

Food Waste Recycling Program at Los Angeles County Sanitation Districts

NACWA Energy Workgroup

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Presentation

- Drivers for Food Waste Recycling
- Development of Food Waste Recycling Program
- Demonstration Project
 - Program design
 - Lessons learned
 - Future direction





Districts' Solid Waste Facilities

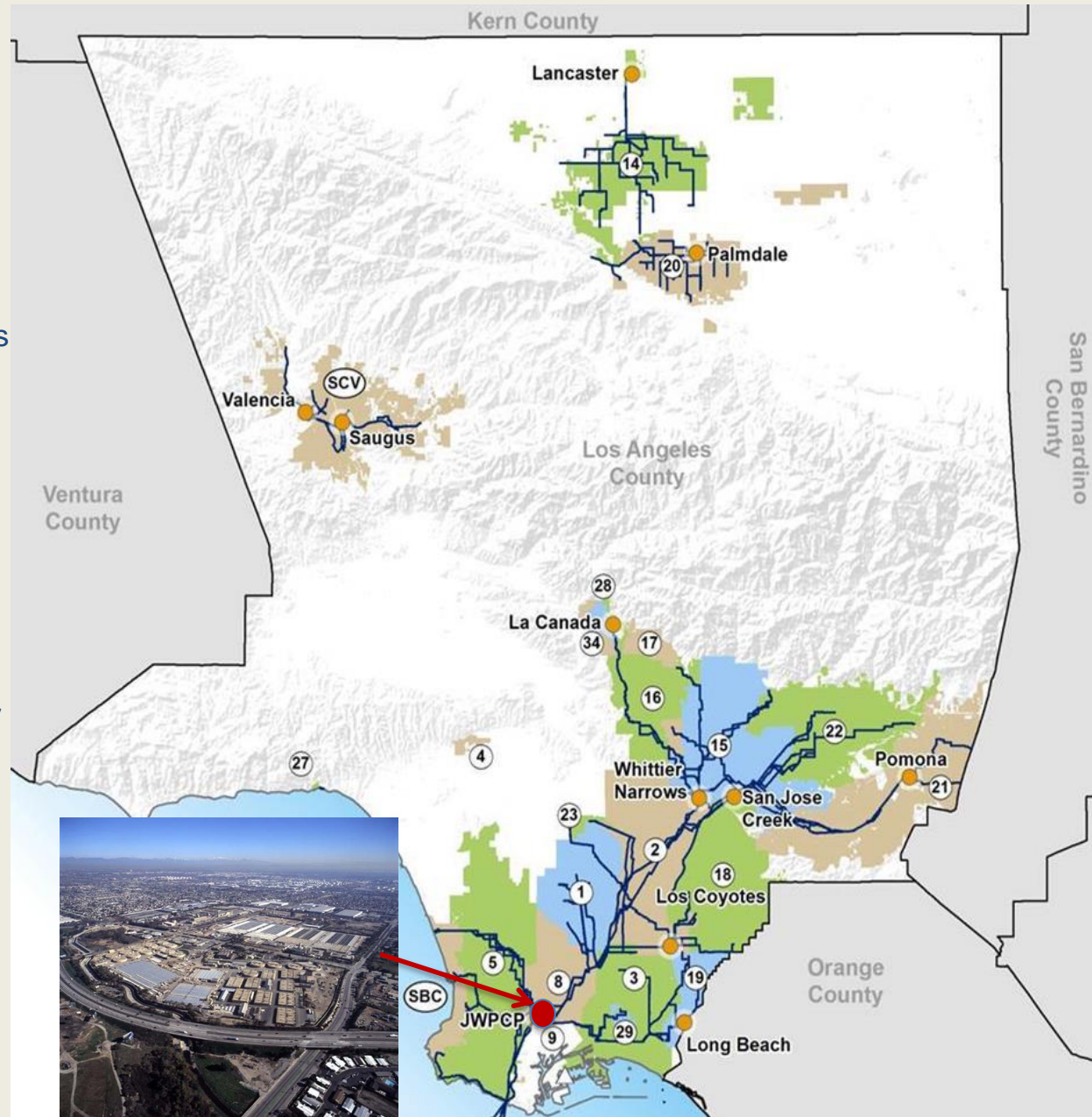
- Materials Recovery Facilities/Transfer Station...
 - Puente Hills MRF
 - Downey Area Recycling & Transfer
 - South Gate Transfer Station
- Refuse-to-Energy Facilities...
 - Commerce REF
 - SERRF
- Landfills...
 - OPEN: Calabasas, Scholl Canyon
 - CLOSED: Puente Hills, Spadra, Palos Verdes, Mission Canyon





