



Energy Efficiency

in the Middle East - Missing Links





What is the **HVACR** Industry?

Food Cold
Chain



Indoor
Climate
(HVAC)



Process
Cooling



Industrial
Ventilation



Comfort



**Health
care**



**Why is it
so critical?**

IT-Cooling



**Manufacturing
process**



Food safety



**Up to 80 % of
building energy
consumption**



**More than 50%
of national energy
consumption**



**Energy Efficiency
is a matter of
National Security**



**Significant
advancements
in technology**





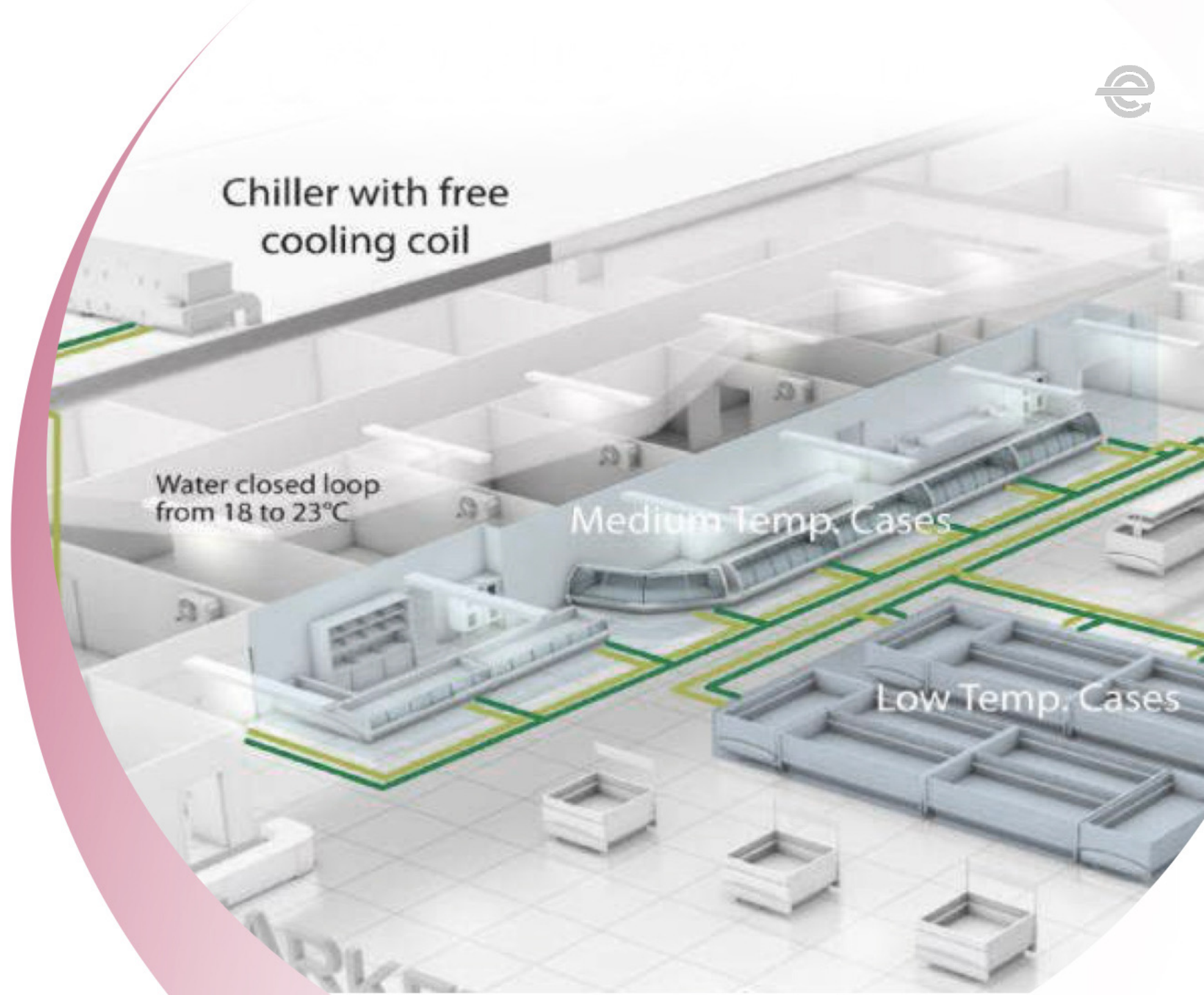
IT Cooling

- Introduction of air management infrastructure
- ASHRAE TC 9.9 guidance
- Increased potential of free cooling

