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UNITED ARAB EMIRATES دولة الإمارات العربية المتحدة  
NATIONAL BUREAU OF STATISTICS المركز الوطني للإحصاء

# Use of administrative data sources for data collection in United Arab Emirates

**COUNTRY PRACTICE  
IN ENERGY STATISTICS**

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Abu Dhabi, May2014**



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# Abstract

Energy production is an essential part of the economy in the UAE. Thus, reliable and exhaustive energy statistics is necessary for a current evaluation of the development and for strategic planning of future activities for both government and private sectors. Both physical, values and prices data of energy sources are needed.

So it is important to provide up to date, high quality and comprehensive energy statistical data for both national and international users.

It should also be noted that good energy data may form an important input to the national accounts.

**Without reliable data on supply and use of energy an important part of the economy cannot be described adequately well.**



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# Country profile

United Arab Emirates (UAE) is a federal state made up of independent and sovereign federation of seven emirates, are: Abu Dhabi, Dubai, Sharjah, Ajman, Umm Al-Qiwain, Ras Al-Khaimah and Fujairah.

The country area is around 71,023.6 square kilometres. the Territorial sea area is 27,624.9 square kilometres.

## UAE Borders

The United Arab Emirate (UAE) is Located in the North-Eastern area of the Arabian Peninsula, approximately between  $51^{\circ} 35'$  -  $57^{\circ} 10'$  longitudes, and  $22^{\circ} 35'$  -  $26^{\circ} 25'$  latitudes , and bordered to the north in the Arab Gulf, the Islamic Republic of Iran and the State of Qatar, and in the Sea of Oman the Islamic Republic of Iran from East, and from North and South in the Sea of Oman the Sultanate of Oman, and land borders extends with the Sultanate of Oman from East as far as Umm Alzamool in the South, and bordered by Saudi Arabia from South and West.

