Best practices to develop a National Energy Efficiency Action Plan (NEEAP)

NEEAP Regional Workshop

1st December 2014

RCREEE

Regional Center for Renewable Energy and Energy Efficiency

المركز الإقليمي للطاقة المتجددة وكفاءة الطاقة

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Section 1

General Introduction

National Energy Efficiency Action Plan

Effective EE Policy → **EE Market Transformation**

Stimulate demand for EE projects

Lead projects From inception to actual implementation

Courtesy: Eng. Ashraf Kraidy

National stakeholders involved in the process

- Ministry of Energy
- Ministry of Environment
- Ministry of Water
- Ministry of Mines
- Ministry of Industry
- Ministry of Trade
- Ministry of Housing
- National research institutes

- Statistics departments
- Municipalities
- Development companies
- Service Providers
- Private sector companies
- Electricity Regulators
- National Scientific Societies
- Customs departments
- Foundations

How the NEEAP is an effective tool

- Politically endorsed on a regional level
- Annual progress reporting conducted
- Phases allow for M&V, and continuous improvement
- Design, Implementation, reporting and evaluation cycle makes NEEAP realistic and dynamic
- Significant achievements 4 years after approval by LAS

Total costs and savings of current NEEAPs

Energy Savings
(5 countries NEEAPs)
Between 17400 GWh and 18800 GWh

Time
1 to 3 years implementation

cost
Approx. **762 Million Euros**

electricity produced during 5 years by a 500MW coal-fired power plant

4 years construction period

1.2 billion Euros
Construction, O&M, Fuel costs (For 5 years)

Section 2

Planning for NEEAP development according to the Arab EE Guideline

Pre- drafting

Country confirms intention to adopt Arab EE guidelines

Responsible entity and national focal point created/appointed

Ministry adopts EE guideline on a national level

Drafting

National stakeholders are contacted for data collection to conduct assessment

Data collected for past 5 years

Indicative targets are estimated (national and sectorial)

Measures selection and design

Design evaluation

Create monitoring and evaluation system

Post-drafting

Circulate the draft NEEAP for feedback

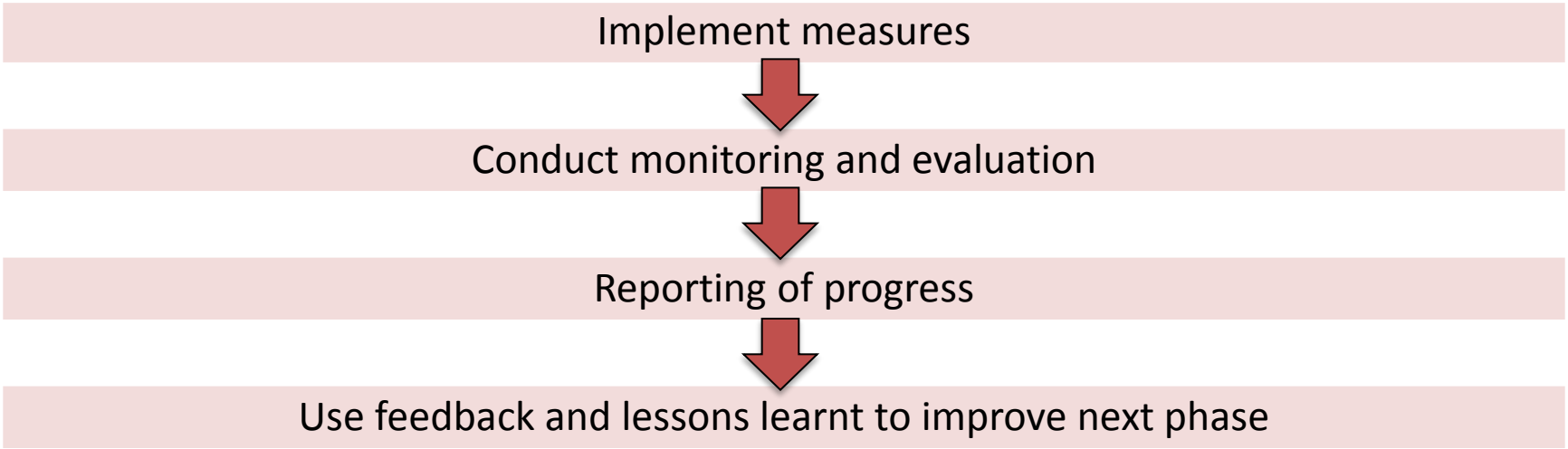
Improve draft based on feedback and circulate final draft

