

Reducing energy expenses

New technology, such as the one by GE Water and Process Technologies, can help Singapore reuse every drop of water in a cost-effective way. The anaerobic membrane bioreactor technology uses bacteria to break down organic matter without the need for oxygen. This means it consumes at least 30 per cent less energy than systems which require oxygen. The technology has been tested at PUB's Ulu Pandan Water Reclamation Plant.

- 1**
- Used water from households is treated in an anaerobic digester. It uses bacteria that do not live or grow in the presence of oxygen. They react with the organic material in the used water, breaking it down.

- Biogas, which can be used as a fuel, is released in the process.
- The digested material is discharged from the bioreactor as sludge.

- 2**
- Biogas is channelled from the bioreactor into a biogas storage facility or is used to power the plant.

- 3**
- Used water is then channelled to the membrane filtration system, which separates solids from liquids.

- Part of the bacteria and biogas also leaves the bioreactor, but is channelled back using a recirculation pump.

- 4**
- The final step is for the water to be treated via reverse osmosis, which essentially involves pumping water through a membrane with tiny pores under high pressure, to remove dissolved impurities.

