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"TYT develops Solar Based Hybrid Renewable Energy Systems to help energy companies interested in investing on renewable energy, by decreasing the investment costs of power plants."

Performance of the Solar PV panels decreases with an increasing panel temperature, which occurs during summer months where irradiation is higher. Therefore, cooling is needed. Also, Solar PV panels need land or roof spaces for installation. 36% of the land is agricultural in Turkey and it is a long procedure to get permission for the installation of these systems. Another problem is increasing water evaporation due to global warming. Last year HPP's electricity generation was decreased by 40%. Also the decreasing in the water amount leads to algae growth and may cause problems in water ecosystems.

HydroSolar is a floating solar PV system which covers the water surface and blocks the direct sunlight. This decreases water evaporation by 60% which protects the water ecosystem and increases HEP's power generation. With the cooling effect of water PV panel temperature decreases and annual performance of the PV panels increases up to 15%. Land is expensive if it is close to transmission lines, fortunately there are already transmission lines in HPPs, therefore investment costs of Solar systems decrease.

TYT develops Solar Based Hybrid Renewable Energy Systems to help energy companies interested in investing on renewable energy, by decreasing the investment costs of power plants. The team developed HydroSolar, a Floating Solar PV system in Turkey and integrated it to a Hydroelectric Power Plant. 10kWp system became World's first Hybrid Hydroelectric and Solar system since it uses the same transmission line as Hydro Electric Power plant and uses the water reservoir while earning the title of being Turkey's first floating system. Now, the team continues to develop 2nd prototype of the product to decrease the investment costs and become an alternative to land and roof installations.

TEAM MEMBERS

Cemil Cihan Özalevli – General Manager
Barış Arıcı – Electrical Design
Bilal Taşçı – Mechanical Design
Aydın Haydar Işık – Electrical Design
Süleyman Kazım Sömek – Thermal Design & Analysis