

SURVEYING BIOGAS PRODUCTION AT WASTEWATER TREATMENT PLANTS

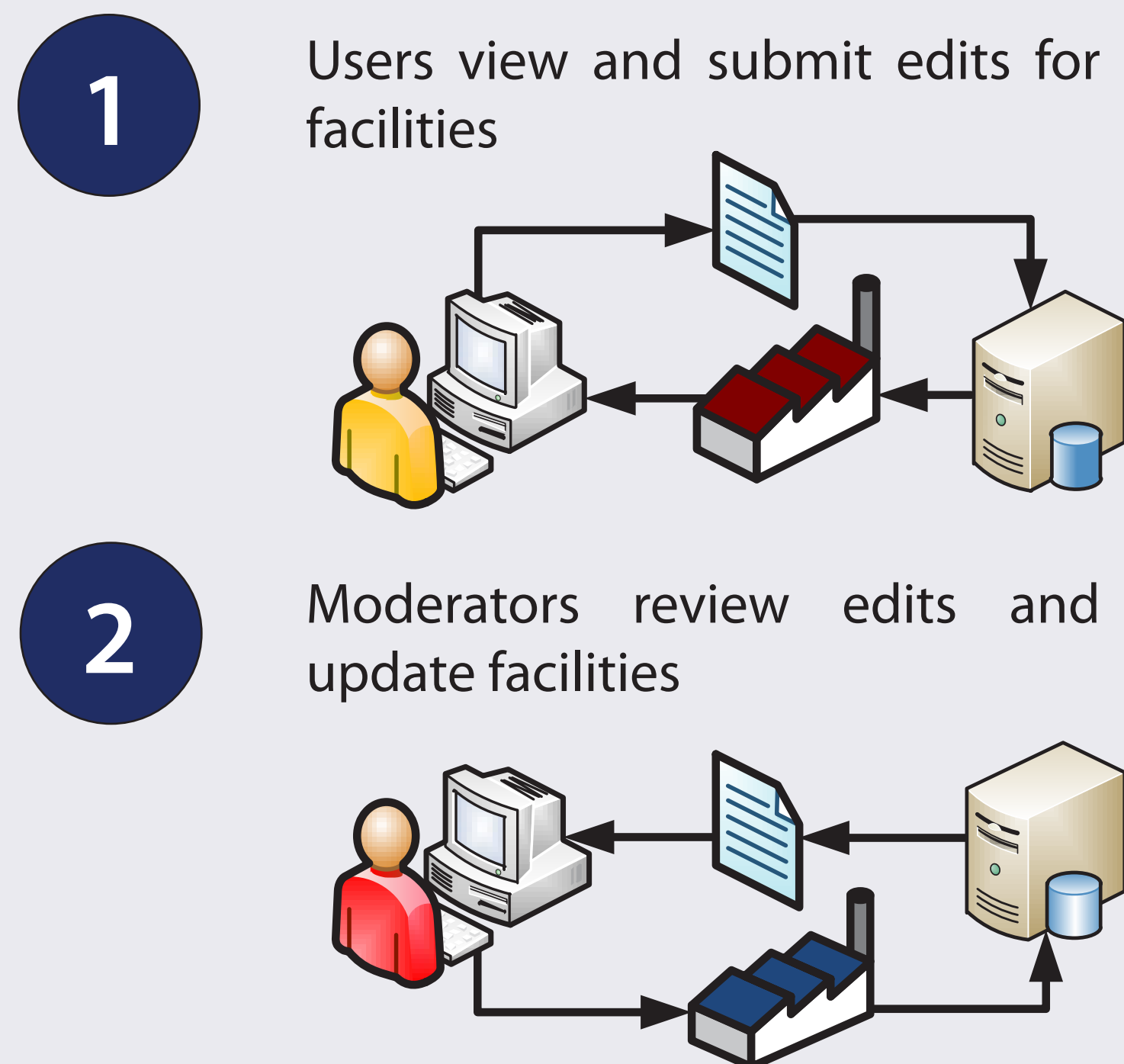
Abstract

In the summer of 2011, the Water Environment Federation (WEF), a not-for-profit technical and educational organization representing the wastewater treatment industry, published a Request for Proposals on the "Preparation of Baseline of the Current and Potential Use of Biogas from Anaerobic Digestion at Wastewater Plants." Through several iterations, an online survey and data collection method was developed to assist the WEF in an effort to discover information on the current and potential utilization of biogas at wastewater treatment facilities and identify potential opportunities for further biogas use. The survey was deployed on an internet platform to be widely available and facilitate its use. The application employed a strict user hierarchy and data validation process. Lessons learned and processes applied are relevant to all data collection projects, including the quadrennial 2012 Clean Watershed Needs Survey.

