Introduction

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

Water

This section contains information on "underground waters," "reservoir dams," and "the length of water supply networks as well as the number of water and sewage extensions." Relevant statistics have been included in the Statistical Yearbook of Iran since the year 1346.

Statistics regarding underground waters and reservoir dams are provided by the Water Resources Management Company, while data on the length of networks and the number of water and sewage extensions is sourced 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 1383.

Electricity

Data related to the electric power industry was first collected in the year 1343 by the then Ministry of Water and Power. It was renamed the Ministry of Energy in the year 1353 based on the approval of the Parliament. Since the year 1346, the Ministry has regularly provided annual statistics on the power industry, including power generation, transmission, distribution, and consumption, in the form of statistical publications. Some of the statistics appear in the tables of this 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 5 (Agriculture, Forestry, and Fisheries)

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

Large reservoir dam: This refers to all dams with a height of 15 meters or more, as well as those between 10 and 15 meters high, but with a reservoir volume of 1 million cubic meters or more and/or a Flood discharge capacity of 2,000 cubic meters per second or more.

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 the dam over a period of time due to various factors such as overflow, sediment discharge valves, water intake valves, power plant, and evaporation.

Water extension: This refers to that part of the water distribution pipe whose diameter is sized proportionally to the water meter and the user's water demand. This section connects a private water line or the public water supply (from the

location where the extension valve is installed) to the delivery point (gate valve after the water meter). The service line includes all the pipes and related fittings up to the mentioned valve.

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

Nominal power of power plant (nominal capacity):

The nominal power of a turbine or generator refers to its maximum expected output of electricity under the specific design conditions set by the manufacturer. Nominal power is typically expressed in kilovolt-amperes (kVA) or kilowatts (kW), with kW being used for smaller generators.

Actual power of power plant (Actual capacity): 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).

Coincidental power generation capacity at network peak demand: This refers to the coincidental generation capacity of units at network peak load during a specified period, which may be less than or equal to the sum of the units' generation capabilities

Gross electricity generation of power plants: This refers to the total electrical energy produced by a power plant's generators, measured in kilowatt hours (kWh) or megawatt hours (MWh) at the generator output terminals over a specific period, typically a 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 power generation institutions: These refer to the institutions that may generate electricity for their own use (captive generation). These institutions are independent of the Ministry of Energy and may even sell the surplus electricity they produce to other entities.

National grid: This 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): This refers to a set of generation and consumption sites that are interconnected but not connected to the national grid, and therefore cannot exchange energy with it.

Load-demand: This refers to the amount of electrical power absorbed at a specific point in the network over a given period of time.

Maximum coincidental load consumed: This refers to the highest coincidental load per day, week, month, or year out of the total load at the peak of consumption in regions in megawatts. If the interconnected system does not cover the total country, the highest coincidental load is calculated by adding up the highest load of the interconnected network and the load of separate regions in megawatts simultaneously.

Maximum non-coincidental load consumed: This refers to the sum of the peak of consumption in different areas of the intended region during a given period, which is not necessarily simultaneous.

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

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

Hydroelectric power plant: This refers to a power plant that uses the potential energy of water stored behind dams or the kinetic energy of flowing river water for electricity generation.

Thermal power plant: This refers to a power plant that uses the energy from solid, liquid, and gaseous fuels to produce steam or hot gas (smoke) and then drives the steam turbine to generate electricity."

Steam power plant: This refers to a thermal power plant that uses thermal energy from liquid, solid, and gaseous fuels to produce steam for electricity generation

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

Combined-cycle power plant: This refers to a power plant in which, in addition to the electrical energy produced in gas turbines, the heat from the exhaust gases of the gas turbine is used to produce steam in a heat recovery steam generator. The

produced steam is then transformed into electrical energy in a steam turbine generator set.

Diesel power plant: This refers to a power plant in which gas oil (diesel) is used to operate a diesel engine, and the mechanical energy produced by the coupled generator is converted into electrical energy.

Internal power consumption of the power plant: This refers to the sum of electricity consumed internally by the units and for non-technical purposes, as well as the consumption for lighting and other uses, in a power plant over a specified time period.

Losses: This refers to the energy lost during the transmission of electricity 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 tariffs set by the Ministry of Power.

Energy produced by the fuel (thermal value): This refers to the amount of heat (in kilocalories or BTUs) produced through the combustion of a unit mass of a specific fuel.

Thermal output: his refers to the ratio of the energy produced in one kilowatt-hour (kWh) of generated power (measured in kilocalories) to the thermal value of the consumed fuel.

Line of power: This refers to a set of circuits installed on bases to transmit electric power produced from the generation site (power plant) or substation to various consumption locations at different voltage levels.

Power transmission line: This refers to a set of conductors, insulators, and other peripheral equipment used to transmit high amounts of electricity at very high voltages (230 kV and 400 kV) over long distances between source points (power plants or substations) and their consumers.

Sub-transmission line: This refers to a set of conductors, insulators, and other peripheral equipment used to transmit substantial amounts of electricity at high voltages (63 kV, 66 kV, and 132 kV) over long distances between source points (power plants or substations) and their consumers.

Electricity customers: This term refers to individuals or legal entities whose requests for electrical connection services are fulfilled in accordance with the by-laws of the electricity company, and to whom a connection number is assigned.

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

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

Agricultural uses of power energy: This refers to the electricity used for pumping surface and underground water, or for repumping water to support crop production and other agricultural activities.

Industrial uses of power energy: This term refers to the electricity consumed in establishments engaged in manufacturing and mining activities.

Distribution grid of power: This refers to a network of distribution lines operating at various voltage levels (primarily 33 kV and lower) used for the distribution of electricity within a specific area or 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 term refers to a facility that contains a set of installations and electrical equipment, including transformers, switches, disconnectors, measuring instruments, inflow and outflow lines, reactors, capacitors, and various bays, all used for the transmission and distribution of electricity.

Selected information

In the aquatic year 1401-1402, the annual discharge of underground water resources was about 56,726 million cubic meters, reflecting a 1.4 percent increase compared to the aquatic year 1400-1401. It should be noted that out of the six main basins, the Central Plateau accounted for the highest annual discharge at 43.0%.

In the year 1402, the inflow into large reservoir dams amounted to 39,530 million cubic meters, reflecting a 28.3% increase compared to the previous year. During this year, 18,917 million cubic meters of water from these dams was

consumed, 52.4% of which was allocated to agricultural use.

In the same year, approximately 9,062 million cubic meters (cu m) of water was produced by the water and sewage companies across the country (urban and rural), of which over 6,171 million cu m was sold. Water sales increased by 2.7 percent compared to the previous year, while water production rose by 1.4 percent compared to the year 1401.

In the year 1402, there were about 25 million and 137 thousand urban and rural water service connections, representing a 2.2 percent increase from the previous year. Of these, about 18.787 million connections were in urban areas, showing a 2.7% increase compared to the previous year.

In the year 1402, the gross electricity generation by institutions affiliated with the Ministry of Energy reached 140,423 million kilowatt-hours (kWh). Steam power plants accounted for approximately 40.7% of this total production. Furthermore, the gross electricity generation showed a 6.3% increase compared to the preceding year.

In the year 1402, a total of 332,818 million kilowatt-hours (kWh) of electricity was sold to domestic consumers, serving over 40.568 million customers. Compared to the previous year, electricity sales volume grew by 5.1%, while the number of customers increased by 2.4%.

In the year 1402, residential customers accounted for 79.7% of all electricity consumers, followed by public (4.9%), agricultural (1.3%), and industrial (0.7%) sectors. Regarding electricity consumption by sector, residential use represented 31.0% of total sales, while industrial, agricultural, public, and street lighting accounted for 36.6%, 13.9%, 9.1%, and 1.5% respectively.

