

The logo for CRIN (Clean Resource Innovation Network) features the letters 'C', 'R', and 'I' in a thin, black, sans-serif font. The letter 'N' is also in a thin, black, sans-serif font, but its vertical stem is a light blue color, matching the text below it.

CRIN

Clean Resource Innovation Network

A complex network of thin black lines connecting various nodes, resembling a molecular structure or a data network, is positioned on the right side of the page. The lines are of varying thickness and intersect at numerous points, creating a dense, interconnected web.

Annual Report

APRIL 2020 - MARCH 2021

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Please click on the  icons dispersed throughout this document to access more detailed information about CRIN.

About CRIN

The Clean Resource Innovation Network (CRIN) is a pan-Canadian network founded with the purpose of enabling clean energy development by commercializing and adopting technologies for the oil and gas industry that reduce environmental impact. We bring together industry, entrepreneurs, investors, academia, governments, and many others to enable solutions to decrease GHG emissions from source to end use. We believe that these solutions will be applied across Canadian industries and around the globe, and that energy development and environmental stewardship together will have local, national and international benefits.

Watch the Introduction to CRIN video 





LETTER FROM THE CHAIR

Ginny Flood

CRIN Board Chair (Independent)

CRIN is a pan-Canadian organization focused on ensuring Canada's hydrocarbon resources are sustainably developed and integrated into the global energy supply. Why? Because energy development alongside environmental stewardship is one of the answers to the significant economic, social and environmental issues our world is facing.

We believe that energy development coupled with sustainability can be a reality with local, national and international benefits. But it's only possible with the inclusion of all forms of energy. Hydrocarbons

are critical in the energy transition to help meet both energy demand and net zero emissions by 2050. At CRIN, our mission is to enable solutions that increase the competitiveness of Canadian companies and decrease GHG emissions across the oil and gas industry, from source to end use.

According to the 2016 Global Advantage Consulting Group research study, Canada's hydrocarbon industry contributes almost 75% of all investment in cleantech development for the energy sector. The industry's proven commitment to innovation is at the heart of CRIN.

We recognize that achieving global climate change goals requires doing things differently. CRIN works far beyond the confines of a single industry; engaging stakeholders across the ecosystem, facilitating connections and partnerships, and amplifying ideas and expertise to produce unexpected solutions.

Key to the success and growth of CRIN is our systems approach, which allows us to benefit from and collaborate with the diverse members of our network including industry experts, entrepreneurs, funders, academia, governments and many others. These relationships are integral to enabling the exciting innovation and changes taking place within the energy industry, and we are looking forward to seeing many more leaps forward and solutions implemented in the months and years to come.

Within our 2020 report you will find some examples of CRIN's work to date. Your work. Without the cooperation, partnership and shared vision and resources of thousands of CRIN members, achieving the vision could not be possible. I am honoured to dedicate CRIN's first annual report to celebrating the volunteers, from those who shared a vision and those who took up the mantle to establish a solid foundation for us to now run on. In particular, I wish to express my gratitude to our dedicated Board and to our core member of about 100 volunteers who work tirelessly on our committees as well as in their own sectors and technical areas of expertise to reach our goals.

Thank you to each and every one of you who, working together, enable and accelerate Canadian-led planet-saving innovation.

Ginny Flood

MBA
Former VP, Government Relations,
Suncor Energy Inc. (retired)



MESSAGE TO OUR NETWORK

Joy Romero

CRIN President (Canadian Natural Resources Limited)

The collaborative work of our extraordinary CRIN members and volunteers from across the oil and gas innovation ecosystem aims to reduce and remove barriers which can often impede the development, commercialization and wide-spread adoption of vital new technology.

Barriers can take many forms, including access to research and field-testing resources and support, funding, markets, knowledge, expertise, and new and diverse perspectives.

This past year has been one of tremendous progress for CRIN. In March 2021, we launched our highly anticipated \$80 million technology competitions designed to accelerate technology development and commercialization aimed at oil and gas industry challenges. Each of the three competitions has a unique focus area, yet they all have in common the ability to accelerate solutions that will significantly improve environmental performance, help meet climate change targets and provide economic and public benefits for Canada. Throughout 2021, we eagerly await the results of these competitions and the highly significant changes we know they will bring to the energy sector, across Canadian industries, and with the potential for global export.

