



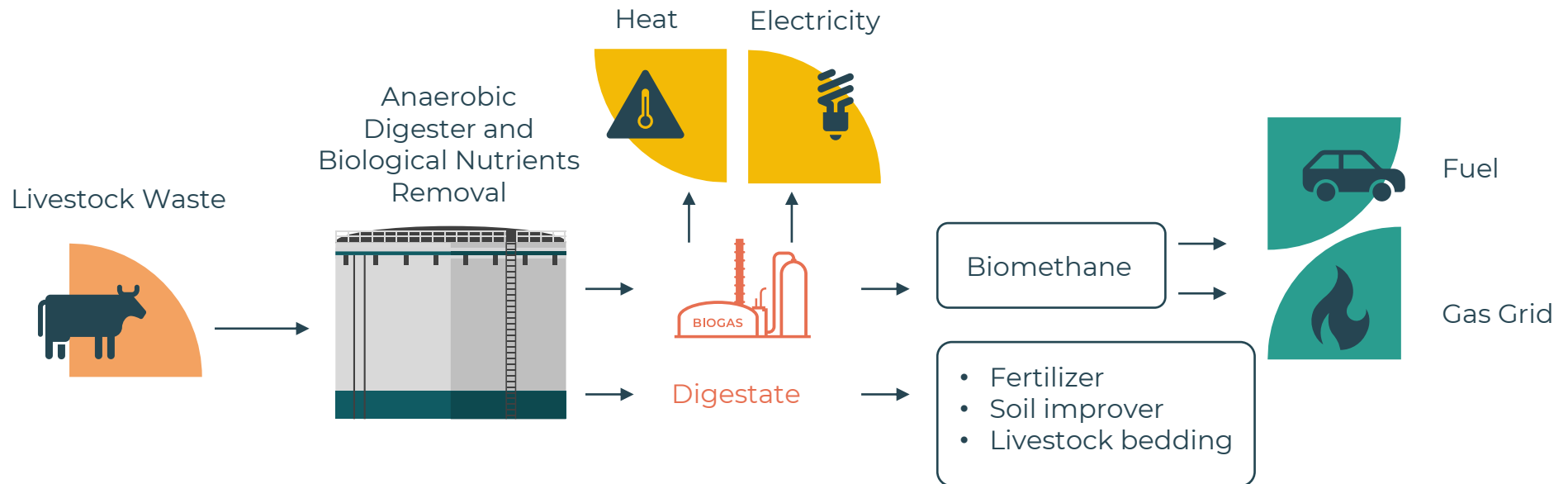
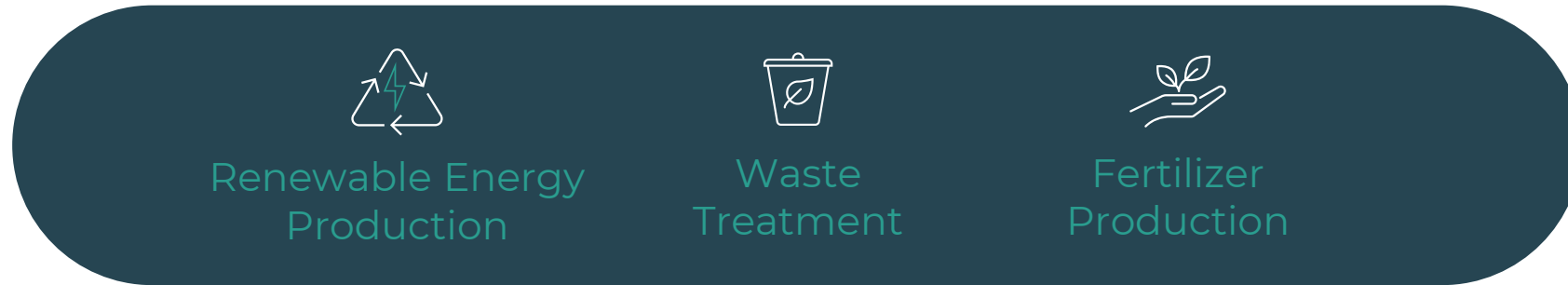
# Zero Carbon, Sustainable Farming

Bringing the next generation of  
biogas production and nutrient recovery solutions



[Company movie](#) ↓

# What we do with Biogas production and Nutrient Removal



# SGTech's Integrated Ecosystem Solution [IES]®

a novel technology to enable waste into a sustainable resource,  
resulting in:

As high as  
**60%**  
reduction Carbon  
negative operation

As high as  
**80%**  
Nitrogen  
removal

As high as  
**25%**  
Total Cost of  
Ownership  
reduction

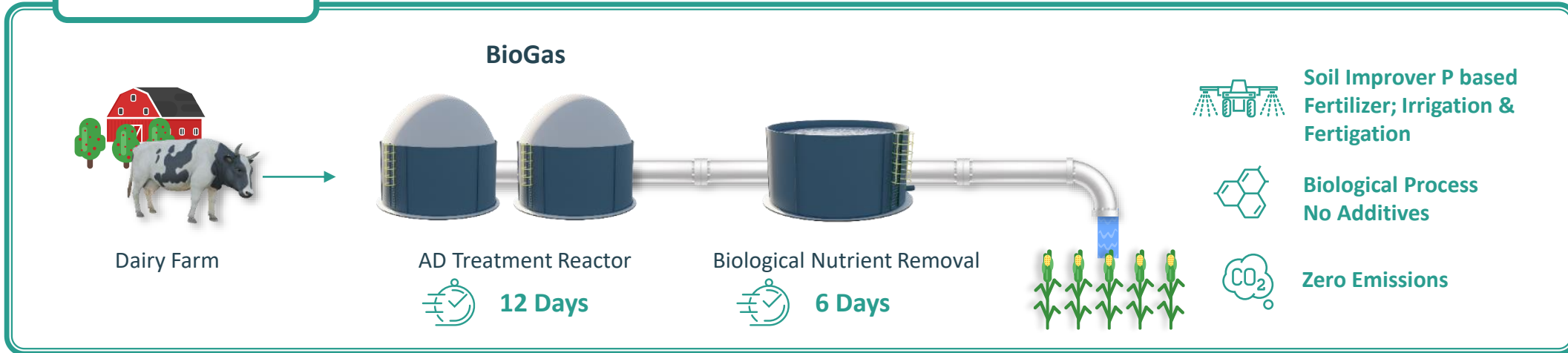
As high as  
**60%**  
Phosphorus  
recovery