By the end of 1402, a total of 58,789 villages (representing approximately 5.9 million rural households) had been electrified, marking a 0.2% increase from 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
1398-1399	65115	206327	31902	651083	12162	44174	4534	230519	16517
1399-1400	55607	209300	29349	675997	12123	43608	3863	197147	10272
1400-1401	55965	215055	29376	707521	12210	42234	3537	190701	10842
1401-1402	***56726***	***232359***	***29656***	***731572***	***12195***	***43432***	***3509***	***210690***	***11366***
Caspian Sea	7934	94936	3407	273977	1416	3015	296	87408	2815
Persian Gulf and Oman Sea	18771	41895	7997	137832	3324	5866	477	66803	6973
Lake Orumiyeh	2685	31821	1500	104588	613	2234	222	18507	350
Central Plateau	24386	58815	15089	199077	6151	27010	2100	33874	1046
Eastern Border	1155	2484	609	8174	253	3343	258	1543	35
Qareh Qum	1795	2408	1054	7924	438	1964	156	2555	147

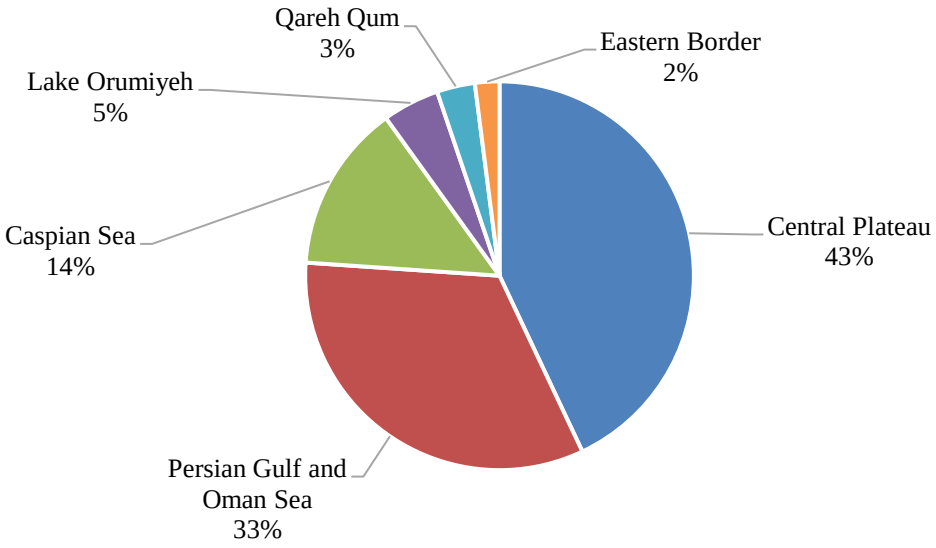
1. Annual discharge for wells, subterranean canals and springs is updated annually based on selected sources.
Source: Ministry of Energy

9.2. UNDERGROUND WATER RESOURCES AND THEIR ANNUAL DISCHARGE(1) BY REGIONAL WATER ORGANIZATIONS, AQUATIC YEAR 1401-1402 (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	***56726***	***232359***	***29656***	***731572***	***12195***	***43432***	***3509***	***210690***	***11366***
East Azarbayejan	1716	7404	619	57756	508	2184	331	5513	258
West Azarbayejan	2466	6145	798	85040	958	880	49	11003	661
Ardebil	382	1340	85	4987	108	287	19	5066	170
Esfahan	3236	23495	1754	37644	631	4167	236	10890	615
Alborz	906	6479	749	13496	50	171	10	2858	97
Ilam	537	1557	263	755	10	7	1	1310	263
Bushehr	430	2409	135	12962	261	54	6	213	28
Tehran	2548	11632	2016	32627	183	567	162	3876	187
Chaharmahal&Bakhtiyari	2159	2697	304	2133	107	984	70	5482	1678
South Khorasan	907	2576	590	1235	71	6963	208	2864	38
Khorasan-e-Razavi	4310	13439	3423	7739	179	6589	462	6294	246
North Khorasan	820	2169	300	7324	87	731	78	3252	355
Khuzestan	2963	4345	1228	9075	527	7	0	1398	1208
Zanjan	1416	14841	1114	14794	232	846	42	8874	28
Semnan	819	3137	552	1361	21	777	76	1566	170
Sistan&Baluchestan	1905	1444	372	17536	1115	1282	377	897	41
Fars	6386	30958	3027	58849	2384	2371	230	3445	745
Qazvin	1504	4983	1244	5669	58	347	42	15701	160
Qom	608	1378	452	5186	44	901	94	1686	18
Kordestan	1065	2807	356	16276	186	519	24	38728	499
Kerman	6207	16605	4448	14978	1248	2390	433	1593	78
Kermanshah	1819	7740	762	10156	378	511	21	10250	658
Kohgiluyeh&Boyerahmad	1487	1182	63	3439	45	87	7	6529	1372
Golestan	856	10065	441	29692	288	354	5	6161	122
Gilan	804	1332	174	60828	254	1	0	21068	376
Lorestan	897	5029	521	5887	165	1368	24	9308	187
Mazandaran	1785	25451	456	173534	655	47	1	14398	673
Markazi	1935	6479	1176	5515	405	2511	227	2830	127
Hormozgan	1141	3142	448	26239	632	195	33	750	28
Hamedan	1892	6942	1147	8051	354	2707	134	6492	257
Yazd	820	3157	639	809	51	2627	107	395	23

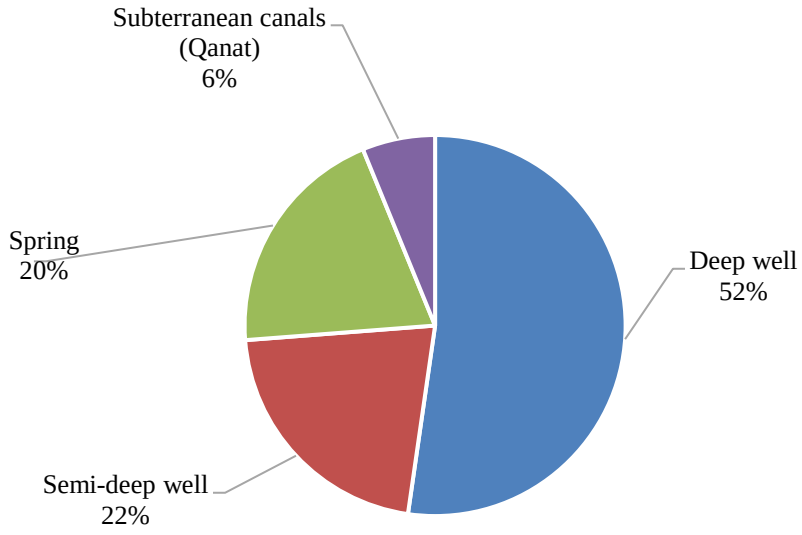
1. Annual discharge for wells, subterranean canals, and springs is updated annually based on selected sources.
Source: Ministry of Energy

9.1. ANNUAL DISCHARGE FROM MAIN BASINS,THE ACQUATIC YEAR 1401-1402



For data see Table 9.1.

9.2. ANNUAL DISCHARGE FROM UNDERGROUND WATER RESOURCES, THE YEAR 1401-1402



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
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
1401	30814	30559	44690	10029	24603	14007	4171	735	5707
1402	***39530***	***36720***	***62318***	***13796***	***18917***	***9919***	***3302***	***232***	***5464***
East Azarbayejan..	***2893***	***2845***	***2254***	***2844***	***1017***	***888***	***48***	***8***	***73***
Aras[6,9].....	2419	2400	2254	147	742	742	0	0	0
Sattarkhan ahar	22	2	0	2	18	2	12	2	2
Sahand	76	80	0	80	65	29	4	0	33
Zonuz.....	3	0	0	0	3	3	0	0	0
Aydoghamush.....	59	74	0	74	69	48	0	0	21
Arasbaran	2	4	0	4	3	3	0	0	0
Khodaafari	2445	2435	0	2435	0	0	0	0	0
Alavian	54	55	0	55	53	24	18	5	5
Nahand	8	16	0	16	15	0	14	0	1
Tajyar-e-Sarab	6	2	0	2	2	2	0	0	0
Kord Kandi	6	5	0	5	5	5	0	0	0
Ghale chai	23	2	0	2	22	21	0	0	2
Kalghan.....	24	21	0	21	20	10	0	0	10
Gol Faraj	2	2	0	2	0	0	0	0	0
West Azarbayejan.	***2049***	***2172***	***645***	***1527***	***1479***	***611***	***314***	***8***	***546***
Barun	20	21	0	21	17	5	11	0	1
Shahid Ghanbari ..	25	23	0	23	20	20	0	0	0
Aras2	9	7	0	7	6	6	0	0	0
Aghchai.....	48	81	0	81	77	73	0	0	4
Bukan[6]	968	977	0	977	926	268	190	3	466
Shahrchay	82	114	0	114	113	34	66	0	13
Mahabad	123	136	93	43	127	90	25	1	11
Hasanlu.....	36	37	0	37	25	19	0	0	6
Deriq Salmas	8	9	0	9	8	8	0	0	0
Zola.....	46	48	0	48	45	31	11	0	3
Qiqaj	24	23	0	23	19	19	0	0	0
Saruq	23	13	0	13	12	3	7	0	1
Silveh	98	107	0	107	80	34	0	4	41
Sardasht	535	574	552	22	4	0	4	0	0
Karam Abad	4	3	0	3	0	0	0	0	0
Ardebil	***115***	***36***	***0***	***36***	***110***	***34***	***49***	***0***	***27***
Qurichay	1	0	0	0	1	1	0	0	0
Gilarlu.....	1	0	0	0	0	0	0	0	0
Moghadasardebili	8	3	0	3	5	2	0	0	3

