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UNECE GROUP OF EXPERTS ON ENERGY EFFICIENCY, 3RD SESSION
18 OCTOBER 2016

Economic And Social Commission For Western Asia



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ENERGY EFFICIENCY STANDARDS IN BUILDINGS
BASIS FOR A HOLISTIC APPROACH
CASE OF THE ARAB REGION

Mongi Bida

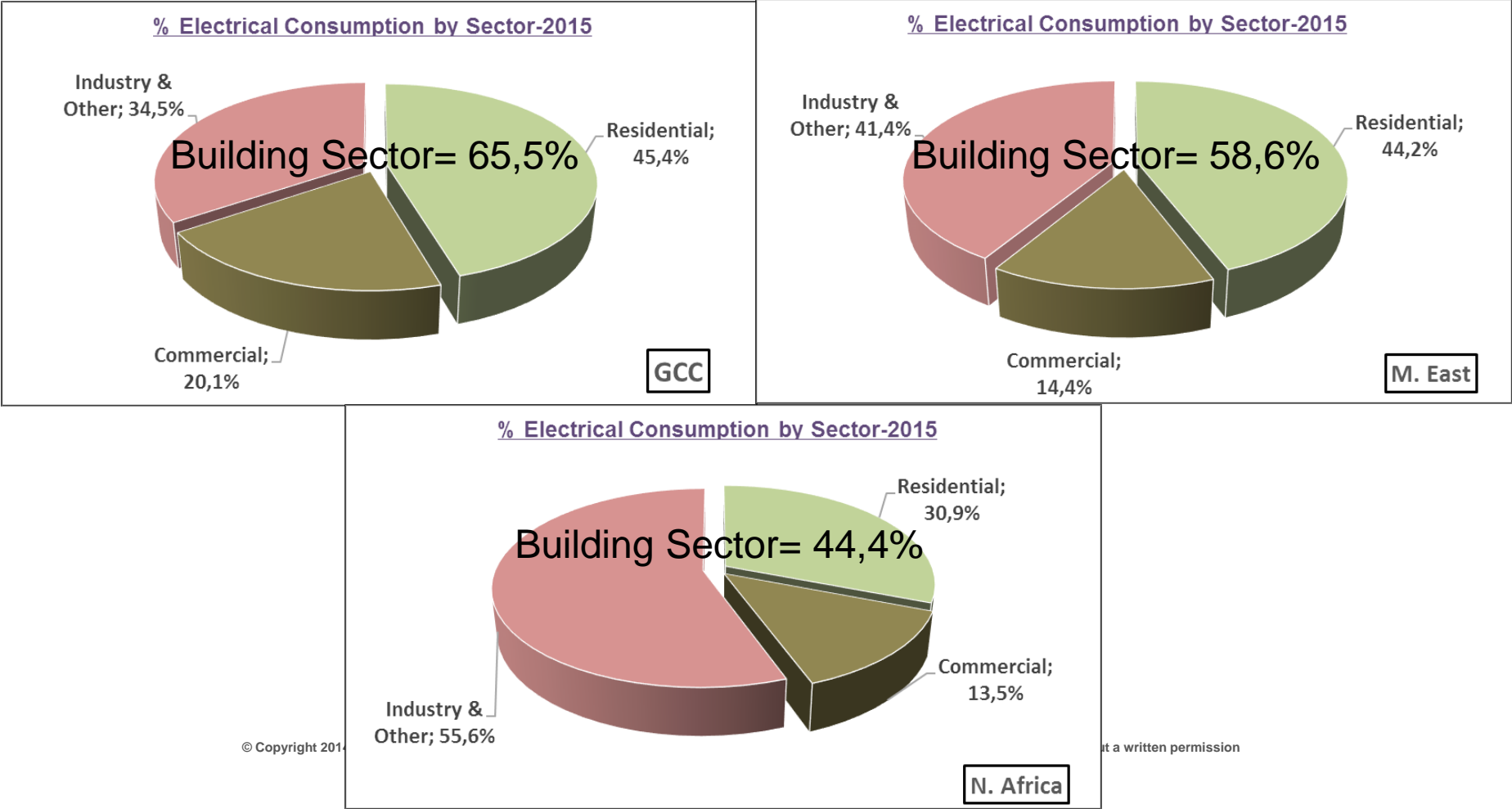
First Economic Affairs Officer

ES / SDPD / UN ESCWA

bida@un.org


Basis for a Holistic Approach in Building Energy Performance Standards

ELECTRICAL CONSUMPTION SHARE OF THE BUILDING SECTOR IN THE REGION



Basis for a Holistic Approach in Building Energy Performance Standards

Energy End Uses in Buildings:

- Lighting
 - Space heating / cooling
 - Ventilation
 - DHW heating
- 
- COMFORT
- Office equipment (Non residential)
 - Home appliances (residential)
 - Other appliances / equipment (Non residential)

