9 Water and Electricity

Introduction

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

Water

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

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

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

Electricity

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

Moreover, through two successive censuses of population and housing in the years 1365 and 1375, the SCI collected data on residential units and households benefiting from piped water and electricity which are reflected in Chapter 10, “Construction and Housing,” of the yearbook.

Definitions and concepts

Water basin: see Chapter 1, Definitions and concepts.

Aquatic year: see Chapter 1, Definitions and concepts.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Public uses: electricity used for public services.

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

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

Distribution network: a collection consisting of ground and aerial medium voltage lines(20, 11 and 33 kv) and low voltage (220 and 380 v) and ground and aerial substations used for electricity distribution in a specific area .

Transmission and sub-transmission network: it consists of a series of substations, lines, cables and other electrical equipment connected from power plants to final consumers for energy transmission.

A line circuit or electrical cable: It consists of a number of electrically inseparable conductors that form a three-phase cable or another system and is able to transmit electrical energy from one place to another place.

Etectrical substation or power station: A site with a collection of installations and electrical equipment including transformers, switches, measurement instruments, inflow and outflow lines, a reactor, a capacitor and different grounds used for transmission and distribution of electricity. An electreical substation is a part of an electrical network centralized in a given site used for selective connection or disconnection of electrical circuits in a network. Also, it is possible

to transmit electricity between networks used at different voltage levels.

Selected information

In aquatic year 1393-1394,the amount of annual discharge of the underground water resources was 61094 mln cu m which had an 0.5 percent decrease in comparison to the aquatic year 1392-1393. It should be noted that out of 6 main basins, the central plateau with 50.5% had the maximum annual discharge.

In the year 1394, the inflow of the large reservoir dams amounted to 36155 mln cu m had a 28.1% increase in comparison to the last year. In this year, 25585 mln cu m of large reservoir dams have been consumed, 65.3 percent of which belongs to the agricultural consumptions.

In the same year, over 7399 mln cu m of water is produced in the water and sewage companies of the country (urban and rural) out of which about 5408 mln cu m was sold. Sale of water had a 2.1 percent increase compared to the preceding year. This is while that the production of water had a 2.1 percent increase compared to previous year.

In the year 1394, there were over 20712000 water extensions which had a 3.0 percent (urban and rural) increase in comparison to the preceding year. Out of this number about 15431000 extensions were for the urban areas which had a 3.1% increase compared to the previous year.

In the year 1394, the gross electricity generation of institutions affiliated to the Ministry of Energy was about 123215 mln kilowatt hours about 50.0 percent of which has been produced in the steam power plants. Furthermore, the gross electricity generation amount had a 2.3 percent increase compared to the preceding year.

In this year, 227311 mln kilowatt hours of generated electricity was consumed by a number of 32831000 subscribers. In this respect, the amount of electricity sold and the number of electricity subscribers increased about 3.5 and increased by about 3.7 percent respectively compared to the preceding year.

Among all electricity subscribers in the year 1394, percentage of subscribers in the house, public,agricultural and manufacturing sectors was 81.1, 4.5, 1.1 and 0.6 percent, respectively. Also in this year, the percentage of the sold electricity which was consumed in the house and manufacturing, agricultural, public sectors and for the streets lighting was 33.5, 31.8, 15.9, 9.8 and 1.8 percent respectively.

At the end ofthe year 1394, a number of 56170 villages (about 4.3 mln rural households) were electrified which increased by 0.9% in comparison to the previous year.

9.1. UNDERGROUND WATER RESOURCES AND THEIR ANNUAL DISCHARGE BY MAIN BASINS

(mln cu m)

Aquatic year and main basins	Total discharge	Deep well		Semi-deep well		Subterranean canals (Qanat)		Spring	
		Number	Annual discharge	Number	Annual discharge	Number	Annual discharge	Number	Annual discharge
1374-75	60946	93646	27708	254900	11441	30988	9543	44476	12253
1379-80	69549	118986	30757	314405	13263	33036	7962	49785	17566
1384-85	79837	155800	35843	432943	12778	36307	7527	112787	23690
1389-90	70482	191261	34367	497579	12479	39531	6259	159454	17378
1390-91	64523	195766	34872	567898	12311	41109	4752	173825	12588
1391-92	64932	200859	34545	569708	12164	41130	4735	173611	13488
1392-1393	61407	199087	33729	582426	12241	41149	4738	174161	10699
1393-1394	***61094***	***196010***	***33125***	***593164***	***12204***	***41154***	***4715***	***173296***	***11050***
Caspian Sea	6724	36278	2577	235722	1544	2624	232	76414	2371
Persian Gulf and Oman Sea	17145	43774	6400	105547	3682	4833	508	55121	6554
Lake Orumiyeh	2311	7457	891	91909	1138	1809	126	9908	155
Central Plateau	30875	100652	20488	146994	5408	26714	3325	27645	1654
Eastern Border	1414	1862	725	8700	338	3111	300	1428	50
Qareh Qum	2625	5987	2044	4292	91	2063	226	2780	264

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 1393-1394 (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	***61092***	***196010***	***33122***	***593164***	***12201***	***41154***	***4719***	***173296***	***11047***
East Azarbayejan	1331	5096	527	43574	520	1960	186	2295	99
West Azarbayejan	1926	5047	865	57883	855	543	42	851	163
Ardebil	398	2077	164	4918	89	221	19	3354	125
Esfahan	5286	15756	1747	33331	1244	4203	758	8686	1537
Alborz	886	5329	680	11186	89	157	10	1736	107
Ilam	360	1173	237	829	13	4	1	744	109
Bushehr	514	1350	133	11800	328	48	13	180	40
Tehran	2722	15982	2186	27375	129	536	248	2503	159
Chaharmahal&Bakhtiyari	2155	2237	280	1767	148	1011	103	4760	1624
South Khorasan	1211	2425	841	849	37	6251	266	2196	66
Khorasan-e-Razavi	6379	12902	5221	11708	248	6779	556	6814	353
North Khorasan	876	1578	404	2447	48	630	86	2958	338
Khuzestan	1319	3455	774	7107	210	3	1	1086	334
Zanjan	1160	3865	667	13506	296	725	36	5836	161
Semnan	967	2932	697	1996	35	738	86	1873	148
Sistan&Baluchestan	1982	1446	375	17530	1189	1282	377	905	41
Fars	7998	31164	4067	53363	2492	1730	401	2226	1038
Qazvin	1140	4291	898	5972	113	313	28	13852	101
Qom	903	1183	543	3756	179	753	163	1397	19
Kordestan	1031	2709	355	14868	175	519	24	38562	478
Kerman	6397	16039	4494	18517	1337	2391	456	1593	110
Kermanshah	1216	4843	435	10298	210	411	22	11101	549
Kohgiluyeh&Boyerahmad	1420	879	121	2046	97	61	5	3918	1197
Golestan	758	8871	403	26942	215	344	20	3766	120
Gilan	785	969	128	50786	243	×	×	16153	414
Lorestan	960	3193	479	3738	121	1167	31	5692	329
Mazandaran	1688	15841	520	121337	333	34	7	21688	827
Markazi	2924	7818	1908	7565	343	4254	497	3159	176
Hormozgan	1532	4328	736	17573	617	169	33	639	147
Hamedan	1754	8303	1437	7822	152	1287	61	2386	103
Yazd	1114	2929	800	775	96	2630	183	387	35

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

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

(mln cu m)

