Green Energy Solutions

High-Impact Common Services Business Operations Strategy

Tue Aug 9th 7:00 am NY
Thu Aug 11th 10:00 am NY

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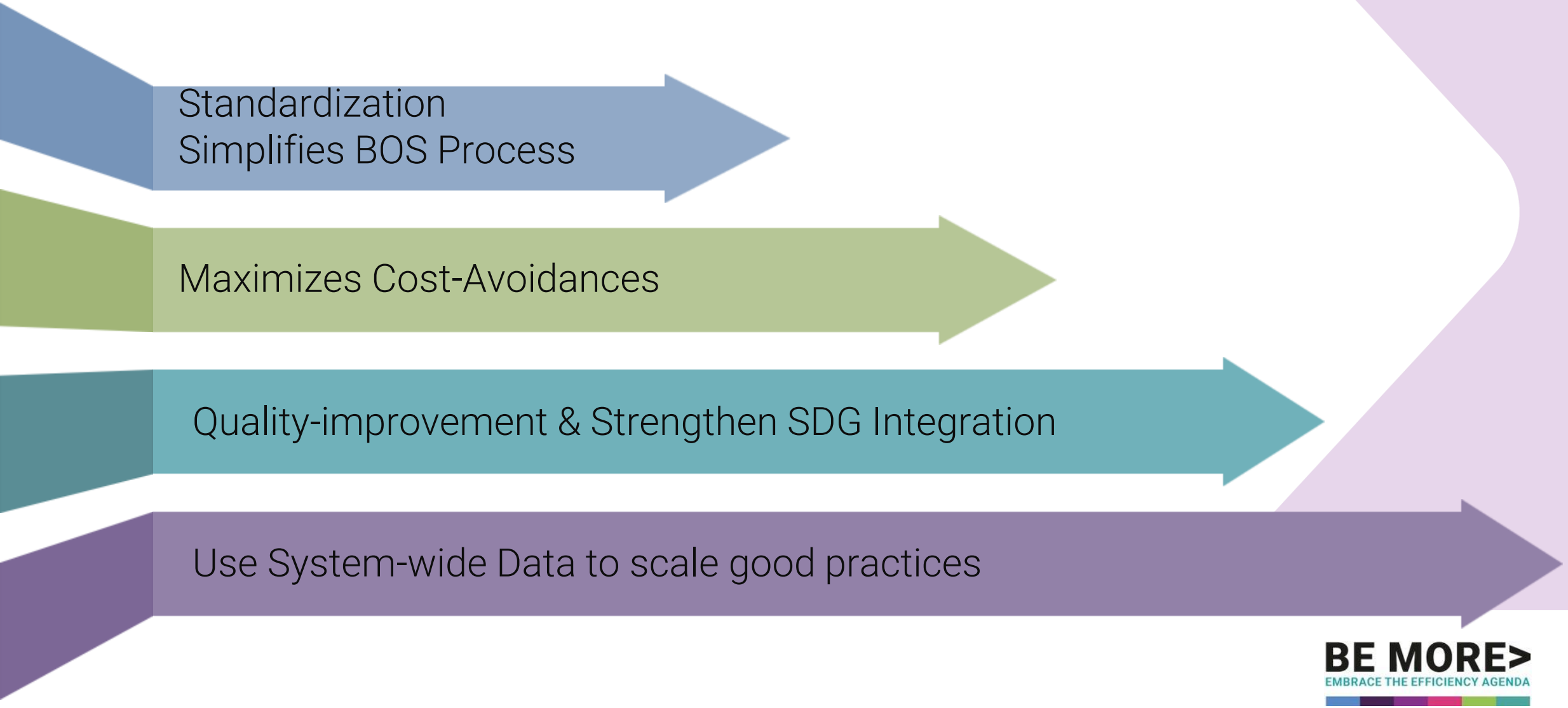
Objectives & Benefits of Scaling HICS



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High Impact Services - Overview

Common services selected for their potential to create benefits within the UN & provide a proof of concept for replication with other organizations.

1. **High-Cost Avoidance:** Top 10-15 high-cost avoidance services within the BOS
2. **Good Practices:** Such as digital bookings & management of fleet, payments processing, & global disposal services.
3. **Gender inclusive services:** Promote gender-responsive practices to achieve gender parity & equity & create inclusive working environments
4. **Disability Inclusion:** Create inclusive environments for persons with disabilities in the UN across: Physical Accessibility, Inclusive HR, ICT/Digital Accessibility, & Procurement.
5. **Renewable & Sustainable practices:** Integrate a united sustainable & green strategy across operations

