



Clean Technology

4th Annual IP Data & Research Conference

Sean Martineau
A/Manager of IP Analytics and Data
Dissemination

March 11, 2021

Building a prosperous and innovative Canada



Objectives

1. Overview of the Clean Tech Sector
2. Government of Canada's Role
3. CIPO's Role & Research
 - a) Climate Change Mitigation Technologies (CCMT)
 - b) Renewable Energy
 - c) Photovoltaic Energy
4. Gender Participation in CCMT
5. Latest Research

Overview of the Clean Tech Sector

- Fast-growing industry
- Expected to exceed \$2.5 trillion by 2025
- Experts suggest innovation and adoption of Clean Tech is necessary to reach global emissions targets
- By 2025, Canada will move into a top-three ranking globally



Government of Canada's Role

- Clean Tech is a priority for the Government
 - Direct assistance provided through funding
 - Skills and training programs
 - Regulatory, IP, and technical advice
- Emphasis on commercialization and wide-spread adoption of clean technology



CIPO's Role & Research

- CIPO plays a key role in supporting Clean Tech
 - Programs such as the advanced examination for green technologies
 - WIPO GREEN
 - IP Analytics



IP Analytics at CIPO

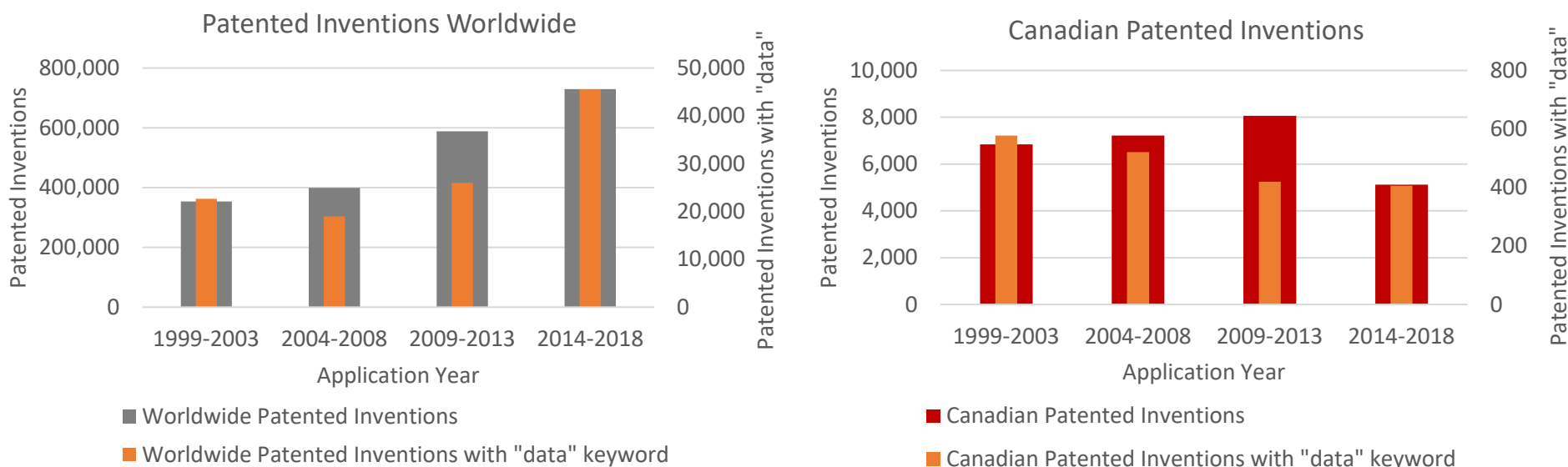
- 2017 Report, “Patented Inventions in Climate Change Mitigation technologies”
 - Highlighted the patenting activity of Canadian inventors and businesses separately
 - Results found that both Canadian inventors and businesses are relatively specialized in subgroups: hydro energy, technologies of production of non-fossil origin, and carbon capture
 - Some Canadian inventors were found cited on patents filed by international businesses in this field



Climate Change Mitigation Technologies (CCMT)

