Funded by the European Union

Mitigation Enabling Energy Transition in the MEDiterranean region

Green and Sustainable Buildings Global Status

Prepared and Presented by Anissia BEAINY, ALMEE

Training on GRASSMED – meetMED II

WP3_A3.1.6

26-28 February 2024

OUTLINE

- What is new?
- Latest Global Drivers of Trends in Building since 2015
- Decarbonization Index Tracking
- Recent Global Operational Energy Demand
- Recent Green Construction Activities
- Policies Codes, and Certificates
- Green Building Rating Activities In The South-Med Region
- Minimum Energy Performance Standards (MEPS) and Labelling
- Certifications and Rating

WHAT IS NEW?

Rebound in global buildings and construction emissions highlights the need for structural change.

- In 2021, construction activities rebounded back to pre-pandemic levels in most major economies. As a result, buildings energy demand increased by around 4 % from 2020 – the largest increase in the last 10 years.

- Despite some progress at the policy level, the lack of structural change highlights the growing gap between the actual climate performance of the sector and the necessary decarbonization pathway.

- CO2 emissions from buildings operations have reached an all-time high of around 10 GtCO2, around a 5 per cent increase from 2020 and 2 per cent higher than the previous peak in 2019.

LATEST GLOBAL DRIVERS OF TRENDS IN BUILDINGS SINCE 2015

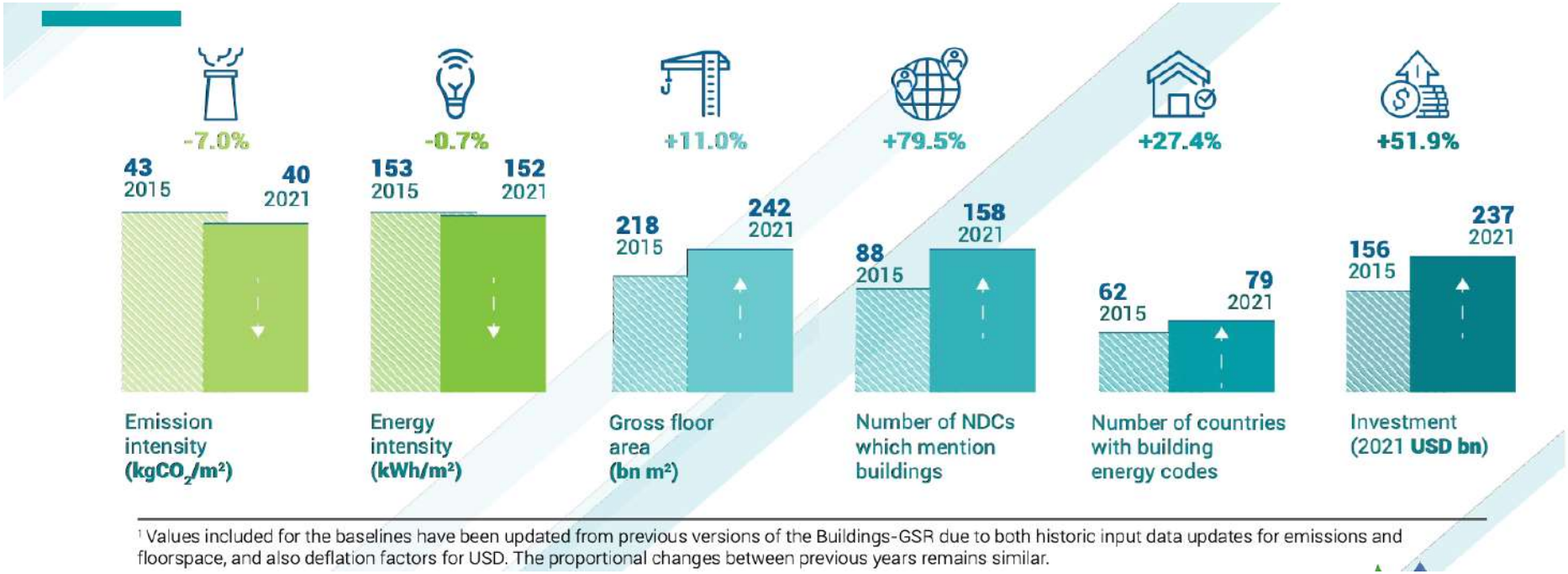

Figure 1. Global green building drivers key trends 2015 and 2021; Source: GlobalABC-GRS 2022

Some progress has been made on the policy level and with an increase in investments, but there must be greater effort to reduce emissions overall and improve building energy performance alongside the continuing trend of increasing floor area*.