High Cost Avoidance

High-Quality Improvement

Good Practices & SDGs linkage

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HIGH IMPACT AREAS

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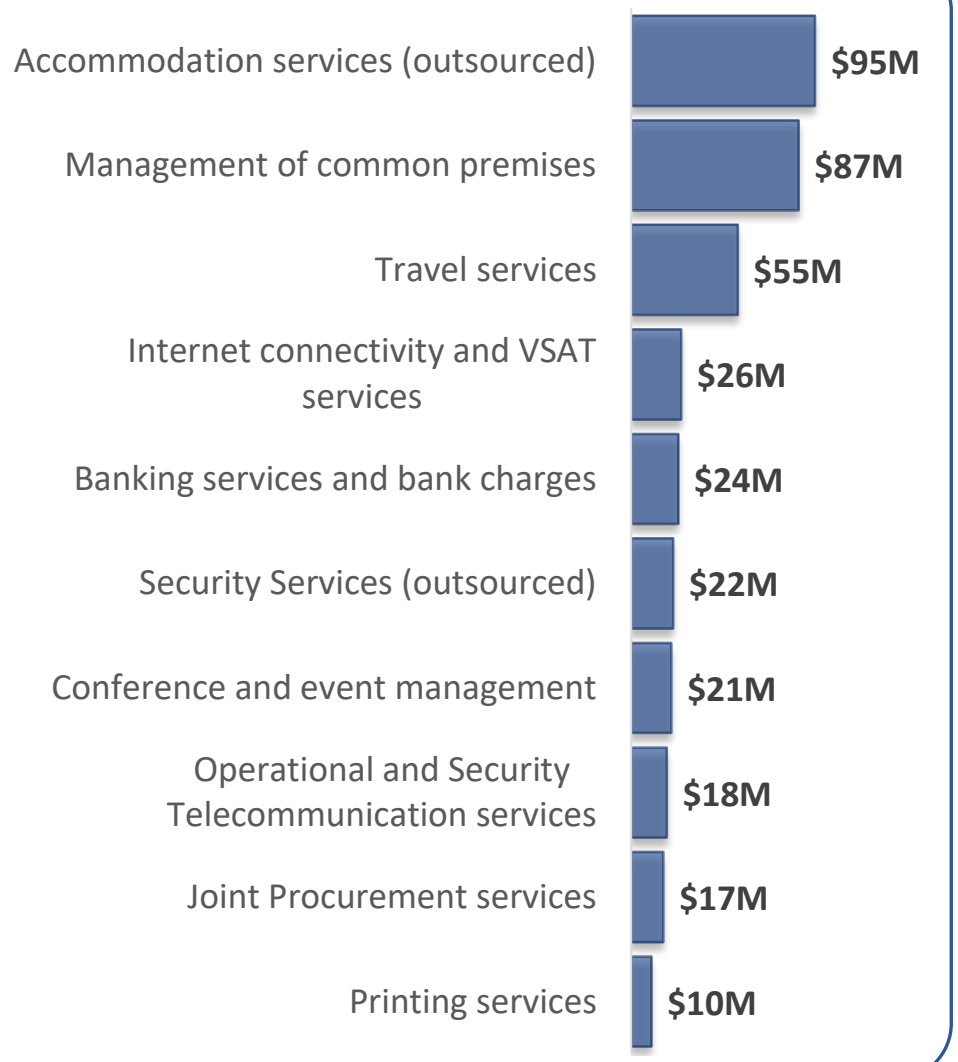
TOP 10 HIGH-COST AVOIDANCE $375M



HIGH QUALITY & SOCIAL IMPACT COMMON SERVICES

Disability Inclusion

- Physical Accessibility
- Inclusive HR
- ICT/Digital Accessibility

Innovation & Efficiency

- Common Mobility (WFP, UNDP, UNHCR)
- Common Accommodation (WFP)
- Clinic & Medical Booking (WFP)

Green & Renewable Energy

- Energy Mgt., Monitoring & Consumption Assessment & Business Case
- Solar Solutions (Home, Street, H20)

Gender Inclusive Operations

- Gender Responsive Procurement
- Supporting Women Owned Businesses
- Gender Equity throughout operations

Enabling Environments

- Inclusive Working Environments
- Staff Well-being & Community Reach
- Sustainable Canteen

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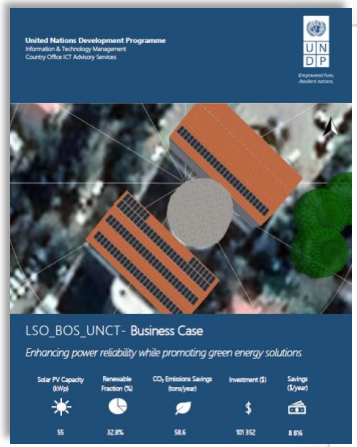
PROOF OF CONCEPT
RENEWABLE ENERGY & DISABILITY INCLUSION



Business Cases for renewable energy in UN Premises

1. Facilitate implementation with real data & IoT devices
2. Reduce CO2 footprint, increase energy efficiency, reliability
3. **Pilot UNCTs:**
   AFR: Ghana, Lesotho, Namibia, Nigeria, South Sudan, Zambia, Zimbabwe;
   LAC: Haiti
   AS: Lebanon
   ECA: Kazakhstan, Kyrgyzstan, Turkmenistan

Disability Inclusion Seed Funding

1. **Seed funding to UNCTs** to advance UNDIS & make operations inclusive
2. Create **inclusive HR practices** with accessible premises & digital tools
3. **Pilot UNCTs:**
   AFR Lesotho, Namibia, Nigeria
   APA: Indonesia, Iran, Nepal, Fiji
   AS: Lebanon
   ECA: Albania, Montenegro, Tajikistan
   LAC: Costa Rica, Dominican Republic, Guatemala, Uruguay

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United Nations Development Programme

Information and Technology Management (ITM)

Photo: Solar Panel Installation South Sudan Rajaf Police Academy / 2018

Information and Technology Management (ITM)

Prepared by: *ITM Green Energy Team*

Created on: February 11, 2019

Last update: August 08, 2022

ISO Quality Inspected.
Approved for release by: **Gerald Demeules**, *Global ICT Advisor*

UNDP Mission and ITM/SIS Vision

UNDP MISSION

"On the ground in about 170 countries and territories, UNDP works to eradicate poverty while protecting the planet. We help countries develop strong policies, skills, partnerships and institutions so they can sustain their progress".