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]
Saqizchi	5	0	0	0	3	3	0	0	0
Yamchi	46	1	0	1	47	0	46	0	1
Sabalan	17	0	0	0	17	16	0	0	0
Givi	31	28	0	28	30	8	0	0	23
Bafrajard	2	3	0	3	3	1	2	0	0
Tazeh Kand	2	0	0	0	1	1	0	0	0
Ahmad Behgloo.....	1	1	0	1	3	2	0	0	1
Esfahan**.....**	***1677***	***1392***	***864***	***528***	***1113***	***620***	***367***	***45***	***81***
Hana	34	23	0	23	17	17	0	0	0
Qareh Aqach	17	17	0	17	15	5	0	0	10
Zayandehrud[6]	1370	1103	864	239	1065	588	367	45	66
Golpayegan[6]	236	229	0	229	1	0	0	0	0
Khamiran	9	10	0	10	7	7	0	0	0
Aghcheh	3	2	0	2	2	1	0	0	1
Kamaneh	4	4	0	4	4	1	0	0	2
Baghkal-e-Khansar	5	4	0	4	2	1	0	0	2
Ilam ***.....***	***405***	***275***	***0***	***275***	***137***	***82***	***22***	***2***	***31***
Ilam	58	29	0	29	28	0	22	0	6
Doborj	322	231	0	231	97	76	0	0	20
Kangir	12	9	0	9	8	6	0	0	3
Gelal	13	5	0	5	4	0	0	2	2
Bushehr ***.....***	***334***	***221***	***0***	***221***	***166***	***135***	***0***	***0***	***31***
Reis Ali delvari	334	221	0	221	166	135	0	0	31
Tehran ***.....***	***1010***	***1013***	***494***	***557***	***1033***	***156***	***710***	***15***	***153***
Lar.....	233	251	110	141	247	54	110	0	83
Taleghan[6]	266	250	130	121	250	98	152	0	0
Karaj[6]	281	253	92	160	249	4	229	0	16
Latiyan	190	195	162	33	192	0	143	1	47
Mamlo	71	103	0	103	95	0	75	14	7
Chaharmahal&Bakhtiyari	***58***	***38***	***0***	***38***	***24***	***23***	***0***	***1***	***0***
Choghakhor	40	30	0	30	18	18	0	1	0
Naghan	6	2	0	2	1	1	0	0	0
Surak	13	6	0	6	5	4	0	1	0
South Khorasan ***.....***	***9***	***12***	***0***	***12***	***9***	***8***	***1***	***0***	***0***
Kerit	1	1	0	1	1	1	0	0	0
Darreh Bid	0	0	0	0	0	0	0	0	0
Parsa	1	1	0	1	0	0	0	0	0
Farrokhi	2	2	0	2	1	1	0	0	0
Nahrain	4	4	0	4	4	3	1	0	0
Haji Abad	1	1	0	1	1	1	0	0	0
Asadyieh	1	3	0	3	2	2	0	0	0
Khorasan -e-Razavi ***.....***	***54***	***238***	***0***	***238***	***193***	***42***	***84***	***2***	***66***
Tabarak Abad	9	15	0	15	12	5	3	0	4
Shahid Yaghobi	1	2	0	2	0	0	0	0	0
Sangerd	1	1	0	1	1	1	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	0	0
Yam	4	4	0	4	2	2	0	0	0
Dusti[9]	1	147	0	147	126	0	65	0	61
Toroq	1	6	0	6	6	0	6	0	0
Kardeh	3	6	0	6	6	3	2	0	0
Dehqan-e-Taybad	0	0	0	0	0	0	0	0	0
Fariman	3	3	0	3	3	3	0	0	0
Zavin Kalat	1	1	0	1	1	1	0	0	0
Chali Darreh	1	1	0	1	1	1	0	0	0
Dolatabad	5	5	0	5	1	1	0	0	0
Daroungar	2	10	0	10	10	10	0	0	0
Sad-e- Khaf	1	4	0	4	4	4	0	0	0
Ardak Chenaran	7	13	0	13	12	4	7	0	0
Qareh Tikan	6	9	0	9	4	4	0	0	0
Chahchahe	1	4	0	4	3	3	0	0	0
Bar	3	4	0	4	2	0	0	2	0
North Khorasan	***54***	***58***	***0***	***58***	***49***	***25***	***16***	***0***	***7***
Bidvaz	10	11	0	11	11	5	2	0	3
Barzu	6	7	0	7	5	3	0	0	2
Shirin Darreh	33	35	0	35	30	14	14	0	2
Chary	1	1	0	1	1	1	0	0	0
Gelul	0	0	0	0	0	0	0	0	0
Sumbar	2	2	0	2	1	1	0	0	0
Gezel Dash	2	2	0	2	1	1	0	0	0
Khuzestan	***24049***	***21535***	***55570***	***2907***	***9523***	***5201***	***615***	***104***	***3602***
Karkheh[6]	2656	1565	614	951	1427	789	84	40	514
Dez	6613	6473	5495	978	6380	3266	507	40	2567
Shahid Abbaspour[10]	10956	11179	11092	87	0	0	0	0	0
Karun 3 [10]	8685	8829	8766	63	0	0	0	0	0
Marun	1675	1610	1558	52	1573	1015	24	24	510
Masjed-Soleyman	11552	11558	11535	23	0	0	0	0	0
Gotvand-e-Olia[10]	12766	11455	11291	163	0	0	0	0	0
Jareh	204	157	0	157	142	131	0	0	11
Seymareh[7]	1027	705	320	385	0	0	0	0	0
Karun 4 [10,11]	4885	4946	4899	47	0	0	0	0	0
Zanjan	***70***	***60***	***0***	***60***	***44***	***4***	***31***	***0***	***9***
Tahem	15	14	0	14	12	0	12	0	0
Golabar	6	7	0	7	3	3	0	0	0
Kineh Vers	5	8	0	8	8	1	7	0	0
Talevar	44	31	0	31	21	0	12	0	9

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]
Semnan	***18***	***23***	***0***	***23***	***17***	***13***	***3***	***0***	***1***
Kalpush	1	3	0	3	0	0	0	0	0
Damghan	13	15	0	15	12	8	3	0	1
Mojen	5	5	0	5	5	5	0	0	0
Sistan&Baluchestan	***165***	***253***	***0***	***253***	***140***	***25***	***95***	***0***	***20***
Mashkid-e-Olia	14	7	0	7	0	0	0	0	0
Chahehnimeh 1, 2, 3 and 4[2]	0	0	0	0	0	0	0	0	0
Pishin	87	66	0	66	42	25	11	0	6
Shai Kelk	3	1	0	1	0	0	0	0	0
Zirdan	56	56	0	56	25	0	11	0	13
Kheirabad	6	8	0	8	5	0	5	0	0
Fars	***1059***	***1122***	***426***	***697***	***778***	***536***	***116***	***15***	***14***
Salman Farsi	193	211	0	211	135	67	26	0	42
Tangab	30	26	0	26	18	0	0	0	18
Rudbal Darab	29	46	0	46	11	1	9	0	1
Dorudzan	642	615	218	398	561	426	81	15	40
Izadkhast	4	3	0	3	2	2	0	0	0
Mollasadra	160	217	208	9	51	40	0	0	11
Sivand	0	0	0	0	0	0	0	0	0
Cheshmeh Ashegh	1	4	0	4	0	0	0	0	0
Qom	***235***	***213***	***0***	***213***	***193***	***46***	***137***	***0***	***10***
Panzdah Khordad	13	30	0	30	23	5	15	0	3
Kucheri[8]	222	183	0	183	170	41	122	0	7
Kordestan	***668***	***509***	***74***	***435***	***357***	***22***	***116***	***0***	***219***
Sural	6	6	0	6	6	5	0	0	1
Sang siyah	3	4	0	4	2	1	0	0	1
Qeshleq	94	43	0	43	31	7	16	0	7
Zarivar	0	0	0	0	0	0	0	0	0
Baneh	7	7	0	7	7	0	6	0	1
Azad	224	166	74	91	163	2	65	0	96
Garan	73	74	0	74	27	1	3	0	23
Zivieh	13	7	0	7	7	7	0	0	0
Siazakh	104	67	0	67	63	0	6	0	56
Cheragh Veis	129	121	0	121	40	0	14	0	26
Abbas Abad Kela	13	12	0	12	12	0	5	0	7
Qoocham	2	0	0	0	0	0	0	0	0
Kerman	***101***	***198***	***33***	***165***	***171***	***102***	***17***	***2***	***49***
Jiroft	57	94	33	61	80	55	0	0	26
Tanguiyeh	2	8	0	8	7	2	5	0	0
Nesa.	37	84	0	84	74	43	7	1	23
Shahid Soleymani	5	12	0	12	10	2	5	1	1

