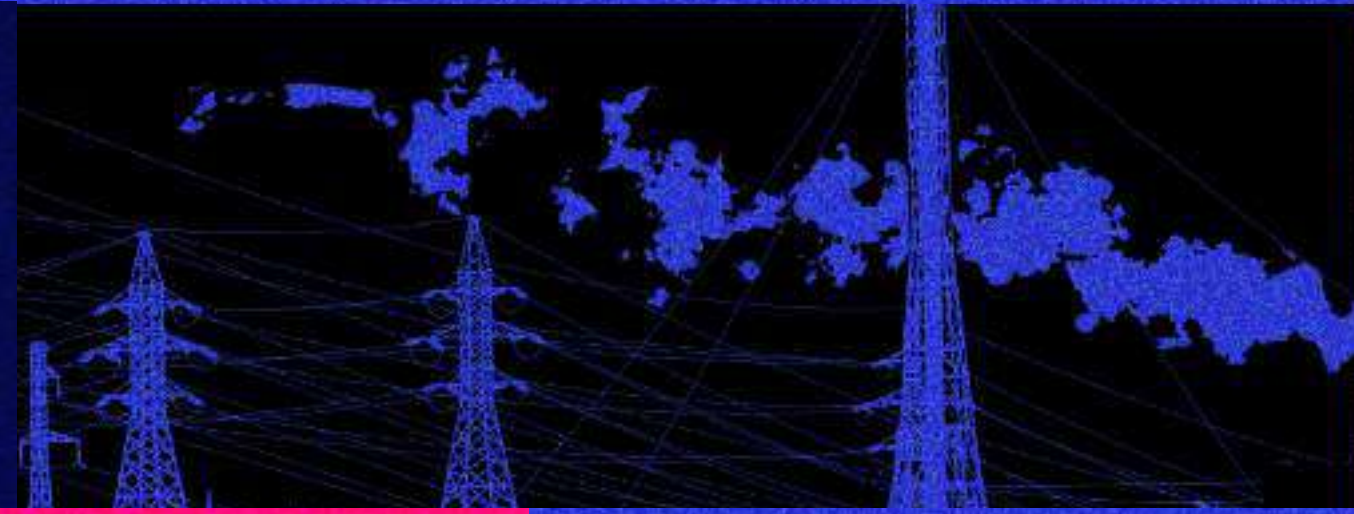


IMAGINING

THE FUTURE OF

ENERGY THROUGH

SCIENCE FICTION

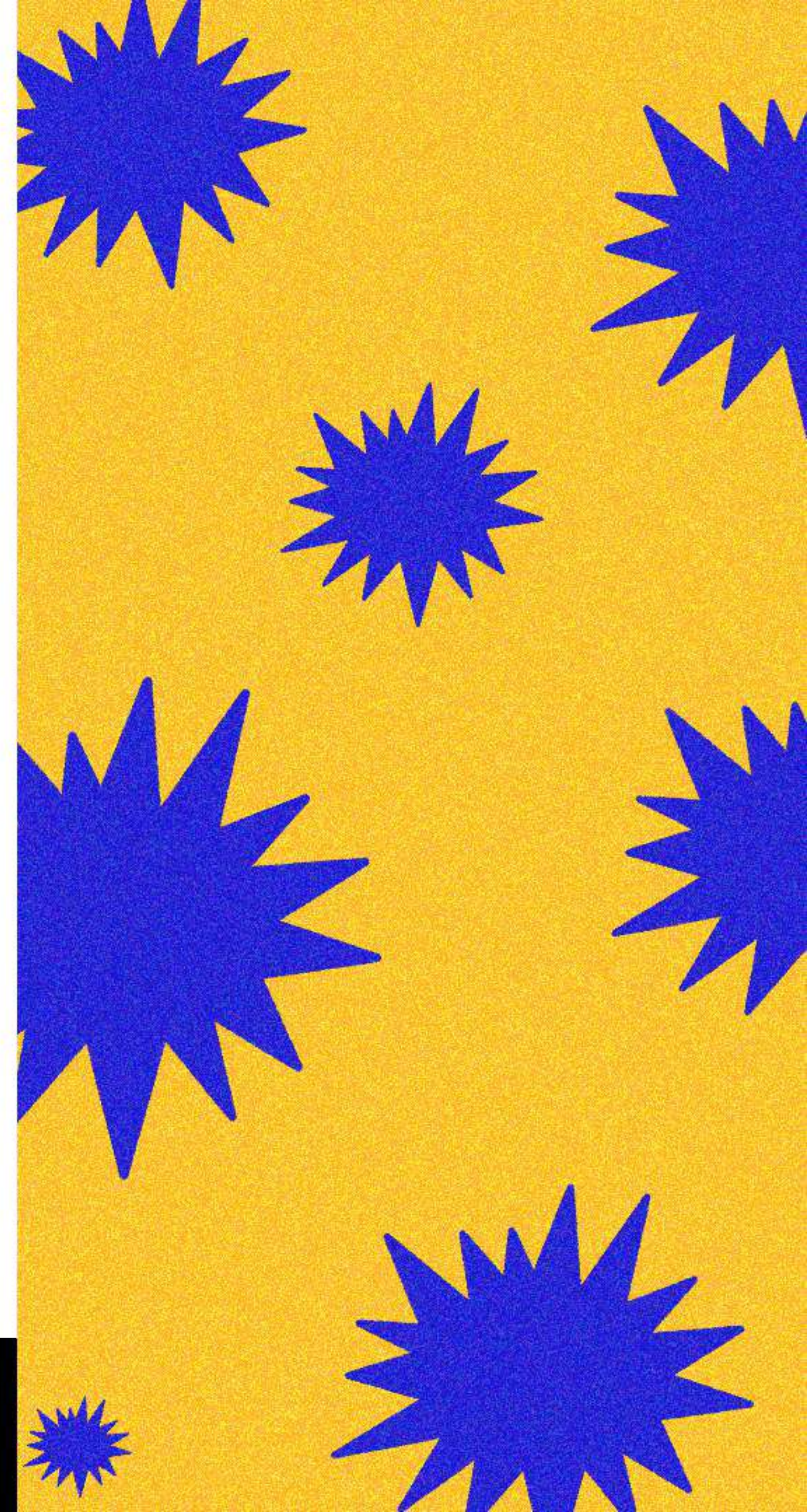


**A DIGITAL ESSAY
BY AYOMIDE AJANI**



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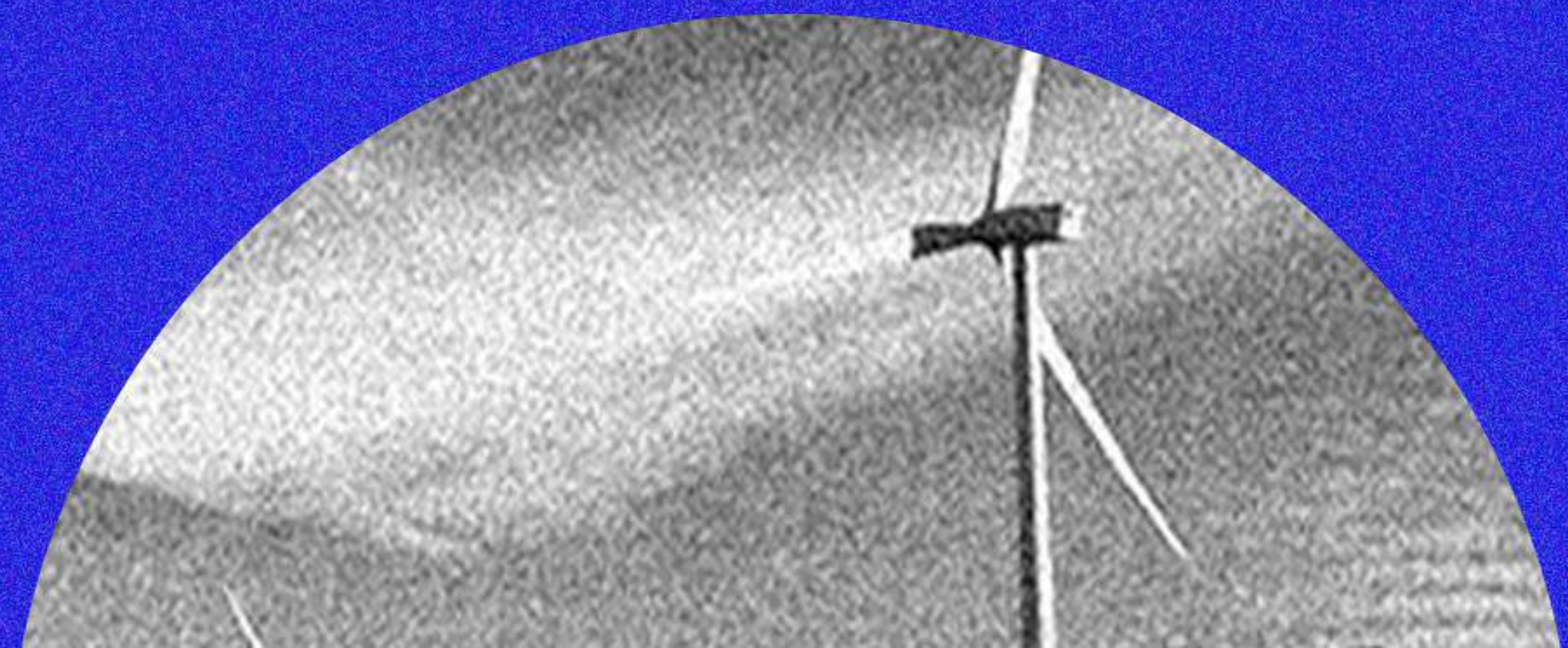
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*“Science Fiction encourages us to explore... all the futures,
good and bad, that the human mind can envision”.*

-Marion Zimmer Bradley



INTRODUCTION

Energy has powered human progress for centuries. Human history can be viewed as a quest to find greater, more efficient stores of energy to power humanity. Over the past 200 years, there has been an exponential increase in human energy consumption. Today, energy powers everything from households to industries, transportation and technology. But, in a world of diminishing resources, the question of what is going to fuel the future has never been more urgent. Through science fiction we can begin to imagine how the energy of the future will be generated!

Science fiction or sci-fi is a genre of speculative fiction that has existed in literature, film and other media for centuries. Science fiction stories have always been a powerful way to imagine and explore the possibilities of the future. Although speculative in nature, they are scientifically grounded. They encourage us to think beyond our current boundaries and can often inspire and predict real-life science.



