

Email not displaying correctly? [View it in your browser](#)



Chesapeake Chapter INCOSE

International Council on Systems Engineering

Print Issue
[Forward to a Friend](#)
[Go to Back Issues](#) Vol. 2 Issue 1

January 2011 E-Newsletter

Dinner Meeting - Wednesday 19 January 2011

Engineering Clean Energy Systems

Dr. Alex Pavlak, PhD, PE, PMP -- Thales Research, Inc

Presentation: In preparation for the 2009 Copenhagen Conference on Climate Change, President Obama has declared a clear target for America: to reduce CO2 emissions by 83 percent below 2005 levels by 2050. But climate change is a global challenge. Building new clean energy systems that achieve large global scale reductions in CO2 emissions is an unprecedented engineering challenge. This talk explains what needs to be done and why we are failing. Our political leaders need to re discover the discipline of systems engineering.

This talk is based on a paper titled "[Strategy vs Evolution](#)" published in the *American Scientist*.



Speaker: Dr. Alex Pavlak is a professional engineer with 40 years' experience managing a variety of R&D programs. His core competencies are systems architecture, energy systems and combining systems engineering with fact-based policy making. He received his Ph.D. in mechanical engineering from Stevens Institute of Technology.

Location: [Applied Physics Laboratory, Johns Hopkins University](#); 11100 Johns Hopkins Rd Laurel MD 20723 (Main Entrance - Lobby 1)

Meal: TBD

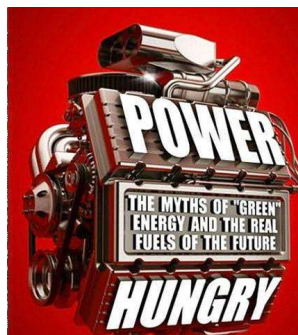
Reservations:

- **By website:** Credit card via PayPal, go to our [Registration Page](#) for details on the presentation, more about the panelists, cost details, cancellations, and directions

Presentation ONLY: FREE (no reservations necessary)

The purpose of the Chesapeake Chapter is to foster the definition, understanding, and practice of world class systems engineering in industry, academia, and government. In light of that goal, every month at our dinner meeting we have a drawing for the latest in Systems Engineering literature. So come on out for a chance to win.

**This month's door prize is:
 Power Hungry: The Myths of**



January 2011

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

In this Issue

- [Next Dinner Meeting](#)
- [Notes to the Membership](#)
- [Feature Article 1: Engineering Clean Energy Systems](#)
- [Last Month's Meeting](#)
- [Feature Article 2: Mission to Rapa Nui](#)

This is the monthly newsletter for INCOSE Chesapeake, a local chapter of INCOSE International. We are a not-for-profit organization dedicated to providing a forum for professionals practicing the art and science of Systems Engineering in the Northern & Central Maryland & Southern Pennsylvania area.



The Chesapeake Chapter is always looking for volunteers to speak at our upcoming meetings! Please contact our Programs Director, [Mr. Donald York](#), if you would like the opportunity to speak or can recommend someone.

The Chesapeake Chapter of INCOSE is proud to recognize the following organizations for sponsoring our endeavors to

"Green" Energy and the Real Fuels of the Future

by Robert Bryce

Notes to the Membership

You Are Invited to Participate in INCOSE's Value proposition



Yes. As a member of the Chesapeake Chapter of INCOSE, you are invited to the January board of directors meeting. This is our planning season. The BOD wants to hear from you.

Last year, under George Anderson's leadership as President, the INCOSE Chesapeake Chapter "kicked it up a notch." Attendance at key events doubled. Speakers tried both smaller and larger venues. The Cybersecurity panel wowed a mixed audience of security professionals and systems engineers. Despite the snow storm we had a great holiday party in the Engineer's Club. A dozen members won CSEP certifications. There were even a few ESEP certifications. We started a student chapter. Senior members served across the globe with INCOSE International. We are on track to win a Circle Award in 2010. Our glitzy chapter newsletter captured it all in print.

Is this enough? Is this the right stuff? Are you happy with our current plan? Or do you want more? Do you want to participate? The answer comes from you. If you are new to the profession, are we helping you to find your place, to make professional friends, and to hone your skills? If family obligations make meeting attendance difficult, are we giving you an extensive web site and electronic collaboration? Do you want to start a special interest group with your friends?

Our international web site lays out the issues nicely. Just click the links below:

- [Do you want to increase your value to your employer or client by expanding your skills toolkit?](#)
- [Do you want to enhance your network of professional colleagues?](#)
- [Do you want to support Systems Engineering by advancing the practice by contributing to the body of SE knowledge?](#)
- [Do you want to pay less for valued publications?](#)
- [Do you have a desire to participate in the global marketplace?](#)
- [Do you want to demonstrate your expertise to your employer or client through certification?](#)
- [Do you want to prepare and demonstrate your potential for a management position?](#)
- [Do you want to keep the profession healthy for the future?](#)

WIKIPEDIA says that the "*Value proposition is an offer that describes the quantifiable benefits that individuals or organizations making an offer promise to deliver. Its development is based on a review and analysis of the benefits that an organization can deliver to its customers, prospective customers, and other constituent groups within and outside the organization.*" For us, the question is, are we delivering on the INCOSE CC value proposition?

