Science & Technology News from Japan, September 2012

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Swiss Professor Gives Keynote

(September 06-08, 2012)

Prof. Michael Graetzel of EPFL was a keynote speaker at the Annual International Conference on Flexible and Printed Electronics (ICFPE) held in Tokyo this year, and gave a presentation on flexible thin film sensitized solar cells. Other speakers included Prof. Ei-ichi Negishi, who won the Nobel Prize in Chemistry in 2010, and Mr. Ryoji Chubachi, Vice Chairman of Sony Corp. The conference attracted a record 1,200 participants from industry, academia and government, reflecting the wider attention the research field is enjoying. The ICFPE is an annual international conference initiated by Japan, South Korea and Taiwan in 2009. The 2014 conference will be held in China.

Japanese Corporation Acquires Swiss Company

(September 27, 2012)

IHI Corporation of Japan has entered into an agreement to acquire Ionbond, a worldwide leader in wear protection coatings headquartered in Switzerland. IHI provides thin-film technology to industrial customers through its Physical Vapor Deposition equipment and services, and together with its subsidiary Hauzer Techno Coating B.V. (“Hauzer”) in the Netherlands, is a leader in Diamond-like Carbon technology. Going forward, Ionbond, Hauzer and IHI will work together to provide a comprehensive portfolio of services in both metal and non-metal applications, furthering IHI’s ambition of becoming a global leader in heat treatment and thin-film technology markets.

1. Science and Technology Policy in Japan

Nuclear-Free Strategy Postponed

(September 19, 2012)

The cabinet of Prime Minister Yoshihiko Noda effectively postponed a decision on the government's own energy and environment strategy, which called for shutting down all of Japan's nuclear plants by the 2030s. At a cabinet meeting, the government instead approved only the basic policy, which mentions the possibility of reviewing the strategy through discussions with municipalities and the international community. The government apparently made the decision in consideration of municipalities that host nuclear plants, as well as the U.S. The move leaves room for a policy review, including abandoning nuclear power. The energy and environment strategy will be treated as a reference point for further discussion.

2. Education

Increasing Interest In Top Western Universities

(September 03, 2012)

Many Japanese high-school students are showing a strong interest in attending prestigious overseas universities by participating in the events organized by the latter. In August, Japanese and U.S. high-school and university students gathered at an inn in Tokyo's Bunkyo Ward for an eight-day, nine-night program organized by students from Harvard, the University of Tokyo and Hitotsubashi University. A total of 80 high-school students were selected from more than 300 applicants to participate in the program. Also in August, Yale dispatched a group of 15 students to Japan to organize a six-day summer camp. The program, which drew 40 Japanese high-school and university students, included a competition on proposals for an ideal school and discussions on paths people can take in pursuing an education.

Business University For Women

(September 09, 2012)

One pioneer in the shift toward business education is Yasuda Women's University in Hiroshima, which opened its Faculty of Current Business in 2003. The university, founded in 1966, originally had only a Faculty of Literature. It was among the first women's colleges to offer business education tailored to women. The change brought higher enrollment and helped graduates land better jobs. In the six years since the Faculty of Current Business was set up, its job placement rate for graduates has been nearly 100%. Since the addition of three faculties, including the Current Business Faculty, the university has held its acceptance rate at about one out of four applicants.

Japanese University To Establish Campus In Bangkok

(September 20, 2012)

Meiji University will establish its first overseas campus in Bangkok next spring. The school envisions the campus as a place where students from Japan and Southeast Asia learn side-by-side, and where Japanese students can develop an international mind-set in an economically dynamic region. The Meiji-ASEAN Satellite Campus will be based in a building on the campus of Srinakharinwirot University. It will provide such courses as Japanese language and Japanese culture. Meiji University will also send Japanese students to the campus to provide them an opportunity to interact with their Southeast Asian counterparts.

3. Life Science / Health Care

Targeted Radiation Technology To Destroy Just Tumor Cells

(September 04, 2012)

Researchers from Osaka Medical College and elsewhere have developed radiation therapy technology that destroys malignant brain tumor cells without damaging normal tissue. The team, which also includes personnel from Kyoto University, Stella Pharma Corp. and Sumitomo Heavy Industries Ltd., has been studying boron neutron capture therapy. The technique uses a particle accelerator instead of a nuclear reactor to create neutrons. Subjects of clinical trials will be injected with a chemical compound tagged with boron, which preferentially concentrates in tumor cells. During neutron irradiation, the boron compound in the cancer cells emits strong radiation, destroying just the cancer cells.

Particle Accelerator For New Cancer Therapy

(September 15, 2012)

Mitsubishi Heavy Industries Ltd. and the University of Tsukuba said that they have developed a device that will allow ordinary hospitals to offer a cancer treatment that uses neutrons to zap tumors. Boron neutron capture therapy had required a nuclear reactor to supply the neutrons, but the partners have developed a small particle accelerator to do this instead. In the therapy, a patient is injected with boron-tagged compounds which accumulate in just the tumors. Neutron irradiation then attacks only the cancer cells that have absorbed the boron, leaving normal cells virtually unaffected. The new device produces neutrons by accelerating a beam of protons and hitting a beryllium target.

Blue Laser Endoscope

(September 05, 2012)

Fujifilm Corp. introduced an endoscope system lit by a blue laser that helps identify potential cancer tumors. Compared with conventional white light, the blue laser light is better able to pick up anomalous blood vessel growth that can be a tipoff for cancer. The Fujifilm Holdings Corp. unit is the first among major manufacturers to employ laser light for a gastrointestinal endoscope.

3-D Images During Endoscopic Surgery

(September 12, 2012)

Olympus Corp. and the University of Tokyo have jointly developed a new support system for endoscopic surgeries that provides doctors with 3-D images of inside a patient's body. The system will help doctors avoid the ribs and other areas when they use surgical instruments, according to Olympus. Olympus and the university aim to commercialize it in five to six years. Existing endoscopic systems provide surgeons a limited field of vision, thereby requiring advanced skills for delicate procedures. The new support system is expected to make such surgeries less difficult.

Endoscope Venture

(September 28, 2012)

Sony Corp. and Olympus Corp. will jointly develop surgical endoscopes as a pillar of their business tie-up. As a next step, the duo will establish a joint venture to develop endoscopes, with a focus on a type used in keyhole surgery. Sony will hold a majority stake and appoint the new firm's president from within its own ranks. Olympus is the world's top manufacturer of gastroenterological endoscopes. Despite its 70% market share in this segment, the company trails foreign rivals in surgical endoscopes. Making the most of Sony image sensor and 3-D imaging technologies, the two partners aim to offer cutting-edge products through Olympus medical equipment sales channels.

Compact, High-Resolution OCT System

(September 06, 2012)

Canon Inc. is entering the market for optical coherence tomography (OCT) systems. The company, which already markets medical eyeground cameras, will soon release the new systems in Japan and Europe, leveraging its 2010 acquisition of Polish OCT system maker Optopol Technology SA. OCT systems use infrared light to capture cross-sectional images of the retina and other structures in the eyeground. The images aid in the diagnosis of glaucoma, age-related macular degeneration and other disorders related to hemorrhaging and ocular deformation. Canon collaborated with Optopol to combine the company's know-how with its own precision optical technologies to develop what it describes as a compact, high-resolution OCT system.

Tube For Aiding Nerve Regeneration

(September 07, 2012)

Toyobo Co. has developed a tube that helps ruptured nerves regenerate and reconnect. The tube is designed to be inserted into the section where a nerve is missing to bridge the gap. A special medical collagen coats both the inside and outside of the tube, spurring nerve ending growth in the right direction. The tube, ranging between 0.5mm and 4mm in diameter, is made of a material the human body can absorb, allowing it to break down and disappear in about three months. By using the tube, operations can be carried out more easily and in less time, reducing the burden on patients. It also boosts the likelihood of regaining sensation to 84% from 67% for the conventional treatments.

