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(54) Title: CO-PRODUCTION OF HYDROGEN, CARBON, ELECTRICITY, AND CONCRETE WITH CARBON DIOXIDE CAPTURE

(57) Abstract: A hydrocarbon feed stream is exposed to heat in an absence of oxygen to the convert the hydrocarbon feed stream into a solids stream and a gas stream. The gas stream is separated into an exhaust gas stream and hydrogen. The carbon is separated from the solids stream as a carbon stream. Electrolysis is performed on a water stream to produce an oxygen stream and hydrogen. The oxygen and a portion of the carbon are combined to generate power and a carbon dioxide stream. At least a portion of the carbon stream, cement, and water are mixed to form a concrete mixture. The concrete mixture can be used to produce ready-mix concrete and precast concrete. Carbon dioxide used for curing the concrete can be sourced from the carbon dioxide stream produced by power generation.