





**ندوة خبراء
السلامة الكهربائية**
Electrical Safety Experts Symposium



certiel

Electrical Safety and Energy Efficiency

By: Mr. José Gomes
From: Fisuel, CERTIEL (association for certification of electrical installations), Portugal

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ENERGY EFFICIENCY

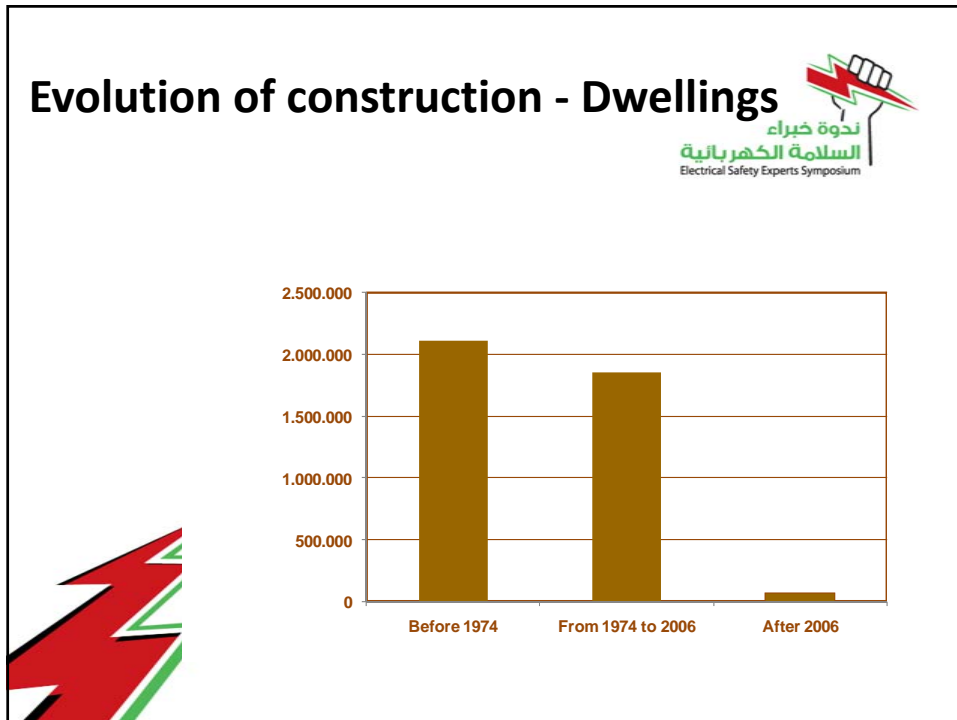
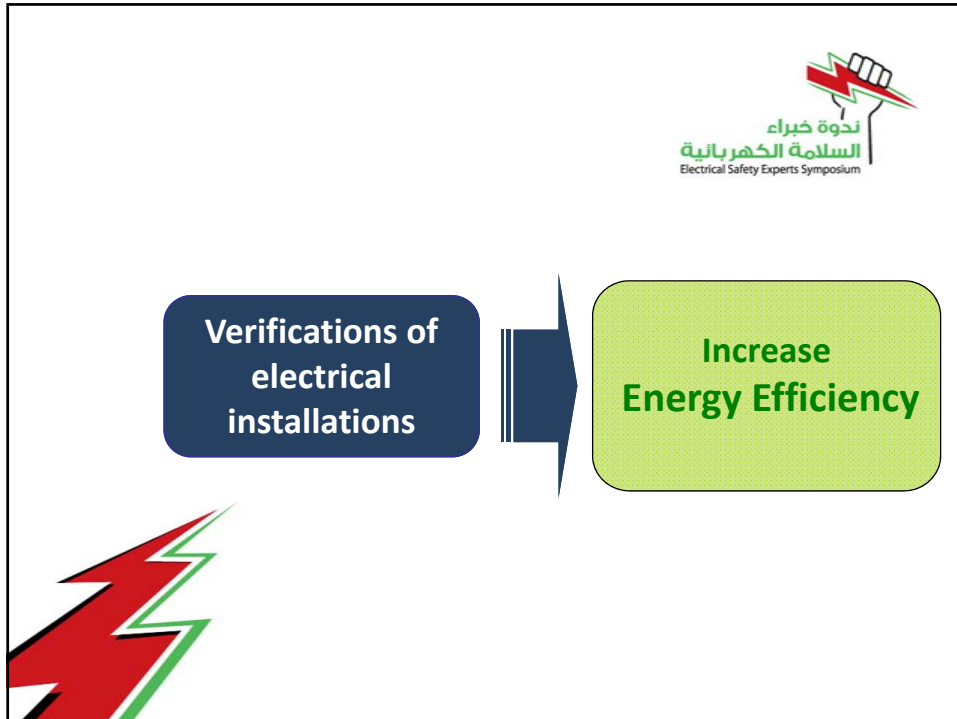
ELECTRICAL VERIFICATIONS

