

anessa™

# An Innovative Analytic Solution for Anaerobic Digestion Assessment and Operation

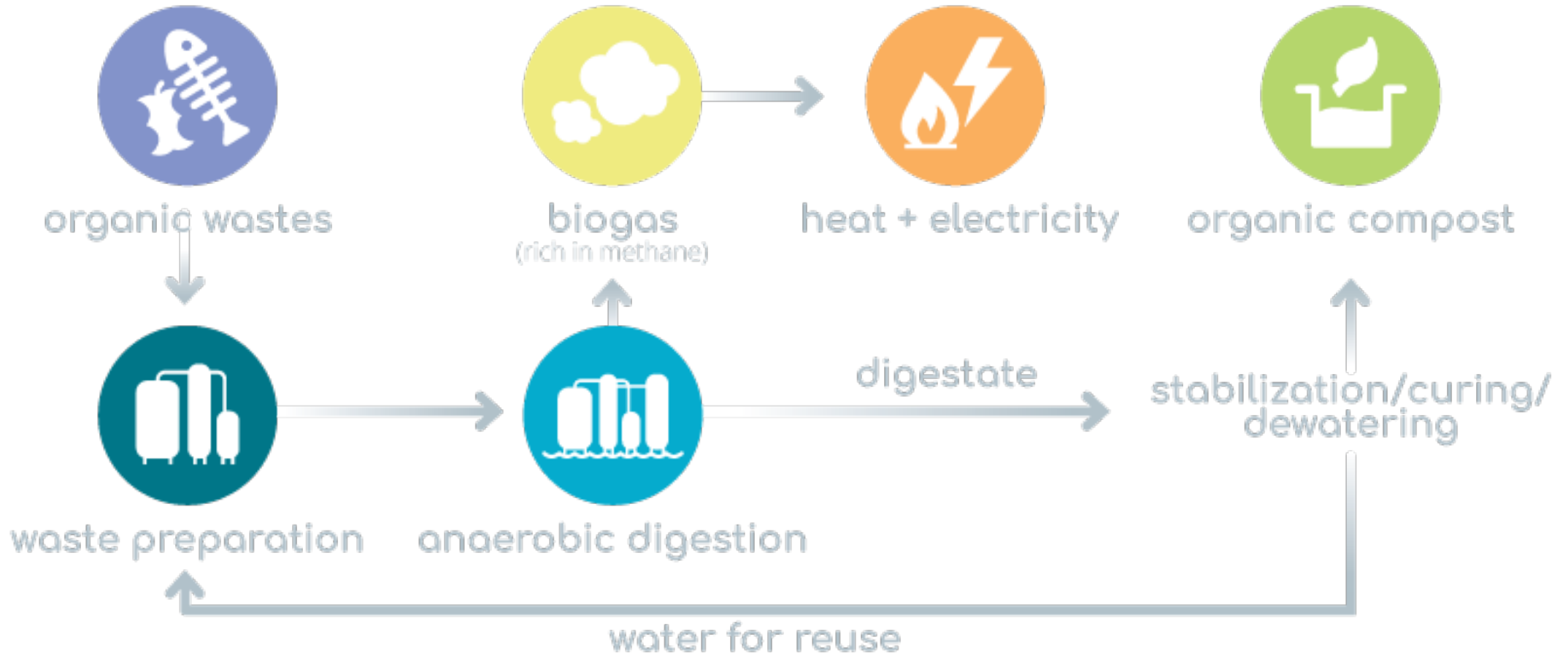


Atlantic  
BIOCON

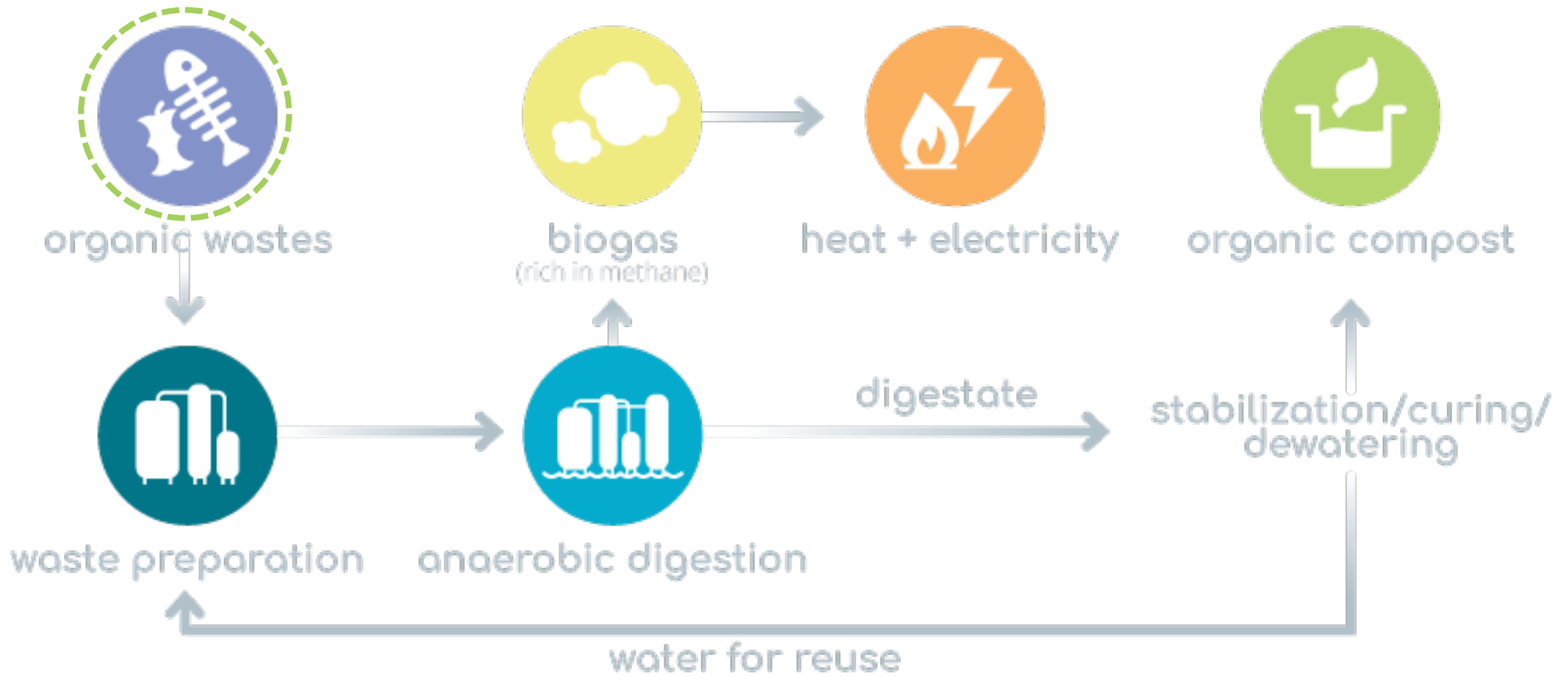
BIOCON  
Atlantique



# ANAEROBIC DIGESTION PROCESS OVERVIEW



# ANAEROBIC DIGESTION PROCESS OVERVIEW



PROCESS  
ORGANIC WASTE MATERIAL



HOUSEHOLD  
FOOD



FOOD  
PROCESSING



BEVERAGE  
PROCESSING



FAT, OIL &  
GREASE



SLAUGHTERHOUSE



ANIMAL  
FARM

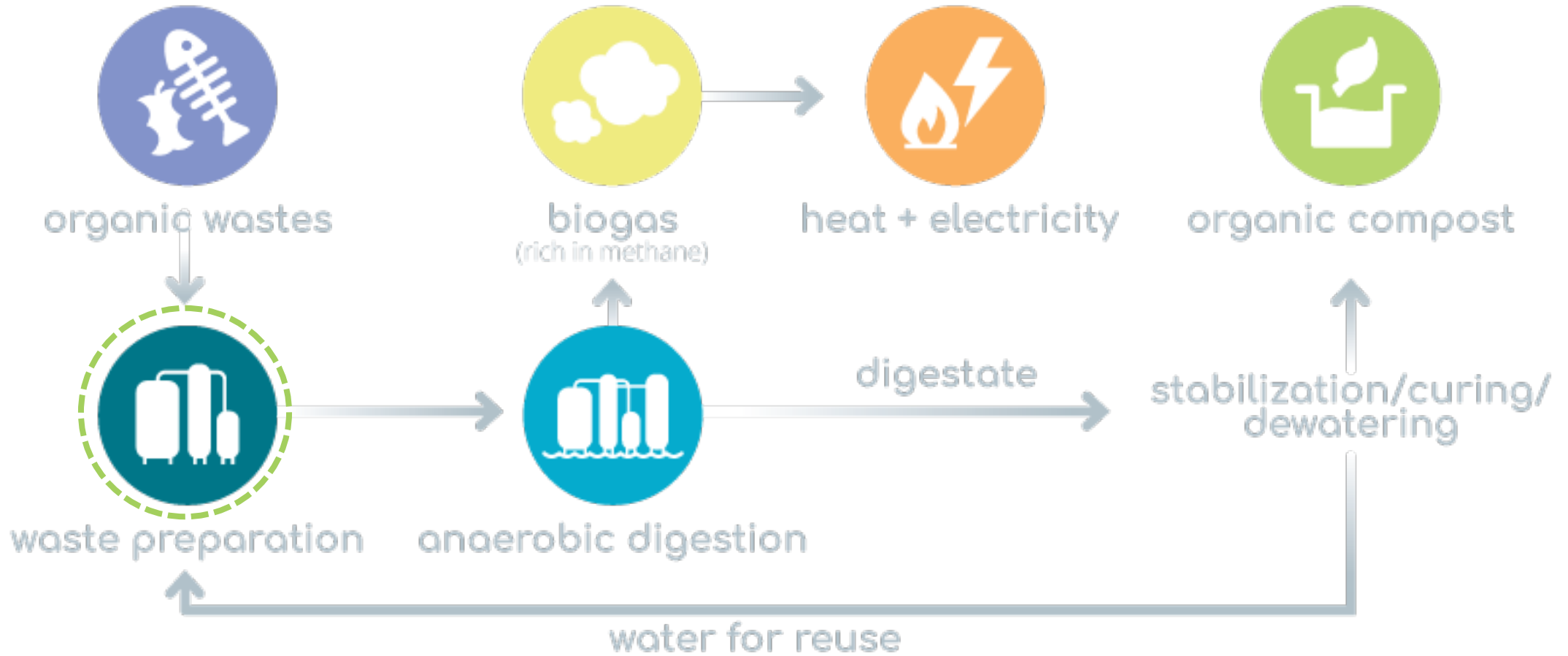


