



The Zayed Future Energy Prize





Innovation, Long-term Vision, and Leadership

Welcome to the Zayed Future Energy Prize.

The global transition into a low carbon and sustainable future is the single greatest challenge of the 21st century. The innovators and leaders who will help shape this transition deserve to be globally recognized.

Inspired by the vision and environmental stewardship of the Late, Sheikh Zayed bin Sultan Al Nahyan, Founding Father of the United Arab Emirates, the prize is fast becoming the world's pre-eminent sustainable and renewable energy award.

The Zayed Future Energy Prize was created to go beyond discovering and recognising the world's most gifted and pioneering innovators and leaders in the field of sustainable energy. It was designed to inspire future-focused thinking and celebrate the positive achievements of today. It is a spirit embodied by previous winners and finalists, each of whom have tackled real-world challenges with genuine forward thinking and breakthrough innovation.

Welcome to our award.

A handwritten signature in white ink, appearing to be 'S. Al Jaber'.

Dr. Sultan Ahmed Al Jaber
Director-General, Zayed Future Energy Prize
CEO and Managing Director, Masdar



The Zayed Future Energy Prize

Honouring Solutions for a Sustainable Energy Future

The Zayed Future Energy Prize represents the vision of, the Late Founding Father and President of the United Arab Emirates, Sheikh Zayed bin Sultan al Nahyan, who championed environmental stewardship. Under the auspices of the Abu Dhabi government, this annual award celebrates achievements that reflect innovation, long-term vision and leadership in renewable energy and sustainability. We are not looking to reward concepts - we are looking for people who have executed real-world solutions and are making a difference today. With each new winner, we step closer to our goal - a sustainable energy future for us all.

The Prize Fund

The Zayed Future Energy Prize has an annual prize fund of \$2.2 million open to companies, NGOs, individuals who have made a significant impact on our energy future. The winner will receive \$1.5 million, and the global honour and recognition that come with winning the Zayed Future Energy Prize. In addition to the winner, there could be up to two finalists who receive \$350,000 each for the prize each year.

