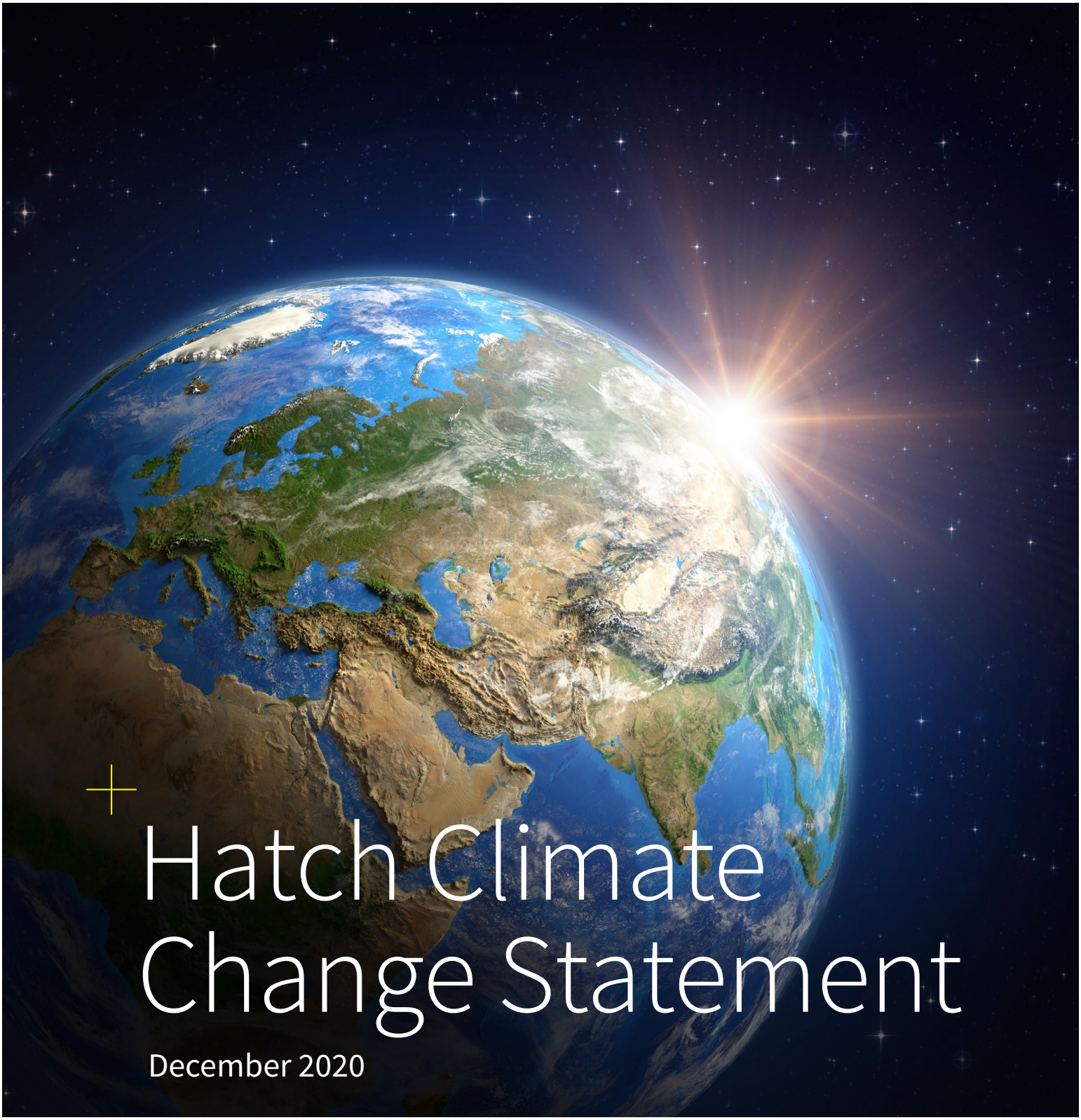


Hatch Climate Change Statement

December 2020

HATCH

Table of Contents

1 Vision

We are passionately committed to the development of a future shaped by a sustainable[1] global society. We recognize that climate change is largely caused by human activity and hinders this vision by negatively affecting natural ecosystems, economic returns, and community development. The resolution of this complex global problem will require multiple simultaneous strategies. As “entrepreneurs with a technical soul” actively participating in the metals, energy and infrastructure sectors, Hatch is uniquely positioned, and obligated, to affect positive change on this issue as it is amongst the toughest challenges of our era.

