8 Water and Electricity

Introduction

The statistics appeared in this chapter have been provided as register records by the Ministry of Energy on two topics of "water" and "electricity".

1. Water

This section includes information on "underground waters", "reservoir dams", and "length of networks and number of water and sewage extensions". The related statistics have been added to the Statistical Yearbook of Iran since the year 1346.

Statistics on underground waters and reservoir dams have been provided by Water Resources Management Company and statistics on the length of networks and number of water and sewage extensions has been obtained from the Water and Sewage Engineering Company.

Central and Internal basin, Hamun basin, and Sarakhs basin were renamed by Water Resources Management Organization as Central Plateau, Eastern Border and Qareh Qum respectively, in the year 1383.

2. Electricity

Data related to electric power industry was first collected in the year 1343 by the then Ministry of Water and Power (renamed the Ministry of Energy in 1353). Since the year 1346, the Ministry has regularly provided the annual statistics on the power industry comprising power generation, transmission, distribution, and consumption. The statistics, a part of which appears in some tables of this yearbook, are presented in various annual publications released by the Ministry.

Moreover, through two successive censuses of population and housing in the years 1365 and 1375, the SCI collected data on residential units and households benefiting from piped water and electricity which are reflected in Chapter 9, “Construction and Housing,” of the yearbook.

Definitions and concepts

Water basin: see Chapter 1, Definitions and concepts.

Aquatic year: see Chapter 1, Definitions and concepts.

Water produced: the amount of water gained from various (surface and underground) water resources such as wells, springs, subterranean canals, dams and river basins.

Dam: a structure built against the flow of water to reserve water or change the direction of flow or manage it for satisfying different needs such as drinking, industry, irrigation (agriculture), electricity generation and control of flood.

Reservoir dam: a dam made for reserving, managing or controlling the flow of water to reserve it for procuring water for irrigation, drinking, industry, electricity generation and control of flood

Large reservoir dam: refers to all dams with a height of 15 metres or more as well as 10 to 15 metres high dams having a reservoir with a volume of 1 million cubic metres or more and/or a capacity of flood discharge of 2000 or more cubic metres per second.

Inflow: annual volume of water entered the reservoir of a dam through the river.

Outflow: total annual volume of water discharged from different outlets of a dam (weir, silt ejector channels, take-out gates, drainage channels) and evaporation.

Water extension: refers to the part of branched-off water pipes, containing pipe, related accessories, with a profile appropriate to the water metre and the extension capacity of public water, which connects a private water distribution line or public water distribution network from installation place of the extension valve to the delivery point (valve following the watermetre).

Public water distribution network: a collection of interconnected pipe lines with needed pressure for distributing water for household, office and industrial consumption in a region or inside the city , all of which belong to the Water and Sewage Company.

Sewage extension: refers to the part of minor sewage pipelines, including pipes and related accessories, with a profile appropriate to siphon or contractual capacity, which carries joint sewages

away from the siphon to the private line or to the public network for collecting sewages.

Public network for collection and transmission of sewage: refers to all installations and equipment, such as main collectors, used for collection and transmission of sewage to water treatment house and pump houses of urban sewage and public side networks, all belonging to the Water and Sewage Company. The network is not responsible for collection, transmission and disposal of rainfall water flowing on passages, flood channels and channels inside and outside cities located in the customers' estates.

Nominal capacity (registered nominal power): refers to the maximumexpected output of an electricity generator in designing condition defined by the manufacturer. Nominal power is usually installed in KVA or KW for smaller generators on the generator.

Actual capacity or actual power (registered power): refers to the maximum amount of electricity that could be generated by a generator while regarding the environmental conditions (altitude, temperature, and relative moisture).

Maximum coincidental power generated: refers to the sum of electric power generated at the peak of network load during a certain period. The sum of maximum coincidental power generated might be equal or less than the total capacity of the plants.

Gross generation: refers to the amount of electricity generated by a generator or a plant during a certain period which is measured on output series of the main or supplementary generators and stated in kilowatt hour (kWh) or megawatt hour (MWh).

Net generation: refers to the electricity measured at the point of transmission to the power grid. During a certain period, the net generation may be calculated by subtracting the gross internal consumption form the gross generation in the same period.

Other institutions: the institutions which generate electricity for their own consumption and also sell a part of their production to other institutions but are independent from the Ministry of Energy; some examples are, Esfahan Steelworks,Mobarakeh Steel Industries, Petrochemical Industries, Tabriz Tractor Industries, and Sarcheshmeh Copper Industries.

Interconnected network: the collection of production sites and regions of energy consumption around the country connected together with a network of transmission lines and high voltage stations. The network lets electricity exchange between the regions covered, and makes the export of electric energy possible.

Isolated network (generation and power consumption): refers to regional, provincial and island networks not connected with adjacent networks or interconnected network.

Load-demand: the power consumed during a certain period in a certain part of the network.

Maximum coincidental load: in a full interconnected electricity system, maximum coincidental load for a day, a week, a month, or a year refers to the sum of load at the peak of consumption in regions in megawatt. Where the interconnected system does not cover the total country, the maximum coincidental load may be calculated by adding up maximum load of interconnected network and load of separate regions in megawatt simultaneously. With regard to the difference between peak hours of consumption in different regions connected to the interconnected network, maximum coincidental load is less than the sum of the maximum loads of the regions.

Maximum non-coincidental load: the sum of the peak of consumption in different regions of the country during a certain period, which are not necessarily simultaneous.

Power Company: the companies (Ltd.) which are by law engaged in generation, transmission and distribution of electricity or in a part of such activities and provide the customers with electricity. The definition covers the water and power organizations as well.

Power plant: refers to the installation place of generators and related equipment.

Hydroelectric power plant: a power plant in which the potential energy of water accumulated at dams or flowing energy of rivers water is used to drive the hydroelectric turbine for electricity generation.

Thermal power plant: a power plant in which chemical energy inherent in solid, liquid, gaseous

fuels is transformed into electricity. This definition covers nuclear, steam, gas, combined-cycle and diesel power plants.

Steam power plant: a kind of power plant in which thermal energy produced from liquid, solid and gas fuels is used for steam production and then driving the steam turbine to generate electricity**.**

Gas power plant: a type of power plant in which hot gas produced from the thermal energy in gas and liquid fuels drives gas turbine to generate electricity.

Combined-cycle power plant: a kind of power plant in which, in addition to electric energy in gas turbine, the heat in gases off the gas turbine is used for production of steam using a recycling steam kettle. The steam produced is transformed into electric energy in a steam turbo generator set.

Diesel power plant: a kind of power plant in which gas or liquid is used in cylinders to transform mechanical energy produced by coupled generator into electric energy.

Internal consumption: refers to the sum of electricity consumed internally by units and for non-technical cases, as well as consumption of lights, etc. in a power plant in a certain period in kilowatt-hour (kWh).

Losses: refers to the energy lost in transmission and distribution lines in a network or a certain system. Energy lost by transformers is considered as losses of transmission and distribution.

Sale or consumption of electricity: the amount of electricity sold to the consumers for various consumptions.

Energy produced by the fuel (thermal value): the amount of heat (kilo calorie or B.T.U.) produced through burning of the mass unit of a certain fuel.

Thermal output: considering that the thermal energy produced by 1 kWh is equal to 860 kcal, the output of thermal power plants (thermal output) is calculated through the following formula:

output(%) = (860/thermal energy consumed for 1 kWh of power generated) × 100

Line of power: the cables installed on poles to transmit the electric power from the production site (power plant) or substation to consumption places in different voltages.

Power transmission line: a line composed of conductors, insulators and other subsidiary equipment used for transmission of high amount of electricity, with high voltages in long distances between source points (power plants and receiving points.

Sub-transmission line: a collection oftransmissionlines with voltages from 63 to 132 kV.

Electricity customers: natural or legal persons whose specifications are registered by customers division according to the regulation of the power company after submitting the required documents and payment of the related costs, and are offered a customer number.

Household uses: electricity used by households to operate common electric appliances and for lights in residential units.

Public uses: electricity used for public services.

Agricultural uses: electricity used for pumping surface and underground water or repumping water for production of crops or carrying out agricultural activities. Agricultural activities are defined in ISIC Rev. 3.

Industrial uses: electricity used for doing jobs in establishments engaged in manufacturing and mining activities.

Selected information

In aquatic year 1390-1391,the amount of annual discharge of the underground water resources was 64523 mln cu m which in comparison to the aquatic year 1389-90had an 8.4 percent decrease. It should be noted that out of 6 main basins, the central plateau with 49.8 % had the maximum annual discharge.

In the year 1391, the inflow of the large reservoir dams amounted to 38546 mln cu m had a 14.24% increase in comparison to the last year. In this year, 25169 mln cu m of large reservoir dams have been consumed, 61.2 percent of which belongs to the agricultural consumptions.

In the same year, over 6642 mln cu m of water is produced in the water and sewage companies of the country (urban and rural) out of which about 4877 mln cu m was sold. Sale of water had a 3.9

percent increase compared to the preceding year. This is while production of water had 2.45 percent increase compared to the year 1390.

In the year 1391, there were over 18331000 water extensions which had a 5.9)percent increase in comparison to the preceding year. Out of this number about 13614000 extensions were for the urban areas which had a 5.6% increase compared to the previous year.

In the year 1391, the gross electricity generation of institutions affiliated to the Ministry of Energy was 216688 mln kilo watt hours, more 40.77 percent of which is produced in the steam power plants. Furthermore, the gross electricity generation amount had a 3.97percent increase compared to the preceding year.

In this year, 194148 mln kilowatt hours of generated electricity was consumed by a number of 28751000) subscribers. In this respect, the amount of electricity sold and the number of electricity subscribers increased 5.6 and increased by 5.8 percent respectively compared to the preceding year.