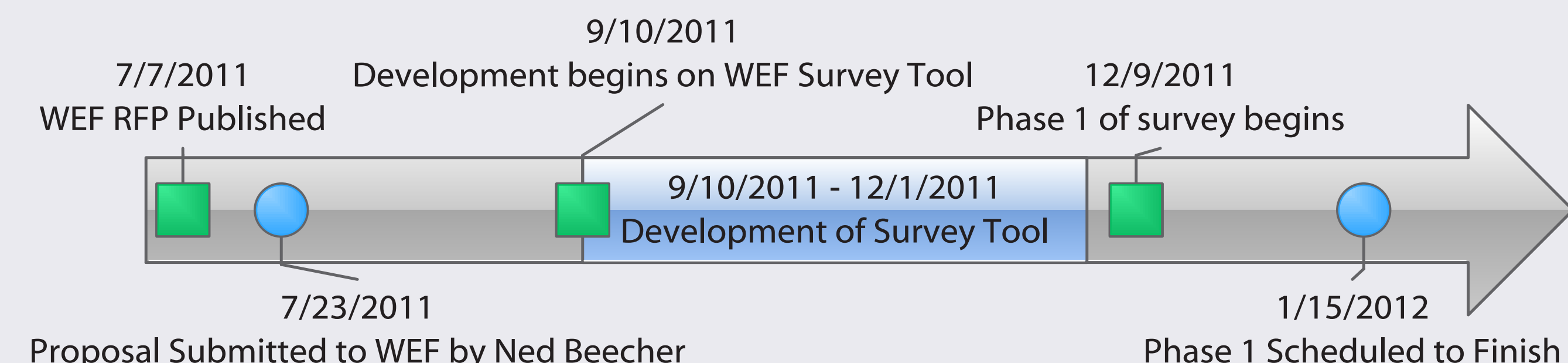
Introduction

- A survey was created to assist the WEF in updating the collective knowledge of all wastewater treatment plants
- Wastewater treatment has value in that it can produce Combined Heat & Power, fertilizer, and clean water
- Components of this project included integrating many different sources of existing data into a starting dataset and developing a survey tool based off that data

