

# Waste As a Resource

An update from the  
Department of Waste & Renewables  
March 18, 2021





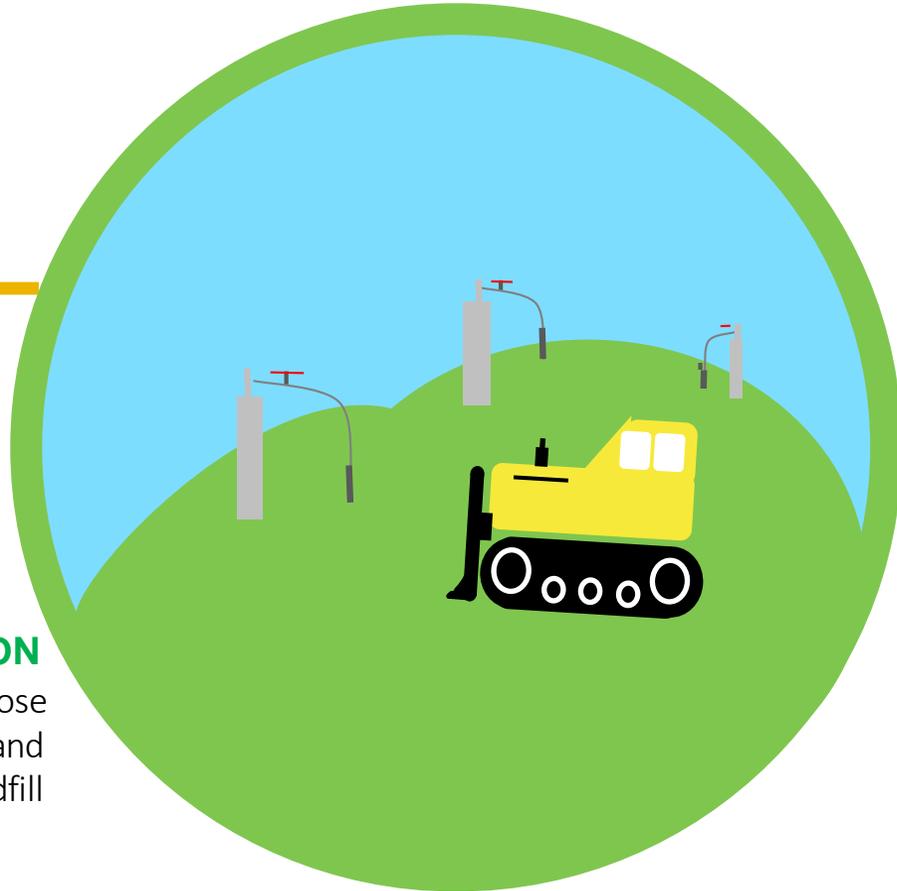
-  [Scale House](#)
-  [Hand Unloading & Bicycle Exchange](#)
-  [Shingle & Tire Recycling](#)
-  [Clean Sweep](#)
-  [C&D Recycling](#)
-  [Brush & Logs](#)
-  [Active Landfill](#)
-  [Groundwater Protection & Monitoring](#)
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-  [Native Prairie Final Cover](#)
-  [Renewable Natural Gas](#)

## About W&R

Providing environmentally-sound and sustainable waste management and renewable energy solutions for current Dane County residents and future generations.



# Waste As a Resource: Landfill Gas-to-Energy



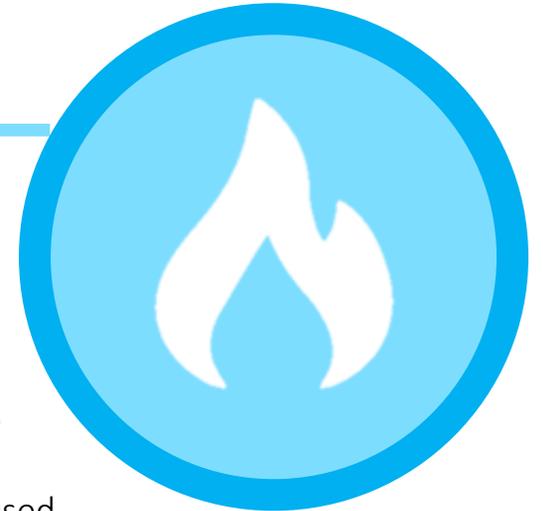
## ANAEROBIC DIGESTION

Organic materials decompose in the absence of oxygen and this process generates landfill gas



