

# Acronyms and glossary

## Acronyms

BAU	business as usual	LEED	Leadership in Energy and Environmental Design (green building rating system)
BIPOC	Black, Indigenous, and people of color	LiDAR	Light Detection and Ranging
BMP	best management practice	HDV	heavy-duty vehicle
BWSR	Board of Soil and Water Resources	MAWQCP	Minnesota Agricultural Water Quality Certification Program
CO <sub>2</sub>	carbon dioxide	MCAP	Minnesota Climate Adaptation Partnership
CO <sub>2</sub> -e	carbon dioxide equivalent (common unit for greenhouse gas emissions)	MDA	Minnesota Department of Agriculture
DC	direct current	MN	Minnesota
DNR	Department of Natural Resources	MnDOT	Minnesota Department of Transportation
EAB	emerald ash borer beetle	MPCA	Minnesota Pollution Control Agency
EV	electric vehicle	mpg	miles per gallon
FEMA	Federal Emergency Management Agency	NREL	National Renewable Energy Laboratory
GHG	greenhouse gas	PV	photovoltaic
IPCC	Intergovernmental Panel on Climate Change	REV	Regional Electric Vehicle
LCFS	Low Carbon Fuel Standard	USDA	U.S. Department of Agriculture
LDV	light-duty vehicle		

# Glossary

## **accessibility**

The intentional design of technology, policies, products, infrastructure, and services that increase one's ability to use, access, and obtain the respective item.

## **acidification (of manure)**

The addition of an acid to a manure slurry to reduce the release of ammonia and methane.

## **active transportation**

See **non-motorized transportation**.

## **adaptation**

Taking action to prepare for and adjust to both the current and projected impacts from **climate change**. For both natural and built systems, humans may intervene to help adjustment.

## **adaptation planning**

The process a community uses to prioritize, prepare, and respond to **climate change** impacts through **adaptation** actions.

## **adaptive reuse**

The process of changing the use of an existing building and making it more efficient through repair, alterations, and additions.

## **anaerobic digestion**

A process through which bacteria break down organic matter, such as animal manure, in the absence of oxygen. Anaerobic digestion for biogas (a gaseous **biofuel**) production takes place in a sealed vessel called a reactor.

## **aquifer**

A body of permeable rock which can contain or transmit groundwater.

## **asset management**

A systemic approach for evaluating trade-offs between service, cost, and risk for built and natural assets. An asset is a thing that is valuable and long-lasting, such as buildings, **infrastructure**, equipment, recreation facilities, and more.

## **biochar**

Stable, **carbon**-rich material produced by heating **biomass** in a low oxygen environment. Biochar may be added to soils to improve soil functions and to reduce **greenhouse gas** emissions from biomass and soils, and for **carbon sequestration**.

## **biodiversity**

The enormous variety of life on Earth, including plants, bacteria, animals, and humans. It can more specifically refer to all the species in one region or ecosystem.

## **biofuel**

A fuel produced from **biomass**. These include first-generation biofuels such as ethanol from corn sugars and biodiesel from soybean oil, second-generation biofuels from an array of source materials including lignocellulosic feedstocks and municipal solid waste, and any biofuels that may be developed in the future.

## **biomass**

1. The mass of all living things. 2. **Renewable material** that comes from plants or animals. This organic material can be used as fuel to produce electricity or heat. Examples are wood, energy crops, and waste from forests, yards, or farms.

## **broadband**

High-speed internet access that is always on and faster than traditional dial-up access. Broadband includes several high-speed transmission technologies such as: Digital Subscriber Line (DSL), cable modem, fiber, wireless, satellite, and broadband over power lines (BPL).

### **buffer**

Vegetated land adjacent to a stream, river, lake or wetland. Buffers help filter out phosphorus, nitrogen, and sediment, and are an important conservation practice for helping keep water clean.

### **building sector**

The building construction, operations, and maintenance industries.

### **carbon**

1. A chemical element. Carbon is found in all living things. 2. Used when referring to the gas **carbon dioxide** in terms of the effect it has on the earth's **climate** in causing **climate change**.

