

T *Introduction*

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

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 the Water Resources Management Company and statistics on the length of networks and the number of water and sewage extensions has been obtained from the Water and Sewage Engineering Company.

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

Electricity

Data related to the electric power industry was first collected in the year 1343 by the then Ministry of Water and Power (renamed the Ministry of Energy in the year 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, is presented in various annual.

Moreover, through two successive censuses of population and housing in the years 1365,1375, 1385, 1390, and 1395 the Statistical Centre of Iran collected data on residential units and households benefiting from piped water and electricity, which are reflected in Chapter 10, "Construction and Housing," of the yearbook.

Definitions and concepts

Water basin: See Chapter 1, Land and climate, Definitions and concepts.

Aquatic year: See Chapter 1, Land and climate, Definitions and concepts.

Water produced: This refers to the amount of water gained from various water resources (permanent or temporary) in a particular time period.

Dam: See Definition and concepts Chapter five (Agriculture, Forestry, and Fisheries)

Reservoir dam: This is a dam constructed for water storage, managing or controlling the flow of water to meet different needs including irrigation (agriculture), drinking, industry, electricity generation and control of flood.

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

Inflow: This refers to the volume of water entering the reservoir of a dam through the river during a given time period.

Outflow: This refers to the total volume of water discharged from different outlets such as river, well, water channel, take-out gates of a dam or any other outlet.

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

Public water distribution network: This refers to a collection of interconnected pipelines to distribute water to the consumers from production or reserving points.

Nominal capacity (registered nominal power): The nominal power of a turbine or generator refers to the maximum expected output of an electricity generator in designing conditions 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): This refers to the maximum amount of electricity that could be generated by a generator

while considering the environmental conditions (altitude, temperature, and relative moisture).

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

Gross electricity generation of power plants: This refers to the sum of electricity generated by the generators of a power plant, which is measured in kilowatt hours or megawatt hours at the output terminal of the generators during a given period of time (for example: one year).

Net electricity generation of power plants: This refers to the amount of gross generation minus the internal energy consumed in a given time period by kilowatt-hour (kWh) or megawatt-hour (MWh).

Other institutions: They refer to the institutions. generate electricity for their own consumption, but are not affiliated with the Ministry of Energy, and may sell a part of their production to other institutions.

National grid: It refers to a network including all power generation points and electricity consumption regions in the nation, which are connected to each other by power transmission lines and stations, where energy exchange takes place.

Isolated grid (generation and power consumption): It refers to a set of generation and consumption sites which is connected to each other, but not connected to the national grid, and cannot exchange energy with the national grid.

Load-demand: It refers to the power consumed during a given time period in certain point of the network.

Maximum coincidental load consumed: It refers to the maximum coincidental load for a day, a week, a month, or a year out of the sum of load at the peak of consumption in regions in megawatt. If the interconnected system does not cover the total country, the maximum coincidental load may be calculated by adding up the maximum load of the interconnected network and load of separate regions in megawatt simultaneously.

Maximum non-coincidental load consumed: It refers to the sum of the peak of consumption in

different areas of the intended region during a given time period, which is not necessarily simultaneous.

Regional power company: It refers to the corporation engaged in the provision, transmission, and distribution of electricity in the field of its activities.

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

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

Thermal power plant: It refers to a power plant in which the energy inherent in solid, liquid, gaseous fuels is used for steam or hot gas (smoke) production and then driving the steam turbine to generate electricity.

Steam power plant: It refers to a thermal power plant in which thermal energy from liquid, solid and gaseous fuels is used for steam production and generating electricity.

Gas power plant: This refers to a power plant in which the thermal energy from gas and liquid fossil fuels is used to produce hot gas (smoke) and in a gas turbine to generate electricity.

Combined-cycle power plant: This refers to a power plant in which, in addition to electric energy produced in gas turbines, the heat in gases coming off the gas turbine is used for the 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: This refers to a power plant in which gas oil is used to operate a diesel engine, and mechanical energy produced by a coupled generator with it is turned into electric energy.

Internal consumption: This refers to the sum of electricity consumed internally by units and for non-technical cases, as well as consumption of the lights, etc. in a power plant in a given time period.

Losses: This refers to the energy lost in the transmission of energy from the producer to the consumer.

Sale or consumption of electricity: This refers to the amount of electricity sold to domestic consumers based on the determined tariffs by the Ministry of Power.

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

Thermal output: This refers to the ratio of thermal energy produced by 1 kWh to the thermal value of the consumed fuel.

Line of power: This refers to a set of circuits installed on bases to transmit the electric power produced from the generation site (power plant) or substation to consumption places in different voltages.

Power transmission line: This refers to a set of conductors, insulators and other peripheral equipment used to transmit high amounts of electricity with very high voltage (230 and 400 kV) in long routes between the source points (power plants or substations) and its receivers.

Sub-transmission line: This refers to a set of conductors, insulators, and other peripheral equipment used to transmit high amounts of electricity with very high voltage (66 and 132 kV) in long routes between the source points (power plants or substations) and its receivers.

Electricity customers: They refer to legal or natural people whose request for enjoying power connection service(s) is met according to the by-laws of the electricity company and the connection number is assigned to them.

Household uses of power energy: This refers to the amount of electricity that is used to operate common electric appliances and for lighting in residential units.

Public uses of power energy: This refers to the amount of electricity that is used for public services.

Agricultural uses of power energy: This refers to the electricity that is used for pumping surface and underground water or repumping water for the production of crops or carrying out agricultural activities.

Industrial uses of power energy: This refers to the electricity that is used in establishments with manufacturing and mining activities.

Distribution grid of power: This refers to a set of distribution lines with different voltage lines

(mainly 33 kV and lower) used for electricity distribution in an area or a locality.

Transmission and sub-transmission network: This refers to a series of substations, lines, cables, and other electrical equipment connected from power plants or high voltage substations to final consumers at a voltage of 63 kV and higher.

Electrical substation or power station: This refers to a site with a set of installations and electrical equipment including transformers, switches, sectionneur, measurement instruments, inflow and outflow lines, a reactor, a capacitor and different bays used for transmission and distribution of electricity.

Selected information

In the aquatic year 1399-1400, the amount of annual discharge of the underground water resources was about 55607 million cu m, which had a 14.6 percent decrease in comparison with the aquatic year 1398-1399. It should be noted that out of 6 main basins, the central plateau with 45.9% had the maximum annual discharge.

In the year 1400, the inflow of the large reservoir dams amounted to 80109 million cu m which had a 65.6% increase in comparison with the last year. In this year, 23512 million cu m of large reservoir dams has been consumed, 58.0 percent of which was for agricultural consumptions.

In the same year, about 8816 million cu m of water is produced in the water and sewage companies of the country (urban and rural) out of which about 6197 million cu/m was sold. The sale of water increased by 4.0 percent compared to the preceding year. This is while the production of water grew by 5.0 percent compared to the previous year (the year 1399).

In the year 1400, there were over 24 million and 76 thousand urban and rural water extensions which had a 2.4 percent increase in comparison with the preceding year. Out of this number, over 17 million and 955 thousand extensions were in

urban areas which had a 2.6% increase compared to the previous year.

In the year 1400, the gross electricity generation of institutions affiliated with the Ministry of Energy was 126936 million kilowatt-hours, of which about 47.2 percent has been produced in the steam power plants. Furthermore, the gross electricity generation had a 4.0 percent increase compared to the preceding year.

In this year, 306612 million kilowatt-hours of domestic sold electricity was consumed by 38 million and 619 thousand customers. In this respect, the amount of electricity sold and the number of electricity customers increased by about

5.4 and 2.7 percent, respectively compared to the preceding year.

Among all electricity customers in the year 1400, the percentage of customers in the house, public, agricultural, and manufacturing sectors was 80.0, 4.8, 1.3, and 0.7 percent, respectively. Also in this year, the percentage of the sold electricity which was consumed in the house, manufacturing, agricultural, public sectors and for the streets lighting was 32.1, 35.9, 14.3, 8.6 and 1.6 percent respectively.

At the end of the year 1400, a number of 58005 villages (over 4.5 million rural households) were electrified which increased by 0.1% in comparison with the previous year.

9.1. UNDERGROUND WATER RESOURCES AND THEIR ANNUAL DISCHARGE⁽¹⁾ 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
1385-1386	79196	164714	35785	460124	13121	37197	7375	124443	22914
1390-1391	64523	195766	34872	567898	12311	41109	4752	173825	12588
1395-1396	60592	210689	32998	594968	12485	41011	4515	173452	10595
1396-1397	58688	209935	32403	604455	12104	41261	4485	175244	9696
1397-1398	62684	221067	32157	627269	11946	41457	4405	169048	14439
1398-1399	65115	206327	31902	651083	12162	44174	4534	230519	16517
1399-1400	55607	209300	29349	675997	12123	43608	3863	197147	10272
Caspian Sea	6799	36669	2208	251547	1825	2534	285	79715	2481
Persian Gulf and Oman Sea	17568	45854	6679	126747	4307	5842	572	60918	6010
Lake Orumiyeh	2861	10054	918	131978	1349	2234	224	18507	370
Central Plateau	25515	108900	17719	152529	4197	27692	2368	33924	1231
Eastern Border.....	1153	1947	524	8730	337	3342	259	2555	33
Qareh Qum.....	1711	5876	1301	4466	108	1964	155	1528	147

