

# **BUILD\_ME**

## **How Energy Performance Certificates (EPCs) Can Accelerate the Development of Zero-Emission Buildings in Lebanon**

**Beirut Energy Week 2023**

Beirut, Lebanon

September 2023

# Agenda



**Introduction to BUILD\_ME project**

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**Why EPCs are necessary**

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**EPC Scheme Overview**

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**Next Steps**

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# 1. Introduction to BUILD\_ME



# 1. Introduction to BUILD\_ME

## Overarching storyline of BUILD\_ME phases

### Phase 1

2016 - 2018



#### Analysis & Recommendations

- Analysis of boundary conditions and stakeholder perspectives on energy efficiency in the building sector.
- Formulating of recommendations for implementation and accelerating energy efficiency.

### Phase 2

2019 - 2022



#### Prepare the Implementation

- Developing tools for implementation including Building Energy Performance BEP tool and classification schemes for buildings energy efficiency.
- Connecting with stakeholders to initiate the implementation including project developers, financial institutions, and governmental responsible entities.

### Phase 3

2022-2025

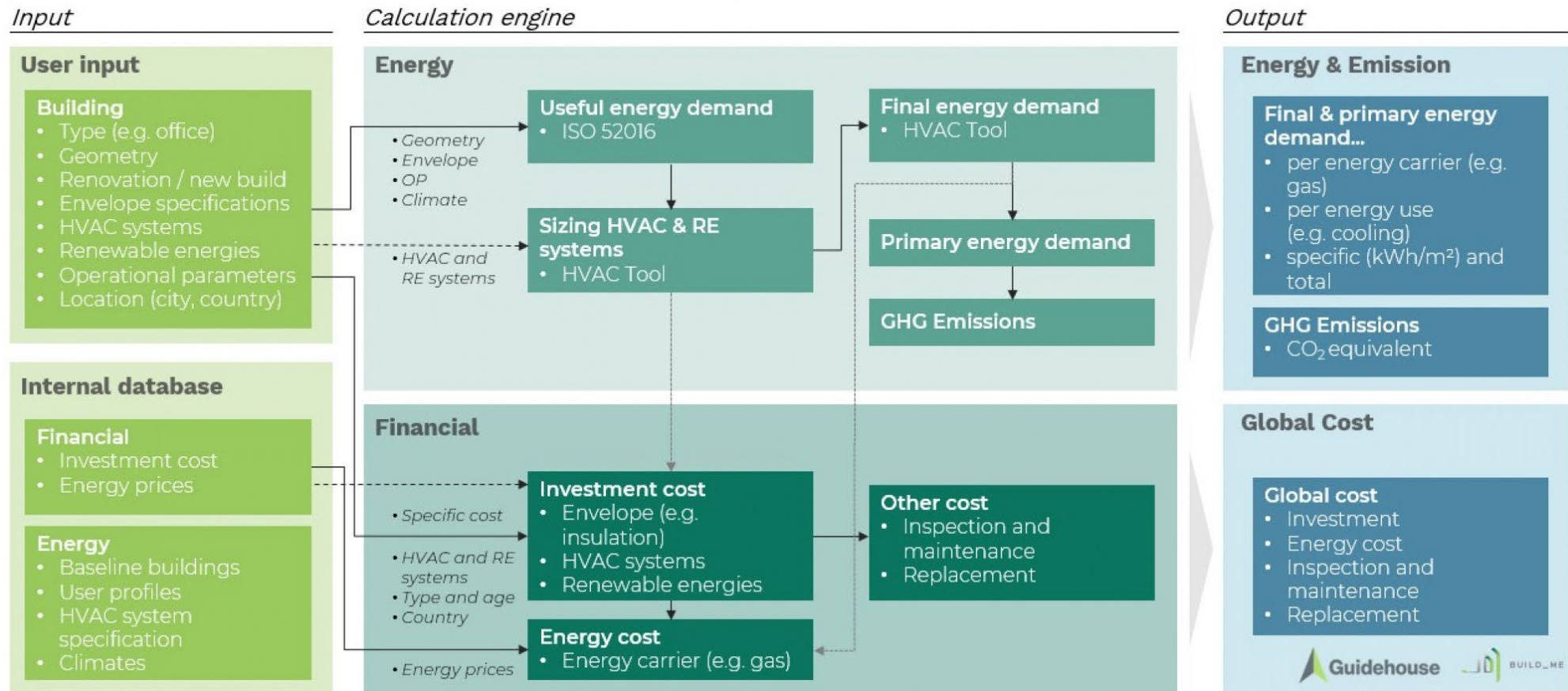


#### Support the Roll-Out

- Piloting the roll-out to reach implementation on all levels.
- Scaling up activities to enlarge the impact.
- Enabling stakeholders to implement and utilize BUILD\_ME Outputs.

# 1. Introduction to BUILD\_ME

## Phase 2 Outcomes: Building Energy Performance (BEP) Tool



<https://globco.buildings-mena.com/#step-1>

# 1. Introduction to BUILD\_ME

## Phase 2 Outcomes: Building Typology in Lebanon



### By Facility Type



### By Phase



### By Region

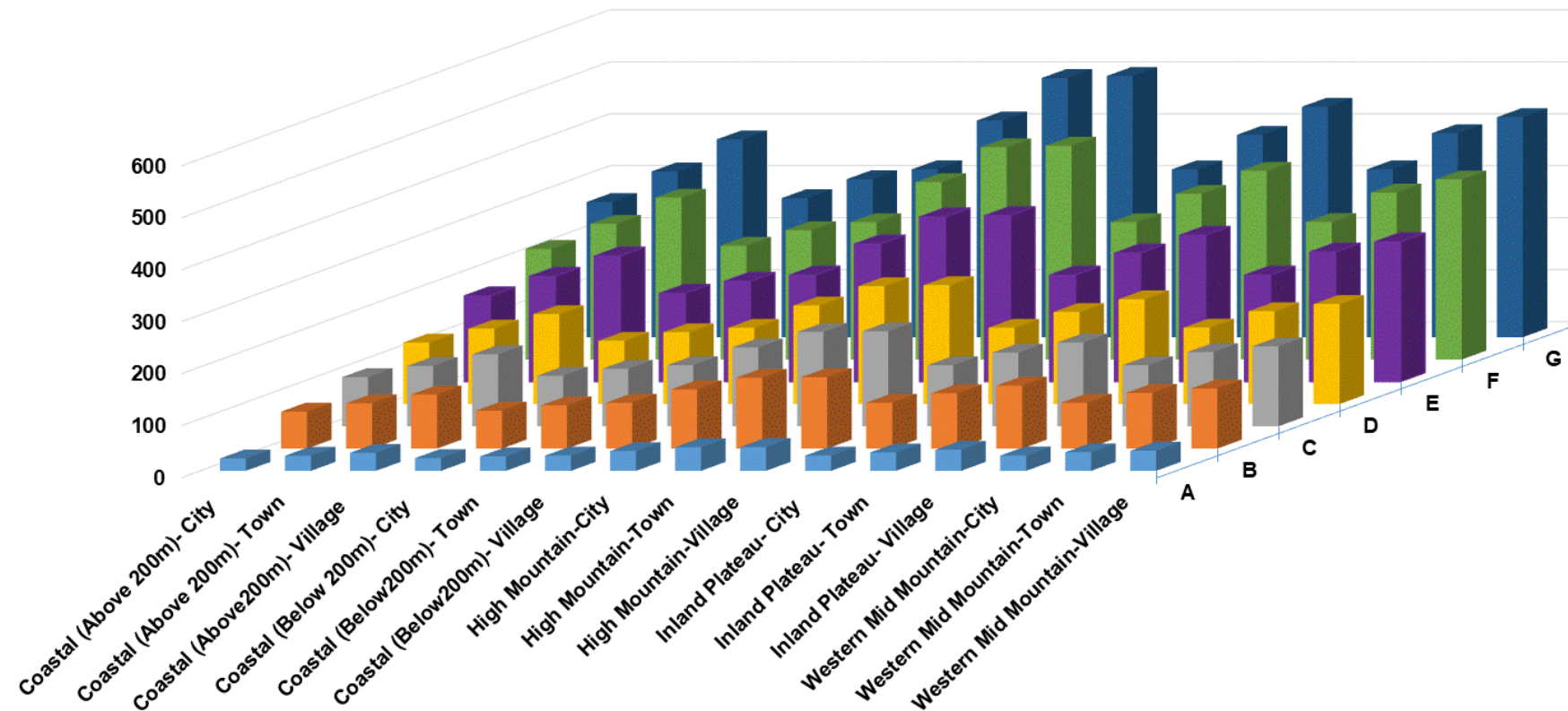
Single Family Housing (SFH)	Before 1980s	City
Multiple Family Housing (MFH)	Between 1980 and 2015	Town
Office	After 2015	Village
School		
Hospital		
Retail		



