

Energy Economics and Transition

Abatement Cost: The cost of reducing greenhouse gas emissions to meet a specific target. Abatement costs can be incurred by businesses, governments, or individuals and can include the cost of new technology, operational changes, or regulatory compliance.

Carbon Footprint: The total amount of greenhouse gases produced to directly and indirectly support human activities, usually expressed in equivalent tons of carbon dioxide (CO₂).

Carbon Pricing: A policy tool that puts a financial cost on greenhouse gas emissions, typically in the form of a carbon tax or a cap-and-trade system. The goal of carbon pricing is to provide economic incentives for businesses and individuals to reduce their carbon footprint.

Cap-and-Trade System: A type of carbon pricing system in which a government sets a limit (cap) on the total amount of greenhouse gases that can be emitted by businesses and other entities. Companies that emit less than their allotted amount can sell (trade) their excess allowances to companies that emit more.

Carbon Tax: A tax on the carbon content of fuels, such as coal, oil, and natural gas. The goal of a carbon tax is to provide economic incentives for businesses and individuals to reduce their carbon footprint.

Clean Energy: Energy produced from renewable sources, such as wind, solar, hydro, and geothermal, that do not emit greenhouse gases or other pollutants.

Decarbonization: The process of reducing the amount of greenhouse gases produced by human activities, particularly in the energy sector.

Demand-Side Management (DSM): A set of strategies and techniques used to manage the consumption of electricity, with the goal of reducing peak demand and overall energy use. DSM can include programs such as time-of-use pricing, energy efficiency measures, and demand response.

Distributed Energy Resources (DER): Small-scale, decentralized sources of energy, such as rooftop solar panels, that are connected to the electricity grid. DER can help to reduce the need for large, centralized power plants and improve the reliability and resilience of the grid.

Electric Vehicle (EV): A vehicle that is powered by electricity, either fully or partially. EVs can help to reduce greenhouse gas emissions and improve air quality.

Energy Efficiency: The use of less energy to perform the same task, usually through the use of more efficient technology or practices.

Energy Services Company (ESCO): A company that provides energy efficiency services to businesses and other organizations, usually through a performance contract. ESCOs typically provide financing, design, installation, and maintenance services for energy efficiency measures.

****Energy Storage:**** The capture and storage of energy for later use, usually through batteries or other electrical storage technologies. Energy storage can help to smooth out the variability of renewable energy sources, such as wind and solar, and improve the reliability of the electricity grid.

****Energy Transition:**** The shift from fossil fuels to cleaner, more sustainable forms of energy, such as wind, solar, and hydro. The energy transition is driven by a variety of factors, including climate change, air pollution, and energy security.

****Fossil Fuels:**** Fuels derived from the remains of ancient plants and animals, such as coal, oil, and natural gas. Fossil fuels are the largest source of greenhouse gas emissions in the world.

****Green Energy:**** Energy produced from renewable sources, such as wind, solar, hydro, and geothermal, that do not emit greenhouse gases or other pollutants.

****Greenhouse Gas (GHG):**** A gas that traps heat in the atmosphere, contributing to the greenhouse effect and global warming. The most common greenhouse gases are carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O).

****Greenhouse Gas Emissions:**** The release of greenhouse gases into the atmosphere, usually as a result of human activities such as burning fossil fuels, deforestation, and agriculture.

****Life-Cycle Analysis (LCA):**** A method for evaluating the environmental impacts of a product or service over its entire life cycle, from raw materials extraction to disposal. LCA can help to identify the most significant sources of environmental impact and provide guidance for reducing those impacts.

****Microgrid:**** A small, localized electricity grid that can operate independently of the larger grid. Microgrids can help to improve the reliability and resilience of the electricity grid, particularly in remote or isolated areas.

****Negawatt:**** A term used to describe a unit of energy that is not consumed, usually as a result of energy efficiency measures.

****Net Metering:**** A billing arrangement that allows customers with rooftop solar panels or other distributed energy resources to receive credit for the excess energy they produce and feed back into the grid.

****Peak Demand:**** The highest level of electricity demand in a given time period, usually during the evening hours when people are returning home from work and turning on lights, appliances, and air conditioning.

****Renewable Energy:**** Energy produced from sources that are naturally replenished, such as wind, solar, hydro, and geothermal. Renewable energy sources do not emit greenhouse gases or other pollutants.

****Smart Grid:**** An electricity grid that uses digital technology to improve the efficiency, reliability, and flexibility of the grid. Smart grids can help to integrate renewable energy sources, manage peak demand, and improve the overall performance of the grid.

****Sustainability:**** The ability to meet the needs of the present without compromising the ability of future generations to meet their own needs. Sustainability is often used to describe efforts to reduce environmental impacts, promote social equity, and ensure economic prosperity.

****Time-of-Use Pricing:**** A type of electricity pricing in which the cost of electricity varies depending on the time of day or the level of demand. Time-of-use pricing can help to reduce peak demand and encourage energy conservation.

****Virtual Power Plant (VPP):**** A network of distributed energy resources, such as rooftop solar panels, batteries, and smart appliances, that can be managed and controlled as a single entity. VPPs can help to improve the reliability and efficiency of the electricity grid, particularly in areas with high levels of distributed energy resources.