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The Association of Professional Engineers and Geoscientists
of the Province of Manitoba

DECEMBER 2003
www.apegm.mb.ca

APEGM Annual General Meeting

By: J.A. Blatz, P.Eng.

The 2003 Annual General Meeting was called to order promptly on October 25th at the Fairmont Hotel. The meeting showed strong attendance including executive members present from the Westman chapter, and video conference links into Thompson and Flin Flon. The official call to order was followed by a moment of silence for deceased members. President Ferchoff then acknowledged that the quorum had been obtained and the official agenda for the meeting was amended and accepted by the membership.

President Ferchoff introduced all guests, the current Council, and all committee Chairs present. Formal greetings were then provided by other Association representatives present followed by the official report from President Ferchoff. The President outlined many of the achievements of the Council and the Association over the past year under his leadership. The President also alluded to the fact that some of the more exciting initiatives would be discussed in more detail in later agenda items for the meeting.

The minutes from the 2002 AGM were then adopted with no business arising. The Dean of Engineering, Doug Ruth, was then called to address the meeting on the status of the new Engineering and Information Technology Complex. The Dean touched on the excitement forming on campus about the construction of the new building and the acknowledgement that things are happening quickly considering that building two has already been demolished. The Dean also outlined the fundraising situation noting that overall the engineering community has been quite supportive, but more fundraising is required to reach the final goal. The Dean then unveiled the plan for having APEGM support the new building with a major con-

tribution to create the 'APEGM Design Studio'. The design studio would house the first year 'Engineering Design' course which every engineering student must complete. This room would provide a fundamental link between the Association and the Faculty of Engineering at the University of Manitoba to promote the Association to all new students. Following the presentation, members were invited to comment on APEGM providing support for the Faculty and the idea of the 'APEGM Design Studio'. An overwhelming number of the members at the meeting provided support for APEGM supporting this initiative and also noted that the members themselves need to provide more support personally. Mr. Ted Speers took the challenge one step further by providing a cheque to the Dean after giving some comments on the importance of the membership in supporting the Faculty.

In a related follow-up to the Dean's talk, Councillor Allan Silk then gave a presentation on the work Council is undertaking to create 'APEGM Foundation Inc.' as a separate arms-length organization to provide fundraising efforts for the engineering and geoscience faculties at the University of Manitoba. Mr. Silk showed information about the support other associations provide for their respective faculties and indicated that the Foundation would provide the initial support to fund the APEGM Design Studio using money from APEGM's 2003 surplus. Following the funding for the EITC complex, the Foundation would support other initiatives of importance to the engineering and geoscience membership. Following the presentation a number of members provided discussion regarding both the concept of the Foundation and also the details on how funds in the APEGM budget would be trans-

ferred to the Foundation. Overall the impression was that the members present were supportive of this important initiative.

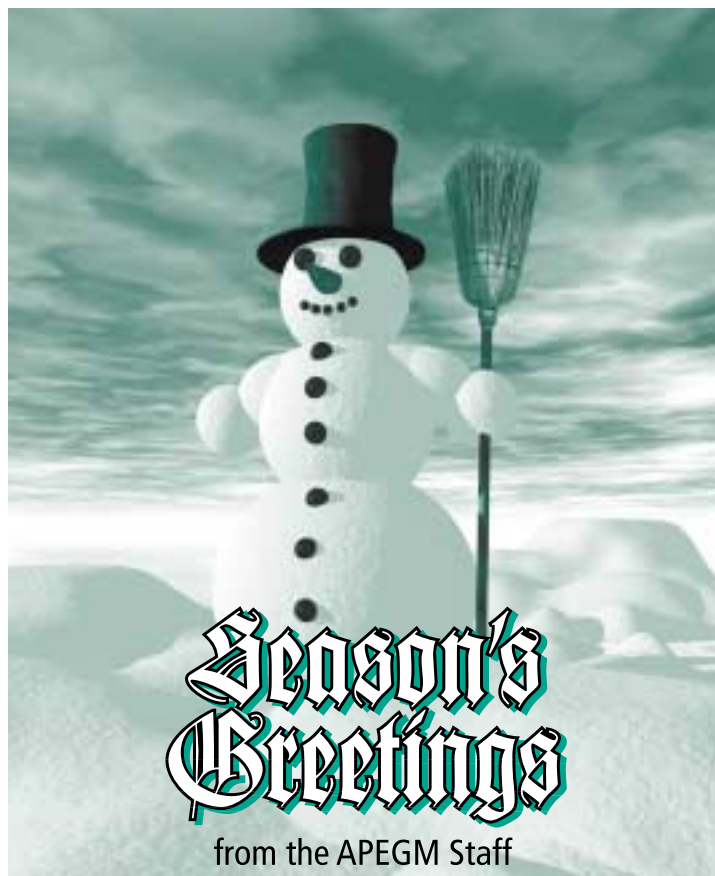
The morning session then ended with acceptance of the auditors report and 2002 financial statements as well as appointment of the auditors for the next year. The 2003 budget and schedule of dues and fees was then presented with no changes in the fees for all members.

The meeting then adjourned for lunch, which included a presentation by the Honourable Tim Sale, Minister of Energy, Science and Technology, on the energy future of

Manitoba. The presentation highlighted how Manitoba is well poised to provide energy from hydro and wind sources to Manitoba and markets abroad. It was clear that Manitoba is positioned well to be a Kyoto-friendly energy provider in both the short and longer term.

The meeting was reconvened after lunch, which included a number of addresses and greetings from other associations and guests. The meeting concluded with the gavel ceremony and address from the incoming president Mr. Arnold Permut. The meeting showed the well-being of the Association and

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The Communications Committee would like to hear from you. Comments on your newsletter can be forwarded to us through the Association office. Members are also encouraged to submit articles and photos on topics that would be of interest to the membership.

Although the information contained in this publication is believed to be correct, no representation or warranty, expressed or implied, is made as to its accuracy and completeness. Opinions expressed are not necessarily those held by the APEGM or the APEGM Council.

New Members Registered August, September & October 2003

M. Ali	R.J. Freymond (AB)	B.F. Parsons
R.D. Allen (NB)	G.A. Gibson (BC)	E. Pasiecznik (ON)
D.J. Bak (ON)	P.G. Gordon	C.J. Reimer
M.A. Balachander	B.B.J. Han	P. Resler
D.A. Barrett (AB)	B.J. Humdall (AB)	P.K. Roberts
L.G. Basaraba (SK)	C.T. Johnston (AB)	P. Sekhavat
G. Bienias	D.A. Joyce	S.J. Shelemy
R.A. Bocancea (AB)	J.A. Keller	B.J. Skeeles
R.S. Bolton	R.R. Kohler (BC)	T.W. Smeall
K.R. Braid	K.K. Kotyk	L.G. Smith (AB)
J.H.K. Chapman	A.V. Lebedev	S. Srinivasan
D.D.G. Chevrier	P.A. Levesque	C.D. Thorn
N.M. Cindric	J.G. McKay	D.J. Tratch (SK)
K.P. DeJean (QC)	A.D. McLeod	L. Turabian
C.J. Desjardine	T.S. Morin	T.D. Vassos (BC)
P.S. Dhaliwal	M.E. Morrison (ON)	E. Wiebe (ON)
G. Draskovic	J.L. Muinonen	N.C. Wood
L. Du Toit (BC)	V.L.N. Nazareth (ON)	Q. Yuen (ON)
A.M. Duester	C.K. Ng	D.P. Zilinski
E. Evans (ON)	A. Painchaud	

Members-In-Training Enrolled August, September & October 2003

A. Anand	P.P. Gloux	R.P. Newsham
J.S. Blixhavn	J.E. Gnitecki	C.E. Ott
G.J. Cassano	M.J. Gregoire	O.G. Preston
V. Chatoorgoon	C.R.L. Hamm	A.M.D. Renaud
B.K. Cherwinski	S.A. Herbert	B.D. Saunders
C.O. Chubb	R.A. Hyndman	M.P. Smith
N.P. Doherty	C.S. Ima	V. Tang
D.D. Duarte	A.K. Johal	C.S. Tretiak
C.M. Elliott	T.J. Krahn	B.C. Tully
W.J. Findlater	C.R. Magura	R. Yang
A.J. Fraser	G.W. McDonald	J.A. Zemcak
H. Ganjtoumari	C.P. Mota	M.G. Zubach
G.R. Gill	T.J. Mryglod	

Licences Issued August, September & October 2003

B.C. Larson	D.R. Pfeiffer	E.J. Weden
	L.M. Sargent	

Reinstatements August, September & October 2003

M.E. Haukeness	E. Hrudko	L.W.K. Tse
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Resignations August, September & October 2003

M.J. (Morgan) Brown	D.L.J. Duguay	J.A. Wehrstedt
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Certificates of Authorization Issued August, September & October 2003

A. D. Williams Engineering Inc.
Buhlmann & Associates Inc.
Egberts Engineering Ltd.
Hayles Geoscience Surveys Ltd.
HRS Engineering Ltd.
Kaverit Steel & Crane
M C Engineering

In Memoriam

The Association has received, with deep regret, notification of the death of the following member: V.L. Dutton





Executive Director's Message

D.A. Ennis, P.Eng.

Annual General Meeting

There are articles elsewhere in this edition on the Association's recent AGM and Conference. The business meeting was one of the more well-attended ones in recent years.

APEGM and Manitoba Universities

At the AGM there were two presentations on the mutually-beneficial linkages that are being established between APEGM and the Manitoba universities with engineering and geoscience faculties. The first, by Dr. Douglas Ruth, Dean of the Faculty of Engineering at the University of Manitoba, outlined the new Engineering and Information Technology Complex (EITC) at the University of Manitoba and the importance of this new building to the continued long-term accreditation of the Faculty. Dean Ruth then described the opportunity for APEGM to acquire the naming rights to the 5000 ft² section of the building that will become the hub of the engineering program for all undergraduate students. It will be named the "APEGM Design Studio." APEGM's linkage with the studio is intended as a significant step in promoting awareness among students and ultimately increasing registration by addressing the fact that many students in degree programs leading to academic qualification for registration as a professional engineer or professional geoscientist still are not aware of the requirement or the process for registration.