Among all electricity subscribers in the year 1391, percentage of subscribers in the house, public, agricultural and manufacturing sectors was 81.6, 4.1, 1.0 and 0.6 respectively. Also in this year, the percentage of the sold electricity which was consumed in the house and manufacturing, agricultural, public sectors and for the streets lighting was 31.56, 34.6, 16.3, 9.2 and 6.5 percent respectively.

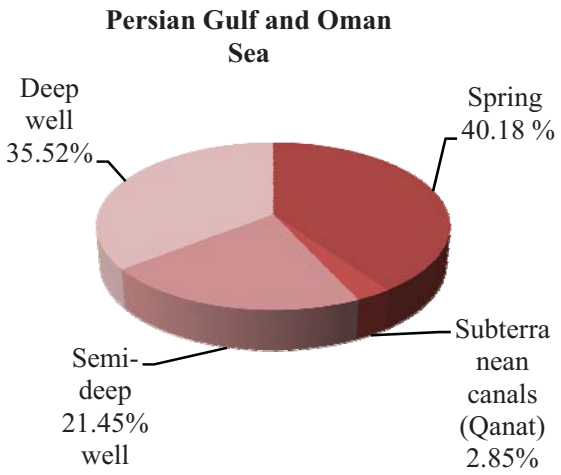
At the end of the year 1391, a number of 54561 villages (about 4.3 mln rural households) were electrified which increased 0.8% in comparison to the previous year.

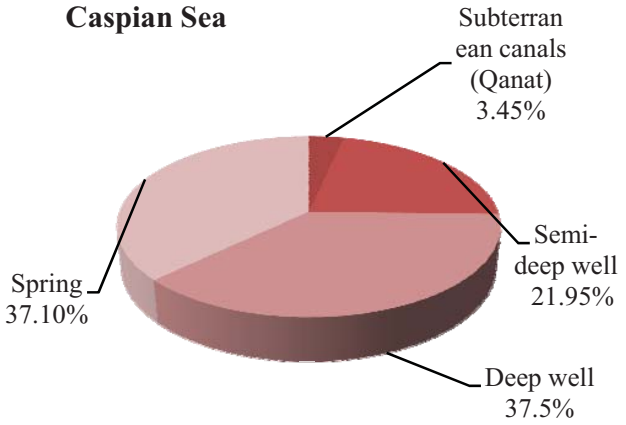
8. 1. UNDERGROUND WATER RESOURCES AND THEIR ANNUAL DISCHARGE BY MAIN BASINS (mln cu m)

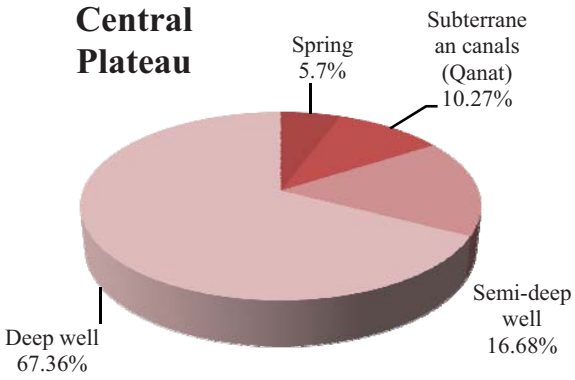
Aquatic year and main basins	Total discharge	Deep well		Semi-deep well		Subterranean canals (Qanat)		Spring	
		Number	Annual discharge	Number	Annual discharge	Number	Annual discharge	Number	Annual discharge
1374-75	60946	93646	27708	254900	11441	30988	9543	44476	12253
1379-80	69549	118986	30757	314405	13263	33036	7962	49785	17566
1384-85	79837	155800	35843	432943	12778	36307	7527	112787	23690
1386-87.....	77544	165883	36065	464946	13540	36888	6992	127604	20948
1387-88.....	73861	167653	35419	473246	13418	37240	6657	135760	18368
1388-89.....	75714	176516	33977	472398	13323	39048	6458	145609	21956
1389-1390	70482	191261	34367	497579	12479	39531	6259	159454	17378
1390-1391……	***64523***	***195766***	***34872***	***567898***	***12311***	***41109***	***4752***	***173825***	***12588***
Caspian Sea	7219	35145	2707	227915	1585	2621	249	76034	2678
Persian Gulf and Oman Sea	18958	42067	6734	104558	4067	4775	541	55913	7617
Lake Orumiyeh	2155	8047	1006	74336	867	1812	135	9908	148
Central Plateau	32152	102658	21656	148097	5362	26727	3302	27762	1832
Eastern Border.....	1414	1862	725	8700	338	3111	300	1428	50
Qareh Qum	2625	5987	2044	4292	91	2063	226	2780	264

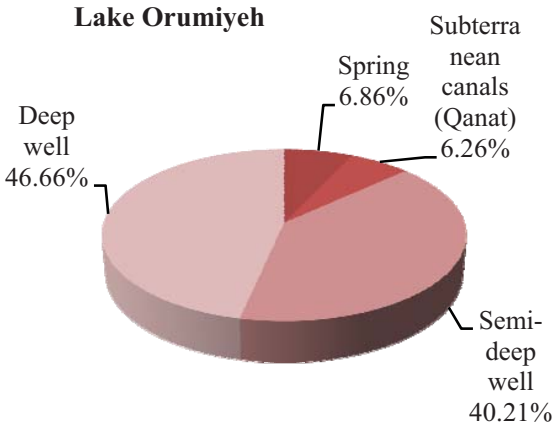
Source: Ministry of Energy.

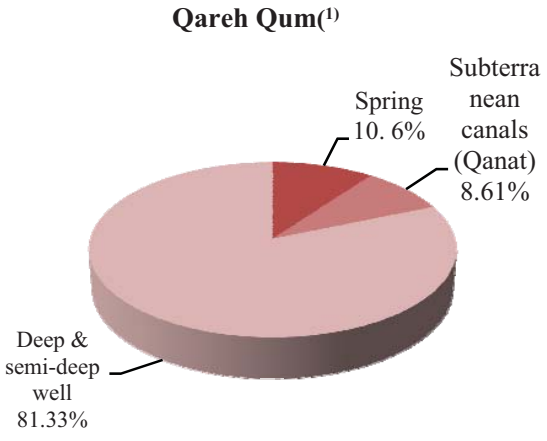
8.1. ANNUAL DISCHARGE FROM UNDERGROUND WATER RESOURCES BY MAIN BASINS,THE ACQUATIC YEAR 1390-91

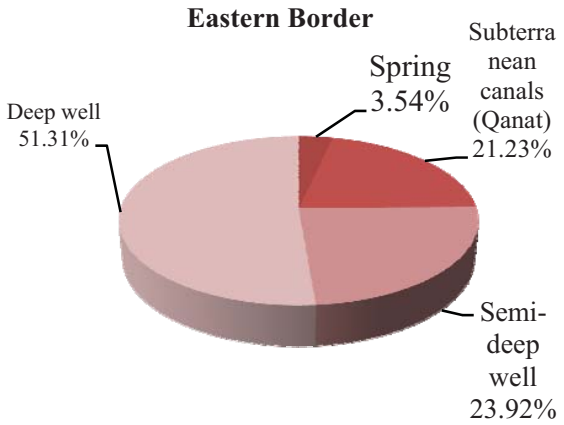












1- Statistics for semi-deep wells are included with deep wells.

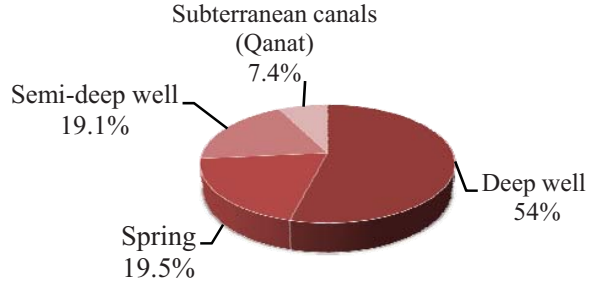
For data see Table 8.1.

8 .2. UNDERGROUND WATER RESOUCES AND THEIR ANNUAL DISCCHARGE BY REGIONAL WATER ORGANIZATIONS, AQUATIC YEAR 1390-91 (mln cu m)

Ostan	Total discharge	Deep well		Semi-deep well		Subterranean		Spring	
		Number	Annual discharge	Number	Annual discharge	Number	Annual discharge	Number	Annual discharge
Total.....	***64523***	***195766***	***34872***	***567898***	***12311***	***41109***	***4752***	***173825***	***12588***
East Azarbayejan	1268	5727	624	34860	359	1960	186	2295	99
West Azarbayejan.....	1853	5044	991	44522	594	486	52	863	216
Ardebil	392	2031	161	4737	86	221	19	3354	125
Esfahan	5417	15599	1968	32717	1492	4203	707	8686	1250
Alborz[(1)].....	845	58850	666	10852	54		13	1912	113
Ilam.....	353	1126	230	802	13	4	1	744	109
Bushehr.....	516	1405	114	11809	351	48	11	180	40
Tehran[(1)]	2706	16619	2181	32502	129	557	249	2587	148
Chaharmahal&Bakhtiyari.....	3771	2658	542	1337	148	1011	91	4760	2991
South Khorasan.....	1211	2424	841	849	37	6251	266	2196	66
Khorasan-e-Razavi	6379	12902	5221	11708	248	6779	556	6814	353
North Khorasan.....	912	1679	420	2551	47	635	87	3145	358
Khuzestan	1369	3012	866	6476	267	3	1	1124	234
Zanjan	1280	4004	732	14742	312	792	47	6528	189
Semnan	1025	2854	695	1959	35	738	96	1873	199
Sistan&Baluchestan.....	1982	1446	375	17530	1189	1282	377	905	41
Fars	7977	31019	4056	53204	2482	1730	401	2226	1038
Qazvin.....	1722	4067	1478	3981	57	313	59	13852	128
Qom	903	1183	543	3756	179	753	163	1397	19
Kordestan.....	1025	2665	353	14313	170	519	24	38571	478
Kerman	6207	16773	4660	17837	1169	2353	296	1565	83
Kermanshah	1484	4101	502	11041	447	401	31	11187	504
Kohgiluyeh & Boyerahmad.....	1596	787	134	1772	90	61	12	4608	1360
Golestan	1191	7985	406	26481	401	336	22	2988	362
Gilan	724	805	107	47416	226	0	0	15723	391
Lorestan	957	3177	477	3788	120	1167	31	5692	329
Mazandaran.....	1669	15436	506	120391	329	34	7	21688	827
Markazi.....	3100	7784	1894	7545	344	4227	627	3052	236
Hormozgan	1536	4406	739	17830	617	169	33	639	147
Hamedan.....	1960	8303	1520	7822	217	1277	107	2384	116
Yazd.....	1193	2865	871	768	103	2630	181	387	39

Source: Ministry of Energy.

