CLAIMS:

1. A method for hydroprocessing deasphalted oil, comprising:

performing solvent deasphalting under effective solvent deasphalting conditions on a feedstock having a T5 boiling point of at least about 400°C to form a first fraction comprising deasphalted oil and a solvent and a second fraction comprising deasphalter rock and the solvent, the effective solvent deasphalting conditions producing a yield of deasphalted oil of at least about 50 wt% of the feedstock;

recovering solvent from at least one of the first fraction and the second fraction, the recovering comprising generating heat for the recovering by combustion of a solvent recovery fuel comprising H_2;

gasifying at least a portion of the deasphalter rock to form synthesis gas, the solvent recovery fuel comprising at least a portion of the synthesis gas;

desulfurizing at least a portion of the synthesis gas;

separating at least a portion of the desulfurized synthesis gas to form an H_2-enriched stream; and

hydroprocessing at least a portion of the deasphalted oil under first effective hydroprocessing conditions in the presence of an H_2-containing gas to form a hydroprocessed effluent comprising a sulfur content of 500 wppm or less, the H_2-containing gas comprising at least a portion of the H_2-enriched stream.

2. The method of claim 1, further comprising combusting at least a portion of the synthesis gas, the H_2-enriched stream, or a combination thereof in a combustion zone of a gas turbine for generation of electricity.

3. The method of any of the above claims, wherein the solvent deasphalting comprises deasphalting with a C_4 solvent, a C_5 solvent, or a combination thereof.

4. The method of any of the above claims, further comprising performing water gas shift on at least one of the synthesis gas and the desulfurized synthesis gas prior to separating the at least a portion of the desulfurized synthesis gas to form the H_2-enriched

stream.

5. The method of any of the above claims, a) further comprising heating the at least a portion of the deasphalted oil prior to the hydroprocessing, the heating comprising combusting at least a portion of the synthesis gas, the desulfurized synthesis gas, or a combination thereof to generate heat; or b) further comprising combusting a portion of the synthesis gas, the desulfurized synthesis gas, or a combination thereof in a combustion zone of a gas turbine; or c) a combination of a) and b).

6. The method of any of the above claims, wherein separating at least a portion of the desulfurized synthesis gas to form an H_2-enriched stream comprises performing a swing adsorption process on the at least a portion of the desulfurized synthesis gas to form at least an H_2-enriched purge stream and an H_2-containing purge stream.

7. The method of any of the above claims, wherein hydroprocessing at least a portion of the deasphalted oil comprises demetallizing the at least a portion of the deasphalted oil, hydrotreating the at least a portion of the deasphalted oil, hydrocracking the at least a portion of the deasphalted oil, or a combination thereof.

8. The method of any of the above claims, wherein the yield of deasphalted oil is at least 55 wt%, or wherein the deasphalted oil has an aromatics content of at least 50 wt% based on a weight of the deasphalted oil, or a combination thereof.

9. The method of any of the above claims, wherein gasifying at least a portion of the deasphalter rock comprises gasifying deasphalter rock treated with an anti-tack agent.

10. The method of any of the above claims, the method further comprising:

separating the hydroprocessed effluent to form at least a fuels boiling range fraction and a bottoms fraction; and

hydroprocessing at least a portion of the hydroprocessed bottoms fraction under

second effective hydroprocessing conditions, the second effective hydroprocessing conditions comprising hydrocracking conditions and catalytic dewaxing conditions, to form a catalytically dewaxed effluent comprising a 950°F+ (510°C+) portion having a VI of at least 80 and a pour point of -6°C or less.

11. The method of claim 10, wherein the hydroprocessing at least a portion of the hydroprocessed bottoms fraction comprises a processing in the presence of a second H_2-containing gas, the second H_2-containing gas comprising at least a second portion of the H_2-enriched stream.

12. The method of any of the above claims, wherein the at least one of the hydroprocessed effluent and the at least a portion of the hydroprocessed bottoms fraction comprises less than 200 wppm sulfur, less than 100 wppm nitrogen, or a combination thereof.