

ISLANDS: LIGHTHOUSES FOR RENEWABLE ENERGY DEPLOYMENT

CONTENT

- **SIDS LIGHTHOUSE INITIATIVE**

- **GLOBAL RENEWABLE ENERGY ISLANDS NETWORK**



**SMALL ISLAND DEVELOPING STATES
LIGHTHOUSES INITIATIVE**

Launched on 23 September 2014 at the Climate Summit

PARTNERS



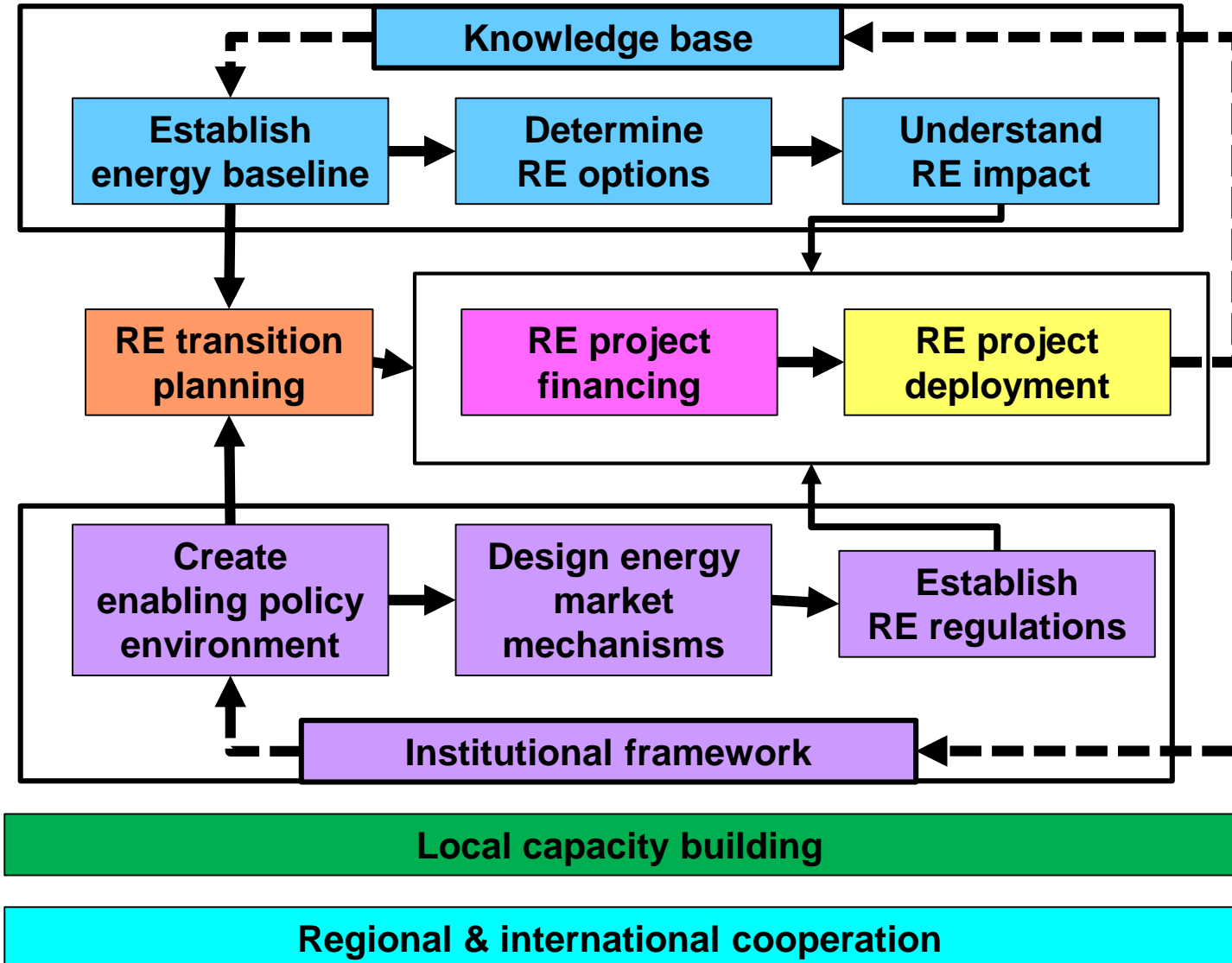
SMALL ISLAND DEVELOPING STATES
LIGHTHOUSES INITIATIVE

