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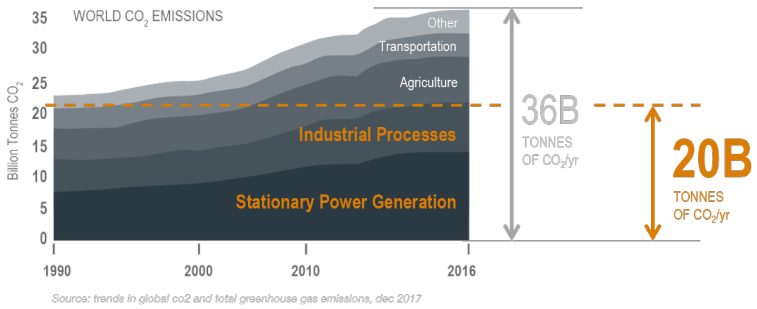
Clean the Planet | Feed the World

Anthesis

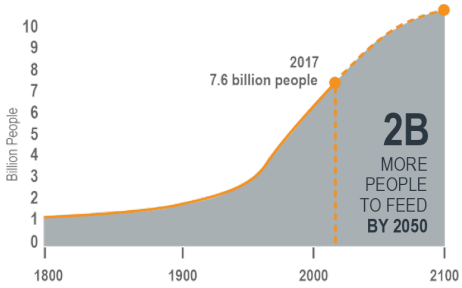
Algae can sustainably address a number of **the world's most pressing problems**

Converting CO_2 emissions



Source: trends in global co2 and total greenhouse gas emissions, dec 2017

Food for an Increasing population



Source: gapminder[17], Maddison & UN-Pop[1]

Patented, proven technology converts CO_2 at an industrial scale into **valuable biomass[1]**

2 TONNES CO_2,

1 TONNE ANIMAL FEED

This biomass can assist major corporations meet their **NZC commitments**

GhG Reduction

- algal farms able to convert up to 1m tonnes of CO_2 /yr per plant
- emitters benefit from carbon tax reduction (based on output KPIs)
- no expensive CAPEX retro fit as GhG taken directly from stack flue
- able to handle other gas contaminants including sulphur and nitrogen
- minimal land use: 1 football pitch (0.5 hectares) per 50,000 tonnes CO_2 /25,000 tonnes of biomass

Methane Reduction [1,2]

- active compounds in algae (Asparagopsis taxiformis) can reduce enteric fermentation by up to 98% (at 0.2% feed concentration)
- methane production represents between 10-15% of total food intake.
- methane is over 85 times more powerful GhG than CO_2

Alternative Protein [3,4,5,6]

- a unit of soy protein (from Brazil) replaced by a unit of algae protein prevents upto 1.6 units of CO_2 from entering the atmosphere
- algae contain a wide range of additional natural chemicals aiding animal nutrition including: omega 3, anti-oxidants
- improved animal welfare: lowered antibiotic use, reduced nitrogen / ammonia in droppings, increased natural yolk 'yellowness'

Soil Rejuvenation [7,8,9]

- algae can be deployed as a slow release 'live' biofertilizer
- algae biologically extracts (fixes) inert nitrogen (N) from the atmosphere and releases it in a form usable by crops
- algae biofertilizer also photosynthetically extracts CO_2 directly from the atmosphere which are excreted into the soil and used by the crops

1. Mitigating the carbon footprint and improving productivity of ruminant livestock agriculture using a red seaweed, Journal of Cleaner Production, 259 (2020) 120836
2. https://www.factcheck.org/2018/09/how-potent-is-methane/
3. Internal study (using World Resources Institute GHG Protocol of Project Accounting / ISO-14064-part II standard)- submitted to Canadian government 2018
4. Journal of Applied Phycology on 8 March 2016
5. University of Arkansas - Poultry Feed Trial 2019
6. http://blog.chickenwaterer.com/2013/03/influencing-egg-yolk-color.html)
7. Manda, B.P.L.G Viek and L.N. Mandal. "Beneficial effects of blue-green algae and Azolla excluding supplying nitrogen, on wetland rice field: A review" biology and fertility of Soils 28.4 (199) 329-342
8. Sauze, Joanne, et al. " The interaction of soil phototrophs and fungi with pH and their impact on soil CO2, CO 18 O and OCS exchange. "Soil Biology and Bio Chemistry 115 (2017) 371-382
9. Freckman, Diana Wall, et al "Linking biodiversity and ecosystems functioning of soils and sediments" – Ambio (1997) 556-562

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