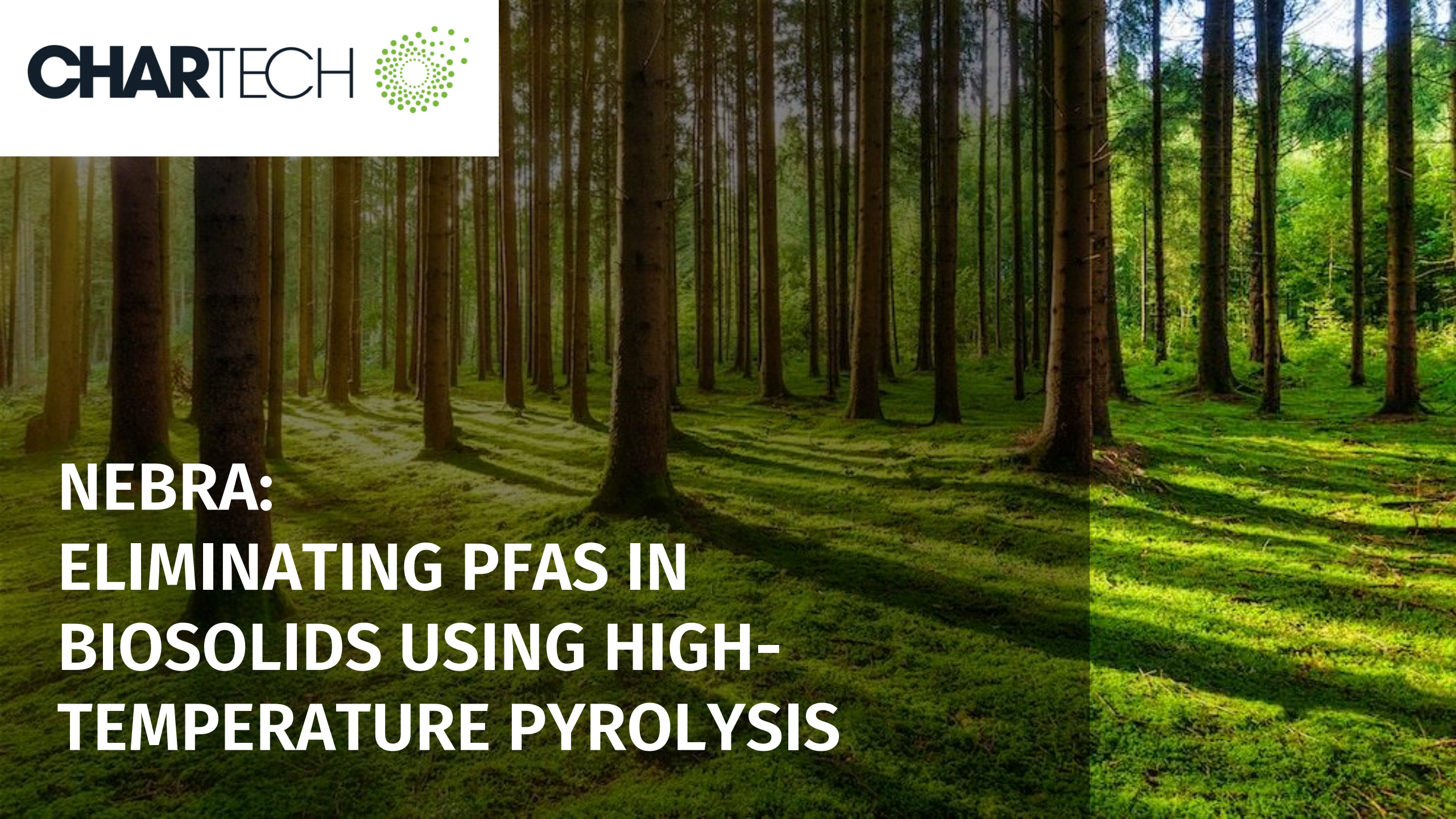


**NEBRA:
ELIMINATING PFAS IN
BIOSOLIDS USING HIGH-
TEMPERATURE PYROLYSIS**



Forward Looking Statements

Statements in this presentation, to the extent not based on historical events, constitute forward-looking statements. Forward-looking statements include, without limitation, statements evaluating market and general economic conditions, and statements regarding future-oriented costs and expenditures. Investors are cautioned not to place undue reliance on these forward-looking statements, which reflect management's analysis only as of the date thereof. These forward-looking statements are subject to certain risks and uncertainties that could cause actual results to differ materially. Such risks and uncertainties with respect to the company include the effects of general economic conditions, actions by government authorities, uncertainties associated with legal proceedings and negotiations, competitive pricing pressures and misjudgements in the course of preparing forward-looking statements.