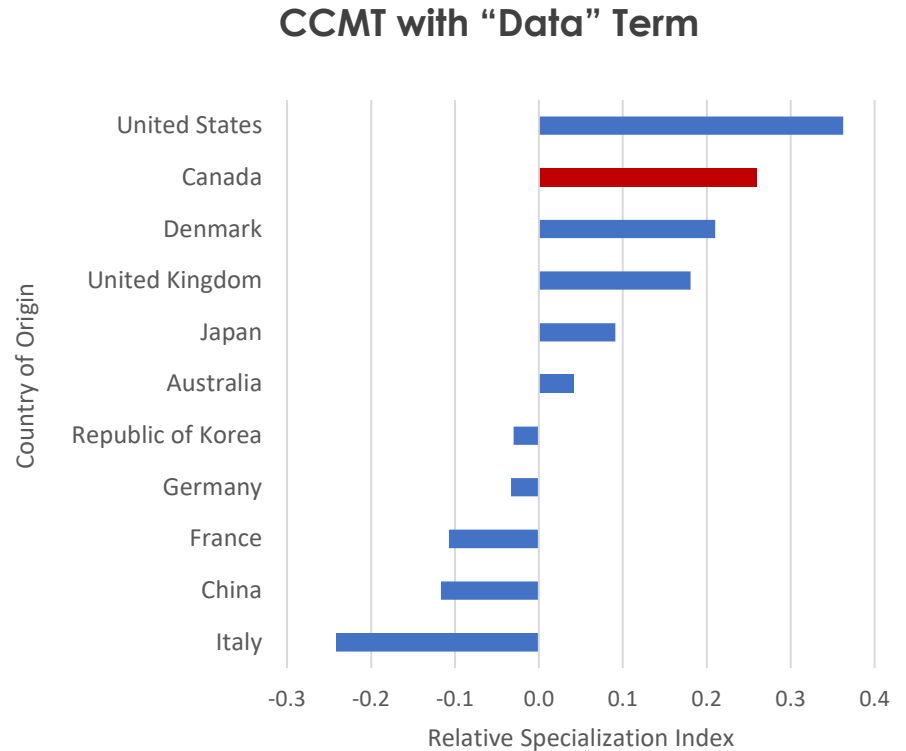
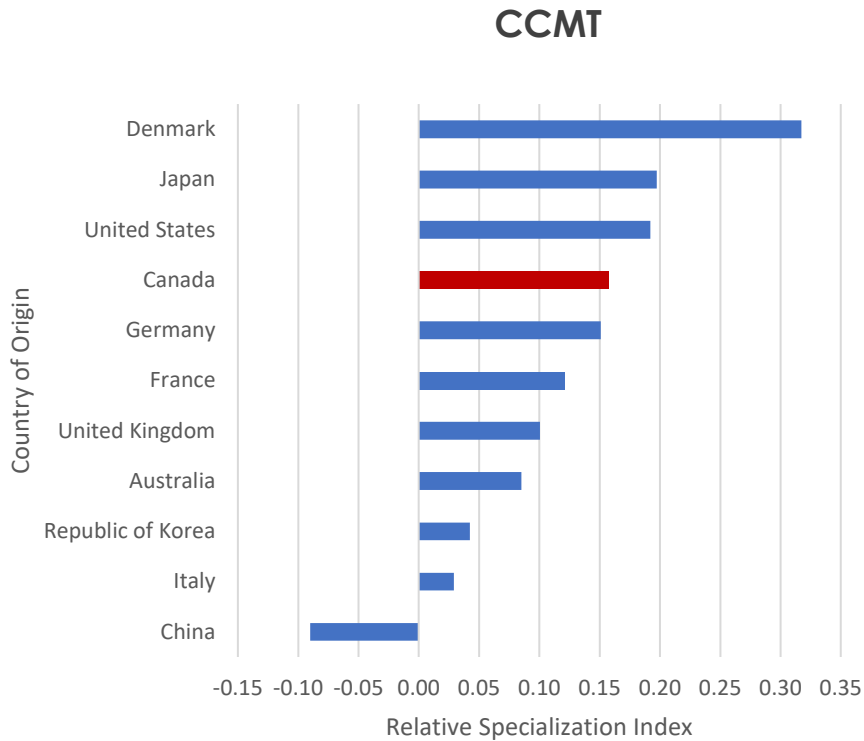
Patent Filing Trends

- Worldwide CCMT patent activity has been increasing over each bloc of time.
- Presence of the term “data” shows up in approximately 6% of the CCMT dataset.



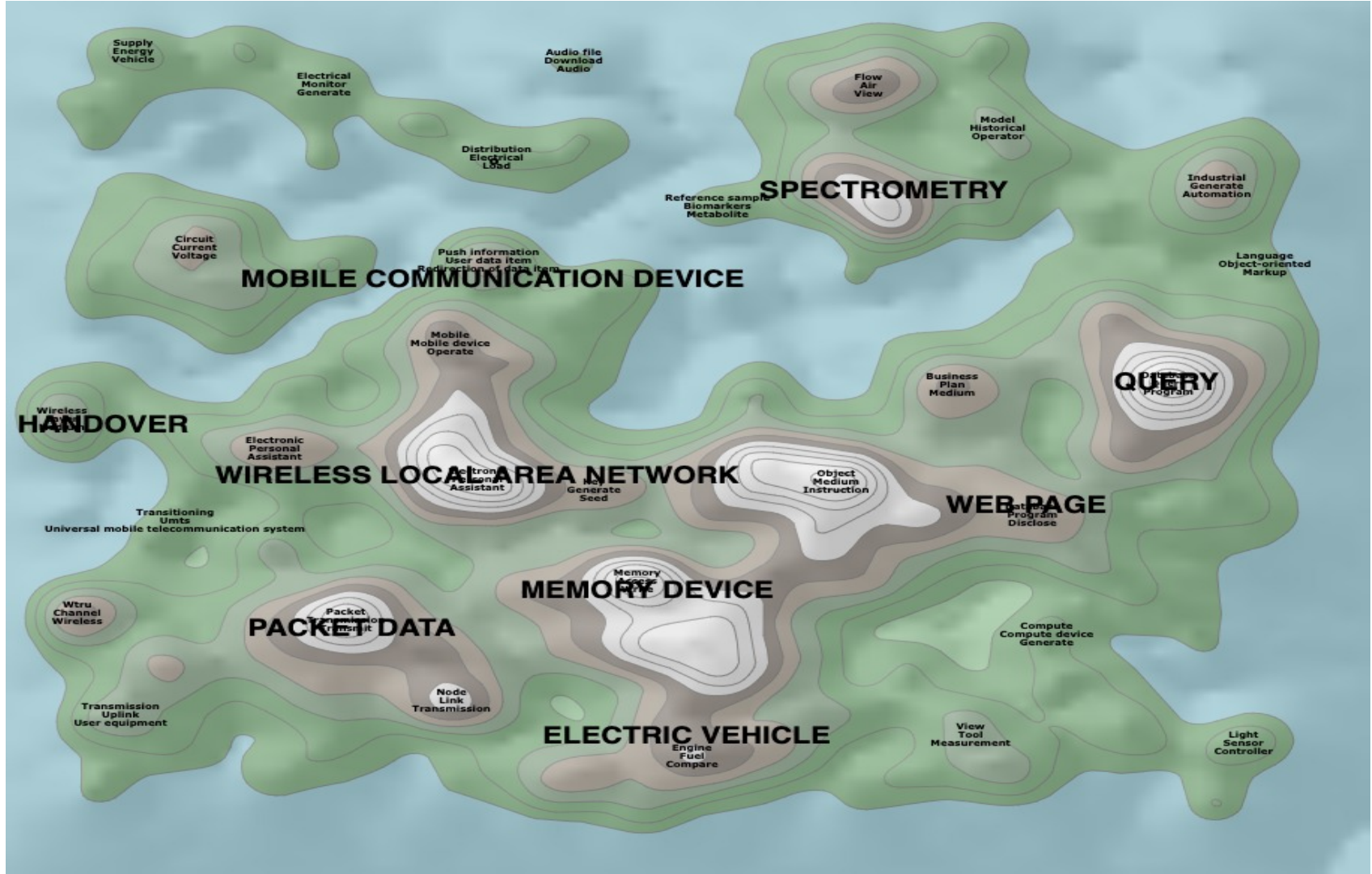
- CCMT patented inventions are tagged by a CPC code beginning with a Y code
- Patent inventions are deemed to be Canadian if there is either a Canadian institution or individual assigned to the invention