1. Hatch sustainability definition: the synergistic relationship between economic performance, environmental protection, and community engagement for all stakeholders.

2 Mission and Goals

Using our exceptional diverse teams, we aspire to apply our vast technical and business knowledge to designing and building practical, safe, and innovative solutions to combat climate change. Hatch takes a scientific, evidence-based approach to develop solutions pursuing the twin goals of:

1. Reducing the release into, and ultimately the presence of greenhouse gases (GHG) in our atmosphere
2. Adapting our built and natural environments for climate change impacts.

While we pursue these objectives, we recognize that society must also maintain the rights and aspirations of communities in developing economies to prosper, requiring access to affordable, cleaner energy, and energy transitions that help lift people from poverty. One objective cannot take priority over the other – both are essential to sustainable development. Under all currently plausible scenarios, carbon-based fuels will continue to play a significant role in the energy mix for the near term, and into the transition to net zero emissions by 2050.

Hatch intends to take a leading role in achieving these objectives by investigating, developing, and implementing the following strategies simultaneously, over what may be a prolonged period of transition away from carbon:

1. Avoidance of carbon combustion (including the reduction in demand for energy and products requiring carbon)
2. Reduction of CO_2 generated by improving the efficient use of carbon
3. Removal and sequestration of carbonaceous gases from our atmosphere (either at point source or directly from the atmosphere)
4. Improvement of society's resilience to the Earth's changing climate.

We also recognize that changes to policy and legislation are required to achieve the goals and objectives outlined in the Paris Agreement[2]. Even though governments will take leading roles in achieving these objectives, we intend to take part, work collaboratively, and actively participate in climate change-related activities.

We operate our business and carry out engagements for our clients with methodologies, tools, and teams consistent with these goals, and we seek to continually improve them.

2. A landmark agreement to combat climate change and to accelerate and intensify the actions and investments to a low carbon future created the United Nations Framework Convention on Climate Change (UNFCCC) on December 12, 2015.

3 Context – The Science of Climate Change

Climate change is defined as the change to long-term weather patterns brought on by the accumulation of carbonaceous gases in our atmosphere, forming a greenhouse effect. The science behind this phenomenon comprehends that the cycle of oxidation and reduction of the Earth's carbon inventory has been taking place for billions of years (Figure 1). In the current epoch, these processes resulted in a concentration of GHG that was in a relatively steady state, allowing the development of life, including human civilization. Carbon was initially oxidized by natural processes, and later by human intervention; carbon dioxide was reduced by the natural process of photosynthesis in plant material, fixing carbon as biomass both on land and in our oceans.