# 1. Introduction to BUILD\_ME

## Phase 2 Outcomes: Building Typology in Lebanon

Final specific energy consumption of new construction SFH building (kWh/m2.a)



# 1. Introduction to BUILD\_ME

## Main Objectives of Phase 3

**Investments in energy-efficient buildings** by international (and national) banks have **increased** in Egypt, Jordan and Lebanon and their **political frameworks for more ambitious GHG savings** in the building sector has been improved



**1 Technical Framework**



**2 Financial Framework**



**3 Dissemination and Capacity Building**



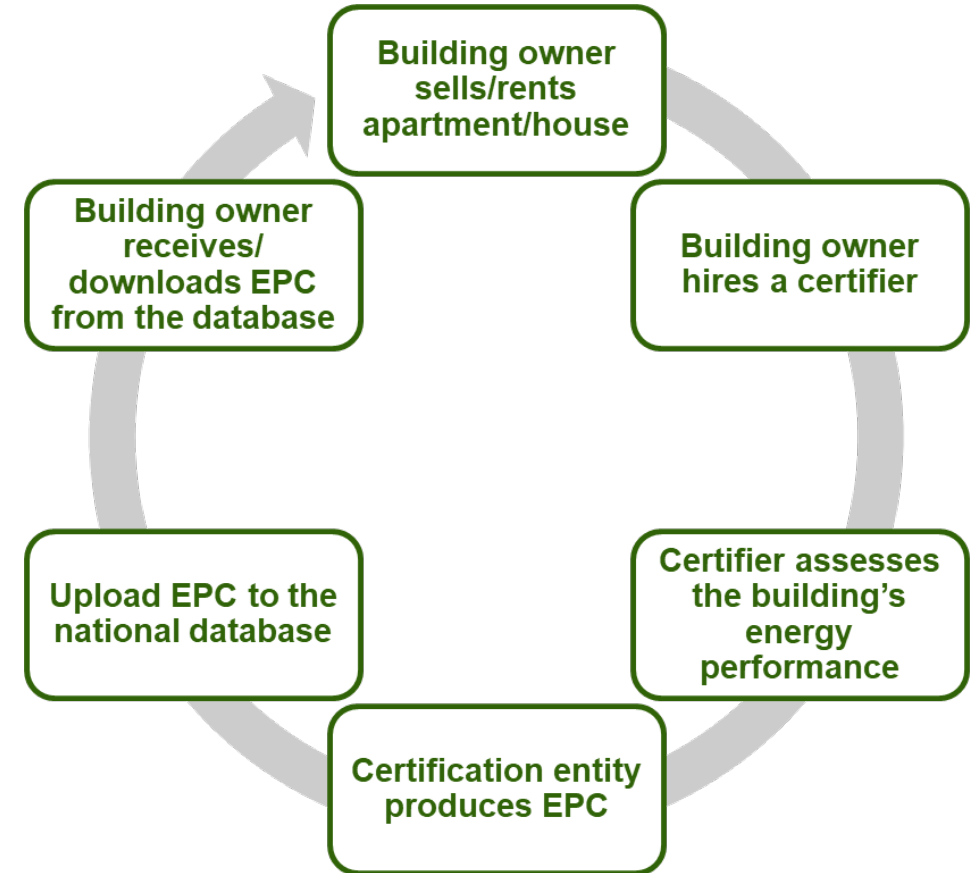
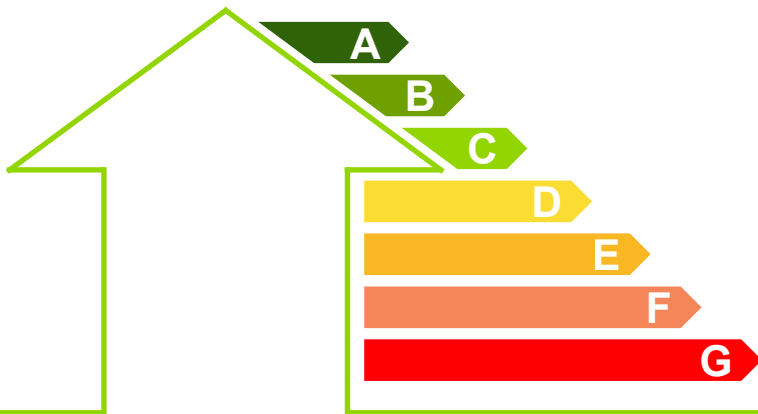
**4 Political and Reg. Framework**



