

The Kingdom of Bahrain Sustainable Energy Policies and Initiatives

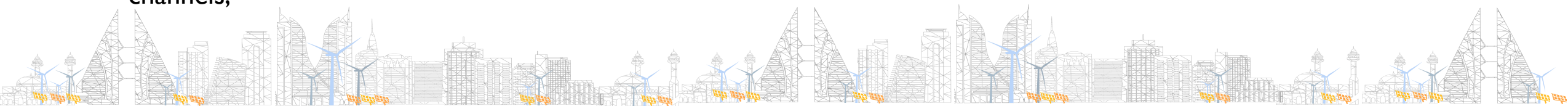
Water and Energy Sustainable Innovation and Industry – WEII 2018

University of Bahrain

22 April 2018



1. **Propose** national strategies, policies and regulations to enable the uptake of renewable energy and energy efficiency in the Kingdom of Bahrain.
2. **Provide** technical support to public and private actors in the development and implementation of renewable energy and energy efficiency initiatives.
3. **Contribute** to building an enabling environment through strategic insight, knowledge and technology transfer, and partnerships mobilization.
4. **Strengthen** national capacity to develop, deploy and mainstream renewable energy and energy efficiency technologies in both public and private sector.
5. **Facilitate** the implementation of national sustainable energy goals, as well as Bahrain's regional and international commitments to sustainable development.
6. **Increase** public awareness of renewable energy and energy efficiency through outreach, events and social media channels,



Energy Situation in Bahrain



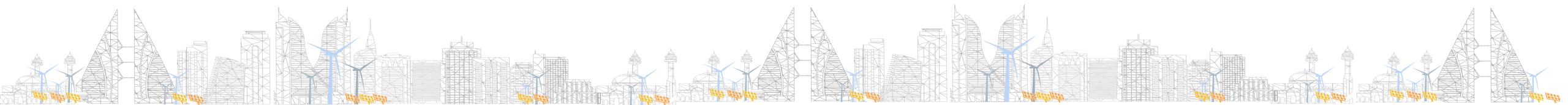
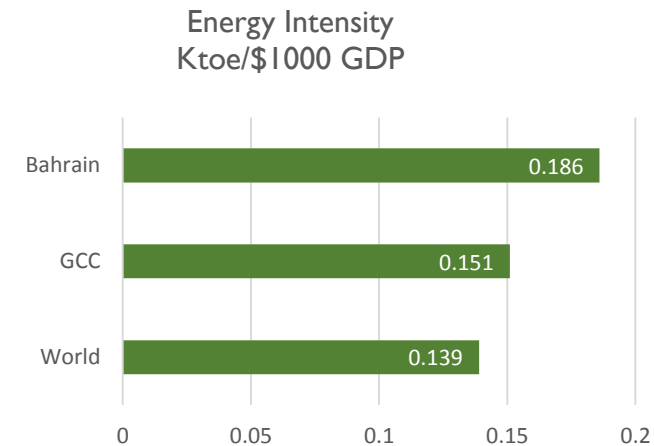
Challenges for Bahrain:

- High **energy intensity**
- Complete **dependence** on fossil fuel
- Need to **diversify energy mix**
- Need to reduce demand for cooling
- Fragmented energy sector



