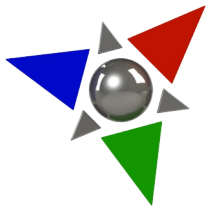




KiRa Technology

Biomass microCHP Distributed, Sustainable and Circular



WHO WE ARE

KiRa Technology is an innovative and dynamic family-run company.

Since 2014 we have been creating **highly sustainable** energy systems, based on the principles of the **circular economy**.

Because we appreciate nature we work to minimize negative impact on it.

Fabio Pellegrini

CoFounder

CEO

Product development

Mechanical engineer with expertise in energy systems controls. Mechanical design, simulation, development and testing.

Piergiorgio Pellegrini

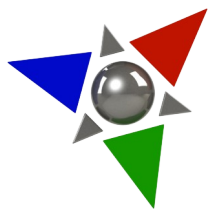
CoFounder

CFO

Software development

Company manager with expertise in computer technology and green building. Development of control software.





EUROPEAN ENERGY BACKGROUND

Energy continuity issues:

more than 40% of electrical distribution networks in EU are more than 40 years old. *1



High energy cost:

1 house out of every 6, in EU, uses an oil or kerosene heating system (till 1 house every 2 in some counties). *2

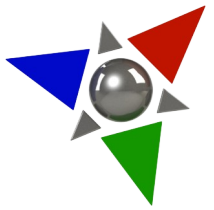


Alarming energy poverty:

42 million people in the EU cannot adequately meet their energy needs. *3



*1 [qualenergia.it] *2 [upei.org] *3 [energy.ec.europa.eu]



THE NEED

Domestic **renewable energy** sources are **not programmable**.

PV plants or wind turbines are dependent on sun or weather and are not always available when needed.

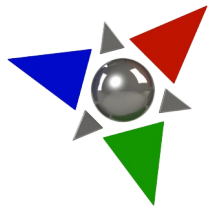


Fossil fuels generators produce energy with **high cost** and **high carbon footprint**.



Traditional **biomass CHP (cogeneration)** systems have **size** and **cost** that do **not match with domestic needs**.

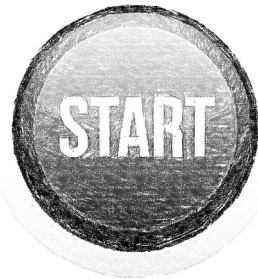




A SOLUTION

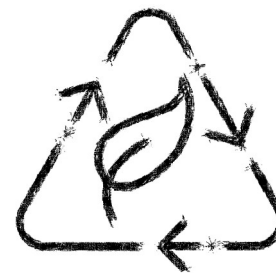
Bring **biomass cogeneration** to the size and the need of **homes** and **very small power** users.

on-demand
availability

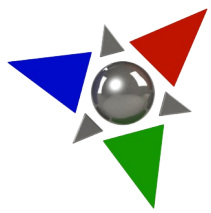


low cost

home sized
power



low
environmental
impact



THE PRODUCT

BioGS-1.0 is a **micro-CHP system** for **domestic** and **small factories** use with high technological content.

It can satisfy all the energy needs of the user, until complete **SELF-SUFFICIENCY**.

