FUEL CELL PROPOSAL RESPONSE

By

The Fuel Cell Corporation

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A proposal submitted in partial fulfillment of the requirements Shanghai Bus Company

Joint Venture Proposal
Preliminary Information

Statement of Need:
The increasing Chinese population has created the need for an environmentally safe mass transit system.

Proposed Solution:
We, the Fuel Cell Corporation are a leader in the alternative fuel and transportation industry. With years of experience we are a world leader in the design, production and manufacturing of alternative energy sources including, but not limited to:

1. PEM Fuel Cells
2. PAFC Fuel Cells
3. DMFC Fuel Cells

In response to the RFP presented to us by the Shanghai Bus Company, we are interested and prepared to form a partnership with the Shanghai Bus Company that will produce a cost-efficient, environmentally conscious mass transit system based on the incorporation of fuel-cell technology.

We will design, manufacture and support the implementation of a custom Phosphoric Acid Fuel for integration into the Shanghai Bus Company buses. We will work with their R&D and technology division to ensure that the product is technologically reliable and environmentally safe. As this venture is slated for an initial period of 5 years, we will also facilitate the technology transfer process by training the Chinese workforce on the technology. The training program will be comprised of a certification-based system where various levels of expertise are attained and validated through a comprehensive examination process – both written and hands on.
About Our Company

Founded over 20 years ago, Fuel Cell Corporation is a service based alternative fuel and energy source manufacturing organization dedicated to mass introduction of alternative energy into the global marketplace.

FUEL CELL is a one-stop shop – designing, producing and supporting custom and staple fuel cell solutions for government testing and private industry. We create products with people in mind. Both our design and engineer teams bring theory and innovation to life – with safe and practical end use in mind.

Our heavy involvement in the development of both government and private industry products has earned us a position on the Cooperative Automotive Research for Advanced Technology as recommended by the United States Office of Advanced Automotive Technologies (OAAT).
Our Strategy

At Fuel Cell, we believe in the Quality Function Deployment (QFD) in the development of product solutions. QFD is a team-based technique that provides a means of identifying and translating customer requirements into technical specifications for product planning, design, process and production. By taking survey results and bringing them to a collaborative production environment, all teams become abreast of customer needs and wants.

We also employ customer feedback and satisfaction to measure external customer responses to products and services. The survey is a scientific means of capturing valuable information about how customers perceive products and services – and more importantly how they can be improved. To measure internal audience feedback, a General Organizational Analysis can be taken. This chart takes a sample of employees and their reactions on a proactiveness scale ranging from 1-100. This scale represents the attitude of the employees as it relates to an organization’s level of proactivity. This is an important measure because it determines how employees feel about their company’s ability to plan for higher productivity and process simplification.

In addition, we use these seven tools for customer feedback:

1. Group Interview – a qualitative survey where potential or actual customer feedback is gathered verbally
2. Questionnaire Survey – numerical survey used in conjunction with Group Interviews to put responses into numerical values
3. Positioning Analysis – a competitive analysis performed by our marketing division to determine where a product will best fit in an industry or in the consumer marketplace
4. Concept Checklist – used to bring ideas from group meetings and interaction to a tangible idea or concept that the group can progress from
5. Table-type Conceptualizing – different forms of conceptualization methods are compiled into tabular or spreadsheet form
6. Quality Tables – compare product concept to actual product
7. Conjoint Analysis – translating customer needs and requirements to technical specifications
Management Structure

Our financial and managerial resources to be dedicated to this project are as follows:

- Research Engineering Managers (2)
- Chemical Engineering Managers (2)
- Electrochemical Engineering Managers (2)
- Environmental Engineering Managers (2)
- Mechanical Design Engineering Managers (2)
- Reliability Engineering Managers (2)
- Safety Engineering Managers (2)
- Technical Training Managers (6)
- Manufacturing Managers (9)
- Accounting Managers (4)

