

THE TRACTION OF TORREFACTION

A first impression

- 100% substitute for coal
- No modification costs for plants
 - Modular, plug-and-play
- Saves millions and the environment
 - Usable for energy, agriculture, purification, cement, steel



CEG

POWERING BETTER BUSINESS

CEG, powering better business

CEG helps businesses that use carbon become renewable. The company offers clean, affordable and reliable torrefaction technology that produces a range of renewable carbon products such as black pellets. These are 100% substitutes for fossil coal (mixing or plant adaptation is not required like with white and brown pellets). It is used in a range of sectors including utility-scale energy, steel, and cement. Torrefied biomass has additional applications in agriculture (biochar), water purification (activated carbon) and in the development of materials (ground carbon and phenol).

CEG puts businesses on the right side of economic and environmental sustainability. Our High Temperature Torrefaction (HTT) system is patent-protected and can transform a range of biomass inputs into valuable products. CEG develops renewable carbon production facilities and helps to link products to end users. Contact us on how we might work together to make more businesses renewable and prepared for a better future.

Our products are:

- Grindable – lower power consumption than white pellets
- High energy density – 21-32 MJ/kg
- Water resistant – even open-air storage is possible
- Substitute coal – no de-rating when replacing coal
- Sustainable – possibility for carbon neutral power and heat
- Minimize storage and transport costs – dramatically reduce shipping costs
- Customizable – adapts to any special industry demand



Torrefaction-reactor in R&D facility in Derby, England.

