

# Thai-German Technology Conference Biogas

## CHP Solutions / exhaust gas heat recovery - GTP Solutions GmbH (D)

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**Hotel Crowne Plaza**



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## GTP Solutions GmbH

- Specialized company in the business field of CHP
- Founded in 2012 – but working in CHP project business since 1994
- GTP experience and know-how of more than 650 Cogeneration plants with gas engines and biogas treatment systems
- The turn over for 2017 is expected with 5,5 Mio EUR
- Our team: Mechanical, electrical and process engineers



## GTP products and services in general

Step 1: Engineering and technical design services for all components required by customer and belonging to the CHP and auxiliaries components

Step 2: Delivery of key components only

Step 3: Delivery of turnkey plants in container or building option

Step 4: Customer support during start-up and whole operation

Export concepts with max. local content – later more details regarding Thailand

## GTP Services and core competence in CHP field



Gas engines  
GE, MWM, MTU



Heat recovery, steam,  
Hot or chilled water



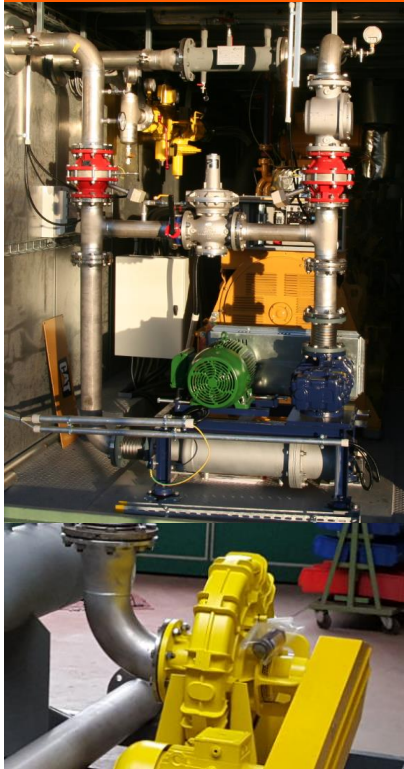
Electricity to grid  
or island mode





## Core competence in auxiliary equipment

Biogas booster

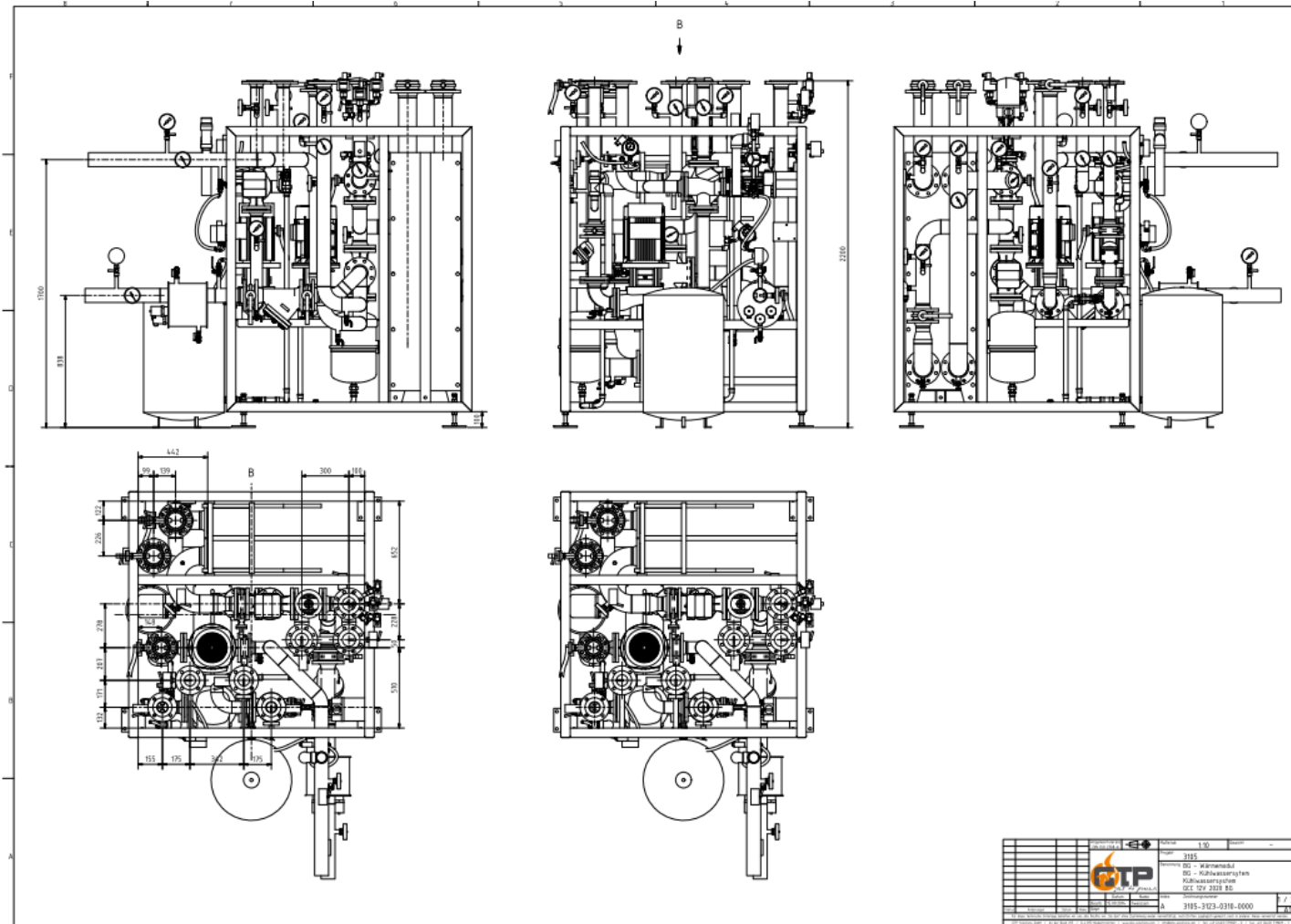


Biogas treatment  
Drying, H<sub>2</sub>S removal

