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PROPOSAL FOR THE FORMATION OF ASME INTERNATIONAL ENVIRONMENT INSTITUTE

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Introduction

There is a general recognition that environmental quality has emerged as one of the most pervasive and important issues facing the world today. Even though the engineering profession and its activities profoundly affect the environment, there is growing awareness that the voice of engineers is not sufficiently present in legislative and regulator actions. Clearly, the engineering profession must increase its efforts to promote science-informed environmental actions throughout the technological and policy development processes. Much of the activity that engineers can do in this regard takes the form of outreach and education – taking technical knowledge and translating it into practice for the public good. As an international engineering society, the ASME is in a unique position to lead the global community in the development and implementation of technologies based on sound environmental principles. We propose an ASME International Environmental Institute (IEI) to focus on organization, dissemination, and review of knowledge regarding environmental science and technology issues. As described below, this represents a large mission with customers in industry, government, and academia. Executed correctly, we believe that the proposed Environmental Institute would support and enhance ASME's role as the premier source of technical information for many industrial sectors. Further, we believe that this Institute could be quickly grown into a substantial, self-sustaining effort.

The Vision

The IEI will accept the challenge of interpreting the results of modern science and engineering and communicating these ideas to industry and to the lay public in a manner that is informative, positive, and invites dialog. This communications mandate is important both for educational purposes and also as a counterweight to the misinformation about science and technology that inundates the public on a daily basis.

Equally important, the IEI will promote dialog between the engineering profession and the public so that practicing engineers better appreciate public concerns about the implementation of technology and the impact of that technology on the environment and public health. The vision is to form a partnership between interested members of the public and the engineering profession that supports the careful development of technology and an informed perception of risk.

The ASME Code of Ethics places protection of public health and welfare as the highest

responsibilities of its members. The IEI will help ASME members demonstrate to their peers and the public that they accept a similar responsibility for environmental protection.

The Need For an Environmental Institute

Currently, the activities of the ASME within the Council on Engineering (COE) are performed by numerous divisions, each with an array of technical committees. Because of the size and diversity of the activities within the COE, the activities of the technical divisions and their subcommittees are rather fragmented, and there is considerable overlap between the activities of many divisions. There is no lack of goodwill or the desire to cooperate among the members of the divisions, but rather a lack of a focal point to address particular technological issues such as the environment from within the base of engineering science represented within COE. This is the case with many technical issues, and has prompted the formation of a more technologically centered structure in which the COE will form Institutes devoted to particular technologies that can be focal points for the activities of the members and the services that ASME provides. This decision appears to be partially based on the success of International Gas Turbine Institute (IGTI).

What is an Institute?

There are significant differences between the proposed Institute and the current Divisions. The most important differences concern both the independence and the reach of Institutes. Although Institutes must follow ASME constitution, policies, and bylaws, they may make independent decisions and are expected to be financially self-sufficient. An Institute has its own Board of Directors, Managing Director, and dedicated staff. In the plans for an Institute, a sustainable business plan with an anticipated annual revenue of $500,000/year and a net income of 15% is required by year 3 of operation.

International Gas Turbine Institute

Because of the success of IGTI, it is desirable to draw on its experience. IGTI is governed by a Board of Directors, consisting of eight members who are nominated by the Board and are appointed by the Council of Engineering (COE) for a five-year term. Staff members of the IGTI are ASME employees and are located in Atlanta, GA. The IGTI has numerous technical and administrative committees. It organizes conferences; training courses, and other meetings. It also publishes newsletters, proceedings of meetings, and other publications. Proceeds from these activities pay for the staff and other expenses of the IGTI.

Unique Requirements of lEI

The experience of IGTI is only partially applicable to the IEI. The IGTI emerged essentially from one division. Although at least two divisions and one Research Committee are entirely devoted to environmental issues, more than one-half of all divisions have interest in environmental issues, as represented by technical committee activities. Therefore, it is imperative to recognize that IEI will emerge out of the work of several current divisions, and must be started in a truly cooperative manner.

For the purpose of this proposal, current divisions and committees of the COE are divided into two distinct groups, as follows:

Founding Divisions: This group consists of divisions and committees that would form the nucleus of the IEI. Subsequent to the formation of IEI, this group will become a component of IEI and will disappear as a division or committee of COE. Primary candidates for this group are Environmental Engineering Division, and Solid Waste Processing Division. There are several other divisions and committees that may consider joining this group.

Participating Divisions: This group consists of divisions and committees whose primary focus is a specific technology. Divisions dealing with energy, petroleum, manufacturing, and several other technologies fall in this category. Members of this group must be able to participate in the IEI without losing their status as an entity independent of IEI. It is imperative to structure IEI in such a way to encourage their participation. Members of this group must be assured that IEI synergistically supplements their current activities rather than competes with them.

