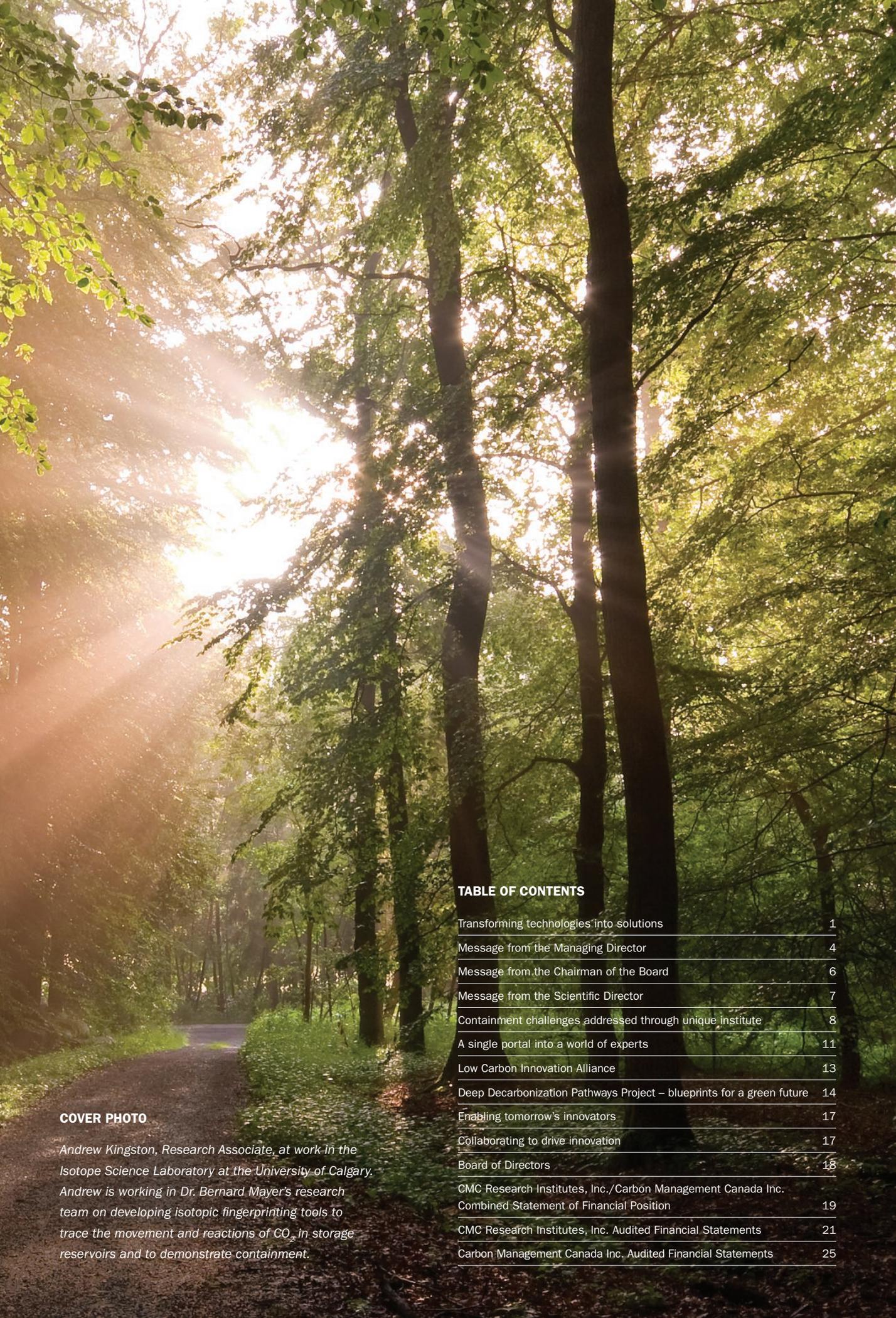




To succeed and thrive in a low carbon world industry will need high-impact, cost-effective solutions.



**COVER PHOTO**

*Andrew Kingston, Research Associate, at work in the Isotope Science Laboratory at the University of Calgary. Andrew is working in Dr. Bernard Mayer's research team on developing isotopic fingerprinting tools to trace the movement and reactions of CO<sub>2</sub> in storage reservoirs and to demonstrate containment.*

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# Transforming technologies into solutions.

**There could not be a more important time for carbon management.**

*According to some estimates, global energy consumption will increase by over 50% in the next 30 years. However, because most of our energy is derived from fossil fuels, this growth will push levels of atmospheric greenhouse gases to unacceptable concentrations. To have a medium likelihood of keeping global temperature increases to less than 2°C, atmospheric concentrations of CO<sub>2</sub> must be kept below 450 parts per million (ppm). In May of 2013, CO<sub>2</sub> levels in the atmosphere exceeded 400 ppm for the first time in millennia. By 2020 that threshold will have been left behind for the last time this century.*

## **The search for solutions cannot be delayed**

In the pages of this annual report, you'll read how CMC Research Institutes, Inc. (CMC) is working to solve emission challenges in the fossil energy and other large-scale industries. While we will discuss our achievements of the last year, this is also a forward-looking document that outlines the exciting new direction in which we are heading. We've worked hard to build the foundation on which the new CMC will stand. While we continue to maintain close ties to our investigators, we are now focused more tightly on leveraging the relationships we've formed to create and manage projects and programs for developing, testing and delivering new technologies.



**CMC's global network** of experts allows it to rapidly assemble teams that are able to provide answers to industry challenges.



**CMC fosters connections** between researchers from across the country and around the world through events such as conferences, workshops and webinars.

### **Carbon Management Canada – Achieving research excellence**

As a Network of Centres of Excellence, Carbon Management Canada developed a considerable portfolio of research projects focused on ways to reduce atmospheric levels of CO<sub>2</sub>. In just three years, we funded 44 research projects for a total of \$22 million. The reach of the projects was wide – we supported over 155 scientists from the natural sciences, the social sciences and engineering along with hundreds of graduate students and postdocs. With a strong belief that innovation is best achieved by drawing together diverse perspectives, we extended our reach around the world by developing relationships with committed researchers and organizations.

The results achieved in CMC's most recent fiscal year, April 2013 to March 2014, have been published in this annual report and they are impressive. But our chief legacy to Canada has been developing and fostering relationships between researchers who were previously strangers. It is within these collaborative, professional networks that innovative solutions will be found to global carbon management challenges.

### **CMC Research Institutes, Inc. – Measurable, deliverable results**

From this path of research excellence has emerged CMC Research Institutes, Inc. (CMC), a not-for-profit company developing a series of collaborative institutes starting in Canada – all devoted to solving the carbon management challenge. Although we continue to work with our global network of investigators, our focus has broadened from early stage research to projects at the pilot testing and scale-up

stage. We are keen to reduce uncertainties regarding novel approaches and support decision-making on behalf of industry and government clients.

It's an ambitious plan but we believe it's achievable because of our strong successes of the past. Listed below are the services currently under development.

### **Research institutes – Targeting solutions**

From Carbon Management Canada's four research themes came especially strong clusters with applications to industry. Drawing on these, CMC is moving ahead with the development of its first three research institutes in carbon storage, carbon capture, and techno-economic modeling and policy/regulation.

