



مركز الإحصاء
STATISTICS CENTRE



Energy and Water Statistics



عام التسامح
YEAR OF TOLERANCE



دائرة الطاقة
DEPARTMENT OF ENERGY

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Introduction

This publication presents statistics of energy and water in the Emirate of Abu Dhabi for the year 2018, comprising statistics of the desalinated water and electricity production sector, oil and gas sector, and renewable energy sector. The main sources for these statistics are Department of Energy, Abu Dhabi National Oil Company – ADNOC, and Abu Dhabi Future Energy Company – Masdar.

The Explanatory Notes section at the end of this publication provides an explanation of the key terms and technical concepts used in the compilation of energy and water statistics. Readers are encouraged to refer to that section while reading the statistics and information outlined in the publication.

The main points.

- The Amount of Electricity Available was 72,629,771 (MWH).
- The Amount of Desalinated Water Available was 1,092 (million cubic meters).
- The Amount of Electricity Generated from Renewable Energy was 249,695 (MWH).
- Annual Production of Crude Oil Reached 1,097,616 (thousand barrels).
- Annual External Sales of Crude Oil 802,223 (thousand barrels).
- Annual Production of Natural Gas amounted to 2,987,621 (million cubic feet).
- Exports of Gas Products Reported 25,232 (thousand metric tons).

Electrical power statistics

- Total electricity generated by companies reached 72,586 GWH in 2018, an increase of 74% during the period since 2010.
- The amount of electricity exported to the Northern Emirates was about 11,823 GWH, as shown in Table 1.1.
- Electricity demand in the Emirate of Abu Dhabi increased to 60,807 GWH in 2018

Table 1.1: Electrical Power Statistics

(MWH)

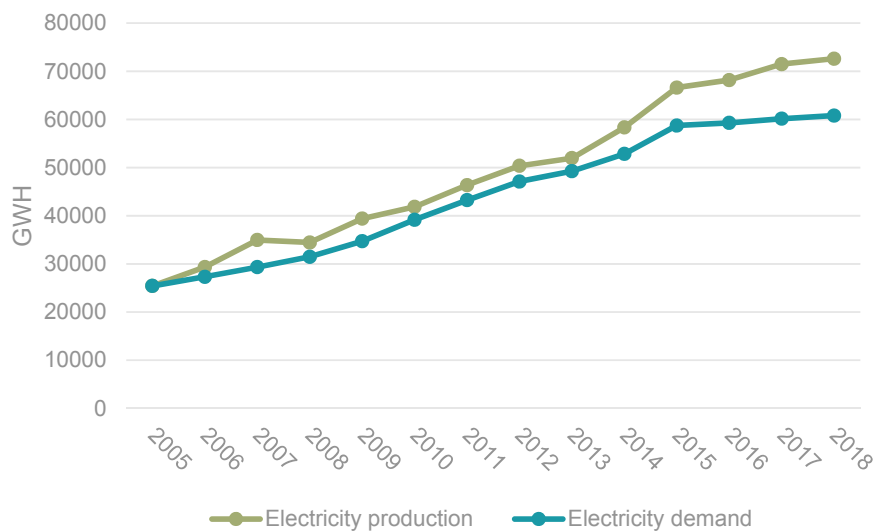
Item	2010	2014	2015	2016	2017	2018
Total electricity production by companies	41,712,189	58,342,545	66,626,469	68,183,363	71,504,164	72,585,807
Electricity transferred from Emal & Takreer	146,594	11,802	0	0	0	43,965
Total	41,858,783	58,354,347	66,626,469	68,183,363	71,504,164	72,629,771
Electricity exports from the Emirate of Abu Dhabi	2,685,643	5,513,310	7,890,644	8,897,222	11,345,459	11,822,507
Electricity demand in the Emirate of Abu Dhabi *	39,173,140	52,841,037	58,735,825	59,286,141	60,158,705	60,807,264
Electricity generation capacity (MW)	9,247	12,571	12,571	12,245	13,647	13,647

Source: Department of Energy

Note: Electricity demand data for 2015 and 2016 were updated by the source

*Demand include internal electrical consumption by power stations & technical losses through the network

Figure 1: Electrical Energy Production and Electricity Demand



Source: Department of Energy

Fuel consumption of the water and electricity activity

- The amount use of natural gas in 2018 about 99.9% of the total fuel used in electricity generation.
- The total fuel consumption of all types in 2018 in water and electricity activity are decreased 1% compared to 2017, and the total consumption reaching 820,751 Billion BTU, as shown in Table 2.1.