## ELECTRICITY

Landfill gas can be used as fuel in generators to make electricity



## RENEWABLE NATURAL GAS

Landfill gas can be cleaned up and compressed and used as fuel in vehicles



## History of Landfill Gas-to-Energy in Dane County

1995

Electrical production at Verona Landfill begins

1997

Electrical production at Rodefild Landfill begins

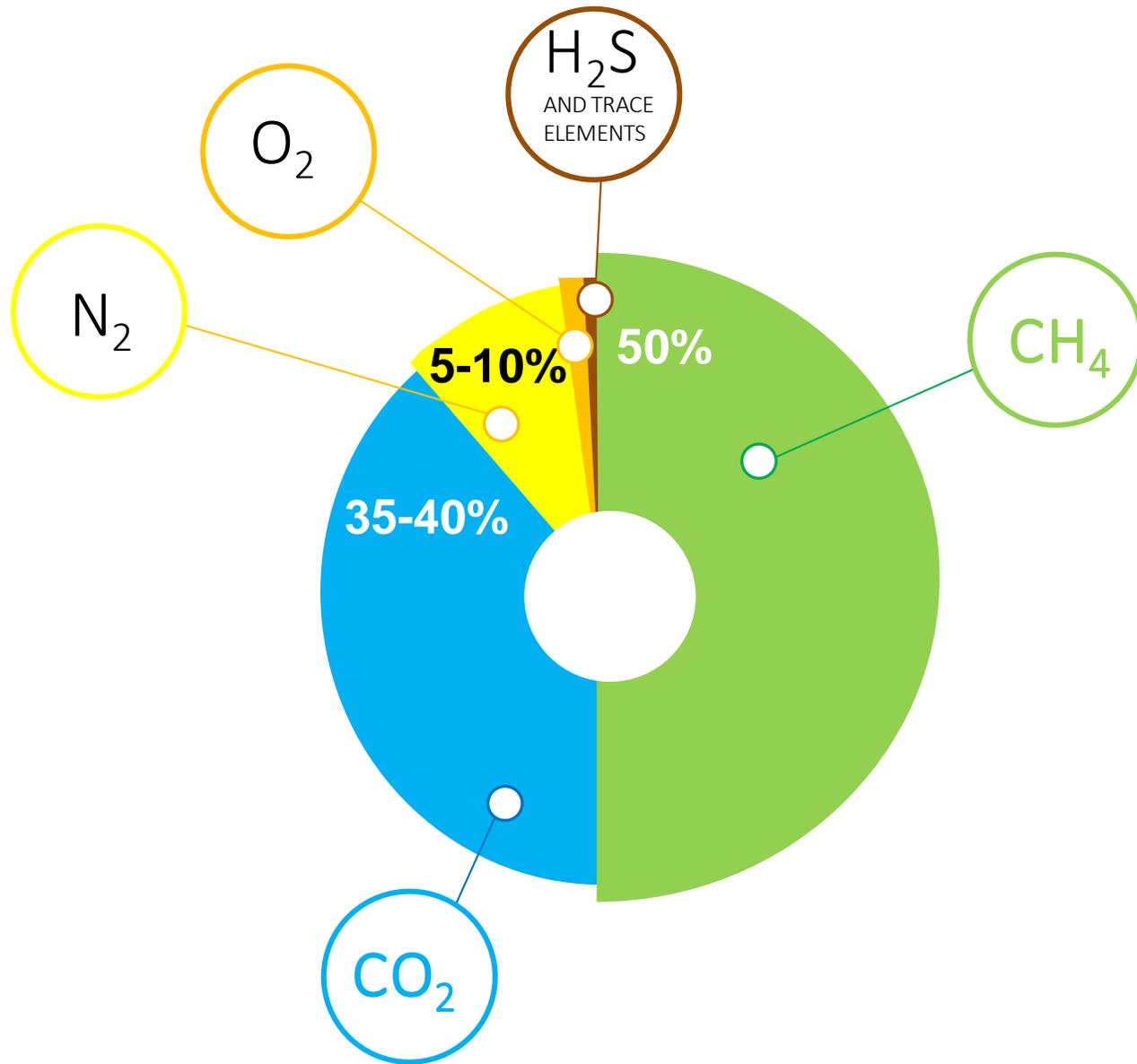
2010

Began diverting a portion of Rodefild's LFG for processing into compressed natural gas (CNG) for vehicle fuel

