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April 2021

# Natural capital solutions - investing in nature to address climate change

*An interactive discussion on how forestry and agriculture can make an impact*

Prepared for Global AgInvesting (GAI) 2021

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# Manulife Investment Management

Part of a leading global financial services group

## Manulife

Protecting  
customer assets  
**since 1887**

**35,000** employees  
serving **30** million  
customers worldwide

**\$1.0T** in assets  
under management  
and administration

- Global wealth and asset management
- Financial advice
- Insurance

## Manulife Investment Management

- Institutional asset management
- Retirement
- Retail investments

**1,000+**  
institutional  
accounts

**\$758B** in assets  
under management  
and administration

**13 Million** retirement  
plan participants and  
investor accounts

**238,610**  
retirement plans  
served globally



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Source: MFC Statistical Information Package. Manulife Investment Management is the unified global brand for Manulife's global wealth and asset management business, which serves individual investors and institutional clients in three businesses: retirement, retail and institutional asset management (public and private markets). Global Wealth and Asset Management AUMA at December 31, 2020 which includes \$166 billion of assets managed on behalf of other segments and \$127.7B of assets under administration. Assets shown in US Dollars.

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## **HNRG has over 30 years of experience investing in natural resources**

Building and sustainably managing globally diversified timber and agriculture portfolios for the benefit of our investors, while contributing to the environment and local communities



### **A Leader in Stewardship of Timber and Agriculture**

Since 1985, our commitment to sustainability and responsible investing (SRI) has been a core guiding principle

### **HNRG's Investment Approach has Delivered Strong Performance**

Since inception, HNRG's timberland and farmland managed investments have provided competitive performance vs. benchmarks

### **Integrated Property Management**

Aims to reduce cost, enhance alignment of interests and ensure that commitment to sustainability carries through from investment strategy development to on-the-ground strategy execution

### **Capitalize on our Global Size and Scale**

Scale may provide enhanced acquisition access, production efficiencies, cost savings and revenue enhancement opportunities

### **Strong In-house Global Economic Research Capability**

Informs our investable universe, underpins our investment strategy and supports portfolio management decisions



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Diversification does not guarantee a profit nor protect against loss in any market. Past performance does not guarantee future results.

Source: HNRG as of December 31, 2020

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# Global, integrated, sustainable timber & agriculture investments

Hancock Natural Resource Group, a Manulife Investment Management company, is the world's largest timberland<sup>1</sup> and leading agriculture investment manager

