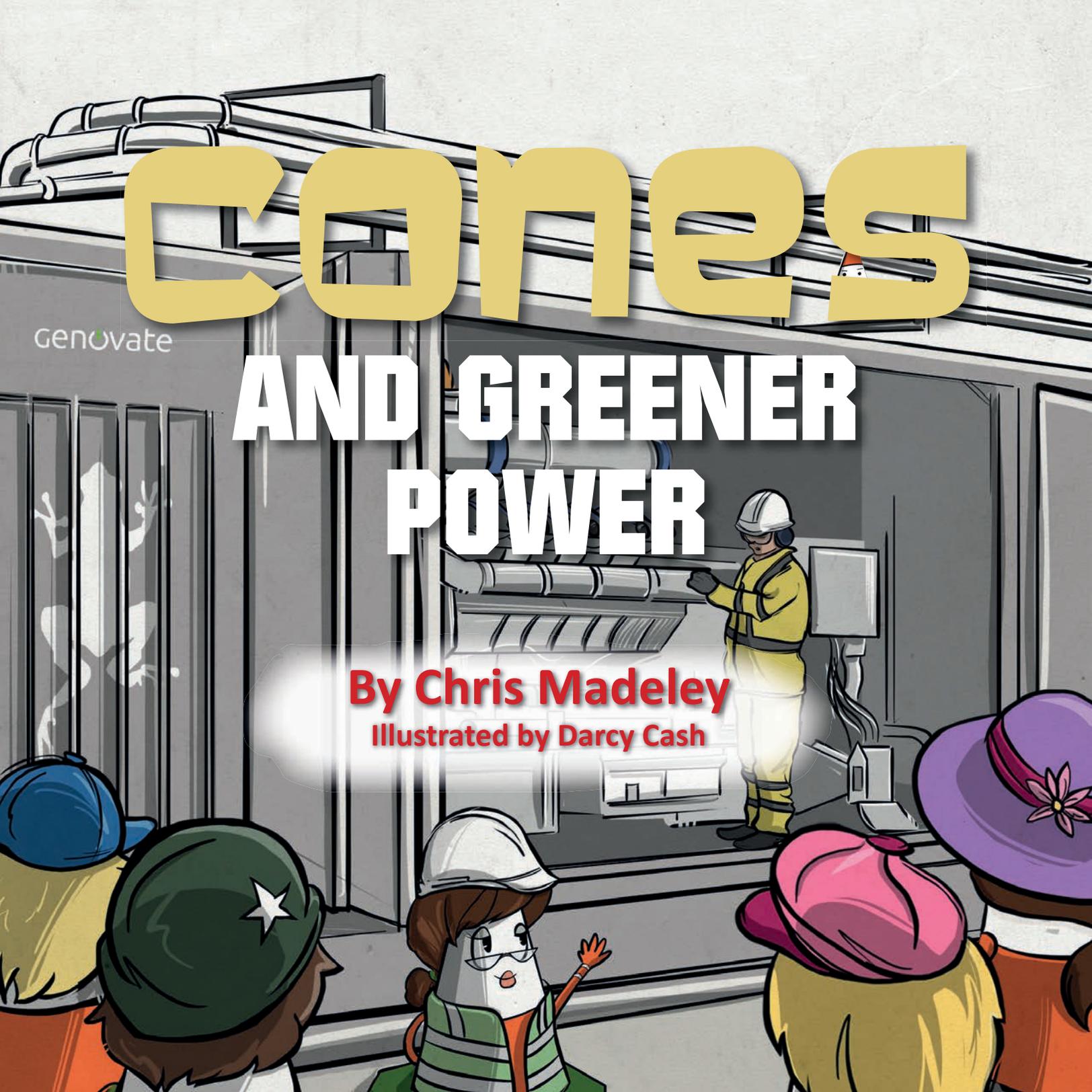


CONES

An illustration of a power plant control room. A worker in a yellow safety suit and white hard hat stands at a control panel. In the foreground, several people wearing colorful hard hats (blue, green, white, pink, purple) are looking towards the worker. The background shows industrial machinery and pipes. The word 'CONES' is written in large, yellow, stylized letters across the top. The word 'AND GREENER POWER' is written in white, bold, block letters below it. The author's name 'By Chris Madeley' and the illustrator's name 'Illustrated by Darcy Cash' are written in red text. The 'genovate' logo is in the bottom left corner.

AND GREENER POWER

By Chris Madeley

Illustrated by Darcy Cash

genovate

Cones and Greener Power
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Illustrated by Darcy Cash

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Conestance, Conerad, Cone-Vera and Conen had a very narrow escape. Their Guardians, New Moon, Police Car and Wise Owl looked on in horror as they watched the dreaded Cone Collector – who hates the Cones – trying to catch them.



Fortunately, our four friends had managed to hide behind some bushes, so all Cone Collector could do was drive angrily away. "I'll get you next time," he growled.

"Whew that was really close," Conerad said to the others.

"You young Cones need to be more careful," Police Car said, and drove away.

Wise Owl hooted, "twoooo troohooo" and flew into the trees to sleep as New Moon carried on her journey across the sky.





The four friends looked around.
"I don't recognise anything,"
Conestance said, looking worried.
"Come on," Conen said, "there
must be someone somewhere to
ask. What we need is a friendly
Cone. Let's get wogging, there's
no point in hanging about!"



They went around a large metal fence and found a gateway.
“Good morning! Come on in,” said a cheery voice.
The four friends hurried up to the new Cone and were surprised to see that she looked very different to them.
“Hi! I’m Conevert – vert because that’s French for green! I’m an engineer and I help make electricity here.”



Constance said, "that's a cute frog logo you have on the sides of your vans and trucks."

"It may look cute," Conevert said with a chuckle, "but this company is into the serious business of making power for the humans."

"Hang on," Conen said, rather rudely, "that can't be right. Look at all those power lines. We know how power is made. There are wind turbines, solar panels and huge power stations."



"Look up," Conevert said.

"What are we looking for?" Cone-Vera asked.