However, given the current constraints of University funding, the new EITC also requires funding from the community at large. APEGM has therefore decided to invest in the future of the profession in Manitoba by acquiring the naming rights and supporting the EITC funding program up to a maximum of \$350,000. The next presentation, made by Councillor Allan Silk, outlined how APEGM was going to meet its commitment – by the establishment of a separate corporation, "APEGM Foundation Inc." The corporation has been established as a

vehicle to provide the flexibility and the opportunity for supplementary fundraising from corporations, individuals, and the community at large in support of both the acquiring of the Design Studio rights and for other future initiatives, such as scholarships. It will be registered as a charity under the Income Tax Act, thereby allowing the issuing of receipts for donations from members and others for tax credit purposes, and will be the entity making the actual pledge to the University of Manitoba.

The payment schedule of APEGM's initial funding of the Foundation is \$150,000 from operations (i.e. the excess of revenue over expenditures) for the fiscal year ended June 30, 2003. This amount was designated for transfer to APEGM Foundation Inc. in the Association's Financial Statement that was approved at the AGM. The remainder of the Foundation's pledge is for \$40,000 each year for the next five years. Subject to its own continued financial viability, APEGM has agreed to supplement the Foundation's pledge in the amount of any shortfall that the Foundation has not raised by other fundraising means.

Given that the Association is comprised of both engineers and geoscientists there will also be commensurate funding pledged for the geoscience programs at the Manitoba universities. The amount is estimated at \$20,000 over the six years. As reported elsewhere, support for the initiative at the AGM was strong. I encourage members to help assure that our universities, which produce the life blood of our professions – professions that are vital to the economy – continue to produce graduates able to meet the needs of the public of Manitoba.

Declaration of Compliance

During the consideration of the reports of the Committees and staff, members in attendance were reminded that, with the upcoming renewal of registration through the payment of the annual dues, those in the practicing category will be asked to sign the following declaration:

"I declare that I have, on an ongoing

basis, acquired the knowledge, skills and level of awareness necessary to undertake the professional services that I currently provide, or intend to provide, to my employer and clients, and to fulfill my professional responsibilities to the public."

This will now be an annual procedure. It is based on the assumption that, since members expect APEGM to promote the professions and tell the public that they are capable of doing their jobs, they should also be willing to provide the same assurance to the Association.

As noted in the September issue, for those who wish the convenience of some guidance and a system for carrying out their competency responsibility, the Association has a

Professional Development guideline. The guideline, along with a sample form and planning examples, is posted on the Association's web site. The website also has extensive information on professional development opportunities and links to professional and technical organizations, institutions, and course providers.

Privacy Legislation

As reported in earlier issues, and commented upon elsewhere in this issue, the Federal Government's privacy legislation "PIPEDA" comes into effect 01 January 2004 and will require changes to the Association's operations. We ask for the co-operation.

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Letter to the Editor



Wall located on the main floor of the newer Engineering Building and I could not believe the lack of donors in comparison to the number of living Engineering graduates.

Upon our return to the office I requested information from Sue Kennedy from the University's Private Funding Office on how a donation could be made.

Soon after, I faxed her a donation of \$1000.00 to be applied to my VISA card.

I also have spoken to a few engineers recently and most come up with the same old excuses; "I paid my tuition", "I owe the University nothing", "It took me five years to graduate instead of four", and the list goes on.

I can understand younger graduates who have not yet realized the value of the education and opportunities that the Faculty of Engineering has provided them. But for the 40 year plus graduates, we all have benefited from the education and hopefully agree that it is time to give a little back.

The late Izzy Asper quoted, "I owe the University of Manitoba everything... You can never repay the debt you owe to your university. Since I can afford it, I'm simply paying my dues..."

We all can afford to donate to the cause. People before us, had

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I read with great disappointment in the June 2003 newsletter that Les Wardrop only managed to generate 11 donations to the University of Manitoba Engineering and Information Technology Complex from a total of 300 engineers he had spoken with.

In May of this year, I took a trip to the University with one of my engineer employees to view the portion of the building which was to be demolished in the summer. We had viewed the building from the 5th floor East stairwell at University Centre so we could view the entire complex. When I had stated to him that the building was in a very sad state, he had responded with, "it looks like a battleship that had just returned from the war". Then it really hit me.

At the instant I was feeling sad that the Engineering Building had deteriorated to such a state since I graduated in 1986.

We also took a look at the temporary Fundraising Donor

Annual General Meeting

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the many valuable initiatives being undertaken by the Council. I am sure next year's AGM will again show positive steps forward in many of these activities.

Leadership Award

Nick W. Diakiw, P.Eng.



The Association of Professional Engineers and Geoscientists of Manitoba was pleased to present the 2003 Leadership Award to Mr. Nick Diakiw.

Mr. Diakiw graduated from the University of Manitoba in 1953 with a Bachelor's Degree in Civil Engineering. During his undergraduate years, Mr. Diakiw was employed as a survey rodman with the City of Winnipeg Engineering Department. After graduation he progressed through the administrative structure of the City to his appointment as Commissioner of Works and Operations in 1974 and culminating in his appointment as Chief Commissioner in 1978. His career with the City of Winnipeg was only briefly interrupted from 1953 to 1955 when he was employed by the Province of Manitoba Water Resources Branch on projects on the Nelson River.

As Chief Commissioner of the City of Winnipeg, Mr. Diakiw was one of only a few engineers to hold such a senior administrative position. For ten years Mr. Diakiw was Chairman of the Board of Commissioners of the City of Winnipeg, responsible for the supervision of all employees and the operation of all departments and services.

Upon his retirement from the City of Winnipeg in 1988, Mr. Diakiw was appointed to the position of President and Chief Executive Officer of The Forks Renewal Corporation, which was

established by the Municipal, Provincial and Federal governments to own and redevelop a major river-front site at the junction of the Red and Assiniboine Rivers.

After successful completion of Phase 1 of "The Forks" project, (one of the main tourist attractions in Winnipeg), Mr. Diakiw was attracted to the private sector and became Vice-President of Corporate Resources for Lafarge (Manitoba) in November 1994.

Mr. Diakiw has served as Director on a number of boards of national and international associations in the fields of public works and transportation. He was President of the American Public Works Association (1981), only the third Canadian in 100 years to hold this position. He is Past President of the International Public Works Federation. In 1992 he was the proud recipient of the Lieutenant Governor's Medal for "Excellence in Public Administration".

Mr. Diakiw has also served on numerous local boards in a leadership capacity, namely the Winnipeg Chamber of Commerce, Winnipeg Enterprises Corporation, Winnipeg Library Foundation, Ukrainian Professional Business Club, Friends of the Elmwood Cemetery, and Winnipeg Civic Employees Benefits Board. He has also served on many boards in the health care field, specifically, Manitoba Blue Cross, Misericordia Hospital, Holy Family Nursing Home, Winnipeg Hospital Authority, and Winnipeg Community and Long Term Care Authority.

Outstanding Service Award

Donald N. Spangelo, P.Eng.



In recognition of his many years of valuable and loyal service to the Association, the Outstanding Service Award was presented to Don Spangelo.

Don Spangelo became registered with this Association on June 13, 1983, and has been a member con-

tinuously for 20 years. Don graduated from the University of Manitoba with a B.Sc. in Civil Engineering in 1981.

Don served as a member of Council from 1995 – 1997. He also served on the Publication Committee for six years, the Legislation Committee (of which he is currently the Chair) for 14 years, the Discipline Committee (of which he continues to be a member) for ten years and the Issues Awareness Board for four years. This makes a total of 37 committee-years of service.

Additionally, Mr. Spangelo has contributed many hours of service as the leader and developer of the Association's testing program for the school children's Spaghetti Bridge Competition, which is part of the National Engineering Week activities. Don and his team have tested approximately 100 spaghetti bridges per year for the last ten years.

Honorary Life Membership

Garland E. Laliberte, P.Eng.



Garland Laliberte became registered with this Association on February 28, 1968, and has been a member continuously for 35 years. He had previously been a member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta since 1960. Garland graduated from the University of Saskatchewan with a B.Sc. (1956) and an M.Sc. (1961) in Agricultural Engineering. He obtained his Ph.D. from the University of Colorado in 1966.

Garland served as a member of Council from 1985 to 1990 and was President in 1989. He also served on the Executive Finance Committee for five years, Board of Examiners (now the Academic Review Committee) for six years, the Admissions Board for four years, the Nominating Committee for three years, the Ad-Hoc Committee on

Group Practice Licensing for two years, the Ad-Hoc Committee on the Code of Ethics for two years, the Ad-Hoc Committee on Technologists for three years, and the Awards Committee for two years. This makes a total of 33 committee-years of service to APEGM.

In addition, Garland served as the APEGM Director on the Board of the Canadian Council of Professional Engineers (CCPE) in 1990. He then served on the Executive of CCPE for three years and was elected President of CCPE in 1994.

Garland received the Association's Outstanding Service Award in 1994, and in 1998 the Canadian Council of Professional Engineers presented him with its Professional Service Award.

During his tenure as Dean of Engineering at the University of Manitoba from 1989 to 1994, Garland continued to be an avid supporter of the Association.

His many talents and insights have made him a most valuable member of this Association. The Association is grateful for the commitment and leadership Garland has provided over the years and was pleased to present him with Honorary Life Membership.

Honorary Life Membership

W.M.A. (Bill) McDonald, P.Eng.



Bill McDonald became registered with this Association on June 19, 1968, and has been a member continuously for 35 years.

Bill served as a member of Council from 1989 to 1992 and was President in 1991. He also served on the Executive Finance Committee for three years. Bill served as both the Chair and as a member of the Admissions Review Board (now the Registration Committee) for five years, the Ad-Hoc Committee on Technologists for six years, the

Continued on page 5

Awards

Continued from page 4

Nominating Committee for nine years, the Investigation Committee for 14 years (of which he is currently a member and was Chair from 1993 - 2000), the Practice & Ethics Committee for two years, the Ad-Hoc Committee on Admission Standards for four years, the Awards Committee for one year, and the Ad-Hoc Selection Committee for

one year. He was also Liaison Councillor to the Ad-Hoc Committee on Engineering Inspection and Supervision for one year and to the University Liaison Committee for one year. This makes a remarkable total of 51 committee-years of service.

