



IREO

Intergovernmental Renewable Energy Organization

ISLANDS INITIATIVE



Intergovernmental Renewable Energy Organization (IREO)
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Intergovernmental Renewable Energy Organization

Letter from the Secretary General

Fall 2015

Your Excellency,

With the deep understanding that there is a great and urgent need for sustainable development and renewable energy, we have the honor of introducing IREO, which is firmly engaged in efforts across the globe to work with nations to increase access to energy, build resiliency, and combat the effects of climate change.

IREO was established to accelerate the development and dissemination of affordable and cleaner energy efficiency and energy conservation technologies, as well as the transfer of such technologies and knowledge, in particular to developing countries, on favourable terms. IREO, as one of the few intergovernmental organizations focused singularly on renewable energy efforts in furtherance of economic development, strives to aid member countries become global leaders in renewable technology development and implementation.

Your nation, as a member state of IREO, will benefit from new research on renewables-based microgrid technologies and sustainable development, consulting and advice on cost-feasible development models for the adoption of resilient, renewables-based power infrastructure, and access to support in crafting attainable, comprehensive policy to slow climate change and increase access to renewable energy. With our new initiative in Island communities, IREO will work tirelessly to preserve the rich traditions and ecosystems that make your nation so unique.

In exchange, we humbly ask for your nation's partnership with IREO's international community as we seek to build a strong and lasting organization focused on the mutual benefit for all of our member nations.

With the greatest esteems and highest regards,

Jonathan Hill

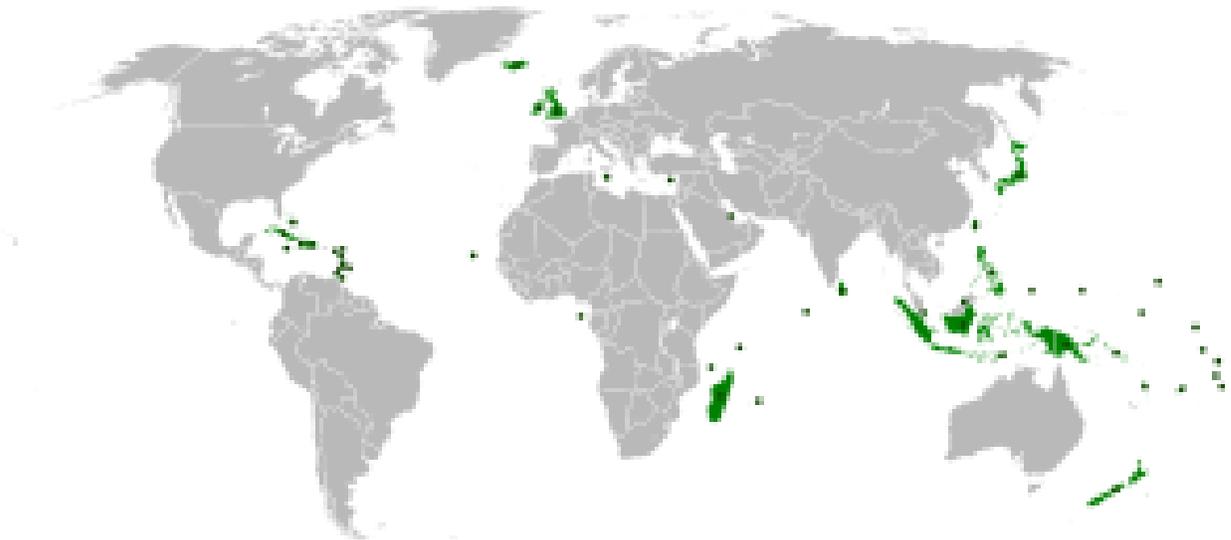
Secretary General
Intergovernmental Renewable Energy Organization



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Executive Summary

Dotting the world's oceans, Small Island Developing States (SIDS) are some of earth's most unique nations and hold some of the world's most diverse and precious human and natural resources. SIDS, as well as other developing nations with large island regions, are also some of the most vulnerable to the effects of climate change. Their size reduces adaption options as sea-levels continue to rise and their locations make them more susceptible to natural disasters. These natural obstacles combined with a high dependence on external markets for basic goods, including energy resources, and a reliance on international tourism for their economic livelihood create an immense challenge to creating self-reliant communities. IREO and our partner NGO, the IREO Foundation, as part of our joint mission to promote renewable energy and sustainable development in the world's developing communities, seeks to work together with our friends in Island Nations to find a way to overcome these obstacles through knowledge transfer, capacity building, the development of a locally sourced renewables-based green economy, and a systematic awareness and advocacy campaign to the international community on the unique issues faced by island states.



