

T *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 noteworthy 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 the year 1353). Since the year 1346, the Ministry has regularly provided the annual statistics on the power industry comprising power generation, transmission, distribution, and consumption. The statistics, a part of which appears in some tables of this yearbook, 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, Land and climate, Definitions and concepts.

Aquatic year: see Chapter 1, Land and climate, 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 maximum expected 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 from 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.

Electrical 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 electrical 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 1395-1396, the amount of annual discharge of the underground water resources was about 60592 mln cu m which had a 1.1 percent decrease in comparison to the aquatic year 1394-1395. It should be noted that out of 6 main basins, the central plateau with 50.3% had the maximum annual discharge.

In the year 1396, the inflow of the large reservoir dams amounted to 33796 mln cu m had a 17.0% decrease in comparison to the last year. In this year, 28608 mln cu m of large reservoir dams have been consumed, 69.0 percent of which belongs to the agricultural consumptions.

In the same year, over 7603 mln cu m of water is produced in the water and sewage companies of the country (urban and rural) out of which about 5609 mln cu m was sold. Sale of water increased by 3.0 percent compared to the preceding year. This is while that the production of water grew by 2.4 percent compared to the previous year.

In the year 1396, there were over 21 million and 835 thousand urban and rural water extensions which had a 2.9 percent increase in comparison to the preceding year. Out of this number about 16 million 271 thousand extensions were for the urban

areas which had a 2.8% increase compared to the previous year.

In the year 1396, the gross electricity generation of institutions affiliated to the Ministry of Energy was about 133934 mln kilowatt hours, of which about 47.1 percent has been produced in the steam power plants. Furthermore, the gross electricity generation amount had a 6.5 percent increase compared to the preceding year.

In this year, 255026 mln kilowatt hours of domestic sold electricity was consumed by 34 million 836 thousand customers. In this respect, the amount of electricity sold and the number of electricity customers increased about 7.4 and 3.0 percent respectively compared to the preceding year.

Among all electricity customers in the year 1396, percentage of customers in the house, public, agricultural and manufacturing sectors was 80.7, 4.6, 1.2 and 0.7 percent, respectively. Also in this year, the percentage of the sold electricity which was consumed in the house, manufacturing, agricultural, public sectors and for the streets lighting was 32.7, 33.0, 15.4, 9.5 and 2.0 percent respectively.

At the end of the year 1396, a number of 57030 villages (about 4.5 mln rural households) were electrified which increased by 0.4% in comparison to 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 |
| 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 |
| 1391-92..... | 64932 | 200859 | 34545 | 569708 | 12164 | 41130 | 4736 ⁽²⁾ | 173598 ⁽²⁾ | 13481 ⁽²⁾ |
| 1392-93..... | 61407 | 199087 | 33729 | 582426 | 12241 | 41149 | 4739 ⁽²⁾ | 174148 ⁽²⁾ | 10691 ⁽²⁾ |
| 1393-94..... | 61094 | 196010 | 33125 | 593164 | 12204 | 41154 | 4718 ⁽²⁾ | 173283 ⁽²⁾ | 11041 ⁽²⁾ |
| 1394-1395 | 61262 | 194822 | 33139 | 599178 | 12263 | 41169 | 4661 ⁽²⁾ | 174228 ⁽²⁾ | 11192 ⁽²⁾ |
| 1395-1396 | 60592 | 210689 | 32998 | 594968 | 12485 | 41011 | 4515 | 173452 | 10595 |
| Caspian Sea | 6929 | 34400 | 2631 | 253917 | 1768 | 2813 | 236 | 77468 | 2295 |
| Persian Gulf and Oman Sea | 17373 | 42878 | 6585 | 105674 | 4132 | 4587 | 474 | 54369 | 6182 |
| Lake Orumiyeh..... | 2491 | 8012 | 995 | 99142 | 1227 | 1807 | 94 | 10517 | 176 |
| Central Plateau..... | 30488 | 117663 | 20659 | 126461 | 4997 | 26671 | 3189 | 27128 | 1644 |
| Eastern Border | 1300 | 1939 | 620 | 8505 | 330 | 3078 | 300 | 1386 | 50 |
| Qareh Qum..... | 2011 | 5797 | 1508 | 1269 | 33 | 2055 | 223 | 2584 | 247 |

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

2. Revised figures.

Source: Ministry of Energy.

9.2. UNDERGROUND WATER RESOURCES AND THEIR ANNUAL ISCHARGE⁽¹⁾ BY REGIONAL WATER ORGANIZATIONS, AQUATIC YEAR 1395-1396 (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..... | 60592 | 210689 | 32998 | 594968 | 12485 | 41011 | 4515 | 173452 | 10595 |
| East Azarbayejan..... | 1355 | 5672 | 568 | 53136 | 549 | 1968 | 137 | 3122 | 101 |
| West Azarbayejan..... | 2039 | 5092 | 943 | 58109 | 856 | 543 | 42 | 851 | 198 |
| Ardebil | 404 | 1802 | 170 | 4968 | 89 | 221 | 19 | 3354 | 125 |
| Esfahan | 4746 | 15775 | 1650 | 33334 | 1115 | 4203 | 678 | 8686 | 1304 |
| Alborz | 832 | 5318 | 667 | 10665 | 48 | 157 | 9 | 1735 | 107 |
| Ilam..... | 422 | 1318 | 282 | 803 | 30 | 4 | 1 | 744 | 109 |
| Bushehr | 514 | 1350 | 133 | 11800 | 328 | 45 | 13 | 179 | 40 |
| Tehran..... | 2722 | 31496 | 2255 | 11856 | 60 | 536 | 248 | 2501 | 159 |
| Chaharmahal & Bakhtiyari | 2045 | 2237 | 310 | 1767 | 149 | 775 | 56 | 4760 | 1531 |
| South Khorasan..... | 1211 | 2425 | 841 | 826 | 37 | 6250 | 266 | 2170 | 66 |
| Khorasan-e-Razavi | 4934 | 13542 | 3915 | 2952 | 93 | 6770 | 576 | 6337 | 350 |
| North Khorasan..... | 918 | 1875 | 366 | 5154 | 87 | 743 | 99 | 3450 | 367 |
| Khuzestan | 1640 | 3491 | 897 | 6958 | 345 | 2 | 1 | 1088 | 397 |
| Zanjan | 1160 | 3882 | 670 | 13607 | 299 | 725 | 34 | 5834 | 157 |
| Semnan..... | 923 | 2947 | 698 | 2000 | 35 | 738 | 70 | 1873 | 119 |
| Sistan & Baluchestan.... | 1982 | 1446 | 375 | 17530 | 1189 | 1282 | 377 | 897 | 41 |
| Fars | 8250 | 31840 | 4342 | 52287 | 2475 | 1737 | 402 | 2213 | 1031 |
| Qazvin | 1997 | 4251 | 1664 | 4240 | 148 | 312 | 59 | 13841 | 126 |
| Qom | 632 | 1323 | 499 | 5066 | 38 | 753 | 81 | 1397 | 15 |
| Kordestan..... | 1054 | 2736 | 356 | 15255 | 177 | 519 | 24 | 38592 | 497 |
| Kerman | 6396 | 16039 | 4494 | 18508 | 1337 | 2391 | 456 | 1587 | 110 |
| Kermanshah | 1464 | 3563 | 465 | 11577 | 484 | 402 | 29 | 11187 | 487 |
| Kohgiluyeh & Boyerahmad..... | 1201 | 697 | 95 | 1650 | 118 | 61 | 5 | 3049 | 983 |
| Golestan..... | 766 | 8871 | 432 | 26942 | 180 | 344 | 29 | 3766 | 125 |
| Gilan | 797 | 1001 | 134 | 51680 | 248 | 1 | 0 | 16215 | 415 |
| Lorestan..... | 964 | 3303 | 483 | 3846 | 122 | 1163 | 31 | 5692 | 329 |
| Mazandaran | 1844 | 14004 | 534 | 134963 | 604 | 34 | 0 | 21768 | 706 |
| Markazi | 2923 | 7818 | 1908 | 7320 | 337 | 4254 | 502 | 3159 | 176 |
| Hormozgan | 1532 | 4328 | 736 | 17573 | 617 | 169 | 33 | 639 | 147 |
| Hamedan..... | 1859 | 8303 | 1323 | 7822 | 214 | 1287 | 74 | 2386 | 249 |
| Yazd | 1065 | 2944 | 794 | 774 | 78 | 2622 | 163 | 380 | 29 |