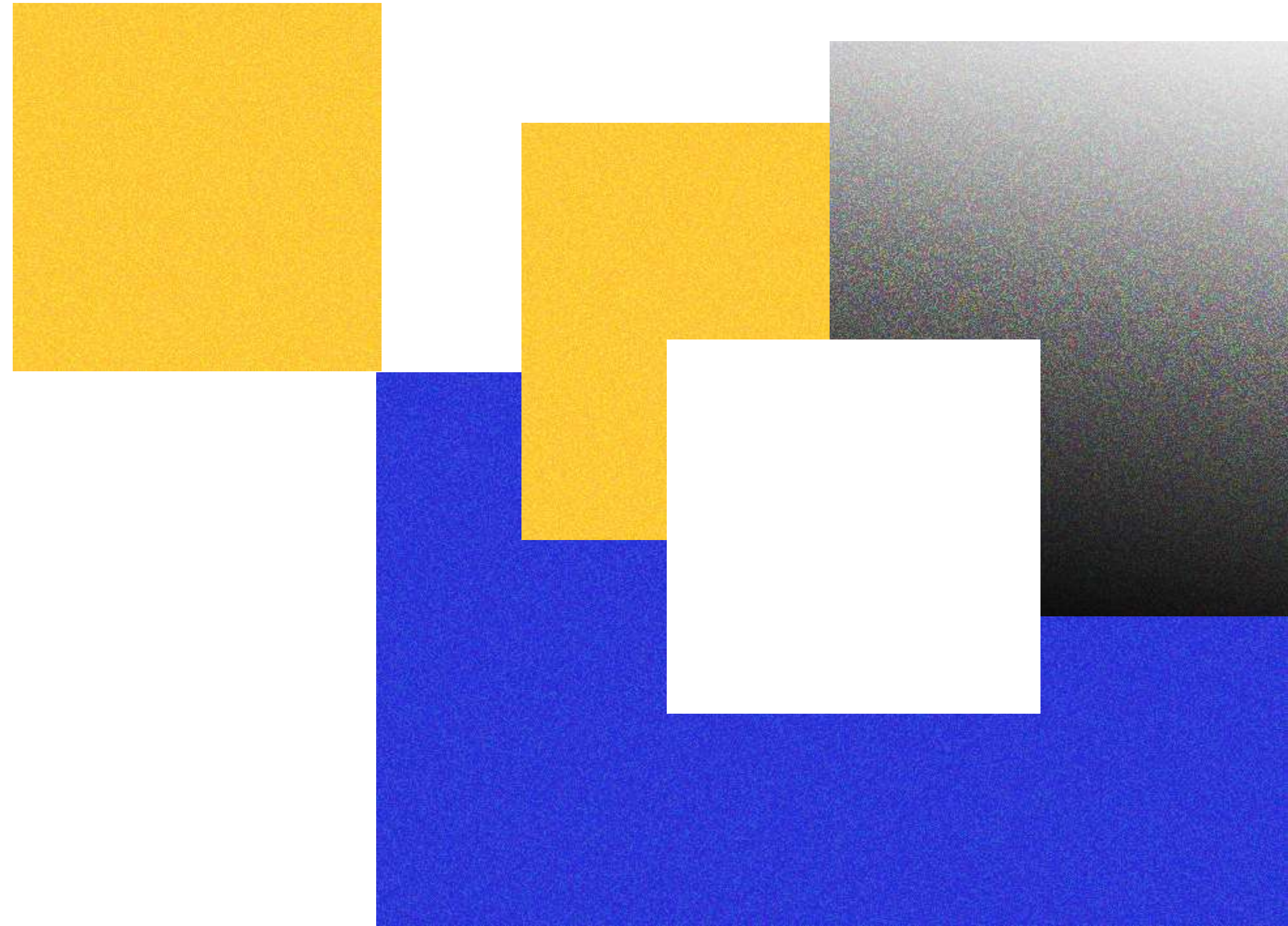
THE HISTORIES OF SCI-FI AND ENERGY



Historically, humans could only harness a tiny fraction of the energy available on Earth. This energy was mostly generated from renewable sources by burning wood and charcoal, and using wind and water power. The shortcomings of these energy sources were their inherent limitations: more was demanded of them than they could deliver. Though coal had been burned in places such as Britain and China since the 13th century beginning in the mid-18th century, the Industrial Revolution marked a turning point in human history. The burning of fossil fuels such as coal, oil and natural gas generated greater amounts of energy than ever before. This energy was mainly used to power industries, enabling rapid economic growth and quality-of-life improvements.

By the 19th century, there was a growing realisation of the power that could be held by whoever controlled future energy. Victorians, as well as other nations, saw energy as key to the expansion of their empires. As fossil fuels became a valuable commodity, colonies in the Global South were largely exploited for their resources.

Competition among empires over colonies and markets eventually led to war. In no time, the mass manufacturing of lethal weapons had begun. This atmosphere of war would loom over Europe for decades and over time, people became increasingly aware of just how dangerous future energy could be if misused.