In the 12 months from April 2020 to March 2021, we also developed a robust network strategy to support continued ecosystem development as well as enable cleantech innovation for Canada's oil and gas industry. A key element of the strategy is to continuously attract and retain new members who are capable of (and actively contributing to) the ecosystem in support of the achievement of CRIN's vision. This strategy has been a great success and for the reporting period, it helped the network grow by 40 per cent, bringing CRIN to 2,195 members.

CRIN's growth is a direct result of the hard work and engagement of our volunteer member network. I would like to extend a very warm and special thank you to our volunteers for the valuable work you continue to do for CRIN. We have not thanked you enough and we hope you know that your dedication, passion and energy are essential to the innovation ecosystem. You are the backbone of CRIN and we could not move towards accomplishing our vision without your hard work.

Looking forward to next year and beyond, I am confident that CRIN will continue to grow the reach, partnerships, ideas and resources of the network through the continuous recruitment of new members, and by meaningfully engaging with all existing members. Together we will address the key environmental and economic challenges faced by the energy industry, including reducing GHG emissions and other environmental footprints.

Joy Romero

P.Eng, MBA PM, ICD.D, FCAE
Executive Advisor Innovation,
Canadian Natural Resources Limited

Network of Networks

To achieve our vision of making Canada the global leader in producing clean hydrocarbons from source to end use, CRIN brings together the diverse expertise that already exists within industry, entrepreneurs, investors, academia, and governments. CRIN's members believe we can be more efficient and advance our goals much faster if we work closely together and collaborate. This is the foundation of our network of networks.

CRIN activates the network to encourage a multi-faceted approach to technology development and commercialization of innovation in seven technology theme areas:

Cleaner Fuels: Reducing Carbon Intensity ∞

Digital Oil and Gas Technology ∞

Low Emissions Value Added Products ∞

Novel Hydrocarbon Extraction ∞

Novel Land and Wellsite Remediation ∞

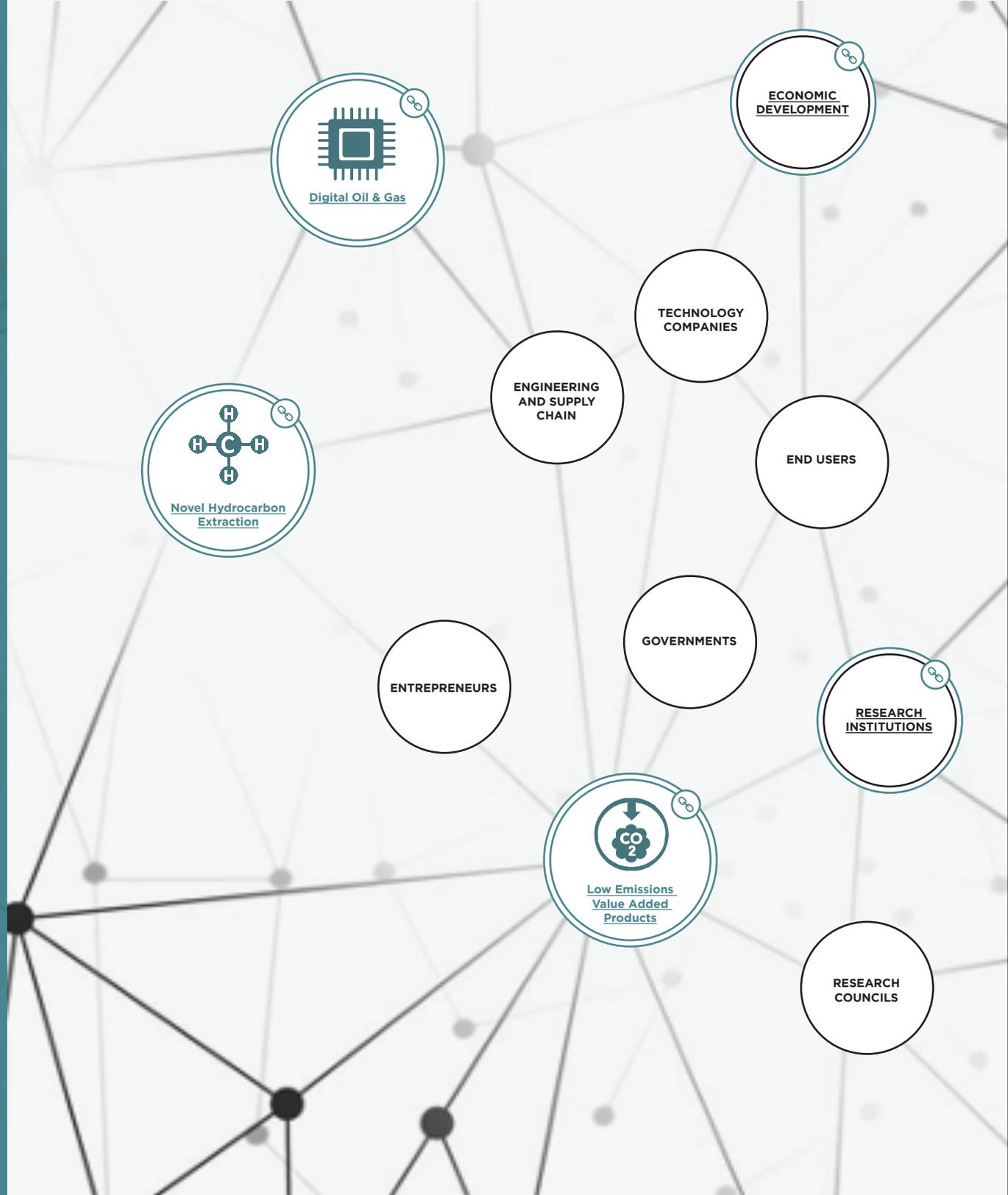
Methane Monitoring, Quantification, and Abatement ∞