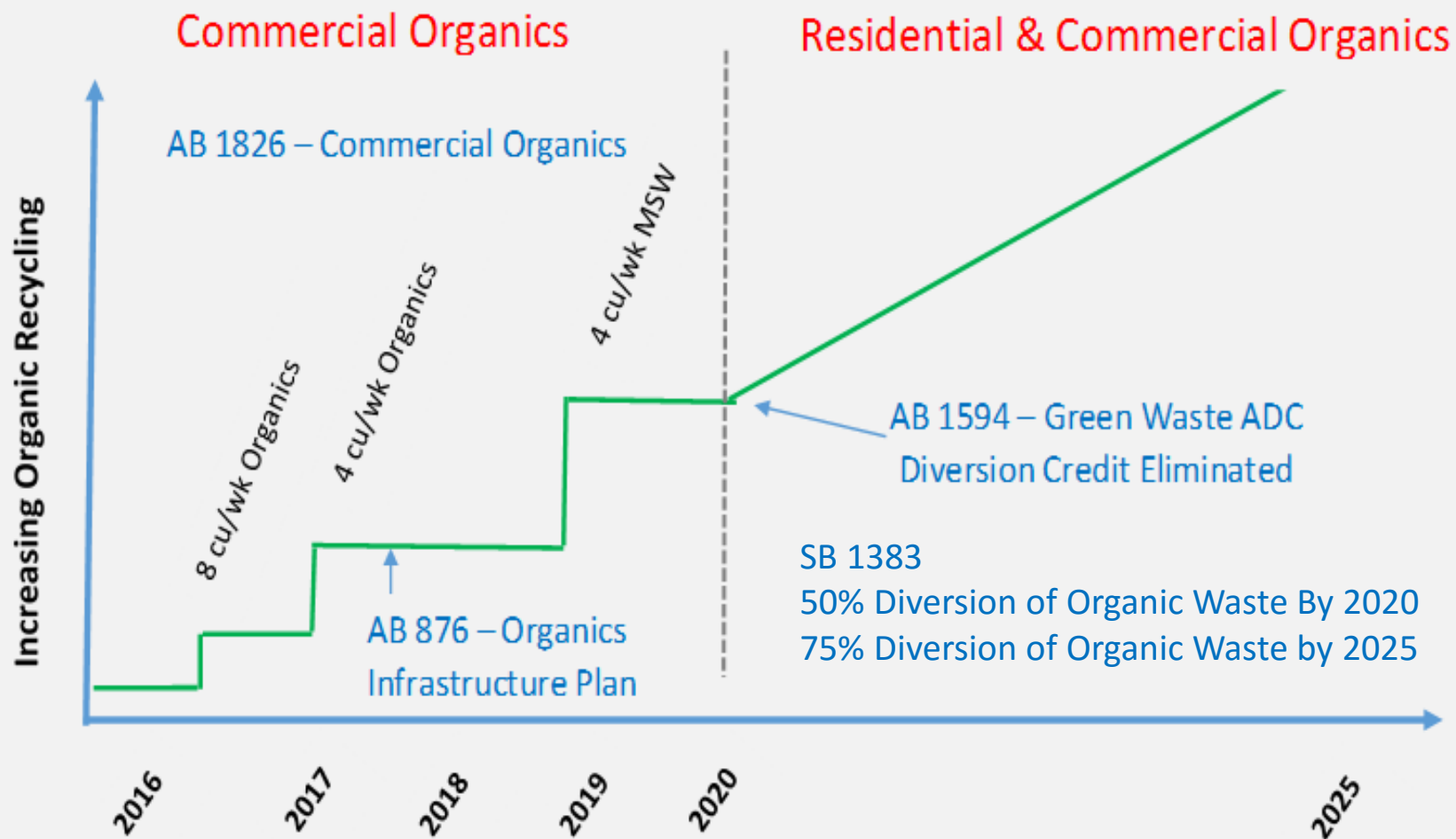
Districts' Wastewater Facilities

- Joint Water Pollution Control Plant...
 - 280 mgd treated
 - 24 active digesters
- Ten water reclamation plants
- Approximately 1,445 miles of main trunk sewer lines
- Districts operate 49 active pumping plants





California's Path to Organics Recycling





Organics in LA County Waste

- LA County 8.8 million tons of solid waste landfilled in 2014
- 40% of solid waste to landfills is organics
- 45% of organics to landfills is food waste
 - 1.6 million tons/year of food waste
 - 4,400 tons/day of food waste