Evolving data Centre Air temperatures



**CO₂
systems
are now
feasible
also in
hot and
humid
climates**





VARI – ABILITY

Cooling per seasonal requirements thanks to Inverters, VSD, VFD, VRF

State of the art BMS systems and smart controls



Regulatory frameworks are adjusting

- **SEER regulations**
- **MEPS**
- **Upcoming regulation
in ventilation
segment**



The problem is, today's consumers are not buying the most efficient ACs

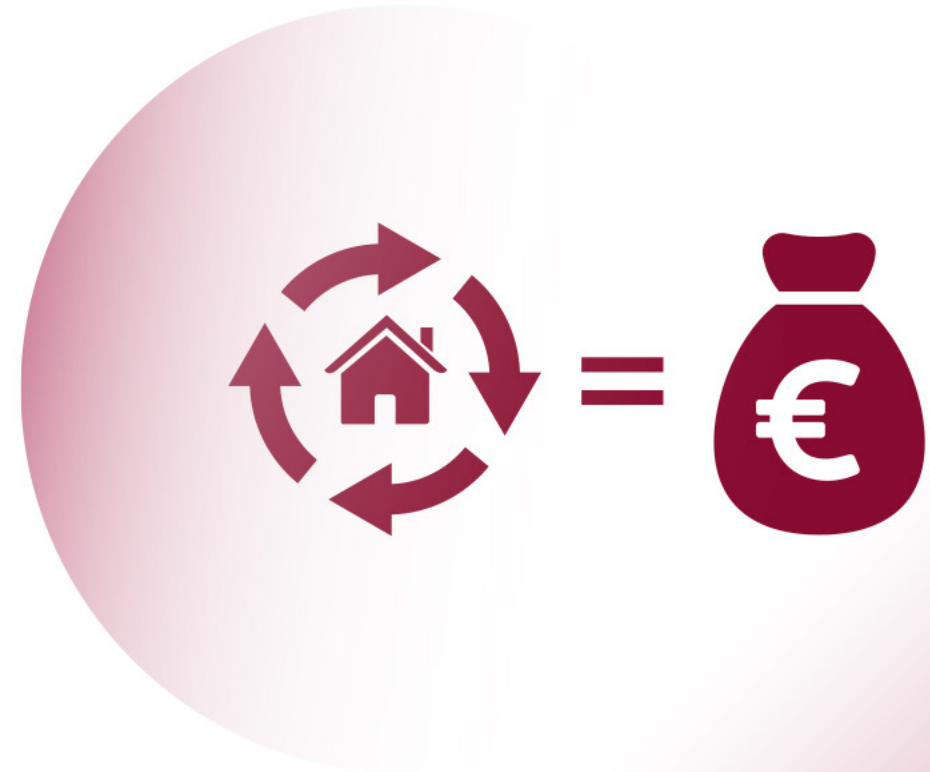
The average efficiency of air conditioners sold today is less than half of what is typically available on the shelves - and one third of best available technology.



**The technology is there,
why isnt it used ?**

The Price Paradoxon

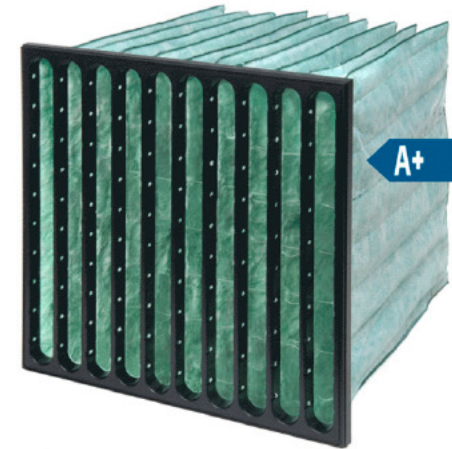
- CAPEX vs. OPEX
- Total Cost of Ownership