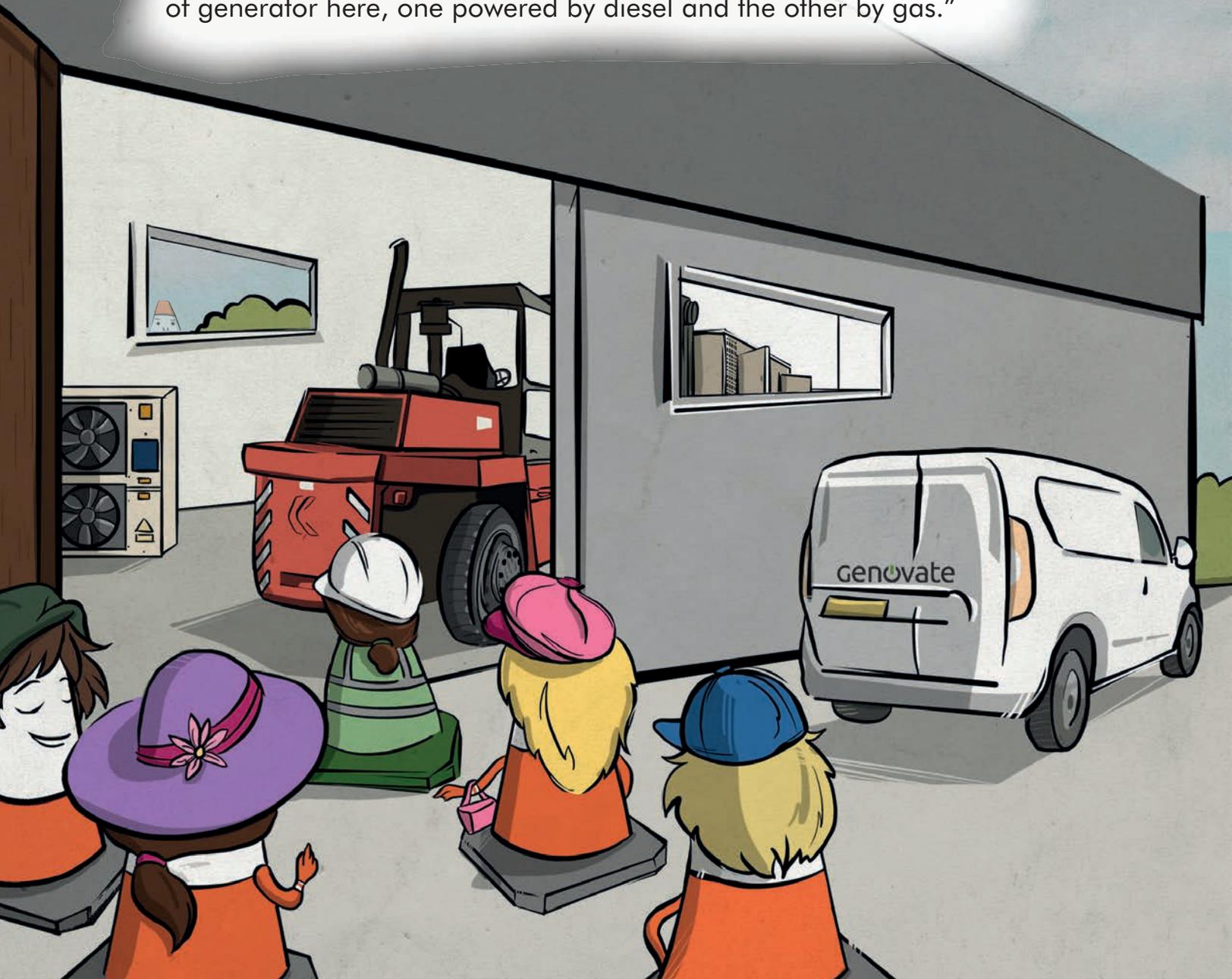
"The sun," Conevert said.

"We can't see it because of all the thick clouds. This means that solar panels can't work efficiently. Also, can anyone feel any wind? No! So, the wind turbines can't work. These types of electricity-producers are called 'renewables' and, great though they are, they are not altogether reliable, so we need to help with making electricity."



"Ah, I see," Cone-Vera said. "So how do you make power?"

"Come with me and I'll explain." Conevert said and woggled away to a large building. "We use generators to make power. They are sort of big engines which make electricity. There are two types of generator here, one powered by diesel and the other by gas."



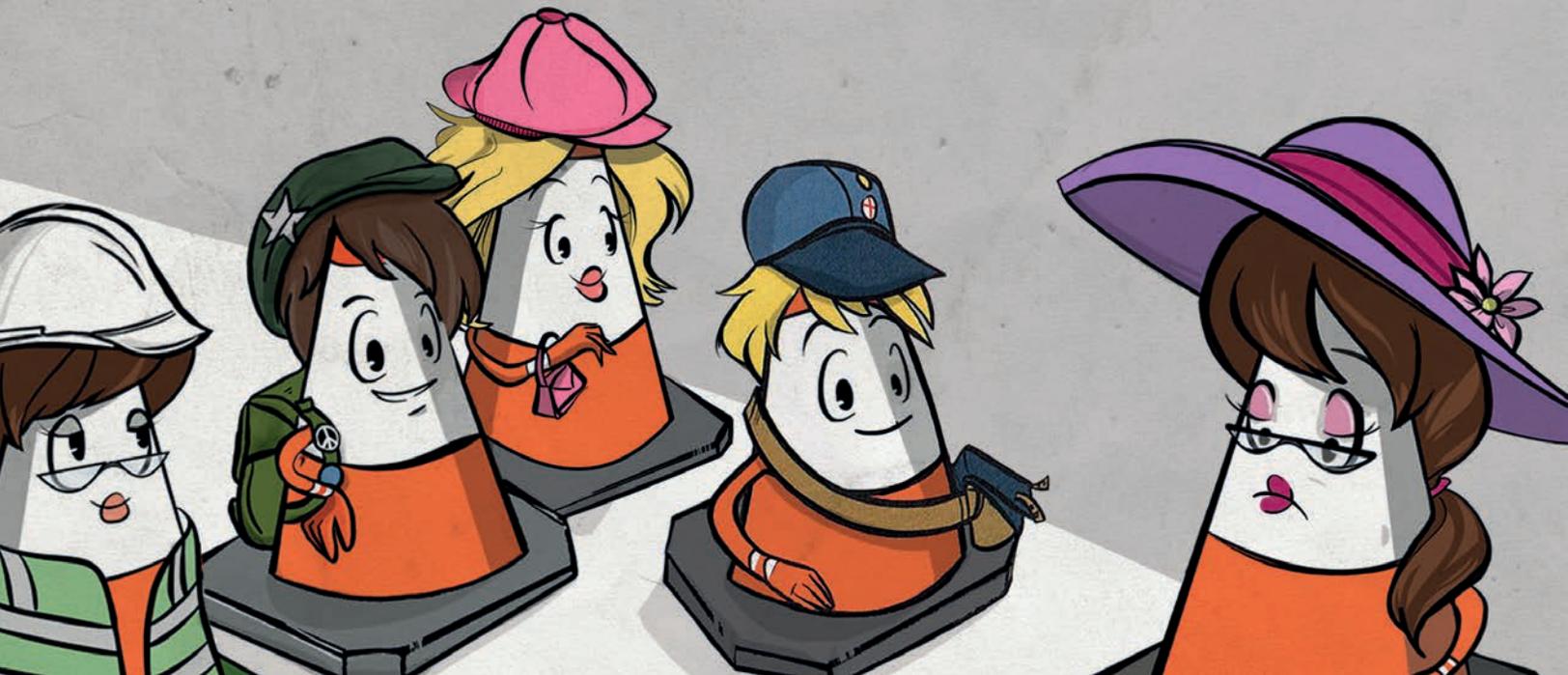
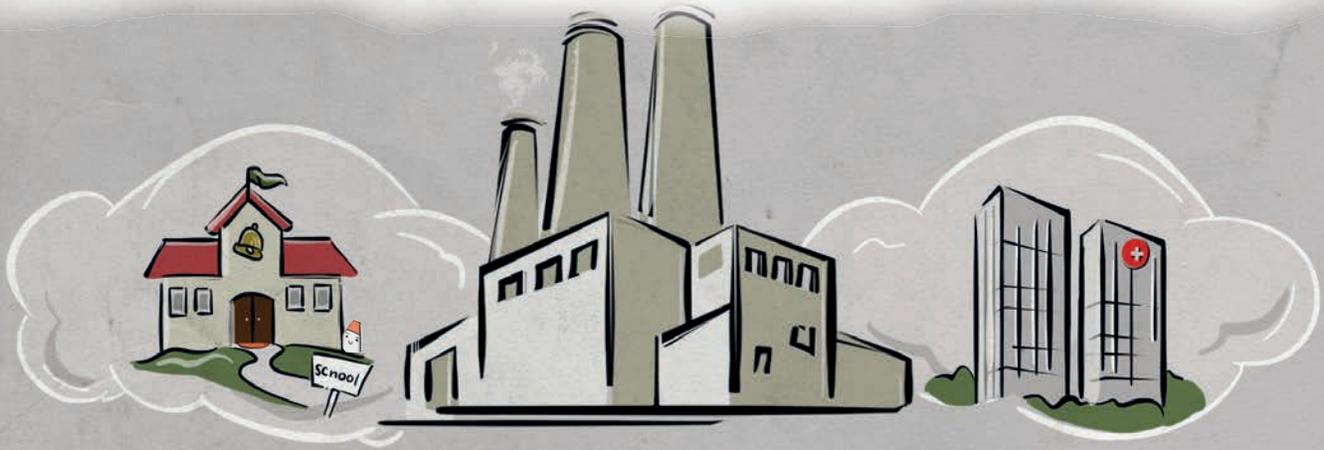
"I thought diesel was dirty and polluted the air and environment," Conerad said. "That can't be good."

