Curriculum Vitae

Name: Iqbal Ahmed AL-Tayar

• Expert and Judicial Arbitration committee member in the Ministry of Justice.

Educational Qualification:

• BA of Engineering – Mechanical Engineering – Kuwait University

• Expert and member in the Arbitration Lawyers Center.

• Member of the American World Organization in the Kuwait Center of Commercial Arbitration.

• Member of the American World Organization for Value Engineering and have the AVS certificate from The American SAVE International Association.

• Member of the American Association of Energy Engineers

Work Experience

• The first site engineer in the ministry in the Water Sector Projects (Al-Zour Water Station) (Replacement of the water networks of Al-Nozha and Al-Faeha Area) • Member of the American Society of Heating, Refrigerating and Air-condition Engineers (ASHRAE).

• Manager of the Technical Controlling Management since 1992.

• Al-Tarshed Team Manager for the following sectors: Government sector, Hotel sector, Banking sector and Oil Sector.

• National Committee member for Green Building.

• A professor of the Public Authority of Applied Education and Training since 2000.

• A professor of the Rehabilitation Program of the new ministry engineers

• Member of Kuwait Society of Engineers, membership No. 1715.

MEW EFFORTS
IN REDUCING ELECTRICITY AND WATER CONSUMPTION IN GOVERNMENT AND PRIVATE SECTORS IN KUWAIT

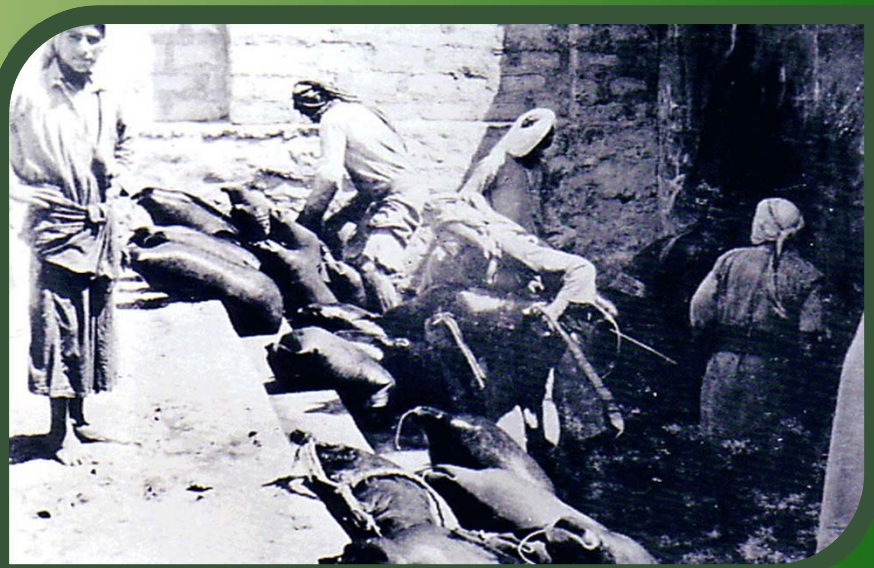
Eng. Iqbal Al-Tayar
Manager – Technical Supervision Department
Planning and Training Sector
Ministry of Electricity & Water (MEW) - Kuwait

Historical Background - Electricity

- In 1913, the first electric machine was installed in Kuwait to operate 400 lambs for Al-Saif Palace.
- In 1934, two electric generators were installed with a total capacity of 60 kW.
- In 1949, the first power generation plant was established in Merghab with a total capacity of 60 kW.
- In 1951, Kuwait established the General Department of Electricity and then the Ministry of Electricity & Water in 1961.