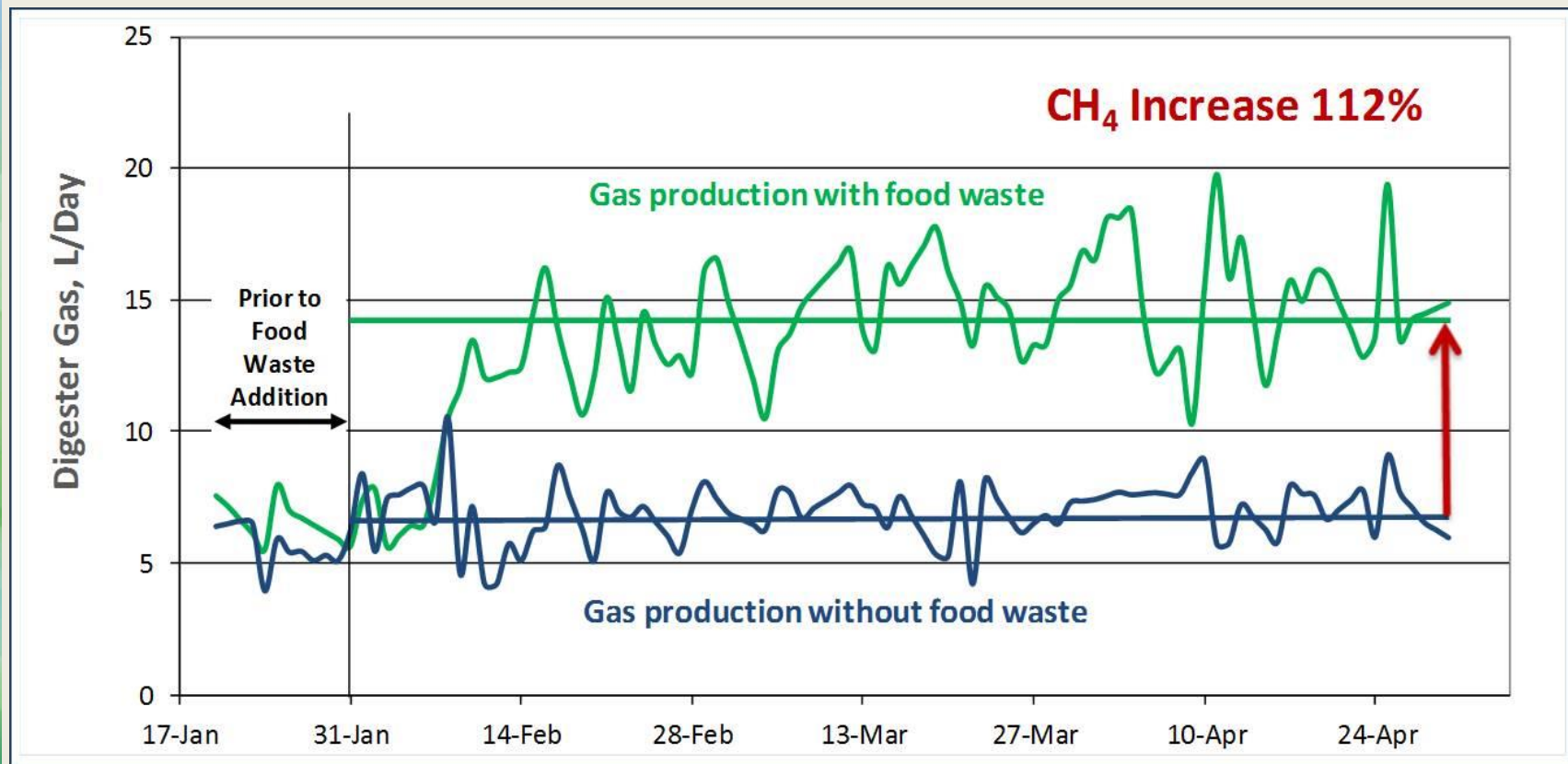
Food Waste Recycling Program

- 2011 – Feasibility study on co-digestion of food waste
 - It is technically feasible (economics still a question)
 - It is allowed under current regulations
 - It could assist L.A. County cities/haulers with diversion requirements
- 2012 – Bench scale co-digestion tests
 - Characterized FW slurry
 - Developed FW specifications
 - Identified no negative impacts on digester operation
 - Quantified biogas production potential
 - Determined target FW feed rate for co-digestion





Food Waste Bench Scale Testing Biogas Production



Adding 10-12% (v/v) food waste slurry to sludge could double biogas production



Co-Digestion Demonstration

- July 2013 – Entered into program agreement with Waste Management
 - Food waste specifications a key development
 - WM processes food waste slurry at off-site location
- Fall 2013 – Constructed food waste receiving facility at JWPCP





Co-Digestion Demonstration

- February 2014 – Demonstration project started with 4 tpd deliveries from Waste Management





JWPCP Digesters

- 24 active digesters each with capacity of 3.7 million gallons
- 4.4 million gallons of sludge added to digesters each day
- 18-19 days hydraulic retention time
- 5,000 scfm (or ~ 20 MW) of biogas is produced
- Non-digestible solids are dewatered and trucked offsite for composting and land application





