T

***Introduction***

 he statistics appeared in this chapter have

 been provided as register records by

 the Ministry of Energy on two topics of

 "water" and "electricity".

***1. Water***

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

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

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

***2. Electricity***

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

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

***Definitions and concepts***

***Water basin:*** see Chapter 1, Definitions and concepts.

***Aquatic year:*** see Chapter 1, Definitions and concepts.

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

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

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

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

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

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

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

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

***Sewage extension:*** refers to the part of minor sewage pipelines, including pipes and related accessories, with a profile appropriate to siphon or contractual capacity, which carries joint sewages away from the siphon to the private line or to the public network for collecting sewages.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

***Thermal power plant:*** a power plant in which chemical energy inherent in solid, liquid, gaseous fuels is transformed into electricity. This definition covers nuclear, steam, gas, combined-cycle and diesel power plants.

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

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

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

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

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

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

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

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

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

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

***Line of power:*** the cables installed on poles to transmit the electric power from the

production site (power plant) or substation to consumption places in different voltages.

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

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

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

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

***Public uses:*** electricity used for public services.

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

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

***Selected information***

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

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

In the same year, over 6642 mln cu m of water is produced in the water and sewage companies of the country (urban and rural) out of which about 4877 mln cu m was sold. Sale of water had a 3.9 percent increase compared to the preceding year. This is while production of water had 2.45 percent increase compared to the year 1390.

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

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

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

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

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

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

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

 |
| *Source: Ministry of Energy.* |

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

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| For data see Table 8.1.**8 .2. UNDERGROUND WATER RESOUCES AND THEIR ANNUAL DISCCHARGE BY****REGIONAL WATER ORGANIZATIONS, AQUATIC YEAR 1390-91 (mln cu m)** |
|

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

 |
| *Source: Ministry of Energy.* |

# **8.3. STATISTICS ON LARGE RESERVOIR DAMS(1) BY REGIONAL WATER**

#  **ORGANIZATIONS (mln cu m)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

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

 |
| **8.3. STATISTICS ON LARGE RESERVOIR DAMS(1) BY REGIONAL WATER ORGANIZATIONS** **(continued) (mln cu m)** |
|

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

 |

|  |
| --- |
| **8.3.STATISTICS ON LARGE RESERVOIR DAMS(1) BY REGIONAL WATER ORGANIZATIONS** **(continued) (mln cu m)** |
|

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

 |
| **8.3. STATISTICS ON LARGE RESERVOIR DAMS(1) BY REGIONAL WATER ORGANIZATIONS** **(continued)** **(mln cu m)** |
|

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

 |
| **8.3. STATISTICS ON LARGE RESERVOIR DAMS(1) BY REGIONAL WATER ORGANIZATIONS****(continued) (mln cu m)** |
|

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

 |
| **8. 3. STATISTICS ON LARGE RESERVOIR DAMS(1) BY REGIONAL WATER**  **ORGANIZATIONS** **(continued) (mln cu m)** |
|

