



# AIChE Sustainable Engineering Forum Newsletter

Vol. 3 No. 1

March 2009

## MESSAGE FROM CHAIR

### INSIDE THIS ISSUE:

Message From Chair	1
Announcements	2
SEF Activities	6
Education Column	8
Member Communications	9
IFS Updates	10
SEF Leadership	11

**Editor:**  
**Cristina Piluso**  
**cristina.piluso@basf.com**

**SEF Website:**  
<http://aiche.org/sef/>



The Forum's Newsletter is beginning its second year as a quarterly publication. Over the course of the past year, we have received many very encouraging e-mails from members and nonmembers alike, expressing their gratitude for the communication. It seems that our Newsletter has served its purpose, i.e., keeping our readers updated as to what the Forum has been up in recent months as well as what our plans are going into the future. This year, we have decided to further improve the Newsletter by formally introducing an education column, which will include many interesting short articles that we hope you will find of interest. Prof. Jeff Seay, of the University of Kentucky, has been named our new Education Committee Chair, replacing Prof. Ralph Pike of Louisiana State University. Ralph has been an outstanding leader in the area of sustainability education and we appreciate his leadership and contributions to the Forum's activities.

During last November's AIChE Annual Meeting in Philadelphia, the Forum announced a new award program, i.e., the Industrial Practice Award. We plan to recognize the first awardee during the AIChE Annual National Meeting in Nashville, TN in November this year. During the coming AIChE Spring National Meeting in Tampa, FL on April 29, the SEF will have a luncheon. Mr. Dale Kearns, the 2008 AIChE President, will be the luncheon speaker. Please join us to meet the past president.

As you may understand, sponsorship for the SEF's award program is extremely important for the program's success. We are very pleased to announce that Albemarle Corporation in Baton Rouge, LA, has decided to sponsor the Industrial Practice Award Program by providing \$2,500 per year for three years. This generous support was made through Mr. John Steitz, Executive Vice President and Chief Operating Officer of the company. The SEF community thanks John very much for his company's support. We also appreciate Prof. Thomas Marrero, Chair of the Award Committee Chair, who initiated this sponsorship effort.

During the upcoming AIChE Spring Meeting, the SEF will sponsor three technical sessions and two additional co-sponsored sessions. For the AIChE Annual Meeting in Nashville, the SEF has organized 29 sessions and will also co-sponsor many sessions with other divisions. Please take a look at the session information in this issue and prepare for abstract submission, if you are interested. In addition to the AIChE meetings, the SEF is co-sponsoring the First International Congress on Sustainability Science and Engineering, which will be held in Cincinnati, OH, August 9-13, 2009. The conference is designed to promote sustainability science and engineered technologies that meet the needs to society. We strongly encourage academic researchers, industrial practitioners, as well as students to contribute papers. National Science Foundation's Environmental Sustainability Program, which is directed by Dr. Bruce Hamilton, has provided an award for the conference to support the travel of students and early-career researchers. You may find more detailed information about the conference and travel support in this newsletter.

Finally, we are very pleased to inform you that the Forum has a substantial student membership as well. We welcome them and hope that these students will find enjoyment in this sustainability committee. Please contact us regarding your expectations and suggestions...we look forward to hearing from you!

Yinlun Huang, Chair, Sustainable Engineering Forum

## ANNOUNCEMENTS

### Special Sustainability and Energy Programs at the 2009 AIChE Spring

*Developing Energy Strategies Plenary*  
Tuesday, April 28<sup>th</sup>  
11:45am - 1:15pm

Panel discussion moderated by Dr. Clifford M. Gross, Chief Executive Officer and Chairman of the Board of Directors of UTEK Corporation. Confirmed panelists include:

- Charles R. Black, President, Tampa Electric Co.
- Donna Jacobs, Senior Vice President of Planning, Development and Oversight, Entergy Nuclear

*Sustainable Supply Chain Discussion*  
Tuesday, April 28<sup>th</sup>  
2:00 – 5:00pm

*Biofuels Development in the United States*  
Wednesday, April 29<sup>th</sup>  
Session I: 8:30am - 11:30am  
Session II: 2:00 – 5:00pm

Co-chairs: Alan Hecht and Subhas Sikdar

By way of legislation, the United States has embarked on an ambitious goal of producing 36 billion gallons of biofuels by 2022, 15 billion of which will be corn ethanol, the rest, biodiesel, and biofuels from cellulosics. In this symposium, speakers from the Government, industry, and academia will address the sustainability of large biofuels goals and focus on metrics for measuring and managing the environmental impacts.

