

ENERGY POTENTIAL IN MUNICIPAL WASTEWATER; AND HOW ITS RECOVERY, USING FILTRATION DYNAMICS' RESOURCE RECOVERY PLANT CONCEPT, CAN CONTRIBUTE TO ENERGY, WATER, AND ENVIRONMENTAL SUSTAINABILITY.

In a 2005 study, the Lawrence Berkeley National Laboratory estimated that the energy potential in municipal wastewater, in the United States, was equivalent to generating 7.2 billion kilowatt hours of electricity, annually.

This corresponds to an energy potential equal to the 2007 production of Hoover Dam and Glen Canyon Dam, combined. Most importantly, this is a renewable source of energy that is readily available; without the construction of a single emissions polluting coal-fired power plant; and without adding to the electricity grid infrastructure.

Moreover, in addition to saving 1.4 billion gallons of water that would otherwise be lost cooling those coal-fired power plants, this annual potential is also equivalent to removing 4.2 million metric tons of carbon dioxide from the environment.

In another wastewater study, this one by the EPA in April 2007, the EPA determined that there were approximately 17,000 municipal treatment facilities in the United States. Of that total, less than 10% were considered capable of having the economical benefits of cogeneration, also known as Combined Heat and Power. As for the remainder, whose wastewater flow rates were 5 million gallons a day or less; the EPA concluded that with the current technology, cogeneration would not be cost-effective in these small cities and towns.

Filtration Dynamics is a Silicon Valley start-up seeking seed funding to demonstrate that our unique Resource Recovery Plant Concept can cost effectively treat this wastewater and maximize the production of biogas from Anaerobic Digestion. The produced biogas will be converted to Combined Heat and Power. In our process, the aerobic treatment of sludge would be avoided, along with the energy required for its treatment.

Upon the successful completion of proof-of-concept and certification of on-site operational prototypes, small cities and towns will be able to tap into this free source of electricity, by transforming their energy intensive wastewater treatment plants into Net-Energy Producing Resource Recovery Plants.

For example, a city with a population of only 1,000 people processing 100,000 gallons of wastewater a day could realize a Net-Energy Advantage of 115,000 kilowatt hours of electricity, annually; become energy independent; and sell their excess electricity to the local grid. The amount of energy produced is linearly scalable with the size of the treatment plant.

Likewise, a Net-Energy Producing Resource Recovery Plant of this capacity would have immediate application in the small cities and towns of the developing world; where more than 1.3 billion people lack access to safe sanitation.

Your link to the 2005 Lawrence Berkeley National Laboratory Study (Clean Energy Technologies, A Preliminary Inventory of the Potential for Electricity Generation):

http://www.filtrationdynamics.com/7.2_Billion_kWh.pdf

Your link to EPA's 2007 Study (Opportunities for and Benefits of Combined Heat and Power at Wastewater Treatment Facilities):

http://www.filtrationdynamics.com/5_MGD_Uneconomical.pdf

Your link to FDI's White Paper (For Wastewater Treatment — Think Energy Latent Organics — Not Sewage Sludge):

<http://www.filtrationdynamics.com/Wastewater-WhitePaper.pdf>

Your link to FDI's PowerPoint Demo (An Energy Producing Resource Recovery Plant Concept):

http://www.filtrationdynamics.com/FDI_Resource_Recovery_Plants.pps