1. Annual discharge for wells, subterranean canals and springs are updated annually based on selected sources.

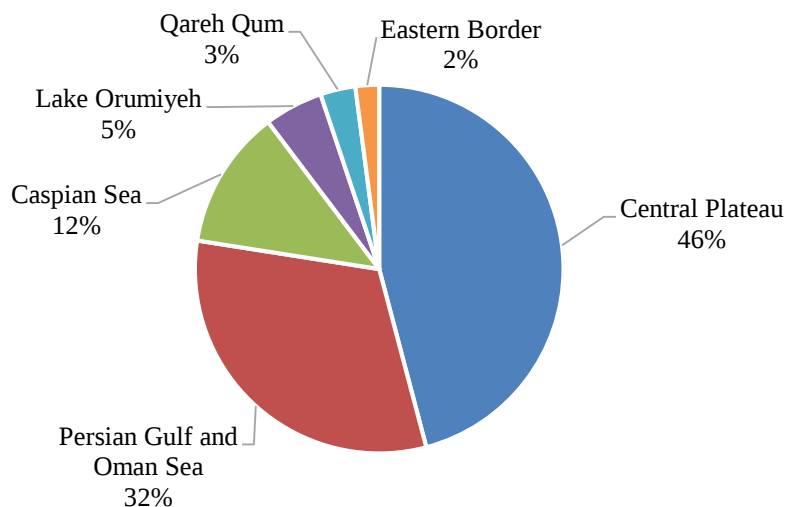
Source: Ministry of Energy

9.2. UNDERGROUND WATER RESOURCES AND THEIR ANNUAL DISCHARGE⁽¹⁾ BY REGIONAL WATER ORGANIZATIONS, AQUATIC YEAR 1399-1400 (mln cu m)

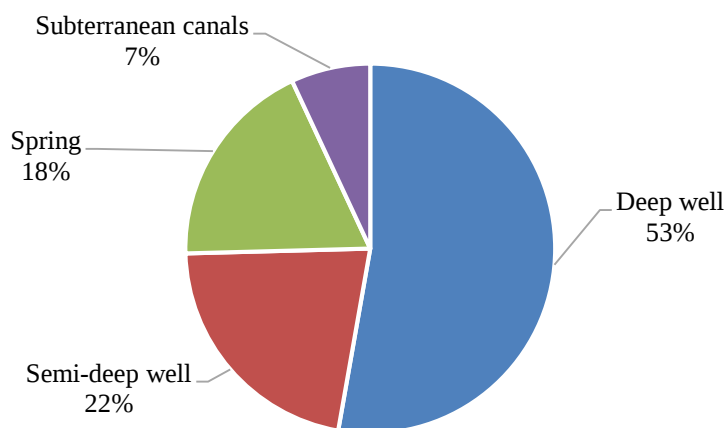
Ostan	Total discharge	Deep well		Semi-deep well		Subterranean		Spring	
		Number	Annual discharge	Number	Annual discharge	Number	Annual discharge	Number	Annual discharge
Total	55607	209300	29349	675997	12123	43608	3863	197147	10272
East Azarbayejan.....	1790	7600	703	63486	517	2184	331	5500	240
West Azarbayejan	1615	3675	406	80441	951	453	22	7391	236
Ardebil	410	1226	99	4546	122	244	19	4784	169
Esfahan	3281	23521	1719	37632	570	4167	263	10890	729
Alborz	913	8061	718	11917	88	171	10	2858	97
Ilam	553	1532	270	736	10	7	1	1310	273
Bushehr	425	2412	136	12958	255	54	6	213	28
Tehran	2284	11958	2035	32602	179	567	58	4045	11
Chaharmahal&Bakhtiyari	1436	2237	395	1767	150	1011	58	4760	833
South Khorasan.....	903	2552	590	1203	68	6928	208	2834	37
Khorasan-e-Razavi.....	4244	13676	3287	9990	192	6692	472	6552	293
North Khorasan.....	845	2001	330	4898	81	643	83	2975	350
Khuzestan	2113	5341	1364	8206	388	27	8	1393	353
Zanjan	1202	3843	381	21025	566	673	48	8469	208
Semnan.....	819	3140	503	1361	24	777	82	1566	211
Sistan&Baluchestan	1982	1446	375	17530	1189	1282	377	897	41
Fars	6350	31916	3004	61865	2371	2371	230	3445	745
Qazvin	1555	5035	1294	5696	58	347	42	15701	160
Qom	611	1379	456	5184	43	901	94	1686	18
Kordestan	1063	2769	359	16145	182	519	24	38728	499
Kerman	6400	16046	4496	18539	1338	2396	456	1596	110
Kermanshah	2355	7763	774	8491	377	511	61	10250	1143
Kohgiluyeh&Boyerahmad	1487	1180	64	3428	44	87	7	6545	1372
Golestan	690	10076	339	29681	216	354	11	6161	125
Gilan.....	863	1168	191	54120	269	1	0	15782	403
Lorestan.....	991	3345	484	3910	148	1176	31	5692	329
Mazandaran.....	1470	14932	486	115796	305	28	6	14396	673
Markazi	2683	7022	1753	6858	317	3872	452	2991	162
Hormozgan.....	1231	2438	396	26950	674	195	33	750	128
Hamedan	2154	6844	1267	7926	374	2343	243	6592	269
Yazd	888	3166	677	1110	57	2627	128	395	26

1. Annual discharge for wells, subterranean canals, and springs are updated annually based on selected sources.

Source: Ministry of Energy

9.1. ANNUAL DISCHARGE FROM MAIN BASINS, THE AQUATIC YEAR 1399-1400

For data see Table 9.1.

9.2. ANNUAL DISCHARGE FROM UNDERGROUND WATER RESOURCES, THE YEAR 1399-1400

For data see Table 9.1.

9.3. STATISTICS ON LARGE RESERVOIR DAMS⁽¹⁾ BY REGIONAL WATER**ORGANIZATIONS****(mln cu m)**

Year and reservoir dams	Inflow ⁽²⁾	Outflow ⁽²⁾			Water consumption ⁽³⁾				
		Total	From turbines ducts for electricity generation	Other ⁽⁴⁾	Total	Agriculture	Drinking	Manu-facturing	Other ⁽⁵⁾
1385	50873	54716	44913	9803	17157	13233	2276	589	1059
1390	33740	32822	17122	15700	25675	16175	2226	855	6419
1395	40695	39816	49268	-	30301	19694	3182	700	6724
1396	33796	37251	46994	-	28608	19655	3202	698	5106
1397	46382	37888	48051	17558	29347	14236	3086	676	11349
1398	80170	80527	89157	47385	56358	24632	3442	713	27571
1399	48366	51281	64320	21887	41254	24592	3624	729	12309
1400	81126	143025	106293	9703	25027	14593	3716	681	6048
East Azarbayejan..	6135	6147	5919	229	1465	1247	54	10	152
Aras ^(6,9)	2802	2785	2620	165	971	971	0	0	0
Sattarkhan ahar	42	43	39	4	39	15	13	4	7
Sahand	134	139	123	16	92	16	4	0	72
Zonuz	5	4	3	1	0	0	0	0	//
Aydoghamush	65	61	56	6	56	47	0	0	9
Arasbaran	8	8	7	1	7	7	0	0	0
Khodaafari	2909	2940	2913	27	0	0	0	0	0
Alavian	73	71	69	2	69	41	16	6	6
Nahand	21	26	24	2	24	//	21	0	2
Tajyar-e-Sarab	6	2	2	//	2	2	0	//	0
Kord Kandi	6	6	5	1	5	5	0	0	0
Ghale chai	30	31	30	1	30	27	0	0	3
Kalghan	32	28	27	1	170	116	0	0	53
Gol Faraj	2	3	1	2	0	0	0	0	0
West Azarbayejan.	2917	2723	991	1732	1679	668	305	8	696
Barun	40	40	0	40	35	23	12	0	//
Shahid Ghanbari ...	25	25	0	25	22	22	0	0	0
Aras2	9	6	0	6	5	5	0	0	0
Aghchai	72	100	0	100	94	86	0	0	8
Bukan ⁽⁶⁾	1174	1086	0	1086	1033	270	187	3	572
Shahrchay	139	149	0	149	142	50	64	0	28
Mahabad	204	192	132	60	183	100	19	1	63
Hasanlu	39	35	0	35	22	15	0	0	7
Deriq Salmas	9	9	0	9	8	8	0	0	//
Zola	43	50	0	50	48	28	12	0	7
Qiqaj	20	19	0	19	17	17	0	0	0
Saruq	20	13	0	13	12	3	7	0	2
Silveh	137	120	0	120	54	41	0	4	9
Sardasht	980	876	859	17	4	0	4	0	0
Karam Abad	6	3	0	3	//	//	0	0	0
Ardebil	181	163	0	163	145	70	47	0	27
Qurichay	5	5	0	5	4	4	0	0	0
Gilarlu	//	1	0	1	//	//	0	0	0
Moghadasardebili .	9	7	0	7	3	2	0	0	1