Let's explore the INCOSE web site. Our tour starts with the chapter web site <http://www.incose.org/chesapek/>. Just click the link for access. We will be coming back to this page so you might want to add it to your favorites list. In the middle of the page you will find the chapter survey. This is a convenient mechanism for sending comments and suggestions to the BOD. Just click blue and type in your comments. On request, we will respond to your comments. If you have a good idea, we may ask your permission to borrow it. If you have a really good idea, we will ask you to lead the effort and line up supporting resources.

expanding the understanding and appreciation of Systems Engineering in the local area:



Up Coming INCOSE Conferences

January 29 - February 01, 2011
[International Workshop 2011 \(IW 2011\)](#)
 INCOSE's International Workshop is *the* event of the year for systems engineers to contribute to the state of the art. Unlike INCOSE's annual International Symposium and other conferences, there are no paper, panel or tutorial presentations. Instead, attendees spend 4 days working alongside fellow systems engineers. Systems Engineers at all levels and from all backgrounds are encouraged to engage in working sessions, and contribute their knowledge and experience to take the discipline forward.

March 08 - 09, 2011
[Sixth International Conference on Systems Engineering](#)
 The sixth International Conference on Systems Engineering in Israel is a premier forum for the elicitation and exchange of ideas on issues and problems regarding Systems Engineering. The conference is organized by INCOSE_IL / ILTAM and is supported by the Technion's Gordon Center for Systems Engineering.

April 14 - 16, 2011
[CSER2011 - Ninth Annual Conference on Systems Engineering Research](#)
 It has now been more than six decades since systems engineering methodologies and practices began to

This home page also has the current meeting schedule, the graphic minutes of the previous meeting, and the descriptive flyer for the next meeting. In January 2011, the next talk will be [Engineering Clean Energy Systems \(global warming\) by Dr. Alex Pavlak](#). Click the link for the event flyer.

The home page has write-ups for the joint AIAA Mid-Atlantic and Chesapeake INCOSE gathering in the Baltimore Engineer's Club (a veritable mansion). Ric Gillespie of The International Group for Historic Aircraft Recovery (TIGHAR) talked about the Amelia Earhart data collected over the past 22 years by TIGHAR and other researchers. [Gundars Osvalds](#) and [George Anderson](#) (click their names for their e-mail) are looking at the visualization aspect of the data. He and George Anderson will examine the possibility of restating the problem into an NTSB investigation format. This would allow clear distinctions between fact and analysis.

The home page also documents the Cyber Security Panel. *What do you believe are the essential elements of a Cyber Security strategy that are necessary to fight and win today's cyber war? Are we winning the cyber war?* A few weeks ago, officials from the Departments of Defense (DoD) and Homeland Security (DHS) warned that the prospect of a cyber attack remains imminent even as their agencies continue to [monitor threats to U.S. critical infrastructure](#). With this as a background over 60 attendees heard four panel members, each respected in the field of cyber-security, discuss questions dealing with cyber-warfare: Maureen Baginski, VP, Serco-NA; Dr. Forno, UMBC Cybersecurity Graduate Program Director; [Dr. Mehan, Vice President of Cybersecurity, Lunarline Inc.](#); and Larry Strang, VP, TASC, Inc.

Some members find that the big annual conferences return the most value to them. Look on the right side column of this newsletter to see a complete list of Upcoming INCOSE conferences including the [21st Annual International Symposium](#).

The Systems Engineering Handbook is the basis for the INCOSE systems engineering certifications. INCOSE has established a [multi-level Professional Certification Program](#) to provide a formal method for recognizing the knowledge and experience of systems engineers, regardless of where they may be in their career. Certification is a formal process whereby a community of knowledgeable, experienced, and skilled representatives of an organization, such as INCOSE, provides formal recognition that a person has achieved competency in specific areas (demonstrated by education, experience, and knowledge). Certification differs from licensing in that licenses are permissions granted by a government entity for a person to practice within its regulatory boundaries. Certification also differs from a "certificate" that documents the successful completion of a training or education program.