CCMT Relative Specialization Index



The RSI is used to measure how specialized a country is for a given technology field based on patenting intensity while allowing for technologies to be compared between countries of different sizes on a relative basis.

Canadian CCMT Patented Inventions with "Data" Term

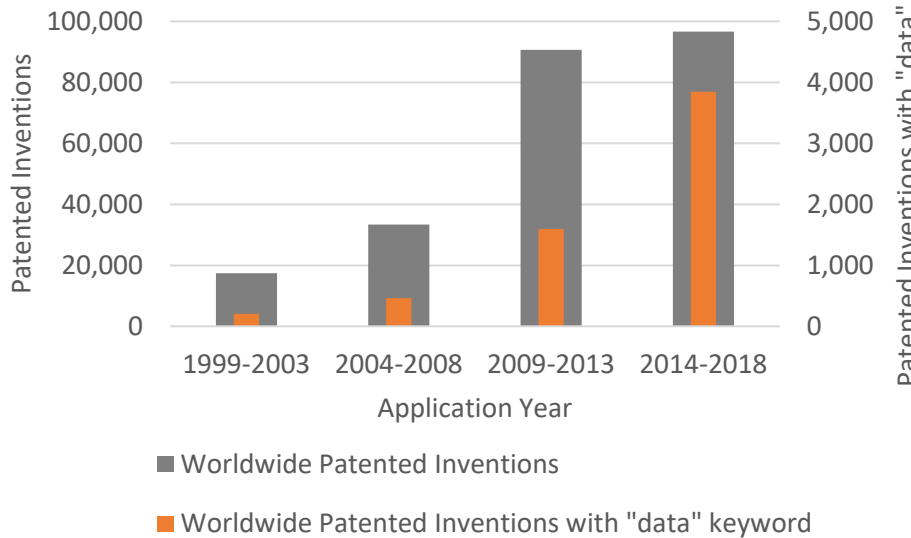


Renewable Energy

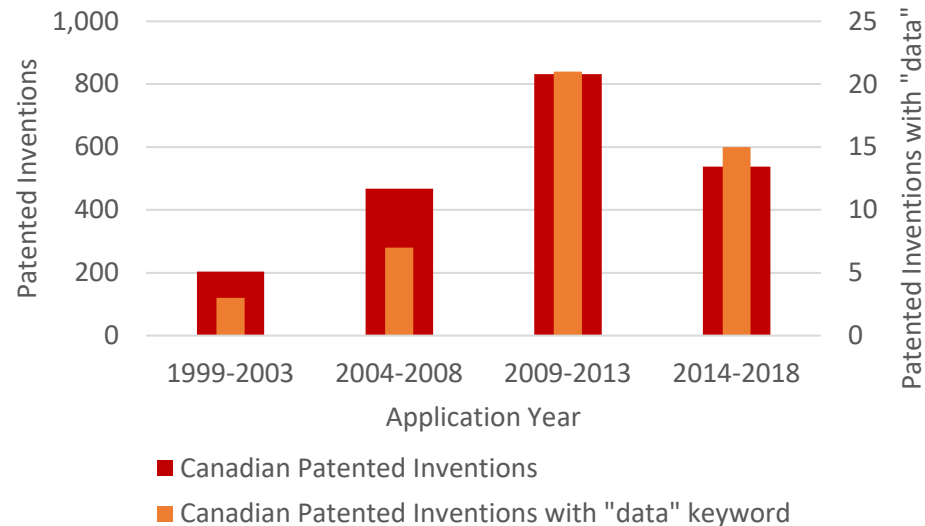
Patent Filing Trends

- Worldwide Renewable Energy patent activity has increased significantly at the start of the past decade and continued to increase over the last bloc of time.
- Presence of the term “data” shows up in slightly more than 2% of the Renewable Energy dataset.