8. 2.PERCENTAGE OF ANNUAL DISCHARGE FROM UNDERGROUND WATER RESOURCES, 1390-91



For data see Table 8. 1.

8.3. STATISTICS ON LARGE RESERVOIR DAMS[1] BY REGIONAL WATER ORGANIZATIONS

(mln cu m)

Description	Inflow[2]	Outflow[2]			Water consumption[3]				
		Total	From turbines ducts for electricity generation	Other [4]	Total	Agriculture	Drinking	Manu-facturing	Other[5]
1375	36901	40136	26784	13352	18125	15009	1462	374	1280
1380	30400	27311	18386	8925	11467	8819	1209	382	1058
1385	50873	54716	44913	9803	17157	13233	2276	589	1059
1387	18399	19227	13519	5709	16192	11496	2330	659	1708
1388	35729	27475	11372	16103	17067	10310	4127	657	1973
1389	35617	35711	17602	18109	25829	13220	3356	774	8479
1390	33740	32822	17122	15700	25675	16175	2226	855	6419
1391	***38546 [6]***	***34294[6]***	***17014***	***21134***	***25169***	***15405***	***3020***	***861***	***5883***
East Azarbayejan									
Aras[2,7]	3647	3494	3398	96	1854	1289	0	0	565
Nahand	35	25	0	25	24	0	22	0	1
Alaviyan	95	91	0	91	89	70	10	2	7
SattarkhanAhar	60	42	0	42	38	28	7	2	1
Aydoghamush(8)	135	160	0	160	15	13	0	0	2
Sahand(8)	150	117	0	117	24	18	4	0	2
Taj bar sarab	4	2	0	2	1	1	0	0	0
Arasbaran	2	0	0	0	0	0	0	0	0
Ghale chai	54	41	0	41	41	34	0	0	7
Khodaafarin[3]	5099	5316	0	5316	0	0	0	0	0
Zonuz	7	6	0	6	6	4	0	0	3
Kord Kandi	3	0	0	0	0	0	0	0	0
West Azarbayejan									
ShahidGhanbari	31	30	0	30	23	23	0	0	0
Bukan [9]	1518	1349	0	1349	707	407	128	3	169
Mahabad	298	200	159	41	166	146	20	0	0
Hasanlu	111	87	0	87	72	36	0	0	36
Barun	121	126	0	126	103	96	6	0	0
Shahrchay	189	179	0	179	171	90	59	0	22
Zola	60	32	0	32	29	29	0	0	0
Qiqadj	3	0	0	0	1	1	0	0	0
Aghchay	134	99	0	99	99	69	0	0	30
Aras	5	1	0	1	0	0	0	0	0
Saruq	14	6	0	6	5	2	3	0	0
Deriq almas	11	10	0	10	10	10	0	0	0

8.3. STATISTICS ON LARGE RESERVOIR DAMS[1] BY REGIONAL WATER ORGANIZATIONS (continued)

(mln cu m)

Description	Inflow[2]	Outflow[2]			Water consumption[3]				
		Total	From turbines ducts for electricity generation	Other [4]	Total	Agriculture	Drinking	Manu-facturing	Other[5]
Ardebil									
Sabalan.....	68	36	0	36	32	19	0	0	14
Gilarlu	2	0	0	0	0	0	0	0	0
Qurichay	16	10	0	10	8	8	0	0	0
Yamchi.....	84	70	0	70		39	22	0	8
Saqizchi.....	17	17	0	17	3	3	0	0	0
Moghadasardebili....	9	5	0	5	5	2	0	0	4
Esfahan									
Zayandehrud	998	898	638	259	856	344	395	92	25
Golpayegan[9]	112	105	0	105	103	35	68	0	0
Hana	19	17	0	17	14	14	0	0	0
Khamiran	12	9	0	9	7	7	0	0	0
Baghkal-e-Khansar.....	2	1	0	1	0	0	0	0	0
Qareh Aqach…….	11	4	0	4	3	3	0	0	0
Alborz……									
Karaj……	469	479	472	7	325	87	237	0	0
Taleghan……..	508	580	322	258	475	334	141	0	0
Ilam									
Ilam.....	32	23	0	23	17	1	16	0	0
Seymareh[2,10]	1059	1308	0	1308	0	0	0	0	0
Boshehr									
Reis Ali delvari.....	352	198	0	198	172	168	0	0	4
Tehran									
Lar[2]	450	439	214	226	431	0	214	0	218
Latiyan[2]	372	425	421	4	367	88	229	0	49
Mamlo[2]	293	198	0	198	189	175	0	14	0

8.3.STATISTICS ON LARGE RESERVOIR DAMS[1] BY REGIONAL WATER ORGANIZATIONS (continued)

(mln cu m)

Description	Inflow[2]	Outflow[2]			Water consumption[3]				
		Total	From turbines ducts for electricity generation	Other[4]	Total	Agriculture	Drinking	Manu-facturing	Other[5]
Chaharmahal&Bakhtiyari									
Choghakhor	25	20	0	20	11	11	0	0	0
Naghan	2	1	0	1	1	1	0	0	0
South Khorasan									
Haji Abad	3	2	0	2	2	1	0	0	0
Parsa	0	0	0	0	0	0	0	0	0
Asadyieh	5	0	0	0	0	0	0	0	0
Khorasan- e- Razavi									
Dusti	789	742	0	742	552	142	124	0	286
Sad-e- Khaf	12	8	0	8	8	8	0	0	0
Toroq	10	4	0	4	3	1	2	0	1
Sangerd	18	8	0	8	6	6	0	0	0
Komayestan	8	6	0	6	2	2	0	0	0
Yam	3	3	0	3	2	2	0	0	0
North Khorasan									
ShirinDarreh	60	60	0	60	17	13	0	0	3
Barzu	25	19	0	19	19	13	6	0	0
Chary	4	3	0	3	3	3	0	0	0
Bidvaz	35	18	0	18	14	13	0	0	0
Kardeh…	8	5	0	5	5	3	3	0	0
Shahid Yaghobi	9	4	0	4	3	3	0	0	0
Tabarak Qochan	15	10	0	10	9	8	2	0	0
Shahid Dehqan	3	1	0	1	1	1	0	0	0
Fariman	11	10	0	10	10	10	0	0	0
Zavin Kalat	1	1	0	1	1	1	0	0	0
Dolatabad	0	0	0	0	0	0	0	0	0
Chali DarrehTorgha	1	0	0	0	0	0	0	0	0
Dahan Ghale	4	1	0	1	0	0	0	0	0
Daroungar-e-Dargaz	5	2	0	2	1	1	0	0	0
Khuzestan									
Karkhe[2,11]	2119	1317	411	906	1077	579	192	24	282[14]
Dez[11]	4576	3308	3238	70	3238	2047	63	117	1010[14]
Karun1ShahidAbbaspour)[2]	7425	7285	7217	67	1948	1520	45	38	345
Karun 3[2,12]	6125	5877	5811	66	0	0	0	0	0
Karun 4[2,12,13]	3418	3184	3120	64	0	0	0	0	0
Marun	1265	1189	869	320	1151	739	96	24	292
Masjed-Soleyman[2,11,12] (Goder Lander)	8112	8105	8092	13	5753	3183	398	495	1677[14]
Jareh	146	63	0	63	0	0	0	0	0
Gotvand-e-Olia[2]	9335	8263	4649	3614	0	0	0	0	0
Zanjan									
Tahem	30	28	0	28	24	1	23	0	0
Kineh Vers	13	13	0	13	4	3	0	0	1
Golabar	20	2	0	2	2	2	0	0	0
Semnan	30	28	0	28	24	1	23	0	0
Damghan	27	23	0	23	22	13	4	0	4

8.3. STATISTICS ON LARGE RESERVOIR DAMS[1] BY REGIONAL WATER ORGANIZATIONS (continued)

(mln cu m)

Description	Inflow[2]	Outflow[2]			Water consumption[3]				
		Total	From turbines ducts for electricity generation	Other [4]	Total	Agriculture	Drinking	From turbines ducts for electricity generation manufacturing	Other[5]
Sistan&Baluchestan									
Pishin	77	49	0	49	39	39	0	0	0
Chahehnimeh 1, 2 3[2,16]	752	724	0	724	319	278	41	0	0
Chahehnimeh4[2, 16]	360	521	0	521	0	0	0	0	0
Kheirabad	5	10	0	10	6	4	2	0	0
Sha iKelk	7	3	0	3	0	0	0	0	0
Mashkid-e-Olia	1	0	0	0	0	0	0	0	0
Zirdan	52	4	0	4	2	2	0	0	0
Fars									
Dorudzan[2]	654	675	268	407	619	526	43	15	34
Izad Khast[2]	4	4	0	4	2	2	0	0	0
Molla Sadra(Tange Baragh)[2]	268	214	126	88	70	55	0	0	15
Salman Farsi	229	226	0	226	204	171	33	0	0
Sivand	7	7	0	7	7	7	0	0	0
Qom									
Panzdah Khordad	8	11	0	11	7	6	1	0	0
Kordestan									
Baneh	7	6	0	6	5	0	5	0	0
Qeshleq	114	77	0	77	65	14	44	1	5
Zarivar[14]	60	37	0	37	0	0	0	0	0
Sang siyah	13	10	0	10	8	8	0	0	0
Azad	95	25	0	25	3	3	0	0	0
Kerman									
Jiroft	121	165	116	49	149	149	0	0	0
Sirjan (Tanguiyeh)	4	5	0	5	4	2	2	0	0
Baft	11	8	0	8	4	4	0	1	0
Nesa	87	97	0	97	57	24	0	0	33
Kermanshah									
Gavshan	134	131	0	131	115	106	9	0	1
Gilangharb	2	1	0	1	0	0	0	0	0
Soleymanshah	26	28	0	28	22	10	2	0	10
Shiyan	1	2	0	2	2	2	0	0	0
Zagros	30	10	0	10	4	2	0	0	2
Azadi	37	16	0	16	13	1	0	0	12
Kohgiluyeh & Boyerahmad									
Kosar	539	473	0	473	307	95	103	3	105
Shah Qasem	28	15	0	15	2	2	0	0	0