"No, that's the old type of diesel. The new diesel contains a special blue compound to make it cleaner. Our generators have an exhaust which has a special filter on it to ensure that nothing unclean goes into the atmosphere and the air isn't polluted," Conevert explained.



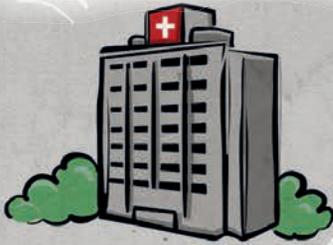
"I don't understand the need for generators," Cone-Vera said. Why can't the humans just switch on the power when they want it?"

"Sometimes," Conevert explained, "too many humans want electricity at the same time, or there can be problems with the supply. Places like hospitals and factories need a constant supply of electricity. Schools only need power during the day. Generators can be used when they are needed and shut down when they aren't."



"I know humans have batteries which power mobile phones, remote controls, games and all sorts of things," Conerad said. "Why don't they have batteries for everything else that runs on electricity?"

Conevert laughed. "Can't you see the difference between the size of a mobile phone and the size of a hospital? Humans can't make batteries big enough yet to power something so large and anyway, electricity can't yet be stored in amounts large enough to meet those needs."

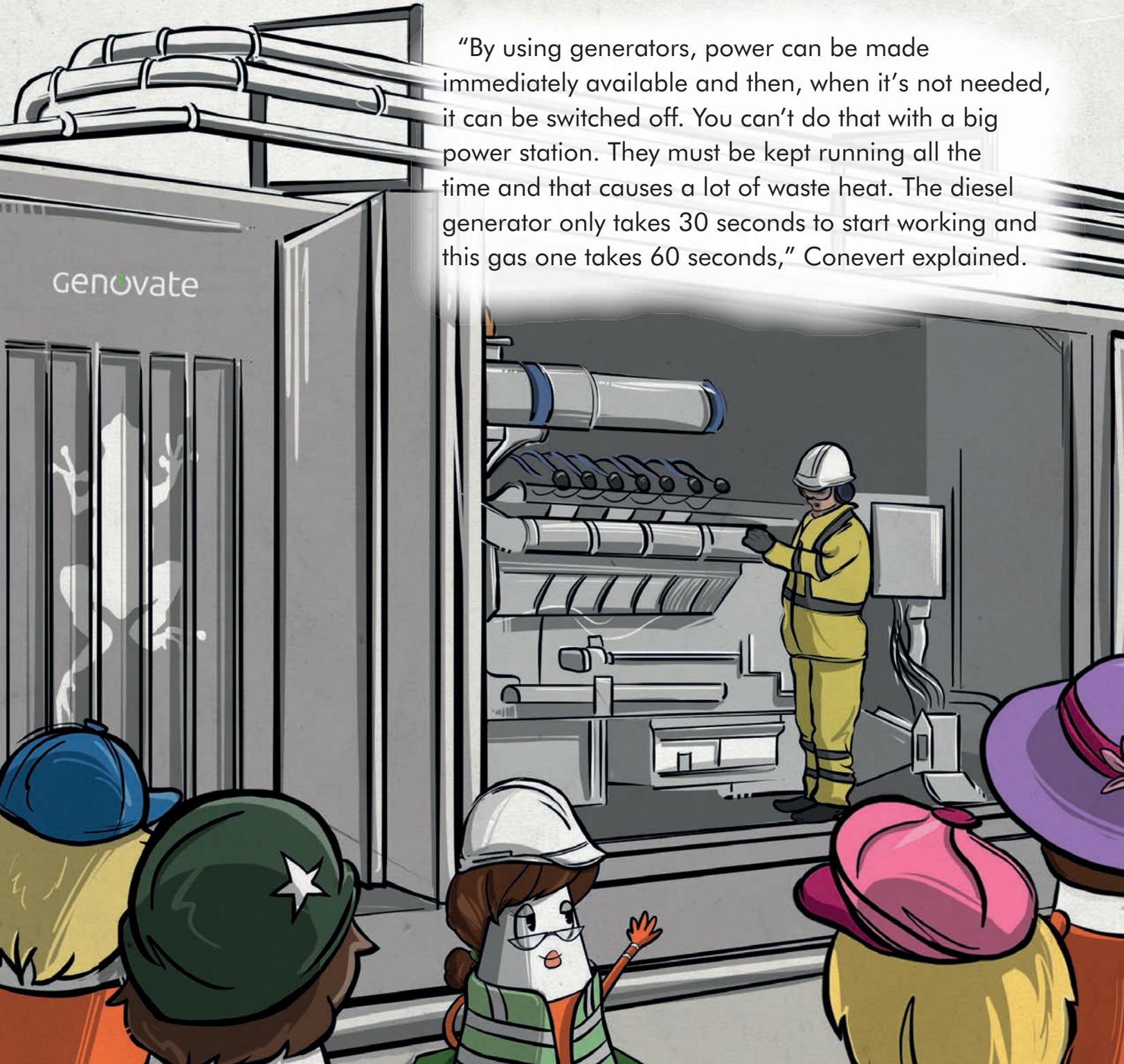


“Why don’t they use electricity from another part of the country through those powerlines?” Conerad asked.

“It isn’t practical to move electricity over very long distances as it loses strength,” Conevert said. “That’s why we use generators. They are also used in remote villages and towns where it is difficult to supply power through the National Grid.”