As high as  
**30%**  
increase  
plant's energy  
generation

# How it works? Integrated Ecosystem Solution (IES) <sup>®</sup>



SGTECH inside<sup>®</sup>



Conventional

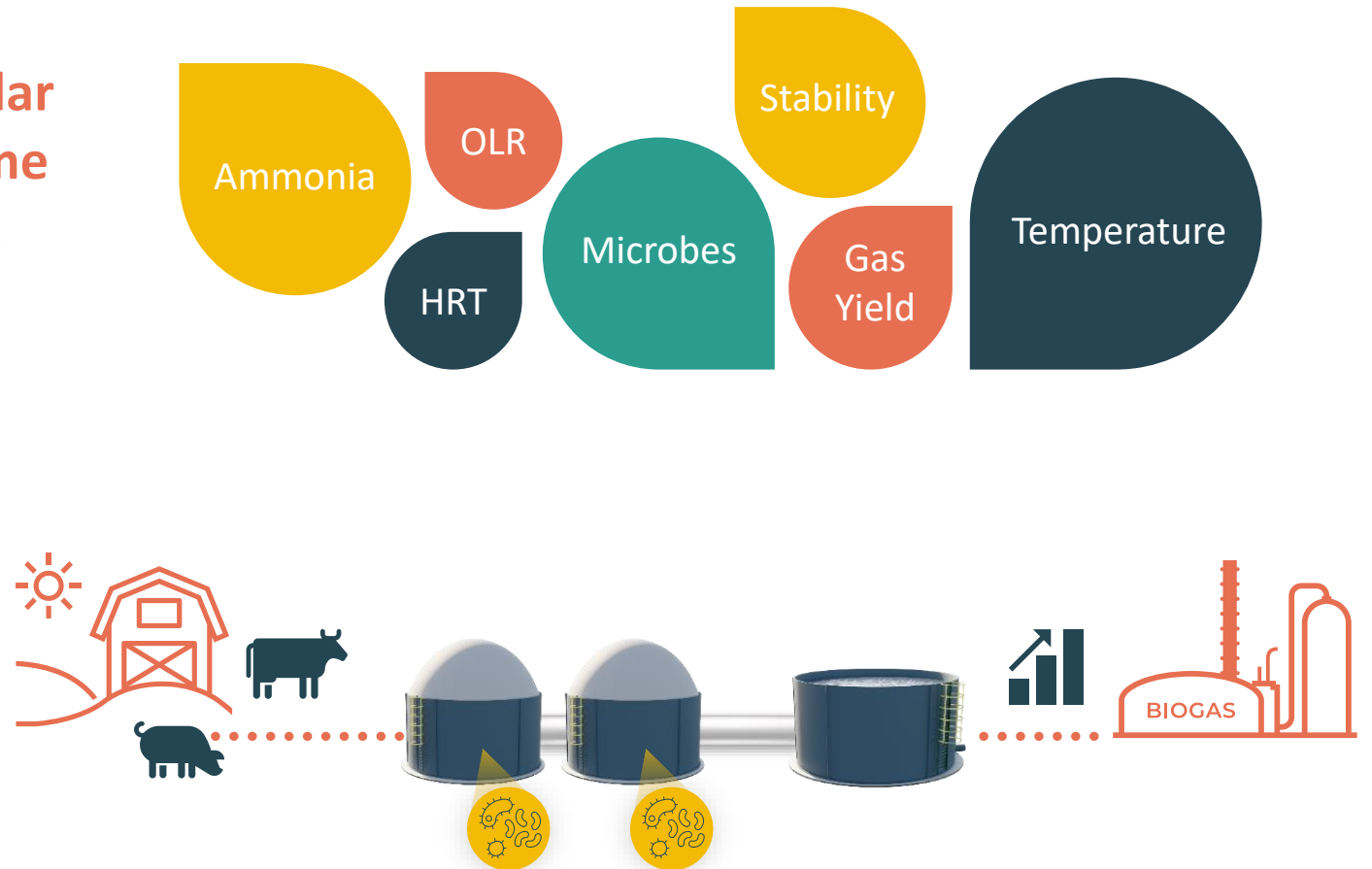


# How it works?

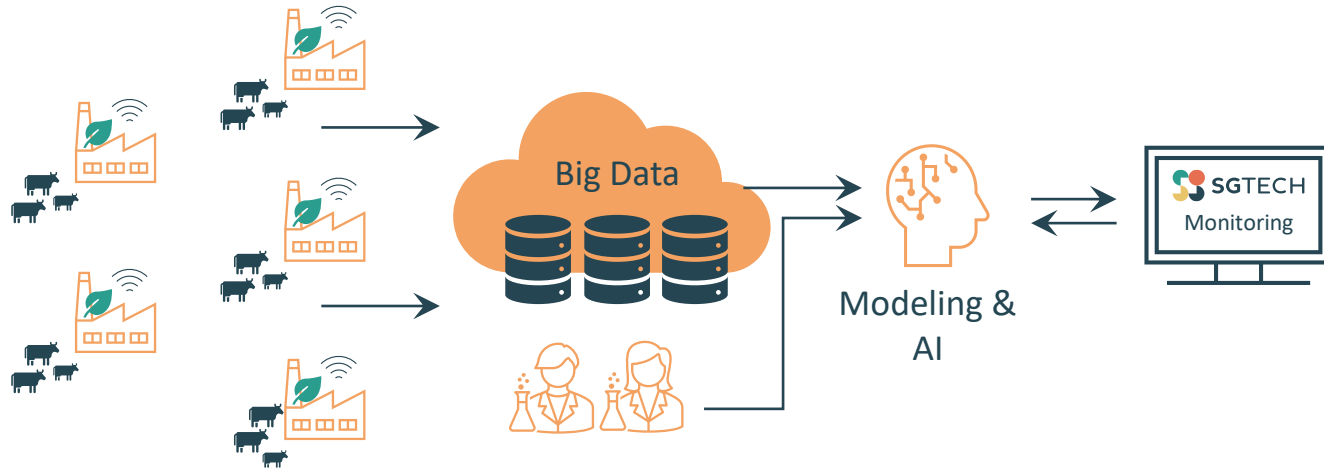
## Microbiome Management

**SGTech applies state of the art molecular microbiology techniques for microbiome analysis designed for waste treatment.**

- IES's process contain microbiomes that specialize in Biogas production and Nutrient removal
- This level of analysis enables precision management of the process to achieve desirable outcomes



# How it works? AI & Big Data



**Automated and autonomic system architecture**  
for optimal waste management plant performance at all times

- A new approach in waste management
- Sophisticated algorithm
- Data driven monitoring & optimizing
- Real time notifications and alerts
- Scalable platform
- Machine learning
- Deep learning

✓ Easy operation

✓ Easy decision making and problem-solving process

✓ Low maintenance expenditures

✓ High system efficiency





# Technology Validation



## **Technical validation and recommendation made by AFRY;**

An international consulting and engineering company with 17,000 engineers and offices in more than 100 countries. AFRY focuses on sectors such as power generation, forest and biomass industry, chemicals & biorefining, mining & metals, transportation and water.