Antigua & Barbuda, Aruba, Bahamas, Barbados, Belize, Cape Verde, **Cook Islands**, **Federated States of Micronesia**, **Fiji**, Grenada, Guyana, **Kiribati**, Republic of Maldives, **Republic of the Marshall Islands**, Mauritius, **Nauru**, **Niue**, **Palau**, St. Vincent and the Grenadines, **Samoa**, Sao Tome and Principe, Seychelles, **Solomon Islands**, **Tonga**, Trinidad and Tobago, **Tuvalu**, **Vanuatu**.

European Union, France, **Germany**, **Italy**, **Japan**, **New Zealand**, Norway, United Arab Emirates, **United States of America**, Indian Ocean Commission, **IRENA**, Association of the Overseas Countries and Territories of the European Union, **UNDP**, **World Bank**, ENEL, Carbon War Room, Clinton Climate Initiative, Rocky Mountain Institute, **SE4All**.

- **120 megawatts (MW) of new renewable energy deployment and all participating SIDS to have renewable energy roadmaps by 2020.**
- **Facilitates and coordinates access to resources required by SIDS to transform their fossil fuel based power sectors to renewable energy through partnerships with development partners**
- **SIDS partners in the AIMS, Caribbean and Pacific regions, gain access to:**
 - ✓ **Policy and regulatory advisory services**
 - ✓ **Technical expertise in planning, identifying, structuring, and executing projects**
 - ✓ **Financing for capacity building, policy and regulatory design, early stage transaction, and project financing**
 - ✓ **Network to share information, knowledge and practices with other members**

Process



Objective - Assess the current situation in terms of enabling conditions for RE deployment

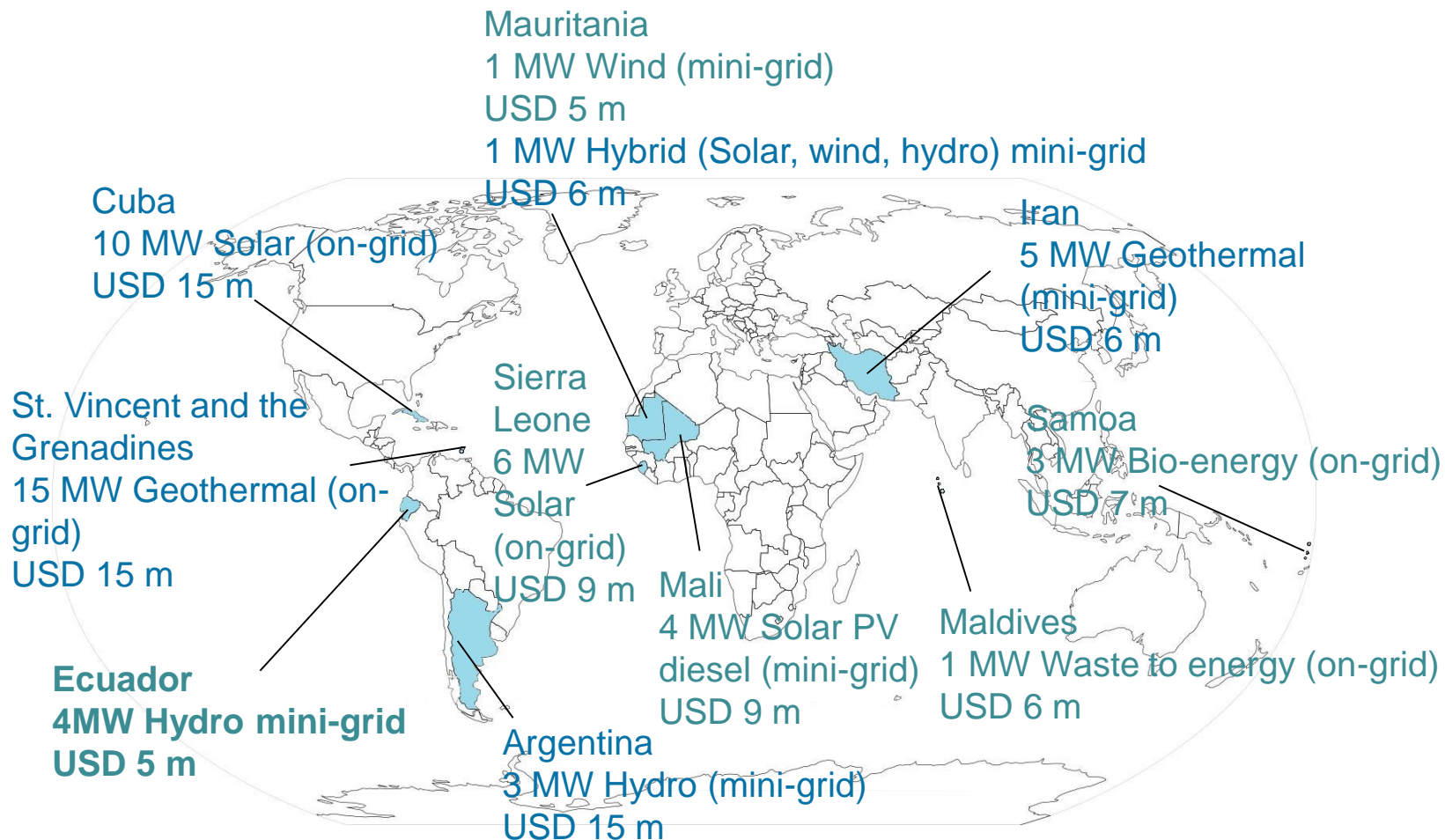
- **Gather available information and identify information gaps**
- **Identify priority areas for action**
- **Involve government and private sector players**