Present final draft to minister, cabinet and LAS

Present NEEAP for technical and financial support

After approval of NEEAP, Laws and regulations for EE developed

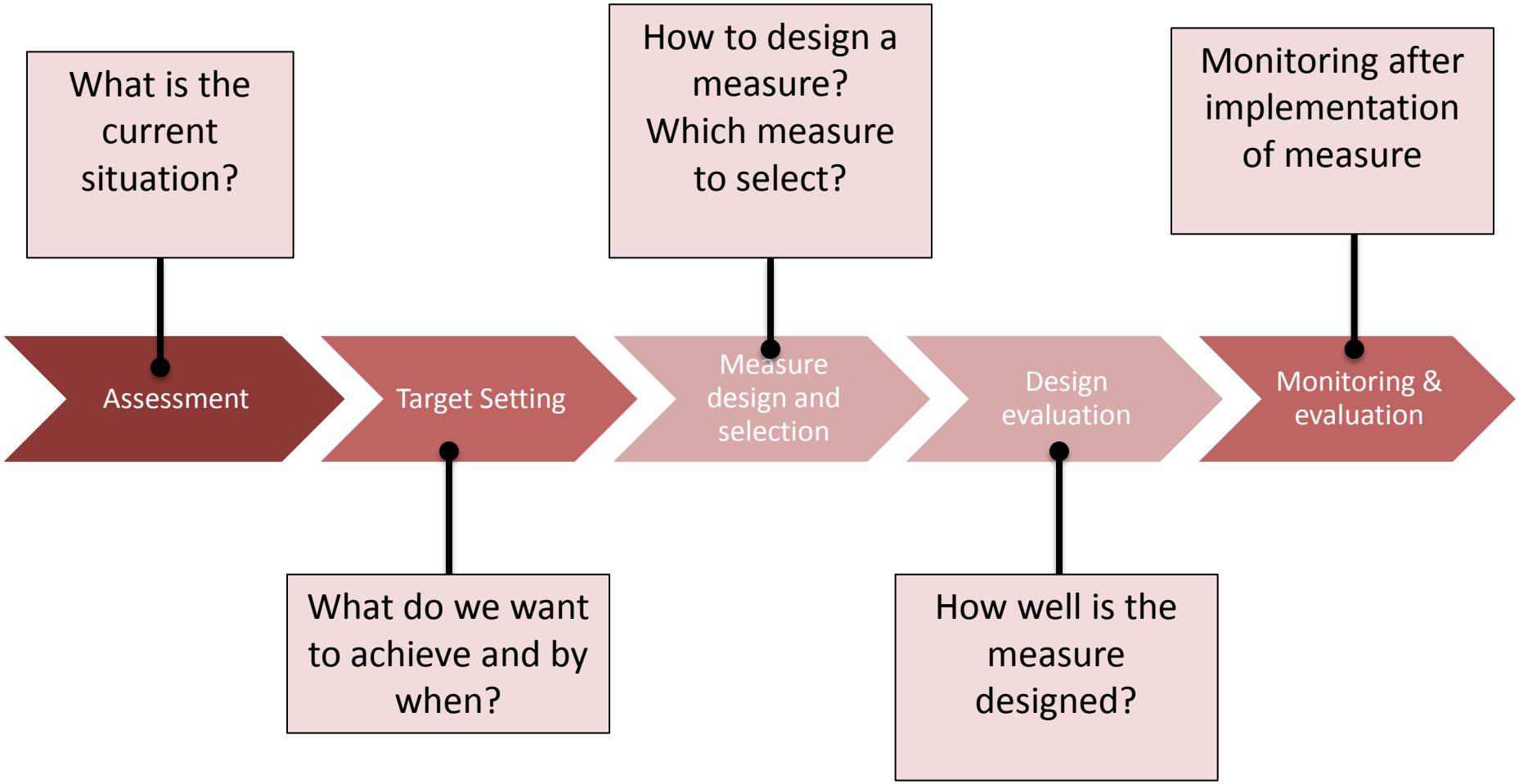
Reporting,Monitoring and Evaluation



Section 3

Recommended Process of NEEAP best design

5 main steps involved



1. Assessment

Country Assessment

Country-level assessment makes use of indicators to analyze the current existing situation with regards to EE at a national level

Potential Assessment

A quantitative analysis of the amount of energy savings

- Is it technically feasible?
- Is it cost-effective?
- Are adequate policies put in place?

