What's the best energy-producing strategy?

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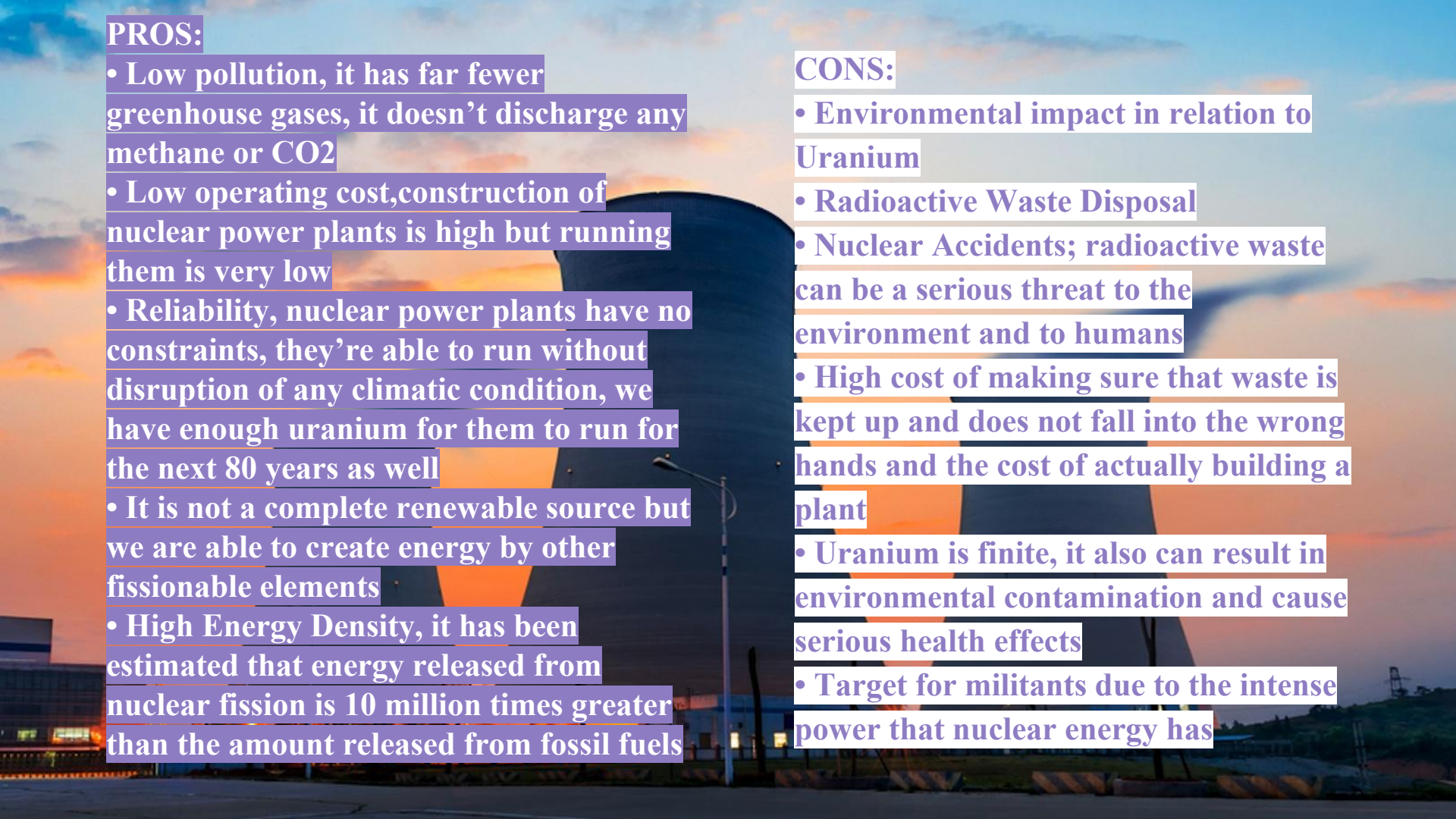
Nuclear Energy

Nuclear energy is energy at the nucleus of an atom, which can be used to produce electricity through nuclear fusion (atoms combining to form larger atoms) or fission (atoms splitting apart to form smaller atoms).