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Summary of Initiatives

Research

- IREO will work closely with the IREO Foundation and partner universities to **build a knowledge-base for developing Island nations**.
- IREO will publish an annual peer-reviewed **Research Journal** devoted to Island-based Science and Policy

Training and advice

- IREO, with the support of the IREO Foundation, will provide Islands with **technical training** in the areas of renewables. The IREO Foundation's **IREO Academy** will train Island communities in renewable energy systems focusing on energy production and distribution, sustainability, and maintenance.

Renewable Microgrid Implementation

- The IREO Foundation has agreed to take the lead on the **installation of sustainable, renewables-based community microgrid energy systems**. Water (including desalinization), sewer, and electricity will all be incorporated into microgrids. Microgrids will serve as the base of infrastructure development projects.

Policy

- The creation of an **Island Executive Committee** with high-level Island representatives who will advise the SG on island needs including unique capacity and infrastructure issues, policy needs, development models and financing, and advocacy best practices.
- **Individual policy consultations on policy formation**, focusing in the areas of creating and refining climate goals, comprehensive land use planning, public financial structures conducive to entrepreneurship, development of green, circular economic systems, and the promotion of responsive, responsible, resilient, and sustainable tourism.

Advocacy

- IREO and The IREO Foundation will advocate within and outside the islands to governments and the business community to:
 - **Promote green economic policies** and to diversify sustainable tourism in the areas of ecotourism, agritourism and cultural tourism;



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- **Foster entrepreneurship and innovation**, building capacity;
- **Create locally-based well-paying jobs** through private and public projects and encouraging entrepreneurs to start up environmentally sound businesses through adequate and appropriate incentives;
- **Shape international policies** that aid the islands in fighting climate change.

Awareness

- IREO, in collaboration with the IREO Foundation and other partners, will create a **comprehensive public awareness campaign** about climate change and tourism's effect on developing Islands.
- IREO will recruit well-known **Goodwill Ambassadors** from Island nations who are passionate about island issues, sustainable development, and energy poverty eradication.



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Location of IREO Island Initiatives

IREO's Island Initiative will begin in nations with which we have previously established relationships and connections. As we strengthen relationships, IREO will move further afield, with the goal of having an impact across Island communities worldwide. It is our hope that in exchange for our work in these communities, the nations agree to become full signatories to IREO's Convention for **COOPERATION IN THE FIELDS OF RENEWABLE ENERGIES AND SUSTAINABLE DEVELOPMENT.**

Phase 1:

- Dominica
- Grenada
- Palau
- St. Lucia

Phase 2:

- Fiji
- Philippines

Phase 3:

- Honduras
- Cuba



Milestones:

Fall 2015:

- Completed restructuring of the Secretariat at the executive level
- Begin recruitment of Island Council Members
- New website launched with dedicated Island portal
- Recruit two Goodwill Ambassadors devoted to Island issues
- Attend Paris Climate Change Summit

Early 2016:

- Strategic Partnerships reaffirmed and developed with UN Partners and Complementary IGOs and CSOs in the Islands
- Island site visits for IREO Academy and first microgrid project
- Open first mission in Island State

Summer 2016:

- Research portal launch and First Annual Island Research Conference
- Hold First Island Council meeting and Island Summit
- Open two additional Island Missions



Introduction

The problems facing the Island nations are well documented: climate change has brought about rising seas, temperamental weather patterns, and changing marine habitats; a reliance on imported fossil fuels has stagnated economic growth; a burgeoning tourist trade has raised some incomes, but has depleted already limited resources and made an environmental crisis even more severe.

The Intergovernmental Renewable Energy Organization, as one of the few intergovernmental organizations focused singularly on the use of renewable energy as the engine for sustainable development in developing societies, seeks become a key partner for Island nations in the fight against climate change and the move toward a renewable, energy independent, sustainable, self-reliant future.



