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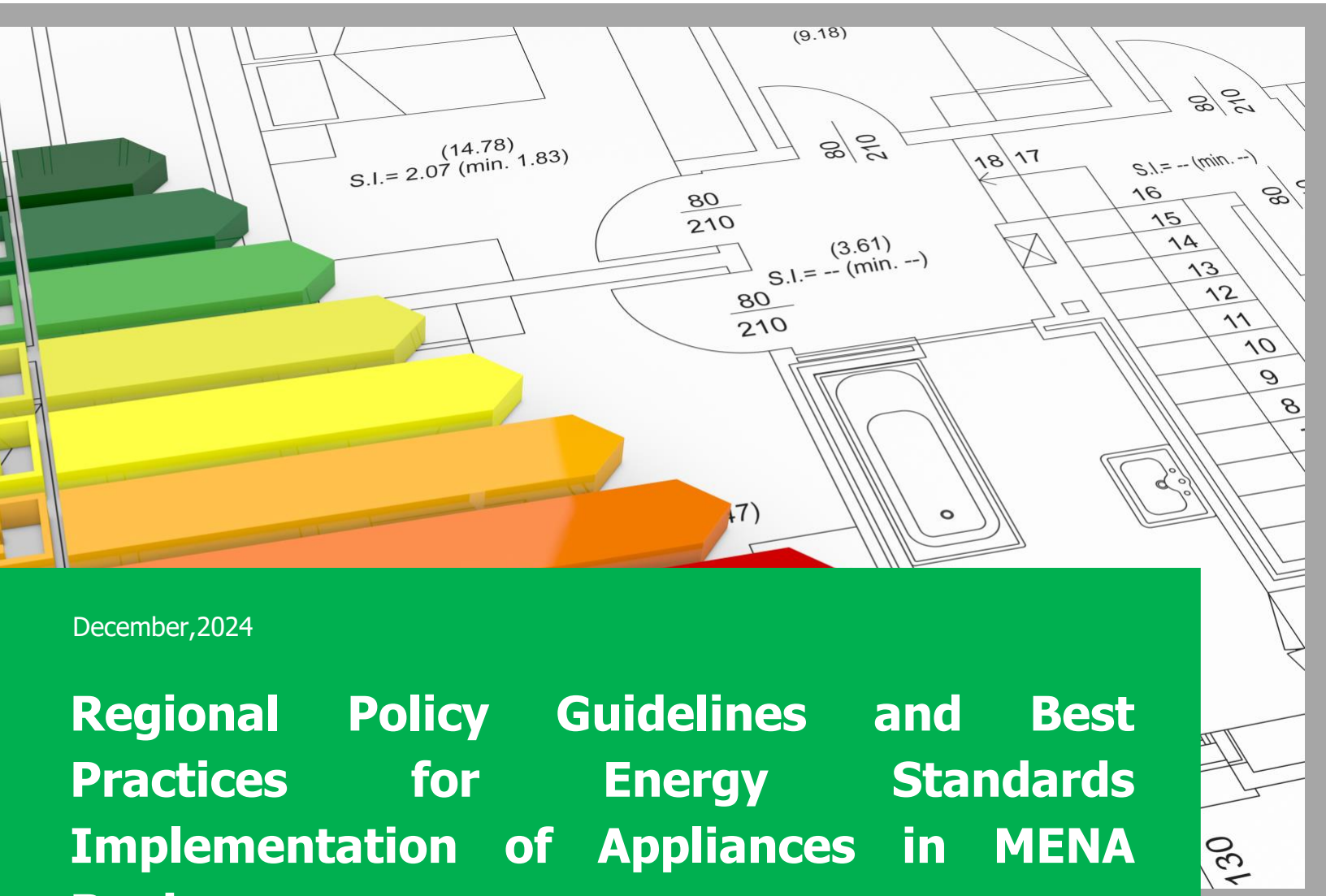

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Regional Policy Guidelines and Best Practices for Energy Standards Implementation of Appliances in MENA Region

WP2 (A23) - Support to policy/decision makers on harmonisation of legislation, regulations and standards in Appliances sector

MED ENER

RCREEE
Regional Center for Renewable Energy and Energy Efficiency
المركز الإقليمي للطاقة المتجددة وكفاءة الطاقة

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Table of Contents

Executive Summary

The meetMED A2.3 initiative presents a comprehensive framework of ten policy recommendations designed to advance energy efficiency and foster regional cooperation across eight Mediterranean countries: Algeria, Egypt, Jordan, Lebanon, Libya, Morocco, Palestine, and Tunisia. These policies address critical areas, including appliance standards, market surveillance, consumer engagement, and institutional capacity building. The overarching objective is to transform regional markets, eliminate inefficient technologies, and align national strategies with global climate commitments.

1. Harmonized MEPS for Priority Appliances

Establishing regionally aligned Minimum Energy Performance Standards (MEPS) for residential appliances such as air conditioners, refrigerators, and washing machines is essential. Harmonized MEPS facilitate cross-border trade, prevent the influx of low-efficiency products, and promote regional integration.

2. Unified Regional Energy Labeling Framework

A standardized labeling system (e.g., A–G scale or color-coded formats) enhances consumer awareness and decision-making. This framework is particularly critical for Lebanon, Libya, and Palestine, where labeling schemes are either absent or non-operational.

3. Market Surveillance and Compliance Systems

Strengthening institutional and technical capacity for enforcement through inspections, accredited laboratories, and legal mechanisms is vital. This ensures compliance and prevents market penetration by non-compliant and falsely labeled products, especially in Libya, Lebanon, Palestine, and Algeria.

4. Ban on Importing Inefficient or Non-Compliant Appliances

Implementing strict import controls and enforcement mechanisms protects national markets from substandard products. This policy is crucial for countries with porous enforcement systems, including Libya, Palestine, Lebanon, and Algeria.

5. Regional Database for Certified Appliances

A centralized registry of certified appliances, manufacturers, and testing results enhances transparency, supports verification, and facilitates informed decision-making across all eight countries

6. Appliance Scrapping and Replacement Incentives

Structured programs offering financial or product-based incentives encourage the replacement of outdated appliances with high-efficiency models. Egypt, Tunisia, Jordan, and Morocco are more advanced in program design and implementation.

7. Integration into Nationally Determined Contributions (NDCs)

Embedding appliance efficiency goals into updated climate action plans under the Paris Agreement enables governments to quantify climate benefits, attract international funding, and align sectoral policies with broader climate objectives.

