Making the Green Deal real!
The renewable energies Project Bio-FlexGen has kicked off!

Bio-FlexGen is an EU-funded Research and Innovation Action (RIA) project. 14 partners from five countries (Sweden, Finland, Hungary, Spain and Germany) will collaboratively work for a decarbonised future. Susanne Paulrud from the Swedish research organization RISE coordinates the 36 months project.

Decarbonising the energy system
The global demand for energy is constantly increasing. That´s why renewable sources are crucial for a decarbonised future. Bio-FlexGen will develop an optimised **combination** of **bioenergy** with **green hydrogen** providing secure and plannable sources for power and heat. This will complement intermittent renewable sources such as wind and sun. Bio-FlexGen will also increase the **efficiency and flexibility** of renewable combined heat and power (CHP), playing a key role in the energy system integration. Moreover, Bio-FlexGen will **combine** gasification and gas turbine technology.

Meeting the demands
Due to the high efficiency, **three times more power** can be generated from biomass for the same heat load. Starting and operating on 100% green hydrogen, the CHP-plant can quickly achieve full load. To meet fluctuations in seasonal energy demands and prices, there will be **a variant of the plant**. It adapts to long periods of low electricity prices or heat demand by producing climate-positive green hydrogen.

Cost-efficient and robust
The Bio-FlexGen approach is highly efficient – both energetically and economically. Engineers will develop a power plant with a unique combination of gasification and gas turbine technology that allows the plant to utilise **hydrogen for fast dispatch and biomass** for **low operating costs over time**. Green hydrogen is an energy carrier to stabilise electrical grids. It is generated through solar or wind energy.

Innovation: flexible combined heat and power
Compared with thermal power stations, the Bio-FlexGen power plant will generate electricity and heat from biomass, with a **much higher electricity efficiency**. The Bio-FlexGen power plant will operate with up to 100% green hydrogen – thus enabling higher flexibility of renewable energy sources. Bio-FlexGen researchers will, among others, develop **a novel combustion chamber.** This enables the gas turbine combustion system to adjust to changing compositions of bio-syngas **and** the hydrogen.
That´s a real big (green) deal!

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