

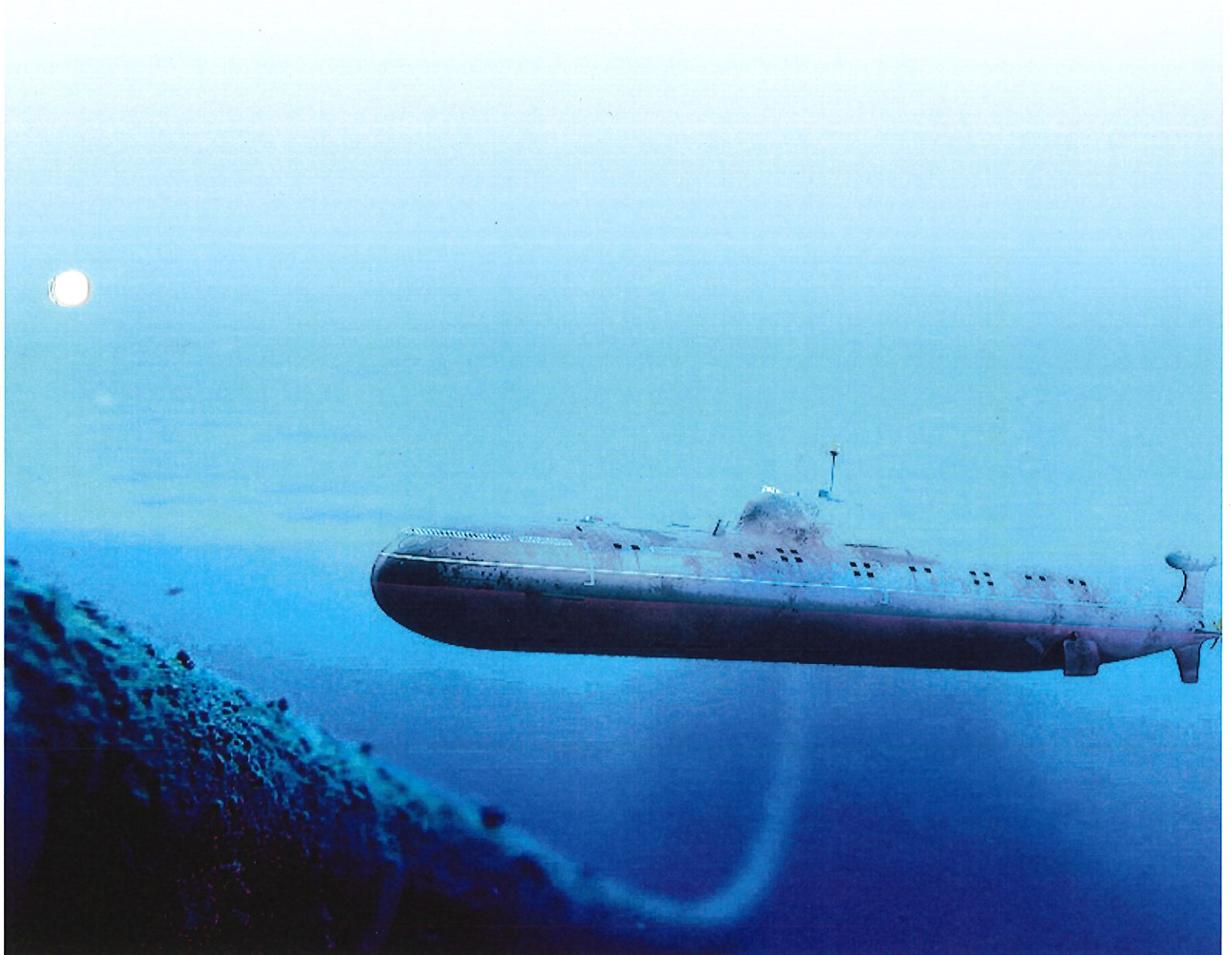
Undersea Cables

Policy
Exchange 

Indispensable, insecure

Rishi Sunak MP

Foreword by Admiral James Stavridis, USN (Ret),
former NATO Supreme Allied Commander Europe



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About the Author

Rishi Sunak is the Member of Parliament for Richmond (Yorkshire). He was elected in 2015 and has the privilege of representing both the Army's largest garrison, Catterick Garrison, and also RAF Leeming.

Before entering Parliament, Rishi spent his professional career in business and finance, living and working internationally. He co-founded an investment firm, working with companies from California to Bangalore. He then used that experience to help small and entrepreneurial British companies grow successfully.

Rishi holds a degree in Philosophy, Politics and Economics from Oxford University and was a Fulbright Scholar at Stanford University where he studied for his MBA. He is the author of *A Portrait of Modern Britain* (Policy Exchange, 2014), *The Free Ports Opportunity* (Centre for Policy Studies, 2016) and *A New Era for Retail Bonds* (Centre for Policy Studies, 2017).

Acknowledgements

During the course of researching this report, specific issues of concern and sites of particular risk were identified. These have been the subject of separate correspondence with the responsible authorities in Government, but which, for national security reasons, are not detailed here.

○ This report was based entirely on publicly available information.

Considerable thanks go to the excellent Isaac Delestre and Philip Naylor for their superlative research, and the rest of the team for their fantastic support and hard work.