Bill received the Association's Outstanding Service Award in 1994, and in 2002 he was recognized by the Canadian Council of Professional Engineers with its

Meritorious Service Award for Community Service.

Bill's past and continuing meritorious service demonstrates his unwavering commitment to the principles of APEGM, and to getting the job done. He has been a valuable resource to every Committee he has served on, and is a significant asset to the Association. The Association was pleased to present him with Honorary Life Membership. ■

Online Publication Notification

Soon the Keystone Professional will be delivered right to your inbox! Starting with the April 2004 issue, a link to the new Keystone Professional will be e-mailed to you at your preferred e-mail address. This will result in much quicker delivery and a substantial reduction in cost. The trees will like it too!

You may have noticed that there is a space on the Member Update form (which you received with your renewal invoice) to indicate your preferred method of receiving the Keystone Professional. You can choose which e-mail address to use or you can choose to receive a hard copy of the publication instead of online delivery. We encourage you to try the online version first, but will be happy to provide you with a hard copy if online delivery doesn't meet your needs.

As always, please contact the Communications Committee through the APEGM office if you have any questions or comments regarding your publication. ■



APEGM New Members

Engineer as a Director on the Board of the Bank of Canada

By: P.H. Boge, P.Eng.

It's not very often that an engineer serves on the Board of Directors at the Bank of Canada. In fact, since the bank opened its doors in March of 1935 this is the third time an engineer has held the prestigious position. And he's Manitoba's very own Armin Martens, P.Eng., MBA.

"It's an honour and privilege to serve on the board," Martens said from his Marwest office in the Commodity Exchange Tower.

Martens graduated from the University of Manitoba with a B.Sc. in Civil Engineering in 1977. He started his career in the construction and real estate development industry and became registered with the Association in 1979, subsequently earning his MBA. He was appointed to the board of the Bank of Canada in December 2002.

While engineering may, at first glance, appear to be removed from

the financial focus of the Bank of Canada, there is a correlation between the two fields of study. "The unique combination of an engineering and MBA degree is an asset," Martens said. "The problem-solving and analytical skills learned and fostered in engineering are valuable in many kinds of applications."

The Bank of Canada's responsibilities focus on the goals of achieving low and stable inflation, a safe and secure currency, financial stability, and the efficient management of government funds and public debt. The decisions of the Bank of Canada affect the overall economy and therefore affect engineers across Canada. "Engineering is about economics," Martens said. "As engineers, we are constantly seeking ways to tackle projects that have an economic purpose — roads, bridges, buildings, machinery, technological equipment, etc. We need a healthy

economy or else we won't have a demand for our products and services."

Martens' position with the Bank of Canada isn't the first time that a Manitoba Professional Engineer has used his practical and technical background to serve in other areas. Gary Filmon, P.Eng.(Ret.), was Premier of our province from 1988 to 1999 and currently serves as a director on numerous corporate boards. ■



Armin Martens, P.Eng.

COMING SOON!

APEGM Engineering Student Dinner

January 28th, 2004

Here is a chance for professionals to share their experience and provide guidance to engineering students who want to learn more about the engineering profession.

Enjoy a great dinner at Fort Garry Place and an interesting guest speaker.

EITs can obtain one professional development hour by attending and two professional service hours by hosting a student.

Check out the enclosed insert for more details.

Hope to see you there!

For any questions contact:

Trevor Bowden
(204) 831-2619

trevor.bowden@boeing.com

The Kyoto Accord

The following article is reprinted with the consent of the PEGG (magazine of the Association of Professional Engineers, Geologists and Geophysicists of Alberta) and the authors of the articles. It originally appeared in the November 2002 issue of the PEGG.

Editor's Note: The PEGG solicited the following exchange on the Kyoto Accord and the science behind it, in an effort to provide two divergent views of the debate. The Point side is in favour of the science behind Kyoto and its implementation; the Counterpoint side disputes the science and doesn't agree that the accord, as it currently stands, is an acceptable way to address climate change. Each side received an advance copy of the other's argument, allowing them to write rebuttals, which also appear here.

Point

By: **Matt McCulloch, P.Eng. and Matthew Bramley, Ph.D.**

Atmospheric concentrations of greenhouse gases (GHGs) are rising rapidly as a result of human activities, mainly the burning of fossil fuels. Almost all leading climate scientists agree that a profound transformation of the global environment is likely to occur this century if this trend continues. Heeding the scientific advice, the world's governments agreed more than 10 years ago on the need to stabilize GHG concentrations. They formalized this objective in the United Nations Framework Convention on Climate Change, which has been ratified by virtually every nation in the world (Canada and the U.S. included).

Carbon cycle modelling shows clearly that stabilizing GHG concentrations will require global GHG emissions to be reduced by more than half from today's levels. This is a very considerable challenge, but it is one that we collectively need to surmount within just a few decades if the most damaging of the expected impacts are to be avoided. Yet GHG emissions are currently growing almost everywhere in the world. This creates a real urgency in beginning the job of slowing and then reversing that growth.

The world's governments quickly recognized that meeting the objective of the Framework Convention would require legally binding limits on GHG emissions. In 1997, as a first step in that direction, they negotiated the Kyoto Protocol, which sets emissions targets for industrialized countries for the period 2008-2012. In most cases, these represent modest reductions in emissions below 1990 levels – a six-per-cent reduction in the case of Canada. The vast majority of cumulative GHG emissions from human activities to date originated

in industrialized countries. If the latter are not willing to take the small first step represented by Kyoto, developing countries – which have vastly inferior resources on a per-capita basis – will simply refuse to take on their own emissions constraints in the subsequent steps needed to cut global emissions in half.

Most industrialized countries have already ratified the Kyoto Protocol, and only Russia's ratification (expected within a few months) is now needed for the protocol to have legal force. Only the U.S. has refused outright to ratify. Canadians generally believe strongly in participating in multilateral, cooperative efforts to solve major global problems, which explains why polls show large majorities in favour of ratifying the Kyoto Protocol. Canada has the second highest per-capita level of GHG emissions in the world – over twice as high as Western Europe or Japan. If Canada does not ratify the protocol, the international community will see it – as the U.S. is already seen – as selfishly resisting a reasonable solution to a problem to which it is a leading contributor.

So why are some influential voices in Canada opposing Kyoto? Most stress the potential effect of the protocol on the economy. But the most credible and detailed economic modelling by federal and provincial governments, taking account of U.S. non-participation, shows that the most likely macro-economic effect would be to change Canada's projected GDP growth between 2000 and 2012 from 31 per cent growth to somewhere between 30 per cent and 31.5 per cent. For sure, economic modelling is an uncertain art, but no studies suggest anything worse than a slight slowing of strong underlying economic growth.

The real economic issue is not the overall impact, but how any

impact will be shared out. Alberta, with the highest per-capita emissions in Canada, and the oil industry, often viewed as the main culprit, understandably feel vulnerable in this regard.

It is therefore important to recall federal and provincial governments' repeated joint affirmations that no region or sector should bear an unreasonable burden as a result of the Kyoto Protocol. Governments have powerful policy tools at their disposal to ensure that that is the case – notably, flexibility in the way emissions permits are allocated under the domestic emissions trading system that is expected to be at the centre of Canada's Kyoto implementation plan.

The Pembina Institute believes in fair sharing of responsibility to reduce emissions between regions and economic sectors. But Canada's Kyoto implementation plan must also initiate a shift in the economy away from the most GHG-intensive resources, like oilsands and coal, towards less GHG-intensive ones like natural gas, renewable energy, and the enormous "resource" that is energy efficiency. This is a shift that Alberta can lead and benefit from if it so chooses.

Opponents of Kyoto often focus on risks to our competitiveness if Canada ratifies while the U.S. does not. But several studies indicate that the U.S. withdrawal has actually lowered the protocol's cost in Canada by reducing the expected price of international emissions credits. This is a result of the protocol's flexibility in allowing countries to meet their emissions targets partly by purchasing such credits. The Pembina Institute wants Canada to maximize the amount of domestic emissions reductions, and reap the associated benefits (mentioned later in this article), but the safety valve of international emissions trading refutes Kyoto opponents' claim that our target is a strait-jacket.

Emissions trades occurring today are confirming the low price of credits. It is also important to understand that governments in the U.S. have taken far more significant action to date to reduce GHG emissions than governments in Canada – as detailed in a recent Pembina Institute report. By implementing Kyoto, Canada will initially be catching up with the U.S., not getting ahead.

Perhaps what most undermines Kyoto opponents' forecasts of eco-

nomical damage is the fact that major Canadian GHG emitters such as Suncor and TransAlta have voluntarily taken on Kyoto-level targets for their net corporate emissions. They would hardly have done so if they believed the protocol would seriously harm their economic prospects. BP's CEO recently described how his company had met its global 10 per cent GHG reduction target seven years ahead of schedule and "at no net economic cost."

Indeed, implementing the Kyoto Protocol will have several important benefits for Canada. It will result in a more energy-efficient economy and create major new business opportunities in low-GHG technologies, benefiting rapidly growing, innovative Canadian companies like Vision Quest (windpower), Ballard (fuel cells), Iogen (ethanol fuel) and many others. Far from harming our economic competitiveness, these things will enhance it and position Canada advantageously for the future and inevitable tightening of international restrictions on GHGs. A reduction in fossil fuel use will mean a reduction in the several thousand premature deaths that the medical community estimates occur annually in Canada as a result of urban air pollution.

Last but not least, concerted international action to reduce GHG emissions will make a start towards avoiding the enormously costly storms, droughts, coastal flooding and other impacts that climate models tell us to expect if emissions continue to rise unchecked.

If these benefits are there for the taking, why not pursue them with a "made in Canada" plan instead of tying ourselves to Kyoto? The answer is that despite the good initiatives of a few far-sighted companies, formidable vested interests and inertia prevent Canada from controlling its GHG emissions in the absence of strong government leadership in the form of regulations and economic instruments. During the 1990s, when governments relied instead on voluntary and educational initiatives, Canada's GHG emissions rose by 20 per cent, a gross violation of our commitment, enshrined in the Framework Convention on Climate Change, to bring our emissions back to the 1990 level by 2000.