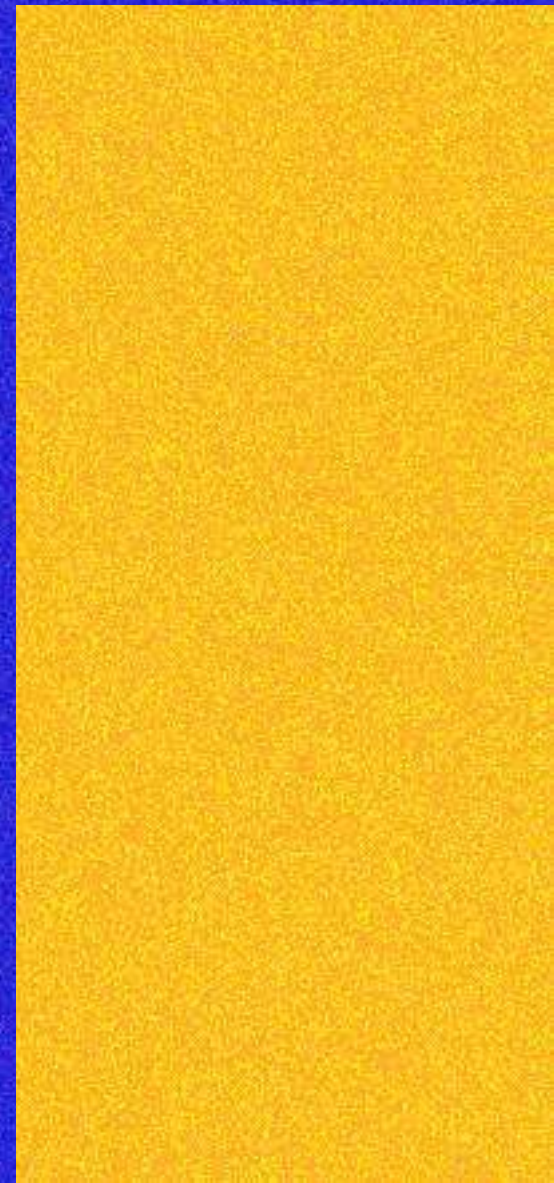
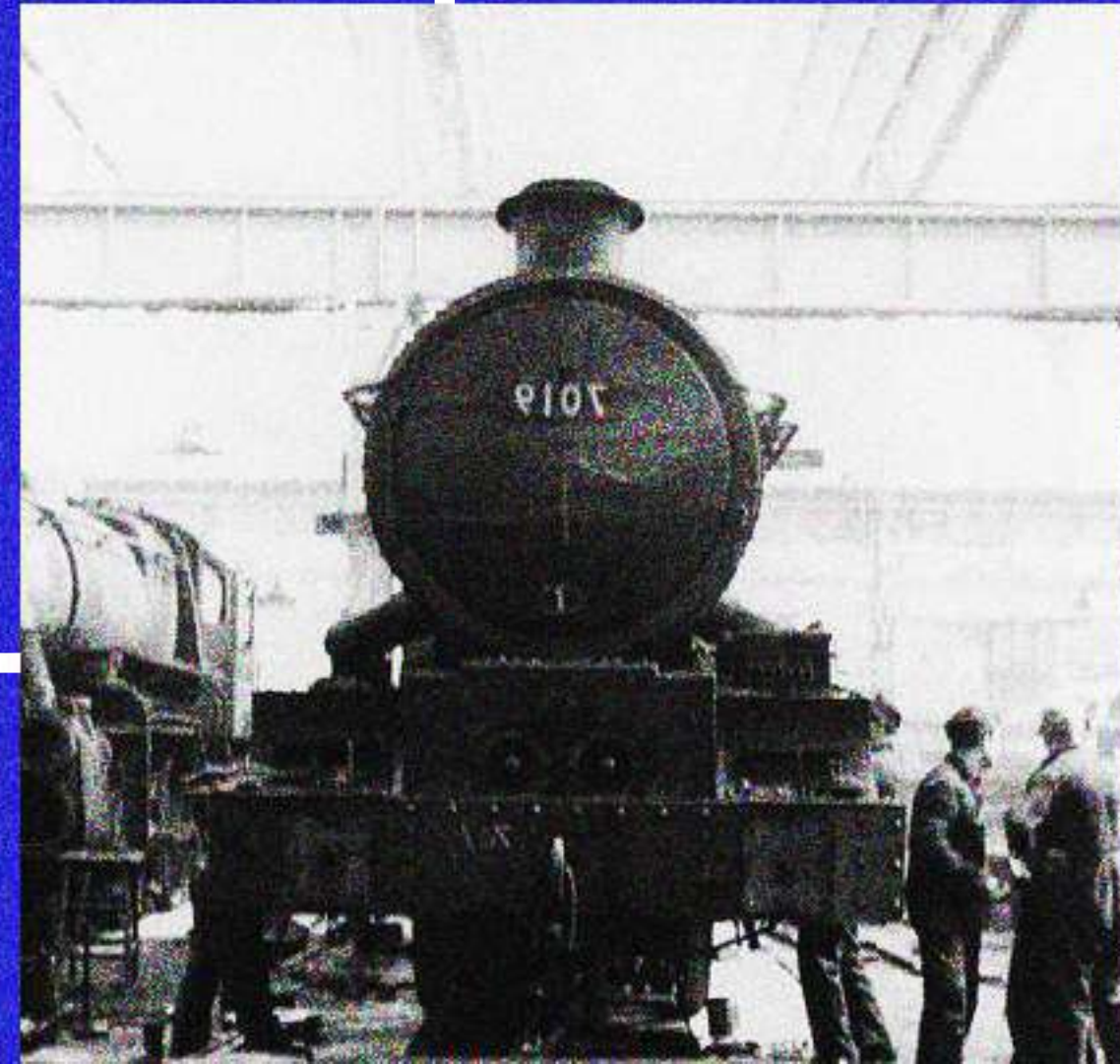
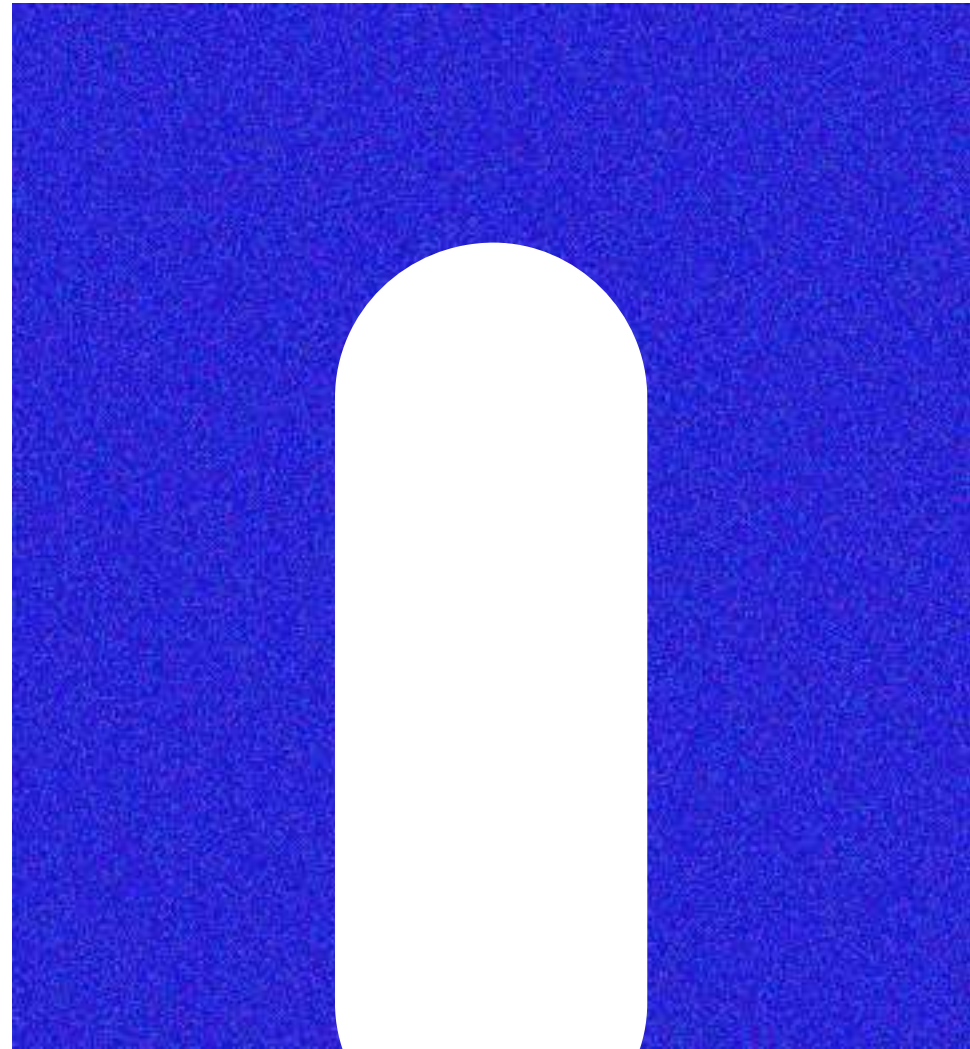
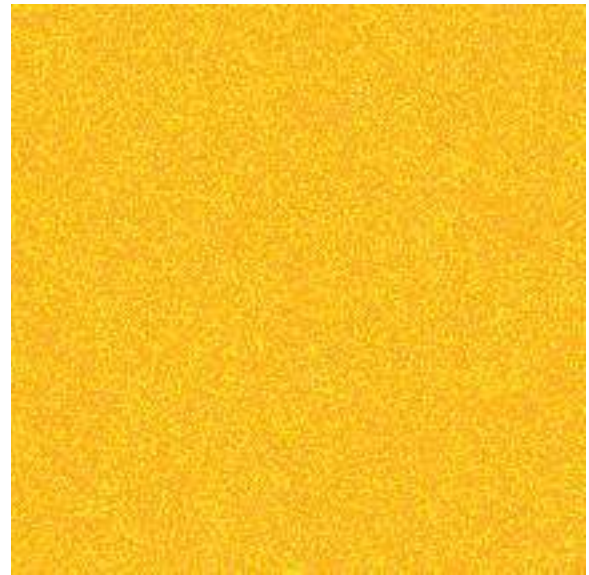
Unsurprisingly, 19th century views of the future were dominated by fantasies of cheap and inexhaustible energy. Emerging in the form of Victorian literature, Science fiction stories were used to anticipate how future energy would be generated. Over the decades that followed, inventors would use such stories to fuel their technological aspirations for the future. Incredibly, some of the technology described in these stories later became reality. For example, the 1939 sci-fi story 'Let There Be Light' by Robert A. Heinlein, effectively predicted solar energy and LED lights. Hence, one of the greatest impacts of these stories was proving the influence of the imaginary on reality. Even now, sci-fi stories can still be a powerful source of inspiration for real science innovation.