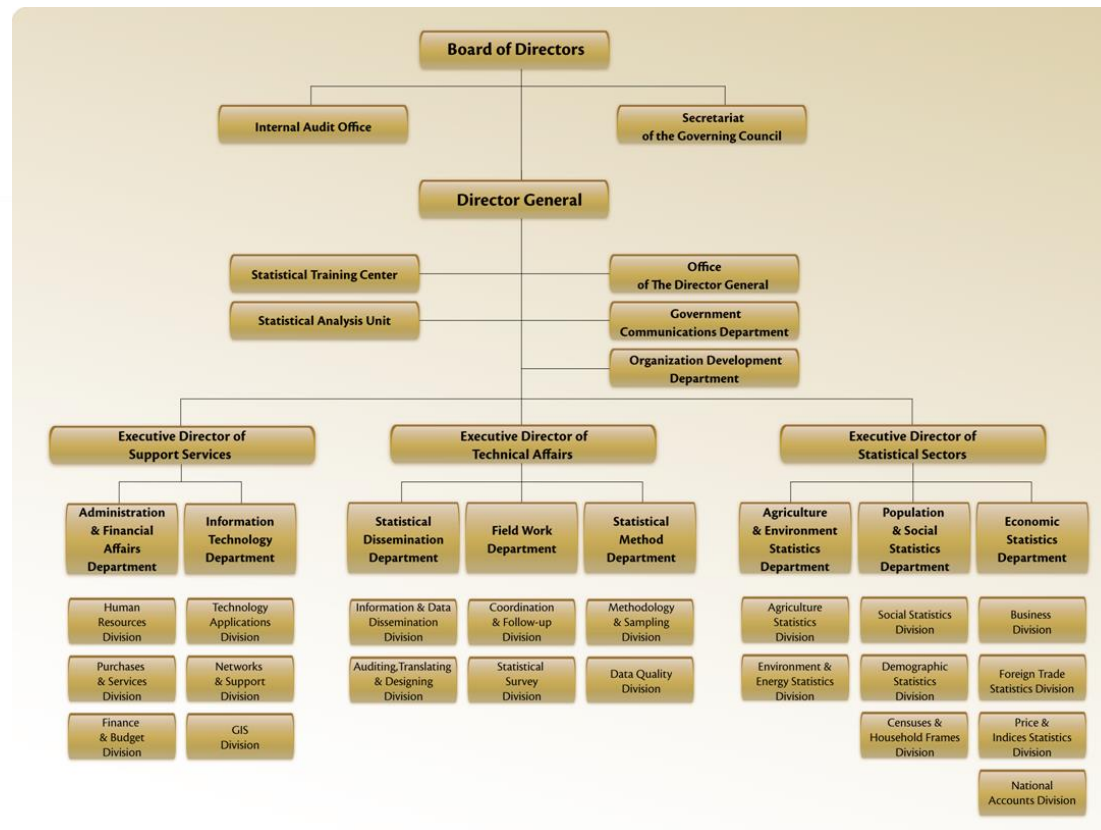


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# UAE statistical office

The Head Office of National Bureau of Statistics is located in Abu Dhabi, while regional NBS offices are located in five emirates: [Ajman](#), [Fujairah](#), [Ras al-Khaimah](#), [Sharjah](#), and [Umm al-Quwain](#).

## NBS Organizational Structure





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# Main activities

The UAE has shown great interest in the different sources of Energy and developing them and promoted research.

- started producing Energy more than half a century ago.
- Carried out many pioneering activities.
- Hosted the International Renewable Energy Agency (IRENA).
- NBS was Including this topic within the scope of its interest, where an organizational unit concerned with Energy Statistics has been established.
- Since its establishment, NBS has carried out many activities related to building databases concerning Energy Statistics.



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# General information

## History and purpose

The NBS includes in the objectives of its strategic plane the building of national statistics network which concentrate mainly on use of administrative data sources to produce official statistics

## Reference period

The strategic plane 2014 – 2016

## Frequency

The data will be collected annually

## Dissemination

The result disseminate at the NBS website as soon as it is prepared and all results also published in the environment compendium which published each two years.



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# General information

## Regional level

The data collected at Emarah level and it is available at national level and at Emarah level for some emirates only.

## Main users

The main users of this data are decision makers, researchers, students, privet company and other data users

## Responsible authority

Coordination committee:

.





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# Coordination committee:

## national committee for energy statistics,

### The main tasks of the Committee are:

- coordination among all relevant authorities for the establishment and development of energy data base.
- identify sources of energy data and collect all data available in each source.
- consolidation and generalization of concepts and definitions of energy and energy statistics among all stakeholders .
- assess the situation of the available data at concerned parties and the necessary data for energy statistics.
- coordination among all stakeholders to provide energy data.
- recommend the implementation of surveys.



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## The committee includes the following entities

- National Bureau Statistics
- Masdar company
- Abu Dhabi Center for Statistics
- Dubai Statistics Center
- the Federal Authority for Electricity and Water
- Ministry of Energy



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## Legal basis and legally binding commitments

Refer to Item 5 of the Article 4 of NBS's Law of Establishment which states (Coordinating with local, regional and international agencies and providing them the available data and information).

<http://www.uaestatistics.gov.ae/LawofEstablishingEN/tabid/186/Default.aspx>



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### **a- administrative data**

- National Bureau of Statistics.
- reports from the agencies that deal with energy .
- international reports in the field of energy statistics .