The problem was that this commitment was not legally binding,

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The Kyoto Accord

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and so governments failed to muster the political will to implement the policies needed to meet it. This situation will certainly continue if Canada pursues a unilateral approach to climate change. By ratifying Kyoto, on the other hand, we will be held to our emissions target by the international community and face sanctions in case of non-compliance. That is essential to create the political will to implement the strong policies that Canada needs to reduce our emissions.

The notion that the federal government has no idea how to implement the Kyoto Protocol, or, alternatively, that the government has a plan but has not consulted industry and the provinces about it, is nonsense. The two-year National Climate Change Process, established in 1998, entailed exhaustive consultations with industry associations, provinces and environmental groups and identified more than 300 individual measures that governments could implement to reduce GHG emissions. The federal government then put forward four different packages of such measures in a May 2002 discussion paper that was subject to further nationwide consultations.

The government will publish its chosen Kyoto implementation plan prior to putting Kyoto ratification to a vote in Parliament before the end of this year. Canadians' true interests demand that our elected representatives choose the cooperative, international approach to addressing this major global challenge, rather than a path of isolation and inaction that shirks our global responsibilities.

Matt McCulloch, P.Eng., is with the Calgary office of the Pembina Institute for Appropriate Development, in a lead technical role in the institute's Eco-Solutions Group.

Dr. Matt Bramley is the Pembina Institute's director of climate change.

Views expressed are not necessarily those of any institution with which they are affiliated.

Rebuttal of Point

(By Counterpoint Authors)

The Pembina Institute's authors have chosen to avoid the science topic, perhaps because

there is no credible scientific basis for the Kyoto Protocol.

Advocates of Kyoto mistakenly cite the United Nations IPCC 2001 report and the U.S. National Academy of Sciences 2001 report as authoritative scientific sources. Dr. Richard Lindzen, Sloan professor of meteorology at MIT and a co-author of both reports, wrote in 2001:

"We are not in a position to confidently attribute past climate change to carbon dioxide or to forecast what the climate will be in the future..."

"Science, in the public arena, is commonly used as a source of authority with which to bludgeon political opponents and propagandize uninformed citizens. This is what has been done with both the reports of the IPCC and the NAS. It is a reprehensible practice that corrodes our ability to make rational decisions. A fairer view of the science will show that there is still a vast amount of uncertainty – far more than advocates of Kyoto would like to acknowledge..."

Kyoto has many fatal flaws, any one of which should cause this treaty to be scrapped.

Climate science does not support the theory of catastrophic human-made global warming – the alleged warming crisis does not exist.

Kyoto focuses primarily on reducing CO₂, a relatively harmless gas, and does nothing to control real air pollution like NO_x, SO₂, and particulates, or serious pollutants in water and soil.

Kyoto wastes enormous resources that are urgently needed to solve real environmental and social problems that exist today. For example, the money spent on Kyoto in one year would provide clean drinking water and sanitation for all the people of the developing world in perpetuity.

Kyoto will destroy hundreds of thousands of jobs and damage the Canadian economy – the U.S., Canada's biggest trading partner, will not ratify Kyoto, and developing countries are exempt.

Kyoto will actually hurt the global environment – it will cause energy-intensive industries to move to exempted developing countries that do not control even the worst forms of pollution.

Kyoto's CO₂ credit trading scheme punishes the most energy efficient countries and rewards the most wasteful. Due to the strange rules of Kyoto, Canada will pay the

former Soviet Union billions of dollars per year for CO₂ credits.

Kyoto will be ineffective – even assuming the overstated pro-Kyoto science is correct, Kyoto will reduce projected warming insignificantly, and it would take as many as 40 such treaties to stop alleged global warming.

The ultimate agenda of pro-Kyoto advocates is to eliminate fossil fuels, but this would result in a catastrophic shortfall in global energy supply – the wasteful, inefficient energy solutions proposed by Kyoto advocates simply cannot replace fossil fuels.

Counterpoint

By: Dr. Sallie Baliunas, Dr. Tim Patterson, and Allan MacRae, P.Eng.

Climate Is Always Changing

The only constant about climate is change. For as long as Earth has existed, natural climate changes have occurred and will continue. Change occurs at many scales, from gradual variation over millions of years, to rapid climate shifts in a decade or less. The ques-

tion is how to distinguish between natural climate variation and possible change caused by human activity.

During the past two million years, the Earth has been as ice-age cold as it has ever been, experiencing more than 30 glaciations. In the past 800,000 years, the pattern has been approximately 100,000 years of extensive glaciation, interspersed with warmer interglacials of around 15,000 years. By studying climate changes through these previous cycles, we surmise that the next ice age is less than 5,000 years ahead. At that time, large portions of North America will be buried under kilometres of ice.

Greenhouse Gases & Climate

The greenhouse effect has an important influence on the climate of the Earth. The temperature of the Earth is primarily maintained by the transport of energy by atmospheric circulation and ocean currents and the balance between the flux of incoming solar radiation and the amount of outgoing infrared radiation back to space. Greenhouse gases, clouds and aerosols in the atmosphere trap

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Council Reports

Wednesday, September 10, 2003

By: A.N. Kempan, P.Eng.(Ret.)

TRENDS AND FINANCES

The meeting began with introductions; three new lay councillors joined Council today and so President Ferchoff presented Muriel Smith, Brian L. Shortt, and David R. Witty, F.C.I.P., to the gathering. Executive Director Dave Ennis continued by outlining the meeting items. President Ferchoff said the agenda was aggressive. The agenda and minutes of the last meeting were approved and Council moved on to new items.

First off was the Canadian Council of Professional Engineers report titled 'Trends in Engineering Enrollment'. According to their statistics, 51,000 undergraduate students were enrolled in engineering programs, an increase of 18.5% over 1997 figures. Councillor Doering said at the University of Manitoba the failure rate dropped from 25% to single digits since the advent of University 1, and overall the number of graduates was down only slightly. Council went on to some general discussion about the budget of the Engineering faculty.

After about 30 minutes of meeting time Council moved into an 'in camera' session lasting 2 1/2 hours, plenty of time for a reporter to thoroughly peruse the daily newspapers and the bulletins from other associations posted in the lobby.

When the open meeting resumed, a representative from APEGM's

accountants, BDO Dunwoody, fielded questions about the Association's auditing report. There was nothing exceptional to report, except that APEGM's investment return was a whopping 15% last year. The Association continues on a sound financial footing.

Next, Executive Director Dave Ennis gave a brief history of the Professional Engineers of Ontario and their relationship with CCPE. He did so as background for a discussion paper issued by PEO entitled 'An Alternative Approach for PEO to Support National Regulatory Services.' Mr. Ennis outlined how an engineering advocacy group was created in Ontario, OSPE (Ontario Society of Professional Engineers). It appeared that PEO, along with the Quebec association, might want to revamp CCPE and replace it with OSPE as the national advocacy group. Both Mr. Ennis and Councillor Permut thought Ontario and Quebec concerns must be taken into account. The downside of a change might mean the creation of three accreditation regimes.

On to the monitoring reports and the new Admissions Manual. Councillors Silk and Permut said input from the Admissions Board was required and that it might appear a rush was on to complete the document for the Annual General Meeting. They settled on a plan to finalize the manual at the October meeting.

Finally, time for an evaluation of the meeting. Councillor Harfield thought they'd completed an aggressive agenda and it was a job well done. New lay councillor Smith was impressed with the discipline shown in addressing issues. The meeting ended at 5:28 PM. ■

Wednesday, October 15, 2003

By: S.B. Williamson, P.Eng.

SALARY SURVEY MISUSED?

The final meeting of the APEGM Council for 2003 was called to order by President Ferchoff shortly after 1 p.m. The usual procedures of adopting the agenda and review of the previous meeting minutes quickly followed.

The majority of the meeting was an in camera session that focused on the APEGM Annual General Meeting and the APEGM/CTTAM Proposal on Certificates of Authorization. As usual, the meeting also involved the standard items such as governance processes, monitoring reports, and summaries of the Past Presidents and the CCPE Board of Directors along with general information.

Councillor Britton summarized his meeting with the CCPE Board of Directors. A discussion regarding the integration of foreign engineers resulted from Dr. Britton's summary. Again, Council agreed that the main focus on the integration of foreign engineers is to protect the public by ensuring a system is developed where the applicant's credentials are thoroughly reviewed and that a system is not developed in haste.

The portion of the meeting involving governance processes and specifically monitoring reports resulted in a discussion on Councillor Harfield's draft monitoring report regarding Council's code of conduct and conflict of interest. Upon reviewing, Council agreed that the current policy clearly

depicts a councillor's conduct. Also, Council remarked that the monitoring reports have highlighted future topics of discussion pertaining to conflict of interest and code of conduct. Council agreed that these reports have been worthwhile and they look forward to future reports.

As the Council meeting continued on into the late afternoon, an interesting conversation regarding the purpose of the salary survey resulted as Council reviewed some of the comments submitted with the annual salary survey. Councillors Britton, Barakat, and Ferchoff raised the question as to why is the survey done? One opinion is that the results from the survey have a tendency to place a salary cap on engineers in Manitoba as employers use this survey to determine what salary they should pay. The purpose of the survey should be reviewed as its information may not be being used as intended.

Executive Director Ennis presented a memo from the Communications Committee involving its intention to pursue the electronic distribution of the Keystone Professional and requested Council review the matter. This proposed action lead to further discussion relating to the value of the Keystone Professional and that maybe it should be re-examined with regards to its publication schedule. The general consensus was that the information being communicated to APEGM members was "old news" as the publication was distributed only every couple of months. One comment from Council was that the Keystone Professional be distributed weekly or bi-weekly via e-mails and/or e-mails containing links to information.

After reviewing a few other informational items, the meeting was quickly adjourned with no objections. ■

Letter to the Editor

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made donations so we could attend the accredited Engineering program, so now it is time to ensure future generations will be able to obtain their Engineering degrees in Manitoba with a state-of-the-art facility.

All donations are tax deductible and an Income Tax Receipt is provided. Donations of over \$1000 will be recognized in the name of the donor with their name inscribed permanently on the Donor Wall in the new building.