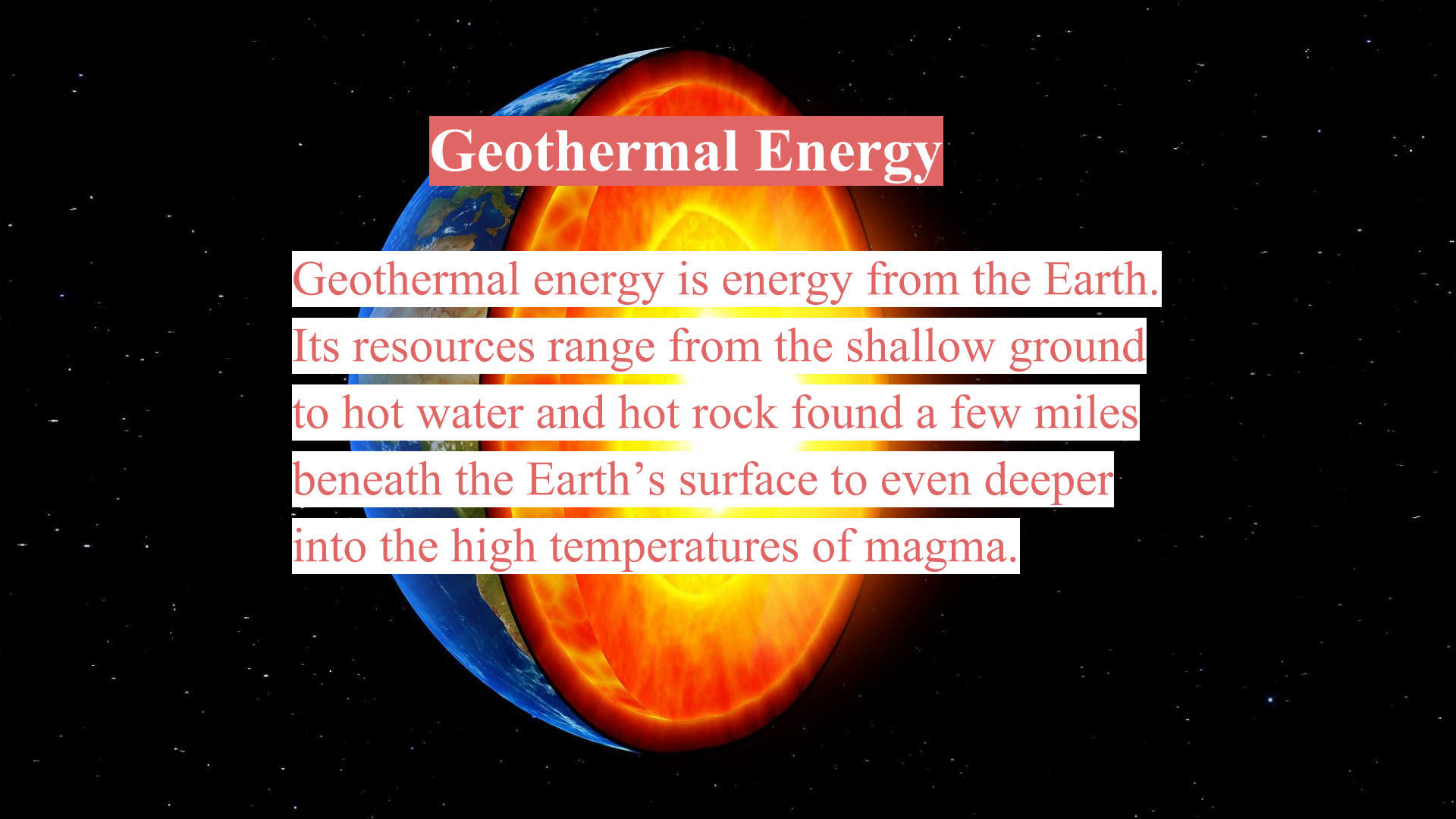


PROS:

- Low pollution, it has far fewer greenhouse gases, it doesn't discharge any methane or CO2
- Low operating cost,construction of nuclear power plants is high but running them is very low
- Reliability, nuclear power plants have no constraints, they're able to run without disruption of any climatic condition, we have enough uranium for them to run for the next 80 years as well
- It is not a complete renewable source but we are able to create energy by other fissionable elements
- High Energy Density, it has been estimated that energy released from nuclear fission is 10 million times greater than the amount released from fossil fuels