Year and reservoir dams	Inflow[2]	Outflow[4]			Water consumption[3]				
		Total	From turbines ducts for electricity generation	Other [5]	Total	Agriculture	Drinking	Manu-facturing	Other[5]
1375	36901	40136	26784	13352	18125	15009	1462	374	1280
1380	30400	27311	18386	8925	11467	8819	1209	382	1058
1385	50873	54716	44913	9803	17157	13233	2276	589	1059
1390	33740	32822	17122	15700	25675	16175	2226	855	6419
1391	38546	34294	17014	21134	25169	15405	3020	861	5883
1392	30048	31620	46742	×	27894	18489	3005	867	5164
1393	28223	30409	41233	-	26313	17880	2859	761	4813
1394	***36155***	***30567***	***43461***	***-***	***25585***	***16703***	***3043***	***739***	***5099***
East Azarbayejan	***4997***	***4938***	***3225***	***4938***	***2052***	***1580***	***46***	***9***	***416***
Aydoghamush	59	58	0	58	35	24	0	0	11
Aras[2,6]	3397	3340	3225	115	1774	1406	0	0	368
Khoda Afarin[2]	4416	4432	0	4432	0	0	0	0	0
Arasbaran	13	5	0	5	4	4	0	0	0
Tajbar Sarab	3	2	0	2	0	0	0	0	0
Zonuz	8	4	0	4	3	2	0	0	2
Sattarkhanahar	61	49	0	49	45	32	8	4	1
Sahand[7]	109	124	0	124	46	21	4	0	20
Alavian	90	85	0	85	83	57	15	6	6
Ghale chai	50	38	0	38	38	31	0	0	7
Kord Kandi	5	3	0	3	3	3	0	0	0
Nahand	31	23	0	23	21	0	19	0	2
West Azarbayejan.	***1952***	***1682***	***110***	***1572***	***1533***	***880***	***226***	***4***	***424***
Aras 2	2	2	0	2	2	2	0	0	0
Aghchay	122	96	0	96	66	56	0	0	10
Barun	88	89	0	89	83	78	5	0	0
Bukan	1174	1025	0	1025	961	441	140	3	376
Hasanlu	61	69	0	69	56	49	0	0	6
Deriq Salmas	13	12	0	12	10	10	0	0	0
Zola	71	59	0	59	56	46	0	0	10
Saruq	19	13	0	13	11	5	6	0	0
Shahrchay	129	122	0	122	113	55	55	0	3
Shahid Ghanbari	34	33	0	33	26	26	0	0	0
Qiqaj	10	8	0	8	9	9	0	0	0
Mahabad	229	151	110	41	140	103	19	0	18

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

(mln cu m)

Year and reservoir dams	Inflow[2]	Outflow[4]			Water consumption[3]				
		Total	From turbines ducts for electricity generation	Other [5]	Total	Agriculture	Drinking	Manu-facturing	Other[5]
Ardebil	***137***	***125***	***0***	***125***	***111***	***45***	***34***	***0***	***32***
Sabalan	46	42	0	42	36	12	0	0	24
Saqizchi	9	9	0	9	3	3	0	0	0
Qurichay	8	5	0	5	5	5	0	0	0
Gilarlu	0	0	0	0	0	0	0	0	0
Moghadasardebili	10	8	0	8	8	2	0	0	6
Yamchi	63	61	0	61	59	23	34	0	2
Esfahan	***1616***	***1649***	***1311***	***338***	***1435***	***856***	***395***	***83***	***102***
Baghkal-e-Khansar	5	1	0	1	1	1	0	0	0
Hana	9	10	0	10	8	8	0	0	0
Khamiran	10	9	0	9	9	9	0	0	0
Zayandehrud	1394	1438	1311	128	1401	833	395	83	90
Qareh Aqach	3	7	0	7	5	5	0	0	0
Golpayegan[8]	195	183	0	183	12	0	0	0	12
Ilam	***313***	***162***	***0***	***162***	***78***	***45***	***17***	***0***	***16***
Ilam	102	87	0	87	25	2	17	0	6
Doborj	178	62	0	62	42	32	0	0	10
Kangir	32	12	0	12	12	12	0	0	0
Bushehr	***228***	***205***	***0***	***205***	***175***	***145***	***0***	***0***	***30***
Reis Ali delvari	228	205	0	205	175	145	0	0	30
Tehran	***1395***	***1149***	***909***	***499***	***1256***	***310***	***781***	***9***	***155***
Taleghan	346	275	154	121	266	119	146	0	0
Karaj	385	306	302	3	302	35	247	0	20
Lar	379	367	151	215	361	88	152	0	121
Latiyan[2]	334	307	302	5	185	0	171	1	14
Mamlo[2]	151	153	0	153	143	69	66	8	0

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

(mln cu m)

Year and reservoir dams	Inflow[2]	Outflow[4]			Water consumption[3]				
		Total	From turbines ducts for electricity generation	Other[5]	Total	Agriculture	Drinking	Manu-facturing	Other[5]
Chaharmahal&Bakhtiyari	***31***	***34***	***0***	***34***	***17***	***16***	***0***	***0***	***0***
Choghakhor	29	30	0	30	14	14	0	0	0
Naghan	1	2	0	2	1	1	0	0	0
Surak	1	2	0	2	2	2	0	0	0
South Khorasan	***8***	***9***	***0***	***9***	***8***	***6***	***1***	***0***	***0***
Asadyieh	2	0	0	0	0	0	0	0	0
Parsa	0	0	0	0	0	0	0	0	0
Haji Abad	1	1	0	1	1	1	0	0	0
Farrokhi	0	0	0	0	0	0	0	0	0
Darreh Bid[9]	0	0	0	0	0	0	0	0	0
Kerit[9]	0	1	0	1	1	1	0	0	0
Nahrain[9]	4	5	0	5	5	4	1	0	0
North Khorasan	***100***	***92***	***0***	***92***	***78***	***59***	***15***	***0***	***5***
Barzu	22	19	0	19	16	14	2	0	0
Bidvaz	34	29	0	29	25	18	4	0	3
Chary	2	1	0	1	1	1	0	0	0
ShirinDarreh	41	43	0	43	36	25	9	0	2
Khorasan Razavi	***332***	***306***	***0***	***306***	***176***	***64***	***110***	***0***	***3***
Tabarak Qochan	9	8	0	8	8	4	2	0	3
Chali DarrehTorghabeh	0	1	0	1	1	1	0	0	0
Daroungar-e-Dargaz	6	2	0	2	2	2	0	0	0
Shahid Dehqan-e-Taybad	2	1	0	1	1	1	0	0	0
Dusti[6]	257	245	0	245	128	28	101	0	0
Dolatabad	1	1	0	1	1	1	0	0	0
Zavin Kalat	1	1	0	1	1	1	0	0	0
Sad-e- Khaf ...	3	6	0	6	6	6	0	0	0
Sangerd	3	3	0	3	2	2	0	0	0
Shahid Yaghobi	2	1	0	1	1	1	0	0	0
Toroq	7	8	0	8	6	2	4	0	0
Fariman	9	11	0	11	10	10	0	0	0
Kardeh	7	6	0	6	6	3	3	0	0
Komayestan	3	3	0	3	1	1	0	0	0
Yam	2	3	0	3	2	2	0	0	0
Ardak Chenaran	20	7	0	7	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[4]			Water consumption[3]				
		Total	From turbines ducts for electricity generation	Other[5]	Total	Agriculture	Drinking	Manu-facturing	Other[5]
Khuzestan	***19575***	***15677***	***36826***	***2711***	***15102***	***10309***	***744***	***588***	***3460***
Jareh	105	70	0	70	69	69	0	0	0
Dez	6443	5811	5713	98	5717	3419	12	58	2229
Seymareh[2]	1584	914	663	251	0	0	0	0	0
Karun1(Shahid Abbaspour)[2, 10]	7175	6791	6712	79	0	0	0	0	0
Karun 3[2,10]	5175	5588	5518	70	0	0	0	0	0
Karkheh[2,11]	2556	1022	419	602	870	442	232	24	172
Karun 4[2,10,12]	3499	3262	3198	63	0	0	0	0	0
Gotvand-e-Olia[2,11,10]	8546	7942	6841	1100	7905	6043	440	484	939
Marun	764	558	194	364	541	338	60	23	120
Masjed-Soleyman[2,10]	7578	7580	7567	13	0	0	0	0	0
Zanjan	***68***	***34***	***0***	***34***	***25***	***8***	***12***	***0***	***4***
Talvar	30	7	0	7	7	4	0	0	3
Tahem	18	15	0	15	13	0	12	0	0
Kineh Vers	5	5	0	5	3	2	0	0	0
Golabar	14	8	0	8	2	2	0	0	0
Semnan	***18***	***14***	***0***	***14***	***11***	***7***	***3***	***0***	***1***
Damghan	13	14	0	14	11	7	3	0	1
Kalpush	5	0	0	0	0	0	0	0	0
Sistan&Baluchestan	***628***	***611***	***0***	***602***	***332***	***256***	***53***	***0***	***23***
Pishin	53	79	0	79	69	64	5	0	0
Chahehnimeh 4 [2]	413	348	0	348	0	0	0	0	0
Chahehnimeh[2]	625	610	0	610	225	155	47	0	23
Kheirabad	2	6	0	6	4	2	1	0	0
Zirdan	7	43	0	43	34	34	0	0	0
Sha iKelk	3	1	0	1	0	0	0	0	0
Mashkid-e-Olia	1	15	0	15	0	0	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[4]			Water consumption[3]				
		Total	From turbines ducts for electricity generation	Other[5]	Total	Agriculture	Drinking	Manu-facturing	Other[5]
Fars	***510***	***516***	***170***	***418***	***439***	***286***	***71***	***13***	***69***
Izadkhast	2	3	0	3	1	1	0	0	0
Tangab	28	25	0	25	23	0	0	0	23
Dorudzan[2]	222	270	75	195	217	153	50	13	2
Rudbal	20	20	0	20	20	0	0	0	20
Salman Farsi	174	141	0	141	124	87	21	0	16
Sivand	3	3	0	3	3	3	0	0	0
Mollasadra[2](Tangehbaragh)	134	127	96	32	50	41	0	0	9
Qom	***158***	***156***	***0***	***156***	***141***	***43***	***98***	***0***	***0***
Panzdah Khordad	34	22	0	22	16	4	12	0	0
Kucheri	124	135	0	135	125	39	87	0	0
Kordestan	***594***	***403***	***0***	***403***	***270***	***201***	***49***	***0***	***20***
Azad	275	258	0	258	169	169	0	0	0
Baneh	8	7	0	7	5	0	5	0	0
Zarivar	57	31	0	31	2	0	0	0	2
Sang siyah	3	2	0	2	1	1	0	0	0
Sural	7	1	0	1	1	1	0	0	0
Qeshleq	117	61	0	61	50	4	44	0	2
Garan	99	26	0	26	25	25	0	0	0
Zivieh	28	17	0	17	17	1	0	0	15
Kerman	***250***	***178***	***14***	***164***	***145***	***118***	***6***	***1***	***21***
Baft	12	14	0	14	9	5	3	1	0
Sirjan (Tanguiyeh)	7	6	0	6	4	2	2	0	0
Jiroft	102	81	14	67	69	63	0	0	6
Nesa	129	77	0	77	63	48	0	0	15
Kermanshah	***267***	***143***	***0***	***143***	***87***	***56***	***21***	***0***	***10***
Azadi	75	24	0	24	9	0	0	0	9
Zagros	13	12	0	12	0	0	0	0	0
Soleymanshah[2]	20	9	0	9	4	3	1	0	0
Shiyan	1	0	0	0	0	0	0	0	0
Gavshan[2]	119	86	0	86	72	52	20	0	1
Gilangharb	5	2	0	2	1	1	0	0	0
Tang-e-Hammam	34	11	0	11	4	1	0	0	3
Kohgiluyeh&Boyerahmad	***264***	***295***	***0***	***295***	***256***	***57***	***135***	***3***	***60***
Shah Qasem	4	2	0	2	1	1	0	0	0
Kosar	259	293	0	293	255	56	135	3	60
Golestan	196	124	0	124	87	62	0	7	18
Alagol	10	4	0	4	0	0	0	0	0
Daneshmand	36	24	0	24	3	0	0	3	0
Golestan 2[2]	38	32	0	32	15	11	0	0	4