SEWAGE  
SLUDGE



ENERGY  
CROP

# ANAEROBIC DIGESTION PROCESS OVERVIEW





PROCESS

# WASTE MATERIAL PREPARATION



DE-  
PACKAGING



CONTAMINATION  
REMOVAL



CHOPPING



MIXING SLURRY  
PREPARATION



ENHANCING WASTE  
QUALITY

# ANAEROBIC DIGESTION RISKS



MATERIAL  
COMPATIBILITY &  
POTENTIAL



WASTE MATERIAL  
SUPPLY



DIGESTATE  
HANDLING



TECHNICAL  
COMPLEXITY



OPERATIONAL  
CONSIDERATION



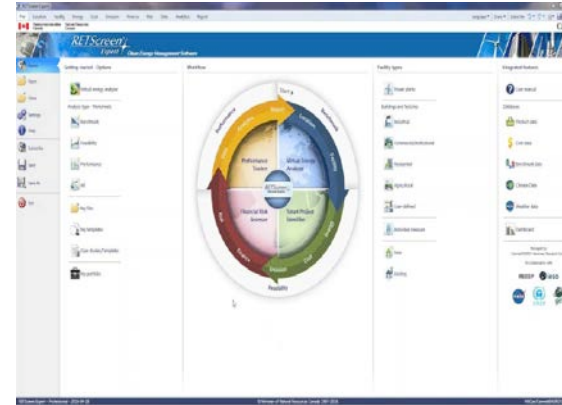
FINANCIAL



