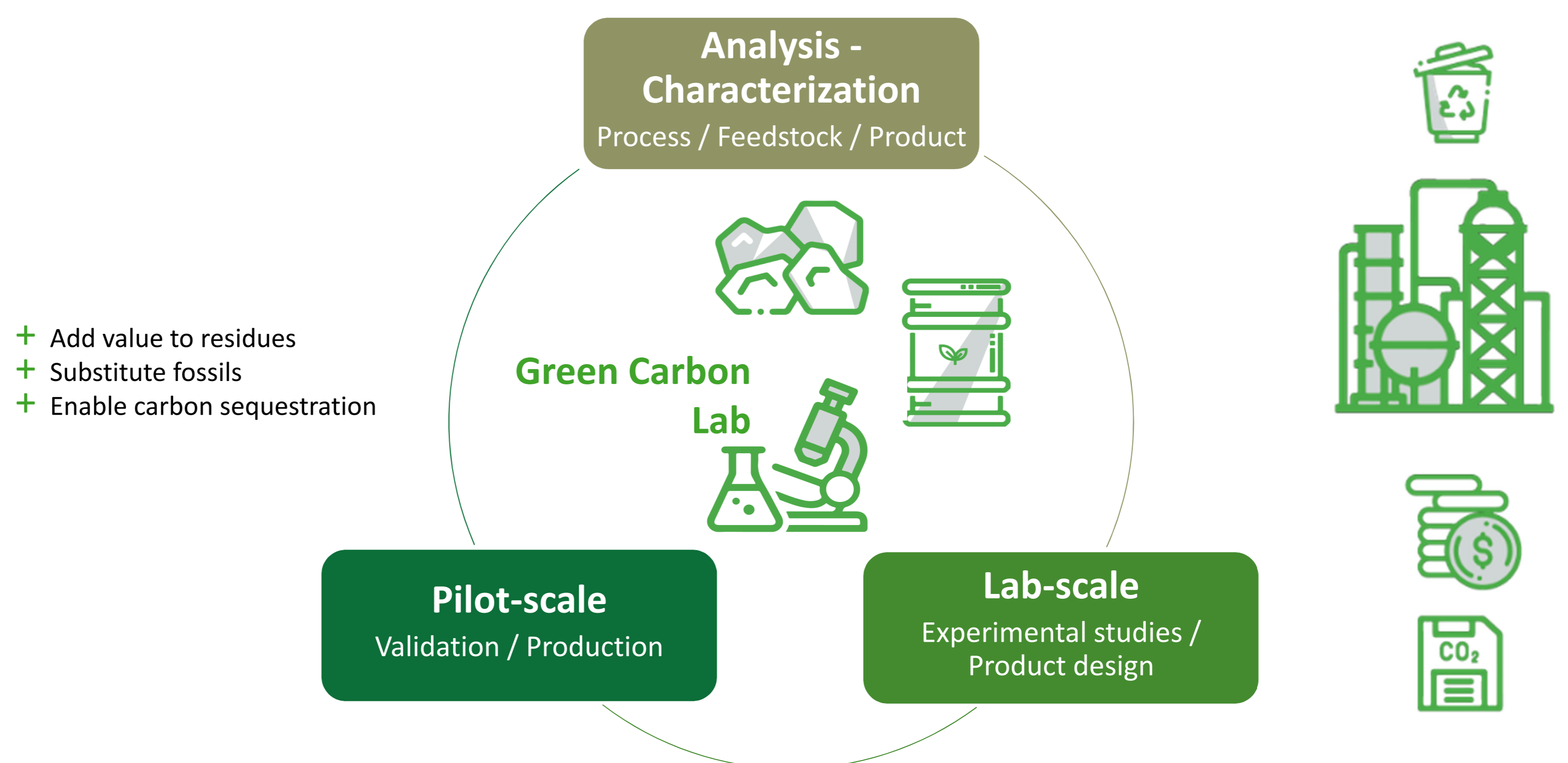


# GreenCarbon biochar – bio-oil – gas

AREA 1.1  
 Thermochemical Technologies

## The GreenCarbon Lab – Infrastructure to develop flexible technologies for the design of GreenCarbon products as part of circular economy concepts

