A HAND UP FOR YOUNG GRADUATES

J. David Adams, P.Eng., FEC President

RESEARCH AND Innovation Minister Glen Murray received and discussed the following letter from President Dave Adams, P.Eng., FEC, during a June 30 meeting in the minister's office.

PEO has a serious problem in licensing graduate engineers as they are unable to obtain their experience requirements due to a lack of industrial, government and consulting placements for the required four years.

Ontario graduates 5000 to 6000 engineers from its 15 universities each year. The province brings in roughly 3000 foreign trained, and licenses in total 2500 annually, producing a licensing rate of 28 per cent, or one might say an attrition rate of roughly 70 per cent.

This brings the immediate question to mind: How can our association help encourage the employment of newly graduated engineers, thereby alleviating a serious impediment to licensure and a major damaging shortcoming in our economy?

In accordance with the principal and additional objects of the *Professional Engineers Act*, PEO is set the task of regulating and governing our members so they acquire measurable knowledge, skill and ethical standards, sufficient to protect and serve the public interest.

We have set high academic standards for entry into the profession through the determination of strict educational syllabi for Canadian universities, academic interviews for the foreign trained and examinations, if necessary, to determine the breadth and depth of their education, for the public good.

However, over the last 10 years, we have encountered great difficulty in achieving the required four years of experience for licensure under the supervision of a P.Eng.

Statistics generated by Prism Economics on labour market trends for recent graduates, and an Ipsos Reid survey of final-year engineering students, indicate that between 66 per cent and 75 per cent of engineering students intend to enter the work force following graduation and some 20 per cent to 26 per cent intend to pursue further education. Of these, roughly 75 per cent intend to gain a postgraduate engineering degree.

Statistics also reveal 81 per cent to 91 per cent of all graduates aspire to a career in engineering and, in Ontario, 90 per cent intend to pursue licensure.

Contrast these aspirations with what, in fact, is really happening.

According to the 2006 census, the employment situation of domestically educated engineering graduates is: employed in engineering and management–49.6 per cent; employed outside engineering in business, natural science, health, government, arts, culture and recreation–27.2 per cent; and underemployed in technology, sales and service, trades, transport, equipment operators, primary and secondary industry, etc.–23.2 per cent.

An even bleaker picture emerges from the same 2006 census for international engineering graduates: employed in engineering and management–29.7 per cent; employed outside engineering–28.7 per cent; and underemployed 41.6 per cent.

Most of us know this census data reflects the long recession in capital spending in Canada and the decimation of our industrial fabric through the closure of many manufacturing and service companies. The end result for PEO is weak demand for young engineers.

Even with greater exports of resources, it is expected that weak demand coupled with an oversupply of domestic graduates, enriched by the foreign trained, will be more than sufficient to replace natural retirement in 2010 and beyond.

If one is a believer in demand-side economics, we must fill the void in engineering positions with the production of innovative products made from our resources and exploit new technologies, such as nanotechnology and cyber security issues, to employ the technically trained and maintain our economic output, generating sufficient income to maintain our standard of living.

From the employer's perspective, the utilization of recent graduates represents more a skills shortage than a labour shortage.

As opposed to earlier times, employers are so stressed by costs and low margins they are unwilling to train new graduates. Experience shows they prefer to hire engineers with five to 10 years of experience, often specific experience of immediate use, such as contract negotiation and project management.

The skills shortage in engineers often leads to the substitution of practical technologists for theoretically trained engineers, the temporary employment of foreign trained engineers and the "off shoring" of engineering work.

If we are to mesh the new graduate with the market place, thereby meeting the aspirations of those entering the field, it appears we must provide a more formal plan to initiate them into the workplace than the current hit-and-miss one.

In my opinion, an attrition rate between graduate aspirations and licensure of 70 per cent is a wasteful and demeaning exercise, which does not provide the government with a reasonable return on their investment in human capital and tax dollars.

For this reason, I am more than pleased to once again bring this problem to the attention of the minister of research and innovation so we might discuss the formation of a much needed formal internship program, such as we have with the doctors who serve our population. While their internship assures good practice, ours in engineering would also contribute to our GNP.

Changes could be made to reduce the period of internship to two years from four with a formal plan. We would also expect multiple funding participants with an interest in the outcome. We would also alleviate unemployment, in a most positive way, netting many long-term benefits. Σ