



Volume 51 Issue 3 November 2007

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Upcoming Events

For latest, see www.ieee-or.org/events

Power Engineering Chapter

Title: **Power Transformer Performance Issues and Research Horizons**

Presenter: Fred Elliott, Substation Maintenance and HV Engineering, Bonneville Power Administration

Time: **Tuesday, November 20, 2007**

12:30 PM to 1:30 PM

Location: Conference Room A&B - Third floor of 700 NE Multnomah Blv, Portland, Oregon

See www.ieee-or.org/events for complete details.

This presentation will include a review of power transformer construction, ratings, and areas for future improvement.

PSES Chapter

Title: **Understanding Battery Regulations and Safety Issues**

Speaker: Katherine Mack, Rose Electronics, San Jose, CA

When: **Tuesday, November 27, 2007**

6:30pm – 9:00pm; 6:30pm - 7pm -- Dinner

Location: University of Portland, Engineering Hall Rm #216, 5000 Willamette Blvd. Portland

Dinner: RSVP Food and Seating: chabotj@esi.com

See www.ieee-or.org/events for complete details.

PACE

Topic: **Is a Master's Degree Necessary to Get Promoted?**

Speaker: Gary Perman, President, Perman Technical Group

Date: **Thursday, November 29, 2007**

Time: 6:30 PM - 8:00 PM

Doors open 6:00PM

Location: OGI School of Science and Engineering at OHSU's West Campus, Wilson Clark Center

Cost: FREE and open to the public

Registration: See www.ieee-or.org/events for details and registration.

This presentation will address your career planning.

Engineering in Medicine and Biology Society (EMBS) Chapter

Title: **Driving Personal Health Device Interoperability through Standards**

Speakers: Douglas P. Bogia, Standards Architect, Digital Health Group, Intel

Rick Clossen, Manager, Medical Device Interoperability Standards, Digital Health Group, Intel

Location: Classroom WCC407, Oregon Graduate Institute School of Engineering and Science (OGI), Wilson Clark Center for Lifelong Learning.

Date: **Tuesday, December 4, 2007**

Time: 6:00pm social/pizza

6:35 EMBS announcements

6:45 talk

Location: Classroom WCC407, Oregon Graduate Institute School of Engineering and Science (OGI), Wilson Clark Center for Lifelong Learning.

Cost: Free and open to the public.
See www.ieee-or.org/events for complete details.

The healthcare industry must improve its delivery methods and reduce costs. Various technologies could help by extending treatment and care beyond traditional clinical settings into personal and home settings. Creating such a personal telehealth ecosystem will require interoperability based on a comprehensive set of industry standards.

ORCNET Meeting and Holiday Dinner

WHEN: Friday, Dec 14, 2007, 8:00 PM to eat & chat, with a brief meeting following the dinner.

WHERE: This year's Annual ORCNET Holiday Dinner Meeting will be at the Stockpot Broiler, in Progress, near Washington Square.

Like all ORCNET meetings, this event is open to the public as well as ORCNET Members and their guests.

ORCNET Member & Guest meals will be provided by the ORCNET; other diners must pay their own tab. This is another reason to consider joining!

Seating is limited so please RSVP to Pat Barrett (pbarrett@ieee.org) ASAP! We must maintain an accurate headcount.

To learn about the Stockpot's menu, perhaps to prearrange vegetarian or other fare, see www.stockpotbroiler.com or stockpot.ypguides.net.

New Senior Members

The Oregon Section congratulates the following members on their elevation to IEEE Senior Members.

Jay Abramovitz	John Bartholomew
David H. Chiang	Steven Corey
Joseph Curtin	Deniz Erdogmus
Randall Hinrichsen	Yatim Hoskote
Zhong Lu	Rick Lutz
Dean Miller	Alistair Reed
Edward Riley	Steve Swanson
Paul Thadikaran	Kagan Tumer
Jon Udell	Hong Weng
Trevor Williams	David Worsley

IEEE NWSE Science Fair Judging 2008

IEEE Oregon Pre-College Activities coordinates IEEE members to judge for the IEEE Special Awards at the NW Science Expo held at Portland State University. Judging and awards were given out to both High School and Mid School applicants.