8. Consumer Financing for Energy-Efficient Appliances

Financial instruments such as micro-loans, installment payments, and utility on-bill financing reduce the barrier of high upfront costs. These tools are particularly effective in Jordan, Lebanon, Egypt, and Tunisia, where banking infrastructure is more accessible.

9. Public Awareness and Behavior Change Campaigns

National and regional campaigns are essential to promote energy-labeled appliances, smart usage practices, and the long-term cost savings of efficient products. Libya, Lebanon, Palestine, and Algeria require enhanced public engagement to support policy impact.

10. Regional Testing and Certification Centers

Establishing and strengthening accredited laboratories in Egypt, Tunisia, and Morocco, and making them accessible to other countries under mutual recognition agreements, ensures consistent product compliance and supports harmonized enforcement across the region.

Algeria

Executive Summary

Algeria is at a critical juncture in its pursuit of sustainable energy policy. With rising residential electricity demand, persistent grid strain, and a growing market for household appliances, the introduction and enforcement of Minimum Energy Performance Standards (MEPS) and a nationwide labeling scheme present a clear opportunity. This policy paper outlines Algeria's progress in energy efficiency, identifies regulatory and implementation gaps, and proposes a roadmap for institutionalizing appliance standards in alignment with regional best practices and Algeria's climate goals.

By enhancing regulatory coherence, engaging consumers, and strengthening market compliance, Algeria can transition toward a cleaner, more energy-conscious economy—while protecting households from inefficient, low-quality products.

1. Introduction

Algeria, the largest country in Africa by land area, is a key energy producer and a regional powerhouse. While its economy has historically depended on hydrocarbons, the country is increasingly prioritizing energy efficiency to reduce domestic consumption, safeguard exports, and strengthen energy security.

With over 44 million residents and a growing middle class, electricity demand—particularly from household appliances such as **air conditioners, refrigerators, water heaters, and lighting**—has surged. Despite a well-developed energy grid, inefficiencies across appliance stock and a thriving market for low-efficiency imports have led to energy waste and economic strain.

A clear path forward lies in implementing appliance performance policies that are aligned with Algeria's **National Climate Plan**, its commitments under the Paris Agreement, and the regional frameworks of the Arab League and the African Union.

2. Methodology

This paper is based on:

- Review of Algerian laws and regulatory decrees relevant to product standards and import policy.
- Consultation with local institutions, including the Ministry of Energy Transition and Renewable Energies, the Ministry of Commerce, and Algerian Institute for Standardization (IANOR).

- Analysis of appliance market trends, informal sector penetration, and import/export flows.
- Insights from consumer behavior studies and awareness surveys conducted by regional platforms.
- Alignment with regional cooperation frameworks, including MeetMED and RCREEE.

3. Key Challenges

A. Limited Enforcement of Existing Standards

- Although appliance efficiency standards are recognized, enforcement remains fragmented across agencies with no unified compliance structure.

B. Informal and Parallel Markets

- Significant volumes of imported or second-hand appliances bypass formal regulatory procedures, undermining MEPS and inflating national energy use.

C. Low Consumer Awareness

- Many consumers prioritize upfront cost over long-term efficiency due to economic pressures.
- Energy labels are either inconsistently applied or poorly understood.

D. Weak Testing and Certification Capacity

- Limited accredited labs and a lack of mutual recognition protocols hinder quality control and pre-market verification.

4. Appliance Efficiency Landscape

- Algeria has adopted energy standards through **IANOR** for key appliances, but few are mandatory or effectively enforced.
- National development strategies, including the **2030 Renewable Energy and Energy Efficiency Strategy**, identify appliances as a core demand-side efficiency target.
- The absence of a **national energy labeling framework** significantly limits consumer influence on market demand.

Despite these gaps, Algeria has shown commitment to regionally harmonized efficiency benchmarks, expressed interest in circular economy policies, and has a strong institutional capacity to drive future reforms.

5. Policy Recommendations

1. Codify and Enforce National MEPS

- Develop and publish a **binding set of MEPS regulations** for key appliances, beginning with refrigerators, ACs, lighting, and washing machines.
- Tie MEPS enforcement to **import regulations**, **customs clearance procedures**, and **in-market sales approvals**.

2. Introduce a National Energy Labeling Scheme

- Launch a standardized, **color-coded labeling system** aligned with regional formats (A–G scale).
- Require visible label placement in retail settings, e-commerce platforms, and public procurement.

3. Strengthen Market Surveillance and Border Controls

- Empower customs and inspectorates to verify MEPS and labeling compliance.
- Develop inspection protocols and sampling systems in collaboration with trade authorities.

4. Build Testing and Certification Capacity

- Partner with **regional testing hubs** (e.g., Tunisia, Morocco, Egypt) under mutual recognition agreements while investing in local lab infrastructure.
- Certify products centrally and maintain digital records accessible to authorities and consumers.

5. Raise Public Awareness and Educate Consumers

- Design nationwide campaigns that highlight cost savings, environmental impact, and how to use appliance labels.
- Engage local influencers, retailers, and municipalities in promoting energy-conscious behavior.

6. Incentivize Efficient Appliance Uptake

- Offer low-interest consumer loans or subsidies for top-tier products.

- Encourage retailers to stock and promote efficient appliances through incentives or tax relief.

7. Integrate Appliance Efficiency into NDC Framework

- Quantify appliance-sector contributions to emissions reduction targets under Algeria's updated NDC.
- Leverage efficiency data to attract climate finance for implementation.

6. Expected Outcomes by 2030

- Full deployment of MEPS and labeling for at least five priority appliance types.
- 25% reduction in residential electricity consumption attributable to appliance efficiency.
- Substantial decline in informal and non-compliant appliance market share.
- Greater public participation and retailer alignment with national standards.
- Enhanced integration with regional policy harmonization platforms.

7. Conclusion

Algeria has the infrastructure, regulatory foundation, and political will to drive appliance energy efficiency reform. By prioritizing MEPS, labeling, and market transparency, the country can reduce energy demand, protect consumers, and position itself as a regional standard-bearer for sustainable energy policy. Now is the time to reinforce action with legal mandates, market incentives, and public engagement—setting Algeria firmly on a path toward climate-smart growth.

Egypt

Executive Summary

Egypt, the most populous nation in the Arab world, is facing a mounting challenge of rising energy demand—particularly in the residential sector, which is heavily driven by inefficient appliances. Appliance energy efficiency offers a powerful, cost-effective strategy to reduce electricity consumption, stabilize household energy costs, and support Egypt's broader sustainability and climate goals.