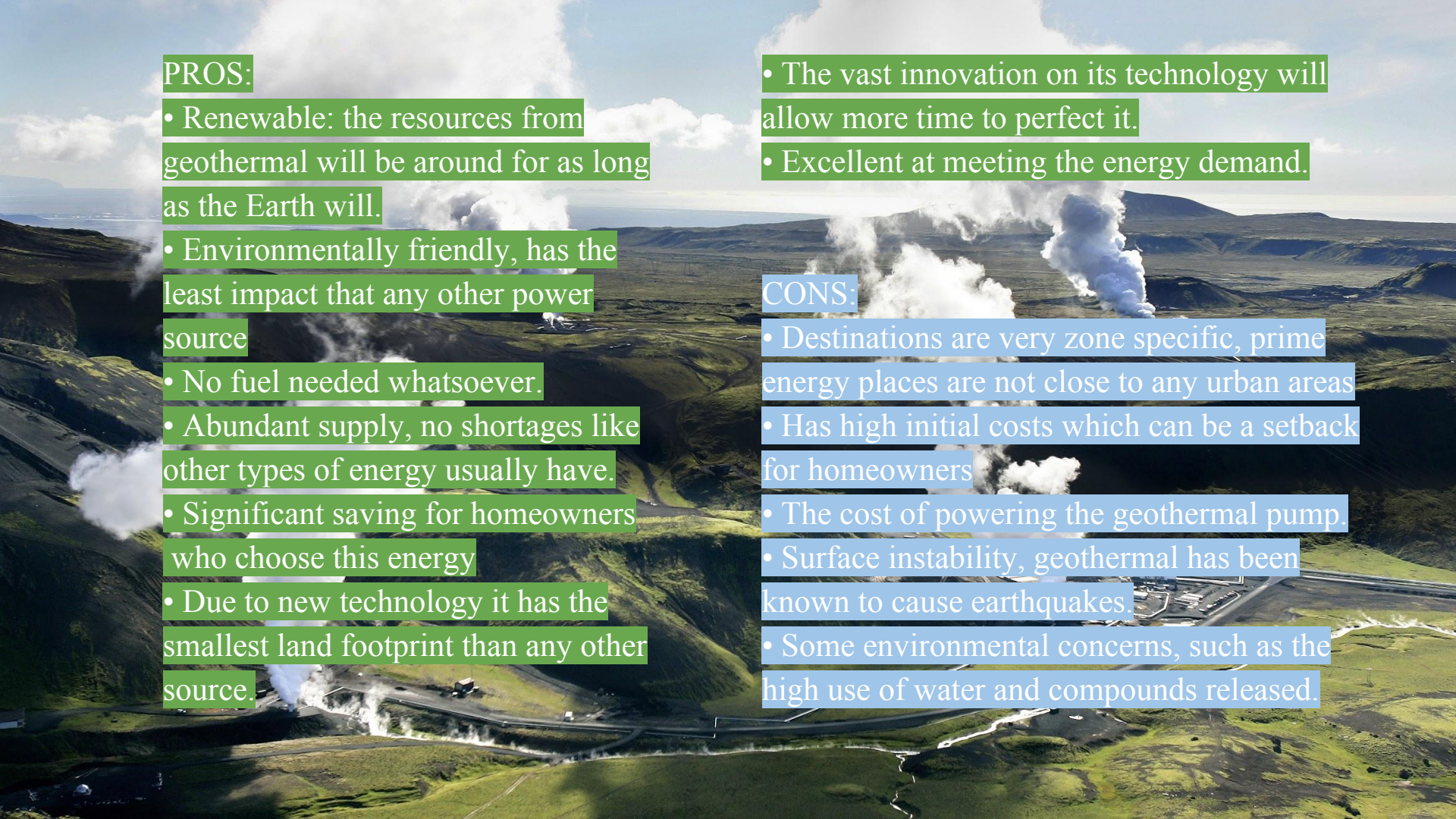
CONS:

- Environmental impact in relation to Uranium
- Radioactive Waste Disposal
- Nuclear Accidents; radioactive waste can be a serious threat to the environment and to humans
- High cost of making sure that waste is kept up and does not fall into the wrong hands and the cost of actually building a plant
- Uranium is finite, it also can result in environmental contamination and cause serious health effects
- Target for militants due to the intense power that nuclear energy has



Geothermal Energy

Geothermal energy is energy from the Earth. Its resources range from the shallow ground to hot water and hot rock found a few miles beneath the Earth's surface to even deeper into the high temperatures of magma.



PROS:

• Renewable: the resources from geothermal will be around for as long as the Earth will.

• Environmentally friendly, has the least impact that any other power source

• No fuel needed whatsoever.

• Abundant supply, no shortages like other types of energy usually have.

• Significant saving for homeowners who choose this energy

• Due to new technology it has the smallest land footprint than any other source.

• The vast innovation on its technology will allow more time to perfect it.

• Excellent at meeting the energy demand.

CONS:

• Destinations are very zone specific, prime energy places are not close to any urban areas

• Has high initial costs which can be a setback for homeowners

• The cost of powering the geothermal pump.