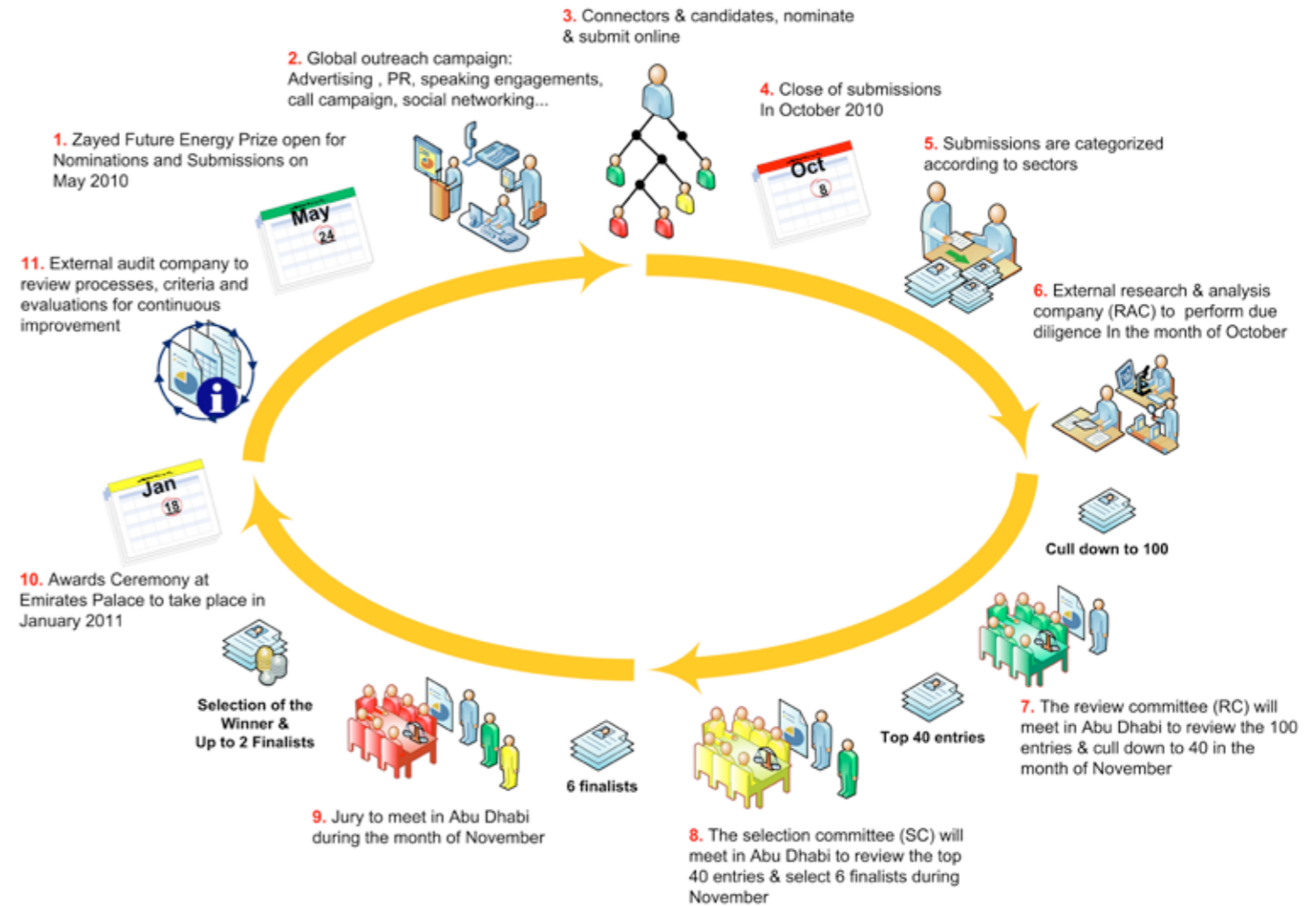
A Prize for Our Future

A Consistent Evaluation Process

The Zayed Future Energy Prize was developed to honour and recognize the very best solutions in renewable energy and sustainability. We have developed a detailed, transparent and consistent evaluation process in order to give each submission the consideration and due diligence that it deserves.

Every entry is reviewed by a reputed external research and analysis firm, who will consult with the prize administration team to shortlist the top 100 candidates. Those 100 will then be culled down to the best 40 by the review committee, from which the selection committee will determine the top six to be presented to the jury as finalists.

Throughout the entire process, all entrants will be scored on the same three criteria: long-term vision, innovation and leadership. This process allows the detailed analysis that is necessary to ensure that the eventual winner exemplifies the goals of the Zayed Future Energy Prize.



Criteria for Change

The submissions will be judged according to the following criteria:

Long-term vision

1. Dedication in addressing long-term threats to our societies.
2. Ability to simultaneously balance environmental, social and economic considerations.
3. Strategic investments and profitability. Demonstration of ability to scale through a commercially viable or sustainable business model.

Innovation

1. Policy innovation and implementation
2. Technological innovation, especially in the fields of renewable energy, energy efficiency and sustainability.
3. Environmental benefits of the innovation.
4. Replicability - potential for the policy, technology, business model or process to be implemented on a wider scale.
5. Role in progress of knowledge.
6. Proof of cutting-edge concepts and solutions that solve today's energy and sustainability challenges

Leadership

1. Role in influencing policy-making.
2. Environmental and social responsibility.
3. Accomplishment in raising awareness and mobilizing a wide range of stakeholders.
4. Ability to create new market developments
5. Entrepreneurship and dedication.
6. Role in establishing best practices.
7. Efforts in overcoming socio-economic / technical / financial / cultural barriers.
8. Personal commitment to a low-carbon lifestyle.
9. Championing the vision in order to advance clean energy and sustainability solutions.



Review Committee

After the Review and Analysis company has completed the due diligence. The Review Committee evaluates all the submissions that meet the criteria for the Zayed Future Energy Prize and culls the top 100 submissions to 40 entrees that are then forwarded to the Selection Committee for further evaluations.

Dr. Olaf Goebel, Head of Engineering, Masdar Power

Galen Torneby, Senior Manager, Project Governance, Masdar Power - General Manager, Shams Power Company

Afshin Afshari, Head of Energy Management, Masdar City

Thani Al-Zeyoudi, Department Manager of International Renewable Energy Agency "IRENA"

Bader Al Lamki, Senior Project Manager, Masdar

Brian Fan, Assistant Manager, Research, Technology Roadmap , Masdar

Dr. Rabia Ferroukhi, Department Manager, Carbon Project Development, Masdar Carbon

Dr. Nawal Al-Hosany, Associate Director of Sustainability, Masdar

Philip Moss, Carbon Portfolio Manager, Masdar Carbon

Dr. Isam Janajreh, Professor, Masdar Institute of Science and Technology, (Fundamentals of Combustion and Advanced Renewable Energy conversion)

Dr. Sgouris Sgouridis, Assistant Professor, Masdar Institute of Science and Technology, (Sustainable Transportation Systems, Sustainable Energy Systems, Sustainable Energy, and Management for Engineers)

Brian Warshay, Student, Masdar Institute of Science and Technology, (Engineering Systems and Management)

Sahar Mirzai, Graduate Student, Masdar Institute of Science and Technology, (Science in Mechanical Engineering)

Alex Koshy, Student, Masdar Institute of Science and Technology, (Science in Engineering & Communication)

Rana Qudaih, Research Assistant, Masdar Institute of Science and Technology, (Mechanical Engineering Masters Program, and working on Waste to Energy Research)

Tarek Abdallah, Student, Masdar Institute of Science and Technology, (Engineering Systems and Management)

Members of this committee consist of Masdar Staff, Faculty Members and Students from Masdar Institute of Science and Technology. The team has years of expertise and come from various backgrounds in the field of renewable energy and sustainability. Providing each entry a possibility of investment and partnership as well as insight into the different developments in the renewable energy market.