*Sustainable Engineering Forum Luncheon*  
Wednesday, April 29<sup>th</sup>  
11:45am - 1:30pm (ticketed event)  
Dale Keairns, AIChE Immediate Past President; Chair AIChE Energy Initiatives Board, “Sustainability Measures for Energy Systems”

*Renewable Fuels Metrics Roundtable*  
Wednesday, April 29<sup>th</sup>  
5:00 – 7:00pm

AIChE is launching an industry roundtable to address biofuels metrics along the supply chain. Interested companies are invited to attend to help identify and develop agreed upon measurement criteria which will be used to help inform the federal efforts in this area.

### Shortcourses

S6: Practical Strategies for Energy Issues of Chemical Plant Complexes  
Lionel Young, CWB  
Sunday, April 26<sup>th</sup>, 9:00am – 5:00pm

S9: Industrial Energy Efficiency and its Contributions to Reducing Greenhouse Gas Emissions  
Emmanuel Wada, Globenet Environment Group  
Sunday, April 26<sup>th</sup>, 9:00am – 5:00pm



S12: Young Professionals Workshop – The Future of Power in Central Florida  
Speaker TBD, TECO  
Saturday, April 25<sup>th</sup>, noon – 2:00pm

S15: The Innovation Imperative: Leading in Uncertain Times by Bringing Innovation to the Core of your Organization  
Peter Skarzynski, Strategos  
Tuesday, April 28<sup>th</sup>, 1:30 – 5:00pm

S16: Greenhouse Gas  
Info TBD

For more information about these and other events, please visit the Spring Meeting website:

<http://www.aiche.org/Conferences/SpringMeeting/index.aspx>

### AIChE 2009 Spring Meeting – Sustainability Luncheon

The SEF Spring Meeting Luncheon will be held on Wednesday, April 29, 2009, at Jackson's Bistro in Tampa, FL. Dr. Dale L. Keairns, 2008 AIChE president, will be the speaker with his discussion focusing on sustainability metrics for energy.

Dr. Keairns has around 40 years experience in industry. As a Technical Fellow with SAIC since 1999, he has provided support for the Department of Energy National Energy Technology Laboratory (NETL) fossil fuel program initiatives. This work has included the development of technology plans for the next generation of coal based energy systems, analysis of advanced technology research and demonstration projects, systems analysis of fuel processing concepts, and technical support of ongoing development and demonstration projects.

Formerly, Dale was employed by Westinghouse where his responsibilities included technical and financial responsibility for R&D, business planning and a commercial business. He led the development and commercialization of energy, environmental and chemical processing technology at the Westinghouse Science and Technology Center. Accomplishments have been realized through multidisciplinary project teams and effective relations with private and government customers in the U.S. and the international community.

Dale received his Ph.D. in chemical engineering from CMU and his B.S. in chemical engineering from Oklahoma State University. He is the author of over 150 publications.

### **AICHE 2009 Annual Meeting – SEF Programming**

Full SEF Annual Meeting programming is provided on the next page. Please review and submit abstracts accordingly.