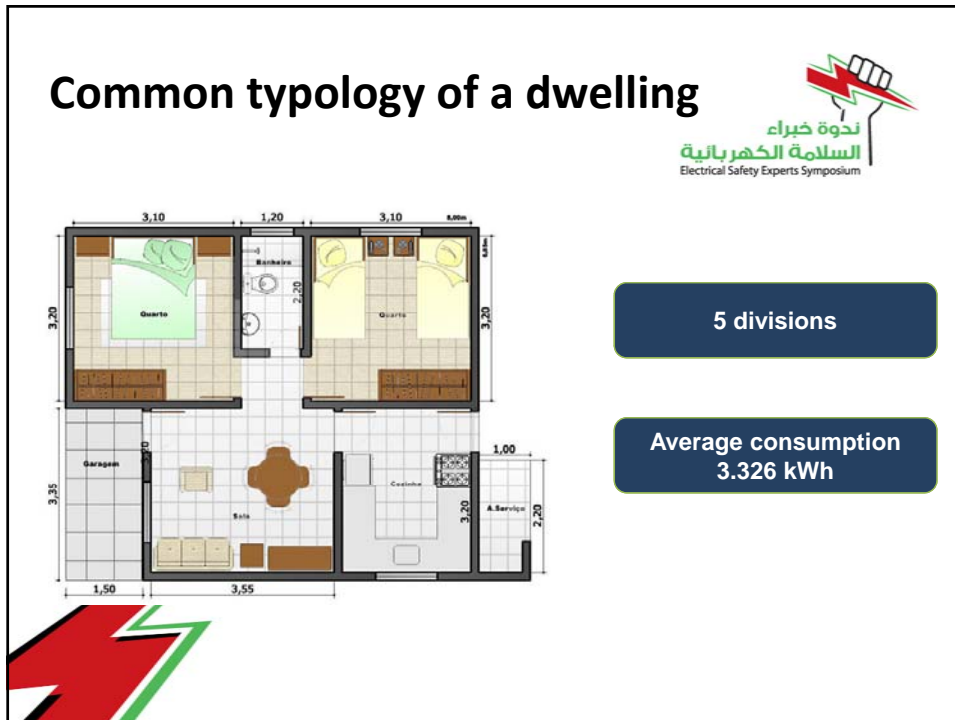
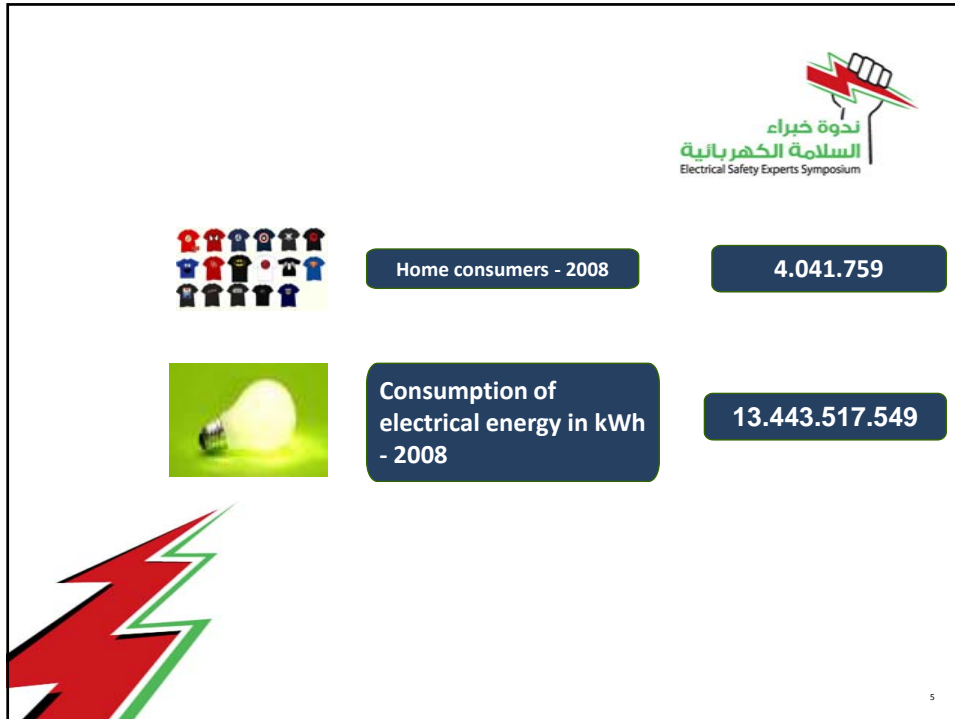