Traceless Gene Manipulation Technology

(September 10, 2012)

New gene-modifying technologies that leave no trace of genetic manipulation have perplexed academic and corporate researchers. Seiichi Toki and his team from the National Institute of Agrobiological Sciences discovered that when a gene is cut with a lab-made type of enzyme called an artificial nuclease, part of its genetic information disappears. The genes of this enzyme can be manipulated within a certain time frame even if they are not incorporated into a chromosome. After this genetic mutation takes place, the enzyme disappears, leaving no trace of genetic manipulation. Toki and his team used this technology to develop a strain of rice without an allergy-causing gene.

Health Ministry To Analyze Cigarettes

(September 19, 2012)

The health ministry has decided to analyze all substances found in popular cigarette brands to better understand the adverse health effects of smoking with the aim of reflecting the data in its future countermeasures. The Health, Labor and Welfare Ministry has also decided to launch an expert panel by the end of this year to discuss stricter regulations for tobacco manufacturers and measures to prevent health hazards posed by second-hand smoking. The ministry will select about 10 brands popular in Japan and ask an outside research institution to analyze the substances within the cigarettes and smoke. The results of the test will be reported to the panel, which will consist of medical experts and consumers.

Chromosome Technology Produces Male Blowfish

(September 25, 2012)

Compound feed producer Chubu Shiryo Co. has developed a technology that uses chromosome engineering to produce male torafugu blowfish. “Shirako”, as the sperm-containing fluid of the torafugu is known in Japan, is a winter delicacy that is often served at expensive restaurants. Chubu Shiryo's technology involves feeding artificial hormones to male torafugu fry within 40-100 days of hatching to change their gender. These fish are then crossbred with ordinary males to produce species that carry YY chromosomes. The crossbreeding of YY torafugu with ordinary female torafugu fry produces males only.

Test Detects Depressed Employees

(September 01, 2012)

Mental health care provider SafetyNet will introduce a service that screens for stress and depression in corporate workers in just 5-10 minutes. Previously, such assessment was generally conducted through a questionnaire, often requiring respondents to answer more than 100 questions about such matters as their appetite and energy level. The new service uses CogHealth, a computer program developed by a group of Australian physicians and will be offered jointly with start-up Health Solution Inc. In the program, the subject performs five types of card game-like tasks. The speed, accuracy and consistency of responses tell whether the subject's brain functions have been impaired by severe stress or depression.

Test For Early Cancer Detection

(September 20, 2012)

Japanese researchers have developed a technology for testing blood samples for early signs of various types of cancer. The research team is based at the Kanagawa Academy of Science and Technology and led by Kenji Yasuda, a professor at the Tokyo Medical and Dental University. The team took continuous photos of blood samples on a finely grooved glass plate using a high-speed camera, and analyzed the images using self-developed equipment roughly the size of a desktop copier. They will collect samples from cancer patients to study the effectiveness of the equipment.

4. Nano / Micro Technology / Material Science

New Technology Reinforcing Concrete Structures

(September 05, 2012)

Shimizu Corp. has developed a technique for making concrete structures more resistant to strong shocks for half the cost of conventional technology in about one-fifth of the time. Developed with the National Defense Academy of Japan and Mitsui Chemicals Inc. subsidiary Mitsui Kagaku Sanshi, this technology sprays polyurea resin on a concrete surface. A polyurea-covered concrete object takes on a rubbery quality. By twisting and bending upon impact and then returning to its original form, such an object can withstand a shock that would normally break it apart. Tests at the defense academy found that ferroconcrete objects covered in a 2mm-thick polyurea layer maintained their overall shapes despite developing internal cracks after repeated exposure to strong impacts.

Atomic Analysis Of Storage Batteries

(September 05, 2012)

The world's first device for analyzing the inner workings of an operating storage battery has been developed by a project team led by Toyota Motor Corp. and the New Energy and Industrial Technology Development Organization. The device, completed at the Japan Proton Accelerator Research Complex, emits neutrons to analyze what goes on inside the battery at the atomic level. It is expected to speed development of better-performing, more durable next-generation storage batteries and higher capacity lithium ion batteries. The project team involves researchers from 12 companies as well as a total of 14 universities and public research institutions.

Subsidies For Light Metal R&D

(September 18, 2012)

The Ministry of Economy, Trade and Industry plans to join hands with JFE Steel Corp., the University of Tokyo, Tohoku University and others to develop strong, lightweight metals for use in cars and trains. The ministry intends to provide 6 billion yen for R&D in 2013 to come up with new alloys of such metals as titanium and aluminum. The partners will also work on developing a new type of automotive steel sheet composed of several layers of hard and soft iron, making it lighter than a conventional steel sheet but twice as strong. With this, automakers may be able to build car bodies that are currently impossible due to weight, strength and cost considerations, in addition to designing more fuel-efficient vehicles.

Increase Of Carbon-Fiber Prices

(September 11, 2012)

Toray Industries Inc. will raise prices on carbon fiber used in wind turbines, industrial plants and bridges by 10-20%. With Germany and Switzerland planning to go nuclear-free in the near future, global wind power generation capacity is expected to double over the next five years. The world's top carbon fiber producer, with roughly 40% of the market, seeks to use the price increase to offset the rising cost of crude oil. Commodity-grade carbon fiber now sells for an average of around 27 dollars a kilogram in international transactions, and Toray aims to lift the figure to at least 30 dollars.

Hydrogen Produced From Sewage Sludge

(September 11, 2012)

Toyota Tsusho Corp., Mitsui Chemicals Inc., Daiwa Lease Co., and Japan Blue Energy Co. have joined forces to produce hydrogen at low cost from sewage sludge. Hydrogen can be used as a fuel source for fuel cell cars. But today, it is typically made from liquefied natural gas and other fossil fuels in a relatively expensive process. Using sewage sludge not only promises to be much less costly, but will also release 75% less carbon dioxide during the hydrogen production process. The four partners announced that their newly formed business research group has begun verification testing at a pilot plant. Heated aluminum oxide balls are used to remove hydrogen from sewage sludge, which is usually simply incinerated at sewage treatment plants.

UV-Responsive Conductive Materials

(September 23, 2012)

A research team at Ehime University said it has succeeded in developing the world's first organic compounds that combine high electric conductivity and magnetism under ultraviolet irradiation. The two compounds work at room temperature. The team led by Professor Toshio Naito expects them to be applied to computers. While commonly used computer systems use different materials for data processing and storage, the new compounds enable the execution of both functions as well as a significant reduction in power consumption thanks to electric conductivity around one million times higher than that of metals. The characteristics of the compounds cannot be fully explained yet and more research will be needed to understand their structures in detail.

5. Information & Communications Technology

All-In-One Atomic Force Microscope

(September 01, 2012)

Swiss company Nanosurf introduced its newly developed atomic force microscope system in Japan with its partner Techscience Ltd. at the JASIS 2012 exhibition. The so-called NaioAFM includes scan head, controller, video camera, XY-stage, air-flow protection and antivibration isolation in a single device.

Cyberdefense Unit In The Ministry Of Defense

(September 04, 2012)

The Ministry of Defense is moving to assemble a team to protect the nation's computer systems against organized attacks by international hackers. The new unit, expected to be in place with a staff of more than 100 by the end of 2013, is supposed to bolster the nation's cyber defenses. Spanning the three branches of the Self-Defense Forces, it will gather information on cyber-attacks, analyze attackers' methods and simulate countering and pursuing them. In parallel, the ministry will begin R&D on ways to analyze viruses used by hackers and on new viruses designed to track down attackers.