Who We Are

CHAR Technologies Ltd. operates as three groups:

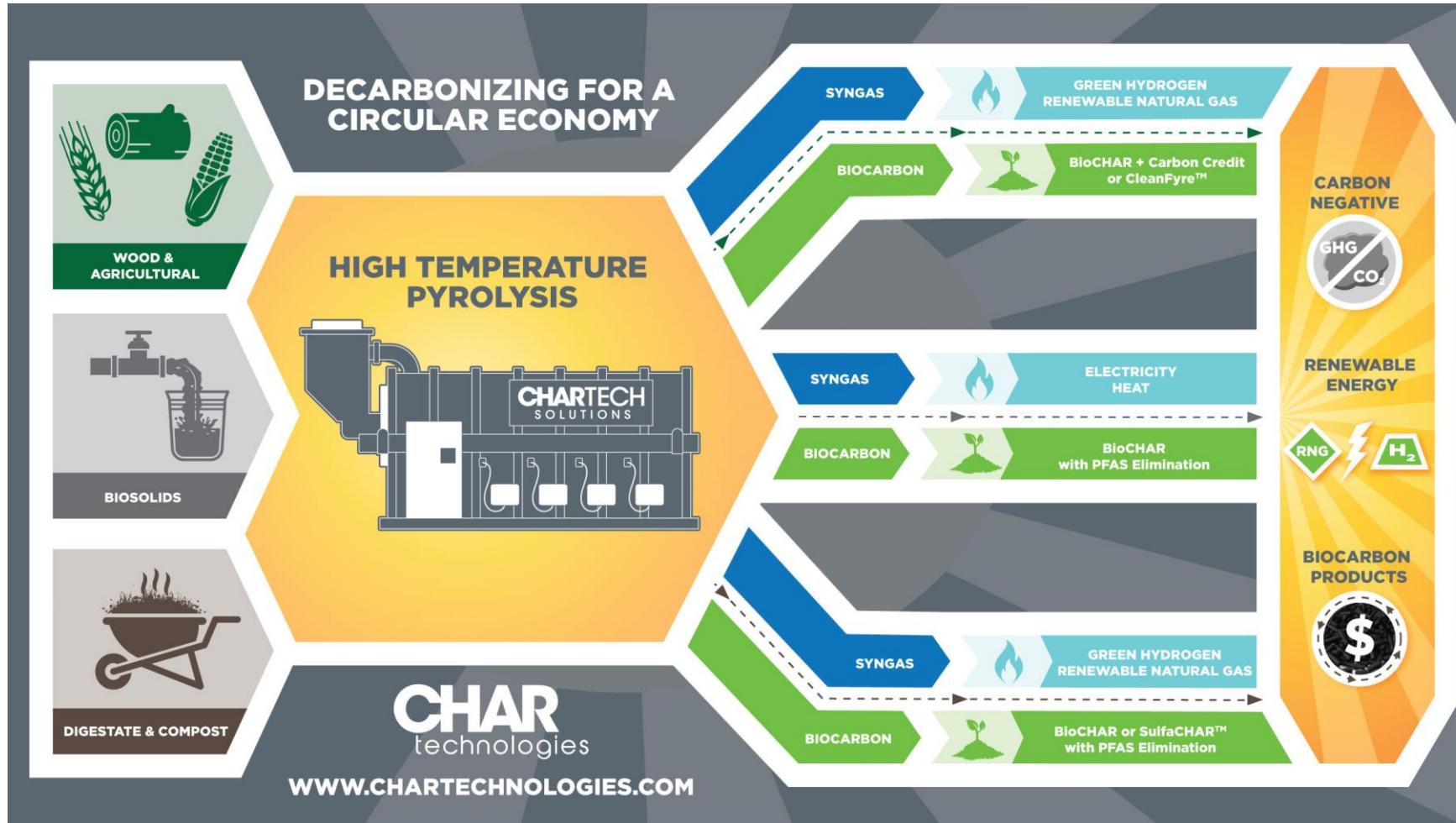
Altech Environmental Consulting Ltd. provides environmental compliance and engineering services