Progress - Ran for Mauritius, Bahamas, Fiji, New Caledonia, Kiribati, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu

- **Ongoing for Barbados, Cook Islands, FSM, Nauru, Palau, RMI.**
- **Requested by Belize and St. Kitts and Nevis**

- **Renewables Readiness Assessment**
 - Starting Antigua and Barbuda, the Bahamas
 - Completed Kiribati, Grenada, Fiji, Marshall Islands, Vanuatu
- **Grid stability**
 - Antigua and Barbuda, Barbados, Cook Islands, Palau, Samoa, Fiji
- **Studies on tariff impact of RE**
 - Tonga
- **Renewable Energy Roadmaps**
 - Roadmapping Baseline Report for Pacific SIDS, Nauru (GIZ, SPC), Cyprus, Mauritius (Ocean Energy), Cape Verde & Vanuatu (GIZ)

Abu Dhabi Development Fund



First cycle projects = USD 41 million loans, USD 44 million co-finance

Second cycle projects = USD 57 million loans, USD 102 million co-finance



- **Project Navigator**
 - Improve project development skills and increase the bankability of RET projects

- **Sustainable Energy Marketplace**
 - Scale up investments to support initiation, development and financing of sustainable energy project

- **GREIN**

Home Resource Assessment Grid Integration Tourism SIDS Lighthouse Initiative Roadmaps Desalination Waste to Energy

About GREIN

IRENA, through GREIN, is pooling knowledge and sharing best practices to accelerate the uptake of clean and cost-effective renewable energy on islands and reduce reliance on costly fossil fuel. GREIN, has interest clusters on roadmaps, grid integration, tourism, resource assessment, waste-to-energy, and desalination.



Events

Martinique Conference on Island Energy Transitions: Pathways for Accelerated Up
29 Jul 2013



Tourism

IRENA, through GREIN, is showing the business case for renewables in island hotels. Options include solar hot water for showers, solar chillers and sea water cooling systems for air conditioning, and photovoltaic rooftops for electricity.



Island Setting and Projects

Island lighthouses point the way for renewable energy transition on islands through a mix of political commitment, market opening, planning, capacity building and other supportive measures.



Roadmaps

Roadmaps define optimal pathways to achieve policy targets and quantify their implications. IRENA is assisting island countries in developing roadmaps for the transition to renewable energy. IRENA, through GREIN, is sharing roadmaps developed for islands around the world.



Desalination

Many islands face a critical shortage of fresh water and so must desalinate seawater. GREIN is assessing renewable desalination at island scale.



Waste to Energy

IRENA, through GREIN, is evaluating cost-effective options for islands to turn organic waste into locally generated electricity.

