

“Why use up the forests which were centuries in the making and the mines which required ages to lay down, if we can get the equivalent of forest and mineral products in the annual growth of the hemp fields?”

—Henry Ford, 1937

*“According to the International Energy Agency, the clean energy transition will cost \$4 trillion per year over the next several decades. That’s a big number, but it pales against the toll of greenhouse gases. Adding in mass migrations, armed conflicts, extreme weather damage, crop destruction, and deadly air pollution, the latest estimates of the “social cost of carbon” range up to \$10 trillion annually. **So here’s the truth: It’s way cheaper to save the planet than to ruin it.**” —John Doerr, 2021*

Achieving Global Climate Goals with the Establishment of Sustainable Assets

The global response to the climate crisis has been underscored by insufficient funding and a lack of coherent financial solutions for conservation, excess greenhouse gases, and validating the role of ecosystems in climate function.

Globally, ecosystems produce an estimated \$125 trillion annually in ecosystem services, such as carbon sequestration, biodiversity, and clean water. This formidable output underscores the long-term financial potential of a tradable ecological asset class that converts financial capital into ecological capital with climate, ecological, and sustainable supply chain investments.

The establishment of a federally regulated, tradable asset class—be it sustainable, ecological, natural or regenerative—that places financial value on stored carbon, ecosystems, biodiversity, agriculture and climate function will make way for a myriad of available solutions to these interconnected crises to become financially viable. These assets are defined as spatial areas containing a combination of biological and related resources that function together to provide ecosystem services.

Sustainable Assets—under whatever acronym they may travel (NAC, SAC, RAC, etc.)—will provide investors with the potential to build equity, earn dividends, and exit with capital gains. All returns will be driven by qualitative and quantitative improvements in ecosystems and their function. The private sector has repeatedly demonstrated its ability to move faster than governments, and the private sector possesses the only pool of capital large enough to fund the transition to a green economy underpinned by ecological assets.

This capital is urgently needed to protect and enhance municipal water sources, protect communities from flooding, wildfires and intense weather events, reduce atmospheric greenhouse gases, introduce new agricultural practices and bio-based solutions for energy and fuel, mobility, food, consumer products and our built environment, and establish regenerative supply chains. For investors, this asset class will create a profitable pathway to participate in resolving our ecological crises while simultaneously moving money away from assets and companies that drive these crises. The creation of this asset class will allow financial systems to employ many of the tools and instruments currently in use and in development, such as bonds, loans, futures, options, and indexes to finance, insure, and generate a return from ecological assets, further accelerating innovative solutions to global climate crisis.

A New Company Structure for Sustainable Assets and Effective ESG Investments

Sustainable Asset Companies will play a central role in establishing the value of, and the means to trade, ecological assets. Sustainable Asset Companies are private or public companies that hold the rights to ecosystem services produced by natural, working, or hybrid lands. These companies represent the intrinsic value of a set of ecosystems, their underlying functions,

and supporting infrastructure and value chains. The function of a Sustainable Asset Company is to manage its sustainable assets for positive ecological, climate, and human health outcomes. The attachment of value to sustainable stocks and ecosystem service generation in this particular entity structure creates robust financial incentives to preserve, restore and regenerate ecosystems and the critical services they provide.

The Sustainable Asset Company structure will create a streamlined approach for these ecosystems and the services they provide to become tradable assets whose value is intrinsic to rest of the financial system—and to our global transition away from a fossil-based economy. Most important, the revenue provided by these entities will provide landowners, governments, and indigenous communities with essential cash flow to mitigate extractive activities while preserving and restoring essential ecosystems.

More comprehensive climate policy in the U.S. and abroad can make Sustainable Assets attractive long-term investments that provide investors with an opportunity to diversify their portfolios, hedge against climate risk, and divest from unsustainable assets. Good planning and execution will enable these companies to issue public or private equity, bonds, carbon offsets, ecosystem service tokens, and NFT's.