It is difficult for the Fundraising Campaign Cabinet and their staff to

have a personal "face-to-face" request from each of us, and I know that telephone calls from the fundraising staff can be a nuisance at times. They are just trying to do their jobs.

It is a good feeling to contribute, and I encourage all graduates to send in a donation, no matter what the amount.

Sue Kennedy can be reached at 474-9195, 1-800-330-8066, Fax: 474-7635. Address: 179 Continuing Education Complex, University of Manitoba, Winnipeg, MB, R3T 2N2. Website: www.umanitoba.ca/campaign

Michael Mark, B.Sc. EE (1986)

The Kyoto Accord

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some of the reflected radiation from the surface, causing a natural greenhouse effect that makes the planet habitable. Without this natural greenhouse effect, the global ambient temperature would be substantially colder.

Atmospheric greenhouse gases comprise less than 0.1 per cent of the air. These gases include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), as well as the most important one, water vapour (H₂O).

Water vapour is the principal greenhouse gas, comprising 99 per cent of greenhouse gases in the atmosphere. The amount of water vapour has the most significant influence on global temperature of any greenhouse gas, followed by the warming effect of water in all its phases in clouds.

Despite the rhetoric of the Kyoto Protocol, CO₂ is at most a minor contributor to global climate change. The proportion of CO₂ in the atmosphere has varied significantly over geologic time. Through most of the last 500 million years atmospheric CO₂ content has been higher – up to 18 times higher – than at present. Strikingly, the atmospheric concentration of CO₂ was more than 10 times higher than today's value during the Ordovician glaciation, around 440 million years ago. CO₂ is simply a minor driver in the many factors that influence climate.

The percentages of CO₂ in the atmosphere above the Antarctic Ice Cap for the last 150,000 years have been measured in air bubbles enclosed in ice cores. Over this interval, CO₂ levels have closely

paralleled temperatures. However, detailed analysis of CO₂ concentrations indicates that CO₂ levels often rose and peaked several hundred years after temperature. These results further emphasize that climate change drives major changes in CO₂, not the reverse. Temperature change affects the carbon cycle, which then produces fluctuations in atmospheric CO₂ concentration.

During the last 300 years, atmospheric CO₂ concentrations have risen from 275 parts per million to around 360 parts per million, a 30-per-cent increase. Most of the increase has been recent, caused by fossil fuel burning and deforestation. As discussed below, the increase in atmospheric CO₂ content, while clearly linked to post-Second World War industrialization, cannot be closely linked to global surface warming trends.

Computer models that predict catastrophic human-induced global warming have consistently failed to accurately reproduce past and present climate changes, so their predictions of future climate changes are highly suspect. These models incorrectly assume that increased CO₂ concentration is a major driver of atmospheric warming, and also assume large positive feedbacks arising from increased CO₂ concentration, for which there is no scientific evidence. Without these speculated positive feedbacks, even a doubling of CO₂ concentration would lead to a theoretical warming of only approximately 1° C.

Kyoto is Ineffective

Computer simulations of climate have yielded wide-ranging forecasts of future temperature increases from rising atmospheric CO₂ concentra-

tions, based on projections of future energy use. The United Nations' Intergovernmental Panel on Climate Change has compiled these simulations. The middle range forecast of future warming, based on expected growth in fossil fuel use without any curbs, is for a 1° C increase between now and 2050. The Kyoto Protocol would reduce that increase by an insignificant 0.06° C. If increased atmospheric concentrations of CO₂ were a major problem, then as many as 40 Kyoto-type emission cuts would be required to stop the predicted human-made warming.

To prove the reliability of future forecasts, computer simulations need verification by testing past, well-documented temperature fluctuations. New investment in technology, especially that of space-based instrumentation, has helped address the issue of observed response of the climate to increased greenhouse gas concentrations. Two tests of the reliability of the computer simulations are the past decades of surface temperature and lower troposphere change.

Record of Surface Temperature

The Earth has been much warmer and colder in the past, before we started burning fossil fuels. From about 900 to 1300 AD, during the Medieval Warm Period, the Earth was warmer than it is today. In the 20th century the global average surface temperature rose about 0.6° C, as measured by thermometry, after a 500-year cool period called the Little Ice Age. Only the 20th century warming trend may have a human component attributable to fossil fuel use, which increased sharply after 1940.

A closer look at the 20th century temperature record shows three distinct trends: First, a warming trend of about 0.5° C began in the late 19th century and peaked around 1940. Next, temperature decreased from 1940 until the late 1970s. Then a third warming trend occurred from 1976 to 1986, after which the trend flattens.

Because about 80 per cent of the CO₂ from human activities was added to the air after 1940, the early 20th century warming trend should be largely natural. The cooling from 1940 to the late 1970s, when CO₂ concentrations were rapidly increasing, also tends to contradict the theory that CO₂ is a major driver of global temperature.

Even if one arbitrarily assumed that all of the late 20th century warming was caused by increased concentrations of industrially produced greenhouse gases, this would amount to at most 0.1° C warming per decade – the maximum amount of the surface-warming trend seen since the late 1970s. This surface warming would suggest a temperature trend of about 1° C per century, which is less than that predicted by the computer simulations, but it is unlikely that even this recent trend in surface warming is primarily attributable to human-made greenhouse gases.

Record of Lower Troposphere Temperature

Computer simulations of climate, in which atmospheric greenhouse gas concentrations increase due to human activities, predict detectable warming not only near the surface but also in the layer of air above the surface, the lower troposphere, which rises in altitude from roughly two to eight kilometres. Records from NASA's Microwave Sounder Units aboard satellites extend back 22 years and cover most of the globe (Figure 1). The satellite-derived record is validated independently by measurements from NOAA balloon radiosonde instruments, and those records extend back 45 years. Both records show that the temperature of the lower troposphere does vary as a result of natural factors, e.g., the strong El Niño warming pulse of 1997-98 is obvious. However, no meaningful human warming trend, as forecast by the computer simulations, can be found.

Although the radiosonde record lacks the dense spatial coverage from satellites, it does extend back to 1957, a period that includes the recent rapid rise in atmospheric CO₂ concentration. The radiosonde record shows no linear warming trend in global average temperature prior or subsequent to a dramatic shift in 1976-77. That warming, known as the Great Pacific Climate Shift of 1976-1977, is not attributable to human causes but is a natural shift in the Pacific that occurs every 20 to 30 years.

When compared to the observed response of the climate system, the computer simulations all have forecast warming trends much steeper over the last several decades than measured. The forecasts exaggerate to some degree the warming at the surface, and profoundly in the lower troposphere.

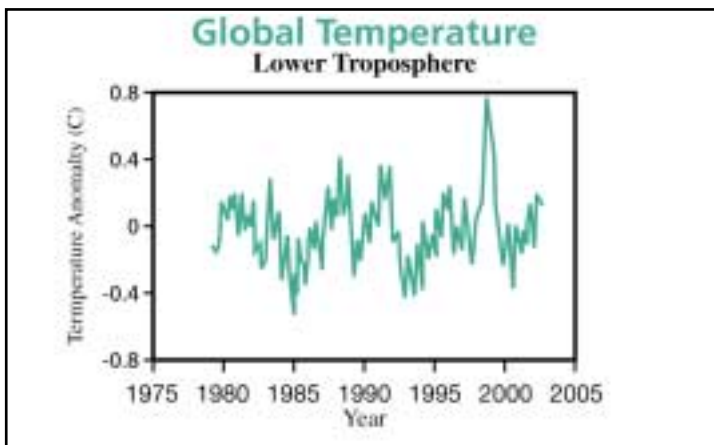


Figure 1 – Monthly averaged temperatures sampled nearly globally for the lower troposphere (roughly two to eight kilometres altitude) from microwave sounder unit instruments onboard NASA satellites. The large spike of warmth resulted from the temporary natural warming of the Pacific Ocean by the 1997-1998 El Niño event.

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Natural Climate Variability: Sun's Influence

Given the lack of a meaningful observed warming trend in the lower troposphere, computer model results say that most of the surface warming in recent decades is not caused by a human-made enhanced greenhouse effect. However, the 20th century temperature pattern does show a strong correlation to energy output of the sun (Figure 2). Although the causes of the changing sun's particle, magnetic and energy outputs are uncertain, as are the responses of the climate to the sun's various changes, the correlation is pronounced. It explains especially well the warming trend up to 1940, which cannot have much human contribution, and the cooling trend from 1940 to the late 1970s. Increased solar activity, not increased atmospheric CO₂, can also be the primary cause of the warming trend since the late 1970s.

Conclusion

Based on analysis of ancient and recent temperature and atmospheric data, increased atmospheric concentrations of CO₂ are not a cause of significant global warming. Contrary to forecasts by computer simulations, there is no evidence of catastrophic global warming due to burning of fossil fuels. The magnitude of human-caused warming is especially constrained by the observed temperature trends of the lower troposphere. There is strong evidence that natural variation in the sun's activity is a much more significant driver of temperature than

human-made greenhouse gases.

Dr. Sallie Baliunas is the former deputy director at Mount Wilson Observatory and an astrophysicist at the Harvard-Smithsonian Center for Astrophysics.

Dr. Tim Patterson is professor of geology (paleoclimatology) in the Department of Earth Sciences at Carleton University.

Allan M.R. MacRae, P.Eng., is a Calgary investment banker and environmentalist.

Views expressed are not necessarily those of any institution with which they are affiliated.

Rebuttal of Counterpoint

(By Point Authors)

The connection between greenhouse gas (GHG) emissions from human activities and climate change is a complex scientific issue. How should policymakers and other interested non-experts, such as APEGGA members, make good judgments as to whether or not these emissions pose a major threat?

The only reliable approach is a review of the full body of research published in the peer-reviewed international scientific literature. Only such a process can allow each individual study and opinion to be placed in context, and a fully balanced picture of the current state of scientific knowledge to be arrived at. The Intergovernmental Panel on Climate Change, comprising the world's most respected climate researchers, was set up by the

world's governments precisely for this purpose. In 2001, the work of the IPCC was endorsed by the U.S. National Academy of Science plus 17 other national science academies. The latter, in a joint statement in the journal *Science*, went further and urged governments to implement the Kyoto Protocol.

What does the IPCC1 have to say about the three most significant claims made by Counter-point authors Baliunas, Patterson and MacRae?