Patented Inventions Worldwide

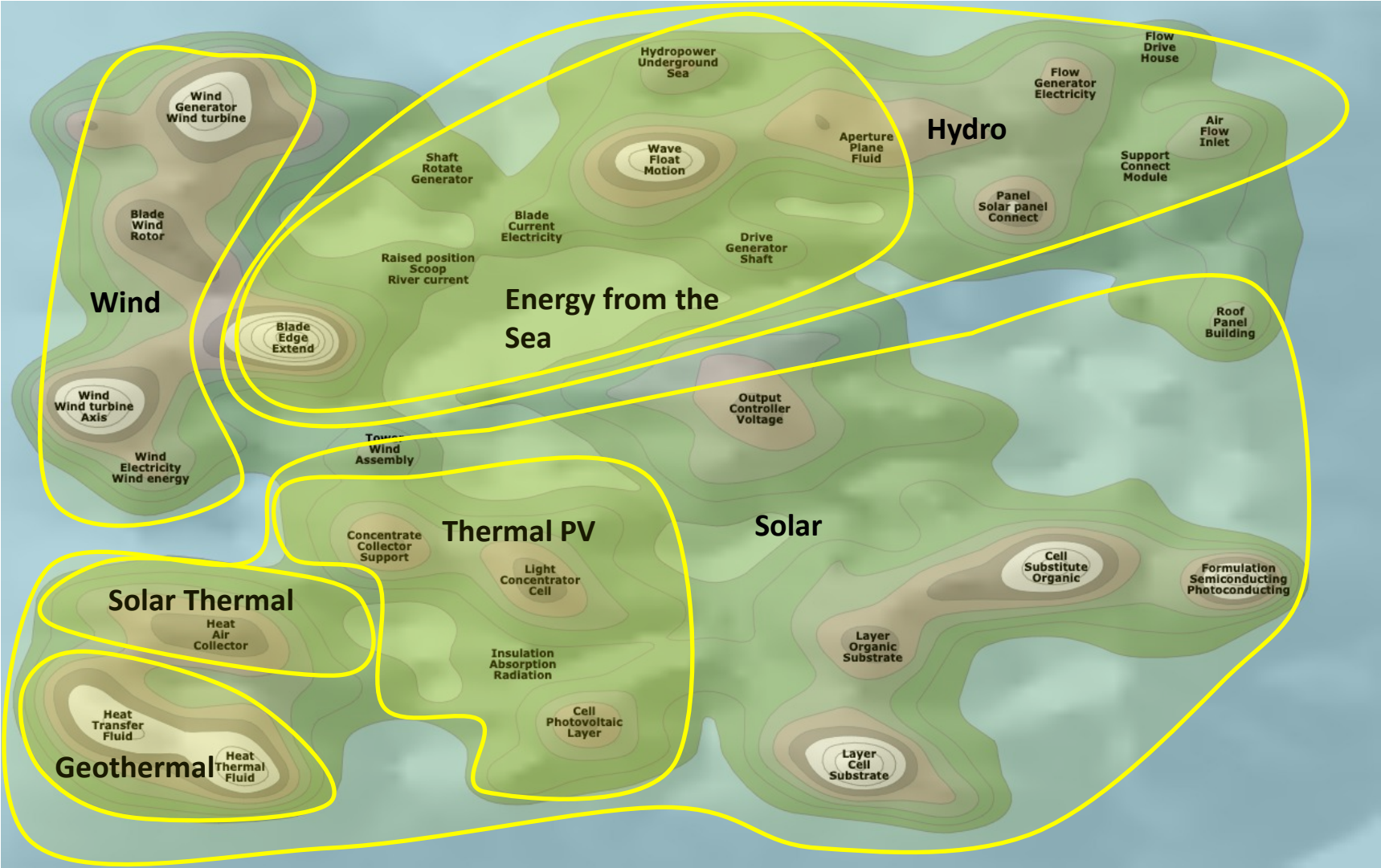


Canadian Patented Inventions



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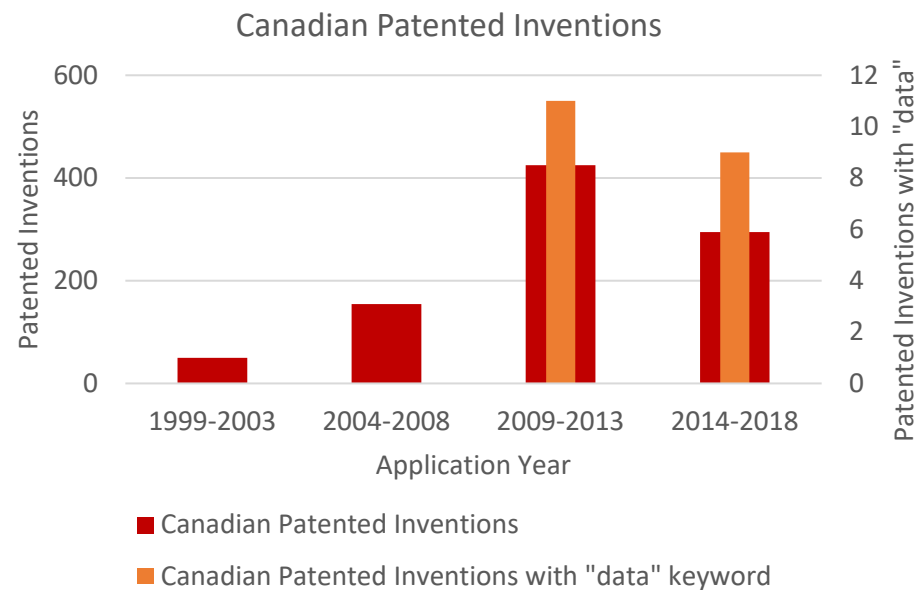
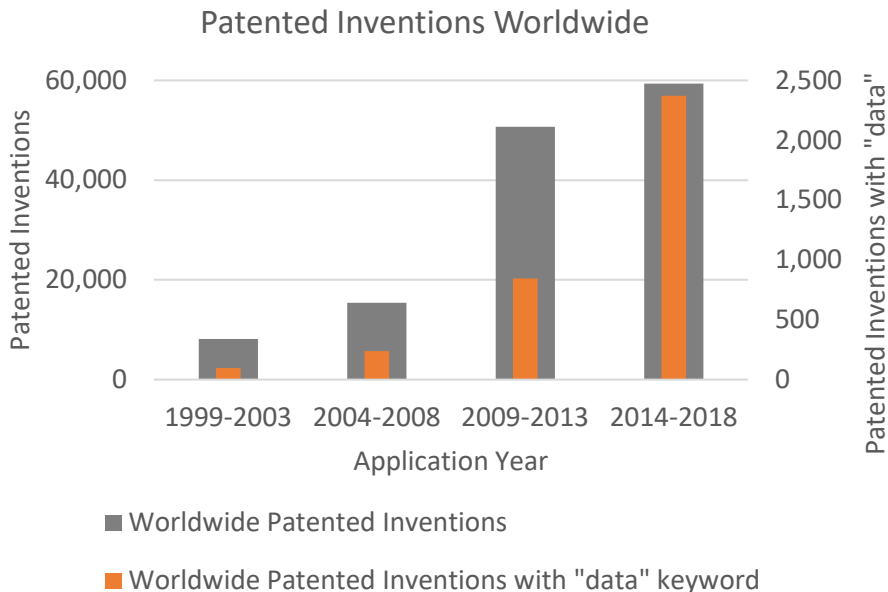
Patent Landscape Map for Renewable Energy