The Carbon Cycle

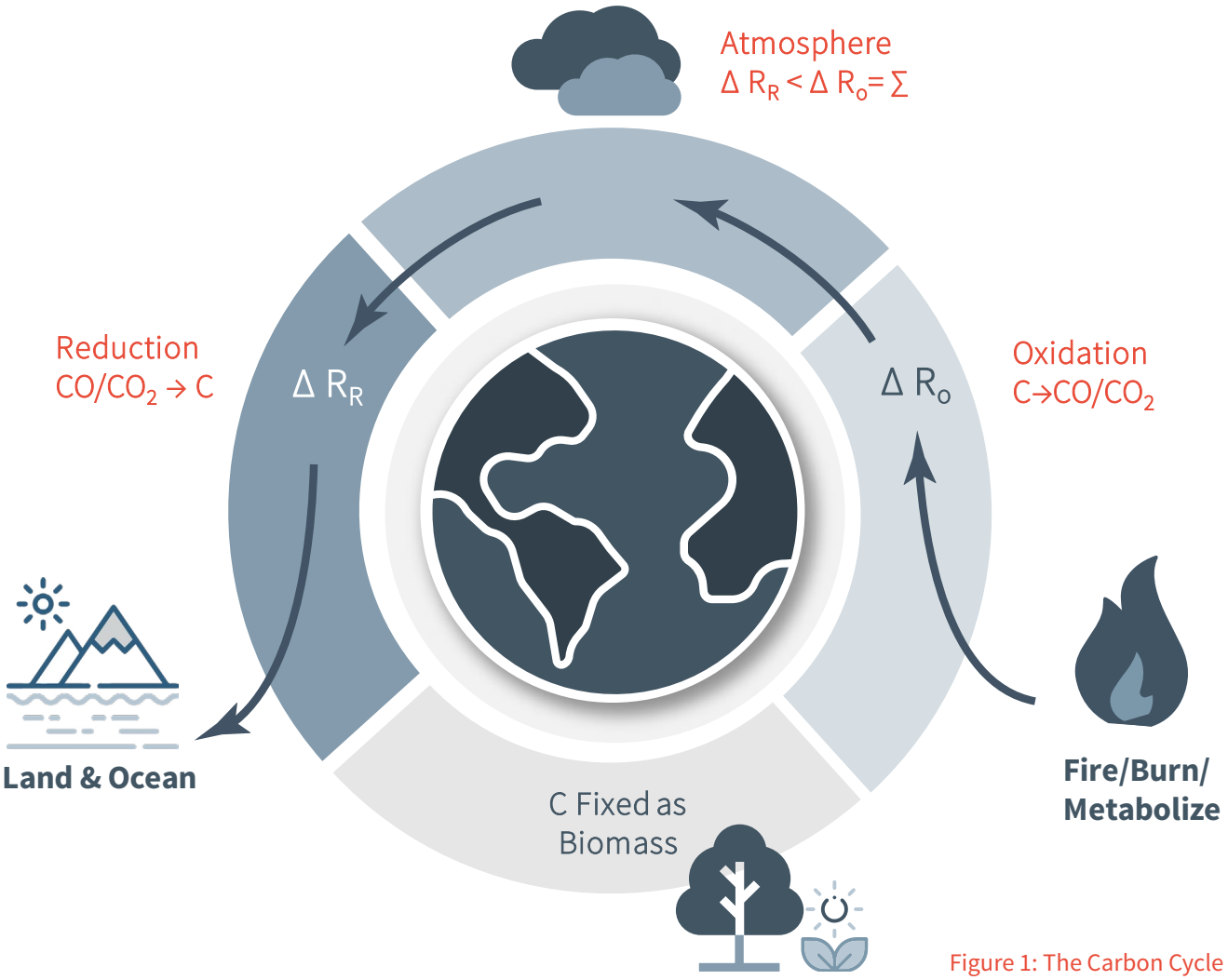


Figure 1: The Carbon Cycle

Since the onset of the Industrial Revolution, when the combustion of carbon sources was increasingly done to enable industrial processes and the urbanization of society, the rate of carbon oxidation has far exceeded the rate of carbon reduction. As a result, the concentration of GHGs in the atmosphere has risen continually and has not yet reached a new steady state as more and more carbon has been used to support the Earth's growing population. Natural processes of carbon reduction (i.e., fixation as biomass) cannot keep up–this has been exacerbated by the reduction of land and ocean ecosystems containing plants. Figure 2 illustrates this trend and the increasing rate at which carbonaceous gases are entering the atmosphere. It also shows the sheer magnitude of the challenge to move the Earth's carbon balance in a positive direction.

