Bío Refinerías allende de recuperación Energía
Bio-Refineries beyond Energy Recovery

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***Resumen*—Energía Renovable se basan en energía SOLAR bien directo ou indirectamente de almacenamiento del calor (VIENTO) ou forma química (BIOMASA) de el. 20% de biomasa agrícola ya se usa para energía y ~40% de toda la explotación agricola arriba como vertedero (2/3 fermentables y 1/3 viabiliza aprovechamientos thermo chímiqcos). Pero hoy día la utilización de materia organica del atmósfera es ~2% electricidad y 15% calor. 3-5% de biomasa es convertido en bio-combustibles, usando la tierra prevalente en conflicto de plato/tanque y rara recuperación energía CHP de sus basuras, dependiente de regimes promoción ou protección retribuido de parte de los tributarios. Bío Refinerías allende de recuperación Energía pudieren cambiar estas paradigmas de limitaciónes.**

***Palabras Clave*— autótérmico, desoxigenado, fondo Carbon atmósferico, captura Carbon, eficiencia de Carbon, eficiencia de recursos, electrólisis, síntesis química.**

***Abstract*—Renewable Energy basically either uses SOLAR energy directly or indirectly from thermally (WIND) or chemically (BIOMASS) stored aggregates of it. 20% of agricultural biomass is used for energy today and ~40% of all harvested biomass ends up in decay (2/3 fermentable and 1/3 allowing thermo chemical processing). However, today's energy use of atmospheric organic matter is ~2% electricity and 15% for heat. About 3-5% of biomass is converted to bio-fuels, mostly under plate/tank conflicting land-use and poorly used CHP energy recovery from its processing wastes, to the extent regulatory or subsidy regimes set necessary economic conditions precedent on the expenses of tax or tariff payers. Bio-Refineries beyond Energy Recovery could change such paradigms of limitation.**

***Keywords*— anoxic, atmospheric Carbon stock, auto-thermal, Carbon Capture, Carbon Efficiency, Chemical Synthesis, electrolysis, Resource Efficiency**

1. OVERVIEW

Today's promoted Best Available Technologies [BAT] to incinerate and/or combust all landfill gas from any end of lifecycle biomass or decay, being "Hydro Carbonic Matter" just is a transformation into CO_2, for a very scanty yield of secondary energy recovery, not competitive at arms' length market prices. So organic waste became bound to quite ineffectively managed secondary resources, although totally representing 20% primary energy equivalent globally.[1]

2. METHODOLOGY

Today we live in a world of Hydrocarbon Energy Carriers actually using the Carbon as a carrier only for the Hydrogen, delivering most part of the desired Energy.[2] While bio-chemical anaerobic stabilization of slurries coproduces Methane and Carbon Dioxide, anoxic Thermo-chemical volatilization and steam reformation of carbonaceous solids should ideally co-produce Hydrogen and Carbon Monoxide, Synthesis Gas.[3] However, conventional coal gasification methods are unsuitable for biomass, requiring substantial pretreatment of feedstock to become more alike coal.[4] Therefore Austrian Competence Centers for Bio Energy have matured an auto-thermally driven anoxic fast, high temperature pyrolysis process combined with steam reformation in a chemical looping reactor, called Fast Internal Circulating Dual Fluidized Bed reactor [FICDFB].[5] Due to the lower operating temperature of the Pyrolysis the Product Gas contains Methane moieties. So CHP Energy Recovery became a standard usage path of such anoxic accelerated decomposition methods of matter into energy-rich gas.[6]

To unlock higher value adding level planes in waste valorization such Methane fractions would need to be reformed into Synthesis Gas to increase Chemical Synthesis capabilities. However, achievable molar ratios across all reformed decomposition gas moieties compromise Hydrogen usability through a deficit in Carbon Monoxide.

Therefore such Bio-Refineries have so far been designed for Poly Generation of several parallel outputs only to get the best possible valorization of the different gas moieties.[7] However, such