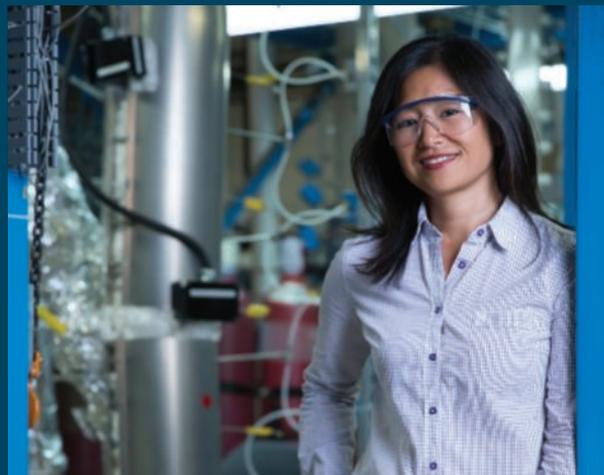
The first of these, the Containment and Monitoring Institute (CaMI), is well underway with the construction of its first field research station (FRS) near Brooks, Alberta. The containment and conformance of subsurface fluids is a growing issue for companies working in the energy industry. Investors, shareholders and the public need to be assured that industries have the ability to monitor and verify the location and movement of liquids placed underground. CaMI will focus on the research, development and field-testing of technologies and methods to monitor the movement of fluids in the shallow subsurface.

### **Derisking technology investment**

We can assist industries, governments and other stakeholders to identify and assess uncertainties to reduce risk, identify potential opportunities, and allow for more effective, sound technology investment decisions.



**Dr. Bernhard Mayer**, a tracer geochemist at the University of Calgary, will be analyzing chemical and isotopic compositions of water and gas samples at the Containment and Monitoring Institute's field research station. Dr. Mayer is one of many experts who will be at the station to improve monitoring and verification techniques and technologies for underground carbon storage.



**Dr. Naoko Ellis**, University of British Columbia, lead investigator on a capture project involving solid sorbents. CMC has plans for a CO<sub>2</sub> Capture and Conversion Institute that will investigate cost-effective capture methods, and develop and assess conversion technologies.

The risk assessment process is resource intensive and requires diverse technical and process capacities not often available under one roof. Our portfolio of 44 research projects and our international affiliations have given us experience in managing processes as well as access to top researchers in Canada and around the world. We can tap into this pool of experts to rapidly form teams to deliver results to our clients.

*Our range of capabilities includes:*

Evaluation reports, global state-of-the-art science and technology scans, scoping/feasibility studies, and program designs.

### **Convening, networking and collaboration**

CMC has amassed a considerable network of researchers and organizations in Canada and around the world. We've signed MOUs with the UK Carbon Capture and Storage Research Centre, with Stanford's Centre for Carbon Storage, and with the Korea CCS Research Centre. We also have close ties to the GFZ Helmholtz Centre Potsdam, the Global Carbon Capture and Storage Institute, the Cooperative Research Centre for Greenhouse Gas Technologies (CO<sub>2</sub>CRC) in Australia, the Sustainable Development Solutions Network out of France, and other research institutes in the US, UK, Germany and Switzerland.

Drawing on this deep pool of experts, we can identify and select the best teams to support specific projects. This process has the benefit of exposing clients to a broad community of practice that includes academics, industry and government practitioners and stakeholders.

### **Enabling tomorrow's innovators**

A workforce demand forecast commissioned by CMC in 2013 shows Canada will be short of the experts required to build and manage the carbon capture and storage projects needed to help the country meet its long-term emission reduction targets as specified by the federal government. Carbon Management Canada has developed a pool of new talent ready to work in fields ranging from engineering to geoscience to law, business and nanotechnology.

Through our research institutes, we will continue to support the training of highly qualified, highly-skilled students. Other career enrichment opportunities offered by CMC include student exchange support and the opportunity to meet industry professionals through our annual conference.

### **A bright path forward**

We are extremely excited about our future. There is no other national organization in Canada focused on accelerating innovation in carbon management practices. We know our chosen path is ambitious, but we have always set the bar for success high.

We invite you to continue reading. We are confident that as you learn about our achievements of the past year, you'll join in our excitement for the future.

“2013 was a year of transition for CMC as we navigated a new path forward.”

- Richard Adamson

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#### Message from the Managing Director

Annual reports traditionally give rise to reflections of the past and thoughts of developments on the horizon. When I think about the last year and look into the future, I am struck by the speed with which events have, and are, unfolding at Carbon Management Canada.

2013 was a year of transition for CMC as we navigated a new path forward. Staff worked under pressure and great uncertainty to lay the foundational pieces for our new business model, which focuses more tightly on building consortia and offering the contract services necessary for verifying the performance of new technologies through field testing and pilot scale projects. It's rewarding to see these efforts begin to bear fruit. CMC staff have a lot to be proud of.

In the fall, we announced our first research institute, the Containment and Monitoring Institute (CaMI), and we put in place a staff of three – Dr. Don Lawton as Director, Kirk Osadetz as Programs Development Manager, and Dr. Amin Saeedfar as Senior Project Lead. We've started construction of CaMI's field research station and are reviewing proposals from diverse stakeholders with interests in secure subsurface containment as well as developing a number of internally led projects (*See story page 8*).

CMC is leveraging the relationships it has grown to create consortia of domestic and international partners resulting in major proposals for field-testing and pilot scale projects. We are being asked to develop programs, provide back office services, project manage, and review proposals. We are in discussions with a number of fossil energy sector partners with expectations of concrete projects to come later in the year. And we've hired Jeff Reading as Director, Business Development and Angus Taylor as Associate Senior Manager to help manage this new wave of business.

We have worked with Canada's Oil Sands Innovation Alliance's (COSIA) Greenhouse Gas Environmental Priority Area team from its inception to help develop means of filling the innovation funnel. To strengthen our ties with this collaborative organization, and to work more closely with members, CMC became an Associate Member of COSIA in 2014. We look forward to supporting the industry in dramatically reducing its GHG footprint.

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**RICHARD ADAMSON**

*Managing Director*


**GORDON LAMBERT**

*Chairman of the Board  
Executive Advisor,  
Sustainability & Innovation  
Suncor Energy*


**STEVE LARTER**

*Scientific Director, FRS, FRSC, FGS  
Canada Research Chair  
in Petroleum Geology,  
University of Calgary*

CMC assembled the Canadian team to develop scenarios for the Deep Decarbonization Pathways Project, a modeling effort involving expert teams from 14 other countries all working to understand possible pathways to a prosperous low carbon future (*see page 14*). Because of the success of our involvement in the DDPP effort, CMC is exploring the development of a Low Carbon Pathways Group oriented towards techno-economic simulation, modeling tools and resources, and training. Dave Sawyer has been brought on to act as Development Director of this group. We are also building towards the creation of a Carbon Capture and Conversion Institute.

At the same time, CMC maintains strong ties to its researchers. We collaborate with them to identify technologies and applications ready to transition or be integrated into solutions for the field. We are also helping researchers identify potential industry partners and assemble teams to move into the next phase of development for those technologies (*see page 11*).

We are keen to partner with research teams on larger consortium-based programs. We foresee a process where multiple academic research teams are working for multiple institutes and we'd like to play a role in the development of these larger programs. This vision extends to the creation of facilities to be shared amongst numerous research teams. CMC would play the role of a neutral third party, pulling together diverse groups to work within these larger programs. We are entertaining ideas for large collaborative programs and I welcome suggestions from our investigators.