Building New Markets That Effectively Reduce Carbon

The climate, ecological, and human health crises we face today are driven primarily by an interwoven and interdependent set of industries, including the agriculture, fossil fuels, construction, chemical and pharmaceutical industries. These industries have contributed the majority of GHG emissions over the last half century, and influenced the myriad serious issues connected to rising atmospheric carbon. Internalizing negative outcomes by placing high prices on emissions of carbon dioxide, methane, nitrous oxide, sulfur dioxide, and particulates, water pollution, and chemical usage will force industry to pivot to viable, climate-friendly alternatives or face an untenable cost of doing business.

The United States Federal Government is best positioned to establish a clear set of operating rules and mandates to underpin successful ecosystem service markets. Robust markets are needed for carbon dioxide, methane, nitrous oxide, sulfur dioxide, particulates, water supply, water quality, and biodiversity preservation. While there are several other critical factors in climate and ecology, carbon cycle management, secondary greenhouse gases (GHG's), and water cycle management are the most pressing and require immediate attention.

A successful carbon market must be built around the actual function of the carbon cycle and the laws of thermodynamics (to drastically simplify: the hotter it gets, the less efficient it is to run planet Earth). This market must serve the distinct and express purpose of bringing the carbon cycle back into balance, and consequently lowering atmospheric carbon dioxide levels to a maximum threshold of 350 parts per million by 2070.

To bring the carbon cycle into balance, photosynthesis, the driving biochemical process behind the carbon cycle, must be maximized within terrestrial and marine ecosystems. The financial empowerment of land managers and ecological stewards whose management can establish, maintain, and increase photosynthesis represents the only viable solution to the climate crisis. In a properly functioning carbon market, carbon dioxide represents the liability and cost while carbon (living or fossil) represents the asset and income stream. Following this logic, carbon buyers must be current and past emitters who, directly or indirectly, convert fossil and living carbon into atmospheric carbon dioxide; while carbon sellers must be landowners, governments and ecosystem stewards who manage oceans, forests, wetlands, grass-lands, croplands, deserts, and other ecosystems that fix carbon dioxide into stable forms. Effective carbon pricing and associated mandates can create the conditions in which the value of carbon sequestration (conversion of carbon dioxide to organic carbon compounds by photosynthesis) exceeds the economic value generated by carbon emissions.

The establishment of science-based carbon markets, and imposition of carbon border tax adjustments can solve the world's carbon problem within 50 years. This can only be accomplished through American leadership and ingenuity. Properly valued and enforced carbon border tax adjustments would force polluters across the planet to reduce emissions or go out

of business, furthering the United States' position as a global leader and weakening the influence of China across the world.

Where We Are Today: Key Initiatives

[Project Finance for Permanence](#) is a framework leveraged by the World Wildlife Fund to rapidly scale up and adequately fund conservation initiatives. It uses traditional Wall Street concepts to mobilize capital at a large scale to fund the establishment and maintenance of large tracts of protected areas, including a recent \$215M fund to protect a 60-million-hectare network of the Brazilian Amazon.

The Central African Rainforest Initiative has recently brokered a 10-year, \$150M deal between The Country of Gabon and the Norwegian Government to preserve Gabon's rainforests and their underlying ecosystems through a results-based payment scheme. The Norwegian Government will essentially invest in the forest assets within Gabon, representing 12% of rainforests in the Congo Basin, mobilizing capital for the country to manage its forest assets for further GHG emissions reduction and long-term carbon sequestration.

The European Union has developed the [EU - Emissions Trading System \(ETS\)](#), the most effective carbon market in the world. This market is reducing carbon emissions across the EU by 2 percent each year. The United States is in a unique position to build off this model and develop an American carbon market with pricing parity to the EU.

The [United States Mid-Century Strategy for Deep Carbonization](#) is a strong framework for achieving our climate goals, but falls short of introducing an effective financial approach to implementing the strategy.

Senators Sheldon Whitehouse and Brian Schatz proposed the "Save our Future Act," a bill that would effectively pursue this strategy by pricing carbon, and other GHG's. Mr. Whitehouse is also exploring carbon border tax adjustments, in consultation with Pascal Lamy (head of the World Trade Organization 2005- 2013) and others to ensure coordination between the EU and United States.