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

(mln cu m)

Year and reservoir dams	Inflow[2]	Outflow[4]			Water consumption[3]				
		Total	From turbines ducts for electricity generation	Other[5]	Total	Agriculture	Drinking	Manu-facturing	Other[5]
Golestan[2]	***63***	***57***	***0***	***57***	***33***	***24***	***0***	***4***	***5***
Nomel	3	2	0	2	1	1	0	0	0
Voshmgir[2]	51	34	0	34	29	26	0	0	3
Negarestan	28	4	0	4	7	0	0	0	6
Gilan	***1698***	***1306***	***788***	***518***	***1255***	***951***	***112***	***10***	***182***
Sefidrud	1508	1147	788	358	1104	944	17	10	133
Shahr-e-Bijar	190	159	0	159	151	7	95	0	49
Lorestan	***98***	***99***	***0***	***99***	***18***	***11***	***0***	***0***	***7***
Eyvashan	49	64	0	64	2	1	0	0	1
Tanghaleh	2	1	0	1	0	0	0	0	0
Khanabad	14	14	0	14	9	4	0	0	5
Kaznar	1	1	0	1	1	1	0	0	0
Maruk	27	15	0	15	2	2	0	0	0
Hozian	6	3	0	3	3	3	0	0	0
Mazandaran	***315***	***318***	***106***	***212***	***267***	***212***	***17***	***0***	***37***
Alborz	121	118	0	118	88	61	9	0	18
Alimalat	10	10	0	10	1	1	0	0	0
Berenjestanak	8	8	0	8	4	4	0	0	0
Sonbolrud	5	5	0	5	6	6	0	0	0
Shahid Rajaee	142	152	106	46	151	129	5	0	17
Shiyadeh	7	3	0	3	3	3	0	0	0
Salaheddinkola	1	1	0	1	1	1	0	0	0
Farimsahra	2	0	0	0	1	1	0	0	0
Meijeran	20	19	0	19	12	6	4	0	2
Markazi	***96***	***66***	***0***	***66***	***54***	***7***	***32***	***12***	***3***
Saveh	19	21	0	21	14	7	5	0	2
Kamal Saleh	77	45	0	45	39	0	27	12	1
Hormozgan	***243***	***225***	***0***	***225***	***133***	***91***	***42***	***0***	***0***
Esteqlal	97	67	0	67	38	3	35	0	0
Jegin	68	105	0	105	76	76	0	0	0
Shamil & Nian	78	53	0	53	19	12	7	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(4)			Water consumption(3)				
		Total	From turbines ducts for electricity generation	Other(5)	Total	Agriculture	Drinking	Manu facturing	Other(5)
Hamedan	***69***	***51***	***0***	***51***	***45***	***21***	***24***	***0***	***0***
Ekbatan(2)	34	29	0	29	27	3	24	0	0
Abshineh(2)	0	0	0	0	0	0	0	0	0
Shirinsu	1	1	0	1	0	0	0	0	0
Kalan-e-Malayer	29	17	0	17	14	14	0	0	0
Sarabi	7	4	0	4	4	3	1	0	0

1. For the 162 large reservoir dams (based on the ICOLD definition) with the capacity of 47.8 bln.cu.m, almost equaling 95% of the total volume of the dams under use.

2. Total inflow and outflow were calculated through omission of the influence of being chain of(Latiyan and Mamlo dams in Tehran), (ShahidAbbaspur, Karun3, Karun 4, Masjed-Soleymanand Gotvand-e-Oliadams in Khuzestan), (Dorudzan and Mollasadra in Fars), (Seymareh in Ilam and Karkheh in Khuzestan) ,(Golestan1, Golestan 2 and Voshmgir in Golestan), (Chahehnimeh 1,2,3 and 4 in Sistan&Baluchestan), (Ekbatan and Abshineh in Hamedan) and (Soleymanshah and Gavshan in Kermanshah) and (Aras and Khoda Afarin in East-Azarbayejan)Ostans.Moreover, inflow volume is calculated through balance of volume changes in reservoir and amount of outflows.

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

4. Other outflows include evaporation, weir, dam take-out gates, slit ejection, direct pumping from reservoir, drainage and leaking.Moreover, difference between total and sum of parts is due to existence of some chain dams.

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

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

7. Major part of 135 mln cu m of inflow to the Golpayegan reservoir dam in the year1394 relates to the transferring of the water from Dez branches to Qomrud.

8.Major part of other consumption in dams of Dez, Karkheh and Gotvand-e-Olya were due to the improvement of drinking water.

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

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

11. Net outflow of the turbine with elimination of series dams is 16179 mln cu m.

12. Statistics for the reservoir dams such as: Qareh Tikan and Chahchaheh(in Khorasan-e-Razavi Ostan), have been included in the system of dams in the second half of the year 1394; and were not included in the 1394 report of the Statistical Centre of Iran in the year 1394.

13. In Sahand dam, 65 mln cu m was released without use due to the lack of water need and not finishing the downward network.