* GlobalABC-GRS 2022

DECARBONIZATION INDEX TRACKING

Buildings and construction industry offer significant global mitigation potential for reaching the Paris Agreement. Opportunities include improving existing buildings efficiency and use, high-performance new buildings, efficient lighting appliances and equipment in buildings, integrating renewables in buildings, and decarbonizing production of building materials*.

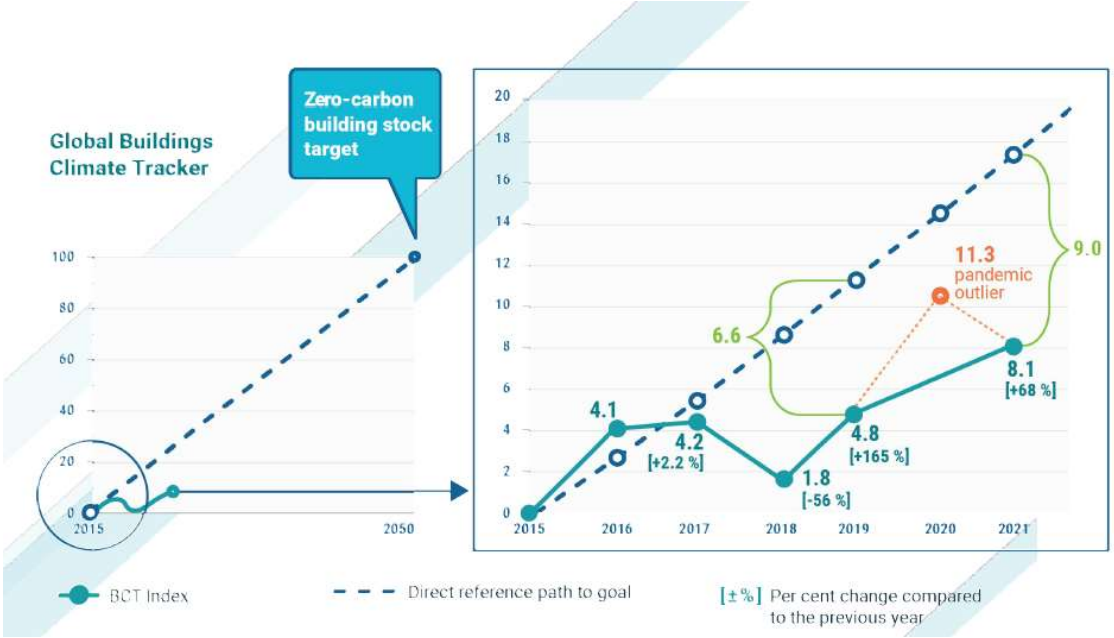

Figure 2. Direct reference path to a zero-carbon building stock target in 2050 (left); zoom into the period between 2015 and 2021, comparing the observed Global Buildings Climate Tracker to the reference path (right), SOURCE: Buildings Performance Institute Europe 2022.

In 2021, the decarbonization level decreased to 8.1 points, from a high point of 11.3 in 2020. The tracker shows that since the pandemic, building decarbonization activities have reverted to their previous speed of change**.

*Buildings Performance Institute Europe (2020). A Methodology for Tracking Decarbonisation Action and Impact of the Buildings and Construction Sector Globally. Brussels. https:// www.bpie.eu/wp-content/uploads/2020/12/GABT-methodology- paper-final.pdf.

**Building Performance Institute Europe (2022). REPowerEU Energy Savings Plan: time to switch to action. Brussels: Building Performance Institute Europe. Available at: https://www.bpie.eu/publication/repowereu-energy-savingplan- time-to-switch-to-action/.

RECENT GLOBAL OPERATIONAL ENERGY DEMAND

Operational energy demand in buildings (for space heating and cooling, water heating, lighting, cooking and other uses) accounts for around 30% of final demand and has grown to 135 EJ (Exa Joule).