Your input is needed - come to the organizational meeting on Thursday, 29 November at 6:00 PM at McMenanin's Tavern located on 1716 NW 23rd, Portland.

To participate as an IEEE Special Awards Judge, contact John Vinson for instructions. Please RSVP. j.vinson@ieee.org

PSU Professor Receives Prestigious National Award

Lisa Zurk, associate professor of electrical and computer engineering at Portland State University, was in Washington, D.C., last month to receive a 2006 Presidential Early Career Award for Scientists and Engineers, the nation's highest honor for professionals at the outset to their academic careers. Zurk is one of two Oregonians to receive the award this year, and the second professor to receive it from PSU.

National Engineers Month 2008 Filling the Future Engineering Pipeline

The number of students choosing to major in engineering related subjects is falling dramatically while baby boomers are starting to retire; where will the future engineering workforce come from? Most people don't yet realize the seriousness of the reduction in future engineering capability. For example did you know . . .

- On international exams, US 12th graders performed below the average for 21 countries in math and science (*Shirley Ann Jackson, Ph.D. speaking to Securities and Exchange Commission, 2006*)
- Only 12,643 electrical engineering degrees were awarded in 2001, the continuation of a steady decline of students graduating with a EE degree (*Congressional testimony, 2002*)

**OGI School of
Science &
Engineering
(SoSE)**



**Department of
Computer Science
and Electrical
Engineering**

Class Number	Winter 2008 SCHEDULE OF CLASSES	Days	Time
CS 555/655	Biological and Linguistic Sequence Analysis	M W	11:00 AM - 12:30 PM
CS 559/659	Machine Learning	T R	4:00 PM - 5:29 PM
CS 566/666	User Centered Design of Medical Systems	W	5:00 PM - 7:59 PM
CS 567/667	Developing User-Oriented Systems	W	5:00 PM - 7:59 PM
EE 551/651	Advanced Electronics and Instrumentation	T R	5:00 PM - 6:59 PM
EE 565/665	Introduction to Wireless Integrated Circuit Design	M W	7:00 PM - 8:59 PM
EE 571/671	System-on-Chip (SoC) Design with Programmable Logic	M W	5:00 PM - 6:59 PM
EE 574/674	CMOS Digital VLSI Design I	M W	7:00 PM - 9:00 PM
EE 578/678	Embedded system Design and Programming with Programmable Logic	T R	7:00 PM - 8:59 PM
MATH 530/630	Probability and Statistical Inference for Scientists and Engineers	T R	2:00 PM - 3:30 PM

www.ogi.edu/register

- More than 50% of all engineering doctoral degrees awarded by U.S. engineering colleges are to foreign nationals (*Business Roundtable, 2005*)
- Oregon ranks well below the national average of students taking upper-level math courses . . . upper-level science courses . . . and Advanced Placement courses. (www.e3oregon.org)

The imperative is clear: reverse the region's decline in future engineering capability. Oregon's economic future depends on it. It's a challenge that the Business Education Compact (BEC) embraces each February during their National Engineers Month (NEM)—the local extension of a 55-year old nationwide initiative to raise public awareness of the opportunities and rewards of being an engineer.

Annually, hundreds of engineers volunteer to visit regional K-12 classrooms and get kids excited

about math and science by showing how it is applied in real businesses. Last year, 250 engineer volunteers engaged more than 16,000 students—nearly 250,000 students since the program launched in 1995!

You are invited . . .

Shouldn't your company be a part of such a strategic and critical initiative? This is the perfect opportunity to help turn the tide on diminishing student interest in engineering careers. Please join with scores of other businesses to inform and excite students about a career in engineering with NEM 2008. The BEC is now registering companies (through mid-December). Please ensure that yours is one of them.

