Future of Utilities Study

TAQA + Bloomberg Media Studios

Foreword

The transition to net zero requires a significant scale-up of clean power, leveraging active participation from various stakeholders, including governments, financial institutions, civil society and corporations. At the forefront of this journey will be utilities which are not just participants in the drive toward net zero but central architects of this new, sustainable world. As builders of large-scale infrastructure projects, utilities are instrumental in generating and moving power across vast distances and transitioning from traditional energy sources to renewable ones. They are also at the helm of transforming other critical systems, such as water management, to align with emerging sustainability goals.

The energy transition presents profound implications for the utility sector, necessitating fundamental changes in their project development, customer engagement, regulatory frameworks, and operational methodologies. BloombergNEF's research underscores the complexities of this shift, noting the need to triple renewable energy capacity by 2030 as well as support the widespread electrification of transport, heating, and industry.

The Future of Utilities study, jointly presented by TAQA and Bloomberg Media, offers an insightful glimpse into an industry at a pivotal juncture. Almost half of the sector's professionals are advocating for a broad-based transformation toward sustainability, according to the study. The report contains some surprising findings, including that a mere 5% of utility respondents perceive current regulations, which critically shape utilities' operations and behavior, as a barrier. This suggests a sector that might be underestimating the need for regulatory reform. Elsewhere, the study reveals doubts over whether 2030 carbon reduction targets can be achieved, and the challenges associated with integrating higher penetrations of renewable energy.

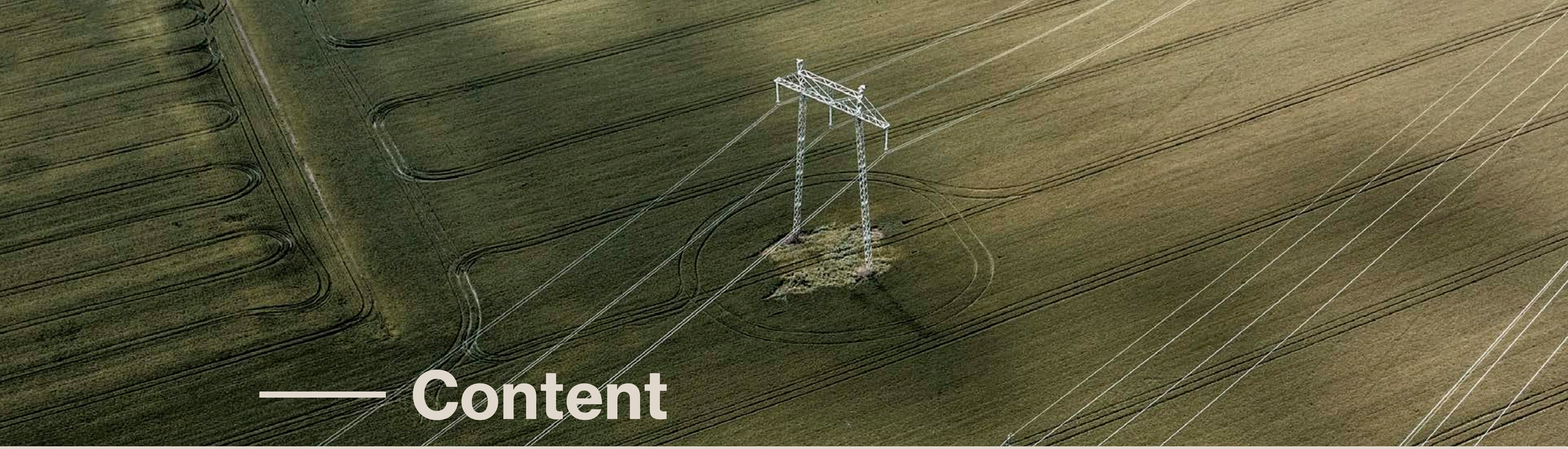
This is why the study is an important read. It shows how utilities, as key participants in the transition, are thinking about the global push toward sustainable energy. The insights it provides are valuable for understanding the complex dynamics and challenges these vital entities face in this era of transformation.

Sincerely,

Jon Moore
CEO, BloombergNEF

The Future of Utilities

Utilities provide the critical infrastructure that powers our homes, businesses, and industries, yet their role in powering the energy transition often goes unnoticed. Bloomberg Media and TAQA's Future of Utilities Study explores how the utilities sector can collaborate with customers, corporations, and governments to enable a more sustainable future. By annually surveying a diverse range of utility leaders around the globe, the report intends to provide an ongoing assessment of the principal drivers, the challenges, and the evolving landscape of utility innovation on the path to net zero.



Content

Executive Summary

Current Trajectory of the Utilities Sector

There is a clear consensus among respondents that utilities are poised for an immense transformation in order to be successful in 2030. The sector recognizes that the status quo is insufficient, and utilities are prepared to embrace the changes that a sustainable energy future demands.

More urgently pursue robust policies and innovative solutions, as minimal change is not an option.

Barriers to Utility Innovation and Change

Poor partnerships with technology providers and low awareness of the latest alternatives are the largest impediments to innovation, outranking regulation and upfront cost. This highlights a need to establish more effective collaboration and communication mechanisms.

Treat collaboration as an absolute requirement in a sector bracing for change.

