Super Climate

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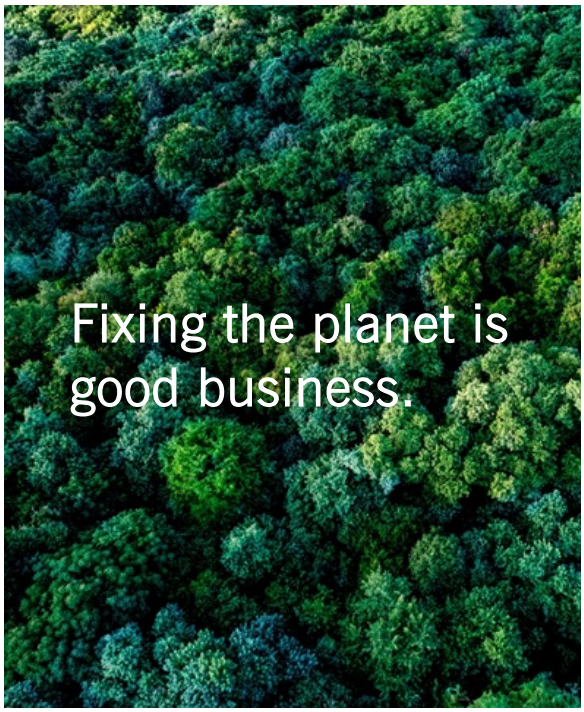
THE CLIMATE SOLUTIONS LEXICON

"55 to Stay Alive"

June 2024

Fifty-five Essential Terms Investors, Business Leaders, and Policymakers Need to Know



Introduction

The climate slogan “1.5 to stay alive” highlights the importance of limiting global warming to 1.5°C to avoid the most severe impacts of climate change. In our inaugural Climate Solutions Lexicon, **“55 to Stay Alive”**, we highlight the most important terms to achieving that goal in the growing and critically important Climate Solutions sector. Given the rapid changes required for decarbonization, we expect these ideas – although unfamiliar to many today – will become commonly understood in a short period of time.

Every major transition introduces new terms and a new language to facilitate efficient communication – the digital revolution, for example, introduced “bits” and “bytes,” “software” and “hardware,” and “data centers” and “the cloud” – and decarbonization and the energy transition will be no different. We prepared this glossary to serve as a tool to accelerate Climate Solutions success through shared understanding among investors, practitioners, industry experts and stakeholders. Limiting the list to fifty-five terms was done for the sake of brevity, and doing so will certainly omit many important ideas. Similarly, the dynamic nature of the field will require regular updating of the list.

We look forward to any comments (or corrections) and hope you enjoy this year’s **Climate Solutions Lexicon**.

Climate Solutions Defined

Climate Solutions broadly refers to products and services that (i) address the decarbonization of energy sources and other products and services; (ii) facilitate the removal or mitigation of GHG emissions, including through engineered and nature-based solutions; (iii) reduce climate-related risks through adaptation and resilience of assets, infrastructure, and services; and (iv) provide climate-related analysis, reporting and intelligence. The Climate Solutions markets are driven by the massive amounts of spending required for decarbonization – estimated at $9 trillion+ per annum – to meet 2030 and 2050 emissions reductions targets, growing end user demand for decarbonized products and services, and increased regulation.

Authors

Super Climate

Super Climate was initiated in 2021 by leading venture capitalists to address the underrepresentation of climate-aligned investments at a time when private capital was critically needed. Since then, it has evolved into the premier platform for enhancing collaboration and establishing connections among institutional investors, corporate investors, and fund managers. Events have been held in Berlin, Dubai at COP28, and New York during Climate Week. Guided by the goal of accelerating solutions that drive meaningful climate impact and a vision to create enduring value within planetary boundaries, the Super Climate Association was founded in 2024 as a stand-alone non-profit. It will continue to develop its event series and expand into other complementary projects and offerings, with a total of five events planned in Europe and the U.S. in 2024.

