

# Torrefaction of biomass

## ANDRITZ torrefaction technologies



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## Two main technology platforms

<b>Large plants: 700,000 t/a or more per line</b>	<b>Small / medium plants: 50,000 – 250,000 t/a</b>
<b>ANDRITZ/ECN** Torrefaction design</b>	<b>ANDRITZ ACB Torrefaction design*</b>
Industrial demo plant (1 t/h) in Denmark started up in fall 2012	Industrial demo plant (1 t/h) in Austria in operation from 4 <sup>th</sup> quarter 2011.
Pressurized, moving bed reactor ANDRITZ/DTI** Pelleting plant	Rotating, indirectly heated drum reactor Briquetting plant
<b>Key features:</b> Scale up to huge capacities possible (experience from Pulp & Paper) Feed material: Wood chips/forest residuals	<b>Key features:</b> Simple process concept specially developed for decentralized plants Flexibility in feed material

\*ACB Process is developed by the ACB Entwicklungs GmbH with support from the ACB consortium consisting of



\*\*ECN =Energy Center of the Netherlands  
DTI = Danish Technological Institute



# Torrefaction of biomass

## Showcase

Sdr.Stenderup, Denmark

### Highlight

ANDRITZ Torrefaction technology demonstration plant  
for large plants: 700,000 t/a or more per line

ANDRITZ/ECN torrefaction design

ANDRITZ/DTI pelleting plant

- Pressurized, moving bed reactor
- Scale up to huge capacities possible
  - Experience from pulp & paper
- Feed material:
  - Wood chips
  - Forest residuals



# Torrefaction of biomass

## Showcase

Frohnleiten, Austria

### Highlight

ANDRITZ Torrefaction technology demonstration plant  
for small / medium plants: 50,000 - 250,000 t/a

ANDRITZ ACB Torrefaction design

Briquetting plant

- Rotating, indirectly heated drum reactor
- Simple process concept specially developed for decentralized plants
- Flexibility in feed material