The heart of INCOSE's [Technical Operations](#) effort is its more than [30 Working Groups](#). Just click blue. Working Groups are composed of INCOSE members who:

- Are interested in building their expertise and contacts in a particular area of systems engineering by working and networking with others with an interest and expertise in the same area, and/or;
- Have expertise to some level and are interested in sharing that with others as well as, on a voluntary basis, participating in the creation of Working Group products that will bring value to INCOSE stakeholders.
- Working Group members participate in such things as:
 - creating products unique to the Working Group for INCOSE stakeholder use (e.g. Measurement Guide, Tools Database, etc.)
 - reviewing papers in their area that have been submitted for an INCOSE International Symposium, or an INCOSE co-sponsored event
 - forming and/or participating in a panel or tutorial sponsored by the Working Group
 - helping to develop or review international standards
 - developing supporting material for standards (e.g. application guides, training checklists, references to sources of information, etc.) for use by INCOSE stakeholders and possible publication for

emerge to address the complex and challenging systems we now face on a regular basis. Much has been accomplished in that time and the value of systems engineering is not only unquestioned, but standards such as ISO/IEC 15288 and ANSI/EIA 632 are now widely recognised to be appropriate guidance to acquirers and suppliers for the creation of products and services. Interestingly, however, both 15288 and 632 neither define nor make any use of the term 'systems engineering'. Further, both standards have arguably as much in common with project management as they do with systems engineering. It is therefore opportune, at the start of the new decade, to examine the future of systems engineering as a discipline. The theme of SETE2011 is therefore 'Systems Engineering in the Next Decade'.

May 02 - 04, 2011 [SETE2011 The Systems Engineering Test and Evaluation Conference](#)

CSER 2011 is an international event being jointly sponsored by the University of Southern California and The International Council on Systems Engineering (INCOSE)'s LA Chapter. CSER 2011 provides practitioners and researchers in academia, industry, and government a common platform to present, discuss, and influence systems engineering research and will provide access to forward-looking systems engineering research -invited speakers plus refereed papers, as well as perspectives from senior industry representatives.

June 20 - 23, 2011 [21st Annual International Symposium](#)

The INCOSE International Symposium is the premier international forum for Systems Engineering. Participants network, share ideas, knowledge and practices, and learn more about the most recent innovations, trends, experiences and issues in Systems Engineering. Paper authors, panelists and tutorial presenters are encouraged to address ways in which Systems Engineering principles and perspectives are performed today and how Systems Engineering may influence our future. Topics of value include technology insertion, process improvements, and organizational governance of the systems we make, manage, operate and maintain over their life cycle, to the benefit of mankind.

Discover Systems Engineering
Read the



wider use

- o collaborating with other Working Groups on similar projects that require expertise from different areas
- o supporting a technical initiative aimed at furthering the realization of the INCOSE Vision 2020, a view of the future of systems engineering
- o participating with INCOSE Chapters to set up and hold regional technical events
- o researching practices to support INCOSE Corporate Advisory Board (CAB) needs

There is more, much more, but we have hit our page limit. Come to the monthly meetings; join working groups; attend international meetings. Find out how you can participate.

Yes. You are invited to the Board of Directors Meeting. If you want to lead special interest groups or pursue leadership opportunities with the BOD or run joint meetings with other professional organizations or anything else, please contact John.Lewis@incose.org or someone you know on the board. The meeting will start with brainstorming, then convert ideas into executable plans. Come with your ideas. Socialize them with a board member if you can and compress them into a punchy two minute "elevator speech" to fit on our very busy agenda.

If you cannot attend the board meeting, bring your ideas to the membership meeting on January 19, 2010. Again, socialize them with a board member if you can and compress them into a punchy two minute "elevator speech" to fit on the agenda.

John Lewis, CC President, John.Lewis@incose.org
George Anderson, Past President
Gundars Osvald, VP and President Elect
INCOSE CC Chapter Board of Directors.

[Return to top.](#)

Feature Article One Engineering Clean Energy Systems

by Alex Pavlak

This article is a synopsis of a paper to be published in the November-December issue of the American Scientist and the basis of a talk that is scheduled for the January 19th INCOSE Chesapeake Chapter meeting.

As an engineer, it is very painful to watch the world attempt to develop clean energy systems. It is as if our political leaders have never heard of the systems engineering discipline.

People who have never built a system before tend to take an evolutionary approach to planning. They start with what they see today, looking for ways to reduce CO2 emissions. This is justified by weird lessons learned from the internet. Our political leaders tell us that agile systems development has replaced classical planning just like free markets replaced central planning and the evil empire. Oh really?

An evolutionary approach leads to energy efficiencies, a switch to natural gas, the smart grid, wind, solar ... Some of these interventions make sense, some are nonsense, it all depends on the long term (strategic) goal.