Selection Committee

The Selection Committee evaluates all the submissions that meet the criteria for the Zayed Future Energy Prize and shortlists the top 1 submissions for the Jury. Its distinguished members are:

Razan Al Mubarak, Managing Director, Emirates Wildlife Society World Wide Fund for Nature

Dr. Tariq Ali, Senior Analyst City Logistics , Masdar City

Prof. Nigel Brandon, Executive Director, Imperial College Energy Futures Lab

Peter Droege, Chair, World Council for Renewable Energy (Asia, Pacific, Australia)

Jean-Paul Jeanrenaud, Director Corporate Relations, World Wide Fund for Nature, International and Co-Founder of the One Planet Living Initiative

Michael Liebreich, Chairman & Chief Executive, Bloomberg New Energy Finance

Mika Ohbayashi, Scenarios & Policy Regional Manager; International Renewable Energy Agency "IRENA"

Jonathon Porritt, Founder, Forum for the Future; Chairman, UK Sustainable Development Commission

Ziad Tassabehji, Chief Executive Officer, Windcliff

Dr. Thomas J. Wilbanks, Corporate Research Fellow, Oak Ridge National Laboratory



The StoveTec Project by the Aprovecho Research Center

The Jury

The Jury's role is to deliberate and select the winner and finalists of the Zayed Future Energy Prize. It is comprised of the following distinguished members:

Chairman of the Jury, Dr. R.K. Pachauri: Nobel Laureate Dr. Rajendra Kumar Pachauri was elected Chairman of the Intergovernmental Panel on Climate Change (IPCC) in 2002. The IPCC is the leading body for the scientific assessment of climate change. Dr. Pachauri has been the head of The Energy and Resources Institute (TERI) for 25 years, an Indian institute of excellence working on scientific and technological research and strategic thinking in the fields of energy, environment, climate change and sustainable development.

Ólafur Ragnar Grímsson, President of the Republic of Iceland: The fifth President of the Republic of Iceland, Ólafur Ragnar Grímsson was a member of the Parliamentary Assembly of the Council of Europe and President of the International Organization of Parliamentarians for Global Action. He received the Indira Gandhi Peace Prize and was awarded honorary doctorates by the Universities of Ås (Norway) in 1997 and Manchester in 2001.

H.E Eng. Khaled Irani, Minister of Energy and Mineral Resources: H.E Eng. Khaled Irani is the minister of Energy and Mineral Resources since 14/12/2009; prior to that he was the Minister of Environment from 7/4/2005 until 09/12/2009. H.E was the director General for the Royal Society for the Conservation of Nature (RSCN) and has held this position for 9 years. He was also the manager of the protected Area department from 1986 until 1989, in parallel to his position during that time he was a Research Assistant at Jordan University.

H.E. Ahmed Ali Al Sayegh, Chairman of MASDAR: H.E. Ahmed Ali Al Sayegh is the Chief Executive Officer of Dolphin Energy Limited and Chairman of Abu Dhabi Future Energy Company (MASDAR). He has worked throughout his career to support many environmental initiatives in the Emirate of Abu Dhabi.

Lord John Browne, Managing Director, Riverstone Holdings: Lord Browne was appointed Chief Executive Officer of Standard Oil Production Company and served as Group Chief Executive of the combined BP and Amoco group between 1998 and 2007. He was voted Most Admired CEO by Management Today from 1999 - 2002 and was knighted in 1998 and made a life peer in 2001.

Lord Norman Foster, Founder and Chairman, Foster + Partners: Lord Foster is the founder and chairman of Foster + Partners. Established in London in 1967, with project offices in more than twenty countries, it has been responsible for a wide range of work, from urban masterplans and public infrastructure to private houses and product design. He became the 21st Pritzker Architecture Prize Laureate in 1999. In 1990, he was granted a Knighthood in the Queen's Birthday Honours, and in 1999 was honoured with a Life Peerage, becoming Lord Foster of Thames Bank.

Dr. Susan Hockfield, President, Massachusetts Institute Of Technology: Susan Hockfield has served as the sixteenth president of the Massachusetts Institute of Technology since December 2004. A noted neuroscientist, Dr.Hockfield is the first life scientist to lead MIT and holds a faculty appointment as professor of neuroscience in the Institute's Department of Brain and Cognitive Sciences. Under her leadership, MIT has launched a major Institute-wide initiative in energy research and education and continues to expand its activities at the intersection of the life sciences with engineering and the physical sciences, with a particular focus on cancer research.

Hélène Pelosse, Interim Director-General, International Renewable Energy Agency (IRENA): Mrs. Pelosse was the advisor in Angela Merkel's office during the German presidency of the EU where she helped adopt EU political objectives on energy efficiency, renewable energy and GHG Emissions. Since 2007, she has served as Deputy Head of Staff in the Private Office of the French Minister for Ecology, Energy, and Sustainable Development. On 29th June 2009, Mrs. Pelosse was elected Interim Director-General of IRENA by its member states, an organization that aspires to become the main driving force for promoting sustainable use of renewable energy on a global scale.

A History of Innovative Solutions Affecting Real Change

Past winners and finalists of the Zayed Future Energy Prize have already been making significant contributions towards developing a sustainable energy future. Our hope is that their example will inspire others to reach for even great heights.

Winners of 2009



Dipal Barua - Founder & Chairman, Bright Green Energy Foundation

For the past 35 years, Dipal Barua has been dedicated to finding and developing sustainable, market-based solutions to the social and economic problems faced by rural people. Mr. Dipal won the Zayed Future Energy Prize in 2009 for his work as the Founding Managing Director of Grameen Shakti, a clean energy company. By developing an innovative installment-based payment plan for solar systems, he was able to lower the monthly cost of solar to the equivalent of kerosene. Through Grameen Shakti, Mr. Dipal facilitated the construction of 245,000 solar electricity systems on homes in Bangladesh, bringing electricity to 2.2 million people. Additionally, his network of after sales-repair and maintenance services made up of local technicians, many of whom are women, has helped to provide jobs for thousands more people.