Two Standards For LED Lightning Sockets Proposed

(September 04, 2012)

Two electronic consortiums have proposed new standards for commercial-use LED lighting in Japan. One is led by Panasonic Corp. and other major Japanese consumer electronics manufacturers, aiming to make the JEL801 type of lights the standard. The other group includes such major foreign companies as Royal Philips Electronics NV of the Netherlands, as well as midsize Japanese firms. They are promoting the G13 type of LED lights, which lock into sockets in the same way fluorescent lights do. That means new fixtures are not required for those seeking to replace their lighting with this type, reducing replacement costs by about half in comparison with JEL801.

Water Resistant Tablet

(September 05, 2012)

Sony Corp. has introduced a lighter, sleeker tablet computer with water-resistant features. The Xperia Tablet S weighs roughly 570 grams. The touch screen can be used with wet hands, making the tablet suited for accessing recipes while cooking.

Global Smartphone Payment Systems

(September 06, 2012)

Dai Nippon Printing Co. and Toppan Printing Co. are each developing a cloud-computing-based mobile payment system that lets smartphones act as credit cards almost anywhere in the world. Both systems are based on near-field communication (NFC) technology, which VISA International and MasterCard use for noncontact, noncash payments made via smart-chip equipped credit cards. Called payWave by Visa and PayPass by MasterCard, these services are currently available in select countries such as the U.S. and South Korea. In Japan, NFC technology is used to allow noncontact, noncash credit card payments using smartphones and other mobile devices.

Ultrasmall Ceramic Capacitor For Smartphones

(September 06, 2012)

Murata Manufacturing Co. announced the development of a monolithic ceramic capacitor that takes up just one-quarter of the volume of the smallest currently on the market. The new device measures a record-shattering 0.25 x 0.125mm in size. With mounting the tiny capacitors posing a challenge for existing machinery, Murata will collaborate with equipment makers to develop new machines so smartphones can take advantage of them.

Improved Weather Forecasts

(September 03, 2012)

Researchers at the University of Tokyo say they have developed a way to more accurately predict rainfall levels around the world by analyzing massive amounts of information. The system can forecast how much rain a specific location in Japan will receive 15 hours in advance, the researchers say. The technology could help prevent flooding by giving authorities more time to adjust water levels at dams before heavy rains. The system gathers meteorological data collected from around the world via satellites, radar images and rain gauges, and analyzes the information using high-performance computers. The amount of data automatically fed into the system will exceed 1 petabyte.

Wireless Smartphone Charger

(September 12, 2012)

Renesas Electronics Corp. has developed a semiconductor that can wirelessly supply power between a charger and an electronic device. Among its features, the new chip can power up a smartphone even if the charger is up to 10cm away, giving manufacturers greater flexibility in designing handsets and charging devices. Moreover, the new chip can provide the functionality of the near field communication protocol, which is used to settle transactions made via contactless credit cards or similar devices. Because the product combines the functions normally provided by two separate chips, it enables devices to be designed thinner and smaller.

Data Analysis For Managing Natural Disasters

(September 13, 2012)

The Japanese units of Google Inc. and Twitter Inc. said they will analyze data circulated on the Internet after the earthquake in March last year to explore ways to support disaster survivors more effectively. The joint business involves analyzing such data as information about evacuations, blackouts and traffic interruptions that were transmitted for about one week after the disaster. Other companies are also taking part in the joint business and offer their own data. For example, Zenrin DataCom Co. will provide data of the flow of people based on the GPS coordinates of their mobile phones, while Honda has accumulated travel information from its vehicles.

Home Energy Controlling Device

(September 13, 2012)

Panasonic Corp. will launch an energy-management device to connect electrical equipment and appliances at homes to visualize and efficiently control energy. The device, called AiSEG, will be launched along with air conditioners, IH (induction) cooking equipment and heat pump hot water supply systems that can be linked via a wireless network. In the home energy-management system equipped with AiSEG, users will be able to monitor the energy consumed by electronic devices, including televisions, computers and smartphones. The system will also help users save energy consumption by automatically controlling operation of compatible appliances.

4G LTE Network

(September 14, 2012)

KDDI Corp. said it will start offering high-speed 4G LTE (Long- Term Evolution) data communications services. The new service will be about eight times faster than conventional 3G services. It will facilitate high-speed data communications at speeds of 75 megabits per second. Mobile subscribers will be able to use a tethering function to connect their personal computers and other external devices to the Internet through their smartphones. KDDI will charge a flat monthly fee of 5,985 yen for its 4G LTE services, with tethering available for an additional 525 yen per month. The company will also start selling the iPhone 5, as Apple Inc.'s newest smartphone will be compatible with the LTE wireless standard.

Augmented Reality Experience With Sound

(September 18, 2012)

A Ritsumeikan University research group has developed a mixed-reality environment that incorporates sounds as well as sights. Mixed reality melds virtual reality with the real world, for example by overlapping digital images with the real environment seen with the eyes. By adding sound, the Ritsumeikan group has created an even more realistic experience. The system uses highly directional speakers positioned in the center of a planetarium-like domed room. The user enters this room wearing a head-mounted display and views overlapping images projected on the dome walls and on the display. Sensors detect the location of the user in the room and adjust the sound produced from the speakers accordingly.

Tokyo Game Show 2012

(September 21, 2012)

Social networking games and makers are in the spotlight at the world's biggest game exhibition, the Tokyo Game Show 2012. The social game market has been expanding thanks to the rapid spread of smartphones and tablets. Social game giant Gree Inc. secured one of the largest exhibit spaces. Software makers expanded their exhibits of social games in addition to games for conventional dedicated consoles. A total of 209 companies from all over the world participated with more than 1,000 game titles and related devices. Nintendo Co. skipped the show again, while Microsoft Corp. also refrained from running a booth.

EPFL Spin-Off with Booth at Tokyo Game Show

(September 21, 2012)

Swiss startup EverdreamSoft promoted its free-to-play online Trading Card Game at the Tokyo Game Show 2012 among big players such as gloops, Inc., GREE, Inc., Capcom, Co. Ltd. and Square Enix, Co., Ltd. The EPFL Spin-off, has a research agreement with the Swiss Federal Commission for Technology and Innovation (CTI) for the development of a secure mobile geolocation engine. The company is also working on a system for physical cards that can be transferred to the virtual world by the means of Near Field Technology (NFC).

Industry Projects At The K Supercomputer

(September 22, 2012)

Analyzing car crashes and researching disaster-zone construction are among the projects on deck for the K supercomputer. Out of 227 applications, permission to use the supercomputer was granted to 62, including 25 industrial projects. Toyota Motor Corp. will simulate the combustion of fuel inside an engine. The Japan Automobile Manufacturers Association plans to simulate crash tests on the supercomputer, reducing the need to destroy actual vehicles to test strength. By using K to analyze the strength of buildings in relation to the underlying ground, Takenaka Corp. may be able to determine how many piles it should use, and how deep to drive them, when laying foundations.

More Projects At The K Supercomputer

(September 21, 2012)

General contractor Shimizu Corp., Sumitomo Rubber Industries Ltd. and Dainippon Sumitomo Pharma Co. are also among businesses lining up to use the K supercomputer. The government will cover the operating costs for companies opting to disclose their research results. Shimizu plans to use K to analyze the effects of wind on buildings. Wind has a bigger impact than earthquakes in structures taller than 200 meters. Sumitomo Rubber plans to simulate how molecular structures react when a tire bends. Dainippon Sumitomo Pharma will use K to develop new drugs for treating cancer and mental disorders. It will also study how proteins that bond with drug substances interact with other proteins nearby.

New Optical Fiber Boosts Transmission Capacity

(September 21, 2012)

Nippon Telegraph and Telephone Corp. and three others have jointly developed an optical fiber with a higher data transmission capacity. The new fiber boasts a capacity of 1,000 Tb/s. This sets a new world record and marks a significant advance from the up to 305 Tb/s achieved by current technology. NTT, Fujikura Ltd., the Technical University of Denmark and Hokkaido University reported the milestone at the European Conference and Exhibition on Optical Communications, being held in Amsterdam. With the rapidly increasing volumes of data sent over the Internet, the technology will be used for the next generation of optical networks.