#### *Area 23b Sustainable Biorefineries Programming:*

In our inaugural year at the Annual Meeting, Area 23b is offering a session lineup that is very similar to

that offered in its final year as a Topical Conference. Sessions include the Sustainable Biorefineries Plenary Session (Invited Papers), which offers visionary talks from industry, government, and academic representatives addressing the past, current, and future biorefinery landscape. Ten technical sessions and a technical Poster Session are offered addressing all aspects of biorefinery science and technology development, from feedstocks to chemical pretreatments, biochemical and thermochemical conversions, reactor engineering, downstream processing, and sustainability and life cycle analysis. This includes a session formally devoted to technical updates from the DOE Biomass Program-funded Consortium for Applied Fundamentals and Innovation (CAFI), which focuses on fundamental issues connected with the development of pretreatments for the Sugar Platform. Finally, recognizing the important role that biodiesel can play in a sustainable energy future, new for this year is a technical session focusing on developments in algal biorefineries. Point your browser to the following link at the 2009 Annual Meeting's Preliminary Program website for more information:  
[http://aiche.confex.com/aiche/2009/preliminaryprogram/group\\_1376.htm](http://aiche.confex.com/aiche/2009/preliminaryprogram/group_1376.htm)



**We've Graduated!!  
from a Topical**



**Beginning in 2009 we will permanently join  
Division 23: Sustainable Engineering Forum  
as:**

**Area 23b: Sustainable Biorefineries**

Thank you for your past support of the  
Topical and please submit your papers  
to **Area 23b** next year!

**SEF Programming – General Area (23a)**

Session	Session Chair	Session CoChair
Design for Sustainability	Mahmoud El-Halwagi	Jeffrey R. Seay
Green Engineering In the Pharmaceutical And Fine Chemical Industry	C.Stewart Slater	Concepcion Jimenez-Gonzalez
Innovation In Sustainable Process Engineering	Helen H. Lou	Tom R. Marrero
Interface of Water And Energy Use	William M. Barrett Jr.	Geoffrey A. Prentice
Sustainability Education	David R. Shonnard	Dr. Robert Hesketh
Sustainability Metrics, Assessment and Performance Prediction by Computation	Raymond L. Smith	Paul Blowers
Sustainability of Water Use	Jeff Yang	Bruce Hamilton
Sustainability Plenary	Subhas Sikdar	Yinlun Huang
Sustainability Under Uncertainty	Li Sun	Zheng Liu
Sustainable Energy Plenary	Martin A. Abraham	William M. Barrett Jr.
Sustainable Value Chain	Cristina Piluso	Xiang Li
Sustainable Water	Urmila Diwekar	Xiaoxia Lu
Systems Analysis of Sustainability	Arunprakash T. Karunanithi	Bhavik R. Bakshi

**SEF Programming – Sustainable Biorefineries Area (23b)**

Session	Session Chair	Session CoChair
Advances in Algal Biorefineries	Rakesh K. Bajpai	Bruce S. Dien
Biological Conversions and Processes for Renewable Feedstocks	Nasib Qureshi	Mohammed Moniruzzaman
Biomass Pretreatment Cafi Developments	Richard Elander	Charles E. Wyman
Catalytic Conversion of Renewable Resources to Synthesis Gases and Pyrolysis Oils	Thomas D. Foust	Rick Knight
Chemical and Catalytic Conversions and Processes for Renewable Feedstocks	Susan Stagg-Williams	Dennis J. Miller
Developments in Biobased Alternative Fuels	Brian Duff	Marcus Rajchel
Developments in the Pretreatment of Lignocellulosics for Bioconversion	Tae Hyun Kim	R. Eric Berson
Integrated Processes for Biochemical Conversion of Renewable Feedstocks to Fuels and Chemicals	Katherine A. Taconi	Nathan S. Mosier
Life Cycle Analysis of Renewable Feedstock-Based Processes and Products	Carina Maria Alles	David R. Shonnard
Poster Session: Sustainability and Sustainable Biorefineries	Daniel S. Wendt	David Hodge
Reactor Engineering for Biomass Feedstocks	Michael J. Antal Jr.	Yukihiko Matsumura, Kazuhiro Mochidzuki

### SEF Programming – Sustainable Biorefineries Area (23b) – cont'd

Session	Session Chair	Session CoChair
Sustainable Biomass Feedstock Production and Supply for the Emerging Biorefinery Industry	Tom L. Richard	J. Richard Hess
Sustainable Biorefineries Plenary Session (Invited Papers)	David N. Thompson	Bruce S. Dien