14. Main difference between consumption(25.6 bln cu m) and net outflow(30.6 bln cu m) is as follows:

a. 1.5 bln cu m of Aras and Dusti dams for consumption of Iran's neighboring country

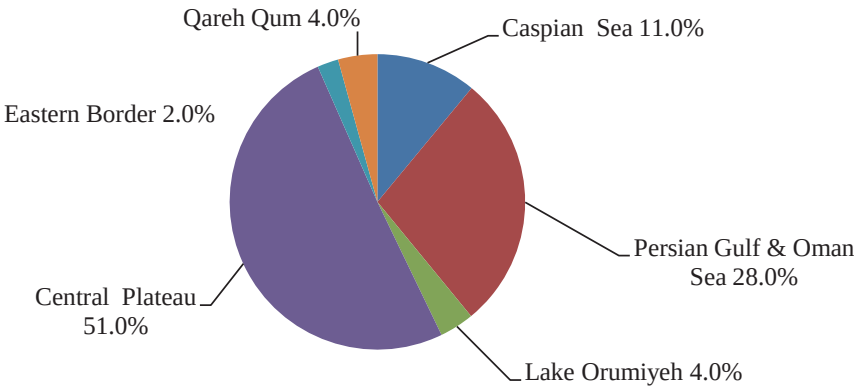
b. 0.41 bln cu m of direct outflow from weir

c. 1.9 bln cu m from evaporation of dams of the country and

d. 0.2 bln cu m of surplus hydroelectricity generation for consumption.

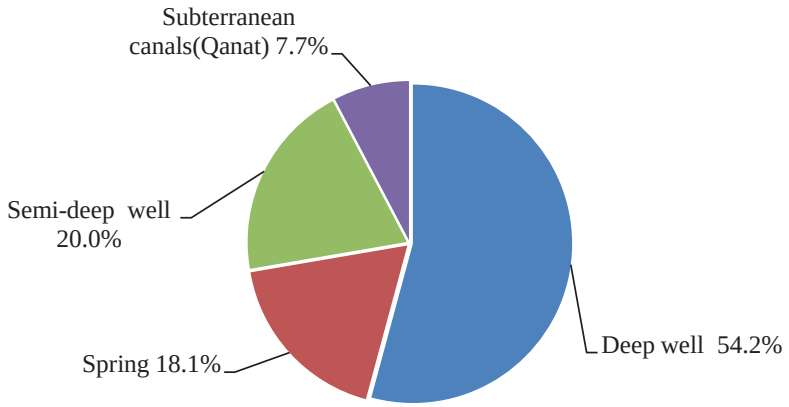
Source: Ministry of Energy.

9.1. ANNUAL DISCHARGE FROM UNDERGROUND WATER RESOURCES BY MAIN BASINS,THE ACQUATIC YEAR 1393-94



For data see Table 9.1.

9.2. PERCENTAGE OF ANNUAL DISCHARGE FROM UNDERGROUND WATER RESOURCES, THE YEAR 1393-94



For data see Table 9.1.

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

(cu m / km)

Year and urban water and sewage company	Capacity of reservoirs	Length of the network For water distribution	Length of the network For water distribution
1375	6735738	66557	8000
1380	8402485	77955	13458
1385	10914721	119059	18500
1390	13101344	133163	25475
1391	13599484	136398	26238
1392	13963308	141410	26994
1393	14136572	144084	27671
1394	***14550118***	***146649***	***28222***
East Azarbayejan	913338	8909	1113
West Azarbayejan	377030	4477	697
Ardebil	219885	2355	476
Esfahan	908270	11480	2326
Kashan	121000	1800	352
Alborz	417947	2847	678
Ilam	124600	1299	480
Bushehr	231050	3220	865
Tehran	2997960	15823	2502
Chaharmahal&Bakhtiyari	156030	1618	334
South Khorasan	120350	1933	572
Khorasan-e-Razavi	498850	4591	1649
Mashhad	561000	3669	527
North Khorasan	108530	1245	269
Khuzestan	656024	6848	1510
Ahvaz	82000	2623	229
Zanjan.	160270	1602	295
Semnan	170450	2318	478
Sistan&Baluchestan	273840	4058	1326
Fars	559620	6835	2292
Shiraz	346060	3042	237
Qazvin	209580	1863	257
Qom	270800	2122	155
Kordestan	196275	4538	384
Kerman	685110	9084	1906
Kermanshah	306420	2976	544
Kohgiluyeh&Boyerahmad	130310	1403	279
Golestan	236320	2736	438
Gilan	393783	4960	645
Lorestan	267900	2664	520
Mazandaran	424118	7048	990
Markazi	268520	3237	690
Hormozgan	368546	3406	1111
Hamedan	297705	2575	453
Yazd	490627	5445	643

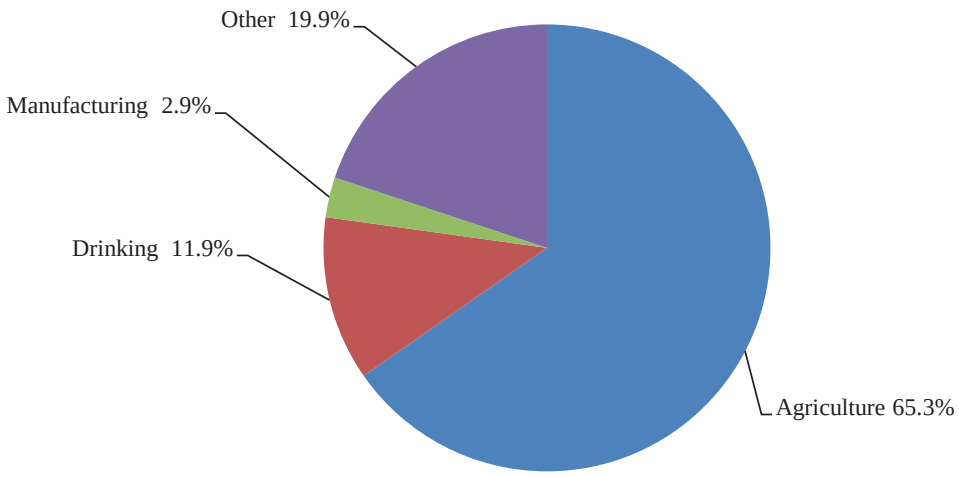
Source: Water and Sewage Engineering Company.

9. 5. DATA FOR WATER SUPPLY, PRODUCTION AND SALE CAPACITIES AND NUMBER OF EXTENTIONS OF URBAN WATER (1000 cum/number)

Year and urban water and sewage company	Max. capacity of water supply	Production (1000 cu m)	Sale[1] (1000 cu m)	Extensions (number)
1375	157801	3694153	2737860	6452300
1380	165328	4008252	2617518	8060690
1385	214154	5094428	3464452	10115430
1390	247392	5323362	3900727	12891481
1391	258750	5425077	4034954	13614415
1392	265281	5643076	4236009	14386295
1393	263019	5847738	4330157	14963718
1394	***268138***	***6009000***	***4445000***	***15431590***
East Azarbayejan	10178	241000	194000	1037611
West Azarbayejan	8054	191000	147000	593472
Ardebil	4566	76000	55000	295733
Esfahan	18931	374000	308000	1088519
Kashan	1681	40000	32000	136950
Alborz	9259	231000	178000	389706
Ilam	1364	40000	31000	131276
Bushehr	3234	102000	71000	235448
Tehran	67352	1413000	1071000	1842322
Chaharmahal&Bakhtiyari	2886	51000	38000	205369
South Khorasan	1934	46000	30000	172866
Khorasan-e-Razavi	7325	157000	107000	620201
Mashhad	7579	222000	174000	858838
North Khorasan	2093	39000	30000	174878
Khuzestan	15474	411000	238000	641674
Ahvaz	7452	157000	110000	322784
Zanjan	2790	66000	51000	211954
Semnan	2283	56000	43000	233497
Sistan&Baluchestan	6057	124000	90000	315674
Fars	6152	175000	128000	641135
Shiraz	5454	142000	103000	422081
Qazvin	3583	76000	63000	280706
Qom	7420	109000	87000	297822
Kordestan	3869	107000	72000	318329
Kerman	7452	171000	129000	564453
Kermanshah	6818	168000	92000	366297
Kohgiluyeh&Boyerahmad	1332	38000	28000	142142
Golestan	3678	83000	59000	264858
Gilan	5296	146000	115000	436967
Lorestan	3805	111000	81000	369447
Mazandaran	14713	252000	177000	570514
Markazi	4661	109000	86000	302553
Hormozgan	3773	99000	81000	222551
Hamedan	4725	93000	70000	348498
Yazd	4915	93000	76000	374465

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



For data see Table 9.3.

