



Renewable Fuels

In Washington State, renewable fuel is defined as “fuel produced using renewable resources”, such as renewable natural gas (RNG), renewable hydrogen, biodiesel fuel that is not derived from crops raised on land cleared from old growth or first growth forests, or biomass energy. (RCW 43.330.560(5))

The CESP scope for renewable fuel facilities includes facilities using the following renewable resources:

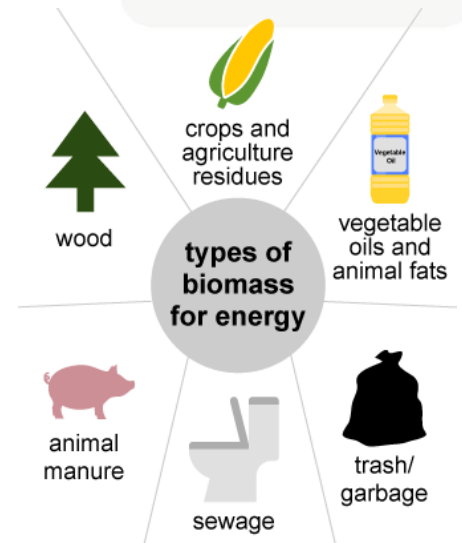
Biomass and organic waste: Animal waste, solid organic fuels from wood, forest or field residues, and dedicated energy crops (excluding wood treated with chemical preservatives).

Manufacturing by-products: Bark, wood chips, sawdust, and lignin derived from pulping or wood manufacturing processes.

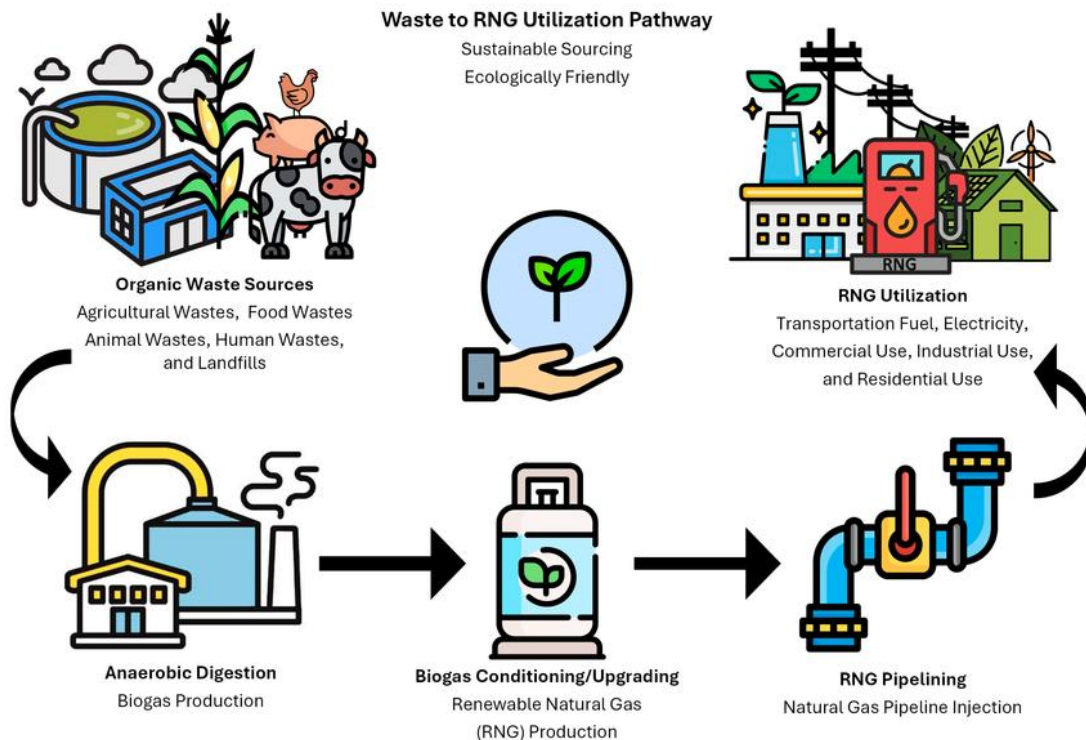
Gas recovery: Landfill gas and gas captured from sewage treatment facilities.

Hydrogen: Renewable and green electrolytic hydrogen produced using renewable resources.

Biofuels: Biodiesel and ethanol not raised on recently cleared old-growth or first-growth forest lands.



Source: [U.S. Energy Information Administration](https://www.energy.gov/eere/bioenergy)



Source: Foret et al. (2025). [Biogas Upgrading into Renewable Natural Gas](#)



Renewable fuels can be converted into energy through various processes, including direct combustion, thermochemical conversion, chemical conversion, and biological conversion.

- **Direct combustion** (burning) to produce heat. Direct combustion is the most common method for converting biomass energy. Organic materials including wood, agricultural residues, and waste are burned. The heat can then be used for heating buildings and water or generate electricity in steam turbines.
- **Thermochemical conversion** includes decomposition processes where biomass feedstock materials are heated in closed, pressurized vessels at high temperatures. Thermochemical conversions are often seen used at landfills.
- **Chemical conversion** takes vegetable oils, animal fats, and greases and converts them into fatty acid methyl ester, a main component for biofuels.
- **Biological conversion** includes fermentation to make ethanol and anaerobic digestion to produce biogas, also referred to as renewable natural gas or biomethane. The anaerobic digesters can be found at sewage treatment plants, paper mills, food processors, and livestock operations.

Renewable fuels may be produced, stored, transported, and used in gaseous, liquid, or solid form. These fuels may be blended with conventional fuels, converted to electricity through fuel cells, combusted directly to generate heat or power, or used with turbines and other energy-generation equipment. The processes and supporting infrastructure required would vary based on the feedstock, conversion technology, fuel form, facility scale, and intended end use.

Facility components can include pipelines for transportation; however, planning for potential pipelines is not included within CESP. Pipelines and their related jurisdiction authority will proceed through environmental review on a project level. Skagit County already has code in place for pipelines for fuel, oil, natural gas, and petroleum products under SCC 14.18.870.