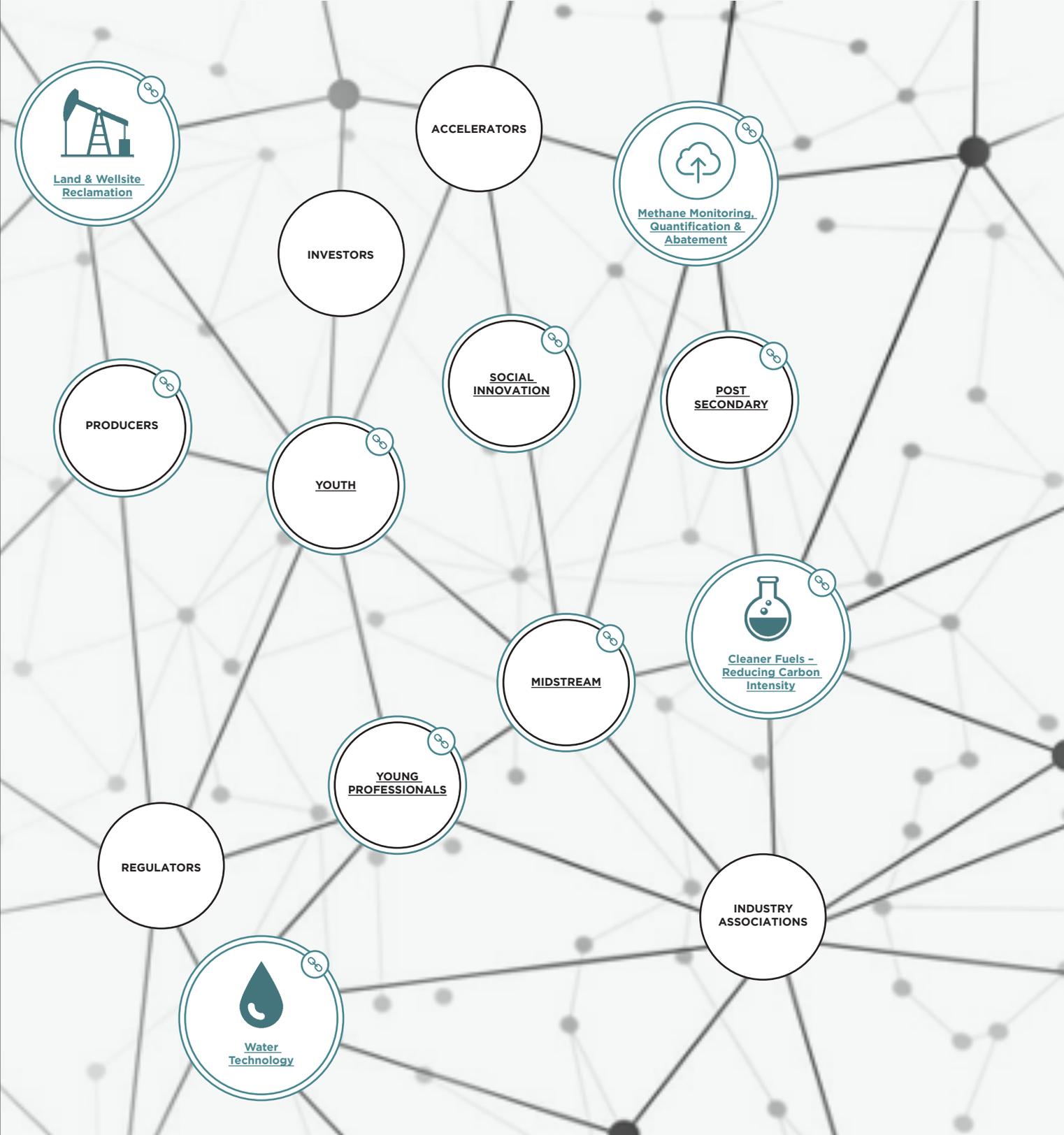
Water Technology Development ∞

CRIN also activates 19 sectors as part of the network. This includes researchers, investors, SMEs, governments, NGOs, funders, academics, professionals and youth to focus on two industry priorities: world leading environmental performance and cost competitiveness.

Each member of the network is integral to solving the challenges currently facing the oil and gas industry in Canada. Working together by collaborating and sharing resources, we are moving much closer to decreased emissions and greater sustainability.

∞ **View more about CRIN's Technology Theme areas and selected Sectors by clicking on the double-lined circles.**





19
Sectors

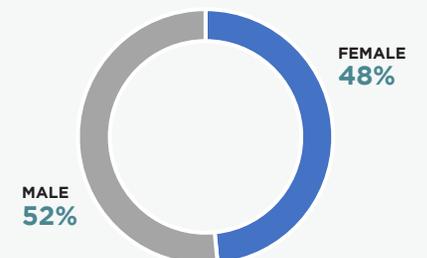
7
Tech Themes

100+
Volunteers

3 Indigenous
Committee
Members



Diversity of CRIN
Committees



Network Accomplishments

SECTOR ENGAGEMENT ACTIVITY HIGHLIGHTS

Youth

- CRIN investment of \$160,000 over 2021-2022 for youth-led innovation
- Student Energy chapters engaged over 17,200 members across Canada
- Emergence of ImaGenation, a mentorship and project support program for Indigenous youth

Research Technology Organizations

- CRIN Technology Theme leaders hosted a virtual event for 60 technology and research leaders from Natural Resources Canada (NRCan)
- New insights and relationships were made that will strengthen the innovation network

Sneak Peek

\$585,000 has been approved for 2021 activities that will reduce barriers to technology development by bridging the knowledge gap between ecosystem participants. We have also signed a letter of commitment with End User sector lead Quest Canada for \$300,000 over 2021-2022. These funds will help the CRIN network gain a better understanding of what achieving net-zero and related actions mean to Canadian communities. It will also fund the creation of policy recommendations and identify GHG reduction actions that will create local jobs and spur economic development.