ITM/SIS VISION

"Creating Smart Facilities to build local capacity and inspire a movement".

How We Solve | Smart Facility for X

Smart Facilities

ENERGY & MOBILITY

- Renewable Energy
- Electric Vehicles
- Vehicle-to-Grid
- Energy Storage (Li-ion)

DATA & INTERNET OF THINGS

- Sensors based technologies
- RFID and Block chain
- Energy Consumption & Environmental
- Monitoring Artificial Intelligence and Machine Learning Intergration

"The whole is greater than the sum of its parts" - Aristotle

CONNECTIVITY

- NextGen Broadband Connection - 5G, ***LTE-M***, MultiFire
- Global Mobile Virtual Network Operator (***GMVNO***)
- OneICTbox+
- NextGen Satellite Comms - ***SpaceX***, SatCube
- IoT Connectivity - ***LoraWAN***, BLE, Zigbee, Sigfox, NFC

SECURITY

- End-point protection Anywhere
- Next Generation Firewall
- Solar Street Lamps
- Perimeter Security - Cloud-based CCTV and Premise Access System

Interconnecting Smart Technologies and People in the Pursuit of Economic and Social Development

Challenges Being Addressed

Unreliable Grid

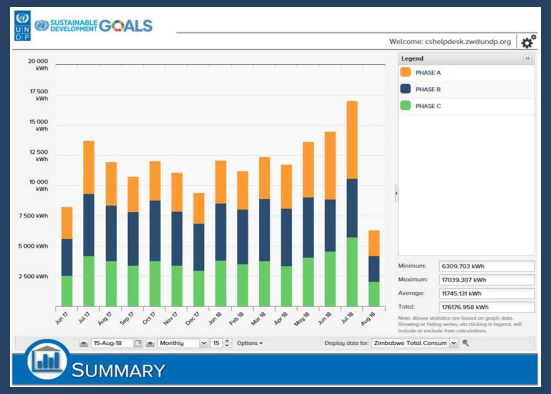
Generator as sole supply of electricity

Oversized Generators

Lack of awareness

Green Energy Services and Products | Summary

Photo: GE Training Mission UNDP Niger/2019



IoT Monitoring portal

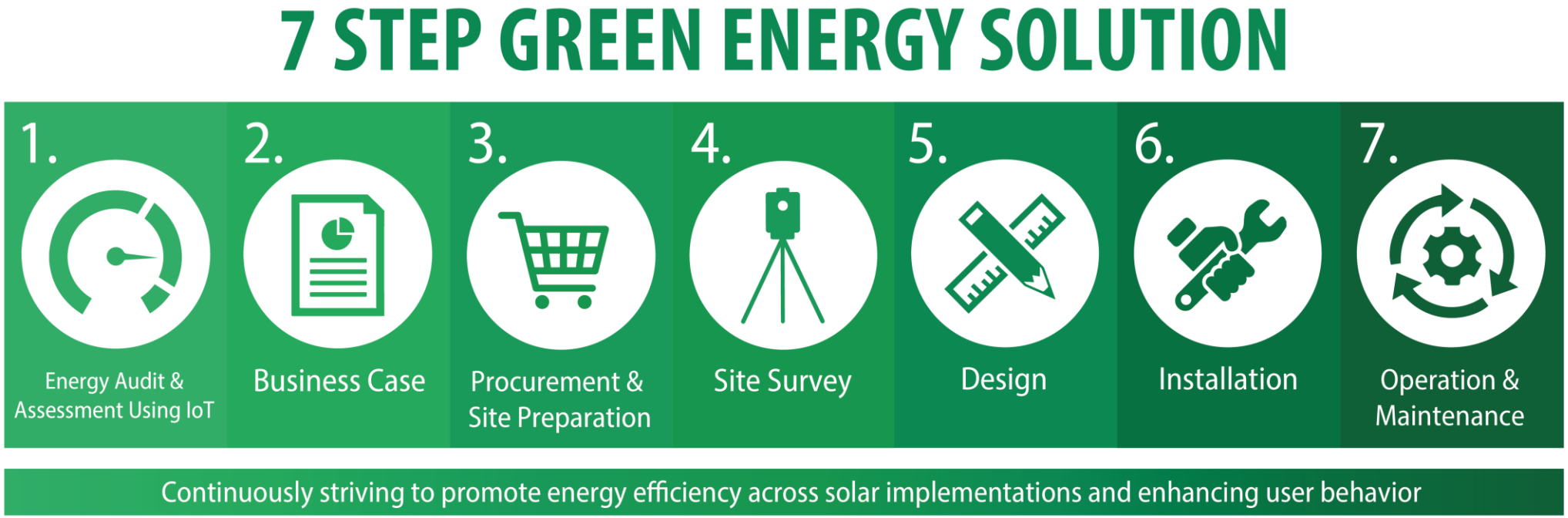
Photo: Smart Facilities Mission UNDP South Sudan/2018