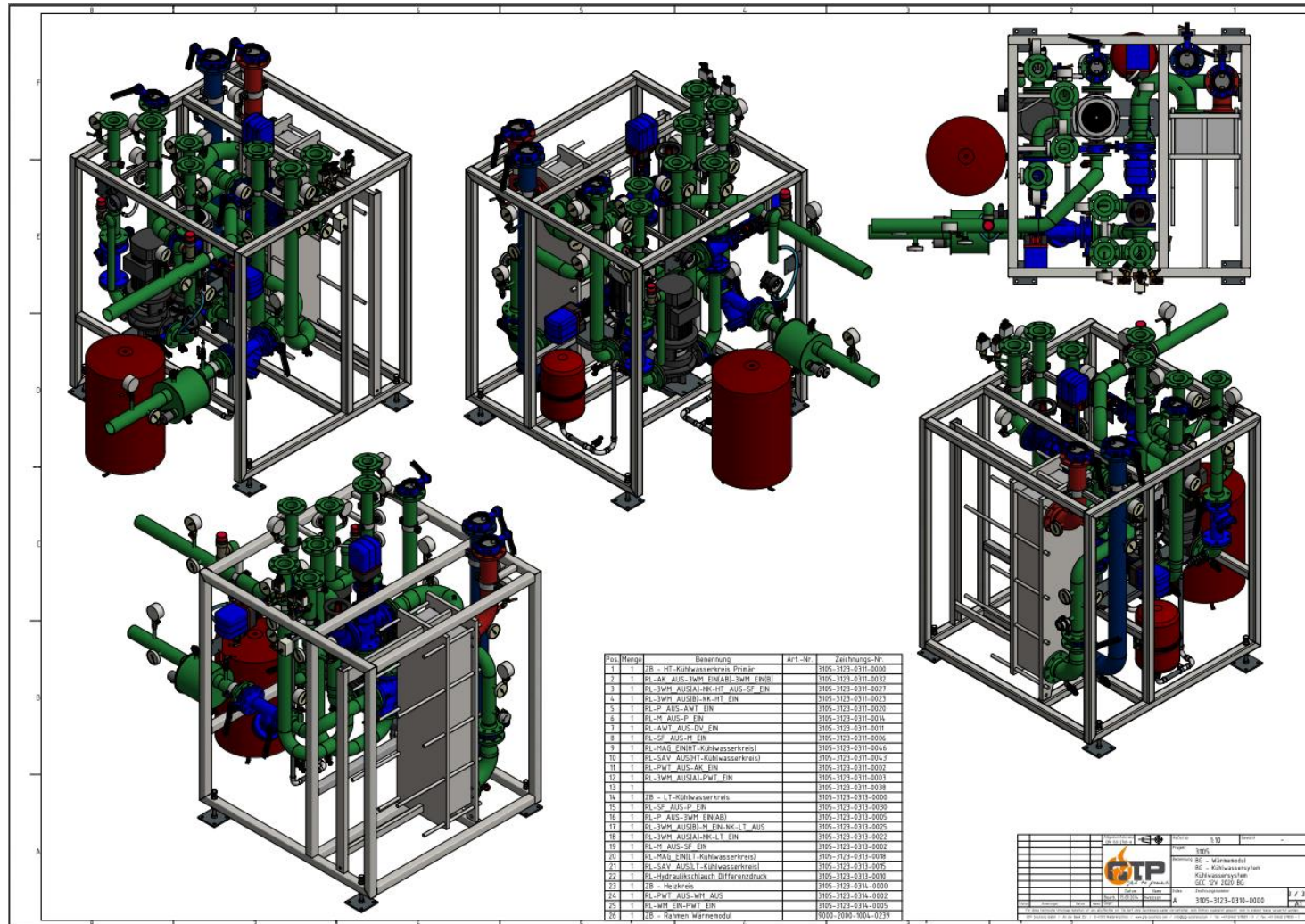


Biogas flares





# GTP engineering and design (heat module)



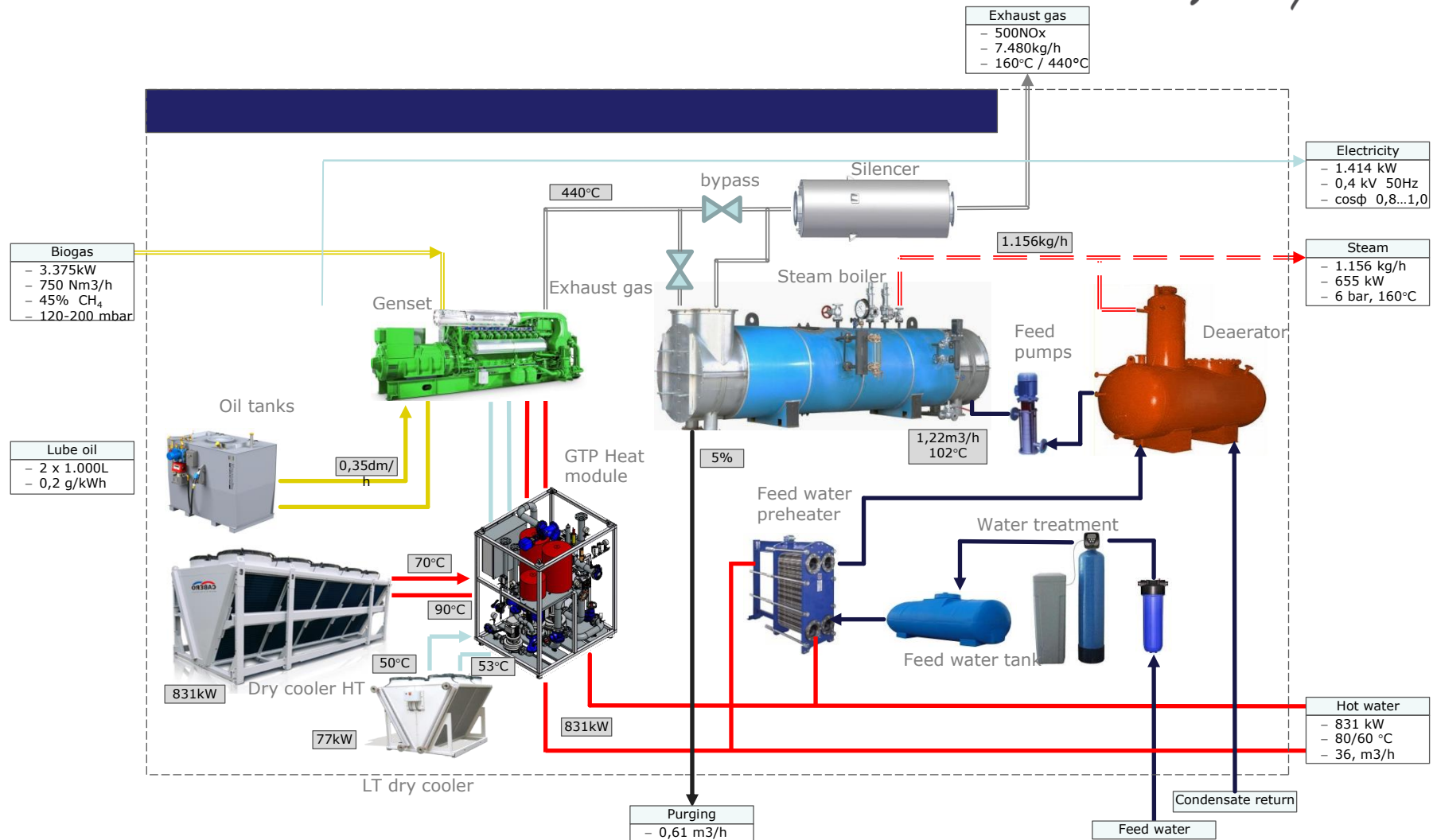


## GTP assembly of heat module





# CHP: Biogas power plant GE engine 420 GS-B.L



## Different gas sources for our CHP units

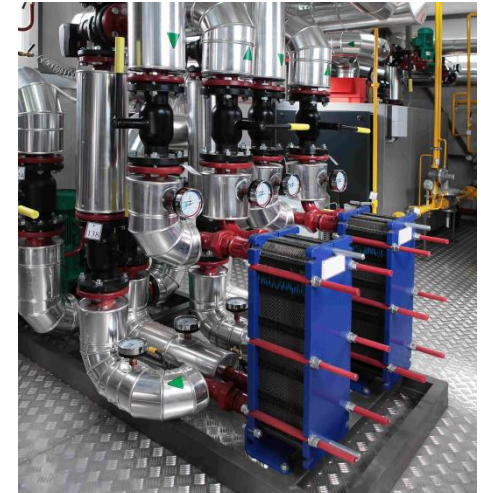
Biogas



Landfill gas



Natural gas



## GTP concept (CHP) - Thailand



German Engineering



Meets Thai Production