9.3. STATISTICS ON LARGE RESERVOIR DAMS⁽¹⁾ BY REGIONAL WATER**ORGANIZATIONS (continued)****(mln cu m)**

Year and reservoir dams	Inflow ⁽²⁾	Outflow ⁽²⁾			Water consumption ⁽³⁾				
		Total	From	Other ⁽⁴⁾	Total	Agriculture	Drinking	Manu-	Other ⁽⁵⁾
Saqizchi.....	12	12	0	12	4	3	0	0	//
Yamchi.....	59	57	0	57	56	10	45	0	1
Bafraajard.....	42	38	0	38	35	34	0	0	1
Tazeh Kand.....	39	34	0	34	34	15	0	0	19
Ahmad Behgloo.....	5	2	0	2	2	1	2	0	0
Esfahan.....	1166	1213	865	346	1021	492	396	50	82
Hana.....	10	10	0	10	8	8	0	0	0
Qareh Aqach.....	11	7	0	6	4	4	0	0	//
Zayandehrud ⁽⁶⁾	970	1022	865	157	992	469	396	50	77
Golpayegan ⁽⁶⁾	156	155	0	155	1	0	0	0	1
Khamiran.....	8	8	0	8	7	6	0	0	//
Aghcheh.....	2	3	0	3	2	2	0	0	0
Kamaneh.....	5	4	0	3	4	2	0	0	2
Baghkal-e-Khansar....	4	4	0	4	3	1	0	//	2
Ilam.....	93	173	0	173	155	98	22	3	31
Ilam.....	14	32	0	32	32	0	22	0	10
Doborj.....	69	127	0	127	110	94	0	0	16
Kangir.....	6	10	0	10	9	5	0	0	4
Gelal.....	4	5	0	5	4	0	0	3	1
Bushehr.....	178	209	0	209	161	134	0	0	27
Reis Ali delvari.....	178	209	0	209	161	134	//	0	27
Tehran.....	1219	905	905	0	1318	383	866	11	58
Lar.....	338	122	122	0	239	78	159	0	2
Taleghan ⁽⁶⁾	258	263	263	0	339	194	145	//	0
Karaj ⁽⁶⁾	311	338	338	0	376	62	293	0	22
Latiyan.....	188	181	181	0	181	0	146	1	35
Mamlo.....	124	0	0	0	183	49	124	10	//
Chaharmahal&Bakhtiyari	29	23	0	0	21	16	0	2	3
Choghakhor.....	25	19	0	0	19	14	0	2	3
Naghan.....	2	2	0	0	1	1	0	0	0
Surak.....	2	2	0	0	1	1	0	0	0
South Khorasan.....	12	14	0	0	11	8	2	0	1
Kerit.....	1	1	0	0	//	//	0	0	0
Darreh Bid.....	//	1	0	0	1	1	0	0	0
Parsa.....	1	1	0	0	1	1	0	0	//
Farrokhi.....	2	2	0	0	1	1	0	0	//
Nahrain.....	5	5	0	0	5	3	2	0	0
Haji Abad.....	1	1	0	0	1	1	0	0	//
Asadyieh.....	1	3	0	0	1	1	0	0	//
Khorasan -e-Razavi..	169	276	0	276	198	43	97	3	55
Tabarak Abad.....	11	15	0	15	11	5	3	0	3
Shahid Yaghobi.....	2	6	0	6	4	3	0	0	0
Sangerd.....	4	2	0	2	2	2	0	0	0

9.3. STATISTICS ON LARGE RESERVOIR DAMS⁽¹⁾ BY REGIONAL WATER**ORGANIZATIONS (continued)****(mln cu m)**

Year and reservoir dams	Inflow ⁽²⁾	Outflow ⁽²⁾			Water consumption ⁽³⁾				
		Total	From turbines ducts for electricity generation	Other ⁽⁴⁾	Total	Agriculture	Drinking	Manu-facturing	Other ⁽⁵⁾
Komayestan.....	4	3	0	3	//	//	0	0	0
Yam.....	5	5	0	5	2	2	0	0	0
Dusti ⁽⁹⁾	73	178	0	178	131	0	82	0	49
Toroq.....	2	7	0	7	7	//	6	0	//
Kardeh.....	7	7	0	7	7	4	2	0	2
Dehqan-e-Taybad	2	2	0	2	1	1	0	0	0
Fariman	5	5	0	5	4	4	0	0	0
Zavin Kalat.....	//	1	0	1	1	1	0	0	0
Chali Darreh.....	-	-	-	-	-	-	-	-	-
Dolatabad	7	6	0	6	2	2	0	0	0
Daroungar.....	5	3	0	3	3	3	0	0	0
Sad-e- Khaf	10	5	0	5	5	5	0	0	0
Ardak Chenaran	11	10	0	10	10	5	5	1	0
Qareh Tikan.....	10	7	0	7	2	2	0	0	//
Chahchahe.....	7	7	0	7	4	4	0	0	//
Bar.....	4	7	0	7	3	0	//	2	0
Abivard.....	-	-	-	-	-	-	-	-	-
Dahan Qaleh.....	-	-	-	-	-	-	-	-	-
North Khorasan.....	61	76	0	76	67	36	19	0	12
Bidvaz	11	11	0	11	11	3	2	0	6
Barzu	8	14	0	14	12	7	1	0	4
Shirin Darreh.....	38	44	0	44	40	22	15	0	2
Chary	1	1	0	1	1	1	0	0	0
Gelul.....	//	//	0	//	//	//	0	0	0
Sumbar	1	3	0	3	2	2	0	0	0
Gezel Dash.....	1	2	0	2	1	1	0	0	0
Khuzestan	61572	61342	31396	3305	14959	9414	1108	556	3881
Karkheh ⁽⁶⁾	1815	3186	1697	1489	3220	1514	696	16	994
Dez	3576	3315	3244	71	3244	2407	30	43	765
Shahid Abbaspour ⁽¹⁰⁾	6102	5816	5750	66	000	000	000	000	000
Karun 3 ⁽¹⁰⁾	4821	4254	3878	376	000	000	000	000	000
Marun.....	1013	1026	855	171	999	808	24	24	143
Masjed-Soleyman.....	6455	6052	6040	12	000	000	000	000	000
Gotvand-e-Olia ⁽¹⁰⁾	7010	7550	7345	205	7402	4601	358	473	1970
Jareh	93	95	0	95	94	85	0	0	10
Seymareh ⁽⁷⁾	808	970	205	765	000	000	000	000	000
Karun 4 ^(10,11)	29879	29078	2382	55	000	000	000	000	000
Zanjan.....	34	74	0	74	52	17	28	0	7
Tahem	5	24	0	24	22	//	21	0	//
Golabar.....	6	20	0	20	15	15	0	0	//
Kineh Vers	8	9	0	9	9	2	7	0	//
Talevar	16	20	0	20	6	//	0	0	6

9.3. STATISTICS ON LARGE RESERVOIR DAMS⁽¹⁾ BY REGIONAL WATER

ORGANIZATIONS (continued)

(mln cu m)

Year and reservoir dams	Inflow ⁽²⁾	Outflow ⁽³⁾			Water consumption ⁽⁴⁾				
		Total	From turbines ducts for electricity generation	Other ⁽⁴⁾	Total	Agriculture	Drinking	Manu-facturing	Other ⁽⁵⁾
Semnan	23	0	0	0	0	14	4	0	1
Kalpash	1	000	000	000	000	0	0	0	0
Damghan	15	000	000	000	000	10	4	0	1
Mojen	7	000	000	000	000	4	0	0	1
Sistan&Baluchestan	202	164	0	164	86	47	25	0	14
Mashkid-e-Olia	0	0	0	0	3	0	3	0	0
Chahehnimeh 4	000	000	000	000	000	000	000	000	000
Pishin.....	95	84	0	84	64	47	8	0	9
Shai Kelk.....	22	1	0	1	1	0	0	0	1
Zirdan.....	78	72	0	72	15	0	10	0	5
Kheirabad.....	8	7	0	7	4	0	4	0	0
Chahehnimeh 3	000	000	000	000	000	000	000	000	000
Chahehnimeh 1, 2	000	000	000	000	000	000	000	000	000
Fars	631	62509	61923	586	301	111	99	14	79
Salman Farsi	155	226	0	226	145	74	27	0	45
Tangab	18	19	0	19	5	0	//	0	5
Rudbal Darab	44	72	0	72	21	3	16	0	3
Dorudzan.....	305	125	0	125	72	0	56	14	2
Izadkhast	1	3	0	3	2	2	0	0	0
Mollasadra	105	62056	61923	133	54	30	0	0	24
Sivand	//	0	0	0	0	0	0	0	0
Cheshmeh Ashegh	3	8	0	8	2	2	0	0	0
Qom	14	44	0	44	32	16	16	0	0
Panzdah Khordad.....	14	44	0	44	32	16	16	0	0
Kucheri ⁽⁶⁾	-	-	-	-	-	-	-	-	-
Kordestan	420	368	0	141	305	18	86	1	201
Sural.....	3	5	0	0	6	4	0	0	1
Sang siyah.....	1	5	0	0	2	1	0	0	1
Qeshleq	66	88	0	0	78	9	56	1	11
Zarivar.....	43	0	0	0	0	0	0	0	0
Baneh	7	5	0	1	5	0	4	0	1
Azad.....	-	-	-	-	-	-	-	-	-
Garan.....	62	61	0	36	17	0	2	0	15
Zivieh.....	6	5	0	0	4	3	0	0	1
Siazakh.....	82	63	0	0	63	0	6	0	57
Cheragh Veis	138	129	0	104	124	0	13	0	111
Abbas Abad Kela	12	7	0	0	7	0	5	0	2
Qoocham.....	-	-	-	-	-	-	-	-	-
Kerman	240	229	45	184	196	117	14	1	64
Jiroft.....	105	100	45	54	85	58	000	000	27
Tanguiyeh	6	13	000	13	11	2	8	000	000
Nesa.....	121	102	000	102	90	55	000	000	35
Shahid Soleymani	7	14	000	14	11	2	6	1	2