Our management personnel’s main concern is to oversee all processes of fuel cell manufacture from start to finish. Working alongside our clientele's management resources, enables a better understanding of our fuel cell technology and its transfer in all manufacturing areas. As a matter of fact, the first rotational of our management team travels abroad before all other personnel (Engineers, Trainers, Researchers, etc.). Our scheduling is planned this way to give management on both sides of the JV an appropriate amount of time to become familiar with all issues involved that may cause hindrances in latter areas of design, manufacturing, and production. Their managerial support fulfills the requirements that present themselves daily from floor level personnel through executive level decision making. Our company recognizes this action as creating an opportunity to discuss further any questions or concerns that should be addressed at that particular point in the JV. Our management team is well prepared in problem solving and technological integration. We require that they become an pertinent part of our clientele's manufacturing environment so upon return to our base facility, we can begin blending our engineering team with our clientele's. This enables the JV to procure an easier transition, and faster fuel cell technology immersion - before our resources travel. To ensure complete understanding of our clientele's current level of technological processes toward the addition of fuel cell technology in the time line provided, we begin immersion through training of our personnel immediately following our management teams return. Of course, all efforts to include our clientele's managerial resources by way of rotations and relocations are wanted and welcome here at our base facility.

By combining the resources of our two corporations into smaller, integrated and more manageable teams, we feel confident that optimum products can be produced while simultaneously facilitating the knowledge transfer process by forcing collaboration between the two corporate entities. We propose the following departments be formed:
A. **Research and development** – responsible for researching new technologies to improve the profitability and efficiency of the joint venture

B. **Manufacturing** – responsible for the production of the buses and fuel cells

C. **Marketing** – responsible for the promotion of the corporation and ensuring management’s knowledgeability about foreign and domestic customs and customer input

D. **Finance/Accounting** – responsible for asset management

E. **Human Resources/Training/Plant Management** – responsible for ensuring plant operations are conducive to a safe working environment and for acclimation of new employees into corporate culture

F. **Field Testing** – responsible for testing and evaluation of products

In addition to our staff, we have a dedicated and knowledgeable consultant prepared to transition onto the team to assist with the integration.

**Board of Directors**

In order to ensure all parties receive adequate representation in the decision making process, a Board of Directors – hereafter referred to as the BOD in this document – must be composed. It will be the responsibility of the BOD to make decisions affecting the joint venture, allocation of resources and capital as well as product approval.

We propose that the BOD be comprised of 15 individuals. Of the 15 individuals, individuals representing Fuel Cell Corporation to ensure our interest in the joint venture will hold at least one-third of the seats. The other two-thirds of the BOD will be comprised of employees of the Shanghai Bus Company. Subsequently, we propose the following:

A. For decisions of the BOD to be valid, seventy-five (75) percent of the BOD must vote in the affirmative for any motion, presentation, or business action affecting the joint venture. This ensures the minority interest in all decision-making processes.

Alternatively, if this BOD structure is not acceptable, we propose that the BOD be comprised of 15 members, seven (7) from each company with the final member to be
chosen by the existing 14 voting members of the Board. The 15th member will be a non-voting member and must be an un-biased agent and cannot have any connections to either corporation. This member will only vote in case of a tie vote and that deciding vote shall be final. This ensures equal interest in all Joint Venture decisions.

**Financial Structure**

Our company is prepared to acquire the maximum ownership of the joint venture at forty-nine (49) percent having a maximum equity of fifteen (15) percent and a maximum debt of thirty-four (34) percent. The required capital will be gained by issuing stocks and obtaining grants.
Technical Expertise

Our technical expertise and experience as it relates to this project is grouped into 4 areas of concern. These areas are our Company History, Resource Acquisition (our ability to acquire top-notch resources particularly for cost efficient / high quality fuel cell manufacture), Breakthrough Fuel Cell Technologies, and our Technical Personnel.

Company History

Our company history is one that has propelled us to the forefront of fuel cell technology. For the past twenty years, we have been the leaders in fuel cell research, design, manufacture, service, quality, and longevity. Our fuel cells last an average of about 50 to 70 percent longer than that of our competitors. In the beginning we started out with the environmental aspects of alternative fueling as a primary focus. Our intent has always been to be and maintain the best technical energy alternative used in the world without any harm to the environment whether immediate or latent. This being a major part of our mission, we have consistently remained the most efficient and environmentally clean of all fuel cell manufacturers. Since the start, our company has led the search for better fuels through technology and environmental awareness. We now add to our history the servicing of all clientele on a worldwide scale.