For more information go to: www.Super-Climate.com

INVESTCORP

Investcorp’s Climate Solutions business brings Investcorp’s combination of capital, business-building services, international network and investment experience to the leading companies addressing decarbonization and climate change. The overarching objective of Investcorp’s Climate Solutions business is to accelerate the global transition to a zero-carbon economy with a focus on the deployment and rapid scaling of commercially proven climate solutions that have the potential to transform industries. Investcorp is one of the world’s leading alternative asset managers, with over $52 billion in AUM and major offices in the United States, Europe and the Gulf.

For more information go to: www.Investcorp.com

1. Adaptation

Adaptation refers to Climate Solutions that minimize the impact of a changing climate on assets, organizations, communities, and businesses by adjusting or enhancing infrastructure, providing new services, or developing other resources to cope with new climate and weather conditions.

2. Afforestation / Reforestation

Afforestation creates new forests on previously non-forested land (e.g., agricultural fields) while Reforestation restores degraded forests or deforested land (e.g., areas destroyed by wildfires or poor management) to their original forested condition. Both approaches are important components of forest conservation, biodiversity and climate change mitigation strategies given forests’ critical role as natural carbon sinks.

Image depicts the Pesalat Reforestation Project located in Indonesia where thousands of seedlings have been planted to restore forests lost due to fire and logging. (Photo: World Resources Institute)

3. Article 9 Fund

An Article 9 Fund is the highest designation under the EU’s Sustainable Finance Disclosure Regulation (SFDR), focusing on investments that positively impact the UN’s Sustainable Development Goals and adhere to strict sustainability metrics.

4. Battery

Batteries come in a diverse array of sizes and form factors, from the compact cells that power smartphones to the large-scale units designed for storing wind energy. Different types of batteries employ distinct chemical reactions and materials which influence their performance characteristics, energy density, cycle life, safety, and environmental impact. Common battery chemistries are (i) lead-acid batteries used in automotive applications and stationary energy storage due to their low cost and reliability, (ii) nickel-metal hydride batteries used in consumer electronics, hybrid electric vehicles, and rechargeable batteries due to their higher energy density, (iii) lithium-iron phosphate batteries used in applications where safety is paramount, such as electric vehicles, solar energy storage, and medical devices, and (iv) lithium-ion batteries used in portable electronic devices, electric vehicles (EVs), and grid energy storage systems. Rechargeable and known for their high energy density, lithium-ion batteries offer a very favorable balance of performance and reliability.

In addition, researchers are looking into sodium-ion batteries as a lower-cost alternative to lithium-ion batteries as well as solid-state batteries, which employ a solid electrolyte (vs. a liquid electrolyte as in lithum-ion batteries), for their potential in achieving high-energy density and improved safety.

5. Biochar

A lightweight black residue comprised of carbon and ashes that remains after the controlled pyrolysis (controlled burning) of biomass (e.g., wood) at a high temperature. Biochar is rich in carbon and can store it in the soil for thousands of years.

Biochar can improve soil’s nutrient binding and water retention capacity and adds to the soil’s porosity. (Photo: Saalasti)

6. Bioenergy with Carbon Capture and Storage (BECCS)

BECCS involves extracting energy from biomass, capturing the resulting CO_2 emissions, and storing them permanently to prevent atmospheric release, thereby combining energy production with carbon sequestration.

7. Biofuel

Type of fuel produced from plants or other living materials. Examples include ethanol (typically made from corn) and biodiesel (sourced from vegetable oils and liquid animal fats).

8. Blended Finance

Blended finance leverages public and private sector resources to finance projects and initiatives aimed at addressing climate change and promoting low-carbon, climate-resilient development to bridge the capital gap required for decarbonization. Public funds may be used to de-risk returns through incentives, subsidies, or guarantees to attract private investment in these projects, which often require large upfront capital investments.

9. Blue Carbon Solutions

Type of Climate Solution that aims to conserve and restore coastal and marine ecosystems (e.g., mangroves, seagrasses, and salt marshes), which are highly efficient at sequestering and storing carbon dioxide from the atmosphere. Blue carbon solutions offer multiple benefits beyond carbon sequestration, including supporting coastal livelihoods, protecting biodiversity, enhancing water quality, and reducing the risk of natural disasters.