A WIN for industry AND education

National Engineers Month 2008 is an easy way to serve the engineering profession while making a BIG difference in the lives of students. With just 45% of Oregon high school students achieving

basic math and science standards, these real-world classroom connections are more vital than ever. Make math and science real for students; show them not only how it is used in your world, but how “really cool” it is!

Besides making an important contribution to future workforce development, NEM employers are publicly recognized through advertising as partners in quality education. To top that, NEM reinvigorates volunteer engineers in their profession as they interact with the engineers of the future! AND IT’S FUN!

Business Education Compact makes NEM EASY

The BEC makes participation very easy, matching volunteer engineers with classrooms and providing ample online resources to help in planning the classroom visit. Those resources include ready-to-go presentations, links to fun demonstrations, and age-appropriate tips on relating to students at various grade levels.

Participants give NEM enthusiastic “thumbs up” . . .

Over the years, BEC’s NEM program has received overwhelmingly positive feedback from teachers and engineers.

“My engineer was inspiring to me as a teacher. . . I especially like the idea of my students getting to see someone who uses math and science in their profession.” *NEM Teacher*

“My students are very inquisitive and were fascinated with the presentation. I am hoping some of my students may want to become engineers.” *NEM Teacher*

“I met some really motivated and bright students! I feel like the students in school will greatly improve the character and emphasis of the future.” *NEM Engineer*

“I love seeing student’s eyes light up knowing that if I can become an engineer, they can become an engineer as well with hard work.” *NEM Engineer*

Contact the BEC (a valued IEEE Oregon partner) TODAY!

BEC has signed a strategic partnering agreement with the Oregon Section of the IEEE. National Engineers Month is highly consistent with the priorities identified by IEEE and the local Section. Make a mark on quality education AND invest in the future of the engineering profession. **Act NOW to get your company onboard with NEM 2008.**

Contact: Greg Kulander, Ph.D.
503-646-0242 x23
gkulander@becpdx.org

About the Business Education Compact

For more than 23 years, this local nonprofit organization has been investing in quality education in Oregon by: helping students realize how studying science, math and technology can translate into exciting career opportunities; connecting the classroom and workplace through innovative, hands-on learning experiences such as student and teacher internships; and better preparing educators for the classroom of the 21st century. Learn more about the BEC and National Engineers Month at www.becpdx.org.

25th NWSE Science Fair Judges Needed

Judge registration is open for the 25th Intel Northwest Science Expo and its seven regional fairs. Please sign up at www.nwse.org

We are celebrating 25 years of Intel NWSE fairs and hope to have many Silver Anniversary additions this year.

Please note the new categories for middle school. In response to last year we have split both Biology and Physics into two. For those judging at Intel NWSE, note that our Middle School fair will be held in the Peter Stott Center and our High School fair will be in the Smith Center Ballroom (like it was last year).

If you have a technical problem/question about registration, please contact nwse@pdx.edu

If you have a non-technical question, please contact mantelh@pdx.edu

ORTOP FLL (First Lego League) Robotics Tournament Needs Volunteer Judges and Referees

ORTOP FLL (First Lego League) is a robotics competition for kids 9 - 14 years. It is organized by FIRST (For Inspiration & Recognition of Science & Technology). In 2006, nearly 90,000 kids worldwide participated on 8846 teams.

This is ORTOP's 7th season. In 2006, 2480 area kids participated on 344 teams at 21 local tournaments and the championship. Over 390 teams have registered this season.

ORTOP (Oregon Robotics Tournament & Outreach Program) will run about 21 local qualifying FLL tournaments across Oregon and in Vancouver in early December 2007, followed by 2 state FLL championship tournaments in mid-January 2008.

Local qualifying tournaments will be held in Portland, Hillsboro, Oregon City, Wilsonville, Vancouver, Salem, Corvallis, Roseburg, Klamath Falls, Bend, & La Grande.