Resource Acquisition

Our company has made the acquisition of high quality resources one of the main concerns of our mission. Simply put, striving to become and maintain an exemplary status in areas of design, manufacture, quality and longevity cannot be achieved without exceptional materials to utilize in the production of our fuel cells. Utilizing that idea as foundation, we have acquired several companies and funded specialized research groups that support locating, refining, manufacturing, and supplying high quality resources for our fuel cells that work with the environment; not against it. Conducting business in this manner has allowed cost efficiency to remain in good stead, supplies to remain in abundance, and our company to expand and extend its influence across the market. Since the beginning, we have conducted business correctly, and therefore our company raises the standards market-wide in the areas of quality and longevity annually.
**Breakthrough Fuel Cell Technologies**

Subsidiaries of our company shipped the first bus powered by the pre-commercial fuel cell engine to the AlternaMass Transit Agency in Palm Springs, CA. We made the first "real" demonstration vehicle using modern fuel cell technology. It was in the form of a 32-foot bus rolled out in 1993. Three fuel cell buses have just finished demonstration in Chicago, sponsored by the Chicago Transit Authority. We supplied the fuel cell engines, which were built on the platform of our extensive fuel cell technology. We have just finished conducting an experimental mass transit project in Vancouver, British Columbia with extremely promising results. Our Company is currently building commercially viable, fuel cell powered, zero emissions transit buses with our subsidiaries and research firms in several different countries. We have exclusive rights to several high value patents for use of fuel cells in the complete drive system, called FCPower, for all North American mid-sized buses. Our research firms provide its hybrid system and perform the fuel cells systems integration.

**Technical Personnel**

Our company is equipped with experts in all areas of fuel cell technology. Personnel within each area whether in our base facility or abroad are educationally sound and technically proficient in areas directly applicable to fuel cell manufacture. Our current fuel cell technology committees are comprised of:

- Research Engineers (3)
- Chemical Engineers (3)
- Electrochemical Engineers (3)
- Environmental Engineers (3)
- Mechanical Design Engineers (3)
- Reliability Engineers (3)
- Safety Engineers (3)
- Technical Trainers (3)

These personnel are grouped into 3 separate technical committees whose primary goal is to provide large measures of technical support through rotational visits and extended relocation to our clientele sites of operation to ensure complete understanding through training of our product, services, and maintenance commitments. We operate in this fashion to promote problem-free adaptation of our fuel cell technologies into intended areas of future usage and operation. In the past, this type of involvement between our clientele and our technical committee personnel has enabled faster cycle times of manufacture and application. In each instance, we have achieved our mutual goals at low cost and ahead of schedule.
Each committee member has at least 8-10 years experience with our company, technology, and fuel cell endeavors abroad.
Total Estimated Capital Costs of Joint Venture For China 1 During An 8 to 10 year Period

<table>
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<th>Year beginning with January 1</th>
<th>2001-2003</th>
<th>2004-2006</th>
<th>2007-2010</th>
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<tr>
<td>Investment Income</td>
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<td>Gain on sale of Capital assets and intellectual property</td>
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<td>Cost of Revenues</td>
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<td>Research &amp; Development</td>
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<td>General &amp; Administrative</td>
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<td>Marketing/Advertising Interest</td>
<td>$45,000</td>
<td>$65,000</td>
<td>$75,000</td>
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<tr>
<td>Minority Interest</td>
<td>49</td>
<td>49</td>
<td>-</td>
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<td>Conversion Process for Buses</td>
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<td>Operations Personnel</td>
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<td>$200,000</td>
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<tr>
<td>Fuel Storage</td>
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<td>$200,000</td>
<td>$100,000</td>
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<tr>
<td>Amortization of Fuel Technology</td>
<td>$250,000</td>
<td>$200,000</td>
<td>$200,000</td>
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<tr>
<td><strong>Total</strong></td>
<td>$1,082,000</td>
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* All figures based on American Dollar to China Yuan Renminbi Exchange Rate
* Total Majority Interest in Joint Venture Will Begin in Fiscal Year 2006
* All figures based on Conversion Centers per City

Overall Total

$ 36 million dollars for Joint Venture
$ 60-70 million for 8-10 year period
Technology Transfer & Safety Information

Section One (Safety Program for Employees)

Application of Safety Rules
New Employee Orientation
Employee's responsibility for Safety
Employee Training
Safety Committee

Section Two Process of Safety Management Program

Purpose
Scope
Plants Safety Management Program
Process Hazard Analysis
Emergency Planning & Response

Section Three Personal Protective Equipment

Purpose
Scope
Foot Wear
Respiratory
Head Protection
Safety Vest
Eye Protection
Hearing Protection
**Section Four Employee Certification Training Classes**