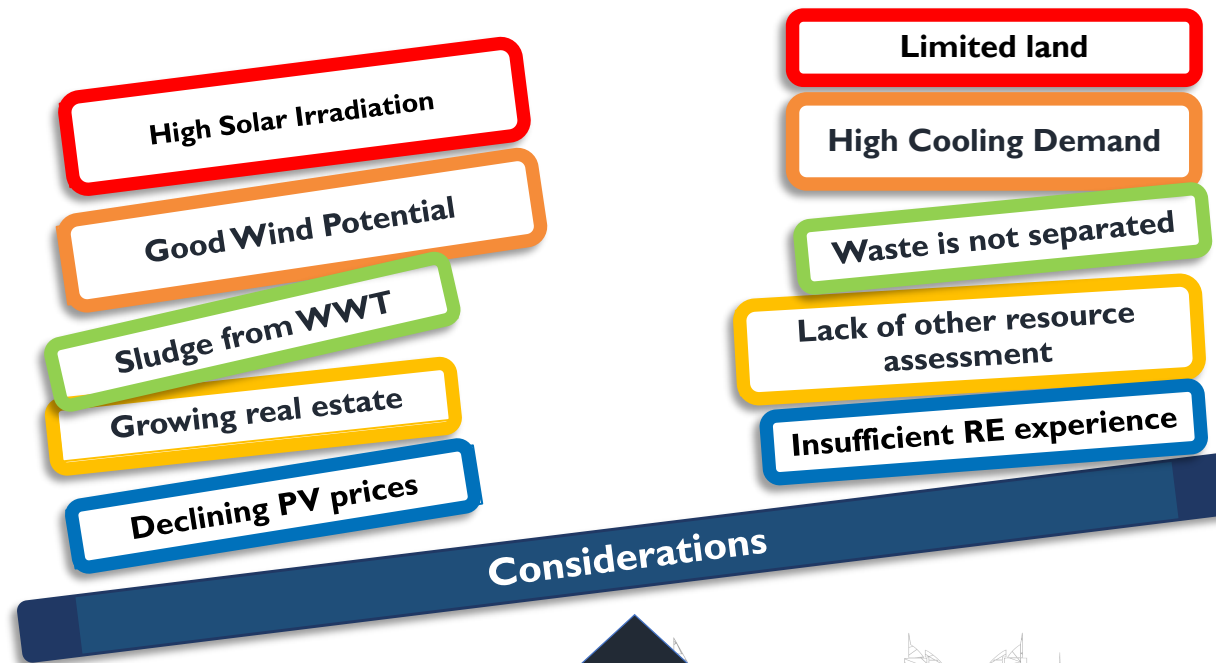
Gaps:

- No overall energy strategy
- Weak policy framework for RE & EE
- No incentives to attract private sector investments for RE & EE



Renewable Energy Potential in Bahrain

- ✓ **Solar PV** (small-scale/large-scale)
- ✓ **Wind** (onshore/offshore)
- ✓ **Waste to Energy** (biogas, pyrolysis, landfill gas recovery)
- ✓ **Focus on decentralized**
- ✓ **Make best use of available land for large-scale**
- ✓ **Pursue large-scale RE outside of Bahrain**



Bahrain Commitments

National

Economic Vision 2030

“Protecting our natural environment will include directing investments to technologies that reduce carbon emissions, minimize pollution and promote the sourcing of more sustainable energy”

Government Action Plan (2015-2018)

“Improve the efficiency of electricity and water consumption and reduce waste
Find new sources of renewable energy to meet the growing demand in Bahrain”

NEEAP & NREAP (2017-2025)

Energy Efficiency Target: 6% by 2025
Renewable Energy Target: 5% by 2025 and 10% by 2035

Sustainable Development Goals (SDGs), Goal No 7:

“Ensure access to affordable, reliable, sustainable and modern energy for all.”

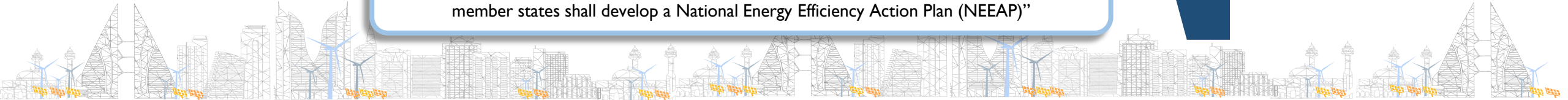
Paris Agreement

Bahrain committed to reduce greenhouse gas emissions through submission of its
First Nationally Determined Contribution (NDC)

League of Arab States, Arab Ministerial Council for Electricity

“Each Arab State shall adopt a National Renewable Energy Action Plan (NREAP). Each of the member states shall develop a National Energy Efficiency Action Plan (NEEAP)”

International



National Energy Action Plans [NEEAP & NREAP]

Both the National Energy Efficiency Action Plan and the National Renewable Energy Action Plan have been endorsed by the Cabinet resolution no. 2384 -08 on 31st October 2016

What are they?

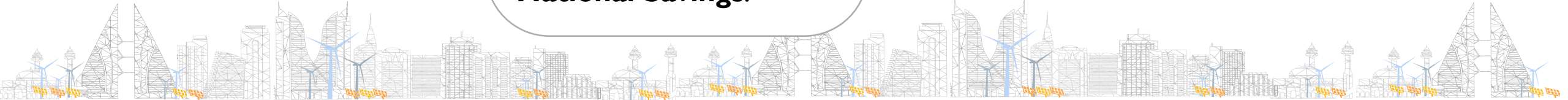


National policy documents produced through a consultative process conducted by the sustainable energy unit – Bahrain in partnership with UNDP.