Photo: Solar Street Lamps - UNDP South Sudan

Green Energy Services

1. Green Energy Solutions
   a. Solar Installations
   b. Solar Street Lamps
   c. Solar Home Kits for Staff or Field Missions
2. Green Energy Mission
   a. Energy Audit and Assessment
   b. Training and Capacity Building
3. Energy Consumption Measuring and Monitoring (ECMM)
   a. IoT for Energy Efficiency

7 Step Green Energy Solution



Recognized as best practice by UNSDG for Solar implementation

Step 1 – Energy Audit & Assessment Using IoT

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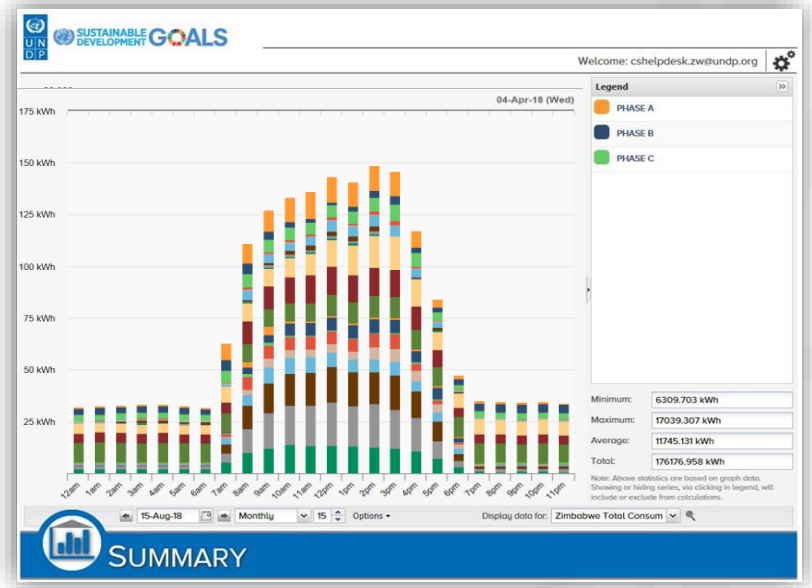
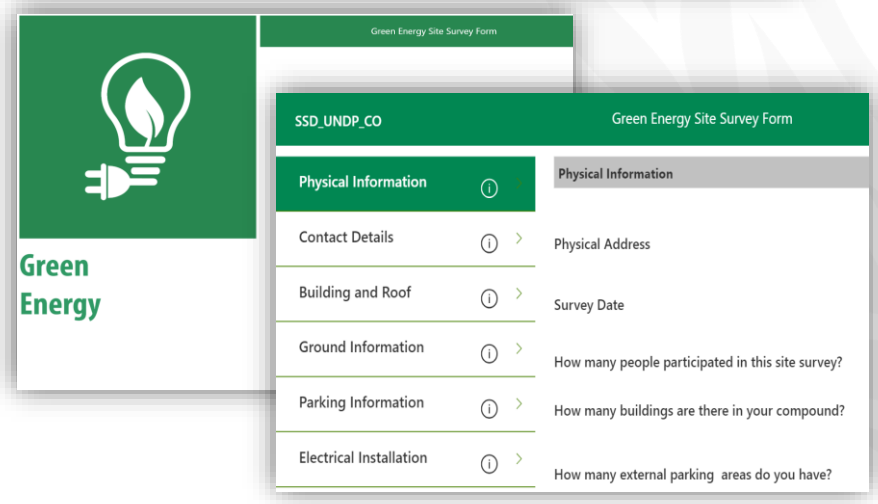
Key Aspects

1. **IoT devices** for energy consumption and site-specific data
2. **Preliminary Site Survey Application**
3. **Assess** the current situation and **build a load profile**





Step 1 – Energy Audit & Assessment Using IoT | Implementation

Key aspects

1. ITM Green Energy Team supports determining the package a UNCT needs - number and size of circuits to be monitored
2. DIY installation of the IoT sensors: "Do it yourself" - ITM provides support remotely and a step-by-step installation guide
3. ITM GET provides 2nd tier support, and 3rd tier technical support is provided by the vendor