### SEF Programming – Sustainable Energy Area (23c)

Session	Session Chair	Session CoChair
Increasing Efficiency from Petrochemical Resources	Martin A. Abraham	DongShik Kim
Sustainable Electricity: Generation and Storage	Stephen E. Zitney	Martin A. Abraham
Sustainable Fuel from Renewable Resources	Ralph W. Pike	Toshikuni Yonemoto

### SEF Announces Industrial Practice Award Program

The AIChE Sustainable Engineering Forum has initiated a new award program – an Industrial Practice in Sustainable Engineering Award. The award recognizes individuals or teams who have made outstanding contributions over a long-term basis pertinent to sustainable engineering development in the practice of chemical process/product design or manufacturing. The award is geared towards applicants from small, medium, or large companies. The applicant's achievements will be based on both publications (articles, patents, and internal reports) and reputation substantiated by at least three (3) written recommendations. The selection of the awardees for a given year will be based on their continued contributions to the development, implementation and dissemination of sustainable engineering practice in the chemical process industry and related fields. Contributions may include paradigms for sustainable development and/or general application of new practices. The awardees need not necessarily be a chemical engineer, however the applicant or at least one member of the team must be a member of the AIChE Sustainable Engineering Forum at the time of application.

The awardees will be announced during the 2009 AIChE Annual Meeting.

For more information regarding how to apply, along with the official award announcements, please visit the "Awards" section of the SEF website (<http://www.aiche.org/sef>).

### Upcoming SEF Virtual Meetings

The SEF will sponsor 3 virtual meetings during the 1st half of 2009. The specific dates are still to be confirmed, however the speakers and topics are:

*Waste Management: From major environmental problem to source of materials and energy*

Professor Nickolas Themelis  
Earth Engineering Center  
Columbia University  
Chair, WTERT [www.wtert.org](http://www.wtert.org);  
Chair, Center for Sustainable Use of Resources  
[www.SURcenter.org](http://www.SURcenter.org)  
Stanley-Thompson Professor Emeritus, Earth & Env.  
Eng. (Henry Krumb School of Mines)

Economic development and population growth have been accompanied by the generation of billions of tons of solid wastes that can pollute soil, air, and water resources. Sustainable waste management requires that waste generation be minimized by means of "green" engineering of processes, products, and services; and that the remaining "wastes" be subjected to recycling, composting, combustion with energy recovery and finally sanitary landfilling. The results and limitations of applying these technologies in the U.S. and globally will be discussed.

*Burgeoning Prospects for Waste-to-Energy in the United States*

Mr. Ted Michaels  
Integrated Waste Services Association



The webinar will provide an overview of the waste-to-energy industry in the United States and describe the prospects for future growth. The session will also highlight how widespread enthusiasm for renewable and climate-friendly power will guide legislative and regulatory issues affecting waste-to-energy.

*An Integrated Waste Management System for a Sustainable Society*

Mr. Brian Bahor, QEP  
Vice President Sustainability  
Covanta Energy Corporation

The webinar will provide an overview of the sustainable attributes of an integrated waste management system and the essential role of thermal treatment with energy recovery. We will discuss how modern Energy from Waste is compatible with recycling and its inherent sustainable attributes including generation of renewable energy, reduction of greenhouse gases, air emissions and other parameters such as land and water management.



What would you like to learn about in 2009? Please provide your ideas for virtual meetings to Earl Beaver at [erbeav@aol.com](mailto:erbeav@aol.com). Additionally, if you would like to volunteer yourself or a colleague as a presenter, please contact Earl Beaver directly.

**Past SEF Virtual Meetings**

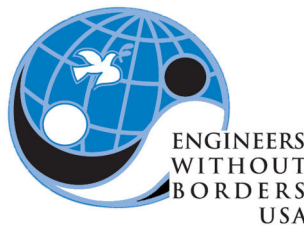
For additional information regarding past and upcoming virtual meetings, please visit the “Events” → “Virtual Meetings” section of the SEF website (<http://www.aiche.org/sef>).

Please contact Earl Beaver if you are interested in a detailed summary of the main discussion points from these previous virtual meetings or for suggestions for future virtual meeting topics.