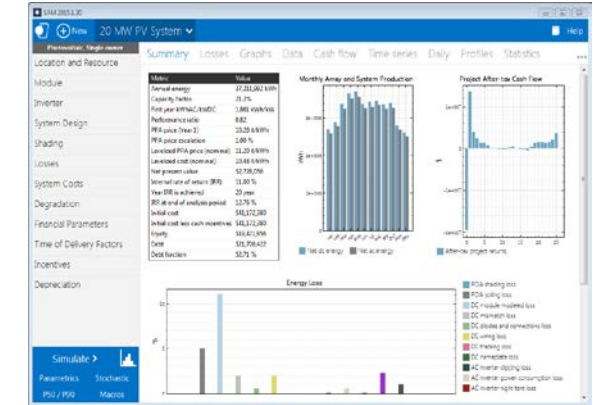
# ASSESSMENT-CURRENT METHODS

Asset	Price at Purchase	Depreciation	Year End Asset Value	Percent Purchased	Less Asset Book Value	Additional Proceeds	Additional Ending Principal	Additional Ending Interest	Additional Ending Net Worth	Added	Added
Machinery & Equipment	\$1,000,000	\$18,000	\$0	80%	\$80,000	(\$0,104)	(\$0,000)	(\$0,787)	(\$5,317)		
Total Facility (Land & Buildings)	\$0	\$0	\$0	0%	\$0	\$0	\$0	\$0	\$0		
Swallowing Livestock	\$0	\$0	\$0	0%	\$0	\$0	\$0	\$0	\$0		