**USD 14.1B**  
Total Assets Under Management

**5.9M**  
Total Acres Under Management

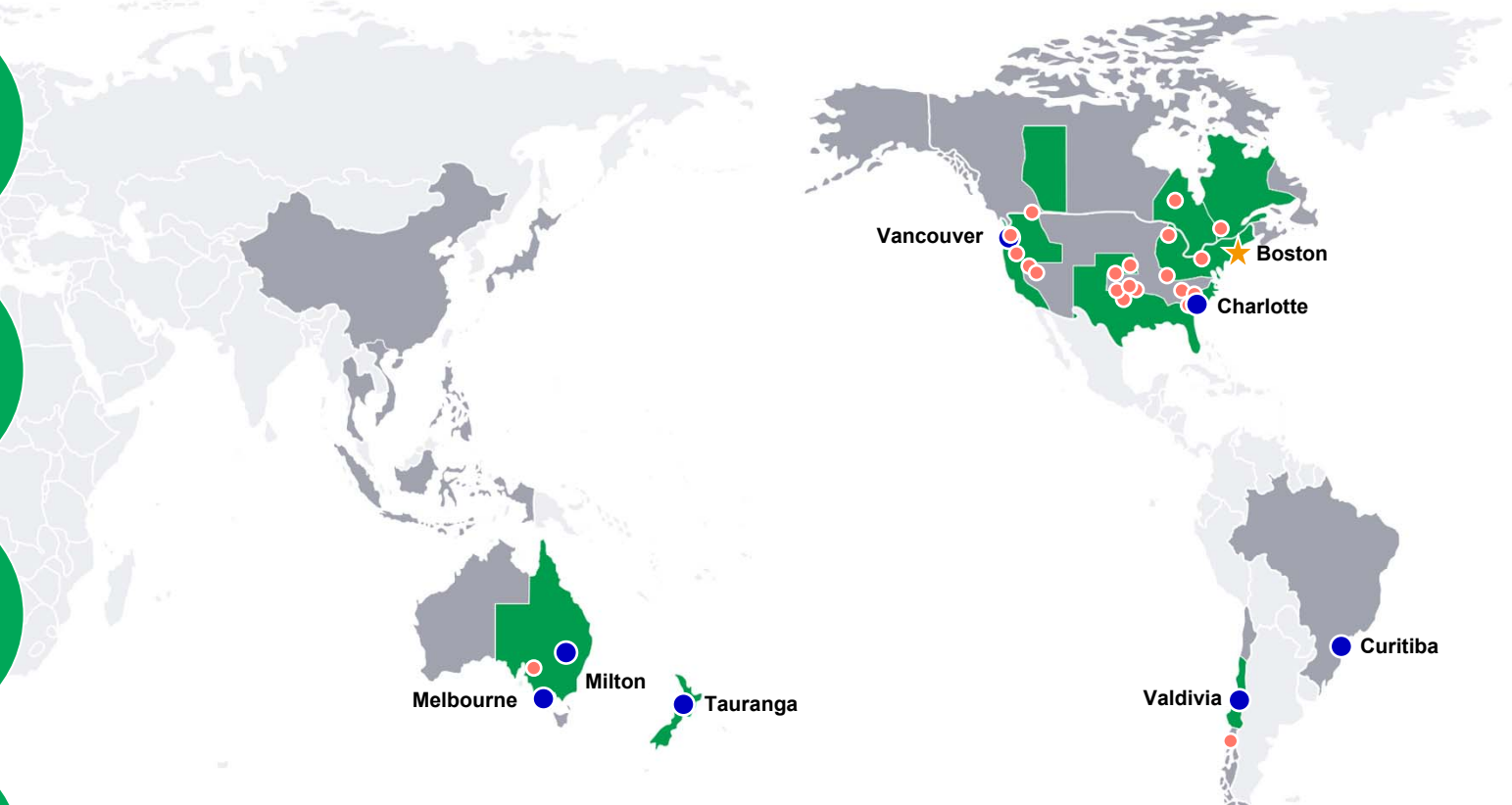
**653**  
Employees across the globe

**Over 200**  
Investors from **13** Different countries



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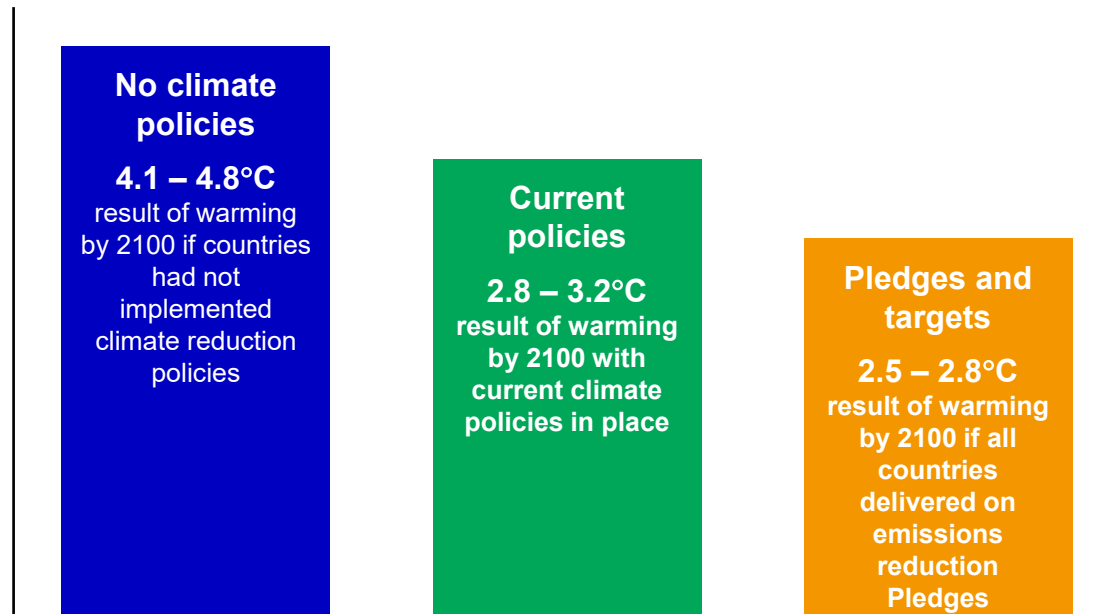
- ★ HNRG Headquarters
- HNRG Regional Office\*
- HNRG Field Office
- HNRG Managed Asset Locations
- Additional Manulife Investment Management Presence


As of September 30, 2020  
 \* Includes offices associated with client owned operating companies  
<sup>1</sup> Source: RISI Global Timberland Ownership and Investment Database as of June 30, 2020

# We believe carbon sequestration is key to avoiding the worst effects of climate change

- Global temperatures have likely increased by ~1C from pre-industrial levels<sup>2</sup>
- At current emissions rates, we will cross 1.5C threshold by 2030<sup>3</sup>
- Paris Agreement targets emission reductions that will limit global temperature rise by 2C by 2050<sup>4</sup>

## Anticipated global warming by 2100<sup>1</sup>



 2020: a record number of extreme weather events despite global CO2 emissions decreasing

Sources:

<sup>1</sup> <https://ourworldindata.org/future-emissions>

<sup>2</sup> <https://www.theguardian.com/environment/2020/jul/09/global-temperatures-likely-to-hit-at-least-1c-warming-for-next-five-years#:~:text=experts%20have%20said,-Annual%20global%20temperatures%20are%20likely%20to%20be%20at%20least%201C,the%20UK%20Met%20Office%20shows.>

<sup>3</sup> <https://www.ipcc.ch/sr15/chapter/spm/>

<sup>4</sup> <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

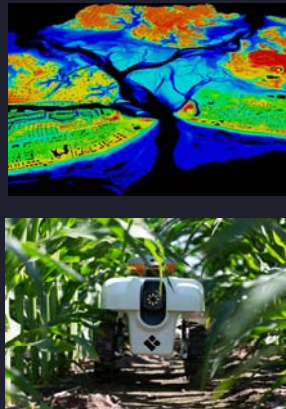


# The enabling environment to address climate change has never been stronger

## Public sector commitments

- EU increases 2030 emissions reductions goal from 40% to 55%<sup>1</sup>
- China aims for emissions peak by 2030 and carbon neutrality by 2060<sup>2</sup>
- U.S. gov re-commits to addressing climate change<sup>3</sup>

## Technology advances



## Private sector commitments

- 200% increase in the number of companies making net zero commitments between 2019 and 2020<sup>4</sup>



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#### Sources:

<sup>1</sup> <https://www.consilium.europa.eu/en/policies/climate-change/>

<sup>2</sup> <https://www.bbc.com/news/science-environment-54256826>

<sup>3</sup> <https://www.state.gov/the-united-states-officially-rejoins-the-paris-agreement/>

<sup>4</sup> <https://unfccc.int/news/commitments-to-net-zero-double-in-less-than-a-year>

# What are Natural Climate Solutions?

*Natural Climate Solutions are actions that aim to increase carbon storage and avoid greenhouse gas emissions through the conservation and restoration of forests, agricultural land, grasslands and wetlands.*

## Forests

- Improved forest management
- Reduced timber harvesting
- Reforestation
- Forest protection
- Avoided fuelwood harvesting



## Ag and Grasslands

- Nutrient management
- Regenerative agriculture
- Avoided grassland conversion
- Agroforestry
- Improved animal management



## Wetlands

- Coastal wetland restoration
- Coastal wetland protection
- Peatland restoration
- Peatland protection



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Sources:

The information above was adapted from: <http://naturalclimatesolutions.org/>

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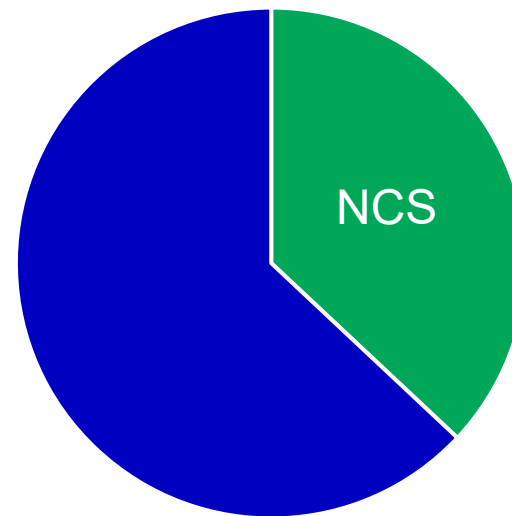
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# Natural Climate Solutions are critical to achieving net zero goals

Contribution of natural climate solutions (NCS) to stabilizing warming to below 2 °C.