The plans set targets, & initiatives to meet those targets and eventually result in achieving in **National Savings.**

Why?

- *Spur economic activities and realize cash savings*
- *Meet growing demand of energy and ensure sustainability of resources*
- *Create sustainable energy market*
- *Reduce environmental cost and carbon intensity*



Energy Efficiency Action Plan

Residential & Commercial	Building Energy Efficiency Code	MEPS & Labeling : Lighting	MEPS & Labeling : Appliances	District Cooling
	Building Energy Labeling	MEPS & Labeling : AC	Green Building Initiative	
Government	Government Building Energy Management	Street Lighting		
	Government Building Lighting Replacement	Green Procurement		
Industry	Industry Program			
Electricity	Electricity Production Efficiency	Power Factor Correction		
	Transmission & Distribution Efficiency	Smart Metering		
Transport	Vehicle Efficiency Standards & Labeling			
	Transport Subsidy Reform			
Cross Sectoral	Electricity Subsidy Reform	Institutional Infrastructure		
	Awareness & Information Dissemination	Training for Market Actors		



NEEAP Implementation Program

Target Sectors & Key Stakeholders

Sector	Residential, Commercial and Government
Target Group	Product Manufacturers, Suppliers & Vendors; Installers & Building Owners/Developers
Lead Agency	Ministry of Industry and Commerce with technical assistance from SEU
Implementing Agencies	EWA, Customs Affairs, MoIC

Status & Implementation Timeline

(1) MEPS for small AC have been adopted and is under implementation; (2) MEPS for large AC is in the process of design

MEPS & Labelling: Air Conditioning

Design and Initiation

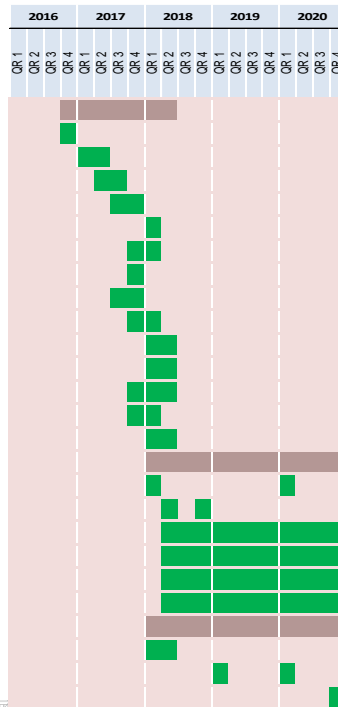
- Determine MEPS level for large AC units
- Prepare draft of regulations containing MEPS for large AC units
- Obtain government approval of MEPS for large AC units
- Update MEPS level for small AC units
- Obtain government approval of updated MEPS for small AC units
- Prepare implementation and enforcement scheme for MEPS
- Prepare training material for market players and enforcement officers
- Determine EE categories and Label design
- Prepare draft of regulations requiring labelling
- Obtain government approval of labelling
- Prepare implementation and enforcement scheme for labeling
- Develop communication and awareness raising plan
- Identify compliance verification scheme (product testing)
- Prepare database of products compliant with MEPS

Implementation

- Technical training for programme officers
- Deliver training to market players
- Execute communication and awareness raising activities according to the
- Enforce MEPS & labelling
- Execute compliance verification scheme (product sampling and testing)
- Continuous update of database of products compliant with MEPS

Monitoring and Evaluation

- Develop monitoring and evaluation scheme (methodology, timeline)
- Data collection and analysis of effectiveness of MEPS
- Prepare recommendations for further update of MEPS



Target Sectors & Key Stakeholders

Sector	Industry
Target Group	Large Industrial Companies
Lead Agency	SEU
Implementing Agencies	SEU, large industrial companies

Status & Implementation Timeline

Planned

Industry Program

Design and Initiation

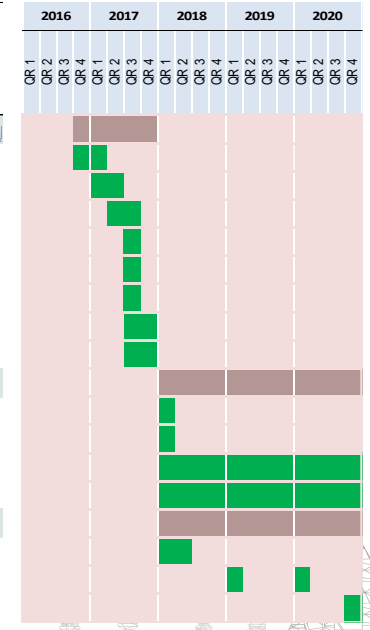
- Develop industry specific energy efficiency indicators
- Agree with specific industries on baseline consumption according to
- Identify reporting system and methodology
- Prepare draft of compact to be signed with specific industry groups
- Prepare detailed concept note and plan on operation of "Large Energy
- Review concept note and proposed plan of activities with stakeholders
- Develop communication and awareness raising plan
- Prepare training material for government authorities on industry specific