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	***1720***	***1769***	***1187***	***582***	***499***	***279***	***58***	***0***	***162***
Gavshan[6]	87	101	0	101	85	23	56	0	6
Soleymanshah	10	11	0	11	9	6	2	0	1
Gilangharb	3	3	0	3	2	2	0	0	0
Shiyan	2	1	0	1	1	1	0	0	0
Azadi	28	13	0	13	8	2	0	0	5
Zagros	38	27	0	27	20	20	0	0	1
Tang-e-Hammam	50	59	0	59	41	11	0	0	30
Darian	1121	1201	1187	14	0	0	0	0	0
Sarab- e- Gilangharb	9	11	0	11	9	9	0	0	0
Zimakan	8	7	0	7	6	1	0	0	6
Jamishan	19	9	0	9	4	3	0	0	1
Sharafshah	49	26	0	26	18	17	0	0	1
Ezgeleh	299	301	0	301	296	184	0	0	112
Kohgiluyeh&Boyerahmad	***703***	***629***	***0***	***629***	***354***	***81***	***157***	***9***	***107***
Kosar[6]	680	608	0	608	348	75	157	9	107
Shah Qasem	23	21	0	21	6	6	0	0	0
Golestan	50	50	0	50	40	34	0	0	6
Voshmgir	9	10	0	10	10	9	0	0	1
Golestan	***9***	***9***	***0***	***9***	***8***	***5***	***0***	***0***	***3***
Alagol	3	3	0	3	0	0	0	0	0
Bustan	8	9	0	9	8	7	0	0	1
Nomel (Kosar)	3	3	0	3	3	2	0	0	1
Daneshmand	5	4	0	4	0	0	0	0	0
Negarestan	12	12	0	12	12	11	0	0	1
Gilan	***1009***	***977***	***738***	***239***	***935***	***679***	***158***	***10***	***88***
Sefidrud	877	856	630	227	815	678	42	10	85
Shahr-e-Bijar	132	121	109	12	120	1	116	0	3
Lorestan	***648***	***538***	***0***	***538***	***51***	***48***	***0***	***0***	***3***
Maruk	11	13	0	13	12	12	0	0	1
Tanghaleh	1	1	0	1	1	1	0	0	0
Kaznar	1	1	0	1	1	1	0	0	0
Khanabad	8	8	0	8	8	7	0	0	1
Eyvashan	39	23	0	23	23	22	0	0	1
Hozian	6	6	0	6	6	6	0	0	1
Rudbar	583	485	0	485	0	0	0	0	0
Mazandaran	***249***	***256***	***33***	***224***	***251***	***120***	***73***	***0***	***59***
Shahid Rajaee	85	83	33	50	82	36	33	0	13
Shiyadeh	3	2	0	2	2	2	0	0	0
Berenjestanak	4	3	0	3	3	3	0	0	1
Meijeran	21	19	0	19	18	4	12	0	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]
Salaheddinkola	1	0	0	0	0	0	0	0	0
Farimsahra	1	0	0	0	0	0	0	0	0
Sonbolrud	2	1	0	1	1	1	0	0	0
Alimalat	3	3	0	3	3	1	0	0	2
Alborz	100	114	0	114	111	64	28	0	20
Gelevard Neka	30	30	0	30	30	10	0	0	20
Markazi	***59***	***96***	***0***	***96***	***80***	***25***	***46***	***10***	***0***
Kamal Saleh.....	41	48	0	48	42	0	32	10	0
Saveh	17	49	0	49	38	25	13	0	0
Hormozgan	***186***	***313***	***0***	***313***	***123***	***80***	***43***	***0***	***0***
Esteqlal	26	107	0	107	60	49	11	0	0
Jegin	128	122	0	122	20	12	8	0	0
Shamil & Nian	28	59	0	59	21	20	1	0	0
Sarney	4	25	0	25	22	0	22	0	0
***Hamedan ..... ***	***42***	***39***	***0***	***39***	***30***	***3***	***27***	***0***	***0***
Ekbatan	19	15	0	15	13	1	12	0	0
Abshineh	0	0	0	0	0	0	0	0	0
Shirinsu.....	2	1	0	1	0	0	0	0	0
Kalan-e-Malayer	17	19	0	19	14	1	13	0	0
Sarabi	4	4	0	4	3	2	2	0	0

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-Azarbayejan 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 from each dam 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 (province), and the Company for the Development of Water Resources and Energy of Iran is responsible for this dam. However, due to its aquatic connection with the Karkheh Dam, it is classified under Khuzestan Ostan (province).

8. Kucheri dam is located in Esfahan Ostan (province) and Tehran Regional Water Company is responsible for this dam; however, since the dam's primary function is supplying drinking water to Qom Shahr (city), the related statistics are included in Qom Ostan (province).

9. The outflow of the Aras dam and Dusti dam equals the total outflow of the dam, and the water consumption is only allocated to Iran's consumptive needs.

10. The consumptions from the chain dams of Shahid Abbaspour, Karun 3, Karun 4, and Gotvand-e-Olya are solely recorded under Gotvand-e-Olya Dam's consumptive use.

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

Source: Iran Water Resources Management Company.

9.4. CURRENT SITUATION OF RESERVOIR CAPACITIES, LENGTH OF THE WATER DISTRIBUTION NETWORK, AND URBAN WATER TRANSMISSION PIPELINES (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
1398	15448925	162919	29725
1399	15527998	166050	30698
1400	15736468	167402	31309
1401	15917277	168263	31579
1402	***16024839***	***170736***	***32710***
East Azarbayejan	915770	9769	1180
West Azarbayejan	399830	5199	814
Ardebil	237300	2575	508
Esfahan	1154820	14742	3083
Alborz	481172	4452	629
Ilam	139000	1385	535
Bushehr	287600	3886	892
Tehran	3130470	16509	2649
Chaharmahal&Bakhtiyari	168810	2112	412
South Khorasan	148700	2531	562
Khorasan-e-Razavi	1360200	12579	2733
North Khorasan	190400	1674	409
Khuzestan	924538	10547	2172
Zanjan	168670	1711	303
Semnan	217878	2566	643
Sistan&Baluchestan	287640	5119	1438
Fars	964085	11427	2928
Qazvin	265862	2544	440
Qom	356800	2370	203
Kordestan	270450	2919	457
Kerman	728820	11356	2533
Kermanshah	311500	3163	600
Kohgiluyeh&Boyerahmad	124200	1550	324
Golestan	277930	3295	684
Gilan	409793	6264	802
Lorestan	286231	2737	614
Mazandaran	454292	8108	1144
Markazi	300970	3563	711
Hormozgan	394916	5088	1041
Hamedan	299705	2778	506
Yazd	366487	6216	759

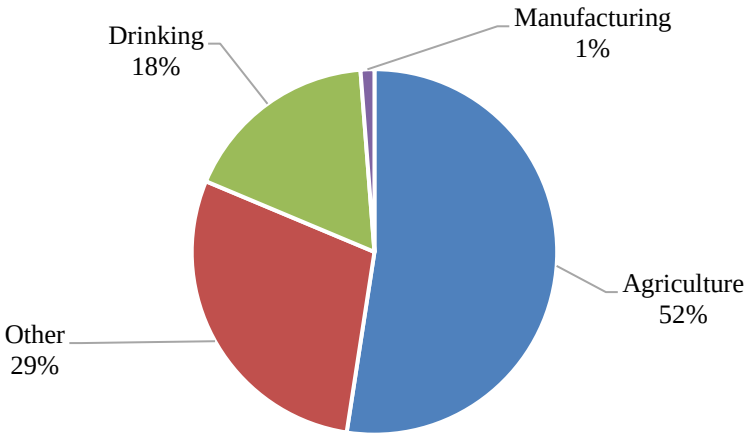
Source: Water and Sewage Engineering Company.