ECOSYSTEM DEVELOPMENT HIGHLIGHTS

Carbon Fibre Grand Challenge (CFGC) (collaboration with Alberta Innovates)

- CRIN investment of \$3,000,000 over 2021-2022
- Portfolio of early-stage 'Bitumen Beyond Combustion' research projects launching August 2021 with completion January 2023

Methane Technology Theme (Methane Emission Reduction Network)

- CRIN investment of \$2,600,000 over 2020-2022
- Portfolio of projects and initiatives directed at Methane Monitoring, Quantification and Abatement

Sneak Peek

CRIN provided in-kind resource support for Labour Market Research (funded by the Government of Alberta) and the development of recommendations to inform the future skills and talents needed to support the energy transition and economic growth in Alberta (final report November 2021).



The CRIN network is an important initiative for Canada's energy sector to come together and collaborate on the future of energy. For young Canadians it provides support for more capacity-building programming, networking, and mentorship. This is a crucial time for young people to be exploring careers in the energy transition, and CRIN is a great way to access the people who can help you on that path.

Meredith Adler, Executive Director,
Student Energy | CRIN Steering Committee
Member



CRIN is a pivotal enabler uniting innovators, industry, investors, universities, governments and civil society to strengthen the cost and carbon competitiveness of energy resource development in Canada. It creates the pipelines of collaboration Canada needs to rapidly move ideas from start up to scale up.