Image depicts mangroves along Wallace’s Passage in Papua Guinea, Indonesia. Mangroves, along with seagrasses and slat marshes, are examples of blue carbon ecosystems that act as a natural carbon sinks. (Photo: Rhett Butler, Mongabay)

10. Carbon Border Adjustment Mechanism (CBAM)

A recent European Union initiative that puts a price on imports of products from countries that do not adhere to EU’s compliance market standards. The aim is to encourage cleaner industrial production globally and prevent carbon leakage (companies’ intentional movement to countries with less stringent climate policies). CBAM is supporting the development of the global carbon markets by encouraging other nations to adopt their own compliance markets or risk their products facing tariffs.

11. Carbon Capture & Storage (CCS) and Carbon Capture, Utilization & Storage (CCUS)

Set of technologies that can reduce CO_2 emissions. CCS is a three-step process that includes capture of carbon from power plants or industrial sources; transport of the captured and compressed carbon (usually via pipeline); and underground injections and geologic sequestration underground. Instead of just storing the CO_2, CCUS utilizes it in various industrial processes, repurposing it for economic value.

12. Carbon Contract for Difference (CCfD)

A financial instrument that allows companies to hedge against the risk of fluctuations in carbon pricing by agreeing to pay or receive the difference between a predetermined carbon price and the market price of carbon emissions. If the market price exceeds the predetermined price, the seller pays the buyer the difference and vice versa. For companies subject to carbon pricing regulations, CCfDs provide a way to manage their exposure by locking in a predictable cost for carbon emissions which helps in budgeting and planning.

13. Carbon Credit

A carbon credit refers to a tradeable asset that represents a metric ton (tonne) of emissions. The credit can be an allowance credit (a permit to emit) or an offset credit (representing the removal or avoidance of emissions).

14. Carbon Dioxide Removal (CDR)

The process of capturing CO_2 from the atmosphere and storing it for an extended period. This process can be completed through natural (e.g., soil sequestration, afforestation) or technological (e.g., direct air capture) means.

15. Carbon Offset

The primary security traded on the Voluntary Carbon Markets representing the avoidance or removal of one metric ton (tonne) of CO_2 equivalent emissions (CO2e). Typically issued by a private project developer and purchased by corporates interested in offsetting their emissions. Carbon offsets have been controversial due to concerns regarding integrity and a lack of consistent standards, but increasing self-regulation and government oversight is adding stability.

16. Carbon Tax

A carbon tax is levied on activities that produce carbon dioxide as a means of incentivizing emissions reductions. By putting a price on the production of carbon emissions, the tax “internalizes the externality” of the environmental damage and other costs of CO_2.

17. Charging Station

Dedicated infrastructure designed to supply electrical energy to recharge electric vehicles with configurations varying with charging needs, vehicle types, and charging speeds. Level 1 charging stations use a standard household outlet (120 volts AC) and provide a low-power charging option suitable for overnight charging at home or in workplaces. Level 2 charging stations operate at higher power levels (typically 208-240 volts AC) and are commonly installed in public locations, commercial buildings, and parking facilities Level 3 or DC fast charging stations utilize direct current (DC) power to deliver rapid charging to electric vehicles, making them optimal for long-distance travel and quick charging stops and are typically found along highways, major roadways, and EV charging networks.

Image depicts a level 2 AC ChargePoint charging station for EVs. (Photo: ChargePoint)

18. Circularity

Circularity refers to the use of materials in a closed-loop system, minimizing waste and maximizing efficiency by sharing, leasing, reusing, repairing, refurbishing, and recycling existing materials and products for as long as possible. Circularity can be applied to various sectors such as renewable energy systems by recycling materials from decommissioned solar panels or wind turbines, or circular agriculture practices focused on regenerative farming techniques that promote soil health and biodiversity while minimizing inputs and waste.

19. Compliance Carbon Markets (CCMs)

Regulated carbon markets where governments mandate participation and oversee the rules, standards, and allowance auctions. Compliance markets, also referred to as Emissions Trading Schemes, typically operate by setting a “cap” on maximum emissions and allow further capacity to be bought from other organizations that have not used their full allowances (“trade”).