9.5. MAXIMUM CAPACITY OF WATER SUPPLY RESOURCES, 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
1398	254836	6262386	4737186	17073629
1399	269019	6647224	4882146	17506614
1400	271887	6872979	4999297	17955538
1401	256812	6869735	4851410	18299894
1402	***277803***	***6964216***	***4991984***	***18786525***
East Azarbayejan	11555	273450	212780	1332315
West Azarbayejan	10543	255281	172720	741265
Ardebil	3376	88360	65860	391073
Esfahan	20299	434428	361617	1384573
Alborz	10125	286846	226304	457865
Ilam.	1928	47580	34260	171295
Bushehr	3228	101791	71080	352923
Tehran	60414	1474600	1157216	1935081
Chaharmahal&Bakhtiyari	2914	57300	41840	268461
South Khorasan	3065	53710	34210	222030
Khorasan-e-Razavi	17241	444997	325765	1885814
North Khorasan	1909	47557	34732	228629
Khuzestan	28475	738570	391646	1187808
Zanjan	3604	73580	53500	261145
Semnan	2909	65406	45076	268339
Sistan&Baluchestan	7399	155569	104869	407026
Fars	14493	403156	276137	1237054
Qazvin	3409	93479	74204	347456
Qom	6141	129004	102823	354696
Kordestan	5407	134070	91366	443648
Kerman	8152	198050	144700	693205
Kermanshah	6673	146335	105843	433948
Kohgiluyeh&Boyerahmad	2712	68394	31288	202318
Golestan	4418	107170	73840	340991
Gilan	6455	201440	125630	549193
Lorestan	4482	130890	93010	465206
Mazandaran	10853	258820	179673	698362
Markazi	4659	123163	92880	341714
Hormozgan	4518	135085	94934	255883
Hamedan	3671	112700	81900	446020
Yazd	2774	123434	90280	481189

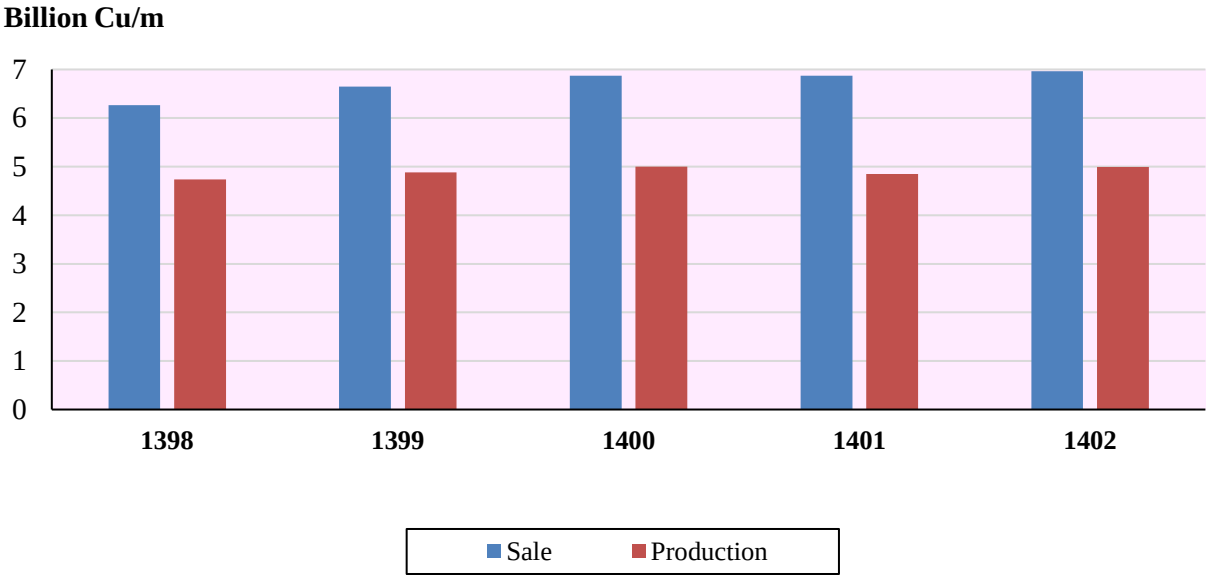
1.Water sale refers to water consumption.
Source: Water and Sewage Engineering Company.

9.3. WATER CONSUMPTION OF LARGE RESERVOIR DAMS BY TYPE OF USE, THE YEAR 1402



For data see Table 9.3.

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



For data see Table 9.5.

9.6. MAXIMUM CAPACITY OF WATER SUPPLY RESOURCES, 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	51242	1019180	652929	3200860
1390	77038	1160295	794211	4415236
1395	81054	1382449	947807	5392903
1398	108058	1601729	1055400	5873870
1399	170230	1744762	1077794	6005284
1400	172317	1942642	1197737	6120862
1401	175904	2065013	1156059	6298743
1402	***168835***	***2098146***	***1178544***	***6349981***
East Azarbayejan	12800	84820	56580	361754
West Azarbayej an	5898	112000	71000	321209
Ardebil	6036	35900	20541	130505
Esfahan	2382	66387	46681	276922
Alborz	4095	24266	13980	67374
Ilam	634	16299	11476	67003
Bushehr	1537	44900	27800	113354
Tehran	7929	55734	39548	165710
Chaharmahal & Bakhtiyari	4303	33700	15900	107102
South Khorasan	2324	35349	19461	152661
Khorasan-e-Razavi	7135	166702	104664	656828
North Khorasan	1263	32657	21164	130218
Khuzestan	8674	256140	71510	202482
Zanjan	2139	38360	22670	123497
Semnan	3147	18561	10314	74840
Sistan & Baluchestan	12431	79338	45121	189435
Fars	6125	188438	89311	424063
Qazvin	1668	35839	23002	128704
Qom	2770	16638	9649	39883
Kordestan	5957	35830	23200	136364
Kerman	6809	119666	59797	307195
Kermanshah	5747	47581	25414	148950
Kohgiluyeh & Boyerahmad	9123	32034	11403	76252
Golestan	5790	64945	41362	238480
Gilan	6009	82572	51321	349729
Lorestan	8752	52000	35000	152766
Mazandaran	6193	129568	86900	502554
Markazi	4746	40513	28832	172796
Hormozgan	4767	77480	44560	226887
Hamedan	8644	49027	33334	174383
Yazd	3008	24904	17050	130081

1.Water sale refers to water consumption.
Source: Water and Sewage Engineering Company.

9.7. MAXIMUM CAPACITY OF WATER SUPPLY RESOURCES, PRODUCTION AND SALE CAPACITIES AND NUMBER OF EXTENTIONS OF RURALWATER (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
1398	3971542	194229	109708
1399	3974936	186833	110830
1400	4070698	185494	114867
1401	3976239	184842	114991
1402	***3941580***	***182953***	***117086***
East Azarbayejan	206450	8621	7773
West Azarbayejan	154110	7202	5403
Ardebil	114049	3892	2660
Esfahan	155815	5647	3326
Alborz	55243	1280	717
Ilam	81861	1587	1912
Bushehr	77080	3830	2332
Tehran	121730	2537	996
Chaharmahal & Bakhtiyari	81693	2563	1357
South Khorasan	167912	4289	5165
Khorasan-e-Razavi	340933	12765	9359
North Khorasan	99130	3004	2341
Khuzestan	146410	12772	9375
Zanjan	96587	3057	2413
Semnan	45974	1292	904
Sistan & Baluchestan	133701	7281	6941
Fars	274086	14104	8036
Qazvin	73781	2641	2030
Qom	63297	681	584
Kordestan	98273	2919	3513
Kerman	226640	13921	6572
Kermanshah	77901	3714	3728
Kohgiluyeh & Boyerahmad	111762	3956	2960
Golestan	84910	4895	3058
Gilan	146172	18930	4372
Lorestan	80739	4820	3162
Mazandaran	168832	12833	2719
Markazi	101761	3815	2497
Hormozgan	141140	5430	6015
Hamedan	122598	4016	2860
Yazd	91010	4660	2007

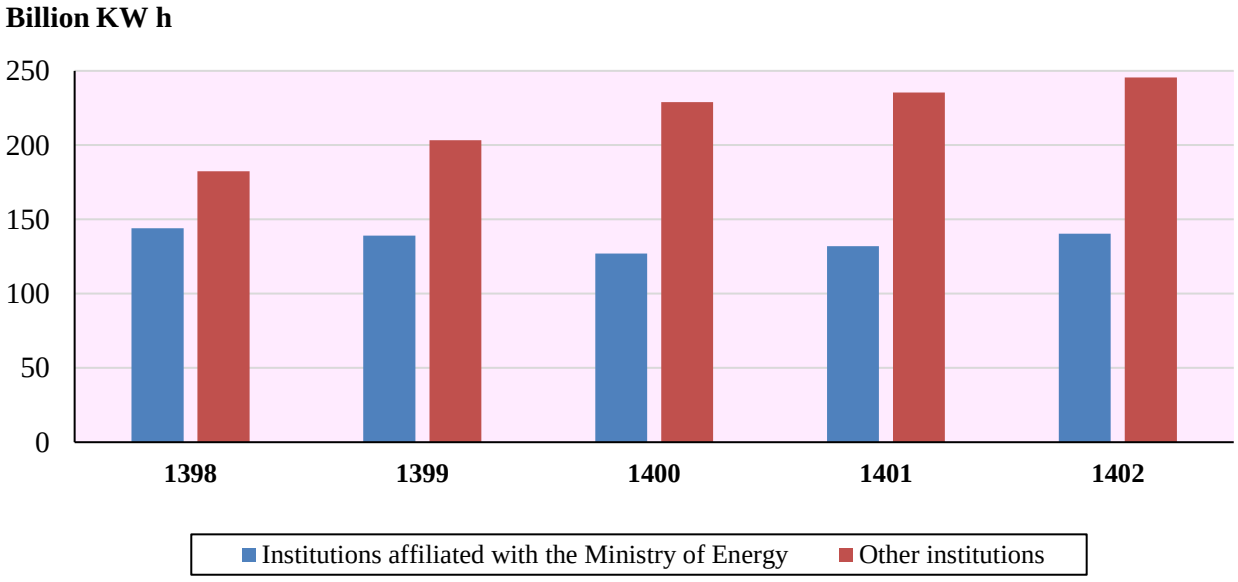
Source: Water and Sewage Engineering Company.