Monica Gattinger, Ph.D
Director, Institute for Science,
Society and Policy | Chair, Positive Energy,
University of Ottawa | CRIN Board Member

Competitions Overview

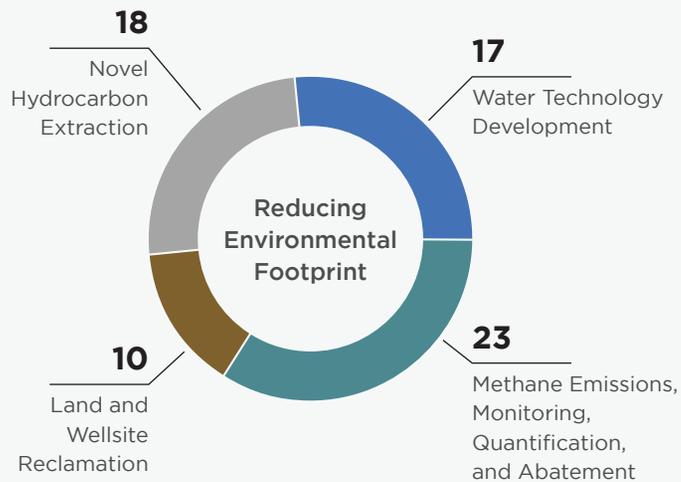
In March 2021, CRIN launched its highly anticipated \$80 million competitions to accelerate clean technology development and commercialization aimed at oil and gas industry challenges.

The large-scale technology competitions each have unique focus areas, funding awards and timelines. What they have in common is the ability to accelerate solutions that will significantly improve environmental performance, help meet climate change targets and provide economic and public benefits for Canada. Each competition is run by an independent competition coordinator to ensure fairness and transparency while allowing all CRIN members to participate without conflict of interest.

	Reducing Environmental Footprint (\$50 million)	Low Emission Fuels & Products (\$25 million)	Digital Oil and Gas (\$5 million)
Scope	<ul style="list-style-type: none"> Land Methane emissions Novel hydrocarbon extraction Water 	<ul style="list-style-type: none"> Innovative products from hydrocarbons Carbon capture & utilization Hydrogen and geothermal Low carbon intensity alternatives and new fuels 	<ul style="list-style-type: none"> Environmental monitoring Health and safety Capital project execution Operational excellence and efficiency
Application Period	March 24 - May 20, 2021	March 31 - June 9, 2021	May 18 - July 30, 2021
Independent Competition Coordinators			

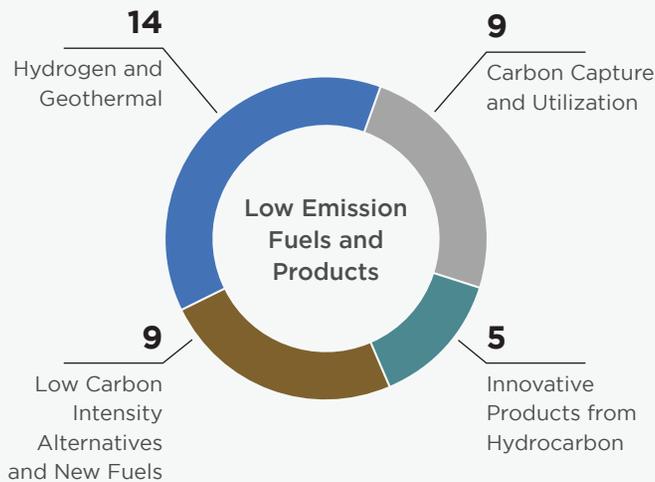
REDUCING ENVIRONMENTAL FOOTPRINT COMPETITION

Distribution of 68 eligible stage one applications across competition focus areas:



LOW EMISSION FUELS AND PRODUCTS COMPETITION

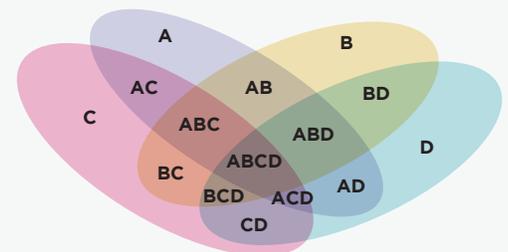
Distribution of 37 eligible stage one applications across competition focus areas:



DIGITAL OIL AND GAS TECHNOLOGY

Distribution of 32 eligible submissions across competition focus areas:

Focus Areas	
Environmental Monitoring	A
Operational Excellence and Efficiency	B
Capital Project Execution	C
Health and Safety	D