Implementation

- Sign compact with industries
- Deliver trainings to government authorities
- Execute network activities as agreed in the plan
- Execute communication and awareness raising plan

Monitoring and Evaluation

- Develop monitoring and evaluation scheme (objective, scope,
- Data collection and analysis of effectiveness of industry program
- Prepare recommendations for improvement of industry program



National Renewable Energy Action Plan



Net metering



Tender-based feed-in tariff



Renewable Energy mandate for new buildings



Apply decentralized solar for government buildings



Install near shore / off-shore wind farm



Apply decentralized solar in urban development & new housing units



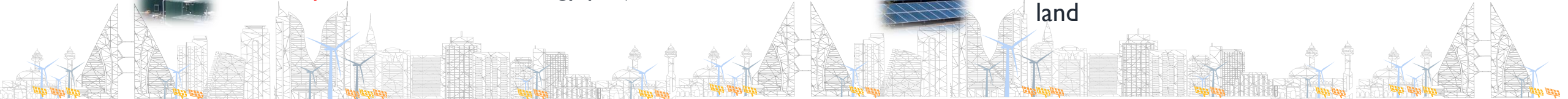
Integrate Renewables in mega projects such as causeways



Implement Waste to energy projects



Deploy large scale solar PV on available land



Net Metering Policy



Objective

To enable consumers to generate **grid-connected** electricity from renewable sources for self-consumption and feed excess to the national grid

Status

- Endorsed by the cabinet in 2017
- Program launched in January 2018

Key Elements

- Grid code and technical guidelines to ensure safe connection of solar systems to electricity network
- Training courses for the Installers and EWA staff

Current/Next Steps

- Licensing of Installers/Contractors
- Monitor implementation

Target Group

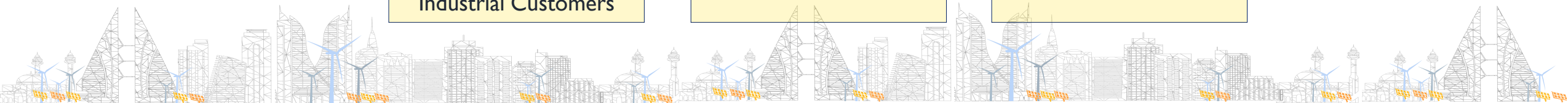
Residential, Commercial, Industrial Customers