- Annual reductions of 15 gigatons or 7.6% every year to meet a 1.5 °C goal<sup>1</sup>
- As a comparison, global emissions during the pandemic fell by 6.4%<sup>2</sup>

Total CO2 Mitigation Needed to Stabilize Global Warming



Natural climate solutions can provide 37% of cost-effective CO2 mitigation needed through 2030



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Sources:

<https://www.wbcsd.org/Programs/Climate-and-Energy/Climate/Natural-Climate-Solutions>

<sup>1</sup> <https://unfccc.int/news/cut-global-emissions-by-76-percent-every-year-for-next-decade-to-meet-15degc-paris-target-un-report#:~:text=On%20an%20annual%20basis%2C%20this,the%202%C2%B0C%20goal.>

<sup>2</sup> <https://www.nature.com/articles/d41586-021-00090-3>

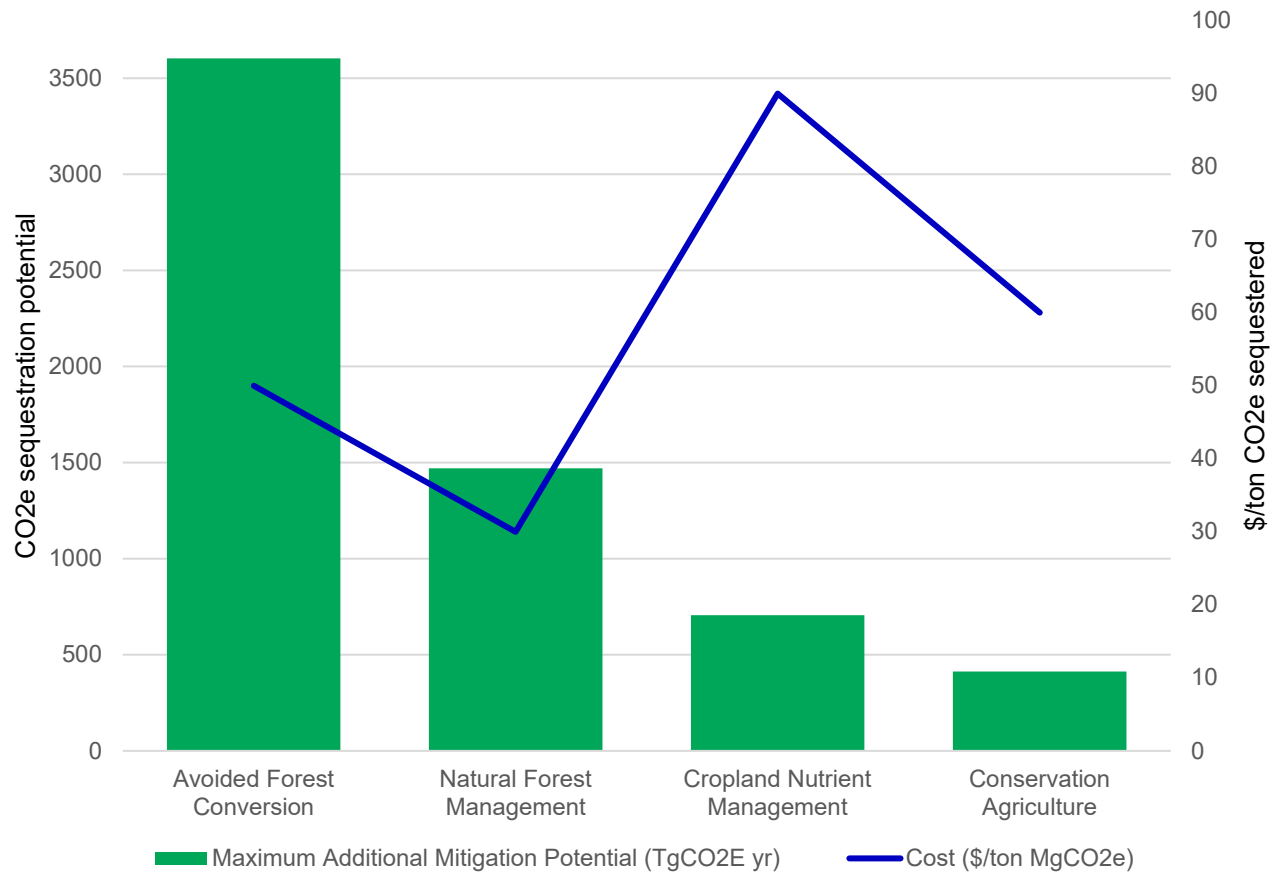
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# Low-cost climate change solution

Forest carbon and agriculture removals occupy lowest end of carbon sequestration cost curve

Carbon sequestration cost curve (US\$/ton MgCO<sub>2</sub>e) and the GHG emissions abatement potential (TgCO<sub>2</sub>e/yr)

