



The Global Energy International Prize is a scientific award for outstanding theoretical, experimental and applied research, development, inventions and discoveries in the field of energy development and power generation.

It is a unique award intended to assist international cooperation in solving the most important nowaday problems in the field of power generation.



The Prize is awarded for scientific achievements in the following spheres:

- Increasing energy efficiency
- New opportunities of development of power engineering
 - Alternative energy sources
 - New methods of energy conversion
 - Energy saving and energy transmission





Being aware of its huge responsibility for the development of science in the world and for the progress of mankind in the sphere of power production and consumption, the Russian Federation became initiator of the Global Energy International Prize.

• The **Global Energy Prize**, which was founded in 2002 has been awarded annually since **2003**.

• The idea of an International energy prize was put forward by a group of well-known Russian scientists and was backed by the scientific community as well as by the largest Russian power producing companies.

• The initiative was approved and endorsed by the **President of Russia**.

 The development of civilization has reached a point where all countries of the world should join together in efforts to cope with global challenges first of all in sustaining progress in the sphere of energy production and use.



The Prize is meant to:

- promote theoretical, experimental, and applied energy research and development, and international cooperation in this field of knowledge;
- encourage leading specialists in different countries, international scientific organizations, and government and business structures to tackle major energy problems faced by humanity today;
- further the public recognition of the role of individual scientists and research groups in this field.



The Prize is by nature an international scientific award in as much as:

- any person from any country is eligible to become a winner;
- both Russian and non-Russian nationals may nominate works for the Prize on an equal footing;
- the authorized bodies who make the Prize awarding decision are comprised of scientists and specialists of different countries and representatives of international scientific organizations.



Award of the Prize

The exclusive criterion for the selection of candidates for award of the International Energy Research and Development Prize is the scientific and practical importance of the nominated work

The Prize shall be awarded for scientific achievements in the field of energy that have benefited humanity at large in the following broad areas:

- basic research, discoveries and inventions opening up new vistas in energy industry development;
- theoretical studies, discoveries, and inventions originating new energy sources and applications;
- applied research, designs, and engineering improvements leading to a significant rise in the efficiency of energy utilization;
- studies, discoveries, and inventions that have led to the use of new methods of energy conversion and that represent a major contribution to the solution of ecological and environmental protection problems;
- studies, discoveries, and inventions that have resulted in breakthroughs in energy saving and transfer.





Contest of scientific works – 2007

Papers presented: 146

Countries:

Russia – 66, Japan – 15, USA – 14, Germany – 11, Belgium – 9, Sweden – 6, Spain – 6, France – 6, Poland – 3, UK – 2, Australia – 1, Israel – 1, China – 1, Taiwan – 1, Ukraine – 1, Serbia – 1, Netherlands – 1, Switzerland – 1

Nominees from:

Russia, USA, Japan, Germany, France, Switzerland, UK, Australia, Spain, China, Ukraine, Canada, Italy, India, Iceland, Israel, Ukraine, Denmark, Netherlands

International teams – 16



The process of nomination

Annual positive changes in structure of nominating scientists





Subjects of the works presented to The Global Energy Prize





Fields of research works number of works in each field received in 2003-2007 (%%)

- Nuclear power 14
- Renewable solar energy 18
- Heat power 11
- Nuclear fusion 14
- Plasma energy 13
- Power industry 14
- General power engineering 9
- Thermal physics, materials 37
- Fuel elements and hydrogen power 9
- Energy resources (production, refining, transport) 6





Role of mass-media in a Prize life

For 5 years – almost 5 000 publications





The Awards of the Global Energy Prize Laureates



The annual Prize fund shall be equivalent to no less than seven hundred and fifty thousand (750,000) US dollars.

The Board of Trustees of the Prize shall establish the exact size of the Prize not later than 1 January every year.

2007 Prize fund = \$1.2M





Laureates of 2003 – 2007 and their scientific works **GE Foundation is proud of GE Prize Laureates!**

Лауреаты 2007



Protocoar Therefeire / Sletaroan (Iceland) Research and development to insperient technoor energy generation to losterd"

доктор Торстейни Инги Сигфросан (Исхандия) Пачоват совими за лязнит «Исслядования и пататы ло внядению водородной энергятика. Исхандна-

Or: Entret Annual

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Professor Geoffrey Newdt (UK) "Physics and technology at heat engineering processes - hydrodynamics. beat sucharge, non-steady and wave processes in truthiphase media"

доктор Джеффре Хьюнтт (Великабритания) Парраг ланицу за дараят «Фирмо-лекатория» основы талараналитеческих технологий — гидряданамина, таклообичи, нестационарные и волновые продессы в иногоферных среда-

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Laureates 2007



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Greetings on the occasion of The Global Energy International Prize from The President of the United States George Bush

The White House, Washington.

