A Study of WASTE WATER ENERGY RECOVERY and its implementation in the Commonwealth of Massachusetts.

Climate change, a problem partially due to greenhouse gases in our atmosphere, has severe consequences for our environment. The use of renewable energy sources can reduce these emissions.

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Waste Water Energy Recovery is a technology needing further study and promotion.

The Massachusetts Department of Energy Resources is looking for more renewable energy sources.
Project Goal

Increase the availability of green energy technologies in the Commonwealth of Massachusetts through the promotion of waste water energy recovery technology.
Project Objectives

1. Develop criteria for identifying and selecting high potential sites of implementation of WWER.

2. Propose a process for the selection and installation of pilot sites for WWER within the Commonwealth of Massachusetts.

3. Identify strategies for the future installation of WWER technology within the Commonwealth.
Methodology

1. Interview representatives from previous projects
2. Refine criteria
3. Contact representatives from potential sites
4. Finalize criteria
5. Provide recommendations for the selection of pilot sites
6. Supply criteria for site selection
7. Provide recommendations that aid in future installation to the DOER
<table>
<thead>
<tr>
<th>Vendors</th>
<th>Previous Sites</th>
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<tbody>
<tr>
<td>International Waste Water Systems (1)</td>
<td>Correspondence with Philadelphia (1)</td>
</tr>
<tr>
<td>HUBER (3)</td>
<td>Kent County (1)</td>
</tr>
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<td>NovaThermal (1)</td>
<td>WWTP Representatives</td>
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<tr>
<td>Hidden Fuels (1)</td>
<td>MWRA (5)</td>
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</tbody>
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Interviews
Criteria Flow Chart

Objective 1

- Project Deliverable
- Developed as a result of compilation of research
- Used to evaluate site potential
Criteria

Begin

Sewage Access

Yes

New Construction/ HVAC replacement?

Yes

Full-time Heating/Cooling Load?

Yes

No

Not Effective Implementation

Consequences of not meeting criteria

Long Payback. May not be able to payback before system life expectancy

No

No

No
Implementation Process Flow Chart

Objectives 2 & 3
Implementation Process Flow Chart

Objectives 2 & 3

[Diagram of the implementation process flow chart with steps such as Begin (Pilot Site), Research Potential Site, Contact Potential Site, Conduct Preliminary Site Evaluation, Conduct Scoping Project, Conduct Cost Analysis, Design System, Install System, Operate, Monitor, Maintain, Promote, and an ongoing step marked with a dashed line.]
Recommendations

**Objective 3**

**Education**
- Use pilot site to encourage growth of technology

**Regulatory**
- Modify regulation to allow WWER to qualify for state funding

**Future Site Selection**
- Encourage sites to initiate installation process
Conclusion

Further knowledge, development, implementation of WWER

Additional renewable technology
Acknowledgments

DOER Renewables Division-Bram Claeys
DOER Green Communities-Aimee Powelka
WPI- Professor Paul Mathisen
WPI-Professor Seth Tuler

Hidden Fuels Representative-Peter Nelson
Huber Representatives- Chris Hubbard, Henry Russell, Richard Russell
International Wastewater Representative- Geoffrey Sauter
Kent County Representative- James Newton
MWRA Representative- Kristen Pateaude
Nova Thermal Representative-Jimmy Wang
QUESTIONS?