20. Controlled Environment Agriculture (CEA)

Type of agriculture that includes indoor farming (greenhouses) and vertical farming, with a technology-based approach to food production. CEAs aim to provide protection from the outdoor elements and maintain optimal growing conditions year-round throughout the development of the crop.

Image depicts a vertical farm designed and operated by AeroFarms to grow microgreens. (Photo: AeroFarms)

21. Demand Response

Implementation of programs and technologies to incentivize consumers and businesses to adjust their electricity consumption in response to grid conditions through financial incentives. Demand response helps reduce peak demand, balance supply and demand, and optimize grid utilization, thereby improving system efficiency and stability.

22. Direct Air Capture (DAC) and Point Source Capture

Direct air capture involves the removal of CO_2 directly from the atmosphere typically by employing large-scale industrial processes to capture CO_2 from ambient air using chemical reactions or absorbent materials. The captured CO_2 can then be stored underground (e.g., Carbon Capture & Storage) or utilized in various industrial processes, such as producing synthetic fuels or enhancing plant growth in greenhouses (e.g., Carbon Capture, Storage & Utilization). While it is still an emerging technology, DAC is viewed as a potentially necessary solution to reach Net Zero goals. Point source capture refers to systems that capture CO_2 emissions directly from specific, concentrated sources such as industrial facilities, power plants, or large-scale carbon-emitting operations, targeting emissions at their origin where large amounts of CO_2 are produced as a byproduct. By doing so, the systems can reduce the overall carbon footprint of these operations.

Image depicts a Direct Air Capture system. (Photo: Climeworks)

23. Dispatchable Energy

Dispatchable energy refers to sources of electricity that can be controlled and adjusted on demand by power grid operators which helps maintain the balance between electricity supply and demand and reduces stress on the grid. While some forms of dispatchable energy produce emissions (e.g., fossil fuel based), others such as nuclear power, biomass, hydroelectric, battery-stored renewable power, and geothermal are low or non-emissions dispatchable energy sources.

24. Electrification

Process of transitioning from traditional fuel-based energy sources to electricity, such as adopting electric vehicles, adding electric heating options such as heat pumps or electric resistance heaters and replacing fossil fuel-powered machinery with electrically powered alternatives.

25. Embodied Carbon

Embodied carbon is all the CO_2 emitted in producing a material, including emissions from the energy used to extract and transport raw materials as well as those from manufacturing processes.

26. Enhanced Rock Weathering

A method of CDR which deliberately increases the rate by which certain rocks, such as basalt, peridotite, or olivine, break down to stimulate chemical reactions that cause the minerals to bond with CO_2 to form new stable carbonate minerals, effectively sequestering carbon in solid form. Selected rocks are crushed and ground into fine particles to increase their surface area and applied to terrestrial or marine environments where the particles can come into contact with CO_2 and water. This process is also known as accelerated weathering or mineral carbonation.

Image depicts basalt columns which are typically used as a form of enhance rock weathering. The basalt can be ground into a fine powder, increasing the surface area and therefore the rate at which weathering can occur. The powder is often then spread on agricultural land, where it contributes to soil health – or it can also be spread on beaches where it enters the ocean quickly. (Photo: Jonathan Larson, Unsplash)

27. First-of-a-Kind (FOAK)

FOAK projects commercialize novel technologies, usually hardware-based and often capital-intensive, that have not been deployed at scale before. These projects play a critical role in demonstrating the technical and economic feasibility of a new process, paving the way for wider adoption via project financing, licensing, and other means.

28. Geoengineering and Solar Radiation Management (SRM)

Intentional large-scale intervention in the climate system to counter climate change. Geoengineering is highly controversial due to concerns over unintended consequences of untested interventions with many technologies still at early stages. The most discussed geoengineering approach, SRM, refers to techniques aimed at mitigating global warming by increasing the reflectivity of the Earth's atmosphere or surface (albedo), thereby reducing the amount of solar radiation absorbed. SRM methods include injecting reflective aerosols (sulfur dioxide particles) into the stratosphere, spraying seawater droplets into marine clouds to enhance their reflectivity, and using space-based reflectors.