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 ⁽²⁾ | | | Water consumption ⁽³⁾ | | | | |
|----------------------------------|-----------------------|------------------------------|--|----------------------|----------------------------------|----------------|---------------|---------------|----------------------|
| | | Total | From turbines ducts for electricity generation | Other ⁽⁴⁾ | Total | Agriculture | Drinking | Manufacturing | Other ⁽⁵⁾ |
| 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 |
| 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 |
| 1395..... | 40695 | 39816 | 49268 | - | 30301 | 19694 | 3182 | 700 | 6724 |
| 1396..... | 33795.8 | 37251.1⁽⁶⁾ | 46993.9 | - | 28608.1⁽⁶⁾ | 19654.9 | 3202.3 | 697.7 | 5106.2 |
| East Azarbayegan | 4267.3 | 4329.3 | 3094.1 | 4329.3 | 2003.1 | 1532.6 | 46.0 | 10.0 | 414.5 |
| Aras ^(2,7) | 3311.4 | 3246.7 | 3094.1 | 152.5 | 1625.0 | 1342.0 | 0.0 | 0.0 | 283.0 |
| Sattarkhanahar..... | 34.9 | 46.9 | 0.0 | 46.9 | 43.0 | 23.0 | 8.0 | 4.0 | 8.0 |
| Sahand ⁽⁸⁾ | 127.7 | 140.8 | 0.0 | 140.8 | 88.0 | 21.0 | 4.0 | 0.0 | 63.0 |
| Zonuz..... | 4.5 | 6.5 | 0.0 | 6.5 | 5.8 | 2.5 | 0.0 | 0.0 | 3.3 |
| Aydoghamush..... | 90.3 | 120.0 | 0.0 | 120.0 | 65.0 | 47.0 | 0.0 | 0.0 | 18.0 |
| Arasbaran..... | 10.2 | 10.2 | 0.0 | 10.2 | 8.9 | 8.9 | 0.0 | 0.0 | 0.0 |
| Khodaafarin ⁽²⁾ | 3621.0 | 3679.8 | 0.0 | 3679.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Alavian..... | 84.0 | 90.9 | 0.0 | 90.9 | 89.0 | 53.0 | 14.0 | 6.0 | 16.0 |
| Nahand..... | 26.4 | 27.3 | 0.0 | 27.3 | 26.5 | 0.5 | 20.0 | 0.0 | 6.0 |
| Tajyar-e-Sarab..... | 3.1 | 1.9 | 0.0 | 1.9 | 1.7 | 1.6 | 0.0 | 0.0 | 0.1 |
| Kord Kandi..... | 6.6 | 7.1 | 0.0 | 7.1 | 4.2 | 4.2 | 0.0 | 0.0 | 0.0 |
| Ghale chai..... | 43.9 | 45.4 | 0.0 | 45.4 | 46.0 | 29.0 | 0.0 | 0.0 | 17.0 |
| West Azarbayegan. | 2020.2 | 1867.6 | 98.0 | 1769.6 | 1695.9 | 822.1 | 240.7 | 5.1 | 628.0 |
| Barun..... | 70.3 | 89.0 | 0.0 | 89.0 | 83.0 | 77.0 | 6.0 | 0.0 | 0.0 |
| Shahid Ghanbari..... | 36.4 | 31.9 | 0.0 | 31.9 | 26.0 | 25.0 | 0.0 | 0.0 | 1.0 |
| Aras 2..... | 7.9 | 5.3 | 0.0 | 5.3 | 5.4 | 5.2 | 0.0 | 0.2 | 0.0 |
| Aghchai..... | 112.2 | 111.7 | 0.0 | 111.7 | 75.0 | 69.0 | 0.0 | 0.0 | 6.0 |
| Bukan..... | 1284.6 | 1154.1 | 0.0 | 1154.1 | 1090.9 | 381.8 | 161.7 | 3.0 | 544.5 |
| Shahrchay..... | 179.4 | 185.5 | 0.0 | 185.5 | 169.0 | 63.0 | 51.0 | 0.0 | 55.0 |
| Mahabad..... | 200.9 | 143.7 | 98.0 | 45.7 | 128.0 | 103.0 | 19.0 | 1.5 | 4.5 |
| Hasanlu..... | 30.2 | 51.3 | 0.0 | 51.3 | 39.4 | 33.0 | 0.0 | 0.4 | 6.0 |
| Deriq Salmas..... | 7.6 | 9.8 | 0.0 | 9.8 | 8.0 | 8.0 | 0.0 | 0.0 | 0.0 |
| Zola..... | 52.1 | 61.6 | 0.0 | 61.6 | 57.0 | 46.0 | 0.0 | 0.0 | 11.0 |
| Qiqaj..... | 12.4 | 7.9 | 0.0 | 7.9 | 7.2 | 7.2 | 0.0 | 0.0 | 0.0 |
| Saruq..... | 26.1 | 15.7 | 0.0 | 15.7 | 7.0 | 4.0 | 3.0 | 0.0 | 0.0 |
| Ardebil..... | 135.0 | 163.8 | 0.0 | 163.8 | 140.7 | 60.4 | 35.5 | 0.0 | 44.7 |
| Qurichay..... | 12.2 | 12.0 | 0.0 | 12.0 | 11.0 | 11.0 | 0.0 | 0.0 | 0.0 |
| Gilarlu..... | 1.0 | 0.9 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Moghadasardebili ... | 6.6 | 7.0 | 0.0 | 7.0 | 6.2 | 2.4 | 0.0 | 0.0 | 3.7 |
| Saqizchi..... | 6.7 | 7.1 | 0.0 | 7.1 | 3.8 | 3.5 | 0.0 | 0.0 | 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 | Manufacturing | Other ⁽⁵⁾ |
| Yamchi..... | 65.7 | 67.2 | 0.0 | 67.2 | 66.2 | 30.0 | 35.5 | 0.0 | 0.7 |
| Sabalan..... | 42.8 | 69.6 | 0.0 | 69.6 | 53.5 | 13.5 | 0.0 | 0.0 | 40.0 |
| Esfahan | 1210.2 | 1345.5 | 929.1 | 416.5 | 1099.6 | 580.4 | 401.0 | 60.0 | 58.2 |
| Hana..... | 3.9 | 5.2 | 0.0 | 5.2 | 4.0 | 4.0 | 0.0 | 0.0 | 0.0 |
| Qareh Aqach..... | 1.6 | 4.5 | 0.0 | 4.5 | 3.1 | 3.0 | 0.0 | 0.0 | 0.1 |
| Zayandehrud | 987.0 | 1109.5 | 929.1 | 180.4 | 1081.0 | 565.0 | 401.0 | 60.0 | 55.0 |
| Golpayegan ⁽⁹⁾ | 208.1 | 211.9 | 0.0 | 211.9 | 3.0 | 0.0 | 0.0 | 0.0 | 3.0 |
| Khamiran..... | 5.5 | 9.9 | 0.0 | 9.9 | 8.2 | 8.1 | 0.0 | 0.0 | 0.1 |
| Baghkal-e-Khansar..... | 4.1 | 4.6 | 0.0 | 4.6 | 3.0 | 0.3 | 0.0 | 0.0 | 0.0 |
| Ilam..... | 135.4 | 163.3 | 0.0 | 163.3 | 128.1 | 80.4 | 20.0 | 0.0 | 27.7 |
| Ilam..... | 57.2 | 49.9 | 0.0 | 49.9 | 42.0 | 8.0 | 20.0 | 0.0 | 14.0 |
| Doborj..... | 58.7 | 98.5 | 0.0 | 98.5 | 74.0 | 69.0 | 0.0 | 0.0 | 5.0 |
| Kangir..... | 19.4 | 14.9 | 0.0 | 14.9 | 12.1 | 3.4 | 0.0 | 0.0 | 8.7 |
| Bushehr..... | 125.9 | 191.0 | 0.0 | 191.0 | 162.5 | 133.0 | 0.0 | 0.0 | 29.5 |
| Reis Ali delvari..... | 125.9 | 191.0 | 0.0 | 191.0 | 162.5 | 133.0 | 0.0 | 0.0 | 29.5 |
| Tehran..... | 1735.2 | 1670.5 | 1310.1 | 579.8 | 1444.5 | 459.0 | 851.0 | 4.5 | 183.0 |
| Lar | 424.1 | 421.6 | 189.9 | 231.7 | 417.0 | 83.0 | 191.0 | 0.0 | 143.0 |
| Taleghan..... | 467.4 | 455.7 | 338.7 | 117.0 | 420.0 | 256.0 | 144.0 | 0.0 | 20.0 |
| Karaj..... | 422.6 | 428.7 | 422.6 | 6.1 | 296.0 | 41.0 | 255.0 | 0.0 | 0.0 |
| Latiyan ⁽²⁾ | 355.8 | 363.7 | 358.8 | 4.9 | 196.5 | 0.0 | 182.0 | 0.5 | 14.0 |
| Mamlo ⁽²⁾ | 227.9 | 220.2 | 0.0 | 220.2 | 115.0 | 79.0 | 79.0 | 4.0 | 6.0 |
| Chaharmahal&Bakhtiyari | 15.6 | 24.0 | 0.0 | 24.0 | 11.7 | 10.7 | 0.0 | 1.0 | 0.0 |
| Choghakhor..... | 15.2 | 22.7 | 0.0 | 22.7 | 11.0 | 10.0 | 0.0 | 1.0 | 0.0 |
| Naghan..... | 0.4 | 1.4 | 0.0 | 1.4 | 0.7 | 0.7 | 0.0 | 0.0 | 0.0 |
| Surak..... | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| South Khorasan..... | 11.5 | 10.1 | 0.0 | 10.1 | 8.5 | 7.6 | 0.6 | 0.0 | 0.4 |
| Kerit..... | 2.2 | 1.4 | 0.0 | 1.4 | 1.2 | 1.2 | 0.0 | 0.0 | 0.0 |
| Darreh Bid..... | 0.2 | 0.2 | 0.0 | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| Parsa | 1.7 | 0.6 | 0.0 | 0.6 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 |
| Farrokhi..... | 0.3 | 1.5 | 0.0 | 1.5 | 1.2 | 1.2 | 0.0 | 0.0 | 0.1 |
| Nahrain..... | 5.4 | 3.7 | 0.0 | 3.7 | 3.9 | 3.3 | 0.6 | 0.0 | 0.0 |
| Haji Abad..... | 1.2 | 1.3 | 0.0 | 1.3 | 1.2 | 1.1 | 0.0 | 0.0 | 0.0 |
| Asadyieh..... | 0.4 | 1.4 | 0.0 | 1.4 | 0.7 | 0.4 | 0.0 | 0.0 | 0.3 |
| Khorasan Razavi..... | 261.1 | 383.7 | 0.0 | 383.7 | 187.0 | 76.2 | 107.2 | 0.0 | 3.7 |
| Tabarak Abad..... | 9.4 | 13.7 | 0.0 | 13.7 | 10.8 | 5.1 | 2.0 | 0.0 | 3.6 |
| Shahid Yaghobi..... | 1.0 | 2.6 | 0.0 | 2.6 | 1.6 | 1.6 | 0.0 | 0.0 | 0.0 |
| Sangerd..... | 2.9 | 2.6 | 0.0 | 2.6 | 2.8 | 2.8 | 0.0 | 0.0 | 0.0 |
| Komayestan..... | 2.3 | 1.8 | 0.0 | 1.8 | 0.9 | 0.9 | 0.0 | 0.0 | 0.0 |
| Yam..... | 2.0 | 2.7 | 0.0 | 2.7 | 1.6 | 1.6 | 0.0 | 0.0 | 0.0 |
| Dusti ⁽⁷⁾ | 172.8 | 271.3 | 0.0 | 271.3 | 89.0 | 14.0 | 75.0 | 0.0 | 0.0 |
| Toroq..... | 10.4 | 12.4 | 0.0 | 12.4 | 11.5 | 1.5 | 10.0 | 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 ⁽³⁾ | | | Water consumption ⁽⁴⁾ | | | | |
|---|-----------------------|------------------------|--|----------------------|----------------------------------|----------------|--------------|----------------|----------------------|
| | | Total | From turbines ducts for electricity generation | Other ⁽⁵⁾ | Total | Agriculture | Drinking | Manu-facturing | Other ⁽⁵⁾ |
| Kardeh | 6.3 | 5.3 | 0.0 | 5.3 | 4.9 | 2.8 | 2.2 | 0.0 | 0.0 |
| Dehqan-e-Taybad | 2.6 | 3.2 | 0.0 | 3.2 | 2.9 | 2.9 | 0.0 | 0.0 | 0.0 |
| Fariman | 8.3 | 10.5 | 0.0 | 10.5 | 11.0 | 11.0 | 0.0 | 0.0 | 0.0 |
| Zavin Kalat..... | 0.6 | 1.2 | 0.0 | 1.2 | 1.1 | 1.1 | 0.0 | 0.0 | 0.0 |
| Chali Darreh..... | 0.8 | 0.6 | 0.0 | 0.6 | 0.6 | 6.0 | 0.0 | 0.0 | 0.0 |
| Dolatabad | 1.2 | 1.2 | 0.0 | 1.2 | 1.1 | 11.0 | 0.0 | 0.0 | 0.0 |
| Daroungar | 4.7 | 8.5 | 0.0 | 8.5 | 8.1 | 8.1 | 0.0 | 0.0 | 0.0 |
| Sad-e- Khaf..... | 3.4 | 7.5 | 0.0 | 7.5 | 6.0 | 6.0 | 0.0 | 0.0 | 0.0 |
| Ardak Chenaran | 20.8 | 29.8 | 0.0 | 29.8 | 29.0 | 11.0 | 18.0 | 0.0 | 0.0 |
| Qareh Tikan | 6.7 | 2.2 | 0.0 | 2.2 | 1.5 | 1.5 | 0.0 | 0.0 | 0.0 |
| Chahchahe | 4.9 | 6.6 | 0.0 | 6.6 | 2.5 | 2.5 | 0.0 | 0.0 | 0.0 |
| North Khorasan | 68.8 | 77.7 | 0.0 | 77.7 | 61.4 | 39.3 | 17.1 | 0.0 | 5.0 |
| Bidvaz..... | 18.1 | 18.3 | 0.0 | 18.3 | 17.2 | 11.4 | 3.1 | 0.0 | 2.8 |
| Barzu | 13.3 | 18.5 | 0.0 | 18.5 | 16.2 | 13.1 | 3.0 | 0.0 | 0.0 |
| Shirin Darreh | 35.1 | 39.1 | 0.0 | 39.1 | 26.4 | 13.4 | 11.0 | 0.0 | 2.0 |
| Chary..... | 1.5 | 1.4 | 0.0 | 1.4 | 1.4 | 1.4 | 0.0 | 0.0 | 0.0 |
| Gelul..... | 0.8 | 0.3 | 0.0 | 0.3 | 0.3 | 0.1 | 0.0 | 0.0 | 0.2 |
| Khuzestan..... | 14946.4 | 17452.1 | 39058.1 | 2010.5 | 16454.0 | 13096.0 | 653.0 | 574.0 | 2131.0 |
| Karkheh ^(2,10) | 3274.2 | 3866.7 | 3213.3 | 653.4 | 3605.0 | 2375.0 | 240.0 | 24.0 | 966.0 |
| Dez ⁽¹⁰⁾ | 4630.7 | 4781.6 | 4692.4 | 89.2 | 4692.0 | 3976.0 | 12.0 | 45.0 | 659.0 |
| Shahid Abbaspour ^(2,11) | 6280.0 | 6819.0 | 6754.5 | 64.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Karun 3 ^(2,11) | 4222.0 | 4986.5 | 4919.9 | 66.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Marun | 589.1 | 738.8 | 289.9 | 448.9 | 717.0 | 514.0 | 24.0 | 24.0 | 155.0 |
| Masjed-Soleyman ⁽²⁾ | 7191.9 | 7197.8 | 7184.9 | 12.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Gotvand-e-Olia ^(2,10,11) | 7583.0 | 7675.4 | 7482.4 | 193.0 | 7349.0 | 6145.0 | 377.0 | 481.0 | 346.0 |
| Jareh..... | 76.4 | 102.8 | 0.0 | 102.8 | 91.0 | 86.0 | 0.0 | 0.0 | 5.0 |
| Seymareh ^(2,6) | 2065.2 | 2144.8 | 1829.1 | 315.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Karun 4 ^(2,11,12) | 2672.0 | 2755.4 | 2691.8 | 63.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Zanjan..... | 70.0 | 56.7 | 0.0 | 56.7 | 30.1 | 6.0 | 18.0 | 0.0 | 6.1 |
| Tahem..... | 17.1 | 20.7 | 0.0 | 20.7 | 18.5 | 0.4 | 18.0 | 0.0 | 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 ⁽²⁾ | | | Water consumption ⁽³⁾ | | | | |
|---------------------------------------|-----------------------|------------------------|--|----------------------|----------------------------------|--------------|--------------|----------------|----------------------|
| | | Total | From turbines ducts for electricity generation | Other ⁽⁴⁾ | Total | Agriculture | Drinking | Manu-facturing | Other ⁽⁵⁾ |
| Golabar..... | 6.2 | 7.5 | 0.0 | 7.5 | 2.2 | 2.0 | 0.0 | 0.0 | 0.2 |
| Kineh Vers..... | 22 | 22.2 | 0.0 | 22.2 | 7.4 | 1.6 | 0.0 | 0.0 | 5.8 |
| Talevar..... | 24.6 | 6.3 | 0.0 | 6.3 | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| Semnan..... | 13.6 | 12.8 | 0.0 | 12.8 | 11.1 | 5.6 | 4.5 | 0.0 | 1.0 |
| Kalpash..... | 3.7 | 0.4 | 0.0 | 0.4 | 0.3 | 0.0 | 0.0 | 0.0 | 0.3 |
| Damghan..... | 9.9 | 12.4 | 0.0 | 12.4 | 10.8 | 5.6 | 4.5 | 0.0 | 0.7 |
| Sistan&Baluchestan... | 463.5 | 655.1 | 0.0 | 996.8 | 259.5 | 131.9 | 97.1 | 0.0 | 30.5 |
| Chahehnimeh 1, 2,3 ⁽²⁾ ... | 504.7 | 530.6 | 0.0 | 530.6 | 107.5 | 29.5 | 64.0 | 0.0 | 14.0 |
| Mashkid-e-Olia..... | 7.5 | 9.4 | 0.0 | 9.4 | 3.1 | 0.0 | 3.1 | 0.0 | 0.0 |
| Chahehnimeh 4 ⁽²⁾ | 284.7 | 395.8 | 0.0 | 395.8 | 106.0 | 100.0 | 0.0 | 0.0 | 6.0 |
| Pishin..... | 11.1 | 30.1 | 0.0 | 30.1 | 20.5 | 0.0 | 18.0 | 0.0 | 2.5 |
| Shai Kelk..... | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Zirdan..... | 10.3 | 26.1 | 0.0 | 26.1 | 20.5 | 2.0 | 10.5 | 0.0 | 8.0 |
| Kheirabad..... | 1.5 | 4.7 | 0.0 | 4.7 | 1.9 | 0.4 | 1.5 | 0.0 | 0.0 |
| Fars..... | 685.3 | 633.0 | 40.7 | 633.7 | 345.1 | 147.2 | 78.7 | 14.0 | 105.2 |
| Salman Farsi..... | 339.5 | 274.9 | 0.0 | 274.9 | 184.5 | 120.0 | 24.7 | 0.0 | 39.8 |
| Tangab..... | 40.8 | 59.2 | 0.0 | 59.2 | 30.1 | 1.1 | 0.0 | 0.0 | 29.0 |
| Rudbal Darab..... | 173.4 | 155.6 | 0.0 | 155.6 | 40.0 | 10.0 | 0.0 | 0.0 | 30.0 |
| Dorudzan ⁽²⁾ | 115.9 | 121.3 | 0.0 | 121.3 | 73.4 | 1.0 | 54.0 | 14.0 | 4.4 |
| Izadkhasht..... | 0.6 | 0.3 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Mollasadra ⁽²⁾ | 53.4 | 59.9 | 40.7 | 19.2 | 14.1 | 12.1 | 0.0 | 0.0 | 2.0 |
| Sivand..... | 3.1 | 3.1 | 0.0 | 3.1 | 3.0 | 3.0 | 0.0 | 0.0 | 0.0 |
| Qom..... | 246.7 | 265.4 | 0.0 | 265.4 | 209.3 | 57.0 | 109.9 | 0.0 | 42.4 |
| Panzdah Khordad..... | 22.0 | 16.7 | 0.0 | 16.7 | 7.3 | 0.0 | 0.9 | 0.0 | 6.4 |
| Kucheri..... | 224.6 | 248.7 | 0.0 | 248.7 | 202.0 | 57.0 | 109.0 | 0.0 | 36.0 |
| Kordestan..... | 812.8 | 805.1 | 0.0 | 805.1 | 233.5 | 24.2 | 55.3 | 0.5 | 153.4 |
| Sural..... | 11.0 | 10.2 | 0.0 | 10.2 | 3.2 | 0.0 | 0.0 | 0.0 | 3.2 |
| Sang siyah..... | 8.7 | 10.0 | 0.0 | 10.0 | 6.6 | 0.6 | 0.0 | 0.0 | 6.0 |
| Qeshleq..... | 100.6 | 96.4 | 0.0 | 96.4 | 79.7 | 15.9 | 46.0 | 0.5 | 17.3 |
| Zarivar..... | 35.6 | 27.8 | 0.0 | 27.8 | 12.0 | 0.0 | 0.0 | 0.0 | 12.0 |
| Baneh..... | 8.7 | 6.7 | 0.0 | 6.7 | 5.1 | 0.0 | 4.3 | 0.0 | 0.8 |
| Azad..... | 257.2 | 267.4 | 0.0 | 267.4 | 50.0 | 0.0 | 0.0 | 0.0 | 50.0 |
| Garan..... | 82.6 | 82.8 | 0.0 | 82.8 | 13.3 | 0.0 | 0.0 | 0.0 | 13.3 |
| Zivieh..... | 12.3 | 13.1 | 0.0 | 13.1 | 8.5 | 7.7 | 0.0 | 0.0 | 0.8 |
| Siazakh..... | 296.2 | 290.7 | 0.0 | 290.7 | 55.0 | 0.0 | 5.0 | 0.0 | 50.0 |
| Kerman..... | 907.0 | 1036.5 | 291.9 | 744.7 | 935.2 | 169.1 | 21.0 | 0.3 | 744.8 |
| Jiroft..... | 605.3 | 721.0 | 291.9 | 429.2 | 697.0 | 108.0 | 0.0 | 0.0 | 589.0 |
| Tanguiyeh..... | 61.8 | 69.6 | 0.0 | 69.6 | 35.0 | 3.0 | 17.0 | 0.0 | 15.0 |
| Nesa..... | 182.9 | 189.8 | 0.0 | 189.8 | 181.0 | 53.0 | 0.0 | 0.0 | 128.0 |
| Baft..... | 57.0 | 56.1 | 0.0 | 56.1 | 22.2 | 5.1 | 4.0 | 0.3 | 12.8 |
| Kermanshah..... | 2185.7 | 2036.7 | 459.6 | 1606.2 | 157.5 | 59.6 | 27.0 | 0.0 | 70.9 |