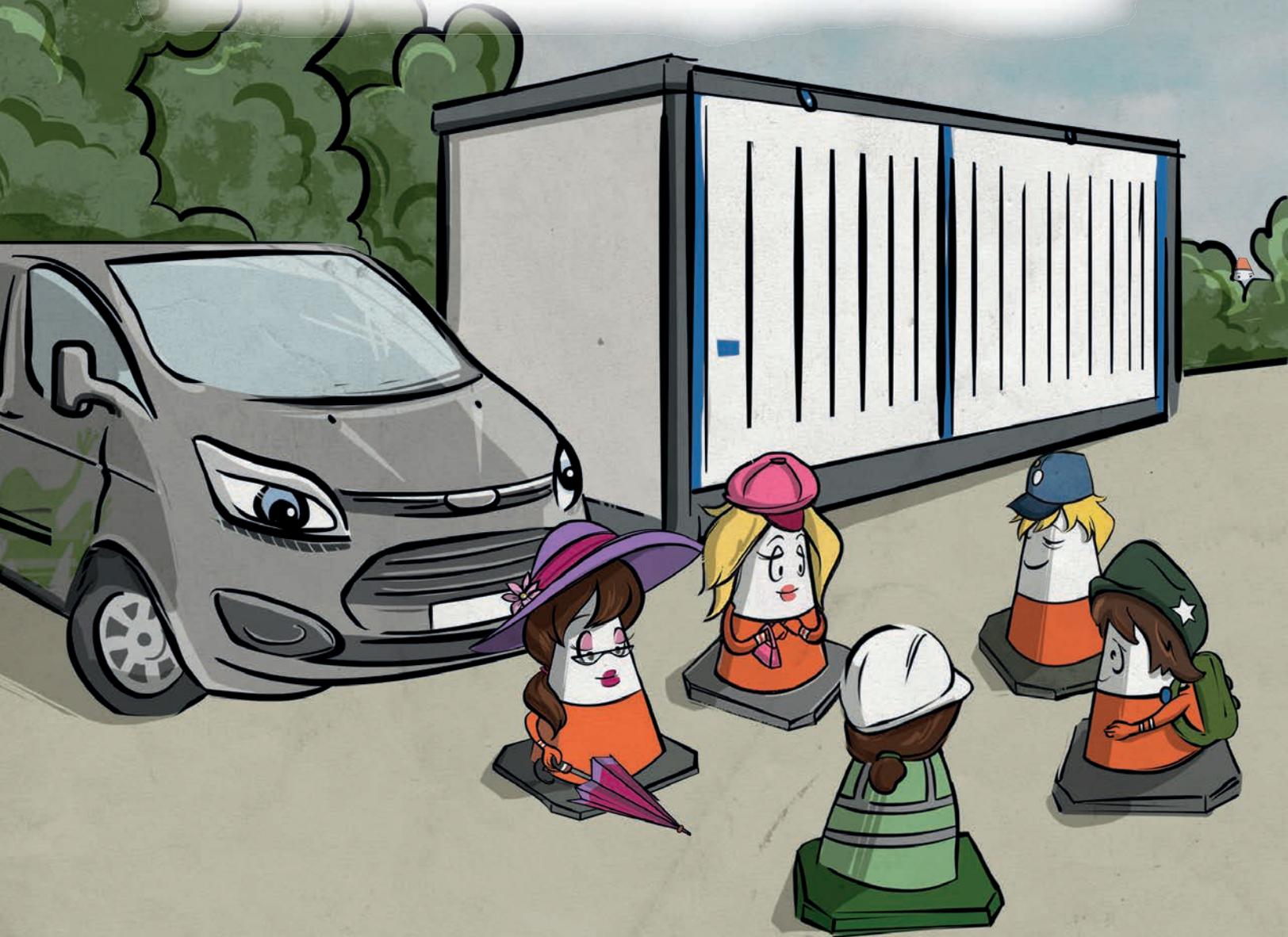


"By using generators, power can be made immediately available and then, when it's not needed, it can be switched off. You can't do that with a big power station. They must be kept running all the time and that causes a lot of waste heat. The diesel generator only takes 30 seconds to start working and this gas one takes 60 seconds," Conevert explained.



"Can we go and see some of your generators?" Conestance asked.
"I like to see things working."

"Yes, of course. We'll look for a maintenance van going out to one of the sites and we'll hop in. Before we do, I'll show you around our store. There's lots to see, I think you will enjoy it." Conevert said with a smile.



The four friends followed Conevert through a large metal door.

“Oh, my word, what is that?” Conestance squeaked, pointing.

“Don’t worry, that is our forklift truck. Huge isn’t it? It’s strong enough to pick up a generator like this and put it onto a large truck. It then gets taken to the site and installed,” Convert explained.



"Wow!" Conen said, woggling over to a rack full of colourful cables. "What are all these for and why are they all different widths?"

"When the engineers are installing and fitting out the generators, they need different types of cables for different jobs and the colours help them to remember which to use. The colours and width tell the Engineers which to use, depending on how much power is needed. Kettles, computers and mobile phones need different cables to the ones we use."





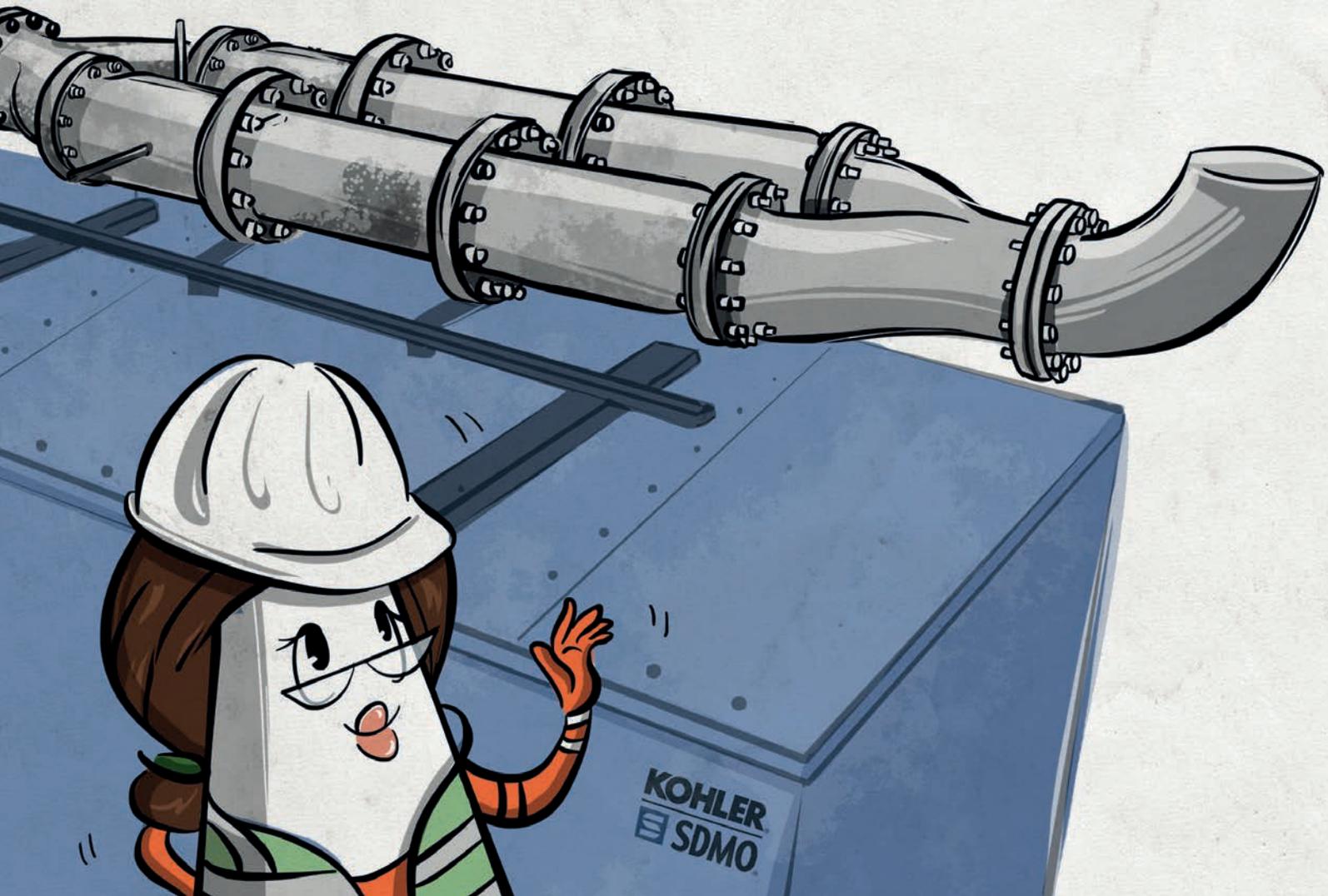
"What is Conerad doing? Let's go and see," Conevert said to Conen.

