
Pfane
ELECTRONICS REFINING
CO2 Negative Refining and H2 Power Plant
How’s the weather where you’re at?

Pfane has developed a proprietary, environmentally friendly, cost efficient, small scale, very intelligent, highly sustainable, e-waste processing solution to address the global e-waste and carbon challenge.

We are now helping to enable other ewaste recyclers to become fully sustainable and Carbon Negative.

Current Carbon Footprint Of E-waste.

Current Ewaste Model

1. Ewaste Producer

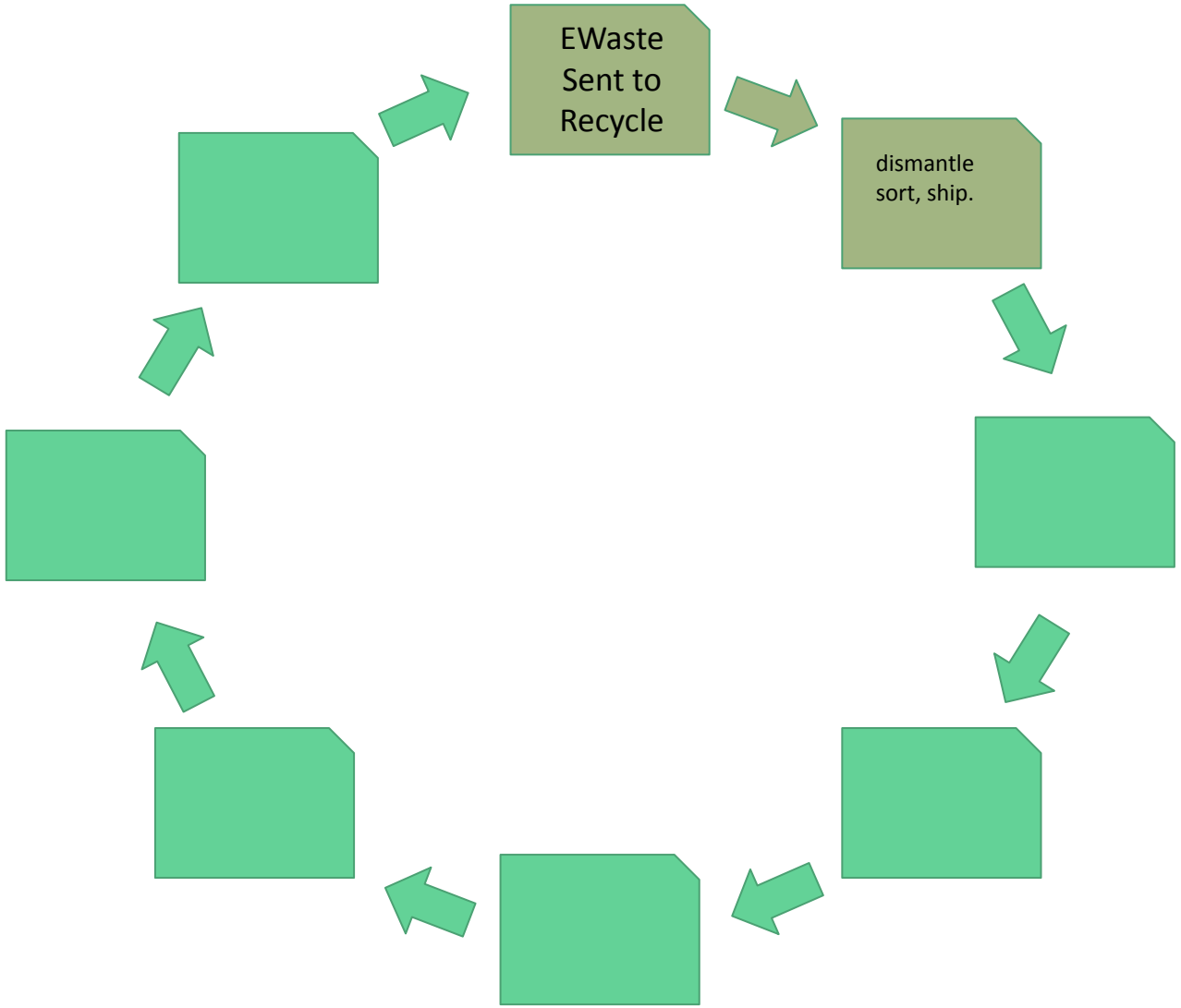
Has electronic waste (person, business, industry or manufacturing waste)
Waste is collected by e-waste recycler.
100km (88kg carbon) / ton of ewaste collected assuming 20 tons =1.7t co2

2. Ewaste Recycler

sorting and dismantling =600kg Co2

Total CO2 Emitted:

2.36 tons



Current Carbon Footprint Of E-waste.

