

Electricity and water sectors Index Numbers For the year 2016

**Index numbers department
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Introduction

indices are important statistical indicators that measure changes in different economic activities indicators depending on a consistent basis in developing plans to develop these activities, so the electricity & water index numbers report for year 2016 basis 2012, including indices of quantities produced sold and number of workers and their salaries, plus the sum of {(electricity+water) indices meaning integrating sectors in a single index by weighting method in electricity & water index numbers} of quantities produced and sold and number of workers and their salaries.

Noting that the calculated indicators don't include Kurdistan region.

All years (2008-2013) which have been calculated by 2007 as a base year are included in this report in the last table, that is, all indices are actual based on 2007.

Methodology

Electricity & water index numbers repairing methodology as below:

I: base year electricity & water indices using 2012 as a base year, instead of 2007.

II: commodity basket for the base year 2012 consists of four classes in electricity & water sector:

1. Quantity Produced: quantity of electricity produced (steam, gas, mobile, diesel and hydroelectric stations), and water quantity produced (pure and raw water).
2. Quantity sold: the quantity of electricity sold (net energy sold by distribution facilities), and the quantity of water sold (consumption of pure and raw water).
3. Workers: the number of employees in electricity & water sectors.
4. Wages: the value of wages or payments for workers.
{Payroll rate} = (salaries) / (number of workers).

Entrepreneurial occupations include by skill in (water sector) only in 6 categories as follows:

1. Top management
2. High competence
3. Technicians
4. Skilled workers
5. Semi-skilled and unskilled
6. Administration and services

The index number for workers and Wages is calculated for the actual basis 2012, 2007 for each of the previous six categories, and the final total of professions in the water sector.

In (electricity sector) according to electricity reports both in industrial statistics directorate or directorate of national accounts or ministry of electricity entrepreneurial occupations were unrated by skill, but only available workers number and wages directly (without a classification of categories of professions), so the index number is calculated for workers and wages directly and actual basis 2012, 2007.

Then calculating the total index number for electricity & water (the integration of electricity+water) for workers number and wages.

III: types of index numbers and mathematical formulas used for the four varieties of the electricity and water sectors

1. The Quantity of electricity and water produced index number:

Simple odd index number is used to calculate the production quantity in electricity & water sectors as follows:

$$\text{Index number} = \frac{\text{Quantity production in comparison year}}{\text{Quantity production in base year}} \times 100$$

To extract the index number for total of electricity & water have been using weighted index relative importance of value added of electricity & water sectors in the base year (so that the value added is the value of a product or production when calculating the weight of water & electricity) as follows:

$$\text{Weight of electricity or water} = \frac{\text{Value added of electricity or water}}{\text{Value added of (electricity+water)}} \times 100$$

2. The Quantity of electricity and water sold index number:

Individual simple index number is used to calculate quantity sold in electricity & water sectors, as follows:

$$\text{Index number} = \frac{\text{Quantity sold in comparison year}}{\text{Quantity sold base year}} \times 100$$

To extract total electricity & water index number using weighted index number relative importance of income for electricity & water sectors in the base year (where income is the value sold when calculating the weight of water and electricity) as follows:

$$\text{Weight of electricity or water} = \frac{\text{Value sold electricity or water}}{\text{Value sold (electricity+water)}} \times 100$$

3. Workers number in the electricity and water sectors index number:

Using weighted at base weights equation (Laspeyres' formula) in calculating the index number of workers number in the electricity & water sectors as follows:

$$\text{Workers number index number} = \frac{\text{Total (Workers no. in comparison year} \times \text{Average salaries in base year)}}{\text{Total (salaries in base year)}} \times 100$$

4. Workers salaries in the electricity and water sectors index number:

Using weighted at base weights equation (Laspeyres' formula) in calculating the index number of workers salaries as follows:

$$\text{Index number of salaries} = \frac{\text{Total (average salaries in comparison year} \times \text{Workers no. in base year)}}{\text{Total (salaries in base year)}} \times 100$$

Data sources

Following sources in the Central statistical organization to calculate for electricity & water sectors index number:

1. Electricity projects report, directorate of industrial statistics.
2. Water report, directorate of industrial statistics also.

Electricity & Water sectors categories index number for year 2016 basis 2012

Table No. (1) Shows Electricity & Water sectors index numbers for the following indicators:

1. Index number of produced quantities:

The Index of produced quantities of electricity reached (189.7%) in 2016 with an increase of (16.5%) from 2015.

While the index of produced quantities of water reached (108.1%) in 2016 with an increase of (0.8%) from 2015.

As for the index of produced quantities of electricity & water together reached (183.2%) in 2016 increases by (15.7%) from 2015.

2. Index number of sold quantities:

The index of sold quantities of electricity reached (110.2%) in 2016 with a decrease of (8.0%) from 2015.