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
1398	83506	37276	46230	326431	144069	182362
1399	85432	37474	47958	342365	139068	203297
1400	86787	36746	50041	355948	126936	229012
1401	90805	37422	53383	367433	132070	235363
1402	***92393***	***37550***	***54843***	***385975***	***140423***	***245552***

Source: Ministry of Energy.

9.5. GROSS ELECTRICITY GENERATION IN THE COUNTRY



For data see Table 9.8.

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
1398	83506	72532	57017
1399	85432	74273	58076
1400	86787	75148	54731
1401	90805	78720	59596
1402	***92393***	***79624***	***60817***
Ministry of Energy	***37550***	***34122***	***25959***
Hydroelectric	12249	12249	8092
Steam	11241	10614	8273
Gas	6809	5368	4297
Combined cycle	5815	4590	4316
Diesel	408	272	0
Atomic	1020	1020	980
Renewable.....	8	8	0
Large scale industries	***7703***	***6297***	***1704***
Steam.....	589	490	315
Gas	5840	4748	1051
Combined cycle	1274	1059	338
Private sector	***47140***	***39206***	***33155***
Steam.....	4000	3772	3268
Gas	13372	10736	8456
Combined cycle	28714	23643	20959
Renewable	1055	1055	473

Source: Ministry of Energy.

9.10. CAPACITY OF INSTALLED GENERATORS AND GROSS ELECTRICITY GENERATION OF POWER PLANTS, THE YEAR 1402

Ostan	Nominal capacity (1000 kW)	Actual capacity (1000 kW)	Gross generation (mln kW h)
Total	***92393***	***79624***	***385975***
East Azarbayejan	2362	2095	10276
West Azarbayejan	2202	1875	11002
Ardebil	1476	1261	6271
Esfahan	5701	5027	27878
Alborz	1828	1531	8630
Ilam	678	645	180
Bushehr	6688	5716	22249
Tehran	7109	5674	31053
Chaharmahal & Bakhtiyari	1058	1056	1692
South Khorasan	797	596	2554
Khorasan-e-Razavi	4377	3748	22082
North Khorasan	1564	1242	6680
Khuzestan	16189	14935	45615
Zanjan	1122	908	3978
Semnan	1135	935	3301
Sistan & Baluchestan	1922	1531	6952
Fars	5488	4237	27527
Qazvin	2246	1986	13057
Qom	826	680	4476
Kordestan	1054	938	6264
Kerman	4630	3659	23148
Kermanshah	2352	2007	11225
Kohgiluyeh & Boyerahmad	101	95	132
Golestan	1047	942	4682
Gilan	2880	2636	14930
Lorestan	1096	936	3121
Mazandaran	4131	3891	13906
Markazi	1392	1280	8012
Hormozgan	4991	4188	22867
Hamedan	1074	1069	7055
Yazd	2877	2305	15180

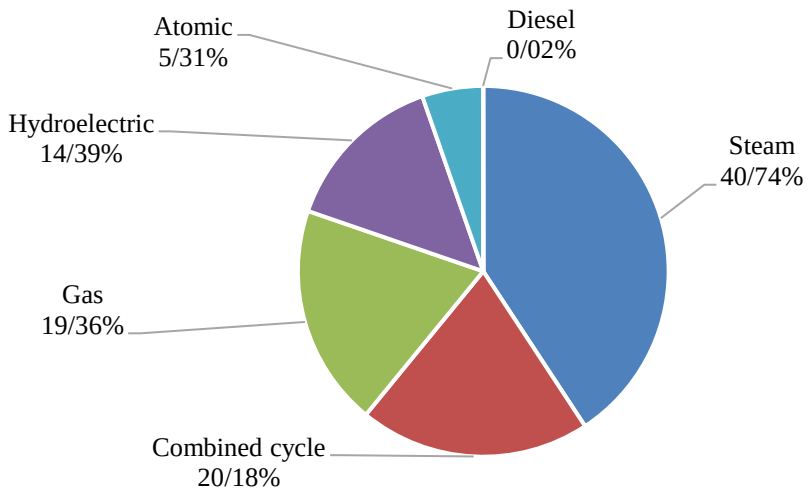
Source: Ministry of Energy.

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
1398	326431	8871	317559
1399	342365	10850	331515
1400	355948	10078	345871
1401	367433	9973	357460
1402	***385975***	***10011***	***375963***
Ministry of Energy	***140423***	***4402***	***136021***
Hydroelectric	20210	81	20129
Steam	57210	3777	53434
Combined cycle	28333	405	27928
Gas	27180	137	27043
Diesel	30	2	28
Atomic	7459	0	7459
Renewable	0	0	0
Large scale industries	***9541***	***218***	***9323***
Steam	2199	192	2008
Gas	6244	21	6223
Combined cycle	1097	5	1092
Private sector	***236011***	***5392***	***230619***
Steam	23863	1807	22056
Gas	49404	297	49107
Combined cycle	160772	3282	157490
Renewable	1972	6	1966

Source: Ministry of Energy.

9.6. SHARE OF ELECTRICITY GENERATORS TYPES(1) OF THE POWER PLANTS AFFILIATED TO THE MINISTRY OF ENERGY FROM GROSS GENERATION OF POWER , THE YEAR 1402



For data see Table 9.11.

1. Given that the renewable energy generators statistics of the Ministry of Energy were zero, they have not been included in the chart

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	43	18367189	13	12634896	18	5550129	12	182164
1390	46	13287425	26	8489912	9	4707067	11	90446
1395	52	16419181	28	9412166	13	6945188	11	61827
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
1401	60	16699885	24	8889335	16	7659235	20	151316
1402	***64***	***20210051***	***24***	***10010959***	***16***	***10058008***	***24***	***141085***
East Azarbayejan	0	0	0	0	0	0	0	0
West Azarbayejan	3	299967	0	0	3	299967	0	0
Ardebil	1	19469	0	0	0	0	1	19469
Esfahan	2	160545	2	160545	0	0	0	0
Alborz	2	33761	1	19442	1	14319	0	0
Ilam	1	87443	1	87443	0	0	0	0
Tehran	3	89197	2	51269	1	37928	0	0
Chaharmahal & Bakhtiyari	3	1671229	2	1671229	0	0	1	0
Khorasan-e-Razavi	2	0	0	0	0	0	2	0
Khuzestan	8	15729774	3	7877974	4	7851219	1	581
Semnan	1	14728	0	0	0	0	1	14728
Fars	3	95429	1	2185	2	93244	0	0
Qom	2	24209	0	0	0	0	2	24209
Kordestan	1	36271	0	0	1	36271	0	0
Kerman	1	7089	1	7089	0	0	0	0
Kermanshah	2	482293	1	0	1	482293	0	0
Kohgiluyeh &Boyerahmad	6	48141	3	33212	0	0	3	14929
Gilan	5	121966	2	97686	1	20270	2	4009
Lorestan	7	1938	2	0	1	240	4	1698
Mazandaran	6	1239737	2	2884	1	1222257	3	14597
Markazi	4	46864	1	0	0	0	3	46864
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 of thermal power plants (mln kWh)	Fuel consumed			Energy generated from fuel consumption (bln kcal)	Thermal energy consumed[1] to generate one kWh of electricity (kcal)	Thermal output[1] (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
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
1401	344583	10569	7422	72410	757954	2200	39.1
1402	***356333***	***9897***	***6632***	***76815***	***778967***	***2186***	***39***
Power plants affiliated with the Ministry of Energy	112753	2116	5076	24440	265125	2351	37
Large scale industries	9541	10	0	2762	25682	2692	32
Private sector	234039	7770	1556	49613	488160	2086	41

1. Thermal output (percent) and thermal energy consumed (per kilowatt-hour of electricity generated, in kilocalories) are calculated using separate formulas. This excludes all power plants affiliated with the Ministry of Energy, large-scale industries, and the private sector.

Source: Ministry of Energy.

9.14. GENERATION, INTERNAL CONSUMPTION OF POWER PLANTS, PURCHASE, LOSSES AND SALES OF ELECTRIC POWER IN THE COUNTRY (mln kWh)

Description	Year							
	1385	1390	1395	1398	1399	1400	1401	1402
Gross generation[1]	181538	208414	128292	144069	139068	126936	132070	140423
Less: Internal consumption of plants[1]	7064	7985	4520	4848	5222	4904	4881	4402
Net generation[1]	174474	200429	123772	139219	133846	122031	127190	136021
Plus: Electricity purchased from large-scale industries[2]	10997	23637	149743	174776	197669	223839	230270	239942
Less: Distribution and transmission networks losses	35566	34102	33513	32550	33358	35736	37057	38105
Net sales	144831	188917	239903	281959	297643	309317	317480	334467
Net exports (Exchange of electric power with other countries)	233	5012	2467	6865	6796	2705	896	1649
Domestic sales	144598	183905	237436	275094	290847	306612	316584	332818

1. Including institutes affiliated with the Ministry of Energy.

2. Other institutions include large-scale industries and private plants.

Source: Ministry of Energy.