Computer Powered Glasses

(September 24, 2012)

Projects of the University of Tokyo are exploring technologies aimed at dramatically enhancing human cognitive and sensory abilities. One device looks like a pair of 3-D glasses. Looking at a document through the glasses activates a computer, which reads the text. The device, which has a camera that follows the user's eye movements, analyzes what the wearer is focused on, and pulls up related information from a database, serving up the data with voice and text. Another device is a drone equipped with a tiny camera. Unlike conventional drones operated by keyboard or joystick, however, this one responds to the pilot's movements on the ground. When the user squats, for example, the drone descends, when he jumps, it climbs sharply.

Wireless Carrier To Offer Social Games

(September 27, 2012)

NTT DoCoMo Inc. plans to launch social gaming on smartphones and other mobile devices around late November, a move that may have a profound impact on the market given that the wireless carrier has some 60 million subscribers. More than 10 developers, including Namco Bandai Games Inc., will develop and provide games. For DoCoMo, the content business, including distribution of video and music, is more profitable than just leasing out its wireless network. The social game market has grown rapidly over the past three to four years, driven mainly by Gree Inc. and DeNA Co.

Offshore Mobile Base Station

(September 27, 2012)

To strengthen its disaster preparedness, KDDI Corp. will begin testing a mobile offshore base station in cooperation with the Japan Coast Guard. The telecommunications firm will set up the equipment on the Kurose patrol boat and run tests in the waters off Kure, Hiroshima Prefecture. Last year's earthquake and tsunami devastated large chunks of land-based telecommunications infrastructure and left many people unable to communicate. Other telecommunications firms are taking similar steps. Softbank Mobile Corp. is conducting a pilot project to transmit radio waves via hot-air balloons, and NTT DoCoMo Inc. has built auxiliary antennas on some of its base stations to provide wider reception coverage during disasters.

The World's Smallest Power Supply Inductor

(September 28, 2012)

TDK Corp. announced that it has begun mass-producing the world's smallest power supply inductor, making it suitable for smartphones as manufacturers try to enhance the performance of their handsets. The coil-shaped component measures just 1.6 x 0.8mm, making it roughly 60% smaller in overall volume than those of rival manufacturers. To maintain high performance in a smaller package, TDK said it used semiconductor manufacturing technologies to fashion the coil wire from a metallic thin-film material that can withstand high current flow. And for the core of the coil, it used a metallic material with a high magnetic force.

Using The Cloud To Enhance TVs

(September 28, 2012)

Toshiba Corp. unveiled new televisions that let viewers quickly search for their favorite scenes and share video with friends via cloud computing technology. When the viewer enters keywords, the system finds relevant scenes via an Internet database of program information, presenting them on-screen. Viewers can use social networking sites to recommend and share video and photos. The TVs will be controllable via tablet computer, come in screen sizes of 32-65 inches and be able to record up to 40 hours of programming on six digital terrestrial broadcasting channels selected by the viewer.

6. Energy / Environment

Global Warming Scheme After 2013

(September 01, 2012)

The Japanese government plans a new mechanism to tackle global warming under which Japan will receive emission rights from developing countries in exchange for providing them with energy-saving technologies, government officials said. At the conference in Bangkok of the United Nations Framework Convention on Climate Change, the Japanese government explained the new scheme to participating countries. Although Japan will not commit to the second phase of the Kyoto Protocol starting in 2013, it has pledged to address global warming on a voluntary basis. The government considers the new system a means to slash greenhouse gas emissions after the first binding phase expires.

300 MW Offshore Wind Farm

(September 04, 2012)

Toshiba Corp., Hitachi Zosen Corp., JFE Steel Corp. and three other firms plan to jointly set up offshore wind turbines with a combined output of 300,000kw. The turbines will be built on top of steel tubes driven into the sea floor. First, the group plans to build a roughly 7,000kw pilot wind farm by 2015 to study wind flow, corrosion caused by salt, profitability and other issues. The project will swing into full gear around 2020 after the partners decide on a location. Potential sites include wind-rich areas off the coast of the Kyushu region in southern Japan. The construction of floating wind turbines will be considered later on.

Japanese Firms Market Leaders For Geothermal Turbines

(September 04, 2012)

Three Japanese companies dominate the global market for the turbines used in geothermal power plants, with a combined share of 70%. The three companies are Fuji Electric Co., Toshiba Corp. and Mitsubishi Heavy Industries Ltd. Unlike other renewable energy sources such as solar and wind power, geothermal power does not depend on the weather. Fuji Electric holds about 40% of the global market for geothermal steam turbines, based on sales over the last decade. The company delivered equipment for the world's largest geothermal plant in New Zealand in 2010.

2 MW Solar Farm Near Kumamoto Airport

(September 03, 2012)

Mitsubishi Corp. and the Mitsubishi Research Institute said that they will set up a 2-megawatt solar plant right next to Kumamoto airport. The major trading company's first domestic megasolar facility will be constructed on a 32,000m^2 plot owned by Kumamoto Prefecture in the town of Kikuyo. The duo will establish a special-purpose company soon and work toward beginning operations at the solar farm next March. The company will be 95%-owned by Mitsubishi and 5% by the Mitsubishi Research Institute. In 2010, the two Mitsubishi group members and the Kumamoto prefectural government signed a tie-up agreement on the promotion of businesses related to new energy sources and the environment. The megasolar farm is the first fruit of this pact.

Magma Chamber Of Mt. Fuji Under Increased Pressure

(September 06, 2012)

The magma chamber of Mt. Fuji has come under huge pressure that could trigger a volcanic eruption due to the devastating 2011 earthquake in northeastern Japan and another quake that rocked central Japan four days later. Based on the tectonic movements caused by the two earthquakes in March 2011, researchers of the National Research Institute for Earth Science and Disaster Prevention estimated about 1.6 megapascals of pressure, equivalent to atmospheric pressure of 15.8 kg/cm^2, has been placed on the magma chamber provided that it is located 15 kilometers under the ground. In the past, 0.1 to several megapascals of pressure have triggered volcanic eruptions including at Mt. Fuji, they said.

No Power Failures During Summer

(September 08, 2012)

The country has gotten through the summer without any blackouts, in part thanks to corporate energy conservation efforts. But the firms will face higher electricity bills down the road. The government ended its summer energy conservation targets for the service areas of Kansai Electric Power Co., Shikoku Electric Power Co. and Kyushu Electric Power Co. With most of the nation's nuclear plants offline, there were concerns over serious energy shortages in the peak season, but a number of companies set different energy conserving measures in to motion. For example, Komatsu Ltd. aimed to cut peak power use this summer by 25% from 2010 but achieved a 28% reduction in the July-August period.

13 MW Solar Farm In Yamaguchi

(September 12, 2012)

Mitsui Fudosan Co. will construct a 13,000kw megasolar facility in Yamaguchi Prefecture on industrial land leased from Taiheiyo Cement Corp. The solar farm will be built on a 160,000m^2 plot in the city of Sanyo Onoda, the real estate developer announced. The faculty is scheduled to be online in 2013. Plans call for running the site for 20 years, with Mitsui Fudosan outsourcing the day-to-day operations.

250 MW Solar Farm In Okayama

(September 14, 2012)

IBM Japan Ltd. and six other companies plan to construct one of the nation's largest megasolar facilities in Okayama Prefecture. Under the project, announced by Setouchi City, the firms will build a power generation facility with a total output capacity of 250,000kw and start operating it in April 2016. The seven companies include Nippon Telegraph and Telephone West Corp., Toyo Engineering Corp. and Goldman Sachs Japan Co. up to 400 hectares of land will be used. In addition to the megasolar facility, the firms will likely build data centers and other facilities.