Historical Background - Water

- < 1925 - rain water and shallow wells
- 1925 - 1951 - water imported from Shatt Al-Arab, Iraq
- 1951 - public water supply service established and managed by the State
- 1951 - KOC installs a small desalination plant
- 1960 - discovery of fresh water at Al-Raudhatain
- 1970 - to date - rapid increase of desalination capacity









Electricity Generation and Water Desalination

No.	Power Station	Established Year	Electricity Generation Million kW	Water Production Million emperor/day
1	Shuwaikh Plant	1955	33	4
2	Shuaiba North Plant	1965	72	9
3	Shuaiba South Plant	1970	3.032	30
4	Al-Doha East Plant	1977	4.630	42
5	Al-Doha west Plant	1984	11.010	110
6	Az-Zour South Plant	1989	101.212	36
7	Sabiya Plant	1998	29	100

MEW Responsibilities

- Fully responsible to provide electricity and water for all consumers in the State of Kuwait, which cover the following areas:
  - Generation
  - Transmission and Distribution
  - Collection of Water and Electricity Invoices.

MEW Efforts

- MEW efforts to monitor and enforce conservation policies on government and private sectors
- Awareness Campaign
  - 2007 National Conservation Campaign (Tarsheed) in collaboration with Kuwait Society of Engineers.
- MEW collaboration with Kuwait Institute for Scientific Research (KISR)
- MEW collaboration with Kuwait University (KU)
- Efforts of other government and institutional agencies to reduce power demand and energy consumption







Objectives of Conservation Policies on government and private sectors

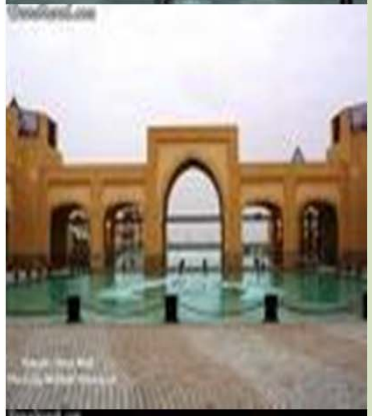
To reduce power demand and energy during peak summer months and yearly energy consumption:

- Optimized operation strategies of Air-conditioning and lighting systems.
- Utilization of more energy efficient systems.

To minimize water consumption.

Government Buildings

No.	Name of the Institution	Energy Savings
		%
1	Assessment Authority for Compensation	11
2	Kuwait Public Transport Co.	14
3	Ministry of Foreign Affairs	12
4	Ministy of Public Works	18
5	Development and Planning, Secretariat Building	11
6	Public Authority for Agriculture and Fisheries	15
7	Kuwait News Agencies	8