Top Enablers to Utilities Achieving Net Zero

Building strong customer relationships is seen as both an extremely effective and the single most feasible net zero enabler. This signals an industry shift toward customer empowerment, with an increasing expectation for customers to generate their own energy and feedback into the grid.

Adopt customer-centric models to best enable net zero goals and remain competitive.

Top Threats to Utilities Achieving Net Zero

The complexity of integrating renewables, the vulnerability of supply chains, and lack of access to capital far outweigh climate, geopolitical, and regulatory threats to net zero, with regulation actually seen by most respondents as a positive net zero enabler.

Lead innovation in grid tech to ensure seamless incorporation of renewables and facilitate net zero.

Current Trajectory of the Utilities Sector

There is a clear consensus among respondents that utilities are poised for an immense transformation in order to be successful in 2030. The sector recognizes that the status quo is insufficient, and utilities are prepared to embrace the changes that a sustainable energy future demands.

Utilities are actively pursuing a more sustainable future.

Takeaway

4 out of 5 respondents agree that utilities are actively pursuing a future geared towards net zero.

All countries show the majority of respondents agreeing that utilities are actively pursuing a more sustainable future, with even the most skeptical countries, the KSA and UAE, largely acknowledging the pursuit of net zero (68% strongly or somewhat agree).

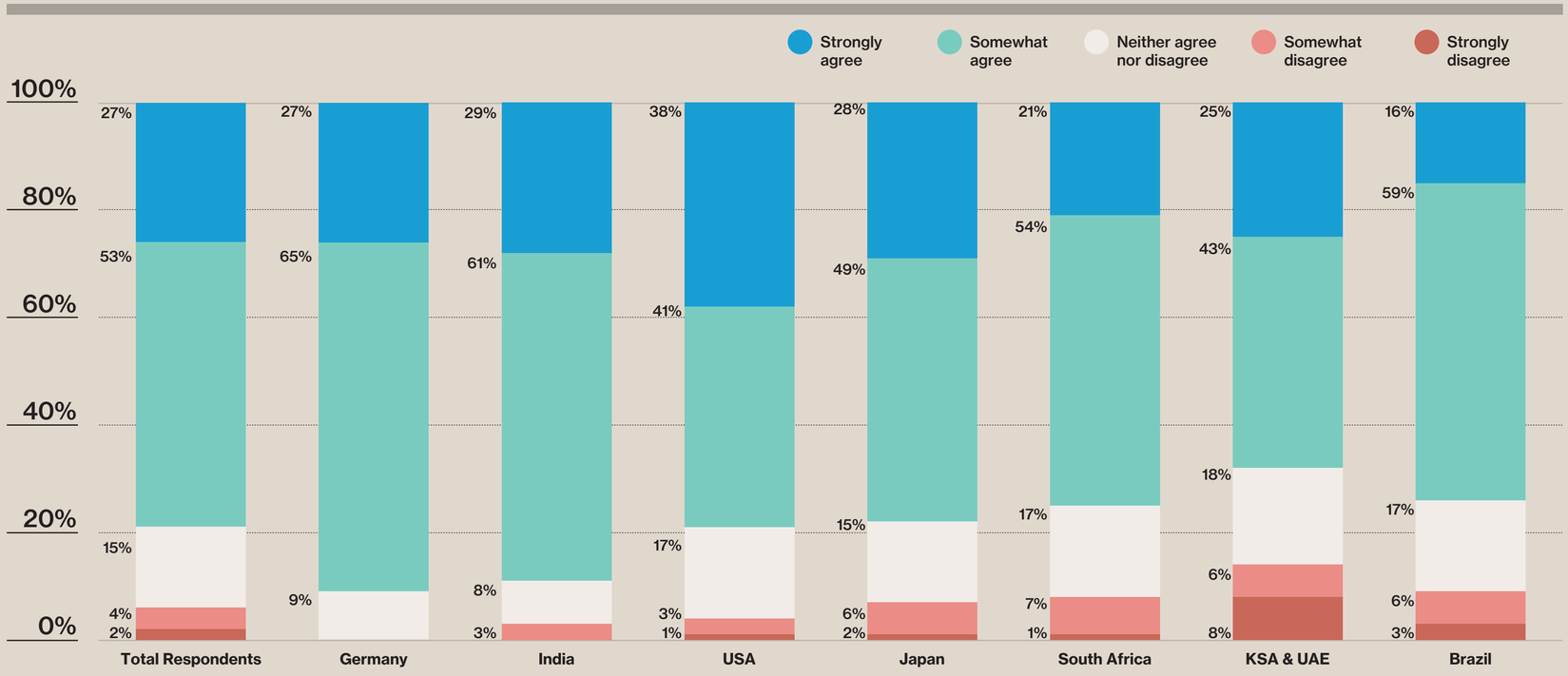
“The future role of utilities will be to lead the transition towards cleaner energy sources, promote energy efficiency, and actively collaborate with individuals, businesses, and governments to achieve sustainability goals.”

C-Level Executive, Allied Manufacturing Organization, United States

Q2

How much do you agree with the following statement: Utility companies are actively pursuing a more sustainable future geared towards net zero.

Sentiment on Utility Pursuit of Sustainability by Country



Utilities are actively pursuing a more sustainable future.

