



Timely thematic topic: Renewable fuels from waste

The growing convergence of sustainability themes - energy transition and waste transition

The energy transition to decarbonize is well under way, led by governmental mandates and corporate sustainability efforts that are driving record-high percentages of renewable energy generation. However, wind and solar power are not enough to meet aggressive decarbonization goals. Enter the waste transition, where waste is diverted from landfill introduction and other harmful disposition, and converted into valuable commodities including renewable fuels. The convergence of these sustainability themes — energy transition and waste transition — is driving a surge in organic-derived fuels such as renewable natural gas (RNG) and renewable diesel (RD).

Examples of waste conversion projects:

1. Anaerobic digester projects convert organic waste – such as animal manure, animal processing waste, and food waste – into RNG. The RNG can be pipeline injected, and used to power fleet vehicles, heat homes, or produce electricity. **Did you know:** The RNG produced annually from the manure of 4,000 dairy cows is sufficient for the heating and cooking needs of about 885 homes¹.
2. Renewable diesel projects convert organic waste – such as used fats, oils, and greases, and residual plant and woody biomass – into RD. The RD and related products are a replacement for fossil fuel alternatives utilized in high-emission sectors such as trucking, aviation, and maritime. **Did you know:** RD can reduce the carbon intensity of transportation fleets by 75% and reduce sulfur dioxide emissions by over 90%².

Other social impact benefits:

- Renewable fuels derived from organic waste provide a lower carbon intensity score than fossil fuel alternatives, which helps companies meet their net-carbon reduction goals.
- Post-production leftover organic waste can be utilized as a soil amendment, and leftover treated water can be returned to local farms for irrigation, improving crop yields.
- Compared to land application of organic wastes such as manure, phosphates are captured for use in fertilizers, protecting streams and lakes from algae blooms caused by phosphate run-off.

Growth Potential:

In 2015, there were only 50 RNG production facilities in operation in the U.S., with #100 operational in July, 2019. However, by the end of 2020, there were 157 in operation, with 76 under construction and another 79 in planning. In 2020, more than 20 new RD projects were announced totaling over \$4 billion in construction costs, ranging from 30 million gallon per year facilities near feedstock sources to 600 million gallon per year conversions of existing oil refineries³. This suggests strong near-term growth in both the RNG and RD sectors.

How to Invest?

Ecofin directly sources private investments into project companies that produce RNG and RD and invests in select listed companies involved in this sector. Ecofin offers access to these types of investments through a variety of vehicles including SMAs, mutual funds, private funds and an interval fund.

¹2019 Dairy-Derived Biogas Guide, 2019 AGA Natural Gas Facts. ²2017 Renewable Diesel Report by Gladstein. ³Biomass Magazine
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