Photovoltaic Energy

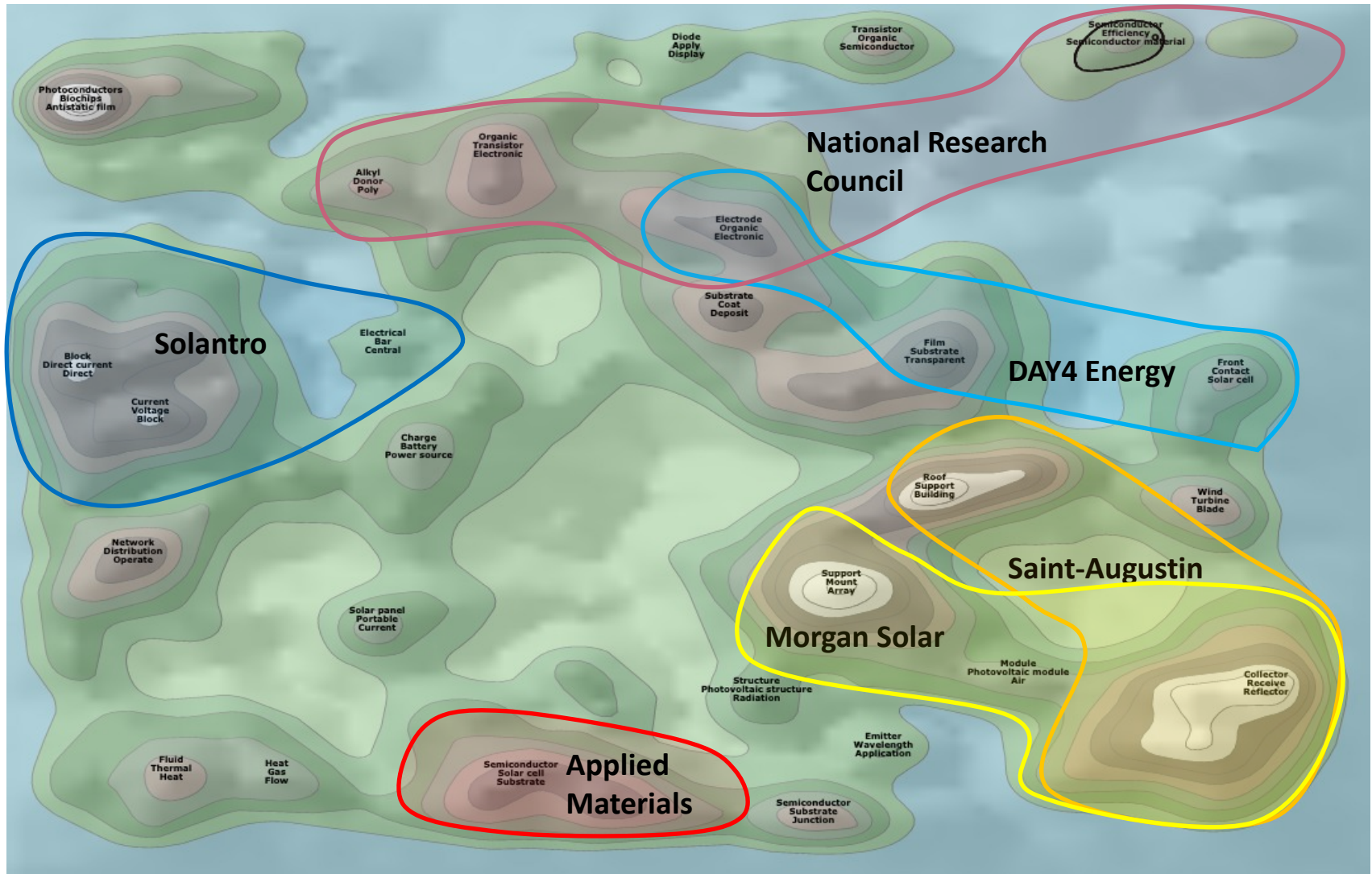
Patent Filing Trends

- Worldwide Photovoltaic Energy patent activity experienced a significant increase over the past decade.
- Presence of the term “data” shows up in slightly more than 2% of the worldwide Photovoltaic Energy dataset.



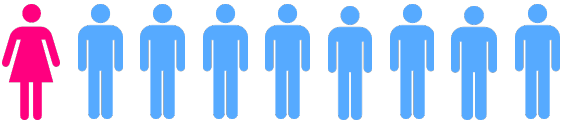
- CCMT patented inventions are tagged by a CPC code beginning with a Y code
- Patent inventions are deemed to be Canadian if there is either a Canadian institution or individual assigned to the invention

