Principle of black hole solar power generation

How would a black hole power plant work?
A black hole power plant (BHPP) is something I'll define here as a machine that uses a black hole to convert mass into energy for useful work. As such,it constitutes the 3rd kind of matter-energy power (formerly "nuclear power") humans have entertained,the first two being fission and fusion.

How much energy can be extracted from a black hole?
Unruh and Wald estimated that in principle more energy can be extracted per secondfrom a single black hole than is radiated from all the ordinary stars in the observable universe. True,you'd need a mighty rope and winding mechanism to prevent the box from being tugged beyond the event horizon and swallowed.

What is a massive black hole?
Nature Reviews Physics 3, 732-743 (2021) Cite this article Massive black holes (MBHs) inhabit galactic centres, and power luminous quasars and active galactic nuclei, shaping their cosmic environment with the energy they produce.

How does a black hole emit energy?
Hawking showed in the 1970s that black holes should emit energy from their boundaries in the form of radiationproduced by quantum fluctuations of empty space itself. Eventually the black hole radiates itself away - it evaporates. This radiation is emitted very slowly,however.

What is a supermassive black hole?
Supermassive black holes emit jets of white-hot plasma that stretch thousands of light-years across the cosmos. For the first time,researchers have identified what's creating these jets. A simulation of the jet coming out of the supermassive black hole in the galaxy M87. A highly magnetic process called MAD is thought to be at work.

Where is energy stored in a black hole?
This energy is not stored inside the black hole,rather it is stored in the swirl of space outside the black hole (in the Ergosphere). We can extract this energy by threading magnetic filled lines through the black hole.

The basic structure of a solar cell is a large-area planar PN junction. When sunlight hits the PN junction, the PN junction absorbs light to excite electrons and holes, and ...

Key learnings: Solar Cell Definition: A solar cell (also known as a photovoltaic cell) is an electrical device that transforms light energy directly into electrical energy using the ...

1839: Photovoltaic Effect Discovered: Becquerel"s initial discovery is serendipitous; he is only 19 years old

when he observes the photovoltaic effect. 1883: First Solar Cell: Fritts" solar cell, ...

Solar PV power generation has seen a rapid rise in importance in domestic and industrial applications in recent years. At the domestic ... and generating two types of electrical charge ...

Using simulations of galaxy formation that follow star formation, black hole growth and the associated feedback processes, Di Matteo et al. now show that galactic mergers lead to strong nuclear...

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This mini black hole would emit Hawking Radiation--a process theorized by Stephen Hawking in 1975, which involves black holes emitting particles and gradually shrinking as a result. By feeding small amounts of ...

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two black holes merge or collide and the black holes change the dynamics of space, and because the two black holes are accelerating as they merge, it creates ripples that are powerful enough ...

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