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

For data see Table 9.5.

9. 6. DATA FOR WATER SUPPLY, PRODUCTION AND SALE CAPACITIES AND NUMBER OF EXTENTIONS OF RURAL WATER (1000 cum/number)

Year and rural water and sewage company	Max. capacity of water supply	Production (1000 cu m)	Sale (1000 cu m)	Extensions (number)
1385	51242	1019180	652929	3200860
1390	77038	1160295	794211	4415236
1391	77806	1217272	842466	4734879
1392	78479	1311453	913055	4975782
1393	75623	1396408	964205	5155136
1394	***77095***	***1390976***	***963604***	***5280728***
East Azarbayejan	4154	76555	56287	299874
West Azarbayejan	2632	79066	56737	253353
Ardebil	804	22373	16790	118368
Esfahan	2221	58381	41010	232256
Alborz	713	17992	10226	55362
Ilam	2496	14877	10530	47839
Bushehr	983	36003	23912	87255
Tehran	3218	64640	37600	144552
Chaharmahal&Bakhtiyari	1389	23130	15700	83493
South Khorasan	929	23260	16410	131824
Khorasan-e-Razavi	3561	112021	82934	569924
North Khorasan	1916	29000	16000	104564
Khuzestan	3805	79150	48519	173097
Zanjan	1052	29334	20435	95743
Semnan	807	19123	9478	57476
Sistan&Baluchestan	1302	41120	29084	157237
Fars	4756	106200	73350	402876
Qazvin	1059	29489	20946	110345
Qom	628	14780	9350	30645
Kordestan	3171	26110	18230	121363
Kerman	4630	61506	45499	247520
Kermanshah	1891	34984	24750	125122
Kohgiluyeh & Boyerahmad	2974	15636	10981	55192
Golestan	3624	51901	35300	212595
Gilan	2143	57930	41000	270099
Lorestan	4618	36252	26025	124459
Mazandaran	4091	96730	67985	395526
Markazi	3234	34155	25187	147533
Hormozgan	5221	43744	32981	165364
Hamedan	2193	37965	27543	157398
Yazd	879	17569	12825	102474

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 rural water and sewage company	Capacity of reservoirs	Length of the network for water distribution	Length of the network for water distribution
1385	2914866	116474	64500
1390	3292684	155248	87848
1391	3361062	160414	91670
1392	3480029	162781	93498
1393	3332951	167234	95094
1394	***3483849***	***171609***	***100713***
East Azarbayejan	175833	8048	6954
West Azarbayejan	145595	6204	4457
Ardebil	68747	3195	1984
Esfahan	121922	5272	2757
Alborz	42810	1035	596
Ilam	59519	1361	1514
Bushehr	66160	3329	1828
Tehran	100490	2493	1100
Chaharmahal&Bakhtiyari	88184	2750	1730
South Khorasan	112826	3078	3946
Khorasan-e-Razavi	263287	12265	8079
North Khorasan	70372	2725	1853
Khuzestan	128858	12029	7741
Zanjan	78557	3103	2326
Semnan	35444	1183	794
Sistan &Baluchestan	162269	8535	5882
Fars	279029	12142	6550
Qazvin	59700	2388	1591
Qom	49601	877	683
Kordestan	83463	2449	2652
Kerman	183783	11421	5498
Kermanshah	124048	4967	2857
Kohgiluyeh & Boyerahmad	82163	3343	2648
Golestan	79905	5062	2972
Gilan	156076	16168	3474
Lorestan	68438	4321	3684
Mazandaran	186781	14419	4945
Markazi	70170	3139	2167
Hormozgan	119070	6154	3853
Hamedan	120842	4335	2043
Yazd	99907	3819	1555

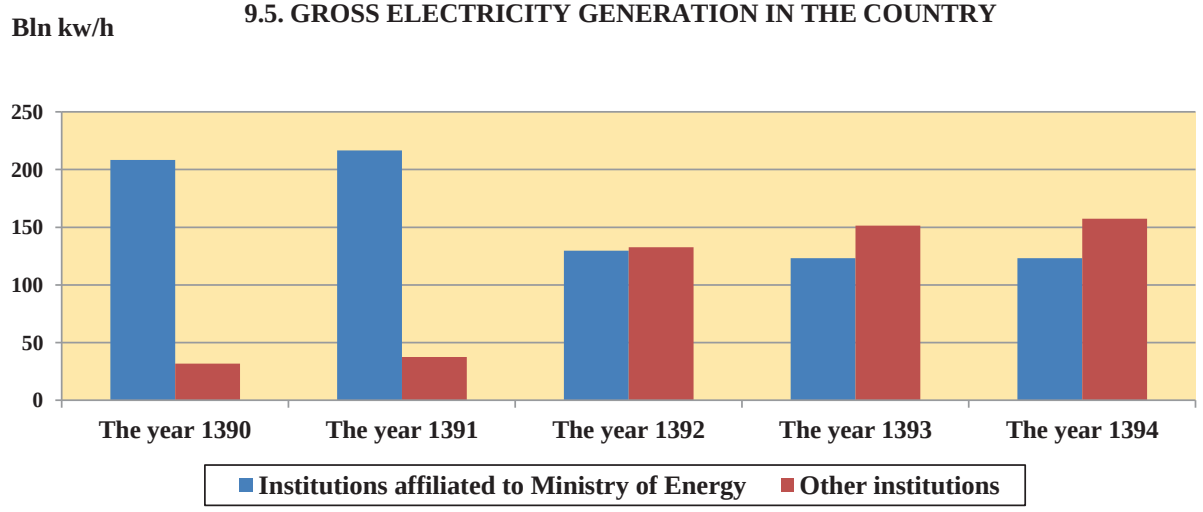
Source: Water and Sewage Engineering Company.

9.8. NOMINAL CAPACITY AND GROSS ELECTRICITY GENERATION OF INSTALLED GENERATORS

Year	Nominal capacity ((1000 kW h)			Gross electricity generation (mln kW h)		
	Total	Institutions affiliated to the Ministry of Energy	Other institutions	Total	Institutions affiliated to the Ministry of Energy	Other institutions
1375	27077	22420	4657	90851	85825	5026
1380	34233	28043	6190	129996	124275	5721
1385	45151	40909	4242	192534	181538	10996
1390	65212	52252	12960	240063	208413	31650
1391	68941	53998	14943	254265	216989	37276
1392	70278	35897(1)	34381(1)	262192	129539(1)	132653(1)
1393	73152	35075	38077	274480	123151	151329
1394	***74103***	***34945***	***39158***	***280688***	***123215***	***157473***

1. In the year1392, a remarkable number of power plants in public sector were ceded to private sector. This led to decrease in the figures related to the institutions affiliated to the Ministry of Energy and the increase in the figures for other institutions affiliated to the private sector.
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 OF 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
1375	22420	21210	16027
1380	28944	26496	21853
1385	45288	40985	32997
1390	65212	57522	42245
1391	68941	60724	43243
1392	70279	61907	45659
1393	73152	63987	46696
1394	***74104***	***64707***	***49116***
Ministry of energy	34945	32119	25131
Hydroelectric	11278	11278	7616
Steam	11241	10942	9296
Gas	6572	5086	4152
Combined cycle	4275	3389	3032
Diesel	439	284	23
Atomic	1020	1020	1012
Renewable	120	120	0
Large scale industries	5581	4597	738
Steam	589	490	316
Gas	4992	4107	422
Private sector	33578	27991	23247
Steam	4000	3778	2927
Gas	15306	12437	10011
Combined cycle	14219	11723	10309
Renewable	53	53	0

Source: Ministry of Energy.

