



BUILD_ME National Workshop: Energy Performance Certificate (EPC) Scheme in Lebanon

10 May 2024

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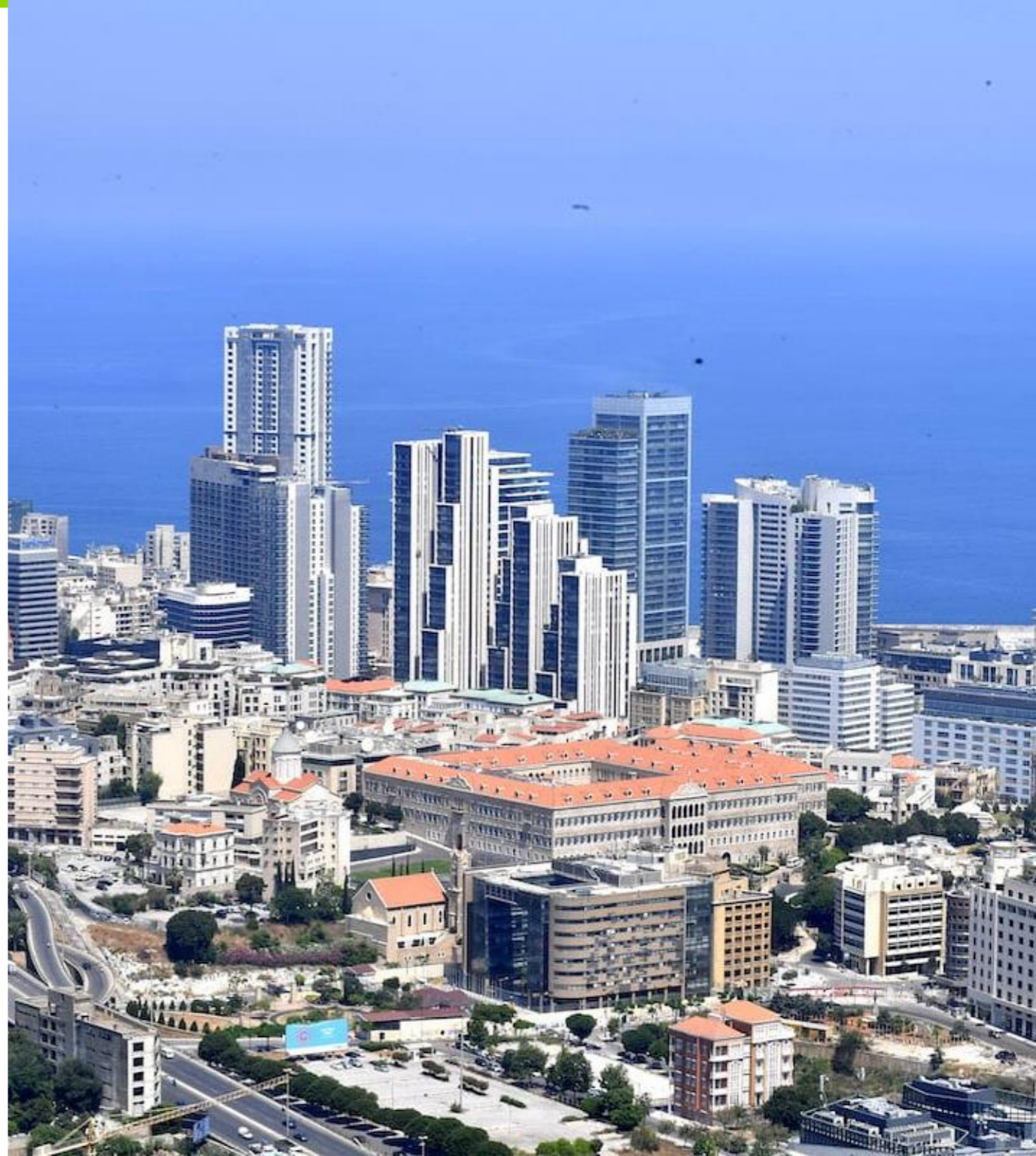
Mövenpick Hotel, Beirut, Lebanon



