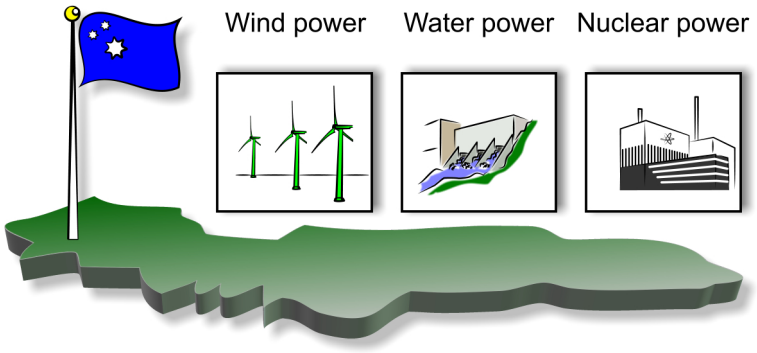
13. Increased production of electricity

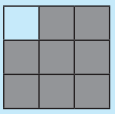
A country is going to increase its production of electricity by building more power plants. The country's Minister of Energy is contacting you.



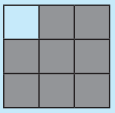
Your assignment is to write a proposal to the country's Minister of Energy where you recommend one of the three energy sources wind power, water power or nuclear power. This proposal is going to be used as a foundation for the decision made by the government.

In the proposal, you have to:

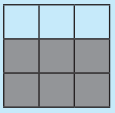
- **Use scientific information**
  by starting from the fact sheet about the different energy sources and deepen your reasoning with help from your physics content knowledge.



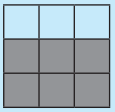
- **Take a position**
  by recommending **one** of the three energy sources wind power, water power or nuclear power.



- **Motivate your position**
  by explaining why the energy source you recommend is the best choice.



  Your motivation shall build on the advantages and disadvantages of the three energy sources, regarding energy production, environmental influence, lifetime, and in general.



  Your comparisons and your thoughts about advantages and disadvantages have to be clear.

Fact sheet

		Energy source		
		Wind power	**Water power**	**Nuclear power**
Aspects	**Energy production** (in a power plant with normal size) energy source	Producing: 4 GWh/year Efficiency: about 35 % Wind	Producing: 800 GWh/year Efficiency: about 75 % Streaming water	Producing: 23000 GWh/year Efficiency: about 35 % Uranium
	Environmental influence	Enhances the evaporation of water from the ground. The vane on the rotor has a diameter of 50-100 m. The noise is approximately 35 dB. Birds fly into the vanes.	Nutrients from the shore are transported away. Large land masses will be under water. Influences the environment for the fishes.	If there is an accident in a reactor, there is risk that radioactive compounds will spread. The genetic heritage is influenced by radioactive compounds. A nuclear reactor produces 15-25 ton of radioactive waste/year stored in the rock.
	Lifetime	20-25 years	40-50 years	40-60 years
	General	A wind plant is producing approximately 20 times as much energy as was used when building the plant. Running when the wind speed is 4-25 m/s.	Water from snow melting and rain is gathered in ponds, so called water reservoirs.	The Earth's supply of Uranium is estimated to last for a few hundred years on the conditions that exists today.