(Mechanical Engineering Training)

Mechanical Engineering Tools  
Materials Science  
Strength of Material  
Heat Transfer  
Conduction Heat Transfer  
Convection Heat Transfer

(Chemical Engineering Training)

Intro to Chemical Engineering  
Chemical Process Principles  
Separation Process  
Environmental Remediation  
Process Dynamics & Control

(Electrical Engineering Training)

Data Communications  
Electric Circuit Analysis  
Engineering Graphics & Visualization

(Environmental Engineering Training)

Environmental Conflict Resolution  
Environmental Impact Assessment
SECTION I

SAFETY PROGRAM

APPLICATION OF SAFETY RULES AND POLICY

The safety program at the Fuel Cell Company is designed to encourage safe work practices and a safe work environment in order to minimize employee accidents and injuries. A supervisor has a specific responsibility to implement safety programs within work groups. It is the supervisor's responsibility to ensure that employees are thoroughly familiar with safety procedures. Should an employee be called upon to perform work, which is hazardous and not properly protected, the matter should bring to the supervisor's attention before commencing work. No employee should be requested to perform a hazardous task without proper personal protective equipment (PPE) if the hazard can't be removed.

NEW EMPLOYEE ORIENTATION

Employees in their first few months of employment are the most vulnerable to on-the-job accidents and injuries. New employees are to be instructed on the general safety policies, rules and procedures of the Fuel Cell Company. A review with employees of the safety measures of particular jobs should be completed 30 days after training classes are completed and the worker has been in his or her particular work area. New employees must be guided closely in the first few months of employment to make sure safety rules are understood and safety instructions applicable to the job are being carried out.

EMPLOYEES' RESPONSIBILITY FOR SAFETY

Before proceeding with a job, the employee should be satisfied that the work can be performed without injury. Should the employee not be qualified to perform the work, it should be brought to a supervisor's attention. Before starting any jobs, employees should thoroughly understand the work to be done their part in the job, and the safety rules, which apply. Employees especially should not operate any equipment that could present a hazard to himself or herself or the community if not trained to operate the equipment.

EMPLOYEE TRAINING

The Fuel Cell Company realizes the importance of good job training for employees and further realizes the safety training is integrated with all other aspects of job training. Fuel Cell Company on a scheduled basis selects general and specialized safety training courses, and employees are expected to attend these training sessions.

SAFETY COMMITTEE
The Fuel Cell Company will be formed with members from each department. Each member will serve a minimum of one year on the committee.

SECTION TWO

PERSONAL PROTECTIVE EQUIPMENT

PURPOSE

The Personal Protective Equipment is established to ensure Fuel Cell Company employees are appropriately attired for hazards in their work place to avoid work related injuries and illnesses.

Scope (1910.132, 1910.133, 1918.103)

This program applies to all employees whose duties or temporary assigned tasks require personal protective equipment.

FOOTWEAR POLICY (OSHA 1910.136)

Employees in many job classifications are required to wear protective equipment such as safety shoes. In positions where safety shoes are required, the Fuel Cell Company has developed a written policy regarding foot protection.

Sandals or other open-toe shoe styles are not permitted to be worn in Laboratories, shops, or other job locations.

All individuals involved in hazardous activities under the jurisdiction Of the Fuel Cell Company must conform to the requirements of this policy. Safety footwear when purchased must be American National Standard Institute (ANSI) approved.

Specific types of safety shoes are recommended for employees whose Job duties require the lifting, carrying or moving of objects weighing more than 15 pounds which, if dropped, would likely result in foot or toe injury.

The supervisor should determine the specific safety shoe needed by All employees whose job duties fall in the above category, and employees are not to be allowed to work without the required foot protection. New employees whose job duties require safety shoes must obtain these shoes before starting employment.

Respiratory Protection (29 CFR 1910.134)
When spraying paint, using toxic liquids, handling toxic substances, Chemical substances, or working in areas where there is an abnormal amount of dust, approved facemasks, or respirators are available for employees' use and must be worn when doing this kind of work.

When effective engineering controls are in place respiratory protection will not be necessary.

Respirators will be selected for hazards for which employees are exposed. Supervisors will select the appropriate respirators.

A. Users will be instructed and trained in the proper use of Respirators and their limitations. Supervisors and Training Coordinator will provide training as needed.