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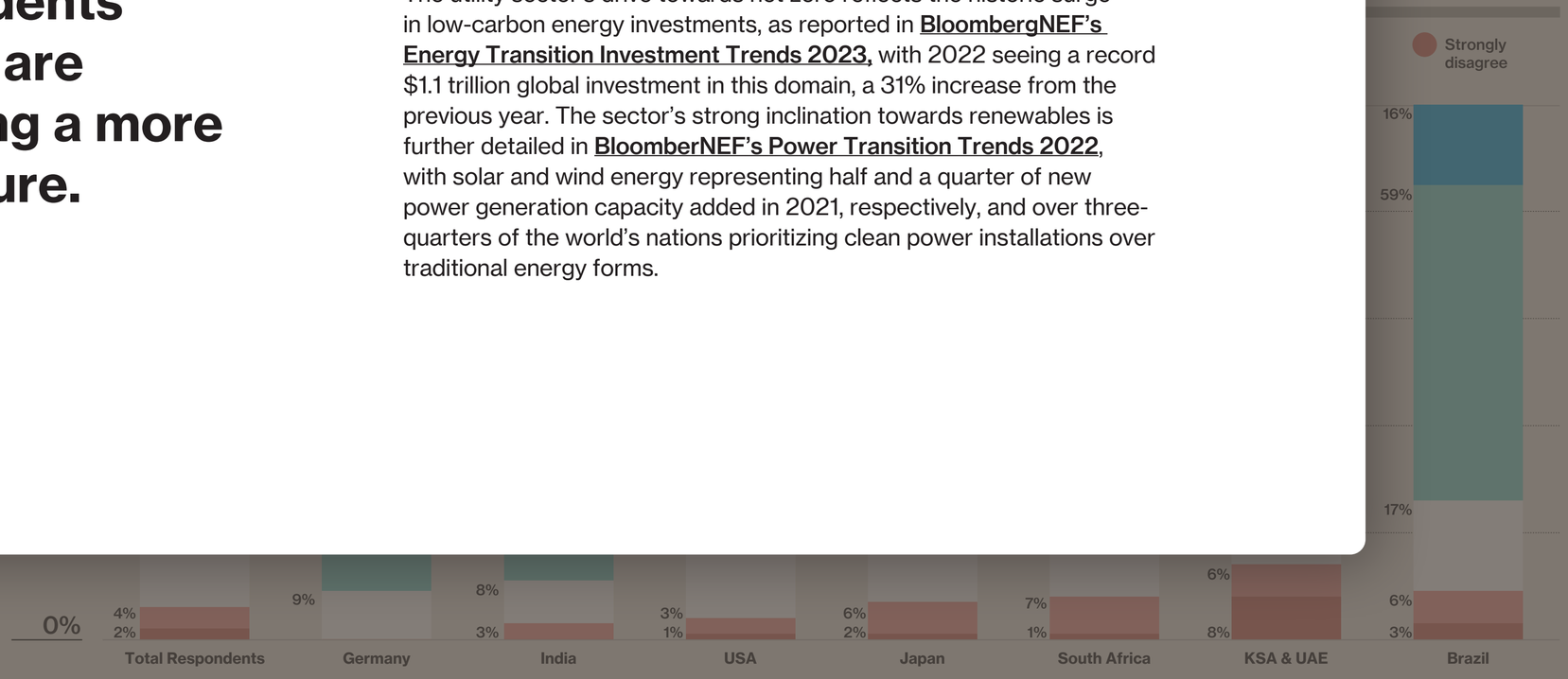
The Finding

79% of respondents believe utilities are actively pursuing a more sustainable future.

The Context

The utility sector's drive towards net zero reflects the historic surge in low-carbon energy investments, as reported in **BloombergNEF's Energy Transition Investment Trends 2023,** with 2022 seeing a record $1.1 trillion global investment in this domain, a 31% increase from the previous year. The sector's strong inclination towards renewables is further detailed in **BloomberNEF's Power Transition Trends 2022**, with solar and wind energy representing half and a quarter of new power generation capacity added in 2021, respectively, and over three-quarters of the world's nations prioritizing clean power installations over traditional energy forms.



Q2

How much do you agree with the following statement: Utility companies are actively pursuing a more sustainable future geared towards net zero.

Confidence in reaching current targets is low.

Takeaway

The lagging confidence in reaching 2030 targets signals a need for utility companies to more urgently pursue robust policies and innovative solutions.

Overall, respondents report a confidence level of only 44% in reaching their domestic 2030 carbon reduction targets, but this confidence rises notably to 69% in regard to 2050 goals.

