



Avoiding the Flare: Dayton opens valve to selling biogas on D3 – RIN market through contract with Private Entity

2025 Midwest Biosolids
Conference
May 21, 2025



Agenda

1. Introduce Federal Renewable Fuel Standards
2. Review City of Dayton's example in Renewable Fuels



What if?



What if your Golf Cart had Golden Wheels?

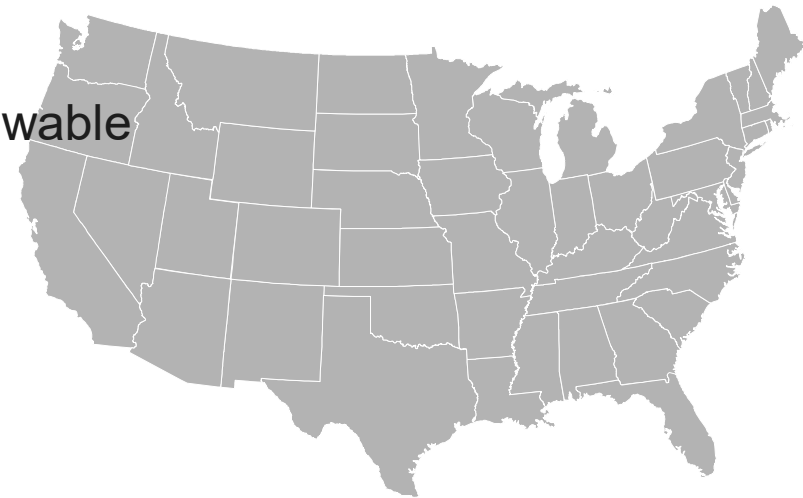
Federal : Renewable Fuel Standard Program (RFS)

In 2005 U.S. Congress passed the Energy Policy Act

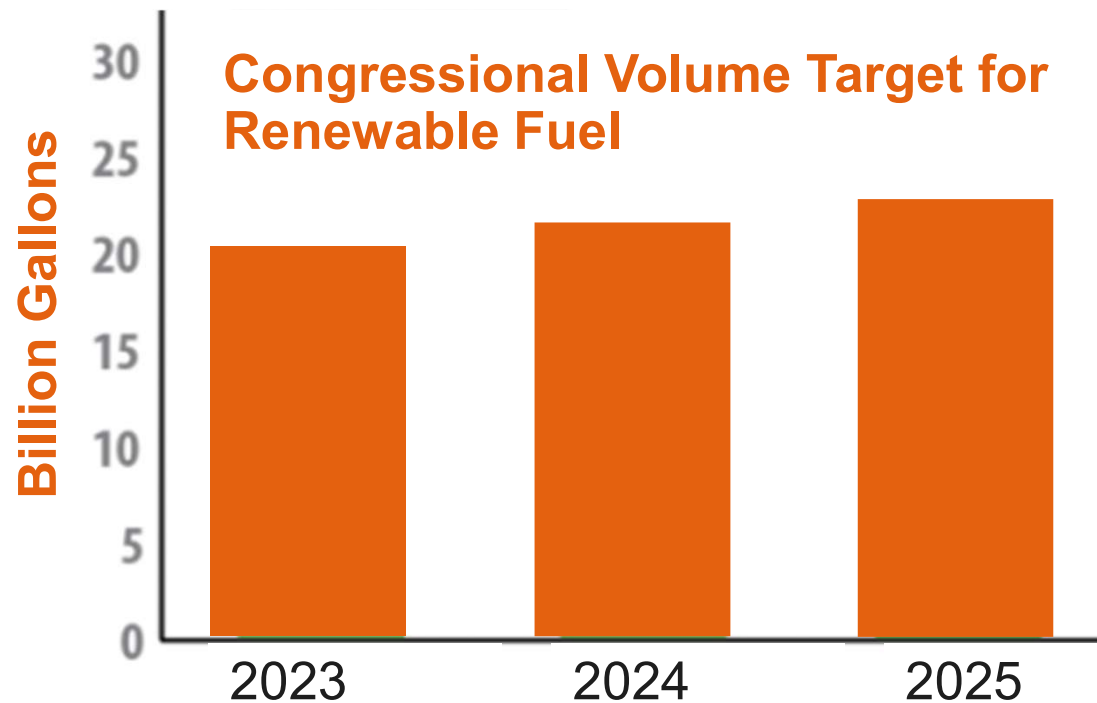
Requires a certain volume of renewable fuel from Refiners or importers of gasoline or diesel fuel to replace or reduce the quantity of petroleum-based fuels