While Egypt has made strides in developing institutional frameworks and building technical capacity, greater policy enforcement, stakeholder coordination, and public awareness are required to accelerate progress. This paper outlines the current legal and regulatory environment governing sustainable appliances, identifies implementation gaps, and proposes a forward-looking roadmap to embed Minimum Energy Performance Standards (MEPS) and energy labeling across Egyptian markets

Introduction

Egypt, located in the northeastern corner of Africa, is one of the most historically rich countries in the world. It is bordered by the Mediterranean Sea to the north, the Red Sea to the east, and shares land borders with Libya to the west, Sudan to the south, and Israel and the Gaza Strip to the northeast. The country is predominantly deserted, with the life-giving Nile River running through it, providing water and fertile land. Egypt's capital, Cairo, is one of the largest cities in Africa and the Middle East and is a major political, cultural, and economic hub in the region.

Historically, Egypt is best known for its ancient civilization, which dates back thousands of years. It was home to the Pharaohs, who built monumental structures such as the Pyramids of Giza, the Sphinx, and the temples of Luxor and Karnak. These iconic landmarks have made Egypt a world-renowned destination for tourists and archaeologists. The country was a center of early mathematics, medicine, and architecture, and its ancient culture significantly influenced the wider Mediterranean region. The discovery of the Rosetta Stone in 1799 was key to deciphering Egyptian hieroglyphics, allowing historians to unlock many secrets of this ancient civilization.

Modern Egypt is a rapidly developing nation with a population of over 100 million people, making it the most populous country in the Arab world. The country's economy is diverse, with major sectors including agriculture, tourism, manufacturing, and the Suez Canal, a vital

international waterway that links the Mediterranean and Red Seas. Egypt has faced political and economic challenges, particularly since the 2011 revolution during the Arab Spring, but it continues to play a central role in Middle Eastern politics.

Egypt's culture is a blend of its ancient heritage and contemporary influences. While it is predominantly Muslim, with Islam as the state religion, the country also has a significant Christian minority, primarily Coptic Orthodox. Egyptian art, music, and cinema have a prominent place in the Arab world, and the country's cuisine reflects a fusion of Mediterranean, Middle Eastern, and African flavors. Despite facing modernization and globalization, Egypt remains deeply connected to its rich history and traditions.

1. Introduction

Egypt is a geographically vast and culturally rich country, home to over 104 million people. It plays a central role in regional politics and global trade through assets like the Suez Canal. However, energy supply remains a concern, particularly as electricity demand grows rapidly across urban centers and rural communities alike.

Appliances—particularly air conditioners, refrigerators, washing machines, and lighting—represent a significant portion of household electricity use. Addressing energy performance in this sector is critical for:

- Managing peak loads and supply pressures.
- Reducing public subsidies for electricity.
- Supporting commitments under Egypt's Nationally Determined Contributions (NDCs).

This paper focuses on how Egypt can strengthen its existing appliance efficiency frameworks and contribute to sustainable development at the national and regional level.

2. Methodology

This policy paper is grounded in:

- Review of Egypt's national energy efficiency strategies and appliance-related policies.
- Analysis of existing institutional and legal frameworks for MEPS and labeling.
- Consultations with regulatory bodies including the New and Renewable Energy Authority (NREA), the Egyptian Organization for Standardization (EOS), and the Ministry of Trade and Industry.
- Market insight into appliance imports, local manufacturing trends, and retail dynamics.
- Review of consumer awareness initiatives and potential incentive mechanisms.

3. Key Challenges

A. Regulatory Fragmentation

- Multiple agencies are involved in setting and enforcing standards, but coordination remains limited.
- MEPS are adopted through national standards but lack consistent legal mandates for enforcement across product categories.

B. Enforcement Gaps

- Import controls and in-market surveillance are inconsistently applied.
- Limited capacity at border inspection points allows low-efficiency appliances to enter Egyptian markets.

C. Consumer Market Barriers

- Price sensitivity drives purchases of lower-efficiency products.
- Many consumers remain unaware of the long-term cost savings from energy-efficient appliances.

D. Manufacturer Hesitancy

- Domestic manufacturers and importers may lack incentives or financing to redesign products in compliance with higher efficiency thresholds.
- Absence of direct links between efficiency regulations and industrial policy.

4. MEPS and Labeling Framework

4.1 Legal and Institutional Overview

Egypt's energy efficiency governance is supported by:

- EOS (Egyptian Organization for Standardization): Responsible for developing national product standards, including MEPS.
- Ministry of Electricity and Renewable Energy: Oversees demand-side management and national energy strategies.
- NREA: Plays a strategic coordination role for renewable and efficiency measures.
- GOEIC (General Organization for Export and Import Control): Conducts testing and certification of imported appliances.

Egypt has developed appliance-specific energy efficiency standards, yet their legal enforcement varies. For many products, MEPS exist in standard documentation but are not legally binding unless referenced in legislation or procurement rules.

4.2 Current Labeling Practice

- Energy labeling is in place for categories such as refrigerators, air conditioners, and washing machines.
- Labels follow a lettered efficiency scale (e.g., A–G), but market awareness and display consistency vary.
- Government programs have promoted efficient lighting and refrigerators, but similar efforts for other appliances are limited.

5. Policy Recommendations

1. Codify MEPS into Binding Regulations

- Convert technical standards into legally mandated MEPS through ministerial decree.
- Establish clear compliance timelines for manufacturers and importers, aligned with market readiness.

2. Expand and Standardize Labeling Program

- Update labels to meet international best practices, ensuring consistency across retailers.
- Mandate visible label placement in showrooms, packaging, and e-commerce platforms.

3. Strengthen Testing and Enforcement Infrastructure

- Increase the capacity of laboratories and border control inspectors for appliance testing.
- Develop digital tracking systems to monitor compliance and flag non-conforming shipments.

4. Create Financial and Industrial Incentives

- Offer subsidies, soft loans, or tax deductions for manufacturers that produce high-efficiency models.
- Use public procurement to create demand for energy-efficient products.

5. Launch Consumer Awareness and Financing Campaigns

- Design multimedia awareness campaigns to promote the benefits of energy-saving appliances.

- Partner with banks to offer micro-loans or utility on-bill financing to overcome affordability barriers.

6. Develop a National Appliance Registry

- Establish a transparent online portal for certified and approved appliances.
- Link to potential RCREEE regional appliance database for shared market access and traceability.