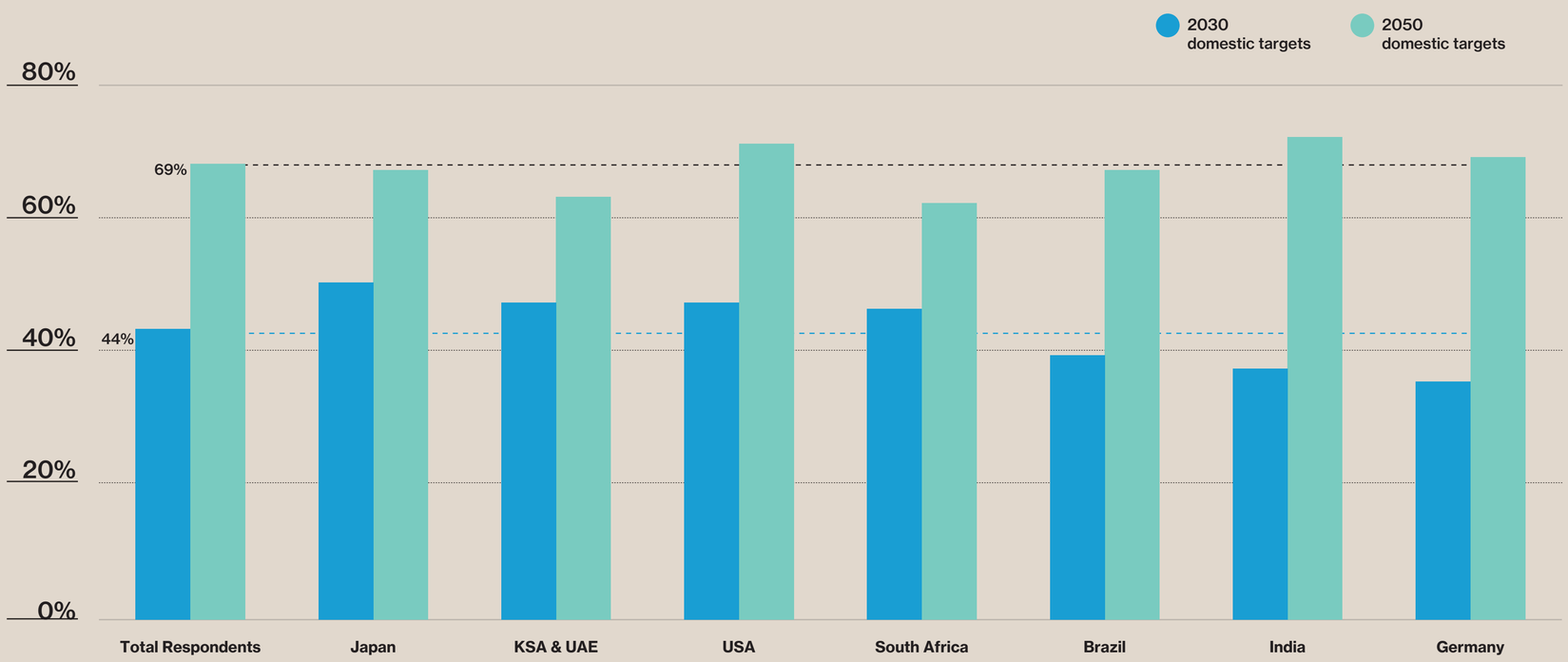
KSA & UAE are among the most bullish in reaching 2030 goals, but the least so in reaching 2050 goals.

India and Germany are the inverse: far more bullish in 2050 than 2030.

Q4

Considering the utility sector of the country you live and work in, how confident are you in their ability to reach their carbon reduction targets? Please adjust slider from 0% (no confidence/ progress) to 100% (total confidence/goal achieved).

Confidence in Reaching Domestic Carbon Reduction Targets



Nearly all utility leaders agree: A period of immense change and transformation is coming.

Takeaway

Utilities are poised for a significant transformation to be successful in 2030, with a near consensus that the status quo is insufficient and minimal change is not an option. This reflects an industry mindset that is forward-thinking and prepared to embrace the changes that a sustainable energy future demands.

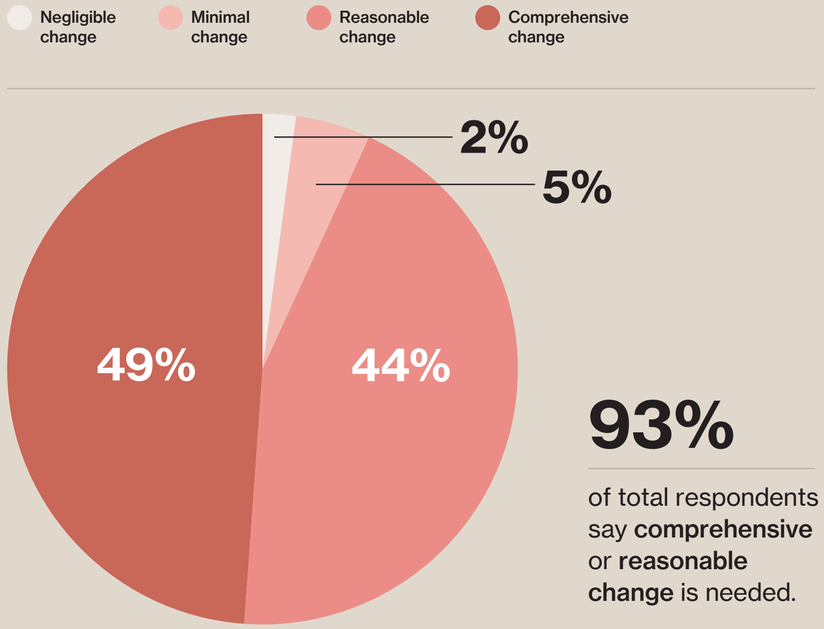
> "Utilities must take steps to get ready for the effects of climate change that are already occurring and cannot be avoided."

President, Utilities Professional, Electricity Generation, Transmission and Distribution, United States

Q3

How much change is required by the utility entities you work with in order to be successful in a 2030 energy environment?

Change Required to Be Successful in a 2030 Energy Environment



93%

of total respondents say **comprehensive** or **reasonable change** is needed.

