



SHOCKED

De-risking the energy transition

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*** A global temperature check
on the energy sector in an
era of profound uncertainty**

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“This period of extreme uncertainty provides a unique opportunity to apply scientific insight and creative thinking to the complexity of the current global energy crisis.”

Foreword

I recall in 2007 hearing Al Gore speak at a global GHD event in Melbourne, Australia and being struck then at the urgent solutions required to address issues affecting both climate and society.

Today, energy and its security are at the nexus of some of the most important megatrends impacting the world.

We are now feeling the aftershocks of seismic geopolitical tensions that have propelled energy security to the top of the corporate and political agenda. The ripples across trade and finance have permanently transformed the energy market; this disruption is impacting economies and communities more significantly than ever before. Rising energy prices are driving a cost-of-living crisis that is leading to direct government intervention in energy markets across the globe.

Underlying all of this, of course, is the ongoing climate challenge and a growing appreciation of the enormity of the infrastructure build required to adapt to — and mitigate the impacts of — a warming planet. The ability to achieve global net-zero emissions goals is almost wholly reliant on a switch to renewable power generation and low-carbon fuels, which is pressuring the energy sector to decarbonise first and fast.

This period of extreme uncertainty provides a unique opportunity to apply scientific insight and creative thinking to the complexity of the current global energy crisis. Co-creating an enduring transformation and exploring new technical and engineered solutions with policymakers and energy leaders will strengthen a shared commitment toward not only a sustainable transition, but a just one. To stay the course to a net-zero future, we must take rational, collective action and explore all potential routes out of the current maelstrom.

The SHOCKED trilemma

Three distinct, but interconnected, shocks — security, society and climate — now confront the energy sector. It is in the context of this ‘trilemma’ that GHD undertook SHOCKED: one of the largest global research studies ever conducted among energy sector leaders. We wanted to provide our partners with insight into the current energy crisis and most importantly, an informed perspective on opportunities to de-risk the energy transition in this period of uncertainty. It is their businesses at the centre of this shock; businesses that are being impacted from all angles — strategic, operational, financial and reputational.

SHOCKED reveals that 94% of respondents believe the current energy crisis is the greatest to have impacted their market in decades. It also shows that the crisis has dented capital flows into projects, with CFOs who took part in the study estimating that investment levels during the crisis (2020 to 2022) were USD203 billion lower than they otherwise would have been. Importantly, in this critical decade for energy transition, half of leaders (47%) say the crisis has decelerated their net-zero plans by an average of six years. What is clear is that this energy crisis is unique and will transform the sector forever. Unlike previous crises — such as the oil shocks of the 1970s and 1990s — the current shock is global, multifaceted and multidimensional. Crucially, underlying the current focus on energy security is a drive to decarbonise that is set to reshape the sector beyond recognition.

But there's hope. While the situation might sound dire, SHOCKED paints a picture of an industry at the cutting edge of innovation, fully committed to the energy transition and with the deep technical expertise to innovate and achieve emissions reduction goals. The barriers facing the industry are significant, but the sense of urgency and motivation to achieve net zero by 2050 is greater. We have the capability, the will and the means to succeed.

By pulling multiple levers simultaneously, corporates, governments, public institutions and private citizens can navigate the current energy crisis and prepare for future shocks. With a focus on equity and inclusion, the sector can also foster economic growth, job creation and global competitiveness in the emerging clean energy market. We have an opportunity right now to take considered, collaborative action and reduce risk through sound advice, scientific rigour and innovative engineering.

In what will soon be 100 years of operation for GHD, we are increasingly being called upon to guide enduring and sustainable change. By galvanising our efforts, we can ensure that the energy transition paves the way for a more sustainable, prosperous and resilient world for generations to come.

Ashley Wright
Chief Executive Officer, GHD



De-risking the energy transition



Table of contents

6	Methodology
8	Executive summary
12	Introduction: A sector in SHOCK
16	01 The security shock
22	02 The society shock
30	03 The climate shock
40	Conclusion: A clarion call
45	Authors & Contacts