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

| Year and reservoir dams | Inflow ⁽²⁾ | Outflow ⁽²⁾ | | | Water consumption ⁽³⁾ | | | | |
|-----------------------------------|-----------------------|------------------------|--|----------------------|----------------------------------|---------------|--------------|---------------|----------------------|
| | | Total | From turbines ducts for electricity generation | Other ⁽⁴⁾ | Total | Agriculture | Drinking | Manufacturing | Other ⁽⁵⁾ |
| Gavshan ⁽²⁾ | 249 .1 | 139 .4 | 0.0 | 139 .4 | 83 .5 | 40.0 | 25.0 | 0.0 | 18 .5 |
| Soleymanshah ⁽²⁾ | 54 .1 | 53 .6 | 0.0 | 53 .6 | 17.0 | 9.0 | 2.0 | 0.0 | 6.0 |
| Gilangharb | 2.0 | 2.2 | 0.0 | 2.2 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 |
| Shiyan | 3.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Azadi | 73 .3 | 46.0 | 0.0 | 46.0 | 37 .3 | 0.3 | 0.0 | 0.0 | 37.0 |
| Zagros | 21 .9 | 19 .9 | 0.0 | 19 .9 | 9.3 | 6.9 | 0.0 | 0.0 | 2.4 |
| Tang-e-Hammam | 34 .7 | 18 .3 | 0.0 | 18 .3 | 9.8 | 2.8 | 0.0 | 0.0 | 7.0 |
| Darian | 1777 .2 | 1786 .2 | 459 .6 | 1326 .6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Kohgiluyeh&Boyerahmad | 198.7 | 268.8 | 0.0 | 268.8 | 234.5 | 50.2 | 128.0 | 3.3 | 53.0 |
| Kosar | 195 .9 | 267 .8 | 0.0 | 267 .8 | 233 .8 | 49 .5 | 128.0 | 3.3 | 53.0 |
| Shah Qasem | 2.7 | 1.0 | 0.0 | 1.0 | 0.7 | 0.7 | 0.0 | 0.0 | 0.0 |
| Golestan | 51.7 | 55.2 | 0.0 | 55.2 | 37.4 | 22.0 | 0.0 | 5.0 | 10.4 |
| Voshmgir ⁽²⁾ | 45 .9 | 57.0 | 0.0 | 57.0 | 47.0 | 44.0 | 0.0 | 0.0 | 3.0 |
| Golestan ⁽²⁾ | 113 .4 | 151 .3 | 0.0 | 167 .6 | 113 .2 | 80 .7 | 0.0 | 6.0 | 26 .5 |
| Alagol | 2.1 | 20.0 | 0.0 | 20.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Bustan ⁽²⁾ | 21 .8 | 25.0 | 0.0 | 25.0 | 18 .8 | 12.0 | 0.0 | 0.0 | 6.8 |
| Nomel(Kosar) | 0.9 | 2.0 | 0.0 | 2.0 | 2.1 | 2.0 | 0.0 | 0.0 | 0.1 |
| Daneshmand | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Negarestan | 7.5 | 8.4 | 0.0 | 8.4 | 6.9 | 0.7 | 0.0 | 0.0 | 6.2 |
| Gilan | 2036.5 | 2123.5 | 1227.2 | 896.3 | 1926.7 | 1587.0 | 125.7 | 10.0 | 204.0 |
| Sefidrud | 1887 .5 | 1939 .1 | 1227 .1 | 712.0 | 1780 .7 | 1577.0 | 15 .7 | 10.0 | 178.0 |
| Shahr-e-Bijar | 149.0 | 184 .4 | 0.2 | 184 .3 | 146.0 | 10.0 | 110.0 | 0.0 | 26.0 |
| Lorestan | 590.5 | 714.8 | 372.4 | 342.3 | 177.3 | 84.6 | 2.0 | 0.0 | 90.8 |
| Maruk | 59 .1 | 83 .9 | 0.0 | 83 .9 | 45 .1 | 41.0 | 0.0 | 0.0 | 4.1 |
| Tanghaleh | 0.3 | 0.9 | 0.0 | 0.9 | 0.6 | 0.5 | 0.0 | 0.0 | 0.0 |
| Kaznar | 0.7 | 1.5 | 0.0 | 1.5 | 1.5 | 1.2 | 0.0 | 0.0 | 0.2 |
| Khanabad | 7.5 | 10.7 | 0.0 | 10.7 | 10.6 | 8.3 | 0.0 | 0.0 | 2.3 |
| Eyvashan | 41 .2 | 69 .5 | 0.0 | 69 .5 | 34.0 | 31.0 | 0.0 | 0.0 | 3.0 |
| Hozian | 9.0 | 4.4 | 0.0 | 4.4 | 3.6 | 2.5 | 0.0 | 0.0 | 1.1 |
| Rudbar | 472 .7 | 543 .9 | 372 .4 | 171 .5 | 82.0 | 0.0 | 2.0 | 0.0 | 80.0 |
| Mazandaran | 218.1 | 323.5 | 112.6 | 210.8 | 305.6 | 228.0 | 34.0 | 0.0 | 43.6 |
| Shahid Rajaei | 97 .2 | 165 .8 | 112 .6 | 53 .2 | 163 .9 | 133.0 | 10 .9 | 0.0 | 20.0 |
| Shiyadeh | 2.2 | 4.0 | 0.0 | 4.0 | 4.0 | 3.8 | 0.0 | 0.0 | 0.1 |
| Berenjestanak | 6.2 | 7.0 | 0.0 | 7.0 | 5.8 | 3.7 | 0.0 | 0.0 | 2.1 |
| Meijeran | 20.0 | 20.6 | 0.0 | 20.6 | 18.2 | 5.6 | 9.6 | 0.0 | 3.0 |
| Salaheddinkola | 5.0 | 4.9 | 0.0 | 4.9 | 4.0 | 3.8 | 0.0 | 0.0 | 0.2 |
| Farimsahra | 0.6 | 0.4 | 0.0 | 0.4 | 0.4 | 0.2 | 0.0 | 0.0 | 0.2 |
| Sonbolrud | 1.8 | 1.7 | 0.0 | 1.7 | 1.4 | 0.9 | 0.0 | 0.0 | 0.5 |
| Alimalat | 3.3 | 3.5 | 0.0 | 3.5 | 1.5 | 1.1 | 0.0 | 0.0 | 0.4 |
| Alborz | 81 .7 | 115 .6 | 0.0 | 115 .6 | 106 .5 | 76.0 | 13 .5 | 0.0 | 17.0 |

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⁾ |
| Markazi | 129.5 | 126.8 | 0.0 | 126.8 | 78.2 | 19.7 | 42.5 | 9.0 | 7.0 |
| Kamal Saleh | 68.3 | 89.2 | 0.0 | 89.2 | 44.6 | 0.0 | 35.0 | 9.0 | 0.6 |
| Saveh..... | 61.2 | 37.6 | 0.0 | 37.6 | 33.6 | 19.7 | 7.5 | 0.0 | 6.4 |
| Hormozgan | 75.2 | 240.8 | 0.0 | 240.8 | 135.4 | 83.9 | 51.5 | 0.0 | 0.0 |
| Esteqlal..... | 13.2 | 82.7 | 0.0 | 82.7 | 54.7 | 16.7 | 38.0 | 0.0 | 0.0 |
| Jegin..... | 36.9 | 93.1 | 0.0 | 93.1 | 60.6 | 56.4 | 4.2 | 0.0 | 0.0 |
| Shamil & Nian..... | 25.1 | 65.0 | 0.0 | 65.0 | 20.1 | 10.8 | 9.3 | 0.0 | 0.0 |
| Hamedan | 116.8 | 121.8 | 0.0 | 121.8 | 59.1 | 22.5 | 35.1 | 0.0 | 1.5 |
| Ekbatan ⁽²⁾ | 55.4 | 59.8 | 0.0 | 59.8 | 36.2 | 4.7 | 31.0 | 0.0 | 0.5 |
| Abshineh ⁽²⁾ | 3.7 | 3.2 | 0.0 | 3.2 | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 |
| Shirinsu..... | 0.2 | 0.5 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Kalan-e-Malayer..... | 44.5 | 45.3 | 0.0 | 45.3 | 16.2 | 16.0 | 0.2 | 0.0 | 0.1 |
| Sarabi..... | 13.0 | 12.9 | 0.0 | 12.9 | 4.7 | 1.8 | 2.0 | 0.0 | 0.8 |

1. For the 168 large reservoir dams (based on the ICOLD definition) with the capacity of 48.9 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 off Latiyan and Mamlo dams in Tehran Ostan), (Shahid Abbaspur, Karun3, Karun 4, Masjed-Soleyman and Gotvand-e-Oliadams in Khuzestan Ostan), (Dorudzan and Mollasadra in Far sOstan), (Seymareh in Ilam Ostan and Karkheh in Khuzestan Ostan) .(Golestan, Bustan and Voshmgir in Golestan Ostan),(Chahehnimeh 1,2,3 and 4 in Sistan&Baluchestan Ostan), (Ekbatan and Abshineh in Hamedan Ostan) and (Soleymanshah and Gavshan in Kermanshah Ostan) and (Aras and Khoda Afarin in East-Azarbayejan Ostan).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, 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 including water at the time of stability of flow of the river.