Each tournament needs a volunteer team of 8 judges and 4 referees. Over half are in the Portland Metro area. There is one on Dec 1. Most are on Dec 8, 9, 15 and 16. The state championship tournaments will be held Jan 19 & 20 at Liberty HS in Hillsboro. The specific location/date combinations are listed in the drop-down menu on the judge and referee signup page.

To learn more and signup as a volunteer, please visit: <http://judging.ortop.org>

Special February PACE Meeting

"Energy Futures - air, water and land impacts"

Dr Leonard J. Bond, Laboratory Fellow, Pacific Northwest National Laboratory and Director-elect for IEEE Region 6 will speak on "Energy Futures - air, water and land impacts" on Tuesday, February 26, 2008 at the OGI School of Science and Engineering at OHSU's West Campus, Wilson Clark Center.

Global population was 3 billion in 1960, estimated at 6.6 billion in September 2007 and is expected to be between 9 and 10 billion by 2050. Global energy consumption is projected to grow by 57% between 2004 and 2030. Energy use in emerging powers, in particular China and India, is growing at unprecedented rates. Green house gas emissions are growing faster than either population or energy use and the price of oil is fast approaching \$100 per barrel. The USA has depended on cheap energy. The USA is just 5 percent of the global population and yet we use 25 percent of global energy. We

face a time of change in an increasingly energy-hungry world.

This talk will briefly review the current global energy situation. It will then explore some of the complex inter-relationships between energy supply, its use and the resulting impacts on the finite air, water and land resources of the "pale blue dot." The talk will conclude with a discussion of "grand challenges" facing the global community in developing a shared vision that will transition the planet's energy system. This should be able to meet mankind's future energy needs, without major disruptions and wars, and be a sustainable system that delivers the earth to be a good home for our children and our grandchildren.

REGISTRATION: See www.ieee-or.org/events for registration, or go to www.cpd.ogi.edu/course.asp?n=08-IEEE-0226

New Power Engineering Society Chapter Officers

The Oregon Section Power Engineering Chapter announces its 2008 Officers:

Chairperson: Minje Ghim, P.E., Senior Electrical Engineer/Team Lead for Sub Design Group. Bonneville Power Administration, USDOE

Past chairperson: Dave Asgharian, P.E., Senior Lead Engineer, PacifiCorp

Treasurer: Ehsan Maleki, P.E., Senior Lead Engineer, PacifiCorp

Secretary: Briana Reed-Harmel, Electrical Engineer, PacifiCorp

Oregon Future City Competition needs Engineers as Mentors and Judges

The [Oregon Engineering Challenge](#) is pleased to host the First Annual Oregon Regional [Future City](#) Competition! Schools from throughout the state of Oregon are working hard on their cities. Teams made up of 7th and 8th graders are working with their teachers to:

- Design a city of the future using Maxis SimCity 3000™ software.
- Build a working model of a portion of their city using recycled products.
- Write an essay about city planning and design issues.
- Verbally present their city to a panel of judges from the engineering, planning, and architecture communities.

In order for the competition to be successful, we need many volunteers for the following opportunities.

Individuals

You as an Individual Can Help Us

1. Become a mentor to help the teams (Individuals, Engineer parents).
2. Become a judge (Individuals -needed to judge on competition day and to read and judges essays for the regional contest.)

Companies and Professional Organizations

Companies can support us with their employees. We need companies and professional societies to sponsor the competition and its special awards (see below). Awards will be named after the sponsor. (example: Company ABCD Best Transportation Award). Special Award Sponsorships (\$250) will be assigned on a first come, first served basis.

Oregon Region Special Awards

Best Essay	Best Manufacturing Zone
Most Environmentally Friendly	Most Creative Use of Material
Best Use of Material	Peoples Choice
Best Transportation System	Best City Infrastructure Layout
Best Residential Zone	Best Futuristic Design
Best Engineered Project	Best Space-Based Design
Best Computer Model	Best Physical Model
Best Oral Presentation	Most Outstanding Team Effort
Best City-Human engineering Design	Architectural Excellence Award
Most Community Awareness Award	

Please consider this wonderful opportunity to promote engineering as a career for young people.