## 2. 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]



## 2. 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

### 3. EPC Scheme

#### Label Template

## Key Inputs

- Building Envelope
- Cooling
- Heating
- Ventilation
- Domestic Hot Water

## Key Outputs

- Annual Energy Consumption Rate
- Economic Indicator
- Annual CO2 Emissions Rate

لوجو	<h1 style="margin: 0;">شهادة أداء الطاقة</h1> <h2 style="margin: 0;">نوع المبنى</h2>
رقم التسجيل:	صالح حتى: ٢
<h3>الطلب النهائي على الطاقة (kWh / m<sup>2</sup>a)</h3>	
<b>Score</b>	<b>Energy rating</b>
≤ 0.25	<div style="display: flex; align-items: center;"><div style="width: 20px; height: 20px; background-color: #2e8b57; color: white; text-align: center; line-height: 20px; font-weight: bold;">A</div><div style="margin-left: 10px;">يوضح الرسم البياني كفاءة الطاقة الحالية والمحتملة لهذه الخاصية.</div></div>
0.25 - 0.75	<div style="display: flex; align-items: center;"><div style="width: 20px; height: 20px; background-color: #90ee90; color: black; text-align: center; line-height: 20px; font-weight: bold;">B</div><div style="margin-left: 10px;">يتم تصنيف الخصائص من A (الأكثر كفاءة) إلى G (الأقل كفاءة).</div></div>
0.76 - 1	<div style="display: flex; align-items: center;"><div style="width: 20px; height: 20px; background-color: #ffff00; color: black; text-align: center; line-height: 20px; font-weight: bold;">C</div><div style="margin-left: 10px;"></div></div>
1 - 1.5	<div style="display: flex; align-items: center;"><div style="width: 20px; height: 20px; background-color: #ffa500; color: black; text-align: center; line-height: 20px; font-weight: bold;">D</div><div style="margin-left: 10px;"></div></div>
1.51 - 2	<div style="display: flex; align-items: center;"><div style="width: 20px; height: 20px; background-color: #ff8c00; color: black; text-align: center; line-height: 20px; font-weight: bold;">E</div><div style="margin-left: 10px;"></div></div>
2 - 2.5	<div style="display: flex; align-items: center;"><div style="width: 20px; height: 20px; background-color: #ff4500; color: black; text-align: center; line-height: 20px; font-weight: bold;">F</div><div style="margin-left: 10px;"></div></div>
> 2.5	<div style="display: flex; align-items: center;"><div style="width: 20px; height: 20px; background-color: #8b0000; color: white; text-align: center; line-height: 20px; font-weight: bold;">G</div><div style="margin-left: 10px;"></div></div>