6. Main difference between consumption (28.6 bln cu m) and net outflow(37.2 bln cu m) is related to outflow of border dams for neighboring countries, evaporation from all dams, weirs and other non-consumable outflows.

a- Aras, Bukan, Zayanderud, Taleghan, Karaj, Karkheh, Golpayegan, Gavshan and Kusar dams supply water both for their Ostans and other Ostans.

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

c- Kucheri dam is located in Esfahan Ostan and Tehran Regional Company; however, due to supplying drinking water for Qom city accounting for the major consumption of the dam is included in Qom Ostan.

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

8. In Sahand dam, 45 mln cu m was released without use due to the lack of water need and not finishing the downward network.

9. Major part of 208 mln cu m of inflow to the Golpayegan reservoir dam in the year 1396 relates to the transferring of the water from Dez branches to Qomrud.

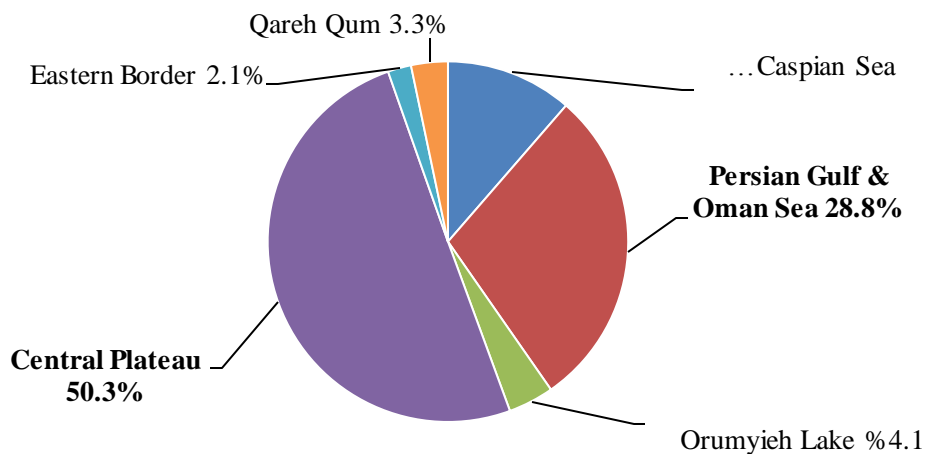
10. Major part of other consumption in dams of Dez, Karkheh and Gotvand-e-Olya were due to the improvement of drinking water.

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

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

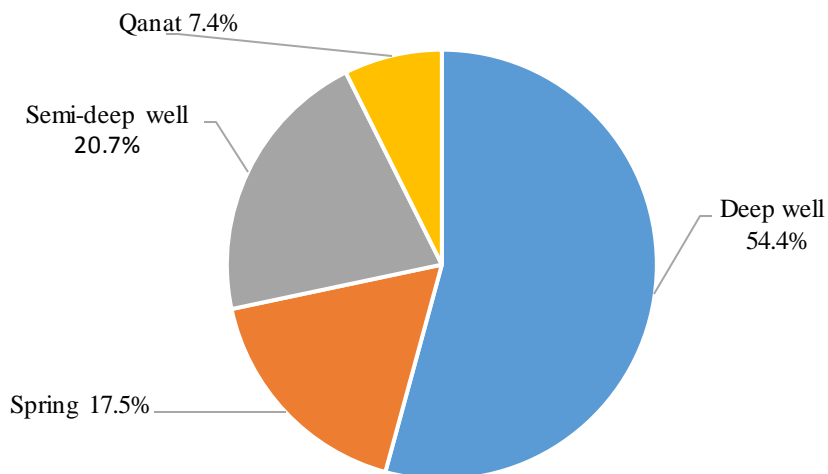
Source: Ministry of Energy.

9.1. ANNUAL DISCHARGE FROM UNDERGROUND WATER RESOURCES BY MAIN BASINS, THE AQUATIC YEAR 1395-96



For data see Table 9.1.

9.2. PERCENTAGE OF ANNUAL DISCHARGE FROM UNDERGROUND WATER RESOURCES, THE YEAR 1395-96



For data see Table 9.1.

9.4. DATA FOR CAPACITY OF RESERVOIRS, URBAN WATER DISTRIBUTION AND TRANSMISSION NETWORK (cu m / km)

| Year and Ostan | Capacity of Reservoirs in the network | Length of the network for water distribution | Length of pipelines for water transmission |
|-----------------------------|---------------------------------------|--|--|
| 1380..... | 8402485 | 77955 | 13458 |
| 1385..... | 10914721 | 119059 | 18500 |
| 1390..... | 13101344 | 133163 | 25475 |
| 1392..... | 13963308 | 141410 | 26994 |
| 1393..... | 14136572 | 144084 | 27671 |
| 1394..... | 14550118 | 146649 | 28222 |
| 1395..... | 14760389 | 151108 | 28984 |
| 1396..... | 15000546 | 154058 | 29379 |
| East Azarbayejan..... | 900135 | 9271 | 1154 |
| West Azarbayejan..... | 391230 | 4852 | 719 |
| Ardebil..... | 234580 | 2393 | 476 |
| Esfahan..... | 1060795 | 13562 | 2796 |
| Alborz..... | 473759 | 2895 | 715 |
| Ilam..... | 125100 | 1310 | 501 |
| Bushehr..... | 307650 | 3225 | 865 |
| Tehran..... | 3021060 | 15883 | 2499 |
| Chaharmahal&Bakhtiyari..... | 167000 | 1920 | 359 |
| South Khorasan..... | 139150 | 2182 | 577 |
| Khorasan-e-Razavi..... | 1085430 | 8449 | 2478 |
| North Khorasan..... | 144970 | 1337 | 291 |
| Khuzestan..... | 754324 | 9813 | 1744 |
| Zanjan..... | 160820 | 1637 | 297 |
| Semnan..... | 190017 | 2456 | 526 |
| Sistan&Baluchestan..... | 260440 | 4165 | 1393 |
| Fars..... | 915625 | 10067 | 2542 |
| Qazvin..... | 252400 | 1901 | 271 |
| Qom..... | 350800 | 2186 | 156 |
| Kordestan..... | 170395 | 4711 | 387 |
| Kerman..... | 690610 | 10011 | 1950 |
| Kermanshah..... | 301070 | 3001 | 547 |
| Kohgiluyeh&Boyerahmad..... | 118710 | 1462 | 297 |
| Golestan..... | 246870 | 2774 | 532 |
| Gilan..... | 383618 | 5041 | 668 |
| Lorestan..... | 273900 | 2683 | 552 |
| Mazandaran..... | 424072 | 7388 | 1063 |
| Markazi..... | 268795 | 3381 | 679 |
| Hormozgan..... | 387376 | 5901 | 1233 |
| Hamedan..... | 298338 | 2577 | 463 |
| Yazd..... | 501507 | 5627 | 649 |

Source: Water and Sewage Engineering Company.

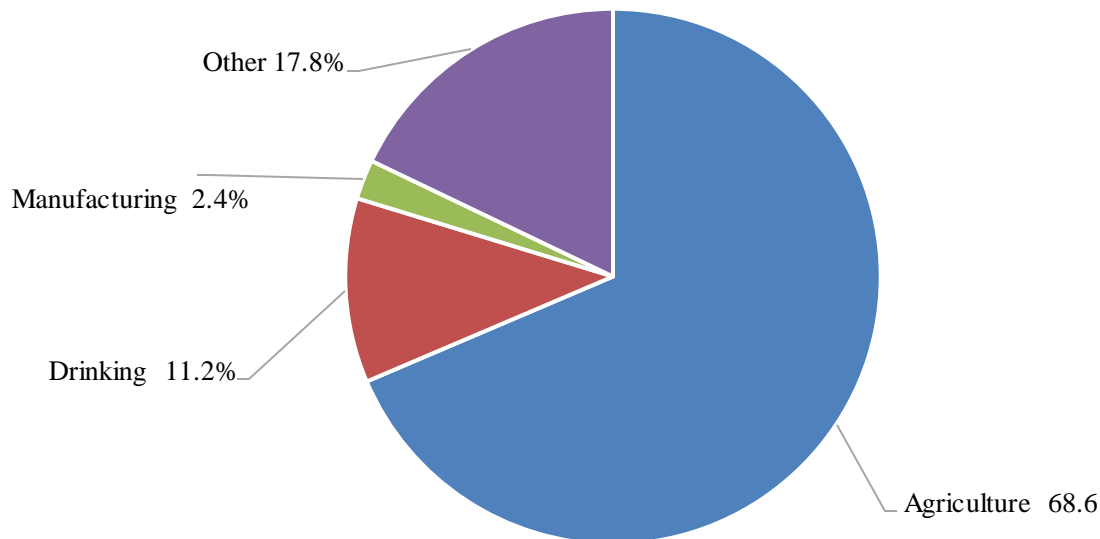
9. 5. DATA FOR WATER SUPPLY, PRODUCTION AND SALE CAPACITIES AND NUMBER OF EXTENTIONS OF URBAN WATER (1000 cu m/number)

| Year and Ostan | Max. capacity of water supply (litre second) | Production (1000 cu m) | Sale ⁽¹⁾ (1000 cu m) | Extensions (number) |
|----------------------------|--|------------------------|---------------------------------|---------------------|
| 1380..... | 165328 | 4008252 | 2617518 | 8060690 |
| 1385..... | 214154 | 5094428 | 3464452 | 10115430 |
| 1390..... | 247392 | 5323362 | 3900727 | 12891481 |
| 1392..... | 265281 | 5643076 | 4236009 | 14386295 |
| 1393..... | 263019 | 5847738 | 4330157 | 14963718 |
| 1394..... | 268138 | 6009000 | 4445000 | 15431590 |
| 1395..... | 261971 | 6045392 | 4502617 | 15827243 |
| 1396..... | 247786 | 6162225 | 4633556 | 16270684 |
| East Azarbayejan..... | 10701 | 248845 | 201590 | 1114479 |
| West Azarbayejan..... | 8694 | 198185 | 154235 | 626467 |
| Ardebil..... | 3711 | 81051 | 59910 | 319198 |
| Esfahan..... | 19945 | 435000 | 363000 | 1264590 |
| Alborz..... | 8811 | 253934 | 195170 | 406045 |
| Ilam..... | 1397 | 41793 | 32643 | 139874 |
| Bushehr..... | 3416 | 107730 | 77140 | 270600 |
| Tehran..... | 55449 | 1416240 | 1087880 | 1877299 |
| Chaharmahal&Bakhtiari..... | 2195 | 51952 | 39645 | 229651 |
| South Khorasan..... | 2036 | 44991 | 30543 | 185160 |
| Khorasan-e-Razavi..... | 15665 | 390000 | 296000 | 1577397 |
| North Khorasan..... | 1652 | 41666 | 31413 | 186131 |
| Khuzestan..... | 23909 | 580000 | 371000 | 1011534 |
| Zanjan..... | 3282 | 72445 | 50850 | 224315 |
| Semnan..... | 2554 | 61439 | 44852 | 243371 |
| Sistan&Baluchestan..... | 5800 | 133316 | 94733 | 335618 |
| Fars..... | 13033 | 322000 | 242000 | 1109261 |
| Qazvin..... | 3360 | 81144 | 66259 | 298151 |
| Qom..... | 4968 | 115593 | 95175 | 311890 |
| Kordestan..... | 4633 | 111667 | 76224 | 350489 |
| Kerman..... | 6845 | 178925 | 129051 | 590746 |
| Kermanshah..... | 5722 | 154410 | 93756 | 378904 |
| Kohgiluyeh&Boyerahmad..... | 1393 | 39931 | 30002 | 159066 |
| Golestan..... | 3860 | 81284 | 60913 | 273213 |
| Gilan..... | 5874 | 153629 | 118095 | 465401 |
| Lorestan..... | 3772 | 109909 | 85599 | 390643 |
| Mazandaran..... | 8715 | 247520 | 178090 | 603881 |
| Markazi..... | 4736 | 111043 | 89520 | 314972 |
| Hormozgan..... | 3688 | 108633 | 87791 | 241766 |
| Hamedan..... | 4206 | 93527 | 71208 | 372287 |
| Yazd..... | 3764 | 94423 | 79269 | 398285 |