9.15. MAXIMUM COINCIDENTAL LOADS OF REGIONAL POWER COMPANIES AND LARGE SCALE INDUSTRIES (1000 kWh)

Description	Maximum coincidental loads of regional power companies and large scale industries
1385	33453
1390	41481
1395	50926
1398	55839
1399	57023
1400	55182
1401	59304
1402	***61190***
Azarbayejan Regional Power Company	3297
Esfahan Regional Power Company	4097
Bakhtar Regional Power Company	2598
Tehran Regional Power Company	11408
Khorasan Regional Power Company	3970
Khuzestan Regional Power Company	8122
Zanjan Regional Power Company	1389
Semnan Regional Power Company	506
Sistan&Baluchestan Regional Power Company	1764
Gharb Regional Power Company	1687
Fars Regional Power Company	5111
Kerman Regional Power Company	2179
Gilan Regional Power Company	1998
Mazandaran Regional Power Company	4536
Hormozgan Regional Power Company	2871
Yazd Regional Power Company	1073
Kish Water and Power Company	177
Large scale industries	4407

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
1398	21329	32571	23939	50205
1399	21880	32861	24589	50710
1400	22102	33073	24746	51082
1401	22402	33324	25069	51414
1402	***22363***	***33662***	***25391***	***52122***

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
1398	75008	88535	36227	78306
1399	79058	92595	37137	80208
1400	80203	94318	38360	82761
1401	83738	98327	39961	84965
1402	***91649***	***100615***	***40709***	***86843***
East-Azarbayejan	1715	4305	3573	1158
West-Azarbayejan	1260	1915	2658	15
Ardebil	1130	1450	0	1082
Esfahan	6860	6545	0	8421
Alborz	1200	2236	0	3200
Ilam	0	1365	559	823
Bushehr	7375	2806	1992	2215
Tehran	10900	12260	0	14875
Chaharmahal&Bakhtiyari	1810	0	0	1335
South Khorasan	1275	0	880	0
Khorasan-e-Razavi	5073	160	7205	1006
North Khorasan	1200	0	1008	0
Khuzestan	12715	8952	13415	0
Zanjan	2030	1615	0	2232
Semnan	2200	1970	0	2183
Sistan&Baluchestan	945	3882	60	3280
Fars	6420	4895	1065	7653
Qazvin	800	1675	0	2450
Qom	570	1650	0	1995
Kordestan	0	1725	80	1270
Kerman	6706	6760	5163	375
Kermanshah	1545	3055	0	2451
Kohgiluyeh&Boyerahmad	400	640	719	0
Golestan	900	2160	0	2383
Gilan	1000	3440	220	3653
Lorestan	1000	2060	0	2169
Mazandaran	3530	5140	0	5262
Markazi	2000	2925	0	3658
Hormozgan	4205	8591	1408	6268
Hamedan	600	1815	0	2347
Yazd	4285	4623	705	3087

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
1398	36643985	29426885	1732289	463718	254807	4766286
1399	37617583	30170016	1788087	481682	259943	4917855
1400	38618904	30884917	1844137	502008	265951	5121891
1401	39620165	31630759	1911043	523062	268102	5287199
1402	***40568305***	***32331505***	***1976797***	***541051***	***277155***	***5441797***
East Azarbayejan	2103998	1607456	96083	24923	17763	357773
West Azarbayejan	1438566	1159772	40365	24271	7037	207121
Ardebil	639332	521982	30731	5531	4049	77039
Esfahan	2921132	2267852	121922	51795	35250	444313
Alborz	1516121	1214091	100251	5673	7388	188718
Ilam	264346	217980	10457	3508	1119	31282
Bushehr	546604	438975	21999	6403	2903	76324
Tehran	7410257	5644433	591162	13572	48360	1112730
Chaharmahal & Bakhtiyari	419045	346190	15093	7904	3726	46132
South Khorasan	418400	346991	17364	6134	2981	44930
Khorasan-e-Razavi	3227198	2647529	129618	24972	21463	403616
North Khorasan	411525	343359	15939	4246	2271	45710
Khuzestan	1789137	1465426	63061	11951	5005	243694
Zanjan	516149	410371	20528	9797	4377	71076
Semnan	417815	317289	25613	7720	6441	60752
Sistan & Baluchestan	968752	813350	32863	14926	3466	104147
Fars	2291854	1863039	86000	49572	15346	277897
Qazvin	675268	532948	47077	7539	5583	82121
Qom	630262	504411	26902	4315	7514	87120
Kordestan	753605	618827	27673	13589	3504	90012
Kerman	1368006	1154591	39774	18403	6857	148381
Kermanshah	833527	691539	33070	8798	3778	96342
Kohgiluyeh & Boyerahmad	293557	245701	10347	3402	1347	32760
Golestan	832191	678499	34382	14367	3541	101402
Gilan	1624542	1260355	83798	30119	6872	243398
Lorestan	713186	602736	20030	9788	2836	77796
Mazandaran	2301029	1795440	107373	109473	14637	274106
Markazi	808593	657778	34964	11654	7960	96237
Hormozgan	822682	667926	39881	10579	3457	100839
Hamedan	826868	662919	34025	13949	7111	108864
Yazd	784758	631750	18452	12178	13213	109165

Source: Ministry of Energy.

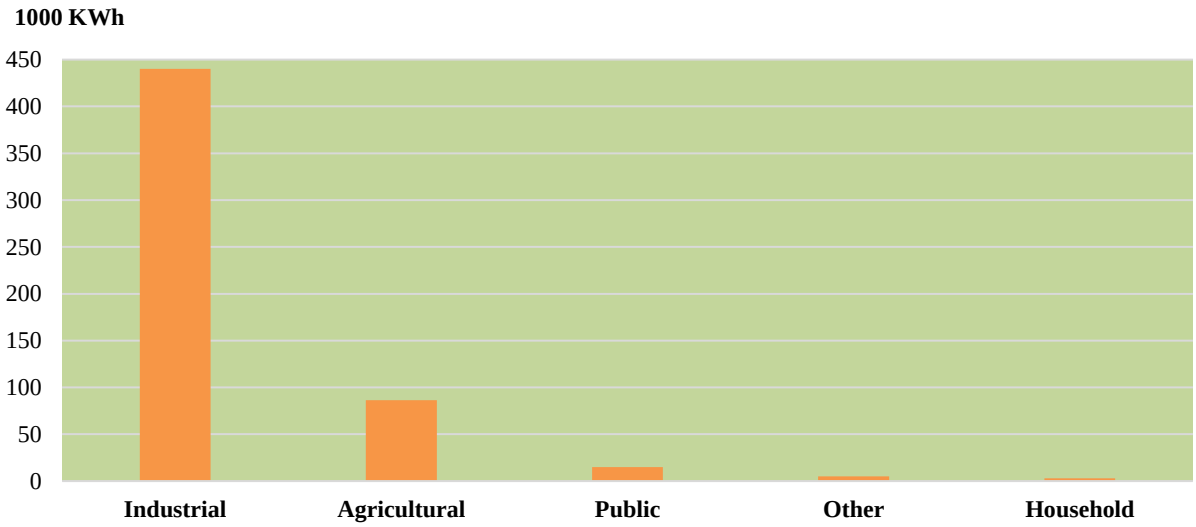
9.19. DOMESTIC SALE OF ELECTRICITY OF THE NATION'S OSTANS BY TYPE OF CONSUMPTION