EXCEL SPREADSHEET



RETScreen



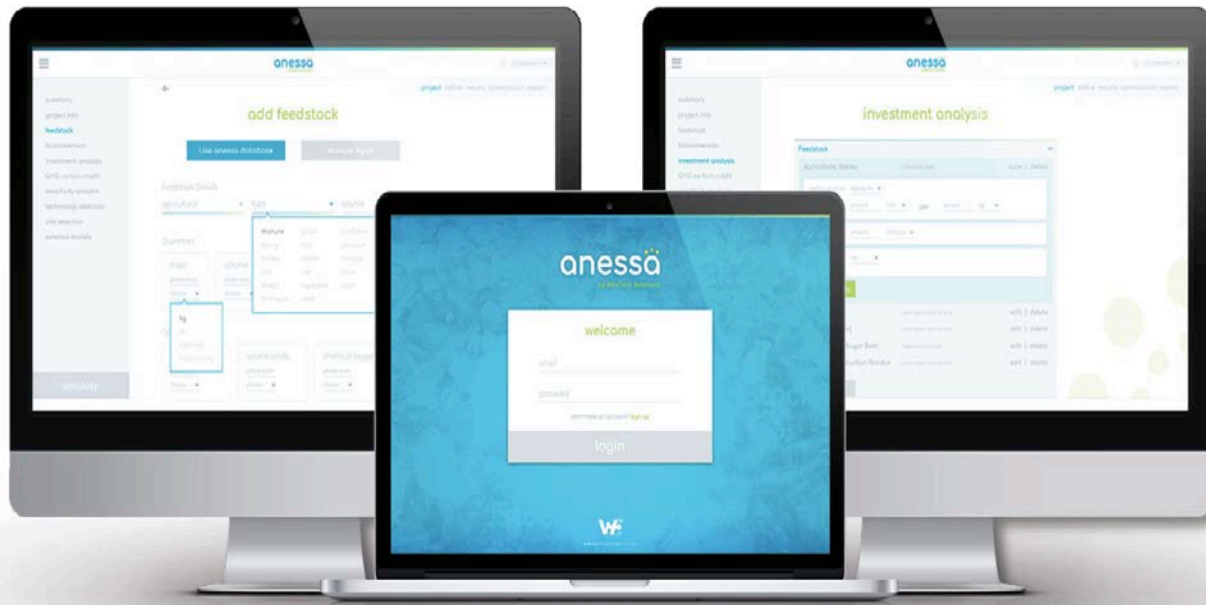
NREL-System Advisor Model (SAM)

- All the methods are semi-MANUAL
- User needs to GATHER all the required information.
- GENERAL energy project assessment (except Excel)- Not for the AD projects.



INNOVATIVE TOOL

# anessa-assessment™



- Can save up to 90% in time of the assessment
- Decrease the project failure Risk
- Covers all the required steps for AD projects
- Can be used by Consulting Engineering Companies and Project Developers
- Considers:
  - Environmental Assessment
  - Financial Assessment
  - Technical Assessment

INNOVATIVE TOOL

# anessa-operation™

(Under Development)



- Improve facility Performance only with proper Managing waste material
- Create daily, weekly, monthly Recipe for AD based on Existing & New possible waste material
- Increase facility Revenue
- Can be used by Facility Operators and Facility Owners

ANAEROBIC DIGESTION  
LIST OF FACILITIES

COUNTRY	NUMBER OF PLANTS
Germany	10,846
Italy	1,555
France	717
Switzerland	638
Czech Republic	554
UK	523
Austria	444
Poland	277
Netherland	268
USA	242
Norway	123
Finland	84
Canada	79



WEnTech Solutions  
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**QUESTION?**



# BENEFITS OF ANAEROBIC DIGESTION



green electricity



renewable gas



organic compost



multiple revenue  
resources



ghg emission  
reduction

# COMPARISON

## ANAEROBIC DIGESTION vs. COMPOSTING

### process



**anaerobic digestion**  
anaerobic process

**composting**  
aerobic process

### energy



**anaerobic digestion**  
large amount

**composting**  
none

### emissions



**anaerobic digestion**  
low

**composting**  
high

### environmental impact



**anaerobic digestion**  
immense

**composting**  
high

### soil benefit



**anaerobic digestion**  
nutrient dense

**composting**  
healthy wase

### process time



**anaerobic digestion**  
3-4 weeks

**composting**  
12 weeks