A	B	AB	BC	ABC	BCD	ABD	ABCD
4	4	4	2	2	1	10	5

Benefits / Competition Project Outcomes

 **INNOVATION ECOSYSTEM DEVELOPMENT**

 **POSITIVE CUMULATIVE ENVIRONMENTAL IMPACTS**

 **ECONOMIC BENEFITS TO CANADA**

 **PUBLIC BENEFIT**



CRIN has helped foster an environment that supports the advancement of innovation in Canada's energy sector. Through collaboration and a focus on key themes impacting our industry, CRIN's innovation competitions are helping accelerate technology that will enable significant emissions reductions.

Stephanie Neilson, Manager Environment & Regulatory, ARC Resources

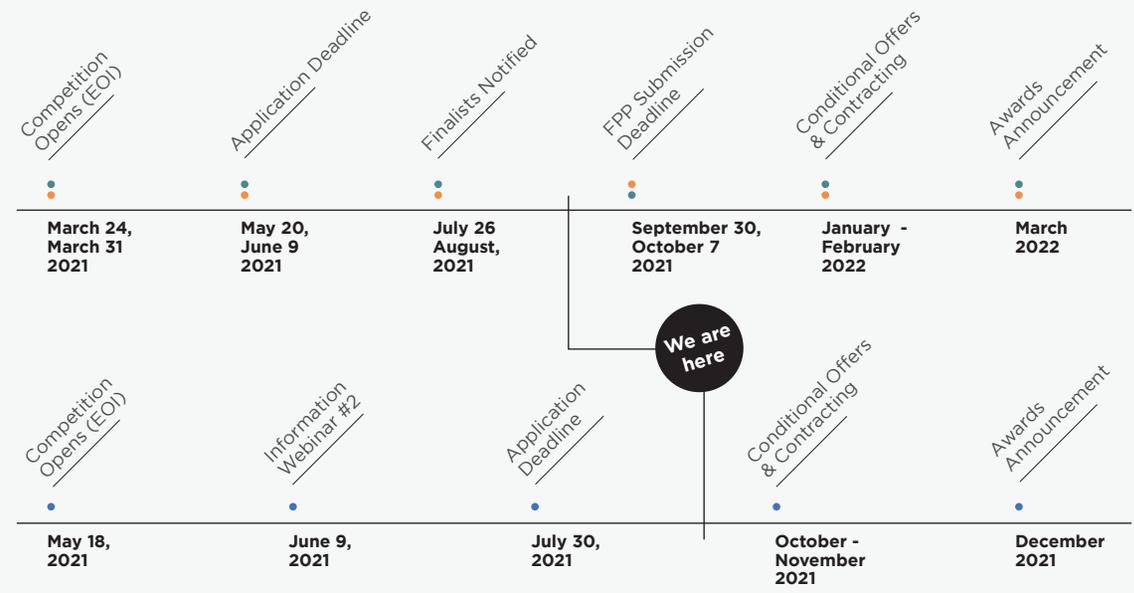
Sneak Peek

TECHNOLOGY COMPETITIONS ENGAGEMENT

Reducing Environmental Footprint (ERA)	Low Emission Fuels & Products (Foresight CAC/ The Delphi Group)	Digital Oil and Gas (MaRS DD)
<ul style="list-style-type: none"> • 277 attendees at information webinar April 7 • 68 Stage one Expression of Interest project applications reviewed • 22 projects invited to Full Project Proposal phase 	<ul style="list-style-type: none"> • 166 attendees at information webinar April 21 • 46 Stage one Expression of Interest project applications reviewed • 10 projects invited to Full Project Proposal phase 	<ul style="list-style-type: none"> • 264 attendees at two information webinars May 18 and June 9 • 32 applications being reviewed (single-stage competition)

Funding award announcements December 2021 - March 2022

TECHNOLOGY COMPETITIONS TIMELINE



Legend	● Reducing Environmental Footprint (ERA)	● Low Emission Fuels & Products (Foresight/Delphi)	● Digital Oil & Gas (MaRS)
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Celebrating Our Volunteers

CRIN resembles a traditional organization in structure with a Board of Directors and Executive Committee. However, with the exception of a small team contracted to support day-to-day operations, CRIN is entirely volunteer driven. The CRIN President, with the support of the Director of Operations, oversees accountability for the management of CRIN.