Step 1 – Energy Audit & Assessment Using IoT | Benefits

More educated, informed and responsible use of electricity

Implementation of energy efficiency measures

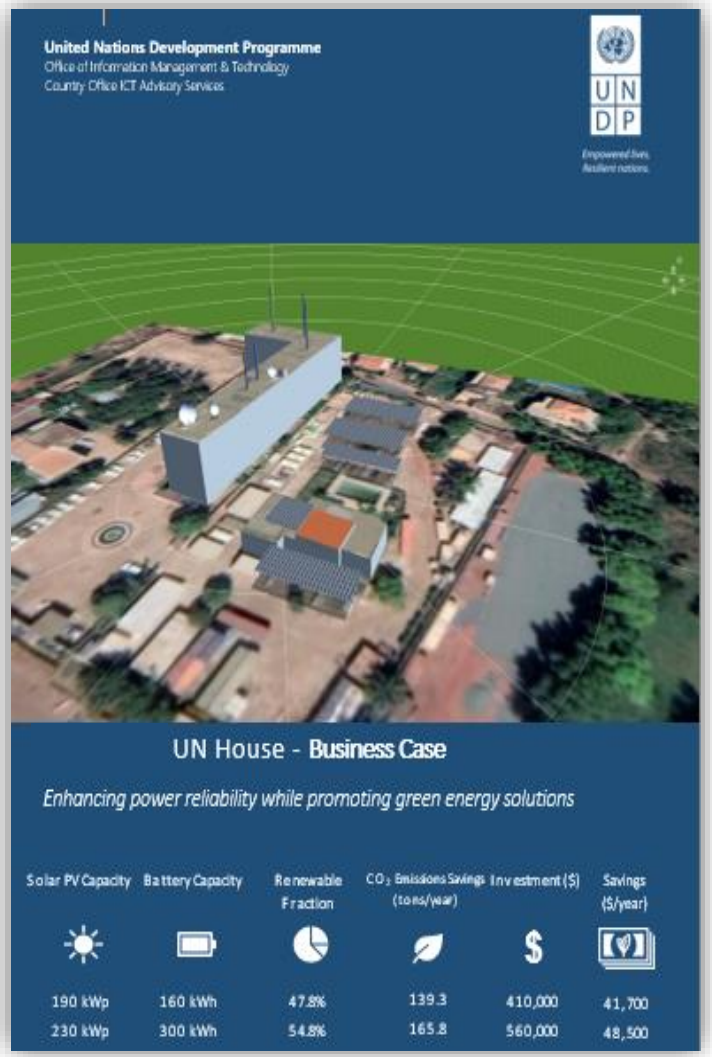
Monitoring of results

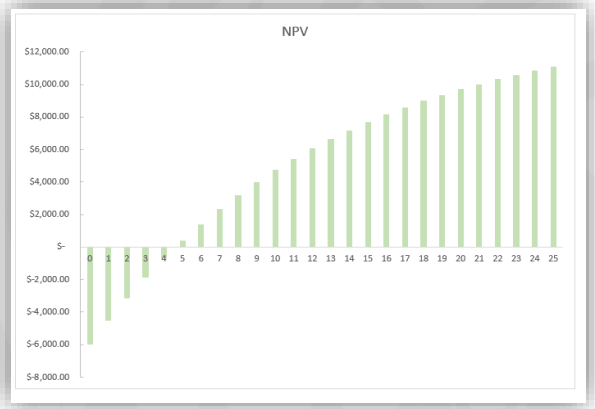
Basis for Renewable energy projects

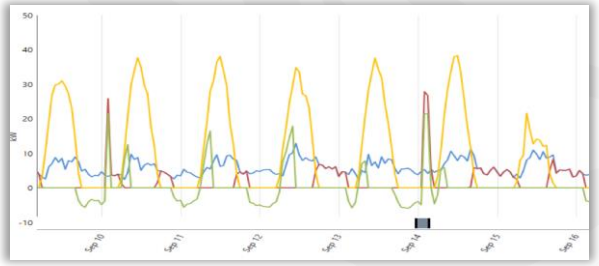
Step 2 – Business Case

Key Aspects

1. Technical, economic, and environmental analysis.
2. Business Case gives essential information for decision-making.
3. Data collected from Step 1: Software for system modeling and in-house developed tools



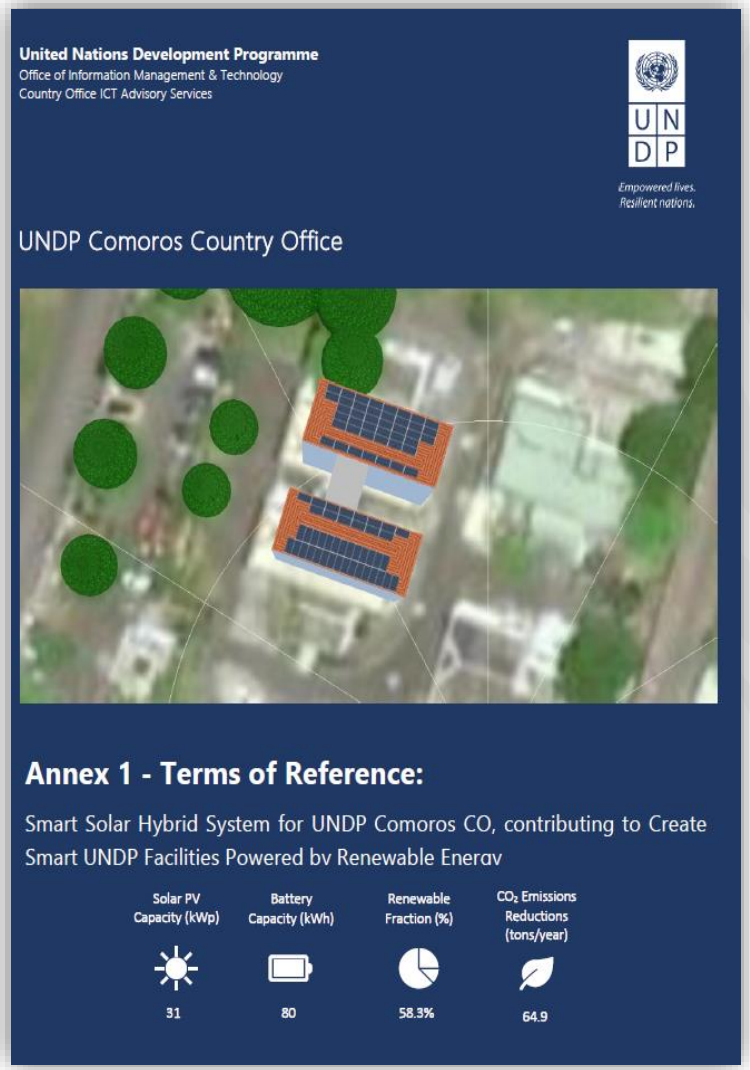




Step 3 – Procurement

Key Aspects

1. Collaboration with UNDP PSU
2. Existing **LTAs** with vendors providing **international standard** installations
3. Secondary bidding process
4. RfQ published among LTA holders
5. **Local partner** - Development of local capacity



