



SAVING ENERGY AND SUSTAINABLE ENERGY IN GREENHOUSE HORTICULTURE

About Kas als Energiebron (Greenhouse as a Source of Energy)

The aim of Kas als Energiebron, the innovation and action programme for the greenhouse horticulture sector, is to reduce greenhouse horticulture CO₂ emissions by 2 to 3% per year. This must be achieved through energy-saving innovations and the use of sustainable energy. LTO Glaskracht Nederland and the Ministry of Economic Affairs are working together on this programme.

Why less fossil energy?

Fossil energy is becoming scarcer and more expensive and greenhouse horticulture wants to be less dependent on it. The consumer wants sustainably-grown products and also climate change demands necessary measures. The sector is therefore striving towards lower energy consumption and greater use of sustainable energy sources.



Goals and Ambitions

Kas als Energiebron works for and with entrepreneurs to achieve the sector's goals and ambitions:

- Goal 2020: maximum 6.2 Mton of CO₂ emissions;
- Goal 2020: energy savings of 11 PJ compared to 2011;
- Goal 2020: able to produce climate-neutrally and cost-effectively in new greenhouses. Growing concepts and techniques for existing greenhouses whereby production can be done cost-effectively with half the amount of fossil fuel (compared to 2011);
- Goal 2050: Energy consumed in the greenhouse horticulture sector is completely sustainable and economically viable.

The government and the greenhouse horticulture sector have a multi-year agreement which sets out the goals and ambitions for 2020 and the financial agreements to the end of 2017. €5m is available for 2016. Where this money is invested is determined jointly with growers.

What is Kas als Energiebron working on?

Kas als Energiebron works simultaneously on several tracks to achieve the goals and ambitions. Within Kas als Energiebron, growers, government, research institutes, suppliers and branch organizations work closely together on:

- Initiating and supervising research;
- Sharing knowledge via meetings and online;
- Promoting Next Generation Growing (Het Nieuwe Telen);
- Stimulating the use of geothermal energy;
- Annually updating the CHP barometer with the economic position of heat-producing CHP installations in horticultural businesses;
- Developing knowledge of alternative CO₂ supply and of efficient CO₂ dosage;
- Developing knowledge and information network for bio-energy;
- Ensuring political support;
- Organising financial support and subsidies.
- Annually monitoring of results on energy saving and use of sustainable energy in greenhouse horticulture (Energienmonitor).

Energiek Event

Kas als Energiebron, Wageningen UR Glastuinbouw (Wageningen University Greenhouse Horticulture) and Delphy jointly organise the annual Energiek Event. This Event is a knowledge day during which the latest energy-saving and sustainable energy developments and research results are presented to growers, technical suppliers, advisors and researchers in greenhouse horticulture. Among other topics, last year's Event covered the many aspects of Next Generation Growing, optimum crop yield, low-energy lighting and greenhouses.

Most significant results up to 2016:

Greenhouse horticulture CO₂ emissions have drastically decreased and we are well on the way to achieving the 2020 CO₂ goals. It is a great achievement that the greenhouse horticulture sector can be proud of. We can also see a number of positive trends for both sustainable energy and energy savings in greenhouse horticulture. The use of sustainable energy is accelerating, especially through geothermal energy projects. We also see a drop in energy consumption per m². While there is indeed intensification through increased lighting, it is more than compensated for by decreased heat consumption via extensification and energy savings. Energy saving has received a major boost by, among other things, the growth of New Generation Growing. In short, the sector is using less and less natural gas.

Next Generation Growing stands for both low-energy cultivation and optimum yield. At the beginning of 2016 more than 350

Sustainable innovations at Duijvestijn Tomaten move the sector forward

The Duijvestijn brothers are convinced there is huge potential in the ID Kas – an innovative sustainable greenhouse concept. Innovations like the ID Kas and geothermal energy at Duijvestijn Tomaten move the sector forward. "With geothermal energy we can heat our greenhouse in a sustainable way, one that greatly eases the burden on the environment as CO₂ emissions are significantly reduced", says Ted Duijvestijn. "Thanks to heat from the earth, burning fossil fuels is a thing of the past."

► Read the full story of Duijvestijn's sustainable greenhouse at kasalsenergiebron.nl (in Dutch)

businesses (1800 ha) were already putting Next Generation Growing into practice. They are applying it to their own specific crop, at their own tempo, with or without investment. By optimally controlling the crop, including temperature, humidity, CO₂ dosage, lighting and screening, considerable energy savings (up to 30%) can be made even without investment.

Greenhouse horticulture leads the way in the use of geothermal heat in the Netherlands. Twelve greenhouse horticulture locations are already using geothermal energy to heat their greenhouses and another four will do so during 2016.

New greenhouses with high light transmittance and higher insulation value which need only a quarter of the heating energy, have been and are being designed. These new greenhouses will be ready to be built in a few years.



40% energy saving per plant thanks to Daylight Greenhouse

"We've been cultivating in the new Daylight Greenhouse since May 2014 and the results are extremely positive", says Richard ter Laak. The most important reason for the Daylight Greenhouse was a qualitative leap towards stronger plants. "And we are well on the way. We also expect to harvest about 22 m³/m² of heat annually. Plus the fact that the crop requires less heat because of the double covering and better humidity control." Partly due to the somewhat higher cultivation speed, Ter Laak estimates to achieve an energy saving of at least 40% per plant.

► Read the full story (in Dutch) of Ter Laak's sustainable greenhouse at kasalsenergiebron.nl



A more balanced greenhouse climate with less energy thanks to Next Generation Growing course

"We implemented step-by-step measures over a twelve-month period", says Pieter Jan Vreugdenhil, one of the crop managers at Rijnplant, as he looks back on the Next Generation Growing course organised by Kas als Energiebron. Together with a few colleagues, Vreugdenhil faithfully attended the meetings for a year. "We actively set to work using the insights we'd gained. Our goal was to have more fact-based climate control and to achieve more with less energy. It is both good and important to see that you can achieve a great deal with small applications that cost nothing."

- Read the full story of Next Generation Growing in Rijnplant's greenhouses at kasalsenergiebron.nl (in Dutch)



Despite strict rules, geothermal energy is the best option for greenhouse horticulture

After a lead-up lasting years and a few weeks' start-up problems, the first heat from the Vierpolders geothermal source was delivered to nine participating greenhouse horticulture businesses at the end of January 2016. "We still have to see how high the source's output actually is, but we're convinced it's the best and most sustainable solution for greenhouse horticulture's energy requirements", says Paul Grootsholten of Globe Plant and Director of Aardwarmte Vierpolders.

- Read the full story of geothermal energy in the Vierpolders' greenhouses at kasalsenergiebron.nl (in Dutch)



More information about Kas als Energiebron:

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