CHARTECH Solutions delivers advanced industrial clean technologies for clean water, waste reduction and renewable energy

CHAR Biocarbon provides pyrolysis plant operations, biocarbon and green energy gas production as well as pyrolysis products market development, offtake and R&D



High Temperature Pyrolysis (HTP)



Benefits of high-temperature pyrolysis (HTP)



CHAR's proprietary high-temperature pyrolysis (HTP) technology provides added value:

Energy Generation

Pyrolysis gas fuels the system and generates energy.

Value-Added Outputs

Low-value organic waste streams converted into high value biocarbon products.

Reduces Mass

Reduces organics waste mass by up to 90%.

Carbon Negative

Reduces net greenhouse gas (GHG) emissions.

Active Projects



Thorold, Ontario

- Process 72,000 tonnes per year woody waste
- Produce biochar (soil amendment & carbon credits) & biocoal
- Produce RNG
- In Construction (biocarbon pilot currently operating)



Saint-Felicien, Quebec

- Add-on to existing Greenfield Power Facility
- Process 36,000 tonnes per year of wood waste
- Produce biochar (soil amendment & carbon credits)
- Produce Syngas
- In Development



Synagro

- Add-on to existing Synagro Facilities
- Mobile Demonstration system to process 9 TPD dried biosolids
- Eliminate PFAS
- In Development

High Temperature Pyrolysis vs. Gasification

High Temperature Pyrolysis (HTP)



- ✓ Oxygen-free, thermochemical conversion
- ✓ High-calorific value gas = no steam cycle addition
- ✓ High fixed carbon, low ash = high value biochar
- ✓ Operationally reliable in harsh conditions
- ✓ Compact footprint & lower CAPEX/OPEX

Gasification



- ✗ Oxygen, incomplete combustion
- ✗ Low-calorific value gas = steam cycle addition
- ✗ Low fixed carbon, high ash = low value biochar
- ✗ Reliability & operational challenges
- ✗ Large footprint & higher CAPEX/OPEX

Biocarbon Application: Biochar with Carbon Credits

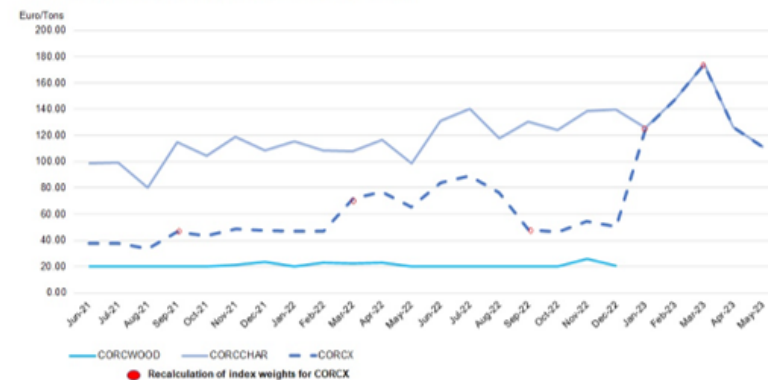
- Biochar is produced from organic feedstocks through pyrolysis to create a high-value biochar/fertilizer
- Biochar benefits:
 1. Retains water in dry soils
 2. Improves soil structure
 3. Sequesters carbon in the ground
 4. Holds nutrients in the soil
 5. Reduces odour
- Biosolids biochar can be valued at **\$50-100 USD/t biocarbon**