Patent Landscape Map for Photovoltaic Energy

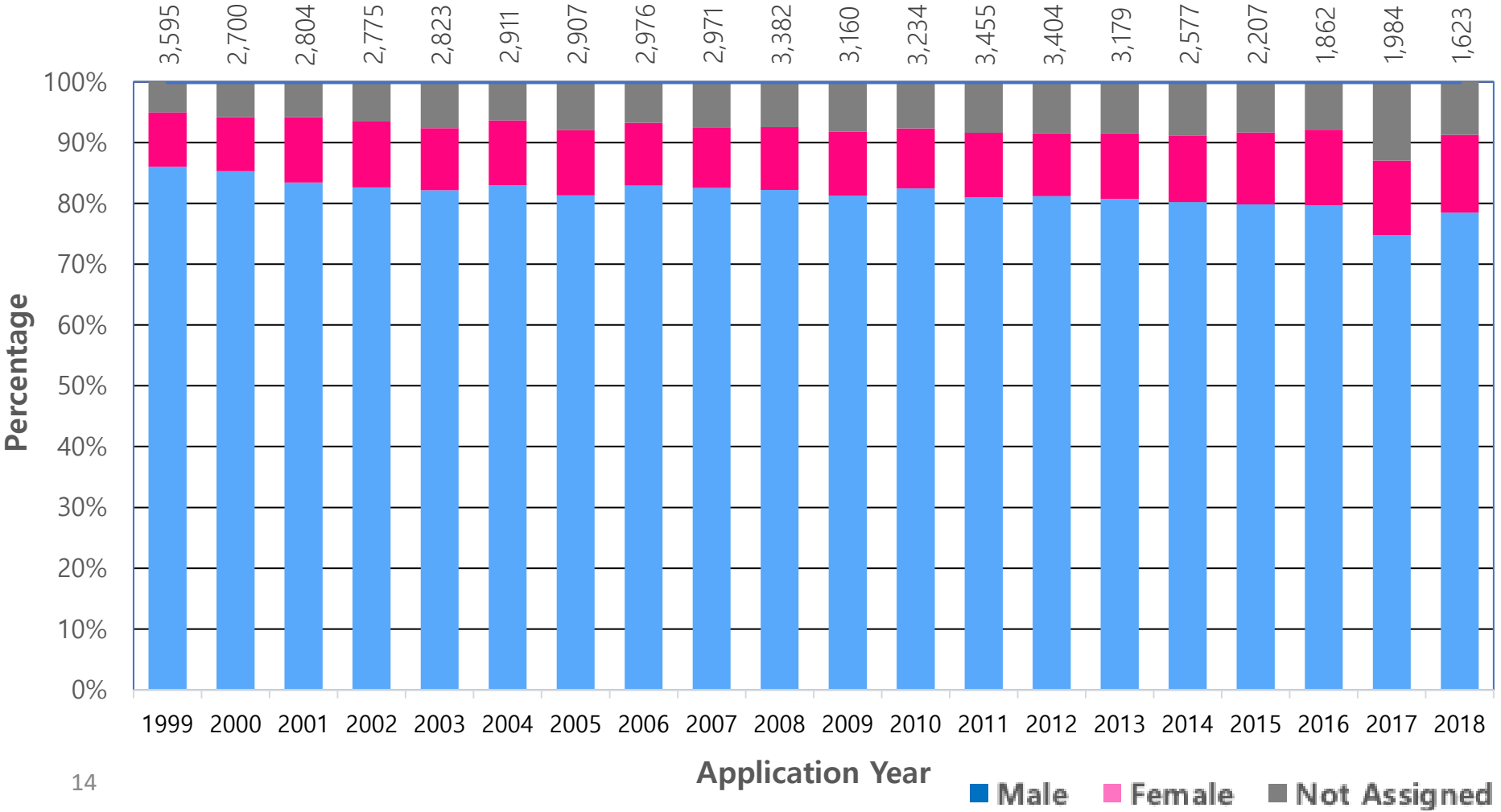


Gender Participation for CCMT Patented Inventions

Y CPC Codes



Number of Patents: 27,245
 Number of Inventors: 56,529
 Assigned Gender Coverage: 92%

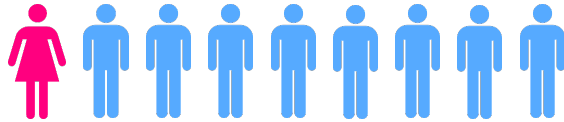


Application Year

Male Female Not Assigned

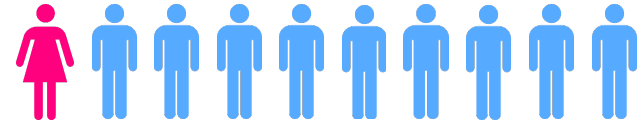
Gender Participation in other Categories

Y CPC Codes



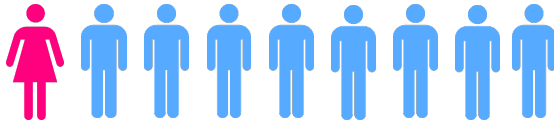
Number of Patents: 27,245
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Y CPC Codes With Data Keyword



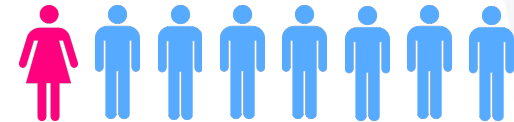
Number of Patents: 1,924
Number of Inventors: 5,253
Assigned Gender Coverage: 93%

Renewable Energy



Number of Patents: 2,041
Number of Inventors: 3,275
Assigned Gender Coverage: 91%

Photovoltaic Energy



Number of Patents: 925
Number of Inventors: 1,895
Assigned Gender Coverage: 89%

- Updated report on Clean Tech landscape in Canada
 - Will build off the findings from 2017 report, with a much larger dataset (spanning twenty year period)
- Partnering with National Research Council (NRC)
 - Focus will be on subgroups related to their “Material for Clean Fuels Challenge Program”
 - Support for industry leaders and researchers that are developing materials for zero-emission fuels and chemical feedstocks



Thank you

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Canada 

4th Annual IP Data & Research Conference



Jim Hinton, Co-Founder, IAC

March 11, 2021

IAC: Equipping Canadian SMEs

FACT

IP and data represent the most enduring assets of technology companies.