Food Waste Co-Digestion Plan

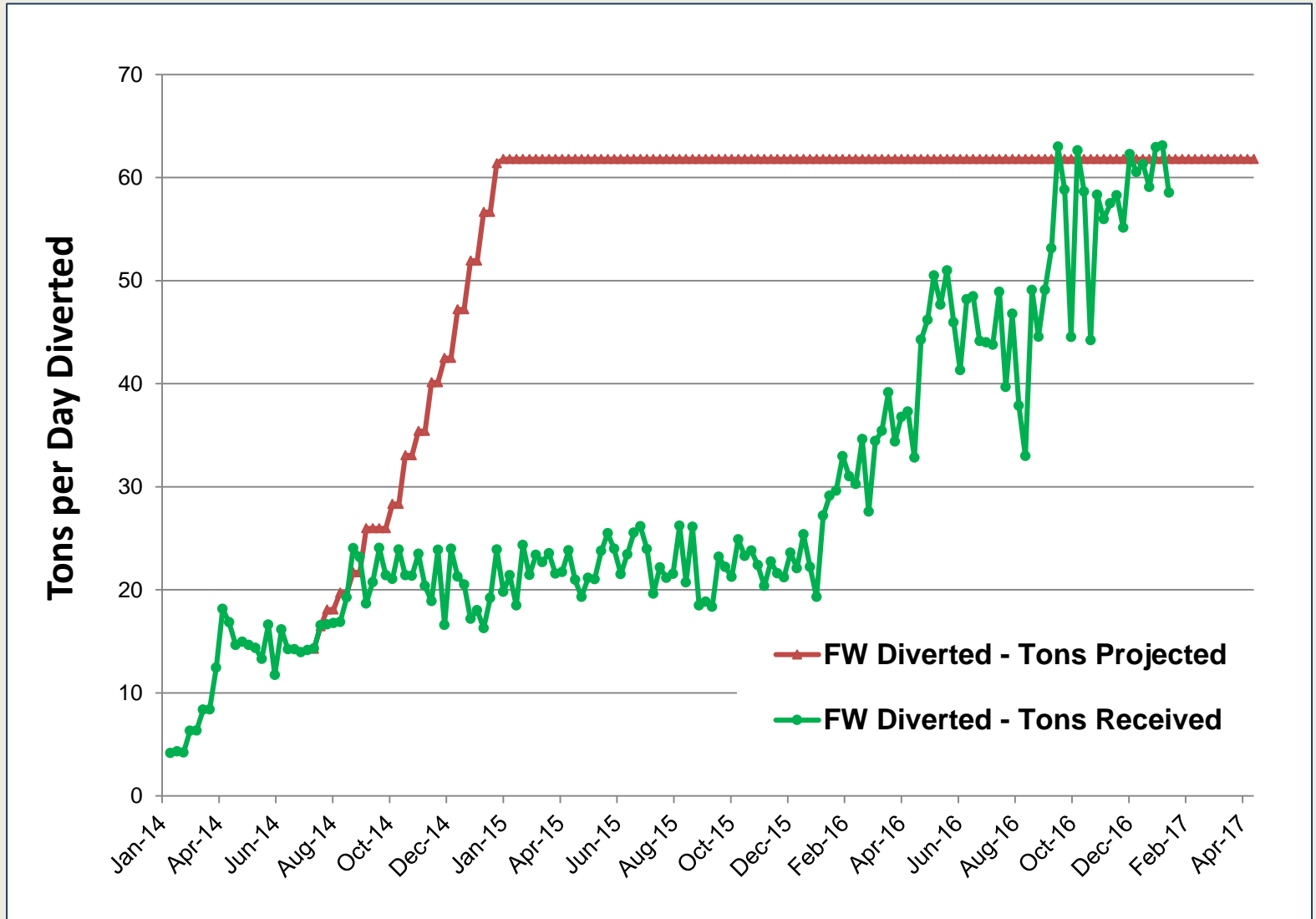
		Test Digester	Control Digesters
WW/Sludge/TWAS Feed	gal/day	205,000	205,000
	% solids	3.20%	3.20%
	tons per day solids	27.3	27.3
Food waste slurry feed	gal/day	20,000	---
	% Solids	14%	---
	tons per day solids	11.7	---
% Food Waste	liquid basis	9%	---
	solids basis	30%	---
Digester total	gal/day	225,000	205,000
	% Solids	4.2%	3.20%
	HRT, days	16.4	18.0