On September 14, 2021, the NYSE and IEG announced they are jointly developing a trading platform for Natural Asset Companies, or NACs. The Intrinsic Exchange Group (IEG), with the help of the Inter-American Development Bank (IDB), has developed an accounting framework for how natural value could be measured, monitored, and translated into financial value. The New York Stock Exchange (NYSE) will license the IEG's accounting framework.

These active and proposed solutions offer hope and the beginning of a road map to mitigating the worst effects of the climate crisis while building resilience into the American economy. The further development and regulation of Ecological Assets, and Natural Asset Companies will help to jump start the implementation of much needed solutions for ecosystems, communities, and supply chains while these political solutions take their course.

Statements from Key Stakeholders

Robert Herz, former Chairman Financial Accounting Standards Board (FASB)

"We believe it is absolutely critical to provide investors in Natural Asset Companies with relevant, reliable and understandable information on the flows of the ecosystem services they produce and their stocks of natural capital assets."

McKinsey & Company The Net-Zero Transition: Its Costs and Benefits

"The transformation of the global economy needed to achieve net-zero emissions by 2050 would be universal and significant, requiring \$9.2 trillion in annual average spending on physical assets, \$3.5 trillion more than today. To put it in comparable terms, that increase is equivalent to half of global corporate profits and one-quarter of total tax revenue in 2020."

Andrea Meza Murillo, Minister of Environment and Energy, Costa Rica

"In Costa Rica, IEG is supporting us to build a pilot project for establishing a Natural Asset Company. This will deepen the economic analysis of giving nature its economic value, as well as to continue mobilizing financial flows to conservation. All of this, in a key moment when we have to meet social and economic needs on our people and comply with what science tells us about the 30x30 goal, on protecting at least 30 percent of land and oceans by 2030."

Michael Woods, CEO/COO of Black Buffalo 3D

"The establishment of a new sustainable asset class is a perfect example of using market dynamics to influence corporate

policy and behavior. As we pursue better and more sustainable solutions to the housing and infrastructure needs of this century, companies that balance the good of the planet with the needs of a growing population will take center stage.”

Geoff Whaling, Chair, National Hemp Association

“Industrial hemp related businesses are ideal candidates for sustainable asset status. Returning one of the most useful and sustainable crops to global farmlands, one that can disrupt or displace everything produced by fossil fuels—and by doing so address climate challenges, advance global rural development, and create a new trillion-dollar sustainable economy—will be no small task. Add that other commodities have had an 85-year advantage of access to technology and funding by governments. It will take a financial instrument that can generate trillions of dollars. The current marketplace and strained governments cannot support such progressive requirements.

Douglas Eger, CEO, Intrinsic Exchange Group

“This new asset class on the NYSE will create a virtuous cycle of investment in nature that will help finance sustainable development for communities, companies, and countries. Together, IEG and the NYSE will enable investors to access nature’s store of wealth and transform our industrial economy into one that is more equitable.”

Abby Rockefeller, Founder, Hudson Carbon

“A new financial model that values all life, good food, healthy communities, and a functioning climate is desperately needed to replace the outdated system that threatens our future. Properly developed ecological assets that bring real value to ecosystems and communities may be the key to our transformation.”



Summary

Effective implementation of ecological asset classes and ecosystem service markets will establish the financial conditions for new regenerative industries and supply chains to take the place of the current extractive industries and supply chains that have brought our planet’s systems to the brink of collapse. These new regenerative supply chains will put land, people, and biodiversity first. Industrial food systems and factory farms will be replaced by the return of appropriately scaled farms on diversified, ecological landscapes supported by regional infrastructure. These operations’ viability will be supported not only by the food they produce but also by the ecological value on their balance sheets and the ecosystem services they provide. Global commodities like bananas, coffee, cacao, citrus, and sugar can also be produced regeneratively yielding similar economic, ecological, and social results for their producer communities. Super crops like hemp, bamboo, kanaf, sugarcane, and willow will displace cotton, wood pulp, virgin timber, and traditional concrete to provide clothing and shelter for the new regenerative bio-based economy.

Ultimately, the incorporation of ecology and climate function into the core structure of the US economy—and by extension the global economy—will serve to empower and bring hope to the fundamental cultural, educational, financial, and political institutions that have developed, informed, and maintained our great nation.

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