



# The Nigerian Society of Engineers

PORT HARCOURT BRANCH

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website: www.nseph.org

e-mail: info@nseph.org

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## NIGERIA TO BUILD ADDITIONAL 8.5 ML MT/YR TRAINS AT BONNY LNG

The Nigerian National Petroleum Corporation is considering expanding its Bonny LNG plant with the addition of a seventh and possibly an eighth train, each with a capacity of 8.5 million, its managing director, Mohammed Barkindo said on Monday. "We are exploring the possibility of expanding with a seventh and eighth train of 8.5 million mt/year each," Barkindo told an LNG session at the World National Oil Companies Congress in the UAE capital Abu Dhabi. The Bonny LNG plant is owned by Nigeria LNG, a joint venture between state-owned NNPC, Shell, Eni and Total. The six train plant, which supplies about 10% of the world's LNG, currently produces 22 million mt/year. Barkindo said that Train 7 was in the pre-FID (final investment decision phase) and would not proceed unless Nigeria was satisfied that its domestic gas requirements were met by both NNPC and its joint venture partners. Train 8 was only under consideration at this point and was also contingent on meeting the West African state's demand, which Barkindo said was set to rise by 5 billion cubic feet/day by 2013. Nigeria needs to add 1.2 Bcf/day of gas supply by the end of the year, he said. OPEC member Nigeria is aiming to increase domestic utilization of natural gas and has asked operators to commit a certain volume of their output to the country's domestic market. High crude oil prices in recent years had created "significant shifts in the West African sub-region," Barkindo told the conference. He said that the shift was from dependence on crude oil and products for power plants to gas fired plants, and that it had created a "huge upset" in regional gas demand. "From a historical low utilization of less than 3 Bcf/d, there is potential for growth to as high as 20 Bcf/d in demand so the potential for growth is high. The challenge is growing supply to meet demand." Barkindo also said that country's Gas to Liquids project, a joint venture with the US' ExxonMobil was under internal review, but declined to say if the project was being shelved. "Some of these issues are contractual issues. Some of them are cost issues," he said. "We have seen an escalation in the cost of the project in comparison with similar projects in Qatar," Barkindo said, referring to the GTL plant being developed by Shell in the Arab emirate. "The global pace of energy and the dynamics of the market, especially in the last few years, will definitely impact on such projects. Major reviews are being carried out not only in Nigeria but other competitive countries like Qatar are subjecting these projects to further reviews." E-Newsletter will appreciate if Nigerian Engineers and contractors are utilized in this project.



## INFRASTRUCTURE HIDDEN ASSETS- PIPELINES 2009, SAN DIEGO, CA AUGUST 15-19

The worldwide market and demand for infrastructure materials and other economic events in recent times forces agencies, engineers, manufacturers, contractors and operators to evaluate all aspects of their pipeline infrastructure projects. All stakeholder parties associated with pipelines are considering "Sustainable Infrastructure" and managing their "Hidden Assets".

The **Pipelines Conference 2009** will be held in **San Diego** and is expected to draw interest from all facets of industry i.e. owners, consultants, academia, contractors, and manufacturers. Participants are expected from around the world. Based upon the conference subject matter, previous ASCE Pipeline specialty conferences and other industry symposiums, it is expected that conference attendance and participation will be upwards of 600 pipeline and related professionals and 60 to 70 exhibitors.

### **WHY SHOULD YOU ATTEND?**

- This conference is an excellent opportunity to assert leadership in the field of pipeline engineering.
- Workshops, technical papers, and panel discussions will be organized to cover special topics and recent regulatory initiatives in the water, wastewater, oil and gas industries. Topics will include: Pipeline Durability, Operation and Maintenance, Infrastructure Assessment and Monitoring, Planning, Risk Management, Hydraulic Design, Design, Construction and Specialty Areas.
- ASCE's Annual Pipeline Specialty Conference has a great history of success. It is one of the best ongoing conferences serving the Pipeline Engineering profession.
- Attendees are focused on areas such as pipeline location and installation, pipeline operation and maintenance, pipeline rehabilitation, risk management, safety, pipeline engineering and construction, pipe materials, corrosion protection, pipeline regulations and case histories, just to name a few. Most likely your products or services would offer solutions in one or more of these areas.