Basis for a Holistic Approach in Building Energy Performance Standards

Energy Needs for COMFORT depends on type of buildings and space occupancy modes:

- *Types of Buildings and buildings occupancy:*
 - Day time usage only / Low occupancy densities: Office spaces and similar
 - Space heating / space cooling / Lighting
 - Envelope driven (climatic conditions: mostly cold, mostly mild, mostly hot and Daylight availability)

Basis for a Holistic Approach in Building Energy Performance Standards

Energy Needs for COMFORT depends on type of buildings and space occupancy modes:

- *Types of Buildings and buildings occupancy:*
 - 24 hrs occupancy / Low occupancy densities: Residential, Hotel rooms, patient rooms in health facilities, etc.
 - Space heating / space cooling / DHW
 - Envelope driven (climatic conditions: mostly cold, mostly mild, mostly hot)

Basis for a Holistic Approach in Building Energy Performance Standards

Energy Needs for COMFORT depends on type of buildings and space occupancy modes:

- *Types of Buildings and buildings occupancy :*
 - Various occupancy modes / High occupancy densities:
Airports, commercial centres, restaurants, theatres, meeting spaces, etc.
 - Outside air supply /heating /cooling /humidification/ dehumidification
 - HVAC Systems driven (climatic conditions: mostly cold, mostly mild, mostly hot)

Basis for a Holistic Approach in Building Energy Performance Standards

Building Energy Performance Requirements should be based on building energy profiles for COMFORT / Building types:

Different requirements, different priorities and different strategies

- *Common Approach to all types of buildings:*
 - Reduce energy requirements for the targeted end use (need building thermal energy simulation for the envelope to define envelope MEPS and Labels)
 - Use the most appropriate source of energy per end use
 - Use an EE efficient system / equipment to provide the energy service for the end use (need to define MEPS and Labels)

Basis for a Holistic Approach in Building Energy Performance Standards

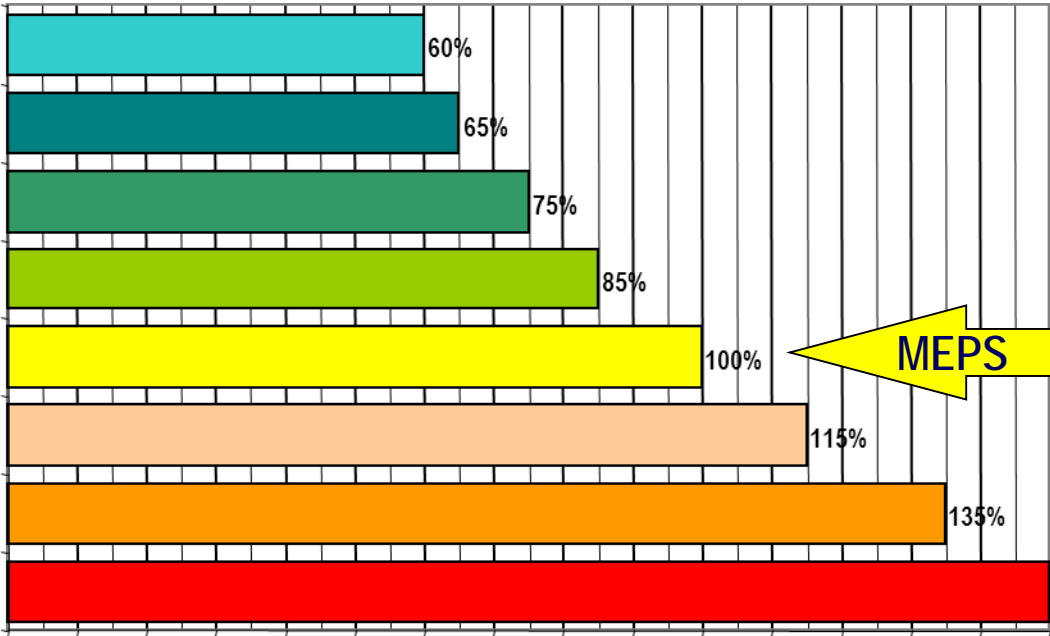
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Basis for a Holistic Approach in Building Energy Performance Standards

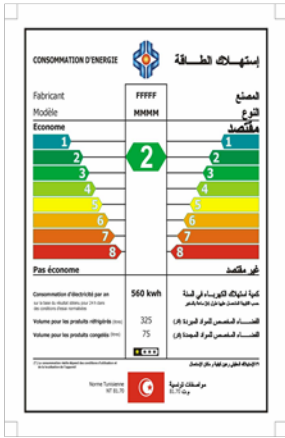
Envelope Energy Performance Labels



MEPS

Levels of Energy requirements (Heating + Cooling) – kWh/year-m²

Higher Energy Performance



Lower Energy Performance

THANK YOU FOR YOUR ATTENTION

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