Many Canadian SMEs aren't making intentional resource allocation decisions around IP and not fully understanding the potential value and benefits IP can provide.

IP can significantly impact a company's freedom to operate, for good and bad, in the long-term as well as its ability to grow and scale.

WHY IP?

SMEs aware of or holding formal IP are **3X more likely** to have expanded domestically and over **4X more likely** to have expanded internationally.

**Canadian Intellectual Property Office.*

About 42% of Canadian start-ups / SMEs say they are not familiar with, or do not consider or use IP.*

Where as, nearly 85% of the value of S&P 500 companies is attributed to intangible assets (IP)*, demonstrating the importance of IP, which requires SMEs to invest early in developing their IP strategy.

**Canadian Intellectual Property Office*

**Financial Impact of Intellectual Property & Cyber Assets Report, 2020*

IP TRENDS

Climate Mitigation Technologies*

5,481,8421

Worldwide Patent Publications

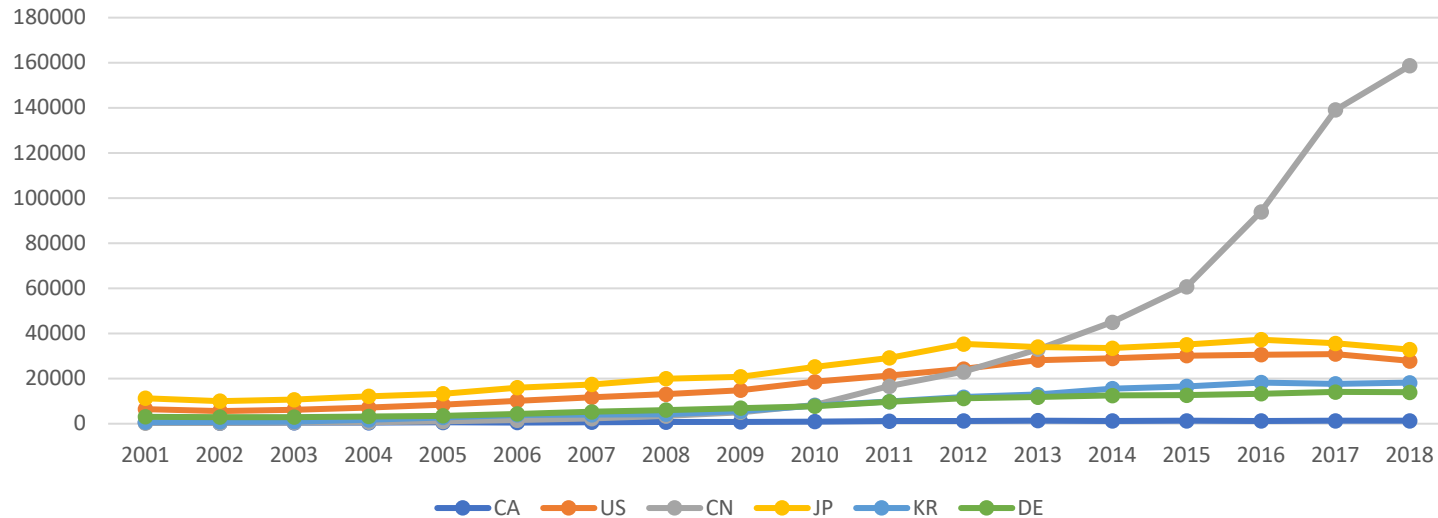
2,409,027

Active Publications (Grants + Applications)

17,030
(~0.7%)

Canadian-Owned Active Publications

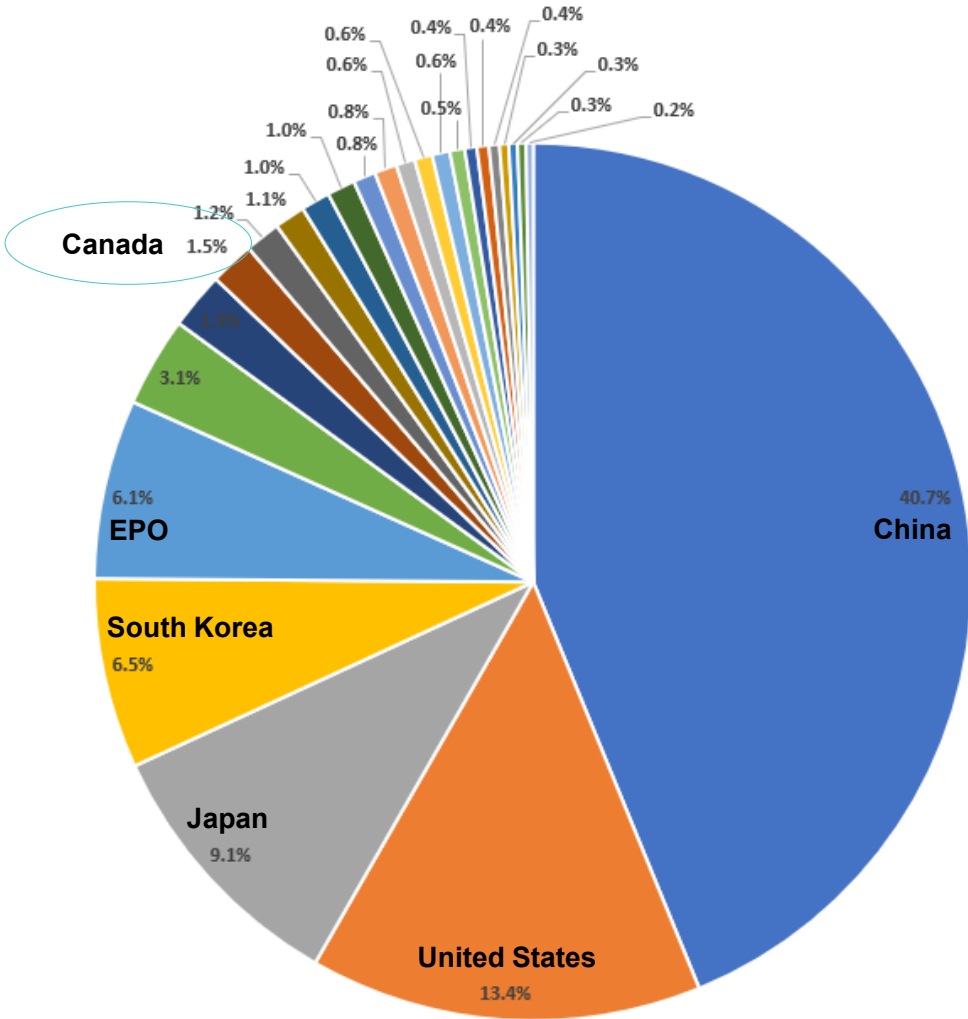
Worldwide Filings per Year by Country of Ownership
(CA-Owned vs Top 5 Owners)