Energy demand in 2021 increased by around 4% from 2020 and exceeds the previous peak in 2019 by 3%.

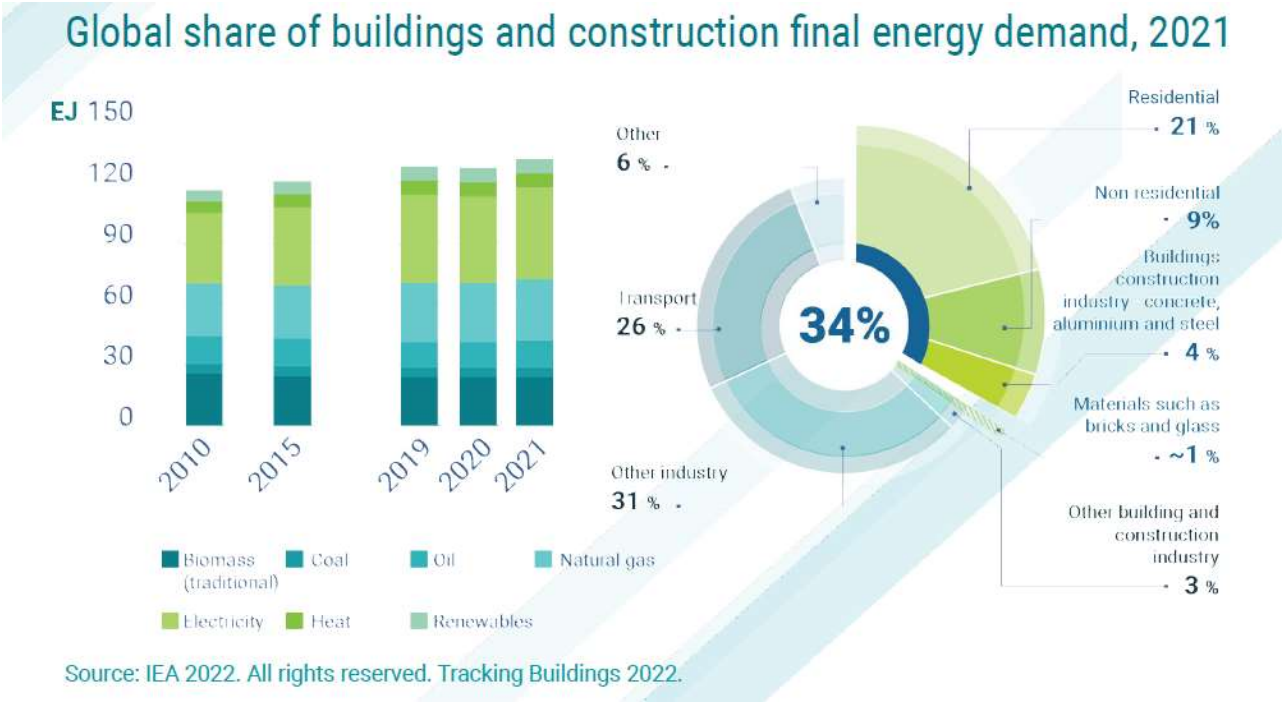

Figure 3. operational energy demand in buildings by 2021 SOURCE: IEA2022.

Unfortunately, energy intensity has largely been unchanged since 2019 and must improve at a rate of 5 per cent per year by 2030. To achieve the needed pathway toward net zero carbon, the International Energy Agency estimates that intensity needs to drop by around 35 per cent of its current level to around 95 kWh/m*.

*International Energy Agency (2022).

RECENT GREEN CONSTRUCTION ACTIVITIES

Building construction activities have rebounded from their pandemic lows and have been a driver behind both the growing investment in more efficient buildings.

Proportionally more construction occurred among high-income countries, which reflected strong investment through 2021.