C

Energy Rating

### مكافئ ثاني أكسيد الكربون (كجم / م<sup>2</sup> أ)

يشير الرقم إلى انبعاثات ثاني أكسيد الكربون المحسوبة من حيث الكيلوجرام لكل متر مربع من المساحة الأرضية سنوياً

7,90

كجم / م<sup>2</sup> أ

### التفسيرات (كيفية تفسير النتائج)

أدخل الشرح هنا

### المؤشر الاقتصادي

GoodAverageBad

أدخل الشرح هنا

توفير تكاليف التشغيل

مزيد من الشرح إن وجد

صفحة ٢

شهادة أداء الطاقة

نوع المبنى

١

صالح حتى:

رقم التسجيل:

معلومات عامة عن المبنى

نوع المبنى:

العنوان:

سنة البناء:

عدد الوحدات السكنية (سكن متعدد الأسر):

صافي المساحة: بالمتر مربع

نظام التدفئة والتهوية وتكييف الهواء

تكييف:

تدفئة:

تهوية:

الماء الساخن:

صورة المبنى

محيط المبنى

حائط:

سطح:

أرضية:

نافذة:

خبر شهادة أداء الطاقة

الاسم:

العنوان:

التاريخ:

الإمضاء:

هيئة إصدار الشهادات

الاسم:

العنوان:

التاريخ:

الإمضاء:

مزيد من الشرح إن وجد

صفحة ١

# 3. EPC Scheme Roles



## 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

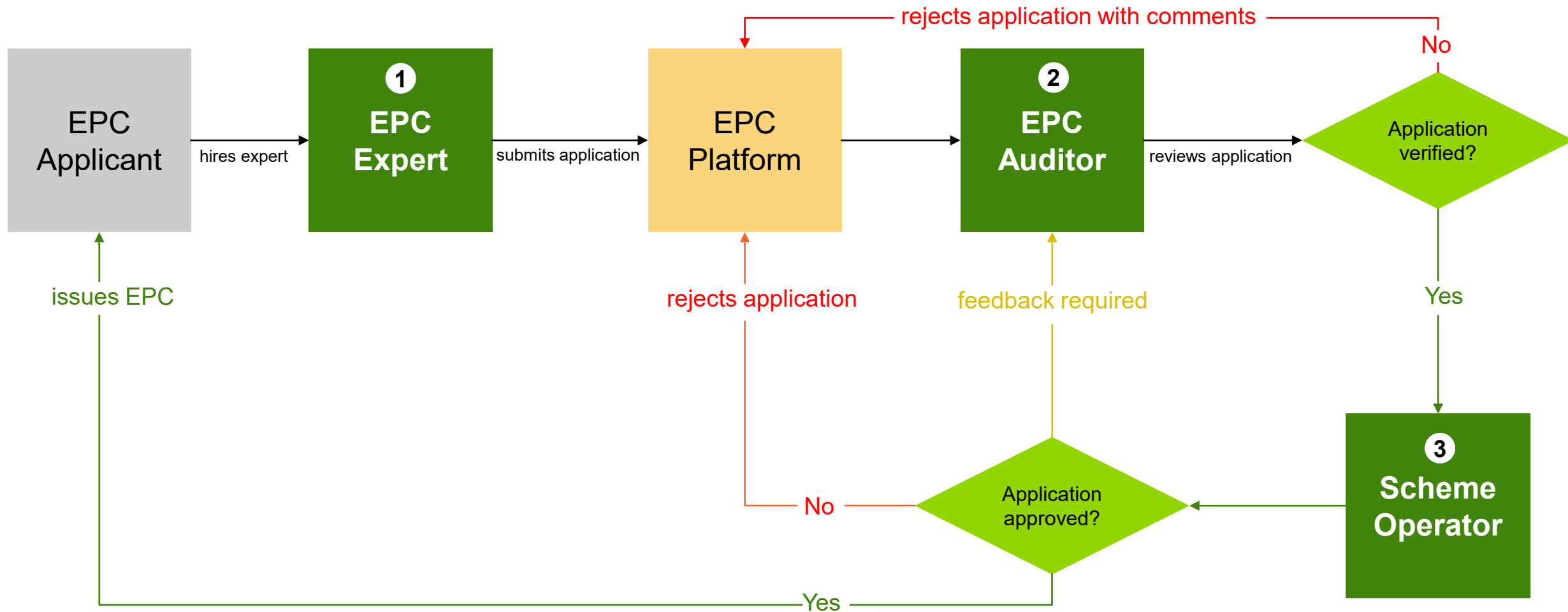
- Review applications and submitted by EPC Experts.
- Conduct site visits for construction projects.
- Provide feedback (approval/rejection/comments) on the EPC platform.