Overview

BUILD_ME Project

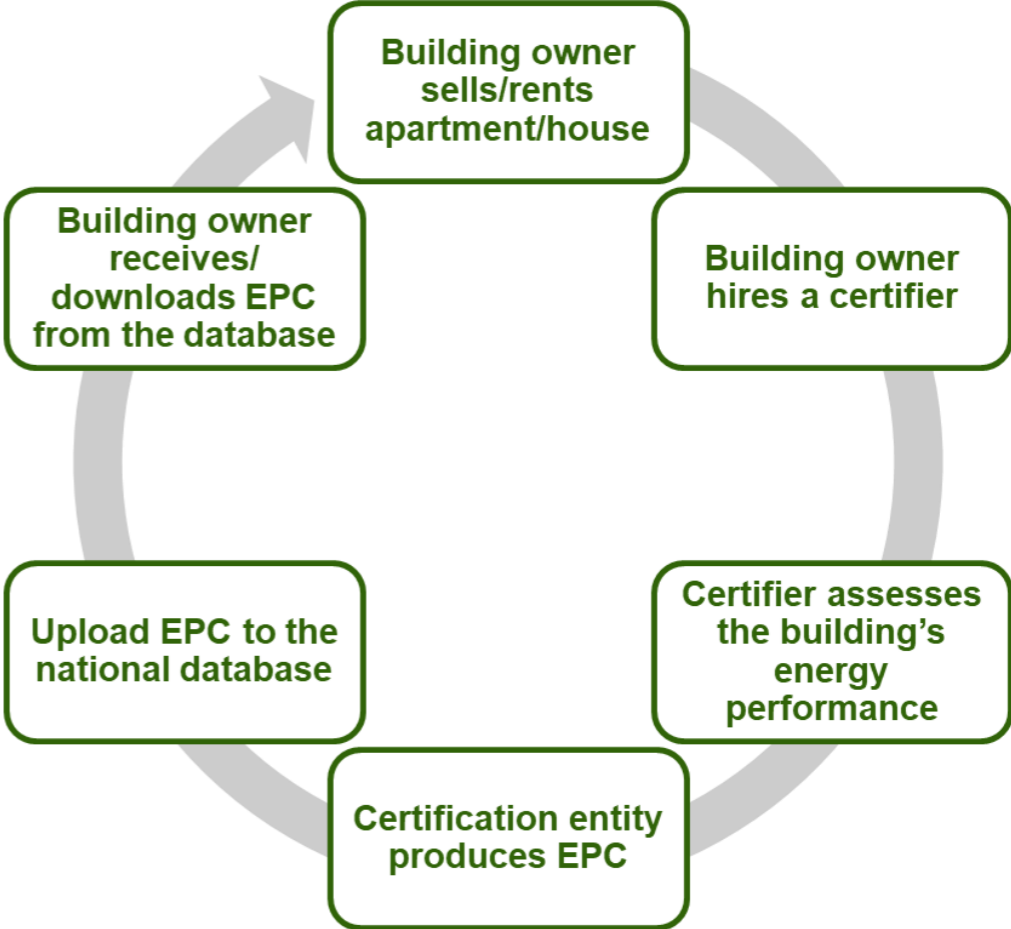
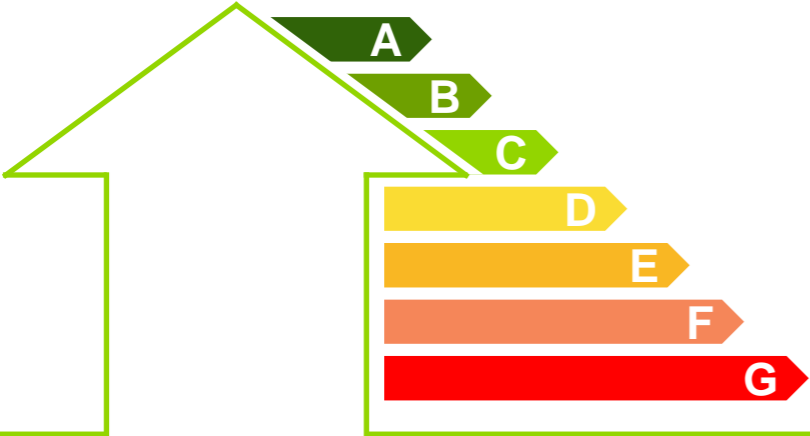
- **Project Name:** BUILD_ME
- **Objective:** Increase ambitions towards achieving climate-neutral building standards in the MENA region by providing technical assistance for pilot projects and facilitating policy dialogue
- **Funded By:** International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)
- **Target Countries:** Lebanon, Egypt, and Jordan
- **National Partner:** LCEC
- **Current Phase:** Phase III (2022 until 2025)