Engineers are rational planners. They know that systems development starts with a clearly defined goal. In preparation for the 2009 Copenhagen Conference on Climate Change, President Obama has declared a clear target: to reduce CO2 emissions by 83 percent below 2005 levels by 2050. This is a rational strategic goal because if we are serious about controlling climate change, we will need

current issue free on-line for a limited time:

[Click Here](#)

Copyright (c) 2010 Wiley Periodicals, Inc., A Wiley Company

Check out these articles:

- *System development planning using readiness levels in a cost of development minimization model (pages 311-323)*
- *Inoperability input-output modeling (IIM) of disruptions to supply chain networks (pages 324-339)*
- *Exploring the concept of value creation in program planning and systems engineering processes (pages 340-352)*

As a member of INCOSE you have online Access to the current and past issues of The Journal of Systems Engineering via the Wiley InterScience site. Search the archives and download papers of interest. Registration on the Wiley site is required. Instructions for accessing the SE Journal can be found in [INCOSE Connect](#)

With Connect you can also download the Dec 2010 Issue of *INSIGHT Systems Development in Extreme Environments from Deep Sea to Deep Space*



Click on image above and Log-In today.

[Return to top.](#)

This Newsletter is to serve our members and is open to all for contributions. Do you have an interesting idea for an article? A review of a new book related to engineering? [Let us know.](#) We'd love to hear about it. It may wind up in a future issue of our Newsletter.

[Return to top.](#)

emission reductions on that scale.

From an evolutionary perspective, strategic goals are irrelevant; it is all about how to reduce CO2 emissions today. Markets are the basis for decision making. From a rational planning perspective, decisions are based on the ability to contribute to the strategic goal, the end state.

An apt metaphor is the task of building a 100 story skyscraper. From an evolutionary perspective we would start by building the first 20 30 stories and worry about designing the whole building later. This is exactly what we are doing in energy. Various governments have declared interim policy goals like 30% renewables by 2020 and 20% wind by 2030. These targets are capricious. They are not derived from a plan to achieve the strategic goal. They are irrational.

Wind power provides a specific example. If the strategic goal was a 20% reduction in CO2 emissions, wind is a feasible choice because we can theoretically build systems that are 20% wind. If the goal is a zero carbon, wind is not feasible because 80% of the power in a wind system must come from fossil-fuel generators. (Wind systems require 80% backup from dispatchable, available on demand generators. If we had zero carbon backup technology, why have wind?)

Rational planning starts with the strategic goal. We then conduct scenario analysis to clarify feasible choices. Based on factual scenarios, leaders create a vision that becomes the basis for a comprehensive engineering plan. This plan becomes the basis for interim goals and policy.

Engineers managed the programs that developed the atomic bomb, put men on the moon, and built the internet. If we are going to reach President Obama's goal by 2050, our political leaders need to re-discover systems engineering.

[Return to top.](#)

Did You Miss Last Month?

Holiday Dinner/Awards Ceremony

On Thursday, December 16, 2010, 47 members and spouses braved the snow and ice to attend the INCOSE Chesapeake Chapter Holiday reception scheduled at the Engineers Club in Baltimore. The Engineering Club was a beautiful elegant venue for the chapter's final event. The conversation and company were worth fighting the weather and traffic. The three course meal was an absolute delight. The Engineering club tour was an engaging, intriguing tour that covered the history and unique attributes of the mansion. Read more about the event and the awards presented, as well as see a slide show, at our [special Holiday Events page](#).



INCOSE Chesapeake Chapter's 2010 Holiday Celebration

[Return to top.](#)

Feature Article Two

Mission to Rapa Nui

By George Anderson

Easter Island or Rapa Nui is the most isolated inhabited location in the world today. Flying to a primitive airfield on the island is still risky business and reminds me of the challenges faced by earlier aviators such as Amelia Earhart in her doomed flight to Howland Island on July 2, 1937.



Today's Global Positioning System (GPS) creates a sense of complacency that appears to be the latest arena of concern in the struggle of man vs. nature. Airplanes have finite range and endurance and must land before these limits are exceeded. All current long-range aircraft must also land on reasonably prepared surfaces for the occupants to be assured of survival.

[Interested? Read More.](#)

[Return to top.](#)



Keep up with the latest news and events. Find out about our new Board of Directors. Explore our extensive library of past Monthly Dinner Meetings. Learn of the Benefits of Joining INCOSE. Check out Systems Engineering education in the local area awaits you at our [INCOSE Chesapeake Chapter Website](#).

For any comments or suggestions about this newsletter please e-mail our [President, John Lewis](#) or our [Communications Director, Mary Ann](#). We value your feedback.

Board of Director Officers, 2011

Directors at Large

- President: Mr. John Lewis
- Past President: Mr. George Anderson
- President Elect: Gundars Osvald
- Treasurer: Mr. Glenn Gillaspy
- Secretary: Mr. Bob Berkovits

- Communications: Mr. Paul Martin
- Programs: Mr. Donald York
- Membership Committee: Ms. Bhanumati Sunkara

**Please use the Forward email link below so we can invite your friends to join our mailing list.
Thanks in advance.**

INCOSE Chesapeake Chapter © 2011