

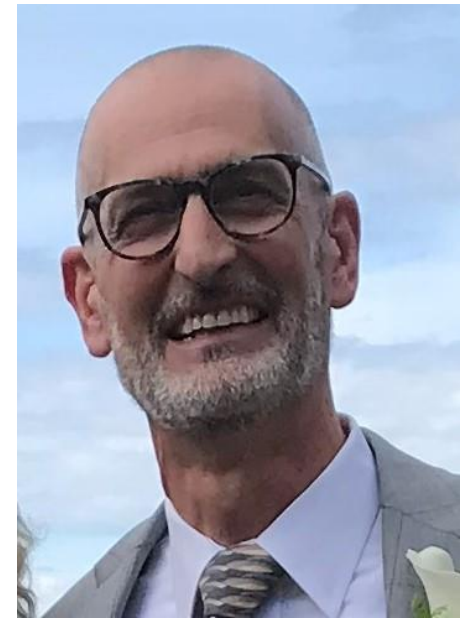


CHFCA

Clean. Efficient. Energy.



COP25
Madrid
Dec 6, 2019



Mark Kirby

President & CEO

CANADA'S GLOBAL LEADERSHIP:

Hydrogen and Fuel Cells

Hydrogen Energy in Canada



World-leading fuel cell companies and technology

Strong hydrogen technology

Largest low-carbon hydrogen production

- From renewable power via electrolysis
- From natural gas with carbon sequestration

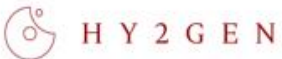

















































Government leadership

Growth, Investment, Jobs



CHFCA Members



Hydrogen Production	Hydrogen Distribution	Fuel Cell Products and Services	Academia and Consulting
<p><i>Producers & Project Developers (Energy companies, IGCs, IPPs, Power Producers)</i></p>  	<p><i>Distributors (Pipeline companies, service stations, IGCs)</i></p> 	<p><i>OEMs</i></p>   	      
<p><i>Production Equipment</i></p>     	<p><i>Distribution Equipment</i></p>     	<p><i>Products & Components</i></p>         	          
		<p><i>Services</i></p>       	