Energy Performance Certificates (EPCs)

Definition / How they function?

“Energy performance certificates (EPC) indicate the energy performance of a building or a building unit, calculated according to a methodology complying with the common general framework adopted at the national or regional level”
[Source: EPBD]



Energy Performance Certificates (EPCs)

International Context

- **EU Member States:** The Energy Performance of Buildings Directive (EU/2024/1275) requires all EU member states to establish energy certification schemes and ensure EPCs are provided upon construction, sale or rental of buildings.
- **United States:** The US doesn't have a national mandate for EPCs, but some states and cities (like California and New York City) have implemented their own programs.
- **India:** India's mandatory building energy labeling program awards a star rating (1-5) to new residential buildings during the construction permit process, incentivizing energy-efficient design.
- **China:** There have been pilot programs and discussions about implementing a separate building energy efficiency labeling system, but it hasn't been rolled out nationally yet.
- **Canada & Australia:** These countries have voluntary EPC programs to promote energy efficiency in buildings.



Energy Performance Certificate

Relevance to various stakeholders



Building owners

- Clear demonstration of the energy performance of the building
- Identification of the cost savings potential
- Helps to plan adequate renovation
- Increment of the market value of energy efficient buildings



Policy makers

- Access to better data on building stock
- Understand the status of the energy performance of buildings stock
- Monitor the impact of financial support schemes and policies
- Better planning of national or region wide policies to improve the energy performance of the building stock



Financial institutions

- Provides Transparency
- Acts as a basis for decision making
- Helps in own portfolio management

EPC Process Certificate Template

PRELIMINARY ENERGY PERFORMANCE CERTIFICATE_for Single Family House

LCEC
 VALID UNTILL 20.03.2029
 CERTIFICATION NO. PRE_LEB202400002
 CLIMATE ZONE Beirut

_GENERAL BUILDING INFORMATION

BUILDING TYPE
Single Family House

ADDRESS
Musterstraße xx
xxxxx Musterstadt, Musterland

PLANNED YEAR OF CONSTRUCTION
2024

AMOUNT OF APARTMENTS (TOTAL)
16

NET FLOOR AREA
2600 [m²]

SPECIFIC BASELINE (National/City/Town/Village)
National



_BUILDING ENVELOPE

WALL 0,57 [W/m²K]
 ROOF 0,25 [W/m²K]
 FLOOR 1,20 [W/m²K]
 WINDOW 1,20 [W/m²K] / 0,85 [-]

_HVAC SYSTEM

AIR CONDITIONING Single-split
 HEATING Portable LPG (gas) heater
 VENTILATION Mech. vent. w/o HR
 HOT WATER Portable LPG (gas) heater

_RENEWABLES

PHOTOVOLTAIC 10 [kWp]
 SOLAR THERMAL 5 [m²]
 OTHERS [-]
 NONE [-]

