A photograph of a brown and white cow in a field of tall grass, looking towards the camera. The background shows a forest and a bright sky. A white text box is overlaid in the upper left, containing the text '12.500 kg cow dung = 1300 kWh electricity'. A white lightning bolt graphic is positioned to the left of the cow's head.

12.500 kg cow dung
= 1300 kWh electricity

Nocart Biogas Power Plant

Product description

NOCART
Providing Power.

Nocart Biogas Power Plant

Product overview

The Nocart Biogas Power Plant generates electricity by anaerobically digesting biodegradable material and breaking it down into biogas, which is converted into electricity and distributed with the Nocart Power Management Unit (PMU).

The Nocart Biogas Power Plant can utilize source materials such as cow manure, organic waste or municipal waste. The biogas produced in the Nocart biogas reactor consists of 40–65% methane, the rest being carbon dioxide, nitrogen and other gases. After generating the bio gas the source material can still be further utilized in fertilization for example.

The Nocart Biogas Power Plant is a reliable source of energy that helps customers become energy self-sufficient. Biogas is a renewable, valuable biofuel

and energy source that has significant environmental benefits. With the only emission being water vapor, the power plant does not pollute. As it reduces greenhouse gas emissions, it is a truly environmental friendly option. This brings not only benefits in terms of ecology, but also of corporate image. In the long run, the cost savings are also significant.

Nocart builds the plant according to the customer's electricity requirements. The Nocart Biogas Power Plant is easy to install and maintain and due to its modularity, it is easily upgradable. The biogas plant is managed by a Power Management Unit. The system guarantees 24/7 power feed and can operate fully off-grid. With its user interface, the operation of the system can be monitored, even remotely.

Benefits of using the Nocart Biogas Power Plant

The **modularity** of the Nocart Biogas Power Plant is a strongpoint. With additional modules it can grow to meet customer requirements. It can also be supplemented by other types of power units, such as **wind turbines and solar panels**.

Nocart provides **extensive customer support** and training. With on-site training, the customer learns how to operate the power plant reliably and as effi-

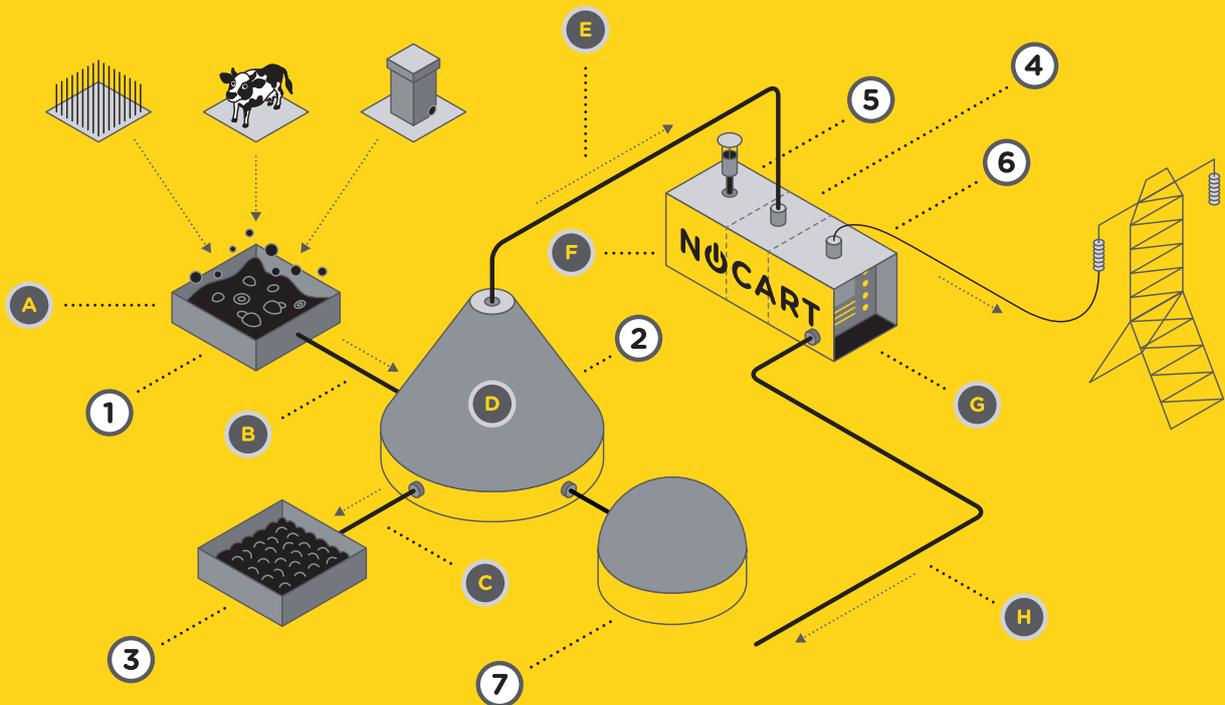
ciently as possible. Nocart provides **on-site training**, or customers can travel to Finland to attend an in-depth training course on biogas at Nocart's research and training center.

Nocart's expertise guarantees a **controlled and safe** biogas production process. Equipped with monitoring and control mechanisms, its **operation is highly automated**.

How does the Nocart Biogas Power Plant work?

The Nocart Biogas Power Plant consists of a biogas reactor, gas processing unit and power management unit. Nocart provides in one simple delivery a gas processing and power management container where the equipment and generators are preinstalled.

1. Input material receptacle
2. The biogas reactor
3. Post-fermentation tank
4. The gas processing unit
5. The engine and generator unit
6. The Nocart Power Management Unit
7. Optional gas storage unit



Functional description

- A)** The source material is mixed with water to reach optimal dry content level.
- B)** The sludge is pumped into the reactor pool.
- C)** The processed material is ejected to post-fermentation (the excess material can be used as fertilizer).
- D)** The biogas is generated in the reactor.
- E)** The biogas is led to the gas processing unit where the gas is compressed, cooled down, and filtered.
- F)** The methane is combusted in engine which powers the generator
- G)** The generators are connected to the Power Management Unit, which feeds the electricity into an island grid, grid or energy storage.
- H)** The process heat can be utilized.

Use cases

Source materials

The Nocart Biogas Power Plant can use all biodegradable materials:

- Green waste
- Animal manure
- Waste from the food industry
- Municipal waste

The benefits of a biogas reactor

Biogas is an ecological choice for generating electricity as it leaves the source material for further utilization. The source material is even purer – the nitrogen and phosphorus are soluble, which makes the material even better for fertilization purposes.

With a biogas reactor, no methane is emitted into the atmosphere, which reduces the greenhouse effect.

Energy values for different materials

Note that specific production numbers can be defined once the quality of the source material has been analyzed.

Type	Head count	Electricity
Cow manure	200	40 kW
Pig manure	1000	20 kW

Various circumstances affect the amount of biogas derived from the source material. For example, antibiotics given to cows debilitate bacteria, which results in less methane and thus less biogas.

Safety

The Nocart Biogas Power Plant has been designed according to European safety standards as well as regulations governing health and safety at work, and fulfils the requirements of European electrical safety standards. With its monitoring and control mechanisms, the Nocart Biogas Power Plant operates with a high degree of automation.

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