"I send greetings lo those gathered for this presentation of the 2003 Global Energy International Prizes.

Global Energy International Laureates are on the leading edge of the international research, and I am pleased that a Russian American scientific team is among this year's winners. This collaboration continues the strong tradition of scientific cooperation between our two nations and symbolizes our growing and vibrant energy partnership. In receiving this honor,

the recipients bring honor to their country, their profession, and the ideals of scientific exploration.

Laura joins me in sending our best wishes for a memorable celebration".



The International energy prize Greetings on the occasion of The Global Energy International Prize from The President of the French Republic Jacques Shirak

Energy

Global 🦊

"Together with all representatives of the world's scientific society I am very pleased that the International Committee of "Global Energy" Prize put its choice on our team... By this decision the Committee recognizes tremendous contribution of each of you in a successful realization of the ITER project. I would like you to accept my warmest congratulations..."



Global Energy The International energy prize

Greetings on the occasion of The Global Energy International Prize from the Prime Minister of Japan Junichiro Koizumi

"Japan is supporting the initiatives of Russia aimed at solving the energy safety problem which will be discussed at the G8's Summit in St. Petersburg in July. This problem should be resolved by all the international society with the private sector and scientific academies involved. Speaking about the problems in the energetic sector we should continue researches and developments in this field, especially in the area of effective and safe energy uses. From this viewpoint I highly appreciate this prize which was given to the scientists who had greatly contributed to the energy field. I hope that this prize will continue to encourage the researchers to search for new solutions in matters concerning the global energetics ... ".



Global Energy The International energy prize

Greetings on the occasion of The Global Energy International Prize from the President of Iceland Ólafur Ragnar Grímsson,

"It is a great honour for Iceland that Russia has decided to present the Global Energy International Award to Professor Thorsteinn Sigfusson. In this way, **Russia is sending a clear signal to the international community**

and providing an important vision of the future. Together, our two countries, Iceland and Russia, can achieve important results in the global evolution of a new and responsible energy economy. Such a cooperation would fit well within the framework established a few years ago in my discussions with President Vladimir Putin. Now, by giving this splendid award to Professor Thorsteinn Sigfusson Russia has honoured a leader who can play a significant role in this venture.

I would like to extend my best wishes and warmest congratulations to the Laureates of the Global Energy Prize, who have received this prestigious award today. I express to President Vladimir Putin and the entire Russian nation our profound thanks for this honour...".





Greetings on the occasion of The Global Energy International Prize from the UK Prime Minister, Rt. Hon. Tony Blair,

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"I am delighted that one of the recipients of the 2007 Global Energy International Prize is a British scientist, Professor Geoff Hewitt.

Research and innovation in energy have a vital role to play in helping the world meet the twin challenges of energy and climate security. Stabilisation of greenhouse gases in the atmosphere will require the deployment of low carbon and high-efficiency technologies on a vast scale. The Stern Review of the economics of climate change found that global public energy R&D funding needed to double, to around \$20 bn.

But developing new technologies is not enough. We also need open and competitive markets, and clear regulatory frameworks to ensure these new technologies can be deployed across the world. We need for close links between fundamental and applied research to accelerate market entry of innovative technologies".





of the spectrum»

Scientist and engineer, Professor Academician at the University of Illinois, **Gennady MESYATS** member of the US National Doctor of technical sciences, professor; **Academy of Sciences and National** academician **Engineering Academy of Sciences** of the Russian Academy «For the big contribution to the of Sciences (RAS); development of power silicon electronics Vice-President of RAS since 1987 and invention of the first semi-conducting light-emitting diodes in a visible part

Doctor Yan Douglas SMITH Chief manager and senior researcher in "Titan Pulse **Sciences Division**

«For fundamental research and development in the field of powerful pulse energy»







Leonard J. KOCH

Company

Academician Fyodor MITENKOV Research manager of the State Unitary Enterprise "Africantov I. I. Experimental Engineering Design Bureau", academician of Russian **Academy of Sciences**

> «For physical-technical basis and development of fast reactors»

Academician **Ex-President of Illinois Power Alexander SHEINDLIN Honorary Director of the RAS Joint Institute of** High Temperatures (Russia), academician of Russian Academy of Sciences

«For fundamental research of thermo physical properties of substances at extremely high temperatures for energetic» 21