8.3. STATISTICS ON LARGE RESERVOIR DAMS[1] BY REGIONAL WATER ORGANIZATIONS (continued)

(mln cu m)

escription	Inflow[2]	Outflow[2]			Water consumption[3]				
		Total	From turbines ducts for electricity generation	Other[4]	Total	Agriculture	Drinking	Manu-facturing	Other[5]
Golestan									
Voshmgir[2,18].....	682	685	0	685	70	45	0	0	25
Golestan[2,18]..... ...	358	361	0	361	35	18	0	0	18
Alagol[12,17,19].....	112	74	0	74	10	0	0	0	10
Nomel.....	9	8	0	8	5	4	0	0	1
Golestan2[2,18]....	83	75	0	75	14	7	0	0	6
Daneshmand.....	28	44	0	44	4	0	0	0	4
Gilan									
Sefidrud.....	2906	2793	1683	1110	2040	1478	101	21	439
Lorestan									
Kaznar.....	1	1	0	1	0	0	0	0	0
Tanghaleh.....	0	1	0	1	1	1	0	0	0
Khanabad.....	6	5	0	5	5	2	0	0	3
Mazandaran									
Shahid Rajaee.....	250	240	158	82	155	134	0	0	21
Shiyadeh.....	4	4	0	4	4	3	0	0	1
Berenjestanak.....	11	12	0	12	4	4	0	0	0
Meijeran.....	17	17	0	17	15	8	0	0	7
Salaheddinkola...	1	0	0	0	0	0	0	0	0
Farimsahra	2	1	0	1	1	1	0	0	0
Sonbolrud.....	4	4	0	4	4	2	0	0	2
Alimalat.....	2	2	0	2	0	0	0	0	0
Alborz.....	141	108	0	108	92	32	0	0	60
Markazi									
Saveh	35	42	0	42	31	31	0	0	0
Kamal Saleh	25	44	0	44	37	0	30	6	0
Hormozgan									
Jegin.....	71	96	0	96	57	57	0	0	0
Esteqlal.....	91	80	0	80	49	14	35	0	0
Shamil & Nian.....	70	55	0	55	2	2	0	0	0

8. 3. STATISTICS ON LARGE RESERVOIR DAMS[1] BY REGIONAL WATER ORGANIZATIONS (continued)

(mln cu m)

Description	Inflow[2]	Outflow[2]			Water consumption[3]				
		Total	From turbines ducts for electricity generation	Other [4]	Total	Agriculture	Drinking	Manu facturing	Other [5]
Hamedan									
Ekbatan	38	42	0	42	33	5	28	0	0
Abshineh	2	3	0	3	2	0	2	0	0
Shirinsu.....	1	1	0	1	0	0	0	0	0
Kalan-e-Malayer	17	14	0	14	13	13	0	0	0
Yazd									
Darrehbid...	1	0	0	0	0	0	0	0	0
Korait.....	1	1	0	1	1	1	0	0	0
Nahreyn.....	5	6	0	6	5	5	0	0	0

1. For 143 large reservoir dams (based on the ICOLD definition) with the capacity of 47.1 bln.cu.m, almost equaling to 95% of the total volume of all dams under use.

2. Total inflow and outflow were calculated through omission of the influence of being chain of (Shahid Abbaspur, Karun3, Karun 4, Masjed-Soleyman and Gotvand-e-Olia dams in Khuzestan), (Aras and Khodaafarin in East Azarbayejan), (Dorudzan and Mollasadra in Fars), (Seymareh in Ilam and Karkheh in Khuzestan) , (Chahehnimeh 1,2,3, 4 in Sistan &Baluchestan) provinces. Moreover, Inflow volume is calculated through balance of volume changes of reservoir and amount of outflows.

3. The amount of water included for different consumption is the volume of water released for different consumption. With respect to the location of dams and the distance between them and consumption place, specially in agricultural sector, the water released for the agriculture is different from the volume of the water delivered to this sector. The difference is due to different reasons including middle basin, midway offtake, penetration, evaporation. Moreover, drinking water is the volume of water discharged from the dam.

4. Other outflows include evaporation, weir, dam take-out gates, slit ejection, direct pumping from reservoir, drainage and leaking.

5. Other consumption including water at the time of stability of flow of the river.

6. Main difference between consumption(25.2 bln cu m) or net outflow(34.3 bln cu m) is due to the following reasons: 1.2 bln cu m water from the dams of Khuzestan Ostan, 3.7 bln cu m from Aras & Khodaafarin dams, consumptions of neighboring country and environmental consumption and surplus outflow, 0.6 bln cu m discharge and outflow of Bukan Dam to Orumieh Lake, 0.5 bln cu m discharge between Chahehnimeh 4 and Chahehnimeh1,2,3, 0.7 bln cu m surplus outflow of Gorganrud in Golestan Ostan, 0.8 bln cu m surplus outflow of Sefidrud dam in non-cultivation season and environment, 0.106 bln cu m surplus outflow, weir etc. in other dams of the country.

7. Outflow of Aras dam and Dusti dam is equal to total outflow of the dam and consumptions only include Iran consumption.

8. In Aydoghamush and Sahand dams, 113 mln cu m were released without use due to the lack of. *water need and not finishing the downward network*

9. Bukan dam had 223 mln cu m weirs and 169 mln cu m were released for environment uses and Orumieh Lake.It is necessary to mention that major dam outflow was made through weir instead of discharge fro the gates.

10. Major part of 108 mln cu m of inflow to the Golpayegan reservoir dam in the year 1391 relates to the transferring of the water from Dez branches to Qomrud.

11. Inflow and outflow of Seymareh reservoir dam, due to its location on Karkheh river were calculated with Karkheh reservoir dam through eliminating Serie effects.

12. In Shirindarreh dam, water surplus is discharged through sediment valve that has been volume of water transfer to Alagol dam besides sediment management,.

13.The consumption from the chain dams of Karun 3, Karun 4 and Masjed Soleyman is included in the consumption of Masjed Soleyman.

14. Major part of other consumption in dams of Dez, Karkheh and Masjed-Soleyman were due to the improvement of drinking water.

15. Krun 4 reservoir dam is located in Chaharmahal & Bakhtiyari Ostan. However,since it is located on the Karun river, it is classified in Khuzestan Ostan.

16. Water discharged from the reservoirs of Chahehnimeh1,2,3 in the water aboundancy conditions to the reservoir of Chahehnimeh 4 dam, 232 mmm and in the conditions of water need of the downward areas, almost this amount, that is, 221 mln cu m water has been discharged from the reservoir of Chahehnimeh 4 dam to the reservoirs of Chahehnimeh.

17. The consumption of Zarivar and Alagol includes provision of the ecological and environmental conditions

18. Water discharged from the weirs of Voshmgir, Golestan 1 & 2 dams are 178, 408 and 12 mln cu m , respectively.

19. Water discharged at the amount of 33 mln cu m from the take-out gates of the Alagol dam has been for the improvement of reservoir Ec.

Source: Ministry of Energy.

8. 4. CAPACITY OF RESERVOIRS, LENGTH OF THE NETWORK AND NUMBER OF WATER EXTENSIONS COVERED BY URBAN WATER AND SEWAGE COMPANIES IN URBAN AREAS

Year and urban water and sewage company	Capacity of reservoirs (cu m)	Length of the network with a diameter of 80 mm or more (km)	Extensions (number)
1375	6735738	66557	6445675
1380	8402485	77955	8060281
1385	10914721	119059	10115189
1387	12182784	135599	11208647
1388	12788446	143716	11670825
1389	12643894	127570	12314372
1390	13101344	133163	12886677
1391	***13599484***	***136398***	***13614415***
East Azarbayejan	855375	8403	881033
West Azarbayejan	365375	4305	523125
Ardebil	213355	2201	253307
Esfahan	888985	10949	1010566
Kashan	117940	1716	125566
Alborz	353080	2725	338637
Ilam	122050	1285	114854
Bushehr	232050	2462	179287
Tehran	2802875	14899	1679671
Chaharmahal&Bakhtiyari	145160	1431	169046
South Khorasan	94710	1514	131856
Khorasan-e-Razavi	434000	4930	530859
Mashhad	561000	3593	749261
North Khorasan	94830	1136	145046
Khuzestan	650079	6573	576227
Ahvaz	78000	2454	302140
Zanjan	129600	1526	187810
Semnan	143450	1952	207130
Sistan&Baluchestan	264660	3801	277499
Fars	509320	6483	568372
Shiraz	314050	2891	376636
Qazvin	234320	1782	243809
Qom	221320	1968	256087
Kordestan	180075	2515	269599
Kerman	670640	8573	517176
Kermanshah	295400	2921	332921
Kohgiluyeh&Boyerahmad	99410	1051	128480
Golestan	191350	2651	240703
Gilan	287518	4746	376619
Lorestan	245750	2628	299242
Mazandaran	440410	6527	509849
Markazi	254645	2919	276343
Hormozgan	353379	2852	188258
Hamedan	296223	2531	301230
Yazd	459100	5505	346171

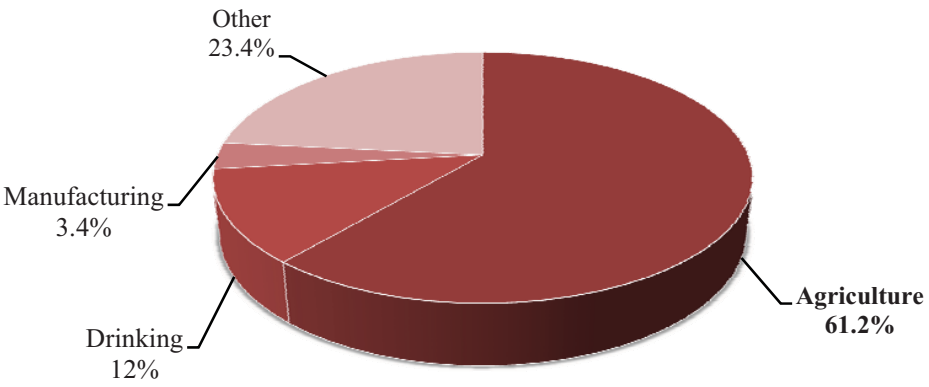
Source: Water and Sewage Engineering Company.