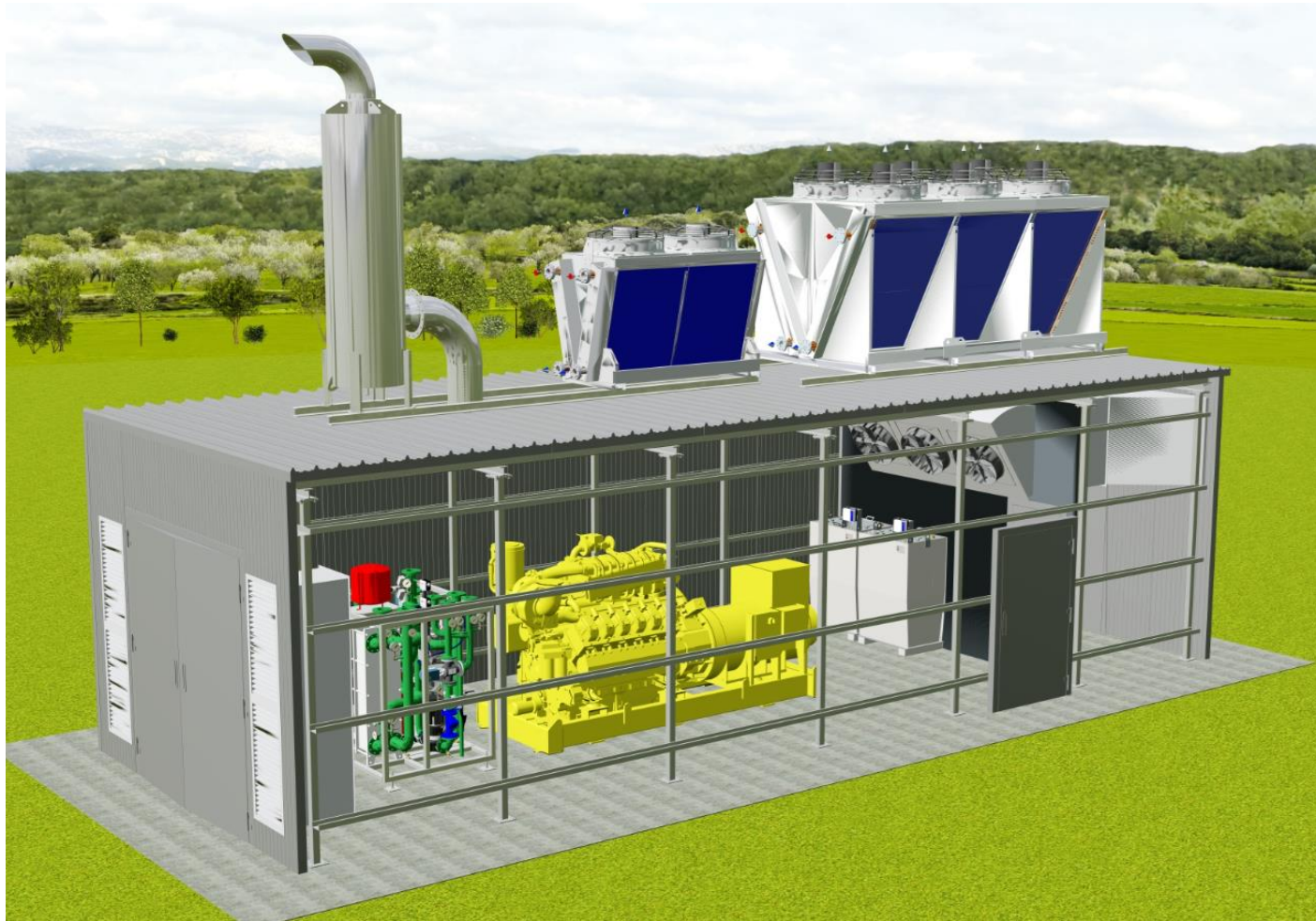


## **GTP Solutions GmbH (D) – RETECH Energy Co., Ltd (TH) Team**

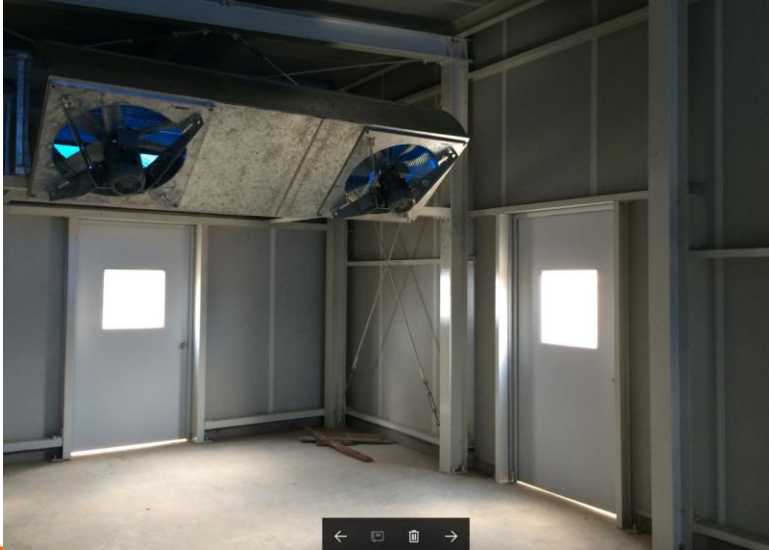


- RETECH Energy is our exclusive partner to distribute our systems to Thailand and a “full liner” for biogas solutions
- Local Thai based Team with 15 employees
- Engineering and supply backup in Germany with 10 engineers
- Local assembly teams for mechanical and electrical works
- Local production facilities for turnkey plants