Academician Zhores ALFYOROV Nobel Prize laureate, Vice-President of the Russian Academy of Sciences

"For fundamental researches and a considerable practical contribution to creation of semiconductor energy converters used in solar and electrical energetic" Professor Klaus RIEDLE The head of the Scientific Developments Department for High-temperature energetic turbines of the company Siemens

"For development and creation of powerful high-temperature gas turbines for steam and gas power plants"





A letter from Laureate 2005 – Klaus Riedle

"Dear Mr Lobovski,

...About my little foundation, a flyer for its promotion is just being printed in Russian and in German. From there you can see its intent **to help students and scientist in the area of energy and power generation, not far from what the Global Energy Foundation is doing on a much larger scale. As I wrote to you the first Russian student finished his work at University in Erlangen** this February. At both Universities, MPEI and FAU, were are in the process to find candidates for a next group.

Best wishes to you and the Global Energy Foundation

Klaus Riedle"

Global Energy The International energy prize

Laureates 2005 – Klaus Riedle



Kontakte

www.uni-erlangen.de/forschung/sponsoring/ stiftungen/riedle_stiftung/

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Die Prof. Klaus Riedle-Stiftung Forschungsförderung auf dem Gebiet "Energieerzeugung"

an der Universität Erlangen-Nürnberg am Moscow Power Engineering Institute

Gefördert durch: Siemens Power Generation, Erlangen Siemens Corporate Technology, Moskau





Global Energy The International energy prize

Laureates 2005 – Klaus Riedle



Die Prof. Klaus Riedle-Stiftung

In allen Ländern ist eine sichere, umweltfreundliche und bezahlbare Versorgung mit Energie Voraussetzung für Wirtschaft und Wohlstand. Ziel der Stiftung ist die Lehre und Forschung für Bereitstellung und Umwandlung von Energie unter besonderer Berücksichtigung der Umweltund Ressourcenschonung. An der Universität Erlangen-Nürnberg und an dem Moscow Power Engineering Institute fördert die Stiftung daher insbesondere

- Diplom- und Masterarbeiten f
 ür bis zu sechs Monate Doktorarbeiten f
 ür bis zu zw
 ölf Monate
- Gaststipendien f
 ür deutsche Studierende in Russland bzw. russische Studierende in Erlangen
- Forschungsprojekte mit maßgeblicher Beteiligung von Studierenden

Ein besonderer Dank der Stiftung gilt der Global Energy Foundation, Moskau, die mit der Vergabe ihres Global Energy International Prize 2005 an Prof. Schores Alferov und Prof. Klaus Riedle die finanzielle Basis der Stiftung geschaffen hat.



Vergabe der Stipendien und Bewerbungen

Der Stiftungsvorstand berät und entscheidet jeweils im Januar und Juni über die eingegangenen Bewerbungen. Im Rahmen der verfügbaren Mittel werden jährlich zwei bis vier Stipendien an jeder der beiden Universitäten vergeben.

Studierende und wissenschaftliche Mitarbeiter der beiden Universitäten, die ihre Diplom-, Master- oder Doktorarbeit auf dem Gebiet der Bereitstellung und Umwandlung von Energie beginnen, können sich entweder direkt beim Stiftungsvorstand oder über ihren Betreuer bewerben. Bewerbungen richten Sie bitte an die auf der Rückseite angeführten Kontaktadressen.

- Die Bewerbung soll enthalten:
- Anschreiben
- Lebenslauf
- 🔳 Bisher erreichte Abschlüsse/Prüfungen
- Beschreibung der geplanten Arbeit einschl. Zeitplanung und an welcher Universität
- I Befürwortung durch den jeweiligen Lehrstuhlinhaber



Kooperationen

Siemens Power Generation und Siemens CT in Moskau haben zugesagt, Diplom- und Masterarbeiten in ihren Organisationen zu vermitteln. Ferner werden sie einen jährlichen Austausch der Stipendiaten für ein Seminar abwechselnd in Erlangen und Moskau unterstützen.

Wird die Arbeit an der jeweils anderen Universität im Ausland durchgeführt, was unter Umständen die finanziellen Möglichkeiten der Stiftung übersteigt, werden Betreuer und Stiftung bei der Suche nach weiterer Finanzierung behilflich sein.

Der Deutsche Akademische Austauschdienst (DAAD) sieht die Aufgaben dieser Stiftung als förderungswürdig an und ist im Einzelfall nach Prüfung bereit, zusätzliche Unterstützung zu gewähren.