1. Water sale refers to water consumption.

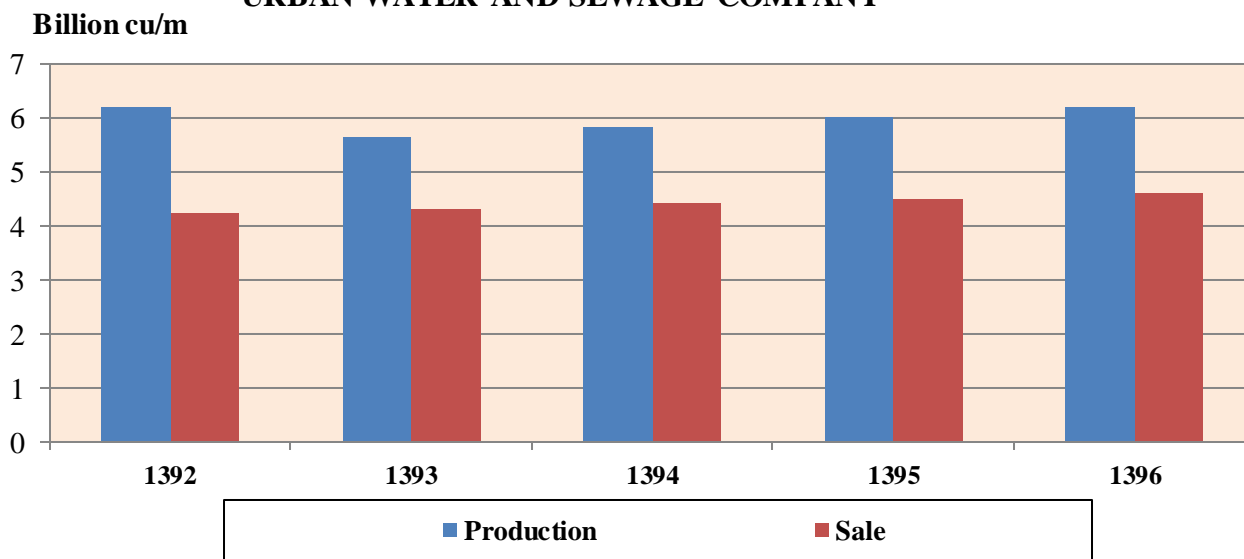
Source: Water and Sewage Engineering Company.

9.3. WATER CONSUMPTION OF LARGE RESERVOIR DAMS BY TYPE OF USE, THE YEAR 1396



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 NUMBER OF EXTENTIONS CAPACTTLES AND OF RURAL WATER

| Year and Ostan | Max. capacity of water supply (litre second) | Production (1000 cu m) | Sale ⁽¹⁾ (1000 cu m) | Extensions (number) |
|------------------------------|--|------------------------|---------------------------------|---------------------|
| 1385..... | 51242 | 1019180 | 652929 | 3200860 |
| 1390..... | 77038 | 1160295 | 794211 | 4415236 |
| 1392..... | 78479 | 1311453 | 913055 | 4975782 |
| 1393..... | 75623 | 1396408 | 964205 | 5155136 |
| 1394..... | 77095 | 1390976 | 963604 | 5280728 |
| 1395..... | 81054 | 1382449 | 947807 | 5392903 |
| 1396..... | 84306 | 1441038 | 975704 | 5564715 |
| East Azarbayejan..... | 3647 | 77802 | 53206 | 328150 |
| West Azarbayejan..... | 2886 | 86700 | 62260 | 273794 |
| Ardebil..... | 896 | 28200 | 19945 | 117722 |
| Esfahan..... | 2125 | 57615 | 40925 | 243090 |
| Alborz..... | 2316 | 18925 | 9930 | 58626 |
| Ilam..... | 539 | 14680 | 10410 | 50701 |
| Bushehr..... | 1107 | 34000 | 20300 | 91572 |
| Tehran..... | 3520 | 54707 | 33720 | 150406 |
| Chaharmahal&Bakhtiyari..... | 3298 | 24600 | 16400 | 89273 |
| South Khorasan..... | 989 | 27734 | 17200 | 133997 |
| Khorasan-e-Razavi..... | 3995 | 118500 | 86700 | 584774 |
| North Khorasan..... | 970 | 27354 | 18366 | 114057 |
| Khuzestan..... | 4566 | 78360 | 47892 | 182853 |
| Zanjan..... | 1142 | 36009 | 19394 | 101557 |
| Semnan..... | 801 | 17038 | 9080 | 59200 |
| Sistan&Baluchestan..... | 1322 | 45330 | 32130 | 169187 |
| Fars..... | 10607 | 112700 | 80630 | 419563 |
| Qazvin..... | 1230 | 29547 | 21060 | 113820 |
| Qom..... | 628 | 15930 | 10100 | 32786 |
| Kordestan..... | 3581 | 26410 | 18116 | 124747 |
| Kerman..... | 2793 | 56900 | 42199 | 259559 |
| Kermanshah..... | 1903 | 35879 | 23593 | 133478 |
| Kohgiluyeh & Boyerahmad..... | 1440 | 14650 | 10485 | 60057 |
| Golestan..... | 3729 | 54452 | 36800 | 222987 |
| Gilan..... | 2664 | 80230 | 41770 | 295764 |
| Lorestan..... | 5243 | 35680 | 25570 | 132127 |
| Mazandaran..... | 4528 | 94287 | 66500 | 417150 |
| Markazi..... | 3961 | 33763 | 25324 | 144948 |
| Hormozgan..... | 4249 | 48560 | 36370 | 186133 |
| Hamedan..... | 2727 | 36480 | 26229 | 164772 |
| Yazd..... | 904 | 18016 | 13100 | 107865 |

1. Water sale refers to water consumption.

Source: Water and Sewage Engineering Company.

9.7. DATA FOR CAPACITY OF RESERVOIRS, RURAL WATER DISTRIBUTION AND TRANSMISSION NETWORK (cu m / km)

| Year and Ostan | Capacity of Reservoirs in the network | Length of the network for water distribution | Length of pipelines for water transmission |
|------------------------------|---------------------------------------|--|--|
| 1385..... | 2914866 | 116474 | 64500 |
| 1390..... | 3292684 | 155248 | 87848 |
| 1392..... | 3480029 | 162781 | 93498 |
| 1393..... | 3332951 | 167234 | 95094 |
| 1394..... | 3483849 | 171609 | 100713 |
| 1395..... | 3628788 | 172980 | 103705 |
| 1396 | 3803553 | 178848 | 107610 |
| East Azarbayejan..... | 223468 | 8275 | 7273 |
| West Azarbayejan..... | 147200 | 6813 | 4973 |
| Ardebil | 102467 | 3593 | 2424 |
| Esfahan | 138189 | 5340 | 2890 |
| Alborz | 40875 | 1188 | 597 |
| Ilam..... | 60699 | 1366 | 1639 |
| Bushehr | 71505 | 3449 | 1945 |
| Tehran..... | 137739 | 2614 | 1176 |
| Chaharmahal&Bakhtiari..... | 87984 | 2911 | 1852 |
| South Khorasan..... | 121648 | 3202 | 4227 |
| Khorasan-e-Razavi..... | 311807 | 13085 | 8856 |
| North Khorasan..... | 84729 | 2734 | 1986 |
| Khuzestan | 146373 | 12343 | 8184 |
| Zanjan | 81557 | 3178 | 2435 |
| Semnan..... | 39574 | 1185 | 798 |
| Sistan & Baluchestan..... | 177401 | 8884 | 6182 |
| Fars | 269349 | 12322 | 7236 |
| Qazvin | 66562 | 2449 | 1659 |
| Qom | 51706 | 882 | 739 |
| Kordestan..... | 86528 | 2532 | 2773 |
| Kerman | 216891 | 13223 | 5943 |
| Kermanshah | 124868 | 5131 | 3067 |
| Kohgiluyeh & Boyerahmad..... | 94104 | 3653 | 2773 |
| Golestan..... | 88755 | 5155 | 3111 |
| Gilan | 139673 | 17602 | 3922 |
| Lorestan..... | 67128 | 4591 | 3938 |
| Mazandaran | 181420 | 11033 | 4557 |
| Markazi | 95355 | 4326 | 2120 |
| Hormozgan | 124575 | 6827 | 4468 |
| Hamedan..... | 121234 | 4519 | 2192 |
| Yazd | 102190 | 4443 | 1675 |

Source: Water and Sewage Engineering Company.

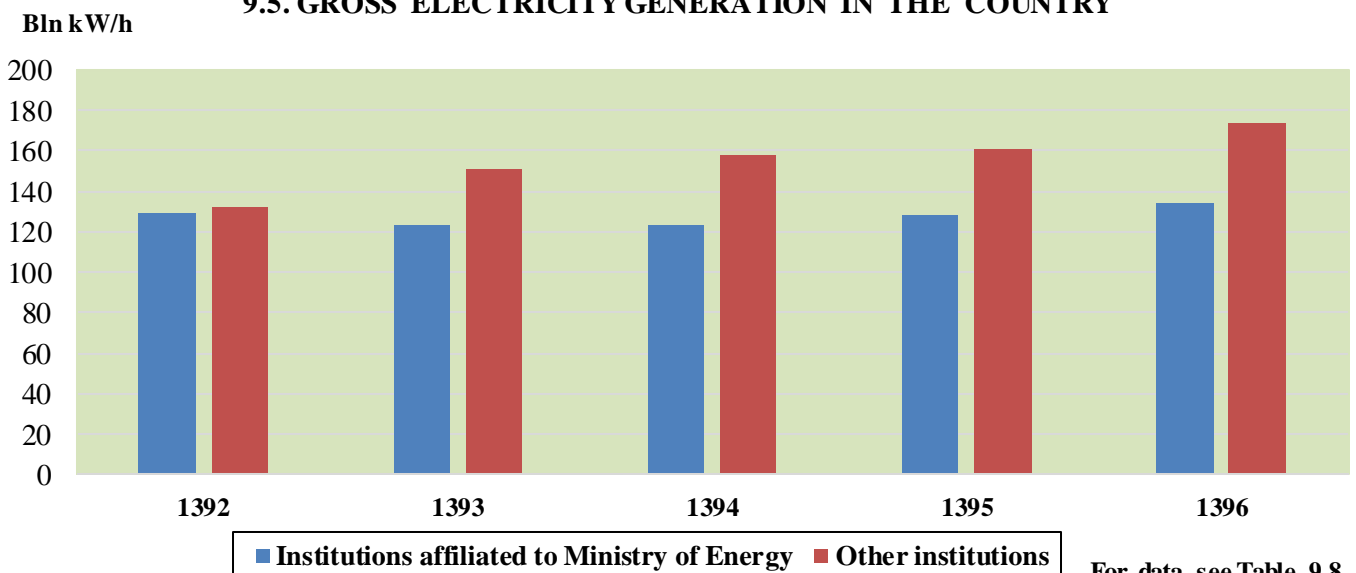
9.8. NOMINAL CAPACITY AND GROSS ELECTRICITY GENERATION OF INSTALLED GENERATORS

| 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 |
| 1380..... | 34233 | 28043 | 6190 | 129996 | 124275 | 5721 |
| 1385..... | 45151 | 40909 | 4242 | 192534 | 181538 | 10996 |
| 1390..... | 65212 | 52252 | 12960 | 240063 | 208413 | 31650 |
| 1392..... | 70278 | 35897 ⁽¹⁾ | 34381 ⁽¹⁾ | 262192 | 129539 ⁽¹⁾ | 132653 ⁽¹⁾ |
| 1393..... | 73160 | 35075 | 38085 | 274480 | 123151 | 151329 |
| 1394..... | 74103 | 34945 | 39158 | 280688 | 123215 | 157473 |
| 1395..... | 76428 | 35764 | 40664 | 289196 | 128291 | 160905 |
| 1396..... | 78794 | 36511 | 42283 | 307968 | 133934 | 174034 |

1. In the year 1392, 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



**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 |
|-----------------------------|-------------------------------------|--------------------------------------|--|
| 1380..... | 28944 | 26496 | 21853 |
| 1385..... | 45288 | 40985 | 32997 |
| 1390..... | 65212 | 57522 | 42245 |
| 1392..... | 70279 | 61907 | 45659 |
| 1393..... | 73160 | 63987 | 46696 |
| 1394..... | 74103 | 64707 | 49116 |
| 1395..... | 76428 | 66598 | 51579 |
| 1396..... | 78794 | 68321 | 54016 |
| Ministry of energy..... | 36511 | 33216 | 27414 |
| Hydroelectric..... | 11953 | 11953 | 9068 |
| Steam..... | 11241 | 10630 | 9043 |
| Gas..... | 6362 | 4966 | 4133 |
| Combined cycle..... | 5389 | 4257 | 4072 |
| Diesel..... | 438 | 284 | 91 |
| Atomic..... | 1020 | 1020 | 1008 |
| Renewable..... | 107 | 107 | 0 |
| Large scale industries..... | 5905 | 4878 | 1096 |
| Steam..... | 589 | 490 | 329 |
| Gas..... | 5316 | 4388 | 767 |
| Private sector..... | 36378 | 30226 | 25505 |
| Steam..... | 4000 | 3772 | 3170 |
| Gas..... | 14241 | 11523 | 9694 |
| Combined cycle..... | 17777 | 14571 | 12642 |
| Renewable..... | 361 | 361 | 0 |

Source: Ministry of Energy.