_EPC EXPERT
 NAME Muster Name
 EPC EXPERT CERTIFICATE NO. JOR0E00025
 DATE 03.04.2024

_EPC AUDITOR
 NAME Muster Name
 EPC AUDITOR CERTIFICATE NO. JOR0A00025
 DATE 15.04.2024

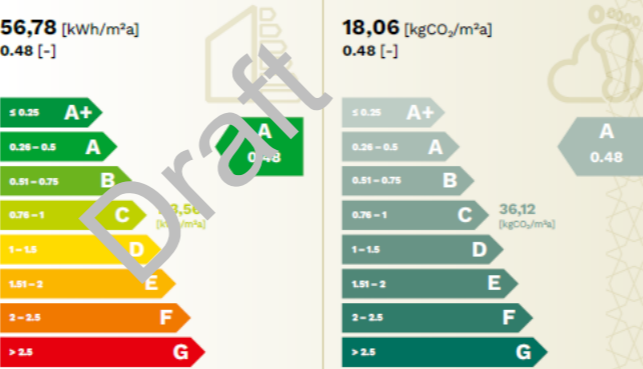
_CERT. AUTHORITY
 NAME Muster Name
 UNIT Musterabteilung
 DATE 05.04.2024

PRELIMINARY ENERGY PERFORMANCE CERTIFICATE_for Single Family House

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 CLIMATE ZONE Beirut

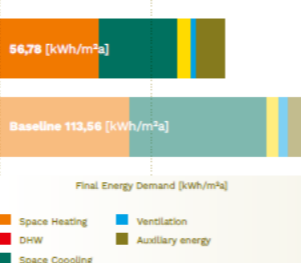
_FINAL ENERGY DEMAND
 56,78 [kWh/m²a]
 0.48 [-]

_CO₂ EQUIVALENT
 18,06 [kgCO₂/m²a]
 0.48 [-]



_ENERGY CONSUMERS

Final Energy split in energy use



_ECONOMIC INDICATOR

Very economical
 Incremental Costs 10 [%]
 PBP 7 [years]
 Global Cost Savings 52 [%]

PRELIMINARY ENERGY PERFORMANCE CERTIFICATE_for Single Family House

LCEC
 VALID UNTILL 20.03.2029
 CERTIFICATION NO. PRE_LEB202400002
 CLIMATE ZONE Beirut

_RECOMMENDATIONS TO REACH ZERO ENERGY BUILDING STANDARD [A+]

No.	Category	Measures
1	Building Envelope	Porunti omnimittas, illab inulpar ibusam cullabore, tempore oreius ullabo. Ita volente curatulus apidipsant pro cum est. Acepeliciis verum vellistius dendustium volupta dolore nobit utasimo lorestia voluptatin es solore es sequis seris doluptatis mo berumet aut mod quae vidella aut expligniet issenis de sed quam nihit, si dolupta velecto magnatint ea enim erum qui sequataquae.
2	HVAC	Ita dolore, cum quilatus apidipsant pro cum est. Acepeliciis verum vellistius dendustium volupta dolore nobit utasimo lorestia voluptatin es solore es sequis seris doluptatis mo berumet aut mod quae vidella aut expligniet issenis de sed quam nihit, si dolupta velecto magnatint ea enim erum qui sequataquae.
3	Renewables	Acepeliciis verum vellistius dendustium volupta dolore nobit utasimo lorestia voluptatin es solore es sequis seris doluptatis mo berumet aut mod quae vidella aut expligniet issenis de sed quam nihit, si dolupta velecto magnatint ea enim erum qui sequataquae. Equid esequi iur sunte commime nderum, con nullor aut quibus pos excepernatem doluptae nulluptas lum quo doluptatiani.
4	Behavior	Henisint emporep esperum eate aliberitat pel eIur? Cispistis aut fuga. Peri archill uptata dolorem re molorepudi nonetus dolupit as simpore nienihit temporum fugitat urehendebit velignam hari quam ipsam non none pla voles doloris iunt. Igender itiore velenihicat occusam, ulparch illabor epudit doluptat assequi stibus, elescis nonet moluptatium.