### **carbon dioxide (CO<sub>2</sub>)**

A naturally occurring gas, CO<sub>2</sub> is also a by-product of burning **fossil fuels** (such as oil, gas and coal), of burning **biomass**, of land use changes, and of industrial processes (e.g., cement production). It is the principal **greenhouse gas** produced by human activities that affects the Earth's radiative balance.

### **carbon footprint**

The amount of **greenhouse gases** and specifically **carbon dioxide** emitted by something (such as a person's activities or a product's manufacture and transport) during a given period.

### **carbon-free electricity**

Electricity generation that either does not use **fossil fuels** or does not emit carbon. Examples include wind, solar, and nuclear.

### **carbon-neutral**

Achieving **net-zero carbon dioxide** emissions at a global scale through the balance of residual carbon dioxide emissions with the same amount of carbon dioxide removal.

### **carbon sequestration (biological)**

The process by which atmospheric **carbon dioxide** is taken up by trees, grasses, and other plants through photosynthesis and stored as carbon in **biomass** (trunks, branches, foliage, and roots) and soils.

### **carbon storage**

See **carbon sequestration (biological)**. Also: In the forestry sector, a snapshot of the amount of **carbon** in a tree, woodland, or harvested wood product at any given time.

### **clean economy**

An economy that is **low-carbon** and that produces goods and services with an environmental benefit.

### **clean energy**

Energy generated from **renewable** or **carbon-free** sources, as well as energy saved through **energy efficiency** measures.

### **clean fuel standard**

A policy to incentivize reducing **greenhouse gas** emissions from transportation fuels as compared to conventional petroleum fuels, such as gasoline and diesel.

### **clean transportation**

Technologies aimed at **energy efficiency** in transportation systems, switching from **fossil fuels** to renewable and clean technologies, improvements in public transit and non-motorized transportation systems and infrastructure, and travel demand management in order to reduce the negative effects caused by conventional technologies. Examples include light rail, bus rapid transit vehicles and systems, multimodal transit hubs, and traffic signal prioritization and coordination systems.

### **climate**

The typical weather conditions of a specific region over a given period of time, with a minimum period of 20-30 years.

### **climate-adaptive**

The ability of a species, ecosystem, or human system to cope with or adjust to changing climatic conditions.

**climate change**

A change of **climate** attributed directly or indirectly to human activity that alters the composition of the global atmosphere and is in addition to natural climate variability observed over comparable time periods.

**climate pollution**

See **Greenhouse gas**.

**climate-smart**

Aiming to increase **climate resiliency** and reduce **greenhouse gas** emissions.

**conservation improvement activities**

Rebates or other kinds of help that utilities provide to their customers to lower their energy bills.

**conservation tillage**

Farming practices that leave at least 30 percent of the soil surface covered by crop residue after planting to reduce erosion. Examples of conservation tillage include no-till and strip-till.

**cover crop**

Crops planted to temporarily reduce wind and water erosion, enhance water availability, and supply living roots to the soil outside of the growing season when cropland is often not adequately protected.

**critical facility**

Facilities and **infrastructure** that are critical to the health and welfare of the population and that are especially important following **hazard** events. These include police and fire stations, hospitals, waste-water treatment plants and other public utilities.

**decarbonize**

Lower the **carbon** emissions.

**deconstruction**

Taking apart or removing some building components for reuse and recycling.

**disadvantaged**

In unfavorable circumstances, especially with regard to financial or social opportunities.

**discrimination**

The practice of unfairly treating a person or group differently from other people or groups of people.

**disparity**

A noticeable and usually significant difference.

**disproportionate effects/impacts**

Situations of concern where **people of color**, **Indigenous** people, or **lower income communities** experience significantly worse health, environmental, or social impacts.

**drainage (agricultural)**

Use of surface ditches, subsurface permeable pipes or both to remove standing or excess water from poorly drained lands.

**electric power sector**

Utilities providing electricity to Minnesota.

**embodied carbon (of construction materials)**

All the **carbon dioxide** emitted in producing a product, including the energy needed for the extraction of natural resources, manufacturing, transportation, and installation.