Objective was to offset fossil fuel with fuel from renewable sources to reduce Green House Gases.

The EPA executes the law in collaboration with the Dept. of Energy and Dept. of Agriculture.



Federal : Renewable Fuel Standard Program (RFS)



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Compliance is measured by credits called Renewable Identification Numbers (RINs).

- A RIN is a credit for a unit of fuel (such as biogas, or liquid diesel) . The EPA tracks who made the fuel to which a RIN is attached and who purchased.

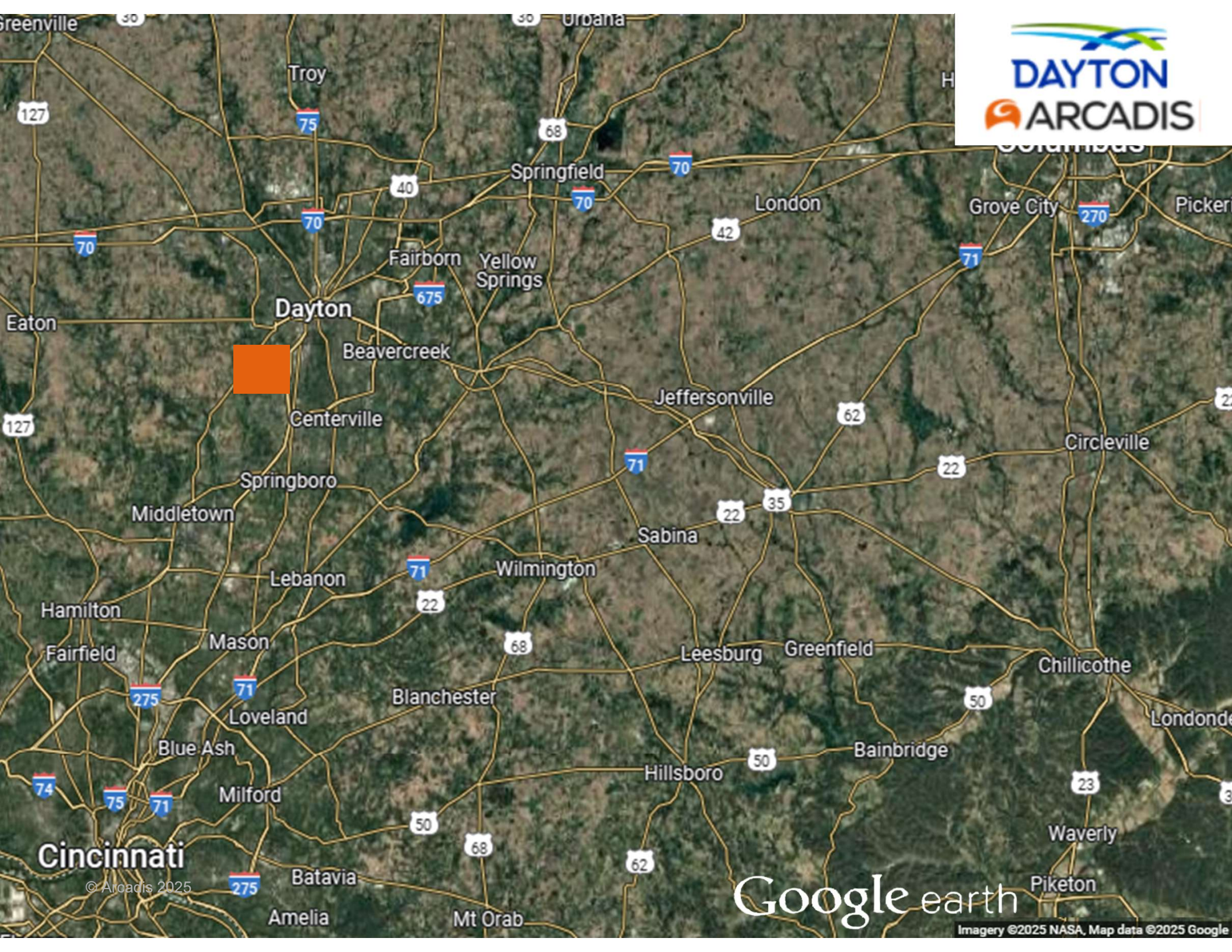
This created the “RIN Market”.

