WHAT IS CLAIMED IS:

1. A process for converting one or more C_1-C_5 linear or branched alcohols to one or more C_2-C_5 olefins, the process comprising:

contacting an input stream comprising the one or more C_1-C_5 linear or branched alcohols with a catalyst in a reactor to form an output stream comprising the one or more C_2-C_5 olefins, the catalyst comprising a zeolite and one or more metal dopants, the one or more metal dopants comprise one or more first metal dopants, one or more second metal dopants, or both;

wherein the reactor is at a temperature from about 300 °C to about 600 °C, a gauge pressure from 0 to about 30 bar, and a weight hourly space velocity (WHSV) from about 0.25 h^{-1} to about 35 h^{-1}.

2. The process of claim 1, further comprising, prior to contacting the input stream, adding the one or more metal dopants to the catalyst.

3. The process of claim 1, wherein the reactor is a single bed reactor selected from a fixed bed reactor, a fluidized bed reactor, or a moving bed reactor.

4. The process of any one of the preceding claims, wherein the one or more C_2-C_5 olefins are present in the output stream in an amount that does not exceed about 98 wt. %, or are present in an amount from about 70 wt. % to about 98 wt. %, or from about 85 wt. % to about 98 wt. %, of the total amount of unsaturated hydrocarbons present in the output stream.

5. The process of any one of the preceding claims, wherein the catalyst further comprises one or more non-metal dopants comprising boron, phosphorus, or a combination thereof, and preferably wherein boron is present in the catalyst in an amount from about 0.01 wt. % to about 10 wt. % or at least 0.05 wt. %; or wherein phosphorus is present in the catalyst in an amount from about 0.1 wt. % to about 7 wt. % or at least 1.5 wt. %.

6. The process of any one of the preceding claims, wherein the zeolite comprises a ZSM-5 zeolite, a MFI zeolite, a BEA zeolite, a FER zeolite, a CHA zeolite, a FAU zeolite, or any combination thereof.

7. The process of any one of the preceding claims, wherein the output stream comprises saturates, wherein a total amount of saturates present in the output stream

does not exceed about 25 wt. % of the output stream, or is from about 3 wt. % to about 25 wt. %, or is from about 3 wt. % to about 15 wt. % of the output stream.

8. The process of any one of the preceding claims, wherein the one or more first metal dopants are present in the catalyst in an amount that does not exceed about 2 wt. %, or from about 0.01 wt. % to about 2 wt. %, or from about 0.01 wt. % to about 0.2 wt. %, or at least about 0.05 wt. %, and/or

wherein the one or more second metal dopants are present in the catalyst in an amount that does not exceed about 2 wt. %, or from about 0.01 wt. % to about 2 wt. %, or from about 0.01 wt. % to about 0.2 wt. %, or at least about 0.05 wt. %.

9. The process of any of the preceding claims, wherein the C_1-C_5 linear or branched alcohols are bio-based and produced by fermentative processes, and/or are not derived from petroleum.

10. The process of any of the preceding claims, 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 from the output stream.

11. The process of any of the preceding claims, wherein the temperature is from about 550 °C to about 600 °C, or is from about 350 °C to about 550 °C.

12. The process of any of the preceding claims, wherein the WHSV is from about 0.5 h^{-1} to about 1.0 h^{-1}, or is from about 2.0 h^{-1} to about 5.0 h^{-1}.

13. The process of any one of the preceding claims, wherein the one or more first metal dopants comprise sodium, potassium, lithium, or any combination thereof, and preferably are sodium, and/or

wherein the one or more second metal dopants comprise magnesium, calcium, strontium, barium, or any combination thereof.

14. The process of any one of the preceding claims, wherein the catalyst comprises one or more other dopants, the one or more other dopants comprising sulfur, scandium, yttrium, selenium, iron, manganese, tellurium, or any combination thereof, and preferably

wherein the one or more other dopants are present in the catalyst in an amount that does not exceed about 2 wt. %, or are present in an amount from about 0.05 wt. % to about 1 wt. %, or about 0.05 wt. % to about 0.5 wt. %, or at least about 0.25 wt. %.

15. A process for converting one or more C_1-C_5 linear or branched alcohols to one or more C_2-C_5 olefins, the process comprising:

contacting an input stream comprising the one or more C_1-C_5 linear or branched alcohols with at least a first catalyst and a second catalyst in a single reactor to form an output stream comprising the one or more C_2-C_5 olefins, the single reactor being at a temperature from about 350 °C to about 750 °C, a gauge pressure from 0 to about 30 bar, and a weight hourly space velocity (WHSV) from about 0.5 h^{-1} to about 35.0 h^{-1},

wherein the second catalyst comprises a zeolite and one or more metal dopants, the one or more metal dopants comprise one or more first metal dopants, one or more second metal dopants, or both.

16. The process of claim 15, wherein the first catalyst comprises a doped or undoped alumina catalyst, and preferably

wherein the doped alumina catalyst comprises, in neutral or ionic form, zirconium, titanium, tungsten, silicon, or any combination thereof.