Current Ewaste Model

3. Collector / Trader

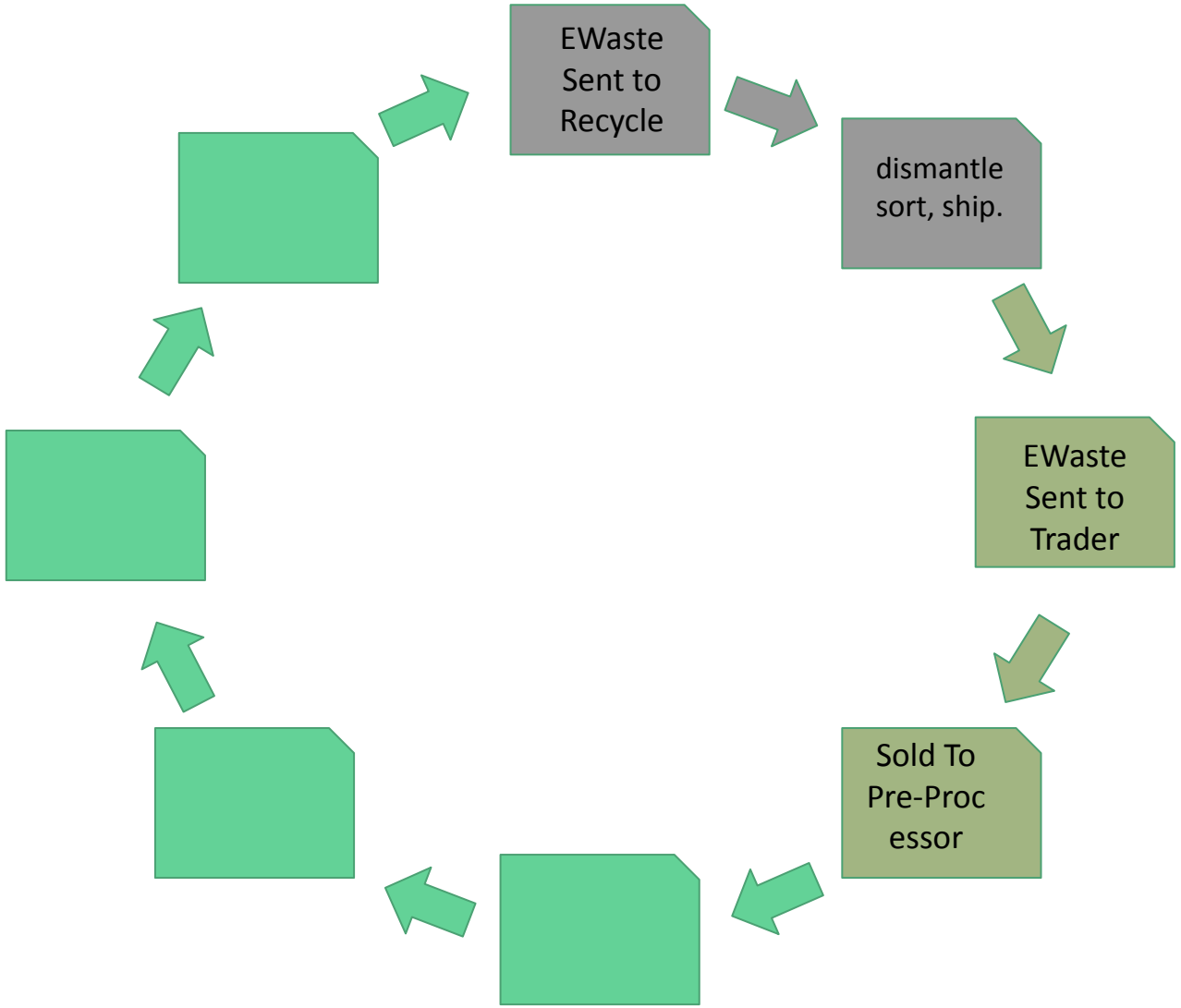
Sent hundreds or thousand km away depending on price. Does not matter where, as long as highest price is obtained for circuitry and metal values
880kg co2/ton for 1000 km @ 20 tons
=17.6t co2

4. Preprocessor / Shredder

Shreds and separates metals from plastics to sell valuables and discard invaluable items. = 1200kg Co2 per ton shredded/sorted assuming 20 tons.
= 24tons co2

Total CO2 Emitted:

73.96 tons



Current Carbon Footprint Of E-waste.