Cheap is always **more expensive!**

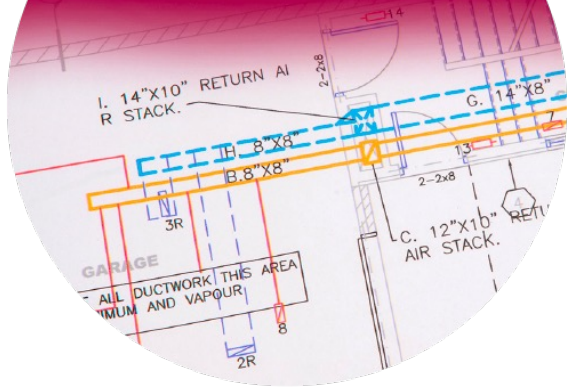


- ePM2.5 50%
- Energy Class E
- 1900 kWh



- ePM1 60%
- Energy Class A+
- 838 kWh

Design
+40%



Installation
+15%

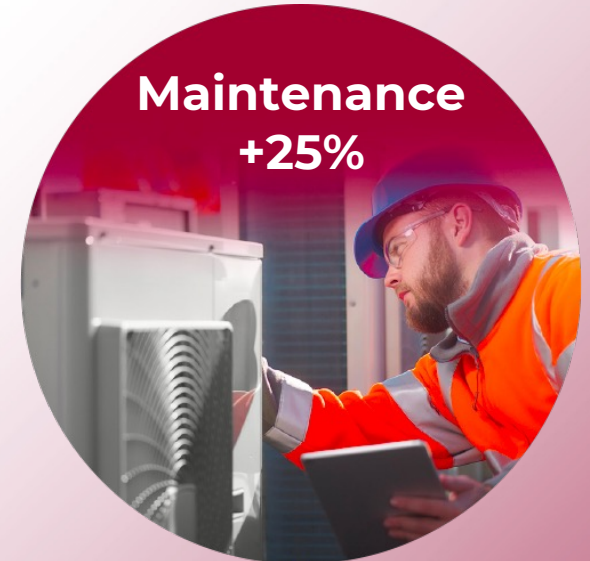


How to improve?

Operation
+20%



Maintenance
+25%





**Invest
in education
and training**

Coming soon





Mandatory building inspection

POSITION PAPER



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Position Paper on Inspection and Surveillance Activities Socio-Economic benefits of coordinated, systematic building and facility inspection and market surveillance activities

In a nutshell

The introduction of systematic building inspections, focusing on the operational safety, the adherence to building regulations, and the proper maintenance of the HVACR systems on existing building stock in the country, the inspections of cold storage and transport facilities, as well as general market surveillance activities to reduce counterfeit and potentially hazardous refrigerants and adherence of HVACR products to federal law bears numerous valuable benefits for socio-economic development, energy conservation and health and well-being of the population.

Background

The HVACR (heating, ventilation, air conditioning, refrigeration) industry, supplying all the necessary equipment for space and process cooling, air distribution and filtration, as well as cold storage and refrigeration is of vital importance to the country's development and the well-being of its inhabitants. This importance reflects in several ways:

- An estimated 70% average of a building's energy consumption is attributed to its cooling and ventilation requirements.
- Indoor Air Quality has a significant effect on health and well-being of the population, given that people spend 90% of the time indoors.
- Cooling and refrigeration equipment are crucial in the food supply chain to ensure the provision of uncontaminated, fresh, and non-infectious food to consumers.
- HVACR equipment play an essential role in fire safety, due to its capabilities to suppress smoke development through proper ventilation, but also constitute a fire risk when not handled in a proper manner.
- Refrigerants needed to provide the cooling function of any equipment pose environmental, health and fire safety risks.
- In water cooled applications, the risk of legionella is widespread and needs to be addressed properly.
- The operational safety of such systems depends heavily on product quality and safety.

These points highlight why special attention should be given to the production, installation, operation and maintenance of any HVACR equipment in the region. In the following, each point is further elaborated further by showing the potential hazards, waste, and energy efficiency.

Energy Efficiency



Building Inspection

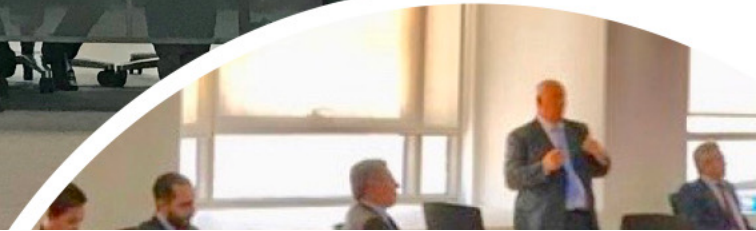
- Is the HVACR system working and maintained correctly?
- Is fresh air supply ensured?
- Are air filters replaced regularly?
- Which refrigerants are in use?
- Bacteriological sampling of air ducts, water containers, etc.
- Assessment of maintenance and operation guidelines
- Assessment of documentation procedures
- Assessment of the operational safety environment
- Significant reduction of energy consumption
- Providing better Indoor Air Quality to the population
- Reducing respiratory illnesses, easing allergies, and other serious diseases
- Reducing fire and safety related hazards
- Supporting education and training of people
- Creating significant amounts of jobs
- Strengthening the economy



Regulatory development

- Regulatory improvements
- Building codes
- Mandate qualification for certain operations
- **Qualify!**
- “HVAC Ministry“
- Regional cooperation
- Harmonisation

 **EUROVENT**
MIDDLE EAST



Thank you!