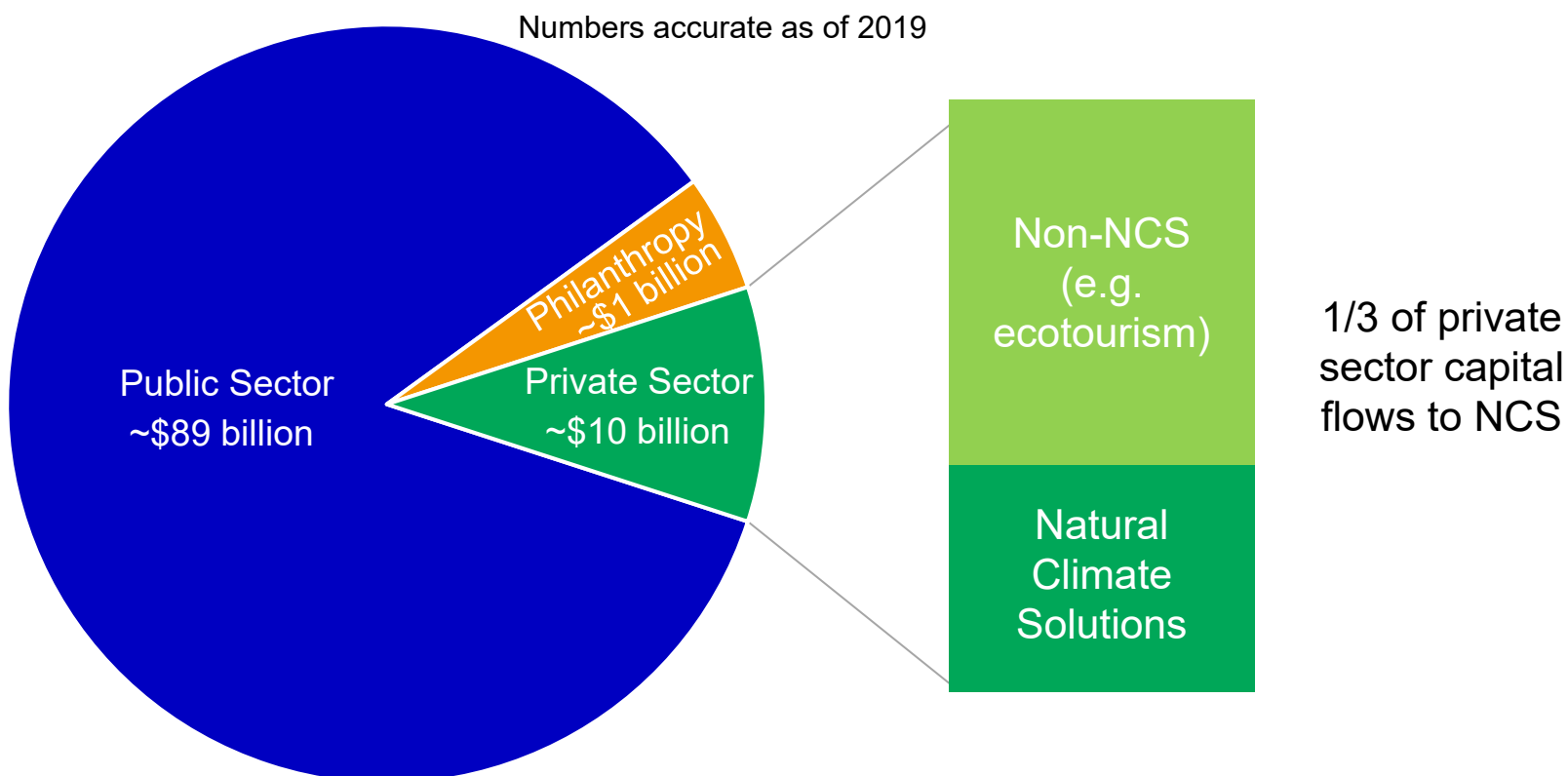


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Source: <https://www.pnas.org/content/pnas/suppl/2017/10/11/1710465114.DCSupplemental/pnas.1710465114.sapp.pdf>

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## Private investments in Natural Climate Solutions remain limited



Approximately \$100bn is spent every year on protecting, managing and restoring ecosystems, but private contributions make up just 5–10% of the total



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Figures from a study on Closing the Global Biodiversity Financing Gap [https://www.paulsoninstitute.org/wp-content/uploads/2020/10/FINANCING-NATURE\\_Full-Report\\_Final-with-endorsements\\_101420.pdf](https://www.paulsoninstitute.org/wp-content/uploads/2020/10/FINANCING-NATURE_Full-Report_Final-with-endorsements_101420.pdf)

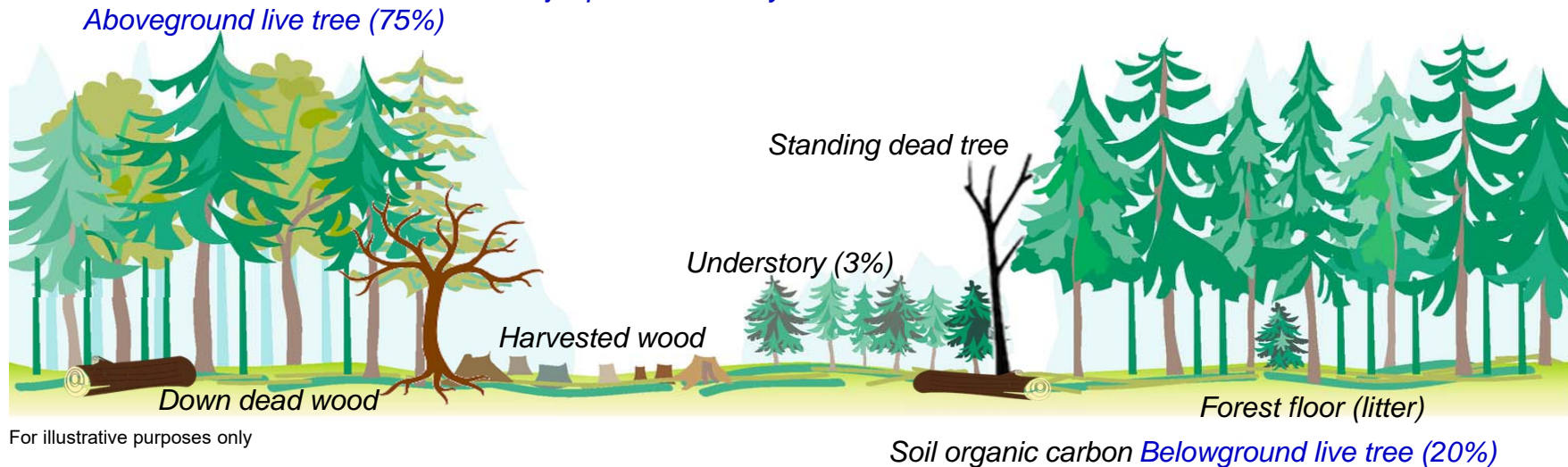
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## Why forests?