Liqueur Maker To Launch 2 MW Solar Farm

(September 15, 2012)

Medicinal drink producer Yomeishu Seizo Co. will enter the solar power generation business, aiming to take advantage of the recently introduced renewable energy purchase program. The firm plans to utilize a site in Tsurugashima, Saitama Prefecture, where it used to operate a factory producing an ingredient for its signature Yomeishu liqueur. It will set up a megasolar farm capable of producing up to 2,000kw. The facility will span 40,000m^2. Annual output is expected to reach 2.62 million kilowatt-hours.

2 MW Solar Panels Power Broadcast Station

(September 15, 2012)

A solar-power system installed at an NHK AM radio broadcast station in Kuki, Saitama Prefecture, provides all the station's power needs when the system is operating at peak output. About 8,000 solar panels at the station provide enough electricity to transmit two NHK radio services and operate the facilities at the NHK Shobu-Kuki radio broadcast station. The maximum daytime output is 2,000 kilowatts. It is estimated the system will reduce the facility's annual carbon dioxide emissions from 5,500 tons to 4,400 tons.

Construction Of 20 MW Wind Farm In Ehime

(September 22, 2012)

Electric Power Development Co., the utility known as J-Power, said that it began work on a 20 megawatt wind power station in western Japan. The wind farm in Uwajima, Ehime Prefecture, will use nine turbines made by Mitsubishi Heavy Industries Ltd., the firm said. J-Power has 18 operating wind farms across the country and expects the new plant to start in September 2014, it said.

Portable Hydrogen Fuel Cell For Smartphones

(September 19, 2012)

A research team led by Rohm Co. announced that it has developed a portable hydrogen-powered fuel cell that is lightweight, inexpensive and safe. The team, which also includes Kyoto University and fuel-cell start-up Aquafairy Corp., has devised a hydrogen generator that uses a sheet of calcium compound solidified by resin. It generates 4.5 liters of hydrogen from 3 grams of calcium compound through a chemical reaction with water. Combined with the polymer electrolyte power generation technology, the fuel cell can produce 5 watt-hours of electricity, enough to charge a smartphone in two hours. The team plans to commercialize a credit card-sized smartphone charger that weighs less than 100 grams as well as a 200-watt portable generator to be used for emergencies.

Research Into Liquefying Hydrogen Subsidized

(September 21, 2012)

The government is set to push research into ways to better liquefy hydrogen and store it for use as a fuel. Hydrogen is difficult to handle as it is most easily contained as a gas. But the government's plan is to promote research into technologies that would more easily liquefy large amounts of hydrogen for transport and storage. Hydrogen is most commonly produced through the electrolysis of water. When burned as a fuel, hydrogen does not emit carbon dioxide like fossil fuels do. As such, hydrogen-based fuel is seen as the ultimate clean energy. However, hydrogen is a gas at room temperature, making it cumbersome to carry as a fuel.

Fuel-Saving Cargo Ships

(September 10, 2012)

Nippon Yusen KK has discovered a way to save overall energy use for cargo ships by up to 6%. All it takes is blowing some bubbles. The shipping company is still testing the technology, but so far, the mere act of bathing the bottom of the ship in air is producing noticeable results for shallow-draft ships. The Soyo, a 90,000-metric ton coal carrier, built at the Oshima shipyard of Oshima Shipbuilding Co. uses this so-called air lubrication system. It is said to reduce fuel expenses for the vessel by 4 -8%. With high fuel costs putting pressure on management, the new technology could be a breakthrough to improving earnings.

Renewable Energy Production Increasing

(September 27, 2012)

The power-generating capacity of renewable energy systems is expanding faster than the government had forecast. According to figures released by the Ministry of Economy, Trade and Industry, the total certified capacity for alternative-energy equipment stood at 1.3 million kilowatts at the end of August. Additional capacity brought online totaled 680,000kw. Solar equipment for homes accounted for 600,000kw, with nonresidential solar capacity adding 60,000kw worth. Wind and biomass equipment each contributed 12,000kw. A fixed pricing system for renewable

energy began in July. With the purchase price of solar power set relatively high at 42 yen per kilowatt-hour for the first year, private firms are hurrying to install such equipment.

Solar Power On Industrial Facilities

(September 20, 2012)

ProLogis has announced it will introduce solar power generation systems at its domestic logistics facilities. The real estate firm specializing in distribution facilities aims to incorporate systems capable of generating a combined 24 megawatts at its facilities stretching from the Tohoku region in the north to the Kyushu region in the south. As a first step, eight facilities, including ProLogis Park Kawajima in Kawajima, Saitama Prefecture, and ProLogis Park Osaka 4 in Osaka, will start generating power in spring 2013. The company has already incorporated solar power systems capable of generating a total of more than 80mw around the world. At ProLogis Park Zama 1 in Zama, Kanagawa Prefecture, a system has been in operation since the facility was completed in 2009.

Increased CO_2 Emissions

(September 20, 2012)

Carbon dioxide emitted by the 10 regional power utilities came to 409 million tons in 2011, up 29% from the previous year. The shutdown of all of the nation's nuclear reactors due to the Fukushima disaster and the resulting return to thermal power generation contributed to the emissions spike, the Federation of Electric Power Companies of Japan announced. The federation has set a target of reducing carbon dioxide emissions by 20 percent from 1990 levels between 2008 and 2012. However, with all the nuclear reactors offline, it is going to be "very difficult" for the utilities to meet the target, the federation concluded.

Trial Run Of Floating Turbines

(September 24, 2012)

A trial run of a floating wind turbine is under way off the Goto Islands in Nagasaki Prefecture. Installed by the Environment Ministry, full-fledged operation of the floating wind turbine started in August. The cylindrical part of the structure is hollow, giving it buoyancy, while the lower half of the section below the sea surface is filled with 130 tons of concrete to hold it in place. The platform is fixed to the seabed floor with three mooring lines. The small turbine has a maximum output of 100 kilowatts. A 2,000-kilowatt turbine will be tested next spring. After studying the turbine's power generation efficiency and environmental impact, the ministry wants to establish practical offshore wind power generation technology in 2016.

Paper Solar Cells

(September 27, 2012)

Researchers at Osaka University have developed solar cells made of paper that offer cost and other advantages over conventional cells made of plastic. The group, led by Masaya Nogi, a professor at the school, used wood pulp, fine silver wiring and electricity-generating materials made of organic substances. The team says the cells are highly portable because of their light weight and bendability. The prototype, which measures 20 x 5 x 1mm (h x w x d), was capable of powering an electric light bulb. Because the cells can be made using circuit printing technology, they consume less energy and require less production space than conventional organic solar cells.

7. Space Development

JAXA To Transfer H-IIB Rocket Launches

(September 28, 2012)

The Japan Aerospace Exploration Agency said it plans to transfer launch operations for its mainstay H-IIB rockets to Mitsubishi Heavy Industries Ltd. JAXA and the company have been considering the possibility since the successful launch of the H-IIB Launch Vehicle No. 3 in July. JAXA will remain in charge of flight control for the rockets, the agency said. Mitsubishi, which is looking to expand its satellite launch business, will benefit from the move because the rockets can carry larger satellites than their predecessors in the H-IIA series. The H-IIB rocket series was jointly developed by JAXA and Mitsubishi, and the first two launch vehicles were successfully sent into space in 2009 and 2011.

8. Engineering / Robotics

Crash-Free Marine Robots

(September 04, 2012)

Mitsui Engineering & Shipbuilding Co. will develop a new undersea robot that uses sophisticated sensors to allow multiple machines to search for resources near the ocean floor without colliding. The robot's collision-avoidance system will allow more than one device to operate in the same area simultaneously, reducing the time required to explore 5 km^2 from three days to just one. The company is confident it can sell the improved device, estimated to cost several hundred million yen, to research institutions, universities and government agencies, which are keen to find resources such as rare-earth metals at the bottom of the sea near Japan.

