Department of Energy
Washington, DC 20585

AUG 23 2001

Mr. Cyril Knottenbelt
Mossgas (PTY) Limited
Duinzicht Avenue
Private Bag x14
Mossel Bay 6500
Republic of South Africa

Dear Mr. Knottenbelt:

We are continuing to evaluate your petition, dated Sept. 16, 1999, to have Mossgas Fischer-Tropsch diesel fuels designated as alternative fuels under the U.S. Energy Policy Act of 1992.

We are conducting a completeness review to determine that sufficient data have been provided, and we are performing a technical review of the data to evaluate the candidate fuels.

To be deemed "complete," a petition must include sufficient data to allow the Department to determine if the candidate fuel meets the statutory criteria, specifically, whether the fuel: 1) is substantially non-petroleum; 2) would yield substantial energy security benefits; and 3) would yield substantial environmental benefits. At the beginning of our technical review, we identified some questions that, when resolved, will help us in making our determination.

The second attachment to this letter contains tables that will assist you in recording the appropriate data needed by the Department to finish our completeness review. Adherence to this format is not required, but would facilitate our review.

As we continue our review process, we would like to inform you of our overall plans for disposition of your petition. The Department has received two petitions, similar to yours, to designate diesel fuels made using the Fischer-Tropsch process (or variants of that process). After performing the review process, we plan to hold a workshop to solicit information and comments on all complete petitions. This workshop will be open to the public and allow us to gather more input regarding Fischer-Tropsch processes and products.

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When the notice is published, your petition, and the other two petitions, will be placed in the public docket. The approach we have chosen will facilitate an expedited review and allow the Department to initiate our rulemaking as soon as possible.

We are requesting that the petitioners reply to us with the answers to the attached questions within 30 days of the date of this letter.

We believe this approach will facilitate an efficient resolution of your petition. Should you have any questions, please contact me at 202-586-6116, or by email at linda.bluestein@ee.doe.gov.

Sincerely,

Linda Bluestein

Linda Bluestein
Program Manager
Alternative Fuel Transportation Program

Attachment 1

Petition Reviewers' Questions

1. ***Energy Efficiency.*** The petition presents a mass efficiency of 65% for the Mossgas FT plant (p.18). It is not clear to us whether this is the energy efficiency intended to be presented here or it is mass efficiency (as the wording implies).

2. ***Carbon Efficiency.*** The petition presents a value of 0.45 Nm^3 of CO_2 per kg of products produced. It would be helpful if Mossgas provides the carbon efficiency for its plant. That is, how much carbon in natural gas feedstock is converted into products? The petition states that some of the produced CO_2 is sold as a commercial product. What is the fraction of the total CO_2 sold as a commercial product at the South African plant? Is this going to be a location-specific or general practice?

3. ***Product Slate.*** The petition lists the following products from the Mossgas plant: diesel fuels, LPG, gasoline, kerosene, alcohols, and fuel oil. What is the share (in terms of volume and Btu) of each product?

4. ***Mossgas Fuel Properties.*** Though Table 3 of the petition presents some fuel properties of the three Mossgas diesel fuels, the following fuel properties are needed for each of these products: diesel fuels, LPG, gasoline, kerosene, alcohols, and fuel oil:
   a. Density (kg/liter or g/gallon)
   b. Carbon content (by weight)
   c. Sulfur content (by weight)
   d. Heat content (both higher and lower heating values, in Btu/gal)

5. ***FT Plant Input Requirements.*** The petition presents the following input requirements:
   a. Natural gas: 210,000 m^3/hr
   b. Natural gas liquids: 9,000 BBL/day
   c. Electricity: 360 MW (with ½ of it produced internally in the plant)
   d. Water use: 6×10^6 m^3/yr
   e. Oxygen: 126,000 m^3/hr (all of it produced internally in the plant)

   Please confirm these input values. Also, please present all the input and output items on a common basis (e.g. per hour or per day).

6. ***Figure 1.*** We'd like Mossgas to provide the values of the input and output items as presented in the flowchart on the per-hour or per-day basis.

7. What is the oxygen content, in percent, of the RFD1, RFD2, and RFD3 by ASTM D5291 or equivalent method?

8. What is the aromatic, olefinic, and paraffinic content of the RFD1, RFD2, and RFD3 by ASTM D5291 or equivalent method?

9. Are results available for the biodegradability of the RFD1, RFD2, and RFD3 per ASTM E1720-95 or equivalent method (OECD method 209 or Pseudomonas putida Growth Inhibition Test)?

10. Does MSDS type information exist regarding exposure information for RFD1, RFD2, and RFD3 (for example oral acute toxicity, eye irritation1., skin irritation, and bioaccumulation)?

Attachment 2

Table 1. Co-Product Outputs Per Million Btu of Fischer-Tropsch Fuel

Output	**Relative Btu Content**
Fischer-Tropsch Fuel	1 million Btu
Co-Product #1: _____	_____ Btu
Co-Product #2: _____	_____ Btu
Co-Product #3: _____	_____ Btu
Co-Product #4: _____	_____ Btu
Co-Product #5: _____	_____ Btu
Co-Product #6: _____	_____ Btu

Table 2. Energy Inputs Per Million Btu of Fischer-Tropsch Fuel

Energy Inputs	**Relative Btus**
Natural Gas	_____ Btu
Diesel Fuel	_____ Btu
Gasoline	_____ Btu
Petro-Chemical (specify all)	_____ Btu
Coal	_____ Btu
Electricity	_____ Btu
Other	_____ Btu
Other	_____ Btu
Other	_____ Btu

Table 3. Emission Outputs for Fischer-Tropsch Fuel and Co-Products of Table 1 with Corresponding Energy Inputs of Table 2

	Criteria Emissions, grams			Greenhouse Gases, grams			Air Toxics, grams				
	NMHCs	CO	NOx	CO_2	Methane	N_2O	Benzene	1,3 Butadiene	Formal-dehyde	Acetal-dehyde	Acrolein
Totals											

Note: Values for Criteria Emissions and Greenhouse Gases are mandatory; provide air toxic data as known

Table 4. Key Plant Information

Energy Efficiency (excluding co-generated steam or electricity in Table 1) in percent	
Carbon Efficiency (carbon in products divided by carbon in natural gas feed) in percent	