Table 1.2: Fuel Consumption of the Electricity and Water Activity

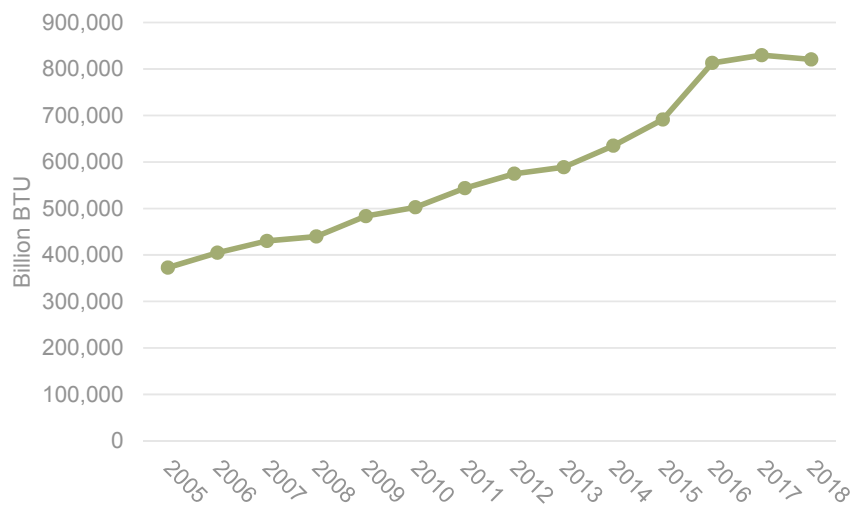
(Billion BTU)

Fuel type	2010	2014	2015	2016	2017	2018
Total	502,487	634,974	691,471	813,083	829,751	820,751
Natural gas	467,126	633,862	689,368	812,699	827,705	820,451
Crude oil	21,918	1	984	110	0	0
Gas oil	13,439	1,110	1,119	274	2,046	300
Fuel oil	4	0	0	0	0	0

Source: Department of Energy

Note: The start of the pilot phase of the Mirfa International Water and Electricity in 2017 led to an increase in the value of consumption of gas oil

Figure 2: Fuel Consumption of the Electricity and Water Activity



Source: Department of Energy

Electricity generated by solar energy

- The amount of electricity produced from solar energy was 249,695 MWH in 2018.
- About 88.4% of these were through Abu Dhabi Electricity Distribution Network, while 11.6% were consumed internally in Masdar City.

Table 1.3: Electricity Generation and Consumption from Solar Energy

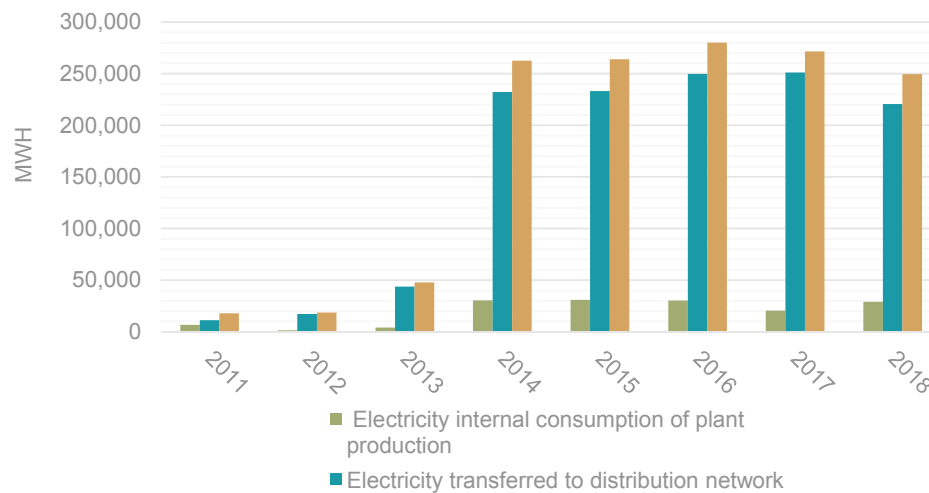
(MWH)

Item	2011	2014	2015	2016	2017	2018
Electricity internal consumption of plant production	6,695	30,439	30,867	30,360	20,611	29,010
Electricity transferred to distribution network	11,291	232,228	233,147	249,725	251,093	220,685
Production	17,986	262,667	264,014	280,085	271,704	249,695

