

# Terminology & Definitions

Glossary of the Empire Building Challenge Knowledge Base.

Buildings that produce no net greenhouse gas emissions directly or indirectly. Carbon neutrality spans multiple scopes of associated greenhouse gas emissions including (1) operations on-site and via emissions associated with third-parties delivering energy or products to site and (2) embodied carbon emissions from the full lifecycle and production of construction materials. Emissions are often referred to as scope 1, 2 and 3: Essentially, scope 1 and 2 are those emissions that are owned or controlled by a company, whereas scope 3 emissions are a consequence of the activities of the company but occur from sources not owned or controlled by it.

The ratio of the amount of heat delivered from a heat pump over the amount of electrical input. For example, a heat pump has a COP of 5.0 if it can deliver 5 units of heat for one unit of electricity input. A COP of 1.0 is resistance heat like a toaster or hair dryer.

An additional weather barrier installed overtop an existing facade to increase building envelope energy performance, thermal comfort and to reduce ongoing building maintenance.

The capture and reuse of waste heat often incorporating thermal storage techniques, see [Time Independent Energy Recovery \(TIER\)](#).

An analysis of project cash flow over a set period of time which incorporates inflation and the time value of money; the "upfront" lifetime value of a project. A positive NPV yields a Return on Investment (ROI).

Fossil fuel consumed typically via combustion within a building for the purpose of heating, cooling, domestic hot water production, or power generation.

The ratio between net income or savings from a project investment over a set period of time. ROI is typically presented as a percentage for the period of one (1) year.

Economic benefits yielded from investment in a project. Simple payback is typically presented in the time (e.g. years) it takes to recover an investment, but does not take into account variations in cash flow over time nor considers the time value of money.

A mid- long-term financial planning method for building owners to manage carbon emissions and energy use.

The means by which heat or cool is moved throughout a building. This includes moving heat through various heat transfer media including but not limited to water, steam, refrigerant gas, or ducted air.

Infrastructure that enables sharing of heat through a variety of thermal transfer media between heat customers and producers who extract heat from various sources using a variety of technologies.

The storage of heat or cool in various media and using a variety of technologies for use at a later time.

Heat or cooling which is typically rejected to the air and not recovered. Waste Heat sources include sanitary sewer heat, heat rejected from air source heat pumps, cooling tower heat, heat lost from ventilation exhaust, steam condensate return, underground transportation etc.