(use data collection methods (Questionnaire, surveys etc.) Determine if there is an economic potential (cost-benefit analysis)

2. Target setting

Target Setting

2 main types of targets mentioned in the NEEAP:

- Interim Targets (for the NEEAP phase)
- Final targets (year 2020)

	Baseline consumption GWh/ Average consumption in the last 5 years	The national indicative energy efficiency target			
		In the year 2020		In the year 2013 (after implementing the first national plan for energy efficiency)	
		%	GWh	%	GWh
Total					
Sector 1					
Sector 2					
Sector 3					

Source: Arab Guidelines

Example (According to Arab Guidelines)

Target Setting

5 year average calculated (baseline consumption)

Eg: 10 000 000 MWh

Indicative target

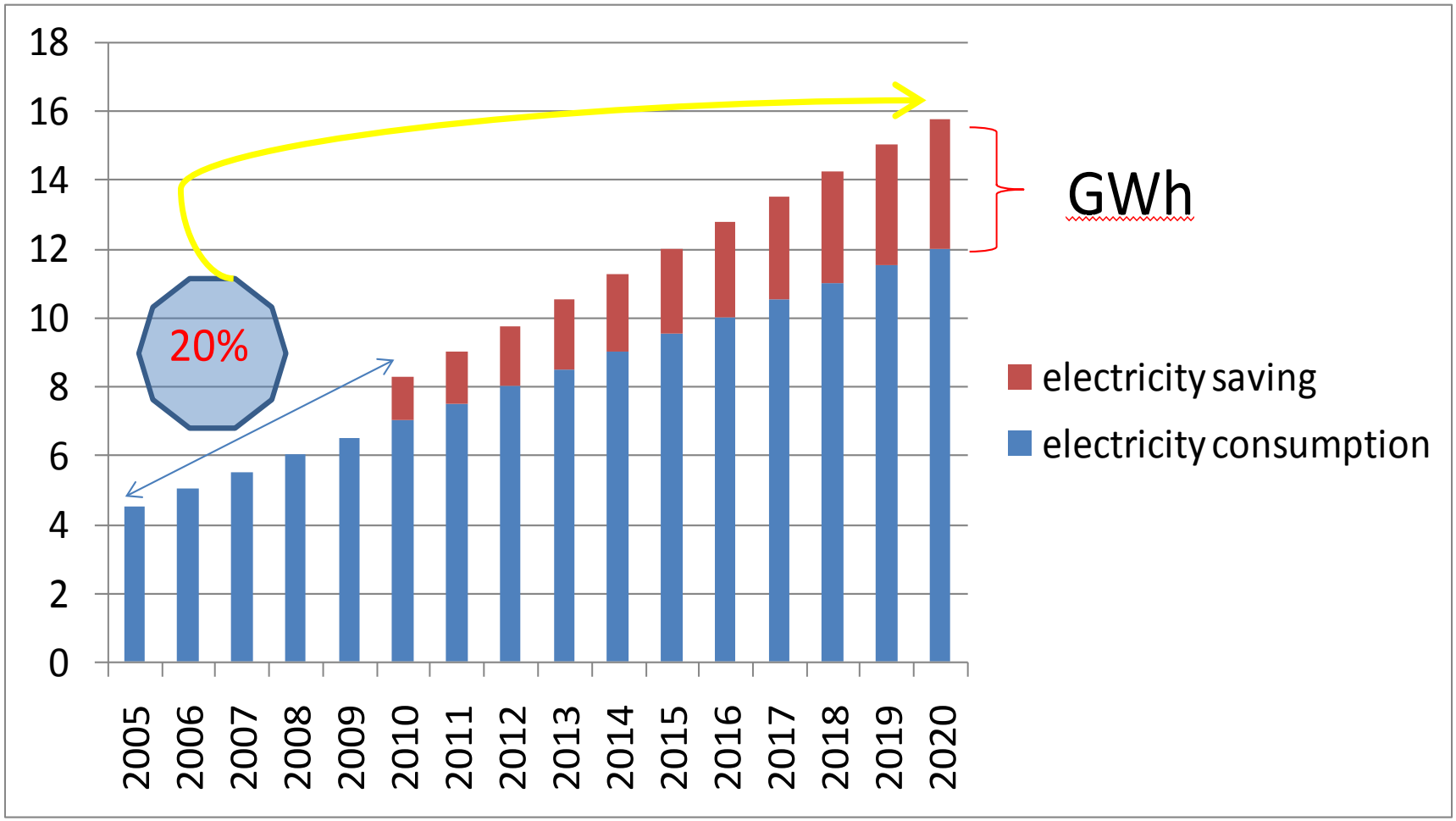
Eg: 20% of the base line consumption