## Powerbox "E" enclosure concept (CHP)



## Biogas plant Starch factory Enclosure 1,2 MW (TH)

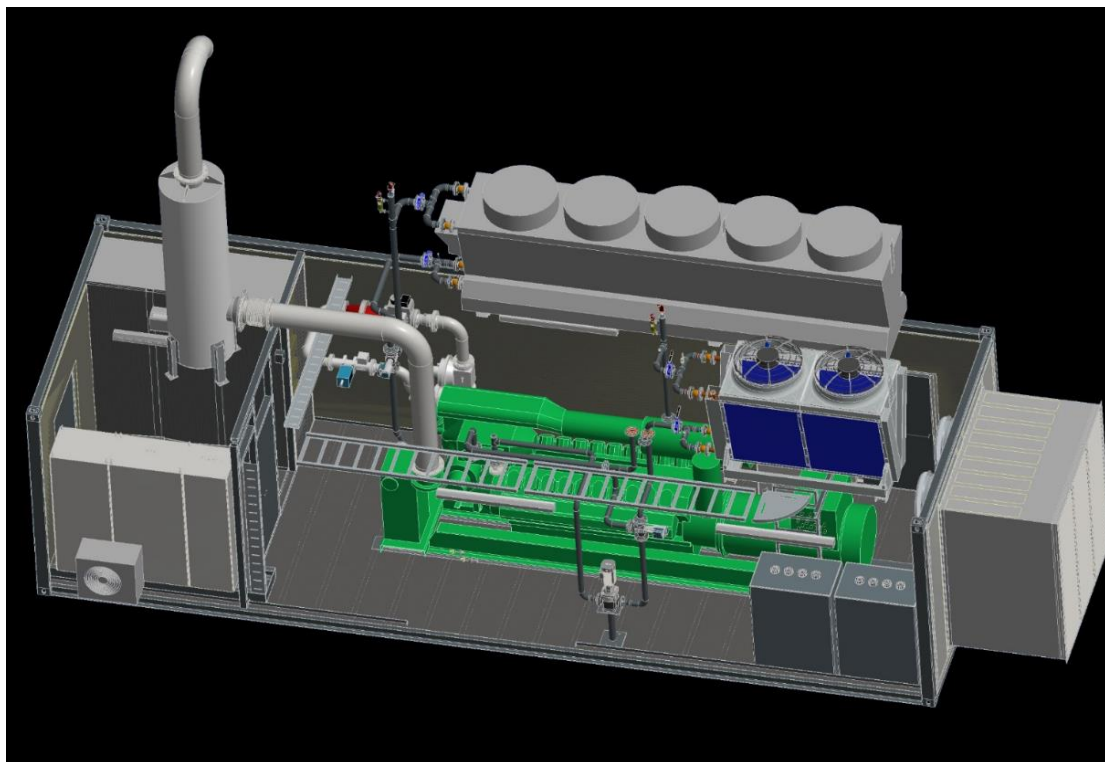


- ◆ Enclosure for one gas engine with all auxiliary
- ◆ Standard building for multiple engines
- ◆ Plenty of space for maintenance
- ◆ Best alternative for a traditional concrete building with fantastic noise insulation





## Powerbox "C" Container concept (CHP)



- ◆ Special Container up to 14m x 4,0m x 3,0m
- ◆ Gas engines up to 2,5 MW each
- ◆ Full heat recovery system
- ◆ Ventilation system air inlet / outlet
- ◆ Dry cooler for mixture cooling and jacket water
- ◆ Exhaust gas catalyst and 10m stack
- ◆ Oil station for fresh and used oil
- ◆ Power panel and grid synchronization system