Plug-In Hybrid SUV

(September 07, 2012)

Mitsubishi Motors Corp. has said it will start domestic sales of a plug-in hybrid sport-utility vehicle at the beginning of next year. The Outlander PHEV with a 2,000cc engine is equipped with a high-capacity lithium-ion battery. Although the vehicle is about 400 kilograms heavier than Toyota Motor Corp.'s Prius PHV, it can yield equal or better fuel efficiency, the company said. To save fuel, the drive mode switches automatically according to road conditions. Mitsubishi Motors will also launch the new vehicle in European and North American markets. For city driving, the vehicle uses only the battery-powered front and rear motors. The gasoline engine provides power, however, if the battery's charge falls below a predetermined level or when the vehicle accelerates.

New Devices To Help Blind And Deaf People

(September 11, 2012)

Precision machinery manufacturer Nidek Co. and researchers from the Osaka University Graduate School of Medicine are now jointly working on a project to create an artificial retina. This technology could be used to help blind people read. The artificial retina was designed for people who have lost their sight due to pigmentary degeneration of the retina, which is the second-leading cause of blindness after glaucoma. Juichi Ito, a professor at Kyoto University, is working with a team that is making a device that can help deaf people hear. The "Hibiki," as the device is known, is a thin, artificial membrane measuring just a few microns thick. The membrane is fitted with electrodes that can stimulate the auditory nerves in an individual's ear.

Recycling Hybrid Cars

(September 11, 2012)

Mitsubishi Materials Corp. announced that it will start reclaiming rare-earth magnets from hybrid car motors. To develop the business, it will partner with the Honda Motor Co. group to arrange an all-encompassing process from collecting discarded vehicles to removing the magnets. Mitsubishi Materials is already the nation's leading recycler of materials from consumer electronics. In 2020, the number of junked hybrid cars is expected to reach 400,000 units in Japan alone. That translates into 240 tons of rare-earth magnets containing 24 tons of the dysprosium, equal to around 4% of Japan's annual demand for the metal.

All-Electric SUV Concept

(September 13, 2012)

Nissan Motor Co. unveiled the Terra Concept, an eco-friendly all-wheel-drive sport utility vehicle featuring a drivetrain that consists of an electric propulsion system and in-wheel motors. The front wheels are powered by the electric motor and battery system currently used in the Leaf electric car. The rear wheels, when in all-wheel drive mode, get their thrust from in-wheel electric motors, based on Nissan's working prototypes. As no drive shaft is required, the cabin deck is made flat, creating more interior room. The driver docks an electronic tablet instead of using a key when entering the car. The tablet works not only as an instrument panel but also as navigation and audio-video control systems.

Preventing Accidental Acceleration

(September 17, 2012)

Nissan Motor Co. has developed a system using cameras and sensors that suppresses acceleration and applies the brakes of parked cars if the driver mistakenly presses hard on the accelerator. The system employs four cameras, one on each side of the car, and ultrasonic sensors on the front and rear. The system is designed to detect parking-space lines and walls and other obstacles around cars in such places as parking lots, and automatically engage the brakes when the accelerator is pressed in these circumstances. In 2011, there were 6,432 car accidents nationwide caused when drivers accidentally stepped on accelerators instead of brake pedals, according to the National Police Agency.

Green Cars Announced

(September 25, 2012)

Toyota Motor Corp. plans to bombard the global market with an array of environmentally friendly cars, including a small electric vehicle, 21 hybrid models and fuel sipping cars sporting smaller engines. The eQ EV, to be released in December, can run 1km on just 104 watt-hours of power, a world record, according to Vice Chairman Takeshi Uchiyamada. It will be able to run about 100km when fully charged by new lithium ion batteries, and its top speed will be 125km/h. Toyota was at first cautious about branching out into EVs under a green-vehicle strategy that positioned hybrids and plug-in hybrids as the main pillars. But the automaker has concluded that consumers will want EVs for traveling short distances.

Alliance To Build Business Jet Engines

(September 25, 2012)

IHI Corp. will develop engines for business jets with General Electric Co., taking charge of design and production for about 30% of the components. The Japanese heavy industry giant will join the effort to build GE's Passport 20 engine, already chosen by Canadian firm Bombardier Inc. for a new jet. Plans call for developing an engine with 10-20% better fuel efficiency than existing models by 2015. IHI will be responsible mainly for core components, such as low-pressure turbines.

GPS Watch Announced

(September 18, 2012)

Seiko Watch Corp. will launch a wristwatch that uses GPS technology to get accurate time and location readings. Until now, the company's watches have used radio waves to automatically receive standard time. A major strength of GPS watches is that they work anywhere on the globe. It takes GPS watches only six seconds to receive data, compared with at least two minutes for the other type. Despite their technological advantages, GPS watches suffer when it comes to power consumption. According to Seiko, such timepieces gobble up power 100-200 times faster than radio-controlled watches.

Robot For Assisting Disabled At Home

(September 21, 2012)

Toyota Motor Corp. has developed a prototype robot for assisting the disabled and the elderly at home in their daily activities. Weighing 32 kilograms with a maximum height of 133 centimeters, the robot can pick up objects such as a TV remote control unit or a plastic bottle, open curtains and collect things placed at locations of up to 150 cm. Users can operate the robot, which is equipped with two lenses functioning as eyes and a folding arm, by voice command or a tablet computer. The robot can also pick up thin objects such as a piece of paper using finger-like grippers.

New Motorized Walker

(September 22, 2012)

Kowa Co., which makes health care products for the elderly, and Murata Mfg. Co. unveiled a motorized two-wheeled walker that can sense inclines and help seniors keep their balance. A light push on the handle starts the tires moving automatically. On inclines, the walker adjusts itself to the steepness to keep from becoming a burden on the user, whereas typical models would need to be pushed or dragged.

R&D Subsidies For Heat-Recycling Tech In Hybrid Cars

(September 26, 2012)

The government plans to offer financial assistance to develop technologies that can recycle heat emitted by hybrid vehicles to power in-vehicle air-conditioning systems. The Industry Ministry and the Science and Technology Ministry will offer subsidies to facilitate research projects aimed at improving the performance of heat-insulating and heat-storing materials. The government, which views waste heat as a recoverable energy source, aims to improve the fuel efficiency of hybrid vehicles by 30% by 2020. The ministries plan to launch joint research projects next year, primarily to develop heat-storing materials with Toray Industries Inc. and Mitsubishi Materials Corp.

Operational Armored Suit

(September 28, 2012)

After roughly two years of work, the two robot fanatics, artist Kogoro Kurata and student Wataru Yoshizaki, have turned their animation-inspired dreams into reality and created a 4-meter-tall bot. The robot is no mere polystyrene exhibit. The four-legged, 4-ton steel behemoth, which boasts around 30 hydraulic joints, is fully operational. And just like anime robots, it has a cockpit for the "pilot" to climb into and operate it. Kurata started the project in January 2010, deciding to base it on his past efforts, such as the time in 2005 when he built a full-scale but inoperable replica of the robot featured in the cartoon series "Armored Trooper Votoms." PhD student Yoshizaki created the control system software for the robot.

9. Nuclear Development

Activists Bring Radioactivity Data To The Japanese Public

(August 30, 2012)

While in Japan, Robin Scheibler, an assistant PhD at EPFL, has been involved in a public initiative to share radiation data. A group of engineers including Scheibler made a portable Geiger-counter, the bGeigie, lent them out to volunteers who would collect data and eventually post them online. The device is a self-contained waterproof box with a Geiger-counter and a GPS to enable radiation level readings with geographical coordinates. Such data is recorded on a standard SD card and then made available online, empowering the public to take their own readings as a reaction to the lack of transparency.