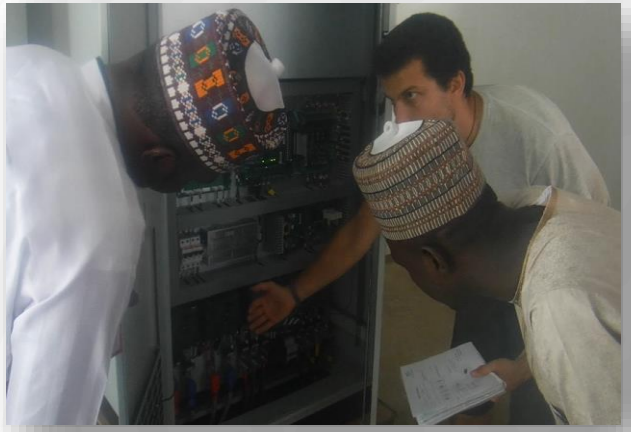
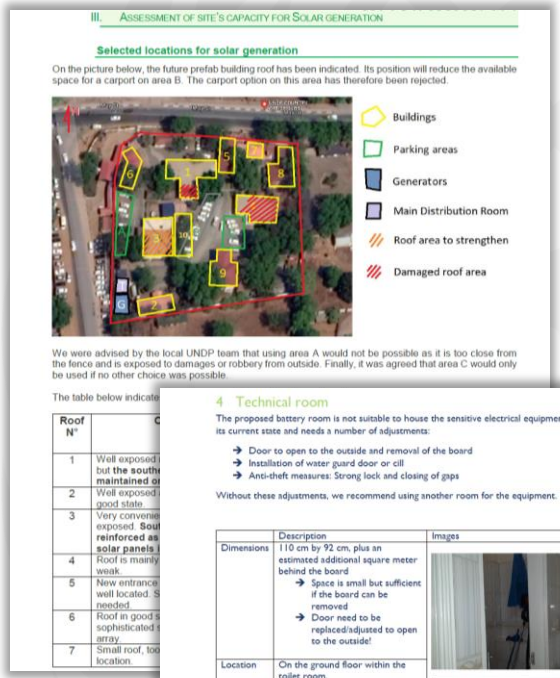


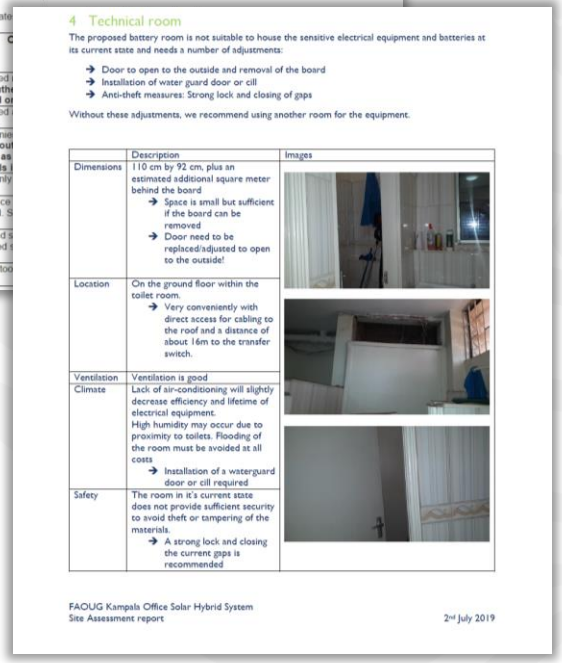
Photo: Training to CO during installation in Nigeria Sub-office