_EXPECTED RESULTS

ENERGY	CO ₂	ECONOMY
A+ 25 [kWh/m ² a] 0.2	A+ 5 [kg/m ² a] 0.2	Very economical PBP 7 [years] Global costs savings 15%

EPC Process

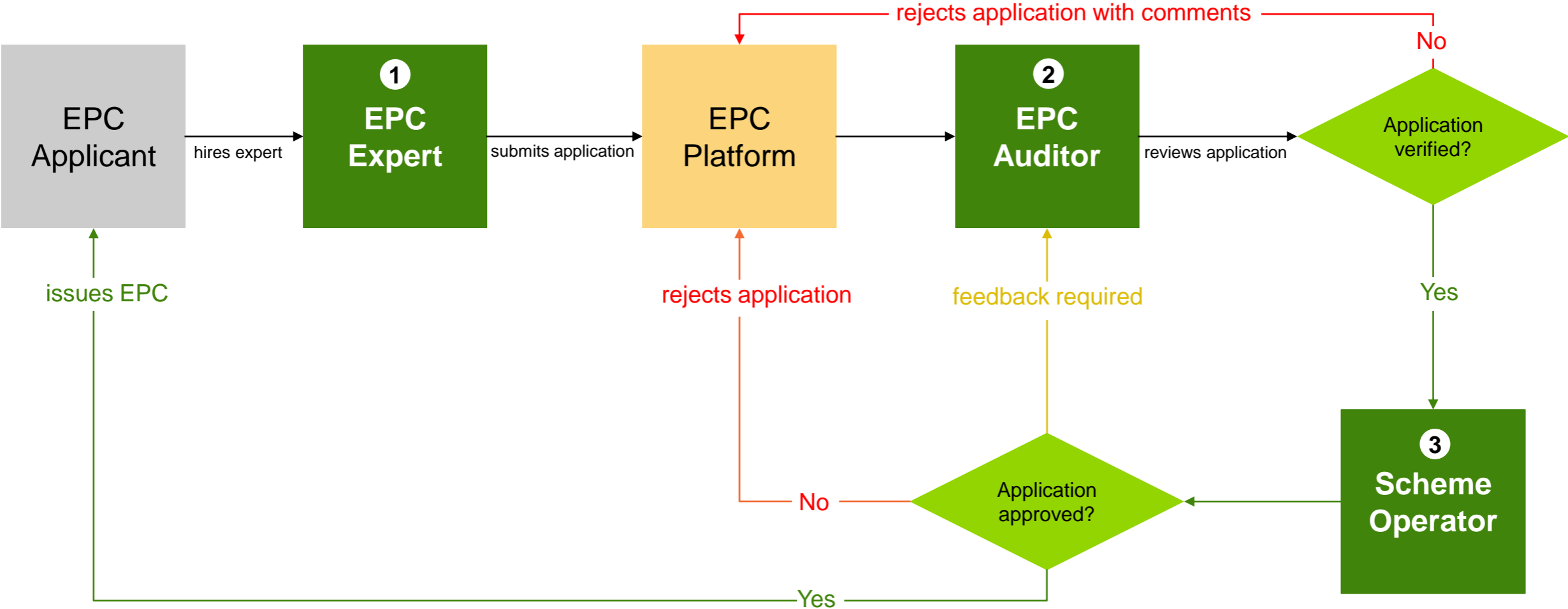
Phases

Certification provides an initial **Preliminary Certificate** and a final **EPC Certificate** after completion. There is no EPC certificate for building operation.



EPC Process

Flow Chart



EPC Process

Key Players



EPC Experts

- Run the energy performance simulation using the BEP tool.
- Prepare technical and administrative documents on behalf of the applicant.
- Submit the application and supporting documents to the EPC platform.



Auditors

- Review applications and submitted by EPC Experts.
- Conduct site visits for construction projects.
- Provide feedback (approval/rejection/comments) on the EPC platform.



Scheme Operator

- Develop an effective governance model.
- Maintain a database to record certification results.
- Communicate with the public and stakeholders in the building industry.