Resource Assessment

IRENA, through GREIN, is developing guidelines for wind resource measurement that islands can use to show the likely output and revenue from pilot wind power projects and get such projects financed.



Grid Integration

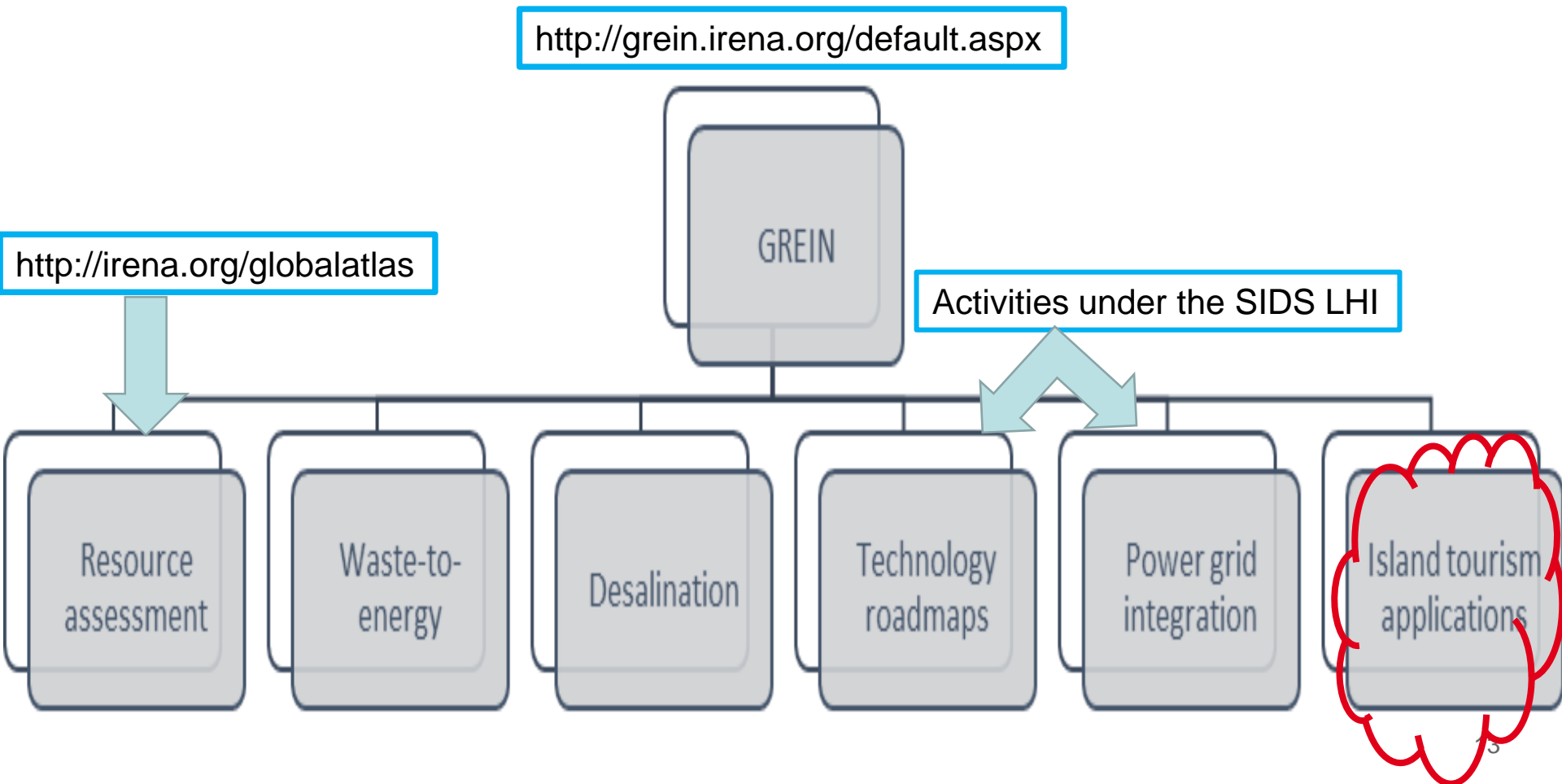
IRENA, through GREIN, is sharing grid stability studies which show that islands can use a much higher share of renewable power while keeping service reliable. It also supports training to install and maintain renewable power property.