ELECTRICAL VERIFICATIONS

ENERGY EFFICIENCY







Common typology of a dwelling with 5 divisions



Typology / Average Division Area / Electrical Appliances

5 divisions dwelling with more than 4m² each – total 94m²

Function	Area (m ²)	Socket	Lighting	Climatization	Dish Washer Washing Machine	Domestic Hot Water Sys.	Oven
Kitchen	12	3	2		1	1	1
Living room	25	4	2	1			
Sleeping Room 1	12	3	1	1			
Sleeping Room 2	12	3	1	1			
Bathroom	6	1	2	1			
Hall	5	1	1				
Garage	12	2	1				
Balcony	3	1	1				
Utilization Points	87	18	11	4	1	1	1

Common typology of a dwelling with 5 divisions



Power consumption in accordance with the use

Use	Average Consumption (%)	Annual average consumption (kWh)
Refrigeration	32 %	1064,4
Climatization (Heating)	15%	4989
Lighting	12%	399,1
Audio-Visuals	9%	299,4
Washing and drying machines	7%	232,8
Domestic Hot Water Sys.	5%	166,3
Dish Washer	3%	99,8
Climatization (Cooling)	2%	66,5
Computing	2%	66,5
Oven	1%	33,3
Others	12%	365,9

Electrical losses in each period



Before 1974

From 1974 to 2006

After 2006

- wrong dimension of the electrical circuit
- overcharge of the electrical circuit
- heating of the electrical conductor