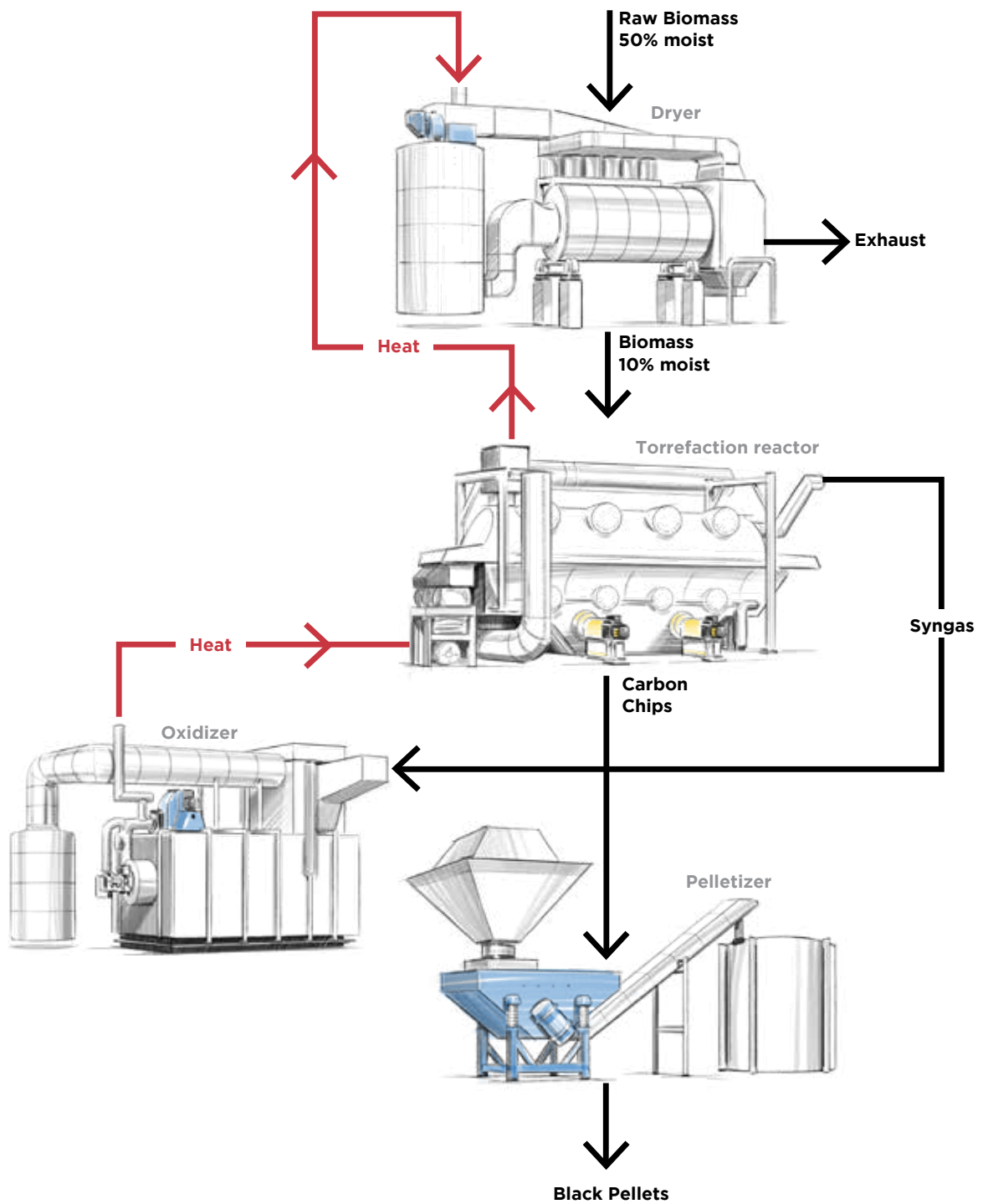


The process of upgrading the energy density of weak inputs to strong outputs.

Our products in Energy Density Scale calculated from input material 19.2 Energy MJ/kg

Output Material Energy MJ/kg	Mass Yield	Product Type	Product Form
< 21	71	Black	Pellets Chips Dust
21,5	69%		
22	66%		
23	61%		
24	57%	Black+	Pellets Chips Grinds Dust
25	53%		
26	49%		
27	45%		
28	42%	CharBlack	Chips
29	39%		
30	36%		
31	33%	SuperBlack	Chips Grinds
32	30%		
		Activated Black	Grinds
		Phenol	Liquid

Our Process



Factsheet

- **Unique process** – CEG's unique torrefaction converts renewable biomass into black pellets, biochar or byproducts, utilizing our proprietary torrefaction reactor.
- **Patented** – CEG has developed a proprietary, patent-protected system of High Temperature Torrefaction (HTT).
- **Verified innovation** – Our technology has been independently verified as innovative by the UK Government and has been in operation at our demonstration plant in Derby, UK since 2014.
- **Greater financial returns** – Comparing technologies is more than the heat and mass balance of each technology, Converting 'waste' into valuable products makes a double profit, Triple, if you count the environmental success too.
- **Modular** – The Torrefaction-reactor is plug and play and can be placed in almost every building,
- **Verified by Rejlers and Pöry** – The individual heat exchange plant modules have an efficient counterflow design; we maximize energy efficiency for both torrefaction and drying, Our mass and energy balances have been verified by both Rejlers and Pöry, which both are renowned international consulting and engineering companies in the energy field.



Easy to install plug and play technology. From waste to valuable product.

Products and services

The CEG solutions come in various ways: as turnkey plants for energy companies, solutions on site for industries giving them the chance to fuel their own business, adjustments on existing lines and plants so black pellets can replace fossil-coals, or you can buy our products: pellets, char or dust as a 100% replacement of dirty fossil coals. Biochar can be utilised for agriculture, medical, water filtration, cement, steel.

Plants in Europe

Our technology is successfully operational in our full size R&D plant in Derby, England. We scaled up in commercial way in the Baltics where we are building 8 torrefaction lines for a client.

Big advantages

- 100% substitute for coal
- No modification costs for plants
- Modular, plug-and-play
- Saves millions and the environment
- Also usable for agriculture medical purposes, filtration, cement, steel.

Clean Electricity Generation B.V.

Head Office Cruquiusweg 111 A, 1019 AG Amsterdam

The Netherlands, T (+31) (0)20 560 08 07

Office England Rivermead House, 7 Lewis Court, Grove Park, Leicester, LE19 1SD, United Kingdom

R&D Plant, Units 1C &1D, Trafalgar Park, Victory Road, Derby, DE24 8DX, United Kingdom

info@cegeneration.com | www.cegeneration.com