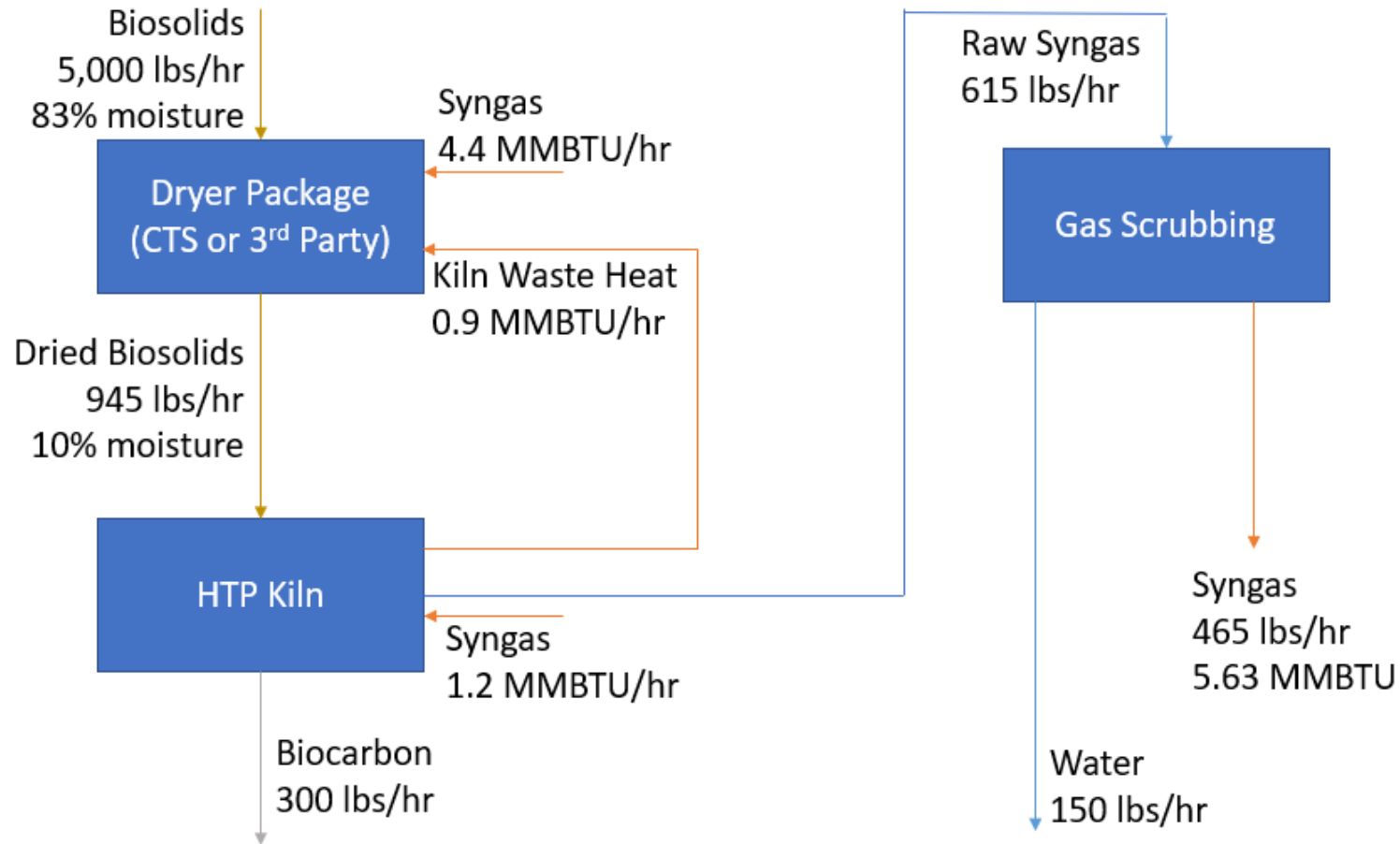
Biochar Carbon Credits – Voluntary Market

- In 2022, Puro.Earth opened all biochar sources to carbon credit application, and the ability to pre-sell biochar carbon credits (Pre-CORCs) to finance projects!
- Microsoft and Shopify spent \$10 million+ on CORCs in 2022, and Nasdaq recently acquired Puro.Earth
- **The CO2 Removal Certificate Weighted Index Family (CORCX) value has ranged from €80-200 EUR, the current price as of May 2023 is €110 EUR/\$118 USD:**