8. 5. WATER SUPPLY, PRODUCTION AND SALE CAPACITIES IN URBAN AREAS COVERED BY URBAN WATER AND SEWAGE COMPANIES

Year and urban water and sewage company	Supply (lit/second)	Production (1000 cu m)	Sale (1000 cu m)
1375	157801	3694153	2737860
1380	165328	4008252	2617518
1385	214154	5094428	3464452
1387	233408	5554571	3755528
1388	249020	5551910	3929525
1389	243943	5677772	4071058
1390	247392	5323362	3900727
1391	***258750***	***5425077***	***4034954***
East Azarbayejan	10733	220726	179265
West Azarbayejan	7773	165670	127687
Ardebil	4537	67256	48278
Esfahan	16499	373318	297871
Kashan	1511	37783	29428
Alborz	9310	214371	162630
Ilam	1245	33819	25436
Bushehr	3038	79091	56178
Tehran	61626	1339822	977954
Chaharmahal&Bakhtiyari	2331	43304	33631
South Khorasan	1457	34311	24787
Khorasan-e-Razavi	7674	138000	97600
Mashhad	8562	209275	161417
North Khorasan	1912	35303	26954
Khuzestan	15400	313299	206590
Ahvaz	7924	163315	106007
Zanjan	3384	61513	44212
Semnan	2647	52066	39727
Sistan&Baluchestan	5073	94612	71749
Fars	8786	157745	114945
Shiraz	5819	116061	93984
Qazvin	3760	75917	61839
Qom	7109	100897	80711
Kordestan	3687	96741	65274
Kerman	8326	153692	112462
Kermanshah	5143	117764	86644
Kohgiluyeh&Boyerahmad	2078	35686	25512
Golestan	3907	72366	54474
Gilan	4649	120975	97067
Lorestan	3549	98208	72242
Mazandaran	10505	222070	155861
Markazi	5574	103931	80123
Hormozgan	3326	96806	74131
Hamedan	5018	89622	68924
Yazd	4878	89742	73360

Source: Water and Sewage Engineering Company.

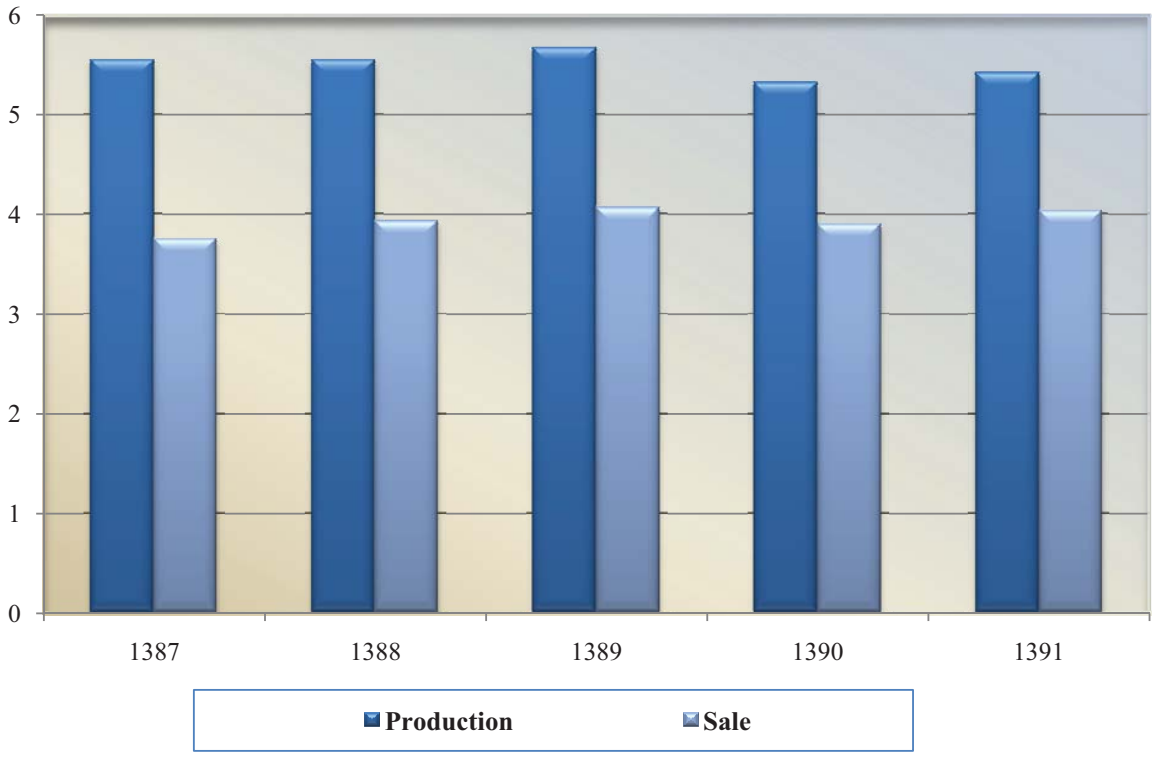
8. 3.WATER CONSUPMPTION OF LARGE RESERVOIR DAMS BY TYPE OF USE, THE YEAR 1391



For data see Table 8. 3.

8.4 PRODUCTION AND SALE OF WATER IN URBAN AREAS BY URBAN WATER AND SEWAGE COMPANIE

Billion cu m



For data see Table 8.5.

8. 6. WATER SUPPLY, PRODUCTION AND SALE CAPACITIES IN RURAL AREAS COVERED BY RURAL WATER AND SEWAGE COMPANIES

Year and rural water and sewage company	Supply (lit/second)	Production (1000 cu m)	Sale (1000 cu m)
1385	51242	1019180	652929
1387	55595	1104970	745751
1388	56918	1107761	789971
1389	56108	1211890	824564
1390	77038	1160295	794211
1391	***77806***	***1217272***	***842466***
East Azarbayejan	2018	65657	48130
West Azarbayejan	1963	64540	46226
Ardebil	1761	19700	14000
Esfahan	2654	55180	35480
Alborz(1)	000	000	000
Ilam	605	13337	9569
Bushehr	1654	31665	20353
Tehran(1)	3203	63627	44165
Chaharmahal&Bakhtiyari	1179	19958	14242
South Khorasan	860	15380	10200
Khorasan-e-Razavi	4786	98076	71696
North Khorasan	1545	19977	14400
Khuzestan	4309	70250	42880
Zanjan	1056	24200	16721
Semnan	652	16840	8430
Sistan&Baluchestan	3141	37300	26300
Fars	8080	111802	70619
Qazvin	1481	26044	18968
Qom	436	14760	7076
Kordestan	2562	21434	14787
Kerman	2883	53095	38623
Kermanshah	3042	34523	24043
Kohgiluyeh&Boyerahmad	756	13328	8526
Golestan	3359	44671	32483
Gilan	4954	44670	32240
Lorestan	2180	30600	21880
Mazandaran	2242	84639	59280
Markazi	3523	33349	24340
Hormozgan	6697	39980	30140
Hamedan	2624	33008	23532
Yazd	1601	15682	13137

1. Statistics for Alborz are included with Tehran.
Source: Water and Sewage Engineering Company.

8. 7. CAPACITY OF RESERVOIRS, LENGTH OF THE NETWORK AND NUMBER OF WATER COVERED BY RURAL WATER AND SEWAGE COMPANIES IN EXTENSIONS RURAL AREAS

Year and rural water and sewage company	Capacity of reservoirs (cu m)	Length of the network (km)	Extensions (number)
1385	2914866	116474	3285903
1387	3289733	127922	3743170
1388	3244177	141406	4019362
1389	3453064	150148	4265423
1390	3292684	155248	4415119
1391	***3361062***	***160414***	***4717323***
East Azarbayejan	175833	7531	237383
West Azarbayejan	140740	5554	221155
Ardebil	66771	2938	93123
Esfahan	127753	5124	211544
Alborz(1)	000	000	000
Ilam	61698	1284	43685
Bushehr	59343	3272	76698
Tehran(1)	134957	3671	189134
Chaharmahal&Bakhtiyari	95380	2611	82505
South Khorasan	88790	2384	100388
Khorasan-e-Razavi	272623	11910	505709
North Khorasan	72862	2358	91730
Khuzestan	128858	11613	157534
Zanjan	75288	3000	87047
Semnan	35607	1152	52889
Sistan&Baluchestan	237903	7428	140705
Fars	262350	11657	394204
Qazvin	63835	2270	96728
Qom	70000	869	34538
Kordestan	125000	3107	91499
Kerman	142000	11000	220604
Kermanshah	114999	4736	116296
Kohgiluyeh&Boyerahmad	60000	2938	51646
Golestan	110390	5028	196552
Gilan	185430	12146	229157
Lorestan	35852	4102	103719
Mazandaran	113612	12129	348971
Markazi	79920	2789	134545
Hormozgan	108190	5768	149330
Hamedan	83970	6800	147638
Yazd	31108	3245	110667