CMC had a fabulous last year and going forward I expect the pace of the next year will outstrip the past. Our hard work is paying off and we have reached a tipping point where the promises of projects are turning into revenue streams. My thanks to CMC's diligent staff for making our vision a reality. I know that with their ongoing support and dedication we will continue to flourish.

“We are building capacity within Canada, at the international level and in the academic and business worlds.”

- Gordon Lambert

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#### Message from the Chairman of the Board

Carbon Management Canada/CMC Research Institutes, Inc. (CMC) is poised to become the go-to place for creating solutions to climate change from policy, economics, technology and science perspectives.

Transformation of the global economy to one based on low carbon emissions is central to our collective future. In the coming decades, energy use will continue to grow in Canada and around the world as we go from 7 to 9 billion people on the planet. The challenge is to meet these increasing demands in a manner that is compatible with our need to constrain and limit greenhouse gas concentrations in the atmosphere.

CMC offers a window into a solution-oriented space. We are generating new ideas and new opportunities with a model that focuses on the development of a series of research institutes which exist to create real outcomes. These institutes, located across Canada, will draw on expertise from the academic and business worlds to ensure research gets translated to deployment.

CMC's first research institute, the Containment and Monitoring Institute, demonstrates a great step in this new direction. Under Dr. Don Lawton's leadership, the institute has started construction of a field research station for the development and testing of measurement and monitoring technologies in the shallow subsurface. Not only will the research station, located in southern Alberta, be the site of many exciting new discoveries and developments, it will also play a key role in training the pool of talent needed to take this problem on at large scale.

In addition to CaMI, CMC is building capacity within Canada, at the international level, and in the academic and business worlds. For instance, through the Low Carbon Innovation Alliance we are making connections that will lead to powerful collaboration and partnerships. In the last year, CMC supported researcher exchanges, funded students to attend an international summer school, and hosted workshops for researchers and industry and government stakeholders. All of these efforts are part of CMC's vision to inspire innovation and advance technology commercialization.

Climate change is a critical global issue that we need to address at an urgent pace and scale and I think Carbon Management Canada, as a model for mobilizing solution effort, is critically important. It is very easy to get inspired by CMC's vision and mandate. Some of Canada's leading experts are part of CMC and we are building an identity and reputation, not just within Canada but globally, for driving to results. I encourage others to invest their support in CMC – we are building solutions today for deployment tomorrow.

I also would like to thank Richard Adamson, all the CMC staff, our Board and all of our researchers and collaborating organizations for their tremendous efforts that have made CMC such a success to date and who are also creating its future.

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“Solving the energy transition and climate change challenges is one of our century’s greatest quests.”

- Steve Larter

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#### Message from the Scientific Director

Carbon Management Canada has successfully passed from being part of the Networks of Centres of Excellence organization to an independent research enterprise with a committed network of academic researchers around which we are building a new generation of research institutes focused on the technical and social science challenges of reducing CO<sub>2</sub> emissions from industry.

The achievements and discoveries of our researchers are promising and exciting. At the annual conference in Banff we heard about achievements ranging from new technologies for CO<sub>2</sub> capture from flue gas streams, geochemical and process based air capture advances, developments in design and monitoring of subsurface CO<sub>2</sub> storage reservoirs, novel ways of converting CO<sub>2</sub> to fuels or other chemicals, to strategies for reducing emissions associated with cement manufacture. But if I were to pick one development above others in terms of significance and importance, it would be the groundbreaking and technical developments at CMC’s field research station in Newell, Alberta. Led by Dr. Don Lawton and supported by the University of Calgary the site will be active this year and has already attracted national and international research interest.

Solving the energy transition and climate change challenges is one of our century’s greatest quests and a key part of that is very rapidly moving us away from fossil fuel use with emitted carbon dioxide. While part of this involves quickly cleaning up the existing industry, and I have been heavily involved in technologies that could quickly and drastically reduce emissions in current practices, the immediate future must involve large-scale carbon capture and storage (CCS). Work at the field research station will help support the progression of CCS into large-scale commercialization by developing the tools needed to ensure the safe containment of stored CO<sub>2</sub>.

CMC is not a purely technologically focused organization and perhaps our biggest achievement has been to support the development of a well-integrated social science community in Canada focused on solving the social, political problems that form the biggest barriers to transforming Canada’s energy system and carbon management enterprise. Though I’m a techie, I appreciate Carbon Management Canada’s large contribution toward helping the social scientists in Canada become more integrated and focused on collectively solving this problem. Canada has much talent in this area and much of our future direction as a country will depend on advances and developments in social sciences. So I encourage our social scientists to continue to collaborate to bring on the large-scale changes we need.

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# Technologies developed at CaMI will enable safe, secure storage of fluids underground.

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## Containment challenges addressed through unique institute

The loss of containment of underground fluids is not an option for energy industries in today's competitive marketplace. Whether companies are involved in conventional or unconventional hydrocarbon production or storing CO<sub>2</sub> underground, they must be able to offer assurances that fluids in subsurface reservoirs can be tracked and that their ultimate fate can be verified.

Carbon Management Canada's first institute has been created for the research, development and field-testing of measurement, monitoring and verification technologies. The Containment and Monitoring Institute (CaMI), directed by Dr. Don Lawton, offers oil producers and service companies the expertise and field-testing capabilities to create equipment and processes to enable and verify safe, reliable and efficient storage of fluids underground.

While a key focus of CaMI is the reduction of greenhouse gas emissions, the technologies and processes developed through the institute will be applicable to operations such as acid gas disposal, fracking, steam chamber development, secure carbon storage and enhanced oil recovery.

Industry and academic interactions through CaMI will facilitate a variety of commercialization outcomes including: prototype development and performance validation by SMEs and multinationals; industrially prioritized applied R&D projects; and new technology adoption by resource and utility companies. All of this activity will lead to industrial growth and long-term international sales. CaMI will also be a valuable resource for training students and industry professionals using university programs and internships nationally and internationally.

## A globally unique research facility

One of CMC's key accomplishments in the last year was the siting of CaMI's field research station (FRS). After a three-year search, Dr. Lawton came to an agreement with Cenovus Energy for the use of land located in Newell County, 20 kilometres southwest of Brooks, Alberta. The FRS is a test facility that will enable new monitoring technologies to be developed by SMEs and universities and tested in field conditions. Most importantly, the monitoring data will not be constrained under confidential business information requirements as is often the case when testing in industry wells. As a consequence, test results can be published more freely.

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**Dr. Don Lawton**, Director of the Containment and Monitoring Institute (CaMI), is currently seeking clients and subscribers for CaMI's field research station, located in Newell Country. Dr. Lawton expects the site to be operational by mid-2015.

The FRS is unique in the world because the focus is the relatively shallow subsurface. When complete, the station will comprise two injection wells to depths of 300 and 550 metres and up to four observation wells to house monitoring equipment. Other infrastructure at the site will include four freshwater aquifer monitoring wells; a 3D seismic array; broadband seismometers; down-hole electrical resistivity tomography systems; permanent GPS monuments; a near-surface tiltmeter array; interferometric synthetic aperture radar (InSAR) reflectors; and monuments for time-lapse microgravity surveys.