**AICHE Sustainable Development Grants Announced for Engineers Without Borders-USA Student Projects**

AICHE will award grants in spring and fall semester to support student service learning projects which demonstrate sustainable development and chemical engineering design principles. Grants will be awarded to student chapters of Engineers Without Borders –USA (“EWB-USA”) with participation of AICHE students.

EWB-USA ([www.ewb-usa.org](http://www.ewb-usa.org)) is a non-profit organization that partners with developing world communities to tackle the most critical humanitarian problems, from water quality to sanitation to energy, by developing locally sustainable, equitable, and economical engineering solutions. AICHE is collaborating with EWB-USA to promote involvement of AICHE members, develop programs which promote service learning, and incent cooperation between AICHE and EWB-USA student chapters.



If you are an AICHE member involved in EWB-USA projects, we’d like to hear your story. If you would like to learn more about EWB-USA or the grant program, please contact [ewb@aiiche.org](mailto:ewb@aiiche.org).

**SEF ACTIVITIES**

**1<sup>st</sup> International Congress on Sustainability Science and Engineering: Where Science and Engineered Technologies Meet the Needs of Society**

Mark you calendars for the 1<sup>st</sup> International Congress on Sustainability Science and Engineering (ICOSSE Aug 09). The EPA and the Institute for Sustainability announce the First International Congress on Sustainability Science and Engineering (ICOSSE Aug 09). The Congress will be held at the Kingsgate Marriott Hotel in Cincinnati Ohio, August 9 – 12, 2009 and will address the multidisciplinary nature of industrial sustainability along the supply chain. On August 13, 2009, the Congress will be followed by the Workshop on Water Resources, which is cosponsored by the NSF, EPA, and NIST.

The focus of the Congress is on the scientific and technological aspects of sustainability, especially in the industrial setting. It has 34 advisors, 11 sessions, and the plenary speakers include BASF, Toyota, HP, P&G, and Lexmark.

The Congress is sponsored by the U.S. EPA, NSF, NIST, the University of Kentucky, and AICHE’s Sustainable Engineering Forum, and supported by ASME, ACS Green Chemistry Institute, IChemE, and AIME. Corporate sponsors to date include Lexmark, Proctor & Gamble, and Toyota



The congress is chaired by Subhas Sikdar of the EPA and steering committee members include Bruce Hamilton, NSF, Herb Cabezas, EPA, Lyn Beary, NIST, Eric Amis, NIST, Darlene Schuster, AIChE IFS, and Yinlun Huang, Chair Sustainable Engineering Forum.

The call for papers, which is open until March 15<sup>th</sup>, and the preliminary program can be viewed at: <http://aiche.confex.com/aiche/icosse09/cfp.cgi>

Registration began March 4<sup>th</sup>, and the registration form can be found at: <http://www.aiche.org/ifs/conferences/registration.aspx>

For further information, please see the announcement at the end of this newsletter and visit: <http://www.aiche.org/IFS/Conferences/index.aspx>

Some travel grants are also available for students and young faculty to participate. If you are interested, please send a request for further information to [ifs@aiche.org](mailto:ifs@aiche.org).

### **SEF to Sponsor Biorefinery Symposium held by SIM**

The SEF is sponsoring this years Annual Symposium on Biotechnology for Fuels and Chemicals. The 31st Symposium on Biotechnology for Fuels and Chemicals is a special conference of the Society for Industrial Microbiology (SIM), and is a leading forum for discussing advancements in renewable fuels. This widely-attended symposium, sponsored by the U.S. Department of Energy and many industrial firms, is focused on the latest research breakthroughs and results in the field of renewable fuels and chemicals. Many long-time attendees of this Symposium have increasingly been regular attendees and presenters in technical sessions in the Sustainable Biorefineries Topical Conference at the AIChE Annual Meeting. As Area 23b, we hope to remain as their forum of choice for presenting Chemical Engineering solutions to the research and development of sustainable fuels and chemicals for the future. This year's meeting will be held in San Francisco, CA from May 3-6, 2009. For more information, visit the following link: <http://www.simhq.org/meetings/sbfc2009/index.html>