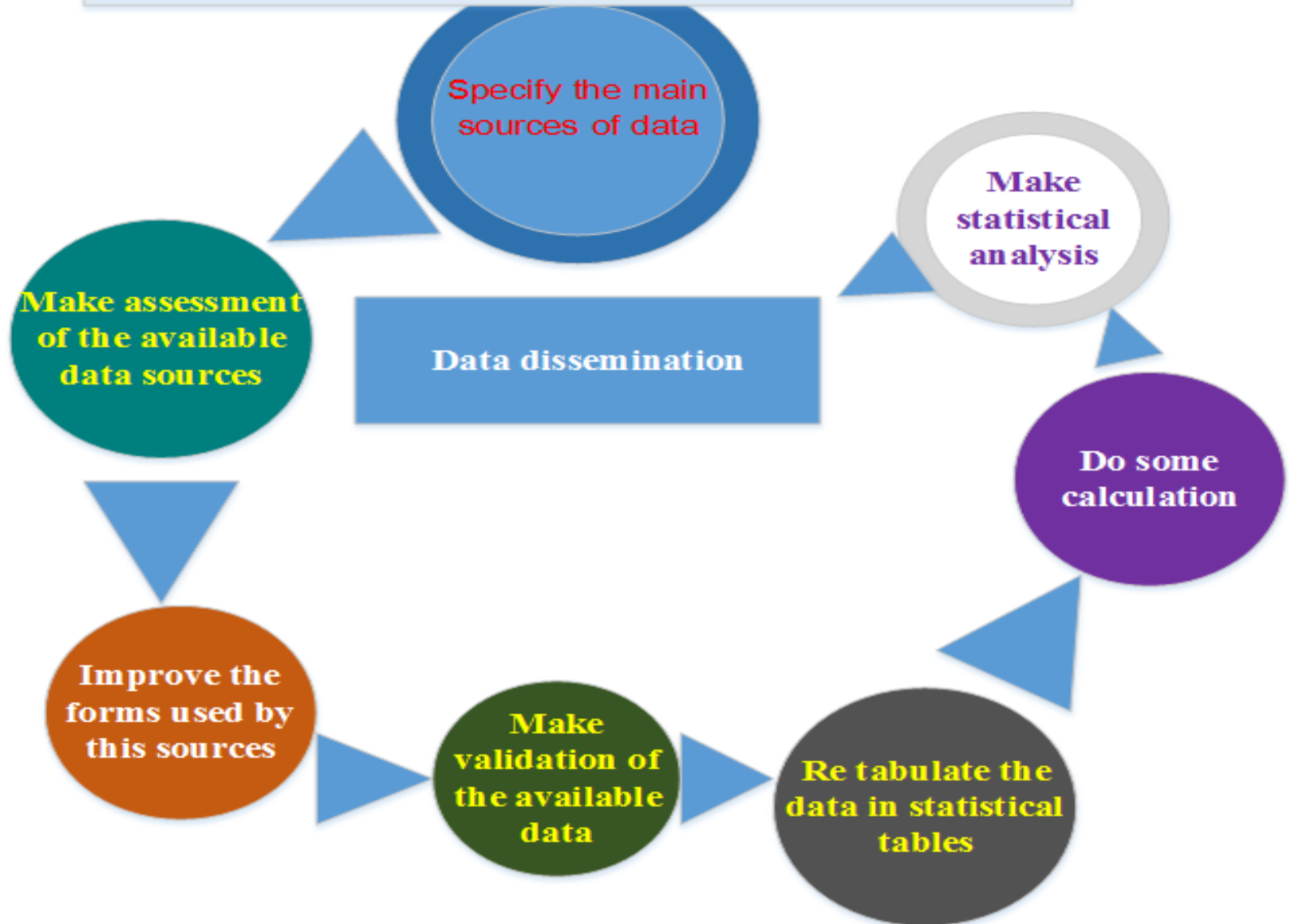
### **b- set of questions attached with other surveys questionnaire**

### **c- conduct independent surveys for companies related to the production and distribution of energy**



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## main steps to collect administrative energy data and example of electricity data





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# main steps to collect administrative energy data and example of electricity data

## 1-Specify the main sources of data

**Abu Dhabi Water & Electricity Authority (ADWEA)**

**Dubai Electricity & Water Authority (DEWA)**

**Sharjah Electricity & Water Authority (SEWA)**

**Federal Electricity & Water Authority (FEWA)**

<http://www.moenr.gov.ae/assets/779e2a52/annual-report-2011-a.aspx>



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هيئة مياه وكهرباء أبوظبي  
Abu Dhabi Water & Electricity Authority