"I... can't... lift it, it's so heavy!" Conerad said, puffing.

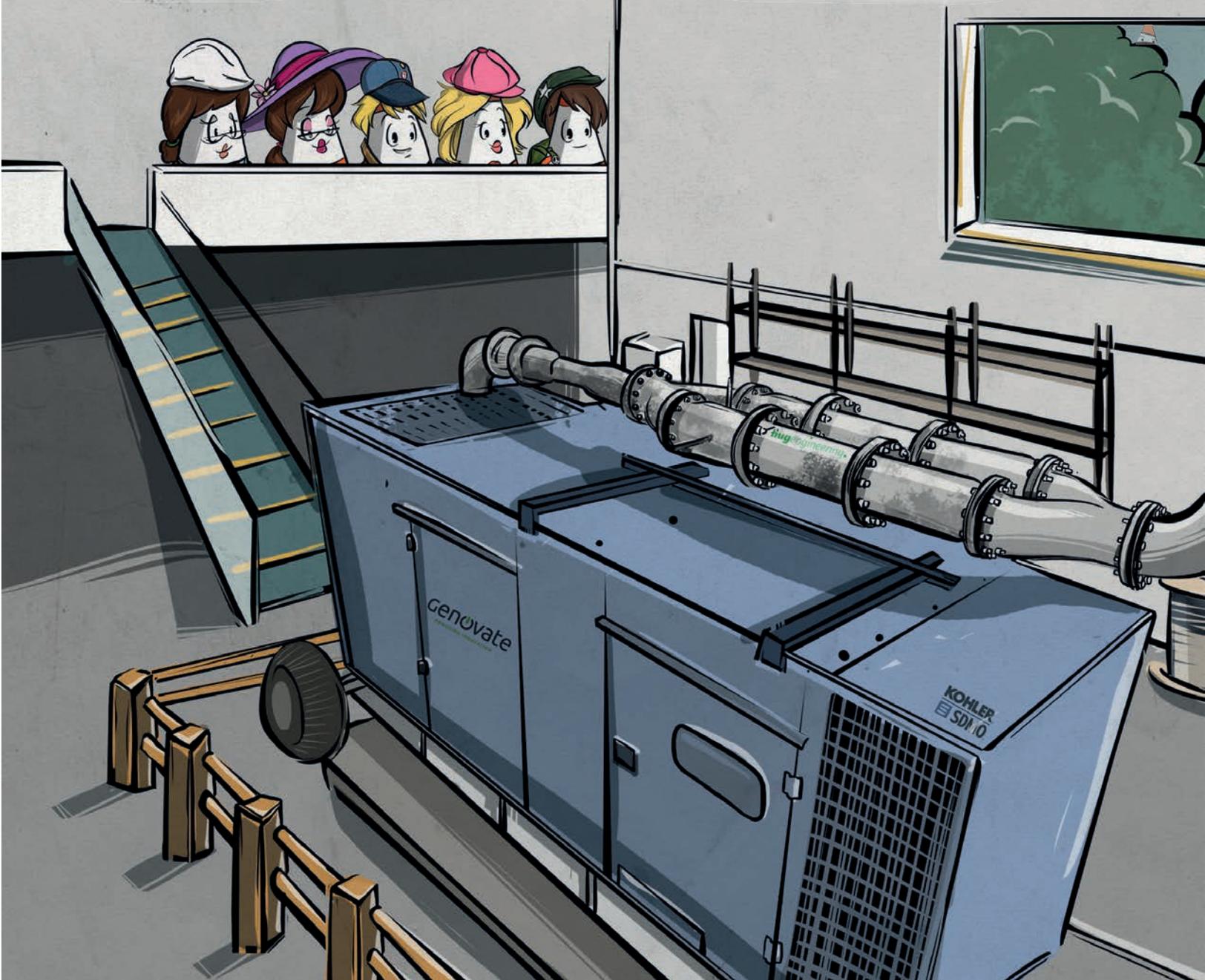
"Thick cables like these carry huge amounts of electricity onto local powerlines – up to 33,000 volts. That is very dangerous amounts of electricity and you must not go near them," warned Conevert.



"Do you remember, I told you about exhausts on top of generators? These and the silencers are assembled here and attached to the top of the generators by using small cranes. The exhausts have filters to stop pollution getting into the air and the silencers make sure the generators make as little noise as possible," Conevert explained.



Conevert took the four friends up some steps. "You get a better view from up here," she said. "There is the exhaust and silencer, you can see them fitted to this generator which is ready for use. Let's go back down and you can see inside it."