9. 10. CAPACITY OF INSTALLED GENERATORS AND GROSS ELECTRICITY GENERATION OF POWER PLANTS, THE YEAR 1394

Description	Nominal capacity(1000 kW)	Actual capacity (1000 kW)	Gross generation (mln kW h)
Total	***74109***	***64713***	***280688***
East Azarbayejan	1710	1522	7133
West Azarbayejan	1414	1146	5671
Ardebil	1016	821	2335
Esfahan	5049	4514	27349
Alborz	1625	1347	7993
Ilam	675	643	243
Bushehr	5181	4499	12179
Tehran(1)	6327	5043	25438
Chaharmahal&Bakhtiyari	1053	1051	1462
South Khorasan	786	586	2618
Khorasan-e-Razavi	3605	3102	16400
North Khorasan	957	726	3797
Khuzestan	14054	13363	30871
Zanjan	708	560	1854
Semnan	658	529	2162
Sistan &Baluchestan	1488	1172	5344
Fars	4801	3710	21070
Qazvin	2093	1886	12183
Qom	721	602	4465
Kordestan	981	791	5345
Kerman	2604	1965	12600
Kermanshah	1404	1259	6462
Kohgiluyeh & Boyerahmad	17	17	31
Golestan	973	882	1931
Gilan	2832	2621	15131
Lorestan	67	40	76
Mazandaran	3361	3252	12579
Markazi	1341	1256	6973
Hormozgan	3268	2958	15045
Hamedan	1009	1009	3782
Yazd	2331	1841	10166

Source: Ministry of Energy.

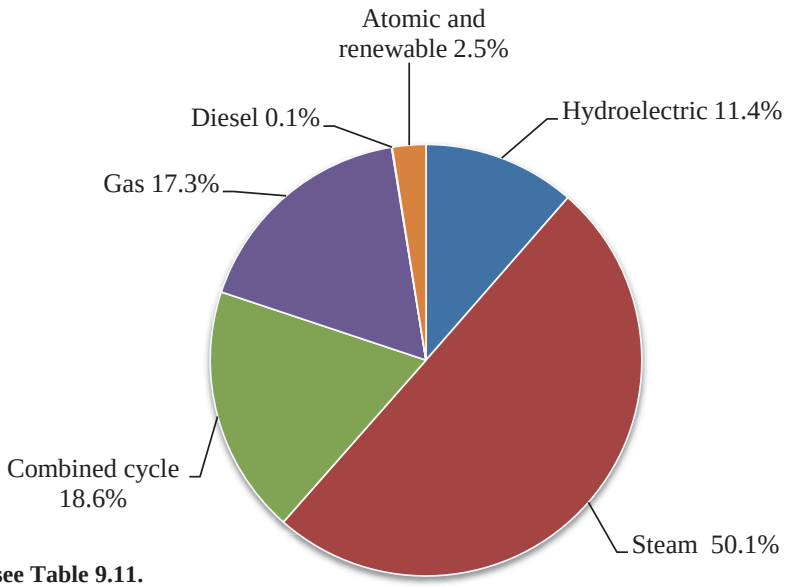
9. 11. ELECTRICITY GENERATION AND INTERNAL CONSUMPTION OF THE POWER PLANTS

(mln kWh)

Year and type of generator	Gross generation	Internal consumption of plants	Net generation
1375	85825	4568	81257
1380	127169	6123	121046
1385	192535	7773	184762
1390	240063	8442	231621
1391	254265	8352	245913
1392	262192	8727	253465
1393	274480	8426	266054
1394	***280689***	***7888***	***272801***
Ministry of energy	123215	4548	118667
Hydroelectric	14087	75	14012
Steam	61671	3943	57729
Combined cycle	22961	387	22573
Gas	21339	138	21201
Diesel	65	5	60
Atomic	2949	0	2949
Renewable	143	0	143
Large scale industries	6440	228	6212
Steam	2385	226	2160
Gas	4055	2	4052
Private sector	151034	3112	147922
Steam	22913	1311	21602
Gas	50030	343	49686
Combined cycle	77976	1458	76519
Renewable	115	0	115

Source: Ministry of Energy.

9.6. NET PRODUCTION SHARE OF ELECTRICITY OF THE POWER PLANTS AFFILIATED TO THE MINISTRY OF ENERGY FROM GROSS GENERATION OF POWER , THE YEAR 1394



For data see Table 9.11.

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

Year and regional water organization	Total		Concrete arch		Earth		Other	
	Number	Generation	Number	Generation	Number	Generation	Number	Generation
1375	11	7375938	6	7069895	5	306043	-	-
1380	13	5056652	8	4902159	5	154493	-	-
1385	29	18168964	13	12634896	18	5550129	12	182164
1390	46	13287425	26	8489912	9	4707067	11	90446
1391	47	12446570	26	7636570	10	4745855	11	64145
1392	48	14469847	26	8709761	11	5751593	11	8493
1393	48	13862370	26	8003593	11	5842814	11	15960
1394	***51***	***14086848***	***28***	***8518422***	***12***	***5523407***	***11***	***45019***
East Azarbayejan	0	0	0	0	0	0	0	0
West Azarbayejan	2	86641	0	0	2	86641	0	0
Ardebil	1	26482	0	0	0	0	1	26482
Esfahan	2	173239	2	173239	0	0	0	0
Ilam	1	173642	1	173642	0	0	0	0
Tehran	5	349840	3	230592	2	119248	0	0
Chaharmahal &Bakhtiyari	3	1449949	2	1449949	0	0	1	0
Khorasan-e-Razavi	2	0	2	0	0	0	0	0
Khuzestan	7	11018115	3	6295155	4	4722960	0	0
Fars	3	58236	1	4930	2	53306	0	0
Kordestan	1	19385	0	0	1	19385	0	0
Kerman	1	4274	1	4274	0	0	0	0
Kermanshah	1	13886	1	13886	0	0	0	0
Kohgiluyeh &Boyerahmad	5	31293	3	18524	0	0	2	12769
Gilan	4	130842	2	130842	0	0	2	0
Lorestan	3	2120	3	2120	0	0	0	0
Mazandaran	7	543136	3	21269	1	521867	3	0
Markazi	2	0	1	0	0	0	1	0
Hamedan	1	5768	0	0	0	0	1	5768

Source: Ministry of Energy.

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

Year and type of ownership of the power plant	Gross electricity generation (mln kw hours)	Fuel consumed			Energy generated from fuel consumption (bln kcal)	Thermal energy consumed to generate one kWh of electricity (kcal)	Output (percent)
		Gas oil (mln lit)	Fuel oil (mln lit)	Natural gas (mln cu m)			
1375	78449	1014	7446	13443	205737	2623	32.8
1380	122081	1618	6799	24012	295114	2414	35.6
1385	174280	4362	7587	32168	393246	2403	35.8
1390	227428	9406	12019	38901	530623	2333	36.9
1391	239752	7768	14450	40692	554963	2315	37.2
1392	242908	12186	10816	36648	565332	2327	37
1393	255869	8872	10273	50172	606707	2371	36.3
1394	***263392***	***6084***	***6946***	***58424***	***606045***	***2301***	***37.4***
Power plants affiliated to the Ministry of Energy.	106034	1303	6194	21570	250591	2363	36.4
Large scale industries	6440	13	0	2053	19026	2954	29.1
Private sector	150918	4768	752	34801	336428	2229	38.6

Source: Ministry of Energy.

9.14.GENERATION, INTERNAL CONSUMPTION OF POWER PLANTS, PURCHASE,LOSSES AND SALES OF ELECTRIC POWER OF INSTITUTIONS AFFILIATED TO THE MINISTRY OF ENERGY

(mln kWh)

Description	1375	1380	1385	1390	1391	1392	1393	1394
Gross generation	85825	124275	181538	208414	216988	129540	123150	123215
Less: Internal consumption of plants	4568	5942	7064	7985	7849	5386	4583	4548
Net generation	81257	118333	174474	200429	209139	124154	118567	118667
Plus:Electricity purchased from large-scale industries(1)	2135	5721	10997	23637	29365	125273	141834	147920
Less: Distribution and transmission networks losses	11202	20857	35566	34102	36755	37407	34610	33297
Net sales	70055	97476	144831	188917	201280	211094	225541	233043
Net exports	384	305	233	5012	7132	7879	5888	5732
Domestic sales.....	69671	97171	144598	183905	194148	203215	219653	227311

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 kW)

Description	Maximum coincidental load
1375	15616
1380	23220
1385	33453
1390	41481
1391	42027
1392	44724
1393	46204
1394	***48462***
Azarbayejan Regional Power Company	2704
Esfahan Regional Power Company	3343
Bakhtar Regional Power Company	2177
Tehran Regional Power Company	9007
Khorasan Regional Power Company	3106
Khuzestan Regional Power Company	6645
Zanjan Regional Power Company	1248
Semnan Regional Power Company	428
Sistan&Baluchestan Regional Power Company	1184
Gharb Regional Power Company	1405
Fars Regional Power Company	4270
Kerman Regional Power Company	1762
Gilan Regional Power Company	131
Mazandaran Regional Power Company	1461
Hormozgan Regional Power Company	3369
Yazd Regional Power Company	2119
Kish Water and Power Company	772
Large scale industries	3333