هيئة كهرباء ومياه دبي  
Dubai Electricity & Water Authority



هيئة كهرباء ومياه الشارقة  
Sharjah Electricity & Water Authority



دولة الإمارات العربية المتحدة  
الهيئة الاتحادية للكهرباء والماء  
Federal Electricity & Water Authority





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## 2- Make assessment of the available data sources







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## بيانات الكهرباء

- 4 قدرة الإنتاج MW
- 5 قدرة الإنتاج حسب المولدات MW
- 6 الطاقة المولدة GWh
- 7 الطاقة المستهلكة GWh
- 8 الطاقة المستهلكة حسب القطاعات
- 10 الحمل الأقصى
- 11 عدد المشتركين (كهرباء)
- 12 كمية الكهرباء المصروفة

## بيانات المياه

- 16 القدرة المركبة
- 18 كمية المياه المنتجة
- 20 كمية المياه المستهلكة
- 22 إجمالي الطلب الفروي
- 24 عدد المشتركين (مياه)
- 26 صادرات المياه السنوي

## تعرفة الكهرباء و المياه

- 30 التعرفة الكهربائية في دولة الإمارات العربية المتحدة
- 31 التعرفة المائية في دولة الإمارات العربية المتحدة



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## 3- Improve the forms used by this sources





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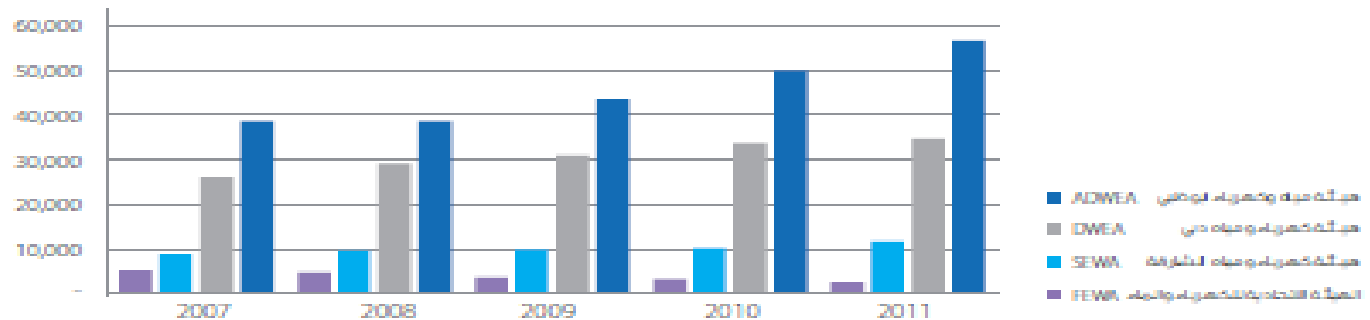
الطاقة الكهربائية المولدة (جيجا وات / ساعة) 2007-2011

Generated Energy (GWH) 2007-2011

الاجمالي Total	الهيئة الاتحادية لل كهرباء والماء FEWA	هيئة كهرباء ومياه الشارقة SEWA	هيئة كهرباء ومياه دبي DEWA	هيئة مياه وكهرباء أبوظبي ADWEA	
78,761	5,171	8,968	26,030	38,592	2007
81,984	4,735	9,614	29,089	38,546	2008
88,192	3,730	9,805	31,013	43,644	2009
97,339	3,401	10,254	33,742	49,942	2010
104,142	2,540	10,420	34,606	56,576	2011