- Ability for producers to buy/sell/trade; across fuel types
- Subject to Surplus or Scarcity
- Affected by Government Quotas & Changes

Dayton, Ohio



- 6th largest city in Ohio (by population)
- Water Reclamation Facility constructed in 1929
~40 years before the Clean Water Act
- Serves a population of 388,000 and several large industries



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Google earth

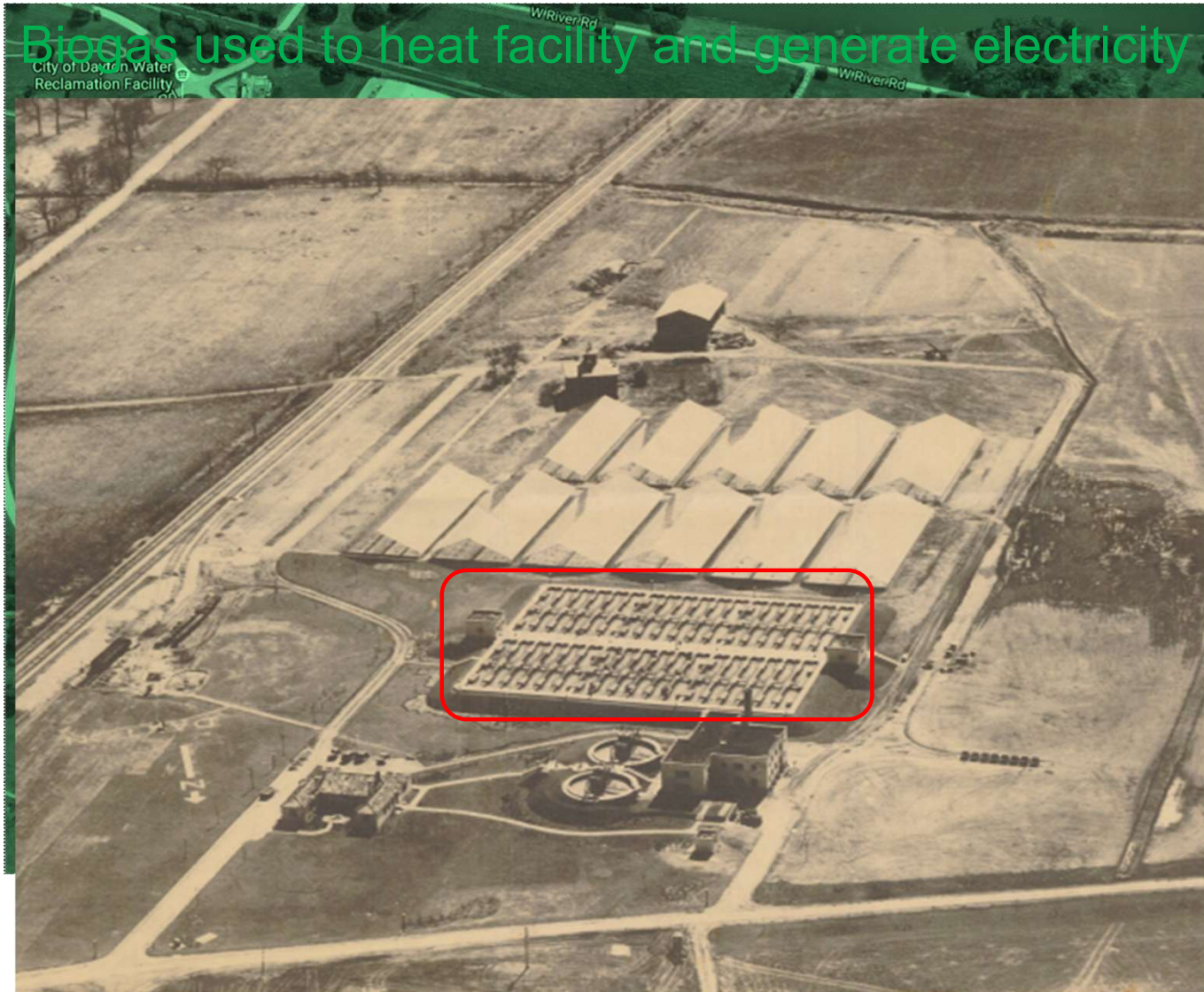
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City of Dayton's “GREEN” Water Reclamation Facility