Electricity to be saved through projects listed in the NEEAP until the end of 2020

10,000,000 x 0.20 = 2,000,000 MWh

Final Target (2020) = 2 000 000 MWh

(It should be less than 20% of the projected consumption in 2020)



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EE lighting measure targets example

Target Setting

Country	Algeria	Egypt	Jordan	Lebanon	Libya	Palestine	Sudan
Lighting Technology	CFL	CFL	CFL	CFL	CFL	CFL	CFL
Targeted amount	3.75 million	12 million	1.5 million	3 million	1 million	160 000	3 million

Sources: National Energy Efficiency Action Plans

3. Measure selection and design

Measures in the Arab Guidelines

Savings

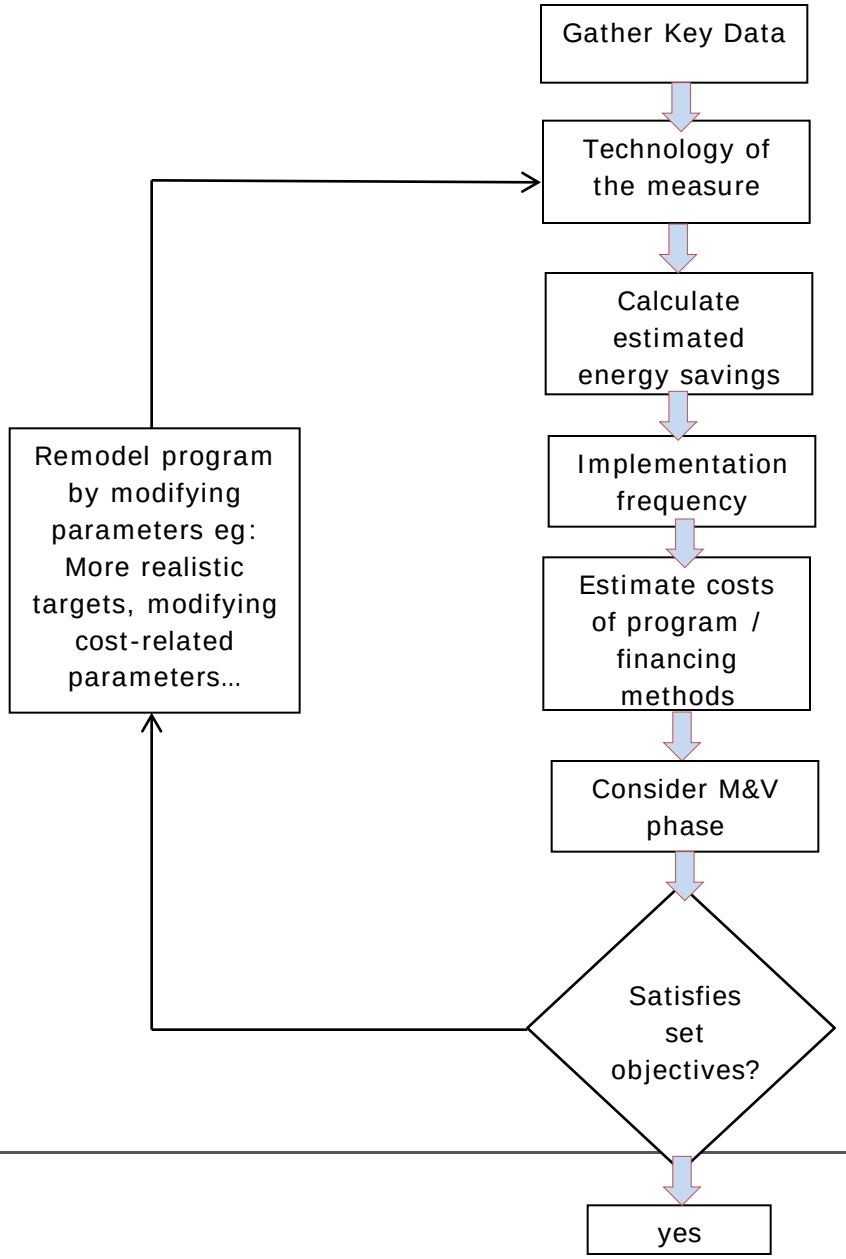
- Planned and Ongoing (sectorial)
- Additional
  - Role of public sector
- Horizontal and Cross Sectorial