Our more than 100 volunteers contribute thousands of hours and immense energy to build the network and advance the solutions necessary to increase the sustainability of Canada's energy sector. Realizing CRIN's vision would not be possible without our volunteers, and we are grateful to them for their time and expertise.



Energy is perhaps the most pressing, complex and multifaceted of the big challenges facing humankind. Identifying solutions that have the potential to transform the industry is key, but what's even more important is to create a market pull to accelerate commercialization of those innovations. CRIN has been instrumental in bringing together innovators, entrepreneurs and investors to create significant growth opportunities in Canada.

Catherine Bérubé, Vice-President, Sustainable Development, Investor Relations and Public Affairs, Cycle Capital and Cycle Momentum | CRIN Board Member

CRIN VOLUNTEER COMMITTEES

Senior Leaders Forum:

Drives senior leader collaboration among industry, academia, government and the other sectors represented at the Steering Committee (SC). The Senior Leaders Forum provides strategic guidance on matters as determined by the CRIN SC.

Board of Directors:

Responsible for the approval of the overall strategy, budget and governance, and for the oversight of operations.

Finance and Audit Committee:

A committee of the Board designed to ensure the integrity of CRIN's financial position by ensuring proper controls, accounting and reporting procedures are followed and that risks are identified and managed appropriately through the establishment and maintenance of a risk registry.

Nominations and Governance Committee:

A subcommittee of the Board that ensures CRIN fulfills its responsibilities through effective governance practices, policies and processes with the role to oversee, review and make recommendations to the Board concerning governance policies and programs, bylaw review and relevancy, board composition, recruitment, succession and board performance and evaluation.

Steering Committee:

A forum for strategic discussions rather than a decision-making body, the SC focuses on information and positions, and on providing recommendations to the Board for consideration.

Executive Committee (EC):

A subcommittee of the Steering Committee (SC), responsible for acting as a liaison between the CRIN SC and the CRIN Board, for providing regular oversight and direction on CRIN activities, and for other responsibilities that may be designated by the CRIN President or SC members.

Membership Engagement and Outreach Subcommittee (MEOSC):

A subcommittee of the SC that manages outreach activities that grow the network and ecosystem, and that garner broad support for CRIN among stakeholders.

Technology Enablement Subcommittee (TEC):

A subcommittee of the SC comprised of leaders designated for each of CRIN's seven technology theme areas, TEC identifies and accelerates the development of clean technology and grows the ecosystem while ensuring the CRIN network is active and broadly supported.

The Road Ahead

NETWORK STRATEGY AND SUSTAINABILITY PLAN

Network Strategy

The CRIN network strategy is designed to support ecosystem development and enable cleantech innovation for Canada's oil and gas industry. A key part of the strategy is to continuously attract and retain new members who are capable of (and actively contributing to) the ecosystem in support of the achievement of CRIN's vision.

Sustainability Plan

CRIN's Sustainability Plan describes various pathways for the long-term viability of CRIN beyond the window of commitment outlined in the Strategic Innovation Fund (SIF) Contribution Agreement. A key objective is for these pathways to remain aligned with CRIN's vision and to remain true to the fundamental principle that CRIN will not compete with existing organizations and will be complementary and collaborative.

FUNDING

CRIN will continue to expand our funding structure as part of our future growth plans.

Support for CRIN's mandate comes largely from Canada's Strategic Innovation Fund (SIF). With oversight by Innovation, Science and Economic Development Canada, CRIN will receive \$100 million over four years (2020 - 2024). The investment will help CRIN accelerate the development and adoption of innovative technologies and processes that seek to lower the oil and gas industry's environmental impacts. By developing groundbreaking clean tech and emission-lowering solutions through collaboration, CRIN will also support economic growth and create well-paying jobs with cleaner energy from source to end use.

Additional CRIN Donors and Funding Sources

- AltaCorp Capital Inc.
- Calgary Economic Development
- Canada's Oil Sands Innovation Alliance (COSIA)
- Canadian Fuels Association
- Canadian Natural Resources Limited (CNRL)
- Cenovus Energy Inc.
- Emissions Reduction Alberta (ERA)
- GLG Ltd.
- Global Affairs Canada
- Government of Alberta (Alberta Labour and Immigration)
- Husky Energy Inc. (now Cenovus Energy Inc.)
- Imperial Oil Limited
- Prairies Economic Development Canada (PrairiesCan) - formerly Western Economic Diversification Canada
- Suncor Energy Inc.