Let there be light was published as part of this collection of short sci-fi stories.

Yet science fiction was not recognised as a distinct genre until the arrival of the 20th century. This was a period of dramatic change and uncertainty as science and technology began to transform every aspect of the world and everyday life. In response, works involving fictional worlds of energy became highly popular as a means of exploring the relationship between science, technology and society. These ideas are still prevalent in modern science fiction and are considered a major influence on global culture and thought.

Currently, modern civilisations are increasingly powered by processes which convert fossil fuels into electricity. Although electricity was detected in the 18th century, its full potential was not realised until the late 19th century. Often considered the fuel of the future, it is the most convenient and versatile form of energy. It is instant, reliable, and provides sufficient energy for every sector except flying.



ENERGY AS LIBERATOR OR OPPRESSOR



The electrification of modern societies has brought about many positive changes, both economically and at a societal level. It liberated millions of people from exhausting and often dangerous labour through powering industrial machinery. And, by simplifying and accelerating processes such as cooking and cleaning, the burden of domestic chores was significantly eased. The extra time reserves gained were incredibly transformative, particularly for women leading to further economic empowerment in subsequent generations of women.

Although energy has the potential to be a great equaliser, many inequalities still persist. As countries in the Global North developed and benefited from the resources and labour of those in the South, those countries were prevented from any significant economic achievement. Today, even after independence, these countries remain

largely impoverished. The exploitation of fossil fuel deposits by foreign companies continues. And energy-related wars still lead to severe political instability and humanitarian unrest in some of the world's poorest countries.

Clearly, energy access is critical to development, yet there is an enormous difference in the amount of energy used by the Earth's richest and poorest: the richest 10% of humanity (living in 25 nations) consumes around 35% of the world's energy. Meanwhile, the poorest 5% of humanity consumes no more than 0.2% of the world's energy. This data warns us about the vast and chronic disparities between those who benefit from scientific and technological advances, and those who are often left behind.