Supportive

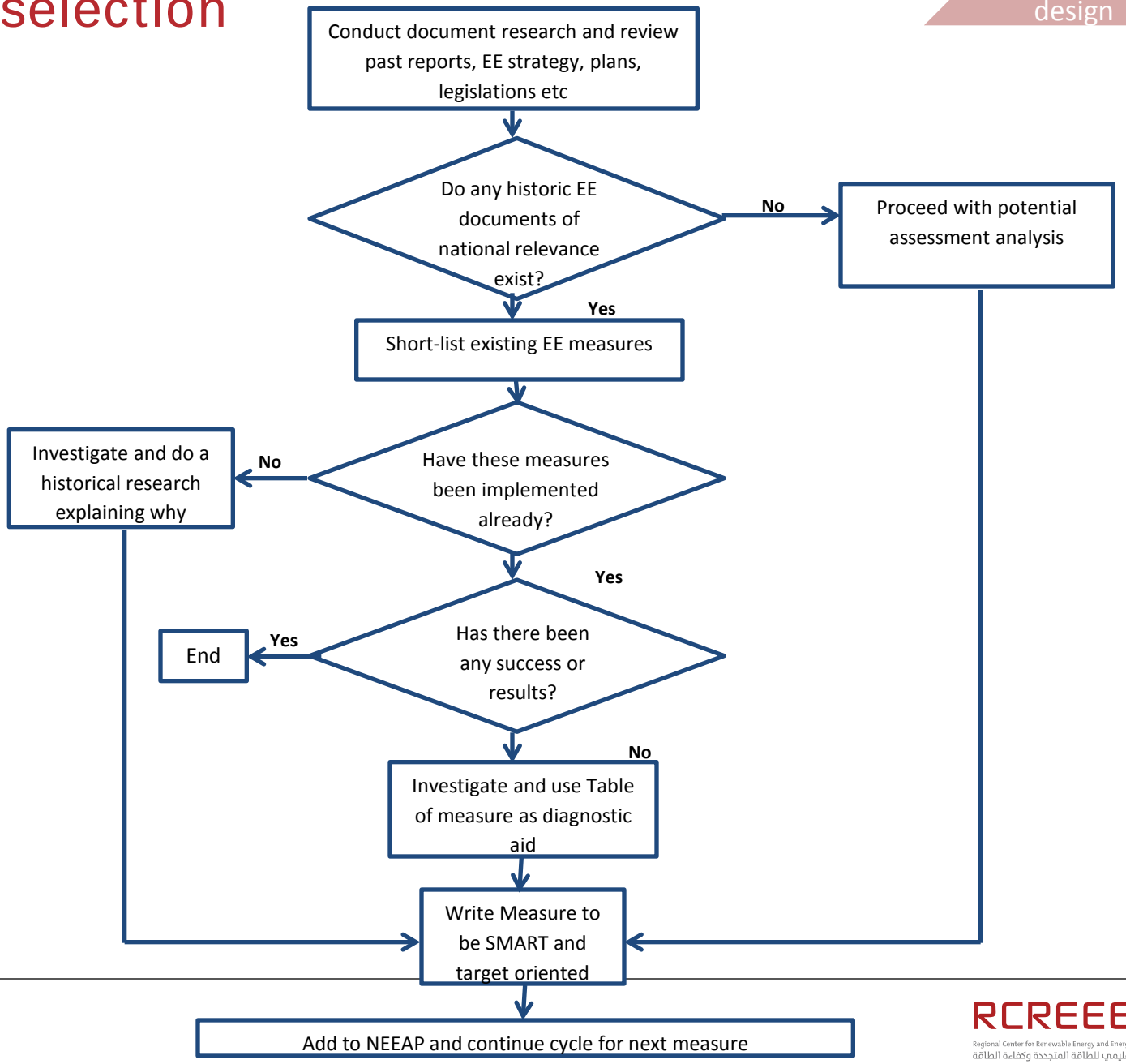
- Awareness campaigns
- Assigning an implementing agency for NEEAP