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
1375	6730	14115	10647	23336
1380	9924	20731	13857	29400
1385	12404	25634	18582	37974
1390[1]	18625	29158	22092	44956
1391	19745	29722	22602	45754
1392	19915	30300	22665	46240
1393	19995	30732	22919	47105
1394	***20205***	***30869***	***23046***	***47506***

1.In the year 1390, statistical data for power transmission lines of the country were revised and decreased in some cases.
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
1375	15330	29447	9544	23947
1380	22458	37287	12762	31265
1385	29633	53816	18489	43987
1390	46708	67412	25352	59759
1391	50968	69843	26844	61334
1392	54303	71605	27838	63270
1393	57143	75024	29269	65061
1394	***59273***	***76532***	***29829***	***67080***
East-Azarbayejan	1715	2780	2578	673
West-Azarbayejan	630	1445	1811	15
Ardebil	500	720	0	698
Esfahan	4780	4890	0	7141
Alborz	1000	2146	0	2466
Ilam	0	1240	424	630
Bushehr	3395	1976	1557	1839
Tehran	9300	10460	0	11970
Chaharmahal&Bakhtiyari	450	0	0	920
South Khorasan	1000	0	820	0
Khorasan-e-Razavi	3228	160	5850	982
North Khorasan	1000	0	848	0
Khuzestan	6995	7676	10017	0
Zanjan	1715	1250	0	1895
Semnan	1600	1680	0	1358
Sistan&Baluchestan	630	2542	30	2470
Fars	4760	4290	620	6321
Qazvin	400	1430	0	1915
Qom	0	1080	0	1345
Kordestan	0	1515	80	1085
Kerman	1670	4610	3622	360
Kermanshah	1230	2215	0	1930
Kohgiluyeh&Boyerahmad	400	320	387	0
Golestan	700	1660	0	1633
Gilan	1000	3125	120	2611
Lorestan	1000	1670	0	1897
Mazandaran	2000	3355	0	3983
Markazi	2000	2550	0	2831
Hormozgan	3090	5636	720	4385
Hamedan	600	1780	0	1828
Yazd	2485	2331	345	1903

Source: Ministry of Energy.

9.18. NUMBER OF DIFFERENT TYPES OF CUSTOMERS BY TYPE OF CONSUMPTION

(consumer)

Year and Ostan	Total	Household	Public	Agricultural	Industrial	Other
1375	12854735	10440912	290156	37747	55036	1579329
1380	16345450	13682563	523505	77556	91468	1970358
1385	20559946	16989284	748964	138137	152202	2531359
1390	27164768	22224100	1082528	284781	174255	3399104
1391	28751529	23467188	1180911	307329	184861	3611240
1392	30287179	24670834	1282618	329995	193628	3810104
1393	31671635	25739069	1382124	352628	206088	3991726
1394	***32831066***	***26619546***	***1465251***	***378147***	***216515***	***4151607***
East Azarbayejan	1679257	1332016	67847	17975	14894	246525
West Azarbayejan	1141260	934553	28640	18236	5367	154464
Ardebil	500613	416208	20025	3614	2794	57972
Esfahan	2401370	1913302	84059	40577	28444	334988
Alborz	1204199	985278	73427	4540	5791	135163
Ilam	200707	168463	7516	2543	1044	21141
Bushehr	407760	333768	13148	4075	2250	54519
Tehran	6416956	4916028	483891	10615	39789	966633
Chaharmahal&Bakhtiyari	326269	275552	9804	5763	2250	32900
South Khorasan	338515	285208	13895	4582	2284	32546
Khorasan-e-Razavi	2580994	2143001	92223	19306	16954	309510
North Khorasan	320130	273125	10465	3098	1459	31983
Khuzestan	1487786	1236879	47190	9243	4108	190366
Zanjan	403400	333341	13779	7587	2800	45893
Semnan	348151	273942	19183	5049	4385	45592
Sistan&Baluchestan	717945	606375	22940	11392	2283	74955
Fars	1843651	1529838	57136	39886	13117	203674
Qazvin	549643	446028	33124	5382	4107	61002
Qom	507451	415410	15650	3369	5835	67187
Kordestan	582791	492637	16402	8749	2525	62478
Kerman	1058738	906159	29359	14083	4554	104583
Kermanshah	705131	594406	22917	6983	2526	78299
Kohgiluyeh&Boyerahmad	223720	194878	6963	2177	933	18769
Golestan	658182	543860	29138	8851	2612	73721
Gilan	1296860	1025548	61198	17180	5445	187489
Lorestan	581993	499108	14820	7415	2664	57986
Mazandaran	1749400	1408541	76379	58587	11881	194012
Markazi	662208	551128	24432	9172	6003	71473
Hormozgan	648086	530133	29526	7952	2969	77506
Hamedan	687773	567000	26308	11582	4793	78090
Yazd	600127	487833	13867	8584	9655	80188

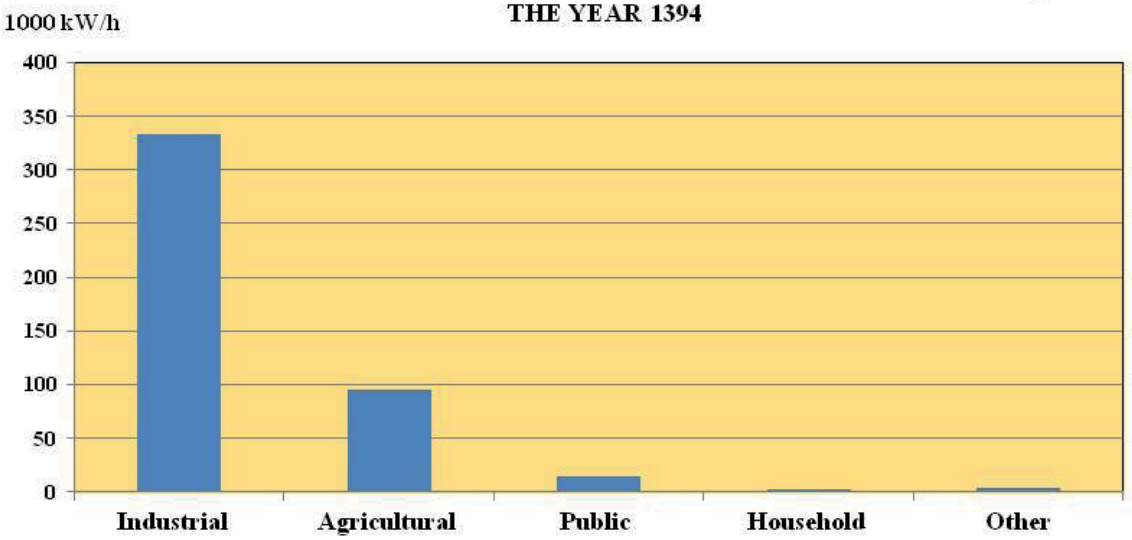
Source: Ministry of Energy.