While the index of sold quantities of water reached (161.2%) in 2016 with a decrease of (6.1%) from 2015.

As for the index of sold quantities of electricity & water together reached (113.4%) in 2016 decreases by (7.9%) from 2015.

3. Index of number of Employees:

In electricity sector the index of number of employees reached (148.1%) in 2016 with an increase of (38.4%) from 2015.

While the index of number of employees in water sector reached (123.9%) in 2016 with an increase of (1.1%) from 2015.

As for the index of number of employees in electricity & water together reached (141.4%) in 2016 with an increase (27.0%) from 2015.

4. Index number of Employees' Salary:

The index of employees' salary in electricity sector reached (65.4%) in 2016 with a decrease of (34.1%) from 2015.

While the index of employees' salary in water sector reached (135.5%) in 2016 with a decrease of (12.7%) from 2015.

As for the index of employees' salary in electricity & water together reached (78.6%) in 2016 with a decrease of (28.4%) from 2015.

ELECTRICITY & WATER SECTORS INDEX NUMBERS AND RATES OF CHANGE FOR THE PERIOD (2015-2016) BASIS 2012

Table(1)

Index numbers kinds	Sector	Base weight 2012	Index numbers		Rate of change%
			2015	2016	
Produced	Electricity	92.0	162.9	189.7	16.5
	Water	8.0	107.2	108.1	0.8
	Electricity & Water	100.0	158.4	183.2	15.7
Sold	Electricity	93.7	119.8	110.2	-8.0
	Water	6.3	171.6	161.2	-6.1
	Electricity & Water	100.0	123.1	113.4	-7.9
Employees No.	Electricity	72.5	107.0	148.1	38.4
	Water	27.5	122.6	123.9	1.1
	Electricity & Water	100.0	111.3	141.4	27.0
Employees wages	Electricity	81.2	99.2	65.4	-34.1
	Water	18.8	155.3	135.5	-12.7
	Electricity & Water	100.0	109.7	78.6	-28.4

Figure (1) Indices of electricity & water quantities produced for the period (2014-2016) basis2012

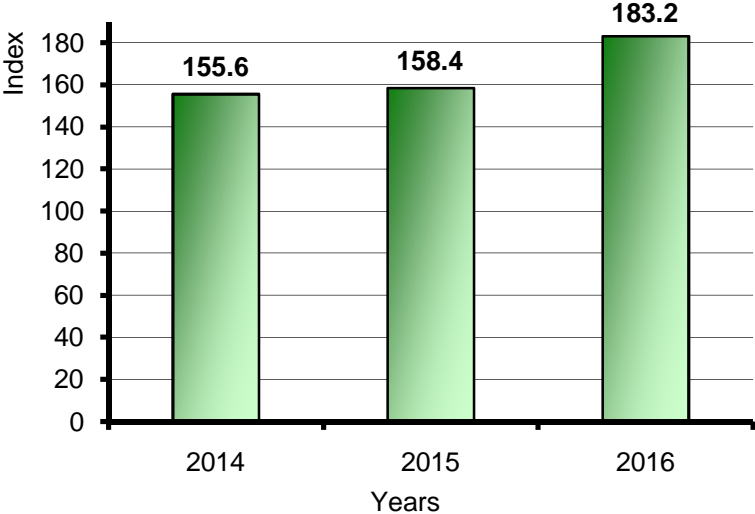


Figure (2) Indices of electricity & water quantities sold for the period (2014-2016) basis2012

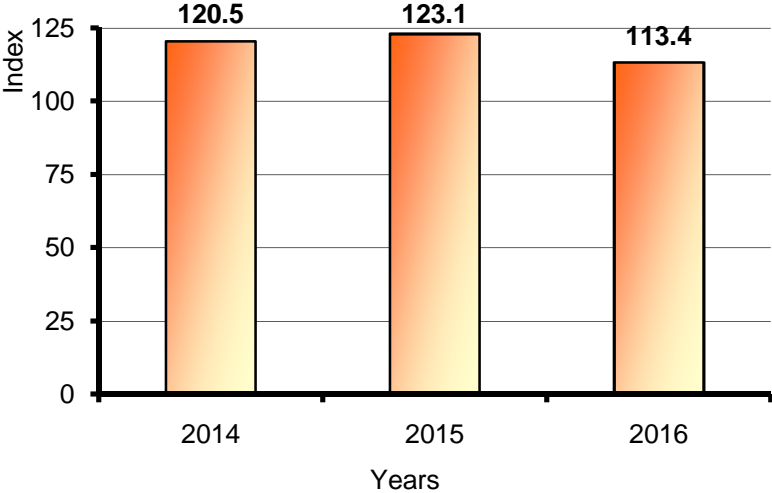


Figure (3) Indices of number of employees in electricity & water sectors for the period (2014-2016) basis2012