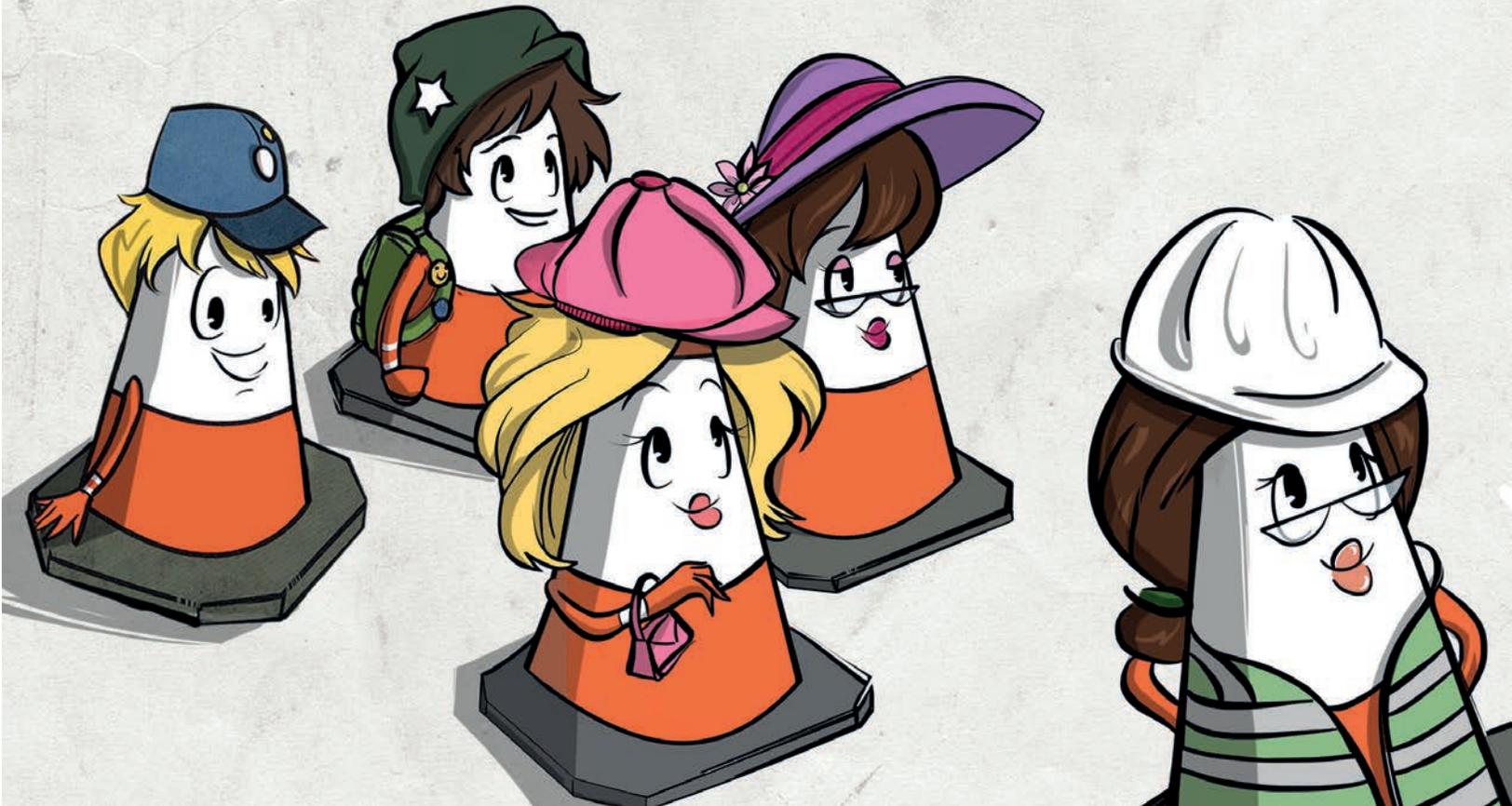


"This generator is powered by diesel," Conevert explained, pointing. "Here is the engine which makes the power and the transformer which makes the electricity which is sent along the cables to the powerlines. The engine gets very hot, so this fan cools it down to avoid the risk of explosion or fire."



"Conevert, you told us that we could go out and see some of the generators working. Can we go soon?" Conestance asked.

"Yes, of course, but before we go, I want to show you something really important, follow me."





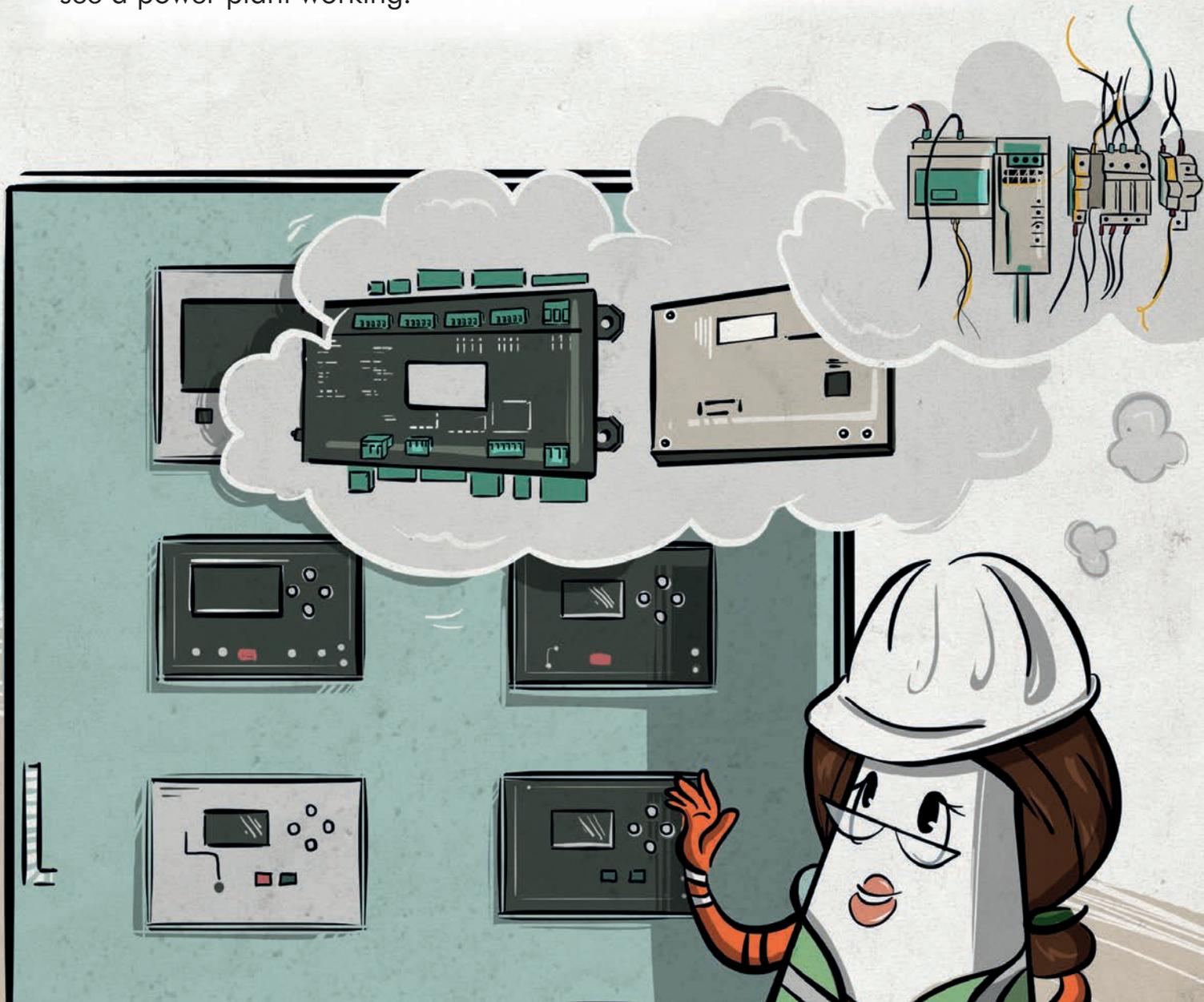
"Oh, my word," Conevera said, pointing to a huge cabinet. "This looks complicated! What does this do?"