JWPCP Demonstration Update

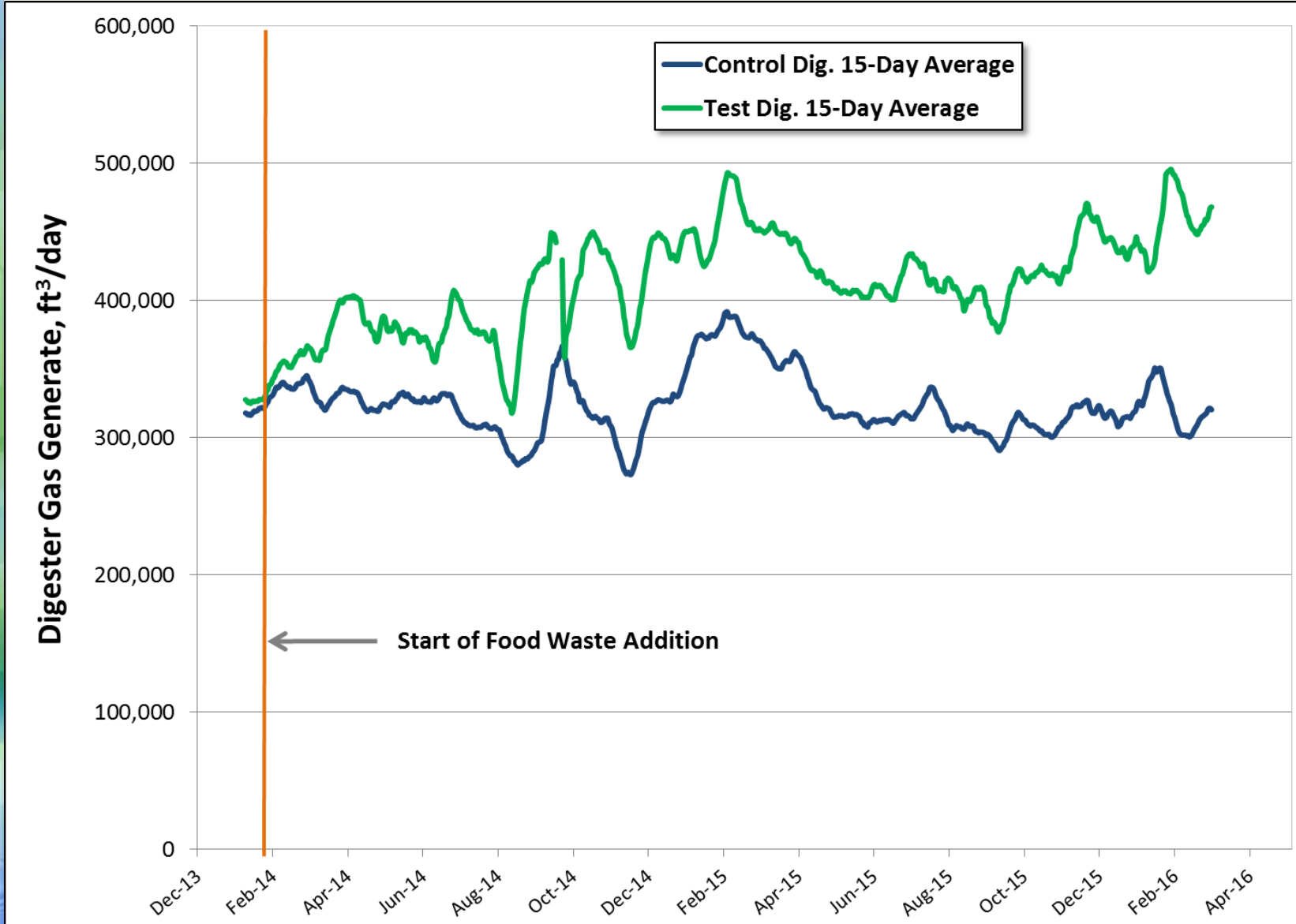
Food Waste Tonnage





JWPCP Demonstration Update

Digester Gas from Food Waste





Lessons Learned

1. Biogas production has increased as expected
2. No significant impacts on performance
3. Odor control is a key issue
4. Contamination problems
5. Pump performance and maintenance
6. Need to streamline offloading process
7. Need plan for handling increased truck traffic





Use of Biogas from Food Waste Co-Digestion

- Current usage of digester gas
 - Onsite power plant already produces 20 MW of power
 - 200 scfm of biogas produces additional 700 kW of electricity for export
- Future options...

Electricity



Vehicle Fuel



Biomethane



Biosolids Drying





Next Steps

- Test digester undergoing scheduled cleaning – determine impacts of food waste
- Construct pre-processing facility at Districts MRF
- Develop vehicle fuel project
- Develop plans for expanding food waste co-digestion at JWPCP
- Enter into agreements with multiple feedstock providers





Contact Info

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“So, this Humpty Dumpty guy falls off the wall and I think, Dang, ain’t lettin’ this go to the food waste bin.”