40 countries called on IRENA to host GREIN at the Malta Summit 2012
IRENA and UNWTO signed a Joint Statement at the Samoa Pathway 2014

OBJECTIVES

- **Providing a platform for pooling knowledge and exchange of ideas among relevant institutions and authorities in islands, sharing best practice, challenges and lessons learnt, and seeking innovative solutions**
- **Assist in the formulation of business cases for renewables deployment, with the involvement of the private sector and civil society;**
- **Assessing relevant technologies, established and emerging, to identify those suitable for different island environments, and providing advice on technology choices;**



- International tourism accounts for 30% of the world's exports of services and 6% of total exports, a contribution that is similar for both developed and emerging economies
- Transportation energy use accounts for about three quarters of total energy use
- Electricity use for A/C, water heating, lighting, desalination, electric appliances etc.
- Tourism is an energy intensive sector of Pacific SIDS

- Study of Renewable Energy Opportunities for Island Tourism – 2014
 - Technologies such as solar water heating, solar air conditioning, sea water air conditioning (SWAC) and photovoltaics can be practical and cost-effective for island hotels.
- Collation of best practices from SIDS – Caribbean, Pacific, AIMS regions
- Capacity assessment of ESCOs in integrating RE in energy audits and recommendations
- Developing bankable projects and generating interest in investment

IRENA - 2014

- **Solar Water Heating**
- **Solar Air-Conditioning**
- **Seawater Air-Conditioning**
- **Photovoltaics**

UNWTO - 2011

- **Biomass**
- **Combined Heating and Power (CHP)**
- **Geothermal Energy**
- **Solar photovoltaic electricity systems**
- **Solar thermal energy – Solar COMBI systems**
- **Solar thermal energy – Solar COMBI+ systems**
- **Solar thermal energy – Domestic Hot Water Systems (DHWS)**
- **Swimming Pools**
- **Wind energy**
- **Micro Hydro Power**
- **Deep Water Cooling**

CASE STUDY: GRENADA

TRUE BLUE BAY BOUTIQUE RESORT GRENADA

- **Hotel size:** 48 rooms
- **RET:** SWH: Hot water production 5,900(in liters per day), temperature 60(°C) – 18 units
- **Capital cost:** US\$ 36, 000
- **Payback time:** 1.91 years
- **Savings:** 41, 823 kWh (USD18, 820.35) (31.36 CO2 ton/annually)



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- **Small hotels are eligible to access RE self-generation programme of banks**
 - **Hotel Encouragement Act provides duty free entry of approved construction material, furnishings and fixtures for hotel development and presumably, sustainable energy technologies could qualify under this Act.**
 - **Bahamas is a participant in the CHENACT-AP programme and small to medium sized hotels should benefit from the programme which will fund up to US\$1 Million for participating hotels.**
 - **CHENACT has already conducted 40 energy audits in Bahamain hotels.**
 - **The IDB 2013-2017 country report indicated that only four financial institutions offered financial products which could fund RE and EE projects in the hotel sector**
 - **The Caribbean Development (CDB) provided funded for the re-introduction of a solar installation and maintenance program at the Bahamas Vocational.**

CASE STUDY: NOVOTEL SUVA LAMI BAY

- **Site Visit on Friday, 13th November 2015 – 2.30pm**
- **Planet 21 Initiative – 7 Pillars, 21 Commitments**
- **Accor is committed to broadly and systematically deploying energy savings measures and to using renewable energies.**
- **Over 75% of the energy consumed by Accor is in its hotels, the vast majority of which have been equipped with energy-efficient light bulbs.**
- **Accor has developed a methodology called BOOST, has helped to reduce up to 25 % water and energy consumption By135 hotels around the world were equipped with solar panels to produce domestic hot water**
- **172 hotels used biomass, geothermal and other renewable energies**
- **By 2015, 10% of hotels will use renewable energy**
- **COP21 partner hotel**



- **Lack of knowledge and capacity**
- **Lack of profitability compared to other investments e.g. energy efficiency is more profitable**
- **Reliability risk**
- **Hotel operators are often not owners – uneven distribution of cost and benefits of RE investments**
- **Private sector engagement (technology and economics information, energy management standards, marketing arguments)**
- **Government or private sector action ?**
- **Associations, travel agencies, hotel chains, operators ?**

THANK YOU

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