Source: Abu Dhabi Future Energy Company (Masdar)

The production of Shams solar power station started in late 2013

Figure 3: Electricity Generation and Consumption from Solar Energy



Source: Abu Dhabi Future Energy Company (Masdar)

Demand of Electricity

- The demand of electricity in Emirate of Abu Dhabi was 60,807 GWH in 2018.
- Abu Dhabi region accounted for the largest percentage of electricity demand which reached 60.2%, followed by Al Dhafra region by 21.5% and Al Ain region by 18.3%.
- The consumption of the commercial sector in the Abu Dhabi Emirate accounted for 49.3% of the total consumption followed by the domestic sector by 24.4% and the industrial sector by 12.3%.

Table 1.4: Demand of Electricity by Region

(MWH)

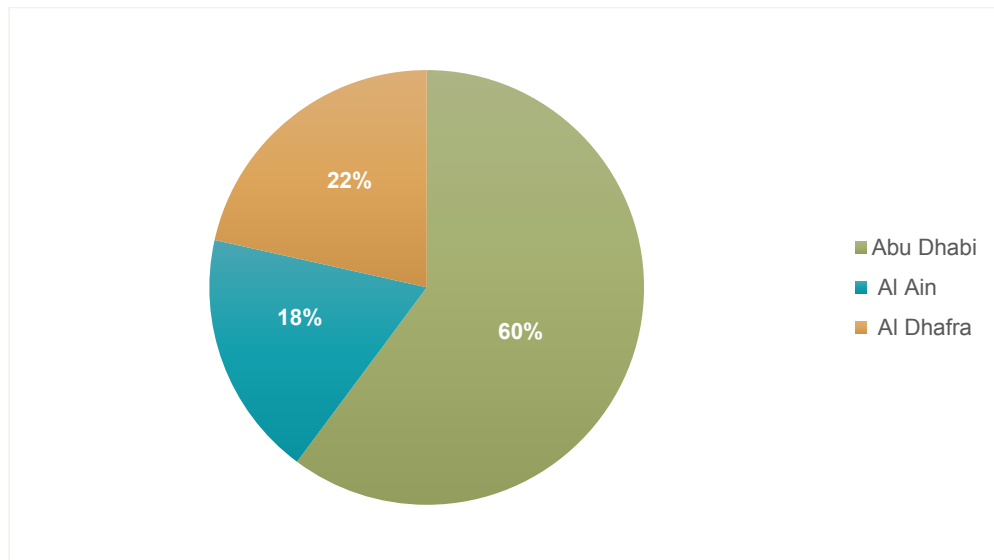
Region	2010	2014	2015	2016	2017	2018
Total *	39,173,140	52,841,037	58,735,825	59,286,141	60,158,705	60,807,264
Abu Dhabi Region	24,850,010	32,575,456	34,850,296	34,760,574	35,768,512	36,594,176
Al Ain Region	9,081,380	10,390,745	11,025,323	10,733,791	11,107,187	11,138,328
Al Dhafra Region	5,241,750	9,874,836	12,860,206	13,791,776	13,283,005	13,074,760

Source: Department of Energy

Note: Electricity demand data for 2015 and 2016 were updated by the source

*Demand include internal electrical consumption by power stations & technical losses through the network

Figure 4: Percentage of Demand of Electricity by Region, 2018



Source: Department of Energy, Statistics Centre _ Abu Dhabi

Table 1.5: Percentage of Electricity Consumption by Sector

(%)

Sector	2010	2014	2015	2016	2017	2018
Total	100	100	100	100	100	100
Domestic	35.9	29.4	26.9	25.6	26.8	24.4
Commercial	32.1	30.2	48.2	52.1	48.2	49.3
Government	16.1	24.7	9.3	6.6	8.1	7.9
Agriculture	8.2	5.4	5.7	5.7	5.7	6.0
Industry	7.2	10.0	9.7	9.8	11.2	12.3
Other	0.6	0.4	0.3	0.1	0.1	0.1

