Scaling Up Climate Action Through Collaboration, Proven Technologies and Gov't Incentives

May 11, 2025

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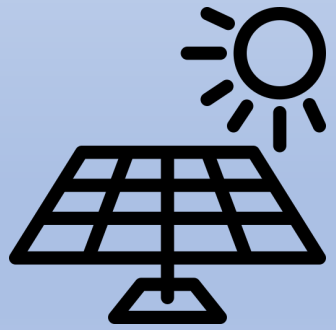
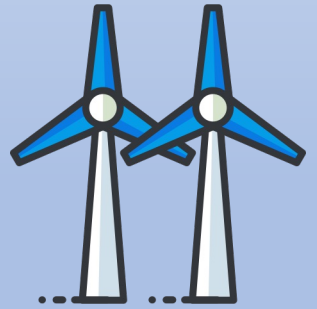




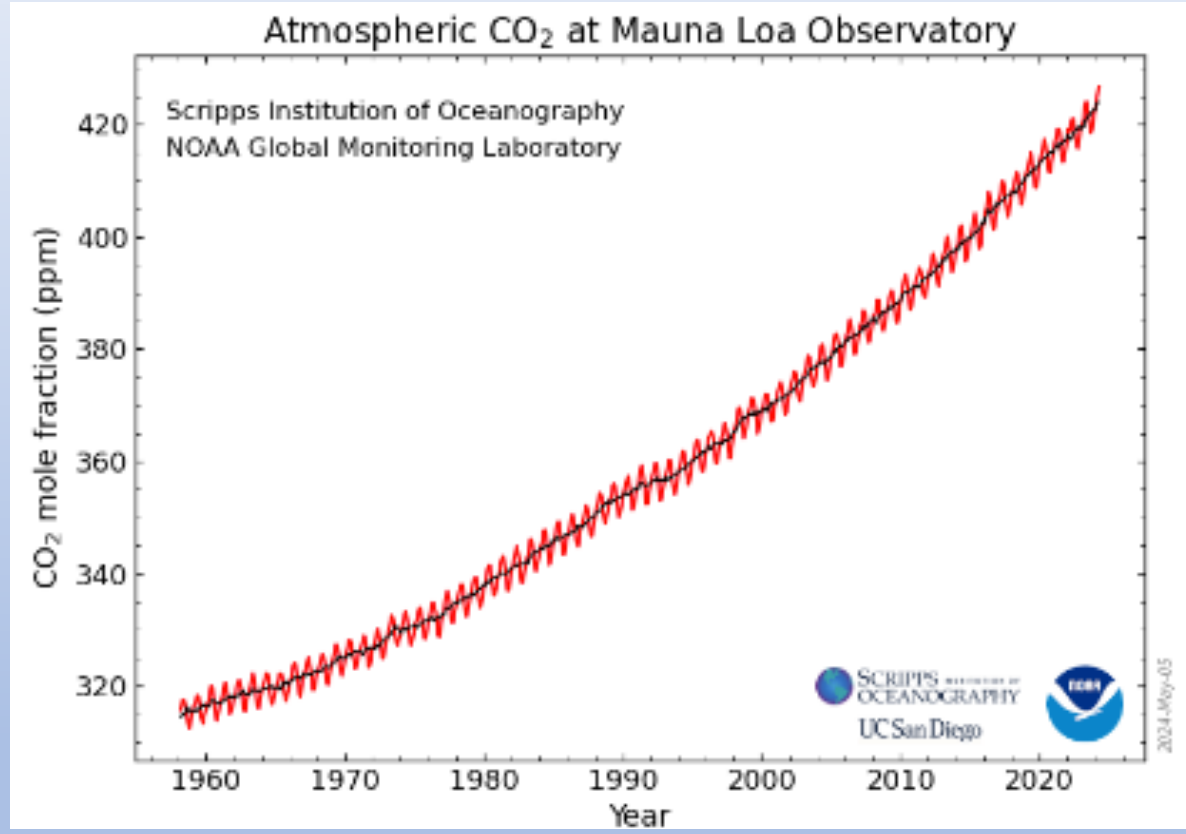
Methanol

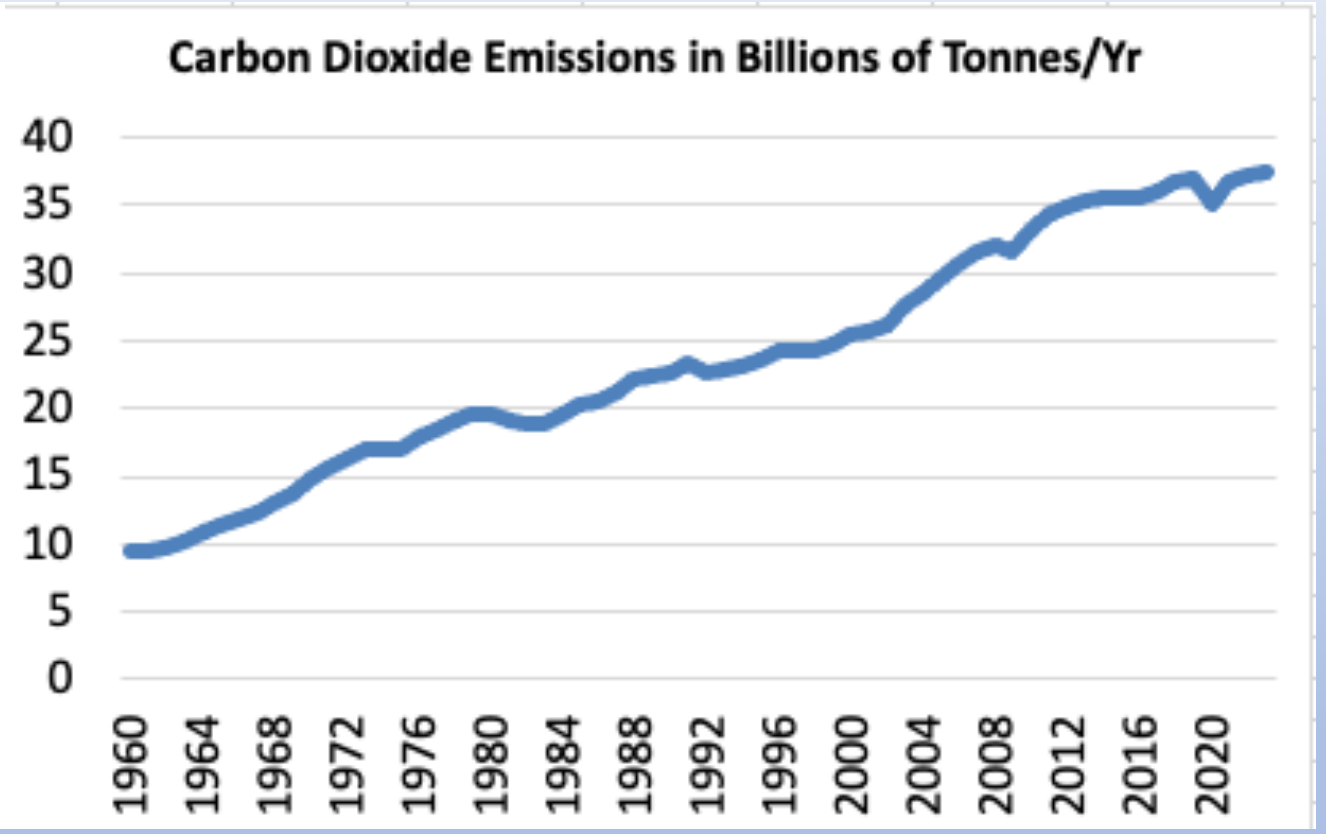
Think Renewables

ClimateSAN

iClimateTech