Other Key Accomplishments

- Mr. Dipal developed an innovative biogas process to convert cow dung and poultry waste into gas for cooking, lighting, electrical generation, and slurry for organic fertilizer. Approximately 20,000 biogas plants have been constructed since 2006.
- Mr. Dipal developed an improved cooking stove program to promote low-cost, cleaner stoves in rural areas to protect women from indoor air pollution and reduce the effects of deforestation. Since the program was enacted in 2007, over 1,000,000 improved stoves have been constructed.
- Mr. Dipal is active in promoting the involvement of women in renewable energy technologies. He designed and developed village-based Green Technology Centers - an innovative model to create women entrepreneurs in green energy. Approximately 50 centers have been set up in rural areas to train 3000 young women, many from disadvantaged families, to assemble, promote and repair solar systems.



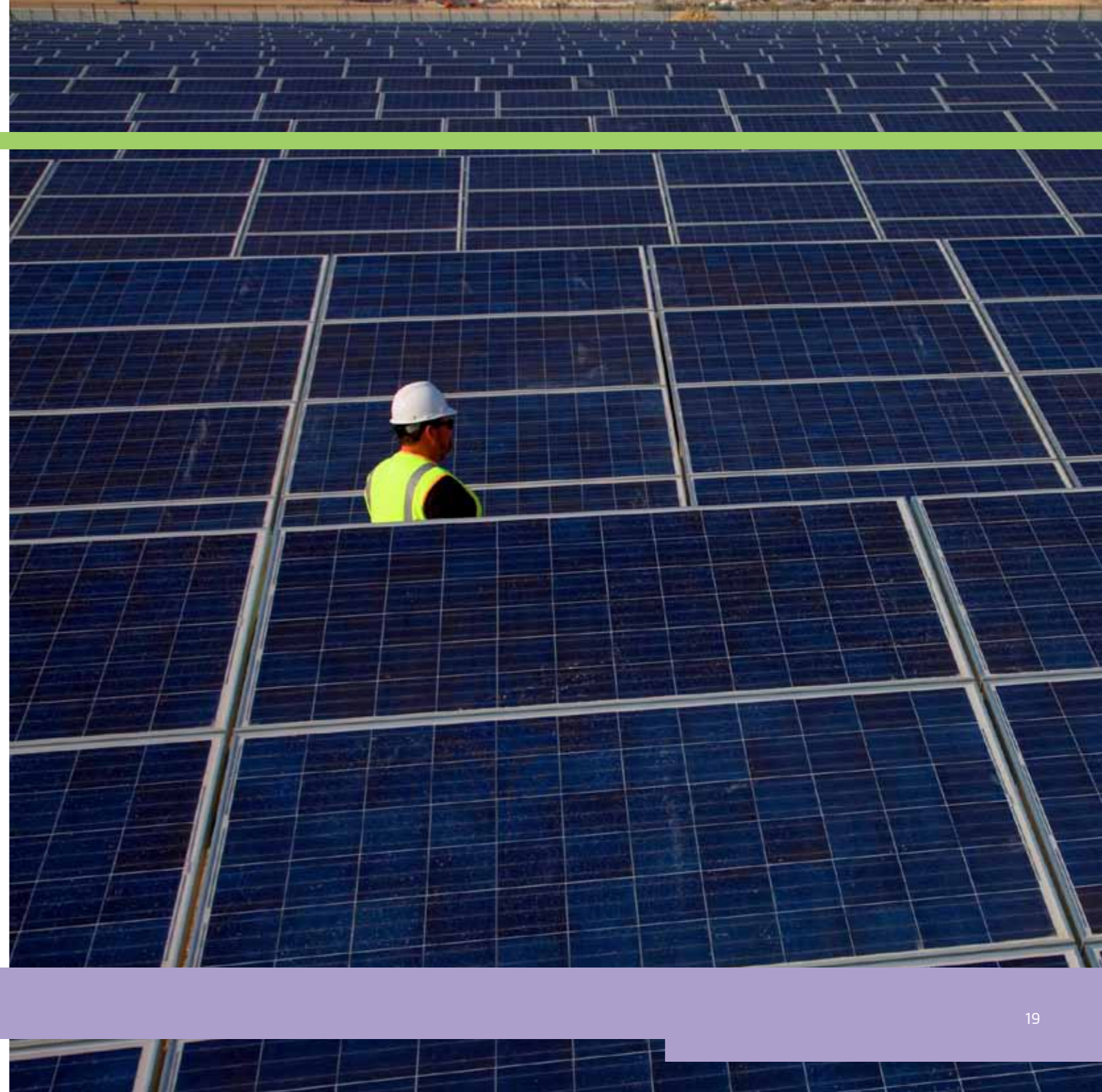
Dipal Barua with the women technicians in rural Bangladesh



Dr. Martin Green - Australian Federation Fellow and Scientia Professor at the University of New South Wales, Sydney

Over the course of his career, Dr. Green has made significant contributions to the field of photovoltaics. His work began with identifying the factors that limited silicon solar cell performance. From there, he and his group have improved the performance of silicon solar cells, a mature technology with over 50 years of development already, by over 50%. These advancements have been put into commercial production with a large proportion of solar cells that are fabricated in Europe. Dr. Green's work has helped to drastically increase the economic viability of solar energy by decreasing the cost of solar to less than US\$0.50 per watt.