Source: Department of Energy, Statistics Centre _ Abu Dhabi

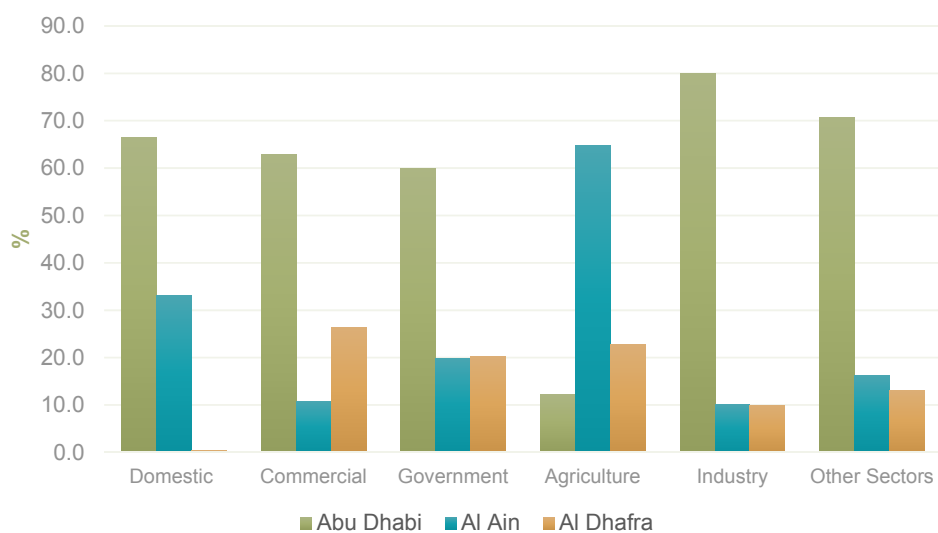
Table 1.6: Percentage of Electricity Consumption by Region and Sector, 2018

(%)

Sector	Abu Dhabi	Al Ain	Al Dhafra	Total
Domestic	66.4	33.2	0.4	100
Commercial	62.8	10.8	26.4	100
Government	59.9	19.9	20.2	100
Agriculture	12.3	64.9	22.8	100
Industry	79.9	10.1	10.0	100
Other	70.7	16.2	13.0	100

Source: Department of Energy, Statistics Centre _ Abu Dhabi

Figure 5: Percentage of Electricity Consumption by Region and Sector, 2018



Source: Department of Energy, Statistics Centre _ Abu Dhabi

Production of desalinated water

- The amount of desalinated water available in Abu Dhabi Emirate was 1,092 million cubic meters in 2018.
- The production of desalinated water reached 880 million cubic meters in 2018, a decrease of 1.7% compared to 2017.

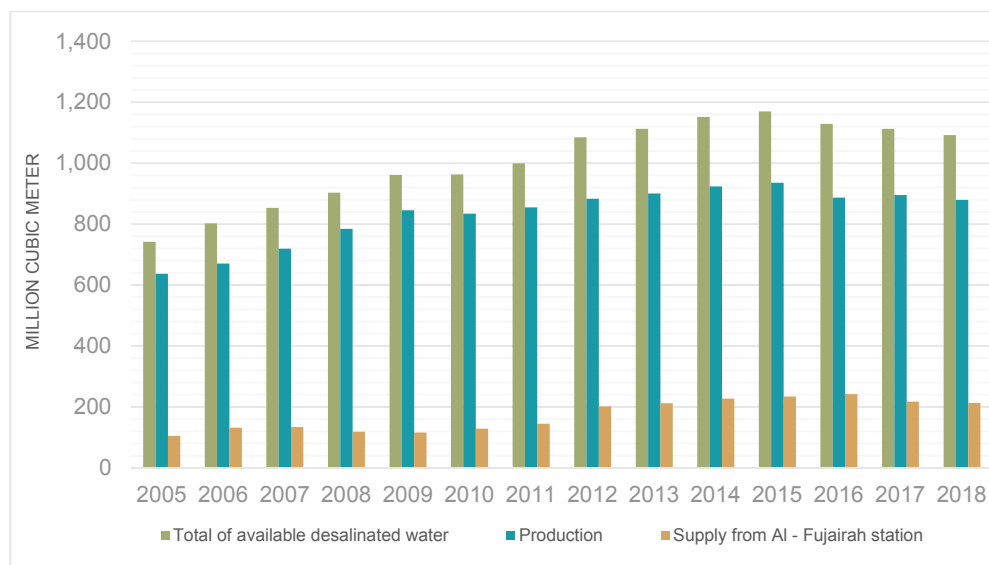
Table 1.7: Production of Desalinated Water

(Million cubic meters)

Item	2010	2014	2015	2016	2017	2018
Total of available desalinated water	963	1,151	1,170	1,129	1,112	1,092
Production	834	924	936	887	895	880
Supply from Al - Fujairah station	128	227	234	242	217	213

Source: Department of Energy, Statistics Centre _ Abu Dhabi

Figure 6: Production of Desalinated Water



Source: Department of Energy, Statistics Centre _ Abu Dhabi

Supply of Desalinated Water

- The annual desalinated water Supply in Abu Dhabi Emirate reached 1,082 million cubic meters in 2018.
- The average daily of desalinated water Supply was 2.96 million cubic meters.
- The Abu Dhabi region ranked first in percentage of domestic consumption in the Emirate reaching about 65.0%, followed by Al Ain and Al Dhafra with 21.9% and 13.1% respectively.