Proposed Structure of IEI

Although the structure of IGTI provides a reasonable guide to initiate the formation of the IEI, due to its unique nature, IEI requires a somewhat different structure. Accordingly, the following structure is proposed:

Board of Directors: This term is used with the understanding that it is likely to change. Initially, this Board will consist of executive committees of the founding divisions and committees. In addition the Board will include at least one member from each of the participating divisions. The Board may also include others, such as past presidents of ASME or past Senior VPs. It is anticipated that this Board would have no less than 10 and no more than 20 members. This group would be responsible for development of bylaws and the oversight of all IEI activities. The Board would meet at least twice a year and sanction activities performed by the staff and the Executive Committee. The term of the

members of this Board would be five years.

Executive Committee: This Committee consists of five individuals who are responsible for the day-to-day operations of the IEI. The Board of Directors elects members of the Executive Committee. For obvious reasons, they must meet at least quarterly (possibly by teleconference), and should serve one-year terms, renewable. Ideally, members of the Executive Committee would rotate through committee positions of Communications / Member Services, Secretary, Treasurer, Vice President, and President.

Location and Staff: Because environmental requirements are strongly driven by legislation and regulations, it is proposed to locate the staff of IEI in the Washington metropolitan area. At least initially, the staff should be located at the current ASME Washington office. The staff would be paid from the proceeds resulting from IEI activities.

IEI Activities / Business Plan

The IEI would be funded by a variety of activities, some extensions of existing activities, and some new initiatives. We envision three primary customers for IEI. The first are identified as businesses and/or industry groups that are too small to have dedicated research staff, but large enough to have significant environmental concerns. These customers will wish to leverage the KnowledgeBase (see below) and the short course offerings to take advantage of IEI's technical know-how. This segment of the economy also represents much of the low-hanging fruit of potential improvements in environmentally related processes. The second group is comprised of decision makers in a variety of disparate areas who need to make sound technically based decisions that are impacted by environmental issues. These people may be in management, insurance underwriting, policy, or several other areas. Finally, the last group would be the technical people who would both derive benefit from the technical offerings of all types, and also contribute to the IEI. A summary of the potential income sources for the Institute is shown in Table 1.

Conferences: Currently, founding/participating groups have a number of conferences. They provide the initial foundation for IEI conferences. The formation of IEI provides a unique opportunity to consider joint efforts to modify existing conferences or initiate new ones. Specific revenue-producing conferences currently supported by EED and SWPD include the biennial ICEM conference and the SWPD annual conference. EED is currently supporting several other conferences, including PSAM (Risk Analysis), Incineration and Thermal Treatment Technologies (IT3), and Waste Management – every effort will be made to make these conferences revenue sharing with ASME. It is estimated that these conference activities could bring in $30K in year 1 of the business plan, and up to $90K in year 3 of the plan, assuming an expansion in activities.

Short Courses: Potential synergistic effects of inclusion of participating divisions include new opportunities for short courses. Such courses may be particularly appropriate for an international audience. Currently several groups within the EED are in a position to give successful short courses. We see the role of information dissemination to medium and smaller companies and industries that do not have a dedicated research infrastructure as a primary role for the new Environmental Institute. These short courses could focus on interpreting regulations, implementation of remediation technologies, technology trends, and/or lessons learned in interfacing with regulators and/or the public. Many of the short courses would be aimed not at technical people directly, but rather at those people who need to use distilled technical information in making decisions. Examples of these customers include managers in energy-intensive industries, insurance underwriters, and stockbrokers, as well as ASME's traditional customers. It is hoped that short courses could provide up to $80K / year in revenue by year 3 of the plan.

	Income by year		
Activities	**2003**	**2004**	**2005**
Conferences			
ICEM	30		30
Mixed Waste / Solid Waste		20	20
Air Regulations			10
Green Manufacturing		10	10
New conference			20
Short Courses			
Carbon Sequestration	10	30	40
Mixed Waste		20	20
Environmental Communication		10	10
Air Pollution Control Strategies		10	10
Reviewing			
	40	70	120
Industry Memberships to knowledge clearinghouse			
at 5K each	50	150	200
Journal			
		30	50
TOTALS	**130**	**350**	**540**

Table 1: Potential income for the ASME Environmental Institute.

Peer Review: Recent experience shows the need for the availability of a group capable of responding

rapidly to the peer review needs of government agencies and the private sector. Environment and allied fields are among the most highly contested areas. To address this need, the IEI can cooperate with non-profit organizations to perform peer reviews. Experience shows that an appropriate approach for peer review would consist of IEI establishing an oversight committee to ensure proper selection of reviewers and compliance with appropriate policies and procedures. The operation of the peer review would be then the task of a nonprofit organization. This has been offered to IEI as a potential revenue source, $40K / year in the near term, and $120K / year by year 3. This activity could thus be a large source of income for the Institute.