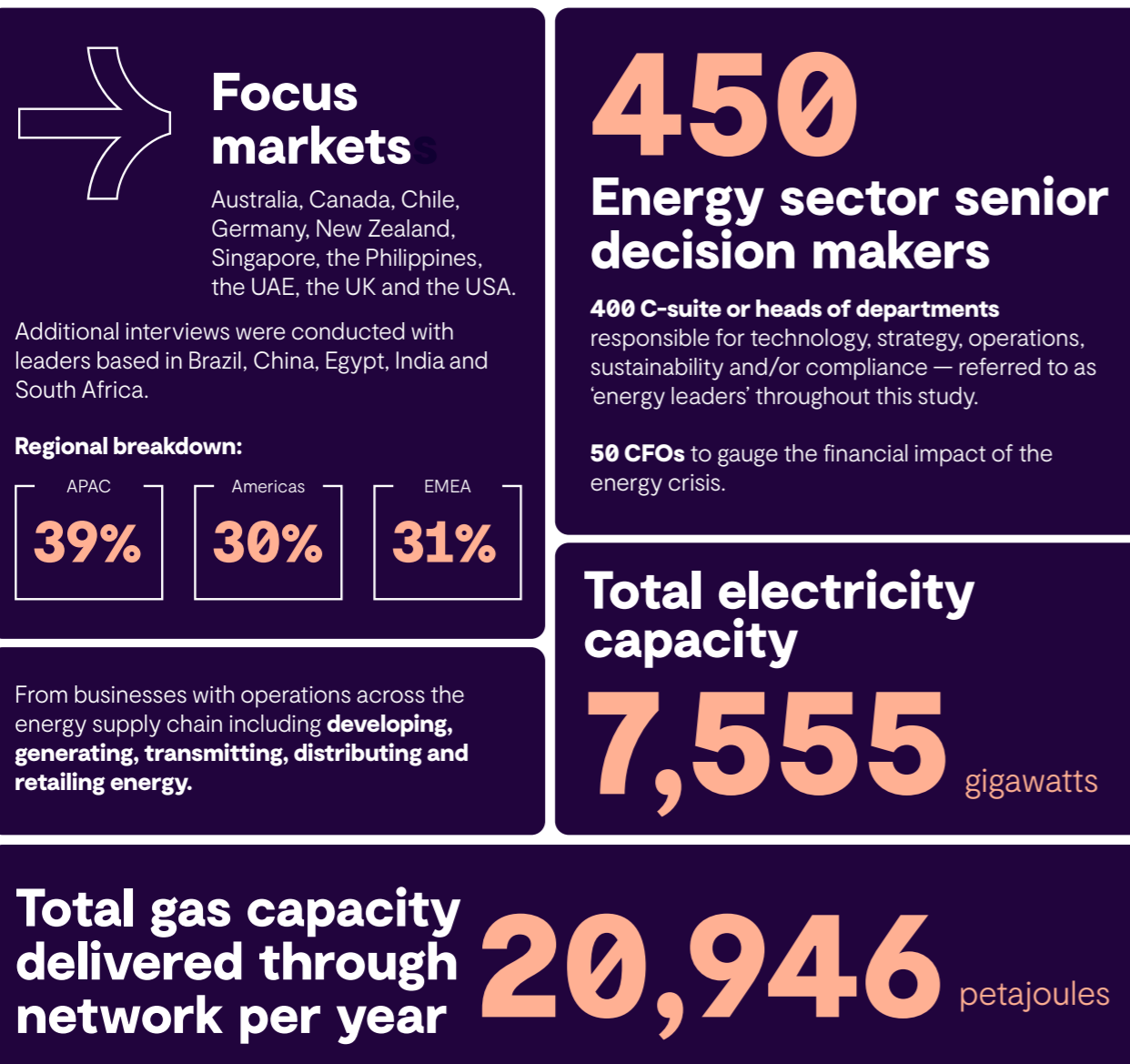
Methodology

SHOCKED is one of the largest studies ever conducted among the global energy sector C-suite. It utilises two core research methods.

1. Global quantitative opinion research

An independent opinion research study interviewing 450 senior decision-makers in the energy sector from across the globe. The interviews took place in February and March 2023 and were conducted under the ethical research guidelines set by both the MRS (Market Research Society) and ESOMAR (European Society for Opinion and Market Research).

The **SHOCKED** sample



2. Qualitative interviews with industry thought leaders

In-depth interviews conducted with GHD's partners and the wider global energy ecosystem to provide a layer of qualitative insight to the research.

- **Erin Bradley**, Head of Business Development RNG Canada, Shell
- **Scott Dodd**, Director of Business Development, Enbridge
- **Professor Chris Greig**, Senior Research Scientist, Princeton University; Lead Study Author: Net Zero America and steering committee member, Net Zero Australia
- **Kam Ho**, Managing Director (Australia), Total Eren
- **Thierry Kalfon**, CEO, Renewables Australia & South-East Asia, Engie
- **Danielle LaCroix**, Senior Director, CNO Strategic Initiatives, Bruce Power
- **Dana Omran**, Global Director, Strategy & Operations and Urban Power Program Director, Resilient Cities Network
- **Amy Philbrook**, Representative to the International Energy Agency Task 44 – Flexible Bioenergy
- **Alan Yu**, Founder and CEO, LAVO

Credits

Research design and concept development by GHD and Man Bites Dog.



Executive summary

→ **SHOCKED** summarised

94%

of energy leaders say the global energy crisis is the **most severe** their market has ever experienced.

The crisis has restricted investment: energy sector CFOs told us that investment levels during the crisis were

USD
203 Bn

↓ **lower than**
they otherwise would have been.

The **SHOCKED** trilemma

The **security** shock:

Extreme market volatility and geopolitical tensions have put energy security high on the global agenda.



of energy leaders say the **security of energy supply is the number one concern** for their organisation.

On average, **energy companies could continue to supply energy** in line with normal demand for just



if cut off from energy imports.

The **society** shock:

Societal pressure on the energy sector to provide reliable, affordable, low-carbon energy has never been greater.

Over three-quarters

76%

of energy leaders say the energy crisis is **reducing** the

standard of living across the globe.

71%

say consumer backlash **from increased energy bills** is a grave threat to their business.

The **climate** shock:

The climate crisis continues to force an acceleration of energy transition, but progress towards net zero is being impacted by the complex dynamics at play.

Over

3/4


of energy leaders believe their industry is **under more pressure** than any other to

decarbonise

42%

say the current energy crisis has **accelerated their organisation's net-zero plans** — by an average of five years.

But almost half (47%) report that the crisis has **decelerated their net-zero plans** — by an average of six years.



Building SHOCK- resistance to de-risk the transition

**Continue reading: Unlock the full report for
practical examples and actionable insights**