**Grant winner in 2020, at total amount of 2.4 million NIS**



**Grant winner in 2021, at total amount of 0.6 million NIS**



## **Internal R&D capabilities :**

- Main plant treats 15m<sup>3</sup> of cow waste per day
- On-site, small scale co-digestion pilot treats 1m<sup>3</sup> per day
- Lab-scale pilot capable of treating 5 Liters per day
- In-house Lab - measures and analyzes operational parameters

# Addressable Market

Cattle, Pig and Sheep/Chicken farming



**First focus:** medium farms range of 300kW up to 2MW in Europe

**Second focus:** small farms, below 300kW in Europe, medium farms range of 300kW up to 2MW in US



# Go To Market



**Biogas Developers & New Plants**

Tier 1

**Retrofit**

Tier 1

**Direct Relationship with**



Builders/Owners/Operators of large number of plants and of new plants



Existing farms with any profitability level to exceed biogas potential and operate according to new regulations, including distressed and insolvent AD plants



**Increase profitability/  
reduce costs of digestate  
management**



**Comply with  
regulations**



**Operate to meet the  
government incentives**

# Business Model

A Technology Provider

LICENSE FEE **or** PRODUCT

**BIOGAS DEVELOPERS**

Build and Operate Biogas Plants

**LIVESTOCK FARMS**

Looking for new sources of income and to address issues of manure disposal

**FOOD AND DRINK CONGLOMERATES**

Zero carbon or Sustainable operations acknowledgment

**GREENFIELD PLANTS**

- Build / Operate a biogas plant with strategic partner
- Revenue sharing & contract ownership with partners

**RETROFIT PLANTS**

- Optimize / Implement IES technology in non-profitable plants
  - Revenue sharing & contract ownership with partners

# SGTech Deliverables

**SGTech is a Technology Provider**  
**SGTech inside® solution, cooperating with leading biogas partners**  
**to built a full system and committed to deliver the following:**

## Project

- ✓ Comprehensive process design
- ✓ Software dedicated algorithm
- ✓ Control and electrical panel
- ✓ Recommended BOM
- ✓ Supervision during construction
- ✓ Startup and commissioning of the Biological process

## Operational Plant

- ✓ On going biological support
- ✓ Carbon Neutral Certification

# Our Status

## IES system in a Commercial-ready stage for Biogas Production

- 2022** An on-site project in EU producing **300kW up to 1MW**
- 2023** 2 new plants & 5 Retrofit plants in EU producing **300kW up to 1MW** and, An on-site project in the **US**
- 2024** 2 new plants & 10 Retrofit plants in EU producing **300kW up to 1MW**, 5 Retrofit plants in **US** producing **1MW up to 2MW**