**emerald ash borer (EAB)**

An invasive insect that has killed millions of ash trees throughout the eastern half of the U.S. and southeastern Canada. Native to eastern Russia, northern China, Japan, and Korea, emerald ash borer infests and kills both weak and healthy ash trees. All ash species native to North America are vulnerable to attack.

**energy burden**

The percentage of gross household income spent on residential energy costs.

**energy efficiency**

Using less energy to achieve the same outcome.

**energy sector**

Energy industries involved in the production and supply of energy related to heating, industrial processes, and electricity generation.

**environmental justice**

The fair treatment and meaningful involvement of all people regardless of race, color, culture, national origin, income, and educational levels with respect to the development, implementation, and enforcement of protective environmental laws, regulations, and policies.

**environmental justice areas of concern**

Census tracts where the number of **people of color** and/or **Indigenous** people is greater than 50% and/or more than 40% of the households have a household income of less than 185% of the federal poverty level. Also includes communities within Tribal boundaries.

**equity**

The proactive reinforcement of policies, practices, attitudes and actions that produce fairness in power, access, opportunities, treatment, impacts and outcomes for all.

**fibers (construction materials)**

Thread-like materials that are produced from plants or other natural processes, such as cellulose, jute, or hemp.

**fossil fuel**

Fuel formed in the earth from ancient plant or animal remains. These fuels are found in the Earth's crust and contain **carbon** and hydrogen, which can be burned for energy. Coal, oil, and natural gas are examples of fossil fuels.

**green infrastructure**

Ecological systems, both natural and engineered, that are managed primarily for **stormwater management**, reduction of heat stress, increased **biodiversity**, better air quality, cleaner water, and healthier soils.

**green**

Contributing to preserving or restoring the environment.

**green space**

Usually publicly accessible areas with natural vegetation, parks, street trees, woodlands, forests and grasslands which often provide co-benefits with mitigating stormwater and reducing the **urban heat island** effect.

**greenhouse gas (GHG)**

Gases in the earth's atmosphere that trap heat produced both naturally and through human activity. Excess greenhouse gas emissions cause **climate change**. **Carbon dioxide** (CO<sub>2</sub>) is the primary greenhouse gas emitted through human activities, such as burning **fossil fuels**. Nitrous oxide (N<sub>2</sub>O) and **methane** (CH<sub>4</sub>) are also potent greenhouse gases emitted through human activities.

**green fuel**

See **biofuel**.

**GreenStep (program)**

A voluntary program to help Minnesota cities, Tribal Nations, and schools achieve their sustainability and quality-of-life goals through technical assistance and recognition.

**grid (electrical)**

An interconnected network for electricity delivery from producers to consumers. See **Transmission and distribution**.

**groundwater**

The water beneath the land surface that fills the spaces in rock and sediment. It is replenished by precipitation. Groundwater supplies

about 75 percent of Minnesota's drinking water and nearly 90 percent of the water used for agricultural irrigation.

### **habitat complex**

A collection of adjacent or nearby parcels in public and private working lands ownership that provide habitat for a wide range of wildlife species. An example could include a state wildlife management area, a federal waterfowl production area, and a private pasture in close proximity.

### **habitat corridor**

A series of habitat patches connecting larger **habitat complexes** on the landscape that makes it easier for wildlife to move from one area to another. These corridors often stretch through areas dominated by human activity.

### **hazard**

The potential occurrence of a natural or human event that may cause damages to health, property, **infrastructure**, and ecosystems.

### **hazard mitigation**

Any sustained action taken to reduce or eliminate long-term risk from **hazard** events.

### **health disparities**

Differences in health among population groups.

### **health inequities**

**Health disparities** that are deemed unfair or stemming from some form of injustice.

### **hedgerow**

A narrow line of closely spaced native trees, shrubs, grasses or groundcovers designed to buffer adjacent land uses and benefit native wildlife.

### **Heritage Tree Preservation**

A program to identify and give official recognition to trees that are very large, very old, or are an important part of an area's history or culture. Heritage trees may live on either public or private property.

### **Indian/American Indian**

A person recognized as Indian through their affiliation with a **Tribal Nation**.