Table 1.8: Supply of Desalinated Water

(Million cubic meters)

Year	consumption Annual	consumption Average daily
2010	956	2.6
2014	1,150	3.1
2015	1,148	3.1
2016	1,115	3.0
2017	1,101	3.0
2018	1,082	3.0

Source: Department of Energy, Statistics Centre _ Abu Dhabi

Note: Consumption data has been updated by the source

Table 1.9: Percentage of Desalinated Water Consumption by Sector

(%)

Sector	2010	2014	2015	2016	2017	2018
Total	100	100	100	100	100	100
Domestic	55.2	49.6	47.1	42.6	46.8	43.6
Commercial	15.5	14.7	20.2	22.9	20.3	19.7
Government	22.4	28.0	14.5	12.0	11.3	12.8
Agriculture	4.0	4.9	15.5	19.7	19.0	21.1
Industry	1.5	2.0	2.4	2.6	2.3	2.4
Other	1.4	0.7	0.3	0.1	0.3	0.4

Source: Department of Energy, Statistics Centre _ Abu Dhabi

Table 1.10: Percentage of Desalinated Water Consumption by Region and Sector, 2018

(%)

Sector	Abu Dhabi	Al Ain	Al Dhafra	Total
Domestic	65.0	21.9	13.1	100
Commercial	75.1	13.9	11.1	100
Government	66.5	15.5	18.0	100
Agriculture	45.5	51.4	3.1	100
Industry	73.7	21.2	5.1	100
Other	5.3	90.6	4.1	100

Source: Department of Energy, Statistics Centre _ Abu Dhabi

Table 1.11: Desalinated Water Supply by Region

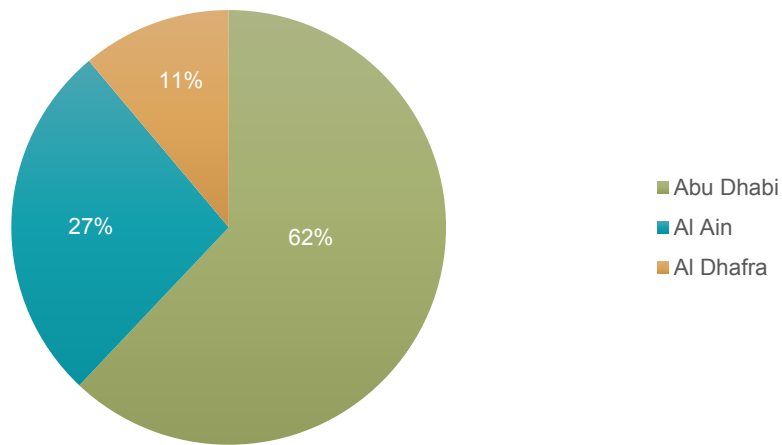
(Million cubic meters)

Region	2010	2014	2015	2016	2017	2018
Total	956	1,150	1,148	1,115	1,101	1,082
Abu Dhabi Region	598	693	692	676	676	671
Al Ain Region	251	314	313	295	291	290
Al Dhafra Region	107	142	144	144	134	120

Source: Department of Energy

Note: Consumption data has been updated by the source

Figure 7: Percentage of Desalinated Water Supply by Region, 2018



Source: Department of Energy, Statistics Centre _ Abu Dhabi

Production and External Sales of Crude Oil

- The Abu Dhabi Emirate's crude oil production reached 1,097,616 thousand barrels in 2018.
- The annual external sales of crude oil reached 802,223 thousand barrels.
- The external sales of crude oil accounted about 73% of the production volume in 2018.