الطاقة الكهربائية المولدة (جيجا وات / ساعة) 2007-2011

Generated Energy (GWH) 2007-2011



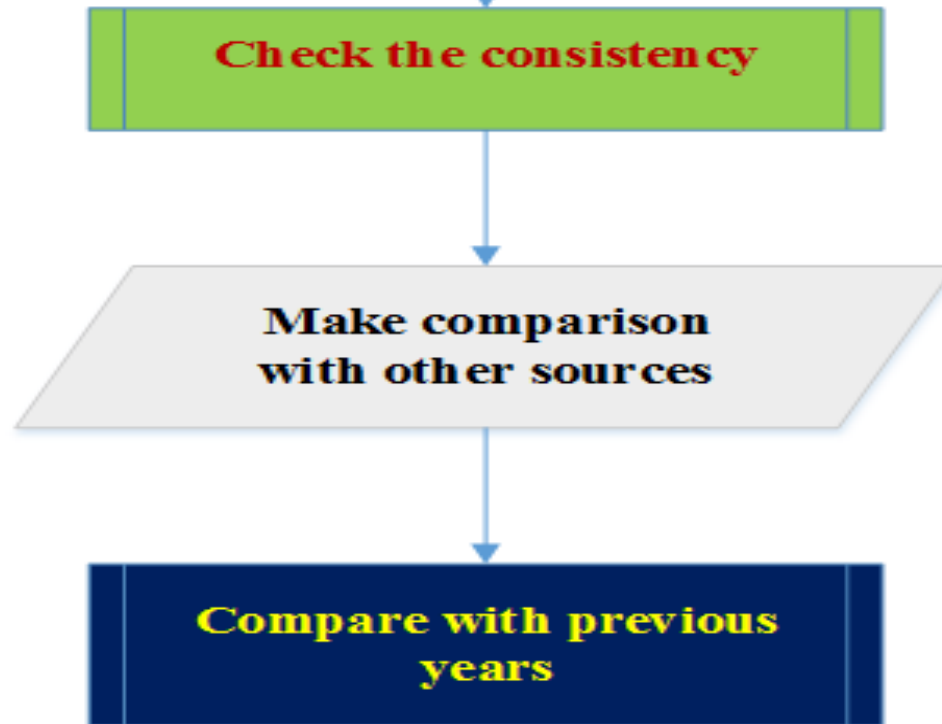


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## 4- Make validation of the available data

Table 1: Gross Generated Electricity by Authority, 2007-2012 (GWh)





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Authority	2012	2011	2010	2009	2008	2007
<b>Table 2: Consumed Electricity by Authority, 2012 (GWh)</b>						
Elect	Authority		الكهرباء المستهلكة Consumed Electricity	الهيئة	38,546	38,592
	Abu Dhabi Water & Electricity Authority (ADWEA) <sup>1</sup>		47,115	هيئة مياه وكهرباء أبوظبي <sup>1</sup>		
Dubai	Dubai Electricity & Water Authority (DEWA)		35,124	هيئة كهرباء ومياه دبي	29,089	26,030
	Sharjah Electricity & Water Authority (SEWA)		9,215	هيئة كهرباء ومياه الشارقة		
Federal	Federal Electricity & Water Authority (FEWA)		10,000	الهيئة الاتحادية للكهرباء والماء	8,093	8,968
	Total		101,454	المجموع		
Source: Ministry of Energy.			المصدر: وزارة الطاقة.			
1- Electricity Consumed in Abu Dhabi Emirate .			1- الكهرباء المستهلكة في إمارة أبوظبي فقط .			
Total	106,222	99,137	93,949	85,698	80,463	78,761



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Table 2: Consumed Electricity by Authority, 2012 (GWh)

Authority	Consumed Electricity الكهرباء المستهلكة Electricity	الهيئة
Abu Dhabi Water & Electricity Authority (ADWEA) <sup>1</sup>	47,115	هيئة مياه وكهرباء أبوظبي <sup>1</sup>
Dubai Electricity & Water Authority (DEWA)	35,124	هيئة كهرباء ومياه دبي
Sharjah Electricity & Water Authority (SEWA)	9,215	هيئة كهرباء ومياه الشارقة
Federal Electricity & Water Authority (FEWA)	10,000	الهيئة الاتحادية للكهرباء والماء
Total	101,454	المجموع
Source: Ministry of Energy.		المصدر: وزارة الطاقة.
1- Electricity Consumed in Abu Dhabi Emirate .		1- الكهرباء المستهلكة في إمارة أبوظبي فقط .