Integrated ClimateTech

CO_2 Levels in the Atmosphere Keep Rising at Increasing Rate



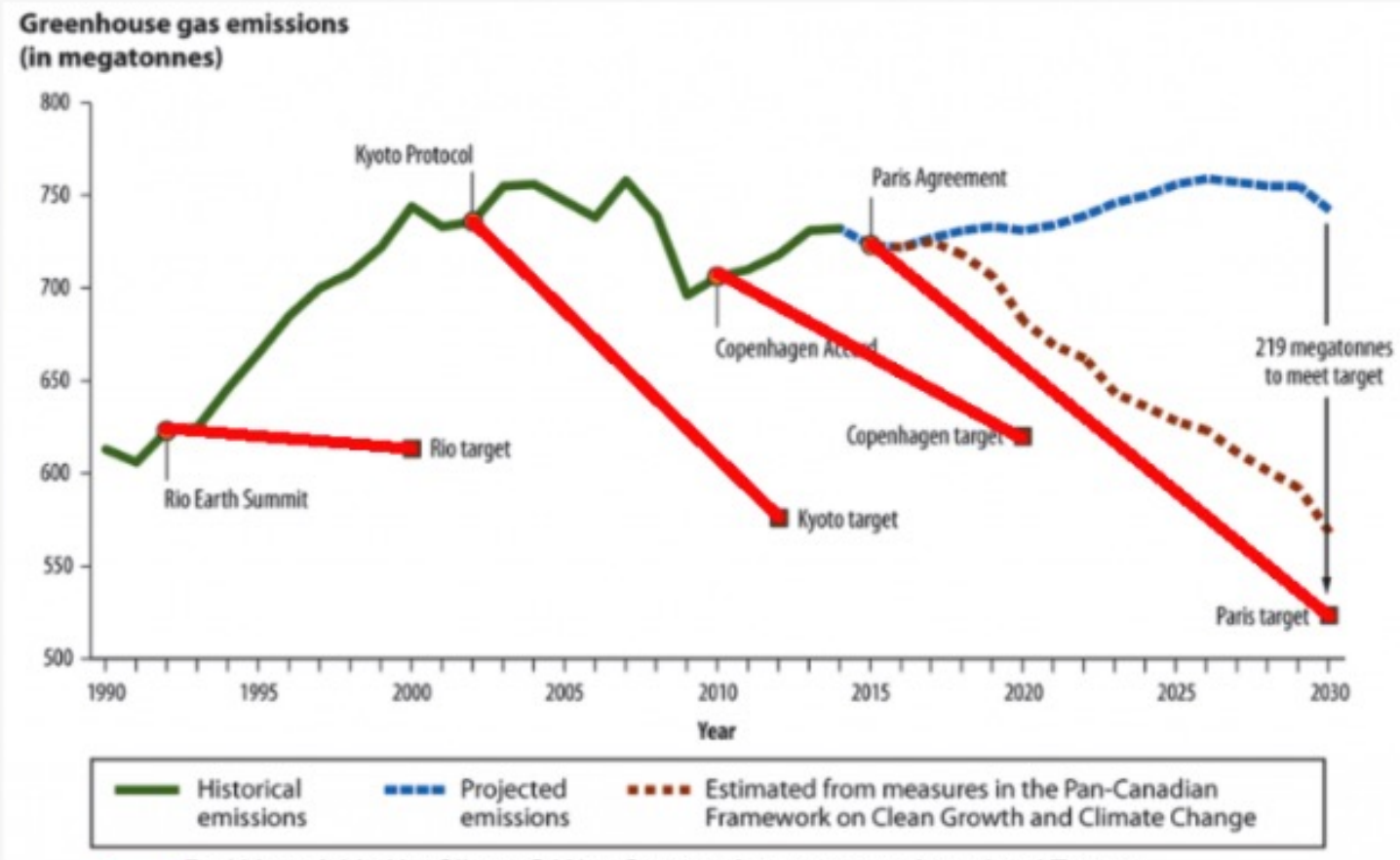


Monthly Average CO_2 level at the Mauna Loa observatory in Hawaii

CO2 Emissions in billions of tonnes/Yr by the Global Carbon Project via Statista.com

Canada Has Not Met Its Commitments to Reduce Its Emissions Over The Last 33 Years

Exhibit 1.5—Canada's greenhouse gas emissions between 1990 and 2015 did not meet federal targets, and Canada's projected and estimated emissions are not on track to meet the 2020 target



Notes: Historical and projected greenhouse gas emissions are based on 2014 emission data presented in National Inventory Report 1990–2014: Greenhouse Gas Sources and Sinks in Canada, Environment and Climate Change Canada, 2016.