4 Categories in terms of costs:
- No cost measures
- Low cost measures
- Medium cost
- High cost

Designing measures



Measure selection



Common measures in NEEAPs

Sector	Common measures
Residential	• Energy efficient lighting • Standards and labeling for domestic appliances • Diffusion of domestic solar water heaters • Developing building codes for energy efficient buildings and thermal insulation
Commercial	• replacing a piece of standard efficiency equipment with a more energy efficient alternative
Industrial	• Increase efficiency of electrical and thermal system • Correction of power factor
Power sector & utilities	• Correction of power factor • Reduction of transmission losses

4. Design evaluation (Ex ante evaluation)

Design evaluation

- Identify the baseline in each measure
- Do the measures cover all sections required?
- Have the targets (interim and final) been defined?
- Methods for monitoring and evaluation specific to the measure (Efficient lighting, SWH measures, S&L) ?
- Have indicators of performance been created and how will the achievement be assessed?

Measure Planning Template

Design evaluation

Title of the measure	
Objective	The purpose and motivation behind this measure. Why do you do it?
Description of the measure	What do we do? Which technologies are applied ? How is it done?
Implementing agency	Agency in charge of implementation and appraisal of the resulting electricity savings
Stakeholders involved	Other Partners involved in implementing of the EE measures in a supportive role or negatively or positively affected by the measure.
Target group	Group(s) which benefits from the EE measure
Program cost	The total amount to implement the program, except financial contributions and investments by the target group (beneficiaries)
Total resource cost	Program costs plus, if applicable, contributions by beneficiaries
Cost / kWh saved	Cost effectiveness calculation as outlined in Annex

Measure Planning Template

Design evaluation

Reduction of subsidies	State your own assessment of how and by which amount State subsidies or consumer cross subsidies for electricity supply are reduced by the measure
Source of funding	List all entities and parties that contribute to the total resource costs
Financial instruments	List all fiscal and financial instruments such as investment grants, tax incentives, preferential interest rates, rebates, gifts contributing to the total resource costs
Awareness	Describe how the measure is marketed and list public awareness campaigns associated with the measures
Monitoring and quantification of impact	Describe the algorithm how to calculate the impact and the strategy how to collect the data necessary to apply the algorithm

5. Monitoring and evaluation (Post ex)

Monitoring & evaluation

- **Process** – process analysis evaluates the progress of the measure base upon Implementation, finance, capacity building and regulation

- **Impact** – evaluates the energy savings and financial savings brought about by the measure implementation. CO_2 emissions reduction is also included

- **Market** - Evaluates the transformation created in the market supply and demand

M&V components: EE lighting example

Monitoring & evaluation

Two main components of M&V:

- Verify potential to generate savings
- Determine savings

Example: Lighting Retrofit

Potential to Generate Savings:

Before

100 Watts/fixture

After

23 Watts/fixture

Savings:

Savings determined using a variety of approaches how many fixtures and operating hours

Courtesy: Eng. Ashraf Kraidy

To conclude

Points to consider

Points to consider

- ✓ Harmonized format for future NEEAPs according to Arab Guideline
- ✓ Use the aggregated experience in designing the NEEAP
- ✓ Think of the monitoring and evaluation during design
- ✓ Consider resources required for data collection, M&V etc
- ✓ Qualitative and quantitative reporting using the standard survey
- ✓ Communication is key

Thank You

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