- **Electrical energy** production

→ 24 kWh/day

- **Thermal energy** production

→ 140 kWh/day

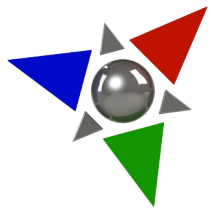
3 AVERAGE
ITALIAN HOUSES



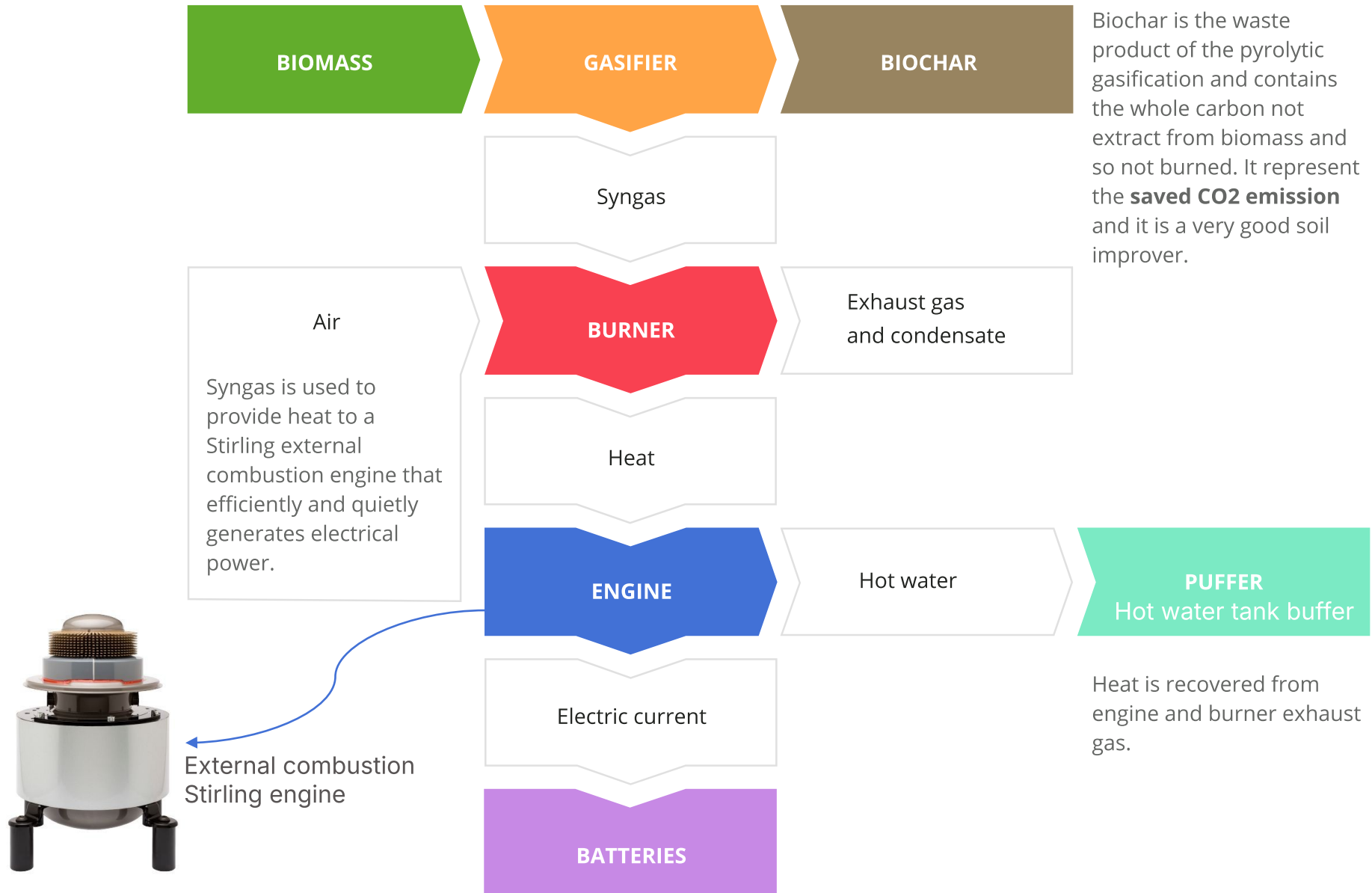
Utility Model Patent n. 202017000050336
Title: "MICRO-COGENERATORE"
Owner: KIRA TECHNOLOGY S.R.L.
Inventor: PELLEGRINI FABIO

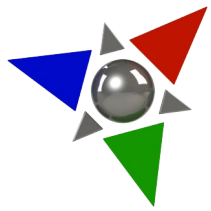
EU Patent n. EP4359653
Title: "COGENERATION PROCESS AND RELATED APPARATUS"
Owner: KIRA TECHNOLOGY S.R.L.
Inventor: PELLEGRINI FABIO