Shopping Malls

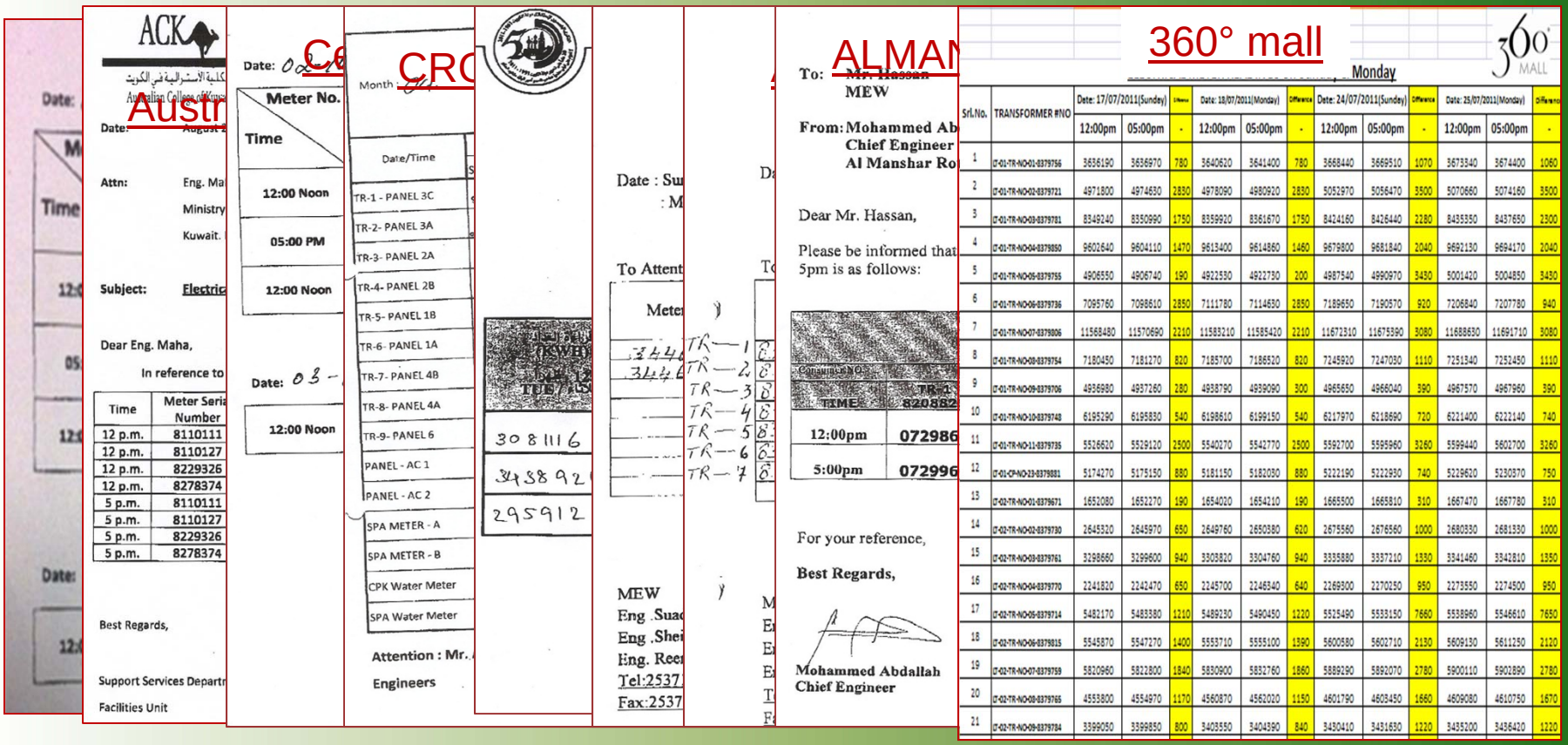
No.	Name of Shopping Mall	Energy Savings
		%
1	Lila Gallary	6
2	Al-Mohallab	4
3	Marina	8
4	Avenues Mall	9
5	Ajial	9
6	Al-Kutte	3
7	Al-Manshar	5
8	Beirut	4
9	Al-Fannar	7
10	Maghateer	10

Hotels and Banks

No.	Name of Hotel	Energy Savings
		%
1	Sheraton	2
2	JW Marriott	2
3	Movenpick El-Beda'a	4
4	Marina	3
5	SAS International	5

No.	Name of Bank	Energy Savings
		%
1	Kuwait Finance House	17
2	National Bank of Kuwait	14
3	Commerical Bank	21
4	International Bank	20

Electricity Reading Collection









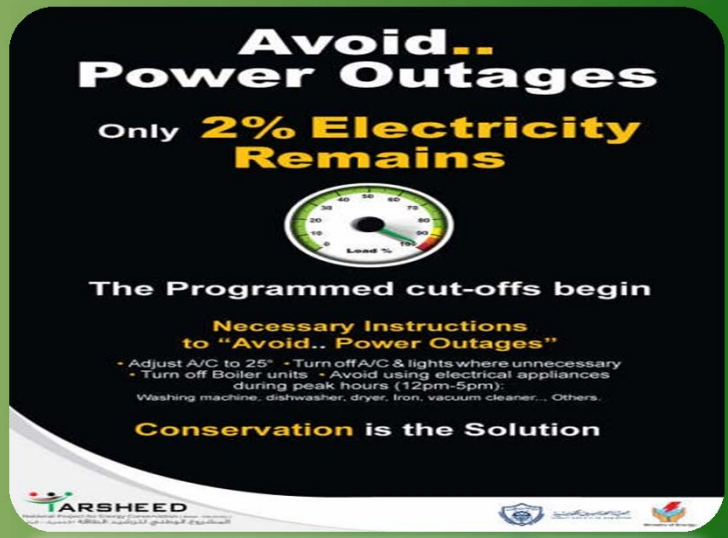
Awareness campaign MEW conducted to reduce electricity and water in Kuwait.