Step 4 – Site Survey

Key Aspects

1. Vendor carries out a **detailed site survey**
2. Vendor submits the **Site Survey Report** to ITM and PSU

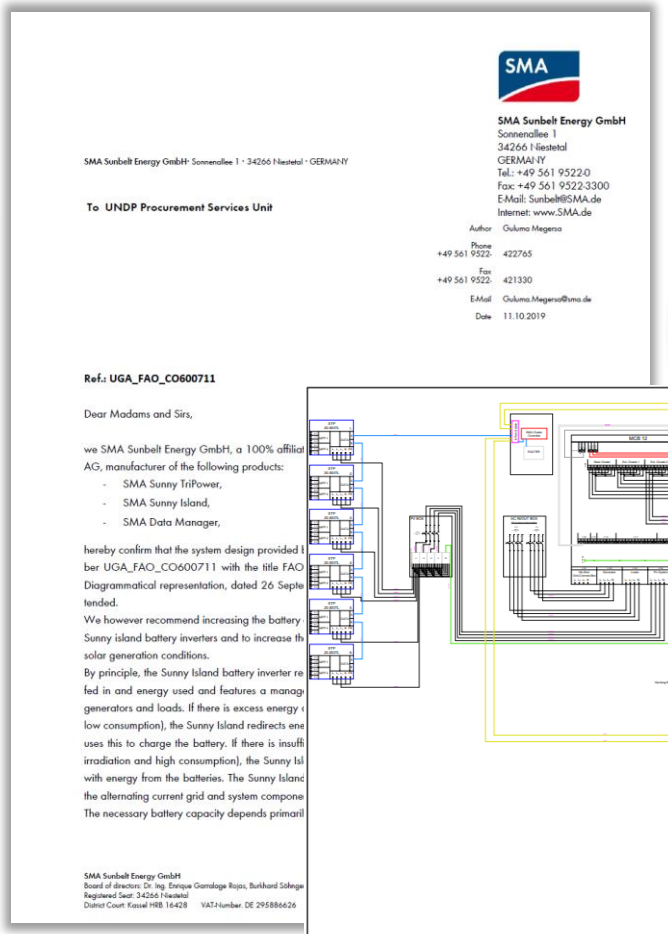




Step 5 – Design

Key Aspects

1. Vendor prepares the final technical design
2. Vendor submits **technology certificates** which are issued by manufacturers – **endorsement letters**



SMA Sunbelt Energy GmbH· Sonnenallee 1 · 34266 Niestetal · GERMANY

To UNDP Procurement Services Unit

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Date 11.10.2019

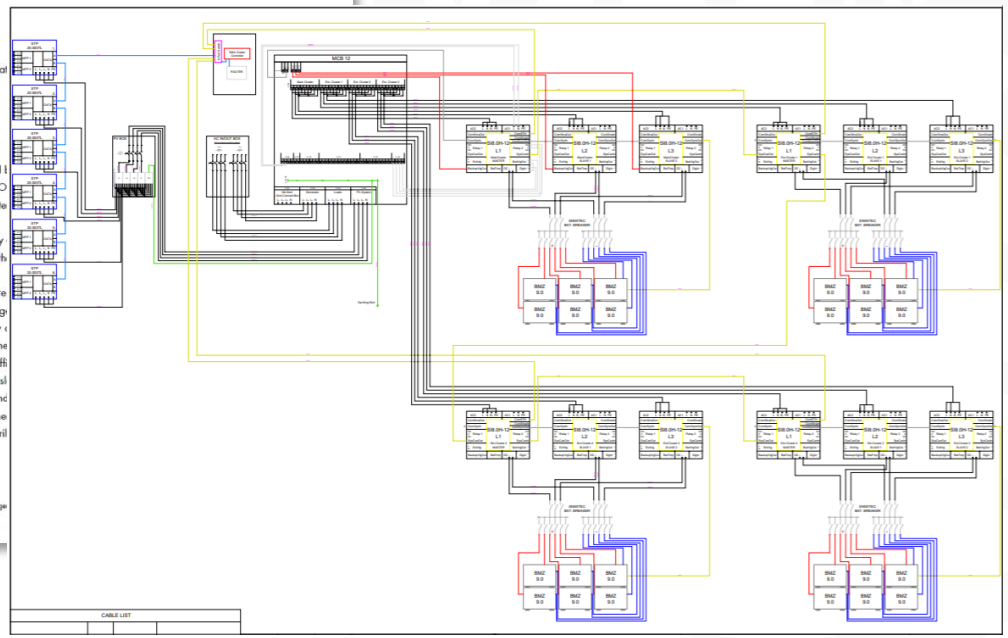
Ref.: UGA_FAO_CO600711

Dear Madams and Sirs,

we SMA Sunbelt Energy GmbH, a 100% affiliat
AG, manufacturer of the following products:
- SMA Sunny TriPower,
- SMA Sunny Island,
- SMA Data Manager,

hereby confirm that the system design provided
ber UGA_FAO_CO600711 with the title FAO
Diagrammatical representation, dated 26 Septe
tended.
We however recommend increasing the battery
Sunny island battery inverters and to increase th
solar generation conditions.
By principle, the Sunny Island battery inverter re
fed in and energy used and features a manag
generators and loads. If there is excess energy
low consumption), the Sunny Island redirects ene
uses this to charge the battery. If there is insuffi
irradiation and high consumption), the Sunny Isl
with energy from the batteries. The Sunny Island
the alternating current grid and system compone
The necessary battery capacity depends primaril

SMA Sunbelt Energy GmbH
Board of directors: Dr. Ing. Enrique Garralaga Rojas, Burkhard Sönge
Registered Seat: 34266 Niestetal
District Court Kassel HRB 16428 VAT-Number: DE 295886626



Step 6 - Installation

Key Aspects

1. The Project plan
2. User Acceptance test
3. Training
4. Commissioning
5. The installation is clearly outlined in the project plan, with management, milestones, risks etc. covered