Laureates 2006





Academician Evgeniy VELIKHOV President of the Russian Scientific Research Center "Kurchatov Institute", academician of the Russian Academy of Sciences Doctor Masaji YOSHIKAWA Chair of the JAERI, Member of the Thermonuclear Research Council at the Ministry of Nuclear Energy of Japan Doctor Robert AYMAR CERN Director General

International Thermonuclear Experimental Reactor – ITER (project) 26



International Thermonuclear Experimental Reactor (ITER (I suppose it'll be a bad idea to tell you about ITER project, isn't ?)

The ITER-project which has been highly appreciated by the International Prize Award Committee and the Year 2006 Laureates are in the front line of the scientific-technological progress.

The issue of thermonuclear reaction walking away from its purely theoretical stage is now acquiring the form of reality, and this in many ways will influence the ecological, energetic and resources saving aspects.

One of the most important purpose of The Global Energy International Prize is to keep public informed about what is happening in our global world.

International Thermonuclear Experimental Reactor (ITER)

Academician Velikhov Evgeniy Doctor Yoshikawa Masaji Doctor Aymar Robert

Recommended by: Professor Tsuneo Nakahara

The International Thermonuclear Experimental Reactor (ITER), in particular, the successful completion of its engineering design, including the detailed planning of the thermonuclear reactor design, which is a unique achievement in this field, as well as the acquisition of all scientific and engineering data required for the start of construction

ITER design solutions

- Central solenoid
- Toric field coils
- Blanket modules
- Vacuum chamber
- Divertor cartridges
- Remote service

- Safety provision
- Postheating and current generation

- Tritium systems
- Diagnostics
- Remote access

International Thermonuclear Experimental Reactor (ITER)

Proposal by Expert Commission of International Award Committee with respect to researches carried out by Academician Velikhov, Doctor Masaji and Doctor Aymar

• The ITER project is a unique example of international cooperation, which oversteps the limits of the controlled fusion problem

• For the first pilot reactor an adequate physical and engineering database was built and principal technologies developed

• ITER will give a great impetus to the development of electricity production reactors, applicable to the industrial use in energy field.

• The start of ITER construction is scheduled for 2007

International Thermonuclear Experimental Reactor (ITER)

On the 13th of June, 2006 at LenExpo Exhibition Hall situated on the Neva river bank Vladimir Putin, the President of the Russian Federation, handed over the golden medals to the «Global Energy» Prize Winners.

Vladimir Putin noted that this time the Prize was given to the scientists from three different countries.

"As far as I know this is the first time when such a collective prize has been presented and this confirms the special value of your joined scientific work" – V. Putin said to the Laureates.

"The "Global Energy" Prize contributes to the integration of the best world's scientific forces in their search for breaking-through approaches in questions of global energy supply" – Mr. Putin said. He also reminded that energy safety was the main issue to be discussed at the G8's Summit taking place in July, in St. Petersburg.

Global Energy The International energy prize

Week "Energy of the Future", Russia, Saint-Petersburg, June 2006

Exhibition held in the framework of the 10th International Economic Forum

The 13th-15th of June, LenExpo

It has become quite a tradition with the International Prize to take part in different exhibitions. In the year 2005 the exhibits of the Prize were included into the general exposition of the International Exhibition «EXPO-2005» held in Japan.

At the 10th Economic Forum the Global Energy Prize was represented at the stands of the establishers of the prize in the form of presentation brochures giving information about the prize and also by the magazine called **«Energy of the Future»** containing first interviews given by the **Laureates of the Prize – 2006**₃₁

Week "Energy of the Future", Russia, Saint-Petersburg, June 2006

Dinner at the General Consulate of Japan in St. Petersburg The 14th of June 2006

Following the official programme, on the 14th of June at the General Consulate of Japan in St. Petersburg there was a meeting between the Global Energy Prize-2006 laureate Doctor Masaji Yoshikawa, Syrus I.L., a representative of the Global Energy Foundation and Mr. Kidokoro Takyo, Council General of Japan in Russia, Mr. Wataru Ishikawa, Second Secretary of Embassy of Japan in Russia and Mrs. Nobuko Kotani, Attaché of Japan in Russia.

Mr. Kidokoro congratulated Doctor Masaji Yoshikawa with winning the Global Energy Award, shared his impressions about the Prize Award Ceremony held on the 13th of June and mentioned the problem of national energy safety which is the key issue of the forthcoming G8's Summit. Mr. Kidokoro pointed out that the energetic sector is an integral part of the future of the whole planet, and in his opinion it is extremely important that the Global Energy Prize unites the scientists from all over the world in their efforts to modulate the energy of the future.