Kuwait National Bank

NBK recently launched its energy conservation awareness campaign tagged "Put your energy into saving energy". NBK volunteers handed out 10,000 long life energy-saving light bulbs at the Avenues Mall.

Awareness campaign MEW conducted to reduce electricity and water in Kuwait.

A campaign for Society of Engineers cost 10 million K.D



Awareness campaign MEW conducted to reduce electricity and water in Kuwait.

Distribution of water conservation tools







Awareness campaign MEW conducted to reduce electricity and water in Kuwait.

nergy-saving campaign cost 400,000 K.D

Under the slogan

"we love it so we save for it"







MEW and KISR Collaboration

1983 Regulations and Code of Practice

Energy Audit Program

Peak power reduction program

Demand Side Management through Centralized Remote Control

Standard Specifications for Standard Rules and Extensions of Drinking Water in Kuwait

Distribution of Water Conservation Kits in the State of Kuwait

Design of a sustainable traditional Kuwaiti villa







Standard Specifications for Standard Rules and Extensions of Drinking Water in Kuwait

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State of Kuwait
Ministry of Electricity & Water

دولة الكويت
وزارة الكهرباء والماء

Major parameters analysis of Distilled, Brackish and Fresh water

Fax: 25386175

Parameters	Unit	D.W (Distilled water)	B.W (Brackish water)	F.W (Fresh water)
Temperature	(^{0}C)	36 – 43	22 -- 32	29 -- 42
Conductivity	(µs/cm)	10 -- 120	4000 -- 7500	173 – 606
T.D.S.	(mg/l)	6.0 – 60	2500 -- 4500	75 -- 333
pH value		6 – 8.5	7.0 – 7.5	7.3 – 7.9
Residual Chlorine Cl	(mg/l)	Nil	Nil	0.35 – 0.90
Turbidity	(NTU)	0.1 – 1.0	0.1 – 2	0.16 – 1.0
Potassium (K)	(mg/l)	0 – 0.70	18 – 37.00	0.7 – 3.0
Calcium as (Ca)	(mg/l)	0 -- 20	400 -- 650	16.4 – 54.5
Magnesium (Mg)	(mg/l)	0.10 – 2.0	140 -- 190	2.9 – 14.3
Chloride (Cl)	(mg/l)	5 -- 60	650 -- 2000	50 – 101
Sulphate (SO_4)	(mg/l)	0.1 – 2.0	1000 -- 1400	87.3 – 140
Nitrate (NO_3)	(mg/l)	0.1 – 1.5	10 -- 87	0.1 – 0.61
Alkalinity ($CaCO_3$)	(mg/l)	1.0 -- 65	90 -- 140	37 -- 68
Total Hardness ($CaCO_3$)	(mg/l)	2 -- 70	1500 -- 2200	58 – 182
Carbon Di-oxide (CO_2)	(mg/l)	1 – 3.0	10 -- 15	0.92 – 2.56
Silica	(mg/l)	Nil	20 -- 24	0.50 – 2.0

Notes: Quality subject to change during emergency operation conditions.







.983 Regulations and Code of Practice

MEW/R-1: Regulations for Electrical Installations

MEW/R-2: Procedures for Approval of Electrical & A/C Drawings and connection of power supply for construction and buildings projects.