17. The process of any one of claim 15 or 16, wherein the single reactor comprises one or more catalyst beds, 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, and preferably

wherein two of the one or more catalysts beds are stacked relative to each other within the single reactor.

18. The process of any one of claim 15 or 16, wherein the single reactor comprises two or more catalyst beds, wherein the process further comprises,

impregnating a first catalyst bed of the two or more catalysts beds with at least the first catalyst, and

impregnating a second catalyst bed of the two or more catalysts beds with at least the second catalyst, and preferably

wherein the two or more catalyst beds are stacked relative to each other within the single reactor.

19. The process of claim 18, wherein contacting an input stream with at least a first catalyst and a second catalyst comprising contacting the input stream with the first catalyst bed prior to the second catalyst bed, or further comprising introducing one or more additional input streams into the reactor downstream of the first catalyst bed, and/or

wherein the first catalyst bed does not contain the second catalyst, and/or wherein the second catalyst bed does not contain the first catalyst.

20. The process of any one of claims 15 to 19, wherein the first 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, and preferably an undoped ɣ-alumina, zirconated gamma-alumina, or both.

21. The process of any one of claims 15 to 20, further comprising, prior to contacting the input stream, adding the one or more metal dopants to the second catalyst.

22. The process of any one of claims 15 to 21, wherein the one or more C_2-C_5 olefins are present in the output stream in an amount that does not exceed about 98 wt. %, or are present in an amount from about 70 wt. % to about 98 wt. %, or from about 85 wt. % to about 98 wt. %, of the total amount of unsaturated hydrocarbons present in the output stream.

23. The process of any one of claims 15 to 22, wherein the second catalyst further comprises one or more non-metal dopants comprising boron, phosphorus, or a combination thereof, and preferably wherein boron is present in the second catalyst in an amount from about 0.01 wt. % to about 10 wt. % or at least 0.05 wt. %; or wherein phosphorus is present in the second catalyst in an amount from about 0.1 wt. % to about 7 wt. %, or at least 1.5 wt. %.

24. The process of any one of claims 15 to 23, wherein the zeolite comprises a ZSM-5 zeolite, a MFI zeolite, a BEA zeolite, a FER zeolite, a CHA zeolite, a FAU zeolite, or any combination thereof.

25. The process of any one of claims 15 to 24, wherein the output stream comprises saturates, wherein a total amount of saturates present in the output stream does not exceed about 25 wt. % of the output stream, or is from about 3 wt. % to 25 about wt. %, or is from about 3 wt. % to about 15 wt. % of the output stream.

26. The process of any one of claims 15 to 25, wherein the one or more first metal dopants are present in the second catalyst in an amount that does not exceed about 2 wt. %, or from about 0.01 wt. % to about 2 wt. %, or from about 0.01 wt. % to about 0.2 wt. %, or at least about 0.05 wt. %, and/or

wherein the one or more second metal dopants are present in the second catalyst in an amount that does not exceed about 2 wt. %, or from about 0.01 wt. % to about 2 wt. %, or from about 0.01 wt. % to about 0.2 wt. %, or at least about 0.05 wt. %.

27. The process of any of claims 15 to 26, wherein the C_1-C_5 linear or branched alcohols are bio-based and produced by fermentative processes, and/or are not derived from petroleum.

28. The process of any of claims 15 to 27, 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 from the output stream.

29. The process of any of claims 15 to 28, wherein the temperature is from about 550 °C to about 600 °C, or is from about 350 °C to about 550 °C.

30. The process of any of claims 15 to 29, wherein the WHSV is from about 0.5 h^{-1} to about 1.0 h^{-1}, or is from about 2.0 h^{-1} to about 5.0 h^{-1}.

31. The process of any one of claims 15 to 30, wherein the one or more first metal dopants comprise sodium, potassium, lithium, or any combination thereof, and preferably are sodium, and/or

wherein the one or more second metal dopants comprise magnesium, calcium, strontium, barium, or any combination thereof.

32. The process of any one of claims 15 to 31, wherein the second catalyst comprises one or more other dopants, the one or more other dopants comprising sulfur,

scandium, yttrium, selenium, iron, manganese, tellurium, or any combination thereof, and preferably

wherein the one or more other dopants are present in the second catalyst in an amount that does not exceed about 2 wt. %, or are present in an amount from about 0.05 wt. % to about 1 wt. %, or from about 0.05 wt. % to about 0.5 wt. %, or at least about 0.25 wt. %.

33. A process for converting one or more C_1-C_5 linear or branched alcohols to one or more C_2-C_5 olefins, the process comprising:

contacting an input stream comprising the one or more C_1-C_5 linear or branched alcohols with a catalyst in a reactor to form an output stream comprising the one or more C_2-C_5 olefins, the catalyst consisting essentially of a zeolite and one or more metal dopants, the one or more metal dopants comprising one or more first metal dopants, one or more second metal dopants, or both;

wherein the reactor is at a temperature from about 300 °C to about 600 °C, a gauge pressure from 0 to about 30 bar, and a weight hourly space velocity (WHSV) from about 0.25 h^{-1} to about 35 h^{-1}.