Lead Agency

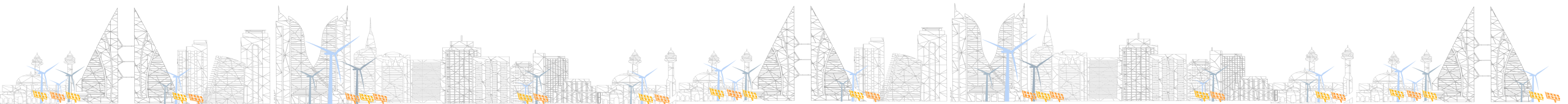
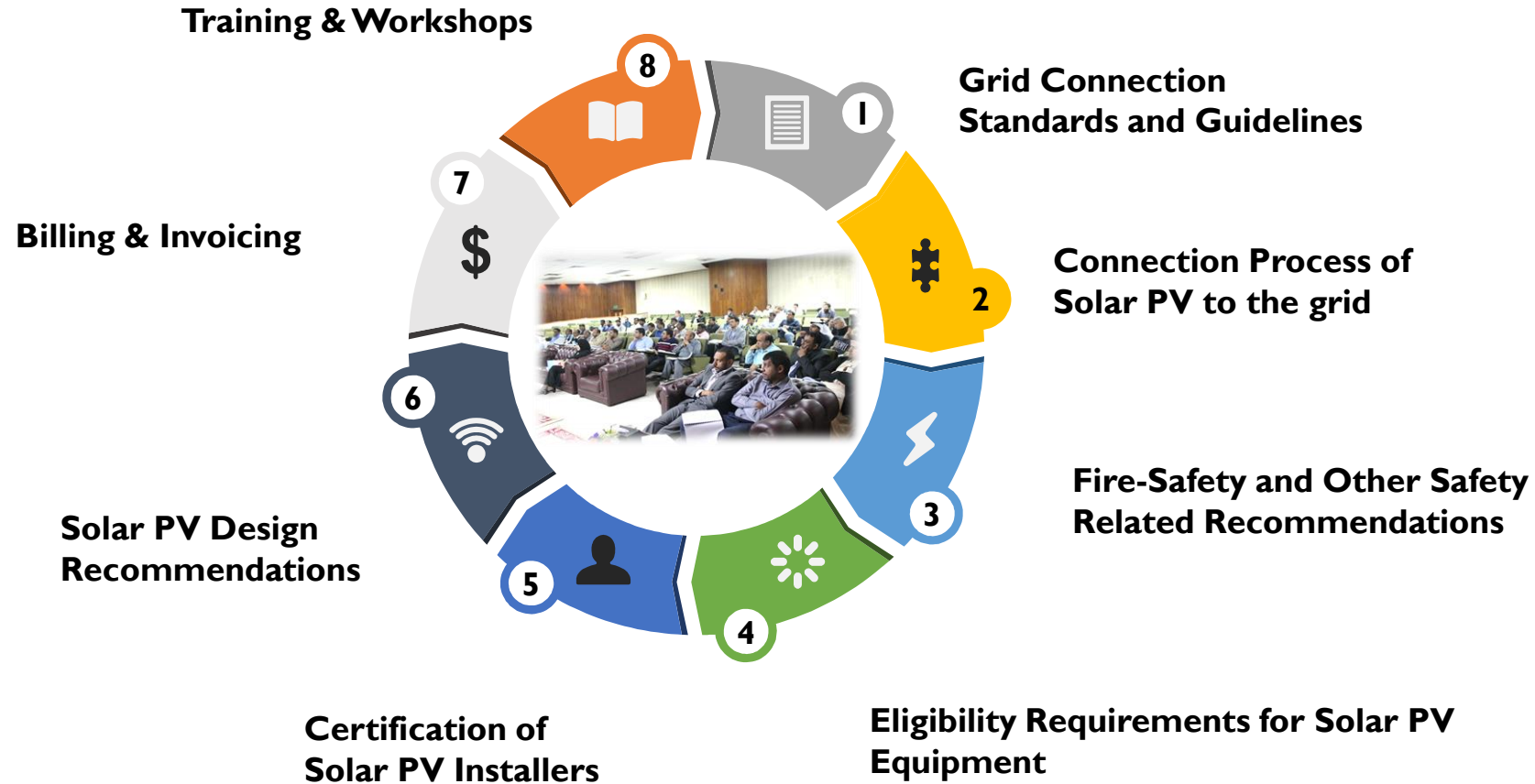
SEU/ EWA

Implementation

EWA



Net Metering – Project Deliverables



Tender Based Feed in Tariff



Objective

Attract private investors to develop grid-connected renewable energy projects through a competitive procurement process

Status

- SEU agreed with the MoW to designate gov. bldngs.
- MoW made a detailed inventory of gov buildings

Key Elements

Invite private sector to submit offers and conclude PPA with the best offer

Current Steps

- Select 80-100 government buildings with large roof areas to perform detailed measurements
- Prepare tendering requirements

