

Assessment of Technology Advancements for Future Energy Reduction

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The wastewater industry is continuously seeking new technologies that will reduce the need for purchased energy and improve its ability to beneficially recover resources. In addition, within energy-positive technologies such as codigestion that have begun to see wide levels of deployment, there are continuing efforts to improve performance. This research reviews 18 specific technology areas in an effort to assess their current level of maturity, projected impact on sector-wide energy use, and potential opportunities for adoption.

Based on input from researchers active in emerging technologies, mainstream shortcut nitrogen and pyrolysis/gasification appear to be the technology areas most likely to be adopted in the near term because these technologies are closest to being ready and the deployment timeline is estimated to be relatively short. Mainstream shortcut N removal and mainstream anaerobic treatment are expected to have the greatest impact on energy use in the wastewater sector in the near term.

Increased fundamental understanding of anaerobic communities was cited as a crucial component of future advancements, both in new technologies and optimization of existing technologies such as anaerobic digestion. Refining new methods to accomplish real-time monitoring of anaerobic community system functions was seen as a crucial part of this research.



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