Outside Panel To Oversee Nuclear Reforms

(September 09, 2012)

Tokyo Electric Power Co. will set up a committee of mostly outside experts to oversee reform of the utility's nuclear power unit and a task force to implement those reforms. Tepco's Fukushima Daiichi power plant was the scene of the worst nuclear accident since Chernobyl. The company hopes to restart shuttered reactors at other nuclear by demonstrating its commitment to radically change how it operates. The committee will have five members: former U.S. Nuclear Regulatory Commission Chairman Dale E. Klein; management expert Kenichi Ohmae; Masafumi Sakurai, a former chief prosecutor in Nagoya and member of a parliamentary panel that investigated the Fukushima accident; Tepco Chairman Kazuhiko Shimokobe; and a nuclear expert from Europe still to be determined. Ohmae was once a nuclear engineer at Hitachi Ltd.

New Decontamination Plant

(September 07, 2012)

Companies are making headway on better technology for decontaminating soil laced with radioactive fallout from the Fukushima Daiichi nuclear disaster. A team led by general contractor Maeda Corp. has developed a process that can remove more than 95% of radioactive cesium in debris, including the bits inside of cells in fallen branches and other plant matter. A prototype decontamination plant built in cooperation with environmental technology firm CDM Consulting Co. and others was able to remove about 70% of the radioactive cesium with one pass and more than 95% with two to three treatments. It decontaminated more than 80% of the soil that went in during testing.

Aomori Prefecture Considers Rejecting Overseas Nuclear Waste

(September 06, 2012)

The Aomori prefectural government is considering refusing to accept highly radioactive waste scheduled to be returned from reprocessing overseas if the central government abolishes its nuclear fuel cycle policy. The prefectural government was likely prompted to act by recent moves by the central government toward abandoning nuclear power generation. The village of Rokkasho in the prefecture is home to a spent nuclear fuel reprocessing plant that is considered to be the foundation of the nuclear fuel cycle, in which plutonium and uranium are extracted from spent fuel to be reused. Vitrified radioactive waste, the highly radioactive waste that is produced in the reprocessing process, has been shipped from Europe to the Vitrified Waste Storage Center at the Rokkasho facility.

Council Calls For Review Of Nuclear Waste Disposal

(September 11, 2012)

An organization representing scientists in Japan called on the government to review its plan to dispose of spent nuclear fuel and other high-level radioactive waste deep underground, citing the geological uncertainties regarding the current method. The Science Council of Japan also proposed keeping the waste at what it calls "temporary safe storage" sites during such a moratorium period for several decades to hundreds of years while seeking to establish the final disposal method. The council compiled the proposal in response to a request by the government's Atomic Energy Commission to look into the current efforts to select a final repository site for high-level radioactive waste, which are at a stalemate.

Decontamination Of Joban Expressway

(September 07, 2012)

Some sections of the Joban Expressway in Fukushima Prefecture that were closed last year due to high radiation may open as early as next year, as trial decontamination work by the Environment Ministry has succeeded in reducing the radiation to safe levels. Radiation levels at spots on a 24-kilometer stretch of the expressway, which runs north-south in the prefecture, were reduced to less than 50 millisieverts a year, which is considered safe for people to enter. Residents and businesses hope decontamination of the roadway will finish soon because the expressway is a vital transportation artery that will help speed up reconstruction work in the prefecture following last year's Great East Japan Earthquake and tsunami.

New Energy Policy Targets Nuclear-Free Japan

(September 13, 2012)

The government calls for shutting down all nuclear reactors by the 2030s and relying more on fossil-fuel-burning power plants in its forthcoming energy strategy. The draft of the energy strategy calls for "achieving a society not reliant on nuclear power as soon as possible." It lays out three basic principles. A 40-year limit on reactor operation is to be strictly enforced. Only reactors deemed safe by the new nuclear regulatory commission can resume operation, and no new ones would be built. A combination of conventional and renewable energy sources is supposed to fill the gap left by nuclear reactors. Notably, Japan would embrace coal again as a "base load" power source, after having downplayed the fuel out of environmental concerns.

40% Want Japan Off Nuclear Power As Soon As Possible

(September 28, 2012)

Most voters want all nuclear power plants shut down but they disagree on the timing. A Nikkei Inc. poll found that 42% favor deactivating all reactors "as soon as possible." Meanwhile, 27% said a phase-out should be completed "around the 2030s," while 23% see no need to abandon the atom at all. 37% of men want to abandon nuclear energy as soon as possible, compared with 47% of women. Young adults are also less inclined toward this option. Just 26% of 20-somethings are in favor, compared with more than 40% of age groups from 30 and up.

40-Year Rule For Reactors Enforced

(September 20, 2012)

The nation's new nuclear regulatory agency signaled that it plans to adhere to the 40-year service life rule for nuclear reactors, deciding that three aged reactors could be shut down immediately. The revised law on nuclear reactors that set the 40-year rule allows an extension of up to 20 years if safety is confirmed. But Shunichi Tanaka, a nuclear physicist who heads the newly launched Nuclear Regulation Authority, was dismissive of invoking the exemption. Kunihiko Shimazaki, a member of the authority, hinted that the watchdog will draw up tougher rules for nuclear reactors in earthquake-prone areas.

Nuclear Regulation Authority To Check Nuclear Sites For Active Faults

(September 28, 2012)

The Nuclear Regulation Authority will survey six nuclear facilities suspected of sitting atop active fault lines, according to member Kunihiko Shimazaki. If the authority concludes that a plant is potentially situated on an active fault, it will likely withhold approval for restarting. Reactors at such sites could be idled for the long term or dismantled. Those determined not to be on active faults will be in position to eventually resume operation. On the government's quakeproofing guidelines revised in 2006, "there are some inadequate parts regarding tsunami measures," Shimazaki said. The authority thus plans to create new guidelines by next July.

No Reactivation Of Nuclear Reactors In 2012

(September 22, 2012)

The newly launched Nuclear Regulation Authority suggested that reactor restarts will be on hold at least until next year because it needs about six months to draft new safety standards. This means the nation will have to pass the winter without atomic energy, except for two reactors at the Oi nuclear plant in Fukui Prefecture, the only reactivations to date since the triple meltdowns in Fukushima in March 2011.

10. Physics

Faster Earthquake Detection Technology

(September 07, 2012)

Researchers from the International Superconductivity Technology Center, Tokyo Metropolitan University and Tohoku University have developed technology that warns of an earthquake more quickly than current early-warning systems. The new technology uses superconductivity to monitor changes in geomagnetism triggered by quakes. Geomagnetic waves travel through the ground over 10,000 times faster than seismic waves. A prototype detector has been installed in Iwaki, Fukushima Prefecture. Researchers aim to put the technology to practical use, testing its effectiveness during actual earthquakes.

Riken Data Backs Discovery Of Atomic Element

(September 28, 2012)

Japanese scientists have obtained new data to support their discovery of the 113th atomic element on the periodic table, according to the Riken national research institute. A joint team of Russian and U.S. researchers is also claiming to have discovered the new element. International academic societies are examining which group will win the right to name it. If the Japanese get the honor, it will be the first time that Asian researchers get to name a new element. A Riken team successfully produced the 113th element in July 2004 and April 2005. The results, however, were not acknowledged by international community. The Riken team produced the element for a third time this year, validating their earlier discovery.

11. Intellectual Property Rights / Technology Transfer / Alliances

Acquiring In-House Production Of CMOS Sensors

(September 05, 2012)

JVC Kenwood Corp. has purchased a wholly owned U.S. sensor subsidiary of Olympus Corp. with an eye toward employing the unit's technology in professional video cameras and other products. The subsidiary, AltaSens Inc., develops CMOS (complementary metal-oxide semiconductor) sensors for capturing full-high-definition video and other high-quality images. As a fabless company, it outsources sensor production to foundries. JVC Kenwood's lineup includes consumer and professional video cameras, surveillance cameras, and other products based on CMOS sensors. The company now procures the sensors from domestic and foreign suppliers. It plans to take advantage of AltaSens' expertise by developing CMOS sensors in-house for use in some products.

