CLAIMS:

1. A fuel composition having low sulfur content comprising from 10 vol.% to 90 vol.% of at least one petroleum distillate fraction having a cetane index of at least 8 and a residual component at from 10 vol.% to 90 vol.%, the fuel composition having the following enumerated properties:

a sulfur content of about 0.50% or less by weight of the fuel composition;

a calculated carbon aromaticity index of about 870 or less;

a density at 15 °C of about 900 kg/m^3 to about 1,010 kg/m^3;

a kinematic viscosity at 50 °C of about 100 centistokes to about 700 centistokes; and

an estimated cetane number of about 7 to about 13.

2. The fuel composition of claim 1, wherein the sulfur content is about 0.40 wt.% to about 0.5 wt.%.

3. The fuel composition of claim 1, wherein the calculated aromaticity index is about 800 to about 870, wherein the density at 15 °C is about 950 kg/km^3 to about 1,000 kg/m^3, wherein the kinematic viscosity at 50 °C is about 100 centistokes to about 380 centistokes, and wherein the estimated cetane number is about 7 to about 10.

4. The fuel composition of claim 1, wherein the fuel composition is a residual marine fuel.

5. The fuel composition of claim 1, wherein the residual component comprises a vacuum residual.

6. The fuel composition of claim 1, wherein the residual component comprises a vacuum residual and FCC bottoms.

7. The fuel composition of claim 1, wherein the at least one petroleum distillate fraction is present in an amount of about 25 vol.% or greater and has a cetane index of about 8 to about 29.

8. The fuel composition of claim 1, wherein the at least one petroleum distillate fraction is present in an amount of about 10 vol.% or greater and has a cetane index of about 30 or greater.

9. The fuel composition of claim 1, wherein the fuel composition comprises a residual component in an amount of about 50 vol.% to about 80 vol.% and a petroleum distillate fraction in an amount of about 20 vol.% to about 50 vol.%, wherein the petroleum distillate fraction has a cetane index of from about 8 to about 29.

10. The fuel composition of claim 1, wherein the fuel composition comprises a first residual component in an amount of about 40 vol.% to about 65 vol.%, a second residual component in an amount of about 5 vol.% to about 20 vol.%, and a petroleum distillate fraction in an amount of about 15 vol.% to about 55 vol.%, wherein the petroleum distillate fraction has a cetane index of from about 8 to about 29.

11. The fuel composition of claim 1, wherein the fuel composition comprises a residual component in an amount of about 45 vol.% to about 65 vol.%, a first petroleum distillate fraction in an amount of about 30 vol.% to about 40 vol.%, and a second petroleum distillate fraction in an amount of about 5 vol.% to about 25 vol.%, wherein the first petroleum distillate fraction has a cetane index of about 8 to about 29, and wherein the second petroleum distillate fraction has a cetane index of about 30 or greater.

12. The fuel composition of claim 1, wherein the fuel composition comprises a first residual component in an amount of about 45 vol.% to about 65 vol.%, a second residual component in an amount of about 5 vol.% to about 20 vol.%, and a petroleum distillate fraction in an amount of about 5 vol.% to about 40 vol.%, wherein the petroleum distillate fraction has a cetane index of about 30 or greater.

13. The fuel composition of claim 1, wherein the fuel composition comprises a first residual component in an amount of about 40 vol.% to about 60 vol.%, a second residual component in an amount of about 5 vol.% to about 20 vol.%, a first petroleum distillate fraction in an amount of about 10 vol.% to about 40 vol.%, and a second petroleum distillate fraction in an amount of about 5 vol.% to about 30 vol.%, wherein the first petroleum distillate fraction has a cetane index of about 8 to about 29, and wherein the second petroleum distillate fraction has a cetane index of about 30 or greater.

14. The fuel composition of claim 1, wherein the fuel composition comprises a residual component having a T50 of about 615 °C or greater and a first distillate fraction having a density

of about 910 kg/m^3 or less, and wherein the fuel composition is further characterized by at least one of the following: (i) an amount of about 25 vol.% or greater of the first distillate fraction with a cetane index of about 8 to about 29 or (ii) further comprising a second distillate fraction in an amount of about 10 vol.% or greater with a cetane index of about 30 or greater.

15. A method of blending fuel compositions, comprising:

blending at from 10 vol.% to 90 vol.% of one or more residual components and one or more petroleum distillate fractions to prepare a fuel composition, wherein the fuel composition includes from 10 vol.% to 90 vol.% of the one or more petroleum distillate fractions having a cetane index of at least 8, wherein the fuel composition has the following enumerated properties:

a sulfur content of about 0.50% or less by weight of the fuel composition;

a calculated carbon aromaticity index of about 870 or less;

a density at 15 °C of about 900 kg/m^3 to about 1,010 kg/m^3;

a kinematic viscosity at 50 °C of about 100 centistokes to about 700 centistokes; and

an estimated cetane number of about 7 or to about 13.

16. The method of claim 15, wherein the calculated aromaticity index is about 800 to about 870, wherein the density at 15 °C is about 950 kg/km^3 to about 1,000 kg/m^3, and wherein the kinematic viscosity at 50 °C is about 100 centistokes to about 380 centistokes, and estimated cetane number is about 7 to about 13.

17. The method of claim 15, wherein the petroleum distillate fraction comprises at least one of (i) a first distillate fraction in an amount of about 25 vol.% or greater with a cetane index of about 8 to about 29; or (ii) a second distillate fraction in an amount of about 10 vol.% or greater with a cetane index of about 30 or greater.

18. The method of claim 15, wherein the one or more residual components comprises a residual component having a T50 of about 615 °C or greater, and wherein one or more petroleum distillate fractions comprises a first distillate fraction having a density of about 910 kg/m^3 or less.

19. The method of claim 15, wherein the blending comprises blending an additional distillate fraction in an amount of about 10 vol.% or greater with a cetane index of about 30 or greater to enhance combustion quality of the fuel composition.