Hydrogen, Hydrocarbons, and Bioproduct Precursors from Wastewaters

National Renewable Energy Laboratory Offices, Washington DC
March 18-19, 2015

Objective:

The Hydrogen, Hydrocarbons, and Bioproduct Precursors from Wastewaters workshop will share information and identify the current status and potential research and development (R&D) possibilities for production of hydrogen and higher hydrocarbons (containing four or more carbon molecules), from wastewaters using biological, biochemical, and other techniques.

Workshop Activities Include:

- Expert panel discussion of the status of the field and key issues and challenges
- Breakout sessions to discuss **Technological State of the Art and Current Challenges** (Day 1) and **Integrated Product Delivery to Markets** (Day 2), and identifiy:
  - **Characteristics:** What are the key characteristics (both technical and non-technical) that will determine success?
  - **Challenges:** What technical and non-technical problems need to be overcome?
  - **Solutions :** What solutions to these problems are conceivable within the next 20 years?
  - **R&D:** What R&D Activities will best contribute to such solutions?
  - **Markets**: What are the key opportunities and obstacles in the near and long term?
  - **Implementation**: What will it take to connect R&D activities with market opportunities to facilitate commercial success?

Desired outcomes include:

- Summary of key challenges to technology advancement
- Summary of key R&D activities with the potential to impact technology development and commercial viability
- A workshop report to publically disseminate findings
  - Notes from the workshop discussions will be used, on a non-attributional basis, to develop the workshop report
  - A summary of workshop findings will be provided to Energy-Positive Water Resource Recovery: A workshop in collaboration among the NSF, EPA, and DOE, in late April 2015
  - A Request for Information will solicit further public input

Logistics: Building security will be provided with a list of participant names. Please bring photo ID, and allow at least an extra ten minutes to go through building security.

For Questions, please contact **Mark Philbrick** (Mark.Philbrick@hq.doe.gov) or
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901 D St. SW, Suite 930, Washington, DC 20024

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Wednesday, March 18, 2015

8:40 am	**Welcome and Introductions**
9:00 am	**Fuel Cell Technologies Office Overivew**, Sunita Satyapal, Director, DOE Fuel Cell Technologies Office
9:30 am	**Waste-to-Energy in the Bioenergy Technologies Office**, Jonathan Male, Director, DOE Bioenergy Technologies Office
10:00 am	Break
10:15 am	**Presentations: Technological State of the Art** ▸ **MxCs: Challenges and Opportunities, Jason Ren, University of Colorado Boulder** ▸ **AnMBR: Challenges and Opportunities, Art Umble, MWH Americas** ▸ **MxCs: Can they scale?, Bruce Logan, Penn State** ▸ **Report from the field: Sidestream MFCs at DC Water, Mark Ramirez, DC Water**
12:00 pm	Lunch
1:15 pm	Breakout Discussion: Technological State of the Art and Current Challenges ▸ **Breakout groups split based on technologies (MxCs, AnMBR)**
2:45 pm	Break
3:15 pm	Breakout Discussion: Technological Next Steps **(Same groups as earlier session)**
4:45 pm	Preliminary Breakout Reports
5:15 pm	Adjourn

Thursday, March 19, 2015

8:30 am	**Presentations: Targeting High-Value Challenges** ▸ **Alleviating fouling in AnMBRs, Perry McCarty, ReNUWit program at Stanford/UCB** ▸ **Electrobiocommodities from CO_2, Derek Lovley, UMass Amherst** ▸ **Integrating AnMBR with MFCs, Jason He, Virginia Tech** ▸ **Enhanced Anaerobic Digestion and Hydrocarbon Precursor Production, Meltem Urgun-Demirtas, Argonne National Laboratory**
10:15 am	Break
10:30 am	Breakout Discussions: Integrated Product Delivery to Markets ▸ **Two concurrent breakout groups will address the same questions**
12:30 pm	Lunch
1:30 pm	Breakout Reports from Morning Sessions
2:00 pm	Plenary Discussion: Where Should We Go From Here?
2:45 pm	Summary and Adjourn