**9. 10. CAPACITY OF INSTALLED GENERATORS AND GROSS ELECTRICITY
GENERATION OF POWER PLANTS: THE YEAR 1396**

| Ostan | Nominal capacity(1000 kW) | Actual capacity (1000 kW) | Gross generation (mln kW h) |
|-------------------------------|---------------------------|---------------------------|-----------------------------|
| Total | 78794 | 68321 | 307968 |
| East Azarbayejan | 1737 | 1593 | 7585 |
| West Azarbayejan | 1408 | 1140 | 6047 |
| Ardebil | 1023 | 827 | 3099 |
| Esfahan | 5120 | 4577 | 26510 |
| Alborz..... | 1780 | 1502 | 9306 |
| Ilam | 675 | 643 | 530 |
| Bushehr..... | 5505 | 4738 | 18997 |
| Tehran ⁽¹⁾ | 6456 | 5162 | 24338 |
| Chaharmahal&Bakhtiari | 1052 | 1051 | 1195 |
| South Khorasan..... | 796 | 596 | 3099 |
| Khorasan-e-Razavi..... | 3631 | 3091 | 16151 |
| North Khorasan..... | 1147 | 897 | 3733 |
| Khuzestan | 15294 | 14186 | 36413 |
| Zanjan..... | 747 | 599 | 2759 |
| Semnan | 663 | 534 | 2270 |
| Sistan & Baluchestan | 1497 | 1193 | 5311 |
| Fars | 4851 | 3726 | 21736 |
| Qazvin | 2180 | 1973 | 12065 |
| Qom | 743 | 624 | 4313 |
| Kordestan..... | 981 | 791 | 4645 |
| Kerman | 3607 | 2752 | 17371 |
| Kermanshah | 1544 | 1374 | 7565 |
| Kohgiluyeh & Boyerahmad | 17 | 17 | 23 |
| Golestan..... | 976 | 885 | 2754 |
| Gilan..... | 2839 | 2625 | 15008 |
| Lorestan..... | 575 | 535 | 533 |
| Mazandaran..... | 3467 | 3333 | 12514 |
| Markazi..... | 1341 | 1256 | 7864 |
| Hormozgan | 3347 | 2835 | 15910 |
| Hamedan..... | 1053 | 1053 | 6617 |
| Yazd | 2742 | 2211 | 11708 |

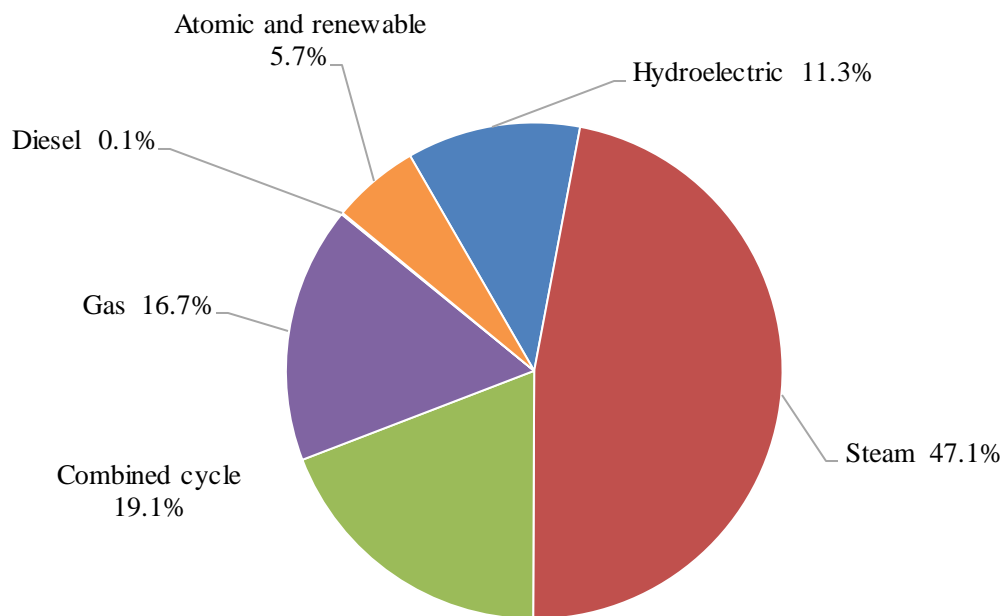
Source: Ministry of Energy.

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 |
|-----------------------------|------------------|--------------------------------|----------------|
| 1380..... | 127169 | 6123 | 121046 |
| 1385..... | 192535 | 7773 | 184762 |
| 1390..... | 240063 | 8442 | 231621 |
| 1392..... | 262192 | 8727 | 253465 |
| 1393..... | 274480 | 8426 | 266054 |
| 1394..... | 280689 | 7888 | 272801 |
| 1395..... | 289196 | 8285 | 280911 |
| 1396..... | 307968 | 8810 | 299159 |
| Ministry of energy..... | 133935 | 4888 | 129047 |
| Hydroelectric..... | 15051 | 73 | 14978 |
| Steam..... | 63104 | 4287 | 58817 |
| Combined cycle..... | 25624 | 403 | 25221 |
| Gas..... | 22465 | 118 | 22348 |
| Diesel..... | 94 | 6 | 88 |
| Atomic..... | 7514 | 0 | 7514 |
| Renewable..... | 81 | 0 | 81 |
| Large scale industries..... | 7905 | 209 | 7696 |
| Steam..... | 2203 | 175 | 2028 |
| Gas..... | 5702 | 34 | 5668 |
| Private sector..... | 166129 | 3714 | 162415 |
| Steam..... | 25030 | 1775 | 23255 |
| Gas..... | 51310 | 267 | 51043 |
| Combined cycle..... | 89454 | 1672 | 87782 |
| Renewable..... | 334 | 0 | 334 |

Source: Ministry of Energy.

9.6. SHARE OF ELECTRICITY GENERATORS TYPES OF THE POWER PLANTS AFFILIATED TO THE MINISTRY OF ENERGY FROM GROSS GENERATION OF POWER , THE YEAR 1396



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 |
| 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 |
| 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 |
| 1395..... | 52 | 16419181 | 28 | 9412166 | 13 | 6945188 | 11 | 61827 |
| 1396..... | 58 | 15051012 | 28 | 7946516 | 15 | 7020383 | 15 | 84113 |
| East Azarbayejan..... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| West Azarbayejan..... | 2 | 71318 | 0 | 0 | 2 | 71318 | 0 | 0 |
| Ardebil..... | 1 | 50421 | 0 | 0 | 0 | 0 | 1 | 50421 |
| Esfahan..... | 2 | 114267 | 2 | 114267 | 0 | 0 | 0 | 0 |
| Alborz..... | 2 | 199182 | 1 | 147747 | 1 | 51434 | 0 | 0 |
| Ilam..... | 1 | 456258 | 1 | 456258 | 0 | 0 | 0 | 0 |
| Tehran..... | 3 | 303267 | 2 | 161150 | 1 | 142117 | 0 | 0 |
| Chaharmahal & Bakhtiyari.... | 3 | 1188746 | 2 | 1187876 | 0 | 0 | 1 | 870 |
| Khorasan-e-Razavi..... | 3 | 1547 | 2 | 0 | 0 | 0 | 1 | 1547 |
| Khuzestan..... | 7 | 10852793 | 3 | 5511055 | 4 | 5341738 | 0 | 0 |
| Fars..... | 3 | 23629 | 1 | 5007 | 2 | 18622 | 0 | 0 |
| Qom..... | 1 | 13839 | 0 | 0 | 0 | 0 | 1 | 13839 |
| Kordestan..... | 1 | 51166 | 0 | 0 | 1 | 51166 | 0 | 0 |
| Kerman..... | 1 | 106364 | 1 | 106364 | 0 | 0 | 0 | 0 |
| Kermanshah..... | 2 | 118610 | 1 | 3238 | 1 | 115372 | 0 | 0 |
| Kohgiluyeh & Boyerahmad.. | 5 | 22899 | 3 | 12553 | 0 | 0 | 2 | 10346 |
| Gilan..... | 5 | 217025 | 2 | 216874 | 1 | 151 | 2 | 0 |
| Lorestan..... | 5 | 387458 | 3 | 1722 | 1 | 384799 | 1 | 937 |
| Mazandaran..... | 7 | 866070 | 3 | 22404 | 1 | 843666 | 3 | 0 |
| Markazi..... | 3 | 1266 | 1 | 0 | 0 | 0 | 2 | 1266 |
| Hamedan..... | 1 | 4887 | 0 | 0 | 0 | 0 | 1 | 4887 |

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) | | | |
| 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 |
| 1392..... | 242908 | 12186 | 10816 | 36648 | 565332 | 2327 | 37 .0 |
| 1393..... | 255869 | 8872 | 10273 | 50172 | 606707 | 2371 | 36 .3 |
| 1394..... | 263392 | 6084 | 6946 | 58424 | 606045 | 2301 | 37 .4 |
| 1395..... | 265774 | 5867 | 4483 | 61782 | 604856 | 2276 | 37 .8 |
| 1396..... | 284988 | 4841 | 3687 | 69382 | 651960 | 2288 | 37 .6 |
| Power plants affiliated to the Ministry of Energy | 111288 | 1199 | 3269 | 26743 | 261906 | 2353 | 36 .5 |
| Large scale industries | 7905 | 3 | 0 | 2450 | 23265 | 2943 | 29 .2 |
| Private sector..... | 165794 | 3639 | 417 | 40188 | 366789 | 2212 | 38 .9 |

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 | Year | | | | | | | |
|--|--------|--------|--------|--------|--------|--------|--------|--------|
| | 1380 | 1385 | 1390 | 1392 | 1393 | 1394 | 1395 | 1396 |
| Gross generation | 124275 | 181538 | 208414 | 129540 | 123150 | 123215 | 128292 | 133934 |
| Less: Internal consumption of plants..... | 5942 | 7064 | 7985 | 5386 | 4583 | 4548 | 4520 | 4887 |
| Net generation | 118333 | 174474 | 200429 | 124154 | 118567 | 118667 | 123772 | 129047 |
| Plus: Electricity purchased from large-scale industries ⁽¹⁾ | 5721 | 10997 | 23637 | 125273 | 141834 | 147920 | 149743 | 164071 |
| Less: Distribution and transmission networks losses | 20857 | 35566 | 34102 | 37407 | 34610 | 33297 | 33513 | 33772 |
| Net sales | 97476 | 144831 | 188917 | 211094 | 225541 | 233043 | 239903 | 259346 |
| Net exports | 305 | 233 | 5012 | 7879 | 5888 | 5732 | 2467 | 4320 |
| Domestic sales | 97171 | 144598 | 183905 | 203215 | 219653 | 227311 | 237436 | 255026 |

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 |
|---|---------------------------|
| 1380..... | 23220 |
| 1385..... | 33453 |
| 1390..... | 41481 |
| 1392..... | 44724 |
| 1393..... | 46204 |
| 1394..... | 48462 |
| 1395..... | 50926 |
| 1396 | 53414 |
| Azarbayejan Regional Power Company | 2963 |
| Esfahan Regional Power Company | 3516 |
| Bakhtar Regional Power Company | 2371 |
| Tehran Regional Power Company | 9845 |
| Khorasan Regional Power Company | 3233 |
| Khuzestan Regional Power Company | 7670 |
| Zanjan Regional Power Company | 1427 |
| Semnan Regional Power Company | 451 |
| Sistan&Baluchestan Regional Power Company | 1295 |
| Gharb Regional Power Company | 1563 |
| Fars Regional Power Company | 4706 |
| Kerman Regional Power Company | 1849 |
| Gilan Regional Power Company | 1473 |
| Mazandaran Regional Power Company | 3815 |
| Hormozgan Regional Power Company | 2273 |
| Yazd Regional Power Company | 892 |
| Kish Water and Power Company..... | 160 |
| Large scale industries | 3913 |

