CPCE key process steps in pre-combustion carbon utilization

The poignant process sections of CPCE for the existing and new LP/IP/HP gasification plants

1. High pressure continuous coal or carbonaceous materials to a gasifier (vide http://www.evisa-engineering.com/dryccs.html)
2. Operation of LP/IP/HP gasification by use of anodic oxygen from the CPCE's HPLTE-SG
3. Conventional slag removal, and gas cleaning e.g. removal of Hg, sulfur compounds, etc.
4. Waste heat and process heat recovery in CO2-HR section by operation of supercritical CO_2 cycle (First Bairamijamal's Cycle), power generation in CO2-PG section
5. Preparation of CO_2-rich CO2-Stream by operation of first CPCE's patent in continuation (US16/820,610 of March 16, 2020; priority date February 21, 2013) upstream of CO2-CC
6. Processing according to CPCE's CO2-CC section for obtaining liquid carbon dioxide
7. High pressure low temperature electrolysis of liquid CO_2-water electrolysis in CPCE's HPLTE-SG units to cathodic syngas and anodic oxygen
8. HP/IP/LP water shift converter for conversion of syngas to hydrogen, recycle of CO_2 to CO2-CC section
9. Generation of HP Direct Steam by use of H_2/O_2 torches for super- efficient hydrogen-based fossil power generation, including H_2/O_2 reheat torches via operation of the Second Bairamijamal Cycle
10. Hydrogen and oxygen supplementary DC power supply to HPLTE-SG via fuel cell
11. Optional integration of solar panel DC power and DC power battery storage, in case reasonable for a particulate site

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