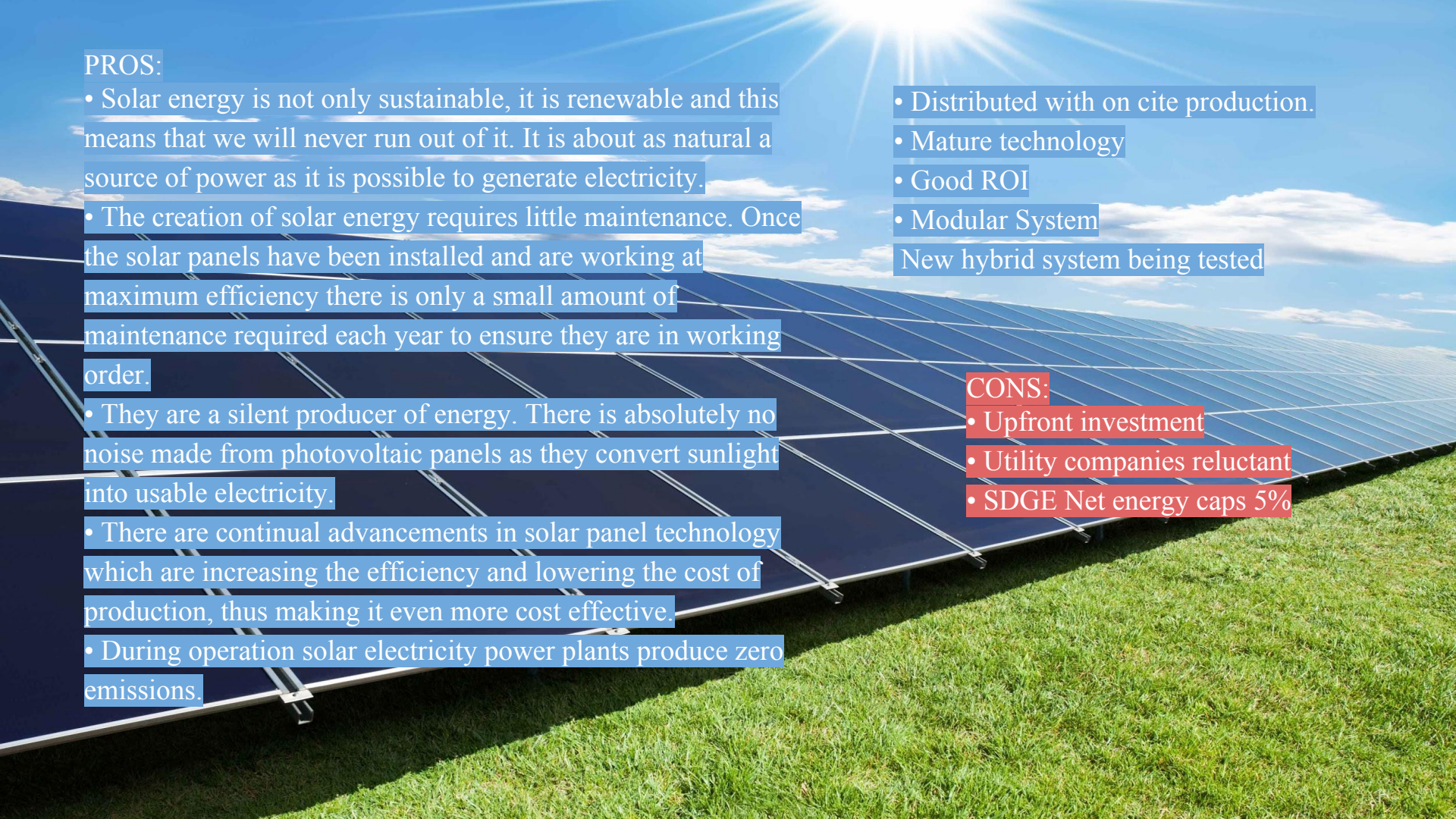
• Surface instability, geothermal has been known to cause earthquakes.

• Some environmental concerns, such as the high use of water and compounds released.

Solar Energy

- Solar energy is, simply, energy provided by the sun. This energy is in the form of solar radiation, which makes the production of solar electricity possible.

- Electricity can be produced directly from photovoltaic cells. (“light” and “electric”) These cells are made from materials which exhibit the “photovoltaic effect” i.e. when sunshine hits the PV cell, the photons of light excite the electrons in the cell and cause them to flow, generating electricity.