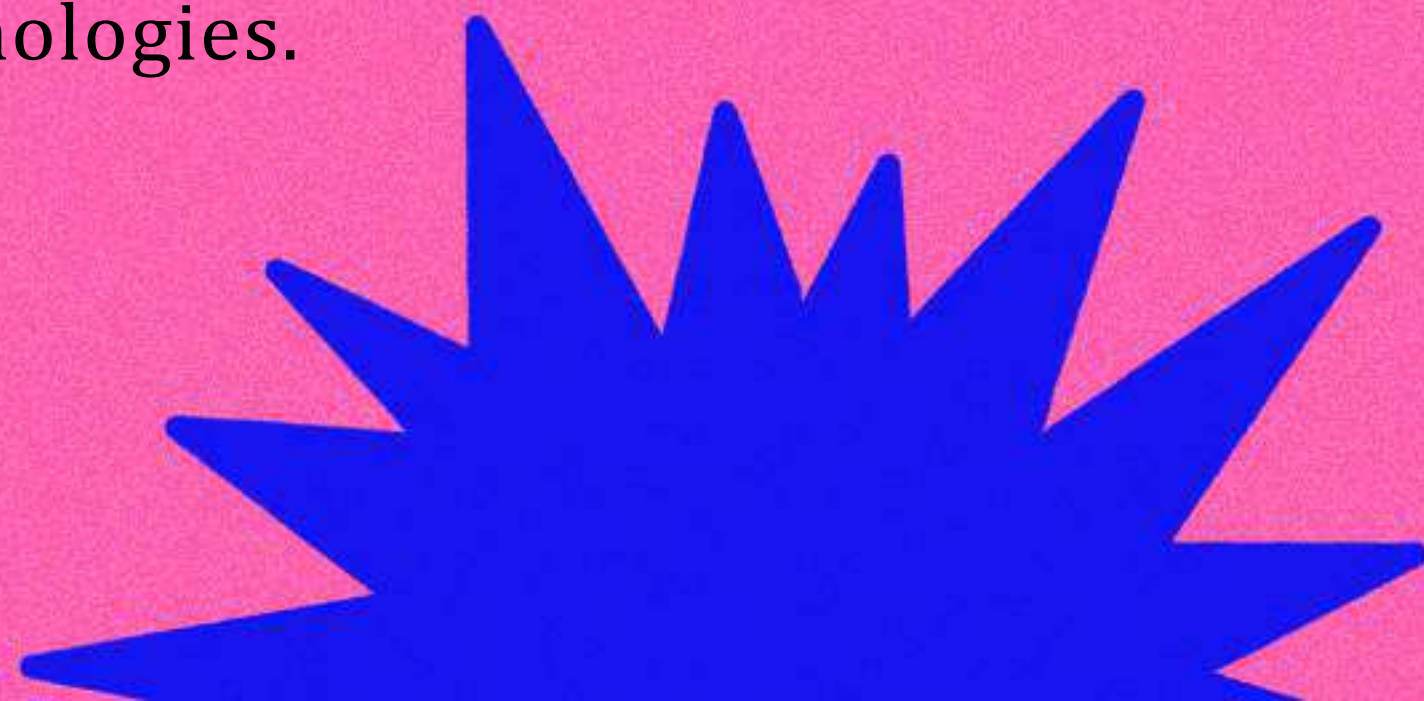
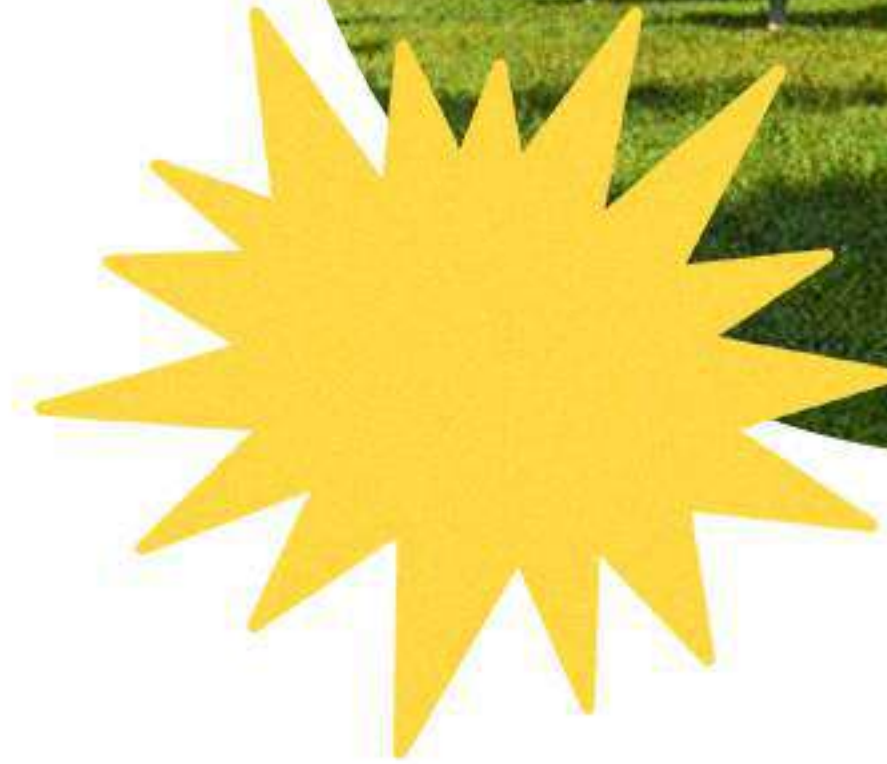
In this regard, one of the most impressive functions of sci-fi stories is their ability to provide a future perspective on current issues. Most importantly, they warn us of the potential for future dystopias to arise from these issues. Sci-fi stories dramatize and pull references from elements of our reality not only for narration purposes but also to heighten our emotional reactions. This is precisely what makes such stories equally frightening and fascinating for audiences. Both now and in the past, dystopian themes have been present in nearly every genre of speculative fiction. They are useful because they allow us to consider the potential outcomes of our decisions. In turn, this encourages us to think about what we want our future to look like. What kind of societies and lives will science innovation lead to? And what unforeseen challenges might evolve on the road to the future? Essentially, what would an energy utopia look like in real life?







**FICTIONALISING
FUTURE ENERGY:
THE POWER
OF NARRATIVES**

By constructing compelling narratives and crafting metaphors for our complex era, science fiction stories provide a way of understanding the world around us and anticipating ideas for the future. As science fiction infuses into the mainstream, and science becomes more and more a part of our everyday lives, we must examine these narratives carefully. Narratives matter because they shape our future ideas and set cultural expectations surrounding future energy technologies. Simply put, the stories we are told about the future make sense to us because of their familiarity. They purposely employ already accessible concepts that can be easily recognised and thus evoke reality. Technologies such as solar panels, wind farms and nuclear fusion make sense as viable pathways to the future because we have prior experience and thus stored memory of fictional stories where these technologies were successfully used to power the future. This establishes a symbolic link between the two, so that when we think about the future of energy, we also visualise these technologies.