UN Statement on Need for Climate Action

UN Secretary-General, António Guterres said:

"Our world needs climate action on all fronts — everything, everywhere, all at once"

The Need to Shift to Implementing Technologies on Scale

- There are many entrepreneurs creating innovative technologies and trying to commercialize them but this often takes many years before they can implement on scale.
- Instead, there should be more focus on scaling up proven technologies.
- Therefore, we recommend people take the time to learn about the many proven technologies that are now available for scale-up.
- Then people should explore their best options and collaborate with others to implement a series of increasingly larger projects to make an impact.

Collaboration to Scale-up Proven Technologies

Collaboration between people and companies with complementary skill sets can make a significant impact. For example, given below are some possible collaborative projects starting with a relatively simple one:

- Example 1: Agrivoltaics Project - Solar + Energy Storage + Farming.
- Example 2: Combining Wind and Solar Farms with Energy Storage and Geologic Hydrogen to Produce Reliable Electricity.
- Example 3: Combining a Biomass Power Plant with Solar/Wind Farms & Energy Storage to Produce Biochar, Reliable Power and Methanol.

Example 1: Collaboration on an Agrivoltaics Project - Solar + Energy Storage + Farming

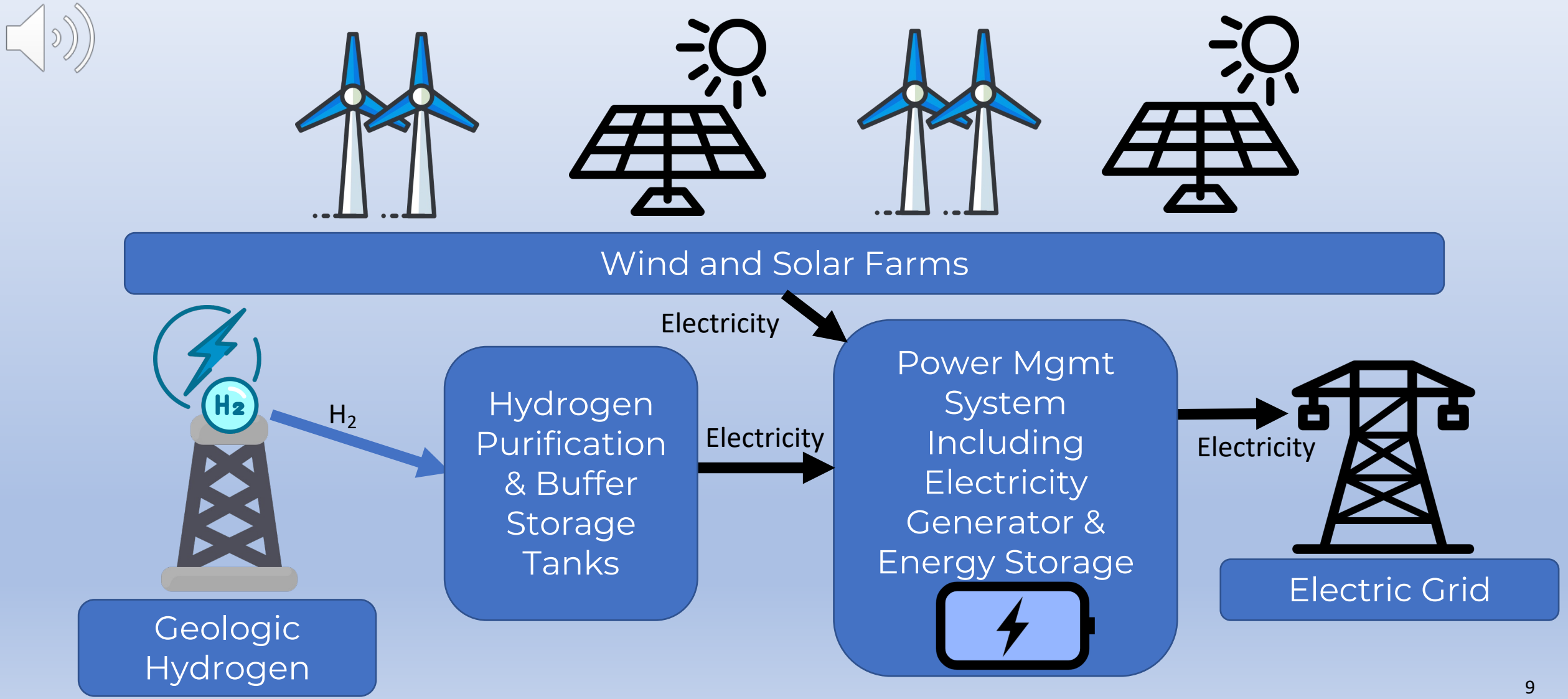
- Farmer offers to provide land for a project to combine sheep farming with solar panels and energy storage.
- Engineer researches options and proposes a scope of the project.
- Business person obtains quotations for equipment and estimates the total costs and revenues.
- Then the farmer, engineer and business person work together to apply for funding to implement the project.
- Once funded, the engineer supervises the implementation of this project.