CO2 Removal Certificate Weighted Index Family (CORCX)

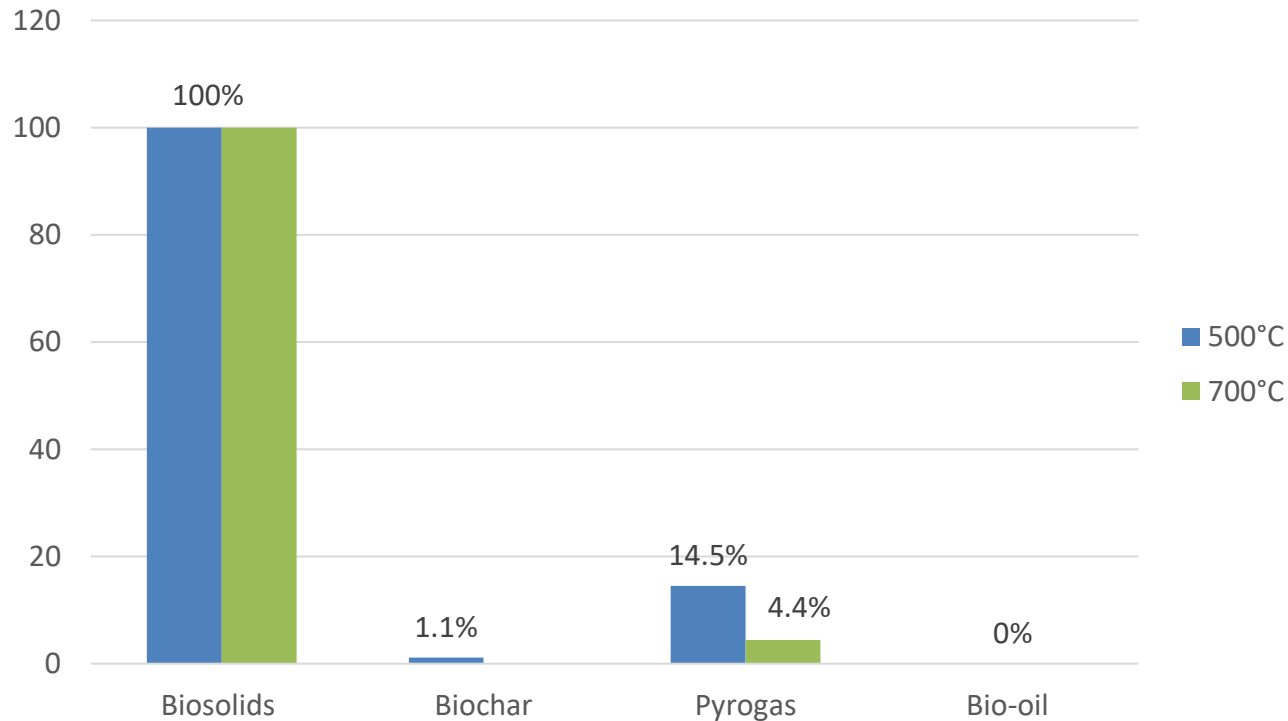


High Temperature Pyrolysis – Biosolids Process Flow



PFAS reduction: Bench scale kiln test results

PFAS Reduction



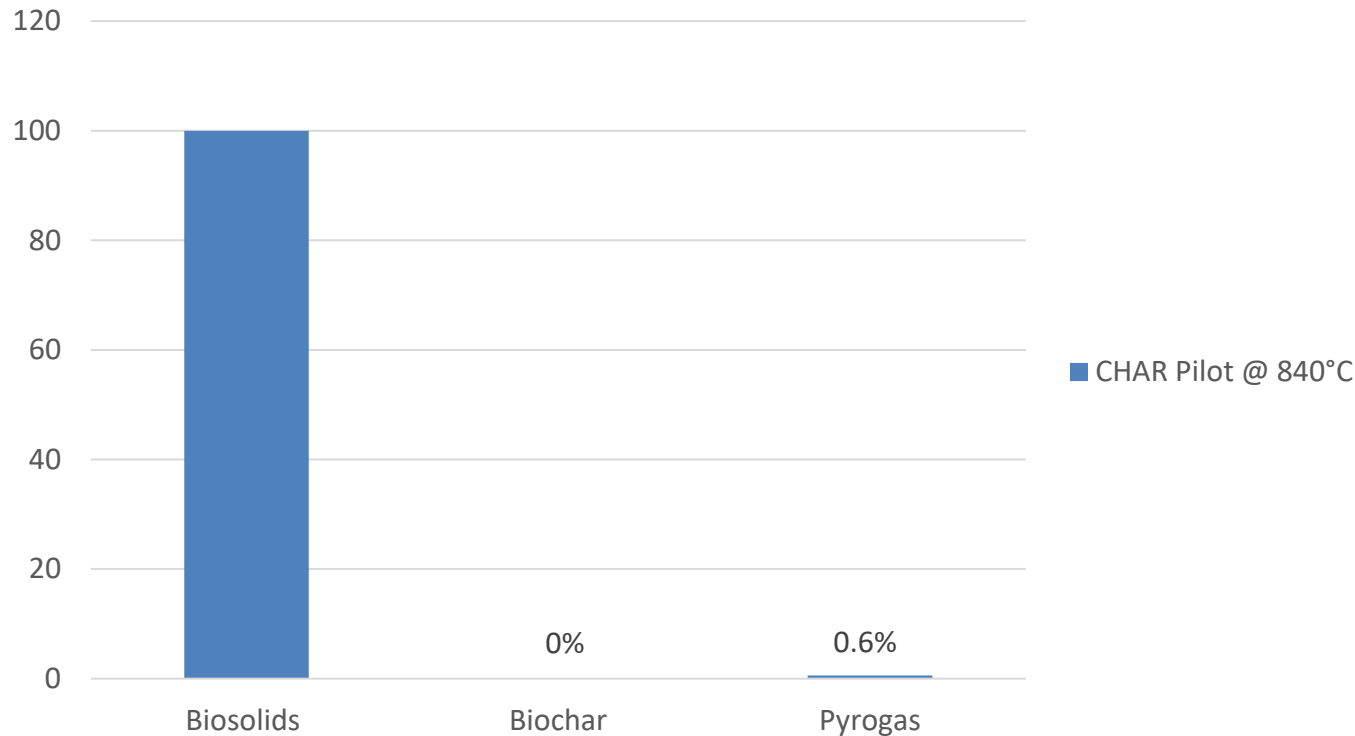
*Presented in Aggregate of
28 EPA Recognized PFAS Contaminants*

Bench Scale Kiln Test – Results

- Total PFAS Concentration in biosolids - 40 ppb
- Pyrolysis testing conducted at 500°C and 700°C and 20 mins residence time to evaluate effectiveness of PFAS reduction at different levels
- 3 products of biochar, bio-oil and syngas produced

PFAS reduction: CHAR Technologies pilot test results

PFAS Reduction



*Presented in Aggregate of
28 EPA Recognized PFAS Contaminants*

CHAR Tech's Pilot Test – Results

- Total PFAS Concentration in biosolids - 28.3 ppb
- CHAR Tech's High Temperature Pyrolysis (HTP) test at 840°C and 60 mins residence time is effective in eliminating PFAS in the solids
- PFAS removal rate of 99.4% at 840°C
- Only two PFAS components of EtFOSAA and FOSA below 0.2 ppb remained
- Some PFAS concentration are detectable at very low concentrations in the untreated pyrogas.

Summary

Results so far...

Pyrolysis is an effective solution for PFAS elimination in Biosolids

The mass balance analysis revealed a removal rate of 100% for all 28 PFAS compounds at 700°C.

Higher temperatures are more effective for PFAS reduction

At higher temperatures, less than 1% of PFAS remained in the pyrogas.

Next steps

Eliminate PFAS completely

CHAR Tech is testing higher temperatures above 900°C and longer residence times to eliminate PFAS from all fractions.

CHAR Tech is incorporating the use of a scrubber for Synagro to check the effectiveness of this equipment to transfer any remaining PFAS compounds from the gas phase to the wastewater.



Thank you!