PROS:

• Solar energy is not only sustainable, it is renewable and this means that we will never run out of it. It is about as natural a source of power as it is possible to generate electricity.

• The creation of solar energy requires little maintenance. Once the solar panels have been installed and are working at maximum efficiency there is only a small amount of maintenance required each year to ensure they are in working order.

• They are a silent producer of energy. There is absolutely no noise made from photovoltaic panels as they convert sunlight into usable electricity.

• There are continual advancements in solar panel technology which are increasing the efficiency and lowering the cost of production, thus making it even more cost effective.

• During operation solar electricity power plants produce zero emissions.

• Distributed with on cite production.

• Mature technology

• Good ROI

• Modular System

New hybrid system being tested

CONS:

• Upfront investment

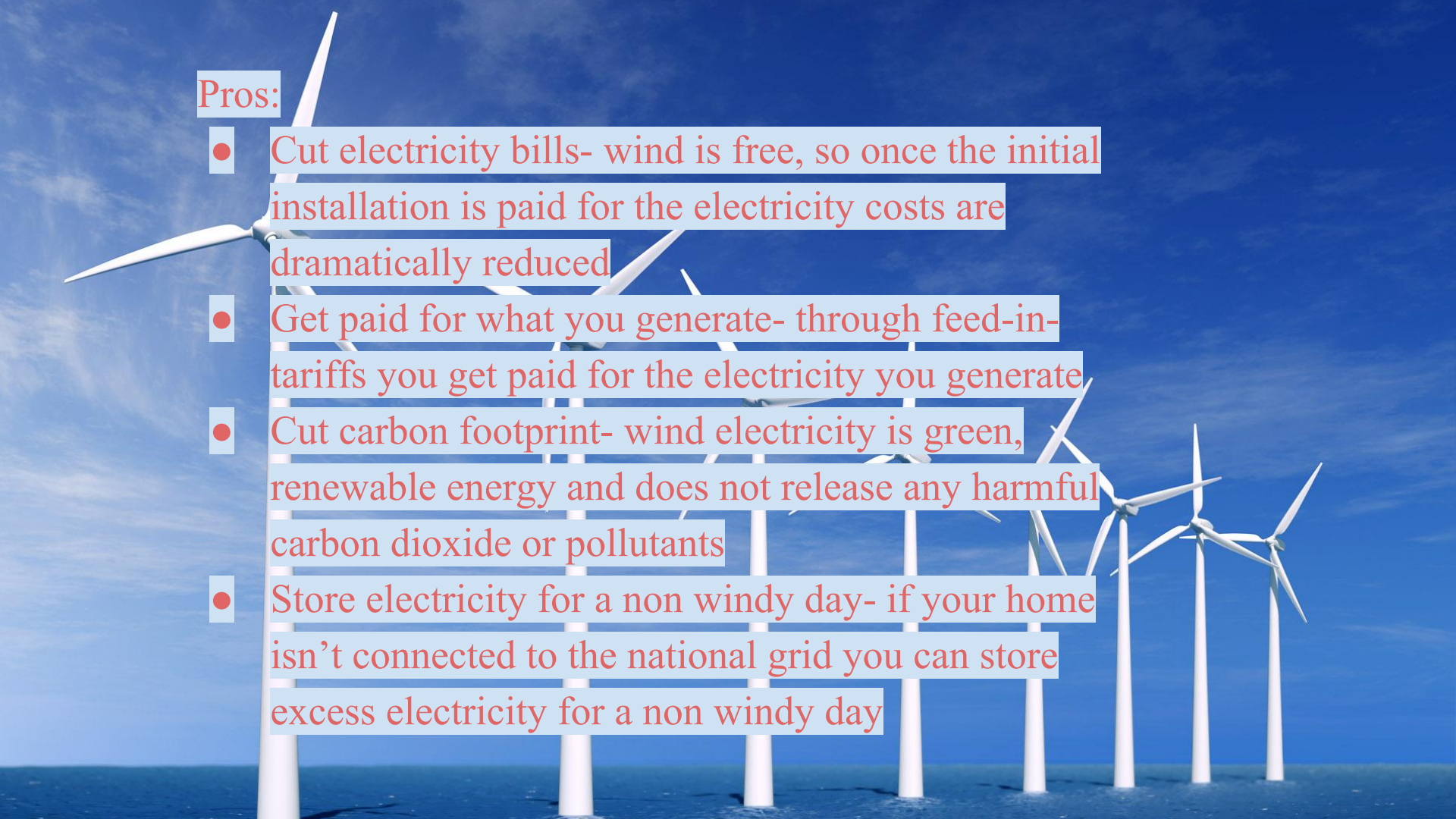
• Utility companies reluctant

• SDGE Net energy caps 5%

WindTurbines

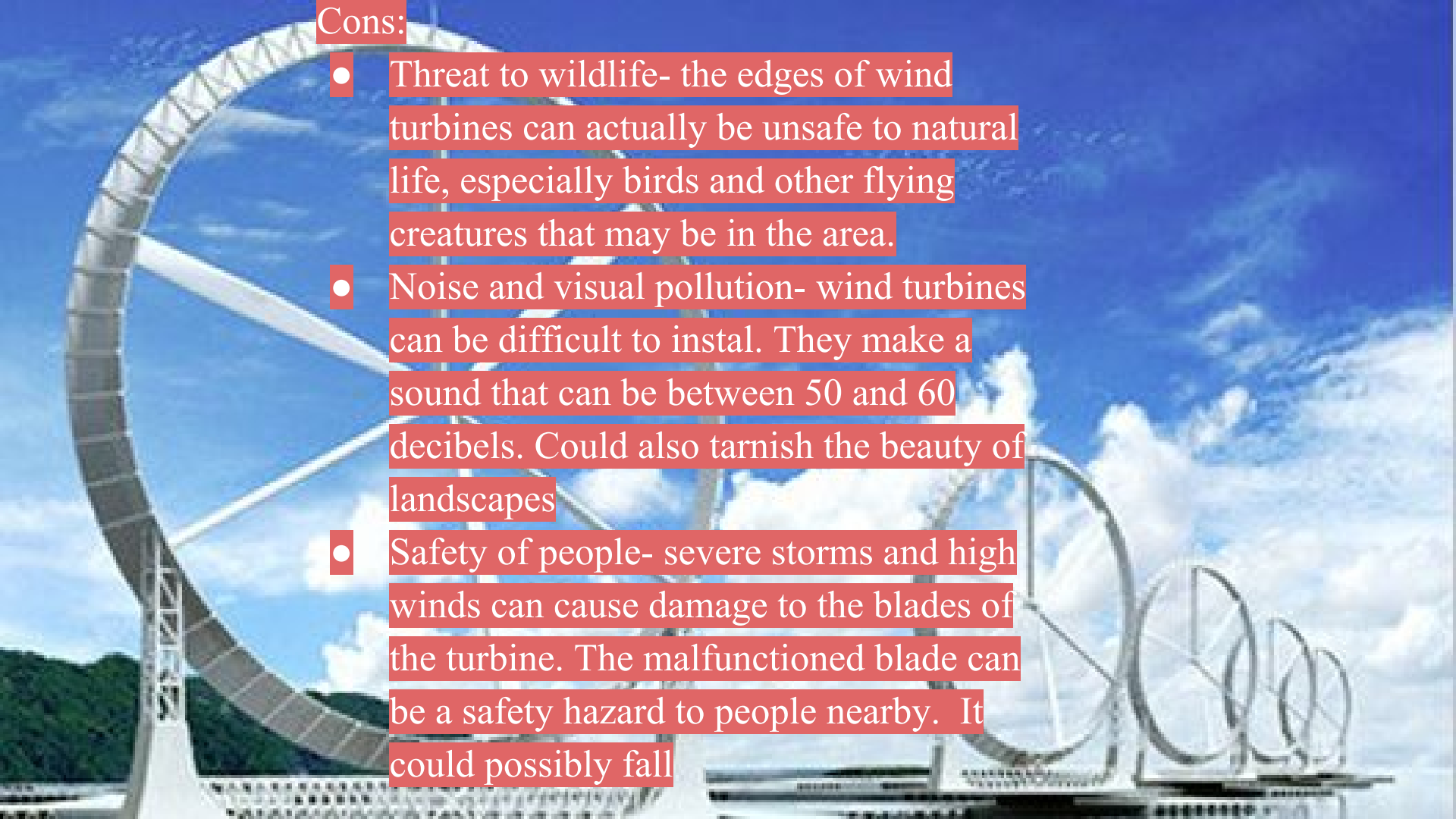
- A turbine having a large vaned wheel rotated by the wind to generate electricity