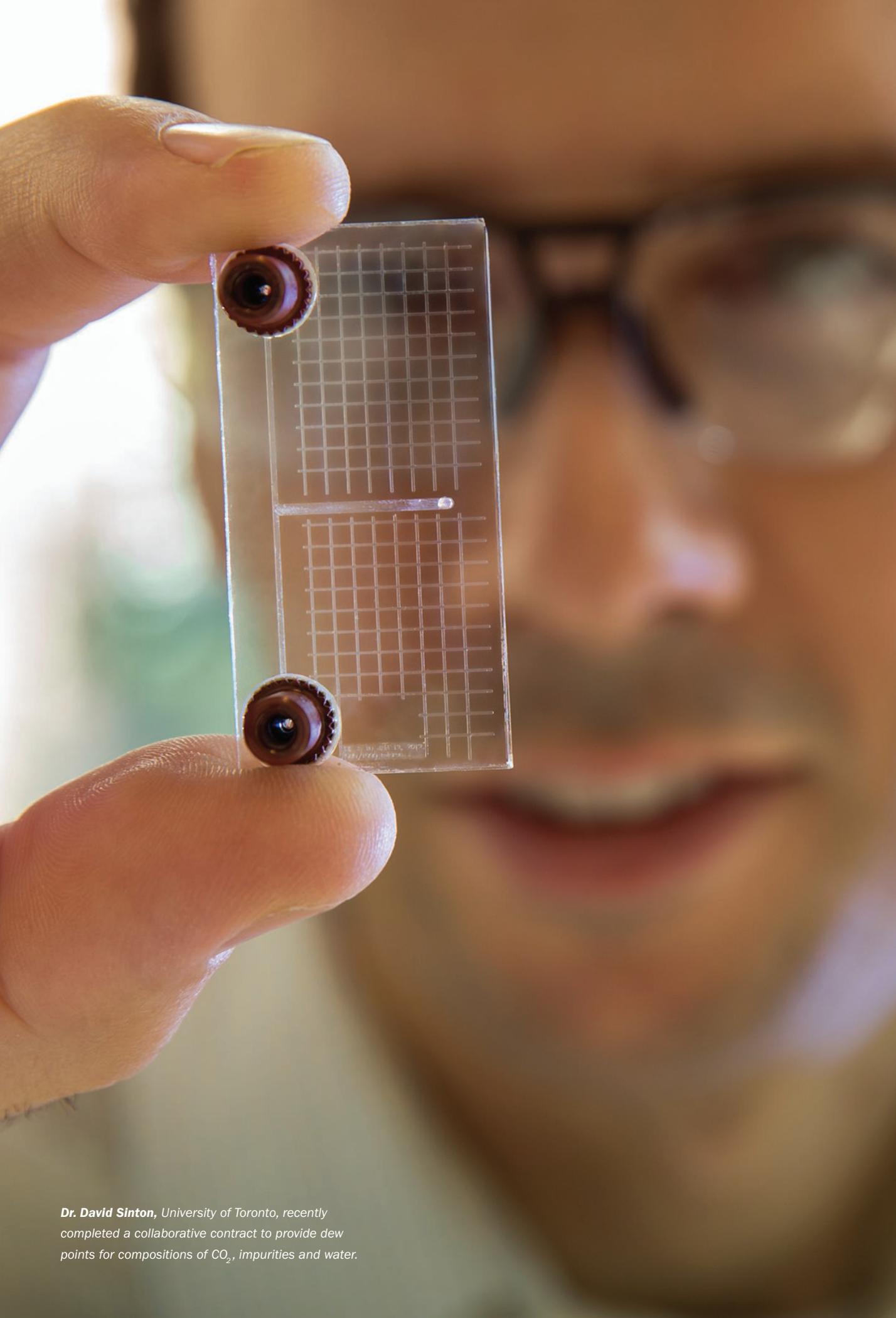
Each year for the 10-year life of the project, approximately 1,000 tonnes of CO<sub>2</sub> will be injected into two brine-filled sandstone formations. Although carbon storage research plays a major role at the site, technological developments will be applicable and adaptable to many subsurface fluid containment needs. Clients from industry and service companies can contract to develop solutions to challenges in:

- Steam chamber containment and effectiveness
- Tertiary/enhanced petroleum recovery
- Characterization of hydraulic or natural fractures
- Groundwater protection
- Integrity of legacy wells
- Fugitive emissions from oil and gas production
- Acid gas or other fluid disposal
- Induced seismicity risk analysis and mitigation

Dr. Lawton expects that the site will be operational by mid-2015. Currently, CaMI staff are actively seeking clients who wish to develop proprietary equipment at the site and subscribers who, for an annual fee, sign on to a broader research program. For more information on the site, contact CaMI Director Dr. Don Lawton at [Don.Lawton@cmcgghg.com](mailto:Don.Lawton@cmcgghg.com) or 403-210-6671.

### More institutes on horizon

This is a time of growth at Carbon Management Canada and a strong team is being assembled to manage and execute specific industry challenges and projects. CaMI is just the first of five research institutes anticipated by CMC. Plans are underway to develop a CO<sub>2</sub> Capture and Conversion Institute and a team of experts is working to define the boundaries of a Low Carbon Pathways group which is focused on techno-economic modeling and associated training programs.



**Dr. David Sinton**, University of Toronto, recently completed a collaborative contract to provide dew points for compositions of CO<sub>2</sub>, impurities and water.

# Our agile model allows us to activate quickly and draw together a team that will provide solutions to industry challenges.

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## A single portal into a world of experts

One of the lasting legacies of Carbon Management Canada is its interdisciplinary network of researchers, research organizations, and industry and government stakeholders.

The value of this network of top researchers and stakeholders cannot be overstated. CMC can provide a single portal into a deep pool of expertise across Canada and around the world. Our agile model allows us to activate quickly and draw together a team that will provide solutions to industry challenges.

The ability to source experts for challenge-driven projects is illustrated in a contract CMC recently managed for two Calgary organizations. Pipeline corrosion is a problem in CO<sub>2</sub> transport and the Integrated CO<sub>2</sub> Network (ICO2N) together with the Petroleum Technology Alliance of Canada (PTAC) wanted to know more about the effect of impurities in the CO<sub>2</sub> stream on the dew point of water in the stream. As long as water does not condense and remains within the supercritical CO<sub>2</sub> phase, pipeline corrosion is minimized.

ICO2N and PTAC asked if CMC could cost effectively provide the dew points of various compositions of supercritical CO<sub>2</sub>, impurities and water. The range of combinations they wanted to test would have been cost prohibitive using traditional methods. After internal consultation with Dr. Steve Larter, CMC's Scientific Director, we approached Dr. David Sinton, University of Toronto, to explore whether his new lab-on-chip technology could be adapted to the task.

To verify Dr. Sinton's results against conventional methods, we called on Dr. Weixing Chen, University of Alberta and an expert in corrosion studies using conventional technology.

The researchers measured four different CO<sub>2</sub> gas compositions with various contaminant levels at varying temperatures, pressures and water content. Both determined that no dew formed at the conditions that pipelines use to transport CO<sub>2</sub>. Sinton's new technology also demonstrated a three-fold improvement in the precision of determining dew points at specific temperatures and pressures compared to experimental data from the literature on pure CO<sub>2</sub>/water mixtures.

This effort was part of the larger Alberta CO<sub>2</sub> Purity Project (see [www.ico2n.ca](http://www.ico2n.ca)) in which over 25 industry participants contributed to evaluate the effect of CO<sub>2</sub> impurity on four components of a carbon capture and storage system (capture, transportation, enhanced oil recovery and sequestration). The data was then fed into a globally unique techno-economic model that was made publicly available in September 2014.