## Scheme Operator

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

# 3. EPC Scheme Overview



## 4. Conclusion

EPCs are underway!

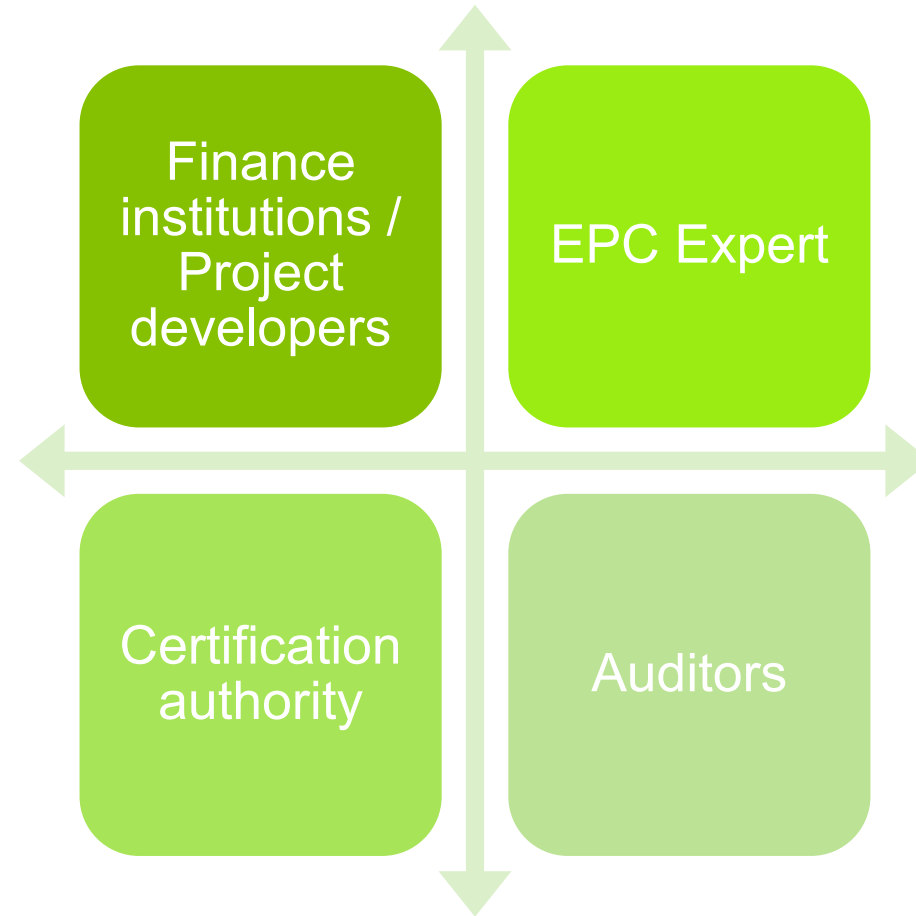
Introducing Energy Performance Certificates (EPCs) in Lebanon will offer the following advantages:

1. Enhanced Transparency in the Building Sector's Energy Consumption
2. Establishment of a national base system for better policies and planning
3. EPCs will boost the cost-effectiveness of energy projects, resulting in financial incentives that promote scalability.



## 4. Next Steps

Target group specific trainings will be offered on the EPC process



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