- A device that converts kinetic energy from the wind into electrical power



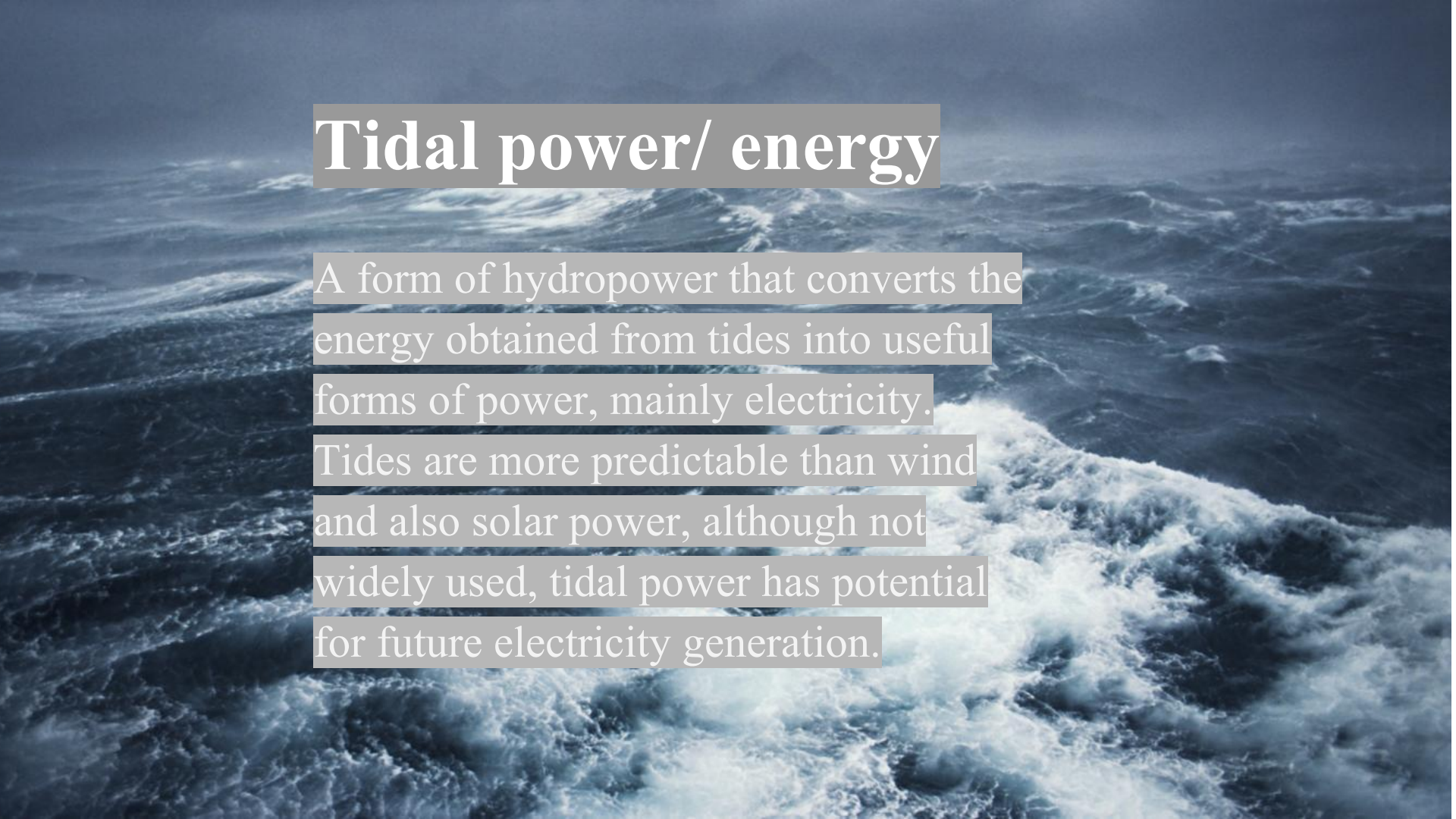
Pros:

- Cut electricity bills- wind is free, so once the initial installation is paid for the electricity costs are dramatically reduced
- Get paid for what you generate- through feed-in-tariffs you get paid for the electricity you generate
- Cut carbon footprint- wind electricity is green, renewable energy and does not release any harmful carbon dioxide or pollutants
- Store electricity for a non windy day- if your home isn't connected to the national grid you can store excess electricity for a non windy day