Since this work, Dr. Sinton's team has gone on to develop a next-generation version of the instrument that is presently undergoing lab testing and is available to develop dew point/ bubble point/ critical point curves for industry clients.

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*It will take a collaborative effort to solve carbon emission challenges. Dr. Joule Bergerson, University of Calgary, worked with researchers at the University of Toronto and with oil sands companies to develop a well-to-wheel analysis of GHG emissions produced by Alberta oil sands producers.*

# At CMC, we believe that innovation is more easily achieved when stakeholders come together to deliberate and problem solve.

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## Low Carbon Innovation Alliance – Collaborating to solve challenges

The challenge around reducing greenhouse gas emissions is enormous and will not be solved by one person, one organization or even one country. And while there are experts around the world developing ways to reduce GHG emissions, they are often working in isolation. At CMC, we believe that innovation is more easily achieved when stakeholders come together to deliberate and problem solve.

With access to a global network of researchers and research organizations, we are perfectly situated to act as conveners – gathering like-minded groups and individuals to brainstorm about ideas and technologies. We do this by hosting conferences, workshops and webinars focused on specific, concrete challenges such as addressing CO<sub>2</sub> emissions in LNG development in British Columbia.

We are one of the founding members of the Low Carbon Innovation Alliance, currently a group of seven organizations working together to accelerate the discovery, development and deployment of GHG emission reduction technologies. The seven organizations are CMC, Alberta Innovates Technology Futures (AITF), Alberta Innovates Energy and Environment Solutions (AIEES), the Climate Change and Emissions Management Corporation (CCEMC), Canada's Oil Sands Innovation Alliance (COSIA), Sustainable Development Technology Canada (SDTC), and Natural Resources Canada (NRCan).

This group brings a powerful mix of experience, wisdom and connections with all seven entities playing in the low carbon technology field ranging from first ideas to commercialization. Each representative at the LCIA table is, of course, familiar with developments within their own organization but the range of connections doesn't stop there. The sum of the group's network is vast and includes a range of industry, government, academic and other experts at the provincial, national and international level. It's a good reach for a group that wants to avoid duplication of effort.

As a first project, the LCIA is examining steam generation as a challenge area. There are a number of industrial sectors that require steam generation in their processes, but perhaps none more intensively than in the oil sands where steam is used in Steam Assisted Gravity Drainage operations. The group has completed a technology inventory to determine avenues of development already underway in Canada. With this in hand, they will deliberate over the coming months about potential directions for research, development, demonstration and commercialization.

Another recent move was hiring clean energy and environmental technology development expert Dr. Carol-Ann Brown as Operations Director for the LCIA. Dr. Brown, who has worked with CCEMC, Alberta Innovates and COSIA, has international and multi-disciplinary experience which includes policy analysis, program development and environmental technology assessment, development and commercialization. She's excited to be working with the LCIA and is focused on developing a business plan and steam generation challenge area projects in the coming months.

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# We can begin to examine how we position ourselves to thrive in a world that is decarbonizing.



## Deep Decarbonization Pathways Project – Blueprints for a green future

Imagine a world where carbon emissions have been held low enough to keep temperatures below the 2°C limit. Now imagine that same world as one in which foresight and early action have led to societies that are thriving and prosperous. This vision is at the heart of the Deep Decarbonized Pathways Projects (DDPP) – an international modeling endeavor supported by teams of energy and techno-economic modeling experts from 15 countries.

In Canada, CMC organized a national team to identify practical pathways to a deeply decarbonized energy system. The Phase One report, with chapters from all 15 countries, was issued September 23, 2014 to coincide with the global Climate Leaders' Summit at the United Nations in New York. Phase Two of the report will be completed in time for the Conference of the Parties, COP21, being held December 2015 in Paris. It is hoped the Phase Two report will contribute to the structure and content of the COP21 discussions by focusing attention on possible pathways to deep decarbonization and promoting cooperation between nations.

Below, Managing Director Richard Adamson talks about Phase One results and looks ahead to Phase Two.

**Q:** *There have been a lot of economic models developed that examine what a low carbon world might look like. Why is this project different?*

**RA:** Past economic models have tended to be top down: an organization like the International Energy Agency out of Paris will develop a global model with projections for

what will happen in countries. While this has been useful, DDPP is the first time we've had bottom up assessments from within 15 countries representing 70% of global GHG emissions. We can now look at what each country envisions and can identify what market opportunities might arise from a transition to a low carbon economy.

**Q:** *And what did the Phase One report show? Is it possible to deeply decarbonize the world's energy systems?*

**RA:** We started the modeling process with the assumption that by 2050 the world's economy has tripled and we are on track for a 2°C increase, so about 450 parts per million in atmospheric CO<sub>2</sub>. And the next level down asked what the per capita emissions would have to be to get there. In Canada today, the average per capita CO<sub>2</sub> emissions are 20 tonnes per person per year. The 2050 scenario assumes 1.67 tonnes per person. It's about a 90% reduction. So this is not small, but it is possible to connect those dots. We can make the economy grow and reduce carbon emissions.

**Q:** *The report also details how countries would move to decarbonizing their energy systems and the changes are pretty aggressive. But beyond demonstrating what it would take to radically reduce emissions, what are some of the other benefits realized through this bottom-up approach?*

**RA:** To me the real power of this program is to move the conversation from burden sharing to preparation for opportunities. The conversation and the show-stopper on global negotiations around GHG targets is that the conversations largely focus on burden sharing. Whose fault is it? Who is responsible for how much? How do we minimize the amount of responsibility we have?

# The real power of this program is to move the conversation from burden sharing to preparation for the future.

This gives us an opportunity to take a doorway out of that conversation. We can begin to examine how we position ourselves to thrive in a world that is decarbonizing. It's a totally different kind of conversation and one that people can participate in without getting into defensive posturing.

**Q:** *With Phase One complete teams are preparing Phase Two for COP21 in Paris in 2015. What will the second phase look like?*

**RA:** In Phase Two we are looking at regulatory levers. What are the different tools and what combination will get us there most effectively with the least pain? There will be a deeper look at the likely total global market for resources including fossil fuels and possible pricing signals.

We intend to refine the Canadian models in two ways. We'll meet with groups in each of the regions to test our assumptions and will refine or improve our understanding of the likely approaches that each of the regions in Canada may take. And we'll look at the major industry sectors to understand how they might develop. There may be technology pathways or approaches that we weren't aware of when we worked on Phase One. So we'll talk to the industry sectors and our research communities to make sure we have the most reality-based estimates we can.

**Q:** *Industry and governments have typically avoided discussion about climate change and any economic changes it might necessitate. Are there indications they are interested in this work?*

**RA:** We are finding that there are many groups interested in the results of Phase One and the following work. 2050 is outside the regulatory planning horizon of various groups so there's

less sensitivity that by participating government might be endorsing one particular pathway or another. Governments, regulators, industry participants can play a "what if" game on that longer time horizon without feeling they will be caught offside relative to immediate political decisions.

**Q:** *The Phase One report received a lot of positive coverage from media globally. You must be especially proud of the Canadian team.*

**RA:** I can't say enough about the group. We very rapidly pulled together a team that not only did a great job with the project, but when they were presenting the material in the joint meetings in Paris they, along with others like the Australians, were able to help many of the countries that had less history with modeling work. Because of the long history and experience of the Canadian group they really elevated the quality of work of all of the countries.