Current Ewaste Model

5. Ship To Refiner

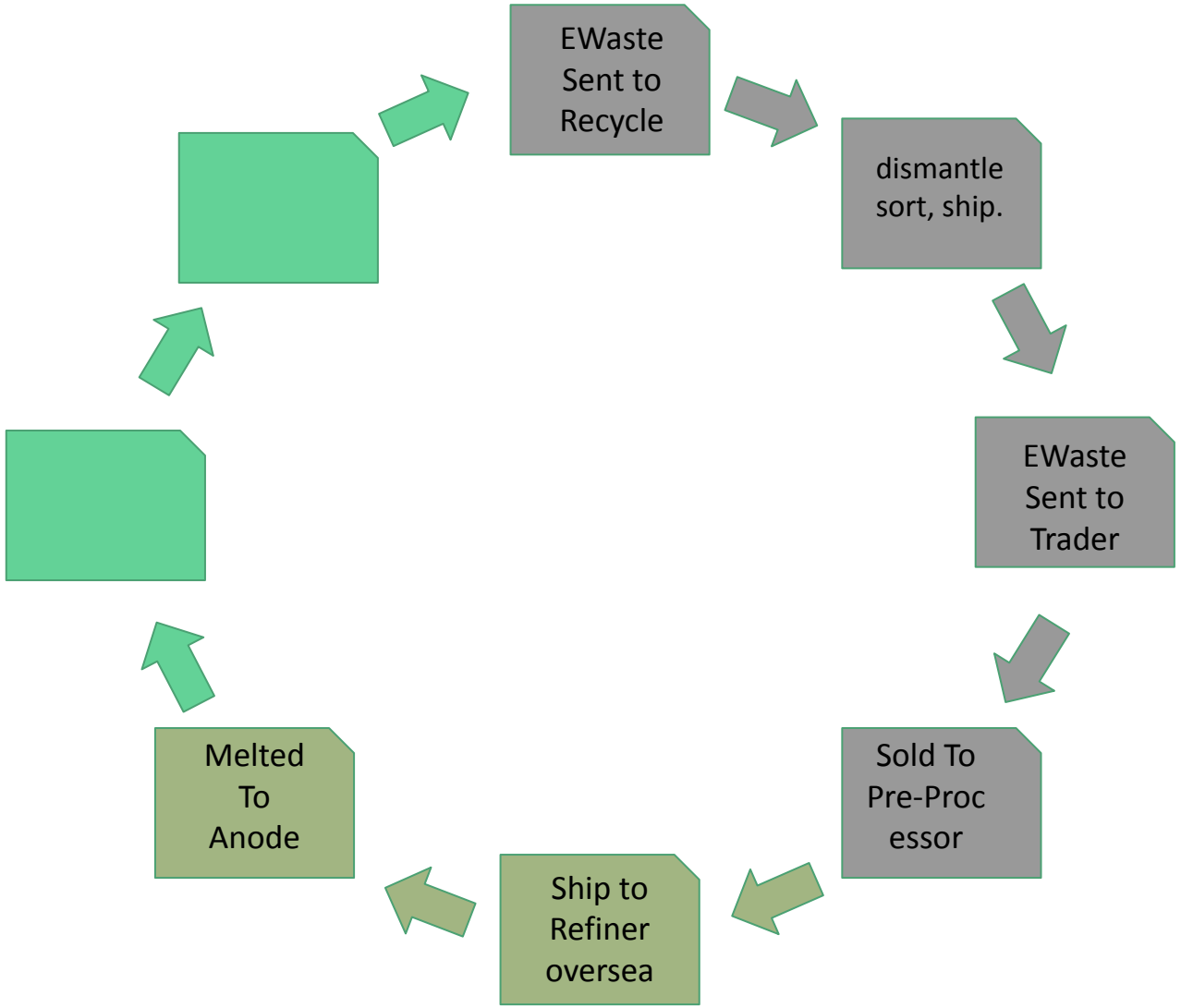
Sent across the ocean to the highest bidding refinery (due to lack of refinement in North America) Facility to port 500km - 440kg co2 @ 20 tons =8.8tons co2
Ship 4600km by sea = 3100kg Co2 per container per 1000 km.= 14.26tons co2

6. Melted To Impure Anode

Melting of metals requires both energy and generates smoke and co2, the energy required plus co2 generated amounts to 4.3 tons of Co2 for every 1 ton melted assuming 20 tons = 86tons co2

Total CO2 Emitted:

183.02 tons



Current Carbon Footprint Of E-waste.