9.19. DOMESTIC SALE OF ELECTRICITY OF IRAN'S PROVINCES BY TYPE OF CONSUMPTION (mln KW/h)

Year and Ostan	Total	Household	Public	Agricultural	Industrial	Streets lighting	Other
1375	69671	23993	6595	5731	22925	2805	7622
1380	96811	32891	11951	11079	30379	4117	6394
1385	144598	48085	18329	17666	46590	4608	9320
1390	183905	56771	16808	29965	63945	3752	12664
1391	194148	61350	17810	31647	67107	3635	12599
1392	203215	64379	17833	33126	70733	3765	13378
1393	219653	71163	19767	35188	74294	3837	15404
1394	***227310***	***76103***	***22196***	***36089***	***72227***	***4016***	***16680***
East Azarbayejan	7355	2284	594	1012	2725	177	564
West Azarbayejan	4659	1822	384	1073	890	125	365
Ardebil	1572	624	157	244	360	58	129
Esfahan	20428	3815	1290	2695	11327	336	966
Alborz	5791	2034	592	688	1837	117	523
Ilam	1328	523	277	174	255	30	68
Bushehr	6145	3629	1125	240	667	94	390
Tehran	32223	11325	5735	2270	6978	430	5486
Chaharmahal&Bakhtiyari	1655	431	117	530	433	68	77
South Khorasan	1494	396	133	495	327	60	84
Khorasan-e-Razavi	14893	4148	1036	4722	3642	308	1037
North Khorasan	1396	416	97	333	453	26	71
Khuzestan	28074	13634	2236	2440	8215	280	1270
Zanjan	3314	549	159	564	1871	58	113
Semnan	2815	486	192	634	1331	55	117
Sistan&Baluchestan	5245	2806	733	865	380	160	301
Fars	13227	4118	1217	4224	2487	252	928
Qazvin	3975	801	236	965	1723	69	181
Qom	3153	1045	311	461	1004	57	274
Kordestan	2100	930	164	489	327	46	143
Kerman	10739	2672	760	3701	2975	175	457
Kermanshah	3414	1186	532	490	909	89	209
Kohgiluyeh&Boyerahmad	1472	643	176	211	316	41	84
Golestan	3034	1453	268	533	503	67	211
Gilan	5090	2146	473	484	1276	150	561
Lorestan	3353	982	370	732	1045	86	137
Mazandaran	7490	3196	766	910	1760	201	656
Markazi	7588	983	259	1257	4802	96	190
Hormozgan	13338	5064	1279	714	5475	106	700
Hamedan	3973	1044	291	1231	1142	95	169
Yazd	6978	919	239	705	4791	104	219

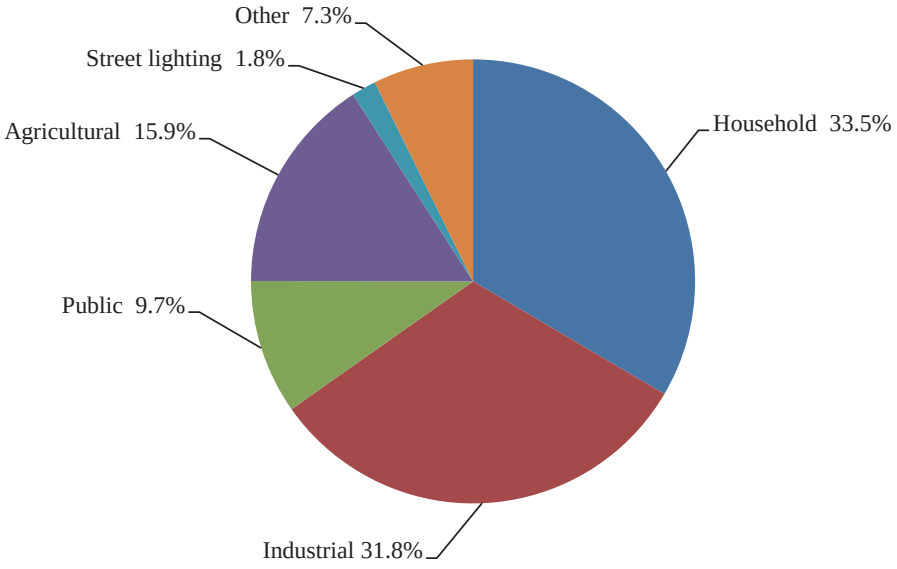
Source: Ministry of Energy.

9.7. AVERAGE OF ELECTRICITY CONSUMPTION BY TYPE OF CUSTOMERS, THE YEAR 1394



For data see Tables 9.18 and 9.19.

9.8. DOMESTIC SALE OF ELECTRICITY BY TYPE OF USE, THE YEAR 1394



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)
1375	35074	3318832	84745	73046	42203	4703
1380	45359	4056072	120580	89359	54162	5688
1385	50985	4427849	138330	93464	64718	6812
1390	54116	4261123	185943	98583	72186	7283
1391	54561	4268473	186787	98824	72818	7316
1392	55191	4277893	187580	99180	73625	7361
1393	55664	4285114	188610	99492	74228	7389
1394	***56170***	***4292498***	***189806***	***99811***	***7417***	***74866***
East Azarbayejan	2818	296886	8312	5627	316	2989
West Azarbayejan	2895	210193	5676	4076	288	2993
Ardebil	1587	70199	4494	3581	116	1584
Esfahan	1752	296721	4786	4529	273	3022
Alborz	223	21810	508	487	30	235
Ilam	619	44706	1451	804	72	686
Bushehr	512	39849	1486	1228	112	821
Tehran	599	152791	1267	1625	152	1084
Chaharmahal&Bakhtiyari	736	85423	570	979	59	517
South Khorasan	1446	124487	3424	2296	128	1704
Khorasan-e-Razavi	3247	327026	7213	4603	309	3549
North Khorasan	916	93737	3280	1883	84	1116
Khuzestan	3704	206179	17830	3502	1127	7710
Zanjan	921	91462	3817	2038	118	1018
Semnan	501	35938	2814	953	51	477
Sistan&Baluchestan	4275	48919	51221	6335	330	5082
Fars	3165	282937	8959	5890	429	4553
Qazvin	850	72741	2603	2234	168	1115
Qom	189	18234	410	248	16	189
Kordestan	1772	127260	5325	2158	187	1854
Kerman	4911	237155	12355	7691	650	7780
Kermanshah	2509	127200	4346	2546	257	2593
Kohgiluyeh&Boyerahmad	1607	54394	3270	1395	228	2087
Golestan	895	106236	1630	1197	69	1016
Gilan	3014	286091	4520	10183	421	4782
Lorestan	2602	101298	5186	2633	187	2428
Mazandaran	2999	262085	4659	5945	221	3067
Markazi	1187	124290	4698	4084	173	1385
Hormozgan	1677	126461	8021	4998	578	4345
Hamedan	1123	164951	3387	2979	194	2070
Yazd	919	54839	2290	1082	73	1015

Source: Ministry of Energy.

9.21. EXCHANGE OF ELECTRICITY WITH NEIGHBORING COUNTRIES

Year	Exports					
	Total	Nakhjavan	Turkey	Armenia	Azerbaijan	Turkminestan
1375	384	283	101	0	0	0
1380	1049	389	251	224	185	0
1385	2774	561	576	316	11	2
1390	8668	56	1118	57	0	8
1391	11029	59	1912	7	0	8
1392	11586	65	2395	82	0	3
1393	9660	66	2179	86	0	1
1394	***9880***	***50***	***1723***	***45***	***0***	***0***

Year	Exports		
	Pakistan	Afghanistan	Iraq
1375	0	0	0
1380	0	0	0
1385	172	134	1002
1390	271	557	6601
1391	369	639	8035
1392	414	796	7831
1393	446	819	6063
1394	***457***	***782***	***6822***

Source: Ministry of Energy.

9.22. ELECTRICITY DISTRIBUTION NETWORK OF THE COUNTRY BY PROVINCE, THE YEAR 1394

Ostan	Length of power disribution lines with medium voltage(km)	Length of power disribution lines with low voltage (km)	Number of distribution transformers	Capacity of distribution transformers (MVA)
Total	***406973***	***344810***	***110458***	***628815***
East Azarbayejan	17108	14779	3560	22126
West Azarbayejan	14755	11643	2410	17933
Ardebil	7136	6012	877	6197
Esfahan	25013	26044	7916	41414
Alborz	4930	7338	2781	13310
Ilam	4451	2507	876	5338
Bushehr	7319	6074	3162	13968
Tehran	22702	40335	19000	57417
Chaharmahal&Bakhtiyari	6373	4712	1007	7829
South Khorasan	12161	5089	949	8668
Khorasan-e-Razavi	32120	22797	6503	36174
North Khorasan	5915	4267	712	5746
Khuzestan	21495	18115	11982	49764
Zanjan	8018	5538	1412	8951
Semnan	6968	3877	1262	7194
Sistan&Baluchestan	22977	11820	2539	20386
Fars	34448	23992	7781	60665
Qazvin	6849	5008	1822	11228
Qom	3744	3619	1763	6941
Kordestan	10038	5435	1317	11204
Kerman	30011	20438	4870	39086
Kermanshah	11348	6618	1961	15964
Kohgiluyeh&Boyerahmad	4744	3383	1109	7046
Golestan	7194	7168	2108	15498
Gilan	8808	18816	2975	17624
Lorestan	9382	5579	1721	14431
Mazandaran	14620	21078	5207	39252
Markazi	11320	8106	2271	15104
Hormozgan	14929	9166	4614	22900
Hamedan	10082	7740	2159	15438
Yazd	10017	7718	1831	14019

Source: Ministry of Energy.