Table 2.1: Production and External Sales of Crude Oil

(Thousand barrels)

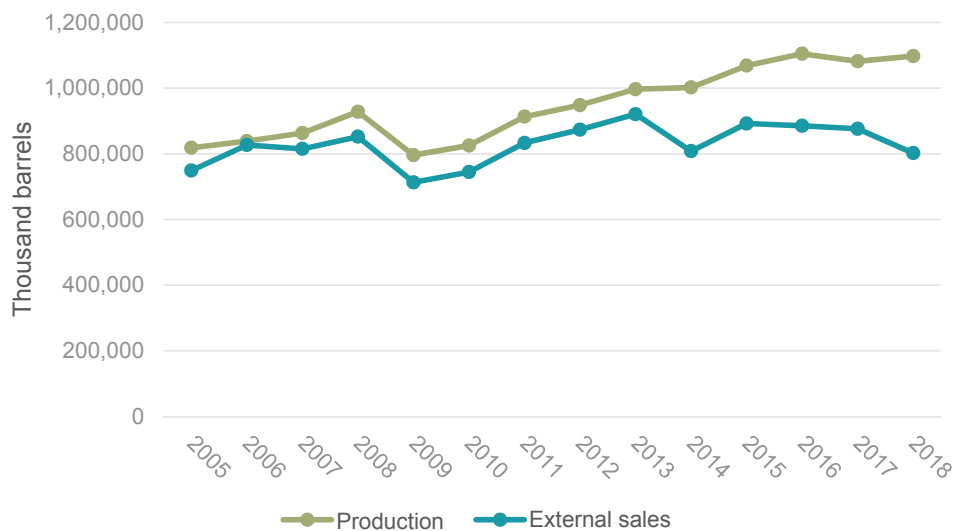
Year	Production		External sales	
	Daily average	Annual production	Daily average	Annual exports
2010	2,261	825,291	2,040	744,525
2014	2,746	1,002,179	2,214	808,131
2015	2,928	1,068,575	2,444	892,230
2016	3,019	1,104,827	2,419	885,474
2017	2,964	1,081,743	2,401	876,260
2018	3,007	1,097,616	2,198	802,223

Source: Abu Dhabi National Oil Company – ADNOC, Statistics Centre _ Abu Dhabi

Note: Production excludes condensates

Note: External sales include external sales to other emirates and outside the UAE

Figure 8: Production and External Sales of Crude Oil



Source: Abu Dhabi National Oil Company – ADNOC

Petroleum products

- Increased the petroleum products in the Abu Dhabi Emirate in 2018 by 21.7% than in 2017,
- The exports of refined petroleum products in 2018 accounted for 60.7 % of total production, while sales within the emirates accounted for 18.5 % of total production.

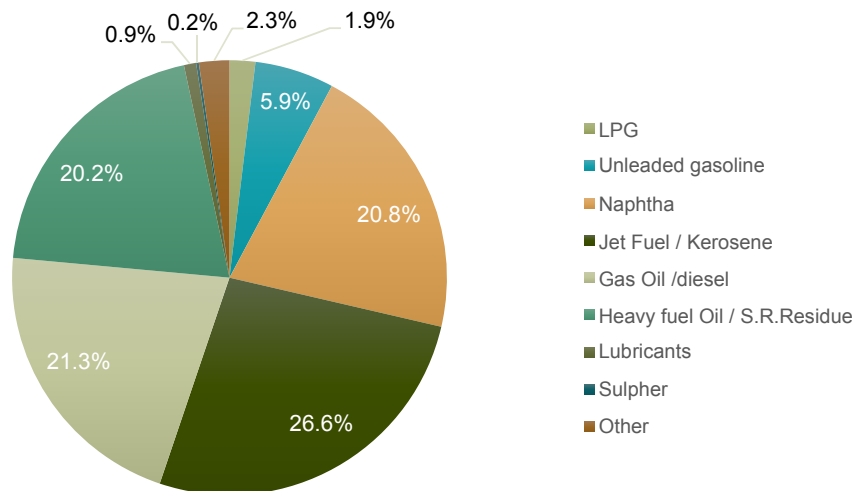
Table 2.2: Production of Refined Petroleum products

(Thousand Metric Tons)

Product Type	2010	2014	2015	2016	2017	2018
Total	19,223	21,657	32,522	40,723	40,852	49,732
LPG	579	618	785	785	740	951
Unleaded gasoline	2,284	2,371	3,589	4,678	2,597	2,932
Naphtha	4,813	5,048	8,619	9,609	9,245	10,353
Jet fuel / Kerosene	5,684	6,162	9,810	11,044	10,474	13,216
Gas oil / Diesel	4,775	4,482	7,711	9,517	9,163	10,570
Heavy Fuel Oil / S.R.Residue	1,048	2,927	1,917	4,732	8,313	10,036
Lubricants	-	-	-	234	230	453
Sulpher	39	49	91	124	90	98
Other	-	-	-	-	-	1,123