Target Group

RE Developers and large electricity customers

Lead Agency

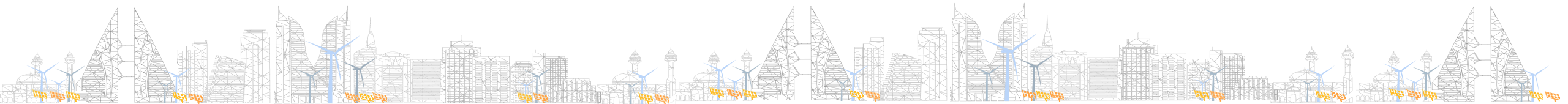
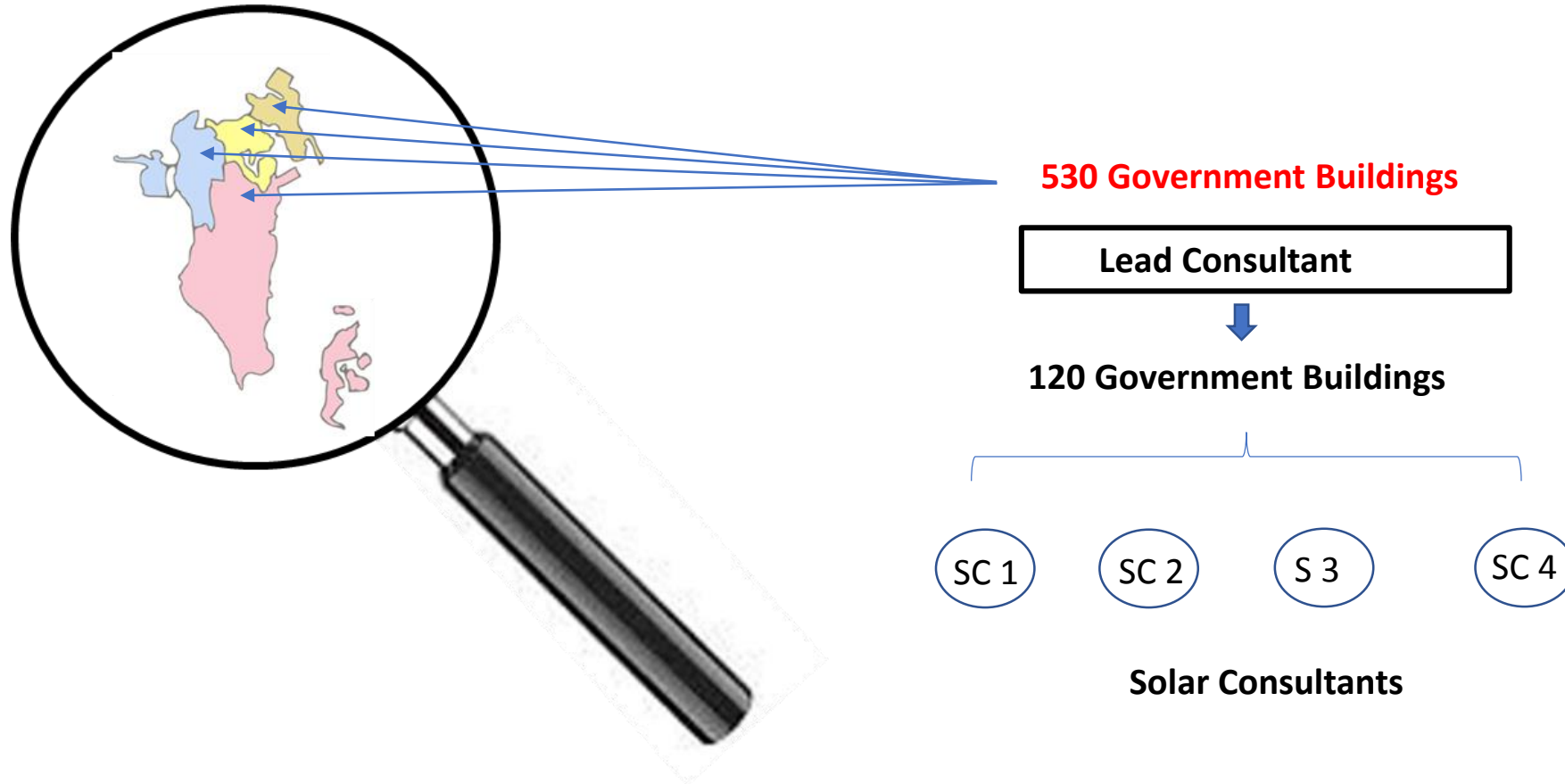
Ministry of Works

Implementation

Ministry of Works/EWA/Ministry of Finance/Tender Board



Tender Based Feed in Tariff



Renewable Energy Mandate for New Buildings



Objective	Require new buildings and real estate developers to integrate RE technologies in the building design and real estate development		
Status	SEU prepared plan for implementation & presented it at the IFC subcommittee meeting		
Key Elements	Grid code and technical guidelines to ensure safe connection of solar systems to electricity network Special award to recognize outstanding performance		
Next Steps	Prepare draft of Renewable Energy Mandate Regulations for the Cabinet approval		
Target Group	Lead Agency	Implementation	
Buildings and real estate developers	SEU	EWA/ Ministry of Works/ Ministry of Housing/ Building Developers	



Thank you

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