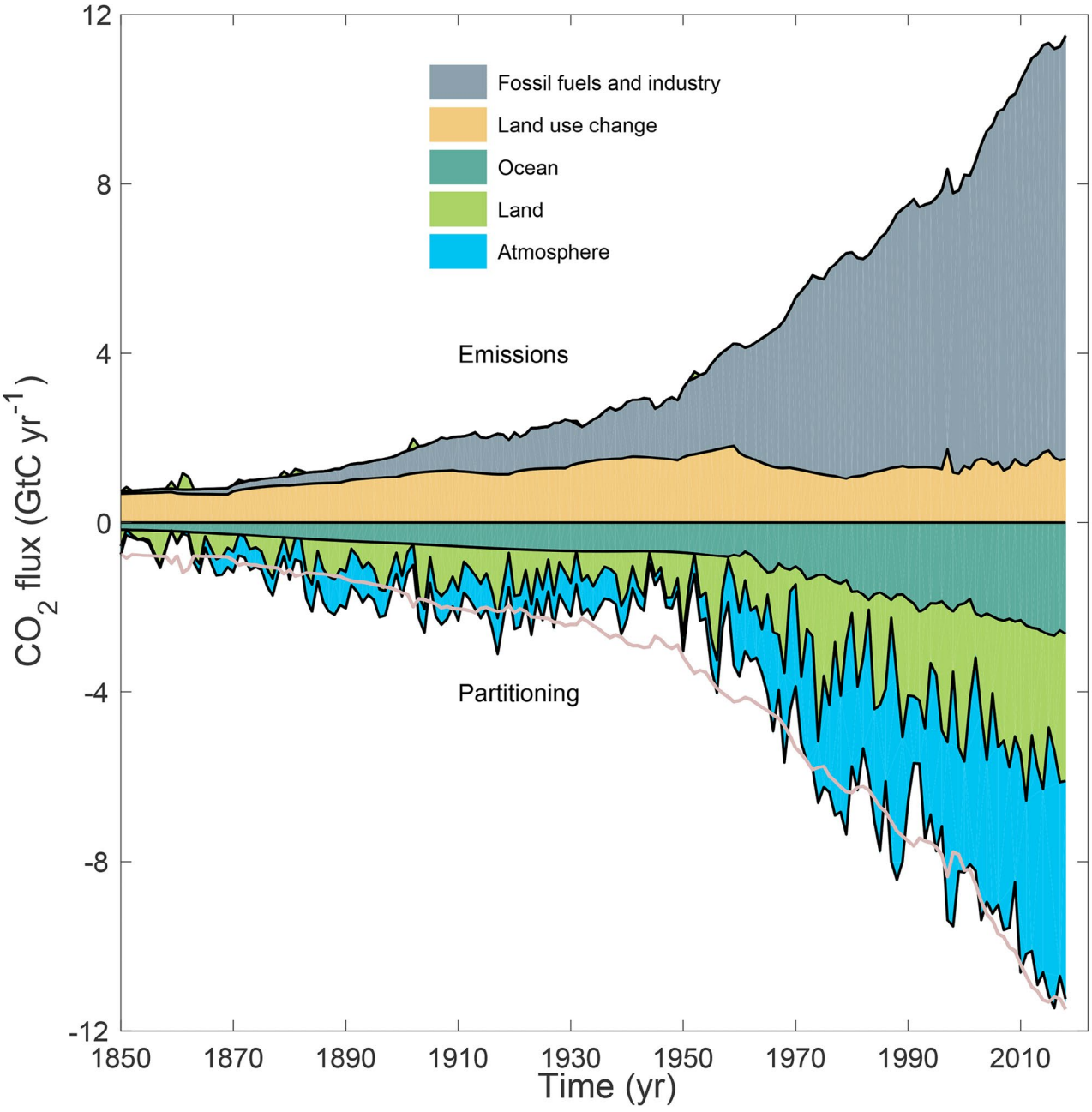
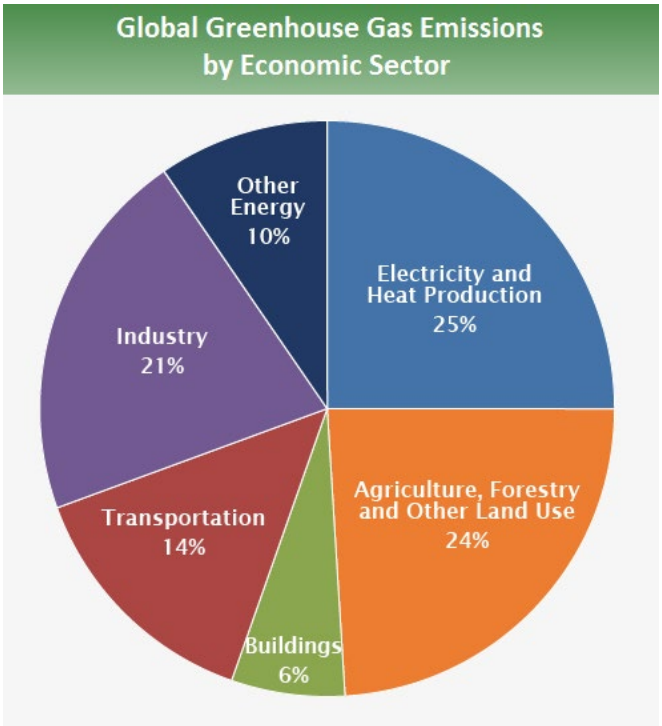