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

 |
| *1. For 143 large reservoir dams ( based on the ICOLD definition) with the capacity of 47.1 bln.cu.m, almost equaling to 95% of the total volume of all dams under use.* |
| *2. Total inflow and outflow were calculated through omission of the influence of being chain of (Shahid Abbaspur, Karun3, Karun 4, Masjed-Soleyman and Gotvand-e-Olia dams in Khuzestan), (Aras and Khodaafarin in East Azarbayejan), (Dorudzan and Mollasadra in Fars), (Seymareh in Ilam and Karkheh in Khuzestan) , (Chahehnimeh 1,2,3, 4 in Sistan &Baluchestan) provinces.* *Moreover, Inflow volume is calculated through balance of volume changes of reservoir and amount of outflows.* |
| *3. The amount of water included for different consumption is the volume of water released for different consumption. With respect to the location of dams and the distance between them and consumption place, specially in agricultural sector, the water released for the agriculture is different from the volume of the water delivered to this sector. The difference is due to different reasons including middle basin, midway offtake, penetration, evaporation. Moreover, drinking water is the volume of water discharged from the dam.* |
| *4. Other outflows include evaporation, weir, dam take-out gates, slit ejection, direct pumping from reservoir, drainage and leaking.**5. Other consumption including water at the time of stability of flow of the river.* |
| *6. Main difference between consumption(25.2 bln cu m) or net outflow(34.3 bln cu m) is due to the following reasons: 1.2 bln cu m water from the dams of Khuzestan Ostan, 3.7 bln cu m from Aras & Khodaafarin dams, consumptions of neighboring country and environmental consumption and surplus outflow, 0.6 bln cu m discharge and outflow of Bukan Dam to Orumieh Lake, 0.5 bln cu m discharge between Chahehnimeh 4 and Chahehnimeh1,2,3, 0.7 bln cu m surplus outflow of Gorganrud in Golestan Ostan, 0.8 bln cu m surplus outflow of Sefidrud dam in non-cultivation season and environment, 0.106 bln cu m surplus outflow, weir etc. in other dams of the country.*  *7. Outflow of Aras dam and Dusti dam is equal to total outflow of the dam and consumptions only include Iran consumption.**8. In*  Aydoghamush and Sahand dams, 113 mln cu m were released without use due to the lack of*. water need and not finishing the downward network**9. Bukan dam had 223 mln cu m weirs and 169 mln cu m were released for environment uses and Orumieh Lake.It is necessary to mention that major dam outflow was made through weir instead of discharge fro the gates.**10. Major part of 108 mln cu m of inflow to the Golpayegan reservoir dam in the year 1391 relates to the transferring of the water from Dez branches to Qomrud.**11. Inflow and outflow of Seymareh reservoir dam, due to its location on Karkheh river were calculated with Karkheh reservoir dam through eliminating Serie effects.* |
| *12. In Shirindarreh dam, water surplus is discharged through sediment valve that has been volume of water transfer to Alagol dam besides sediment management,.* *13.The consumption from the chain dams of Karun 3, Karun 4 and Masjed Soleyman is included in the consumption of Masjed Soleyman.* *14. Major part of other consumption in dams of Dez, Karkheh and Masjed-Soleyman were due to the improvement of drinking water.**15. Krun 4 reservoir dam is located in Chaharmahal & Bakhtiyari Ostan. However,since it is located on the Karun river, it is classified in Khuzestan Ostan.**16. Water discharged from the reservoirs of Chahehnimeh1,2,3 in the water aboundancy conditions to the reservoir of Chahehnimeh 4 dam, 232 mmm and in the conditions of water need of the downward areas, almost this amount, that is, 221 mln cu m water has been discharged from the reservoir of Chahehnimeh 4 dam to the reservoirs of Chahehnimeh.* *17. The consumption of Zarivar and Alagol includes provision of the ecological and environmental conditions**18. Water discharged from the weirs of Voshmgir, Golestan 1 & 2 dams are 178, 408 and 12 mln cu m , respectively.**19. Water discharged at the amount of 33 mln cu m from the take-out gates of the Alagol dam has been for the improvement of reservoir Ec.*  |
| *Source: Ministry of Energy.*.  |

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

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

*Source: Water and Sewage Engineering Company.* |
| **8. 5. WATER SUPPLY, PRODUCTION AND SALE CAPACITIES IN URBAN AREAS** **COVERED** **BY URBAN WATER AND SEWAGE COMPANIES** |
|

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

*Source: Water and Sewage Engineering Company.* |

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

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

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

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

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

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

|  |
| --- |
| **8. 8. NOMINAL CAPACITY AND GROSS ELECTRICITY GENERATION OF INSTALLED****GENERATORS** |
|

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

 |
| *Source: Ministry of Energy.* |

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

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

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

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

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

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

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

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

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

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

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

 |
| *Source: Ministry of Energy.* |
| **8. 13. GROSS ELECTRICITY GENERATION, FUEL CONSUMPTION, ENERGY GENERATION****AND OUTPUT OF THERMAL POWER PLANTS AFFILIATED TO THE MINISTRY OF****ENERGY, LARGE SCALE INDUSTRIES AND PRIVATE SECTOR** |
|

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

*1.Revised figures.**Source: Ministry of Energy.* |

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

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

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

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

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

 |
| *Source: Ministry of Energy.* |

|  |
| --- |
| **8. 16. LENGTH OF DIFFERENT TYPES OF ELECTRIC POWER TRANSMISSION LINES****(km circuits)** |
|

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

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

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

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

 |
| *1.Revised figures.**Source: Ministry of Energy*. |

|  |
| --- |
| **8. 18. NUMBER OF DIFFERENT TYPES OF CUSTOMERS (customer)** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

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

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| *1.Changing industrial tariff into agricultural tariff in the year 1387 is the reason for reduction in customers’ number in industrial tariff compared with the year 1386.**2.Revised figures.* |
| *Source: Ministry of Energy.* |

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

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

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

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

 |

*Source: Ministry of Energy.*

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

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

 |
| *1.Revised figures.**Source: Ministry of Energy.* |