For energy simulations, energy plus weather data (.epw) resource data, the city of Tehran covering 14 years (2003-2017) were added to the model. This data includes ...

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PV technology is highly influenced by environmental conditions, and factors, such as duration of sunshine and solar radiation intensity, ambient temperature, wind speed, precipitation, humidity, and dust level significantly affect the system efficiency so that environmental conditions have more significant effects than PV module potential on the ...

This study presents an overview to the resources and potentials of solar energy in Iran. The capacity of several power plants to meet demands in 2011-2014 [23].

A wet day is one with at least 0.04 inches of liquid or liquid-equivalent precipitation. The chance of wet days in Tehran varies throughout the year. The wetter season lasts 7.0 months, from September 19 to April 19, with a greater than 10% chance of a given day being a wet day. The month with the most wet days in Tehran is November, with an average of 5.2 ...

There are several renewable energy systems that can be used in a ZEB: solar panels (thermal and electric), small wind [6], [15] and hydro electrical generators, etc. Middle-east countries, especially Iran, have high solar irradiation, which makes the use of solar panels (both thermal and photovoltaic) an increasingly popular option [16].

A solar thermal electricity (STE) power plant generates electricity using high temperature steam (400-1000 °C) produced by concentrating solar power (Crespo; et al., 2017). In the last decade, STE has rapidly become a reliable electricity generation solution.

The investigation of a 25 years period of urban (Mehrabad station) and rural (Karaj station) temperature in Tehran makes clear the temperature difference between these two areas. The selection of these two stations is ...

The maximum values of ambient temperature are due to high solar radiation. The temperature remains almost the same for the rest of the months from July to September. Accordingly, two distinct maximum values are observed in the month of July and March for wind speed. ... Also, there is a direct proportionality between the efficiency of the PV ...

The results shows that approximately 3000 GWh (more than 14% of the total electric energy consumption) of solar power can be produced by the rooftop PV installations in Tehran. The potential nominal power of rooftop PV ...

The solar fraction and the thermal performance of the solar air-conditioning system were analyzed for various months in the cooling season. It was found that the system operating in August ...

The Zinc/Zinc-oxide thermochemical cycle directly utilizes the solar high-temperature reactor thereby avoiding the need for non-renewable power, thus increasing the efficiency of the system.

Using a mathematical model, the effect of temperature and radiation on PV system performance has been investigated. Then, by defining various performance indicators, using ...

neural networks to solar system prediction. In previous research, neural networks have been used to estimate the following topics: i. Solar energy prediction ii. Solar radiation prediction iii. Predicting the output of solar systems iv. Meteorological ANN models for Iran"s weather condition

In this study, a conventional steam power plant with two regenerative boilers is considered, and one of its boilers is replaced with parabolic solar dish collectors and storing the produced thermal energy by the phase ...

These systems were employed to store the thermal energy needs of a residential complex, located in Tehran, Iran. The objective was the storage of 8.7 TJ and 1.9 TJ of energy ...

The two-tank molten salt thermal energy storage (TES) system in CSP plants is limited by cost, environmental, and operational issues. The literature on TES systems suggests a few ...

This paper deals with small-scale solar energy potentials in different cities of Iran. The considered solar systems ... extra investment analysis and LCOE shows that southern parts of Iran have high potential of solar electricity generation. These are the common achievements of many research results regarding Iran PV potential. As the temperature.

This paper introduces the resource, status and prospect of solar energy in Iran briefly. Among renewable energy sources, Iran has a high solar energy potential.The widespread deployment of solar energy is promising due to recent advancements in solar energy technologies.Therefore, many investors inside and outside the country are interested to invest ...

The use of louvered twisted-tape inserts with thermal oil and they found the thermal enhancement index to be 2.67 for Reynolds number equal to 5000 and to be close to 1.4 for Reynolds number equal ...

Solar desalination still equipped with a heat exchanger that is investigated in present study is shown in Fig. 1.As can be seen, a fan with a heat-sink is used to cool a part of the desalination still to transfer heat from the

solar still to the outside, which is the direct effect of the cooling system with the constant heat-flux boundary condition.

Using photovoltaic systems and solar collectors is suggested and has economic justifications in the region, which gains more than 3.5 kW h/m 2 solar radiation. Therefore, Tehran with a daily amount of a possibility of exploiting solar energy between 5.25 and 5.5 kW h/m 2 has a very good potential in this case [39].

In an energy system with high solar penetration, another climatic factor is solar radiation forecasting. This is a crucial factor that can improve the reliability the solar energy generation systems. ... The average temperature in Tehran province is 18.1 degrees Celsius. East Azerbaijan province is located in the northernmost point of Iran and ...

Iran is one of the most CO 2-emitting countries in the world, with a fossil-based electricity system.Around one-third of Iran"s annual CO 2 emission is attributed to electricity generation (Hosseini et al., 2019) spite ratifying several development plans by the national parliament on penetrating renewables into the electricity system, the government has resisted ...

In general, according to the amount of electricity and heating produced by the PV-T system, it showed that Shiraz and Rasht stations have the highest and lowest production of ...