Excellent venue to display and demonstrate your product and services to the right people.

**If you are involved in any way with the pipeline industry we recommend that you attend this annual conference as "good business."**

The Steering Committee and NSE PH Branch e-newsletter PH invite you to attend **Pipelines Conference 2009** in San Diego, California, **August 15 – 19, 2009**. We sincerely hope you will participate as a paper presenter, sponsor, exhibitor or attendee.

See you in San Diego!!



### **POINT ENGINEERING LIMITED**

An independent and wholly (100%) Nigerian engineering consultancy company with a strong commitment to proving a POINT for indigenous participation in the Nigerian Oil & Gas and Petrochemical Sector by providing complete; quality assured engineering design, project management and related consultancy services capable of satisfying the most stringent requirements of our clients wherever it is required using the best available technical skills.

## INFOFUSE- Researchers Developed Technique For Chemically Coded Messages

**Chemically coded flares** may one day join the ranks of telecommunication methods. In a chemical analog of Morse code transmission, burning a metal-treated material reveals a message to a remote viewer. Harvard University chemistry professor [George M. Whitesides](#), postdoc Samuel W. Thomas III, and their colleagues devised the chemical communication technique, which they call an "infofuse" (*Proc. Natl. Acad. Sci. USA*, DOI: [10.1073/pnas.0902476106](#)).

With further development, this proof-of-concept technology could be used in applications such as a device to transmit information during a rescue operation, Thomas says. Or it could be combined with a sensor in a device that would transmit a warning signal when, say, a pollutant was detected in the environment, he adds.

The researchers encode a message by applying a succession of dots of various alkali metals on a fuse made of a nitrocellulose strip. To demonstrate the concept, they created a code in which a particular combination of metal dots corresponds to a particular alphanumeric character. The letter c, for example, is represented by a dot of lithium and rubidium followed by a dot of cesium.

Once the message is ready to send, the fuse is lit. As the flame moves through the nitrocellulose strip, each successive metallic dot burns and emits light of characteristic wavelengths. A spectrometer or camera ascertains which wavelengths are successively emitted, thereby revealing the identity and order of metals that had been placed along the strip.

Currently, the signal is detectable as far as 600 meters from the fuse, Thomas says. He believes this limit could be stretched beyond 1 km. Signals of greater complexity could be encoded by utilizing other properties of light, such as intensity, he adds.

No external power such as a battery or electricity is needed to encode or send messages: The metals can be dotted on the fuse by hand, and message transmission merely requires a flame. A. Prasanna de Silva, who studies molecule-based information transfer at Queen's University of Belfast, in Northern Ireland, believes the work is significant because until now, "no such self-powered information systems that transmit over fair distances" have been developed.

### Registration Fees:

Fellow	N15,000.00
Member	N10,000.00
Student	N 2,000.00
Graduate/NYSC	N15,000.00

The Submission of paper shall be delivered by courier or by hand to the following:

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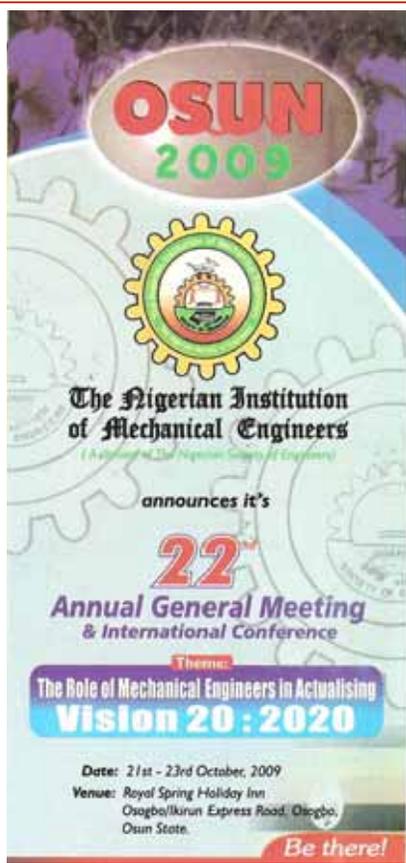
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1 Engineering close,  
Engineering House, 2nd Floor,  
Victoria Island, Lagos.  
Tel: 08033138695  
E-mail: saosamuel@yahoo.co.uk

