

## NUCLEAR ENERGY



**NUCLEAR ENERGY** is generated in reactors, when nuclear fuel fission (using uranium) heats water, and the steam turns turbines to run the generators that convert energy into electricity.

### PROS

- No greenhouse gases or CO<sub>2</sub> emissions
- Very efficient at transforming energy into electricity compared to coal plants
- Uranium reserves are abundant (but costly to mine)
- Refueled yearly unlike coal plants that need trainloads of coal every day

### CONS

- Higher capital costs due to safety, emergency, containment, radioactive waste, and storage systems
- Problem of long-term storage of radioactive waste
- Heated waste water from nuclear plants harms aquatic life
- Potential nuclear proliferation issue



**SOLAR ENERGY** is generated when photovoltaic (PV) cells convert heat from the sun directly into electricity.

### PROS

- Nonpolluting
- Most abundant energy source available
- Systems last 15–30 years

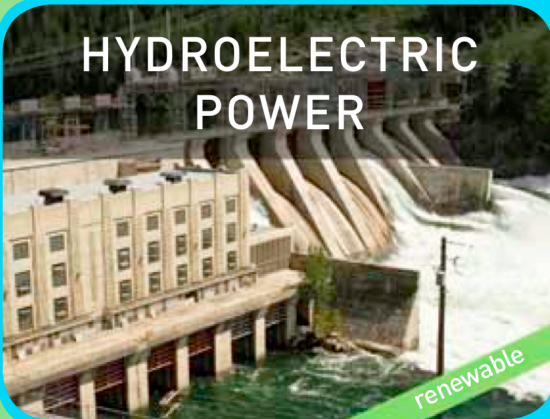
### CONS

- High initial investment
- Dependent on sunny weather
- Supplemental energy may be needed in low sunlight areas
- Requires large physical space for PV cell panels
- Limited availability of polysilicon for panels

## SOLAR ENERGY



## HYDROELECTRIC POWER



**HYDROELECTRIC POWER** is generated when flowing water turns turbines to run generators that convert energy into electricity.

### PROS

- No emissions
- Reliable
- Capable of generating large amounts of power
- Output can be regulated to meet demand

### CONS

- Environmental impacts by changing the environment
- Hydroelectric dams are expensive to build
- Dams may be affected by drought
- Potential for floods



**WIND POWER** is generated when wind turns turbines to run the generators that convert energy into electricity, which is then stored in batteries.

### PROS

- No emissions
- Affordable
- Little disruption of ecosystems
- Relatively high output

### CONS

- Output is proportional to wind speed
- Not feasible for all geographical locations
- High initial investment and ongoing maintenance costs
- Extensive land use
- Can be unsightly and noisy
- Can pose a threat to birds

## WIND POWER

