Organics Diversion and RNG Production

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SCS ENGINEERS

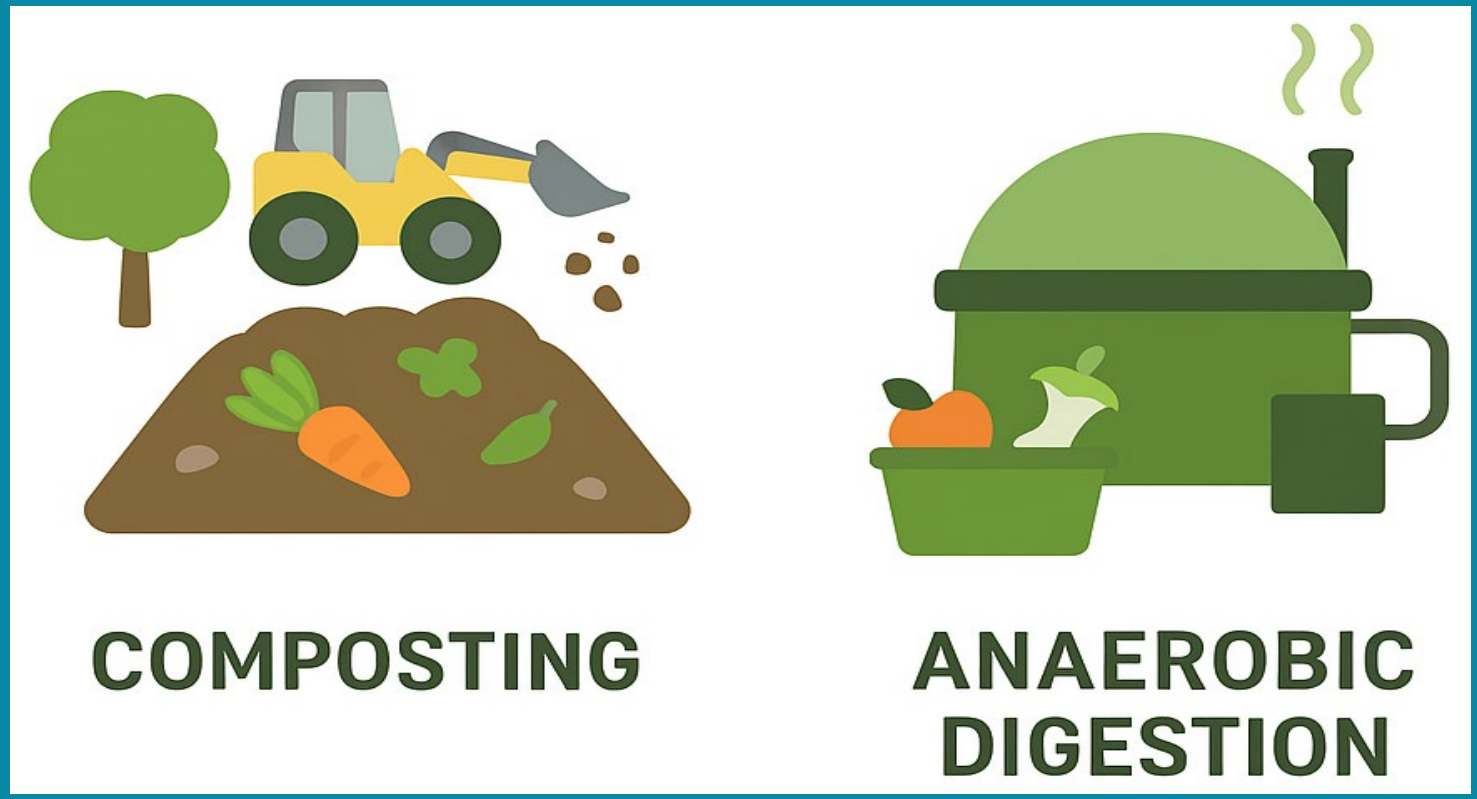
Circularity

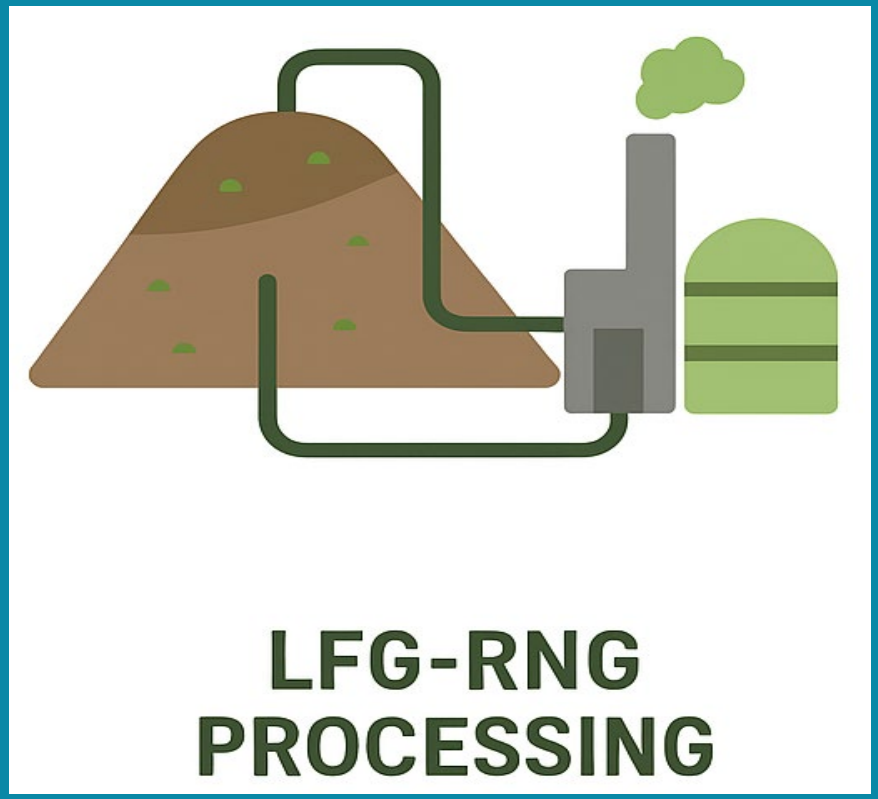
Practices that optimize resource use and minimize waste across the entire production and consumption cycle, emphasizing sustainability and economic efficiency.

What to do with Organic Waste?

Diversion Circularity

In-Place Circularity





Are they at odds with each other?

RNG Market (2024 – LMOP Database)

- 123 Landfills with RNG projects – 540 Million cf LFG/day (375,000 scfm)
- 102 Projects Planned or Under Construction

  (320 Millions cf LFG/day)

Future RNG Fuel Supply Question:

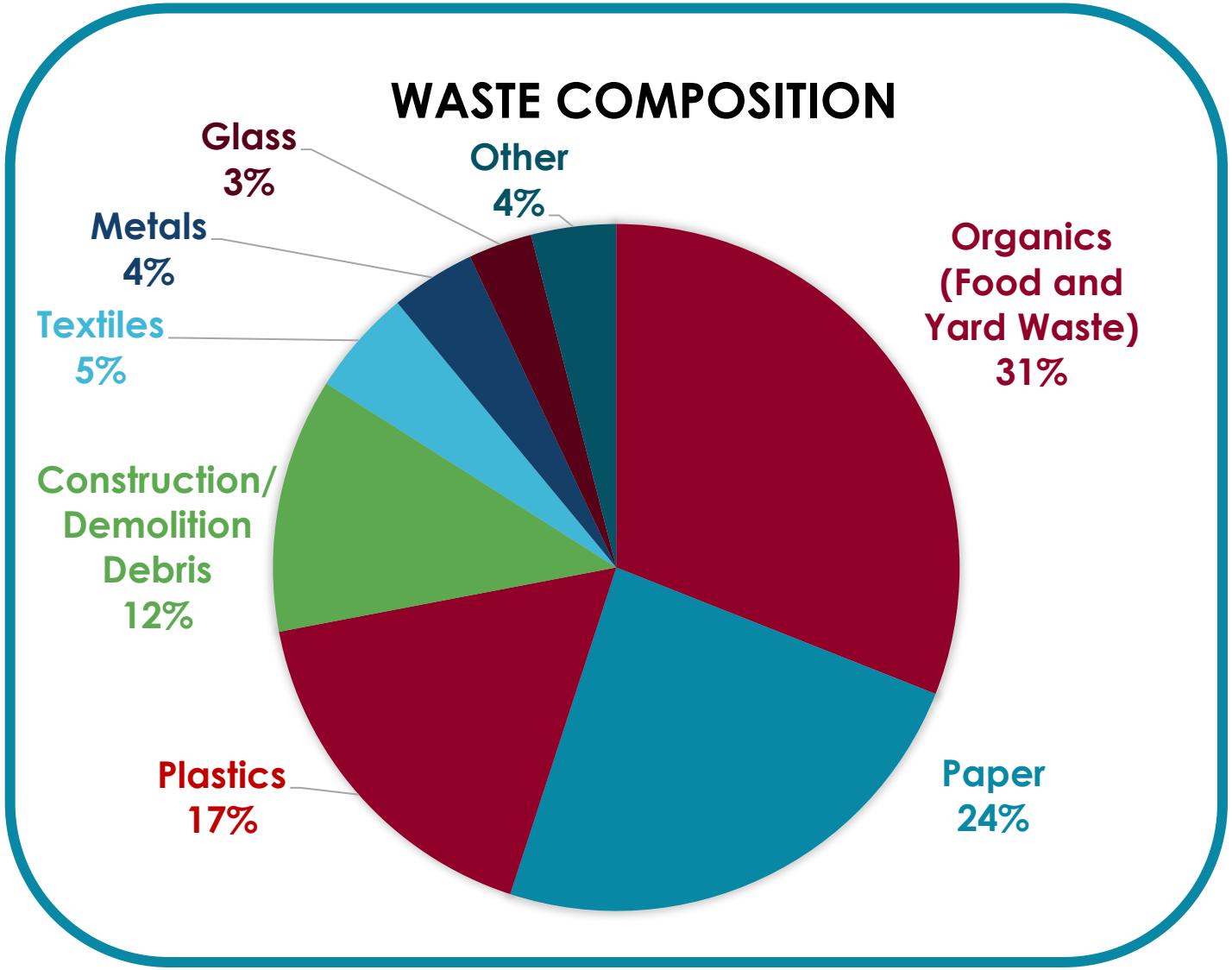
How may organics diversion impact landfill gas supply for the RNG fuel processing?