"This is the control panel," Conevert explained.

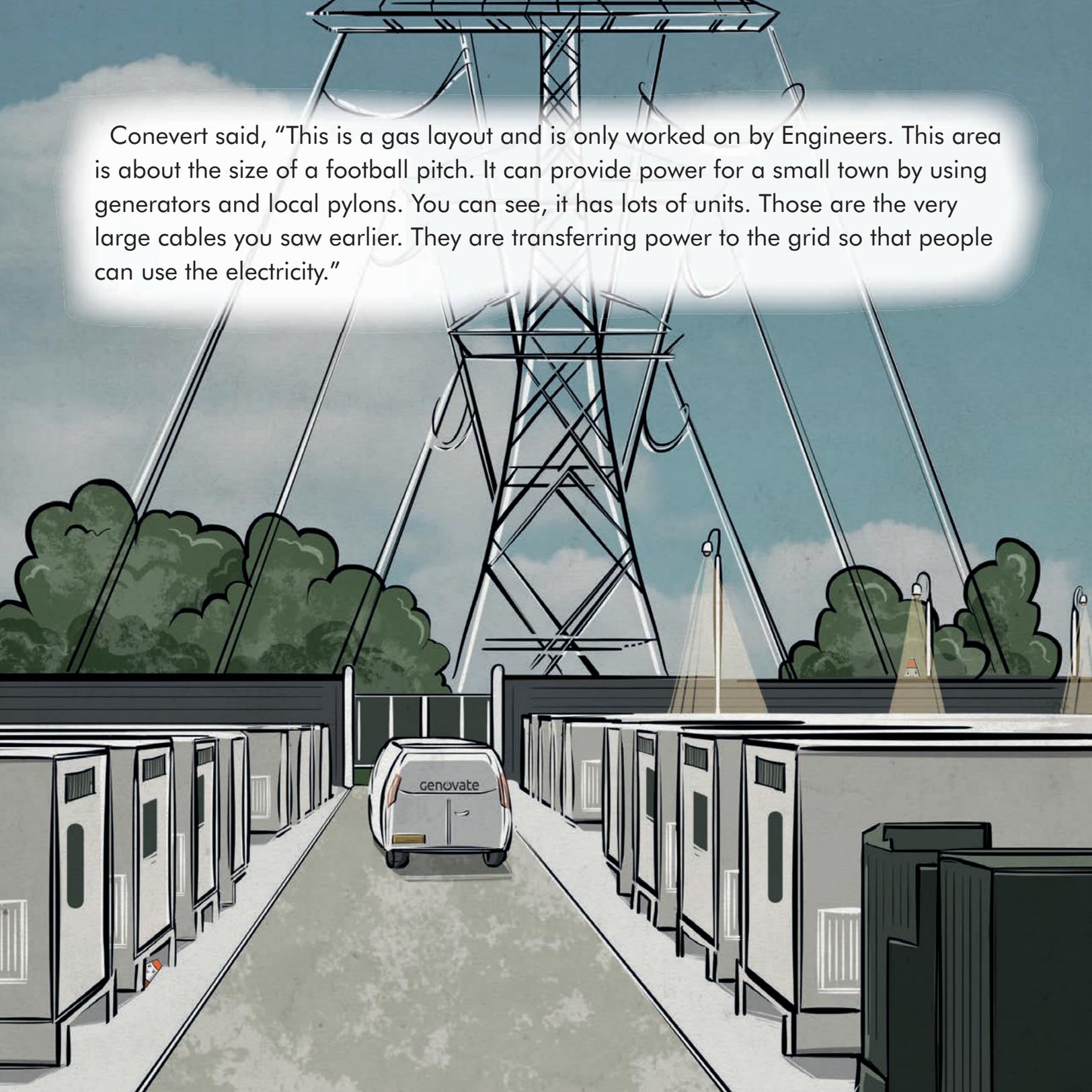
"The what?" Conen exclaimed. "I don't understand."

"Come over here and I'll explain," Conevert beckoned the four friends across the area.

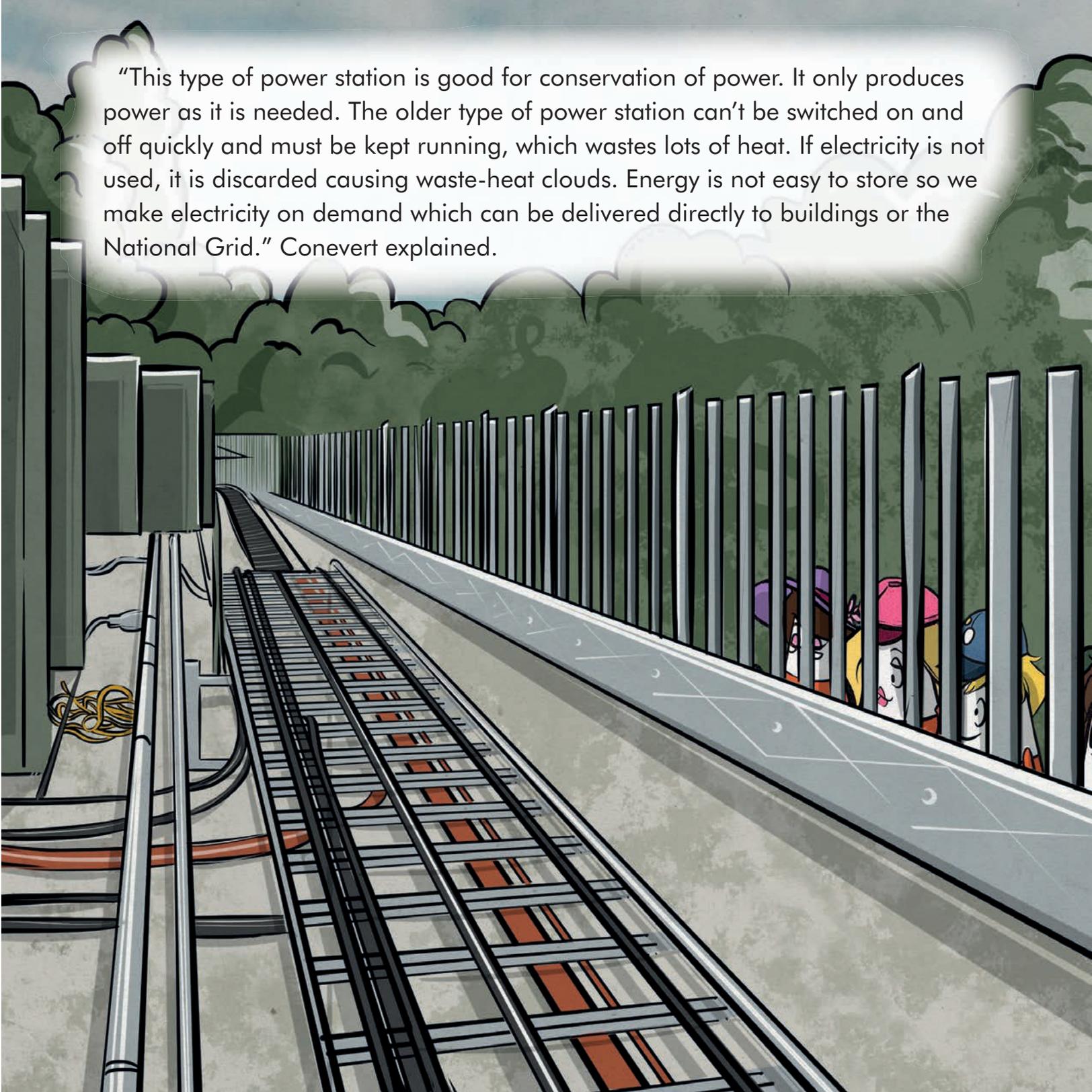
“This is the control panel which makes a power installation work,” Conevert said, proudly. “Engineers are building it, that’s why there are so many wires and fittings around. It is very technical, and they must be very careful to wire and programme it properly. Come with me, I’ll take you to see a power plant working.”