Electrical losses in each period



Before 1974

47,9 kWh
year

From 1974 to 2006

26,9 kWh
year

After 2006

5,24 kWh
year

Average losses per dwelling

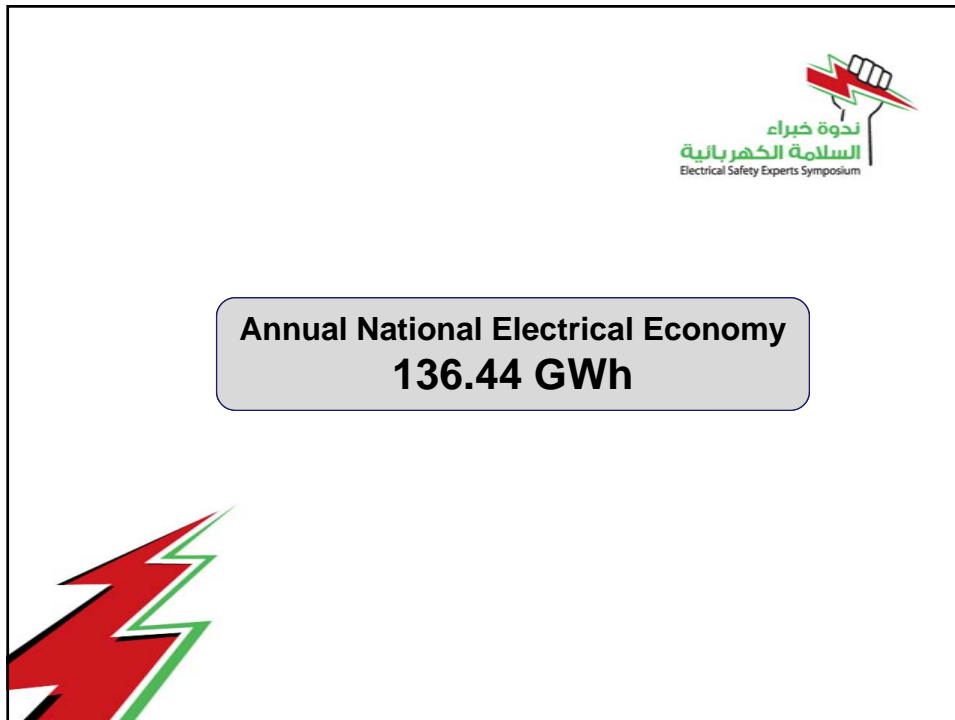
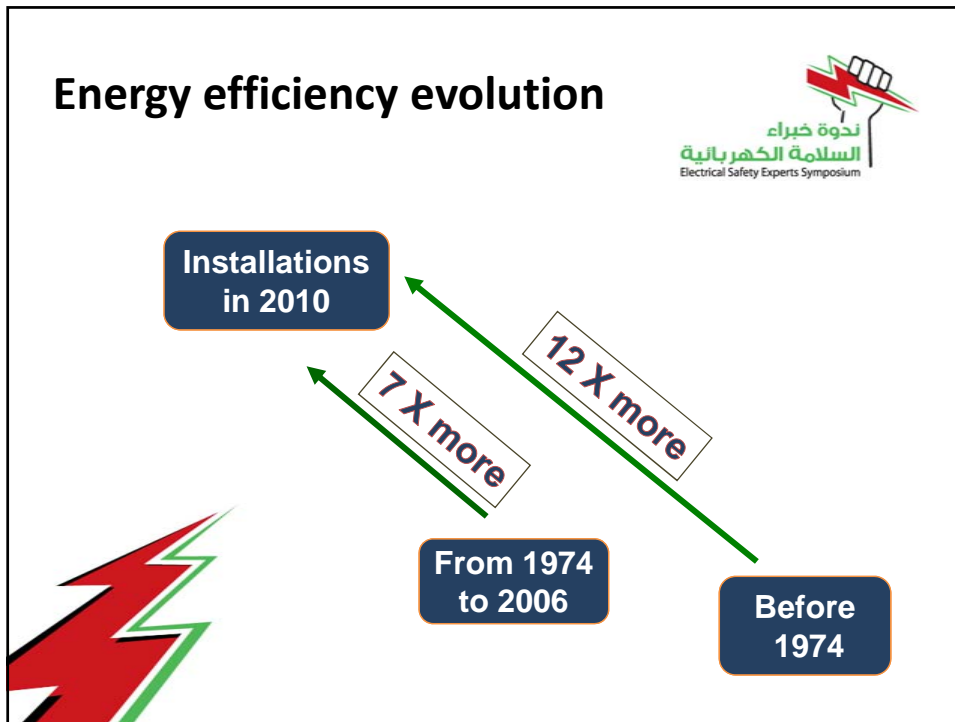
Electrical losses in each period



	Dwellings	Losses per year (GWh)
Before 1974	2.114.807	90
From 1974 to 2006	1.856.053	40
After 2006	70.900	-

Annual National Energy Loss
136.44 GWh





What does mean 130 GWh per year ?