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Published by
Policy Exchange, 8 – 10 Great George Street, Westminster, London SW1P 3AB

www.policyexchange.org.uk

ISBN: 978-1-910812-38-9

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Executive Summary

In the digital age of cloud computing, the idea that steel and plastic pipes are integral to our life seems anachronistic. Nothing could be further than the truth. While few realise it, our ability to transmit confidential information, to conduct financial transactions and to communicate internationally all depend upon a global network of physical cables lying under the sea.

Comprising more than half a million miles of fibre-optics this network is the indispensable infrastructure of the 21st century. But as our dependency has increased, security remains a challenge. Funnelled through exposed choke points (often with minimal protection) and their isolated deep sea locations entirely public, the arteries upon which the Internet and our modern world depends have been left highly vulnerable.

Whether from terrorist activity or an increasingly bellicose Russian naval presence, the threat of these vulnerabilities being exploited is growing. A successful attack would deal a crippling blow to Britain's security and prosperity. The threat is nothing short of existential. Working with global partners it is crucial that we act now to protect against these dangers, ensuring that our century's greatest innovation does not also become its undoing.

Chapter 1: The Vital Importance of Undersea Cables

- The UK and the world is highly dependent on undersea communications cables.
- 97% of global communications are still transmitted via cables lying deep beneath the oceans.
- Today's submarine network comprises an estimated 213 independent cable systems and 545,018 miles of fibre.
- There is no alternative to using these undersea cables. Satellite technology cannot effectively handle the communications requirements of the modern digital economy and society.
- In a single day, these cables carry some \$10 trillion of financial transfers and process some 15 million financial transactions.

Chapter 2: Cables Have Inadequate Protection in International Law

- Undersea cables are largely owned and installed by private communications companies. As a result they are neglected by national governments.
- Current international law (largely the United Nations Convention on the Law of the Sea, (UNCLOS)) is highly deficient in ensuring the security of undersea cables.
- UNCLOS does not give states adequate jurisdiction over offenders, the ability to board suspect vessels, protect cables on land, and is not consistently enacted domestically by all nation states.
- Current international law is more suited to the peripheral role cables played in the 70s and 80s, rather than to the indispensable status they hold today.

Chapter 3: The Threats to Undersea Cables

- Sabotage of undersea cable infrastructure is an existential threat to the UK. The result would be to damage commerce and disrupt government-to-government communications, potentially leading to economic turmoil and civil disorder.
- The location of almost every undersea cable in the world is publicly available, making them uniquely vulnerable to hostile actors.
- Their vulnerability is accentuated by international choke points where large amounts of cable capacity are funnelled into concentrated geographic areas both at sea and on land.
- Multiple incidents of accidental damage have proven that cable outages hinder the ability of governments to communicate effectively with each other and cause economic distress.
- Cables face risk at sea, on land, and in cyberspace.
- At sea, the barriers to entry for successful attacks on cable infrastructure are low. While submarine warfare is the greatest threat, a successful attack could require only unsophisticated and widely available equipment and vessels.
- On land, UK cables are highly concentrated in a small number of landing sites. These sites are not secure and present vulnerable targets for terrorism.
- Cyber-attacks against network management systems used to control cable infrastructure have the potential to hand hackers a kill-switch to the connectivity of entire regions.

Chapter 4: The Risk from Russia

- Russia has both specific experience and an interest in using unconventional or hybrid means of warfare, like disrupting communications networks.
- In Crimea, Russia easily cut all digital communications from the peninsula and it has also been “aggressively operating” near undersea cables in Scandinavia and the Atlantic.
- Russia is attracted to hybrid warfare like this because it offers the scope for plausible deniability, involves limited loss of human life, and exploits the grey areas of NATO Article 5 mutual responsibilities. As a result, mobilising international action against an offensive would be difficult.
- More generally, Russia is investing significantly in its naval capacity and plans to have the world’s second largest navy by 2027.
- In addition to traditional submarines, this investment includes Yantar class intelligence ships and auxiliary submarines, both of which are specifically able to disrupt undersea cable infrastructure.
- Russia is increasingly willing to aggressively utilise its naval capability.
- Examples of this are clear in UK, US, Finland, Sweden, Mediterranean Sea and in the GIUK Gap (the waters between Greenland, Iceland and the north of the UK).

Chapter 5: Recommendations

- 1 The next Strategic Defence and Security Review should specifically consider the risks to Britain’s security from attacks on its undersea cable infrastructure and whether our maritime assets are sufficient to protect us against this risk.
- 2 The next Cabinet Office National Risk Assessment and Risk Register of Civil Emergencies should evaluate the risk of disruption to cables infrastructure and outline mitigation strategies.
- 3 The UK Centre for the Protection of National Infrastructure should carry out a full review of how domestic cable landing sites are protected.
- 4 Establish Cable Protection Zones in areas with high value communication corridors, similar to Australia and New Zealand.
- 5 Require cable owners to place relatively cheap sensors that detect sonar frequencies near key undersea infrastructure and along cable routes.

- 6 Work with the private sector and overseas governments to promote the greater geographic diversity of undersea cables and the better deployment of redundant “dark cables” to build resilience in the cable system.
- 7 Push for the adoption of a new international treaty that protects submarine cables.
- 8 Press at the NATO level for more naval exercises and war games to hone potential responses to an attack on undersea cable infrastructure and review whether NATO maritime capabilities are sufficient to protect freedom of the seas and our sea lanes of communication.