Collaborating on More Complex Projects

If a project developer does not have sufficient resources to implement a project, it can reduce its costs and risks by collaborating with other organizations to implement it. For example, to combine wind and solar farms with energy storage and geologic hydrogen in one project, the lead project developer could partner with or retain the following companies:

- Wind turbine, solar panel and energy storage equipment installers.
- Engineering consultant with experience in geologic hydrogen.
- Drilling contractor with experience in natural gas and/or hydrogen.
- Hydrogen-powered electricity generator equipment supplier.
- Consultant with expertise tax credits and other financial incentives.

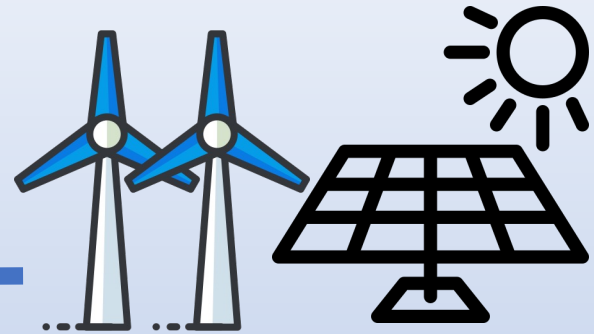
Example 2: Combining Wind and Solar Farms with Energy Storage and Geologic Hydrogen to Produce Reliable Electricity



Example 3: Combining a Biomass Power Plant with Solar/Wind Farms & Energy Storage to Produce Biochar, Reliable Power and Methanol Fuel