In addition to his position at the University of New South Wales, Dr. Green is the Research Director of Sydney-based CSG Solar Pty Ltd, serving on the company's board, as well as that of its parent company, CSG Solar, AG.



Winners of 2010

Toyota Motor Corporation

Toyota Motor Corporation, the largest car company in the world, released their hybrid vehicle the Prius in 1997. Since that time, they have made numerous improvements to the hybrid technology that drives it. The third generation Prius, for which Toyota ultimately won the Zayed Future Energy Prize, is the first mass-produced hybrid vehicle ever made. Its groundbreaking fuel efficiency system gets approximately 38 kilometers per litre of gasoline, far better than most other fuel efficient vehicles. This fuel economy is achieved through a combination of Toyota's innovative hybrid drive technology, increasing the efficiency of the gasoline engine, reducing the weight of the vehicle, and improving aerodynamics.

Toyota's goals were not to simply develop a more fuel efficient vehicle, however. In order to have a significant impact on climate change, the Prius needed to be adopted on a large scale. As such, the Prius was designed with affordability in mind, while still meeting Toyota's high standards for safety and quality. As of December of 2009, over 1.6 million Priuses had been sold, resulting in cumulative reductions of about 7 million tons of CO₂.

Since its introduction in 1997, the Prius has saved over seven million tonnes of carbon dioxide from polluting our atmosphere. Toyota has plans to implement its state of the art hybrid technology into its other car lines in the future, increasing its potential positive impact on our environment.



The 3rd generation Prius



Dr. Zhengrong Shi - Founder, Suntech Power Holdings Company

Dr. Zhengrong Shi founded Suntech Power Holdings in 2001, and has since grown the company to become the world's largest manufacturer of silicon solar modules, with modules installed in more than 80 countries. Since they were founded, Suntech has been a consistent leader in the solar industry, constantly improving the efficiency of their products. In 2009, Suntech announced that they had beaten all previous records for multi-crystalline silicon module conversion efficiency. They now warranty their solar products to output 6.7% more power than the industry standard.

Additionally, Suntech has been involved in a number of innovative, high-profile projects over the years, including providing solar panels for British Columbia's first net-zero home at the Vancouver 2010 Olympic and Paralympic Winter Games.



Suntech, The Almosa Colorado project



Amitabha Sadangi - CEO of International Development Enterprises India

International Development Enterprises India (IDEI) is a social enterprise in India dedicated to providing long-term solutions to poverty, malnutrition, and hunger. They work with smallholder farmers to provide low-cost irrigation technologies that can drastically improve the production and livelihoods of these local farmers. Over the years, IDEI has developed technologies for water access, water application, water lifting, and water storage. As CEO Amitabha Sadangi has helped countless farmers in India increase their production and save over 500 million litres of diesel fuel, decreasing their carbon footprint by 1.8 million tonnes of CO₂.

In addition to their technological solutions, IDEI has developed a pair of projects to continue supporting farmers: Integrating Rural Poor into Market Systems, and System of Rice Intensification.



IDEI, low-cost irrigation technology

Other Energy Innovations

Many of the organizations who enter the Zayed Future Energy Prize are doing important, ground-breaking work in the energy industry. Below are a few examples of the variety of innovative solutions that are being developed by participants of the Zayed Future Energy Prize around the world.