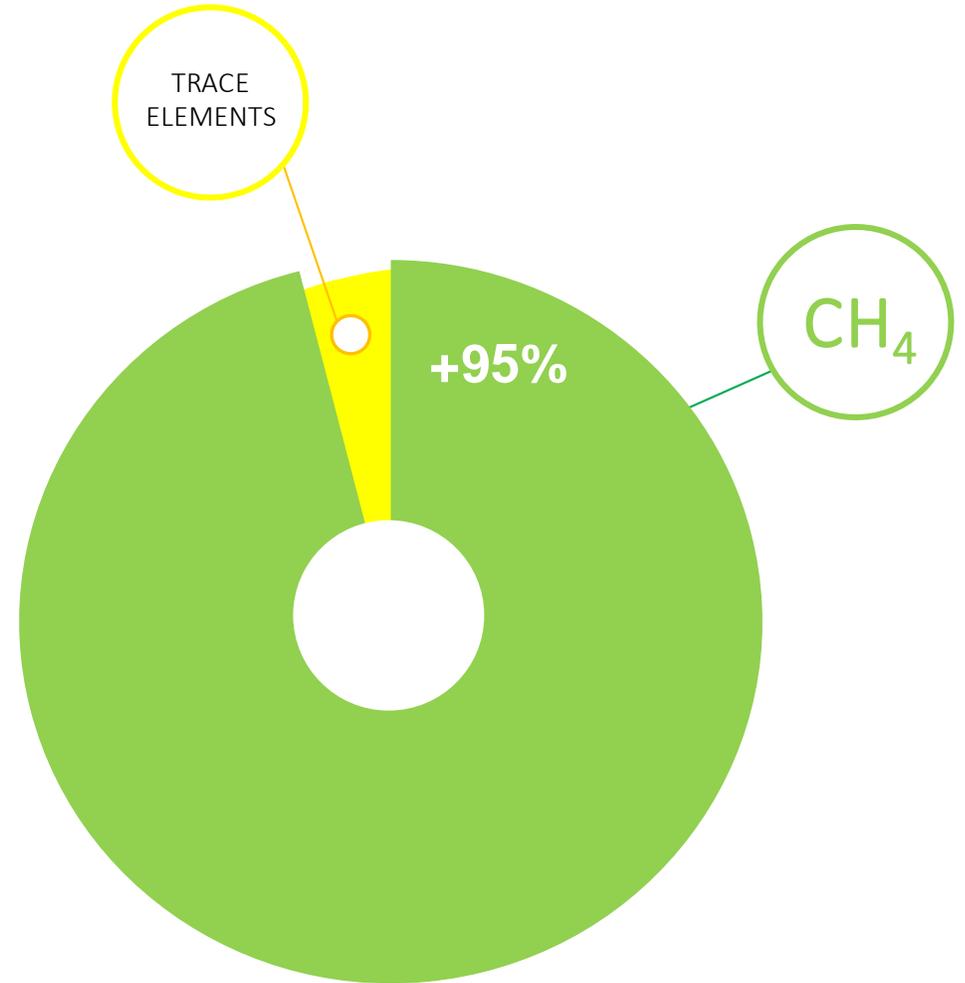
2019

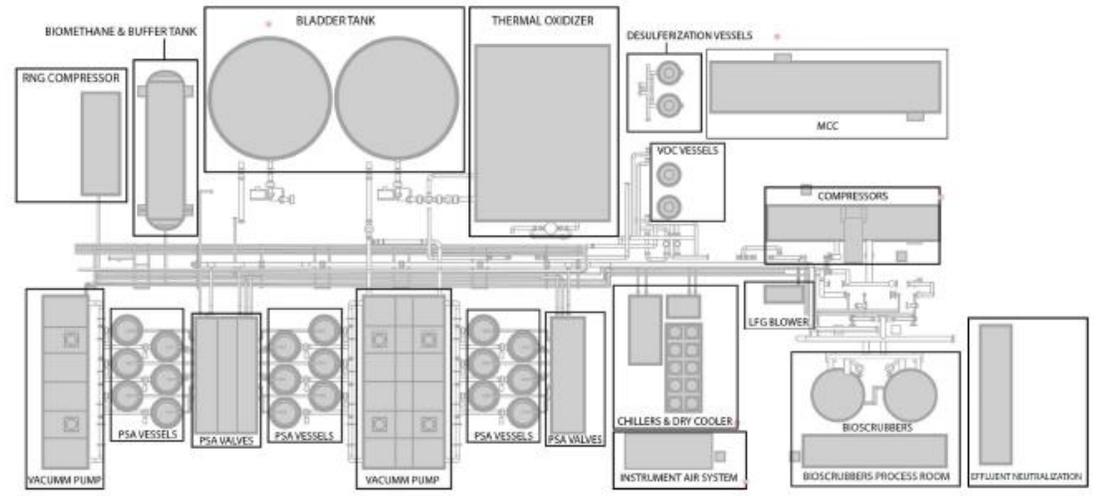
Full scale renewable natural gas (RNG) plant brought online at Rodefild