Biomass Power Plant with 100% or Close to 100% Carbon Capture

Power Management System Including Energy Storage



Wind and/or Solar Farms

CO_2

Biochar

Power to methanol Production given second priority

Power to grid given first priority

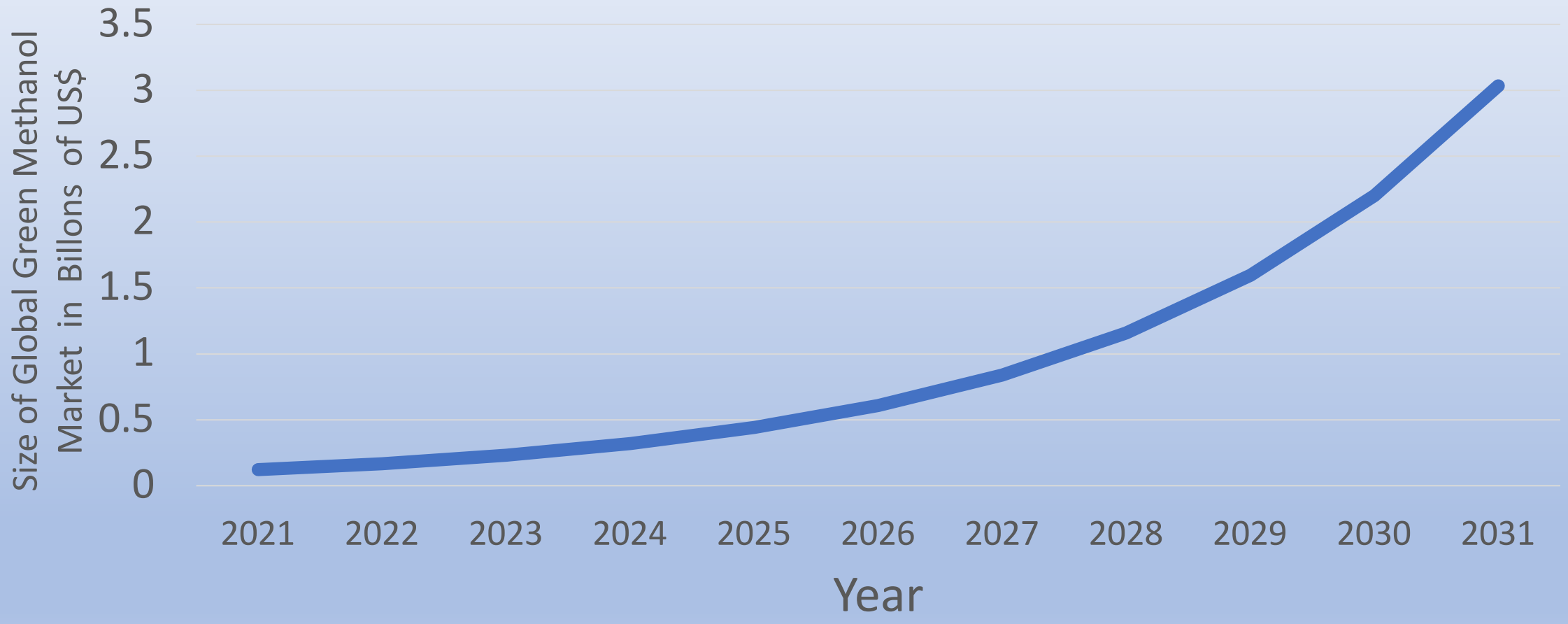
CO_2 Utilized and/or Converted to Methanol Using a Catalyst

Renewable Methanol

Electric Grid

CO_2
Unused CO_2 released into air

Growth of Demand of Renewable Methanol



According to BIS Research, the global renewable methanol market is projected to reach US$3 Billion by 2031 from US$0.12 billion in 2021, growing at a CAGR of 40%.

Organizations That Can Facilitate Collaboration

There are many organizations across Canada that could use their expertise and resources to facilitate collaboration in the private sector. Given below are some examples:

- Business accelerators could expand their focus to help existing companies to scale up climate action instead of just focusing on assisting ”start-ups”.
- Universities can utilize their wide range of expertise to help companies evaluate technologies, apply for funding and facilitate the implementation of these technologies.

Note: Since it takes considerable time and money to get project funded and implemented, often people and/or organizations helping project developers need to initially invest their time before being compensated.

An Example University Institute That Can Help Implement Projects

- Waterloo Institute for Sustainable Energy (WISE) at the University of Waterloo in Waterloo, ON
- Includes over 100 experts from different disciplines including engineering, environment, science, health, math and arts.
- They work closely with utilities, private-sector partners, government and non-profits.

