious difficulty.

It strikes me as very obvious the employer had a much higher motivation to look for the short cut. The fine assessed to Campbell is a fraction of the cost of doing the remedial work if the employer were found at fault. As the case turned out, the employer can now claim he had nothing to do with the problem as an employee has admitted all blame.

I think the discipline panel should have taken some investigative steps to examine the scenario proposed. If the scenario is valid, there may have been a senior engineer that also may have needed some discipline.

*Mark Corker, P.Eng.
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Letters to the editor are welcomed, but should be kept brief and are subject to editing. Publication is at the editor's discretion; unsigned letters will not be published. The ideas expressed do not necessarily reflect the opinions and policies of the association, nor does the association assume responsibility for the opinions expressed. All letters pertaining to a current PEO issue are also forwarded to the appropriate committee for information.