SCS Non-Regulatory Landfill Gas Recovery Model

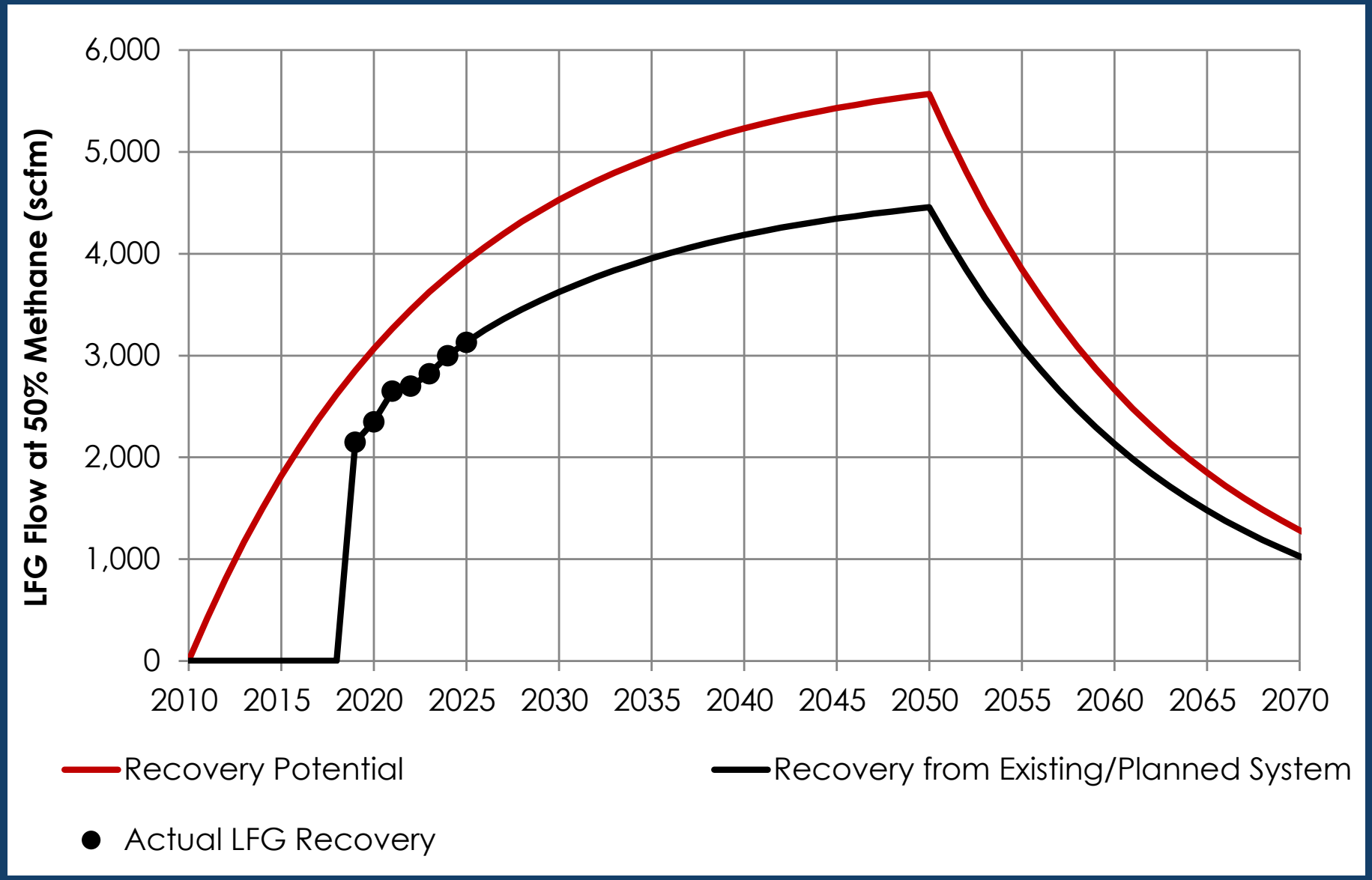
- Focuses on landfill gas (LFG) recovery rather than generation
- 30 years of research developing an empirically-calibrated LFG model
- Database of >2,580 years of flow data from 345 modeled landfills

Anytown Landfill, IL

- 30 Million CY Disposal Capacity
- 4,000 Tons/Day
- 600,000 tons/year
- 40 Years of Disposal



LANDFILL GAS CURVE – BASELINE (No diversion)