### **Indigenous**

A broad term for people who have historical ties to societies that existed prior to colonial settlement. Indigenous people often have a special relation to and use of their ancestral land. Indigenous people exist across the world and often maintain distinct language, culture, beliefs, and social and political systems.

### **Indigenous knowledge**

**Indigenous** knowledge refers to the understandings, skills and philosophies developed by societies with long histories of interaction with their natural surroundings.

### **inequality**

Difference in size, degree, circumstances, etc.

### **inequity**

Unfair, avoidable differences arising from poor governance, corruption or cultural exclusion.

### **infiltration**

The movement of water into the ground from the surface.

### **infrastructure**

The basic systems and services, such as transportation, water, and power supplies, that a society or organization uses in order to work effectively.

### **internal combustion engine**

A device that generates mechanical power by burning fuel within the engine. Examples include gasoline engines and diesel engines.

### **invasive species**

Species that are not native to Minnesota and cause economic or environmental harm or harm to human health.

### **Justice40 Initiative**

An initiative of the federal government that aims to deliver “at least 40 percent of the overall benefits from Federal investments in climate and clean energy to disadvantaged communities.” The initiative was launched by an Executive Order in 2021 and is still under development.

### **land use pattern**

The layout or arrangement of the human uses of land. It represents the economic and cultural activities (e.g., agricultural, residential, industrial, commercial, mining, and recreational uses) that are practiced in a given place.

### **land use planning**

The process of regulating the use of land by a central authority, such as a local government. Usually, this is done to promote better social and environmental outcomes and a more efficient use of resources.

### **LiDAR**

A remote sensing method that uses light in the form of a pulsed laser to measure variable distances to Earth. The technology can be used to identify localized flood risk among many other applications. LiDAR is an abbreviation for Light Detection and Ranging.

### **low-carbon**

Causing or resulting in only a relatively small net release of **carbon dioxide** or other **greenhouse gas** into the atmosphere.

### **lower income communities**

Communities that are made up of a large number of households that meet one of several low-income definitions, including, but not limited to, <80% Area Median Income and <200% Federal Poverty Level.

### **manure acidification**

Manipulating the acidity of manure to change the balance between ammonia and ammonium, reducing ammonia and methane emissions.

### **marginalized**

Descriptor for groups and communities which are discriminated against and excluded from mainstream social, economic, cultural, or political life based on a cultural identity or difference. Examples include, but are not limited to, race, religion, age, gender, or financial status.

### **methane (CH<sub>4</sub>)**

A powerful **greenhouse gas** produced by both natural processes and human activities. It is a primary component of natural gas. Human-influenced emission sources include landfills, oil and natural gas systems, agricultural activities, coal mining, combustion, wastewater treatment, and certain industrial processes.

### **Minnesota Climate Adaptation Partnership (MCAP)**

A public-private partnership based at the University of Minnesota that advances **climate adaptation** science, supports climate resilience actions, and collaborates across all sectors and levels of government in Minnesota.

### **mitigation (of climate change)**

A human intervention to reduce emissions or enhance the removal of a **greenhouse gas** from the atmosphere (e.g., through **carbon sequestration** in plants)

### **multi-hazard events**

Events where more than one **hazard** occurs at the same time and place. For example, a chemical spill from a plant occurring at the same time the area is experiencing a flood.

### **multimodal transportation and planning**

Transportation and land use planning that considers diverse transportation options, typically including walking, bicycling, public transit, and automobile, and accounts for land use factors (such as land use density and mix) that affect access to destinations.

### **natural and working lands**

Farms, forests, wetlands, grasslands, and urban open space.

### **net-zero buildings**

A highly energy-efficient building that generates as much energy through renewable energy on site or locally as it consumes in its operation over the course of one year.

### **nitrification inhibitors**

A compound added to a nitrogen-based fertilizer or manure to reduce losses of **nitrogen** to the environment while maximizing use by crops. By extending the time the active nitrogen component of the fertilizer remains in the soil, an inhibitor can increase the amount of the nitrogen that is eventually used by the plants and reduce the amount of fertilizer needed.