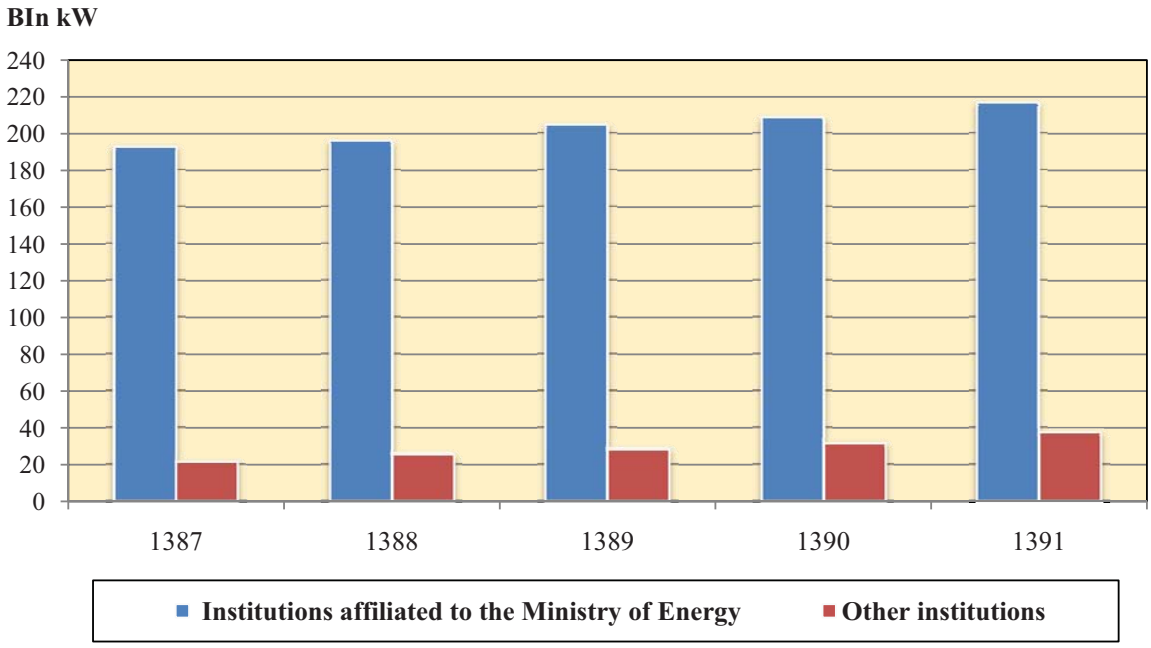
1. Statistics for Alborz are included with Tehran.
Source: Water and Sewage Engineering Company.

8. 8. NOMINAL CAPACITY AND GROSS ELECTRICITY GENERATION OF INSTALLED GENERATORS

Year	Nominal capacity			Gross electricity generation		
	Total	Institutions affiliated to the Ministry of Energy	Other institutions**	Total	Institutions affiliated to the Ministry of Energy	Other institutions**
1375	27077	22420	4657	90851	85825	5026
1380	34233	28043	6190	129996	124275	5721
1385	45151	40909	4242	192534	181538	10996
1387	52944	46003	6941	214280	192701	21579
1388	56181	47298	8883	221318	195583	25735
1389	61203	50319	10884	232994	204515	28478
1390	65212	52252	12960	240063	208413	31650
1391	***68941***	***53998***	***14943***	***254265***	***216688***	***37577***

Source: Ministry of Energy.

8.5. GROSS ELECTRICITY GENERATION IN THE COUNTRY



For data see Table 8.9.

8. 9. CAPACITY OF INSTALLED GENERATORS AND MAXIMUM COINCIDENTAL POWER GENERATED IN PLANTS AFFILIATED TO THE MINISTRY OF ENERGY (1000 kWh)

Year and type of generator	Nominal capacity			Actual capacity			Coincidental power generated		
	Total	Inter-connected network	Isolated networks	Total	Inter-connected network	Isolated networks	Total	Inter-connected network	Isolated networks
1375	22420	19656	2764	21136	18655	2481	16106	14562	1544
1380	28044	27868	176	25645	25494	151	21853	21790	63
1385	40909	40732	177	37410	37286	124	31650	31561	89
1387	46004	45787	217	41953	41798	155	34168	34067	101
1388	47298	47082	216	42254	42100	154	37580	37472	108
1389	50319	50102	217	45077	44922	155	34474	34361	113
1390	52253	52037	216	46666	46514	152	36850	36731	119
1391[1]	***53998***	***53781***	***217***	***48281***	***48128***	***153***	***36798***	***36676***	***122***
Hydroelectric	9745	9742	3	9745	9742	3	5426	5426	0
Steam	14951	14951	0	14567	14567	0	12423	12423	0
Gas	12423	12239	184	9909	9780	129	7611	7498	113
Combined cycle	15260	15260	0	12596	12596	0	11044	11044	0
Diesel	439	409	30	284	263	21	94	85	9
Atomic and renewable	1180	1180	0	1180	1180	0	0	0	0
Large industries	5581	5581	0	4597	4597	0	878	878	0
Private sector	9363	9363	0	7845	7845	0	5567	5567	0

1. Total does not include private sector and large industries.
Source: Ministry of Energy.

8. 10. CAPACITY OF INSTALLED GENERATORS AND MAXIMUM COINCIDENTAL ELECTRICITY GENERATION OF POWER PLANTS AFFILIATED TO THE MINISTRY OF ENERGY BY REGIONAL POWER COMPANIES, THE YEAR 1391

Description	Nominal capacity(1000 kW)	Actual capacity Actual capacity (1000 kW)	Gross generation (mln kW h)
Total	***68941***	***60723***	***254265***
Kish Water and Power Company [1]	198	139	576
Azarbayejan Regional Power Company	3924	3348	15222
Esfahan Regional Power Company	2578	2526	16089
Bakhtar Regional Power Company	2360	2303	11451
Tehran Regional Power Company	9521	7944	43428
Khorasan Regional Power Company	4223	3632	18835
Khuzestan Regional Power Company	2397	2257	14331
Zanjan Regional Power Company	648	500	1114
Semnan Regional Power Company	661	522	675
Sistan&Baluchestan Regional Power ompany	1163	926	3921
Gharb Regional Power Company	2259	1947	11507
Fars Regional Power Company	4881	4071	19439
Kerman Regional Power Company	2003	1564	9291
Gilan Regional Power Company	1737	1607	9583
Mazandaran Regional Power Company	2215	2137	11937
Hormozgan Regional Power Company	2372	2219	11932
Yazd Regional Power Company	1113	893	5210
Hydroelectric plants	9745	9745	12447
Large industries	5581	4597	10740
Private sector	9363	7845	26537

1. The Company is under the supervision of Kish Development Organization.
Source: Ministry of Energy.

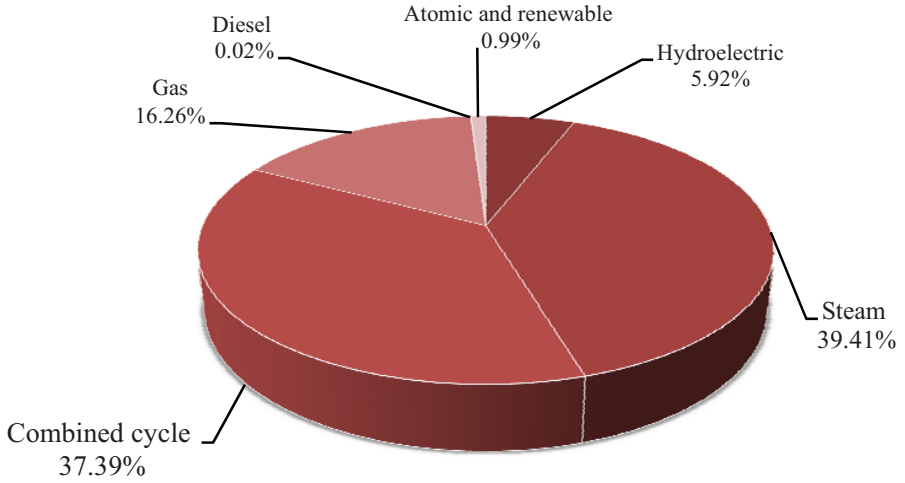
8. 11. ELECTRICITY GENERATION AND INTERNAL CONSUMPTION OF THE POWERPLANTS AFFILIATED TO THE MINISTRY OF ENERGY (mln kWh)

Year and type of generator	Gross generation	Internal consumption of plants	Net generation
1375	85825	4568	81257
1380	124275	5942	118333
1385	181538	7063	174475
1387	192701	7636	185065
1388	195582	7559	188023
1389	204515	7589	196926
1390	208414	7984	200430
1391 [1]	***216989***	***7848***	***209141***
Hydroelectric	12447	69	12378
Steam	88475	6049	82426
Combined cycle	79685	1478	78207
Gas	34249	248	34001
Diesel	66	4	62
Atomic and renewable	2067	0	2067
Large industries	10740	261	10479
Private sector	26537	243	26294

1.Total does not include private sector and large industries.

Source: Ministry of Energy.

8. 6. NET PRODUCTION SHARE OF ELECTRICITY OF THE PLANTS AFFILIATED TO THE MINISTRY OF ENERGY, THE YEAR 1391



For data see Table 8. 12.