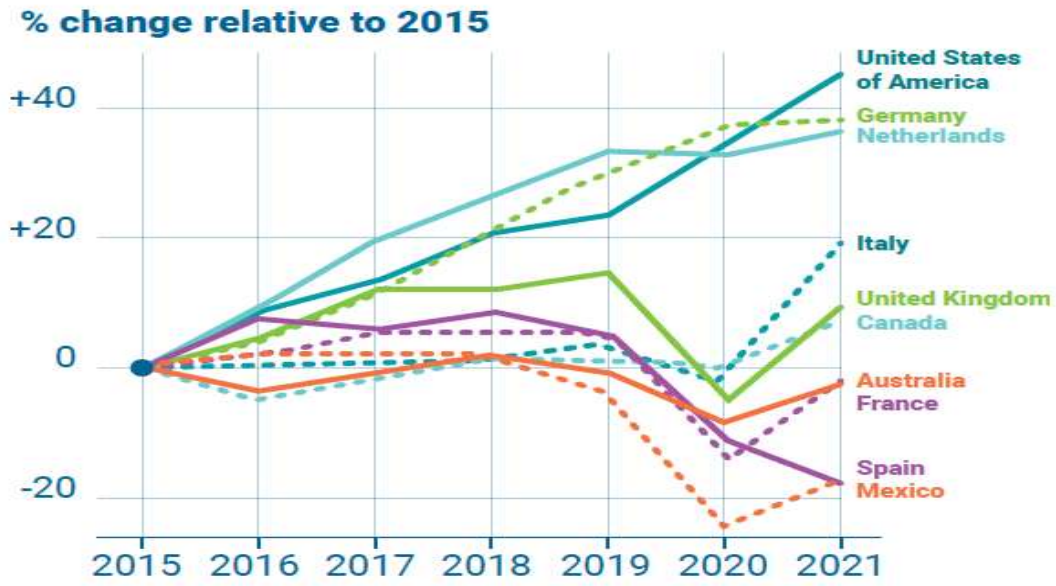

Figure 3. CONSTRUCTION ACTIVITIES 2015-2021 SOURCE: OECD 2022

A key challenge that must be addressed is how this anticipated growth in construction activities will deliver net-zero-carbon buildings both now and in the future and what these concepts mean in different locations around the world*.

*Organization for Economic Co-operation and Development (2022).

POLICIES, CODES AND CERTIFICATIONS -International Policies and NDCs

Buildings and construction policies saw progress in 2021, with 23 countries revising and updating their NDCs with a greater level of commitment to building efficiency and adaptation, and a greater level of detail.

80 per cent of countries now refer to buildings as part of their NDC action plans, compared to around 69 per cent in 2020*

YEAR	2021	2022
Adaptation	17	20
Energy Efficiency	94	103
Extensive Details	10	15
Limited Reference	14	16
No known NDC	5	3
No Mention	56	35
Further Detail I 4th Biennial Report	-	4
Total Mentioning Buildings	135	158
Total	196	

Table 1 Statements mentioning buildings in NDCs . SOURCE:UNFCCC 2022

As of 4 August 2022. 68 NDCs updated :Detail: less (6), same (39), more (23)

*United Nations Framework Convention on Climate Change(2022). NDC Registry. Bonn: United Nations Framework Convention on Climate Change. Available at: https://unfccc.int/ NDCREG

POLICIES, CODES AND CERTIFICATIONS -Green Building Codes

Building codes are vital to addressing buildings sector emissions and providing clear guidelines on their features.
Building energy codes must be designed with local environmental conditions and building use at their heart.

As of September 2022, 79 out of 196 countries (40 per cent) have building energy codes which are either mandatory for at least part of the building stock or have a voluntary component.

Mandatory	68
Performance standard available	11
In development	32
No known code	85
Grand total	**196**

Table 2. Building energy codes status in 2022. Source: Buildings Performance Institute Europe (2020)

In total, 51 out of 196 countries tracked by the Buildings Global Status Report have mandatory building energy codes which cover **both residential and non-residential Buildings***.

* GlobalABC-GRS 2022

POLICIES, CODES AND CERTIFICATIONS -Green Building Certifications

As of 2021, there are 74 green building certification systems* across the world, with the majority administered by members of the World Green Building Council (WorldGBC). At least 184 countries have buildings that are certified under these certification systems.