## GTP Container plant fabrication





## Biogas plant starch factory (TH)

- ♦ Gas engine GE Jenbacher 420 series
- ♦ Electrical power generation up to 1,5 MW
- ♦ GTP package in special plant container with 4 meter width
- ♦ Maintenance friendly
- ♦ Design 2017 – in operation





## Biogas plant palm oil mill (TH)

- ♦ Gas engine GE Jenbacher 320 series
- ♦ Electrical power generation up to 1,063 MW
- ♦ GTP package in special plant container with 4 meter width
- ♦ Maintenance friendly
- ♦ Design 2017 – in operation



## Landfill gas CHP with gas treatment system



- ◆ Gas cooling and compressor 400 m<sup>3</sup>/h
- ◆ Gas drying system 400 m<sup>3</sup>/h
- ◆ Removal system for H<sub>2</sub>S and Si components
- ◆ Gas engine 600 kW



## Landfill gas plant 800kW

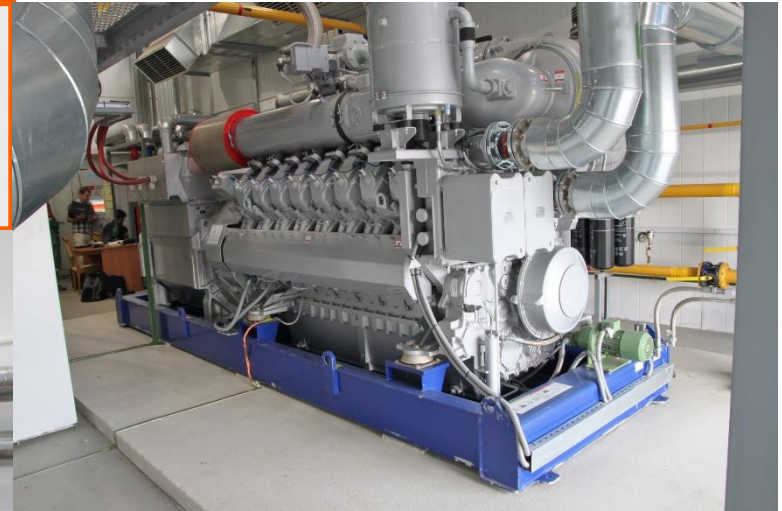
- ♦ Gas cooling 500 m<sup>3</sup>/h
- ♦ Biogas compressor 500 m<sup>3</sup>/h
- ♦ Activated Carbon system
- ♦ Gas engine 800kW with heat recovery system





## Reference: CHP in building MTU 2 x 16V4000L62

- ◆ AoE 16V4000L62
- ◆ Complete heat recovery system
- ◆ Steam boiler
- ◆ Delivery of key components and engineering



## Natural gas plant Belarus 2 x 1162kW

- ♦ 2 x MTU 12V4000L62 (BY)
- ♦ Full heat recovery system
- ♦ Containerized turn-key plants
- ♦ Spare parts supply
- ♦ Telephone support in German / English





## Biogas CHP in building 1162kW - Schleswig



- ♦ MTU CHP in building
- ♦ AoB12V4000L62
- ♦ 1162kW
- ♦ Complete heat recovery system
- ♦ Engineering and project management

## Biogas plant Germany (2nd hand)

- ♦ MWM Caterpillar TCG2016V16 gas engine 716kW
- ♦ Gas cooling 400 m<sup>3</sup>/h
- ♦ Gas drying system 400 m<sup>3</sup>/h
- ♦ Removal system of H<sub>2</sub>S
- ♦ Biogas compressor 400 m<sup>3</sup>/h
- ♦ Full heat recovery system
- ♦ Exhaust gas catalyst to remove hydro carbons





## What are we searching for in Thailand ???

- New partnerships for decentralized energy projects with gas engines
- Biogas partners e.g. financing, project developer or BOT companies
- Increase contact to agricultural Biogas players
- Maybe something we did not thought about before....

You have "fresh ideas"? Please let us talk about....

Thanks for your kind attention