7. Integrate Appliance Policy into NDCs

- Quantify expected energy savings and GHG reductions from appliance efficiency improvements.
- Use efficiency targets as leverage to attract climate finance and donor support.

6. Expected Outcomes by 2030

- Full adoption of MEPS for five key household appliance categories.
- 20–30% reduction in electricity use from appliance stock turnover.
- Major increase in awareness and adoption of A-rated appliances in urban and peri-urban areas.
- Strengthened testing, certification, and compliance network tied to regional cooperation platforms.

7. Conclusion

Egypt holds substantial potential to become a regional leader in appliance energy efficiency. With an existing industrial base, policy infrastructure, and climate ambition, the country is well-positioned to transform its appliance market and reduce its energy footprint. By institutionalizing MEPS, expanding labeling, and empowering consumers, Egypt can advance a cleaner, more resilient, and economically inclusive energy future—benefiting citizens, manufacturers, and the region at large.

Jordan

Executive Summary

Jordan, a regional frontrunner in renewable energy investment and green policy integration, is increasingly turning its attention to the demand side of energy consumption. With household appliances accounting for a major share of electricity use, efficient appliance regulation offers a powerful tool to reduce grid stress, enhance economic resilience, and support Jordan's climate objectives.

This policy paper outlines the legal landscape and institutional actors involved in energy efficiency governance in Jordan. It identifies current gaps in Minimum Energy Performance Standards (MEPS) and labeling, and offers a forward-looking roadmap for implementation—grounded in the country's commitment to sustainability, regional harmonization, and economic inclusivity

1-Introduction

Jordan, located at the crossroads of the Middle East, is a country rich in history and cultural significance. Its strategic location has made it a meeting point for various civilizations throughout history, from the ancient Nabateans to the Romans, Byzantines, and Islamic caliphates. The capital, Amman, blends modern urban life with ancient ruins, reflecting Jordan's ability to embrace both tradition and modernity. Jordan is perhaps best known for Petra, the breathtaking rock-carved city that stands as a symbol of the country's historical depth and ingenuity. This UNESCO World Heritage site draws thousands of visitors each year, making it one of the most iconic archaeological wonders of the world.

Beyond its ancient landmarks, Jordan boasts diverse landscapes that range from the arid deserts of Wadi Rum to the lush valleys of the Jordan River. Wadi Rum, often called the "Valley of the Moon," is a stunning desertscape known for its red sand dunes, towering rock formations, and historical significance as the setting for the Arab Revolt during World War I. The country is also home to the Dead Sea, a natural wonder renowned for its extremely high salinity and therapeutic properties, attracting both tourists and health enthusiasts alike. Jordan's varied topography makes it a destination for adventure, culture, and wellness tourism.

In the modern era, Jordan is recognized as a key player in regional stability and diplomacy. Under the leadership of the Hashemite monarchy, it has maintained a reputation as a peaceful nation in an often-turbulent region. Despite facing challenges such as a lack of natural resources and the pressures of hosting large refugee populations from neighboring conflicts, Jordan has remained resilient, committed to social development and peacebuilding. Its role in promoting dialogue and cooperation between different cultures and nations has earned it

respect on the international stage, making it a vital hub for humanitarian and diplomatic efforts in the Middle East.

Jordan's population, now exceeding 11 million, lives in a resource-constrained environment with growing electricity demand and a strong reliance on imported fuels. To navigate these challenges, the government has adopted a progressive energy strategy that emphasizes **energy efficiency and consumer empowerment**.

Appliances, especially **refrigerators, air conditioners, televisions, and washing machines**—contribute significantly to residential energy consumption. Regulating their performance through MEPS and visible labeling will reduce energy waste, protect vulnerable households from high bills, and align national demand with renewable energy generation goals.

2. Methodology

This paper is based on:

- A review of Jordan's regulatory and institutional frameworks governing energy efficiency and appliance standards.
- Stakeholder consultations with the Ministry of Energy and Mineral Resources (MEMR), Jordan Standards and Metrology Organization (JSMO), and National Energy Research Center (NERC).
- Analysis of public finance tools, consumer credit access, and utility-sector involvement.
- Insights from regional initiatives such as RCREEE, MeetMED, and the Arab Energy Efficiency Platform.

3. Key Challenges

A. Policy Fragmentation

- Appliance-specific standards exist but lack consistent legal mandates across all categories.
- Enforcement is uneven due to overlap among government agencies and resource constraints.

B. Limited Consumer Financing

- While Jordan has high banking penetration, many households still struggle with upfront appliance costs.
- Lack of dedicated consumer finance tools for efficiency purchases slows market transformation.

C. Public Awareness Gap

- Consumers lack clear information on energy efficiency labeling and long-term cost savings.
- Labeling is underutilized in retail settings and not uniformly enforced.

D. Market Surveillance and Testing Constraints

- Limited lab capacity for appliance testing.
- Absence of a central registry for compliant appliances.

4. Appliance Standards and Energy Efficiency Landscape

- **JSMO** is responsible for developing and updating product standards, including energy performance criteria.
- **MEPS are in place** for select appliances but may not be consistently enforced or updated in line with international benchmarks.
- Jordan has begun aligning with regional labeling systems but has not yet adopted a **comprehensive and binding A–G labeling scheme**.
- Programs like the **National Energy Efficiency Action Plan (NEEAP)** and **updated NDCs** reference appliances as key demand-side targets, yet lack clear implementation pathways.

5. Policy Recommendations

1. Formalize National MEPS Across Priority Categories

- Develop mandatory MEPS for all major appliances: refrigerators, ACs, TVs, washing machines, and lighting.
- Link these standards directly to **import controls**, **procurement rules**, and **public awareness campaigns**.

2. Adopt a Unified Appliance Labeling System

- Implement a **color-coded, tiered labeling scheme** aligned with regional standards.
- Require label visibility at the point of sale, in advertisements, and on packaging.

3. Build a Market Compliance and Surveillance Framework

- Designate a **central coordination unit** (e.g., within MEMR or JSMO) to oversee MEPS and labeling compliance.

- Increase **lab capacity** through upgrades and partnerships with neighboring countries for mutual recognition testing.

4. Expand Appliance Financing Options

- Collaborate with banks and microfinance institutions to pilot:
- **On-bill repayment schemes** via utility providers.
- **Subsidized loans** for energy-efficient purchases.
- Engage retailers in **pay-as-you-save** or **installment-based sales models**.

5. Engage the Public in Awareness and Education

- Launch a national energy labeling campaign targeting youth, households, and retailers.
- Distribute simple guides on appliance efficiency and savings metrics.