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## 5- Re tabulate the data in statistical tables

Table 3 Quantity of primary energy sources used to generate electricity in Abu Dhabi by type of energy

Use statistical forms

**Make aggregation of the data**



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Table 3 Quantity of primary energy sources used to generate electricity in Abu Dhabi by type of energy

year	GAS	crude oil	gas oil (diesel)	fuel oil	electricity generated
	mscft	gallons	gallons	gallons	GWH
1998	242852	7704286	3472593	54802	16104.4
1999	259072	9202754	4289558	190784	17507.9
2000	274469	4774682	3597665	14652	19128.4
2001	295641	518793	2539531	0	20648.7
2002	318727	3772583	7320617	472296	22398.9
2003	334055	1339140	1449234	83820	23290.0
2004	362861	4402682	1234880	0	24365.8
2005	394818	7924072	3712699	7502	25423.9
2006	392414	164505837	71584498	33922563	32822.7
2007	444795	66098932	48294176	13455772	39407.1
2008	477518	481987	5929677	454575	38543.3
2009	503043	47914991	43884120	4691775	43827.7
2010	532130	1.35E+08	115156465	24750	50088.3
2011	608345	37317375	106175515	0	56622.7
2012	675388	0	3521060	0	62165.6





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## 6- Do some calculation

Use of conversion factor to unify the units

Calculate the Caloric

Calculate the energy efficiency



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Table 4 Energy efficiency in generate electricity in Abu Dhabi by type of energy

year	TJ ( FUEL INPUT )	GWH	TJE ( OUTPUT )	EFFECIENCY
1998	269927.2	16104.4	57975.7	21.5
1999	288352.1	17507.9	63028.3	21.9
2000	304715.3	19128.4	68862.2	22.6
2001	328498.8	20648.7	74335.2	22.6
2002	353042.7	22398.9	80635.9	22.8
2003	368300.3	23290.0	83844.0	22.8
2004	400461.6	24365.8	87716.9	21.9
2005	434729.4	25423.9	91525.9	21.1
2006	477336.4	32822.7	118161.7	24.8
2007	511676.7	39407.1	141865.6	27.7
2008	519152.9	38543.3	138756.0	26.7
2009	566861.4	43827.7	157779.7	27.8
2010	622009.3	50088.3	180317.8	29.0
2011	682641.2	56622.7	203841.8	29.9
2012	731332.1	62165.6	223796.3	30.6



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# main steps to collect administrative energy data and example of electricity data

7- Make statistical analysis

Descriptive analysis

Meta data



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## Electricity Generation

Generated electricity increased by 35% during 2007-2012. The total of production in 2012 was 106,222 Gigawatt.

It is noticed that the emirates of Abu Dhabi and Dubai produce together around 93% of the electricity in the UAE, where other emirates generate only 7%.

## Electricity Consumption

Consumed electricity has increased by 45% during 2007-2012. Data showed that Emirate of Abu Dhabi consumed about 46% of the total consumption in the UAE, while it contributes to about 59% of the electricity production.



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# Data quality

- 1- Safety statistical methodology used in the preparation of administrative records data
- 2- Availability of documents relating to the concepts and classifications and scope and methodology for the preparation and update data
- 3- The application processes to ensure a focus on quality
- 4- systematic evaluation of administrative records data



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## Data dissemination

disseminate the statistical data and information at the NBS web site **according to the advance release calendar.**

### - **Publications and additional documentation**

The NBS publish the environment compendium each two years, energy statics is included in this publication.

<http://www.uaestatistics.gov.ae/EnglishHome/ReportDetailsEnglish/tabid/121/Default.aspx?ItemId=2197&PTID=104&MenuId=1>

-No charge for access to the statistics at any level of aggregation

### - **Scope**

The administrative data mainly covers the production of primary energy and electricity generation and distribution activity



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# THANK YOU