Current Ewaste Model

7. Refine For Industry

Using high current DC power and large tanks filled with Sulfuric Acid, refiners use old traditional methods to purify metals. each ton of metal produced requires 6000amp hours of electricity due to archaic old inefficient process still used. power sources use fossil fuels estimated 460 kg per ton of pure metal @ 20 tons = 9.2t co2

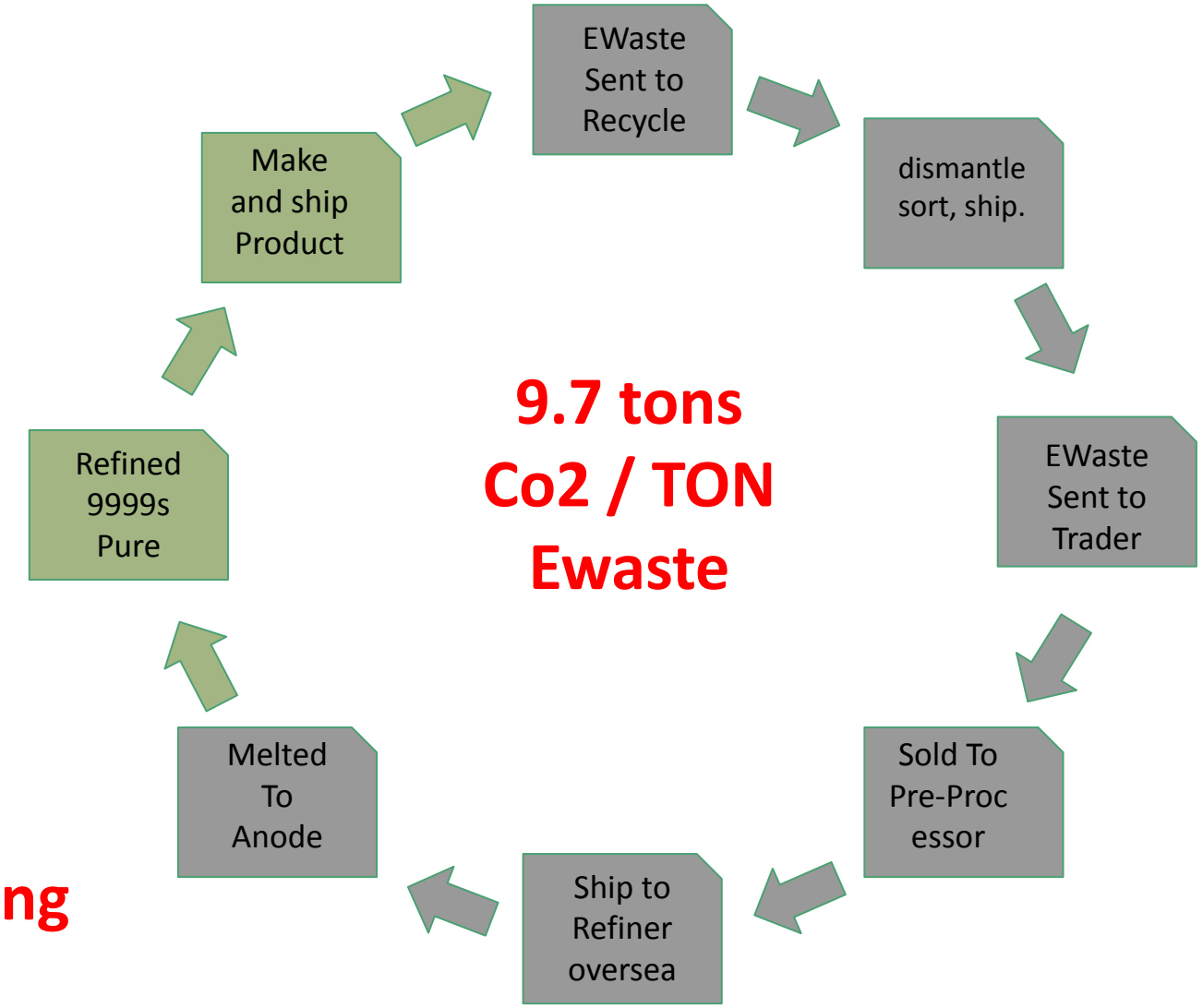
8. Make Product / Sell

various processes can be used to make products / parts / wires / pipes etc assuming high efficiency 120kg co2 per ton @ 20 tons =2.4 tons co2

Total CO2 Emitted:

194.62 tons Co2 recycling

20 tons of ewaste!