SIDS contribute just 1%
of the earth's fossil fuel
consumption

About IREO

IREO was established “To accelerate the development and dissemination of affordable and cleaner energy efficiency and energy conservation technologies, as well as the transfer of such technologies, in particular to developing countries, on favourable terms, including on concessional and preferential terms, as mutually agreed, bearing in mind that access to energy facilitates the eradication of poverty,”¹ and “Promote and support greater efforts to develop renewable sources of energy, such as solar, wind and geothermal energy.”² In advance of the 2015 Paris UN Conference of Climate Change and in accordance with the proposed Sustainable Development Goals, IREO, under new leadership, has a new strategic direction aimed at increasing access to energy in the world's most remote areas and supporting sustainable development. IREO strives to help countries become global leaders in the fight against energy poverty while increasing economic opportunity.

Mission:

Promote and facilitate the use of renewable energy to eradicate energy poverty and support sustainable economic development.

¹ Paragraph 56 (i) of the 2005 World Summit Outcome document (General Assembly resolution 60/1):

² Paragraph 1 (d) of resolution 60/205 on science and technology for development.



Vision:

IREO's vision is to create awareness about climate change, renewable energy, and energy poverty and support member countries as they seek to use renewable energy to better the quality of life of people living in regions without traditional municipal infrastructure or whose current energy sources are insufficient to meet their essential daily needs. IREO aims to educate, develop, and impact the lives of those who reside in decentralized and remote regions. IREO's goal is to contribute manageable solutions that make a big difference in communities that have traditionally been overlooked by formal infrastructure programs.

Relationship between IREO and the IREO Foundation



IREO works closely with our partner NGO, the IREO Foundation. The IREO Foundation is an independent U.S.-based 501(c)(3) organization, enabling the foundation to receive tax-deductible donations from U.S. donors. The IREO Foundation was founded in 2010 to help IREO achieve its mission to provide renewable energy and create economic opportunity in developing communities.

While the two organizations share a common vision, IREO and the IREO Foundation differ in approach. Where IREO provides high-level advice and consultation to Island governments and advocating on behalf of Island nations within the international community, the IREO Foundation focuses on building strategic partnerships between local institutions and communities and international partners in finance, government, and industry. The IREO Foundation also conducts comprehensive and cutting-edge research, and implements community-based renewable energy systems and promotes sustainable development. This close collaboration allows the organizations to take both a top-down and a ground-up approach to renewable energy and sustainable development, ensuring buy-in at both government and community levels. With unique capabilities in research, implementation, and policy, IREO and the IREO Foundation are poised to play a pivotal role in helping meet the United Nations Millennium Development Goals and Sustainable Development Goals.



IREO and Islands:

IREO's goal is to empower governments and residents of Island communities to develop sustainable energy infrastructures rather than relying on greenhouse-gas emitting solutions. Initial countries will be IREO member and partner states such as, Grenada, Dominica, Palau, Fiji, St. Lucia, Philippines, and Honduras, and Cuba. Through these programs, IREO aims to help foster sustainable economies where the building and growth of renewable technologies will bring education, jobs, and prosperity.



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IREO also aims to work on Island nations behalf at the international level, advocating for tougher climate controls and creating broad awareness of island issues.

Capacity Building through Knowledge Growth and Technology Transfer

Research:

IREO will work closely with the IREO Foundation and partner universities in Island nations on research opportunities and will use the information gained through the Foundation's research arm, IREO Scientific, to build a knowledge-base for developing Island nations.

The knowledge-base, while having a general focus on renewable energy and sustainable economic development, will have key initial focus areas:

- The use of off-grid renewable energy systems to power communities
- The use of climate and ecosystem specific renewable energy systems that support resiliency to climate change.
- The development of technologies to streamline energy transfer and to create efficient, affordable, long-lasting storage systems
- The development of training on renewable energy.
- The development of security systems to protect newly created energy systems

IREO, in conjunction with the IREO Foundation, will build an extensive research portal and virtual reference library that can be accessed by governments and their citizens.

A highlight of the research will be the publication of a peer-reviewed research journal that focuses exclusively on the environmental concerns of Island nations.

Advice and Training:

Using this knowledge base and the expertise of IREO Secretariat Staff and IREO's Scientific Technical Commissions, IREO will advise Island nations in the following areas:

- Project financing for renewable energy projects
- Strategic energy planning
- Renewable energy training and education
- Sustainable infrastructure and land use planning

IREO, with the support of the IREO Foundation, will also provide Islands with opportunities for technical training in the areas of renewables.