"CO₂ is at most a minor contributor to climate change." According to the IPCC, in its Third Assessment Report Summary for Policymakers, Working Group I (available at www.ipcc.ch): "In the light of new evidence and taking into account the remaining uncertainties, most of the observed warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations." Also: "The globally averaged surface temperature is projected [in business-as-usual scenarios] to increase by 1.4 to 5.8° C over the period 1990 to 2100." It should be noted that the difference in global average temperature between an ice age and the present day is only about 5° C, so this projected warming represents a profound transformation of the global environment.

"Computer models that predict catastrophic human-induced global warming have consistently failed to accurately reproduce past and present climate changes." The IPCC, however, finds good agreement between model simulations and observed temperature over the past 140 years, including the temperature increase up to 1940, if the simulations include solar variation and volcanic activity along with emissions of GHGs and particulates. Relative to the pre-industrial era, the IPCC estimates that the radiative forcing (i.e., the contribution to warming) by GHGs from human activities is

currently over nine times the forcing from increased solar radiation.

"Recent temperature trends in the lower troposphere do not support meaningful human-induced warming." According to the IPCC, overall global temperature increases since the late 1950s (the beginning of adequate weather balloon data) in the lower troposphere have been similar to those at the surface. Since 1979 (the beginning of the satellite record), there has been a significant difference in warming rates, but "it is physically plausible to expect that over a short time period (e.g., 20 years) there may be differences in temperature trends. In addition, spatial sampling techniques can also explain some of the differences in trends, but these differences are not fully resolved."

The authors barely mention the IPCC. Readers should be very suspicious of scientific arguments about climate change that fail to give space to the findings of the world's dominant scientific authority on the subject. APEGGA members would also be well advised to avoid basing their views on climate science on arguments advanced by individuals who are specialists in only very narrow portions of that broad field (Baliunas is an expert in solar radiation; Patterson is a paleo-climatologist).

In our opening article, we did not spend much time on the science of climate change because the IPCC picture of the subject is almost universally accepted, not just among professional climate scientists but among the broader community engaged in the climate change issue, including most of the largest GHG-emitting corporations. The climate change debate has now moved on to economic and political issues. In this area, the authors did make one important point, with which we agree: Kyoto is only a small first step and many further ones will be needed. Let's get on with the job. ■

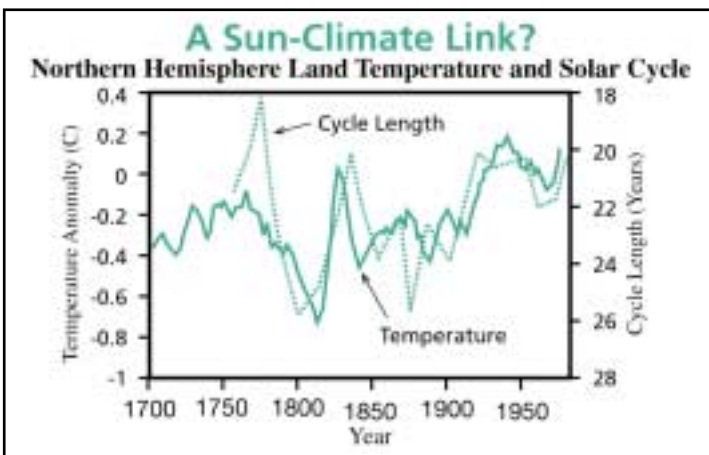


Figure 2 – Changes in the sun's magnetism (as evidenced by the changing length of the 22-year, or Hale Polarity Cycle, dotted line) and changes in smoothed Northern Hemisphere land temperature through 1986 (solid line) are closely correlated. The sun's shorter magnetic cycles are more intense, suggesting periods of a brighter sun, then a fainter sun during longer cycles. The record of reconstructed Northern Hemisphere land temperature substitutes for global temperature, which is unavailable back to 1700 (S. Baliunas and W. Soon, 1995, *Astrophysical Journal*, 450)

APEGM VISION

APEGM is the leader and a facilitator of the process that ensures excellence in engineering, geoscience, and applied technology for the public of Manitoba.

How Manitoba Escaped the August 14th Eastern Blackout

By: M.D. Rheault, P.Eng. and A.D. Silk, P.Eng.

The August 14th blackout has focused attention on the reliability of the North American electrical system and prompted many to think about a modern convenience that is often taken for granted. Utility engineers have suddenly become a hot commodity as people try to understand what happened to the electrical system. This article will explain how and why Manitoba was unaffected by the disturbance that resulted in the partial collapse of the Eastern interconnection.

What is the Eastern Interconnection?

Referring to Figure 1, the Eastern Interconnection represents the largest electrical network in North America. Based on this map, the August 14th disturbance affected a small, yet densely populated portion of the Eastern Interconnection. Within this interconnection, power flows between traditional services areas on transmission lines called "tie lines." The bilateral flow of power allows high cost regions to benefit from lower cost energy production. Excess capacity in one area can help mitigate power system emergencies in another area.

What happened on August 14th?

It may take many more months before the detailed disturbance analysis is complete; however, there are many facts that we know already. On August 14th, a series of 345 kV transmission lines tripped during a one hour period causing the separation of generation sources in the southern Midwest from load centres in northern Ohio and Michigan. The last of these 345 kV line trips triggered another series of transmission line trips resulting in an unbalanced island of generation and load within the eastern interconnection. The automatic controls within this island (e.g. generator governors, under-frequency loadshed) provided an inadequate response for this situation.

During this event, power flows into Michigan and Ontario from Ohio reversed direction, creating a power flow loop from southern Ohio through Indiana and Michigan into northern Ohio, overloading lines, and causing voltage degrada-

Figure 1



Source: <http://www.cbc.ca/news/background/poweroutage/>

tion and frequency deviations in Michigan and Ontario. Under the strain, generators and lines began to trip in Michigan which lead to another shift in power flow creating a loop from southern Ohio through Pennsylvania, New York, Ontario, and Michigan into northern Ohio. At this point, generation and transmission lines began the domino effect of cascade tripping in Pennsylvania, New York, and Ontario causing the blackout on August 14th.

How is Manitoba connected to the Eastern Interconnection?

Manitoba Hydro is tied to the Eastern Interconnection through tie lines to the south, east, and west of the province. There are four tie lines to Minnesota and North Dakota, two tie lines to Ontario, and three tie lines to Saskatchewan. The strength of the interconnecting system is as important as the number of tie lines to neighbouring regions. While

Manitoba's system is moderately strong, the utility is surrounded by a strong US system, a moderately weak system in Saskatchewan, and a weak system in Ontario. The electrical strength of a transmission system indicates its ability to withstand disturbances.

Why was Manitoba unaffected by the August 14th blackout?

Manitoba was connected to the black island two ways, through the USA on the south side of the Great Lakes and through Ontario on the north side of the Great Lakes. When the island started to form in the USA, Manitoba was connected to the large part of the Eastern Interconnection where load and generation maintained the balance necessary to survive. As a result, the southern tie lines did not experience the system fluctuations observed further east. Because of the weakness of the Ontario lines that run along the north side of Lake Superior, the blackout in Toronto caused the loss of east-west ties at Wawa. This isolated Manitoba from the black island on the north side of the Great Lakes. The Manitoba to Ontario tie lines remained connected and experienced higher than allowable power flows for a short period of time while resources in north western Ontario were adjusted to mitigate the excessive flows. ■



The Planning Committee seen hard at work organizing Winnipeg's activities for National Engineering and Geoscience Week.

St. Vital Centre will feature most of the events, including the famous Spaghetti Bridge and Celebrity Competitions, as well as numerous displays of interest to all ages (March 5 - 7).

Professional Development

The 2003 AGM Professional Development Conference – “Bridging the Gap”

By: W.C. Boyce

Once again, the volunteers behind the AGM Professional Development Conference have worked hard to bring the conference registrants a “taste” of a variety of “soft skills” and topics that can assist them in dealing with today’s work and life environments.

The main theme of this year’s Professional Development Conference was “Bridging the Gap”. The first three morning sessions concentrated on bridging the Human Resources gap that many employers and employees find in their workplace today. The last morning session, and the afternoon sessions, explored ways to bridge the communication gaps that most of us have to deal with in the workplace and in our everyday interactions with others.

The first presentation of the day – “The Secrets to Managing: Yourself; Your Work; Your Life; Your Career” explored the need that many people have to bridge the gap to provide an appropriate balance between their work life, personal life, and their career.

The second topic – “Workforce Planning: Succession, Replacement and Future Requirements” explored the effects of the changing Manitoba population demographics, and years of workforce reductions, on the City of Winnipeg’s labour pool. The audience was introduced to the strategy the City is working on to meet the challenges of replacing the many senior staff members who may be retiring in the next decade. This topic of succession planning is one that many in the audience could relate to.

The third presentation – “Generation Differences in the

Workplace” explored some of the major differences between the four distinct generations currently found in the workplace today. The presenter offered a number of strategies for bridging the “Generation Gaps” that both employers and employees find in the workplace, and offered a number of suggestions for recruiting and retaining staff from each of the generations to meet specific employment needs.

On a lighter note, the morning sessions finished with a presentation on “Humour and Sanity in the Engineering Workplace”. This light-hearted look at how to use humour to make the work environment a fun place certainly got the audience laughing.

After lunch, the audience was treated to a stimulating presentation entitled “Effective Presentation Skills for APEGM”. The speaker provided tips on how to structure a presentation clearly, engage the audience, and make a memorable open and close.

From the topic of presentation skills, the conference moved to the presentation “Negotiations: Everything is Negotiable & Negotiations are Everywhere”. The presenter outlined how to prepare for negotiations; how to recognize and counter some negotiating tactics; and, how to disagree without being disagreeable. He used a wide variety of examples, from seeking employment or a raise, to buying a used car, to closing a multi-million dollar business deal, to demonstrate how these skills can be used both in your career and personal life.

The last presentation of the day, “Building a Mentoring Relationship”, explained how to go about

establishing a mentoring program, and the qualities both parties to the relationship must have to ensure a successful program. The speaker then went on to detail various strategies to ensure you have a successful and productive mentoring relationship.