The Solids Train of the WRF creates Biogas

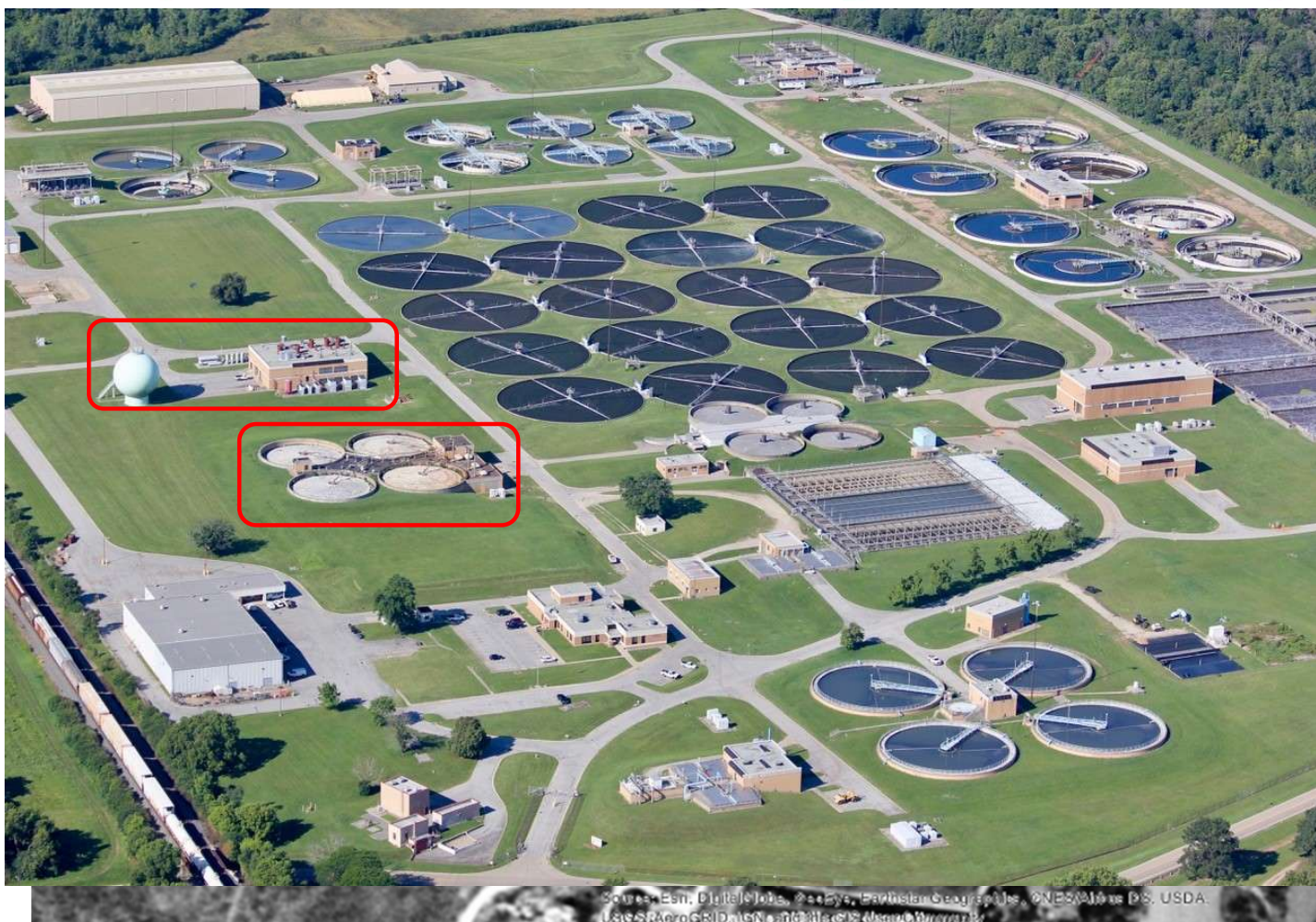
Biogas used to heat facility and generate electricity