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IREO Academy

Developing and sharing a knowledge base of best-practices for large scale implementation of sustainable, renewable microgrids

The centerpiece of IREO's research, the IREO Academy will be run and funded through the IREO Foundation and will be the one of the only centers in the world with a specialization and focus in off-grid and microgrid renewable technologies. Each integration and testing center (IREO Academy campuses) will have a dual-use as unique 'hands-on' training beds on the latest storage, generation, transmission, and maintenance methods. As IREO Academy campuses, each site will provide a fertile ground for interaction between practitioners, researchers, and students, including student interns and researchers from partnered institutions of higher learning.

The IREO Academy has two distinct goals:

1. Support IREO's mission to advise governments through developing a best-practices knowledge base on the implementation of sustainable, renewable energy solutions that foster microgrid-oriented economic development.
2. Train local stakeholders in the installation, maintenance and operation of renewable energy microgrids through the IREO Academy, and support them with grants via the IREO foundation and its affiliated partners. The IREO Academy is envisioned to deliver training in two ways:
 - a. Onsite training at regional IREO Academy centers
 - b. On-line course offerings

The goal of the centers go beyond the actual testing in real world conditions. These centers are envisioned as spaces of collaboration between academics, students, engineers, entrepreneurs, and the local communities in which the centers are based. Through this shared knowledge, the technologies will become stronger and more sustainable. Further, they will help bridge the gap between the research and development stages and implementation and roll out.

Campuses:

IREO Academy campuses will be located in key sites across the island regions. Each location will be chosen based on its ability to afford researchers with real-world off-grid conditions and proximity to implementation regions.

Online Learning with IREO Academy

In order to broaden the reach of IREO's developing knowledge base in implementing renewable energy, from 2016 the IREO Academy will be offering online learning programs that focus on the installation and long term maintenance of renewable microgrid installations. These programs



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combine the best of asynchronous *online* pedagogy with IREO Scientific and the other resources of the IREO Foundation. Online coursework will be highly engaging and effective and designed with creativity and with the most appropriate online pedagogical practices in mind. Specifically, throughout the course design process, our instructors develop courses that feature:

- **Student-centered, active learning-** This pedagogical approach encourages instructors to move away from the “top-down” lecture approach, and instead invites students to think critically and seek answers/develop further questions themselves; students are often asked to share their findings with the group for further analysis/reflection, with direction, guidance and feedback from group members
- **Collaborative, project-based learning** to help students to stay connected to one another throughout the program, both as a current and returning students
- Opportunities to apply **critical thinking skills**, and explore/challenge ideas

During the **online** course, students continue to work both independently and collaboratively in *one course at a time* from their home location. Each week, students spend time completing a new course learning “module” – reviewing course content, participating in lively online discussions, and submitting assignments via an online learning management system.

Throughout the program, students apply what they’ve learned from their coursework to a specific **microgrid project** in their home communities. Grants will be available via the IREO Foundation in support of these projects. The instructional designer helps to develop coursework that incorporates all three elements of each program into an efficient, cohesive, and meaningful learning experience for each student.

Renewable Microgrid Implementation

Creating Sustainable Microgrid Communities

IREO believes that through the targeted use of renewable-energy based *microgrids* to power local communities, Island nations can reduce or eliminate their needs for imported fossil fuels. With new technologies, these systems can be affordable, simple to install and maintain, and resilient to security and environmental pressures.

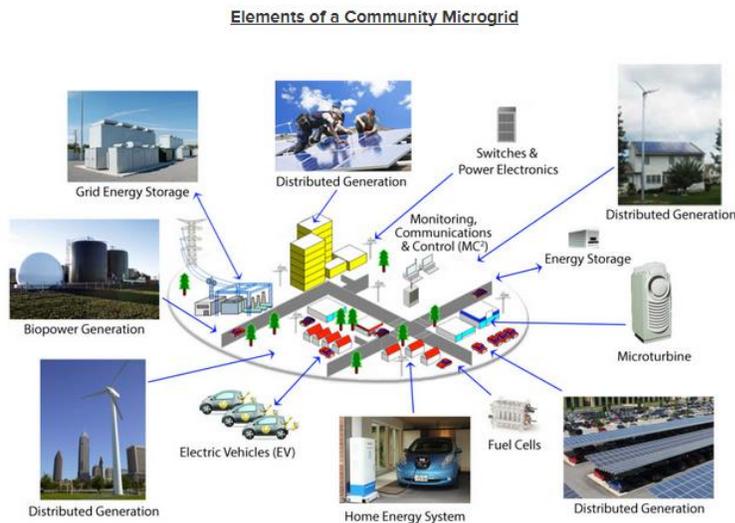
Water (including desalinization), sewer, and electricity will all be part of the microgrid. Electricity, waste, and water will be in a co-dependent cycle that can be adapted depending on local resources and needs. The microgrid will serve as the base of an infrastructure development project. The

