

GRIMES CARBONTECH (GCT)

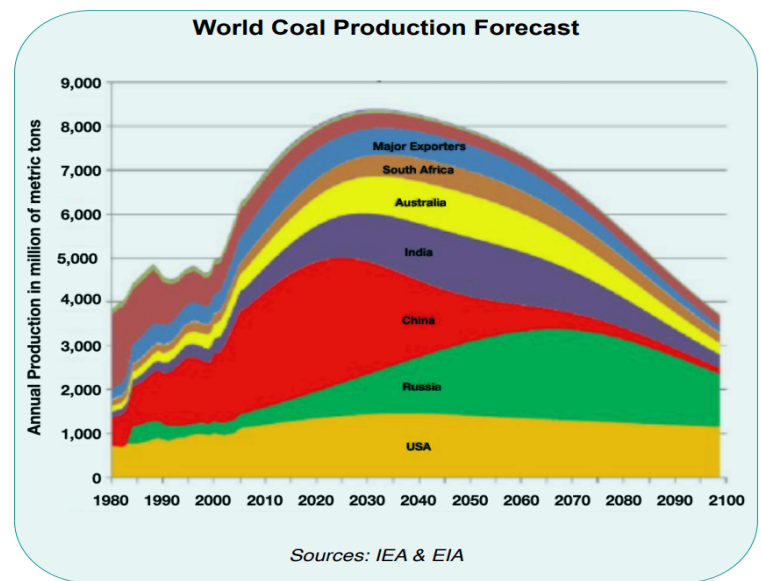
Use Case: Producing Green Hydrogen from Coal

The challenge: For hundreds of years, the world has relied on coal for energy. Even now, when we have conclusive evidence of the damage caused by mining and burning coal, it is still a major source of energy, supporting economic growth in India, China, Australia and a slew of developing countries, and the source of 30-40 million jobs, worldwide. Today, coal provides 27% of the world's energy and is responsible for 40% of the global CO2 emissions. In fact, coal use is growing, not going away. But coal, in and of itself, is not the culprit.

To quote Dr. Patrick Grimes, (the visionary who first saw a practical way to create hydrogen energy from any carbon source) "The only problem with coal is burning it."

The solution: GCT has developed an efficient process for turning coal, coal waste and coal fines into valuable zero or negative carbon hydrogen energy while producing additionally valuable byproducts: liquid fuels, humic soil amendment, and rare earth minerals. Our proprietary coal treatment and conversion process allows coal companies to:

- Remediate coal waste while making the coal industry green
- Preserve existing jobs within the coal industry while creating additional jobs to turn coal into a green energy growth sector
- Double the efficiency and energy output of existing coal plants.



GCT has only method for making green carbon hydrogen and electricity from coal.

GCT's zero-net carbon process can use any coal, waste-coal and/or coal fines as an input. The coal is pretreated to create a benign carbon slurry (a liquid emulsion), which is transportable and stable for up to two years. The slurry becomes the raw material for an electrochemical process known as CAUSTIC ACQUEOUS-PHASE ELECTROCHEMICAL REFORMING (or CAPER).

While the details may be difficult to grasp without a degree in chemistry, the outcomes are not:

1. Cost-effective repowering of coal plants at efficiencies up to 76% (compared to 39%)
2. Electricity generated from coal at less than 4 cents per kilowatt hour.
3. Cost-competitive fuels, including Sustainable Aviation Fuel (SAF) at a third of the current cost, by combining the reforming process with GCT's proprietary carbon capture and reuse (CCR) process.
4. Fast, modular construction of power plants using stackable shipping containers to create capacity on demand.

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