City of Dayton's "GREEN" Water Reclamation Facility

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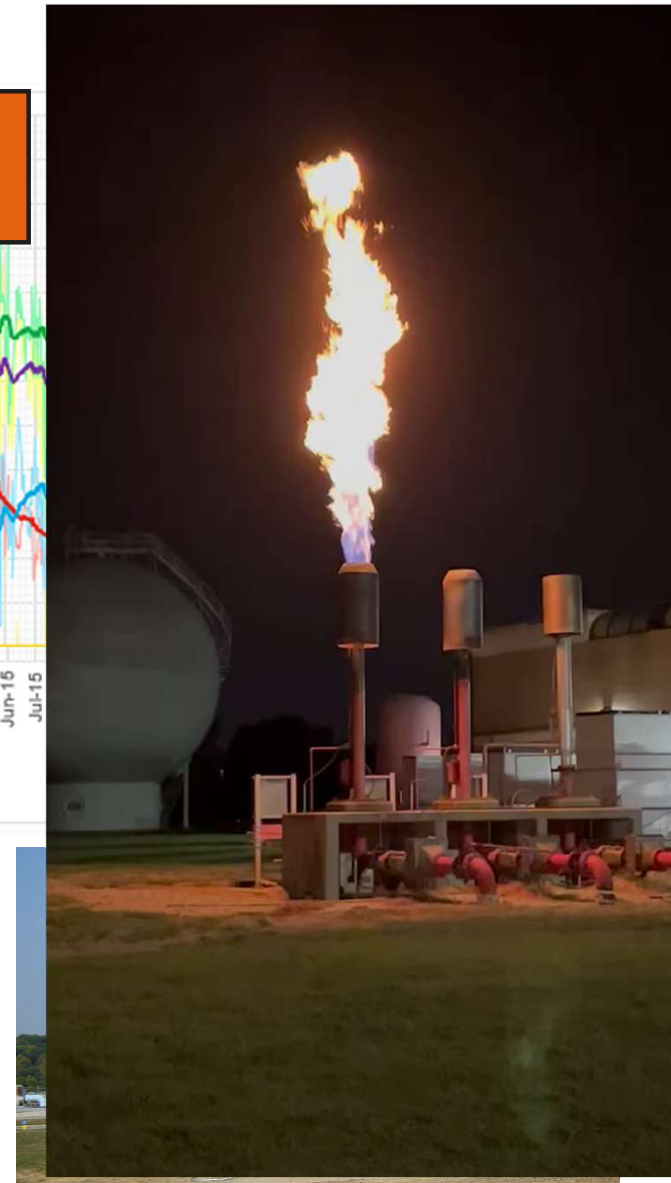
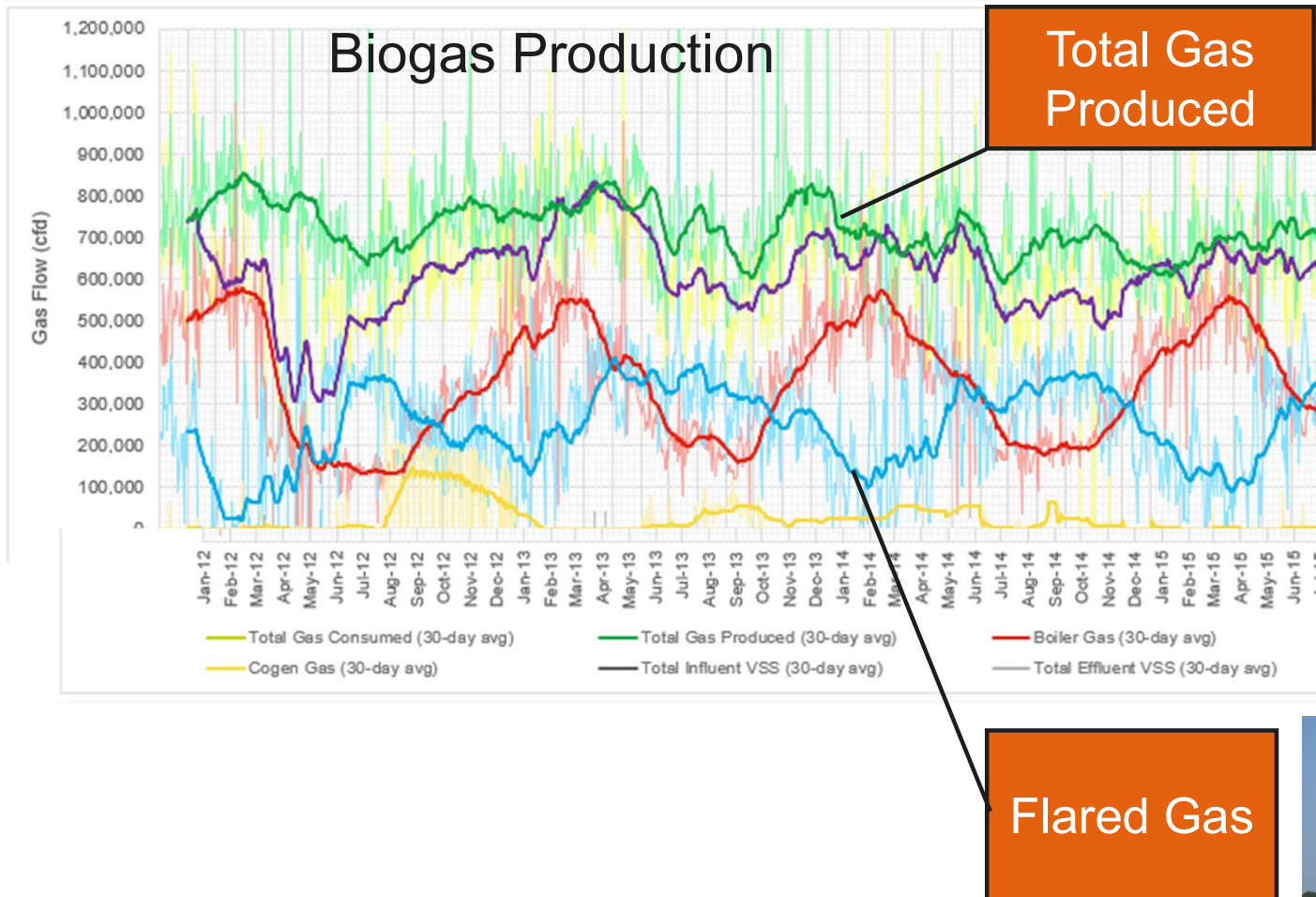