We believe forests are among the top Natural Climate Solutions for mitigating climate change

### Forest carbon pools

Major pools shown by % of total carbon



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- U.S. forests store ~14% of annual carbon dioxide emissions from the national economy<sup>1</sup>
- Forest pathways offer over two-thirds of cost-effective natural climate solutions mitigation needed to hold warming to below 2°C and about half of low-cost mitigation opportunities<sup>2</sup>
- Building with timber can reduce GHG emissions by 34 - 84% compared to building with concrete or steel, because trees are a carbon sink and timber is lighter and less emissions-intensive to transport<sup>3</sup>

Sources: Modified from "Measurement of Forest Carbon" presentation by Steve Prisley, Principal Research Scientist, NCAS

<sup>1</sup><https://www.americanforests.org/blog/forests-carbon-sinks/#:~:text=In%20fact%2C%20U.S.%20forests%20alone,emissions%20from%20the%20national%20economy.>

<sup>2</sup><https://www.pnas.org/content/114/44/11645>

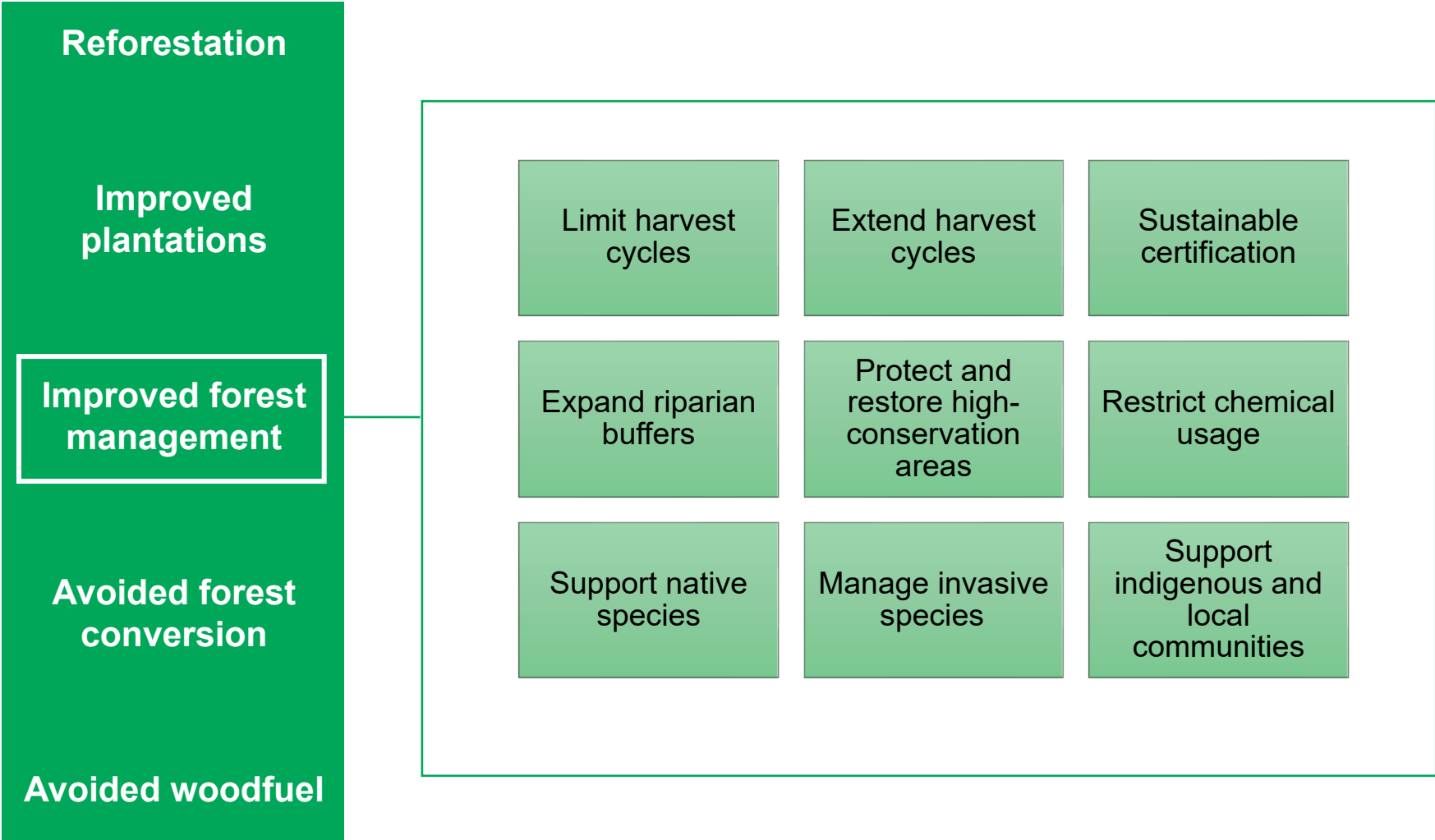
<sup>3</sup>Comparative Life-Cycle Assessment of a High-Rise Mass Timber Building with an Equivalent Reinforced Concrete Alternative Using the Athena Impact Estimator for Buildings, Chen, Gu, Bergman and Liang (2020)



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# NCS investment opportunities in forests