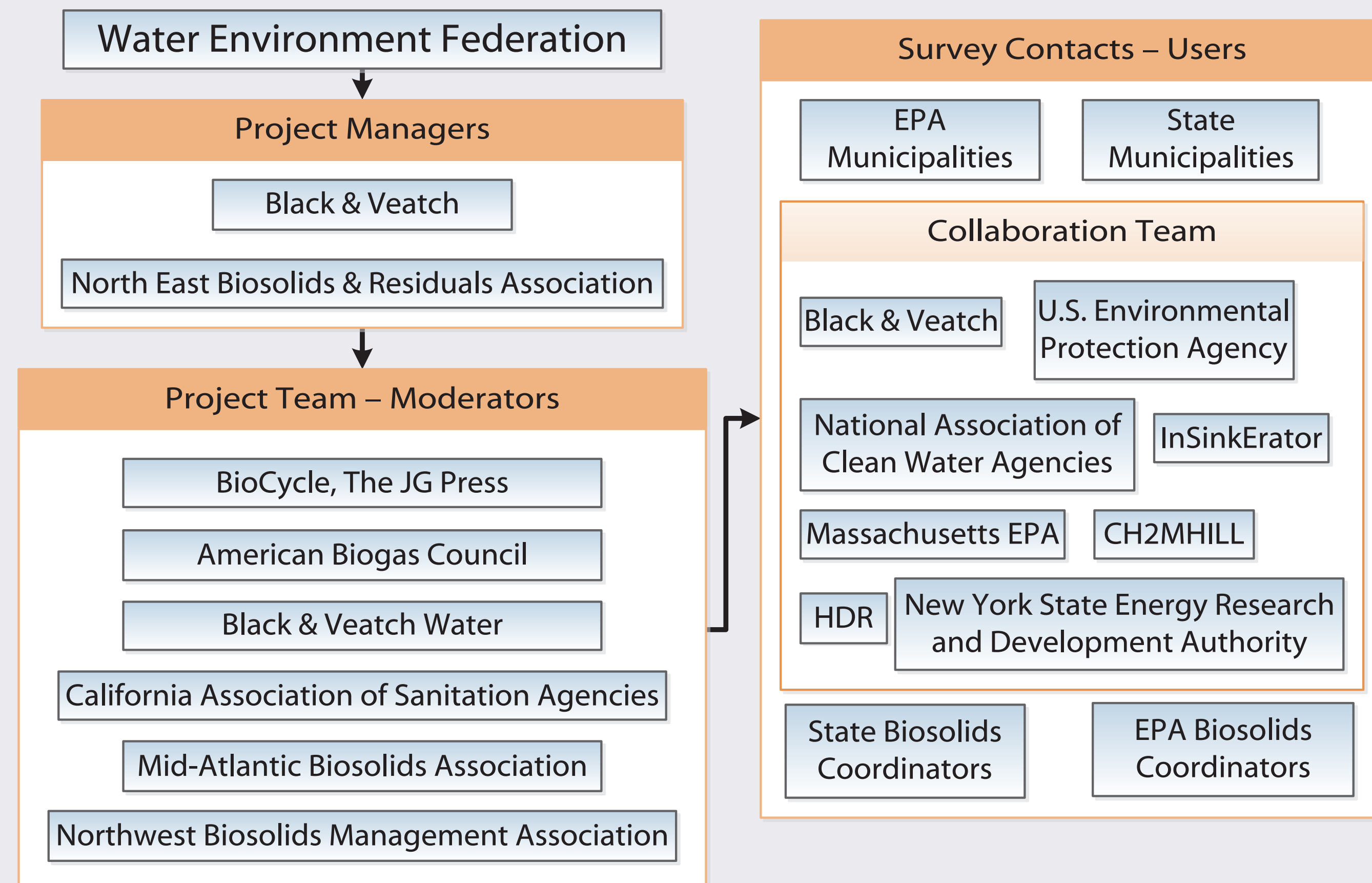
Survey Process



Project Timeline

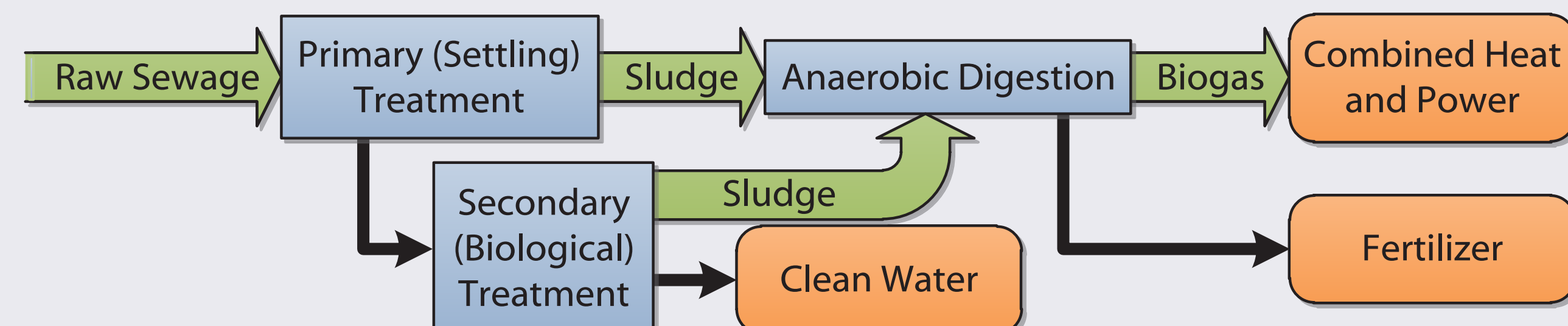


Application User Hierarchy



Wastewater to Energy

- Biogas – produced from anaerobic digestion – can produce energy from wastewater treatment
- Biogas is comprised primarily of methane and carbon dioxide and can generate combined heat and power



Discussion

- The survey was divided into two phases to expediate the initial collection of priority data
- To ensure data integrity, Moderators were given full control over Users, and final say over edits to the facilities
- The user interface was optimized for simplicity and ease-of-use

Conclusion

The project was completed in record time, with no additional cost. This can be attributed to the use of free and open-source tools such as jQuery, PHP, MySQL, and Apache.

Future Additions:

- Visual geographic input (i.e. Google Maps)
- Data validation algorithms
- Document uploads
- Phase 2 data collection

Significance

"The wastewater treatment profession has been stymied, for years, by lack of very basic data regarding anaerobic digestion and biogas generation and use at municipal wastewater treatment facilities (WWTF). This lack of data is holding back the development of a significant renewable energy option: combined heat and power generated from WWTF biogas. For more than 5 years, EPA has tried to compile these data, but with little success. The Water Environment Federation finally saw the need to invest some funds – not much, but something – to address this pressing need. Now, with the innovative, online database Sam Oldak has created, a coalition of regional biosolids groups, BioCycle magazine, and the American Biogas Council are working together on a nationwide data collection effort that should provide the information the nascent biogas energy sector has been needing for a long time."

– Ned Beecher, Executive Director, North East Biosolids and Residuals Association

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