SIF \$100M Contribution: where it's allocated

Ecosystem Development and Support \$20M

- Technology enablement (Technology Readiness Levels or TRL 2-9), innovation ecosystem support and development
- Technology theme events and awareness
- Sector engagement
- Membership engagement and outreach
- Network administration and management

Technology Development and Deployment \$80M

- Three competitions
- Technology projects to progress to commercialization (TRL 6-9)
- Innovator(s) + producer partner(s); 'industry pull'



Financial Statements

STATEMENT OF FINANCIAL POSITION

	March 31, 2021	December 31, 2019
ASSETS		
Current		
Cash	\$ 499,473	\$ 496
Accounts receivable (Note 3)	48,189	316,402
Goods and services tax receivable	33,847	-
	581,509	316,898
Intangible capital asset (Note 4)	22,327	6,315
	\$ 603,836	\$ 323,213
LIABILITIES		
Current		
Accounts payable and accrued liabilities	\$ 204,751	\$ 247,058
Goods and services tax payable	-	683
Deferred contributions (Note 5)	235,333	-
	440,084	247,741
NET ASSETS		
Invested in intangible assets	22,327	6,315
Unrestricted	141,425	69,157
	163,752	75,472
	\$ 603,836	\$ 323,213

STATEMENT OF OPERATIONS

	March 31, 2021	December 31, 2019
	(15 months)	(12 months)
Revenue		
Project revenue (Note 5)	\$ 1,337,013	\$ 158,612
Event sponsorship and partnerships	83,600	186,246
In-kind contributions (Note 6)	-	290,140
	1,420,613	634,998
Expenses		
Contractors	1,114,349	358,687
Professional fees	99,076	7,487
Direct event costs	91,030	135,178
IT costs	10,079	2,830
Amortization	9,988	4,828
Printing and publications	3,911	237
License and membership	1,172	-
Meeting	1,119	231
Bank charges	998	32
Office expenses	575	59
Telephone and communication	36	121
Direct project costs	-	53,170
Sponsorship expenses	-	2,000
Insurance	-	250
	1,332,333	565,110
Excess of revenue over expenses	\$ 88,280	\$ 69,888

Membership Growth

As a CRIN member, you are welcomed into a vast network comprised of a wide variety of industries with the common goal of transforming energy systems and transitioning to a new and cleaner global energy future that includes all forms of energy.

BENEFITS OF CRIN MEMBERSHIP

- Connect with others across the innovation ecosystem
- Access the events calendar and member directory
- Receive regular updates and monthly newsletters
- Participate in knowledge-sharing events
- Access seven Technology Theme discussion groups

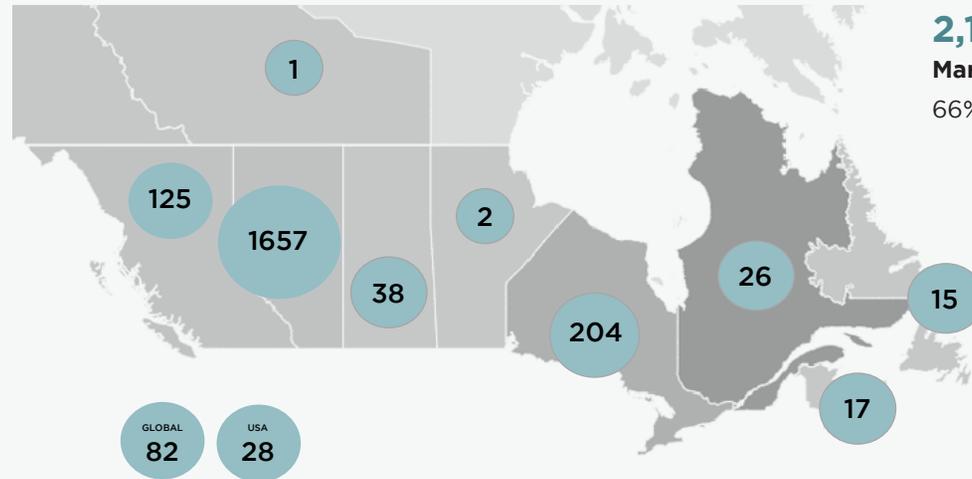
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JOIN! 

CRIN MEMBERSHIP THIS YEAR



TOTAL MEMBERS

2,195
March 31, 2021
 66% growth over 2019

CRIN MEMBERSHIP GROWTH