9.3. STATISTICS ON LARGE RESERVOIR DAMS⁽¹⁾ BY REGIONAL WATER**ORGANIZATIONS (continued)****(mln cu m)**

Year and reservoir dams	Inflow ⁽²⁾	Outflow ⁽³⁾			Water consumption ⁽⁴⁾				
		Total	From turbines ducts for electricity generation	Other ⁽⁴⁾	Total	Agriculture	Drinking	Manu-facturing	Other ⁽⁵⁾
Kermanshah	000	000	000	000	255	177	48	0	30
Gavshan ⁽⁶⁾	000	000	000	000	98	46	47	0	4
Soleymanshah.....	000	000	000	000	16	11	1	0	4
Gilangharb.....	000	000	000	000	2	2	0	0	0
Shiyan.....	000	000	000	000	2	2	0	0	0
Azadi.....	000	000	000	000	13	8	0	0	5
Zagros.....	000	000	000	000	38	38	0	0	//
Tang-e-Hammam.....	000	000	000	000	13	10	0	0	3
Darian.....	-	-	-	-	-	-	-	0	-
Sarab- e- Gilangharb.....	000	000	000	000	8	7	0	0	//
Zimakan.....	000	000	000	000	8	3	0	0	5
Jamishan.....	000	000	000	000	3	3	0	0	1
Sharafshah.....	000	000	000	000	54	47	0	0	8
Ezgeleh.....	-	-	-	-	-	-	-	0	-
Kohgiluyeh&Boyerahmad	332	347	0	342	321	62	167	3	89
Kosar ⁽⁶⁾	326	342	0	342	316	60	167	3	86
Shah Qasem.....	6	5	0	0	5	2	0	0	3
Golestan	122	0	0	0	120	78	0	0	44
Voshmgir.....	27	0	0	0	25	25	0	0	2
Golestan.....	48	0	0	0	48	23	0	0	25
Alagol.....	2	0	0	0	2	0	0	0	2
Bustan.....	23	0	0	0	23	12	0	0	11
Nomel (Kosar).....	5	0	0	0	5	5	0	0	//
Daneshmand.....	2	0	0	0	2	1	0	0	1
Negarestan.....	15	0	0	0	15	12	0	0	3
Gilan	1017	1515	1185	330	1515	959	136	9	411
Sefidrud.....	859	1361	1041	320	1361	945	18	9	389
Shahr-e-Bijar.....	158	154	144	10	154	14	118	0	22
Lorestan	46	51	0	51	51	42	0	0	9
Maruk.....	10	9	0	9	9	8	0	0	1
Tanghaleh.....	//	1	0	1	1	1	0	0	0
Kaznar.....	//	//	0	//	//	//	0	0	//
Khanabad.....	8	8	0	8	8	8	0	0	1
Eyvashan.....	25	14	0	14	14	13	0	0	//
Hozian.....	3	19	0	19	19	12	0	0	7
Rudbar.....	-	-	-	-	-	-	-	-	-
Mazandaran	413	447	152	295	429	254	62	0	111
Shahid Rajaei.....	156	199	152	47	197	146	32	0	19
Shiyadeh.....	5	3	0	3	3	3	0	0	0
Berenjestanak.....	10	9	0	9	9	2	0	0	6
Meijeran.....	25	25	0	25	22	5	12	0	5

9.3. STATISTICS ON LARGE RESERVOIR DAMS⁽¹⁾ BY REGIONAL WATER

ORGANIZATIONS (continued)

(mln cu m)

Year and reservoir dams	Inflow ⁽²⁾	Outflow ⁽³⁾			Water consumption ⁽⁴⁾				
		Total	From turbines ducts for electricity generation	Other ⁽⁴⁾	Total	Agriculture	Drinking	Manu-facturing	Other ⁽⁵⁾
Salaheddinkola.....	1	1	0	1	1	//	0	0	//
Farimsahra	1	1	0	1	1	1	0	0	//
Sonbolrud.....	3	3	0	3	3	1	0	0	2
Alimalat	4	4	0	4	2	1	0	0	0
Alborz	138	132	0	132	117	74	18	0	26
Gelevard Neka	70	70	0	70	74	21	0	0	53
Markazi.....	0	117	0	0	117	56	44	10	7
Kamal Saleh.....	000	42	0	0	42	0	32	10	//
Saveh.....	000	75	0	0	75	56	12	0	7
Hormozgan.....	1083	911	0	911	124	88	36	0	0
Esteqlal	544	453	0	453	51	45	6	0	0
Jegin.....	219	183	0	183	37	29	8	0	0
Shamil & Nian	284	252	0	252	19	14	5	0	0
Sarney	36	22	0	22	17	0	17	0	0
Hamedan	31	48	0	48	40	5	35	0	0
Ekbatan	23	32	0	32	29	2	26	0	0
Abshineh	2	6	0	6	4	0	4	0	0
Shirinsu	1	2	0	2	0	0	0	0	0
Kalan-e-Malayer	-	-	-	-	-	-	-	-	-
Sarabi	5	8	0	8	7	3	4	0	0
Shanjur	-	-	-	-	-	-	-	-	-

1. The information refers to the 198 large reservoir dams (based on the ICOLD definition) with a capacity of 49.6 bln.cu.m, almost equaling over 95% of the total volume of the dams under use.

2. Total inflow and outflow are calculated through omission of the influence of being a chain of (Latiyan and Mamlo dams in Tehran Ostan), (Shahid Abbaspur, Karun3, Karun 4, Masjed-Soleyman and Gotvand-e-Olia dams in Khuzestan Ostan), (Dorudzan and Mollasadra in Fars Ostan), (Seymareh in Ilam Ostan and Karkheh in Khuzestan Ostan), (Golestan1, Golestan2, and Voshmgir in Golestan Ostan), (Chahehnimeh 1,2,3 and 4 in Sistan&Baluchestan Ostan), (Ekbatan and Abshineh in Hamedan Ostan), (Soleymanshah and Gavshan in Kermanshah Ostan) and (Aras and Khoda Afarin in East-Azarbayegan Ostan). Moreover, inflow volume is calculated through a balance of volume changes in the reservoir and the amount of outflow.

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, etc..

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. Moreover, difference between total and sum of parts is due to existence of some chain dams.

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

6. Aras, Bukan, Zayanderud, Taleghan, Karaj, Karkheh, Golpayegan, Gavshan and Kusar dams supply water both for mentioned Ostans in above table and other Ostans.

7. Seymareh dam is located in Ilam Ostan and the Company for Development of Water Resources and Energy of Iran is responsible for this dam but due to its aquatic relationship with Karkheh dam, it is classified in Khuzestan Ostan.

8. Kucheri dam is located in Esfahan Ostan and Tehran Regional Company is responsible for this dam; however, due to supplying drinking water for Qom city accounting for the major consumption of the dam, the related statistics are included in Qom Ostan.

9. The outflow of the Aras dam and Dusti dam is equal to the total outflow of the dam, and consumptions only include I.R Iran consumption.

10. The consumption from the chain dams of Shahid Abbaspour, Karun 3, Karun 4, and Gotvand-e-Olya is included in the consumption of Gotvand- e-Olya dam.

11. Karun 4 reservoir dam is located in Chaharmahal & Bakhtiari Ostan. However, since it is located on the Karun river, it is included in Khuzestan Ostan.

Source: Ministry of Energy.

9.4. DATA FOR CAPACITY OF RESERVOIRS, URBAN WATER DISTRIBUTION AND TRANSMISSION NETWORK

(cu m / km)

Year and Ostan	Capacity of reservoirs in the network	Length of the network for water distribution	Length of pipelines for water transmission
1385.....	10914721	119059	18500
1390.....	13101344	133163	25475
1395.....	14760389	151108	28984
1396.....	15000546	154058	29379
1397.....	15239714	157120	29399
1398.....	15448925	162919	29725
1399.....	15527998	166050	30698
1400.....	15736468	167402	31309
East Azarbayejan.....	913140	9664	1173
West Azarbayejan	407880	5187	806
Ardebil	235260	2546	480
Esfahan.....	1132305	14384	2977
Alborz	447340	4413	602
Ilam	132900	1326	510
Bushehr	313340	3869	890
Tehran	3223985	16336	2567
Chaharmahal&Bakhtiari	172780	2094	388
South Khorasan	148800	2623	613
Khorasan-e-Razavi.....	1222580	12061	2524
North Khorasan.....	190400	1637	400
Khuzestan.....	843706	10100	1803
Zanjan.....	168670	1684	303
Semnan.....	215878	2516	617
Sistan&Baluchestan	287640	5022	1447
Fars.....	925760	11944	3059
Qazvin	255842	2516	393
Qom.....	351800	2291	152
Kordestan	248550	2812	428
Kerman.....	725320	10893	2375
Kermanshah	309120	3103	574
Kohgiluyeh&Boyerahmad	122300	1521	320
Golestan	268070	2859	541
Gilan.....	402243	6141	787
Lorestan.....	264880	2737	608
Mazandaran.....	467531	7783	1130
Markazi	299670	3521	695
Hormozgan.....	391166	5139	989
Hamedan	299705	2731	480
Yazd	347907	5951	678

Source: Water and Sewage Engineering Company.

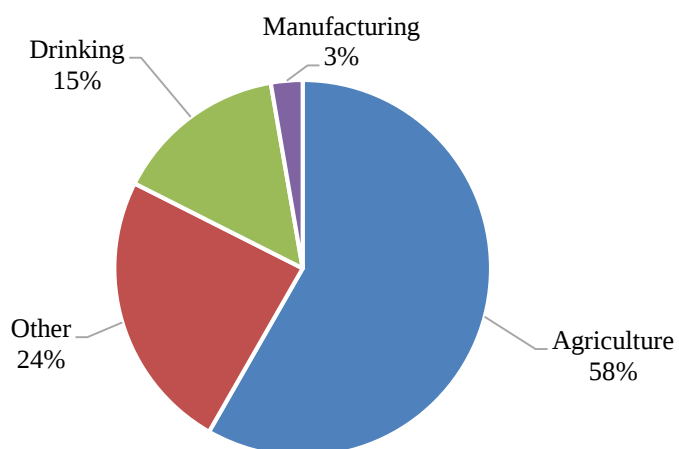
9.5. DATA FOR WATER SUPPLY, PRODUCTION AND SALE CAPACITIES AND NUMBER OF EXTENTIONS OF URBAN WATER

Year and Ostan	Max. capacity of water supply (litre/second)	Production (1000 cu m)	Sale ⁽¹⁾ (1000 cu m)	Extensions (number)
1385.....	214154	5094428	3464452	10115430
1390.....	247392	5323362	3900727	12891481
1395.....	261971	6045392	4502617	15827243
1396.....	247786	6162225	4633556	16270684
1397.....	251613	6186201	4586475	16684340
1398.....	254836	6262386	4737186	17073629
1399.....	269019	6647224	4882146	17506614
1400.....	271887	6872979	4999297	17955538
East Azarbayejan.....	10756	262434	211371	1251270
West Azarbayejan	9345	244686	171307	707449
Ardebil	3280	83631	62295	366894
Esfahan	20153	423983	354567	1346369
Alborz	10061	283100	221595	439975
Ilam.....	1592	48003	35702	160270
Bushehr	3361	102900	70000	328092
Tehran.....	62233	1567746	1218963	1912363
Chaharmahal&Bakhtiari	2576	56642	42318	255330
South Khorasan	2283	53700	33700	210740
Khorasan-e-Razavi.....	16870	431029	314155	1773401
North Khorasan	1722	48456	33168	218373
Khuzestan.....	23243	666900	406190	1114522
Zanjan	3448	72596	54532	252167
Semnan.....	2858	64293	46365	258503
Sistan&Baluchestan	7167	162828	109570	388488
Fars.....	13725	391021	262369	1219227
Qazvin	3602	91246	73105	332629
Qom.....	6143	127623	104560	342914
Kordestan	5480	128018	86379	412078
Kerman	8375	200400	140300	662474
Kermanshah	9803	154932	105755	416392
Kohgiluyeh&Boyerahmad	2835	74020	31087	191476
Golestan	3843	99968	66522	303935
Gilan	6220	193651	122289	524087
Lorestan	4351	126982	94299	441795
Mazandaran.....	10718	252830	175680	658087
Markazi	4957	124992	93317	332500
Hormozgan.....	4499	114655	89904	251971
Hamedan	3667	102591	78363	414821
Yazd	2722	117123	89568	466946

1. Water sale refers to water consumption.

Source: Water and Sewage Engineering Company.

