CLAIMS

1. An integrated process comprising:
    a) passing a carbonaceous material to a gasification process to produce a syngas stream comprising CO and H_2;
    b) passing the syngas stream to a fermentation process comprising a bioreactor containing a C1-fixing bacteria in a liquid nutrient medium to produce an effluent stream comprising at least one fermentation product and biomass;
    c) passing the effluent stream to a product recovery process to produce a stream comprising biomass, a product stream comprising at least a portion of the at least one fermentation product, and a waste water stream; and
    d) passing at least a portion of the stream comprising biomass to a drying zone to produce a dried biomass stream containing from greater than 20% water to about 40% water by weight;
    e) passing the dried biomass to a gasification process where the biomass is gasified to produce syngas.
2. The method of claim 1 further comprising passing at least a portion of the biomass to the fermentation process.
3. The process of claim 1 further comprising passing at least a portion of the waste water stream comprising biomass to a waste water treatment process to produce a biogas stream and passing the biogas stream to the gasifier.
4. The process of claim 3 wherein methane contained in the biogas is reformed to produce CO and H_2.
5. The process of claim 3 wherein the biogas is used in the gasifier as a heating source for melting at least a portion of a slag produced by the gasification process.
6. The process of claim 1 wherein the product recovery process further produces a stream comprising fusel oil.
7. The process of claim 6 wherein the stream comprising fusel oil is passed to the gasifier and used as a heating source.
8. The process of claim 7 wherein the stream comprising fusel oil is used to melt at least a portion of a slag produced by the gasification process.

9. The process of claim 1 wherein the waste water stream from the product recovery process is passed to the gasification process and injected into the syngas stream produced by the gasification zone to reduce the temperature of the syngas stream.
10. The process of claim 3 wherein the waste water treatment process further produces a clarified water stream.
11. The process of claim 10 wherein the clarified water stream is passed to the gasification process and injected into the syngas stream produced by the gasification zone to reduce the temperature of the syngas stream.
12. The process of claim 10 wherein the clarified water stream is passed the gasification process to increase the H_2:CO ratio.
13. The process of claim 1 where the product stream comprises crude ethanol.
14. The process of claim 13 where at least a portion of the crude ethanol product stream is passed to the gasifier for use as a heat source.
15. The process of claim 14 where the crude ethanol product stream is used to melt at least a portion of a slag produced by the gasification process.
16. The process of claim 11 wherein the temperature of the syngas stream is reduced by at least 100^0C.
17. The process of claim 9 wherein the temperature of the syngas stream is reduced by at least 100^0C.
18. The process of claim 1 wherein the C1-fixing bacteria is selected from the group consisting of: *Moorella*, *Clostridium*, *Ruminococcus*, *Acetobacterium*, *Eubacterium*, *Butyribacterium*, *Oxobacter*, *Methanosarcina*, and *Desulfotomaculum*.