### For more information contact:

Tayo: 08028644379  
01-4819422

### Agnes

08037260134  
01-7739783



## The Trouble With Touch Screens

Scientists search for a replacement for indium-tin oxide, a transparent conductor that's vanishing fast

**C**HANCES ARE that if you purchased a new handheld gadget this holiday season, it had some kind of touch screen. That's good news for touch-screen makers, but they face a problem that is literally invisible. Indium-tin oxide (ITO), the transparent conductor used in touch displays, is in short supply. In fact, experts predict that we could run out of indium, a silvery metal produced as a by-product of zinc mining, in the next 10 years. The price of the metal has shot up from around US\$100 per kilogram to nearly \$1000 in the past six years.

Fortunately, many companies and research groups are coming up with alternatives to conventional ITO technology. These include alternative ITO formulations that save on indium, organic polymer, and exotic options like carbon. By 2015, these alternatives will make up more than half of the market for transparent conductors, predicts market research firm NanoMarkets, in Glen Allen, Va.

The bulk of ITO goes to make transparent electrodes in flat-panel displays such as computer monitors and ever-expanding LCD TVs. But touch screens like those used for PDAs, supermarket kiosks, and ATMs will be easiest market to chase for makers of ITO substitutes. These devices contain ITO-coated plastic films separated by a thin space; touching panel brings these two layers together, connecting a circuit and indicating where the touch occurred. Alternatives to ITO might gain easier entry to the market for touch screens, because these displays typically have lower conductivity requirements than high-resolution color TV screens. And because some alternatives are flexible, they might have an advantage over brittle ITO coatings, which can crack with repeated pressing and bending. Any replacement technology will have to match ITO's transparency and come close to its conductivity while being more flexible and robust. Fujitsu has started selling touch screens made using the flexible polymer PEDOT. While this polymer is just as see-through as ITO, its conductivity (750 siemens per centimeter) is only one-tenth as much. Researcher at H.C. Starck, a German manufacturer of PEDOT, are getting higher and higher conductivities every year by doping it with different chemicals says vice president Stephan Kirchmeyer, though environmental stability is an issue. Unlike ITO, PEDOT degrades over time when exposed to light or heat.

Carbon nanotubes look more promising. In addition to being strong and flexible, they are easier and cheaper than ITO to deposit on glass and plastic surfaces, because they can be formed into a solution. By comparison, ITO is "sputtered" onto a surface in a vacuum, "a clunky and expensive process," says Peter Harrop, chairman at research and consulting firm IDTechEx in Cambridge, England.

A tangled mat of carbon nanotubes a few nanometers thick (and hence transparent) can match ITO's conductivity, says Paul Drzaic, chief technology officer at Unidym, in Menlo Park, Calif. Unidym is working with Samsung on an electronic-paper device that uses such electrodes; Samsung demonstrated a prototype early in 2008. Unidym plans to start selling kilometers-long rolls of its nanotube-coated plastic films this spring. Drzaic claims that the cost of the films should compare favorably with that of ITO coatings.

Innovations are brewing in ITO laboratories too. Groups in Europe are working on ITO formulations that use less indium. These work well but are harder to coat on plastic, Harrop says. Others are making conductive inks by mixing ITO nanoparticles with carbon nanotubes and other nano-materials. All of these approaches would save indium but are still in the lab. Meanwhile, researchers are cooking up indium-free transparent conducting metal oxides such as antimony tin oxide. Those are cheaper than ITO but just as brittle.

Indium-tin oxide won't be completely dethroned anytime soon—too many devices rely on the material. But for anyone who can develop a viable alternative, says Harrop, there are lots of opportunities.

- PRACHI PATEL PREDD

Curl'd from IEEE Spectrum Magazine  
January 2009.

### NOTICE! NOTICE!! NOTICE!!!

All members of NSE PH should pay their **annual branch dues** of N4000 and **compulsory levy** of N5000 towards the Engineer Resource Center to **UBA ACC. NO: 0802080000194 (Port Harcourt main Branch)**. Also pay **National Annual Subscription** of **N5,500.00** directly to **AFRIBANK ACC No. 14202215613** & forward all tellers to the secretariat for reconciliation. All payments should be made at the Bank