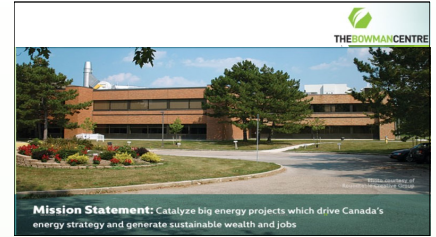




The Bowman Centre For Sustainable Energy

CANADA'S ENERGY FUTURE
NEWS 2018



Mission:

*“Catalyze big energy projects which drive
Canada’s energy strategy and generate
sustainable wealth and jobs”.*

Highlights:

- Book 3 “CANADA: Delivering on Our Nation Building Potential”
- Queens University TEAM Technology Engineering And Management
- The CanInfra Challenge



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Building Blocks for Canada's Future

Gary Locke

*Director of The Bowman
Centre for Sustainable Energy*



Dear friends and supporters,

Welcome to this Newsletter! In our last edition, we introduced the concept that Canada's vast hydrocarbon resources (namely Alberta bitumen) could be upgraded to advanced materials rather than fuels. That idea has continued to attract interest, not only from the Bowman Centre and its promotion of the LAMP₂₁ project in Sarnia, but also Alberta-based companies and research centres.

Alberta Innovates, the research arm of the Alberta Government is soliciting an open call for proposals in the next phase of its Bitumen Beyond Combustion (BBC) program. This research, if successful, will unlock the technology to economically convert bitumen to advanced carbon-based products such as carbon fibers, graphene, and anodes for the aluminum industry.

Bowman Centre Associates have been a part of the BBC program since its inception. We are excited about the promise of creating a new industry in Canada, one that has National significance and follows our mission of "generating sustainable wealth and jobs." We are also pleased to report that the effort and interest is gaining momentum.

Sarnia continues to be the location of choice for the LAMP₂₁ project, based on workforce skills, bitumen availability, industrial infrastructure and proximity to markets for these materials. We are focusing our efforts on new ways to attract investment here, while continuing to assist the commercialization of the technology.

Thank you for your continued support. We would like to hear from you!

Respectfully,

Gary Locke



**Dr. Clement Bowman, Founder of The Bowman Centre for Sustainable Energy
Announces Launch of Book 3
“CANADA: Delivering on Our Nation Building Potential”**

We, the Bowman Centre for Sustainable Energy in association with other Canadian research and engineering organizations, will assist in the development of a new plan to identify and actively pursue opportunities to capture the value of Canadian natural resources, with completion planned for late 2019. Here is the background behind this new initiative.

Prime Minister Stephen Harper presented a vision of Canada as an emerging energy superpower at the 2006 G8 Summit in St. Petersburg, Russia, noting the importance of the Alberta oil sands in that goal. Two years later, Russian President Dmitri Medvedev invited **Clement Bowman** to St. Petersburg to present the status of this superpower vision. **This led to...**

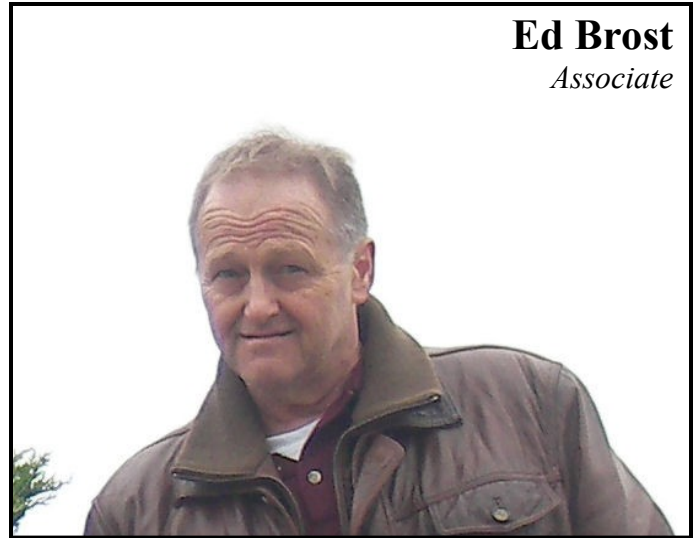
Book 1. In 2012, the Canadian Academy of Engineering, Alberta Innovates and the Bowman Centre published “**Canada: Winning as a Sustainable Energy Superpower**”. It was delivered by a nineteen member Energy Pathways Task Force with 10 chapters covering at least nine energy sources. **The conclusion. Yes we COULD WIN, but HOW? This led to...**

Book 2. In 2014, fifteen authors and eighteen contributors chosen by the same three collaborating organizations selected three petroleum-based pathways, three-electricity based pathways and nuclear energy as the building blocks for “**Canada to Become an Energy Powerhouse**” . **NOW...**

Book 3. “**CANADA: Delivering on Our Nation Building Potential**” builds on the two previous works. It will cover major energy sources along with evaluations by a broad cross section of Canadians for Economic Performance, Readiness and Environmental Performance. **Book 3** will focus on initiatives that will enable us to deliver on our Nation Building Potential.