MEW/R-3: Electrical load form and explanatory memo

MEW/R-4: Regulations for testing of Electrical installations before connection of power supply

MEW/R-5: General Guidelines for Energy Conservation in buildings

MEW/R-6: Code of Practice for Energy Conservation in Kuwait building and Appendices

Appendix No. (1):	Properties and application of insulating materials for buildings in Kuwait
Appendix No. (2):	Energy Conservation Measures in Residential Sector Buildings.
Appendix No. (3):	Energy Conservation Measures in Institutional and Commercial Sector Buildings
Appendix No. (4):	Energy Conservation Measures Hospitals
Appendix No. (5):	Effect of thermal mass and colour
Appendix No. (6):	Comparison between air-cooled and water-cooled condensers.

MEW/R-7: Rules and Regulations for design of A/C System and Equipment

MEW/R-8: Rules and Regulations for handing over Engineering Services (Electrical and Mechanical) to the Maintenance Authority

MEW/R-9: General specification for electrical installation

Benefit from The Code

Component	Unit	Quantity Saved	Unit Cost (mil KD/unit)	Total Savings (million KD)
Electrical Power Requirements	MW	2,530	0.48	1,214
A/C System	RT	1,260,000	500	630
Fuel	million Barrels	131	10	1,310
Total				3,154

Achievements from Energy Audit Program

Building	Year	Peak Power Reduction (%)	Energy Saving (%)
MEW and MPW buildings in South Surra	2004	38	20
Public Authority for Civil Information	2004	5	12
Al-Fanar Shopping Mall	2004	15	8

Peak Power Reduction trough the Implementation of Smart Operations








Projected Financial and Environmental Benefits

KD 500 million toward the cost of new power generation and distribution equipment.

KD 0.3 million KD per day of the MEW fuel bill during the summer season.

7,000 tons/day of CO_2 emissions during the summer season.







Standard Specifications for Standard Rules and Extensions of Drinking Water in Kuwait

- Water treatment equipment
- Equipment of maintenance and water conservation
- types of some pipe material modules in Kuwait
  - ➢Cross Linked Polyethylene (PEX)
  - ➢Polypropylene (PP-R)







Distribution of Water Conservation Kits in the State of Kuwait

Selection of devices

- Health certificates
- Testing at KISR
- Price

Distribution Plan

- **940 000** water saving devices was distributed in Residential Areas
- **160 000** was distributed for water users in Governmental buildings

Savings

- reduce water use by 5%, or 26 million cubic meters per year (30% of houses x 85% domestic water use x 53% tap water use x 40% saving)







Future Collaboration – Energy

No.	Project Title
1	Construction and Performance Evaluation of a sustainable traditional Kuwaiti villa (ongoing)
2	Updating of MEW Electrical Codes
3	Implementation of Energy Efficient Retrofits for Five Private Office Buildings
4	Development of a Guide and Building-Energy Simulator for MEW Code Compliance
5	Experimental Verification of Fenestration Products
6	Performance Assessment of Commercially Available Small and Medium Units Utilizing R410A Refrigerant
7	The Potential of Energy Conservation and Peak Power Reduction in Residential Sector (5 villas)







Future Collaboration – Water

NO.	Project Title
1	Fifth International Symposium of groundwater between the Kuwait Institute for Scientific Research and the World Organization for Research and Engineering Environment Water (IAHR)
2	Household water consumption and conservation in Kuwait WM042K
3	Action plan "a pilot study to reduce water levels high and re-use in the areas of (Jaber al-Ahmad, and AL-Kairouan)
4	Action plan study (monitoring and evaluation of the quality of drinking water in the State of Kuwait)

Energy-Efficient Design of Low-Rise Residential Buildings in Kuwait (ASHRAE 90.2 – Kuwait)

This standard provides minimum energy-efficiency requirements for the design and construction of

a. New portions of residential dwelling units and their systems.

b. New systems and equipment in existing dwelling units.

Efforts of other Government and Institutional Agencies












Conclusion