The average electrical energy consumption per year in 40.587 houses



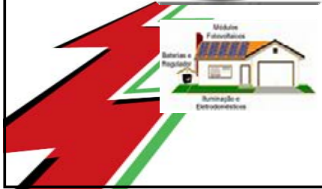
Production = emission of 47.839 tonnes of CO₂



= emission of CO₂ of 26.577 cars - considering a Renault Mégane 1.5 Dci emissions – 15.000km year

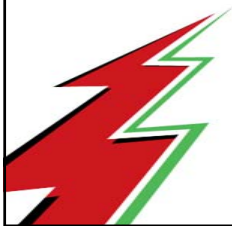


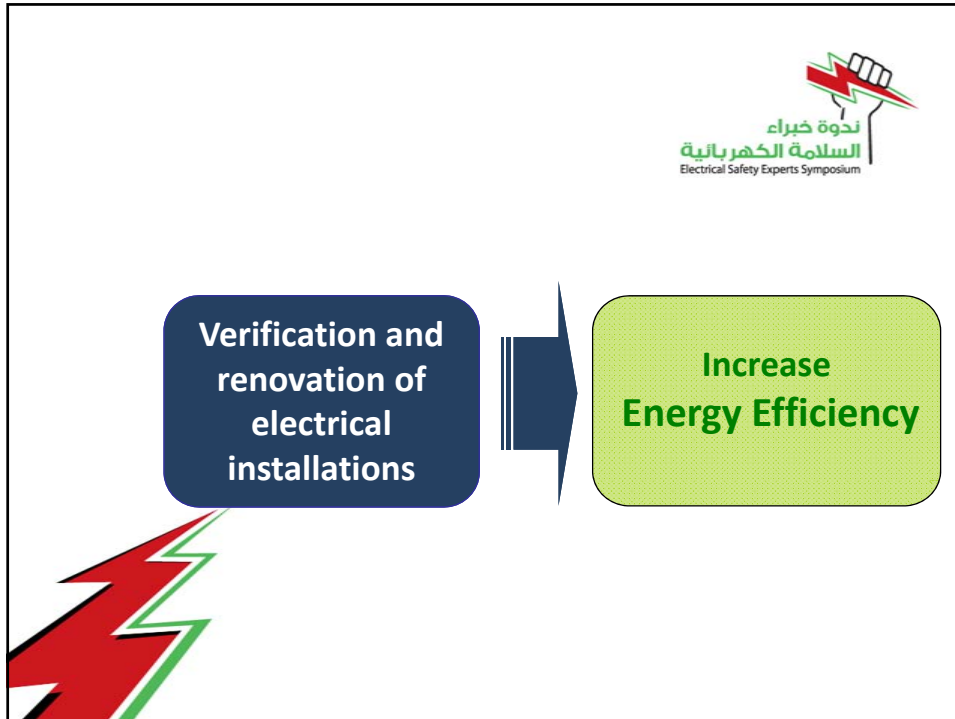
= Electrical production of 20.000 microgeneration installations



Annual saving in energy

€ 15.300.000,00





This slide is a 'THANK YOU' message. At the top center is the 'Electrical Safety Experts Symposium' logo. Below it, the text reads 'THANK YOU' in large letters, followed by 'By: Mr. José Gomes' and 'From: Fisuel, CERTIEL (association for certification of electrical installations), Portugal'. To the right is the 'certiel' logo. The bottom section is divided into three rows of logos:

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