Top Canadian-Owned Assignees	Active Patent Publication Count
Blackberry Limited	1850
Bombardier Inc.	1064
Magna International Inc.	633
Hydro-Quebec	603
Westport Fuel Systems Inc.	457
Ballard Power Systems Inc.	309

*Source: Utility patents published in the last 20 years, with CPC codes Y02 OR Y04 - Search conducted using Innography®.

TOP 25 PATENT FILINGS & OWNERS



Filings per Jurisdiction - Top 25

Only ~7.7% of active assets filed in Canada are **Canadian-owned**

Canadian filings are primarily owned by United States (37%), Japan, Germany, and France (each at ~8%)

Top 25 Patent Owners	
1	Toyota Motor Corporation
2	Panasonic Corporation
3	LG Chem Ltd.
4	General Electric Company
5	Renault SA
6	Hitachi, Ltd.
7	Samsung Electronics Co., Ltd.
8	Robert Bosch GmbH
9	Ford Motor Company
10	Hyundai Motor Company
11	Porsche Automobil Holding SE
12	Toshiba Corporation
13	Honda Motor Co., Ltd.

Top 25 Patent Owners	
14	Siemens AG
15	General Motors Company
16	Samsung SDI Co., Ltd.
17	Raytheon Technologies Corporation
18	QUALCOMM, Inc.
19	Chinese Academy Of Sciences
20	Mitsubishi Electric Corporation
21	Mitsubishi Heavy Industries, Ltd.
22	Safran SA
23	Denso Corporation
24	Intel Corporation
25	State Grid Corporation Of China

IP PREDATORS IN CLEANTECH

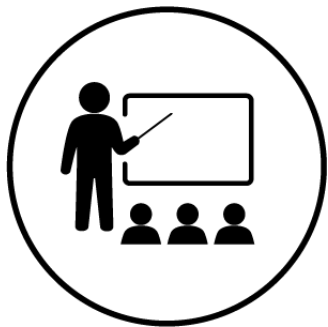
Examples of Canadian Cleantech Companies who have been sued in the United States*:

Company	Annual Revenue Range	Sector	Predator Categories
Transtex Composite, Inc.	< \$50M	Transport: aerodynamic solutions to reduce fuel consumption	Operating Companies
Geotab USA, Inc.	> \$100M	Transport: fleet management & vehicle tracking	Mostly Non-Practicing Entities (NPEs)
Ecobee, Inc.	> \$100M	Smart Home: Thermostat	50/50 Operating Companies and NPEs
Globe Electric Company, Inc.	> \$100M	Smart Home: Lighting	NPE
Axis Lighting Inc.	> \$100M	Smart Home: Lighting	Operating Companies

*Source: zoominfo and Innography®

IAC helps Canadian SMEs better understand, generate, commercialize and protect their IP

Designed as an independent membership based not-for-profit, IAC will support **data-driven cleantech organizations** with IP expertise and access to the IP resources needed to grow, enabling them to scale globally and benefit from profits of their innovations.



*Education
Platform &
Services*



*IP
Generation*



*Prior Art
Library*



*Freedom To
Operate*

IAC helps Canadian SMEs better understand, generate, commercialize and protect their IP

Selected by the department of Innovation, Science and Economic Development (ISED) to support SMEs, Innovation Asset Collective (IAC) is an independent membership based not-for-profit focused on supporting Canadian SMEs, including those in the data-driven clean technology sector (DDCT), with their IP needs.

EDUCATION PLATFORM & SERVICES

Knowledge for the Knowledge Economy

Practical and Powerful

We Speak Your Language

IP GENERATION

More is More

Focused Strategy for Growth

FREEDOM TO OPERATE

**Running Forward Without
Looking Behind You**

**There's Safety in Numbers
(and Cost Savings)**

Reduce Your Exposure to Patent Risk

PRIOR ART AND INTELLIGENCE

Pro Tools for an Amateur Price

Making Best, Even Better

Keeping the Wolves at Bay

BENEFITS SUMMARY

Education	Access to all live and archived educational material as we develop it
	Invitation to participate in interactive IP strategy seminars
	Invitation to best practices, mentorship & networking sessions
IP Generation	Opportunity to participate in additional IAC funding programs
	Credit for IP-related work by you or a service provider
Freedom To Operate	Perpetual licenses to external patents purchased by IAC. Patents retained by IAC may be used for counter-assertion by members against anybody who asserts IP infringement against you
	Available to provide feedback or requests on patent acquisition topics
IP Prior Art	Access to IAC's industry-leading Prior Art & Intelligence Database
	Sector-specific Patent Landscape Market Reports

**To join IAC, contact our membership
team at member@ipcollective.ca**

ipcollective.ca





Innovation
Asset
Collective