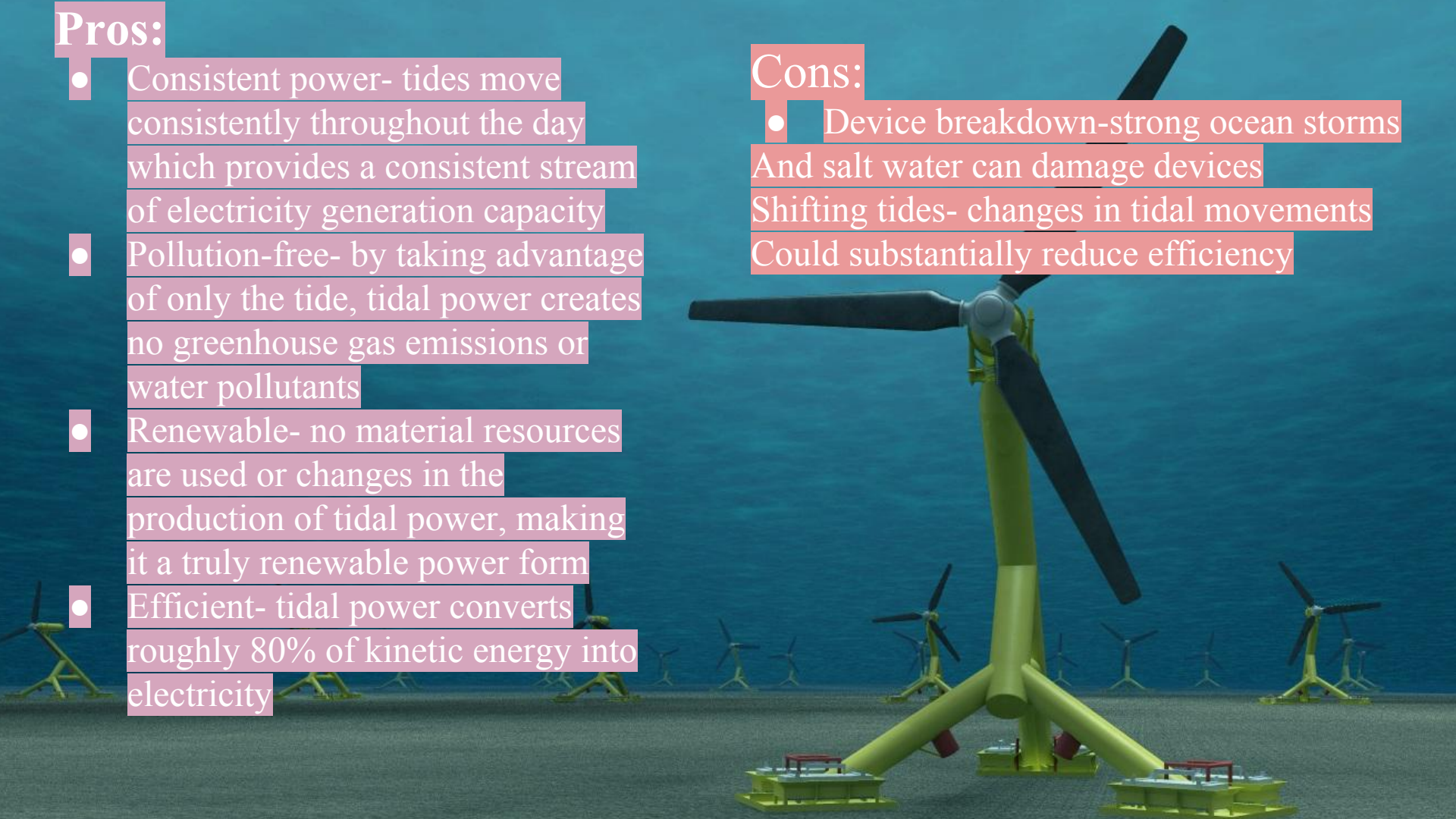
Cons:

- Threat to wildlife- the edges of wind turbines can actually be unsafe to natural life, especially birds and other flying creatures that may be in the area.
- Noise and visual pollution- wind turbines can be difficult to instal. They make a sound that can be between 50 and 60 decibels. Could also tarnish the beauty of landscapes
- Safety of people- severe storms and high winds can cause damage to the blades of the turbine. The malfunctioned blade can be a safety hazard to people nearby. It could possibly fall



Tidal power/ energy

A form of hydropower that converts the energy obtained from tides into useful forms of power, mainly electricity. Tides are more predictable than wind and also solar power, although not widely used, tidal power has potential for future electricity generation.



Pros:

- Consistent power- tides move consistently throughout the day which provides a consistent stream of electricity generation capacity
- Pollution-free- by taking advantage of only the tide, tidal power creates no greenhouse gas emissions or water pollutants
- Renewable- no material resources are used or changes in the production of tidal power, making it a truly renewable power form
- Efficient- tidal power converts roughly 80% of kinetic energy into electricity

Cons:

- Device breakdown-strong ocean storms And salt water can damage devices Shifting tides- changes in tidal movements Could substantially reduce efficiency