Example Pathway to Funding for a Project

There are many pathways to obtain funding for a project. Given below is one example pathway:

- Review the wide range of proven technologies and funding options for a viable project and then select your best option.
- Determine prices that can be obtained for long-term off-take of products produced by the project.
- If the expected revenues appear to be sufficient to make the project viable, develop a sustainable project plan that can attract investment.
- Apply for incentive funding from governments.
- Once incentive funding has been obtained, apply for any needed loans and if needed, invite investors to invest in project.
- Once sufficient funding has been secured, implement the project.

Note: Since considerable funding is available for indigenous organizations, companies may want to consider collaborating with one or more of these organizations to develop and implement projects.

Recently Commercialized Technologies Creating Business Opportunities

Along with established technologies, there are many relatively new technologies that are now being commercialized, which can be utilized by project developers to generate significant profits. Given below are two examples:

- Sodium ion battery for large scale energy storage
- Perovskite solar panels

To provide you with an idea of the many technologies that are now it process of commercialization, the next two slides show links to investments by billionaires and notable investment funds.

Lists of Climate Solutions Funded by Billionaires

Links to lists of investments by billionaires with a focus on climate solutions:

- Jeremy Grantham - List of his favourite Investments
- Chris Sacca - List of his selected investments
- Bill Gates - Breakthrough Energy investment portfolio

Lists of Climate Solutions Funded by Private Investment Groups

Investment portfolios of selected private investment groups:

- Climate Innovation Capital Portfolio, Toronto, ON
- Arctern Ventures Portfolio, Toronto, ON
- The Rise Fund Portfolio, San Francisco, CA
- Cycle Capital Portfolio, Montreal, PQ
- Eco Fuel Portfolio, Montreal, PQ

Collaborate to Help Select Your Best Technology Options

- The lists of investments in technologies shown in the previous two slides is only a small part of all the many technologies available.
- Since it is too much for one person to review all the available technologies for climate action, it is useful to collaborate with others to decide on your best options. These others could include:
  - Companies and consultants with relevant experience.
  - Academic staff from universities.
  - Staff from industry associations.

Links to Selected Funding Options:

Given below are some links to webpages with funding options:

- Federal programs for clean growth: Clean Growth Hub.
- Federal funding: Grants and funding from the Government of Canada.
- Federal funding: Env. and Climate Change Canada funding programs.
- Tax credits allocated for carbon (CO2) capture, utilization, and storage (CCUS): CCUS Tax Credit.
- CLIMAtlantic - Funding Opportunities for Climate Change Adaptation.

Links to Funding for Indigenous Organizations

Given below are some links to webpages with funding options for indigenous organizations:

- Env. & Climate Change: Indigenous climate and environmental funding
- Indigenous Services Canada: Funding programs, services, initiatives for Indigenous and northern communities and organizations
- Indigenous Services Canada: Indigenous business development - Programs that support Indigenous entrepreneurs and business owners
- Ontario.ca: Ontario Funding for Indigenous economic development

Conclusions

- Based on rising global CO2 Levels, the total energy demand appears to be rising faster than renewable energy generation, which is creating an urgent need to accelerate generation of clean energy.
- There needs to be a shift to implementing climate action technologies on scale.
- One way to help this process is to increase collaboration to scale-up proven climate action technologies.
- There are many organizations that can help facilitate collaboration including business accelerators and technology centres at universities.
- There are many funding programs and tax credits available to help fund climate action projects.

Recommendations

- Interested individuals and/or companies should investigate proven technologies that they can scale up in a profitable way.
- These individuals and/or companies should then explore options to collaborate with others including business accelerators.
- Once a technology or a set of technologies have been selected to utilize for a project, they should explore funding options including government incentives.
- Consider applying to collaborate on projects with the Climate Solutions Advancement Network (ClimateSAN). Currently, ClimateSAN is seeking engineers, business graduates with a technical background and proposal writers.
- As the UN Secretary General has said, our world should take climate action on all fronts — everything, everywhere, all at once.

Thank you

For more info, see:

ClimateSAN.org/scac

Think Renewables

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Gaithersburg, MD, USA

ClimateSAN

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