8. 12. GROSS ELECTRICITY GENERATION OF HYDROELECTRIC POWER PLANTS BY REGIONAL WATER ORGANIZATION AND TYPE OF DAM (1000 kW hours)

Year and regional water organization	Total		Concrete arch		Earth		other	
	Number	Generation	Number	Generation	Number	Generation	Number	Generation
1375	11	7375938	6	7069895	5	306043	-	-
1380	13	5056652	8	4902159	5	154493	-	-
1385	29	18168964	13	12634896	18	5550129	12	182164
1387	41	4753159	22	2801923	8	1853232	11	98004
1388	43	7206717	24	5032335	8	2081634	11	92748
1389	45	9522515	25	6373709	9	3078230	11	70574
1390	46	13287425	26	8489912	9	4707067	11	90446
1391	***47***	***12446570***	***26***	***7636570***	***10***	***4745855***	***11***	***64145***
East Azarbayejan Regional Water Organization	0	0	0	0	0	0	0	0
West Azarbayejan Regional Water Organization	2	80875	0	0	2	80875	0	0
Esfahan Regional Water Organization	2	67609	2	67609	0	0	0	0
Tehran Regional Water Organization	5	475772	3	237542	2	238230	0	0
Khuzestan Regional Water Organization	7	9918262	3	5580142	4	4338120	0	0
Fars Regional Water Organization	3	93923	1	5293	2	88630	0	0
Kerman Regional Water Organization	1	39311	1	39311	0	0	0	0
Kermanshah Regional Water Organization	1	3803	1	3803	0	0	0	0
Gilan Regional Water Organization	3	293550	1	293550	0	0	2	0
Mazandaran Regional Water Organization	6	34745	3	34745	0	0	3	0
Ardebil Regional Water Organization	1	55682			0	0	1	55681
Lorstan Regional Water Organization	3	1110	3	1110	0	0	0	0
Kohgiluyeh&Boyerahmad Regional Water Organization	5	14221	3	9004	0	0	2	5217
Markazi Regional Water Organization	2	3146	1	1654	0	0	1	1492
Hamedan Regional Water Organization	1	1755			0	0	1	1755
Chaharmahal&Bakhtiyari Regional Water Organization	3	1362806	2	1362807	0	0	1	0
KhorasanRazavi Regional Water Organization	2	0	2	0	0	0	0	0

Source: Ministry of Energy.

8. 13. GROSS ELECTRICITY GENERATION, FUEL CONSUMPTION, ENERGY GENERATION AND OUTPUT OF THERMAL POWER PLANTS AFFILIATED TO THE MINISTRY OF ENERGY, LARGE SCALE INDUSTRIES AND PRIVATE SECTOR

Description	Gross electricity generation (mln kw hours)	Fuel consumed			Energy generated from fuel consumption (bln kcal)	Thermal energy consumed to generate one kWh of electricity (kcal)	Output (percent)
		Gas oil (mln lit.)	Fuel oil (mln lit.)	Natural gas (mln cu m)			
1375.....	78449	1014	7446	13443	205737	2623	32. 8
1380.....	(1)122081	1618	6799	24012	295114	2414	35. 6
1385.....	(1)174280	4362	7587	32168	393246	2403	35. 8
1387.....	(1)209331	3427	8911	37865	441936	2355	36. 5
1388.....	(1)213883	3802	9541	36501	439203	2386	36. 0
1389.....	(1)223259	5918	8859	44890	525097	(1)2352	36. 6
1390.....	(1)227428	9406	12019	38901	530623	2333	36. 9
1391.....	***239752***	***7768***	***14450***	***40692***	***554963***	***2315***	***37. 2***
Power plants affiliated to the Ministry of Energy……..	202475	6020	14450	31320	457161	2258	38. 1
Large Industries……..	10740	27	0	2940	27015	2515	34. 2
Private sector……...	26537	1721	0	6432	70787	2667	32. 2

1.Revised figures.
Source: Ministry of Energy.

8. 14.GENERATION, INTERNAL CONSUMPTION OF POWER PLANTS, PURCHASE,LOSSES AND SALES OF ELECTRIC POWER OF INSTITUTIONS AFFILIATED TO THE MINISTRY OF ENERGY (mln kWh)

Description	1375	1380	1385	1387	1388	1389	1390	1391
Gross generation	85825	124275	181538	192701	195583	204515	208414	216988
Less: Internal consumption of plants	4568	5942	7064	7636	7559	7589	7985	7849
Net generation	81257	118333	174474	185065	188024	196926	200429	209139
Plus: Electricity purchased from large-scale industries(1)	2135	5721	10997	21579	19784	23954	23637	29365
Less: Distribution and transmission networks losses ……	11202	20857	35566	37754	34129	34663	34102	36755
Net sales	70055	97476	144862	(2)163636	(2)172522	(2)187874	188917	201280
Net exports	384	305	264	2191	(2)4084	(2)3692	5012	7132
Domestic sales.....	69671	97171	144598	(2)161445	(2)168438	(2)184182	183905	194148

1.Other institutions include large industries and private plants.
2.Revised figures.
Source: Ministry of Energy.

8.15. MAXIMUM COINCIDENTAL AND NON-COINCIDENTAL LOADS OF REGIONALPOWER COMPANIES (1000 kW)

Year and regional power company	Maximum coincidental & non-coincidental load
1375	15616
1380	23220
1385	33453
1387	34049
1388	37050
1389	38919
1390	41481
1391	***42027***
Kish Water and Power Company	113
Azarbayejan Regional Power Company	2300
Esfahan Regional Power Company	2839
Bakhtar Regional Power Company	2031
Tehran Regional Power Company	7471
Khorasan Regional Power Company	2670
Khuzestan Regional Power Company	5950
Zanjan Regional Power Company	1074
Semnan Regional Power Company	399
Sistan&Baluchestan Regional Power Company	972
Gharb Regional Power Company	1307
Fars Regional Power Company	3700
Kerman Regional Power Company	1474
Gilan Regional Power Company	1221
Mazandaran Regional Power Company	2971
Hormozgan Regional Power Company	1941
Yazd Regional Power Company	698
Large Industries	2896

Source: Ministry of Energy.

8. 16. LENGTH OF DIFFERENT TYPES OF ELECTRIC POWER TRANSMISSION LINES

(km circuits)

Year	Transmission line		Sub-transmission line	
	400 kV	230 kV	132 kV	63 and 66 kV
1375	6730	14115	10647	23336
1380	9924	20731	13857	29400
1385	12404	25634	18582	37974
1387	14973	27247	20100	40776
1388	17438	28478	20703	42341
1389	18761	29117	21111	44007
1390[1]	18625	29158	22092	44956
1391	***19745***	***29722***	***22602***	***45754***

1.In the year 1390, statistical data for power transmission lines of the country were reviewed and there was a decrease in this regard.
Source: Ministry of Energy.

8. 17. NUMBER OF CUSTOMERS AND DOMESTIC SALES OF ELECTRICITY BY AFFILIATED TO THE MINISTRY OF ENERGY

Year	Customers	Domestic sales of electricity (mln kW h)
1375	12854735	69671
1380	16345450	97171
1385	20559946	144597
1387	22609603	161058
1388	24191259	167527
1389[1]	25692719	184182
1390	27164768	183905
1391	***28751529***	***194148***

1.Revised figures.
Source: Ministry of Energy.

8. 18. NUMBER OF DIFFERENT TYPES OF CUSTOMERS (customer)

Year and Ostan	Total	Household	Public	Agricultural	Industrial	Other
1375	12854735	10440912	290156	37747	55036	1578877
1380	16345450	13682563	523505	77556	91468	1970358
1385	20559946	16989284	748964	138137	152202	2531359
1387	22609603	18606151	849504	173644	(1)165475	2814829
1388	24191259	19844427	952043	201912	161380	3031497
1389	25692719	21048404	1005121	258138	158538	3222518
1390	27164768	22224100	1082528	284781	174255	3399104
1391	***28751529***	***23467188***	***1180911***	***307329***	***184861***	***3611240***
East Azarbayejan	1454726	1165783	50730	15346	12554	210313
West Azarbayejan	1006686	831346	23637	15668	4490	131545
Ardebil	430877	361219	13166	3108	2376	51008
Esfahan	2120342	1702611	64165	36036	24238	293292
Alborz	1486656	1216700	77702	5642	8162	178450
Ilam	178638	150518	6375	2280	943	18522
Bushehr	347025	287316	9767	2679	1906	45357
Tehran	5207128	3993782	383944	7806	30970	790626
Chaharmahal&Bakhtiyari	285288	242513	7893	4700	1955	28227
South Khorasan	266459	226245	10504	3538	1557	24615
Khorasan-e-Razavi	2265757	1879110	73601	16313	15095	281638
North Khorasan	282358	242174	8820	2580	1236	27548
Khuzestan	1290918	1081033	37670	7754	3568	160893
Zanjan	355865	297236	11374	6413	2857	37985
Semnan	313139	249988	15471	4258	3890	39532
Sistan&Baluchestan	620815	526842	19265	9590	1847	63271
Fars	1612190	1345735	44325	34011	10899	177220
Qazvin	462193	376595	25092	4759	3640	52107
Qom	434154	358111	10381	2859	5173	57630
Kordestan	522521	450859	11834	6550	2167	51111
Kerman	931321	801708	24585	11963	3598	89467
Kermanshah	619345	526452	16890	6155	2115	67733
Kohgiluyeh&Boyerahmad	198347	171997	6526	2059	961	16804
Golestan	579304	481997	23454	7124	2147	64582
Gilan	1139013	905607	49725	12831	4303	166547
Lorestan	509137	440171	12017	5866	2373	48710
Mazandaran	1523824	1244107	63102	36367	10127	170121
Markazi	591866	499078	19789	8189	5098	59712
Hormozgan	549502	450247	23789	6691	2437	66338
Hamedan	609487	506240	20447	10434	3802	68564
Yazd	556648	453868	14871	7760	8377	71772

1.Changing industrial tariff into agricultural tariff in the year 1387 is the reason for reduction in customers' number in industrial tariff compared with the year 1386.
2.Revised figures.

