NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)
GLENN RESEARCH CENTER (GRC)
CLEVELAND, OHIO

JUSTIFICATION FOR AN EXCEPTION TO FAIR OPPORTUNITY

PR 4200489782

I. Description of Requirement

I recommend that GRC issue a task order on a noncompetitive basis to the Pratt Whitney Rocketdyne (PWR) under the Research and Technologies for Aerospace Propulsion Systems (RTAPS) contract Technology Area 4, for an advanced manufacturing research trade study to improve the current and future RL10 rocket engine using additive manufacturing methods and techniques reducing component fabrication time, cost, and potentially enabling performance improvements in the RL10 rocket engine.

The estimated value of this procurement is $12,000,000.00, and it is anticipated that a cost plus fixed fee arrangement will be negotiated with the PWR under contract NNC10BA13B, task order **NNC**13TA66T. PR 4200489782 in the amount of $5,000.00 has been issued for this task order to initiate contractor planning efforts.

II. Regulatory Basis for Exception to Fair Opportunity

The regulatory exception permitting other than fair opportunity is
10 USC 2304 c (b) (2); FAR 16.505(b) (2) (i)(B).

Only the aforementioned contractor is capable of providing the necessary supplies or services at the level of quality required because the supplies or services are unique or highly specialized.

III. Rationale in Support of Statutory Authority

The NASA and the United States Air Force (USAF) employ launch vehicles with upper stages that utilize the PWR's RL10 class engines. The RL10 engine is renowned in the history of liquid rocket propulsion with versions powering launch vehicles for over 60 years. While certain aspects and technologies used in the RL10 class engines have been updated, many of the parts are still handmade which significantly increases the production time and cost of the finished engine build. The RL10 class of engines is currently baselined for the USAF and NASA related expendable launch vehicles through 2030. With current fiscal challenges for our country, it is imperative that the RL10 production unit price be reduced. One of the biggest contributors to its cost is the large number of "touch" labor hours in support of the handmade parts which are necessary to produce this engine.

As such, the PWR is uniquely positioned as they own the RL10 engine intellectual property necessary to carry out this task, and their proprietary approaches on additive manufacturing will also be employed making them the only company who can perform this task.

IV. Determination of Fair and Reasonable Cost

The contractor will be required to submit adequate cost support data as part of their proposal response to the government's statement of work, and an analysis will be performed to determine the costs as fair and reasonable prior to awarding the task.

V. Actions to Remove or Overcome Barriers to Competition

In this particular case, it would not be appropriate or relevant to "compete" this scope of work as the PWR owns the intellectual property necessary to perform this research effort and the proprietary advanced manufacturing techniques. Therefore, no other actions have or will be taken to remove or overcome barriers to competition.

It is noteworthy that NASA and the Air Force have programs which are generically improving the state of the art in advanced manufacturing methods and involve numerous companies already and thus are existing funded endeavors for competitors in which to participate.