(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
1398	275094	88500	25589	38764	97081	5017	20143
1399	290847	92283	24586	41288	108074	4876	19741
1400	306612	98464	26515	43990	110212	22382	5049
1401	316584	98255	28525	45206	115567	24089	4942
1402	***332818***	***103159***	***30347***	***46400***	***121869***	***5026***	***26018***
East Azarbayejan	11497	2856	763	1350	5365	205	958
West Azarbayejan	6928	2424	491	1420	1836	140	618
Ardebil	2466	820	279	324	774	72	196
Esfahan	29979	5092	1362	3172	18284	371	1698
Alborz	8668	2719	802	888	3100	132	1026
Ilam	1939	865	151	424	335	34	130
Bushehr	8689	5100	1091	662	1089	140	607
Tehran	42085	13747	7415	3273	9449	500	7701
Chaharmahal&Bakhtiyari	2857	596	133	820	1093	83	132
South Khorasan	2113	576	176	523	629	72	137
Khorasan-e-Razavi	20422	5551	1373	4544	6903	343	1708
North Khorasan	2466	571	131	407	1197	29	131
Khuzestan	36915	17018	3993	3782	9742	620	1760
Zanjan	5445	716	187	734	3550	52	207
Semnan	4209	606	238	604	2523	51	187
Sistan&Baluchestan	8569	4332	1711	1287	584	131	524
Fars	24789	6399	1571	6361	8685	343	1431
Qazvin	5578	1038	285	1156	2746	63	290
Qom	4957	1543	424	496	1958	81	456
Kordestan	3195	1177	212	791	729	55	231
Kerman	18622	4477	828	4238	8185	223	671
Kermanshah	4245	1454	697	576	1142	98	279
Kohgiluyeh&Boyerahmad	2390	1032	368	229	533	78	150
Golestan	4575	2171	380	814	761	81	368
Gilan	7030	2996	587	695	1659	167	927
Lorestan	4273	1239	407	1008	1282	102	234
Mazandaran	10811	4814	870	1211	2467	239	1210
Markazi	9773	1261	285	1345	6454	123	304
Hormozgan	19689	7366	2455	1152	7477	177	1062
Hamedan	5464	1243	309	1384	2164	69	296
Yazd	12184	1362	371	733	9175	155	390

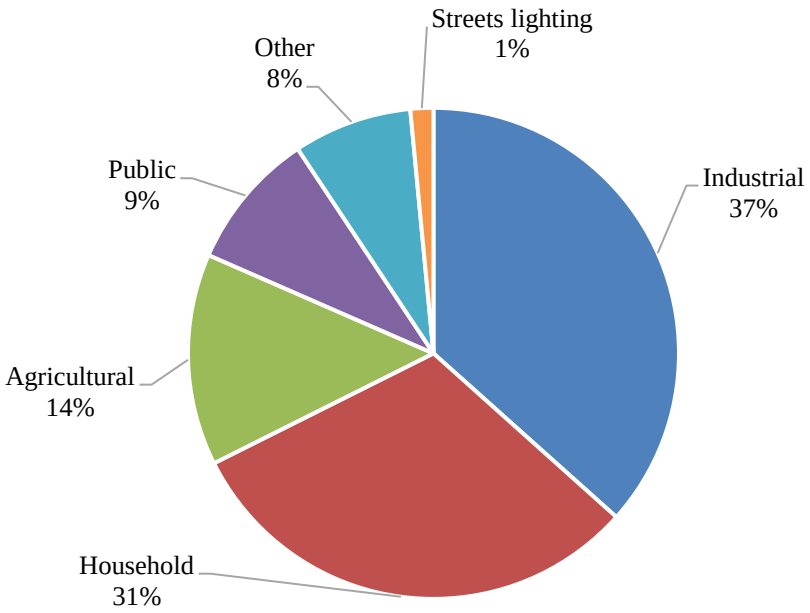
Source: Ministry of Energy.

9.7. AVERAGE ELECTRICITY CONSUMPTION BY TYPE OF CUSTOMERS, THE YEAR 1402



For data see Tables 9.18 and 9.19.

9.8. DOMESTIC SALE OF ELECTRICITY BY TYPE OF USE, THE YEAR 1402



For data see Table 9.19.

9.20. NUMBER OF VILLAGES, RURAL HOUSEHOLDS ENJOYING ELECTRICITY AND CHARACTERISRICS OF ELECTRICITY TRANSMITING INSTALLATIONS TO VILLAGES

Year and Ostan	Village	Household enjoying electricity	Length of power disribution lines with medium pressure (km)	Length of power disribution 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
1398	57420	4502045	146172	100305	77503	7717
1399	57755	4506485	146744	100468	77911	7734
1400	58005	4510206	147251	100604	78231	7747
1401	58686	5804548	300580	137177	317759	36966
1402	***58789***	***5886323***	***301782***	***137796***	***320523***	***37200***
East Azarbayejan	2733	308164	8575	5205	3137	364
West Azarbayejan	2829	389707	13202	6353	20234	1864
Ardebil	1759	70782	6741	3335	5786	335
Esfahan	1705	296167	17472	9078	10069	1190
Alborz	245	62914	2386	1249	2328	407
Ilam	610	73736	4462	1249	4369	519
Bushehr	603	115765	6937	2676	11003	2566
Tehran	737	171040	4128	2662	7722	1276
Chaharmahal&Bakhtiyari	755	94150	3813	2711	5185	448
South Khorasan	1649	151217	11598	2855	2172	171
Khorasan-e-Razavi	3237	595739	27259	8375	24875	2631
North Khorasan	978	94609	6566	2636	5974	464
Khuzestan	3946	240064	17541	6093	25529	4306
Zanjan	908	104156	7700	2394	1229	151
Semnan	455	35977	5489	1357	5432	577
Sistan&Baluchestan	5738	250034	20163	7253	11096	1358
Fars	3315	313357	8475	4705	5180	541
Qazvin	841	73056	6371	2476	8437	1042
Qom	362	18252	3222	898	5255	852
Kordestan	1706	181914	10173	3033	12806	958
Kerman	5044	395071	29113	12761	34604	3210
Kermanshah	2565	165297	11041	3270	9734	673
Kohgiluyeh&Boyerahmad	1802	55312	5093	2470	7188	1043
Golestan	1037	106393	8181	3995	15807	1762
Gilan	2574	352527	7360	12642	17206	1786
Lorestan	2781	176017	8934	3514	12630	1253
Mazandaran	2883	359633	6891	9520	13289	1456
Markazi	1182	117119	10541	2582	13608	1310
Hormozgan	1746	267624	9184	5095	15230	2404
Hamedan	1073	194698	7351	3367	2077	195
Yazd	991	55832	5820	1987	1332	86

Source: Ministry of Energy.

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

Year	Exports				
	Total	Nakhjavan	Türkiye	Armenia	Azerbaijan
1385	2774	561	576	316	11
1390	8668	56	1118	57	0
1395	6688	48	297	105	1
1398	8206	000	000	000	000
1399	9470	000	000	000	000
1400	5719	000	000	000	000
1401	4937	000	000	000	000
1402	***4883***	***000***	***000***	***000***	***000***

Year	Exports			
	Turkminestan	Pakistan	Afghanistan	Iraq
1385	2	172	134	1002
1390	8	271	557	6601
1395	0	482	731	5024
1398	000	000	000	000
1399	000	000	000	000
1400	000	000	000	000
1401	000	000	000	000
1402	***000***	***000***	***000***	***000***

Year	Energy exchange	Imports			
		Total	Nakhjavan	Türkiye	Armenia
1385	233	2541	0	0	428
1390	5012	3656	57	0	1508
1395	2467	4221	51	0	1133
1398	6865	1341	000	000	000
1399	6796	2674	000	000	000
1400	2704	3014	000	000	000
1401	896	4041	000	000	000
1402	***1649***	***3234***	***000***	***000***	***000***

Year	Imports				
	Azerbaijan	Turkminestan	Pakistan	Afghanistan	Iraq
1385	536	1576	0	0	0
1390	2	2089	0	0	0
1395	4	3033	0	0	0
1398	000	000	000	000	000
1399	000	000	000	000	000
1400	000	000	000	000	000
1401	000	000	000	000	000
1402	***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 1402

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	***463054***	***378617***	***856892***	***143454***
East Azarbayejan	19382	17710	31244	4677
West Azarbayejan	15763	13220	25943	3213
Ardebil	7710	6736	8101	1086
Esfahan	28166	29738	52702	9717
Alborz	5675	7097	20443	5004
Ilam	5261	2797	7189	1127
Bushehr	9216	7671	19945	4658
Tehran	21364	27711	85035	23653
Chaharmahal&Bakhtiyari	6984	5495	9884	1242
South Khorasan	13390	6161	10875	1167
Khorasan-e-Razavi	36731	26462	51637	8350
North Khorasan	7208	4839	8449	874
Khuzestan	24420	21626	63367	15242
Zanjan	8844	6217	11458	1697
Semnan	7951	4849	9229	1559
Sistan&Baluchestan	27236	15886	28671	3431
Fars	39679	27017	82628	10584
Qazvin	8672	4904	13090	2386
Qom	4382	4070	8573	1980
Kordestan	11199	5928	15585	1584
Kerman	33935	22276	49330	5788
Kermanshah	12433	7409	20048	2336
Kohgiluyeh&Boyerahmad	5776	4069	9907	1696
Golestan	8656	8751	23301	2992
Gilan	9757	18781	25337	4152
Lorestan	11240	6524	19334	2512
Mazandaran	18943	27335	57273	7059
Markazi	12418	8899	19462	2748
Hormozgan	17176	10728	30194	6006
Hamedan	11579	7925	19560	2494
Yazd	11908	9786	19098	2440

Source: Ministry of Energy.