Promoting RNG and Nutrient Recovery in Washington State

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August 2019
Goal: Create economic value and environmental benefits with improved organic waste management

- Reduce fugitive greenhouse gas emissions, especially methane
- Reduce carbon intensity of natural gas utilities
- Address excess nutrient problems and diversify revenue streams for agriculture, especially dairies
- Offset waste management facility operating costs
- Displace energy and carbon intensity of fertilizers
Initial Efforts

- Stimulus funding for on-farm digesters
- WSU Waste-to-Resources funding
- Clean Energy Fund RD&D grants
- Conservation Commission digester grants

Positive results, but significant public investment, limited power sales, and uncertain future...
Dairies: Stable, Innovating, but Stalled
Landfills: Making Progress
Wastewater Treatment: Emerging Opportunities
2017 RNG Roadmap

Power Sales Model Mature
• Utility RPS compliance targets met
• RNG market moving to transportation

Incentives Need an Overhaul
• Previous tax breaks expired
• Definitions dated, conflicting

Pipeline Quality Standards

Uncertain Policy Framework

Link: bit.ly/2mowmWn
2018 Legislation (HB 2580)

• Restore and expand production incentives
• Broader techno-economic assessment
• Update policy options
• Public sector preferential purchasing
• Regional voluntary pipeline standards
First Step: Better data, pipelines

- Facilities within 5 miles
- Feedstocks within 30 miles
- Public-private partnerships, priorities for public funding
- Data sets dated, incomplete and/or inferred
Start with the larger dairies...

Primary Dairies

- >200 scfm
- >50 scfm

Source: Washington State Energy Office
...add dairies in close proximity to other dairies...

Secondary Dairies
- Green: >200 scfm
- Blue: >50 scfm

Primary Dairies
- Green: >200 scfm
- Blue: >100 scfm
- Yellow: >50 scfm

Sources: Esri, HERE, Garmin, USGS, Intermap, Increment U.S. National Geospatial Program, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

Source: Washington State Energy Office
...other sources of animal waste...
…don’t forget hatcheries…

Fish Hatcheries

- Carcass waste reported
- No report

Source: Washington State Energy Office
...fruit growers, brewers and distillers...
...and plenty of food processors
Facilities start with wastewater...

Wastewater Treatment Facilities
- Green: Digester, >100 scfm and/or biogas capture
- Orange: Digester, 10-30 scfm
- Red: Others

Source: Washington State Energy Office

Legend:
0 20 40 80 Miles

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community
...add open landfills...
...and composters, other public infrastructure
New Initiatives

• Clean Energy Fund Dairy Digester Grants

• **Natural Gas Conservation Standard:** Gas utilities identify and acquire all available and cost-effective measures; UTC to establish targets by 2022

• **RNG Programs:** Utilities may propose RNG program for compliance, must offer voluntary RNG service for retail customers

• **Public Preferential Purchasing:** RNG and nutrients
Future Opportunities

- Low-Carbon Fuel Standard: State vs Puget Sound
- State-level Pipeline Quality Standards
- Food Waste/Wasted Food Reduction: Study & Plan
- Industrial Symbiosis Assessment
- Sustainable Farms & Fields
- WSU Soil Health Initiative
- NEWT: Nutrient, Energy & Water Technologies
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