EU Patent n. EP4359654
Title: "MICRO-COGENERATOR"
Owner: KIRA TECHNOLOGY S.R.L.
Inventor: PELLEGRINI FABIO



THE TECHNOLOGY

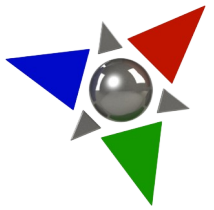




ELECTRICAL POWER

- Daily energy need production
- Power generation in any environmental condition
- No modulation, running at max efficiency point
- Low power for long running and a good thermal regimentation
- Total self-consumption
- Power peak supplied by battery pack

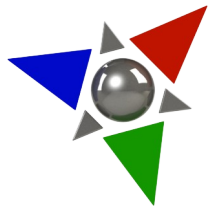




THERMAL POWER

- Running at maximum electrical efficiency produce the minimum thermal power
- Conversion of electrical power to thermal is easy and flexible
- Use of puffer for easy integration with other heating systems
- Possible trigeneration with hot water surplus





ENVIRONMENTAL **IMPACT**

Our high temperature pyrolytic gasification produce biochar with over 95% of organic carbon and it is a useful **soil improver**.

Negative carbon balance tanks to biochar production.



100g

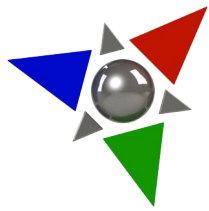
Carbon sequestration every kilogram of processed biomass

-300g

CO2 emission reduction per kilogram of input biomass compared to direct combustion

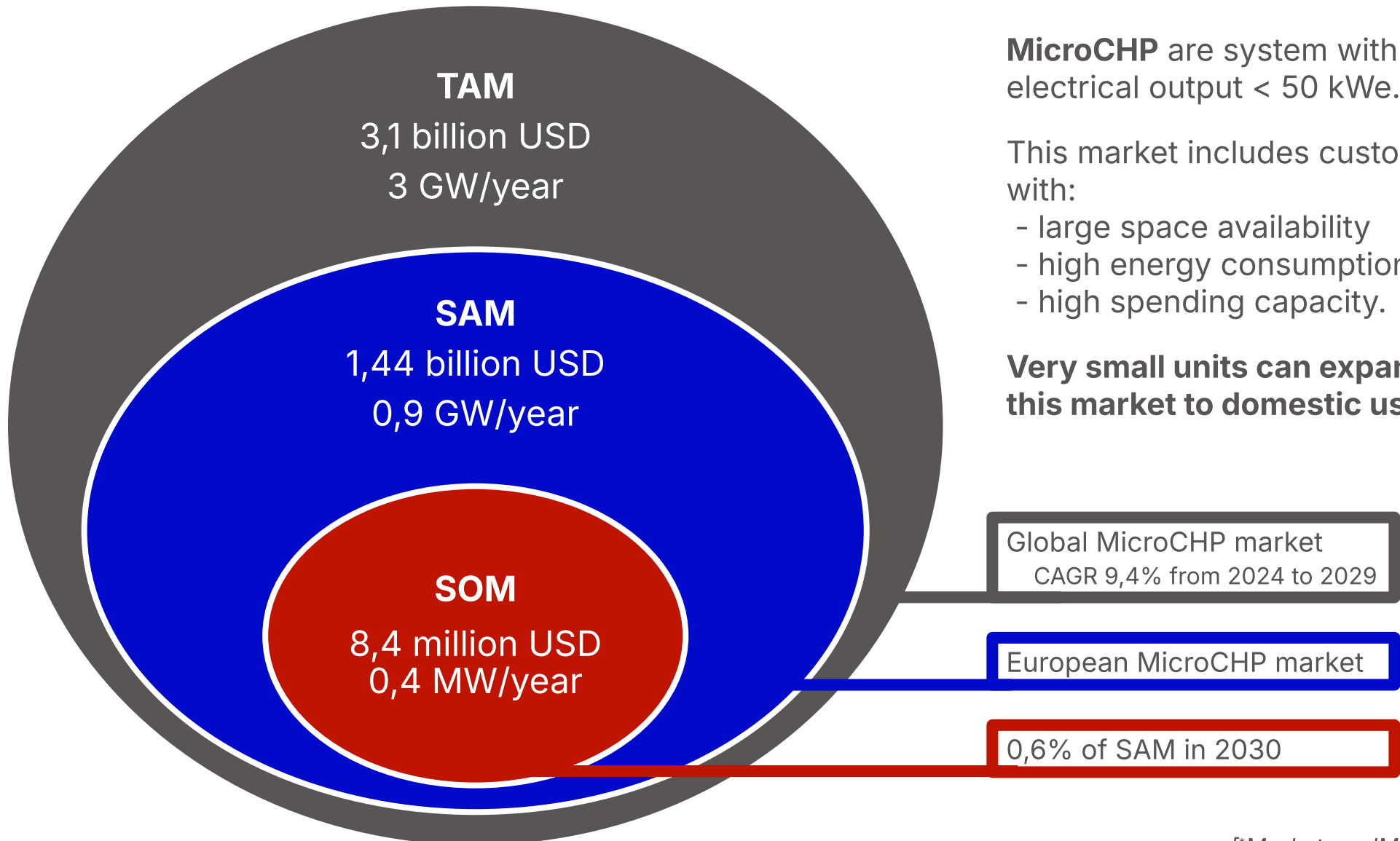
COMPLIANT WITH:

- EU Regulation 1009:2019
- IT D.Lgs 75/2010 and related updates

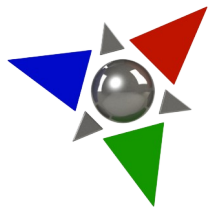


MARKET EVALUATION

based on microCHP insight

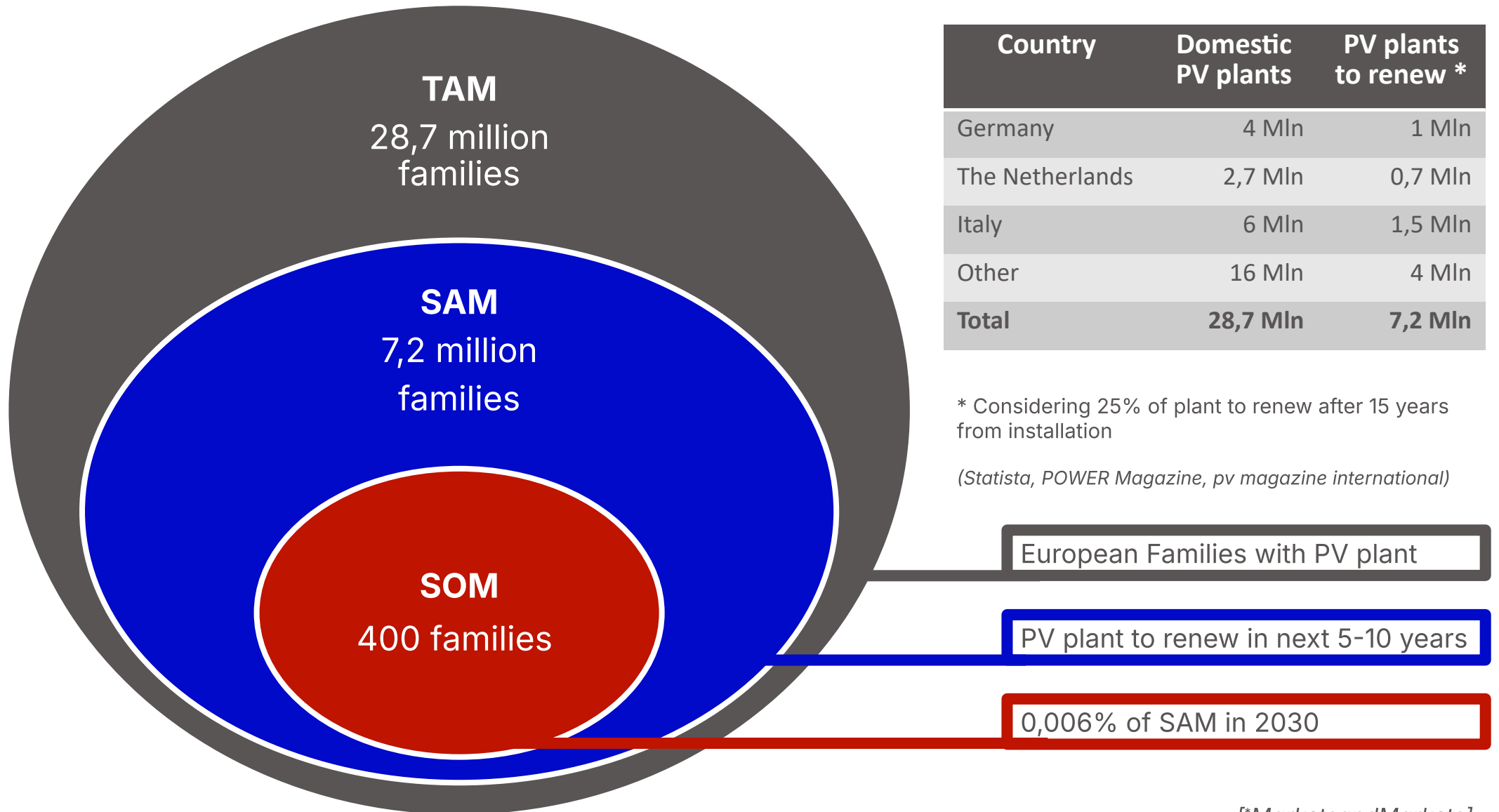


[*MarketsandMarkets]