Advantages of H₂+FC Solution



1. Process greener / Burn cleaner



2. Go farther / Fill faster



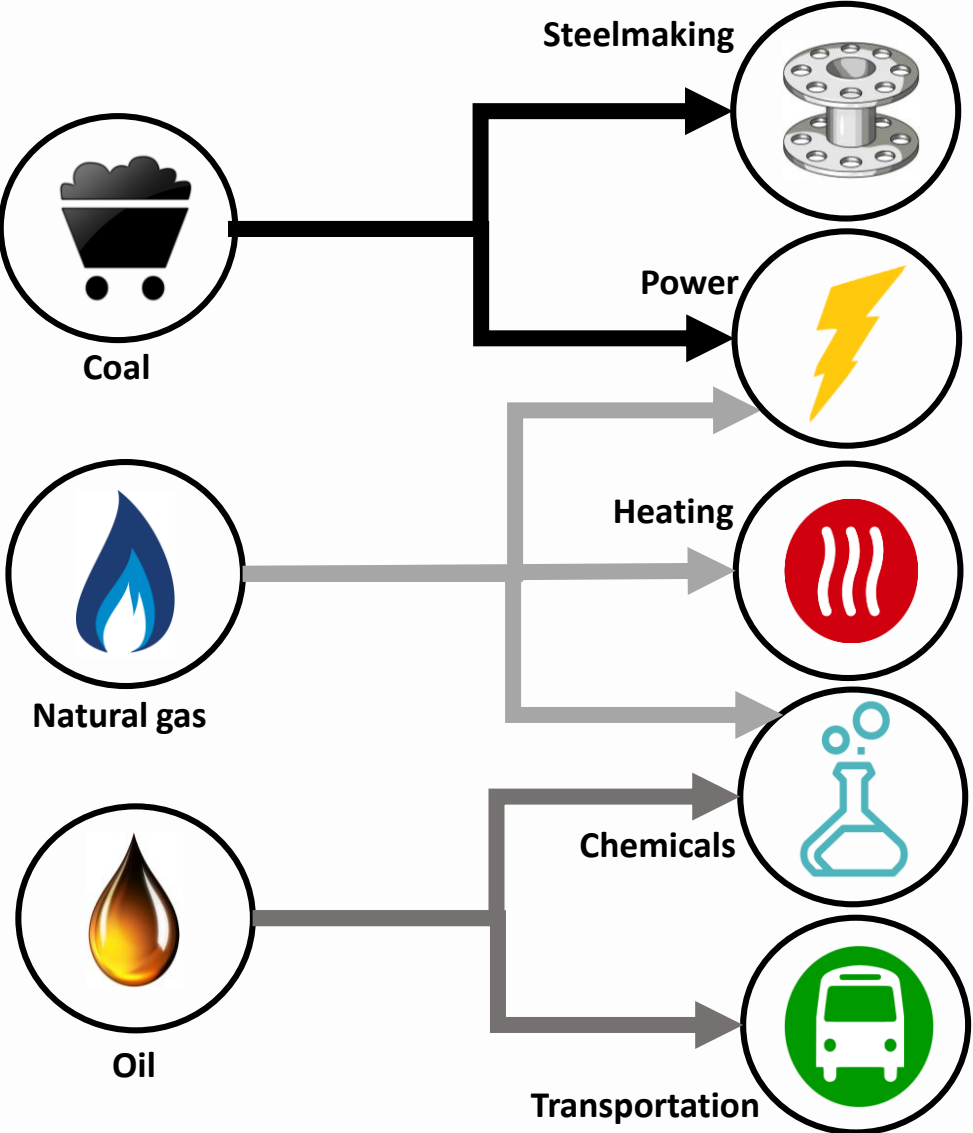
3. Speed / Scale



4. Economic opportunity

- Hydrogen is an essential part of the solution to climate change and the reduction of greenhouse gas emissions
- These key advantages are why hydrogen can decarbonize key economic sectors, from heavy duty transportation to residential heating to industrial processing