**Q:** *How does this project link to CMC Research Institutes, Inc. and its plans to develop a series of institutes across Canada?*

**RA:** This team really forms the heart of the Low Carbon Pathways group that CMC is putting together. We have Chris Bataille in Vancouver and Jacqueline Chan in Toronto, both are with Navius Research, and Dave Sawyer with EnviroEconomics in Ottawa and James Meadowcroft at Carleton University. That's the Low Carbon Pathways core group for the time being and it will be a virtual group initially. We are defining the boundaries of this group and determining what other capacities we need. Dave Sawyer is Development Director for the new Low Carbon Pathways group. Their work will help set CMC's priorities for the future.



**CMC supports training opportunities** for highly qualified people like PhD student Shahin Moradi (left) and former MSc. student Patricia Gavotti.

# The demand for professionals spans a wide spectrum ranging from technicians to engineers and geoscientists.

## Enabling tomorrow's innovators

Canada is going to need a significant increase in trained talent in order to meet its greenhouse gas mitigation targets by 2050 and CMC will be there to help fill that need.

A labor demand forecast, commissioned by CMC and completed by Navius Research Inc. in September 2013, suggests that if Canada wants to stay on track toward achieving its long term emissions reduction target of 60-70% from 2006 levels by 2050, an estimated 27,000 additional university, college or technical institute graduates could be needed by 2030.

The report focused on labor requirements associated with investments in carbon capture and storage and, to a lesser extent, co-generation in the oil sands. The demand for professionals spans a wide spectrum ranging from technicians to engineers and geoscientists, disciplines of which the energy sector is already short.

CMC continues to enhance the education experience of university students by offering a variety of opportunities. In the 2013-14 fiscal year, our Highly Qualified Personnel (HQP) benefited in a number of ways:

- \$10,000 was committed to send five doctoral students to the prestigious UK Energy Research Centre Energy Summer School at the University of Warwick
- \$86,000 went to supporting nine Canadian, four Australian and three British students in an international exchange program
- Cash prizes of \$250 each were given to four HQP to recognize their excellent posters at CMC's 2013 conference.

Looking forward, CMC will continue to support graduate students and postdocs by providing training opportunities at our research institutes. HQP will be able to work alongside top Canadian academics as well as with industry and small and medium business practitioners.

## Collaborating to drive innovation

At CMC we play a leadership role in Canada by building capacity and expertise through leveraging our connections and encouraging the exchange of knowledge.

CMC's annual spring conference, held in Calgary in May 2013, was our largest to date – attracting close to 300 academics, industry stakeholders and highly qualified trainees.

We also hosted a hugely successful workshop on *Key Issues in the Design of Carbon Management Policies and Regulations in Alberta*. This at-capacity event was opened by a keynote address from the Honorable Robin Campbell, then Alberta's Minister of Environment. CMC also collaborated with Dr. Mark Jaccard, a CMC investigator and Professor at Simon Fraser University, to deliver the workshop *Public Finance and Climate Policy Implications of BC's LNG Export Strategy*.

Looking ahead, CMC will continue to engage clients, collaborators and funders in our effort to create the conditions for innovation and new technology development. Keeping our focus on clearly defined goals, CMC will strengthen its impact as it enters into this new era of growth and leadership.

Looking ahead, CMC will continue to engage clients, collaborators and funders in our effort to create the conditions for innovation and new technology development.

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**CMC Research Institutes, Inc./Carbon Management Canada Inc.****Combined Statement of Financial Position\***

As at March 31, 2014	CMC Research Institutes, Inc.	Carbon Management Canada Inc.	Combined
<b>Assets</b>			
Current assets			
Cash	\$ 39,335	\$ 10,430,392	\$ 10,469,727
Accounts receivable	5,461	65,316	70,777
Funds held in trust	–	12,477	12,477
Due (to) from	253,437	(253,437)	–
Prepaid expenses	34,948	–	34,948
<b>Total Current Assets</b>	<b>333,181</b>	<b>10,254,748</b>	<b>10,587,929</b>
<b>Total Assets</b>	<b>\$ 333,181</b>	<b>\$ 10,254,748</b>	<b>\$ 10,587,929</b>
<b>Liabilities and Net Assets</b>			
<b>Liabilities</b>			
Current liabilities			
Accounts payable	\$ 50,042	\$ 171,000	\$ 221,042
Wages and benefits payable	99,573	–	99,573
<b>Total payables</b>	<b>149,615</b>	<b>171,000</b>	<b>320,615</b>
Deferred revenue	–	8,882,606	8,882,606
Severance reserve	173,566	–	173,566
<b>Total Liabilities</b>	<b>\$ 323,181</b>	<b>\$ 9,053,606</b>	<b>\$ 9,376,787</b>
<b>Net Assets</b>			
Net Assets, beginning of year	–	1,280,434	1,280,434
Excess (deficiency) of revenues over expenditures	10,000	(79,292)	(69,292)
<b>Net Assets, end of year</b>	<b>10,000</b>	<b>1,201,142</b>	<b>1,211,142</b>
<b>Total Liabilities and Net Assets</b>	<b>\$ 333,181</b>	<b>\$ 10,254,748</b>	<b>\$ 10,587,929</b>

\*During the 12 months ended CMC Research Institutes, Inc. was incorporated to pursue new opportunities. In order to provide comparison to previous annual reports this combined financial report has been prepared by the management of CMC Research Institutes, Inc.

**CMC Research Institutes, Inc./Carbon Management Canada Inc.****Combined Statement of Operations  
and Changes in Net Assets\***

For the Year Ended March 31, 2014	CMC Research Institutes, Inc.	Carbon Management Canada Inc.	Combined
<b>Revenues</b>			
Federal grants	–	\$ 4,395,361	\$ 4,395,361
Provincial grants	463,709	11,224,660	11,688,369
Industry grants and other income	11,401	314,458	325,859
	<b>\$ 475,110</b>	<b>\$ 15,934,479</b>	<b>\$ 16,409,589</b>
<b>Expenses</b>			
Project and institute funding	\$ 61,946	\$ 14,365,010	\$ 14,426,956
General and administration	294,121	1,366,447	1,660,568
Consultants	71,299	233,514	304,813
Professional fees	37,744	48,800	86,544
	<b>\$ 465,110</b>	<b>\$ 16,013,771</b>	<b>\$ 16,478,881</b>
<b>Excess (deficiency) of revenues over expenditures</b>	10,000	(79,292)	(69,292)
<b>Net assets, beginning of year</b>	–	1,280,434	1,280,434
<b>Net assets, end of year</b>	<b>\$ 10,000</b>	<b>\$ 1,201,142</b>	<b>\$ 1,211,142</b>

\*During the 12 months ended CMC Research Institutes, Inc. was incorporated to pursue new opportunities. In order to provide comparison to previous annual reports this combined financial report has been prepared by the management of CMC Research Institutes, Inc.



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## Independent Auditors' Report

### To the Members of CMC Research Institutes, Inc.

We have audited the accompanying financial statements of CMC Research Institutes, Inc., which comprise the statement of financial position as at March 31, 2014, and the statements of operations and changes in net assets and cash flows for the period then ended, and a summary of significant accounting policies and other explanatory information.

### Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian accounting standards for not for profit organizations, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

### Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

### Opinion

In our opinion, the financial statements present fairly, in all material respects, the financial position of CMC Research Institutes, Inc. as at March 31, 2014, and the results of its operations and its cash flows for the period then ended in accordance with Canadian accounting standards for not for profit organizations.

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**Collins Barrow Calgary LLP**

Chartered Accountants

Calgary, Canada

June 17, 2014

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**CMC Research Institutes, Inc.**

(incorporated under the laws of Canada)

## Statement of Financial Position

March 31, 2014

**Assets**

## Current assets

Cash	\$	39,335
Accounts receivable		5,461
Prepaid expenses		34,948
Due from Carbon Management Canada Inc. (note 4)		253,437
	\$	333,181

**Liabilities**

## Current liabilities

Accounts payable and accrued liabilities \$NIL	\$	323,181
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<b>Net assets</b>		10,000
		10,000
	\$	333,181

See accompanying notes

## Statement of Operations and Changes in Net Assets

For the Period from Incorporation on July 5, 2013 to March 31, 2014

**Revenue**

Provincial grants	\$	463,709
Industry grants and other revenue		11,401
		475,110

**Expenses**

Salaries and benefits		200,068
Field research station		61,946
General and administrative		94,053
Consultants		71,299
Professional fees		37,744
		465,110

Excess of revenue over expenditures, being net assets, end of period	\$	10,000
----------------------------------------------------------------------	----	--------

See accompanying notes

## Statement of Cash Flows

For the Period from Incorporation on July 5, 2013 to March 31, 2014

Cash provided by (used in):

Operating activities

Excess of revenue over expenditures	\$	10,000
Changes in non-cash working capital		
Accounts receivable		(5,461)
Prepaid expenses		(34,948)
Due from Carbon Management Canada Inc.		(253,437)
Accounts payable and accrued liabilities		323,181
		29,335
Cash inflow, being cash, end of period	\$	39,335

## Notes to Financial Statements

### 1. Nature of operations

CMC Research Institutes, Inc. (the "Organization") focuses on the development of the technologies, insights, and processes to reduce fossil fuel carbon emissions in Canada while at the same time maintaining Canada's global position as a competitive and reliable energy supplier.

Effective January 1, 2014 CMC Research Institutes, Inc. acquired certain assets and liabilities of Carbon Management Canada Inc. and commenced commercial operations (note 4).

The Organization was incorporated on July 5, 2013, under Part II of the *Canada Corporations Act* and is exempt from tax under the *Canada Income Tax Act*.

### 2. Significant accounting policies

The financial statements were prepared in accordance with Canadian accounting standards for not for profit organizations and include the following significant accounting policies:

#### (a) Revenue recognition

The Organization follows the deferral method of accounting for grant revenue. Restricted contributions are recognized in the period in which related expenses are incurred. Unrestricted contributions are recognized as revenue when received or when receivable if the amount to be received can be reasonably estimated and collection is reasonably assured.

Interest income is recognized on an accrual basis as it is earned.

#### (b) Measurement uncertainty

The valuation of accounts receivable is based on management's best estimate of the provision for doubtful accounts.

The valuation of accrued liabilities is based on management's best estimate of the expenses incurred during the period that will be payable in future periods.

By their nature, these estimates are subject to measurement uncertainty and the effect on the financial statements of changes in such estimates in future periods could be significant.

**(c) Financial instruments**

The Organization initially measures its financial assets and liabilities at fair value, except for certain non arm's length transactions that are measured at the exchange amount.

The Organization subsequently measures all its financial assets and financial liabilities at amortized cost.

Financial assets measured at amortized cost include cash, accounts receivable and due from Carbon Management Canada Inc.

Financial liabilities measured at amortized cost include accounts payable and accrued liabilities.

Financial assets measured at cost or amortized cost are tested for impairment, at the end of each year, to determine whether there are indicators that the asset may be impaired. The amount of the write down, if any, is recognized in excess of revenue over expenditures. The previously recognized impairment loss may be reversed to the extent of the improvement, directly or by adjusting the allowance account. The reversal may be recorded provided it is no greater than the amount that had been previously reported as a reduction in the asset and it does not exceed original cost. The amount of the reversal is recognized in excess of revenue over expenditures.

**3. Government remittances**

Accounts payable and accrued liabilities does not include payroll remittances as at March 31, 2014.

**4. Related party transactions**

As at March 31, 2014, \$253,437 was receivable from Carbon Management Canada Inc. ("CMC"), an entity which has directors in common with the Organization, relating to the acquisition of certain assets and liabilities of CMC effective January 1, 2014.

These transactions are in the normal course of operations and are measured at the exchange amount which is the amount of consideration established and agreed to by the related parties.

**5. Financial instruments**

The Organization is exposed to the following significant financial risks:

**(a) Credit risk**

Credit risk is the risk that one party to a financial instrument will cause a financial loss for the other party by failing to discharge an obligation. The financial instruments that potentially subject the Organization to a significant concentration of credit risk consist primarily of cash, accounts receivable and due from Carbon Management Canada Inc. The Organization mitigates its exposure to credit loss by placing its cash with a major financial institution. Accounts receivable consists of a receivable from goods and services tax due from the Federal Government of Canada, which does not present a significant credit risk. Amounts due from CMC are supported by a provincial grant which mitigates this credit risk.

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## Independent Auditors' Report

### To the Members of Carbon Management Canada Inc.

We have audited the accompanying financial statements of Carbon Management Canada Inc., which comprise the statement of financial position as at March 31, 2014, and the statements of operations and changes in net assets and cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

### Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian accounting standards for not for profit organizations, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

### Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

### Opinion

In our opinion, the financial statements present fairly, in all material respects, the financial position of Carbon Management Canada Inc. as at March 31, 2014, and the results of its operations and its cash flows for the year then ended in accordance with Canadian accounting standards for not for profit organizations.

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**Collins Barrow Calgary LLP**

Chartered Accountants

Calgary, Canada

June 17, 2014

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**Carbon Management Canada Inc.**

(incorporated under the laws of Canada)

**Statement of Financial Position**

March 31, 2014	2014	2013
<b>Assets</b>		
Current assets		
Cash	\$ 10,442,869	\$ 25,618,861
Accounts receivable	65,316	187,467
Prepaid expenses	-	30,926
	<b>\$ 10,508,185</b>	<b>\$ 25,837,254</b>
<b>Liabilities</b>		
Current liabilities		
Accounts payable and accrued liabilities \$NIL (note 3)	\$ 171,000	\$ 590,799
Due to CMC Research Institutes, Inc. (note 4)	253,437	-
Deferred revenue (note 5)	8,882,605	23,966,020
	<b>9,307,042</b>	<b>24,556,819</b>
<b>Net assets</b>	<b>1,201,143</b>	<b>1,280,435</b>
	<b>\$ 10,508,185</b>	<b>\$ 25,837,254</b>