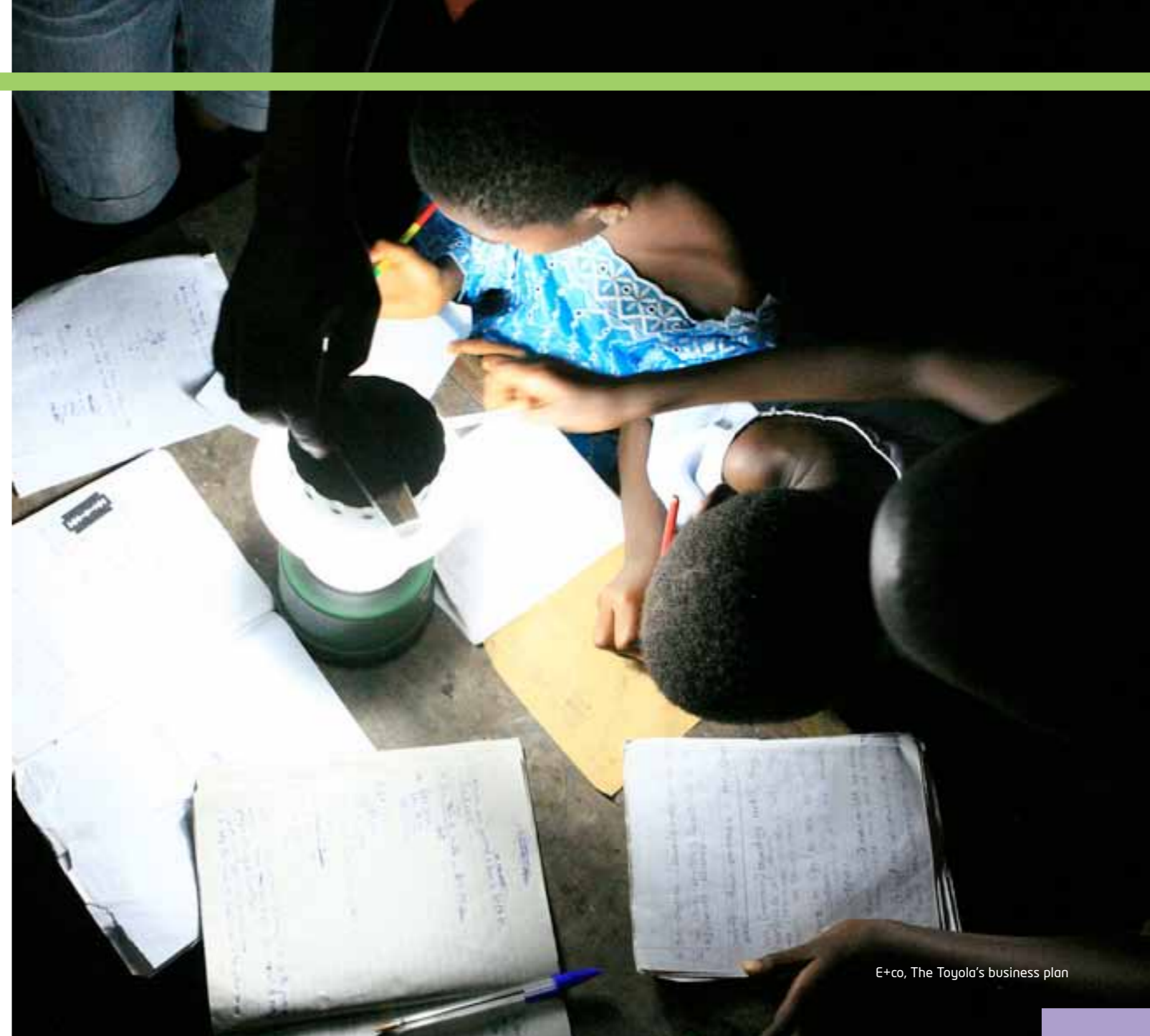
Barefoot College

Barefoot College was established over 38 years ago, built by the poor, only for the poor. Their mission is to empower the poor with technological skills and knowledge to enable them to improve their lives and livelihoods. In particular, the school teaches poor, illiterate women how to work in non-traditional occupations. Over the years, they have done significant work in solar energy training, with projects across India and Africa.

Barefoot College is the only solar electrified college in a village in India, with 40Kws of solar panels and 5 battery banks of 136 deep cycle batteries. All of the solar components were manufactured at the college, and the entire system was installed by barefoot solar engineers.

289 barefoot solar engineers, 128 of whom are semi-literate rural women, have installed 23 solar plants of 2.5 Kws, fabricated 17 parabolic solar cookers, manufactured and installed 97 solar water heaters, and trained rural communities to develop 2 Micro-hydel power stations.

The College also developed the first ever solar-powered reverse osmosis plant in India, which produces 600 litres of potable water per hour.





Chicago Climate Exchange

Developed by Dr. Richard L. Sandor, the Chicago Climate Exchange (CCX) is a transparent, rules-based market for trading greenhouse gas emissions. As the world's first cap and trade system for reducing greenhouse gases, CCX has more than 450 members, including Fortune 500 companies like Ford, DuPont, and Intel. CCX has a combined annual emissions baseline starting at 540 million tons of carbon dioxide in 2003, which has grown to more than 600 million tons today, more than the industrial emissions baseline of Germany.

Because there is no federally-mandated system in the United States, Sandor and CCX created a system where a cap is set on the amount of emissions permitted for members. As members, the various organizations make voluntary but legally-binding commitments to keep their emissions below those levels. The ability to then trade allowances provides members with the flexibility they need to keep their reduction programs cost-effective.

Sandor also created the Chicago Climate Future Exchange (CCFE), which trades more than 20 emissions and environmental products.

ECOtality

ECOtality is a technology company with a focus in clean electric transportation. They have been involved in every major electric vehicle initiative since 1989, and are continuing to play a significant role in developing an EV infrastructure in the United States. The United States Federal Government selected ECOtality to run the EV Project. The project, through a series of grants, will deploy 4700 Nissan LEAFs and approximately 11,210 charging systems across five states in the United States. This entire fleet will save 2,050,909 gallons of gasoline per year.

ECOtality has a long history with EVs and battery charging systems. In the 1990s, ECOtality was a leader in developing battery fast-charge technologies, specifically for on road EV charging stations. They developed the Minit-Charger, which charged batteries quickly and safely, eliminating the risk of overcharging and overheating. In addition to the on-road EV market, ECOtality was able to deploy their technology in industrial and airport applications. Today, there are more than 5,600 Minit-Charger systems in operation, powering over 8,000 piece of equipment. Just in power provided to lift-trucks alone, ECOtality has saved 240,000,000 kilowatts of energy, 6,000 tons of greenhouse gas emissions, and more than \$8 million in operating costs.