% of Respondents Saying Comprehensive / Reasonable Change Is Required

Germany, India, and RSA are the most inclined towards change with nearly all respondents saying comprehensive or reasonable change is required.

Nearly all utility leaders agree: A period of immense change and transformation is coming.

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The Finding

The confidence level in achieving domestic 2030 targets is a mere 44%, and 93% of respondents anticipate that comprehensive or reasonable change is required.

The Context

The utility sector is on the brink of profound transformation. The enormous challenge of achieving 2030 targets is illuminated in BloombergNEF's New Energy Outlook 2022. BNEF found that despite reaching the historic milestone of $1.1 trillion in global energy transition investment in 2022, it falls drastically short of the $4.55 trillion in annual investment required between 2023 and 2030 to keep on track for global net zero. By the 2040s, this requirement escalates to $7.87 trillion annually, with electrified transport, grids, and renewable energy as primary investment areas, further highlighting the urgency and scale of this oncoming transformation.

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KSA & UAE

Q3

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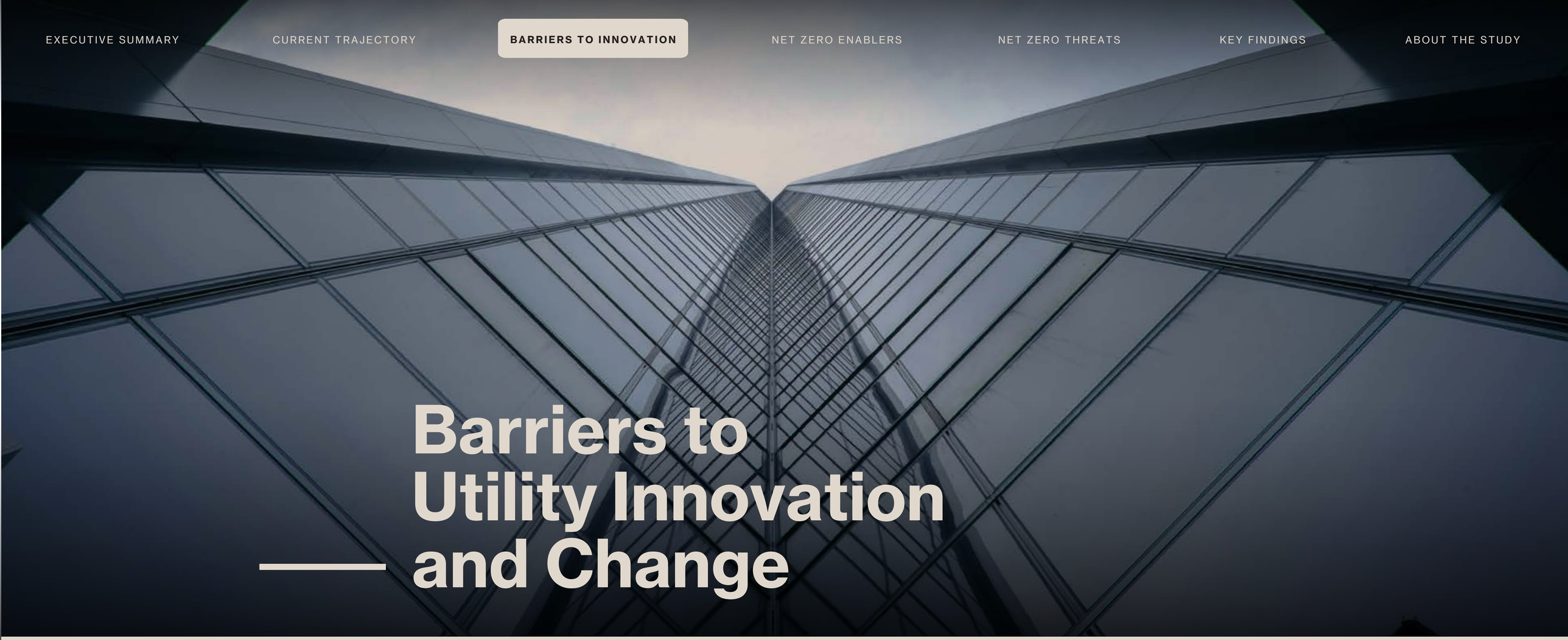