6. Integrate Appliance Policies into NDCs

- Update Jordan's NDCs to include quantified benefits from efficient appliance adoption.
- Use NDC enhancements to attract international climate finance.

6. Expected Outcomes by 2030

- Mandatory MEPS and labeling applied to at least five appliance categories.
- Widespread consumer awareness of energy efficiency scores and long-term cost implications.
- Increase in market share of A-rated appliances by over 40%.
- Improved coordination among regulatory, customs, and enforcement bodies.

7. Conclusion

Jordan's leadership in renewable energy can be powerfully complemented by demand-side energy reforms. By codifying MEPS, expanding appliance labeling, and making sustainable appliances more accessible through finance and awareness, Jordan can reduce its energy footprint, enhance consumer welfare, and become a regional beacon of climate-smart governance.

Lebanon

Executive Summary

Lebanon, with a population of approximately 6 million, faces mounting energy consumption, electricity shortages, and environmental degradation. Household appliances are a significant contributor to these pressures. Enforcing Minimum Energy Performance Standards (MEPS) and implementing a robust appliance labeling scheme offer an immediate and cost-effective strategy to reduce energy demand, cut greenhouse gas emissions, and ease the financial burden on consumers.

This paper outlines Lebanon's current energy landscape, the legislative and institutional context, and a series of evidence-based policy recommendations to scale up energy efficiency in appliances. The proposed roadmap is aligned with Lebanon's NDCs, the National Cooling Plan, and international climate obligations under the Paris Agreement and Kigali Amendment.

1. Introduction

Lebanon's energy sector is defined by chronic shortages, high dependency on fossil fuels, and infrastructure challenges. Household appliances—especially those for cooling, heating, and refrigeration—constitute a significant share of electricity use. In parallel, Lebanon generates substantial amounts of electronic waste, most of which is landfilled, leading to environmental and health risks.

Transitioning to sustainable appliances will contribute to:

- Reduced national electricity consumption.
- Enhanced energy security.
- Lower greenhouse gas emissions.
- Financial relief for households through reduced utility bills.

2. Current Situation

Key features of Lebanon's energy and appliance landscape:

- Heavy reliance on diesel and fuel oil for power generation.
- High household electricity consumption due to aging, inefficient appliances.
- Widespread use of off-grid diesel generators due to unreliable supply.
- Low recycling rates for electronic waste (precise figures pending).
- Absence of a functioning nationwide appliance monitoring and verification system.

3. Methodology

This paper is grounded in:

- Energy consumption data analysis across major appliance categories.
- Market investigation of appliance imports, distribution, and consumer trends.
- Review of legislation, technical standards, and enforcement mechanisms.

- Stakeholder engagement across public institutions and industry actors.
- Evaluation of scrapping programs and awareness campaigns.
- Willingness-to-pay survey with 630 Lebanese respondents.

4. Key Challenges

A. Communication and Transparency

- Technical constraints during consultations due to unreliable electricity and connectivity.
- Inconsistent or incomplete stakeholder data.
- Confidentiality concerns limiting access to key information.

B. Awareness and Incentive Gaps

- Consumers and vendors unaware of life cycle cost savings.
- Lack of market demand for efficient products due to price sensitivity.
- Manufacturers hesitant to invest in improved product standards.

C. Economic Pressures

- Ongoing financial crisis reduces household purchasing power.
- Preference for low-cost, low-efficiency appliances dominates retail trends.

D. Regulatory and Enforcement Deficits

- MEPS largely voluntary, with enforcement focused on only two categories (CFLs and solar water heaters).
- No centralized appliance registry or compliance tracking.
- Limited testing and market surveillance infrastructure.

5. MEPS and Labeling Landscape

Legislation & Standards

- Law No. 72 (2004) and Decree No. 12 (2022) mandate energy labeling for certain products.
- Order No. 2145 (2004) and ministerial decrees define labeling rules for refrigerators, air conditioners, washing machines, and ovens.

Labeling Advances

- QR codes introduced to improve label accessibility and market transparency.
- Restrictions now prohibit marketing low-efficiency refrigerators, ACs, and washing machines above certain energy classes.

Consumer Insight

- Survey data highlights strong willingness to pay premiums for energy-labeled products:
  - +34% for lightbulbs
  - +9% for air conditioners
  - +5% for washing machines

6. Policy Recommendations

1. Adopt and Enforce MEPS for Priority Appliances

- Formalize mandatory MEPS for refrigerators, air conditioners, lighting, washing machines, and TVs.
- Implement a phased timeline: voluntary → mandatory → market exclusion of non-compliant products.

2. Launch National Labeling Program

- Introduce clear, color-coded labeling based on international best practices (e.g. A–G scale).
- Make compliance with labeling a prerequisite for customs clearance and local sales.

3. Establish Market Surveillance and Enforcement

- Empower customs and inspection bodies to verify MEPS and labeling compliance.
- Enforce penalties for counterfeit or non-compliant appliances.

4. Introduce Financial Incentives

- Provide subsidies, rebates, or green financing (e.g. micro-loans, on-bill financing) to facilitate adoption.
- Expand appliance scrapping and replacement programs with international donor support.

5. Strengthen E-Waste Management

- Prohibit illegal e-waste disposal; establish take-back and recycling schemes.
- Encourage appliance trade-in programs and recycling incentives for retailers.

6. Launch Public Awareness Campaigns

- Promote labeling awareness and behavioral change through targeted national media and grassroots campaigns.
- Include energy efficiency themes in school curricula and municipal outreach.

7. Support R&D and Technical Capacity

- Partner with academic and technical institutions to localize innovation in appliance efficiency.
- Offer manufacturer training on eco-design and lifecycle evaluation.

8. Integrate Appliance Goals in NDCs

- Quantify emissions reductions from appliance policies.
- Embed sectoral targets into Lebanon's updated climate pledges to attract climate finance.

7. Expected Outcomes

By 2030, successful MEPS and labeling implementation could lead to:

- 150–200 GWh in annual electricity savings.
- Significant GHG reductions, aligned with Lebanon's NDC goals.

- Lower household energy bills by 15–20% for key appliances.
- Improved market competitiveness for local retailers offering efficient products.

8. Conclusion

Lebanon can accelerate its transition toward a more energy-resilient and environmentally conscious society by strengthening its appliance efficiency frameworks. The tools and appetite for change exist. What is needed now is cohesive policy execution, stakeholder alignment, and public engagement. Through a combination of regulatory reform, financial support, and behavior change strategies, Lebanon can pave the way for a greener and more equitable energy future.