Source: Abu Dhabi National Oil Company – ADNOC

Figure 9: Production of Refined Petroleum products, 2018



Source: Abu Dhabi National Oil Company – ADNOC, Statistics Centre _ Abu Dhabi

Table 2.3: Sales within State of Refined Petroleum Products

(Thousand Metric Tons)

Product type	Abu Dhabi Emirate			Other Emirates		
	2016	2017	2018	2016	2017	2018
Total	9,764	8,577	6,761	6,645	4,808	2,452
LPG	215	222	237	-	-	14
Unleaded gasoline	4,258	3,192	2,523	138	105	1,885
Jet fuel / Kerosene	3,149	3,008	2,335	1,660	1,246	-
Gas oil / diesel	2,142	2,137	1,636	2,884	2,521	405
Heavy fuel Oil / S.R.Residue	-	-	-	1,957	930	97
Lubricants	-	18	30	6	6	52

Source: Abu Dhabi National Oil Company – ADNOC

Table 2.4: Production and sales of refined petroleum products

(Thousand Metric Tons)

Item	2010	2014	2015	2016	2017	2018
Production						
Quantity	19,223	21,657	32,522	40,723	40,852	49,732
Daily average	52.7	59.3	89.1	111.3	111.9	136.3
Sales within the State						
Quantity	10,091	10,653	13,376	16,409	13,385	9,213
Daily average	27.6	29.2	36.6	44.8	36.7	25.2
Exports						
Quantity	8,288	8,658	20,564	23,204	24,674	30,197
Daily average	22.7	23.7	56.3	63.4	67.6	82.7
Refining capacity (Thousand barrels/daily)	505	505	920	920	922	928

Source: Abu Dhabi National Oil Company - ADNOC ,Statistics Centre _ Abu Dhabi

Table 2.5: Export of refined petroleum products

(Thousand Metric Tons)

Type of Product	2010	2014	2015	2016	2017	2018
Total	8,288	8,658	20,564	23,204	24,673	30,197
LPG	-	-	1,471	1,126	-	-
Unleaded Gasoline	-	-	6	10	12	9
Naphtha	4,269	4,850	7,733	9,658	9,214	9,853
Jet fuel / Kerosene	3,219	2,523	5,433	6,155	5,992	6,534
Gas oil / Diesel	679	713	3,863	4,606	4,715	5,990
Heavy fuel Oil / S.R.Residue	121	572	2,057	1,496	4,371	6,958
Lubricants	-	-	-	152	370	363
Others	-	-	-	-	-	490

Source: Abu Dhabi National Oil Company – ADNOC

Natural Gas

- The natural gas production in Abu Dhabi Emirate was 2,987,621 million cubic feet in 2018.

Table 2.6: Natural gas production

(Million cubic feet)

Year	2010	2014	2015	2016	2017	2018
Production						
Annual	2,174,057	2,799,202	2,733,804	2,727,711	3,096,178	2,987,621
Daily	5,956	7,669	7,490	7,453	8,483	8,185

Source: Abu Dhabi National Oil Company – ADNOC, Statistics Centre _ Abu Dhabi

Table 2.7: Production and Export of Gas Products

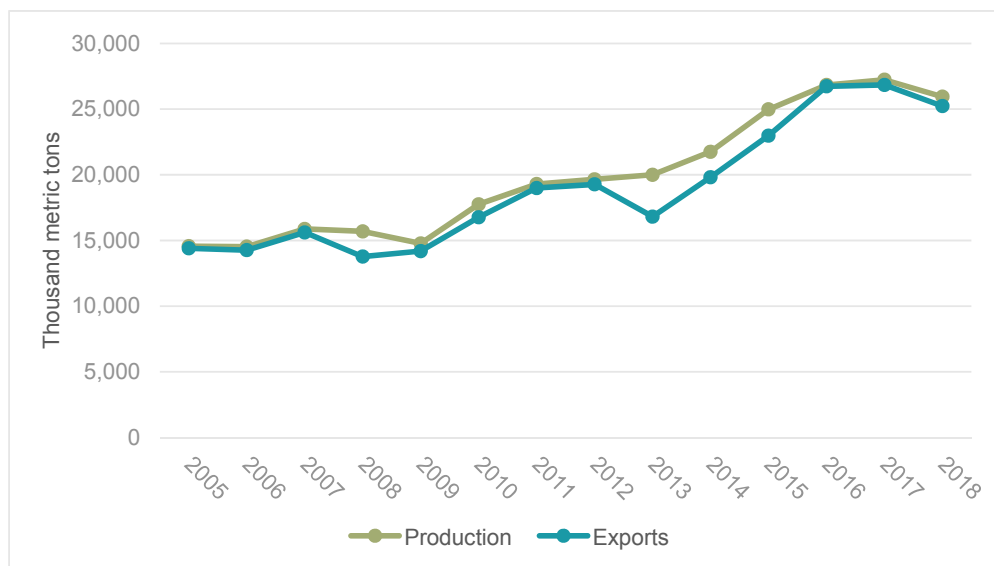
(Thousand Metric Tons)