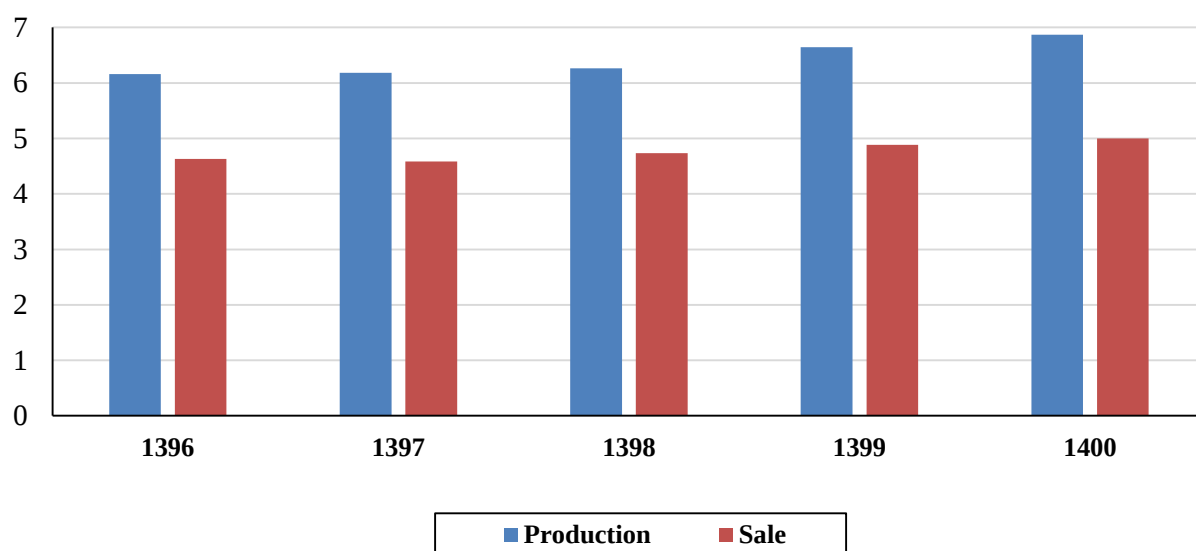
9.3. WATER CONSUMPTION OF LARGE RESERVOIR DAMS BY TYPE OF USE, THE YEAR 1400



For data see Table 9.3.

9.4. PRODUCTION AND SALE OF WATER IN URBAN AREAS BY URBAN WATER AND SEWAGE COMPANIES

Billion Cu/ m



For data see Table 9.5.

9.6. DATA FOR WATER SUPPLY, PRODUCTION AND SALE CAPACITIES AND NUMBER OF EXTENTIONS OF RURAL WATER

Year and Ostan	Max. capacity of water supply (litre/second)	Production (1000 cu m)	Sale ⁽¹⁾ (1000 cu m)	Extensions (number)
1385.....	51242	1019180	652929	3200860
1390.....	77038	1160295	794211	4415236
1395.....	81054	1382449	947807	5392903
1396.....	84306	1441038	975704	5564715
1397.....	101178	1489105	992694	5739206
1398.....	108058	1601729	1055400	5873870
1399.....	170230	1744762	1077794	6005284
1400.....	172317	1942642	1197737	6120862
East Azarbayejan.....	18060	88698	60194	344679
West Azarbayej an	3202	99167	68343	309747
Ardebil	4429	41700	20509	126568
Esfahan.....	2354	65799	45631	266037
Alborz	4284	23949	14575	65515
Ilam	614	15797	11462	63297
Bushehr	1268	39862	26616	106366
Tehran	3735	45310	32897	162954
Chaharmahal & Bakhtiari	5336	36870	16686	100484
South Khorasan.....	1493	35518	19205	142790
Khorasan-e-Razavi.....	6076	159237	106694	634067
North Khorasan.....	1332	34997	20085	125241
Khuzestan.....	13723	110674	61037	243204
Zanjan	1912	42152	20914	116338
Semnan.....	347	17067	10065	70921
Sistan & Baluchestan	43736	71011	48901	188788
Fars.....	5540	192161	132374	398348
Qazvin	1585	39066	24449	121165
Qom.....	974	17115	8514	37924
Kordestan	5872	36020	21997	131109
Kerman.....	3030	119124	54658	285510
Kermanshah	3818	56365	29540	147551
Kohgiluyeh & Boyerahmad	7559	31550	14118	70894
Golestan	2005	71290	45357	248314
Gilan.....	5446	81318	52127	327416
Lorestan.....	6932	47924	33169	142539
Mazandaran.....	5862	112165	72750	471321
Markazi	1511	42394	29710	162831
Hormozgan.....	2452	93290	47020	220421
Hamedan	6671	50689	32585	176519
Yazd	1159	24363	15556	112004

1. Water sale refers to water consumption.

Source: Water and Sewage Engineering Company.

9.7. DATA FOR CAPACITY OF RESERVOIRS, RURAL WATER DISTRIBUTION AND TRANSMISSION NETWORK

(cu m / km)

Year and Ostan	Capacity of reservoirs in the network	Length of the network for water distribution	Length of pipelines for water transmission
1385.....	2914866	116474	64500
1390.....	3292684	155248	87848
1395.....	3628788	172980	103705
1396.....	3803553	178848	105215
1397.....	3865387	181638	107583
1398.....	3971542	194229	109708
1399.....	3974936	186833	110830
1400.....	4070698	185494	114867
East Azarbayegan.....	233150	9627	8804
West Azarbayegan	155420	7116	5248
Ardebil	110049	3766	2580
Esfahan	153099	5517	3118
Alborz	51235	1275	686
Ilam	72109	1492	1763
Bushehr	77840	3521	2365
Tehran	116451	2747	1510
Chaharmahal & Bakhtiyari	80205	3441	1855
South Khorasan	167582	4171	4723
Khorasan-e-Razavi.....	335354	13391	9213
North Khorasan	96820	2924	2171
Khuzestan	161727	12873	8732
Zanjan	95682	3435	2546
Semnan.....	43714	1219	836
Sistan & Baluchestan	193701	9861	6957
Fars	278908	13988	7727
Qazvin	70338	2603	1831
Qom	55840	598	649
Kordestan	102811	2771	3249
Kerman	222661	13567	6339
Kermanshah	127591	3692	3686
Kohgiluyeh & Boyerahmad	112460	3781	2874
Golestan	94170	5239	3047
Gilan.....	142571	18412	4282
Lorestan.....	84218	4657	2906
Mazandaran.....	185057	12496	2498
Markazi	100607	3721	2347
Hormozgan.....	118490	5113	5727
Hamedan	124248	3936	2689
Yazd	106590	4543	1911

Source: Water and Sewage Engineering Company.

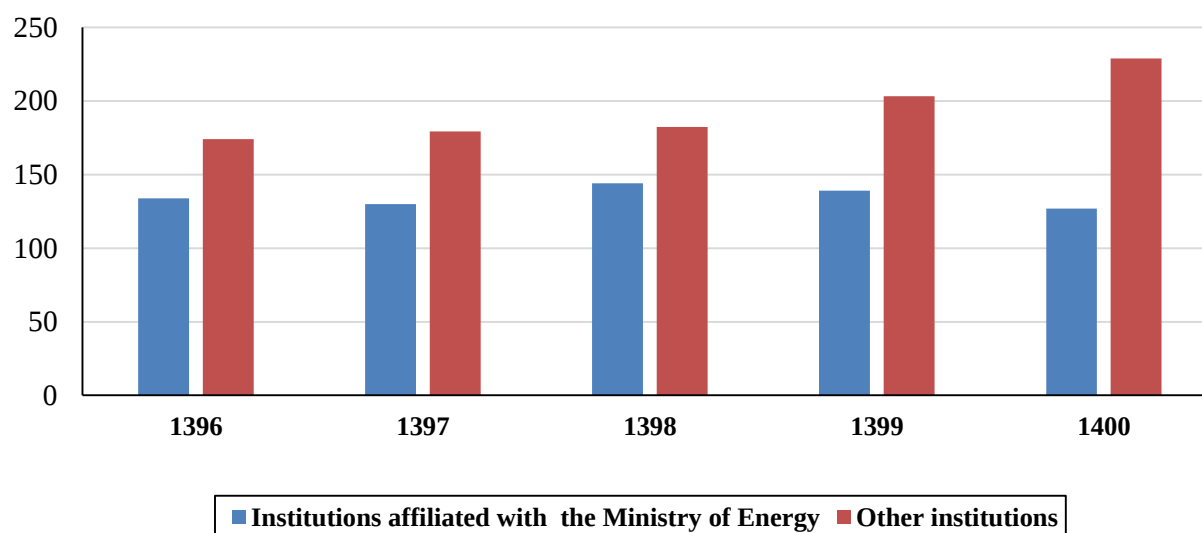
9.8. NOMINAL CAPACITY AND GROSS ELECTRICITY GENERATION OF INSTALLED GENERATORS

Year	Nominal capacity (1000 kW)			Gross electricity generation (mln kW h)		
	Total	Institutions affiliated with the Ministry of Energy	Other institutions	Total	Institutions affiliated with the Ministry of Energy	Other institutions
1385.....	45151	40909	4242	192534	181538	10996
1390.....	65212	52252	12960	240063	208413	31650
1395.....	76428	35764	40664	289196	128291	160905
1396.....	78794	36511	42283	307968	133934	174034
1397.....	80467	36625	43842	309182	129920	179262
1398.....	83506	37276	46230	326431	144069	182362
1399.....	85432	37474	47958	342365	139068	203297
1400.....	86787	36746	50041	355948	126936	229012

Source: Ministry of Energy.