# LANDFILL GAS

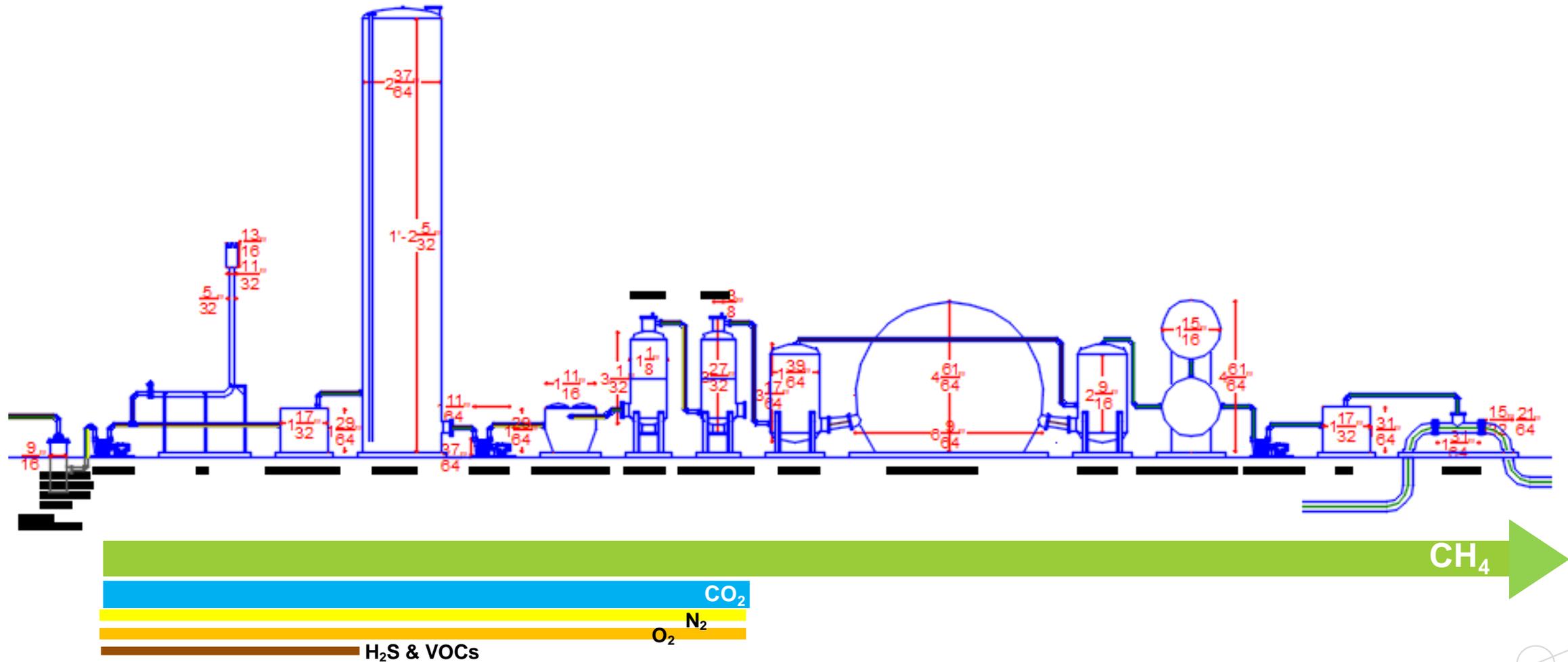


# RENEWABLE NATURAL GAS

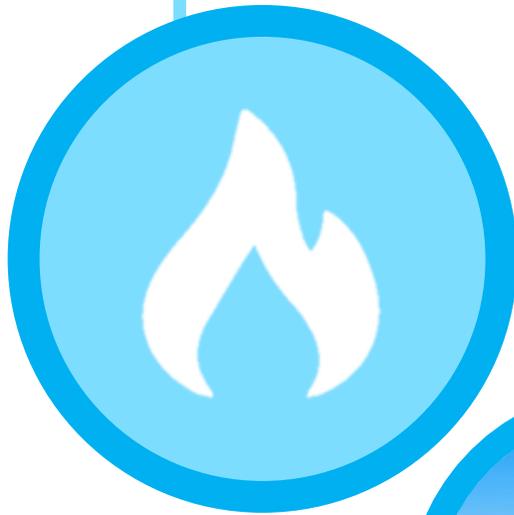




# Landfill Gas Processing and Compression



# Economics of RNG



## ↓ \$0.04/<sub>KWH</sub> PURCHASE POWER AGREEMENT

Prices for electricity generated by landfill gas dropped to \$0.04/KWH from \$0.12/kWH

## +\$3.0/<sub>dth</sub> SALE OF GAS

Actual gas generates approximately \$3-\$4 per dekatherm (dth)

## +\$2.0/<sub>RIN</sub> EPA'S RENEWABLE FUELS STANDARDS

RNG Plant generates approximately 800-1000 dth per day. Each dth of gas generates about 10 RINs. RIN prices vary but have been as high as \$3.0/RIN in 2021.

## REVENUE FROM OFFLOAD STATION

Contracts are secured with multiple dairies to offload biogas at our facility. Digesters are charged by the dth to use the station.

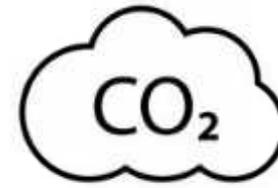
**\$1.8/MSCF** of gas resulting in: a net loss for county

**\$14.4/MSCF** of gas resulting in:

**\$10 MIL** revenue budgeted for 2021

**\$2.8 MIL** estimated to general fund for 2021

# Other Impacts of RNG



OFFSETS CO2 EMISSIONS  
EQUIVALENT TO  
**24,000,000**  
POUNDS OF COAL



CREATES **FIVE** NEW COUNTY  
POSITIONS AND OTHER LOCAL JOBS  
FOR SERVICES AND EQUIPMENT



CREATES ACCESS TO PIPELINE  
FOR DIGESTERS AND HELPS  
GROW THE INDUSTRY



LOWER OFFLOAD FEES  
FOR DIGESTERS WITH  
ADVANCED PHOSPHORUS  
REMOVAL TO HELP KEEP  
OUR LAKES CLEAN



## Dane County Landfill's Timeline

2021