### **Upcoming Conferences**

*North American Sustainability – Panel Discussion on Opportunities and Barriers for Energy Sustainability*

One day session on August 24, 2009 during the 8<sup>th</sup> World Congress of Chemical Engineering (August 23 to 27, 2009) in Montréal, Quebec, Canada at the

Downtown Palais des Congrès de Montréal. Learn more at <http://www.wcce8.org/index.html>

Topic 1: Technology and its Metrics for a Sustainable Energy Production and Use

Topic 2: Public Policy and Education for a Sustainable Energy Production and Use

The three North American chemical engineering societies; American Institute for Chemical Engineering Institute for Sustainability, Instituto Mexicano de Ingenieros Quimicos, and the Canadian Society for Chemical Engineering have organized a panel discussion on North American sustainability issues with the primary focus on energy. Energy use in the chemical industry is one of the primary drivers in the long-term economic viability of the industry. The adaptation and evolution of the chemical industry to the new situation will require a greater understanding of the technical, economic, legal, social and environmental considerations.

*U.S Perspective:*

- Alan Hecht, US EPA
- Hank Kohlbrand, Dow Chemical, President Elect of AIChE

*Mexican Perspective:*

- Enrique Aguilar-Rodriguez, Mexican Petroleum Institute
- Pablo Longoria-Trevino, Universidad Genesis, Monterey, Mexico
- Victor Manuel Lopez Lopez, National Polytechnic Institute, Mexico

*Canadian Perspective:*

- Christian Houle, Shell Montreal East Refinery
- Terry McIntyre, Environment Canada  
Murray Gray, Imperial Oil-Alberta Ingenuity Centre for Oil Sands Innovation
- Andre Tremblay, University of Ottawa

To learn more, visit:

[http://www.wcce8.org/prog\\_industrial\\_enesus.html](http://www.wcce8.org/prog_industrial_enesus.html)

### **Development of Course Specific Modules for Sustainability – Call for Participation**

As was introduced in the Fall SEF newsletter, the SEF has started an initiative to provide the faculty community with materials for integration of sustainability concepts into their chemical engineering courses as well as to provide the motivation for using sustainability principles.

Although textbooks in green engineering and a series of MS PowerPoint modules exist, we are missing many elements for a course in sustainability as well as an integration of these ideas throughout the chemical engineering education. The SEF is currently working on preparing examples on the industrial use of sustainable engineering concepts, however, more work is required to prepare materials for professors teaching traditional chemical engineering courses.

The Sustainable Engineering Forum is currently looking for contributions to this effort by way of aiding in the production and publication of the various in-class modules.

Students or professors interested in participating in this project, please contact Robert Hesketh at Rowan University at [Hesketh@rowan.edu](mailto:Hesketh@rowan.edu) or (856) 256-5313.

## EDUCATION COLUMN

Jeffrey Seay  
Chair, Education Committee  
[jseay@engr.uky.edu](mailto:jseay@engr.uky.edu)

The ultimate goal of those of us tasked with educating future engineers is to ensure that our students are given the tools they need to be successful as working professionals. As the chemical industry continues to recognize the importance of sustainability, not only to the public but also to their economic bottom line, we in academia must be sure that we are adequately preparing our students and giving them the tools they need to be successful in a rapidly changing industrial landscape. In order to achieve this goal, the SEF Education Committee would like to moderate a dialog in this column on the past, present and future of sustainability education and the skills industry professional expect our graduates to possess in the area of sustainability. Our hope is that this column can serve as a discussion forum to exchange ideas on how best to prepare students for success in the ever changing chemical industry, especially with regard to sustainability.

Therefore, the SEF would like to solicit contributions from both industry and academia to be included in future installments of the Education Column in the SEF Newsletter. We welcome comments, suggestions and questions from all parties interested in sustainability education. We will also use this space in future installments of the SEF Newsletter to publish case studies, experiences and general thoughts on the impacts of sustainability education in industry and what tools in the area of sustainability are necessary for new chemical engineering graduates.