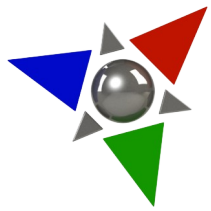
MARKET EVALUATION

based on European domestic PV plant to renew



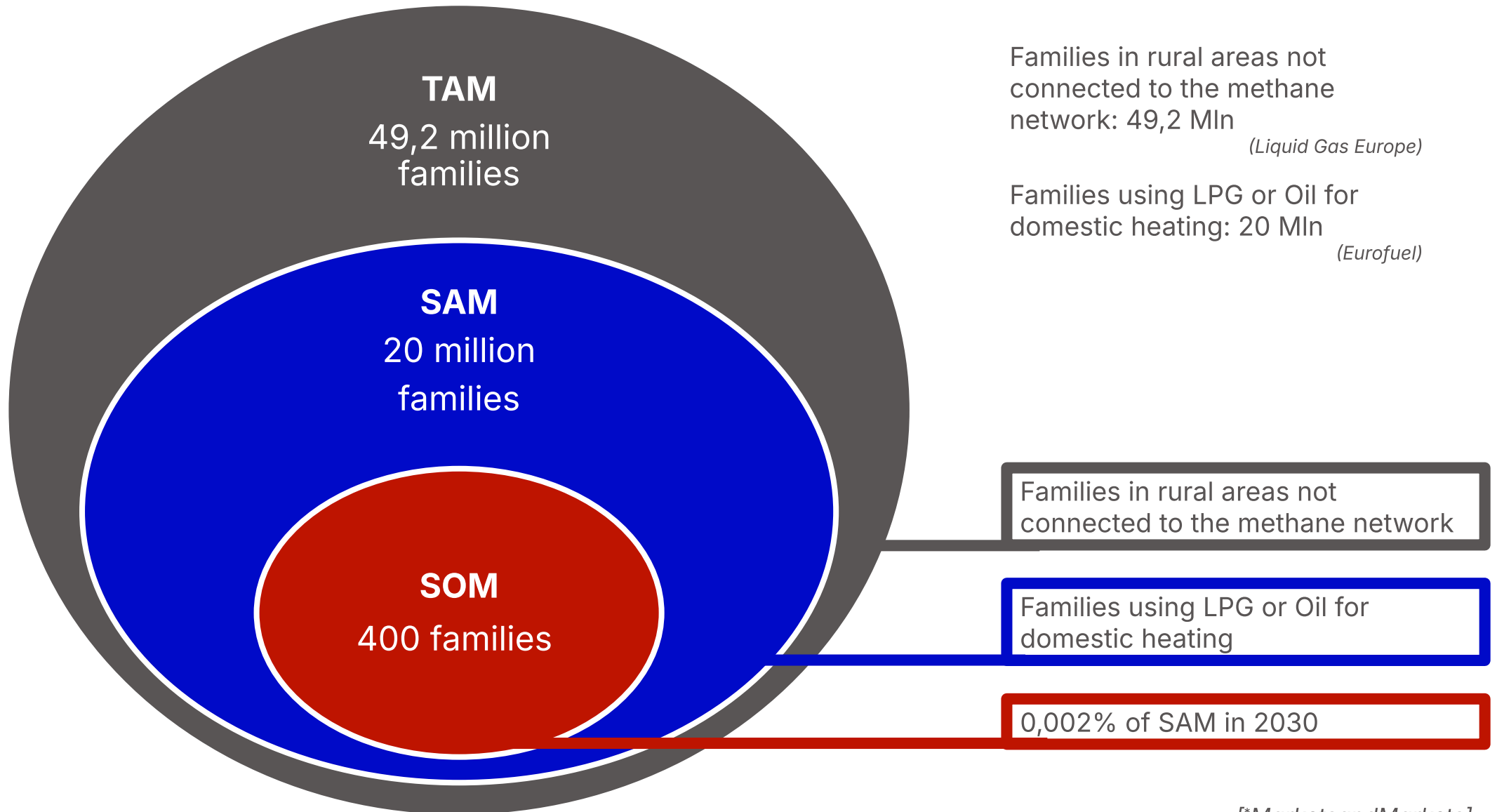
* Considering 25% of plant to renew after 15 years from installation

(Statista, POWER Magazine, pv magazine international)

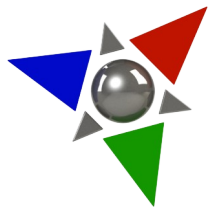


MARKET EVALUATION

based on families with LPG or Oil heating (no methane network)



[*MarketsandMarkets]



GO TO MARKET STRATEGY



Stirling engine supplier who also became a commercial partner for the sale of our microCHP.



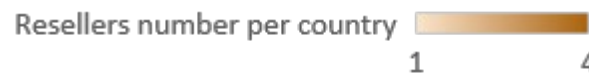
Finnish dealer, already a user of the micro-CHP, with a showroom of the system in operation in a real environment.

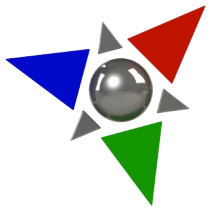


Rivenditore Belga che opera nel mercato della microgenerazione da biogas.



Czech dealer who also handles installation for end customers. He also purchased the micro-CHP for his home.