Introducing

Pfane Eco-cell

Eco-cell

sustainable, circular, co2 negative, metal refining.

Carbon Negative Recycling

Pfane Ewaste Refining Model

1. Sorting Facility ships Ewaste to a Pfane facility.

Has received, dismantled and sorted circuitry, trims and other acceptable waste that is able to be processed at Pfane facility (person, business, industry or manufacturing waste)
Waste is received by Pfane.
500km (88kg carbon) / ton of ewaste collected assuming 20 tons = 8.8 tons Co2
Sorting and dismantling - 660kg carbon per ton = 13.2 tons Co2

Total CO2 Emitted:

22 tons

Carbon Negative Recycling

Pfane Ewaste Refining Model

2. Pfane Granulates Materials and separates metals from non-metals

Using hydrogen powered electric generators and 200kw of solar to run machinery and lighting Pfane Granulates and separates the circuitry and other metal bearing material without relying on grid electric or heat.

Saving 24 tons of carbon from entering the atmosphere. (per 20 tons of waste processed)

Total CO2 Emitted:

-2 tons

Carbon Negative Recycling

Pfane Ewaste Refining Model

3. Pfane produces SANDLESS PfiBricks from non-metal portions of circuitry.

The non-metalic portion of the circuit boards granulated in the previous steps are used to make lighter, stronger, fireproof, high R value insulated, ice, salt and water proof concrete and concrete products.
For each ton of sand replaced we save 2.2 tons of Co2 from entering the atmosphere.
assuming 75% of material is non-metalic we save 15 tons of sand from being mined.

Saving 33 tons of carbon from entering the atmosphere.

Total CO2 Emitted:

-35 tons

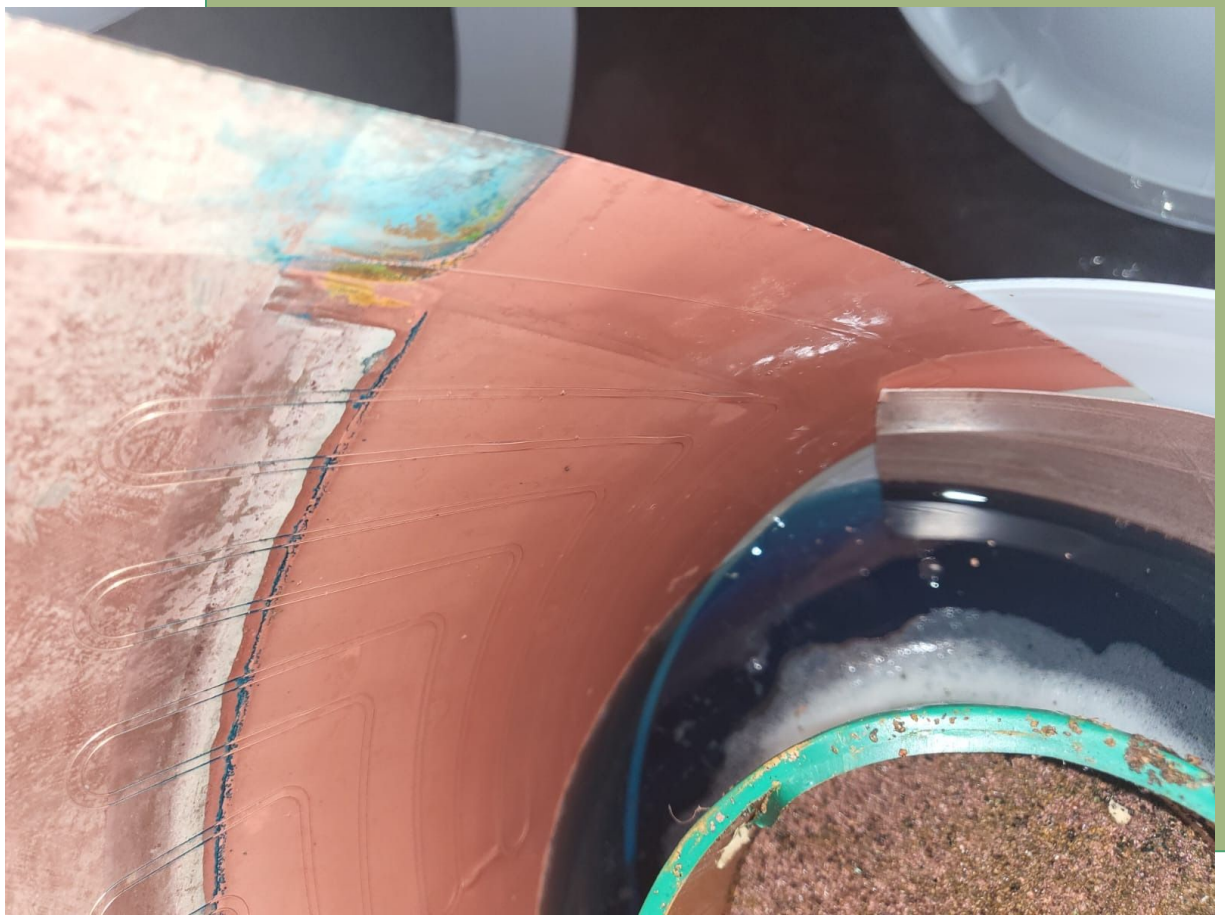
Carbon Negative Recycling

Pfane Ewaste Refining Model

4. Pfane Generates Pure Metals+H2 Using Eco-cell

The 5 tons of granulated metals are then fed into an Eco-cell refining system.
We extract pure 9999s copper cathode or wire using solar panels.
Each cell is producing pure H2 from the electrolytic process amounting to approximately 45 liters of H2 per module (50 modules used for 5 tons) per day. 100 modules total per facility

Saving 30.25 tons of carbon from entering the atmosphere.
Producing 2250 liters H2 / day
+220 kw/h power from excess solar (on a good day)



Total CO2 Emitted:

-65.25 tons

Total H2 Produced:

2250 liters

Total Energy Produced:

220kw per h

Carbon Negative Recycling

Pfane Ewaste Refining Model

5. Pfane Generates Jewelry Quality PMs using Eco-cell

The remaining granules from the EcoCell process are rich in precious metals.
These metals are then digested in weak base solution called ThioUreaTriSulphate.
Pfane produces extremely high grade primarily gold product that has already been coveted by very high end jewelers world wide.

Saving 2.1 kg of carbon from entering the atmosphere.

Total CO2 Emitted:

-65.25021 tons

Total H2 Produced:

225 liters

Total Energy Produced:

220kw per h

before

after

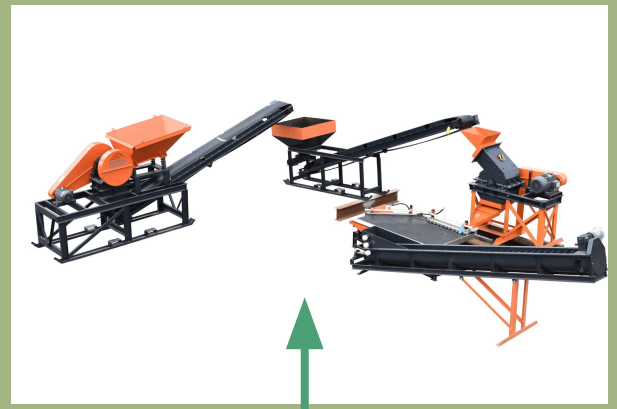
Carbon Negative Recycling

Pfane Ewaste Refining Model

6. Pfane Power Plant

Excess Power from the Solar refining process is used for heavy equipment
Hydrogen produced is used to generate power for lights, small machines and office equipment

Saving 67 kg of carbon from entering the atmosphere. per day



Total CO2 Emitted:

-65.25691 tons

Total H2 Produced:

2250 liters

Total Energy Produced:

220kw per h

The Difference?

Current Method Of Electronic Recycling

9.7 tons Co2 / TON Ewaste

x 42 Million Tons / Year

=

407 Million Tons CO2

Pfane Electronics Refining

3.26 tons Co2 Savings / TON Ewaste

x 42 Million Tons / Year*

=

137 Million Tons CO2 NEVER RELEASED

What are we waiting for?

We just discussed the weather...