Figure 2: Carbon Oxidation vs. Reduction by Year (Global Carbon Budget 2019, Friedlingstein et al.)

These mechanisms have been widely studied by the scientific community and the findings are indisputable. Hatch therefore accepts this data, the resulting analyses, and many of the recommended strategies. Specifically, we recognize the Intergovernmental Panel on Climate Change (IPCC)'s scientific findings that climate warming is unequivocal and caused by human activities. We welcome the United Nations' Paris Agreement on climate change, which came into effect on November 4, 2016, seeking to limit global warming to between 1.5 to 2 degrees Celsius above pre-industrial levels.

Recognizing that over 1 degree Celsius of this warming has already occurred, immediate and sustained actions are required to significantly reduce atmospheric GHGs and we acknowledge that many of our clients' businesses are among the biggest contributors to GHG emissions (Figure 3) :



- Large mining and metals extraction companies,
- Oil and gas producers
- Power generators and utilities
- Urban transit operators
- The major municipalities of the world
- Large industrial rail and marine operators.

Source: IPCC (2014). Based on global emissions from 2010. Details about the sources included in these estimates can be found in the *Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*.

Figure 3: Global Greenhouse Gas Emissions by Economic Sector

Most if not all of these clients understand their contribution to GHG emissions and are also among the most active in looking for solutions to minimize them. It is also recognized that their businesses represent major contributions to the global economy and that they support the advancement of growing populations in developing nations. The challenge is to balance the need for energy, materials, and transport to run our society while emitting less GHGs.

The pursuit of this balance will inevitably result in a prolonged and difficult phase of transition for industries, communities, and environments. Several studies investigating plausible future scenarios indicate the energy and materials supply system of the future will be something of a patchwork. Some countries and sectors of the economy could de-carbonize in the coming decades (e.g., the OECD countries), while others will likely require more time to develop techno-economic solutions (e.g., developing countries and some energy-intensive heavy industries). This suggests that the world will require a means of achieving "negative" emissions in some geographies and sectors to offset remaining emissions.

Accomplishing this goal is a global challenge that requires our Hatch team to combine innovative engineering with business knowledge to create transformative change across all sectors of the economy

4 Our Role

Hatch has the opportunity to play an important role in finding and implementing solutions to climate change challenges. We are a multi-disciplined professional services firm, that chooses, and has built capabilities, to support our clients across the life cycle of their business–from concept development, through design and construction, to operations and, if needed, close-out.

The role we have chosen is to be a **participating leader,** continuing to support our clients in the metals, energy, and infrastructure sectors, as they seek sustainable development in their businesses in the face of climate change, ultimately assisting them in transitioning to a much lower carbon footprint. This support is not a passive one but a visible, proactive, evidence-driven, and sometimes provocative one, based on passionate energy and a positive attitude focused on delivering new ideas with exceptional service.