9.5. GROSS ELECTRICITY GENERATION IN THE COUNTRY

Billion kW h



For data see Table 9.5.

9.9. CAPACITY OF INSTALLED GENERATORS AND MAXIMUM POWER GENERATED AT THE POINT OF PEAK CONSUMPTION IN THE POWER PLANTS (1000 kW)

Year and type of generator	Nominal capacity (nominal power)	Actual capacity (actual capacity)	Power generated at the point of peak consumption
1385.....	45288	40985	32997
1390.....	65212	57522	42245
1395.....	76428	66598	51579
1396.....	78794	68321	54016
1397.....	80467	69864	48831
1398.....	83506	72532	57017
1399.....	85432	74273	58076
1400.....	86787	75148	54731
Ministry of energy	36746	33388	22273
Hydroelectric.....	12193	12193	5018
Steam	11241	10615	8445
Gas	6045	4664	3533
Combined cycle.....	5740	4530	4216
Diesel	407	268	117
Atomic	1020	1020	944
Renewable	100	99	0
Large scale industries	6227	5116	1378
Steam.....	589	490	331
Gas	5638	4626	1047
Private sector	43815	36643	31080
Steam.....	4000	3772	3283
Gas	11884	9959	7684
Combined cycle.....	27196	22178	20060
Renewable	736	736	53

Source: Ministry of Energy.

9.10. CAPACITY OF INSTALLED GENERATORS AND GROSS ELECTRICITY GENERATION OF POWER PLANTS, THE YEAR 1400

Ostan	Nominal capacity (1000 kW)	Actual capacity (1000 kW)	Gross generation (mln kW h)
Total	86787	75148	355948
East Azarbayejan.....	2341	2098	8804
West Azarbayejan	1982	1540	7316
Ardebil	1155	960	4631
Esfahan	5375	4810	28361
Alborz	1817	1539	8753
Ilam	678	646	164
Bushehr	5882	5042	15857
Tehran	6978	5605	32036
Chaharmahal & Bakhtiari	1058	1056	1044
South Khorasan.....	804	604	2673
Khorasan-e-Razavi.....	3842	3276	18917
North Khorasan.....	1489	1178	6521
Khuzestan	15712	14541	39118
Zanjan	748	600	2979
Semnan.....	747	627	2879
Sistan & Baluchestan	1752	1404	6326
Fars	5439	4232	28085
Qazvin	2247	2003	12684
Qom	780	661	4391
Kordestan	1020	915	6191
Kerman	3943	3040	21713
Kermanshah	2242	1930	9680
Kohgiluyeh & Boyerahmad	46	46	225
Golestan	1023	925	4329
Gilan.....	2869	2637	14926
Lorestan.....	916	803	2509
Mazandaran.....	4123	3948	15198
Markazi	1385	1285	9047
Hormozgan.....	4472	3799	20329
Hamedan	1074	1074	7239
Yazd	2849	2321	13021

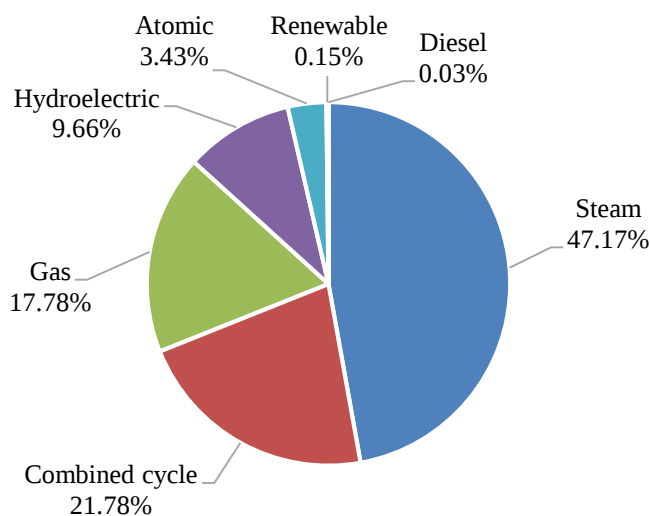
Source: Ministry of Energy.

9.11. ELECTRICITY GENERATION AND INTERNAL CONSUMPTION OF THE POWER PLANTS

		(mln kWh)	
Year and type of generator	Gross generation	Internal consumption of plants	Net generation
1385.....	192535	7773	184762
1390.....	240063	8442	231621
1395.....	289196	8285	280911
1396.....	307968	8810	299159
1397.....	309182	8703	300479
1398.....	326431	8871	317559
1399.....	342365	10850	331515
1400.....	355948	10078	345871
Ministry of energy	126936	4904	122031
Hydroelectric.....	12267	89	12178
Steam	59874	4042	55832
Combined cycle.....	27642	598	27044
Gas	22565	172	22394
Diesel	38	3	35
Atomic	4358	0	4358
Renewable.....	191	1	191
Large scale industries	6595	197	6398
Steam.....	1958	189	1769
Gas	4637	8	4629
Private sector	222418	4977	217441
Steam.....	24012	1777	22236
Gas	51333	354	50979
Combined cycle.....	145845	2842	143003
Renewable.....	1228	5	1223

Source: Ministry of Energy.

9.6. SHARE OF ELECTRICITY GENERATORS TYPES OF THE POWER PLANTS AFFILIATED TO THE MINISTRY OF ENERGY FROM GROSS GENERATION OF POWER , THE YEAR 1400



For data see Table 9.11.

9.12. GROSS ELECTRICITY GENERATION OF HYDROELECTRIC POWER PLANTS BY REGIONAL WATER ORGANIZATION AND TYPE OF DAM (1000 kWh)

Year and regional water organization	Total		Concrete arch		Earth		Other	
	Number	Generation	Number	Generation	Number	Generation	Number	Generation
1385.....	29	18168964	13	12634896	18	5550129	12	182164
1390.....	46	13287425	26	8489912	9	4707067	11	90446
1395.....	52	16419181	28	9412166	13	6945188	11	61827
1396.....	58	15051012	28	7946516	15	7020383	15	84113
1397.....	59	15765098	28	8120216	15	7530619	16	114263
1398.....	66	31081847	28	15517630	16	15412177	22	152040
1399.....	67	22182496	28	10909560	16	11060169	23	212767
1400.....	68	12266831	28	4963166	16	7114176	24	189489
East Azarbayejan.....	0	0	0	0	0	0	0	0
West Azarbayejan	3	369354	0	0	3	369354	0	0
Ardebil	1	44801	0	0	0	0	1	44801
Esfahan.....	2	74541	2	74541	0	0	0	0
Alborz	3	145235	1	109283	1	35952	1	0
Ilam	1	53237	1	53237	0	0	0	0
Tehran	3	212981	2	111526	1	101455	0	0
Chaharmahal & Bakhtiari	3	1032979	2	1032979	0	0	1	0
Khorasan-e-Razavi.....	3	0	2	0	0	0	1	0
Khuzestan.....	8	8284699	3	3324555	4	4959400	1	744
Semnan.....	1	20332	0	0	0	0	1	20332
Fars.....	3	63601	1	5250	2	58351	0	0
Qom.....	1	21954	0	0	0	0	1	21954
Kordestan	1	14282	0	0	1	14282	0	0
Kerman.....	1	18857	1	18857	0	0	0	0
Kermanshah	2	184222	1	0	1	184222	0	0
Kohgiluyeh & Boyer-Ahmad	5	25993	3	16820	0	0	2	9173
Gilan.....	7	201274	2	177554	1	22255	4	1465
Lorestan.....	6	284607	3	0	1	283353	2	1254
Mazandaran.....	9	1146172	3	27208	1	1085552	5	33412
Markazi	4	67710	1	11356	0	0	3	56354
Hamedan	1	0	0	0	0	0	1	0

Source: Ministry of Energy.

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

Year and type of ownership of the power plant	Gross electricity generation (mln kWh)	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)			
1385.....	174280	4362	7587	32168	393246	2403	35.8
1390.....	227428	9406	12019	38901	530623	2333	36.9
1395.....	265774	5867	4483	61782	604856	2276	37.8
1396.....	284988	4841	3687	69382	651960	2288	37.6
1397.....	285256	5970	3451	67356	644067	2258	38.1
1398.....	287521	10253	5398	60243	641325	2231	38.6
1399.....	313483	10188	5891	67318	690647	2203	39.0
1400.....	337904	9979	6771	73278	744911	2205	39.0
Power plants affiliated with the Ministry of Energy	110119	2185	5598	23346	260706	2367	36.3
Large scale industries.....	6595	0	0	1894	18042	2736	31.4
Private sector.....	221190	7794	1172	48038	466163	2108	40.8

Source: Ministry of Energy.