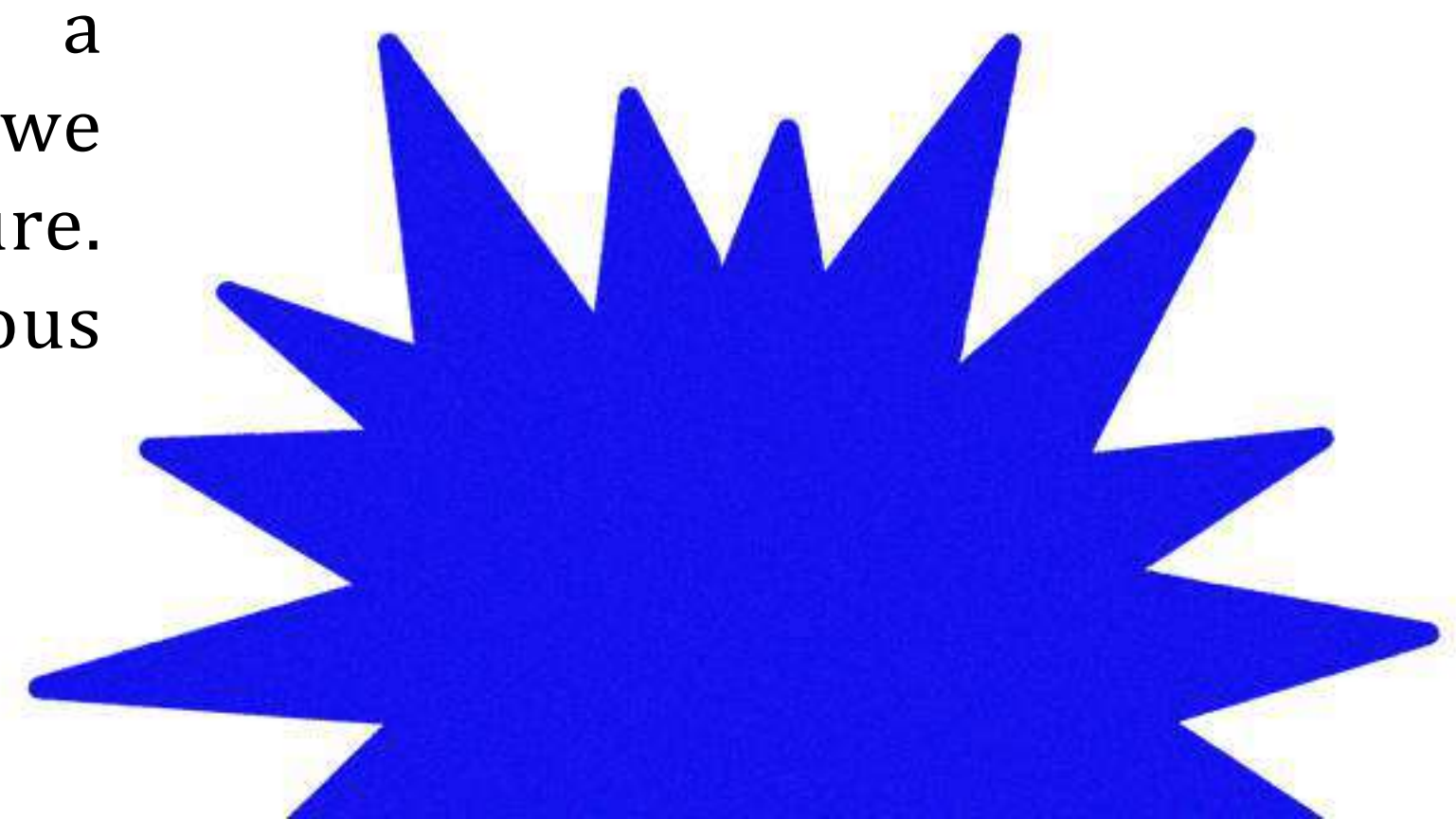




Evidently, the stories we tell influence our thoughts and perceptions and create our reality. Hence, we must be cautious of the storyteller who controls the events in a story and can intentionally or not, warp our interpretation of such events. Stories about future utopias are often fictionalised versions of the storyteller's fantasies and ideas. Certain elements in a story can reveal the biases and values of the storyteller as well as those of the society to which they belong. These include the portrayals of specific groups, methods of conflict resolution and the energy solutions offered to power the future. Our stories tend to assume that one principal form of energy will monopolise the future. Indeed, western cultures in particular seem to be increasingly rooted in such individualism which also presumes that energy innovations will come about through the work of an individual rather than a combination of efforts. If we rely on this narrative, we risk internalising a sense of apathy towards the future. This mindset serves only to satisfy our subconscious