Region	Examples of Rating systems used
Africa	LEED, BREEAM, EcoBat, Green Star, Green Pyramid, ETC…
Americas	LEED, Casa, ETC..
Asia	LEED, CASBEE, GRIHA, ARZ, HQE, BREEAM,GREENSL, PEARL, TARSHEED, SAAF, GREEM MARK ETC..
Europe	BREEAM, HQE, DGNB, EDGE, ETC…
Oceania	Green Star, Homestar, NABERSNZ, Carbon zero

Table 3. Examples of GBRS around the globe, SOURCE: WorldGBC 2022.

* World Business Council for Sustainable Development (2021). Reflections from COP26: How we can transform the built environment to net zero. Available at: https://www.wbcsd.org/ Overview/News-Insights/WBCSD-insights/Reflections-from- COP26-How-we-can-transform-the-built-environment-tonet- zero.

POLICIES, CODES AND CERTIFICATIONS -MEPS, standards and labels

The IEA estimates that minimum energy performance standards (MEPS) now cover over 80 per cent of final energy use for residential refrigerators and air conditioners and over 75 per cent for lamps/lighting*.

More than 100 countries have MEPS and other mandatory labels in place for at least one of the key appliance and equipment related end uses (e.g. cooling, lighting and refrigerators), and another 20 are currently developing policies.

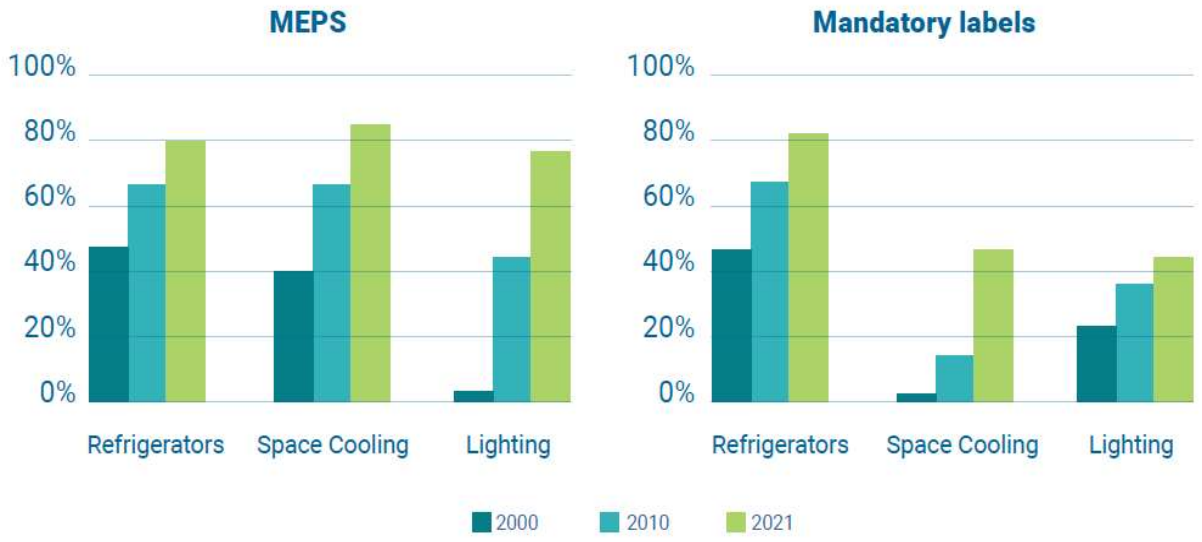

Figure 3. Share of energy consumption for appliances covered by minimum energy performance standards (MEPS) or mandatory comparative labels, SOURCE: IEA 2022.

* International Energy Agency (2022).

GREEN BUILDING RATING ACTIVITIES IN THE SOUTH-MED REGION

	Unit	Algeria	Egypt	Jordan	Lebanon	Libya	Morocco	Palestine	Tunisia
Year of data:	Year	2017	2017	2017	2015	2016	2013	2017	2017
Share in total Final energy consumption	%	33.60%	50.5%	28.70%	40.20%	39.00%	33.00%	38.40%	27.00%
Share in total Primary energy consumption	%	-	-	20.10%	29.30%	-	-	34.00%	-

Table 4. Energy consumption in the building sector in the region, Source: meetMED,

The building sector is one of the largest energy consumers in the South-Med region.