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

Description	Year							
	1385	1390	1395	1396	1397	1398	1399	1400
Gross generation	181538	208414	128292	133934	129920	144069	139068	126936
Less: Internal consumption of plants	7064	7985	4520	4887	4777	4848	5222	4904
Net generation.....	174474	200429	123772	129047	125143	139219	133846	122031
Plus: Electricity purchased from large-scale industries ⁽¹⁾	10997	23637	149743	164071	171406	174776	197669	223839
Less: Distribution and transmission networks losses	35566	34102	33513	33772	32853	32550	33358	35736
Net sales	144831	188917	239903	259346	263696	281959	297643	309317
Net exports	233	5012	2467	4320	3708	6865	6796	2705
Domestic sales.....	144598	183905	237436	255026	259723	275094	290847	306612

1. Other institutions include large scale industries and private plants.

Source: Ministry of Energy.

9.15. MAXIMUM COINCIDENTAL AND NON-COINCIDENTAL LOADS OF REGIONAL POWER COMPANIES (1000 kWh)

Description	Maximum coincidental load
1385.....	33453
1390.....	41481
1395.....	50926
1396.....	53414
1397.....	48999
1398.....	55839
1399.....	57023
1400.....	55182
Azarbayejan Regional Power Company	3095
Esfahan Regional Power Company	3661
Bakhtar Regional Power Company	2449
Tehran Regional Power Company	9850
Khorasan Regional Power Company	3501
Khuzestan Regional Power Company	7819
Zanjan Regional Power Company	1245
Semnan Regional Power Company	433
Sistan&Baluchestan Regional Power Company	1386
Gharb Regional Power Company	1622
Fars Regional Power Company	5351
Kerman Regional Power Company	2242
Gilan Regional Power Company	1727
Mazandaran Regional Power Company	4343
Hormozgan Regional Power Company	2539
Yazd Regional Power Company	1009
Kish Water and Power Company	170
Large scale industries.....	2740

Source: Ministry of Energy.

9.16. ELECTRIC POWER TRANSMISSION LINES (km circuits)

Year	Transmission lines		Sub-transmission lines	
	400 kV	230 kV	132 kV	63 and 66 kV
1385.....	12404	25634	18582	37974
1390.....	18625	29158	22092	44956
1395.....	20477	31324	23413	48063
1396.....	20617	31589	23504	48295
1397.....	20893	32411	23821	49524
1398.....	21329	32571	23939	50205
1399.....	21880	32861	24589	50710
1400.....	22102	33073	24746	51082

Source: Ministry of Energy.

9.17. CAPACITY OF POWER TRANSMISSION SUB-STATIONS OF THE COUNTRY (MVA)

Year and Ostan	Transmission sub-stations		Sub-transmission sub-stations	
	400 kV	230 kV	132 kV	63 and 66 kV
1385	29633	53816	18489	43987
1390	46708	67412	25352	59759
1395	62183	80470	30865	69456
1396	64093	82045	32251	72794
1397	67523	84876	33321	75619
1398	75008	88535	36227	78306
1399	79058	92595	37137	80208
1400	80203	94318	38360	82761
East-Azarbayejan	1715	3815	3440	1158
West-Azarbayejan	945	1805	2869	15
Ardebil	815	1370	0	1017
Esfahan	6860	5975	0	8086
Alborz	1000	2236	0	3145
Ilam	0	1255	559	785
Bushehr	5875	2456	1972	2104
Tehran	10900	11800	0	14425
Chaharmahal&Bakhtiari	1810	0	0	1345
South Khorasan	1275	0	850	0
Khorasan-e-Razavi	4758	160	6860	1006
North Khorasan	1200	0	1008	0
Khuzestan	9995	8432	12538	0
Zanjan	2030	1615	0	2232
Semnan	2000	2010	0	1703
Sistan&Baluchestan	945	3439	0	3105
Fars	6040	4895	835	7439
Qazvin	800	1515	0	2370
Qom	70	1710	0	1965
Kordestan	0	1885	80	1160
Kerman	4835	6140	4697	360
Kermanshah	1230	2735	0	2351
Kohgiluyeh&Boyerahmad	400	540	719	0
Golestan	700	2070	0	2098
Gilan	1000	3405	170	3381
Lorestan	1000	2060	0	2082
Mazandaran	2830	4705	0	4948
Markazi	2000	2925	0	3443
Hormozgan	3690	8186	1333	6003
Hamedan	600	1815	0	2197
Yazd	2885	3364	430	2841

Source: Ministry of Energy.

9.18. NUMBER OF CUSTOMERS OF THE NATION'S OSTANS BY TYPE OF CONSUMPTION
(consumer)

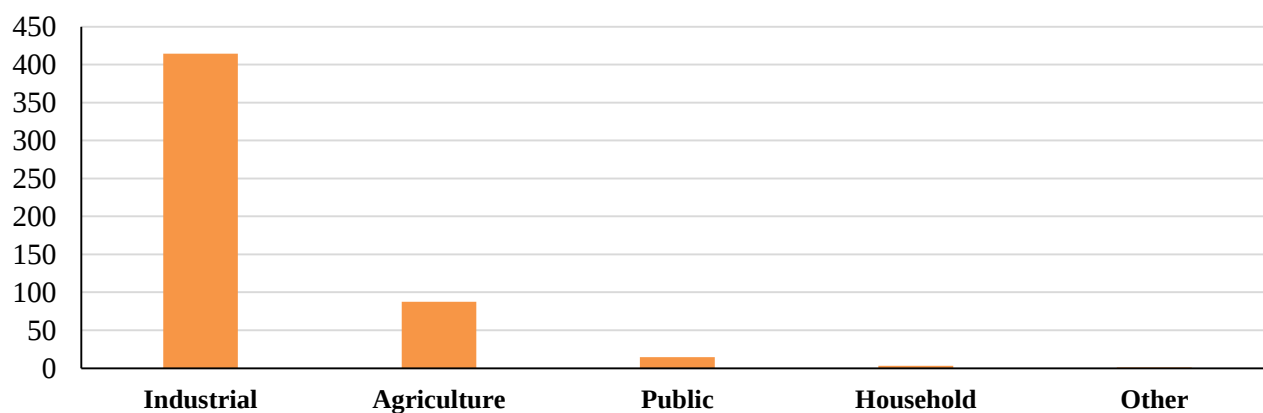
Year and Ostan	Total	Household	Public	Agricultural	Industrial	Other
1385.....	20559946	16989284	748964	138137	152202	2531359
1390.....	27164768	22224100	1082528	284781	174255	3399104
1395.....	33824208	27354153	1543440	400257	225296	4301062
1396.....	34835756	28100586	1611382	422260	236372	4465156
1397.....	35688115	28749257	1665987	444212	245939	4582720
1398.....	36643985	29426885	1732289	463718	254807	4766286
1399.....	37617583	30170016	1788087	481682	259943	4917855
1400.....	38618904	30884917	1844137	502008	265951	5121891
East Azarbayejan.....	1988776	1528013	88636	23020	16703	332404
West Azarbayejan	1344189	1086666	37055	22466	6601	191401
Ardebil	591423	482769	27693	4982	3776	72203
Esfahan.....	2801108	2184651	111591	50120	35720	419026
Alborz	1442005	1158155	93593	5392	6843	178022
Ilam	247402	204601	9502	3251	1122	28926
Bushehr	511440	412384	19790	5904	2897	70465
Tehran	7146959	5450711	563351	12909	45158	1074830
Chaharmahal & Bakhtiyari	396344	329453	13568	7382	3229	42712
South Khorasan.....	395607	330150	16569	5836	2710	40342
Khorasan-e-Razavi.....	3058845	2516094	119097	24114	21281	378259
North Khorasan.....	388315	326380	14481	4033	2031	41390
Khuzestan.....	1729280	1423197	59744	11339	4991	230009
Zanjan	486970	390241	18582	9242	3834	65071
Semnan.....	399580	305201	24173	7155	5857	57194
Sistan & Baluchestan	903811	758724	31000	13974	3175	96938
Fars.....	2196248	1792354	79000	47462	14788	262644
Qazvin	640204	508388	43030	6887	5162	76737
Qom.....	601257	482647	24183	4143	7029	83255
Kordestan	707031	584954	24855	11883	3196	82143
Kerman.....	1289367	1091418	37225	17593	6443	136688
Kermanshah	809552	676008	29852	8250	3411	92031
Kohgiluyeh & Boyerahmad	276813	231583	9675	3252	1358	30945
Golestan	784815	642023	31558	12979	3321	94934
Gilan.....	1548920	1206927	78311	25901	6460	231321
Lorestan.....	686993	582848	19119	9208	2725	73093
Mazandaran.....	2169301	1703577	99983	97495	15204	253042
Markazi	772312	630935	32398	11008	8321	89650
Hormozgan.....	780837	635644	38029	10128	3725	93311
Hamedan	787216	634639	31393	13364	6404	101416
Yazd	735984	593582	17101	11336	12476	101489

Source: Ministry of Energy.