8 existing Anaerobic Digesters

- Improvements will create 6 new digesters and 2 digested sludge storage tanks.
- Maintain level of service; improve operation and maintenance



Despite being “Green”, Biogas still flared regularly



City of Dayton Biogas

If it's used internally, Why sell it?

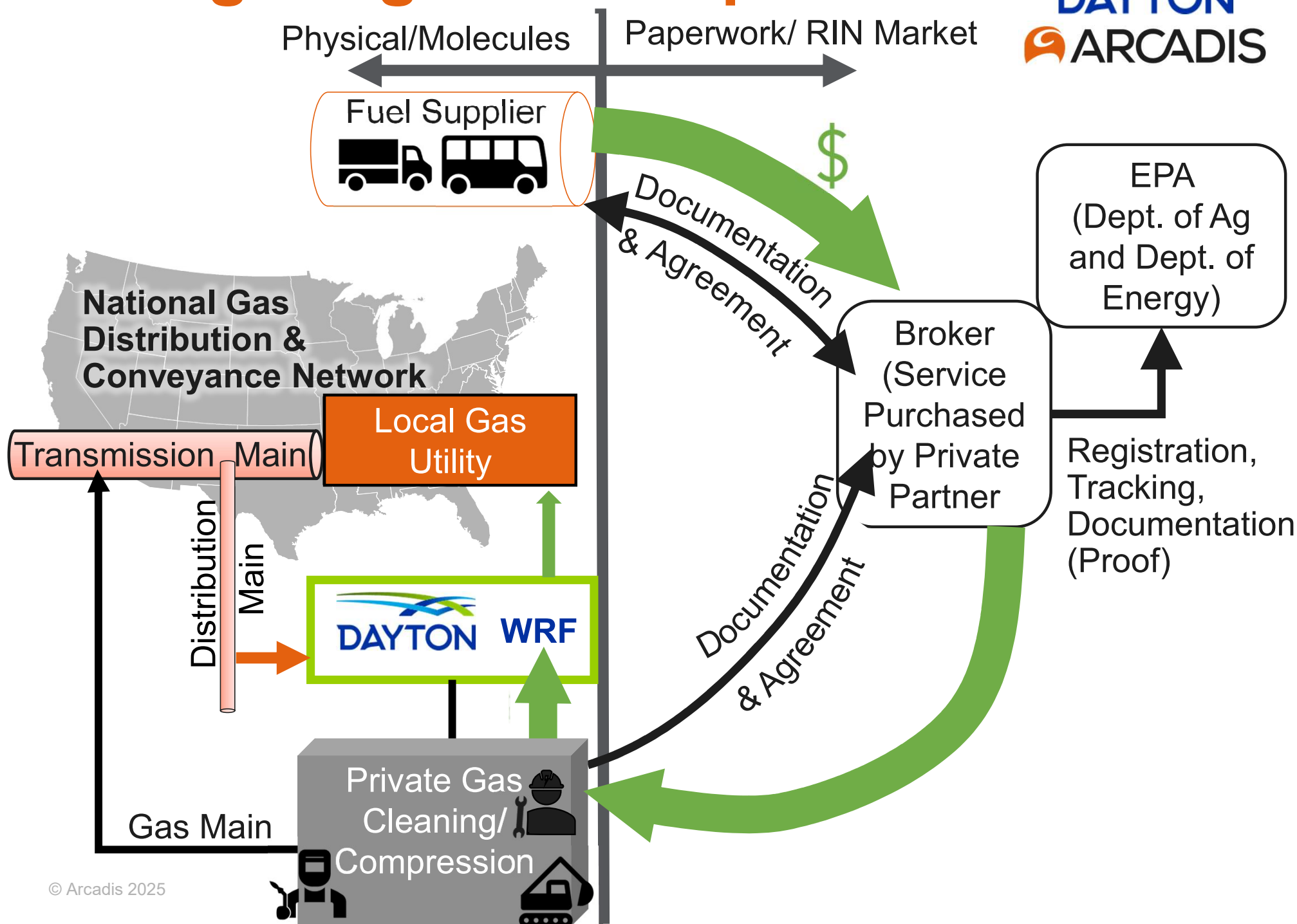
- Federal Government
Incentive Program
(Renewable Fuel Standard)