Planning for the future has begun. Permitting a new landfill can take up to 10 years or more.

2023

If a new site was secured, waste diversion could begin with organics, mattresses and other waste streams.

2027

Rodefeld site closes without a vertical expansion.

2030

Estimated maximum site life of Rodefeld Landfill.





# 2020 IMPACTS

How W&R is already closing the loop



## 46,656 TONS

OF CONSTRUCTION & DEMOLITION  
MATERIAL PROCESSED FOR  
RECYCLING

**657 TONS** OF TIRES  
RECYCLED INTO  
PLAYGROUND  
TILE OR  
INCINERATED  
FOR ENERGY



**39 TONS** OF CHEMICALS  
EXCHANGED AND  
USED AGAIN  
THROUGH CLEAN  
SWEEP'S PRODUCT  
EXCHANGE ROOM

**2,383 TONS** OF SHINGLES  
RECYCLED INTO  
ASPHALT



PRODUCED RENEWABLE NATURAL  
GAS EQUIVALENT TO  
**2,568,140**  
GALLONS OF GASOLINE

**870 TONS** OF BRUSH &  
LOGS GROUND  
INTO WOOD CHIP  
TO BE USED AS  
ANIMAL BEDDING  
AND MULCH







# A Site with Potential: Yahara Hills

- Continue to manage City of Madison's & Dane County's waste locally – in a socially responsible way
- Local job growth
- Transportation
  - Access to major highways
  - Close to City of Madison to minimize hauling costs
- Close to existing landfill site to utilize existing infrastructure
  - C&D Recycling & Clean Sweep can continue at current site
  - RNG Pipeline Access
- Large enough to secure waste management needs for decades

# Questions? Contact us at



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