Due to its growing population and urbanization rate, it is an essential sector where energy efficiency measures need to be implemented. For instance, these include the implementation of insulation standards, the development of EE building codes and the creation of EE labelling systems for buildings*.

* meetMED 2020, https://meetmed.org/books/meetmed_ee-in-buildings-2/

MEPS AND LABELLING

A large share of the total energy consumption in buildings is related to appliances commonly use in households and service buildings. It is therefore important to adopt Mandatory Minimum Energy Performance Standards (MEPS) to ensure the use of efficient equipment. Most countries have been working on the implementation of these standards, namely for refrigeration, air conditioning and lighting. Labelling standards for appliances should be implemented in order to promote the purchase by consumers of energy efficient equipment since they help consumers make more efficient choices*.

Labelling Policy requirement level	Algeria	Egypt	Jordan	Lebanon	Libya	Morocco	Pales-tine	Tunisia
Lighting	Manda-tory	Manda-tory	Manda-tory	Voluntary	-	-	-	Manda-tory
Refrigeration	Manda-tory	Manda-tory	Manda-tory	Voluntary	-	Manda-tory	-	Manda-tory
Air conditioning	Manda-tory	Manda-tory	Manda-tory	Voluntary	-	Manda-tory	-	Manda-tory
Washing machine	-	Manda-tory	Manda-tory	-	-	-	-	Manda-tory
Solar water heaters	-	Manda-tory	-	-	-	-	-	-

Table 6. Labelling Policy requirement levels , Source: meetMED,

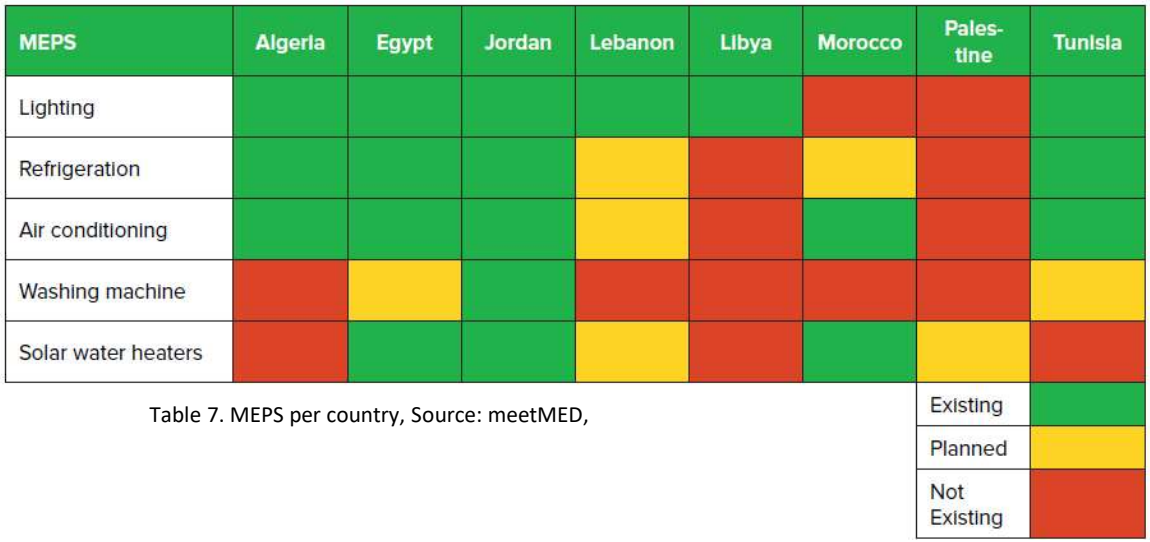

Table 7. MEPS per country, Source: meetMED,

* meetMED 2020, https://meetmed.org/books/meetmed_ee-in-buildings-2/

CERTIFICATIONS AND RATINGS

Contact us!

meetMED
Mitigation Enabling Energy Transition in the MEDiterranean region
Together We Switch to Clean Energy

For any inquires or comments,
please don't hesitate to contact us

www.meetmed.org

meetMED Project

@meetmed1

www.almeelebanon.com

almeelb

AlmeeLB

AlmeeLB

almeelb

This project is funded
by the European Union