Publications: One of the most important contributions of IEI will be the dissemination of technically valid environmental information. The significance of this subject cannot be overemphasized., given the need for fair, unbiased information about environmental technologies. In addition to a proposed journal, a web site covering environmental information, not only for the U.S. market, but particularly for the international audience, is planned. Other publications include newsletters intended for national and international audiences, proceedings of conferences, and compendia of environmental information.

In particular, the following publication-related revenue streams are planned:

> **IEI KnowledgeBase:** This is a web-based product that would be constructed in part by the members of the KnowledgeBase, while being co-authored, facilitated and reviewed by the IEI. The concept is that companies can pay a small fee ($5K / year is planned, there may be a discount for smaller companies) to join the KnowledgeBase. The website would contain guidance on purchasing and implementing environmental technologies, environmental technology forcasts, and summaries of legislative information, among many topics. It would also provide a forum to connect member companies and a place where the companies could share “lessons learned,” etc. While much of the initial content would need to be developed in advance of the marketing, requiring an investment from custodial funds and/or ASME’s general fund, some of this information is already provided by the ASME Government Relations office. Following a successful launch, the KnowledgeBase would grow based largely on member’s input. The KnowledgeBase would be aimed at medium to smaller companies, who would be excited to leverage ASME’s resources to solve problems that they would otherwise require an expensive environmental consultant to solve. The plan is that this would start with a modest 10 member companies ($50K) in the first year and grow to 40 companies ($200K) by the third year.
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> **Environmental Engineering and Applied Science:** A key ingredient of IEI is would be establishment of a journal devoted to environmental technology. There are currently approximately 200 environmental journals. With the exception of *Environmental Science and*

Technology, published by the American Chemical Society, all others have a relatively low subscription. The emphasis of the successful *Environmental Science and Technology* is science rather than engineering, the latter being the domain of American Institute of Chemical Engineers. To be sure, there are several other professional societies with respectable journals. However, in the overwhelming majority of cases, they are devoted to specific items) such as aerosols, soil, and other specialized topics. The success of *Environmental Science and Technology* demonstrates that a general journal with emphasis on engineering and applied science can succeed.

Environmental Engineering and Applied Science would be a "journal of the practice," in that it would be a forum to discuss implementation of technology and lessons learned. It is expected that a journal with such a focus would garner a wide readership. *Environmental Engineering and Applied Science* would be managed like other ASME journals, with the editorial board appointed by the IEI. With a combination of page charges and subscription fees it is hoped that the Journal could bring in $50K / year by the third year of the business plan.

Studies and Assessments: An approach similar to the one described under peer review could be also used to perform studies and assessments of a specific topic. Again here, the oversight of the studies would be the task of a committee established by IEI, while studies and assessments would be performed by a panel managed by a nonprofit organization.

Expenses: With the goal of 15% net income over expenses by Year 3, it seems likely that the IEI could support 3-4 staff members, and bear $25K - $50K in costs for development, travel, and risk capital per year. A more detailed financial analysis is required on both the income and expenses before a more accurate assessment can be made.

IEI Committees

Using the model of IGTI, the IEI will have technical and administrative committees. It is likely that some of the current committees of the founding group will form technical committees of the IEI. However, the inclusion of participating groups, and the evolving nature of the Institute's business model will certainly bring changes to the IEI technical committee structure.

Financial Issues

The necessary funds for the operation of the IEI must be divided into two distinct funds, as follows:

Existing Funds: Current funds of the founding group would constitute the starting funds of IEI. However, the use of these funds would be considered to be restricted, as arrangements must be made to ensure that at least some of these funds are spent in accordance with the wishes of the originating division/committee. In addition, ASME may provide some seed funding for activities such as development of the KnowledgeBase.

Future Funds: Once the IEI is formed, the funds resulting from its activities will be placed in the IEI funds and will be used in accordance with the decisions of the Board of Directors/Executive Committee.

Bylaws

The bylaws of IGTI provide a reasonable model to follow. Once an agreement is reached to proceed, IEI bylaws can be prepared.

Implementation

This proposal would proceed in several phases, as follows:

Phase 1: **Convening of the IEI Establishment Workshop:** It is proposed to convene a workshop to evaluate the desirability, the nature and other details of IEI. In addition to the leaders of potential founding and participating divisions, industrial leaders should be invited to participate in this workshop. This workshop should address various aspects of this and other proposals and reach an agreement on the next steps.

Phase II: Formation of Consensus: A consensus of the founding member Divisions and Technical Units, based on the results of the workshop, will be formed. Participating groups will be consulted for their input.

Phase III: Development of Implementation Plan: A committee with members from all of the founding Divisions will be charged with the preparation of a formal business plan and bylaws. Once the business plan and bylaws have been developed, they will be provided to the founding and participating groups for comments. The business plan and bylaws will be also provided to Senior VP of COE and others for review and comments. All comments will be forwarded in a timely manner to be considered by the implementation committee, and the documents will be revised accordingly.

Phase IV: Formation of IEI: Once the Board of Governors has approved the formation of IEI, the organization can begin operations.