Once again, the AGM PD Conference has provided those who attended with an introduction to a range of informative, thought-provoking, and entertaining topics.

The Organizing Committee wishes to thank the members who took the time to attend the conference; the excellent presenters for their informative and entertaining presentations; and the APEGM staff who work so hard to make this, and other Association events, such a success. ■

The Fast and the Furious

By: P.H. Boge, P.Eng.



In March the British Columbia government finally auctioned off its infamous fleet of three fast ferries.

Instead of successfully carrying passengers to and from Vancouver Island, the PacificCats have instead sunk in an ocean of cost overruns. The initial cost of each catamaran was estimated at \$70 million, but the final capital cost ballooned to \$467 million for the three. They were sold for a total of \$20 million – representing a dismal tax payer return on investment of -95%.

Conceptually, the fast ferries were a good idea. But there was just one problem.

They didn't work.

In his 1999 review of the Fast Ferry Program to the Crown Corporations Secretariat, Hugh A. Gordon cited key reasons for the financial debacle. “The original budget was significantly flawed in that it was completed without adequate information ... detailed engineering drawings were not complete at the outset of production.” Gordon also remarked on one of the constructability issues: “The midsection of the vessel was assembled first with the bow and stern following as opposed to the more efficient

approach of constructing the vessel from one end to the other.”

While the ferries were originally heralded as being a viable solution to shorten travel time between the mainland and the island, doubts were raised before and after construction about their performance capabilities. There were questions about their higher consumption of fuel per passenger-trip compared to the operating ferries, their water jet propulsion intakes being susceptible to logs, their wake causing damage to marinas, their incapacity to transport large trucks, and their inability to operate effectively at higher speeds.

But the fast ferry project did not capsize because of technical questions. According to the B.C. Auditor General, it was also an example of mismanagement. In his 2000 review of the Fast Ferry Project, British Columbia Auditor General George L. Morfitt pointed out two key problems. First, “The governance structure was complex, with many people and groups involved. The decision to undertake the fast ferry project was not properly supported, and people were not informed when things began to go wrong.”

Continued on page 14

Notice

Payment of 2004 Fees

Annual dues invoices have been mailed to all members and members-in-training. If you have not received yours, please contact the APEGM office.

THOUGHTS ON

Design

...and pondering a design goal

By: M.G.(Ron) Britton, P.Eng.

In a recent meeting to consider potential research projects associated with the Centre for Agroecological Livestock Production Systems (CALPS), discussion turned to the potential to recover energy from exhaust ventilation air. The desirability of such an undertaking was accepted more or less universally, but in the minds of some, practical physical constraints inherent in animal production buildings presented serious limitations. As the discussions continued, my past APEGM Council colleague Joe Lucas observed that we needed to focus on the effectiveness of an undertaking, not its efficiency. For the engineers in the group, this created a distinction to ponder. It also allowed the meeting to shift to other issues.

Since then, the distinction that was created has caused me to spend some time reflecting on the question of efficiency versus effectiveness as design goals.

I often find myself looking in the Dictionary of Engineering when I want to clarify differences in the meaning of what seem to be similar terms. Because of the engineering biases that are reflected in this publication I can usually find the shades of meaning that I need to get a better understanding. This time, not surprisingly, I got a couple of definitions for "efficiency" that related to output versus input ratios but no specific definition of "effective" or "effectiveness". However, there were nine different "compound" definitions of "effective" ranging from "effective area" to "effective surface" but no singular definition for the term. Further searches of other dictionaries led to definitions of "efficient" as *productive with minimum waste or effort* and "effective" as *producing a desired or intended result*. In another case, "effective" was defined as *existing in fact rather than officially or theoretically* or as a synonym for "efficient". Well, this didn't exactly provide clarity, but it did provide a foundation to build from.

Looking back at the observation that got this all started, can we, or should we, focus on effectiveness, not efficiency?

Somewhere in the early years of survival as undergraduate students we were all introduced to the Laws of Thermodynamics. That introduction was steeped in high sounding phrases intended more to make the concept seem worthy of attention in a university course than to make the idea understandable. Stripped of pretensions however, the First Law boils down to "the best you can do is break even" and the Second to "you can't even do that well". But the message was clear regardless of the language. We learned to recognize that perfection is the goal and the closer we get to that goal, the better. This lesson, and the prominent place it took at exam time, caused each of us to see improving "efficiency" as our *raison d'être*.

The "efficiency" goal spilled into all areas of the curriculum. We were taught to minimize materials, to optimize processes, to minimize loss, and to improve "efficiency". Standards of safety were important, but beyond that, "efficiency" was the holy grail of our design efforts. If something wasn't "efficient", it was somehow defective.

However, as the concepts we were studying became more complex, the need to rationalize certain situations became necessary. Possibly that need explains the nine "compound" definitions of "effective" listed in the Dictionary of Engineering. Consider for a moment the idea of an "effective area". The implication of this term seemed to be that the "real area" was, for some undefined reason, either not available or not "useful". Therefore, we needed to define some sort of "virtual area" in order to make the "numbers" work. By using this "effective area" we could justify how or why a decision was made and show how "efficient" the ultimate design was. It was a short step from this sort of definition to looking upon "effective" as a sort of syn-

onym for artificial or imaginary. Somehow it became a means to an end rather than an end in itself. But there was also an implied practicality to the term. If the object of the exercise was to arrive at a solution (and that is, after all, the prime goal of engineering design), then using "effective" definitions where "real" definitions were not available was often the only avenue to that solution.

Fast forward to the real world. Beyond the task of number crunching, it is obvious that an "effective" solution to a problem is not artificial or imaginary. It is a practical, workable, affordable, saleable, buildable solution. It uses what is available

within the constraints of time and space rather than being held up for want of further input. It may not provide the highest degree of "efficiency", but when other non-engineering-driven considerations are added to the mix, it may well be the most doable solution.

Maybe this is another way of saying we need to look at all possibilities before we commit to our final design. Maybe it is a reminder that almost every thing we design is infinitely more complex than the numerical models we can create to define and analyse. Maybe it is a caution against falling into the trap of seeing technologically-refined solutions as the only solutions. Maybe it simply reinforces the fact that all design problems have many potential solutions, each of which is shaped by the assumptions and approximations that we make under the influence of some seen, or unseen, target.

So yes, Joe, I believe you are right. There are times when we do need to focus on the effectiveness of an undertaking, not its efficiency. ■

Canadian Standards Association Names Award of Merit Winner – J.K. (John) Chan

St. Andrews-by-the-Sea,
New Brunswick

The Canadian Standards Association honoured John Chan at a special awards ceremony during its Annual General Meeting in St. Andrews-by-the-Sea.

John K. Chan, a registered Professional Engineer (P.Eng.) in Canada, England, and Hong Kong, received the CSA Award of Merit for his technical excellence and leadership in the development, advancement, and application of standards relating to insulators and the Canadian Electrical Code Part III.

"The Award of Merit is our way of recognizing the outstanding contribution our volunteers make to CSA every year", says Pat Keindel, President, Standards, Canadian Standards Association. "Their commitment and leadership are the backbone of this organization. They help develop each and every one of our standards and we are very thankful for their hard work and dedication."

Through his work on the Technical Committee on Insulators as well as integrated Canadian Subcommittees to IEC, Mr. Chan's tireless dedication and unparalleled experience has led to increased harmonization of international standards. Mr. Chan's valuable expertise was also instrumental in the development of a new edition of CSA's Standard for Overhead Lines, which incorporates extensive criteria in Reliability Based Design.

Mr. Chan is also an active member in community services where he utilizes his impressive leadership qualities as President of the Institute of Chinese Language, Culture and Arts.

Mr. Chan currently resides in California where he is Project Manager for Overhead Transmission in Transmission & Substations of the Science and Technology Division at the Electric Power Research Institute in Palo Alto. Before joining EPRI, Mr. Chan was the head of the Transmission Design Section at Manitoba Hydro. ■

Preparing for PIPEDA... Painfully

By: S.E. Sankar, P.Eng., Director of Admissions

Unless you've been living under a rock for the last few months, you are by now aware that all corporations in Canada are supposed to be fully compliant with The Personal Information Protection and Electronic Documents Act (PIPEDA) by **January 1, 2004**. Though it is still somewhat uncertain whether or not non-profit, regulatory bodies are supposed to be compliant, we, at APEGM, have decided to take the conservative approach and have taken steps to get our procedures in line with the ten principles of PIPEDA, namely:

- Accountability

- Identifying Purposes
- Consent
- Limiting Collection
- Limiting Use, Disclosure, and Retention
- Accuracy
- Safeguards
- Openness
- Individual Access
- Challenging Compliance

(See www.privcom.gc.ca/information/guide_e.asp#001, section Fair Information Principles for more information.)

This has not been an easy exercise. Becoming 'PIPEDA compliant' has entailed going through each and every one of our staff processes,

committees, and procedures and analyzing them for compliance with the new Privacy Act. Where procedures appear not to be compliant, staff have had to 'hammer out' ideas for making them [the procedures] compliant (and yet not make things so cumbersome that we collapse under the weight of unduly rigorous practices). All of our forms have had to be redesigned, we've had to develop a Privacy Policy (which will be viewable over the web), and we've had to elect (coerce) a Privacy Coordinator, who will chair regular privacy policy meetings.

So what does this mean to you, as members of APEGM?

Here are some examples of changes that will occur after January 1, 2004:

- When you phone to ask for 'personal' information about another member, we will not be allowed

to give that information out without written consent from the other party. Under PIPEDA, we will still be able to give out the name, title, and business information of this member but any requests for home addresses, telephone number, or home e-mail address will be denied without written authorization.

- If you phone and request any of your own personal information that we have on file, you will be asked to confirm your identity, by answering two or more questions about yourself. Please do not get angry – this is not meant to insult you – we are just complying with PIPEDA.
- If you serve on an APEGM committee, subcommittee, or Council, you will be asked to sign a declaration agreeing to keep any personal information to which you are privy, confidential, and you must agree to retain it in accordance with PIPEDA. This has always been understood, of course, but now it will be more formalized.