Roll-out of EPCs in Lebanon

MoU with OEA Tripoli



On January 3, 2024, the LCEC and OEA Tripoli signed an MoU to promote energy efficiency in the building sector by collaborating on the following:

- Integrating EPC certificates into Construction Permits until it becomes mandatory.
- Training experts and auditors to operate the scheme.

EPC Experts Training

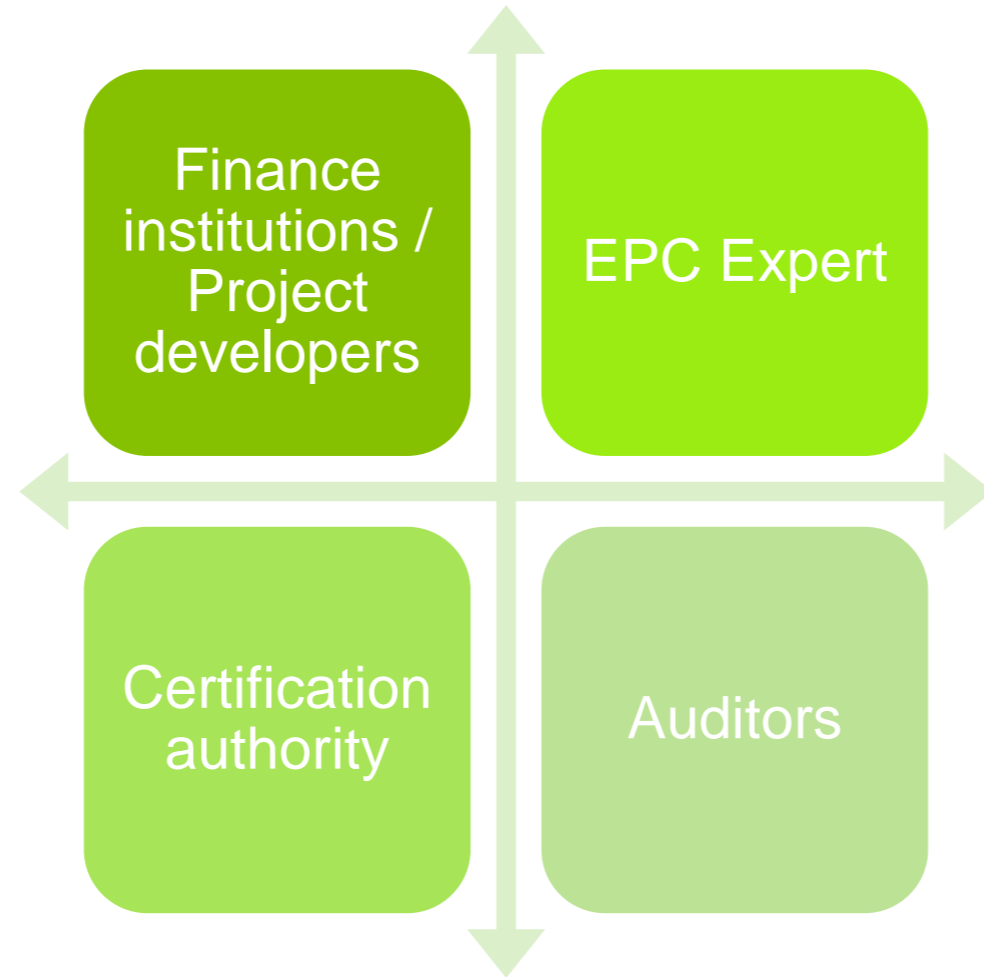
OEA Tripoli – 25 January 2024



- First EPC Experts training conducted on January 25, 2024, covering energy efficiency, renewable energy concepts, BEP tool, and EPC labeling scheme in Lebanon.
- Exam held with 16 engineers and architects passing.

Ongoing Trainings

Target group specific trainings are being offered on the EPC process



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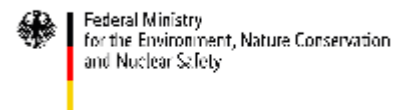


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This project is part of the International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative on the basis of a decision adopted by the German Bundestag.



Supported by:



based on a decision of the German Bundestag