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 |
| 1380..... | 9924 | 20731 | 13857 | 29400 |
| 1385..... | 12404 | 25634 | 18582 | 37974 |
| 1390 ⁽¹⁾ | 18625 | 29158 | 22092 | 44956 |
| 1392..... | 19915 | 30300 | 22665 | 46240 |
| 1393..... | 19995 | 30732 | 22919 | 47105 |
| 1394..... | 20205 | 30869 | 23046 | 47506 |
| 1395..... | 20477 | 31324 | 23413 | 48063 |
| 1396..... | 20617 | 31589 | 23504 | 48295 |

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 |
| 1380..... | 22458 | 37287 | 12762 | 31265 |
| 1385..... | 29633 | 53816 | 18489 | 43987 |
| 1390..... | 46708 | 67412 | 25352 | 59759 |
| 1392..... | 54303 | 71605 | 27838 | 63270 |
| 1393..... | 57143 | 75024 | 29269 | 65061 |
| 1394..... | 59273 | 76532 | 29829 | 67080 |
| 1395..... | 62183 | 80470 | 30865 | 69456 |
| 1396..... | 64093 | 82045 | 32251 | 72794 |
| East-Azarbayejan..... | 1715 | 2960 | 2645 | 728 |
| West-Azarbayejan..... | 630 | 1805 | 2029 | 15 |
| Ardebil..... | 500 | 805 | 0 | 793 |
| Esfahan..... | 5560 | 5050 | 0 | 7541 |
| Alborz..... | 1000 | 2236 | 0 | 2706 |
| Ilam..... | 0 | 1240 | 559 | 740 |
| Bushehr..... | 3395 | 2056 | 1777 | 1954 |
| Tehran..... | 10200 | 11150 | 0 | 12939 |
| Chaharmahal&Bakhtiyari..... | 850 | 0 | 0 | 980 |
| South Khorasan..... | 1000 | 0 | 850 | 0 |
| Khorasan-e-Razavi..... | 3758 | 160 | 6320 | 1012 |
| North Khorasan..... | 1000 | 0 | 878 | 0 |
| Khuzestan..... | 7895 | 7902 | 10570 | 0 |
| Zanjan..... | 1715 | 1250 | 0 | 2102 |
| Semnan..... | 1600 | 2010 | 0 | 1368 |
| Sistan&Baluchestan..... | 630 | 2890 | 30 | 2675 |
| Fars..... | 4440 | 4245 | 640 | 6777 |
| Qazvin..... | 400 | 1555 | 0 | 2245 |
| Qom..... | 0 | 1370 | 0 | 1580 |
| Kordestan..... | 0 | 1515 | 80 | 1115 |
| Kerman..... | 2670 | 4830 | 4072 | 360 |
| Kermanshah..... | 1230 | 2265 | 0 | 2100 |
| Kohgiluyeh&Boyerahmad..... | 400 | 490 | 521 | 0 |
| Golestan..... | 700 | 1730 | 0 | 1743 |
| Gilan..... | 1000 | 3125 | 120 | 2721 |
| Lorestan..... | 1000 | 1945 | 0 | 1887 |
| Mazandaran..... | 2630 | 3505 | 0 | 4373 |
| Markazi..... | 2000 | 2675 | 0 | 3121 |
| Hormozgan..... | 3090 | 6947 | 825 | 5140 |
| Hamedan..... | 600 | 1815 | 0 | 1973 |
| Yazd..... | 2485 | 2519 | 335 | 2108 |

Source: Ministry of Energy.

9.18. NUMBER OF CUSTOMERS BY TYPE OF CONSUMPTION**(consumer)**

| Year and Ostan | Total | Household | Public | Agricultural | Industrial | Other |
|-----------------------------|-----------------|-----------------|----------------|---------------|---------------|----------------|
| 1380..... | 16345450 | 13682563 | 523505 | 77556 | 91468 | 1970358 |
| 1385..... | 20559946 | 16989284 | 748964 | 138137 | 152202 | 2531359 |
| 1390..... | 27164768 | 22224100 | 1082528 | 284781 | 174255 | 3399104 |
| 1392..... | 30287179 | 24670834 | 1282618 | 329995 | 193628 | 3810104 |
| 1393..... | 31671635 | 25739069 | 1382124 | 352628 | 206088 | 3991726 |
| 1394..... | 32831066 | 26619546 | 1465251 | 378147 | 216515 | 4151607 |
| 1395..... | 33824208 | 27354153 | 1543440 | 400257 | 225296 | 4301062 |
| 1396..... | 34835756 | 28100586 | 1611382 | 422260 | 236372 | 4465156 |
| East Azarbayejan..... | 1773492 | 1398196 | 76187 | 19521 | 15770 | 263818 |
| West Azarbayejan..... | 1207593 | 983506 | 31676 | 19890 | 5783 | 166738 |
| Ardebil..... | 532748 | 440134 | 22916 | 4003 | 3123 | 62572 |
| Esfahan..... | 2536105 | 2008423 | 93775 | 44840 | 31138 | 357929 |
| Alborz..... | 1275979 | 1037667 | 80416 | 4952 | 6548 | 146396 |
| Ilam..... | 214116 | 179115 | 7929 | 2903 | 1082 | 23087 |
| Bushehr..... | 443852 | 360302 | 16092 | 4710 | 2620 | 60128 |
| Tehran..... | 6730763 | 5123058 | 515156 | 11539 | 43703 | 1037307 |
| Chaharmahal&Bakhtiyari..... | 350838 | 294512 | 11045 | 6414 | 2537 | 36330 |
| South Khorasan..... | 355199 | 298282 | 15097 | 4932 | 2547 | 34341 |
| Khorasan-e-Razavi..... | 2722705 | 2259774 | 101488 | 20943 | 18705 | 321795 |
| North Khorasan..... | 338941 | 288383 | 11732 | 3352 | 1620 | 33854 |
| Khuzestan..... | 1591785 | 1320005 | 52714 | 9932 | 4439 | 204695 |
| Zanjan..... | 428309 | 350792 | 15126 | 8167 | 2864 | 51360 |
| Semnan..... | 365871 | 284743 | 21190 | 5664 | 4776 | 49498 |
| Sistan&Baluchestan..... | 777335 | 654678 | 26228 | 12178 | 2521 | 81730 |
| Fars..... | 1973969 | 1629983 | 66859 | 43267 | 13381 | 220479 |
| Qazvin..... | 581154 | 468089 | 36479 | 5832 | 4414 | 66340 |
| Qom..... | 541529 | 440030 | 18511 | 3711 | 6217 | 73060 |
| Kordestan..... | 621840 | 521030 | 19847 | 9493 | 2721 | 68749 |
| Kerman..... | 1132557 | 964803 | 30953 | 15457 | 5269 | 116075 |
| Kermanshah..... | 742985 | 624014 | 25300 | 7346 | 2748 | 83577 |
| Kohgiluyeh&Boyerahmad..... | 241999 | 210009 | 7660 | 2402 | 1009 | 20919 |
| Golestan..... | 700575 | 575615 | 32625 | 10103 | 2828 | 79404 |
| Gilan..... | 1378560 | 1086590 | 67613 | 18869 | 5578 | 199910 |
| Lorestan..... | 616175 | 526623 | 16594 | 8111 | 2884 | 61963 |
| Mazandaran..... | 1897829 | 1512208 | 86141 | 73892 | 13170 | 212418 |
| Markazi..... | 697193 | 576354 | 27039 | 9750 | 6923 | 77127 |
| Hormozgan..... | 701338 | 572080 | 33380 | 8767 | 3293 | 83818 |
| Hamedan..... | 718866 | 589316 | 28578 | 12079 | 5421 | 83472 |
| Yazd..... | 643556 | 522272 | 15036 | 9241 | 10740 | 86267 |

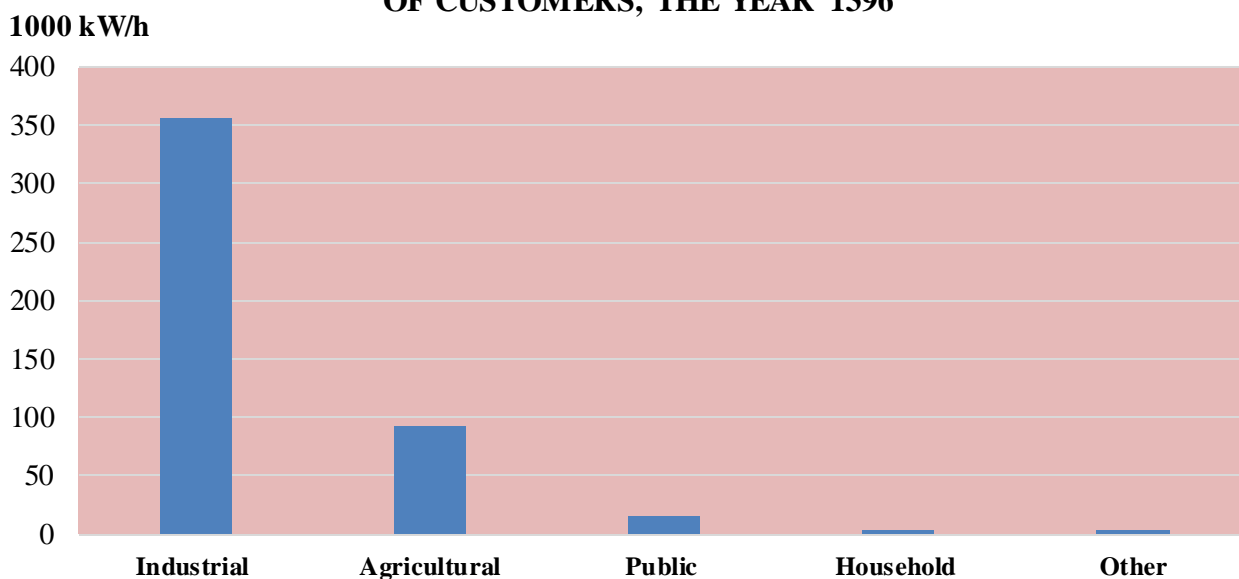
Source: Ministry of Energy.

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

| Year and Ostan | Total | Household | Public | Agricultural | Industrial | Streets lighting | Other |
|----------------------------|---------------|--------------|--------------|--------------|--------------|------------------|--------------|
| 1380..... | 96811 | 32891 | 11951 | 11079 | 30379 | 4117 | 6394 |
| 1385..... | 144598 | 48085 | 18329 | 17666 | 46590 | 4608 | 9320 |
| 1390..... | 183905 | 56771 | 16808 | 29965 | 63945 | 3752 | 12664 |
| 1392..... | 203215 | 64379 | 17833 | 33126 | 70733 | 3765 | 13378 |
| 1393..... | 219653 | 71163 | 19767 | 35188 | 74294 | 3837 | 15404 |
| 1394..... | 227790 | 76103 | 22196 | 36089 | 72705 | 4017 | 16680 |
| 1395..... | 237436 | 78378 | 22914 | 36222 | 77603 | 4699 | 17620 |
| 1396..... | 255026 | 83403 | 24328 | 39379 | 84218 | 5017 | 18681 |
| East Azarbayejan..... | 8519 | 2460 | 666 | 1072 | 3475 | 194 | 652 |
| West Azarbayejan..... | 5320 | 1942 | 405 | 1170 | 1258 | 138 | 405 |
| Ardebil..... | 1754 | 659 | 189 | 268 | 436 | 60 | 142 |
| Esfahan..... | 23588 | 4050 | 1125 | 3064 | 13865 | 388 | 1097 |
| Alborz..... | 6557 | 2187 | 660 | 750 | 2170 | 147 | 643 |
| Ilam..... | 1508 | 643 | 203 | 275 | 257 | 35 | 95 |
| Bushehr..... | 6829 | 4194 | 1135 | 317 | 591 | 114 | 479 |
| Tehran..... | 34366 | 11739 | 6123 | 2646 | 7348 | 523 | 5987 |
| Chaharmahal&Bakhtiari..... | 1872 | 477 | 112 | 591 | 523 | 79 | 91 |
| South Khorasan..... | 1637 | 429 | 156 | 470 | 409 | 83 | 90 |
| Khorasan-e-Razavi..... | 16118 | 4396 | 1156 | 4624 | 4438 | 392 | 1112 |
| North Khorasan..... | 1514 | 442 | 112 | 361 | 480 | 36 | 83 |
| Khuzestan..... | 31128 | 15224 | 2552 | 2709 | 8698 | 468 | 1477 |
| Zanjan..... | 4113 | 592 | 172 | 631 | 2525 | 61 | 133 |
| Semnan..... | 2992 | 505 | 217 | 636 | 1447 | 60 | 127 |
| Sistan&Baluchestan..... | 5761 | 2988 | 901 | 920 | 413 | 189 | 351 |
| Fars..... | 15375 | 4643 | 1331 | 5076 | 2982 | 323 | 1020 |
| Qazvin..... | 4345 | 856 | 266 | 969 | 1974 | 71 | 210 |
| Qom..... | 3612 | 1183 | 360 | 598 | 1097 | 71 | 304 |
| Kordestan..... | 2490 | 979 | 189 | 547 | 566 | 50 | 159 |
| Kerman..... | 12443 | 3134 | 709 | 4099 | 3843 | 241 | 416 |
| Kermanshah..... | 3615 | 1387 | 550 | 471 | 869 | 118 | 219 |
| Kohgiluyeh&Boyerahmad..... | 1751 | 774 | 305 | 169 | 328 | 69 | 105 |
| Golestan..... | 3381 | 1595 | 292 | 623 | 527 | 109 | 235 |
| Gilan..... | 5813 | 2406 | 533 | 522 | 1516 | 165 | 671 |
| Lorestan..... | 3756 | 994 | 548 | 767 | 1200 | 99 | 148 |
| Mazandaran..... | 8643 | 3716 | 807 | 1048 | 2001 | 287 | 785 |
| Markazi..... | 7799 | 1045 | 305 | 1275 | 4841 | 110 | 223 |
| Hormozgan..... | 15403 | 5661 | 1649 | 853 | 6330 | 129 | 780 |
| Hamedan..... | 4053 | 1093 | 326 | 1151 | 1197 | 94 | 192 |
| Yazd..... | 8968 | 1014 | 273 | 707 | 6613 | 111 | 251 |