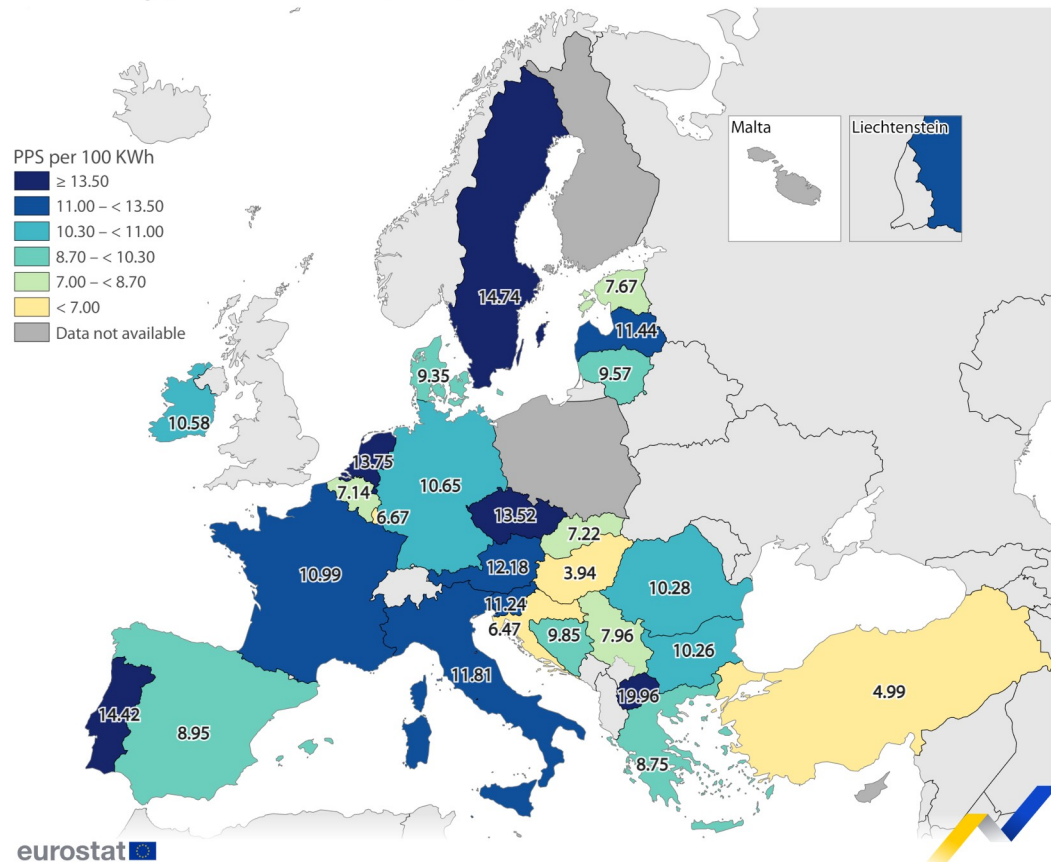




MARKET SEGMENTATION

Countries we are focusing on the most are those with higher energy cost. Northern Europe first since has also a higher energy consumption.

