WHAT IS CLAIMED IS:

1. A hydrocracking process with recycle for converting a petroleum feed to lower boiling products, which process comprises:

(i) hydrotreating a petroleum feed in the presence of hydrogen to produce a hydrotreated effluent stream comprising a liquid product in a first reactor;

(ii) passing at least a portion of the hydrotreated effluent stream to a separation section;

(iii) passing at least a portion of a bottoms fraction of the separation section to a reactor comprising a non-zeolite Pt-Pd noble metal catalyst, which reactor is run at a temperature of 400°F (204°C) to 500 °F (260°C);

(iv) passing product from the reactor comprising the non-zeolite noble metal catalyst to a hydrocracking reactor to produce a hydrocracked effluent stream; and

(v) recovering a bottoms fraction from the hydrocracking reactor and recycling at least a portion of the bottoms fraction recovered through the separation section in (ii).

2. The process of claim 1, wherein the separation section comprises a distillation column.

3. The process of claim 1, wherein a minimized portion of the bottoms fraction in (v) is passed to an FCC unit.

4. The process of claim 1, wherein the noble metal catalyst comprises a combination of platinum, palladium, and gold.

5. The process of claim 1, wherein the noble metal catalyst comprises a support which comprises mesopores and macropores.

6. A two-stage hydrocracking process with recycle for converting a petroleum feed to lower boiling products, which process comprises:

(i) hydrotreating petroleum feed in a first stage reactor in the presence of hydrogen to produce a hydrotreated effluent stream comprising a liquid product;

(ii) passing at least a portion of the hydrotreated effluent stream to a separation section;

(iii) passing at least a portion of a bottoms fraction of the separation section to a hydrocracking reactor to produce a hydrocracked effluent stream;

(iv) recovering a bottoms fraction from the hydrocracking reactor and recycling at least a portion of the bottoms fraction recovered to the separation section in (ii) or the hydrotreated effluent stream passed to the separation section in (ii), with the recycled bottoms portions passing through a reactor comprising a non-zeolite Pt-Pd noble metal catalyst, which is run at a temperature of 400°F (204°C) to 500°F (260°C), before reaching the separation section column in (ii) or the hydrotreated effluent stream.

7. The process of claim 6, wherein the separation section comprises a distillation column.

8. The process of claim 6, wherein a minimized portion of bottoms fraction from the separation section is passed to an FCC unit.

9. The process of claim 6, wherein the noble metal catalyst comprises a combination of platinum, palladium, and gold.

10. The process of claim 6, wherein the noble metal catalyst comprises a support which comprises mesopores and macropores.