29. Green Bonds

Type of debt issued by public or private institutions for climate-related projects that are typically verified by third parties to certify that the project benefits the environment. Often, green bonds are accompanied by tax incentives, such as tax credits or exemptions.

30. Green Built Environment

Construction, renovation, demolition, and maintenance of a building that prioritizes sustainability, energy efficiency, and social responsibility. According to the World Economic Forum, construction and buildings account for nearly 40% of global emissions. Cement production accounts for approximately 8% of anthropogenic global emissions, and steel production accounts for nearly 7% of anthropogenic global emissions. Green concrete and green steel are both sustainable alternatives to their traditional counterparts, aimed at reducing environmental impact. Another substitute is mass timber – a category of wood products that are fabricated from solid wood panels or boards, typically in large dimensions, for use in construction with high strength, stability, and durability. Mass timber is renewable, biodegradable, and has a lower carbon footprint compared to concrete and steel.

Image depicts a building being constructed using mass timber. (Photo: naturally:wood)

31. Green Hydrogen

Green hydrogen is produced using renewable energy sources such as wind, solar, hydroelectric, or biomass to power electrolysis – splitting water molecules into hydrogen (H_2) and oxygen (O_2) using electricity. Green hydrogen differs from other of types of hydrogen because of the method used for production: for example, grey hydrogen refers to hydrogen produced from natural gas; gold hydrogen is produced naturally and extracted from underground; pink hydrogen is produced using nuclear energy. Overall, there are over 15 “colors” of hydrogen.

32. Green Premium

The additional cost of a sustainable or “green” good, service or technology over one that emits more greenhouse gases. Because the cost of sustainable production is often higher, the green premium reflects the economic trade-offs between environmentally friendly solutions and those that contribute to climate change. As sustainable production methods gain economics of scale, the green premium diminishes, as demonstrated in costs of solar panels and solar electricity.

33. Grid Optimization

Deployment and management of solutions and practices aimed at enhancing the efficiency, reliability, resilience, and sustainability of power distribution systems. Grid optimization leverages advanced technologies, data analytics, automation, and control systems to address challenges, such as grid congestion, voltage fluctuations, power outages, renewable energy integration and demand variability. Solutions include the deployment of smart meters and sensors throughout the grid to monitor energy consumption, detect grid faults, and optimize load balancing; the integration of intelligent devices (such as smart switches, reclosers, and sensors) into the distribution network to enable automated monitoring of power flows; and the utilization of advanced analytics and predictive modeling techniques to analyze grid data, forecast demand, detect anomalies, and optimize grid operations in real time.

Grid optimization relies on data analytics, automation, and control systems to address challenges like power outages and renewable energy integration (Photo: Sonia Monti, NCCR Automation)

34. Heat Pump

Heat pumps are part of a home heating and cooling system that are typically installed outside of the house. Heat pumps extract and amplify heat energy from the air, ground or water and transfer it to heat or cool interior spaces. In cooler months, a heat pump pulls heat from the cold outdoor air and transfers it indoors, and in warmer months, it pulls heat out of indoor air to cool your home. They are powered by electricity and transfer heat using refrigerant. Unlike furnaces, heat pumps do not burn fossil fuels, making them more environmentally friendly.

35. Hydrogen Fuel

Hydrogen is a clean and renewable energy source that can be used for various applications, including transportation, long-term energy storage for the electric power sector, electricity generation, heating, and industrial processes. Hydrogen's high energy density by weight makes it a particularly attractive option for applications where energy storage space is limited, such as heavy transportation. When used as a fuel, hydrogen can be combusted directly in fuel cells to produce electricity with only water vapor and heat as byproducts, making it a zero-emission energy carrier. Despite its potential as a clean and renewable energy carrier, hydrogen fuel faces several challenges, including high production costs, limited infrastructure, and safety concerns related to storage and handling.

36. Impact Measurement

Process of evaluating a company, product, or project’s decarbonization impact and other contributions towards the United Nations Sustainable Development Goals. It involves identifying key performance indicators that are relevant to the specific impact goals, collecting and analyzing data related to those metrics, and reporting performance. Impact measurement is essential for ensuring climate solutions investments deliver on their intended goals.