Barriers to Utility Innovation and Change

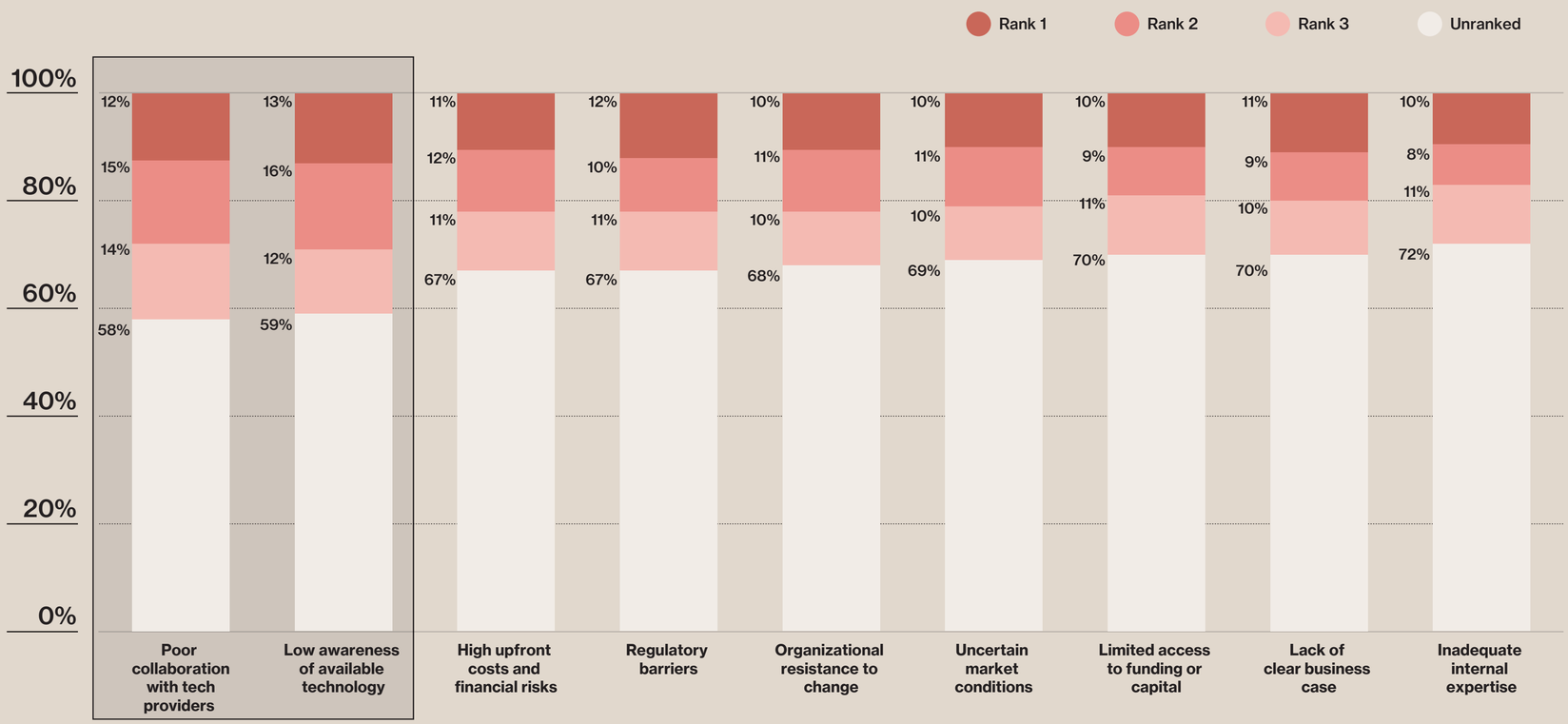
Poor partnerships with technology providers and low awareness of the latest alternatives are the largest impediments to innovation, outranking regulation and upfront cost. This highlights a need to establish more effective collaboration and communication mechanisms.

Barriers to higher innovation investment are often more about lack of collaboration and awareness than regulation or even cost.

Takeaway

Collaboration should be seen as a requirement in a utilities sector bracing for change. Utility leaders that put in place effective partnership mechanisms and communication channels will gain greater efficiency, sustainability, and market competitiveness.

Top Barriers to Higher Innovation Investment in Utilities



Q14

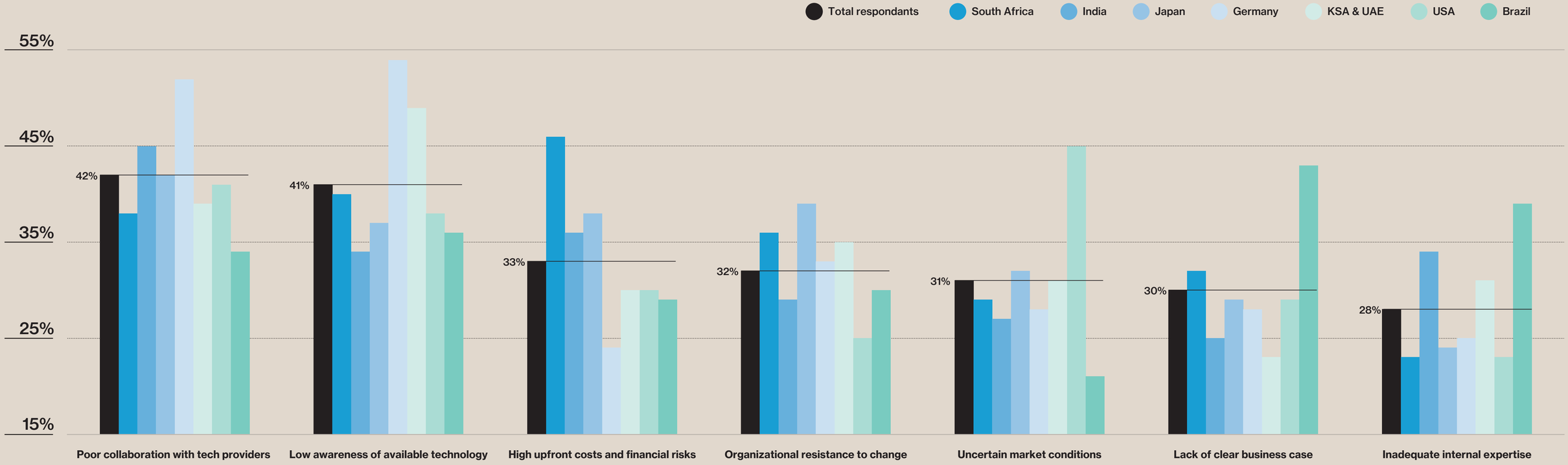
Rank the top 3 barriers for higher innovation investment in utilities.