Investment In Information Technology

(September 06, 2012)

Konica Minolta Holdings Inc. plans to spend some 40 billion yen on mergers and acquisitions this year, a major boost from 2011. While the office equipment market is sluggish in advanced countries, demand is growing for managed print services, in which the firm oversees equipment for companies looking to cut printing costs. Konica Minolta plans to acquire information technology services firms, which play a vital role in these services, as well as other businesses to expand its sales network. In 2011, it bought IT services companies based in the U.S., and it will focus on European firms now.

Fund To Invest In Japanese Start-Ups

(September 25, 2012)

The technology investment fund Atomica has set up a Japanese office and plans to invest in about one local venture a year. Atomico said the new Tokyo office will be headed by Shinichi Iwata, former president of Skype Japan KK. The office will have a staff of two, including Iwata. Its activities will also include helping ventures in which Atomico has invested make inroads into the Japanese market. Established in 2006 by Niklas Zennstrom, a founder of the Skype Internet telephony service, Atomico invests mainly in Internet and information technology firms. It has invested in more than 50 start-ups so far, including Rovio Entertainment Ltd., the Finnish developer of the popular "Angry Birds" games.

Settlement Of LCD Price Cartel Suit In U.S.

(September 11, 2012)

Toshiba Corp. will pay $30 million to settle a lawsuit in the United States over alleged price-fixing involving liquid crystal display panels and products containing LCD panels. The settlement follows a verdict by a jury of the U.S. District Court in San Francisco, judging that the Japanese electronics company had caused damages of $87 million to LCD purchasers, who accused Toshiba of colluding with other LCD manufacturers to keep prices artificially high. Toshiba had earlier considered appealing the verdict, but it has decided to settle the suit. With the payment, plaintiffs will turn down all claims for damages, fees, costs and other relief, Toshiba said.

12. General Interest

Free Wi-Fi At JR East Stations

(September 06, 2012)

East Japan Railway Co. announced it will begin providing free public Wi-Fi services to provide greater Internet access for foreigners visiting Japan. The company, known as JR East, said it decided to set up the free wireless Internet service in response to popular demand for increased Internet accessibility. The service will be made available via JR East's Travel Service Center in Tokyo Station, and other such centers at Haneda Airport International Terminal Station and Narita Airport. The service will also be accessible from 13 JR East stations including Tokyo, Shinjuku and Akihabara. JR East will display stickers in these places to indicate Wi-Fi hotspots.

Internet Access In Subways

(September 22, 2012)

Internet connectivity is finally starting to be made available for smartphone users traveling underground. Tokyo Metro Co., one of two subway operators in the capital, is in the middle of rolling out a service to let passengers access the Internet. The other operator, Tokyo Metropolitan Bureau of Transportation, which runs the Toei subway lines, plans a similar undertaking. Both services will use cellular radio waves, which are accessible to smartphone users. Communication equipment will be installed inside tunnels by the Japan Mobile Communications Infrastructure Association, whose members include four leading wireless carriers. The organization is expanding the service to subways in other areas such as Osaka and Nagoya.

Over 30 Million Older Than 65 In Japan

(September 16, 2012)

The number of people aged 65 or older in Japan has reached 30.74 million, passing the 30 million threshold for the first time ever, according to a government estimate. The number increased 1.02 million from the previous year, and accounts for a record 24.1% of the population, up 0.8%. The year-on-year increase was the sharpest ever because people born in 1947, the starting year of the 1947-49 baby boom, turn 65 this year. Amid fiscal constraints, Japan is struggling to deal with rising social security costs stemming from the rapid graying of its population.

Soy Flour Gaining Popularity

(September 14, 2012)

Soybean flour is the latest culinary craze among health-conscious women in Japan, who are using it as an alternative to wheat and rice flour. Soy flour is made by grinding raw soybeans into a fine powder, while kinako flour is made of roasted soybeans. They are both richer in protein, fiber and other nutrients than wheat flour. Soy flour sales at Cuoca Planning Co. rose by about 10% on the year during the June-August period. Soy flour has long been consumed by diabetics and became more widely known when publishing firm President Inc. ran a special report on soy flour recipes in the December 2009 issue of Dancyu magazine. Many non-diabetic women have started using soy flour as a new, low-stress way to diet.

Remodeled Kabuki Theater To Open In April

(September 26, 2012)

Shochiku Co. said that it will reopen the Kabuki-za Theater in Tokyo's Chuo Ward in April. The new theater will have no pillars and more space between the seats. The audience will also have access to terminals that can display English subtitles. The building includes a gallery that gives an overview of classical Japanese performing arts. The film distributor hopes Kabuki-za will serve as a hub for traditional culture. The new theater will be the fifth since the original opened in 1889. The current building was aging and has been undergoing renovations since April 2010.

Personal Toilet-Bidet For Senior Citizens

(September 28, 2012)

Companies at this week's International Home Care and Rehabilitation Exhibition in Tokyo are showcasing incontinence devices that combine a diaper with a personal bidet, removing waste before cleaning and then drying the wearer as they sleep. One of the devices is a U-shaped cup that fits between the wearer's legs and contains a sensor that activates a suction mechanism when triggered. Waste is moved rapidly away from the body before a bidet cleans with a spray and then dries with a blower. The cup is connected to a duct that moves the waste into a tank. The machine is intended to ease the burden for caregivers, especially at night, and it also helps those in bed stay clean.

Japanese Scientists Win Ig Nobel Prize

(September 22, 2012)

Two Japanese researchers have won the spoof Ig Nobel acoustic prize for developing the SpeechJammer, a device that confuses and stifles a person speaking by sending them a delayed recording of their own voice. "One scenario is that you can use this in a meeting room where chairs have buttons to stop excessive speaking," Kazutaka Kurihara, researcher at the National Institute of Advanced Industrial Science and Technology, said. The 22nd annual event to award the prizes, which the science humor magazine Annals of Improbable Research awards in 10 categories as a parody of the Nobel Prizes, was held at Harvard University's Sanders Theatre. It was the sixth straight year that an Ig Nobel prize has gone to Japanese recipients.

Calls

> **CONCERT- Japan Pilot Joint Call on Research and Innovation**
Research projects in the area of Efficient Energy Storage and Distribution or Resilience against Disasters.
http://www.concertjapan.eu/node/22

> **EU Seventh Framework Programme (FP7)**
The seventh EU Framework Programme on Science Research and Innovation
http://cordis.europa.eu/fetch?CALLER=FP7_NEWS&ACTION=D&RCN=34831

> **Japan-EU Funding Opportunities** [Exchange Promotion]
Latest funding and research calls between Europe and Japan
Newsletter: http://ec.europa.eu/euraxess/links/japan/docs/Newsletter_June_2012.pdf

Upcoming Science and Technology Related Events in Japan

> **Swiss Solar Pavilion @ PV EXPO 2013** [Photovoltaics], Feb 27 – March 1, 2013
Organized by the Swiss Science & Technology Office
➥ If you wish to participate in the Swiss Solar Pavilion, please contact tok.science@eda.admin.ch

> **150 Years Anniversary: Switzerland-Japan Friendship Year 2014**
The year 2014 will mark a milestone in the friendly relations between Switzerland and Japan which will celebrate the establishment of diplomatic relations 150 years ago.
http://www.eda.admin.ch/eda/en/home/reps/asia/vjpn/embjpn/anchjp.html

>> More events on the Japan Science and Technology Office homepage:
http://tinyurl.com/News-Events-in-Japan