We will also consider essays on the subject to be published in full in the newsletter. Contributions of this type should be approximately 1 page in length and should be sent electronically for consideration. All correspondence on this subject should be sent to the e-mail address listed below. We look forward to hearing from you.

## **Process Integration for Systematizing Design Approaches to Sustainability**

Mahmound El-Halwagi, Professor  
Dept. of Chem. Eng.  
Texas A&M University  
[El-Halwagi@tamu.edu](mailto:El-Halwagi@tamu.edu)

One of the key challenges to sustainable engineering is the ability to systematically transforming the various objectives, concepts, and ideas into practice. Usually, there are numerous alternatives to reach a certain sustainability objectives. How can engineers generate and evaluate attractive alternatives. Using convention methods such as brainstorming and evolutionary techniques have major limitations. They are time and money intensive. Also, because the very large number of possible alternatives, it is very difficult to try to enumerate these alternatives and analyze them. In this context, process integration offers an attractive framework for systematizing the sustainable-design decisions. Process integration is a holistic approach to process design and operation which emphasizes the unity of the process. Process integration can be categorized into three branches: energy integration, mass integration, and property integration. As the names indicate, these branches provide holistic approaches to tracking and optimizing the various forms of energy, mass, and properties throughout the process. Over the past three decades, significant progress has been made in developing process integration tools. These tools take different forms including graphical, algebraic, and optimization techniques. While these tools have been developed to address specific process objectives (e.g., energy conservation, mass efficiency, quality), they constitute a powerful basis for generating process alternatives, targeting (or benchmarking) their performance, and effectively screening them. Given the specific nature of sustainable design, it is important to evolve and adapt these process integration tools to meet the sustainability objectives and requirements. This includes the incorporation of sustainability metrics into process integration. Additionally, process models have to be developed to reflect the key sustainability factors. Furthermore, the process performance has to be related to the macroscopic aspects of the environment (e.g., via life



cycle analysis, environmental models, etc.). Finally, the regulatory aspects of the process have to be based on sensible criteria that take the process and the surrounding environment into consideration. These are challenges that require the collaboration among researchers in process systems engineering, various chemical and environmental engineering fields, economics, and public policies. These are groups that have not traditionally collaborated in the past. At the interface between these different groups lie very exciting opportunities that can evolve a new generation of process integration tools that will ultimately systematize the design approaches for sustainability.

## **MEMBER COMMUNICATIONS**

Dear Sustainable Engineering Forum Members,

As Membership Chair for the SEF it's my pleasure to greet members of this fast-growing part of the American Institute of Chemical Engineers. The AIChE has a lot to offer, and we're glad you've decided to be a member of SEF.

We are particularly pleased to welcome our new student members. You are most welcome here. In fact, I expect that you will find most members very receptive to your inquiries into how you can be involved with the Forum.

The Forum part of SEF is a special organizational title within the AIChE. It lets us expand our membership beyond chemical engineers, and in doing that we think we have something special to offer. Today's issues don't stop at professional borders. Whether you've been defined as a Chemical Engineer or not, today's world is one in which problems go beyond traditional boundaries.

Being a member of the SEF lets you network and learn from other members. We encourage you to pursue professional interactions with members. It's certainly one of the benefits of being part of the SEF. While the members of SEF are interested in sustainability they also have a number of other focus areas in which you might be interested, from the environment to separations, process development to biotechnology, and energy to sustainability indicators and metrics.

If I can suggest another benefit of being a member of the SEF, it's developing your career trajectory with the counsel of experienced professionals. As each of

us networks and learns, sharing what we know and our time and abilities with other members of the Forum, the benefits come back to us. Perhaps the benefits aren't seen immediately, but I honestly believe you will see them in the SEF. Welcome everyone!

Sincerely,

Raymond Smith  
Membership Chair

### **Call for Participation: A Project for SEF Members**

The SEF needs your help in order to develop a web resource on "Everyday Sustainability Questions and Answers." The premise of the project is to develop a list of questions we ponder about sustainable decisions we could make every day.

For example, "Should I turn the heat down if I will only be away for two hours?"

"When I boil pasta, should I bother to boil water, or just cook the stuff in the sauce?"

