

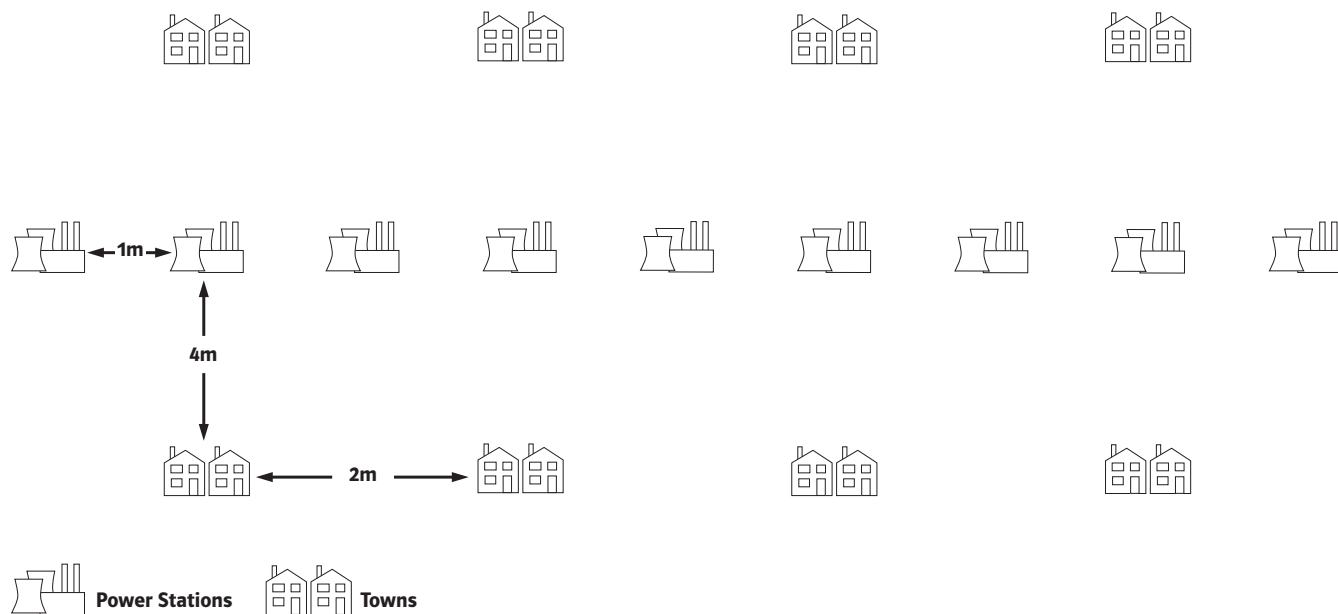


Distributing energy: Distributing electricity

Your task

You and your team have just opened a highly efficient combined cycle gas turbine power station, producing 100 megawatts of electricity. It is your job to connect to as many towns as possible.

The towns and power stations are laid out like this:



Your power station generates electricity at 22,000 volts. To transmit your electricity, you need to use a **transmission line** to connect your power station to a **step-up transformer**. This increases the voltage to 400,000 volts and decreases the current. This reduces the energy lost due to the heating of the transmission wires. Once your electricity reaches a town, you need to reduce the voltage to 33,000 volts with a **step-down transformer**. You need to purchase your equipment from the grid shop.

Grid shop

- | | |
|--|---------------------|
| • Step-up transformer | £50 each |
| • Step-down transformer | £50 each |
| • 11,000–33,000 volt transmission line | £10 for 50cm |
| • Low-voltage pylon | £5 each |
| • 400,000 volt transmission line | £50/metre |
| • High-voltage pylon | £15 each |
| • Branch connector | £25 each |



The rules

1. Any interference with another team's transmission lines will result in a £100 fine or confiscation of assets to that value.
2. You will get a £500 connection bonus if you are the first team to connect to a town. The second team receives £350, the third team £150.
3. No more than three teams can connect to any one town.
4. The transmission line has to be set up correctly for you to qualify for the connection bonus.
5. When using a transmission line for 11,000–33,000 volts, a pylon must be used every 25cm.
6. A transmission line for 11,000–33,000 volts can be used in maximum lengths of 50cm otherwise energy losses become too great.
7. When using a transmission line for 400,000 volts, a pylon must be used every 50cm.
8. A transmission line for 400,000 volts can be used in any length.
9. You are allowed to take a maximum of two branches off a main power line. A main power line is one that is connected directly to the power station.
10. You may take a maximum of one sub-branch off a branch line.
11. Sub-branch lines cannot be split further.
12. All branches must be made with a proper branch connector.
13. A maximum of two outgoing lines can be connected to a step-up transformer.

The winner

At the end of the game each team will receive '£200' for every completed connection to a town. The team with the largest sum of money will be judged the winner.