In 2008 when oil prices reached over USD100 a barrel, SIDS spent over USD90 million each day on foreign oil.



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microgrid will serve homes, business, and vital services such as education and health. Each property will both use the grid and provide energy back to the grid through their own localized power sources.



It is IREO's hope that the microgrid will become the cornerstone for a green economy. IREO will combine the installation of the microgrid with vocational training, enabling residents to take ownership of the grid. IREO will also work closely with tourist developers and tourist-oriented small businesses to incorporate the microgrid into their facilities, particularly in regards to waste and water.

Success will come when everyone in the community benefits from the microgrid and all the energy that the grid generates is sustainable and renewable. Our first community project will be a model and a lesson for our next project, teaching us local strategies and best practices for local adaptation and sustainability.

In developing solutions, the IREO Foundation will partner with NGOs and Renewables Consultants to co-sponsor activities and subcontract with existing organizations. With this model, IREO will be able to quickly develop a presence across the islands, while collecting an ever-growing knowledge base enhanced by veteran practitioners and organizations.

As with the IREO Academy Campuses, our early projects will be in member states and their partners, with the expansion of scope as a primary goal of both IREO and the IREO Foundation.

Policy, Advocacy, Awareness

Policy:

Through annual summits and regular, more informal gatherings, IREO will invite members of SIDS and other nations with vulnerable island communities to work together to share best practices on policy and legislative developments that support and drive energy access, resiliency, and sustainable renewables-based infrastructure and economic development.



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In 2016, IREO will hold the first meeting of the Island Executive Committee who will advise the Secretary General on island needs including unique capacity and infrastructure issues, policy needs, development models and financing, and advocacy best practices.

IREO's own advisors will work with Island countries on an individual basis on policy formation, focusing in the areas of:

- Creating and refining climate goals
- Comprehensive land use planning
- Public financial structure conducive to entrepreneurship
- The development of a green, circular economic system
- The utilization of the island's massive oceanic resources for a blue economic growth
- The promotion of responsive, responsible, resilient, and sustainable tourism.

SIDS nations face some of the world's highest energy tariffs, making regular energy usage unobtainable for many low-income families.

Advocacy:

Climate Change

IREO will work with the islands on creating a comprehensive and targeted international advocacy strategy. SIDS makes up almost one-third of global land-mass and with fifty-two countries, the community has a powerful voice in the international community. IREO will use its influence to bridge the gap between developing Island nations and developed states to push for greater international restrictions on fossil fuels and to support policies that cap global temperature rise to 1.5° C.³ IREO will work at all levels of government to fight for policies that aid the islands in fighting climate change.

Responsible Tourism

The SOMOA Pathway details the need amongst SIDS and other Island nations for tourism that is both economically viable and protective of the islands' environmental and human resources.⁴ IREO and the IREO Foundation will advocate for policies on the governmental and corporate level that allow

³ The goal of limiting global average temperature increases to below 1.5 degrees is seen as essential for minimizing damage to small island developing and low lying States.

http://unfccc.int/files/science/workstreams/the_2013-2015_review/application/pdf/1._aosis_27052014.pdf

⁴ <http://www.sids2014.org/index.php?menu=1537>.



local communities to gain the best possible benefits from tourism while enabling these communities to decide how best to accommodate tourism.

Awareness:

IREO, in collaboration with the IREO Foundation and other partners, will create awareness about climate change and tourism's effect on Islands through:

- Newsletters
- IREO's website
- A dedicated YouTube channel with regularly updating mini programs on energy access
- An expansive and sophisticated social media strategy and presence
- High-level Summits
- Research and policy conferences of local, regional, and international scopes
- Online courses

IREO will also recruit well-known Goodwill Ambassadors from Island nations who are passionate about island issues, sustainable development, and energy poverty eradication.



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