37. Levelized Cost of Energy (LCOE)

A metric used to evaluate and compare the lifetime cost of different energy generation technologies representing the average per-unit cost (usually per megawatt-hour) of building and operating a generating plant over an assumed life. By calculating LCOE, policymakers, investors, and energy planners can assess the economic competitiveness of different energy sources, such as coal, natural gas, nuclear, wind, solar, and hydroelectric power. Renewable energy technologies have seen significant reductions in LCOE over the past decade, making them increasingly competitive with traditional fossil fuels, due to advancements in technology, economies of scale, and supportive tax policies. Some consider LCOE an over-simplified metric as it does fully account for factors such as the intermittency of solar or wind energy.

38. Life Cycle Analysis / Assessment (LCA)

LCA is a method for quantifying the environmental impacts (greenhouse gases, water use, etc.) of a product or service throughout its entire life cycle. It considers all stages of the product's life, including production, transportation, use, and end-of-life.

39. Marginal Abatement Curve

Method to illustrate the cost-effectiveness of a technology or methodology in reducing emissions. The intention is to prioritize activities that would result in the greatest emissions reductions at the lowest cost.

40. Mineral Recycling

Process of recovering valuable minerals (e.g., lithium, cobalt, platinum group metals and rare earth elements) from end-of-life or discarded materials (electronic components or batteries) thereby reducing the need for virgin raw materials extraction and minimizing the environmental impact associated with mining activities. As the demand for critical minerals continues to rise due to the growing adoption of electric vehicles, renewable energy storage systems, and portable electronics, the importance of mineral recycling has become more important.

41. Mitigation

Climate mitigation refers to actions and strategies aimed at reducing or preventing emissions of GHGs to mitigate or lessen the impacts of climate change. Shifting away from fossil fuels and transitioning to renewable energy sources like solar, wind, hydroelectric, and geothermal power is a critical component of climate mitigation. Another important strategy for climate mitigation is improving energy efficiency across different sectors. This includes measures such as upgrading infrastructure, adopting energy-efficient technologies, implementing energy conservation practices, and promoting behavioral changes to reduce energy consumption. Climate mitigation also involves adopting sustainable practices in agriculture, forestry, and land use management to reduce emissions and enhance carbon sequestration.

42. Natural Climate Solutions

Actions to protect, sustainably manage and restore natural or modified ecosystems that address climate challenges effectively and adaptively. These actions, such as conservation, restoration, and improved land management, increase carbon storage or avoid greenhouse gases in landscapes and wetlands across the globe while also addressing other societal and biodiversity issues.

43. Net Zero

Used to describe the state where the amount of CO_2 emissions released into the atmosphere is balanced by the amount of CO_2 removed. Most other GHGs, including nitrous oxide and methane, are believed to be more difficult to phase out and are modeled on a different Net Zero emissions timeframe vs. CO_2. The Intergovernmental Panel on Climate Change (IPCC) predicts that global temperatures will stabilize when CO_2 emissions reach Net Zero. To keep global temperature rise under 1.5°C compared to pre-industrial temperatures would mean achieving Net Zero CO_2 emissions by 2050; or for 2°C, it would require reaching Net Zero by the early 2070s.

44. Nuclear Energy

Nuclear power uses nuclear fission (where the nucleus of a heavy atom is split into two smaller nuclei) to release a large amount of energy in the form of heat. That heat is used to heat water and produce steam which drives turbines connected to generators, converting the kinetic energy of the spinning turbines into electricity. Although nuclear power plants do not emit greenhouse gases, they pose several challenges including the production of radioactive waste, safety concerns, and potential proliferation of materials used for weapons development. Large scale nuclear power plants are capital intensive and have long construction times, making them susceptible to cost overruns and delays. Small Modular Reactors (SMRs) are a class of nuclear power designed to generate electricity on a smaller scale compared to traditional large-scale nuclear power plants. SMRs are designed with simplified, modular components that can be manufactured off-site and transported to the reactor site for assembly allowing them to be deployed in a wider range of locations, including remote or off-grid areas, industrial facilities, and microgrid applications.

