RNG and sustainable energy

Key questions:

- What do you think renewable natural gas (RNG) is?
- How might we define “sustainable energy”?

Energy at work

FORTIS BC™

Renewable natural gas (RNG)

- RNG is derived from biogas (mostly made up of methane) that has been produced from decomposing organic waste.
- RNG is useable within FortisBC's natural gas system after the biogas has been captured and cleaned.

Renewable natural gas (RNG)

- RNG is considered to be a carbon-neutral renewable energy source as it uses carbon already in the cycle, rather than introducing new carbon from burning fossil fuels.
- RNG captures methane that would have otherwise escaped into the atmosphere, helping to reduce greenhouse gas emissions in BC.
- RNG is interchangeable with conventional natural gas as both are composed primarily of methane.

Producing RNG

1. Collect the biogas generated by organic waste from places such as landfills, farms and wastewater plants.

2. As bacteria decompose the organic waste, biogas (a mixture of methane, carbon dioxide, and other organic gases) is released and collected.

Producing RNG

3. Biogas is upgraded/purified to pipeline quality by removing carbon dioxide and other gases, leaving behind methane (biomethane).

4. The biomethane is then injected into FortisBC's existing natural gas system.

Producing RNG

Producing RNG

The necessary components required for a RNG facility include:

1. source of organic waste
2. anaerobic collection and storage system
3. facility for upgrading/purifying biogas into biomethane
4. infrastructure for injection into existing natural gas pipeline system

RNG in B.C.

- There are currently four RNG facilities in B.C.
  - Salmon Arm Landfill: 40,000 GJ of RNG per year
  - Fraser Valley Biogas: 90,000 GJ of RNG per year
  - Glenmore Landfill: expected 60,000 GJ of RNG per year
  - Seabreeze Dairy Farm: 70,000 GJ of RNG per year
- Ten thousand GJ is enough to heat ~100 homes per year.

RNG in BC

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Sustainable energy

- Renewable energy technologies such as solar, wind and RNG are all considered to be forms of sustainable energy. Sustainable energy is:
  - energy used at a significantly lower rate than is being produced and with manageable impacts (such as environmental impacts)[1]
  - a dynamic harmony between providing enough energy for human needs and preservation of the Earth for future generations[2]

1: Renewable Energy & Efficiency Partnership, 2004
2: Sustainable Energy, MIT Press, 2004

Sustainable energy

Three key factors of sustainable energy:

1. ability of energy to be consumed efficiently
2. ability of energy to be renewable
3. ability to provide energy over a long period of time