[Register to help](#) in Oregon Future City Competition

For more information, contact Diana Laboy-Rush, Oregon Future City Coordinator, email: diana@portlandwizkids.com, tel: 503-869-8172

Special Article Feature **Space-Based Solar Power – Is it Déjà vu?** **Or is it really taking shape?**

by Charles F. Radley

Member, IEEE and Associate Fellow - American Institute of Aeronautics and Astronautics

On October 10th 2007 the National Security Space Office (NSSO) of the Department of Defense published a 75 page report, “Space-Based Solar Power As an Opportunity for Strategic Security”. This represents the 0.1 Release of the findings of a no-cost Phase 0 Architecture Feasibility Study”.

I was amongst the 170 people invited to participate in the study over the summer of 2007. We contributed our efforts pro bono, at no cost to the government.

Why did this happen, and what does it mean?

The Space Based Solar Power (SBSP) idea is not new, it was originally proposed by Peter Glaser in 1968. A solar power generator (e.g. photovoltaic [PV] or thermo-dynamic) is placed into geostationary orbit (GSO) around the Earth, and its

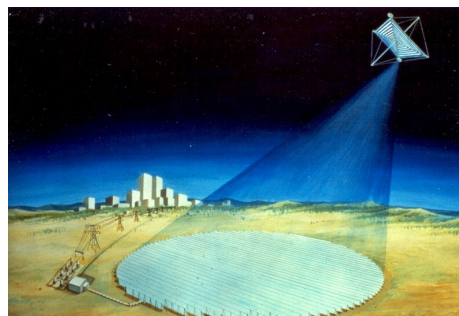


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power then beamed as microwaves (or possibly laser) to a receiving antenna (rectenna) on the Earth to feed power into a grid. A solar array in space can generate many times more power for a given area than on the Earth, for several reasons, e.g. 24/7 illumination 365 days of the year (with brief

outages during eclipse season), versus 50% night time on Earth, and sunlight obscured by clouds for much of the time. Also, on Earth another 50% of the power is usually lost because arrays are fixed, but in space the array will track the Sun so it will always operate at peak efficiency. For a terrestrial solar system to provide 24/7 power, expensive storage systems (usually batteries) are required, which can cost more than the PV cells.

There are many other benefits which I will enumerate later. In addition, there is a lack of clean safe alternatives to SBSP. Thermo-nuclear fusion is still far away, nuclear fission has serious problems. Despite the hype, terrestrial renewable sources have limited capacity, e.g. wind power, terrestrial solar, bio-fuels, all of these suffer from geographical limitations on how much they can deliver.

Also, ironically, terrestrial solar power systems cause environmental damage by blocking sunlight to native flora, thus causing destruction of habitat and soil erosion. A microwave rectenna is reasonably transparent to light and does not suffer from those problems.

The big problem for SBSP of course is cost, the last major study done was in the 1970's (NASA/DOE) showing cost of \$5.5/kWh, about twenty times current electricity costs in industrialized countries. Cost of launching hardware from Earth to GSO is USD hundreds of millions per ton, at least when relying entirely on conventional chemical rockets.

So why is DOD revisiting this idea today?

Why is DOD looking at this versus other government agencies?

DOD had a unique perspective as custodian of national security, and increasingly the threats facing the US and our allies have their roots in energy. The West is heavily reliant on oil from potentially unstable or hostile regions, and the burden on our military to safeguard these sources has become appalling. There is a national security imperative for the USA and its allies to achieve energy independence. The increased cost of energy will be more than offset by reduction in defense costs both financial and human.