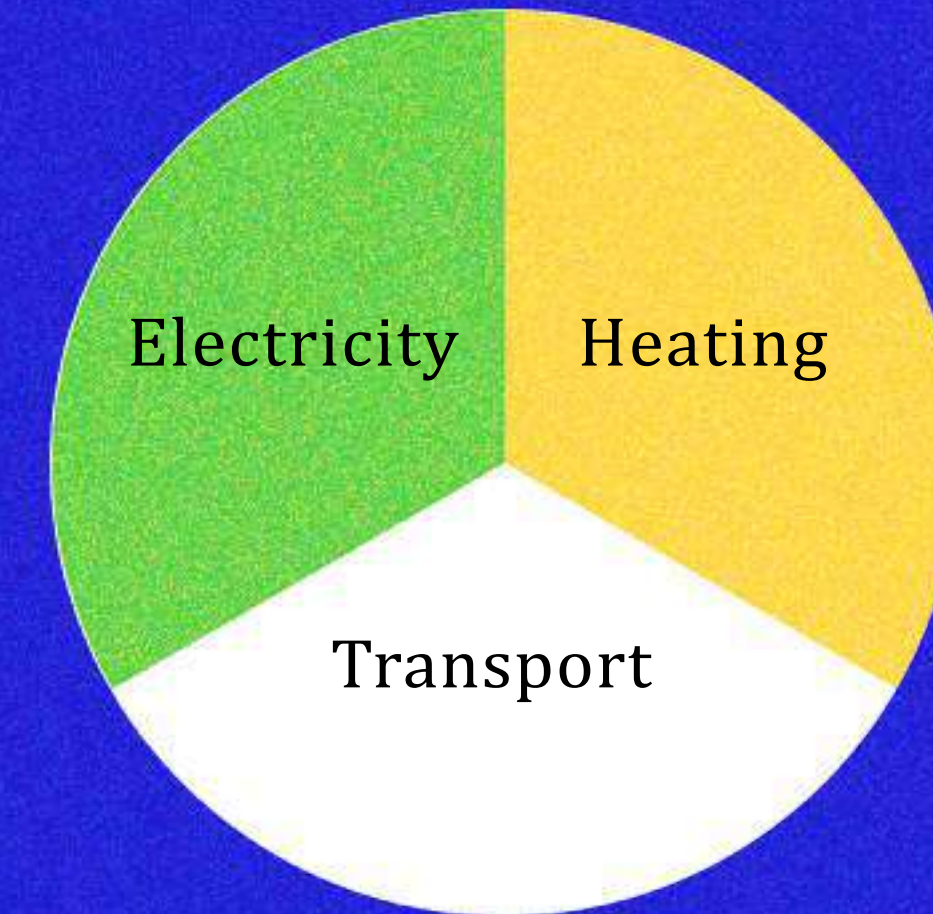
fears that a utopian future and its energies are out of reach. Especially dangerous is the suggestion that science, technology and progress can only be beneficial in the hands of the western world. This notion goes hand in hand with the tragic legacy of Western colonialism. Although each society has its own cultural characteristics, humans tend to share fixed expectations about the future. This can limit our imaginations when developing future energies. Ultimately, we should change the way we communicate about the stories and history of energy. We have a responsibility to provide a balanced and honest narrative. To do so, we must all be actively involved in writing our futures. This will involve embracing our diversity and recognising that we are all interconnected and interdependent on one another.



CURRENT FUTURE ENERGY OUTLOOKS

Now in the 21st century, future outlooks are shaped by the fossil-fuelled Global Energy Crisis. Our over-reliance on fossil fuels is heavily contributing to the destruction of our environment and an increase in greenhouse gases causing global warming. In general, energy consumption rates have been rapidly increasing as people get richer, and populations increase. Though we are often conditioned to consider energy limitations as a restricting factor to progress, the truth is that we are overly dependent on high energy flows. In industrialised societies, there is severe misallocation of energies and there appears to be no end to it! Mass-production of low-priced goods has resulted in an excessive diversity of products, a major factor in overconsumption. And so fossil fuels remain dominant in the global energy system as low-carbon energy sources simply cannot fulfil our enormous energy demands. Most are too inefficient to provide power on a large scale, or too expensive to be practical for industrial use. In 2015, fossil fuels still accounted for 86% of the world's primary energy, just 4% less than a generation ago in 1990. In this vein, the dystopian scenarios of sci-fi are hardly fiction to us since we are already witnessing the harm caused by the misuse and misallocation of energies.

Total Global Energy Consumption



Globally, over 1/3rd of electricity comes from low-carbon sources. The remaining two-thirds come from fossil fuels – mostly coal and gas. Many countries are making progress on clean electricity, but transport and heating are much harder to decarbonise. Hence electrifying other parts of the energy system could be a solution

The needs of a civilisation drive innovation and right now there is a need for alternative forms of energy. Although progress is slow, a global transition to low- or zero-carbon energy sources is now underway. And so, there is pressure to come up with more effective and inventive solutions faster. Energy innovation has been an integral part of human history and will undoubtedly continue to play a role in powering the future. Energy innovation typically consists of increasing the efficiency of current energy conversions or introducing novel energy conversions. Historically, new ways of transforming raw fuels have been the greatest driver of energy innovation. Presently, the rate of technological invention continues to advance rapidly. By embracing the interfaces between sci-fi, the imaginary, and reality, radical approaches to energy technology can be developed. Ultimately, major research will be needed to make clean energy less expensive than fossil fuels, and just as reliable.

Still, a transition to a new form of energy will have to involve abandoning existing practices which is almost impossible to do without causing major societal disruptions. As well, many developing countries are highly dependent on fossil fuels to

power economic growth. Therefore, any plausible route to the future must provide opportunities to allow the continued development of these countries. As long as existing energy inequalities are not resolved, they will undoubtedly persist into the future. With climate change progressing at an alarming rate, if we continue to ignore the poorest nations of the world, we risk ruining the future for us all. Sustainability is thus one of the key themes for future energy development; both social and environmental. This means ensuring that the future is just and fair. We already have the resources to power a sustainable future, they are just not well distributed yet.

CONCLUSION

We, humans, have been imagining future worlds of energy for more than two centuries. Although our stories tend to assume that the path to the future will be linear, history has shown that this is rarely the case. The reality is that the future is mostly random and unpredictable. Therefore, science fiction is not a tool for predicting the future. Instead, it is relevant for what it reveals about our relationship with each other and the world around us by providing a humanistic context for future issues.

Science fiction was born out of turbulence and uncertainty as it provided a shield in the face of overwhelming change. And so, as we confront some of the greatest challenges humanity has ever faced, science fiction can help shield us from total social paralysis. It gives us the tools to craft our future and most importantly, reminds us that the future is not fixed: we control the events in our story, and we have all the strategies we need to create a better, more sustainable world for everyone.



**THANK YOU
FOR READING!**

A digital essay by Ayomide Ajani