Like our clients, we recognize that the environment and the communities in which we live are stakeholders in this pursuit, leading to complex and sometimes seemingly contradictory objectives. This has the potential of putting stakeholders at opposite ends of a debate, creating conflict. As evidence-based decision-makers and experts with many of the skills needed to find solutions, we choose to participate, advise, collaborate, influence, and implement. Our opinions are respected and our voices are loud, so we choose to use them from within the debate, and not from the sidelines as protestors, nor as absent observers.

In these difficult situations, we will use the values in our corporate Manifesto as our guide. We also look outside of Hatch to help develop our practices and methodologies and will strive to continuously improve them. Importantly, we are an active participant in the UN Sustainable Development Goals (Figure 4) into the way we work and conduct business.

Figure 4: UN Sustainable Development Goals

4.1 External – Clients

Our solutions have the greatest positive impact on climate change when incorporated directly into the life cycle of our clients' businesses. As a result, we are active in collaborative, targeted, action-oriented, multi-sector initiatives that address our clients' specific technical, environmental, social, and financial issues. We apply a disciplined approach to the climate change challenges our clients face by integrating scientific-technical evaluation and socio-economic analysis into our projects from conceptual development, through design and construction, to commissioning and operations.

Specifically, we aspire to support our clients in reducing their net carbon footprint by:

- Helping our clients be responsible stewards of the resources that people need and want to improve their lives, and that society needs for a sustainable future while helping them shift their product mix to a more sustainable one
- Working as partners to design, procure, and construct assets that produce the minimum volume of GHGs
- Developing and introducing new technologies that mitigate climate change
- Enhancing their shift to cleaner energy generation
- Supporting the operation of their facilities to enhance the efficient use of carbon
- Working with their stakeholders, including employees, investors, and community participants to achieve consensus on climate change issues.

4.2 Internal – Hatch

Operating our own business sustainably helps to achieve our climate change goals. This means running a safe, efficient, and socially and professionally responsible business that is profitable. An important aspiration is to transition to net-zero carbon emissions in running our own business by 2030.

Operating in this fashion is consistent with our Manifesto and has the benefits of building trust and a positive reputation with our clients, our employees, and the communities in which we live and work. Our sustainable operation will allow our voices to be heard and enhance the adoption of our solutions, ideas, and opinions, especially in situations of conflict. It also helps to build team spirit and our appeal as an employer of choice.

4.3 For Communities

As agents of positive change, we aim to play a positive role in the communities where we operate and in the wider society. In partnership with our clients we contribute to the awareness and understanding of climate change through the enhancement of STEAM (Science, Technology, Engineering, Arts, and Mathematics) education, development of skills and capabilities in the wider community, uplifting of local economies and creation of jobs, development of local suppliers, support of cultural institutions in their education mission, and the active engagement of community support services for those affected by climate change.

5 Specific Pathways

An enormous undertaking will be required to achieve the objective of mitigating climate change, particularly in light of a population growing to about nine billion by mid-century. Our specific contribution will be to work with our clients in implementing measures around the four key strategies noted above:

1. Avoidance of carbon combustion
2. Reduction and efficient use of carbon
3. Removal and sequestration of carbonaceous gases from our atmosphere (as point source or directly from the atmosphere)
4. Improvement of society's resilience to the Earth's changing climate

We recognize that the value of the solutions developed in each of these strategies decreases from 1 to 4. Hatch seeks to actively engage in projects and initiatives that address the climate change challenge using these strategies.

Specific industry approaches and examples are given below.

Avoidance of Carbon Combustion

Power
Solar, Wind, Water, Nuclear, Storage, Microgrid

Transport
EV (from NCP), Hydrogen (from NCP)

Oil & Gas
Solvents (Nsolv)

Materials
H2 as reductant, electrolysis

Agriculture
Plant-based protein (less mammals)

Reduction and Efficient Use of Carbon

Power
More efficient thermal cycles, Transfer to CH_4

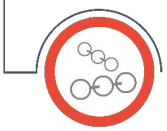
Transport
New combustion technologies, hybrid

Materials
Better use of reductants

Oil & Gas
Capture flare gases, SA-SAGD

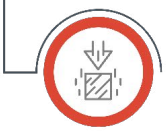
Carbon Capture and Utilization/Sequestration