Conevert said, "This is a gas layout and is only worked on by Engineers. This area is about the size of a football pitch. It can provide power for a small town by using generators and local pylons. You can see, it has lots of units. Those are the very large cables you saw earlier. They are transferring power to the grid so that people can use the electricity."



"This type of power station is good for conservation of power. It only produces power as it is needed. The older type of power station can't be switched on and off quickly and must be kept running, which wastes lots of heat. If electricity is not used, it is discarded causing waste-heat clouds. Energy is not easy to store so we make electricity on demand which can be delivered directly to buildings or the National Grid." Conevert explained.



"It's bad to waste heat," Cone-Vera said. "How long does it take to build your power stations?"

"Because they are put together off-site, depending on the size of the installation, it only takes a few weeks – or months if it is a big installation – whereas the big power stations can take years to build. Very good sound insulation is installed to make sure we don't make noise pollution and we can also easily camouflage them with trees and shrubs, so they don't affect the local environment," Conevert explained.



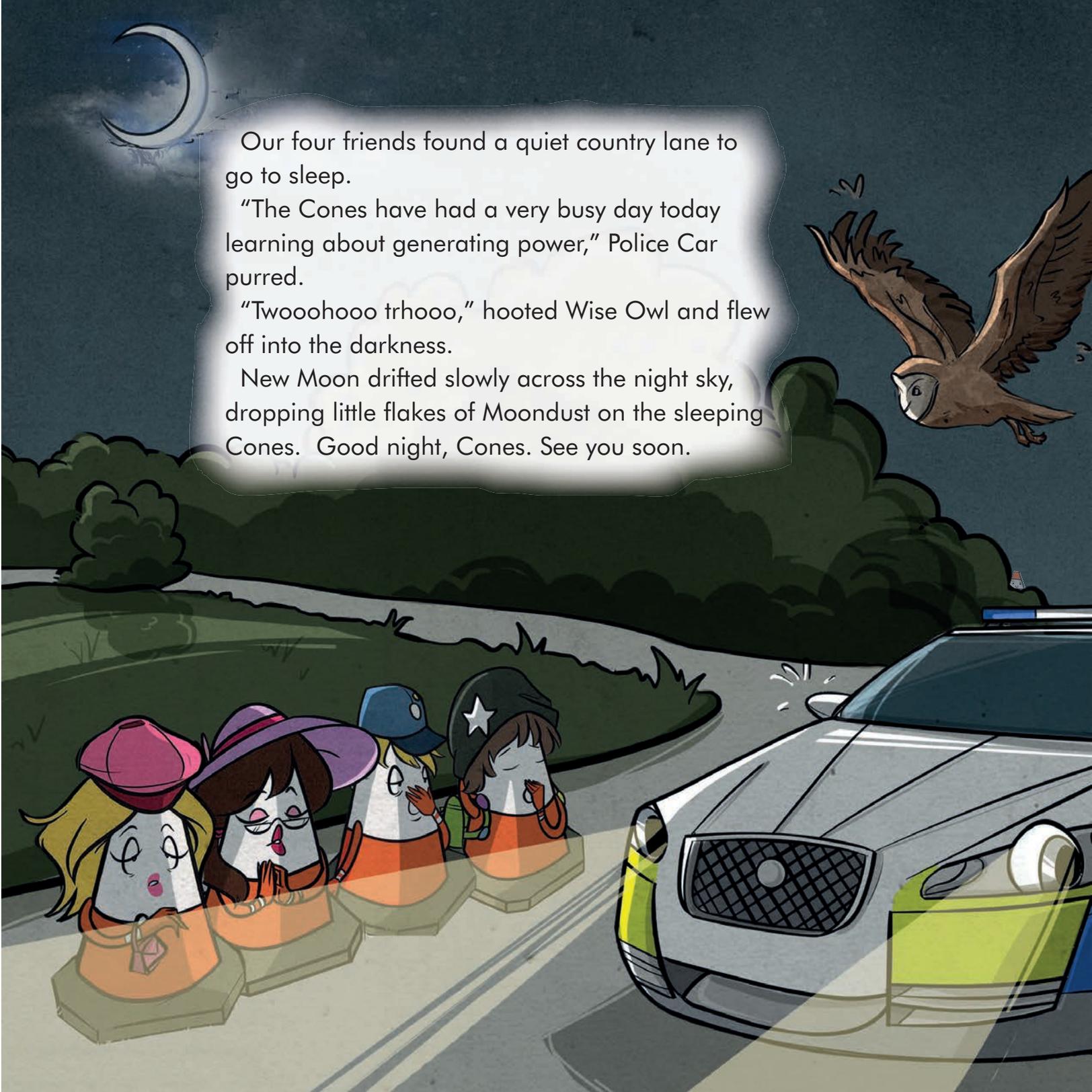
“What worries me,” Conestance said, “is recycling and re-using.”
“We are careful with what we use and dispose of anything we need to safely and securely. Copper gets returned for re-using and waste oil is stored safely. We also clean certain fuels so we can re-use it and don’t always have to replace it,” Conevert explained.
“We also use something called WEEE bins to properly dispose of waste electronics.”



"The Engineers maintain the engines to keep them running better. The National Grid prefers us to use this technology so they can work with wind and solar farms. They can then easily switch from solar and wind power to our power when wind and sun aren't available," Conevert said.

"Thank you very much for showing us around," Cone-Vera said. "We've learnt so much more about power. Now we must go to find somewhere to sleep, it will be dark soon."





Our four friends found a quiet country lane to go to sleep.

"The Cones have had a very busy day today learning about generating power," Police Car purred.

"Twoohooo trhooo," hooted Wise Owl and flew off into the darkness.

New Moon drifted slowly across the night sky, dropping little flakes of Moondust on the sleeping Cones. Good night, Cones. See you soon.



Cleaner power
production is better for
the environment and
supports healthier living

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