WHAT IS CLAIMED IS:

1. A process for producing one or more olefins, the process comprising:

contacting an input stream in a single reactor with at least a first catalyst and a second catalyst to form an output stream comprising the one or more olefins, the input stream comprising one or more bio-oils, and the single reactor being at a temperature 300 °C to 600 °C, a gauge pressure from 1 to 10 bar, and a weight hourly space velocity (WHSV) from 0.5 $h^{-1}$ to 10 $h^{-1}$; and

prior to contacting the input stream with the first catalyst, combining the input stream with one or more $C_1$-$C_5$ alcohols, or water and one or more $C_1$-$C_5$ alcohols;

wherein the first catalyst comprises a first zeolite and one or more first dopants, and

wherein the second catalyst comprises a dehydration catalyst.

2. The process of claim 1, wherein the bio-oils comprise fatty acid based bio-oils.

3. The process of claims 1 or 2, wherein the contacting the input stream in the single reactor comprises contacting the input stream without ex-situ hydrogen.

4. The process of claim 1, wherein the second catalyst comprises a doped or undoped alumina catalyst, optionally wherein the doped alumina catalyst comprises, in neutral or ionic form, zirconium, titanium, tungsten, silicon, fluorine, or any combination thereof; or wherein the second catalyst comprises a silicated ɣ-alumina, zirconated ɣ-alumina, titanated ɣ-alumina, niobium ɣ-alumina, or fluorinated ɣ-alumina, an undoped ɣ-alumina, an undoped zeolite, a silica alumina catalyst, or any combination thereof.

5. The process of any one of claims 1 to 4, wherein the single reactor comprises one or more catalyst beds, and wherein the process further comprises impregnating at least one catalyst bed of the one or more catalysts beds with the first catalyst and the second catalyst, optionally wherein the one or more catalyst beds are stacked relative to each other within the single reactor.

6. The process of any one of claims 1 to 5, further comprising, prior to contacting the input stream, adding the one or more first dopants to the first catalyst and/or adding one or more second dopants to the second catalyst.

7. The process of any one of claims 1 to 6, wherein the one or more olefins comprises $C_2$-$C_5$ olefins, optionally wherein the $C_2$-$C_5$ olefins comprises a predominant first olefin, wherein the predominant first olefin is propylene, and/or the $C_2$-$C_5$ olefins comprises ethylene.

8. The process of claim 7, wherein the $C_2$-$C_5$ olefins are present in the output stream in an amount that is from 65 wt. % to 85 wt. %, particularly from 75 wt. % to 80 wt. %, of the total amount of unsaturated hydrocarbons present in the output stream.

9. The process of any one of claims 1 to 8, wherein the output stream further comprises one or more aromatics, optionally wherein the one or more aromatics are present in the output stream in an amount that is from 65 wt. % to 80 wt. % of the total amount of unsaturated hydrocarbons present in the output stream; and/or wherein the output stream further comprises saturates, wherein a total amount of saturates present in the output stream does not exceed 20 wt. % of the output stream, and, optionally, is from 5 wt. % to 15 wt. %, particularly from 5 wt. % to 10 wt. %.

10. The process of any one of claims 1 to 9, wherein the one or more first dopants comprises boron, phosphor, or a combination thereof, optionally wherein boron is present in the first catalyst in an amount from 0.5 wt. % to 3 wt. %, particularly in an amount of at least 2 wt. %, and/or wherein phosphor is present in the catalyst in an amount from 1 wt. % to 5 wt. %, particularly in an amount of at least 3 wt. %.

11. The process of any one of claims 1 to 10, wherein the first zeolite comprises a ZSM-5 zeolite.

12. The process of any one of claims 1 to 11, wherein the one or more $C_1$-$C_5$ alcohols comprises ethanol and/or methanol and/or isobutanol; and/or wherein the one or more $C_1$-$C_5$ alcohols comprises a mixture of at least $C_4$ alcohols, or a mixture of at least $C_5$ alcohols, or a mixture of at least $C_4$ and $C_5$ alcohols.

13. The process of any one of claims 1 to 12, wherein the one or more bio-oils are produced by fermentative processes.

14. The process of any of claims 1 to 13, further comprising removing at least a portion of $C_2$ olefins and/or at least a portion of $C_4$ olefins and/or at least a portion of $C_5$ olefins and/or at least a portion of aromatics from the output stream.

15. The process of any one of claims 1 to 14, wherein the temperature is from 350 °C to 500 °C, particularly from 450 °C to 500 °C; and/or wherein the WHSV is from 2.0 $h^{-1}$ to 5.0 $h^{-1}$, particularly from 3.0 $h^{-1}$ to 5.0 $h^{-1}$.