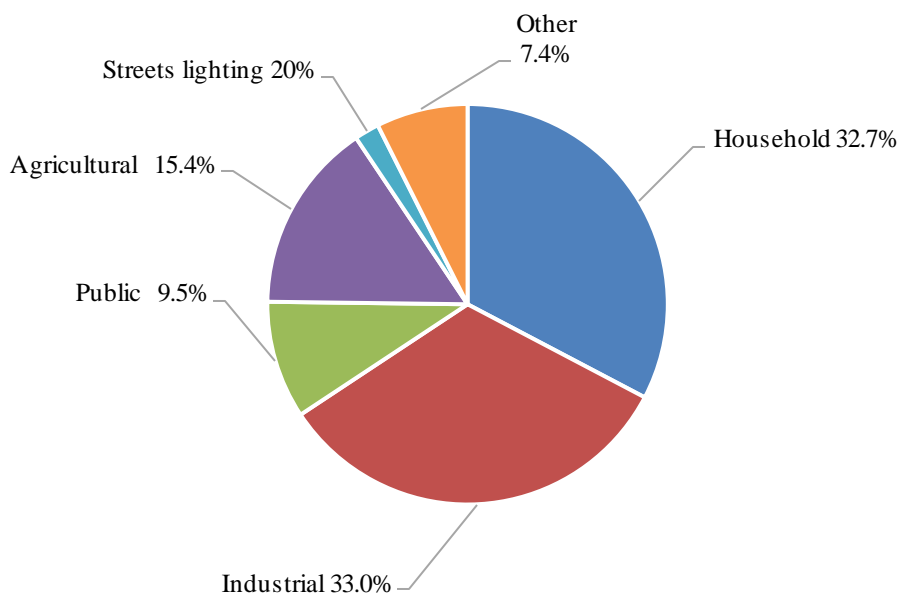
Source: Ministry of Energy.

9.7. AVERAGE ELECTRICITY CONSUMPTION BY TYPE OF CUSTOMERS, THE YEAR 1396



For data see Tables 9.18. and 9.19.

9.8. DOMESTIC SALE OF ELECTRICITY BY TYPE OF USE, THE YEAR 1396



For data see Table 9.19.

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

| Year and Ostan | Village | Household enjoying electricity | Length of power distribution lines with medium pressure(km) | Length of power distribution lines with low pressure(km) | Number of distribution transformers | Capacity of distribution transformers (MVA) |
|-----------------------------|--------------|--------------------------------|---|--|-------------------------------------|---|
| 1380 | 45359 | 4056072 | 120580 | 89359 | 54162 | 5688 |
| 1385 | 50985 | 4427849 | 138330 | 93464 | 64718 | 6812 |
| 1390 | 54116 | 4452795 | 139429 | 98390 | 72186 | 7283 |
| 1392 | 55191 | 4469565 | 141066 | 98986 | 73625 | 7361 |
| 1393 | 55664 | 4476786 | 142096 | 99299 | 74228 | 7389 |
| 1394 | 56170 | 4484170 | 143292 | 99618 | 7417 | 74866 |
| 1395 | 56793 | 4492752 | 145049 | 99958 | 76735 | 7687 |
| 1396 | 57030 | 4496797 | 145421 | 100091 | 77003 | 7698 |
| East Azarbayejan..... | 2869 | 297385 | 8472 | 5649 | 3039 | 318 |
| West Azarbayejan | 2899 | 210232 | 5681 | 4077 | 2997 | 289 |
| Ardebil | 1595 | 70257 | 4507 | 3582 | 1591 | 117 |
| Esfahan | 1762 | 296865 | 4817 | 4535 | 3034 | 274 |
| Alborz | 224 | 21841 | 512 | 489 | 237 | 30 |
| Ilam..... | 628 | 44764 | 1461 | 809 | 695 | 72 |
| Bushehr | 512 | 39849 | 1486 | 1228 | 821 | 112 |
| Tehran..... | 599 | 152791 | 1267 | 1625 | 1084 | 152 |
| Chaharmahal&Bakhtiari | 740 | 85454 | 575 | 982 | 524 | 59 |
| South Khorasan..... | 1484 | 124857 | 3494 | 2307 | 1743 | 129 |
| Khorasan-e-Razavi..... | 3259 | 327165 | 7228 | 4608 | 3559 | 310 |
| North Khorasan..... | 926 | 93887 | 3290 | 1887 | 1127 | 84 |
| Khuzestan | 3754 | 206755 | 7928 | 3517 | 7774 | 1131 |
| Zanjan | 921 | 91462 | 3817 | 2038 | 1018 | 118 |
| Semnan..... | 501 | 35938 | 2814 | 953 | 477 | 51 |
| Sistan&Baluchestan..... | 4489 | 244147 | 15390 | 6283 | 6448 | 583 |
| Fars | 3214 | 283508 | 9085 | 5917 | 4628 | 432 |
| Qazvin | 854 | 72829 | 2612 | 2237 | 1119 | 168 |
| Qom | 189 | 18234 | 410 | 248 | 189 | 16 |
| Kordestan..... | 1773 | 127272 | 5326 | 2159 | 1855 | 187 |
| Kerman | 5113 | 239428 | 12717 | 7803 | 8019 | 656 |
| Kermanshah | 2517 | 127282 | 4352 | 2549 | 2601 | 257 |
| Kohgiluyeh&Boyerahmad | 1641 | 54718 | 3314 | 1404 | 2122 | 229 |
| Golestan | 895 | 106236 | 1630 | 1197 | 1016 | 69 |
| Gilan | 3028 | 287618 | 4547 | 10202 | 4798 | 422 |
| Lorestan..... | 2701 | 102814 | 5507 | 2696 | 2535 | 190 |
| Mazandaran | 3000 | 262097 | 4659 | 5945 | 3067 | 221 |
| Markazi | 1190 | 124312 | 4700 | 4086 | 1387 | 173 |
| Hormozgan | 1706 | 126936 | 8125 | 5015 | 4409 | 580 |
| Hamedan | 1127 | 165010 | 3402 | 2981 | 2074 | 195 |
| Yazd | 920 | 54854 | 2296 | 1082 | 1016 | 73 |

Source: Ministry of Energy

9.21. EXCHANGE OF ELECTRICITY WITH NEIGHBORING COUNTRIES

| Year | Exports | | | | | |
|------------------|-------------|-----------|----------|-----------|------------|--------------|
| | Total | Nakhjavan | Turkey | Armenia | Azerbaijan | Turkminestan |
| 1380..... | 1049 | 389 | 251 | 224 | 185 | 0 |
| 1385..... | 2774 | 561 | 576 | 316 | 11 | 2 |
| 1390..... | 8668 | 56 | 1118 | 57 | 0 | 8 |
| 1392..... | 11586 | 65 | 2395 | 82 | 0 | 3 |
| 1393..... | 9660 | 66 | 2179 | 86 | 0 | 1 |
| 1394..... | 9880 | 50 | 1723 | 45 | 0 | 0 |
| 1395..... | 6688 | 48 | 297 | 105 | 1 | 0 |
| 1396..... | 8130 | 40 | 0 | 51 | 3 | 0 |

| Year | Exports | | |
|------------------|------------|-------------|-------------|
| | Pakistan | Afghanistan | Iraq |
| 1380..... | 0 | 0 | 0 |
| 1385..... | 172 | 134 | 1002 |
| 1390..... | 271 | 557 | 6601 |
| 1392..... | 414 | 796 | 7831 |
| 1393..... | 446 | 819 | 6063 |
| 1394..... | 457 | 782 | 6822 |
| 1395..... | 482 | 731 | 5024 |
| 1396..... | 570 | 662 | 6803 |

| Year | Energy exchange | Imports | | | | | |
|------------------|-----------------|-------------|-----------|----------|-------------|------------|--------------|
| | | Total | Nakhjavan | Turkey | Armenia | Azerbaijan | Turkminestan |
| 1380..... | 305 | 745 | 0 | 0 | 315 | 430 | 0 |
| 1385..... | 233 | 2541 | 0 | 0 | 428 | 536 | 1576 |
| 1390..... | 5012 | 3656 | 57 | 0 | 1508 | 2 | 2089 |
| 1392..... | 7879 | 3707 | 65 | 0 | 1103 | 6 | 2533 |
| 1393..... | 5888 | 3772 | 65 | 0 | 1051 | 3 | 2653 |
| 1394..... | 5732 | 4148 | 50 | 0 | 1344 | 4 | 2751 |
| 1395..... | 2467 | 4221 | 51 | 0 | 1133 | 4 | 3033 |
| 1396..... | 4278 | 3852 | 38 | 0 | 1412 | 2 | 2399 |

| Year | Imports | | |
|------------------|----------|-------------|----------|
| | Pakistan | Afghanistan | Iraq |
| 1380..... | 0 | 0 | 0 |
| 1385..... | 0 | 0 | 0 |
| 1390..... | 0 | 0 | 0 |
| 1392..... | 0 | 0 | 0 |
| 1393..... | 0 | 0 | 0 |
| 1394..... | 0 | 0 | 0 |
| 1395..... | 0 | 0 | 0 |
| 1396..... | 0 | 0 | 0 |

Source: Ministry of Energy.

9.22. ELECTRICITY DISTRIBUTION NETWORK OF THE COUNTRY BY OSTAN BY OSTAN, THE YEAR 1396

| 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 | 425133 | 361985 | 687193 | 119361 |
| East Azarbayejan | 17721 | 15439 | 23960 | 3772 |
| West Azarbayejan..... | 15075 | 12084 | 19047 | 2535 |
| Ardebil | 7346 | 6136 | 6597 | 920 |
| Esfahan | 26038 | 27316 | 45456 | 8622 |
| Alborz | 5115 | 7609 | 14397 | 2950 |
| Ilam | 4859 | 2699 | 6040 | 1034 |
| Bushehr..... | 7941 | 6642 | 16270 | 3776 |
| Tehran..... | 24554 | 41309 | 64506 | 20834 |
| Chaharmahal&Bakhtiyari | 6517 | 4931 | 8305 | 1059 |
| South Khorasan..... | 12565 | 5609 | 9235 | 1002 |
| Khorasan-e-Razavi..... | 33065 | 24011 | 39721 | 6917 |
| North Khorasan..... | 6762 | 4493 | 6893 | 815 |
| Khuzestan | 22137 | 19345 | 53131 | 12673 |
| Zanjan | 8207 | 5716 | 9472 | 1472 |
| Semnan | 7302 | 3983 | 7869 | 1356 |
| Sistan&Baluchestan | 23900 | 12874 | 22862 | 2785 |
| Fars | 36543 | 24953 | 65994 | 8486 |
| Qazvin | 7032 | 5205 | 11885 | 1919 |
| Qom | 3944 | 3743 | 7448 | 1870 |
| Kordestan..... | 10246 | 5764 | 11987 | 1398 |
| Kerman | 31383 | 21735 | 42562 | 5179 |
| Kermanshah | 11584 | 6823 | 16777 | 2041 |
| Kohgiluyeh&Boyerahmad | 4911 | 3545 | 7515 | 1169 |
| Golestan | 7545 | 7481 | 17157 | 2318 |
| Gilan..... | 9042 | 19401 | 19053 | 3161 |
| Lorestan | 10013 | 5753 | 15885 | 1849 |
| Mazandaran..... | 15799 | 23199 | 44201 | 5778 |
| Markazi..... | 11633 | 8357 | 15972 | 2371 |
| Hormozgan..... | 15598 | 9659 | 25585 | 5113 |
| Hamedan..... | 10311 | 8043 | 16196 | 2234 |
| Yazd | 10447 | 8127 | 15215 | 1952 |

Source: Ministry of Energy.