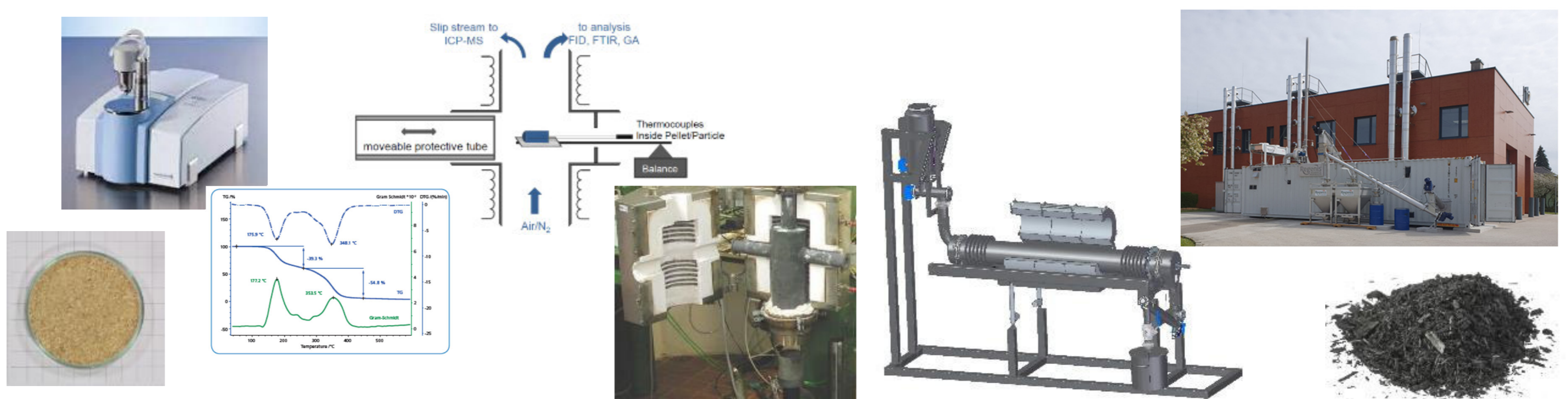
Simple biorefinery concepts for the production of sustainable carbon products are investigated in the GreenCarbon Lab at the Wieselburg site of BEST. The heart of the GreenCarbon Lab consists of two pyrolysis units: A lab-scale reactor for testing new input materials as well as conducting detailed parameter studies to reveal the correlation of input material, process conditions and products formed, and a pilot-scale to implement and validate knowledge gained in the laboratory environment to produce specific GreenCarbon products. Also, product batches in larger quantities (approx. 0,1 – 5 tons) can be manufactured for subsequent application tests – e.g. as part of industrial trials at company partners. In addition, equipment for process and product analysis enables a detailed study of the conversion reactions and the characterization of the products obtained.



## From milligrams to tons – cutting edge research on all scales

The GreenCarbon Lab comprises various devices and methods covering all scales from smallest units in the milligram range to large-scale pyrolysis in a continuous pilot reactor. At the BEST laboratory in Graz, specially developed reactors are operated on a laboratory scale, while the two continuously operated pyrolysis units are installed at the BEST site in Wieselburg. This enables BEST to conduct research at the highest level in the field of thermochemical biorefinery, ranging from reaction kinetic studies and feedstock testing to scale-up investigations and pilot-scale conversion.

Method	Fuel input / Capacity	Information – Output
Thermogravimetric analysis + Steam-TGA + FT-IR-coupling	milligram	Reaction kinetics
Single Particle Reactor	1 pellet / particle	Influence of temperatur, atmosphere on conversion chracteristics
Laboratory-reaktor	250 g – 400 g	Fuel bed / bulk
Pyrolysis unit – lab scale	~ 20 kW	Raw material-Tests (stationary), parameter-study (residence time, temperature, throughput, ...), product design
Pyrolysis unit – pilot scale	~ 150 kW	Validation of lab tests, production of test batches



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