See accompanying notes

**Statement of Operations and Changes in Net Assets**

Year Ended March 31, 2014	2014	2013
<b>Revenue</b>		
Federal grants	\$ 4,395,361	\$ 7,272,768
Provincial grants	11,224,660	1,679,477
Industry grants	124,998	615,000
Interest income	174,960	389,812
Other income	14,500	-
	<b>\$ 15,934,479</b>	<b>\$ 9,957,057</b>
<b>Expenses</b>		
Project funding	14,365,010	7,451,704
General and administrative	1,243,719	1,582,375
Advertising and outreach	122,728	210,530
Consultants	233,514	159,711
Professional fees	48,800	127,946
	<b>16,013,771</b>	<b>9,532,266</b>
Excess (shortfall) of revenue over expenditures	(79,292)	424,791
Net assets, beginning of year	1,280,435	855,644
Net assets, end of year	<b>\$ 1,201,143</b>	<b>\$ 1,280,435</b>

See accompanying notes

## Statement of Cash Flows

Year Ended March 31, 2014	2014	2013
Cash provided by (used in):		
Operating activities		
Excess (shortfall) of revenue over expenditures	\$ (79,292)	\$ 424,791
Changes in non-cash working capital		
Accounts receivable	122,151	4,936,144
Prepaid expenses	30,926	24,504
Accounts payable and accrued liabilities	(419,799)	355,140
Due from CMC Research Institutes, Inc.	253,437	–
Deferred revenue	(15,083,415)	(2,265,246)
	(15,096,700)	3,050,542
Cash inflow (outflow)	(15,175,992)	3,475,333
Cash, beginning of year	25,618,861	22,143,528
Cash, end of year	\$ 10,442,869	\$ 25,618,861

See accompanying notes

## Notes to Financial Statements

### 1. Nature of operations

Carbon Management Canada Inc. (the “Organization”) focuses on funding the development of the technologies, insights, and highly qualified personnel to reduce fossil fuel carbon emissions in Canada while at the same time maintaining Canada’s global position as a competitive and reliable energy supplier.

On February 11, 2010, the Organization signed a grant agreement with the federal government for their Networks of Centres of Excellence (“NCE”) Program. The purpose of the NCE Program is to promote the development of technologies and practices for reduction of carbon emissions related to fossil fuel energy production and consumption. The grant agreement was originally for a total of \$25 million, however the grant agreement was amended in November 2012 to reduce the amount of funding by approximately \$4.2 million to \$20.8 million. The NCE Program agreement with the federal government ended on June 30, 2013, however the Organization has until June 30, 2014 to expend the funds received.

On March 8, 2010, the Organization also signed a grant agreement with Alberta Environment, whereby the Alberta government contributed \$25 million.

On January 1, 2014 CMC Research Institutes, Inc. acquired certain assets and liabilities from Carbon Management Canada Inc. (note 4).

The Organization was incorporated on December 23, 2009, under Part II of the Canada Corporations Act and is exempt from tax under the Canada Income Tax Act.

### 2. Significant accounting policies

The financial statements were prepared in accordance with Canadian accounting standards for not for profit organizations and include the following significant accounting policies:

#### (a) Revenue recognition

The Organization follows the deferral method of accounting for grant revenue. Restricted contributions are recognized in the year in which related expenses are incurred. Unrestricted contributions are recognized as revenue when received or when receivable if the amount to be received can be reasonably estimated and collection is reasonably assured.

Interest income is recognized on an accrual basis as it is earned.

**(b) Measurement uncertainty**

The valuation of accounts receivable is based on management's best estimate of the provision for doubtful accounts.

The valuation of accrued liabilities is based on management's best estimate of the expenses incurred during the year that will be payable in future periods.

The valuation of deferred revenue is based on management's best estimate of the revenue earned in accordance with each grant agreement.

By their nature, these estimates are subject to measurement uncertainty and the effect on the financial statements of changes in such estimates in future periods could be significant.

**(c) Financial instruments**

The Organization initially measures its financial assets and liabilities at fair value, except for certain non arm's length transactions that are measured at the exchange amount.

The Organization subsequently measures all its financial assets and financial liabilities at amortized cost.

Financial assets measured at amortized cost include cash and accounts receivable.

Financial liabilities measured at amortized cost include accounts payable and accrued liabilities and due to CMC Research Institutes, Inc.

Financial assets measured at cost or amortized cost are tested for impairment, at the end of each year, to determine whether there are indicators that the asset may be impaired. The amount of the write down, if any, is recognized in excess of revenue over expenditures. The previously recognized impairment loss may be reversed to the extent of the improvement, directly or by adjusting the allowance account. The reversal may be recorded provided it is no greater than the amount that had been previously reported as a reduction in the asset and it does not exceed original cost. The amount of the reversal is recognized in excess of revenue over expenditures.

**3. Government remittances**

Accounts payable and accrued liabilities includes payroll remittances of \$NIL (2013 – \$25,292).

**4. Related party transactions**

Prior to June 30, 2013, the University of Calgary was appointed the Network Host under the NCE agreement (note 1) to administer the use of the grant funds in accordance with the terms and conditions of the agreement. During the year, the Organization paid general and administrative costs to the Network Host of \$NIL (2013 – \$121,291), of which \$NIL (2013 – \$112,500) is included in accounts receivable, and \$NIL (2013 – \$225,000) in accounts payable and accrued liabilities. Overall costs in accounts payable in 2013 were shared with another organization.

Cash includes \$12,476 (2013 – \$4,020,956) held in trust by the Network Host on behalf of the Organization. The Network Host paid interest of \$NIL (2013 – \$100,526) to the Organization on the funds held in trust. The Network Host transfers funds to the Organization as it incurs expenditures related to the Federal grant.

The Network Host leases office space to the Organization at no cost. No amount has been recorded in these financial statements related to the lease.

During the year ended March 31, 2014, CMC Research Institutes, Inc. was incorporated to bridge the gap between use inspired research (where the Organization has largely operated in the past) and a greater focus on innovation, technology development, commercial and industrial adoption and widespread implementation. CMC Research Institutes, Inc. is related through a common management, staff and directors. As at March 31, 2014, \$253,437 (2013 – \$NIL) was owed to CMC Research Institutes, Inc. relating to the acquisition of certain assets and liabilities of the Organization effective January 1, 2014.

These transactions are in the normal course of operations and are measured at the exchange amount which is the amount of consideration established and agreed to by the related parties.

**5. Deferred revenue**

	2014	2013
Provincial grant	\$ 8,870,129	\$ 20,558,498
Federal grant	12,476	3,407,522
	<b>\$ 8,882,605</b>	<b>\$ 23,966,020</b>

**6. Financial instruments**

The Organization is exposed to the following significant financial risks:

**(a) Credit risk**

Credit risk is the risk that one party to a financial instrument will cause a financial loss for the other party by failing to discharge an obligation. The financial instruments that potentially subject the Organization to a significant concentration of credit risk consist primarily of cash and accounts receivable. The Organization mitigates its exposure to credit loss by placing its cash with a major financial institution. Cash includes \$12,476 (2013 – \$4,020,956) which is held by the Network Host, which is a large government funded university. Accounts receivable consists of interest receivable on the bank balances and goods and services tax due from the Federal Government of Canada, none of which result in significant credit risk.

**7. Commitments and contingencies**

The Organization receives a majority of its funding through grants that specify the term of the funding and the eligible expenditures under the grant. The Organization may be required to repay all or a portion of the grant if ineligible expenditures are incurred, or if all of the grant monies are not spent within the designated time frame.

Funds have been committed for future eligible expenditures through approved qualifying projects, as follows:

2015	\$ 1,099,030
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**CMC Research Institutes, Inc.**

**To learn more about how CMC can help you manage your greenhouse gas challenges contact Richard Adamson.**

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