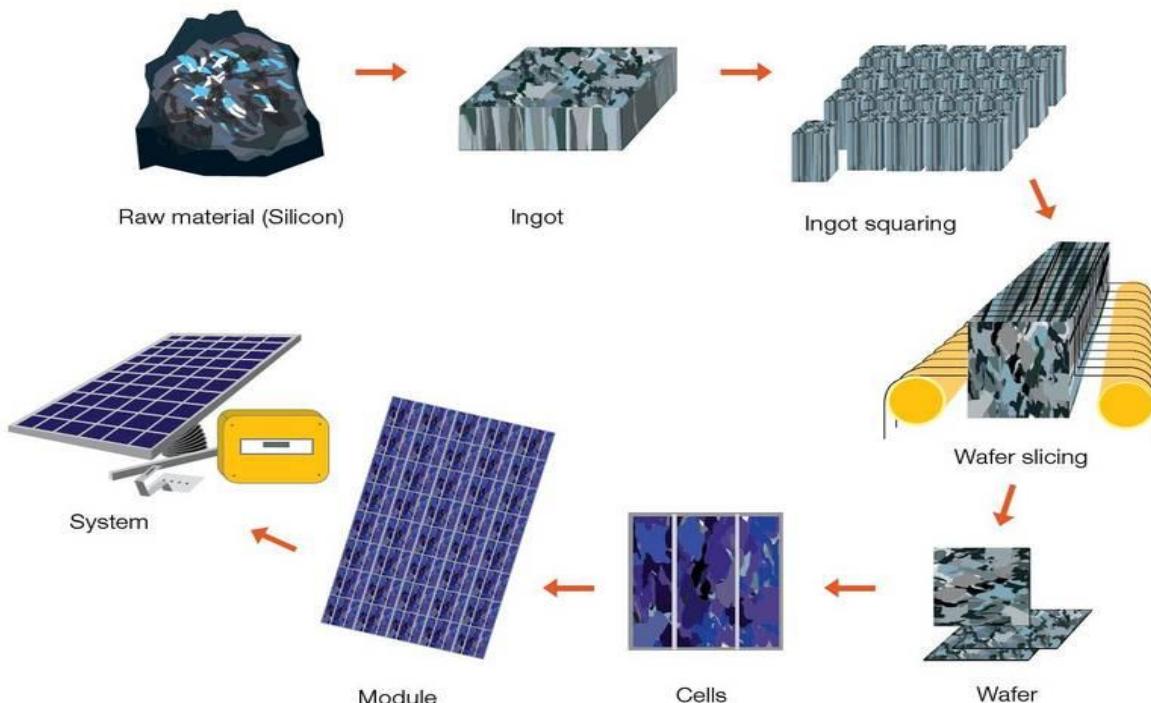


What does photovoltaic mean?

Photovoltaic systems contain cells that convert sunlight into electricity. Inside each cell there are layers of a semi-conducting material. Light falling on the cell creates an electric field across the layers, causing electricity to flow. The intensity of the light determines the amount of electrical power each cell generates.

From Raw Silicon to PV modul production levels



Benefits of PV technology

PV technology exploits the most abundant source of free power from the Sun and has the potential to meet almost all of mankind's energy needs. Unlike other sources of energy, PV has a negligible environmental footprint, can be deployed almost anywhere and utilises existing technologies and manufacturing processes, making it cheap and efficient to implement.

Types of PV systems

PV systems can provide clean power for small or large applications. They are already installed and generating energy around the world on individual homes, housing developments, offices and public buildings. Today, fully functioning solar PV installations operate in both built environments and remote areas where it is difficult to connect to the grid or where there is no energy infrastructure. PV installations that operate in isolated locations are known as standalone systems. In built areas, PV systems can be mounted on top of roofs (known as Building Adapted PV systems – or BAPV) or can be integrated into the roof or building facade (known as Building Integrated PV systems – or BIPV). Modern PV systems are not restricted to square and flat panel arrays. They can be curved, flexible and shaped to the building's design. Innovative architects and engineers are constantly finding new ways to integrate PV into their designs, creating buildings that are dynamic, beautiful and provide free, clean energy throughout their life.

Grid Connected Systems

When a PV system is connected to the local electricity network, any excess power that is generated can be fed back into the electricity grid. Under a FiT regime, the owner of the PV system is paid according the law for the power generated by the local electricity provider. This type of PV system is referred to as being ‘on-grid’.

Stand-Alone Systems

Off-grid PV systems have no connection to an electricity grid. An off-grid system is usually equipped with batteries, so power can still be used at night or after several days of low Irradiation. An inverter is needed to convert the DC power generated into AC power for use in appliances.

The Solar Potential

There is more than enough solar irradiation available to satisfy the world’s energy demands. On average, each square metre of land on Earth is exposed to enough sunlight to generate 1,700 kWh of energy every year using currently available technology. The total solar energy that reaches the Earth’s surface could meet existing global energy needs 10,000 times over.

A large amount of statistical data on solar energy availability is collected globally. Where there is more Sun, more power can be generated. The sub-tropical areas of the world offer some of the best locations for solar power generation. The average energy received in Europe is about 1,200 kWh/m² per year. This compares with 1,800 to 2,300 kWh/m² per year in the Middle East. Turkey has an average of 1400 kWh/m² per year.

Why Solar Energy ?

- 1- Free energy direct from the Sun
- 2- No noise, harmful emissions or gases are produced
- 3- Safety and reliability are proven
- 4- Each module lasts around at least 25 years
- 5- Systems can be recycled at the end of their life and the materials re-used
- 6- PV is easy to install and has very low maintenance requirements
- 7- Power can be generated in remote areas that are not connected to the grid
- 8- Solar panels can be incorporated into the architecture of a building
- 9- The energy used to create a PV system can be recouped quickly (between six months and three years) and that timeframe is constantly decreasing as technology improves
- 10- Solar power can create thousands of jobs
- 11- Solar contribute to the security of energy supply in every country.

GENSED (Turkish Solar Energy Industry Association)

GENSED is the largest organization of the Photovoltaics (solar electricity) sector in Turkey and is composed of many private and corporate members which are actively in the field.

GENSED has made its mark through its presence in many different events, presentations and advisory reports prepared for the Energy Market Regulatory Authority (EMRA) and other government offices involved in electricity production/distribution since its foundation in 2009.

Sun, our ultimate source for life, obviously provides energy that we need for today and for next millions of years, in a clean and non-polluting way. Solar energy fits the “perfect energy” definition, with its abundance without borders, environmental friendliness and sustainability. Given that sun will serve as an energy source for next 5 billion years, we definitely can name solar energy as an infinite energy source.

We can claim that not benefiting solar energy potential of Turkey and not adding this in the energy mix of the country, will be a big loss while we import %70 of our energy. Lack of correct public information and the misconception that solar energy is a minor energy source which is used for heating water, are the main reasons of the situation.

Solarex Magazine / September 2012