Most of the electricity produced and used by the military in combat comes from diesel and gasoline generators. The monetary cost of this electricity is many times that from developed grids, and the fuel

convoys involved are primary targets of insurgents, causing serious casualties. If electricity could be beamed into operational theaters, it could save lives and eventually become cheaper than the present delivery methods.

At present no other government agency is doing anything with SBSP. NASA is not in the energy production business, and DOE is not in the space business. So SBSP has been an orphan. DOD sees a need to step into the breach. DOD does not see itself as a provider of energy either, and in the long term seeks to form partnerships with other agencies and industry groups to encourage the most appropriate parties to take ownership. In short the DOD feels the need to act as a facilitator until the idea gains full traction.

So is this the right time to revisit the SBSP idea? Well, it has never been a better time, for the following reasons.

Much has changed since the 1979 NASA/DOE study, and even since the NASA "Fresh Look" study of 1997.

There has been increased need for secure and sustainable energy, and the cost of building SBSP continues to fall. Let us look at the key points individually.

- Increasing needs:
 - Geo-politics:
 - Sky-rocketing energy demands in Asia -> impending global shortages
 - Increasing risk of global energy wars (looming World War 3 for energy)

A perfect storm is brewing, the demands of the populous nations of Asia rise at an increasing rate, as they understandably strive for western standards of living. Yet supplies of oil diminish, and extraction cost rise as we drill deeper and in increasingly remote regions. World War 2 in the Pacific was largely about oil for Japan. World War 3 could be about oil for the entire world. The writing is on the wall, and the font gets larger every day. As I write this, oil is nudging \$100 per barrel.

There is a geostrategic imperative for the west to use their technology to develop sustainable domestic sources of energy.

Already western reliance on energy sources in potentially hostile regions is a serious risk, which

causes the US military to be engaged in local politics of all the oil exporting countries, exposing the US military to ongoing risk of even more conflict.

Next is the changing nature of warfare. Increasingly the military are fighting insurgents who attack energy infrastructure. Beaming power into remote regions could all but eliminate the need for vulnerable fuel convoys, and finesse the problem of insurgents destroying conventional copper wire transmission systems.

- Environmental:
Increased awareness of the dangers of global warming

Evidence continues to mount that CO2 emission from fossil fuels (coal, oil, natural gas) amplifies the greenhouse effect and contributes to global warming. Some still doubt this is happening, or they deny it, in the same way a tobacco user denies the effect of their addiction.

Some claim that global climate change is not a problem. That position is difficult to understand, billions of people, mostly in poor countries will be dislocated, farmlands will be lost, workforces will be displaced, and the economic cost of all this stands to devastate the global economy. Not to mention the environmental effects of losing species, lost biodiversity, and the possibility of pandemics from micro-organisms migrating to human populations lacking immunity.

For all the above reasons, most nations agree that fossil fuels need to be curbed and eventually eliminated.

If we eliminate fossil fuels, then what are the alternatives? Terrestrial solar power is uneconomic for reasons stated earlier. Nuclear fission offers the gloomy prospect of a world awash with increasing quantities of fissile materials which will need to be distributed throughout every nation, including those who are unfriendly or unstable. Not a pleasant outlook. Then there is the unresolved problem of what to do with the increasing quantity of radioactive waste products.

What about thermonuclear fusion? Despite \$21 billion of research, we have little to show for it. For the past four decades fusion advocates have claimed to be "ten years" away from break even. How long shall we hold our breath? If the same amount of money had been spent on R&D for SBSP

we would have our first working demonstrator in orbit by now. Instead, over the same time period, the US has spent a mere \$70 million on SBSP. What is wrong with this picture?

Some advocate bio-fuels: However, even if all the fertile lands of the Earth were converted to producing bio-fuels, it would not be enough, and global food production is already being adversely affected by diverting agriculture lands to that purpose.

Wind power and hydro-electric suffers from a lack of locations to deploy them. Their capacity will not approach the needs of the world. Ironically the USA is currently demolishing hydro-electric power stations, instead of building them. The capital cost of hydro-electric power is daunting, as seen in the Three Gorges project. Another option might be ocean power stations, but they will be deployed so far from the consumers that transmission costs will dominate, in which case microwave power beaming from space becomes competitive.