Image depicts the Palo Verde Nuclear Generating Station – one of the United States' largest power producers for nearly 30 years – all of it clean and carbon-free. The plant is a critical asset to the Southwest US, generating more than 32 million megawatt-hours annually – enough power for more than 4 million homes and businesses. (Photo: Business Wire)

45. Offtake Agreement

An offtake agreement is a contract between a provider of climate solutions or a renewable power developer to sell a specified amount at a predetermined price over a predetermined period to a purchaser, often a large corporate, industrial or utility company. For the developer, offtake agreements provide revenue certainty, and can be crucial for securing financing.

46. Photovoltaic Cell

Device that converts energy from sunlight into electricity. Photovoltaic cells, also known as “solar cells”, use materials with high conversion efficiency like silicon.

Image depicts EnBW Solarpark Weesow-Willmersdorf, Germany’s largest solar park without state funding with 187 MW. (Photo: Paul Langrock, EnBW)

47. Precision Agriculture

Farming management strategy that involves observing and responding to spatial and temporal variability to enhance agricultural production. This strategy aims to improve productivity and conserve natural resources.

Image depicts a farm utilizing drones for fumigation. (Photo: Ralphsmeat Company)

48. Precision Fermentation

Advanced form of metabolic fermentation where living organisms convert organic chemicals from a feedstock into usable components, typically food. Precision fermentation usually involves engineering microorganisms to create customized, specific molecules.

49. Regenerative Agriculture

System of farming principles that seeks to reverse the impact of climate change by rebuilding soil organic matter and restoring degraded soil biodiversity, resulting in carbon sequestration, improved water retention, and higher soil quality.

50. Renewable Energy

Energy derived from naturally replenished resources including solar, wind, hydropower, biofuel, ocean, hydrogen and geothermal. Non-renewable energy, in contrast, comes from finite sources, such as coal, natural gas, and oil. The primary challenge with renewables is intermittency: solar power depends on sunlight, wind on wind speed, and hydroelectricity on rainfall and drought – leading to fluctuations in energy supply and requiring backup power or energy storage. In addition, projects require significant land, and may require substantial investment in new infrastructure and supporting infrastructure such as transmission lines.

Image depicts Markbygden 1101, Europe’s largest on-shore wind farm located in northern Sweden with 1.12 GW. (Photo: Svevind)

51. Science-Based Targets / Science Based Targets Initiative (SBTi)

Collaborative effort to set emissions reduction targets using a framework and methodology aligned with the latest climate science. Several standards and initiatives are similar to SBTi and include The Carbon Trust Standard (certification awarded to organizations that demonstrate they have measured, managed, and reduced their carbon emissions), ISO 14064 (a series of international standards for GHG accounting and verification) and ISO 14064-1 (principles and requirements for quantifying and reporting GHG emissions and removals at the organization level), the Carbon Disclosure Project (a global environmental disclosure platform that enables companies, cities, states, and regions to measure and manage their environmental impacts), and the Net Zero Initiative.

52. Smart Buildings

Modern structure that utilizes advanced technologies to connect, analyze, and optimize its performance. These buildings integrate various systems (e.g., HVAC, lighting, alarms) into a single network infrastructure to reduce energy usage and operational costs.

53. Sustainable Aviation Fuel (SAF)

Alternative type of fuel made from non-petroleum feedstocks (renewable biomass) that reduce emissions from air transportation. Types of feedstocks include corn grain, algae, oil seeds, and other fats, oils, and greases.

Image depicts a plane at San Francisco International Airport being fueled with Sustainable Aviation Fuel. (Photo: SFO Sustainability)

54. Virtual Power Plant (VPP)

Collection of small-scale interconnected, but otherwise unrelated, energy producing or storage devices that can serve the electricity grid to meet demand. An example includes utility providers leveraging additional energy generated and stored by a solar array owned by individual households or organizations for power production.

55. Voluntary Carbon Markets (VCM)

Self-regulated marketplaces that allow buyers – businesses, organizations or individuals – to voluntarily reduce their emissions footprint by purchasing carbon offsets generated from projects that avoid, reduce or remove emissions.

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