■ FUTURE POWER

STUDENT QUICK-START

SCENARIO

Future City's power company is no longer able to supply power to the city. Residents, essential services, and industry face disaster if the power cannot be supplied! Your team's task is to ensure that the power supply is maintained.

AIM

The aim of this half-day activity is to supply power to the city and make a profit. This is achieved by supplying power to the required infrastructure as cheaply as possible.

WHAT TO DO

Your team will be given a double-sided Future Power board which has power supply controls on one side and infrastructure switches on the other. You will also be given a scenario book from which the Activity Personnel will tell you which colour to follow; each scenario will designate infrastructure that require power. For each scenario select up to 4 different power stations from the types available and plug them into the power supply side of the board.

Balance the power and load by progressively increasing both the power supply and infrastructure load. The power output of each chosen power station is controlled by the dial above it, whereas the load is controlled by the switches on the opposing side. The power balance is indicated by a row of coloured lights on the power supply side of the board. Too much, or not enough power will cause the system to overload and the scenario will have to be started again.

TIMETABLE

Half-Day Activity	
Session (1h 45m)	Following a 5-minute briefing by your Activity Personnel, your team will work through the scenarios. The last 10 minutes are reserved for completing the scenario you are working on and packing up.

RULES

Only one of each type of power station is allowed.

The load and power shown on the display must be equal to complete a scenario.

To receive a score, power must be supplied to the infrastructure switches specified in each scenario.

Upon completing a scenario test your team **must** immediately raise your hands to have your score marked by the Activity Personnel.

SCORING

The score for each scenario is automatically calculated and displayed on the Future Power board. This is the income made by supplying power to satisfy the Load, less the Cost to generate that Power.

A positive score is only displayed once your team is making an income.

In Scenarios 1 – 4, your team is free to use any of the six types of power stations.

In Scenarios 5 – 8, your team may only use renewable power stations (Hydro, Solar, or Wind).

In Scenarios 9 – 12, your team must use at least two renewable power stations.

Work at your own pace but make sure the Activity Personnel score each scenario before moving on to the next one. If time permits, a second attempt at each scenario can be attempted once every scenario has been completed.

⚠ At the end, ensure your team's score sheet is with the Activity Personnel.

TIPS

Your team must communicate clearly and quickly as controls are on opposite sides of the board.

Try experimenting with different combinations of the available power stations. Each power station differs in maximum power output, cost to generate power and time to change power output.

Turn the dials slowly, the power stations won't turn on straight away.

When a switch is turned on, a red light appears next to it.

The power balance display moves to the right when increasing power or decreasing load; it moves to the left when decreasing power or increasing load. If one side lights up completely the system will overload.

If the system overloads turn all switches off and turn the dials down to zero before starting the scenario again by disconnecting and then reconnecting the battery.

Certain types of infrastructure consume a lot of power, be prepared for a big change in the power balance.