

Project 02/2006 – Portable fuel cells for clean energy supply and waste reduction

Purpose

This paper seeks Members' advice on funding the captioned application for ECF submitted by The University of Hong Kong (HKU).

Background

2. The funding requested by this project is \$509,960 for the staff cost of employing one Research Assistant for 12 months (\$171,960) and two student helpers (\$78,000), the equipment cost for the fuel cell test station (\$130,000), and other general expenses for the materials and consumables (\$130,000). The project is expected to last for 12 months.

3. The project aims to develop portable fuel cells that can replace batteries in multiple applications to achieve high environmental performance in terms of sustainable use of energy and waste reduction. The principal investigator (PI) also proposes to organize technical seminars to disseminate the project findings to speed up technology transfer.

4. The Electrical & Mechanical Services Department (EMSD) and two external expert assessors have reviewed the proposal. The EMSD considers the project focus on the theoretical study relating to the development of fuel cells. The deliverables are primarily for fundamental research use and demonstration purposes. The project is not supported as it is not of high practical values apart from facilitating research study.

5. Assessor 1 opines that similar research has been carried out at HKU and the Hong Kong University of Science & Technology (HKUST) with the support of Research Grant Council (RGC) and Innovation & Technology Fund (ITF). He points out that the deliverables would be the results of the research, which is beyond the scope of an ECF funded project. Assessor 1 considers the project more appropriate to be funded by RGC. In response to the comments from Assessor 1, the PI has limited the scope of the study with focus on a single type of cell, direct borohydride fuel cell (DBFC). The PI also states that he was aware of the works already carried out by other academics of

HKU and HKUST on research of proton exchange membrane fuel cell (PEMFC) and direct methanol fuel cell (DMFC) and his study would not duplicate others' works. Having examined the revised proposal, EMSD maintains the views that the project is not of high practical values. On the other hand, Assessor 2 supports the revised proposal and comments that utilization of fuel cells and clean fuels as suggested in the proposal is a good start. Portable fuel cell technologies will play a major role with quantifiable results and effort in this direction is desirable.

Advice sought

6. Members are invited to advise whether the application for ECF should be supported as detailed in paragraphs 2 to 3 above and if supported, the exact amount of fund to be recommended to the ECF Committee for approval.

**Secretariat, ECF Research Projects Vetting Subcommittee
August 2006**