CLAIMS

1. A solar and external steam hybrid power generation system, comprising a solar steam generator, an external steam regulator (15), a turboset (2), and a power generator (1) coupled to the turboset (2), **characterized in that** a steam outlet end of the solar steam generator is connected to a high pressure steam inlet (3) of the turboset (2) via a first regulating valve (18); a steam outlet end of the external steam regulator (15) is also connected to the high pressure steam inlet (3) of the turboset (2) via a second regulating valve (20) and a second switch valve (19); a low pressure steam outlet (4) of theturboset (2) is connected to an input end of a condenser (5), and an output end of the condenser (5) is connected to an input end of a deaerator (6); an output end of the deaerator (6) is connected to an input end of a water feed pump (7); an output end of the water feed pump (7) is connected to a circulating water input end of the solar steam generator via a first switch valve (16); and the output end of the water feed pump (7) is further connected to a water-return bypass(11) of the external steam via a fourth switch valve (23~~).~~);

   wherein the system further comprises a soft water storage tank (9), a water outlet of the soft water storage tank (9) is connected a water inlet of the deaerator (6) via a water supply pump (8), and a first pipe connecting the water outlet of the soft water storage tank (9) and the water inlet of the deaerator (6) is provided with a third regulating valve (22) and a third switch valve (21).

~~2. The system of claim 1, **characterized in that** the system further comprises a soft water storage tank (9), a water outlet of the soft water storage tank (9) is connected a water inlet of the deaerator (6) via a water supply pump (8), and a first pipe connecting the water outlet of the soft water storage tank (9) and the water inlet of the deaerator (6) is provided with a third~~

~~regulating valve (22) and a third switch valve (21).~~

~~3.~~2. The system of claim ~~2~~1, **characterized in that** a second pipe close to the high pressure steam inlet (3) of the turboset (2) is provided with a pressure manometer (P) and a thermometer (T).

~~4.~~3. The system of claim 1, or 2, ~~or 3,~~ **characterized in that** the solar steam generator comprises an overhead solar boiler (13) and a plurality of heliostats (14) matching therewith; an output end of a heat pipe of the overhead solar boiler (13) is connected to the high pressure steam inlet (3) of the turboset (2) via the first regulating valve (18); and an input end of the heat pipe of the overhead solar boiler (13) is connected to the output end of the water feed pump (7) via the first switch valve (16).

~~5.~~4. The system of claim 1, or 2~~, or 3~~, **characterized in that** the solar steam generator comprises an overhead solar boiler (13) and a plurality of heliostats (14) matching therewith; an output end of a heat pipe of the overhead solar boiler (13) is connected to a thermal medium inlet of a regenerative heat exchanger (12) via a fifth switch valve (17), and a thermal medium outlet of the regenerative heat exchanger (12) is connected to an input end of the heat pipe of the overhead solar boiler (13) via a heat pump (10); a steam outlet of the regenerative heat exchanger (12) is connected to the high pressure steam inlet (3) of the turboset (2) via the first regulating valve (18); and a circulating water inlet of the regenerative heat exchanger (12) is connected to the output end of the water feed pump (7) via the first switch valve (16).

~~6.~~5. The system of claim 1, or 2, ~~or 3,~~ **characterized in that** the solar steam generator comprises a plurality of solar vacuum heat pipes (13') and a plurality of trough type parabolic reflectors (14') matching therewith; output ends of the solar vacuum heat pipes (13') are connected to the high pressure steam inlet (3) of the turboset (2) via the first regulating valve (18); and input ends of the solar vacuum heat pipes (13') are connected to the output end of the water

feed pump (7) via the first switch valve (16).

~~7.~~6. The system of claim 1, or 2, ~~or 3,~~ **characterized in that** the solar steam generator comprises a plurality of solar vacuum heat pipes (13') and a plurality of trough type parabolic reflectors (14') matching therewith; output ends of solar vacuum heat pipes (13') are connected to a thermal medium inlet of a regenerative heat exchanger (12) via a fifth switch valve (17), and a thermal medium outlet of the regenerative heat exchanger (12) is connected to input ends of the solar vacuum heat pipes (13') via a heat pump (10); a steam outlet of the regenerative heat exchanger (12) is connected to the high pressure steam inlet (3) of the turboset (2) via the first regulating valve (18); and a circulating water inlet of the regenerative heat exchanger (12) is connected to the output end of the water feed pump (7) via the first switch valve (16).