Libya

Executive Summary

Libya stands at a critical inflection point: as it seeks to rebuild and stabilize its energy infrastructure, a well-designed appliance energy efficiency policy can simultaneously reduce electricity demand, cut household costs, and foster market discipline. Introducing Minimum Energy Performance Standards (MEPS) and an enforceable labeling framework will lay the foundation for sustainable consumption patterns and regulatory control.

This paper outlines Libya's current policy landscape, identifies key institutional and market challenges, and proposes a strategic roadmap to establish appliance standards and labeling mechanisms aligned with national and regional energy goals. Despite current constraints, early policy development can position Libya to capitalize on future energy savings and regional harmonization initiatives.

1. Introduction

Libya, endowed with substantial energy resources, continues to experience volatility in electricity supply and market systems due to years of institutional disruption. Amid these challenges, consumer appliances—particularly **air conditioners, refrigerators, televisions, and electric water heaters**—place considerable stress on the national grid, especially during peak summer months.

Establishing a regulatory framework for energy-efficient appliances is both timely and necessary. It offers Libya a cost-effective and rapidly scalable solution to mitigate energy waste, prevent market dumping of low-efficiency products, and build consumer trust in product quality.

2. Methodology

This policy paper draws upon:

- Review of existing Libyan trade laws and energy-related policy documents.
- Consultations with stakeholders from the Ministry of Electricity and Renewable Energy, the Environment General Authority, and local retail/importer networks.
- Comparative analysis of MEPS and labeling programs across North Africa and the Middle East.
- Insights from regional platforms including RCREEE and the Arab Energy Efficiency Platform.

- Consideration of institutional capacity and ongoing recovery efforts across key governance sectors.

3. Key Challenges

A. Absence of Legal Framework for Appliance Standards

- There are no active MEPS or appliance efficiency laws in place.
- Imports dominate the appliance market, with limited oversight on product energy performance.

B. Market Vulnerability to Low-Efficiency Imports

- Inexpensive, low-quality, and second-hand appliances frequently enter the Libyan market due to lack of border enforcement and consumer awareness.

C. Institutional Capacity Limitations

- Testing labs for performance verification are minimal or inactive.
- No designated regulatory body currently oversees appliance efficiency.

D. Economic Constraints and Consumer Preferences

- Consumers prioritize low upfront costs due to income uncertainty.
- Lack of awareness about energy savings contributes to inefficient purchasing decisions.

4. Appliance Efficiency Landscape

- **Air conditioners and refrigerators** are among the most energy-intensive appliances in use.
- Libya relies heavily on electricity subsidies, which obscure price signals that could otherwise steer consumers toward efficient choices.
- With a fragmented institutional structure, current policies focus on energy supply, with minimal attention to demand-side management—particularly at the household level.

Nonetheless, Libya's proximity and trade ties with regional neighbors offer strong potential for alignment and knowledge transfer.

5. Policy Recommendations

1. Establish Foundational MEPS Legislation

- Introduce a national decree defining MEPS for major residential appliances, starting with air conditioners, refrigerators, and lighting.
- Embed MEPS thresholds into customs clearance regulations and municipal trade permits.

2. Launch a National Appliance Labeling Program

- Design a **mandatory labeling system** using a simple, color-coded A–G scale.
- Require label placement on all imported appliances at point of sale and include energy performance disclosures in retail advertising.

3. Build Market Surveillance and Enforcement Infrastructure

- Create an appliance compliance unit within the Ministry of Economy or Ministry of Environment.
- Train customs officials and inspectors to verify product labeling and performance documentation.

4. Leverage Regional Technical Support

- Establish partnerships with **regional labs** (e.g., Tunisia, Egypt) for appliance testing and certification under mutual recognition agreements.
- Utilize RCREEE and MeetMED platforms for technical assistance and regulatory modeling.

5. Run National Awareness Campaigns

- Engage civil society and local media in highlighting the benefits of efficient appliances.
- Promote life cycle cost savings, particularly among vulnerable and rural populations.

6. Prepare for a Long-Term Market Transformation

- Develop a roadmap linking future energy pricing reforms with sustainable appliance policies.
- Encourage retailers and suppliers to adapt stock procurement toward efficient technologies.

6. Expected Outcomes by 2030

- National MEPS and labeling system adopted for at least five appliance categories.
- Reduction in residential electricity demand by 15–20% through improved appliance stock.

- Decrease in imports of low-efficiency and second-hand appliances.
- Strengthened public trust in product quality and government oversight.
- Integration of Libya into regional regulatory and testing frameworks.

7. Conclusion

Despite current challenges, Libya's energy future depends as much on **efficient consumption** as on stable supply. Introducing MEPS and labeling is a practical and powerful step that can deliver near-term benefits and long-term transformation. Through focused reforms, regional collaboration, and public engagement, Libya can protect its citizens from energy waste, strengthen market discipline, and build a more resilient and sustainable future.

Morocco

Executive Summary

As a regional pioneer in renewable energy and climate leadership, Morocco stands uniquely positioned to lead appliance energy efficiency reform. While large-scale infrastructure projects have gained international acclaim, transforming household energy consumption through stricter appliance standards is the next essential frontier.

This policy paper explores Morocco's current legal and institutional framework for Minimum Energy Performance Standards (MEPS) and labeling, identifies market and enforcement challenges, and recommends a roadmap toward appliance efficiency transformation. By expanding its labeling scheme, strengthening market surveillance, and leveraging its regional testing capacity, Morocco can maximize energy savings, reduce emissions, and boost local manufacturing innovation.

1. Introduction

Morocco has gained global recognition for its climate leadership—hosting COP22 and launching mega-renewable projects like Noor Ouarzazate. The country's energy policy emphasizes security, sustainability, and affordability. However, residential energy consumption—particularly from inefficient appliances—remains a growing burden.

Air conditioners, refrigerators, lighting, and televisions account for a significant portion of household electricity demand. Reforming appliance efficiency policy will:

Relieve pressure on the national grid.

Support Morocco's Paris Agreement targets.

Improve household energy affordability.

This paper frames Morocco's appliance policy evolution as a strategic pillar of its green economic development.

2. Methodology

The paper is informed by:

A review of Morocco's energy efficiency laws, including national decrees and technical standards.

Analysis of institutional roles (AMEE, Ministry of Energy Transition, IMANOR).

Regional coordination insights through the Arab Energy Efficiency Platform and RCREEE.

Interviews with retailers, industry associations, and NGOs.