Space technology offers a viable solution. The key cost of space launch is steadily falling, and market factors accelerate the trend. Major private industry investments in new launch systems proliferate, such as SpaceX and Sea Launch. Then Bigelow Aerospace recently pledged substantial private funds to address the problem of lack of launch vehicle capacity.

The cost of transport from Low Earth Orbit (LEO) to GSO can be reduced dramatically by electric propulsion and solar thermal propulsion, via modest investments.

For larger investment, even more dramatic reduction in launch costs could be achieved, with novel systems such as the Lofstrom Launch Loop, and tethered orbital transfer. Eventually lunar materials could be used for manufacturing the spacecraft hardware, where launch energy required would be so low that it would no longer dominate system cost.

Then there have been exciting advances in semiconductor devices, which should be of interest to readers in the Silicon Forest.

Solid State microwave sources have recently been demonstrated at 80% PAE (e.g. GaAs at 3.5 GHz) and 70% PAE (SiC at 10 GHz). These devices have much lower weight and smaller footprint than

vacuum tubes such as TWTs, Klystrons and Magnetrons of the original 1970's proposals.

Then there have been advances in photovoltaic efficiencies, 28% space qualified cells are now available, and 40% efficiency has been demonstrated for experimental cells. Research continues to improve efficiencies even more.

Other advances in the aerospace field include more advanced composite materials with lighter weight and greater strength.

Each of the above factors alone might not be enough to justify investment in SBSP, but considered in aggregate the case becomes compelling.

From a local interest standpoint, the Silicon Forest is well positioned to benefit from a major effort to build and launch Solar Power Satellites. Unprecedented quantities of microwave devices will be needed, as well as PV devices and rectenna diodes. This would be a bonanza for the semiconductor industry.

Where do we go from here? The future is difficult to predict. The NSSO is currently evaluating options for near-term research projects, such as terrestrial microwave power beaming demonstrations at ground level. Then LEO demonstrations, space to ground and spacecraft to spacecraft.

In the meantime we need to forge alliances and continue the process of education. We need to explain the benefits to the leadership and decision makers throughout government and industry and develop a roadmap.

Readers can discuss this article at the author's blog: telepower.wordpress.com

Two Former Congressional Staffers Receive IEEE-USA Distinguished Public Service Award

Former congressional staff members William B. Bonvillian and David J. Goldston received the 2006 IEEE-USA Distinguished Public Service Award on Capitol Hill. The award, which is usually given to a member of Congress, is being presented to Bonvillian and Goldston for their "outstanding support of science and technology-related

legislation and policy in the U.S. Congress."

"This year we are honoring two of the most effective and hardworking congressional staff members whose leadership over the past several years has been instrumental in legislation affecting the technical community," said IEEE-USA President-Elect Russ Lefevre, who will make the presentations. "By extension, we are recognizing countless other congressional staff whose efforts are behind all legislative successes."

Bonvillian is a former legislative director and chief counsel for Sen. Joseph Lieberman (I-Conn.). He has been a stalwart supporter of federal R&D programs since his tenure in the Department of Transportation (1977-80). Bonvillian now works for the Massachusetts Institute of Technology as director of federal relations and head of its Washington office.

Goldston, during his more than 20 years serving Congress, stood alongside retired Rep. Sherwood Boehlert (R-N.Y.) as champion supporters of federal R&D programs. Goldston is currently a scholar in residence with the Woodrow Wilson School of Public and International Affairs at Princeton (N.J.) University.

IEEE Oregon Section 2007 Contacts

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Editorial submissions are welcome and should be made by the 25th of the month preceding publication. Send all items to the Editor, Allen Taylor, 503-656-0831, email: allen.taylor@ieee.org

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To contact us, see www.ieee-or.org/contact_us.