### **nitrogen**

1. A chemical element. Nitrogen is found in all living things. 2. Used when referring to a group of chemically reactive forms of nitrogen, some of which form naturally, while some are produced through human activities. Excess reactive nitrogen pollution impacts water quality, air quality, **greenhouse gas** balance, ecosystems, and **biodiversity**.

### **nitrous oxide (N<sub>2</sub>O)**

A **greenhouse gas** emitted through agricultural activities such as application of nitrogen fertilizers or manure management, as well as through land use, transportation, and industrial activities.

### **non-motorized transportation**

Human-powered transportation modes including walking and bicycling, and variants such as small-wheeled transport (skates, skateboards, push scooters, etc.) and wheelchair travel. These modes can provide recreation (they provide enjoyment), transportation (they provide access to goods and activities), or both. Also known as **active transportation**.

### **overburdened community**

A community where multiple factors, including environmental and socio-economic stressors, act together to negatively affect **people of color**, **Indigenous** people, non-English-speaking communities, and **lower income communities**. Overburdened communities face overlapping harms and risks that reduce **resilience**, create negative health impacts, and reduce economic and political opportunities.

### **passive cooling**

Buildings constructed with design features that reduce heat gain and increase heat loss.

### **peatlands**

Terrestrial wetland ecosystems in which waterlogged conditions prevent plant material from fully decomposing. Consequently, the production of organic matter exceeds its decomposition, which results in a net accumulation of peat. Peatlands are **carbon**-rich ecosystems that store and sequester more carbon than any other type of terrestrial ecosystem.

### **people of color**

A broad reference to multiple **races** other than white.

### **perennial crops**

Plants that last for more than two growing seasons, either dying back after each season or growing continuously.

**pollinator**

Bees, butterflies, flies, birds, hummingbirds, moths, and other species who transfer pollen grains to other plants by feeding off its pollen or nectar.

**precision agriculture**

Farming management that uses technology and data from multiple sources to improve crop yields and increase the cost-effectiveness of crop management strategies including fertilizer inputs, irrigation management, and pesticide application. These tools and strategies are generally applied to address variability between and within fields.

**public health infrastructure**

Physical and organizational structures and facilities used to prevent disease, promote health, and respond to health threats.

**race**

A social construct that artificially divides people into distinct groups based on characteristics such as physical appearance (particularly skin color), ancestral heritage, cultural affiliation, cultural history, ethnic classification, and the social, economic and political needs of a society at a given period of time.

**racism**

Prejudiced thoughts and discriminatory actions based on a difference in **race** or ethnicity. Racism can exist in all aspects of a society including its history, culture, politics, economics, and social norms. It can be conscious and unconscious. Racism creates racial **inequity** across a society.

**redlining**

Redlining is the illegal practice of refusing to provide financial services to consumers based on the area where they live.

**rehabilitation (of buildings)**

See **retrofitting**.

**remediation**

The action of reversing or stopping environmental damage.

**renewable energy**

Energy collected from resources that are naturally replenished on a human timescale. Examples include wind, wood, solar, hydropower, and geothermal energy.

**renewable materials**

Products that can be replenished or regenerated after use.

**resilience (to climate change)**

The capacity of individuals, communities, businesses, buildings, infrastructure or the natural environment to prevent, withstand, respond to, and recover from disruptive events and continue to perform despite persistent stresses imposed by **climate change**. Both **mitigation** and **adaptation** are necessary for long-term resilience.

**resilient design standards**

Specific criteria for the design or renovating of buildings, infrastructure, and landscapes within communities and regions to better withstand the impacts of **climate change**.

**reskilling**

Learning a new skill to do a different job, or training people to do a different job.

**retrofitting (of buildings)**

The process of making an existing building more efficient and/or changing its use through repair, alterations, and additions while keeping large portions of the building structure, material and architectural character.

**rideshare**

The act or practice of sharing automobile trips.

**risk assessment**

The process to identify potential **hazards** and analyze what could happen if a hazard occurs.

**shelterbelts**

Linear plantings of multiple rows of trees or shrubs established for environmental purposes such as protecting farmsteads and livestock, reducing wind erosion, saving energy, and enhancing wildlife habitat.