B. Respirators shall be regularly cleaned and disinfected. Respirators Used routinely shall be thoroughly inspected at least once a month and after each use.

C. Every respirator wearer will receive a physical every two years to determine if the employee is medically fit to wear respirator.

Those employees who must wear prescription glasses with their Respirator will be given corrective lenses as part of the face piece.

The Respirator wearer should never wear a canister respiratory in an oxygen deficient atmosphere. Any atmosphere measuring below 19.5% oxygen should be vacated.

HEAD PROTECTION (1910.135/1926.650)

All employees whose duties put them at risk of being hit by falling or Flying objects and of receiving limited electrical shock and burns shall wear head protection, while performing such duties.

Employees who work in areas with overhead obstructions such As pipes or other moving objects will wear head protection.

Anyone entering a Fuel Cell Company work zone where Maintenance or construction activities are in progress must wear a safety helmet.

SAFETY VESTS
All flagmen or other employees when exposed to traffic are required to wear an orange vest.

All vests worn at night must have reflectorized materials as part of the vest.

EYE PROTECTION

Employees should be given eye and face protection that is reasonably comfortable, fits snugly, and is capable of being cleaned and disinfected.

Protection of the eyes and face must be provided for any Fuel Cell Company employees.

HEARING PROTECTION (1910.95)

Employees must provided hearing protection when noise level exceeds 85 decibels over an eight-hour period. Any time employees are exposed to 100 decibels of noise for any period hearing protection will be used. Special conditions may dictate other measures.

Areas of high noise levels will be designated as hearing protection Areas. Signs will be posted on entrances to designate these facilities.
SECTION THREE

PROCESS SAFETY MANAGEMENT PROGRAM

PURPOSE

The purpose of the Fuel Cell Company Process Safety Management Program is to prevent a catastrophic release of highly hazardous gases Chemicals. The emphasis of the program will be on engineering Controls to ensure minimum risk to employees during treatment process and to prevent accidental release of any chemical that may affect the Local community and the Fuel Cell Company.

SCOPE

The scope of the Process Safety Management Program primarily covers extremely hazardous chemicals and gases used at the Fuel Cell Company.

PLANTS PROCESS SAFETY MANAGEMENT

Material Safety Data Sheets (MSDS'S) will be in both the main office of the Fuel Cell Company and the maintenance office. Operators of the Fuel Cell Company will know or be capable of referencing quickly information on the highly hazardous chemicals in both processes. Key information is toxicity information, permissible exposure limits, physical data, reactivity data, corrodibility data, stability data (chemical or thermal), and personal protective equipment.

PROCESS HAZARD ANALYSIS

Hazard Analysis Team:

Each Fuel Cell Company process must have a process hazard Completed. The analysis will be performed using the team concept. The team will include the following personnel:

*PLANT MANAGER
*PLANT SUPERINTENDENT
*ENGINEERING REPRESENATIVE
*PLANT OPERATOR
*MAINTENANCE OPERATOR
*CHIEF OPERATOR
*SAFETY AND TRAINING COORDINATOR
The analysis will be completed using a simplified flow diagram of the Fuel Cell company process for each plant. Photographs and plant schematics should be used to augment flow diagrams in areas of the process where more details are needed to complete the analysis.

The operator, as a part of the team, will add input needed as a Worker who must perform many of the plant process tasks.

**Hazard Analysis**

Each part of the Fuel Cell Company Process will be reviewed for Hazards or potential hazards.

An engineering solution should be devised for any hazard that exists unless the hazard is one time human error type or problem.

Potential hazards should be reviewed with written reactive Solutions, should the hazard occur as a result of human error or Process system failure.

Any hazard that exists and poses a chemical exposure risk to Employees will require personal protective equipment. The committee using appropriate manufacturer data and Material Data Sheet must list a selection of this clothing.

**SECTION FOUR**

**CERTIFIED TRAINING CLASSES FOR FUEL CELL COMPANY EMPLOYEES**

The training classes we at Fuel Cell Company have developed for our employees are put together like a semester in college. We have our employees take three classes per six months to develop them so they can be sound when they go on the floor and actually do the work themselves. Also we have developed a mentoring program that we utilize here at Fuel Cell Company. It entails our workers being accompanied by an experienced worker that has been here at our facilities for a number of years. We have developed a graph to show how long it would take to completely train our employees and get them sound to go the floor by themselves.