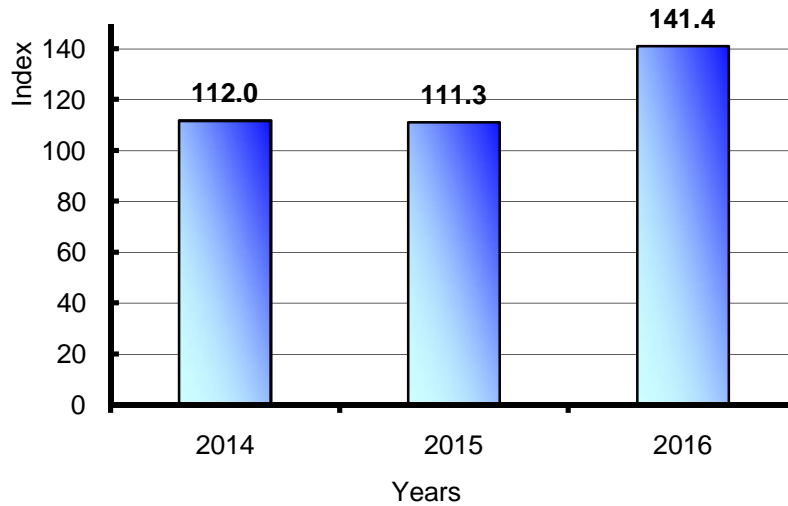
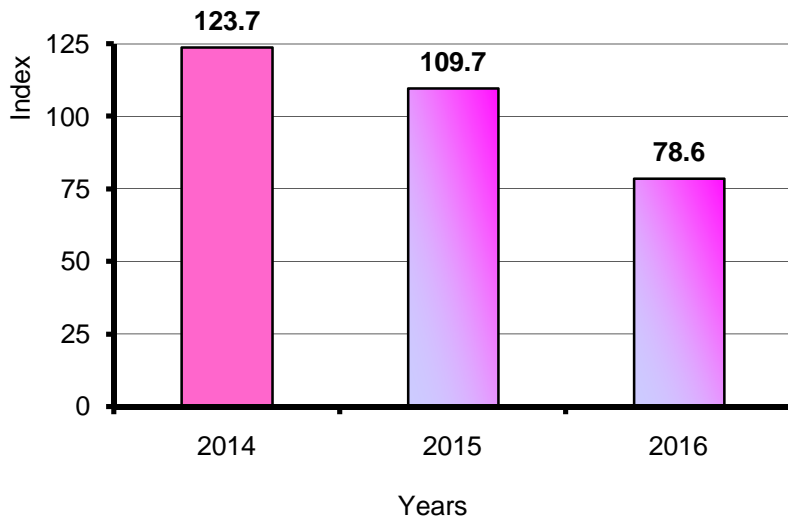


Figure (4) Indices of salaries of employees in electricity & water sectors for the period (2014-2015) basis2012



ELECTRICITY & WATER SECTORS INDEX NUMBERS FOR THE PERIOD (2008-2016) BASIS 2007

Table (2)

(2007=100)

Index numbers kinds	sector	Base weight 2007	Annual index number								
			2008	2009	2010	2011	2012	2013	2014	2015	2016
Indices of produced quantities	Electricity	86.9	110.5	138.4	146.9	121.4	126.7	179.4	202.6	206.3	240.3
	Water	13.1	97.8	126.5	128.7	131.4	155.3	159.1	164.8	166.5	167.9
	Electricity & Water	100	108.8	136.8	144.5	122.7	130.4	176.7	197.6	201.1	230.8
Indices of sold quantities	Electricity	87.1	128.9	170.0	180.4	169.2	230.6	296.1	279.0	276.4	254.0
	Water	12.9	99.7	129.9	132.1	132.6	147.5	151.1	166.6	253.1	237.9
	Electricity & Water	100	125.1	164.8	174.2	164.5	219.9	277.4	264.5	273.4	251.9
Indices of number of employees	Electricity	75.9	—	—	105.0	104.3	158.0	168.6	173.8	169.1	234.0
	Water	24.1	124.4	125.1	131.4	121.3	189.1	190.5	96.9	95.1	91.0
	Electricity & Water	100	—	—	111.4	108.4	165.5	173.9	155.3	151.3	199.5
Indices of salaries of employees	Electricity	84.7	—	—	229.5	230.4	173.4	161.3	174.3	172.0	113.4
	Water	15.3	127.8	210.0	220.5	364.2	351.5	296.4	375.0	280.9	247.8
	Electricity & Water	100	—	—	229.5	230.4	173.4	161.3	174.3	188.7	134.0

Note1: All years (2008-2013) which has been calculated by 2007 as a base year are included in this table, i.e. all indices are actual based on 2007.

Note2: From 2014 above, index numbers will be calculated by linking chains for the base year 2007.

Note3: Data for 2008 & 2009 concerning number of employees & their salaries in electricity sector are not available.