

PWD's Energy Plan Progress

In alignment with the City's Greenworks Philadelphia Initiative, the Philadelphia Water Department (PWD) developed a Utility-Wide Strategic Energy Plan, establishing energy conservation and generation objectives for the Department. This is one of a series of reports on PWD's progress in achieving its strategic energy objectives.



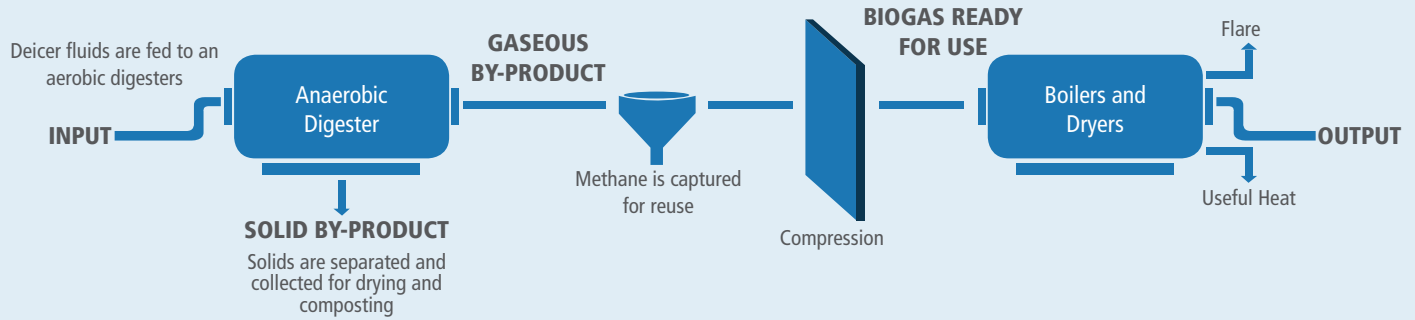
Typical commercial aircraft being deiced prior to takeoff (Photo: Rick Mullin).

PWD recovers useful energy from aircraft deicer runoff

In the winter of 2008, the Philadelphia Water Department (PWD) began accepting aircraft deicer from the Philadelphia International Airport to feed to the anaerobic digesters at its Southwest Water Pollution Control Plant. This increases the production of energy-rich methane gas that PWD can use to power plant operations, which reduces the Department's dependence on non-renewable energy sources.

The Federal Aviation Administration requires airports in the United States to use deicers for removing ice from runways and aircraft surfaces because this ice may interfere with proper flight. Although deicers are necessary for protecting passenger safety, they pose severe health and environmental concerns. 21 million gallons of deicer-contaminated runoff reach our waters annually (2010, U.S. Environmental Protection Agency). This runoff compromises aquatic habitats, killing plants and animals and polluting drinking water. Many of the chemicals in deicers are toxic to both human and animal health and can cause neurological, cardiovascular, and gastrointestinal problems; severe birth defects; and even death. Collecting the deicer and preventing its introduction to our waters effectively curtails the environmental and public health problems associated with deicer use.

Getting to Biogas



Important Facts

Through the addition of deicer to the anaerobic digesters at Southwest, PWD increased its digester methane production by an average of 7,600 MMBTU per year.

Calendar Year	Deicer Fed to Digesters (millions of gallons)	Methane Production (1000 MMBTU)
2009	1.94	11.7
2010	3.49	7.0
2011	2.91	11.5
2012	1.36	3.2
2013	2.50	4.7
Average	2.44	7.6

Volume of deicer added to the Southwest digesters and the associated biogas generation between 2009 and 2013 (YTD).

Triple Bottom Line - Plus Analysis of Aircraft Deicer Co-digestion

Our **Triple Bottom Line - Plus Analysis** measures our impact on the community using the following five categories:

Social Equality

Environmental Benefits

Economic Gains

Technological Innovation

Leadership

Fosters local business development by using local contractors and installers

Raises public awareness about alternative energy sources and sustainability

Aids the City in meeting its Greenworks Philadelphia goals

Increases operating revenue by charging tipping fees for aircraft deicer, resulting in jobs for Philadelphia residents related to environmental protection

Reduces the City's use of non-renewable energy sources

Diversifies the City's available bank of energy sources

Reduces the amount of energy the City purchases from commercial providers

Reduces the City's exposure to volatile energy prices

Increases the yield of biogas that can power plant operations