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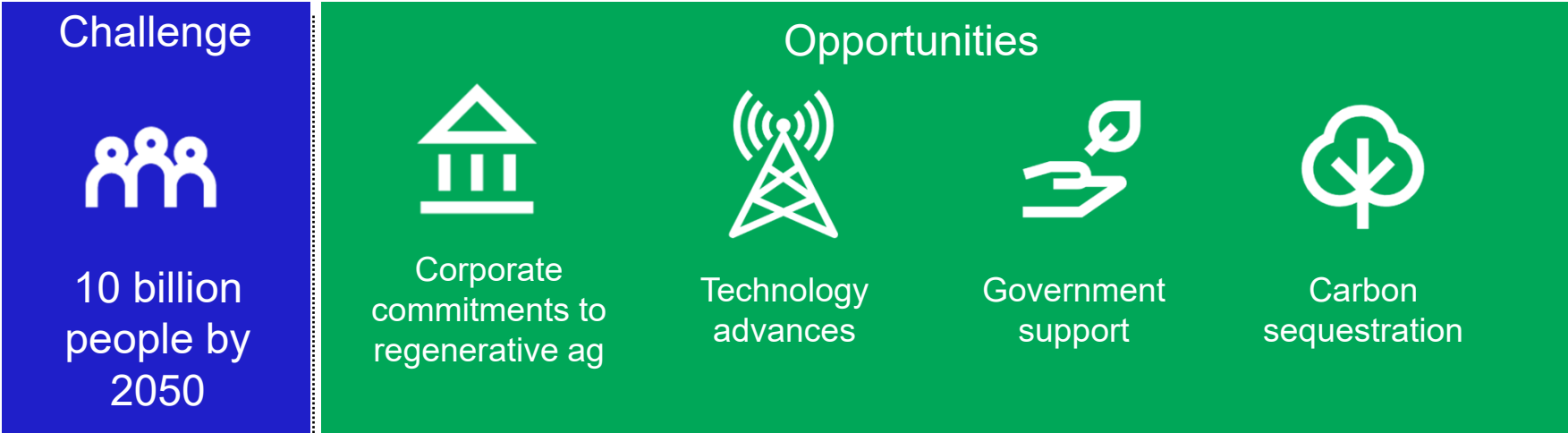
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# Why farms?

We believe farms are among the top Natural Climate Solutions for mitigating climate change

The enabling environment for regenerative agriculture is expanding rapidly



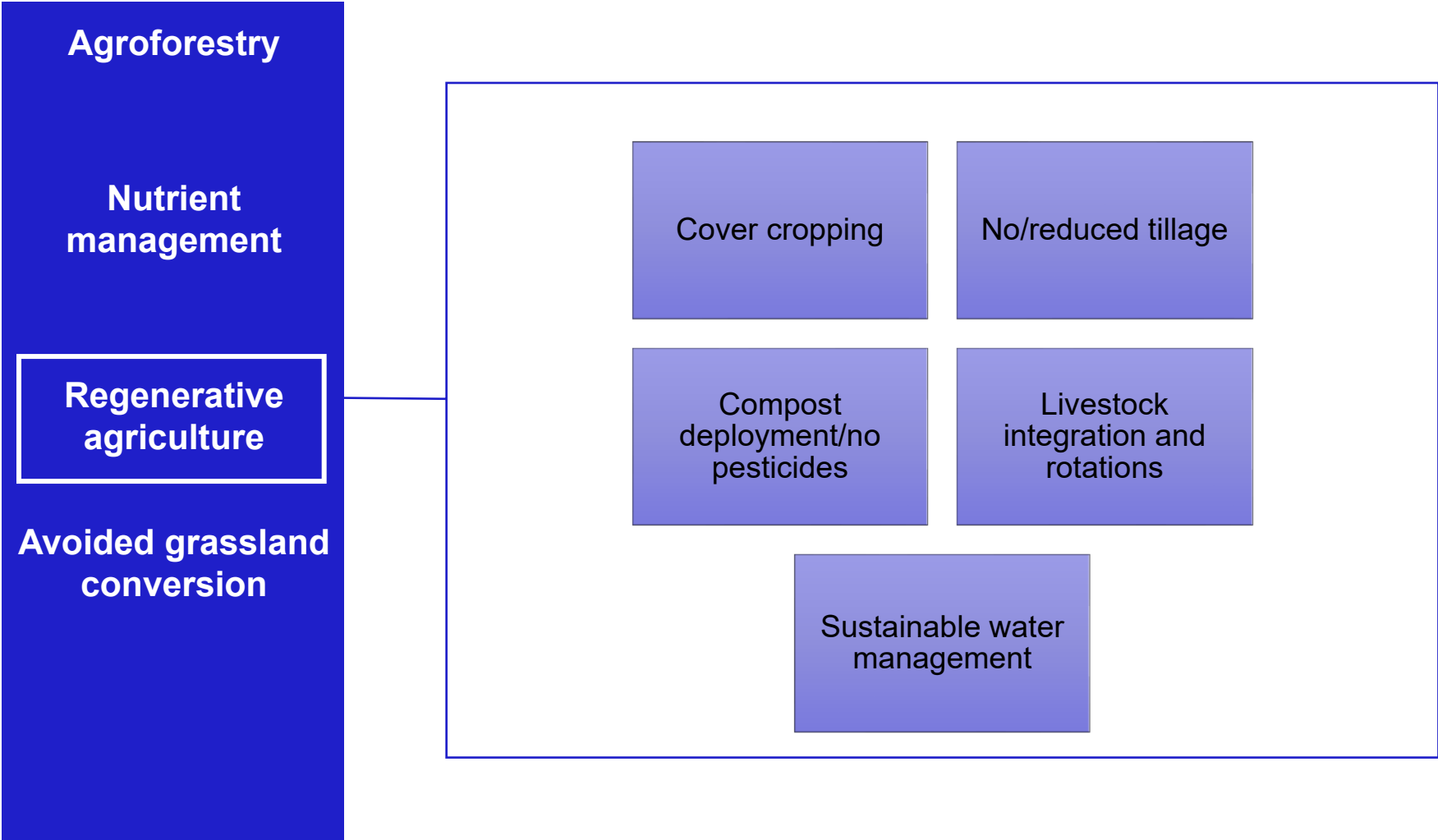
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# NCS investment opportunities in agriculture