While low awareness and poor collaboration are widespread barriers to innovation, key regional nuances emerge.

Q14

Rank the top 3 barriers for higher innovation investment in utilities.

Top Barriers to Higher Innovation Investment in Utilities: % Ranking in Top 3



Barriers to innovation and change vary by region, with each country's respondents likely to rank different barriers.

Q14

Rank the top 3 barriers for higher innovation investment in utilities.

Top Barriers to Higher Innovation Investment by Country

South Africa

more likely to rank **high upfront costs** as a top barrier (vs. the average respondent).

RSA uniquely ranks high upfront costs as the top barrier, while all other countries see larger barriers than pure cost.

India

more likely to rank **inadequate internal expertise** as a top barrier.

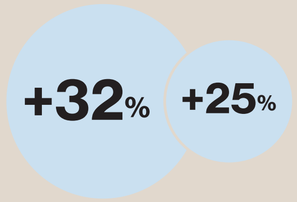
Upskilling the workforce is the biggest need to drive innovation in Indian utilities.

Japan

more likely to rank **organizational resistance to change** as a top barrier.

Japan sees internal resistance and risk aversion as a top barrier, unique among all countries.

Germany



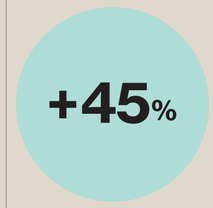
more likely to rank **low awareness of available technology** and **poor collaboration with tech partners** as top barriers.

KSA & UAE

more likely to rank **low awareness of available technology** as a top barrier.

German, KSA, and UAE respondents are most aligned with total respondents. Knowledge dissemination platforms are most useful to spurring innovation and change in these countries.

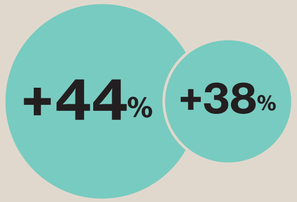
USA



more likely to rank **uncertain market conditions** as a top barrier.

The US is the sole country to consistently rank uncertain market conditions as a top barrier to innovation.

Brazil



more likely to rank **lack of clear business case** and **inadequate internal expertise** as top barriers.

Brazil has the most fundamental challenges: less able to make the business case for innovation as well as lacking the internal expertise.

> [Utilities] will need to adapt to changing regulatory compliance [while also] adopting innovative technology and techniques."

Utilities Sector VP, Electricity Generation, Transmission, and Distribution, United States

Water experts are the most likely to rank low awareness of available technology as a top barrier.

Takeaway

Raising awareness of the latest technologies and establishing knowledge dissemination platforms appear especially important for Water Utilities.

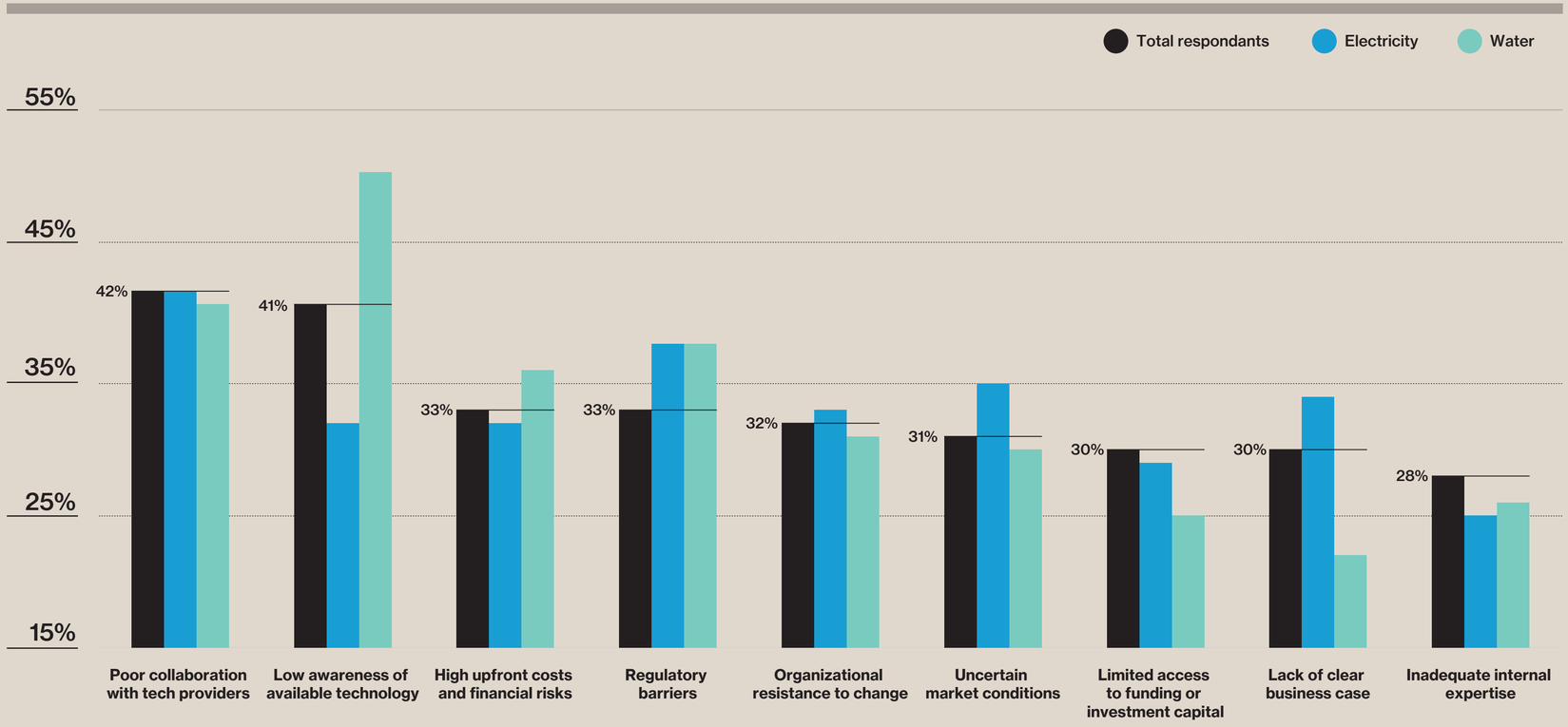
Water experts are **23% more likely to rank low awareness as a top barrier to innovation**, ranking it well above all other potential barriers.