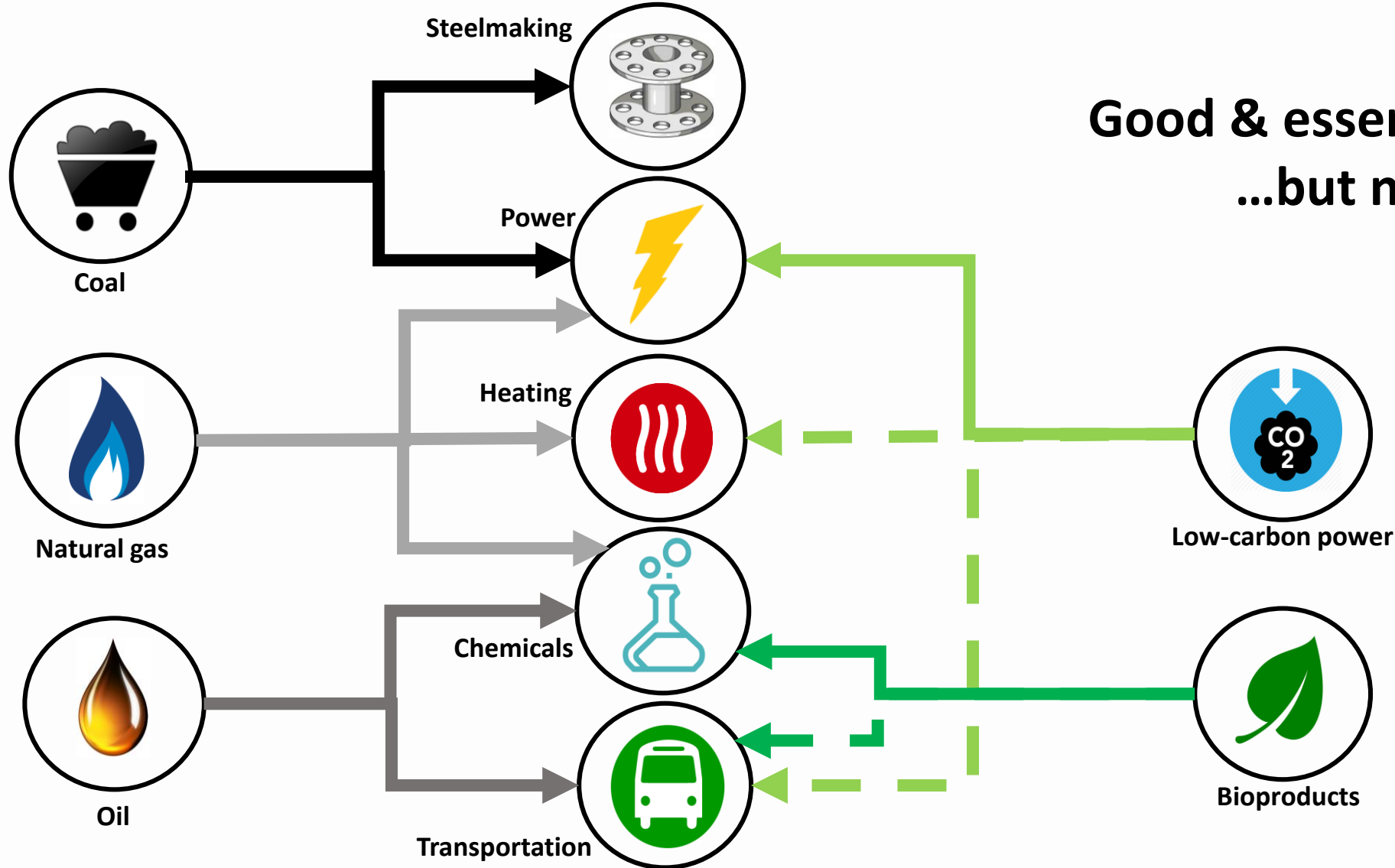
Energy Use Today



CO₂

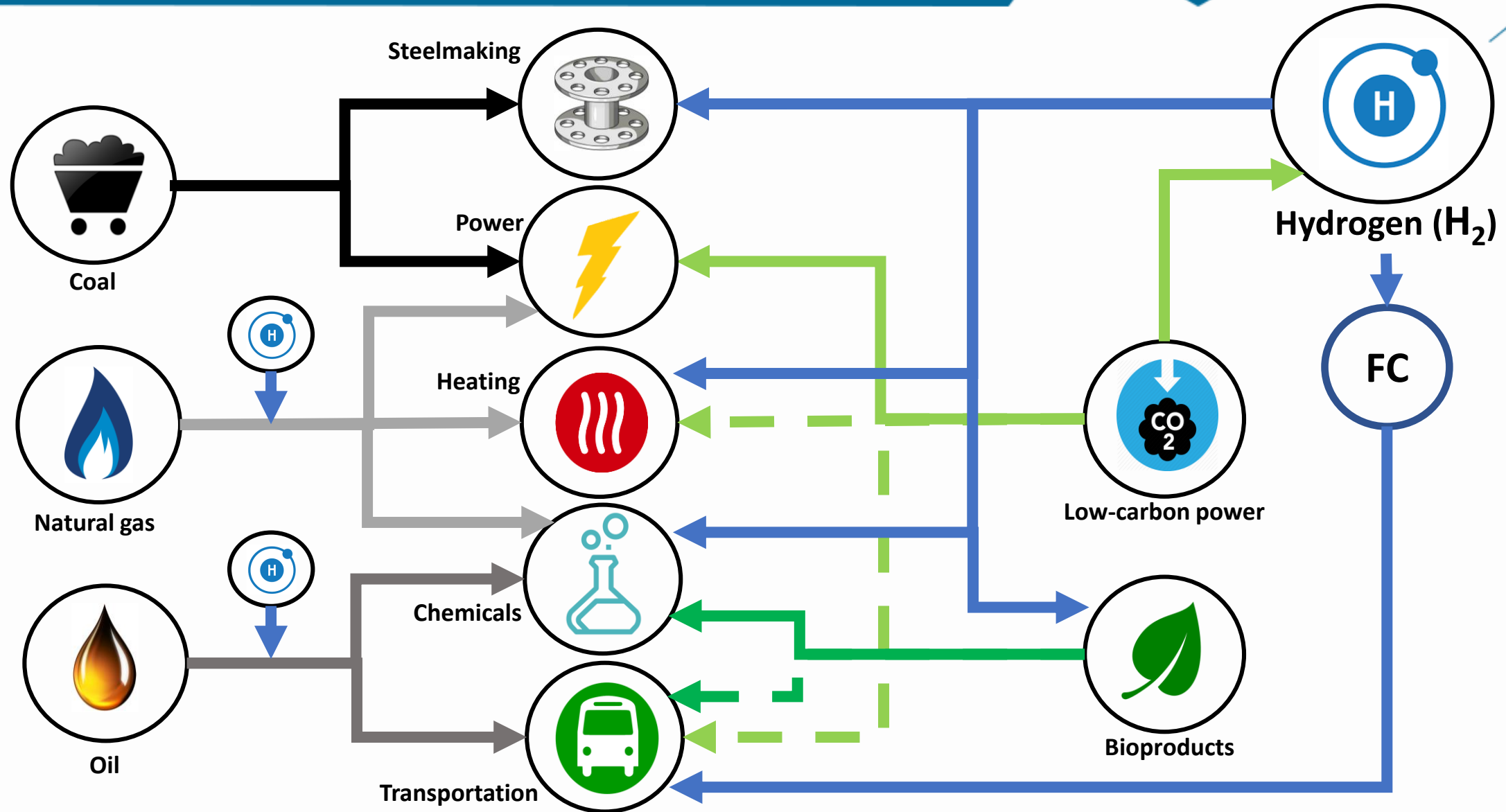


Solutions to Lower CO₂

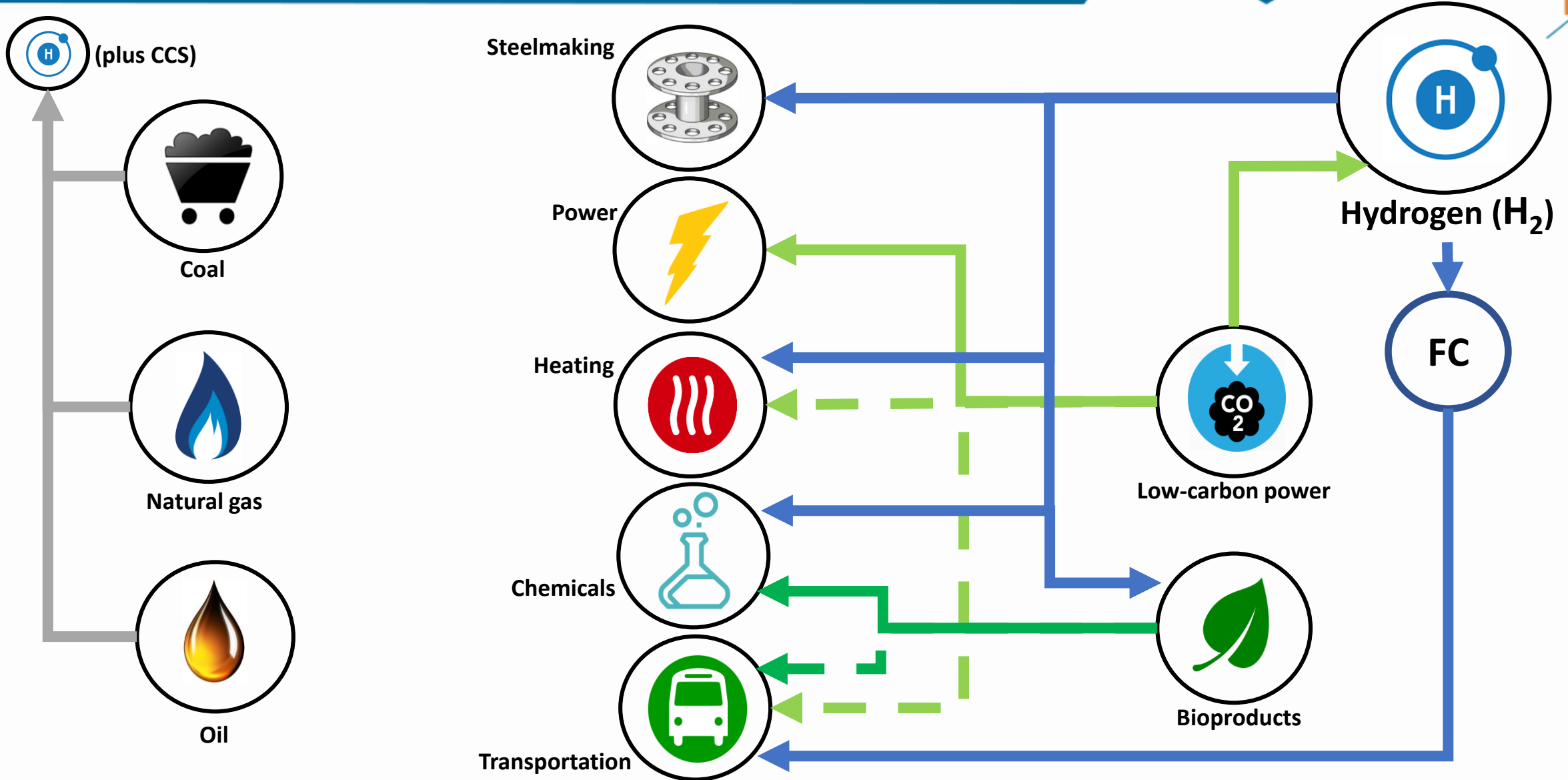


**Good & essential,
...but not perfect**

Hydrogen for Energy



Carbon Neutral Energy Future



What Is Needed?

Policy

- Price on carbon
- Low-carbon fuel regulation
- Zero-emission vehicle mandates

Investment

- Research, demonstration, deployment
- Public and private

Low-cost, low-carbon hydrogen

- All pathways
- Onsite, pipeline, liquid & export
- Dispensing

Commercial FC products

- Demand from users
- OEM engagement
- Demonstrations
- Support from Canada



Speed / Scale



Oil & Gas Industry



Power Industry



Pipeline Industry

Engage major industries in transition

- Produce heating and transportation fuels for domestic and export markets
- Leave the carbon in the ground

- H₂ provides off-peak load, energy storage and low-cost, reliable means to transport energy

- Existing assets
- Avoid cost/complexity heating electrification
- Can start blending immediately
- Provides load/storage for H₂ production

Industries with resources, skills and scale to make low-cost, low-carbon H₂ available

Canada's role in H₂ Energy



Centre of competency in fuel cell and hydrogen technologies

- **The cradle of fuel cells**
- **Government leadership**
- **Domestic opportunities**
- **An exporting nation**



Thank you!



f-cell HFC
VANCOUVER

SAVE THE DATE

Vancouver Convention Centre

April 1+2
2020

The graphic features a red background with a white maple leaf icon and the text 'SAVE THE DATE' in a white circle. Below it, a blue circle contains 'Vancouver Convention Centre', and another blue circle contains 'April 1+2 2020'. The background is decorated with small white maple leaf icons and dotted lines.

Hydrogen for Energy