- State Governments' Incentive Programs

Eliminate Flaring Valuable BioGas and, Earn Money Getting extra Biogas into the hungry RIN Market

Selling Biogas Concept



Contract with Private Service Provider

How was this accomplished..... with Competition?

RFP

- Requested Interest in 20-year brown biogas offtake agreement. Did NOT Stipulate Use of Gas
- 12 Firms Submitted

RFP

- Invited top 3 Qualifiers
- Contained General 20-year agreement
- Asked for Plan as well as price for “purchasing” gas
- All proposers planned on leveraging RIN markets

Contract

- Top Proposal Selected, DTE Vantage
- General Agreement: Finalized over 6 months
- Contract Signed

Design, Construction, and Operation



Agreement
October 2023

Design
March 2024

Construction
August 2024

Testing
October 2024

Start of Operation
November 7, 2024



Gas Flow (0-1440)	Today
357.4 SCFM	296095.3 SCFM
Heating Value (0-1000)	Yesterday
611.56 BTU	540887.8 SCFM
H2S (0-200)	Sphere
-0.37 PPM	(0 To 250 Deg F)
O2 (0-5)	83.6 Deg F
0.01 %	(0 To 8 Hours)
N2 (0-5)	0.00 Hours
0.07 %	(0 To 50 PSIG)
	19.80 PSIG

Data Wrangling

- Gas quality
- Flow volume
- System uptime
- Commodity values

Value of Contract

Expected Return

- \$800,000/year after natural gas costs
- \$16M over 20-year contract

Other Benefits

- Reduced Flaring (<1%)
- Cleaner fuel for boilers

Challenges

- Variable revenues and cost
- Managing expectations
- Term and stakeholder protections
- Focus on the direction, not the number



Is RNG a good fit?

Things to consider

1. Keep Monitoring the RFS program for recurring revisions
2. Does your facility produce an ample steady amount of biogas?
3. What is your tolerance of the fluctuating non-guaranteed market?
4. What is your nearby Natural Gas Supplier's affinity towards outside suppliers?
5. How close are you to transmission mains of Natural Gas?
6. Consider agreements with brokers or turn-key constructors (multiple year agreements).
7. Recommend performing extensive Business Case Evaluation
 - a. Ownership, Return on Investment, predictions for the future
8. Account for testing and registration requirements

Renewable Natural Gas

Selling of Biogas through the D3 RIN Market may allow WWTPs to:

- **Monetize a valuable resource**
- **Reduce local emissions**
 - **Increase renewable domestic energy supply**

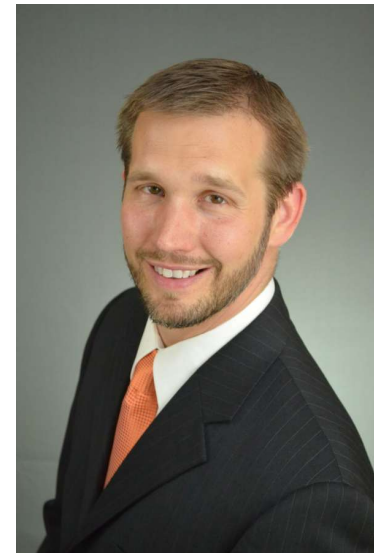


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