OSRAM, Energy Hubs project Light up Lake Victoria



Marc Lafosse & Jerome Cougoul, Energie de la Lune



Tom Casten, recycling waste energy

Ecovative

In 2007, Eben Bayer and Gavin McIntyre founded Ecovative to find a better solution to how the global community makes, uses, and disposes of materials, most of which are made of petrochemicals. Nearly 10% of the world's petroleum production each year is devoted to creating synthetic materials, much of which winds up in landfills. Ecovative has developed a process called Mycobond, which uses a fungus to efficiently transform low value agricultural byproducts into strong bio-composites. These bio-composites, which can be generated entirely regionally, perform as well or better than expanded polystyrene, but cost less, and are far more environmentally responsible. Because they are made of agricultural byproducts, they actually sequester carbon for over 100 years, and because they are made from regional materials, the carbon impact of their production and transportation is minimal.

Ecovative is developing two real-world applications for these bio-synthetics. The first is as rigid board insulation called Greensulate. Greensulate will not rust, and attracts no pest, and has a class 1 fire safety rating. The second application is packaging, in a product called EcoCradle. EcoCradle has similar strength and cushioning properties to EPS, EPE, and EPP, petrochemical foams that are currently used for packaging. However, EcoCradle can be aerobically or anaerobically composted, meaning it has no long-term impact on our environment.

Freeplay Energy

Freeplay Energy is developing technology that converts locally available, renewable energy sources into electricity, which then powers products that improve people's lives. With their technology solutions, Freeplay hopes to change the reality that the majority of the poor are dependent on traditional, primitive fuels like wood, dung, and crop residue. While Freeplay explores the use of many renewable energy sources, their most common fuel is human energy, captured through motion. This human energy is generally harvested by cranking a handle or pedals, which charge the batteries of a given device, storing electricity for future use.

Freeplay has developed a wide range of devices that can be powered using local renewable energy sources. These products fall into several general categories, all of which have a significant impact on life in rural areas: radios, lighting, water treatment, stand-alone portable generators, hydro-powered generators, foot-operated generators, medical products, and animal-powered generators.



Professor Jose Goldemberg - Former Rector of the University of Sao Paulo and former Minister of Science and Technology

Professor Jose Goldemberg of the University of Sao Palo has been promoting the use of ethanol from bio fuels as a form of energy in Brazil since 1977. As a proponent of the concept of "technological leapfrogging," he pushed Brazil, as a developing country, to incorporate modern, nonpolluting and efficient technologies into their infrastructure, skipping polluting steps taken by older industrialized nations. This concept, with Professor Goldemberg's support, is a primary reason that ethanol replaces 50% of the gasoline that would otherwise be used in Brazil. Today, the cost of ethanol in Brazil is lower than gasoline.

Professor Goldemberg has served in a number of leadership roles to help to put these ethanol policies into practice, both in Brazil and in other developing countries, including as the Chair of the World Energy Assessment, Minister of Science and Technology, Rector of the University of Sao Paulo, and the Secretary for the Environment of Sao Paulo State. Additionally, he proposed the Brazilian Energy Initiative, endorsed by the Brazilian Government and several Latin American companies, as the Johannesburg 2002 World Summit on Sustainable Development. While the proposal was not adopted, it received support from over 70 countries, and the Conference recognized its role and urgency.



Professor Jose Goldenberg, biofuel through ethanol



The FLOAT House by Morphosis

IBM Big Green Innovations

IBM's Big Green Innovations, part of their Smarter Planet Initiative, is developing technologies to help IBM's clients become more energy efficient and implement environmentally sustainable solutions. Using IT, computation, and mathematics, the Big Green Innovations are designed to help clients reduce their resource usage, saving money and reducing their environmental impact.

The Big Green Innovations have three primary focuses, all of which have shown significant results in initial testing: carbon management, energy efficient technologies and services, and water management. IBM worked with Cosco in China to find way to reduce the number of distribution centers they had operating from 99 to 40, saving 23% in costs, and reducing carbon emissions by 12%, or 100,000 tonnes of CO2 per year. Measuring thermal properties in over 1.4 million square feet of client data centers around the world uncovered 38 million kWh of potential savings for clients, most of which could be recovered with little or no capital investment. Finally, IBM is using sensor data to model and analyze the quality of water in Galway Bay, Ireland. This monitoring will help to develop warning systems for pollution and algae blooms.



Thom Mayne - Morphosis

Thom Mayne, with his firm Morphosis, designs and develops cutting-edge architectural solutions that yield significant, measurable energy savings. Mayne has implemented these solutions at a range of scales, from large-scale public sector and educational projects, to scalable prototypes for net-zero single-family homes. All Morphosis buildings completed since 2002 have achieved LEED certification and/or have incorporated renewable and sustainable energy features, such as high performance facades, passive cooling and day lighting. Mayne's submission outlines many of his innovative buildings and their measurable impact, including the following. The FLOAT House for the Make It Right Foundation in New Orleans, is an innovative model for affordable, net-zero annual energy consumption housing.

Solar panels generate all of the house's power. The sloped concave roof collects rainwater, and funnels it to cisterns for filtration and use. Low-flow plumbing fixtures, low-energy appliances, high performance windows, and highly insulated Structural Insulated Panel System (SIPS) walls and roof minimize water and power consumption. These innovative systems result in significant energy savings. Every year the average household in the southern US consumes over 82 million Btus and spends over \$1,600 on energy, while emitting nearly 25,000 pounds of CO2. The net-zero Float House eliminates these annual energy and CO2 impacts and saves its owners all of these energy costs. And, the float house is designed to rise during floods, allowing it to actually - float to deter the violent and destructive elements imposed on the lower 9th Ward of New Orleans because of rising tides and storms attributed to climate change.