Doctor Yoshikawa expressed his gratitude to the Global Energy Foundation for having appreciated his contribution to the development of the ITER-project, and emphasized the significance of this award for him personally and for 33 all his colleagues as well.

Week "Energy of the Future", Russia, Saint-Petersburg, June 2006 The Global Energy Prize Award Ceremony The 13th of June 2006

Week "Energy of the Future", Russia, Saint-Petersburg, June 2006 Social and Commercial Advertising

As a further means of promoting the project, in June 2006 the members of the Global Energy Prize Executive Committee took a decision to place advertising transparencies in some streets of Moscow and St. Petersburg. According to the Federal Law governing the advertising issues social advertising is called advertising which supports the interests of the state and the society. Due to this the transparencies in Moscow and St. Petersburg were established free of any charge. From the 3rd to the 23rd of June there were five transparencies hung in St. Petersburg

Laureates 2007

Professor Thorsteinn Ingi SIGFUSSON Chairman of Icelandic New Energy Ltd. and Chairman of Genery-Varmaraf Ltd., a thermoelectric company

"Research and development to implement hydrogen energy generation in Iceland" Academician Vladimir
NAKORJAKOVProfessor Geoffrey HEWITT
Chairman of UK National Heat
Transfer Committee, Institution
of Chemical EngineersThe advisor to the Russian
Academy of Sciences
"Physics and technology
of heat engineering processes –
hydrodynamics, heat exchange,
non-steady and wave processes
in multiphase media"Professor Geoffrey HEWITT
Chairman of UK National Heat
Transfer Committee, Institution
of Chemical Engineers

Research and development to implement hydrogen energy generation in Iceland

Professor Thorsteinn I. Sigfusson

Recommended by: professor Roland Schenkel professor Lars G. Larsson professor Guido Van Oost

- Development and validation of the concept of Hydrogen Economy in a separate country.
- Solution of a set of organizational and engineering problems in converting Iceland's motor transport and fishing fleet to hydrogen fuel produced from water using clean sources of energy.
- Managed a project to build a circular hydrogen public transport route in Iceland. He demonstrated the required hydrogen safety and optimized the system.

Physics and technology of heat engineering processes hydrodynamics, heat exchange, non-steady and wave processes in multiphase media

> Academician Vladimir Nakoryakov, Professor Geoffrey F. Hewitt

 Recommended by: Academician Vladimir Fortov
 A series of works on heat and mass exchange and hydrodynamics of two-phase flows in energy devices

- Stagnation-point wave processes and heat and mass exchange
- Theoretical and experimental research in coal-dust burning at oscillation and vibration
- Production of gas hydrates for use in power engineering
- Dynamics of nonsteady processes in energy devices

Week "Energy of the Future" Russia, Saint-Petersburg, 4-10 of June 2007

Global Energy The International energy prize

Week "Energy of the Future" – 2007

The International scientifically-practical symposium "Energy of mind"

Week "Energy of the Future" – 2007

The briefing of Laureates

Future laureates of the Prize – Global Energy Program for Youth

The all-Russian competition "Energy of Youth"

The purpose of the Program for Youth – is to support and stimulate young scientists making their researches in the field of energy and power engineering.

The grants amount for the winners of the annual Global Energy Foundation scientific contest for youth is 110 000 USD.

Global Energy Program for Youth

Research Subjects of the young scientists in 2007: 29% – hydrogen; 18% – hydrocarbon; 18% – power industry; 12% – heat power; 12% – nuclear energy; 6% – engines; 6% – organic fuel

- 208 scientific and educational institutions;
- 66 Russian cities;
- winners from Irkutsk, Moscow, Moscow region, Novosibirsk, Nyzhny Novgorod, Saint-Petersburg, Tomsk;

Global Energy The International energy prize

Global Energy Program for Youth

Winners will represent Russia on WEC

THE ENERGY FUTURE IN AN INTERDEPENDENT WORLD

Global Energy The International energy prize

Global Energy Program for Youth

Youth program XX WEC and WEC itself will be held in Rome simultaneously:

- VIP
- Youth (100 countries x 2 participants)

Subjects of the Youth Congress:

- 1. Power-saving technologies future of the world power engineering
- 2. Renewable sources of energy

Scientific adviser of the Youth Congress – Global Energy Prize Laureate Academician Evgeny Velikhov

THE ENERGY FUTURE IN AN INTERDEPENDENT WORLD

Thank you for attention!