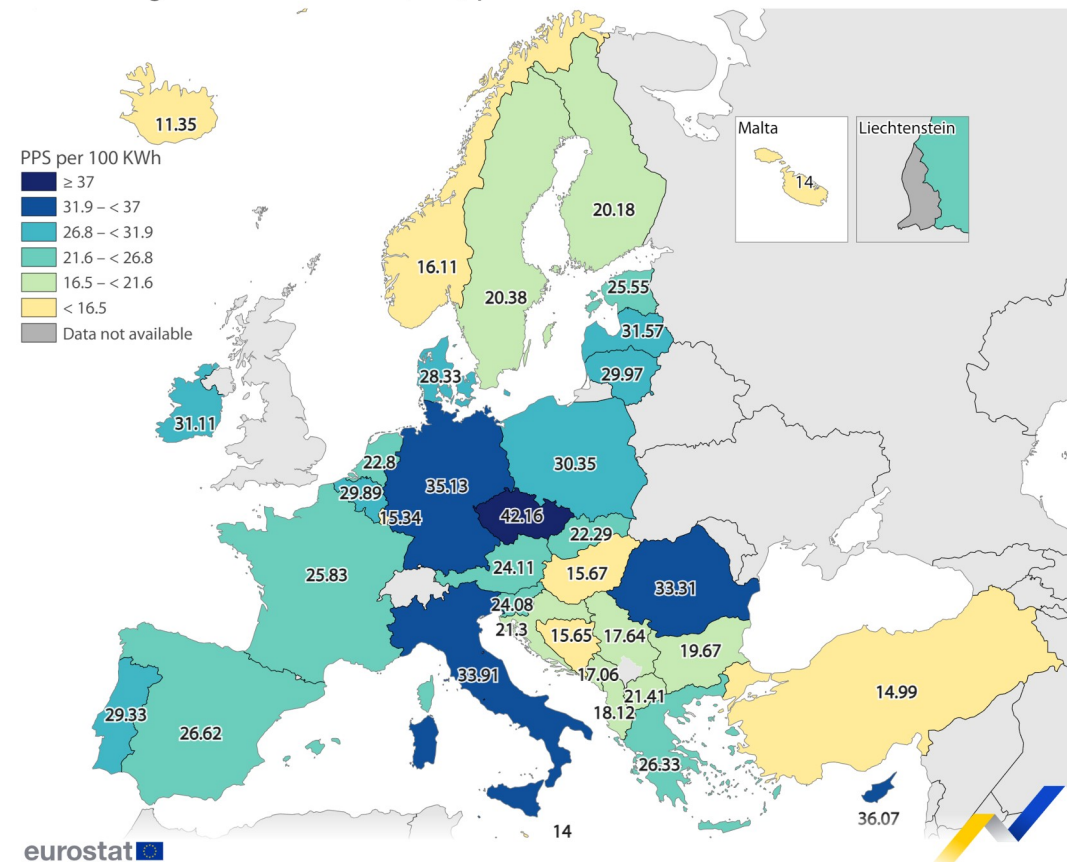
Gas prices for household consumers, 2024 S1
Purchasing power standard (PPS) per 100 KWh



eurostat Cost per 100 KWh for the most representative band (from 20 GJ to 199 GJ - Band D2)
Eurostat (nrg_pc_202)

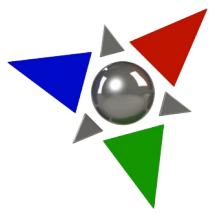
Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - IMAGE, 10/2024

Electricity prices for household consumers, 2024 S1
Purchasing Power Standards (PPS) per 100 KWh



eurostat Cost per 100 KWh for the most representative band (2 500 KWh to 5 000 KWh)
Eurostat (nrg_pc_204)

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - IMAGE, 10/2024



MARKET SEGMENTATION

User need

Low-cost energy (e.g. off-grid houses)
Programmable energy
Biomass disposal
Biochar production

Kind of installation

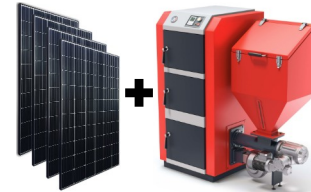
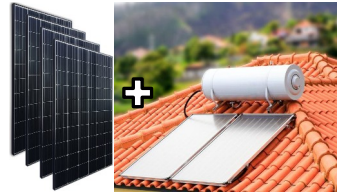
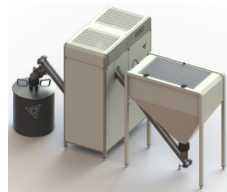
Countryside private residences
Semi-detached houses
Small apartment buildings
Small Farms / Farmhouses
Greenhouses

Psychographic segments

Green mind users
Nature lovers
Technology attracted people



COMPETITORS **COMPARISON**



Feature	BioGS-1.0	PV plant and solar heating	PV plant and biomass boiler	MicroCHP biomass stove (no gasification)
On demand energy production	✓✓	X	✓ Just for thermal energy	✓✓
Use of low-cost biomass	✓✓	N.A.	X	X
High electrical / thermal ratio	✓✓	N.A. (not CHP system)	N.A. (not CHP system)	X
Global efficiency over 95%	✓✓	N.A. (not CHP system)	N.A. (not CHP system)	X
Biochar production	✓✓	X	X	X
Low emissions	✓✓	✓✓	X	X



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