"When I'm getting ready for work in the morning (before sunrise) should I leave lights in individual rooms turned on because I'm and moving from room to room (bedroom, bathroom, kitchen, dining room, living room, home office – all of which are rather small and close together), or should I turn them off and back on again every time I leave and re-enter?"

"What is the best way to dispose of an old bottle of prescription medicine? Throw in the trash or flush down the toilet?"

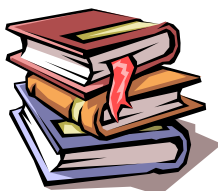
"Should I eat only vegetarian, and if so, soybeans or sweet potatoes?"

We are then going to form a group of "experts" to provide their analysis (Lifecycle and Total Cost considerations are important to use), and vet for all to discuss and ponder. Our aim is to increase the level of discourse on decisions we make.

Thanks to Bob Sylvester and Cindy Mascone for initiating this idea. Send the questions you ponder to [Ifs@aiche.org](mailto:Ifs@aiche.org) and also indicate if you'd like to volunteer to also "answer" the questions.

### **Sustainability Readings**

Lists of valuable sustainability related reading materials, as assembled by Earl Beaver, are available on the SEF website. Anyone interested in learning more regarding the areas of sustainability, global climate change, and how sustainable companies make decisions, please visit the "Readings" section of the SEF website (<http://www.aiche.org/sef>).



person at the Tampa AIChE meeting. See the special highlights section below for meeting times. For additional information and for information on on-going projects and meeting schedules, contact [ifs@aiiche.org](mailto:ifs@aiiche.org).

### **Founders Society Technology for Carbon Management Project**

AIChE IfS has received funding from the United Engineering Foundation to lead a group of carbon management experts from ASME, ASCE, AIME, and IEEE to engage society members more actively in the energy challenge and participation to inform public policy. The focus of the initial work is on the evaluation of energy systems. The project is being lead by Dale Keairns, AIChE immediate Past President. Coming soon will be the joint FS Technology for Carbon Management Website, to be launched March 2009.

### **Youth Council on Sustainable Science and Technology**

The Youth Council on Sustainability Science and Technology (YCOSST) is looking for volunteers to help with the EPA P3 session in Washington DC on April 19 to 20. Contact [ifs@aiiche.org](mailto:ifs@aiiche.org) if you have time and are interested in participating.

## **IFS UPDATES**

### **CSTP**

Center for Sustainable Technology Practices (CSTP) is presenting the opportunity for industry participants to join their new 2009 committees. Projects include:

*Carbon Management Verification Roundtable*

Contact: Dave Gustashaw

([Dave.gustashaw@gmail.com](mailto:Dave.gustashaw@gmail.com))

*Total Cost Assessment Users Group*

Contact: Lise Laurin ([llaurin@earthshift.com](mailto:llaurin@earthshift.com))

*Supply Chain Management*

Contact: Beth Beloff ([beth@bethbeloff.com](mailto:beth@bethbeloff.com))

*Renewable Fuels Metrics Roundtable*

Contact: John Carberry

([johncarberry01@comcast.net](mailto:johncarberry01@comcast.net))

The Supply Chain Management Group and the Renewable Fuels Metrics Roundtable will meet in

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**Awards  
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Dept. of Chem. Eng.  
University of Missouri-Columbia  
Columbia, MO 65211  
E-mail: MarreroT@missouri.edu

**Technical Advisory  
Committee Chair** Mahmoud El-Halwagi,  
Professor  
Dept. of Chem. Eng.  
Texas A&M University  
College Station, TX 77843  
E-mail: El-Halwagi@tamu.edu

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College of Sci., Tech., Eng., and  
Math.  
Youngstown State University  
Youngstown, OH 44555  
E-mail: martin.abraham@ysu.edu

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KBR  
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Youngstown State University  
Youngstown, OH 44555  
E-mail: martin.abraham@ysu.edu

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P.O. Box 1625  
Idaho Falls, ID 83415  
E-mail: david.thompson@inl.gov

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### Plenary Speeches:

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2. BASF, *Chemical & Allied Industry Perspective*
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