**sink**

A reservoir (natural or human, in soil, ocean, and plants) where a greenhouse gas, an aerosol or a precursor of a greenhouse gas is stored. *See also* **Carbon sequestration**.

**soil organic carbon**

A measurable component of soil organic matter that is a source of solid **carbon** and energy for the soil food web. It is a building block of soil productivity that contributes to higher water-holding capacity, better drainage, and better storage of nutrients.

**source water protection area**

Area surrounding the source of drinking water. Water sources can be rivers, streams, lakes, reservoirs, springs, and groundwater. The purpose of defining these areas is to provide additional protection to safeguard drinking water from contamination on the land surface or in water.

**sovereign**

The authority of a political entity (such as a tribe, state, or nation) to govern itself.

**split nitrogen fertilizer applications**

To make two or more **nitrogen** fertilizer applications during the growing season rather than providing all of the crop's nitrogen requirements with a single application before or while planting.

**stormwater management**

Stormwater runoff includes rain and snowmelt that flows over land or hard surfaces, such as paved streets, parking lots, and building rooftops, and does not soak into the ground. Management of stormwater runoff means intercepting and treating the runoff water.

**sustainability**

Creating and maintaining the conditions under which humans and nature can exist in productive harmony to support present and future generations.

**telecommute**

Work from home rather than a central office, using telecommunications (telephone, email, websites, video connections, etc.) to substitute for physical travel.

**transmission and distribution** (of electricity)

Different stages of carrying electricity over poles and wires from generators to a home or business. Electricity generated at power plants moves through a complex network of electricity substations, power lines, and distribution transformers before it reaches customers. Together, transmission and distribution lines make up the electrical **grid**.

**transportation options**

The quantity and quality of options available to an individual or group to reach desired goods, services, activities and destinations, taking into account their specific needs and abilities.

**tree canopy**

The layer of leaves, branches, and stems of trees that cover the ground when viewed from above.

**tribal consultation**

Within the contexts of tribal-state relations in Minnesota, the term consultation tends to be used to refer to formal government-to-government interactions undertaken by duly authorized officials from tribes and the state.

### **Tribal Nation**

A political and legal entity possessing inherent rights of self-government, having a government-to-government relationship with the U.S., and entitled to certain federal benefits, services, and protections through this relationship. Also known as Indian tribe.

### **underserved communities**

Communities that face barriers in accessing and using resources due to geographic location, racial background, sexual orientation, language, or other social factors. These communities have often been systematically denied a full opportunity to participate in aspects of economic, social, and civic life.

### **upskilling**

Improving existing skills or learning additional skills to better perform a current job.

### **urban heat island**

Urbanized area that experiences higher temperatures than outlying areas because structures such as buildings and roads absorb and re-emit the sun's heat more than natural landscapes such as forests and water bodies.

### **utility disconnection**

A deliberate interruption or limitation of a customer's utility service (e.g., electricity, heating) by the utility company.

### **vehicle efficiency**

The **energy efficiency** of a particular vehicle, given as a ratio of distance traveled per unit of fuel consumed, such as miles per gallon (MPG). Also known as fuel economy.

### **vehicle miles traveled (VMT)**

The amount of travel for all vehicles in a geographic region over a given period of time, typically a one-year period. It is calculated as the sum of the number of miles traveled by each vehicle.

### **vehicle tailpipe emissions standards**

The legal requirements governing air pollutants released into the atmosphere from internal **combustion engine** exhaust. Emission standards set limits on the permissible amount of specific air pollutants that may be released from specific sources over specific timeframes.

### **vulnerability**

The degree to which a system is susceptible to, or unable to cope with, adverse effects of **climate change**, including climate variability and extremes.

### **vulnerability assessment**

A tool used as an initial step in the **adaptation planning** process that identifies a community's assets or populations and evaluates their **vulnerability** and risk from **climate change** impacts.

### **Weatherization Assistance Program**

The U.S. Department of Energy program designed to reduce energy costs for income-eligible households (200% of the federal poverty level or below) by increasing the **energy efficiency** of their homes, while ensuring their health and safety.

### **zero waste**

The conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health.