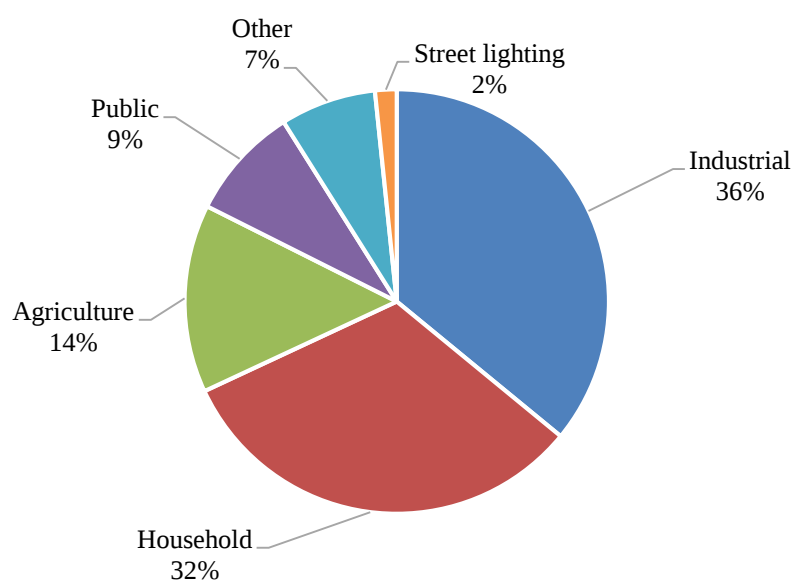
9.19. DOMESTIC SALE OF ELECTRICITY OF THE NATION'S OSTANS BY TYPE OF CONSUMPTION
(mln KWh)

Year and Ostan	Total	Household	Public	Agricultural	Industrial	Streets lighting	Other
1385.....	144598	48085	18329	17666	46590	4608	9320
1390.....	183905	56771	16808	29965	63945	3752	12664
1395.....	237436	78378	22914	36222	77603	4699	17620
1396.....	255026	83403	24328	39379	84218	5017	18681
1397.....	259723	85098	24073	38033	88540	4987	18990
1398.....	275094	88500	25589	38764	97081	5017	20143
1399.....	290847	92283	24586	41288	108074	4876	19741
1400.....	306612	98464	26515	43990	110212	5049	22382
East Azarbayejan.....	10781	2793	685	1335	4912	217	840
West Azarbayejan	6912	2202	444	1426	2144	179	518
Ardebil	2318	771	206	322	786	67	167
Esfahan	27724	4890	1210	3357	16490	351	1426
Alborz	7819	2614	708	812	2708	95	883
Ilam	1800	825	131	415	284	28	117
Bushehr	7888	4857	978	498	870	125	561
Tehran	39752	13783	6992	3129	8242	486	7120
Chaharmahal&Bakhtiari	2521	558	119	756	888	89	111
South Khorasan.....	1889	526	159	505	521	66	113
Khorasan-e-Razavi.....	18741	5168	1174	4579	6001	441	1378
North Khorasan.....	2454	539	116	422	1235	36	107
Khuzestan	33510	16725	2697	3053	8878	598	1559
Zanjan	4923	704	173	734	3088	45	179
Semnan.....	3789	570	222	646	2136	57	159
Sistan&Baluchestan	7351	3794	1391	1064	512	154	436
Fars	21235	5816	1312	5600	7171	326	1010
Qazvin	5624	1002	288	1075	2944	64	250
Qom	4393	1494	379	492	1574	65	390
Kordestan	2904	1104	193	699	663	52	193
Kerman	17598	4020	732	4133	7957	207	550
Kermanshah	3940	1374	570	645	1001	100	251
Kohgiluyeh&Boyerahmad	1972	936	324	199	319	71	124
Golestan	4291	2105	312	785	696	81	312
Gilan.....	6742	2848	539	614	1780	170	792
Lorestan.....	4190	1147	415	1059	1241	142	188
Mazandaran.....	10021	4565	791	1131	2344	230	959
Markazi	9095	1238	260	1326	5875	129	268
Hormozgan.....	18579	6995	2427	1046	7111	160	840
Hamedan	4848	1219	281	1383	1632	79	255
Yazd	11009	1283	290	749	8214	143	330

Source: Ministry of Energy.

**9.7. AVERAGE ELECTRICITY CONSUMPTION BY TYPE OF CUSTOMERS,
THE YEAR 1400**

For data see Tables 9.18 and 9.19.

9.8. DOMESTIC SALE OF ELECTRICITY BY TYPE OF USE, THE YEAR 1400

For data see Table 9.19.

9.20. NUMBER OF VILLAGES, RURAL HOUSEHOLDS ENJOYING ELECTRICITY AND CHARACTERISTICS OF ELECTRICITY TRANSMITTING INSTALLATIONS TO VILLAGES

Year and Ostan	Village	Household enjoying electricity	Length of power distribution lines with medium pressure (km)	Length of power distribution lines with low pressure (km)	Number of distribution transformers	Capacity of distribution transformers (MVA)
1385.....	50985	4427849	138330	93464	64718	6812
1390.....	54116	4452795	139429	98390	72186	7283
1395.....	56793	4492752	145049	99958	76735	7687
1396.....	57030	4496797	145421	100091	77003	7698
1397.....	57280	4500250	145895	100224	77316	7713
1398.....	57420	4502045	146172	100305	77503	7717
1399.....	57755	4506485	146744	100468	77911	7734
1400.....	58005	4510206	147251	100604	78231	7747
East Azarbayejan.....	2903	297906	8568	5666	3073	319
West Azarbayejan	2934	210807	5757	4091	3033	290
Ardebil	1637	70746	4597	3596	1637	118
Esfahan	1772	296969	4836	4542	3045	274
Alborz	226	21858	515	490	239	30
Ilam	635	44875	1472	812	702	73
Bushehr	519	39946	1504	1231	835	113
Tehran	605	153040	1289	1631	1099	153
Chaharmahal&Bakhtiari	772	85894	611	1004	553	60
South Khorasan.....	1508	125116	3509	2313	1769	130
Khorasan-e-Razavi.....	3304	328041	7353	4629	3619	312
North Khorasan.....	967	94453	3334	1920	1169	86
Khuzestan	3837	208039	8123	3558	7917	1139
Zanjan	932	91642	3858	2043	1029	118
Semnan.....	504	35977	2822	954	480	51
Sistan&Baluchestan	4567	245322	15543	6323	6548	588
Fars	3268	284137	9202	5942	4690	434
Qazvin	863	73056	2640	2243	1128	169
Qom	191	18252	412	248	191	17
Kordestan	1786	127467	5348	2163	1868	188
Kerman	5282	241411	13021	7926	8267	663
Kermanshah	2553	127727	4403	2568	2637	259
Kohgiluyeh&Boyerahmad	1683	55177	3380	1422	2193	232
Golestan	900	106393	1631	1200	1020	69
Gilan.....	3042	287959	4560	10208	4812	423
Lorestan.....	2780	103473	5683	2730	2632	193
Mazandaran.....	3010	262268	4673	5949	3076	221
Markazi	1196	124395	4704	4089	1393	173
Hormozgan.....	1721	127110	8183	5020	4430	582
Hamedan	1130	165062	3409	2983	2077	195
Yazd	978	55688	2315	1106	1070	76

Source: Ministry of Energy.

9.21. EXCHANGE OF ELECTRICITY WITH NEIGHBORING COUNTRIES (mln kWh)

Year	Exports				
	Total	Nakhjavan	Turkey	Armenia	Azerbaijan
1385.....	2774	561	576	316	11
1390.....	8668	56	1118	57	0
1395.....	6688	48	297	105	1
1396.....	8130	40	0	51	3
1397.....	6295	28	0	58	1
1398.....	8206	000	000	000	000
1399.....	9470	000	000	000	000
1400.....	5719	000	000	000	000

Year	Exports			
	Turkministan	Pakistan	Afghanistan	Iraq
1385	2	172	134	1002
1390	8	271	557	6601
1395	0	482	731	5024
1396	0	570	662	6803
1397	0	511	756	4942
1398	000	000	000	000
1399	000	000	000	000
1400	000	000	000	000

Year	Energy exchange	Imports			
		Total	Nakhjavan	Turkey	Armenia
1385	233	2541	0	0	428
1390	5012	3656	57	0	1508
1395	2467	4221	51	0	1133
1396	4278	3852	38	0	1412
1397	3708	2587	27	0	1241
1398	6865	1341	000	000	000
1399	6796	2674	000	000	000
1400	2704	3014	000	000	000

Year	Imports				
	Azerbaijan	Turkministan	Pakistan	Afghanistan	Iraq
1385	536	1576	0	0	0
1390	2	2089	0	0	0
1395	4	3033	0	0	0
1396	2	2399	0	0	0
1397	49	1270	0	0	0
1398	000	000	000	000	000
1399	000	000	000	000	000
1400	000	000	000	000	000

Source: Ministry of Energy.

9.22. SPECIFICATIONS OF THE ELECTRICITY DISTRIBUTION NETWORK OF THE COUNTRY BY OSTAN AT THE END OF THE YEAR 1400

Ostan	Length of power distribution network lines with medium voltage (km)	Length of power distribution network lines with low voltage (km)	Number of distribution network transformers	Capacity of distribution network transformers (MVA)
Total	450339	386415	797699	134755
East Azarbayejan.....	18915	16734	28901	4382
West Azarbayejan	15653	12742	21396	2759
Ardebil	7601	6402	7465	1015
Esfahan	27404	28446	49409	9220
Alborz	5354	7218	18930	4615
Ilam	5086	2673	6733	1059
Bushehr	9081	7893	18945	4387
Tehran	23101	42990	76528	22178
Chaharmahal&Bakhtiari	6733	5310	9265	1161
South Khorasan.....	13116	5903	10286	1100
Khorasan-e-Razavi.....	34839	25562	46994	7760
North Khorasan.....	7159	4924	8022	833
Khuzestan	23484	21139	60646	14679
Zanjan	8630	6056	10851	1626
Semnan.....	7719	4703	8798	1496
Sistan&Baluchestan	26424	15131	27034	3223
Fars	38858	26556	79099	10108
Qazvin	7458	5489	13322	2071
Qom	4205	3952	7986	1862
Kordestan	10917	6246	14644	1533
Kerman	33203	21382	46800	5586
Kermanshah	12157	7208	18990	2250
Kohgiluyeh&Boyerahmad	5120	3773	8370	1261
Golestan	8333	8272	21276	2766
Gilan.....	9613	20396	23905	3818
Lorestan.....	10876	6272	17608	2307
Mazandaran.....	18451	26395	52907	6722
Markazi	12072	8710	18249	2600
Hormozgan.....	16734	10390	28865	5760
Hamedan	10747	8490	17982	2399
Yazd	11297	9059	17493	2221

Source: Ministry of Energy.