The most immediate change already happened in November 2003. When you received your new invoice and update of member information you probably noticed that the envelope was quite a bit thicker than in prior years. Make sure you look at both sides of the pages. On one side of one of the pages there is a Member Privacy Consent Statement, which you will be required to sign. Please do sign it. (Don't make us come and get you.)

The important thing to remember is that this is the first time we're doing this, too. There will still be 'bugs' to work out and it will definitely be a 'work in progress'. However, if we can all just keep our good humour and patience, this transition should happen relatively smoothly. ■

The Fast and the Furious

Continued from page 12

The second problem concerned project management. "Construction of the fast ferries started before the scope, schedule and budget for the ships was firmly established," Morfitt wrote. "Indeed, these critical elements of ship construction were not managed in a disciplined way

throughout the project... Having to carry out a project in a hurry is not an excuse to ignore good project management."

BC Ferries is now being replaced with a new, independent organization called BC Ferry Services. It is hoped that the new company will borrow the \$2 billion required to upgrade facilities and replace an ageing fleet of ships.

Footnote: The ferries were sold to Washington Marine Group, a U.S.-based company that built them.

This article originally appeared in *Canadian Consulting Engineer* and is used with permission. For further information on *Canadian Consulting Engineer*, please visit www.canadian-consultingengineer.com.

Paul Boge's first book, "The Chicago Healer" will be available in 2004. ■



APEGM Scholarship Winners C.M. Vitt, G.S. Page and R.D. Tse with Executive Director, Dave Ennis, P.Eng.

Attention MITs!

An e-mail survey is coming your way soon. If you've changed your e-mail address, please contact Jenny at jborecky@apegm.mb.ca to update it. Don't miss this opportunity to express your views!

Code of Practice Developed for Road Salt Management

By: R.B. McPhail, P.Eng.

In Canada, road salts (particularly sodium chloride), are the preferred deicing/anti-icing chemicals for maintaining winter roadway safety because of their cost, effectiveness, and ease of handling. Each year, an average of five million tons of road salts is used in Canada for winter road maintenance, with most of that usage occurring in Eastern Canada. Typically the City of Winnipeg may only use about 15,000 tons in its efforts to mitigate ice and snow conditions on City streets. However, there have been continual concerns raised about the large quantities used across Canada, and in 1995 Environment Canada placed Road Salts on the CEPA Priority Substances List for an environmental assessment to identify the potential effects of chlorides on the environment.

The five-year comprehensive science assessment that was subsequently undertaken determined that the release of road salts into the environment in high amounts leads to environmental problems and, in December 2001, Environment Canada concluded that because of high releases around storage and snow disposal sites and through runoff and splash from roadways into soil, streams, and rivers, road salts may pose a serious threat to the aquatic environment, plants, and animals. As a result, a recommendation has been made to the Canadian government that road salts be declared "toxic" under CEPA and a decision is currently pending on the matter.

However, the importance of maintaining road safety was also recognized and, considering the significant role that road salts currently play in maintaining road safety during the winter, Environment Canada is not proposing a ban on road salts or any measures that would compromise or reduce road safety. Environment Canada has been working instead with affected parties to develop a Code of Practice that will reduce the negative impacts of road salts on the environment and still allow road authorities to maintain road safety in winter. This working group includes representatives from other federal departments, other levels of government (including the City of Winnipeg and the Province of Manitoba), environmental organizations, the salt industry, the Transportation Association of



Canada, and the Federation of Canadian Municipalities. For the past two years the stakeholder group has focused on the development of best practices respecting storage, spreading, and snow disposal while ensuring that road safety is not compromised. Several measures to reduce the environmental impact of road salts were selected and a proposed Code of Practice for the Environmental Management of Road Salts has been developed.

The Code of Practice recommends that those who use road salts develop road salt management plans that, through the implementation of best practices, will improve their storage and application of road salts and their disposal of snow that contains road salt, thereby protecting the environment while maintaining road safety. The Code of Practice builds upon much of the work that has already been done by the Transportation Association of Canada (TAC) and a number of roadway authorities.

TAC's Salt Management Guide and Syntheses of Best Practices are available to assist road authorities as they find ways to more effectively manage their salt use and provide the public with the safe and efficient road systems they expect, while minimizing effects on the environment. The syntheses are provided as advice to road maintainers for consideration when developing their own policies, practices, and procedures. They are not intended to be used prescriptively but are to be used in concert with the legislation, manuals, directives, and procedures of individual road agencies. Syntheses of Best Practices have been produced on Salt Management Plans, Training, Road and Bridge Design, Drainage and Storm Water Management, Pavements and Salt Management, Vegetation Management, Design and Operation of Road Maintenance Yards, Snow Storage

and Disposal, and Winter Maintenance Equipment and Technologies.

The publication of the road salts assessment, along with the development of the Code of Practice, has brought new attention to salt management across the country, prompting a number of road authorities to get a head start in implementing better salt management practices.

Considerable effort is being made by road authorities at all levels to improve the management of road salts. Some jurisdictions are well-advanced in introducing technologies such as electronic spreader controllers, anti-icing, pre-wetting, and road weather information systems, whereas others are just beginning to investigate these practices.

In this province, the City of Winnipeg and the Manitoba Department of Transportation and Government Services are currently developing road salt management plans in an effort to preserve winter-time safety and mobility while minimizing adverse environmental impacts. These two road authorities must be commended for the leadership that their organizations have demonstrated in implementing many best practices in road salt management. ■

Women's Action Committee Fall Networking Event

By: J.D. St. Laurent, EIT

The APEGM Women's Action Committee held its first event of the 2003/04 year on Tuesday, October 7, at the University Club at the University of Manitoba. The event featured a presentation from Dr. Sandra Ingram on her research proposal, "Women's Occupational Mobility in Engineering: Exploring Constraints and Possibilities of a Non-Traditional Career Path."

Dr. Ingram is an Assistant Professor in the Faculty of Engineering at the University of Manitoba where she teaches Technical Communication to undergraduates, coordinates continuing education for graduate engineers, and researches gender issues in engineering. Some of the issues that this study will investigate include: the culture of engineering as it affects the career success of women, identification of any perceived/real barriers in the organization that restrict/diminish the occupational mobility of women, the ability of women engineers to balance the demands of work and family and the role of the employer in addressing tension, the extent to which women perceive their education as an effective preparation for the profession, and the role of

mentorship, networking, and other strategies in career advancement. Information will be gathered using an on-line survey of both male and female engineers and followed up with face-to-face interviews for further analysis. Those attending the presentation had the opportunity to provide input on the relevance of the study and suggest issues that the study could address. Manitoba Hydro, MTS, Standard Aero, and Boeing are the major companies participating in the study.

The event had a great turn out of approximately 35 women. There was some stimulating discussion in four different talk/breakout sessions, which was great for getting the participants really involved in the issues being discussed. The four groups discussed issues and solutions around "Workplace Culture", "Balance of Work/Family", "Education", and "Mentorship/Networking". Everyone enjoyed the discussions and got to meet a few new people over the evening while enjoying food and drinks.

Stay tuned for the next event held by the Women's Action Committee in January/February 2004! ■

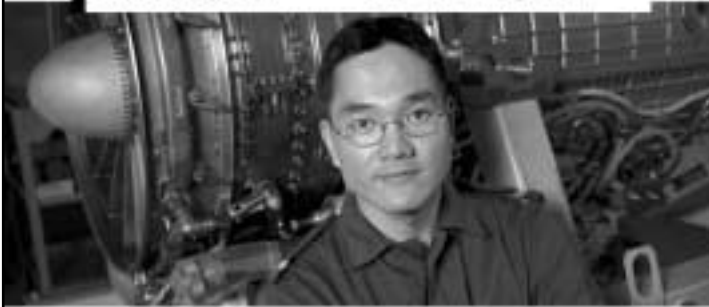


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Executive Director's Message

Continued from page 3

tion of members in providing the Association with the appropriate authorizations at the time of payment of annual dues and in helping us work through the changes.

Climate Change

The Canadian Council of Professional Engineers (CCPE) has recognized that, whether caused by human activity or as part of a natural cycle, climate change has implications for the way in which professional engineers should approach the design and building facilities and infrastructure. It has begun an initiative to help Canada's professional engineers understand how to adapt their designs, and their daily work decisions, to minimize the long-term impacts.

There are two generally recognized strategies to respond to climate change impacts – mitigation and adaptation:

1. Mitigation is defined as an intervention to reduce the sources or enhance the sinks for greenhouse gases that are a driver for climatic change. This strategy is used to slow the rate of climatic change.
2. Adaptation is an adjustment in natural or human systems in response to actual or expected climatic changes, which moderates harm or exploits beneficial opportunities. Adaptation is a necessary strategy at all scales to complement climate change mitigation efforts.

CCPE is currently seeking consensus among the constituent associations on a proposed strategy and an action plan. It can be generally summarized as:

- Develop an education strategy aimed at engineering students and professional engineers;

- Raise awareness within the profession and educate the profession, industry, decision makers, and the public on the need for adaptation;
- Develop standards/codes of practice to ensure that adaptation concepts are integrated into engineering design/practice; and
- Establish a formal and consistent link between scientists and engineers to exchange information and to communicate the needs of engineers for research and modeling, particularly at a regional and more detailed level.

Written comment and suggestions from members on APEGM's participation in the proposal are welcomed.

Professional Liability Insurance

Members of the professions across the country have identified concerns over both the availability and cost of primary professional liability insurance. CCPE has established a working group, of which APEGM is a participant, to investigate and identify ways and means of mitigating the situation, including the possibility of establishing a captive insurance company. The insurance industry is international and the issues are complex. The reality, though, is that a major factor in the availability of affordable insurance is that members of the professions are knowledgeable in claims avoidance and loss prevention.

Members can find information on loss prevention at the web sites of the two insurers that currently provide most of the professional liability insurance in Manitoba – ENCON at www.encon.ca and DPIC at www.dpic.com.

Written observations or comments, preferably by e-mail to apegm@apegm.mb.ca, on any of the topics raised in this article are welcomed. ■

Attention MITs!

Looking for Volunteer Service Opportunities?

This Association has created a list of MITs interested in having their e-mail addresses circulated in response to requests for volunteers. If you would like your name added to that list, please call or e-mail Jenny (jborecky@apegm.mb.ca) at this office, and she will add your name to the list. ■