The ProGrid™ Methodology, licensed by the Bowman Centre, has been upgraded significantly to evaluate both economic and environmental attributes of new projects, with attention to social factors and the readiness of Canadians for such ventures.

Standing Out



Ed Brost

Associate

ED BROST Led the Bowman Centre for Sustainable Energy in the 2018 CanInfra Challenge Ideas Contest. This is a Nation wide contest to identify innovative opportunities which will benefit CANADA as a whole. Winners receive a financial award, and an opportunity to pitch their ideas to senior government and industry leaders in CANADA. 'The CanInfra Challenge Contest was a collaboration led by BCG, Brookfield, Deloitte, CIBC, RBC, Torys LLC, and media partner *The Globe and Mail*'.

The contest has three main criteria for evaluation, Transformational, Relevant to Canada and Feasibility.

We provided an extensive three part package on LAMP₂₁ (**Lambton Advanced Material Project for the Twenty First Century**) which included an executive summary, a 10 page Power Point information package, and a 5 minute video posted to YouTube.

Our high quality submission was one of over 70 received. Although we didn't win we received attention from the judges. They liked our idea to use bitumen in new and innovative ways (Advanced Carbon Based Products) to address key future Canadian needs.

Reference:

<https://www.caninfra.ca/>

<https://www.youtube.com/watch?v=3qBEie9nPUM>

Queen's TEAM Technology Engineering And Management Department of Chemical Engineering

In 2017/2018 The Bowman Centre for Sustainable Energy working in conjunction with Blue Green Innovations Group Inc. sponsored studies with Queen's TEAM University. In the **Carbon Fibre Projects**, The Queen's University TEAM identified products using oil sands bitumen as a primary feedstock that could be manufactured without combustion.....**Carbon Fibre was one of the promising products identified.**

The Queen's TEAM results supports the Lambton Advanced Materials Project (LAMP₂₁) which identifies Carbon Fibre in addition to other potential new material sources which might be sustainably manufactured from Alberta oil sands bitumen.

The results of Queen's work for The Bowman Centre for Sustainable Energy on Carbon Fibre was successful in obtaining an invitation to Oak Ridge National Laboratory (ORNL) a US National Centre of Excellence for Carbon Fibre Science and Technology. Blue Green Innovation Group (BIG) is an Associate Member of BCSE who also attended this event.

[Read More](#) (*Carbon Fibre Projects and Projected Climate Change Impacts to the Great Lakes*) on the Queen's Team link below.

Reference:

<http://team.appsci.queensu.ca/students/project-list.html>

<https://albertainnovates.ca/wp-content/uploads/2018/04/BBC-Report-1.pdf>

BOWMAN CENTRE NEWS

About Us

The Associates of the Bowman Centre have participated actively in the Canadian Academy of Engineering's Energy Pathways work, in particular two planning studies identified on the home page of our website. They have been part of a network of over 100 public and private sector engineers and executives who have contributed to identifying a number of new big energy projects that will create wealth and jobs for Canadians over this current half century. These are the visionaries who continue the tradition of nation building through big innovative energy projects.

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Lynne Hicks

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Joe Simon

Treasurer

Marshall Kern

Assistant Director and Communications

Associates

Tim Bechard

Business Executive—Environmental Services, Waste Management & Recycling Industries

Clement Bowman

Former Chair, CAE Energy Task Force; Founding Chair, AOSTRA

Ed Brost

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Gordon E. Currie

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Duke du Plessis

Senior Advisor, Energy Technologies, Alberta Innovates—Energy and Environment Solutions

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Don Greaves

Major Project Management Experience in the Oil and Gas Industry

Terrence Hoffman

Principal Chemical Engineer, Polysar Ltd. (retired)

Eddy Isaacs

Former CEO, Alberta Innovates—Energy and Environment Solutions

John Kramers

President, Owl Ventures Inc.

Maike Luiken

President-Elect, IEEE Canada; Former Director, Bluewater Technology Access Centre, Lambton College

Walter Petryschuk

Former Polysar, Suncor, NRC Executive

Marty Raaymakers

President, MIG Engineering Limited

David Sanborn Scott

Vice-President International Association for Hydrogen Energy

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Power System Consultant

John M. Ward

Vice President, BlueGreen Innovation Group

Don Wood

Vice-President, Logistics and Business Development, Polysar (retired)

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