William McDonough

William McDonough is an architect and designer with an emphasis on projects that are sustainable, and celebrate renewable energy. He has helped to design some of the most innovative green buildings and communities in the world, starting in 1976, and since has become a sustainable advisor, venture capitalist, and philanthropist.

In 1977, McDonough designed a thirty family community in Pennsylvania's Amish Country, where all of the houses were solar heated, composting toilets were legal, and the village electricity was provided by exercising oxen. In 1992, he led the design of Wal-Mart's Ecomart experimental store, with the world's largest order of sustainably harvest wood, overnight ice storage, and advanced daylighting. In 1999, he led the redesign of Ford's River Rouge facilities in Michigan, which included the world's largest green roof at 10.5 acres, constructed wetlands, porous paving, ductless heating and cooling, and solar collectors, which reduced energy consumption over 70% and saved \$35,000,000 in capital expenditures. More recently,

in 2009, McDonough became a member of Wal-Mart's external advisory council, advising the Vice-Chairman and other management about Cradle to Cradle, sustainability and their goal of reaching 100% renewable energy power.



Elon Musk

Elon Musk is best known for developing the online website PayPal. Since selling PayPal in 2002, Mr. Musk has become very concerned about climate change and energy issues. In addition to his philanthropic work with the Musk Foundation, and as a trustee of the X PRIZE Foundation, Musk has developed two companies to help combat the climate change threat.

Tesla Motors, which Musk co-founded, designs, manufactures, and sells 100% electric vehicles and advanced electrical vehicle components. The Tesla Roadster is the only high-performance electric vehicle in the world, and the only electric vehicle to get more than 200 miles from a single charge. The Tesla Model S, planned for release in 2012, will be a four door sedan that gets 300 miles per charge, and will cost as little as \$57,000.

SolarCity is the leading full-service provider of solar energy systems for homes, businesses and government organizations in the United States. They pioneered the Solar Lease, which allowed homeowners to get solar at their homes for no money down, and pay less each month for their solar electricity than they would from the utility. The solar systems installed by SolarCity so far will offset more than 586 million pounds of greenhouse gas pollution.

Mr. Musk is also the CEO and Chief Technology Officer of SpaceX, a company that is working to develop a series of reusable, viable space vehicles.



Dr. Jeffery Sachs, the millennium project



Jeffery D. Sachs - Director of the Earth Institute at Columbia University

Dr. Jeffery Sachs is working in a variety of roles to find solutions to several of the Earth's most pressing challenges: energy, water, food, poverty and conflict. As a pioneer in the field of sustainable development, Dr. Sachs takes a multi-faceted, holistic approach, combining climatology, hydrology, engineering, economics, geography and public health to develop comprehensive solutions. With the Earth Institute, Dr. Sachs is working to analyze, understand, and address the negative effects of fossil-fuel consumption on our society, and to find new ways to use renewable energy resources to overcome energy poverty in the world's poorest communities.

As part of his efforts, Dr. Sachs founded and led the Global Roundtable on Climate Change, which has ultimately developed a concrete plan of action to address climate change, looking for common ground between businesses, scientists, and organizations worldwide. As the Special Advisor to UN Secretary General Kofi Annan, Dr. Sachs also led the Millennium Project, which developed a plan that would reverse poverty, hunger and disease that was affecting billions of people. To corroborate their findings, Dr. Sachs also developed the Millennium Villages Project, which now helps over 600,000 people in more than 80 villages in 12 countries find ways to lift themselves and their communities out of poverty.

Solar Electric Light Fund

The Solar Electric Light Fund (SELF) is a non-profit organization that was founded in 1990 to deliver sustainable clean energy solutions to rural and remote villages in the developing world. SELF began by disseminating small solar home systems that could be used to run a few lights, a radio, and a black and white television for 4-5 hours each evening. To help the families take ownership of these solar systems, SELF also pioneered the use of revolving loan funds and other micro-finance mechanisms. This finance experience inspired them to spin-off a for-profit solar company, Solar Electric Light Company, which has installed more than 100,000 solar home systems.

In 2000, SELF branched out of home solar to harness solar energy for other applications, such as water pumping and purification, electrification of schools and clinics, light streets, irrigation, and internet access. Since beginning their work more than twenty years ago, SELF has improved the lives of more than one million people by bringing solar power to over 100,000 homes, 8 schools, 42 health centers, 5 water pumping systems, 18 small businesses, 15 community centers, 3 market gardens, 5 wireless Internet nodes, and 3 conservation/research centers.



Bob Freling, Solar Electric Light Fund (SELF)

Front cover images: Top (left - right)

Mr Gene Kiesel, Mr Phillip Burns, Mr Juergen Mayer, Mr Joel Makower, Mr Joe Pettus, Mr Dean Still, Mr Jeremy Leggett, Mr Amitabha Sadangi, Dr. Zhengrong Shi, Mr Tom Casten, Mr Yet-Ming Chiang, Mr Nelvin Joseph, Mr Bob Freling.

Bottom (left - right)

Ms Tracy Smith, Mr Jochen Berner, Mr Goldemberg, Mr Vivek Gupta,
Mr Wolfgang Gregor, Mr Lafosse Cougoul.

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