CLAIMS:

1. A process for cracking an olefinic feed comprising diolefins and monoolefins, the process comprising:

a) selectively hydrogenating the olefinic feed in a hydrogenation reactor to convert diolefins to monoolefins and provide a hydrogenated effluent stream;

b) vaporizing the hydrogenated effluent stream in a vaporizer to provide a vaporized hydrogenated effluent stream;

c) passing the vaporized hydrogenated effluent stream to an olefin cracking reactor to provide a cracked olefin stream comprising C_2 and C_3 olefins;

d) passing the cracked olefin stream to a recycle column to provide an overhead vapor stream comprising C_{5-} hydrocarbons or a side draw vapor stream comprising C_{6+} hydrocarbons;

e) passing a portion of the overhead vapor stream to a depropanizer column to provide C_2 and C_3 olefins; and

f) recycling a remaining portion of the overhead vapor stream or the side draw vapor stream to the olefin cracking reactor.

2. The process of claim 1 further comprising:

combining the at least portion of the overhead vapor stream or the side draw vapor stream with the vaporized hydrogenated effluent stream to provide a combined vaporized stream; and

passing the combined vaporized stream to the olefin cracking reactor.

3. The process of claim 1 further comprising passing the at least portion of the overhead vapor stream or the side draw vapor stream to the vaporizer along with the hydrogenated effluent stream.

4. The process of claim 1 further comprising:

passing the cracked olefin stream comprising C_2 and C_3 olefins to a compressor to provide a compressed cracked olefin stream; and

passing at least a portion of the compressed cracked olefin stream to the recycle column.

5. The process of claim 1 further comprising separating a bottoms liquid stream from the depropanizer column.

6. The process of claim 5, wherein the bottoms liquid stream comprises C_{4+} hydrocarbons or the bottoms liquid stream comprises C_{6+} hydrocarbons.

7. The process of claim 5 further comprising recycling at least a portion of the bottoms liquid stream to the hydrogenation reactor at a combined feed ratio from 1:1 to 5:1.

8. The process of claim 1 further comprising heating the vaporized hydrogenated effluent stream to a predetermined temperature prior to passing the vaporized hydrogenated effluent stream to the olefin cracking reactor.

9. The process of claim 1 further comprising at least one of:

sensing at least one parameter of the process for cracking an olefinic feed comprising diolefins and monoolefins and generating a signal or data from the sensing;

generating and transmitting a signal; or

generating and transmitting data.