## In development:



### AI layers

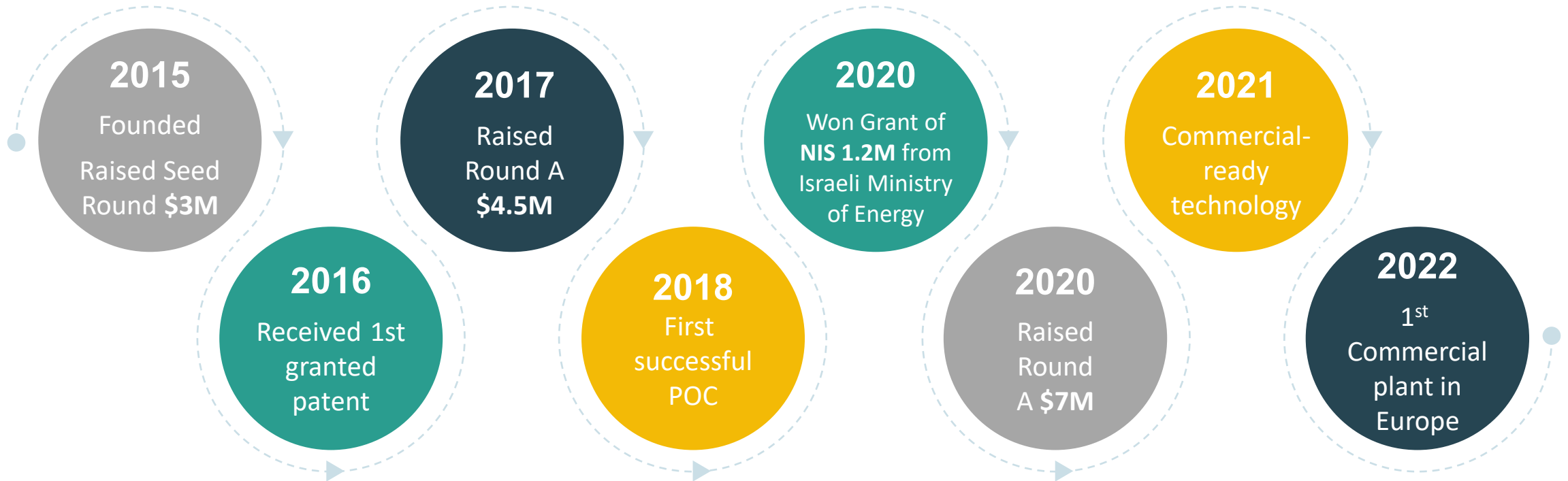
Machine Learning  
Deep Learning



### Microbial process enhancement

- Custom bacterial formulation to address specific challenges
- Precise formula of ingredients to promote beneficial microbes

# About Us



## Leading Team

**Shimshon Horn,**  
CEO

**Gal Levin,**  
CTO

**Marat Voldman,**  
COO

**Dr. Keren Tadmor,**  
Microbiologist



# OUR IMPACT

## SDG Goals





# Thank You

Contact: [contact@sgtech.co.il](mailto:contact@sgtech.co.il)



# Intellectual Property



Luzzatto and Luzzatto

Patent Attorneys

	Efficient Operation of an Anaerobic-Aerobic SBR	Maintaining A Steady Microbial Community In A Combined Anaerobic-aerobic Apparatus	Process And Apparatus for the Treatment of Organic Feedstock	Process and Facility for the Treatment of Livestock Waste
Abstract	The invention relates to a method for the efficient operation of a waste treatment apparatus comprising two-stage anaerobic-aerobic sequencing batch reactors (SBR)	The invention provides a method and apparatus for maintaining a stable microbial community in a combined anaerobic-aerobic system	The invention provides a process and apparatus for treating organic waste feedstock	The invention provides an efficient system for treating livestock waste
In Process (IP, BF, F, A, P)	BR, CA, CN, EP, HK, IN, US, WO	BR, CA, CN, EP, HK, IN, US, WO	BR, CA, CN, EP, HK, IL, IN, US, WO	AR, BR , MX
Done (Allowed, Granted)	IL	IL	IL	AT, AU, BE, CE, CH, CN, DE, DK, EP, ES, FR, GB, HR, HU, IL, IN, IT, NL, PL, RS, RU, SE, TR, US

# IL Based Plant

## System Performance

- Plant operation since 2019
- 100 dairy cows farm
- Input – cattle slurry, parlor milk water
- Manure capacity - 4,950 ton/y
- Biogas production – 130 m<sup>3</sup>/d
- Methane concentration – 65% vs. 55% acc. VDI 3475
- Biogas yield – 0.45 m<sup>3</sup>/kg oDM vs. 0.28 m<sup>3</sup>/kg oDM acc. VDI 3475)
- TN liquid digestate – 350 mg/l (70% removal w/w)
- TP liquid digestate – 150 mg/l (60% removal w/w)





# European based – Upscale plant

## Predictive Performance

- To be established in 2022
- Input – cattle slurry, cattle dung
- Manure capacity – 48,000 ton/y
- 500 kW<sub>e</sub> plant
- Biogas production – 190 m<sup>3</sup>/h
- Methane concentration – 65%
- Biomethane production – 125 m<sup>3</sup>/h
- Biogas yield – 0.45 m<sup>3</sup>/kg oDM
- TN liquid digestate – 350 mg/l  
( 65% removal w/w)
- TP liquid digestate - 150 mg/l  
(60% removal w/w)