# Sustainable management can offer multiple benefits for the environment, society and local economies



**Carbon sequestration**



**Clean air**



**Clean water**



**Soil health**



**Biodiversity**



**Wildlife habitat**



**Economic opportunity**



**Recreational access**



**Food security**



**Human health**



**Disaster resilience**



**Community resilience**

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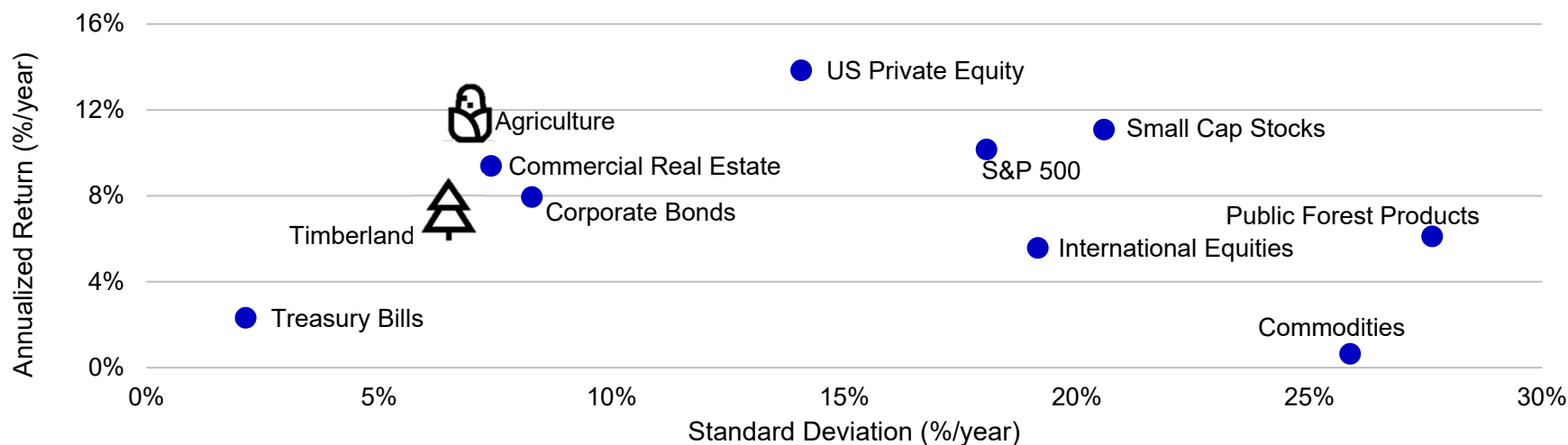
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# Low risk impact strategy

Investments in real assets may increase returns and reduce risk in a well-diversified portfolio

## U.S. Historical Return and Standard Deviation (1995-2019)



**Attractive Risk/Return Characteristics**

May provide stable total returns and moderate unlevered income with relatively low volatility

**Favorable Market Fundamentals**

Increasing consumption trends via global population and income growth

**Create Long-Term Value**

Long-lived assets with appreciation potential can match long-term investment horizons and provide current income

**Can Deliver Performance Sustainably**

Sustainability and responsible investing can enhance value and deliver market rate returns



## Case study: timberland investments can generate carbon offsets

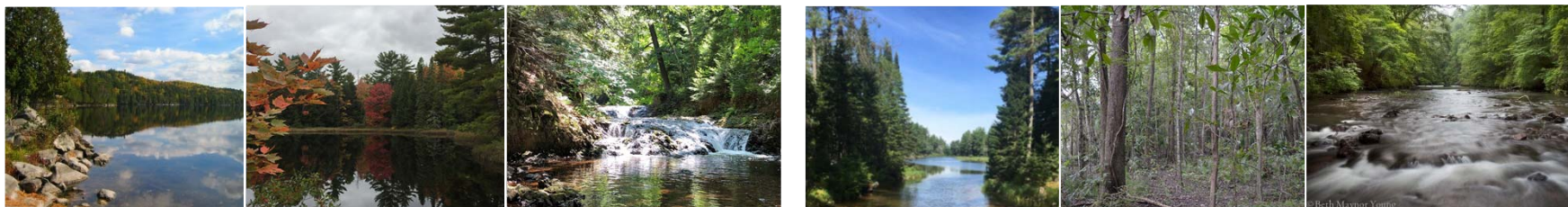
HNRG has been directly engaged in carbon stock reporting and carbon offset projects since 2008

### Michigan project – compliance market

- The timberland property is 236,649 acres located across Michigan's Upper Peninsula
- Generated 323,000 credits last year for potential sale with market value of approximately USD5 million

### Florida project – voluntary market

- The timberland properties are 99,426 acres located in north Florida
- This 2017 project encompasses approximately 10,347 acres consisting primarily of bottomland hardwood forest currently encumbered with a water quality easement with the State of FL.
- HGB & Associates assisted HNRG to create a voluntary Improved Forest Management carbon offset on these lands in Levy county Florida.



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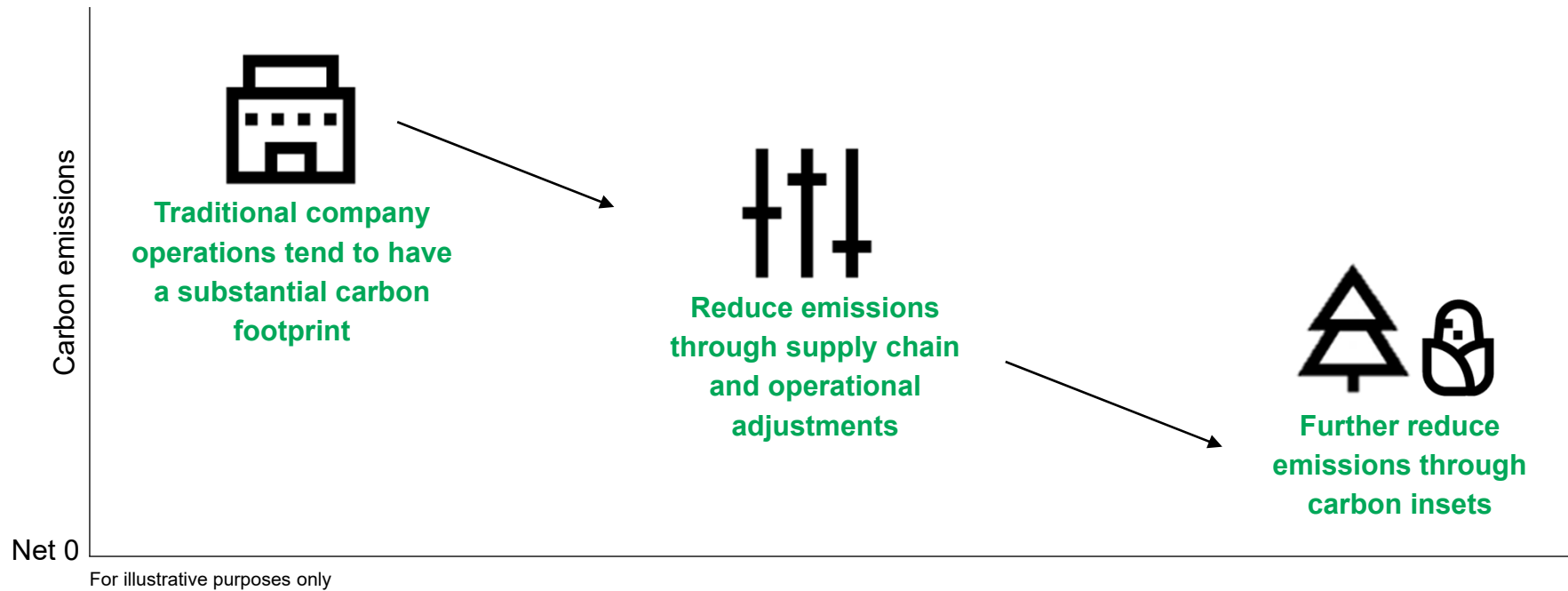
Case study data sources: Blue Source, Delphi, Finite and HNRG as of March 2020