Product type	2016		2017		2018	
	Production	Exports	Production	Exports	Production	Exports
Total	26,836	26,733	27,237	26,845	25,947	25,232
LNG	5,996	5,929	5,831	5,565	5,601	5,418
Propane	5,947	5,769	5,702	5,573	5,198	5,159
Butane	5,076	4,828	5,100	4,875	4,689	4,498
Pentane (plus)	3,860	4,106	3,980	4,148	3,663	3,547
Others (Sulfur)	5,957	6,101	6,624	6,684	6,797	6,610

Source: Abu Dhabi National Oil Company – ADNOC

Note: Excluding condensates

Figure 10: Production and Export of Gas Products



Source: Abu Dhabi National Oil Company - ADNOC

Explanatory Notes

Glossary

This report contains certain terms specific to Energy and Water and necessary when analyzing the Energy and Desalinated Water statistics of Abu Dhabi Emirate. They include the following terms:

Electricity capacity planned:

The design capacity to generate electricity or the maximum capacity of the production plant, data are provide annually from Department of Energy.

Fuel Consumption of Electricity and Water Activity:

Amount of fuel consumed for production of Electricity and desalinated water, data are provide annually from Department of Energy by type of fuel.

Electricity internal consumption of plant production:

The internal consumption of the electric power generated from renewable energy, data are provide annually from Abu Dhabi Future Energy Company (Masdar).

Total electricity production from renewable energy:

The amount of renewable electricity from the energy from natural sources, inexhaustible and constant need of conversion of natural energy to other easy to use mediation techniques, such as solar, wind, water, tides, data are provided annually from Abu Dhabi Future Energy Company (Masdar).

Total available desalinated water:

Production of Abu Dhabi plants of desalinated water plus Supply from Al Fujairah Station, data are provide annually from Department of Energy.

Percentage of Desalinated Water Consumption:

This data refers to the ratio of desalinated water consumption by each of the sectors used by distribution companies, namely: the domestic sector, and commercial, government, agricultural, and industrial as well as other sectors by region, data are provide annually from Department of Energy.

Average daily production of crude oil:

Total annual production of crude oil divided by days of the year, data are provide annually from Abu Dhabi National Oil Company - ADNOC.

Percentage of refining products sales within state:

Percentage of sales within state of petroleum products to the total production of petroleum products, data are provide annually from Abu Dhabi National Oil Company - ADNOC.

Data sources

Data are obtained from Abu Dhabi National Oil Company – ADNOC, Abu Dhabi Water and Electricity Authority – ADWEA, Abu Dhabi Water and Electricity Company, Abu Dhabi Distribution Company, Al Ain Distribution Company, and Abu Dhabi Future Energy Company – Masdar, The data are processed and passed to Statistic Centre – Abu Dhabi for further editing and compilation.

Abbreviations used

\$	United States Dollars
BTU	British Thermal Unit
EMAL	Emirates Aluminium
GWh	Gigawatt per Hour
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
MWh	Megawatt per Hour
TAKREER	Abu Dhabi Oil Refining Company

Notes on tables

Value of (percent) in all tables is based on unrounded numbers.

Due to rounding, totals may not equal the sum of component parts.

Unless otherwise indicated, all tables in this publication relate to the Emirate of Abu Dhabi. However, when mentioned in table titles or within table cells "Abu Dhabi" refers only to the Region of Abu Dhabi and not the whole Emirate.

Symbols used

(-) Data not available.

More information and next release

For more information about energy and environment and other official statistics, please visit the statistics link on the SCAD website at <http://www.scad.ae>

The next annual release is expected in November 2020 for 2019 data.

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