6. Step 6 is concluded by commissioning of the systems and training of on-site staff

7. Communication efforts

Step 7 – Operation and Maintenance

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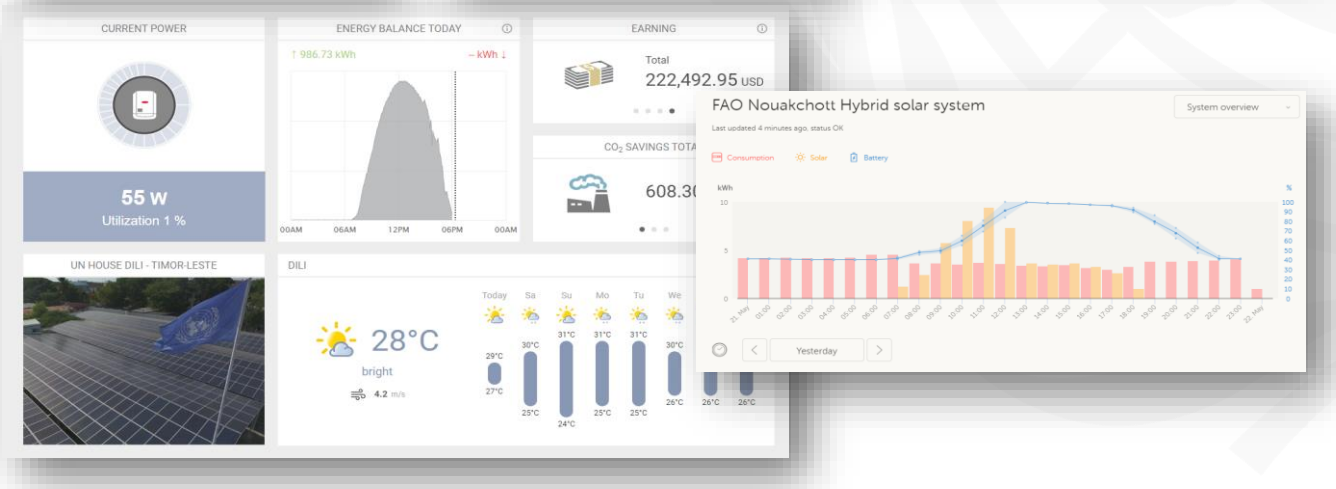
Key Aspects

1. 3 years bi-annual maintenance guaranteed by the system provider
2. Local partner engaged ensuring prompt response to potential issues
3. Remote monitoring and troubleshooting
4. Lifetime long monitoring and performance evaluation – Biannual Reports

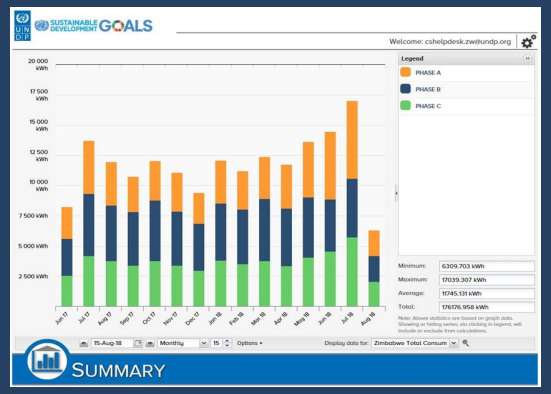
Photo: Maintenance Visit – FAO Ghana/2020

Photo: Maintenance Visit – FAO Ghana/2020



Green Energy Services and Products | Summary

Photo: GE Training Mission UNDP Niger/2019



IoT Monitoring portal

Photo: Smart Facilities Mission UNDP South Sudan/2018

Photo: Solar Street Lamps - UNDP South Sudan

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Green Energy Assessment and Training

Green Energy Assessment

1. Energy audit performed by specialized engineers
2. Support UNCTs in achieving optimal levels of power consumption

Green Energy Training

1. 7 Step Process for Implementing Green Energy Solutions
2. Hands-on training focused on tools, equipment, software, and best practices to design and implement Solar PV system

Green Energy Assessment | Implementation

Key aspects

1. Understand power consumption practices
2. Propose recommendations in terms of energy efficiency and electricity consumption
3. Energy audit report

Main tasks

i. Installation or review of energy meters (IoT devices)
ii. Review/assess of the electrical wiring system and single line diagram
iii. Consumption patterns of electricity appliances
iv. Collection of Site Survey information

Green Energy Training | Implementation

Key aspects

1. Average of six sessions: covering Creating Smart UN Facilities and the 7-Step Best Practice for Implementing Renewable Energy Solutions
2. Minimum 3 working days
3. Training for 8-15 participants
4. Official certificate and report

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UN House Namibia

Video *here*

Photo: Solar project UN House Namibia/2017

Photo: Sao Tome UN House

Please contact ***itm.green.energy@undp.org*** or ***helpdesk.green.energy@undp.org*** with your requests and we'll be happy to provide any clarification and arrange a **kick-off meeting** for future engagement.

THANK YOU!

What is next?

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HICS - Roll-out & Implementation support

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Upcoming BOS High-Impact Webinars

BUSINESS OPERATIONS STRATEGY 2.0

I.Global Asset Management Solutions
~~Tuesday, August 2, 2022, 7:00 AM NY/GMT-4~~
~~Thursday, August 4, 2022, 10:00 AM NY/GMT-4~~

II.Green & Renewable Energy Solar Solutions
~~Tuesday, August 9, 2022, 7:00 AM NY/GMT-4~~
~~Thursday, August 11, 2022, 10:00 AM NY/GMT-4~~

III.Physical Accessibility in-person events & premise related constructions
Thursday, August 18th 10:00am NY/GMT-4

IV.Inclusive HR 1: Attracting and Recruiting persons with disabilities - BOS Webinar Series on High-impact common services
Tuesday, August 23rd 7:00 AM NY/GMT-4
Thursday, August 25th 10:00 am NY/GMT-4

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Thank You

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