The projects identified and described were chosen based on location and do not represent all projects engaged in by HNRG. There is no guarantee that any similarly engaged projects were or will be profitable.

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# Future opportunity: carbon insets as a novel NCS tool

## The path to net zero



Carbon insets involve carbon sequestration within a company's value chain, directly balancing emissions that cannot be easily reduced or removed and driving business value



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# Notes

## Sources

Slide 16 Sources: Data for Timberland refer to the NCREIF Timberland Index as of 12/31/20. Data for Farmland refer to the NCREIF Farmland Index as of 12/31/20. Data for Commercial Real Estate refer to the NCREIF Property Index as of 12/31/20. Data for Small Cap Equities refer to the Ibbotson series IA SBB1 U.S. Small Stock TR USD as of 12/31/20. Data for Non U.S. Equities refer to the MSCI/EAFE International Equities Index as of 12/31/20. Data for Corporate Bonds refer to the Ibbotson series IA SBB1 U.S. LT Corp TR USD as of 12/31/20. Data for U.S. Treasury Bills refer to the Ibbotson series IA SBB1 U.S. 30 Day Tbill TR USD as of 12/31/20. Data for the CPI refer to the U.S. Bureau of Labor Statistics as of 12/31/20. The S&P 500 series is from Standard & Poor's Financial Services LLC as of 12/31/20. Data for U.S. Private Equity refers to the Cambridge Associates Private Equity Index as of 12/31/20. Data for U.S. Forest Products refer to the S&P Composite 1500 Paper and Forest Products series as of 12/31/2020.

## Benchmark Definition

The NCREIF Timberland benchmark is the National Council of Real Estate Investment Fiduciaries' Timberland Property Index which is published quarterly at [www.ncreif.org](http://www.ncreif.org). The NCREIF Timberland Property Index is comprised of US domestic timberland investments held in a fiduciary investment environment. Returns are reported on a non-leveraged basis. After the year in which the property was purchased, the value of the property must be assessed at least quarterly (internally or externally), and at least once every three years by an independent, external appraiser. This 'marked to market' value is the value used to calculate the appreciation return component reported to NCREIF. A change in value from one quarter to another can be for one of several reasons: The property was externally appraised by an independent third party appraiser.

Observed changes in market conditions as so determined by the manager to recognize any changes during the quarter in rental rates, capitalization rates, interest rates, a partial sale, capital expenditures, or changes in discount rates. All properties owned by the underlying investment vehicles of the Hancock Timber Resource Group Total Timberland Composite that meet the eligibility requirements of the NCREIF Timberland Property Index are included in the overall results of the NCREIF Timberland Property Index. The Index represents investment returns from a single class of investor. As such, the Timberland Index may not be representative of the timberland investment market as a whole.

The NCREIF Farmland benchmark is the National Council of Real Estate Investment Fiduciaries' Farmland Property Index which is published quarterly at [www.ncreif.org](http://www.ncreif.org). The NCREIF Farmland Property Index is comprised of US domestic farmland investments held in a fiduciary investment environment. Returns are reported on a non-leveraged basis. The Index is set at 100 starting fourth quarter of 1990. Calculations are based on quarterly returns of individual properties before the deduction of portfolio-level asset or investment management fees, but inclusive of property level management fees. Each property's return is weighted by its market value (value-weighted). Index values are calculated for income, appreciation and total. A property value may be adjusted only for capital expenditures made during the quarter -effectively, an accounting adjustment to reflect the amount of the capital expenditure. The value submitted can be the previous quarter's value because, in the judgment of the manager/owner, the property's value did not change during the period. All properties owned by the underlying investment vehicles of the Hancock Agriculture Investment Group Total Farmland Composite that meet the eligibility requirements of the NCREIF Farmland Property Index are included in the overall results of the NCREIF Farmland Property Index. The Index represents investment returns from a single class of investor. As such, the Farmland Index may not be representative of the agricultural investment market as a whole.



# Important information

A widespread health crisis such as a global pandemic could cause substantial market volatility, exchange-trading suspensions and closures, and affect portfolio performance. For example, the novel coronavirus disease (COVID-19) has resulted in significant disruptions to global business activity. The impact of a health crisis and other epidemics and pandemics that may arise in the future, could affect the global economy in ways that cannot necessarily be foreseen at the present time. A health crisis may exacerbate other pre-existing political, social and economic risks. Any such impact could adversely affect the portfolio's performance, resulting in losses to your investment

Investing involves risks, including the potential loss of principal. Financial markets are volatile and can fluctuate significantly in response to company, industry, political, regulatory, market, or economic developments. These risks are magnified for investments made in emerging markets. Currency risk is the risk that fluctuations in exchange rates may adversely affect the value of a portfolio's investments.

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