Evaluation of laboratory capacity, public awareness, and local manufacturing potential.

3. Key Challenges

A. Enforcement and Market Monitoring

While labeling laws exist, enforcement mechanisms for import control, retail display, and post-market surveillance require expansion.

B. Partial Appliance Coverage

Labeling standards are more advanced for lighting and refrigerators, but limited for other categories such as air conditioners and televisions.

C. Consumer Engagement

Labels are underutilized in rural and informal markets.

Many consumers lack clear understanding of lifetime cost savings.

D. Industrial Readiness

Domestic appliance producers need clearer incentives and technical guidance to comply with evolving MEPS.

4. Appliance Efficiency Framework

4.1 Legal Instruments

Law No. 13-09 on renewable energy and energy efficiency mandates energy performance improvements across sectors.

National Energy Efficiency Strategy targets 20% energy savings by 2030, including the residential sector.

Technical standards for energy consumption are developed by IMANOR, enforced by the Ministry of Energy Transition and Sustainable Development.

4.2 Labeling System

Morocco has adopted mandatory energy labeling for lighting, refrigerators, and washing machines.

Labels follow a color-coded A–G scale, though awareness and compliance vary by region and product.

The Moroccan Agency for Energy Efficiency (AMEE) leads public awareness and policy design for efficiency.

5. Policy Recommendations

1. Expand and Enforce MEPS

Enact a legal decree codifying MEPS for refrigerators, ACs, lighting, TVs, and washing machines.

Mandate compliance through customs enforcement and retail licensing.

2. Scale National Labeling Framework

Standardize energy labels across all major appliances using A–G scale and digital QR code integration.

Mandate prominent label display in showrooms and online marketplaces.

3. Strengthen Testing and Regional Certification

Open Moroccan accredited labs to regional partners (Libya, Lebanon, Algeria, Palestine) under mutual recognition frameworks.

Use Morocco's lab network to validate imported products entering North African markets.

4. Support Local Industry

Offer R&D grants, tax incentives, or fast-track certification for manufacturers of efficient appliances.

Promote domestic "Eco-Appliance" branding linked to MEPS compliance.

5. Mobilize Consumer Awareness and Financing

Launch multimedia campaigns highlighting the financial and environmental benefits of efficient appliances.

Expand green consumer finance (e.g., subsidized loans, utility on-bill payments) in collaboration with commercial banks.

6. Embed Appliance Policies into Climate Strategy

Integrate appliance sector targets into Morocco's updated NDC and National Energy Efficiency Action Plan.

Quantify emissions avoided through MEPS and labeling to attract green finance.

6. Expected Outcomes by 2030

Full MEPS and labeling coverage across six major appliance categories.

20–25% reduction in household appliance-related electricity demand.

Recognition of Morocco as a regional testing hub and efficiency model.

Strengthened alignment between national energy policy and international climate goals.

7. Conclusion

Morocco's appliance efficiency reform offers a high-impact opportunity to deepen its green leadership. By advancing MEPS, labeling, and market oversight, the country can unlock substantial energy savings, stimulate domestic innovation, and support a just, inclusive energy transition. This vision aligns with Morocco's climate commitments and its role as a regional convener on sustainable development.

Palestine

Executive Summary

Palestine faces pressing challenges in energy access, affordability, and efficiency. Amid high import dependency, constrained supply, and limited regulatory reach, household appliances contribute significantly to energy demand and financial strain. Introducing **Minimum Energy Performance Standards (MEPS)** and a **mandatory labeling scheme** represents a pivotal opportunity to increase consumer protection, reduce grid pressure, and align appliance imports with long-term sustainability goals.

This paper outlines a clear roadmap to launch Palestine's appliance energy efficiency framework from the ground up—focusing on legal foundations, capacity building, consumer engagement, and regional partnerships. The recommendations aim to position Palestine for both near-term energy savings and integration into harmonized regional policy frameworks.

1. Introduction

Palestine operates under complex political, economic, and infrastructural constraints. Electricity imports account for over 98% of supply, while grid limitations lead to chronic shortfalls—especially in densely populated or underserved areas. In this context, **inefficient appliances amplify supply deficits and inflate household energy costs**.

Improving appliance performance through clear regulations and consumer-facing labeling is a critical step toward:

- **Reducing non-technical losses** in the residential sector.
- Supporting national energy security goals.
- Building public awareness of sustainable consumption.

2. Methodology

This paper is based on:

- Analysis of current legal, institutional, and energy policy documents in Palestine.
- Consultations with the Palestinian Energy and Natural Resources Authority (PENRA), Palestinian Standards Institution (PSI), and local distribution companies.
- Field insight into appliance retail trends, consumer behavior, and informal market penetration.
- Comparative inputs from regional partners in the MeetMED and RCREEE communities.

3. Key Challenges

A. Absence of Appliance Efficiency Legislation

- No formal MEPS or energy labeling systems are currently in place.
- Most appliances are imported without performance screening or customs documentation on energy use.

B. Market Flooded by Inefficient and Second-Hand Products

- Low-income consumers favor price over efficiency.
- Lack of regulation allows outdated and low-performing devices to dominate retail spaces.

C. Institutional Capacity Gaps

- PSI lacks resources and mandates to implement appliance performance testing or labeling.
- No accredited labs or verification system exists in-country.

D. Limited Consumer Awareness

- Public understanding of appliance energy usage and long-term cost implications remains low.
- Marketing and product labeling rarely highlight efficiency or environmental features.

4. Appliance Landscape and Energy Use

- Refrigerators, washing machines, air conditioners, and electric heaters are the most energy-intensive household appliances.
- Electricity costs remain high relative to income in many areas, intensifying the value of efficiency.
- Some pilot programs in energy efficiency have shown promise, but scaling remains limited without enabling regulation.

5. Policy Recommendations

1. Enact Foundational MEPS and Labeling Laws

- Develop national MEPS for refrigerators, ACs, washing machines, lighting, and TVs.
- Launch a mandatory labeling program using a clear **A–G color-coded scale**, aligned with regional norms.

2. Establish Institutional Roles and Technical Capacity

- Assign appliance efficiency coordination to PENRA and PSI through executive decree.
- Partner with regional labs (e.g., Egypt, Tunisia) for product testing until local facilities are developed.

3. Restrict Imports of Inefficient and Non-Compliant Appliances

- Collaborate with customs to block sales of appliances that do not meet MEPS or lack approved labels.
- Create a compliance checklist integrated into trade documentation.