Source: Ministry of Energy.

8. 19. NUMBER OF VILLAGES AND RURAL HOUSEHOLDS ELECTRIFIED BY REGIONAL AND OSTANS' POWER COMPANIES

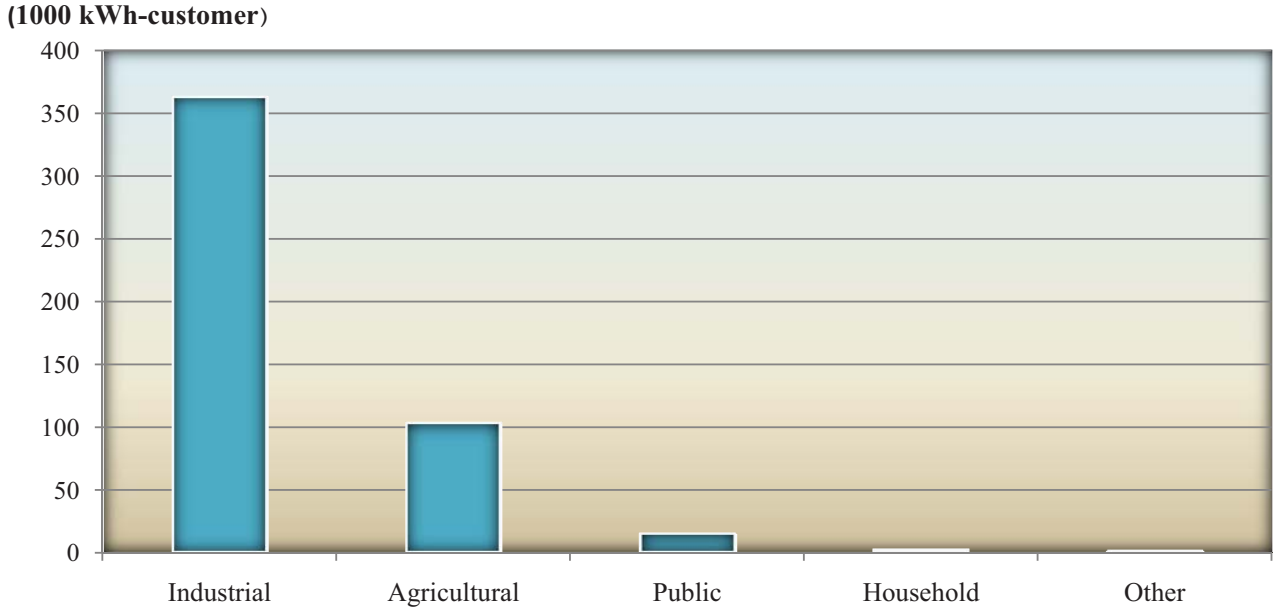
Description	Villages	Households
1375	35074	3318832
1380	45359	4056072
1385	50985	4427849
1387	51595	4213022
1388	52815	4241509
1389	53461	4251123
1390	54116	4261123
1391	***54561***	***4268473***
Azarbayejan Regional Power Company		
East Azarbayejan	2742	295971
West Azarbayejan	2883	209972
Ardebil	1568	70079
Esfahan Regional Power Company		
Esfahan	1742	296590
Chaharmahal&Bakhtiyari	721	85192
Bakhtar Regional Power Company		
Markazi	1178	124214
Hamedan	1119	164920
Lorestan	2508	99854
Tehran Regional Power Company		
Tehran	821	174581
Qom	189	18234
Khorasan Regional Power Company		
South Khorasan	1401	123990
Khorasan-e-Razavi	3212	326644
North Khorasan	886	93314

8. 19. NUMBER OF VILLAGES AND RURAL HOUSEHOLDS ELECTRIFIED BY REGIONAL AND OSTANS' POWER COMPANIES (continued)

Description	Villages	Households
Khuzestan Regional Power Company		
Khuzestan	3576	204446
Kohgiluyeh&Boyerahmad	1570	53872
Zanjan Regional Power Company		
Zanjan	920	91442
Qazvin	846	72661
Semnan Regional Power Company		
Semnan	499	35913
Sistan&Baluchestan Regional Power Company		
Sistan&Baluchestan	3893	42103
Gharb Regional Power Company		
Kermanshah	2480	126812
Kordestan	1772	127260
Ilam	596	44489
Fars Regional Power Company		
Fars	3021	281128
Bushehr	504	39770
Kerman Regional Power Company		
Kerman	4571	232220
Gilan Regional Power Company		
Gilan	2972	285461
Mazandaran Regional Power Company		
Golestan	890	106045
Mazandaran	2966	261636
Hormozgan Regional Power Company		
Hormozgan	1605	124910
Yazd Regional Power Company		
Yazd	910	54750

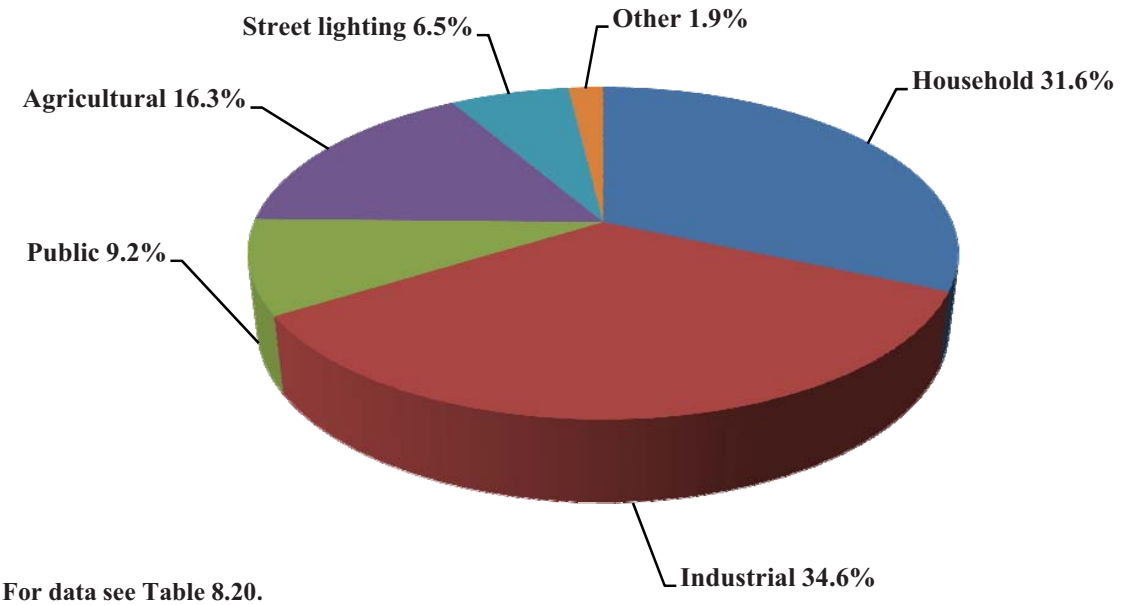
Source: Ministry of Energy.

8. 7. AVERAGE OF ELECTRICITY CONSUMPTION BY TYPE OF CUSTOMERS, THE YEAR 1391



For data see Tables 8. 19 and 8. 21.

8. 8. DOMESTIC SALES OF ELECTRICITY BY TYPE OF USE, THE YEAR 1391



For data see Table 8.20.

8. 20. DOMESTIC SALES OF ELECTRICITY BY REGIONAL POWER COMPANIES BY TYPE OF USE AND OSTANS (mln KW hours)

Year and Ostan	Total	Household	Public	Agricultural	Industrial	Streets lighting	Other
1375	69671	23993	6595	5731	22925	2055	7621
1380	96811	32891	11951	11079	30379	4117	6394
1385	144598	48085	18329	17666	46590	4608	9320
1387	161058	52896	20437	21185	51705	4091	10744
1388	167527	55629	21825	21413	53971	3675	11014
1389[1]	184182	60908	21308	24189	61483	3568	12726
1390	183905	56771	16808	29965	63945	3752	12664
1391	***194148***	***61350***	***17810***	***31647***	***67107***	***3635***	***12599***
East Azarbayejan	6258	1868	511	854	2420	442	163
West Azarbayejan	3850	1399	299	876	911	255	110
Ardebil	1346	508	121	221	346	102	48
Esfahan	19243	3298	862	2711	11330	787	255
Alborz	6781	2394	604	997	2053	583	150
Ilam	1112	382	253	136	267	44	30
Bushehr	4775	2948	726	121	622	303	55
Tehran	25504	9133	4542	1504	5802	4129	394
Chaharmahal&Bakhtiyari	1420	368	92	433	416	62	49
South Khorasan	1220	276	98	487	252	55	52
Khorasan-e-Razavi	13185	3286	817	4584	3416	791	291
North Khorasan	1263	333	86	255	511	53	25
Khuzestan	23539	10520	2042	1621	8196	915	245
Zanjan	2968	449	121	450	1814	86	48
Semnan	2624	413	169	617	1286	94	45
Sistan&Baluchestan	3939	2053	451	718	342	215	160
Fars	10521	3089	1032	3756	1845	579	220
Qazvin	4202	657	215	868	2265	144	53
Qom	2623	781	235	458	913	188	48
Kordestan	1784	776	269	315	276	104	44
Kerman	9103	2063	630	3669	2296	307	138
Kermanshah	2722	946	420	382	731	151	92
Kohgiluyeh&Boyerahmad	1138	484	84	121	360	59	30
Golestan	2450	1128	224	385	479	165	69
Gilan	4019	1759	397	368	965	360	170
Lorestan	2875	803	191	563	1110	126	82
Mazandaran	6382	2617	617	714	1774	484	176
Markazi	7221	828	232	1072	4839	152	98
Hormozgan	11157	4127	1048	591	4737	552	102
Hamedan	3438	865	216	1122	1006	134	95
Yazd	5486	799	206	678	3527	178	98

1.Revised figures.
Source: Ministry of Energy.