

# ■ ELECTRACITY

## STUDENT QUICK-START



### SCENARIO

Your company has just been awarded the contract to optimise ElectraCITY's failing electricity distribution system. 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 cost effectively provided.

### AIM

The aim of this activity is to provide electricity to as much of the city's infrastructure as possible, at the lowest possible cost, hopefully making a profit!

### WHAT TO DO

- Your team will have an ElectraCITY board, a battery, and a few different cables.
- You will work through a series of different scenarios, all with different power supply situations.
- Your team must think carefully about what type of electrical cables you use in each scenario, and which pieces of infrastructure need power supplied.

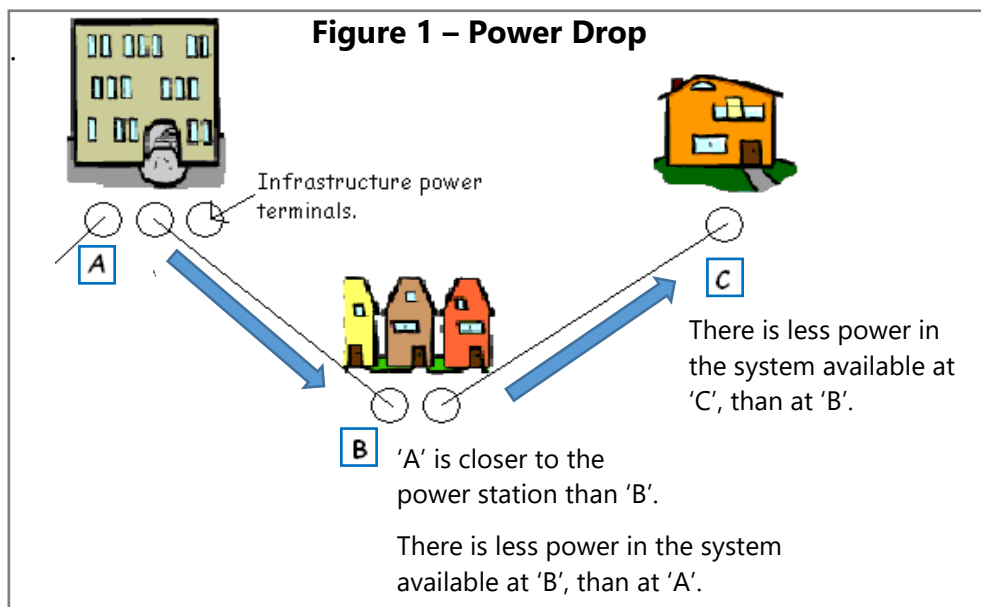
There are five different types of cables available:

Cost per cable	Cable appearance	Cable features
<b>\$1</b>	Short, black end	least expensive, least efficient (high resistance)
<b>\$3</b>	Long, black end	equivalent to the short black cables, just longer
<b>\$3</b>	Short, red end	more efficient than black cables (lower resistance)
<b>\$5</b>	Long, red end	equivalent to the short red cables, just longer (MAX 6 per team)
<b>\$10</b>	Long, yellow	'Super' cable: very expensive, most efficient cable (no resistance) (MAX 1 per team)

To supply power to an item of infrastructure, connect one end of a cable into a power station, and the other end into the socket adjacent to the selected item. The red LED on the infrastructure will light up to show that electricity is connected.

Only a limited number of connections can be made from a power station.

The number of items of infrastructure that can be supplied with electricity from a power station will decrease as more infrastructure is connected into the network. Each time electricity is supplied to, or redirected through a piece of infrastructure, there will be a power drop. Look at 'Figure 1' on the next page.



## RULES

Do not to over-stretch or break cables. Do not pull on the wires to remove the plugs from the board; hold onto the plug on the end of the cable, and carefully remove from board.

All cables must be removed from the board between scenarios.

A minimum of 25 items of infrastructure need to be lit up in each scenario. If not, that scenario cannot be scored.

Teams work at their own pace, but must complete the scenarios in order, i.e. start with 1, then 2, 3, 4, etc. Teams can only attempt each scenario once.

Make sure you raise your hand for the Event Staff to score each scenario, before moving on to the next one.

## SCORING

In all scenarios the aim is to use the various cables to light up at least 25 pieces of infrastructure, following the different rules for each scenario.

Each piece of infrastructure is worth a certain amount (the number written near it on the board). This is the amount your team will lose if this item is not powered.

The score depends on:

- The cost of the cables used to connect the infrastructure.
- The cost, and amount, of infrastructure your team is unable to power.
- The final score is the sum of the total profit (or loss) made from each scenario completed by your team.

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

## TIPS

Important infrastructure may need to be supplied from two power stations.

In this activity each team works at its own speed, so teamwork is very important. The more infrastructure that is powered, the greater the opportunity to make a profit.