CO_2 Concentration
Enzymes, CO_2 solutions, ammonia – SkyTree, amines

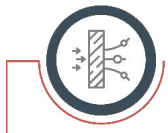


CO_2 Scrubbing
Amines, KOH or $Ca(OH)_2$,

CO_2 Mineralization
High pressure autoclaves



CO_2 Reduction
CO_2→CO or CO & H_2 – Opus 12



CO_2 Sequestration
Weyburn EOR

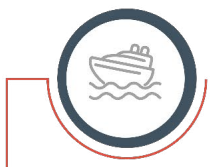
Adv. Bioconversion
Algae reactors

Biomass Enhancement
Genetic-engineered trees and diatoms

Improved Resiliency

Communities
Sea walls, levy schemes, green protection areas

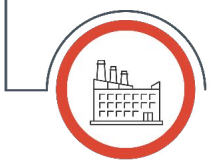
Marine
Adapt ports to higher ocean levels



Buildings
Storm resistant structures

Urban Plans
Local farming, mass transit, recycled water, fire breaks

Industry
Coastal storm protection, emergency planning protocols, fires safety, new control systems, waste structures, water usage



6 Required Skillsets

The four pathways of our approach to mitigating climate change require a comprehensive set of skills that reside throughout Hatch, as summarized in the table below.

Heavy industries
Metals, Power, Oil & Gas
	• Renewable power generation
	• Process engineering, modeling and simulation
	• Gas handling and scrubbing
	• Chemical reactor design
	• Effluent management
	• Tailings management
	• Biotechnology
	• Data management
		• Electrical grid management
		  • Nuclear design
		  • High-voltage Design
		  • Master planning for government and regulators
		• Energy efficiency auditing
		• Operational efficiency auditing
		• Automation/digital

Cities and Urban Infrastructure	• Urban economics • Master planning • Land usage • Transit planning	• Transport electrification • Coast resiliency • Ecosystem management
Discipline engineering	• Civil • Structural • Mechanical	• Piping • Electrical • Instrumentation
Project implementation	• Project execution and delivery methodologies, particularly for unique first-of-a-kind projects • Brownfield execution	• Program management • Innovation, R&D, and technology management
Associated skills	• Government relations • Policy design • Investor relations • First Nation relations • Climate-related risk and investment analytics	• Sustainability strategy design • Permitting • Lifecycle analysis • Environmental and Social Impact Assessments

6.1 Working with Others

We recognize at Hatch that our objectives cannot be achieved on our own so collaboration with partners and other stakeholders is essential.

Some of the key partnerships needed include the following:

- Universities undertaking fundamental research into emerging technologies
- Suppliers of emerging technologies
- Policy makers.

7 Hatch Organization

We are introducing a new practice around climate change; it will function across all three of our main sectors and will be established as a new business practice. The objectives/responsibilities of this new practice are outlined below:

- Create a center of focus for the delivery of climate change-related services to ensure:
    - A coordinated market approach to foster client engagement, including for a new base of clients that is expected to emerge
    - Efficient and consistent delivery of climate change services
    - An integrated platform of tools and methodologies, technical expertise, and a home for our growing roster of qualifications.
- Develop and maintain specific expertise around:
    - Tools and methodologies for greenhouse gas related calculations/assessments and development of abatement strategies
    - Status of applicable commercial and emerging technologies,
    - Subject areas not presently ingrained in our current business, such as carbon capture, utilization and storage
    - Business impact assessments, economic analysis, and risk management strategies under different transition and physical impact scenarios
    - Policy and regulatory barriers, enablers, and engagement strategies.
- Incubate the development of tools, methodologies, and service offerings for continuous improvement and external thought leadership with eventual integration across all our sectors, business units, and practices.

A great deal of activity is already occurring, and our clients will benefit from a coordinated and integrated approach of these core skills across all of our market sectors, business units, and business/delivery practices.

The new practice will be called the Climate Change and Sustainability business practice. It will be sponsored by John Bianchini and led by Frank Porretta.

HATCH