4. Develop Awareness and Retail Engagement Campaigns

- Launch multimedia outreach to educate consumers on energy savings, label interpretation, and cost-effective appliance use.
- Train retailers on compliance and create recognition for energy-conscious brands.

5. Create a National Appliance Registry

- Digitally track certified appliances, energy classes, and testing results in a public database.
- Connect this database with RCREEE's regional appliance registry over time.

6. Integrate Efficiency into Climate and Development Plans

- Include appliance policy targets in Palestine's NDC updates.
- Leverage these actions to attract international development and climate finance.

6. Expected Outcomes by 2030

- MEPS and labeling adopted for all major appliance types.
- Sharp reduction in inefficient appliance sales, especially second-hand imports.
- Increased use of Class A and B appliances among households.
- Institutional capacity built for enforcement, monitoring, and public engagement.
- Regional alignment with Arab and Mediterranean appliance policy frameworks.

7. Conclusion

Palestine has an opportunity to lay the groundwork for transformative energy efficiency reform. Through foundational policies, regional partnerships, and strategic consumer engagement, MEPS and appliance labeling can unlock lasting economic, environmental, and energy benefits. The time to act is now—and with measured steps, Palestine can ensure that its households and institutions access appliances that are not just affordable, but also efficient, sustainable, and future-ready.

Tunisia

Executive Summary

Tunisia is making significant strides in institutionalizing energy efficiency within its residential appliance sector. With progressive reforms, including mandatory energy labeling and updated regulatory instruments, the country demonstrates clear ambition to reduce household energy consumption, enhance product transparency, and support climate mitigation targets.

This paper analyzes Tunisia's legal and policy framework for sustainable appliances, highlights current achievements and gaps, and offers actionable recommendations to strengthen the implementation of Minimum Energy Performance Standards (MEPS) and labeling schemes. These reforms are essential to align Tunisia's appliance market with international best practices, reduce national electricity demand, and empower consumers to make informed purchasing decisions.

1-Introduction

Tunisia, located on the Mediterranean coast of North Africa, is widely recognized for its leadership in political reform, civil liberties, and environmental policy. With a population of approximately 11.7 million and a Mediterranean climate, the country experiences rising seasonal energy demand—especially for air conditioning and refrigeration.

In response, appliance energy efficiency has become a national priority. Tunisia's current framework for labeling and performance standards reflects its commitment to sustainability and climate resilience. Enhancing these systems offers a clear pathway to energy security, economic savings, and regional harmonization.

2. Methodology

This policy paper is based on:

- A review of Tunisia's national legislation and ministerial decrees related to appliance standards and labeling.
- Analysis of current enforcement and compliance procedures.
- Evaluation of public awareness, retail practices, and consumer engagement around energy-labeled products.
- Dialogue with national stakeholders including the Ministry of Industry, ANME, and INNORPI.
- Benchmarking of regional MEPS harmonization opportunities.

3. Key Challenges

A. Legal Clarity and Implementation

- Although MEPS are implied through market restrictions on inefficient products, Tunisia lacks a unified legislative document explicitly codifying MEPS thresholds for all appliance categories.

B. Testing and Institutional Capacity

- Enforcement of labeling and performance bans depends on laboratory capacity and interagency coordination, which are still developing.
- Some delays exist between policy formulation and on-the-ground implementation.

C. Consumer Engagement

- Despite improved labeling, awareness of energy efficiency among the general public remains limited.
- Retail practices vary in compliance with display and information-sharing requirements.

D. Market Incentives

- Local manufacturers need clearer incentives to innovate toward higher efficiency classes and adapt to evolving regional benchmarks.

4. MEPS and Labeling Framework

4.1 Legal and Regulatory Overview

- **Law No. 72 of 2004** (amended by **Decree No. 12 of 2022**): Mandates energy labeling for electrical appliances.
- **Order No. 2145 of 2004**: Lists household appliances subject to energy labeling.
- **Ministerial Decisions (2008 onward)**: Govern technical standards, labeling formats, and sales conditions for:
    - Refrigerators & Freezers
    - Air Conditioners
    - Washing Machines
    - Electric Ovens

4.2 Labeling Highlights

- Appliances must display **energy class labels (e.g., Classes 1 to 6)**, with bans on models falling below minimum thresholds (e.g., above Class 4 or 5).
- QR codes are increasingly used to provide **transparent product performance data**.
- Labels must be visible at point of sale, both in physical and digital retail spaces.

5. Policy Recommendations

1. Codify and Enforce MEPS

- Introduce a dedicated national decree defining **mandatory MEPS thresholds** across key appliance categories.
- Establish an update mechanism synchronized with international energy performance trends and regional harmonization efforts.

2. Strengthen Market Compliance Systems

- Develop **inspection protocols** for customs and in-market enforcement.
- Expand **testing lab capacity** through partnerships with universities or regional centers (e.g., Morocco, Egypt).

3. Scale Consumer Awareness Campaigns

- Launch behavior change initiatives emphasizing **long-term electricity savings**, **cost reduction**, and **climate co-benefits** of efficient appliances.
- Leverage Tunisia's active civil society and municipal networks to reach underserved communities.

4. Incentivize Sustainable Appliance Innovation

- Offer **tax incentives, fast-track certification, or public procurement preferences** to manufacturers and retailers offering high-efficiency products.
- Pilot a **"Made in Tunisia Green"** label linked to efficiency achievements.

5. Develop a National Appliance Database

- Establish an open-access online platform listing certified models, energy classes, and testing compliance to support retailers, regulators, and consumers.
- Integrate this tool with a future **regional appliance registry**.

6. Embed Appliance Goals into Climate Policy

- Quantify the appliance sector's contribution to Tunisia's NDC targets under the Paris Agreement.
- Use performance data and policy commitments to mobilize international climate finance.

6. Expected Outcomes by 2030

- 100% of regulated appliances are covered by **mandatory MEPS and labeling**.
- 25% improvement in national **residential electricity efficiency**.
- Significant increase in **consumer awareness and purchasing of high-efficiency models**.
- Enhanced regulatory alignment with **MENA regional MEPS harmonization frameworks**.

7. Conclusion

Tunisia is well-positioned to consolidate its leadership in sustainable appliance policy. With clear legal foundations, institutional momentum, and recent labeling advances, the next phase lies in deepening enforcement, raising public engagement, and embedding appliance efficiency firmly into Tunisia's economic and climate agenda. A stronger MEPS framework will not only reduce energy costs but also support innovation and green manufacturing in the domestic market.

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Regional Center for Renewable Energy and Energy Efficiency

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