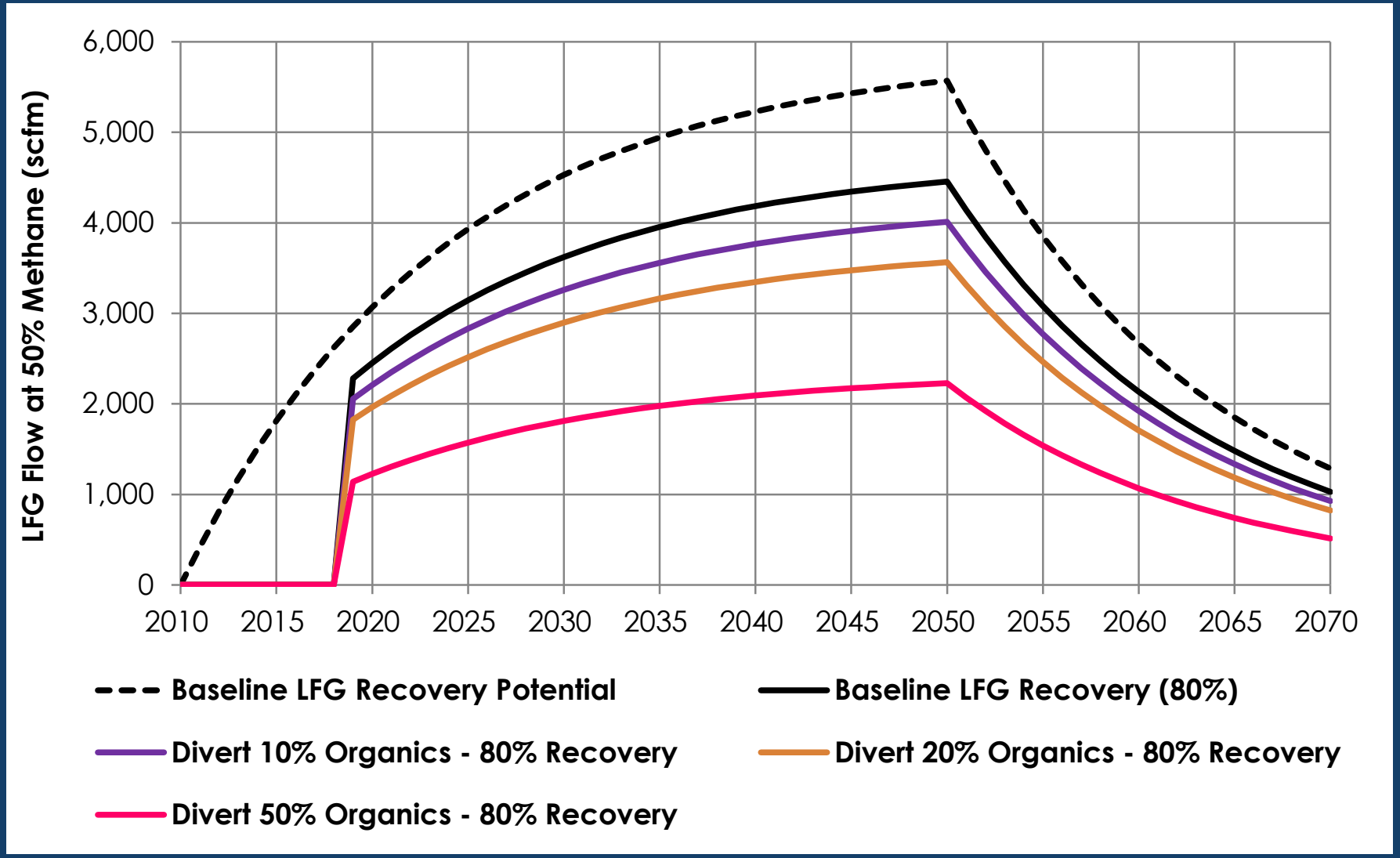


What happens if we reduce organics through the life of the landfill?

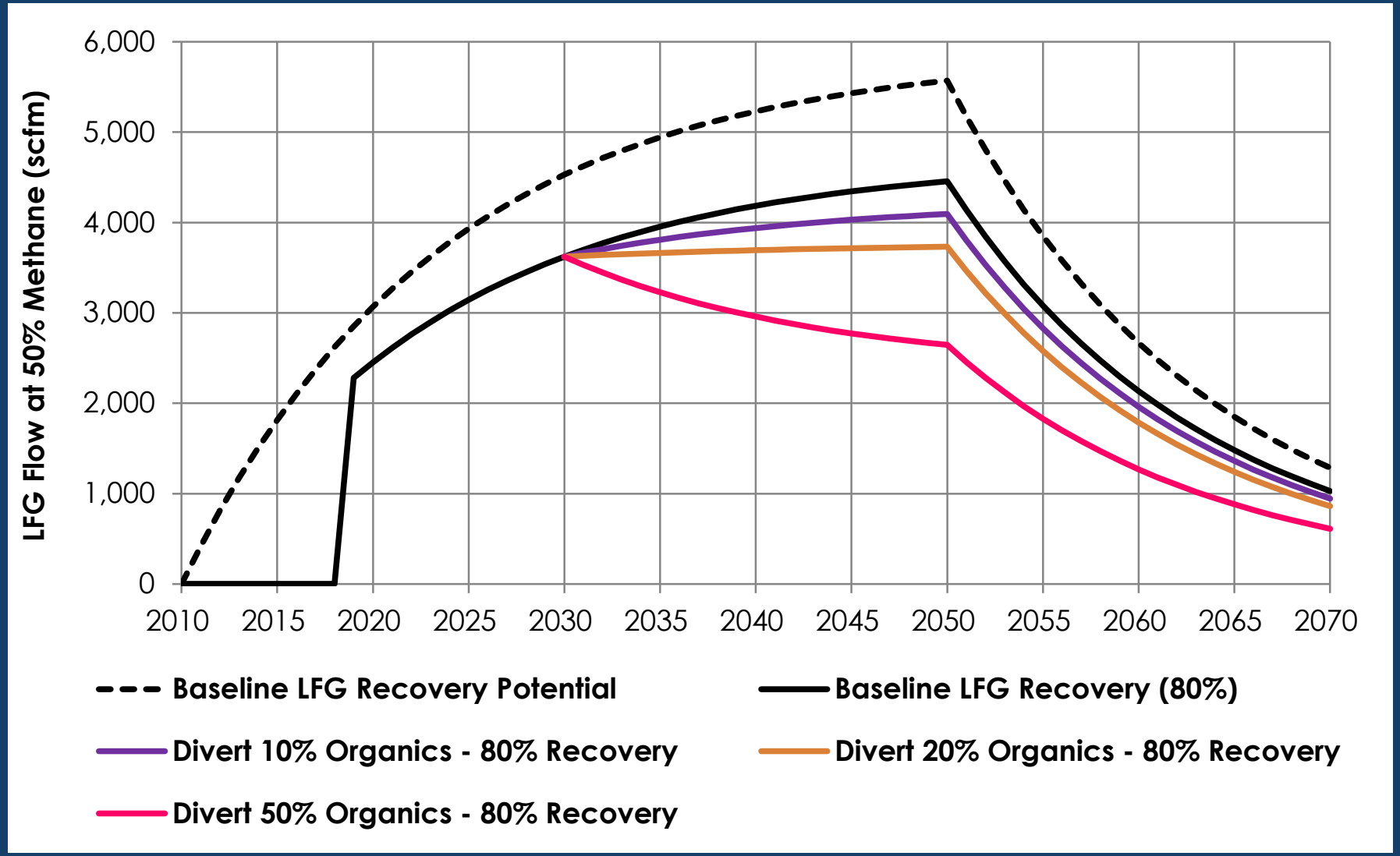
- By 10%
- By 20?
- By 50%

What happens if we reduce organics at an existing landfill midway through its operation?

LANDFILL GAS RECOVERY – EFFECTS OF DIVERSION OVER A 40-YEAR DISPOSAL HISTORY



LANDFILL GAS RECOVERY PROJECTIONS – EFFECTS OF DIVERSION STARTING YEAR 20 OF 40

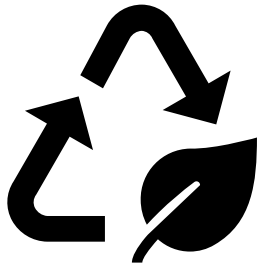


10,000 ft View

- Waste Diversion is Circularity in Practice:
  - Maximizes Resource Recovery
  - Minimizes Disposal
  - Extends Landfill Life
  - Reduces Long-Term Emissions

- Composting and Anaerobic Digestion create value from the end use of organics

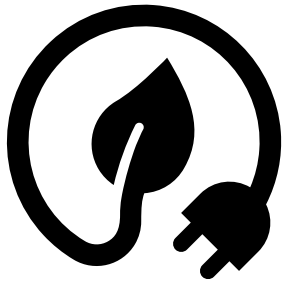
But……



10,000 ft View

- Significant volumes of landfill gas will always be generated, even with organics diversion

- RNG is also Circularity in Practice:
  - Turns the gas into a resource
  - Reduces dependencies on other fuel sources
  - Offsets carbon footprint of the waste industry



Summary

- Organics Diversion and RNG Processing are complementary strategies.
- Diversion tackles upstream organics and material recovery
- RNG processing tackles downstream energy recovery.

Together, they maximize environmental benefits.