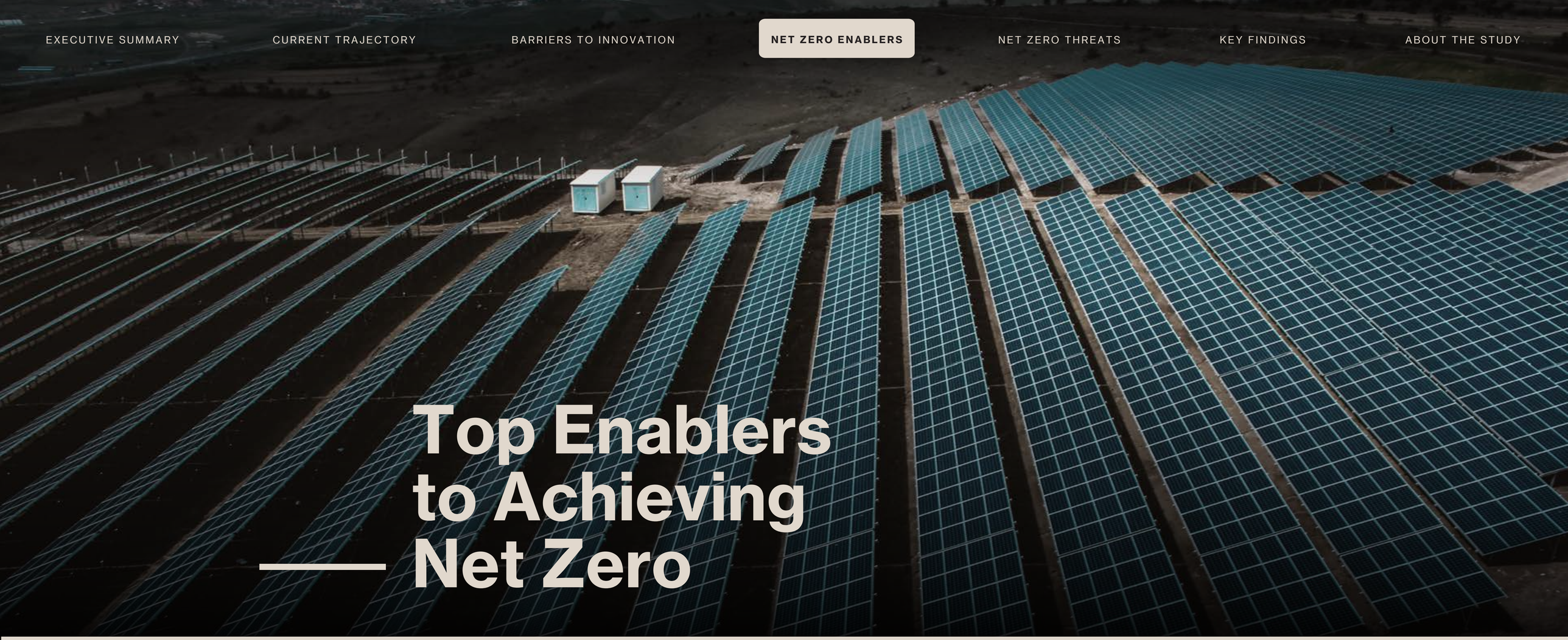
Water experts are also less likely to see lack of a clear business case as a deterrent to innovation compared to those involved in electric utilities.

Q14

Rank the top 3 barriers for higher innovation investment in utilities.

Top Barriers to Higher Innovation Investment by Utilities: % Ranking in Top 3





Top Enablers to Achieving Net Zero

Building strong customer relationships is seen as both an extremely effective and the single most feasible net zero enabler. This signals an industry shift toward customer empowerment, with an increasing expectation for customers to generate their own energy and feedback into the grid.

Government partnerships, strong sustainability goals, and customer relationships are seen as the top net zero enablers.

Takeaway

Net zero commitments are seen as effective enablers across respondents, along with building strong partnerships with both policymakers and end customers.

Developing green supply chains and strategic relationships with technology partners are seen as slightly secondary enablers.

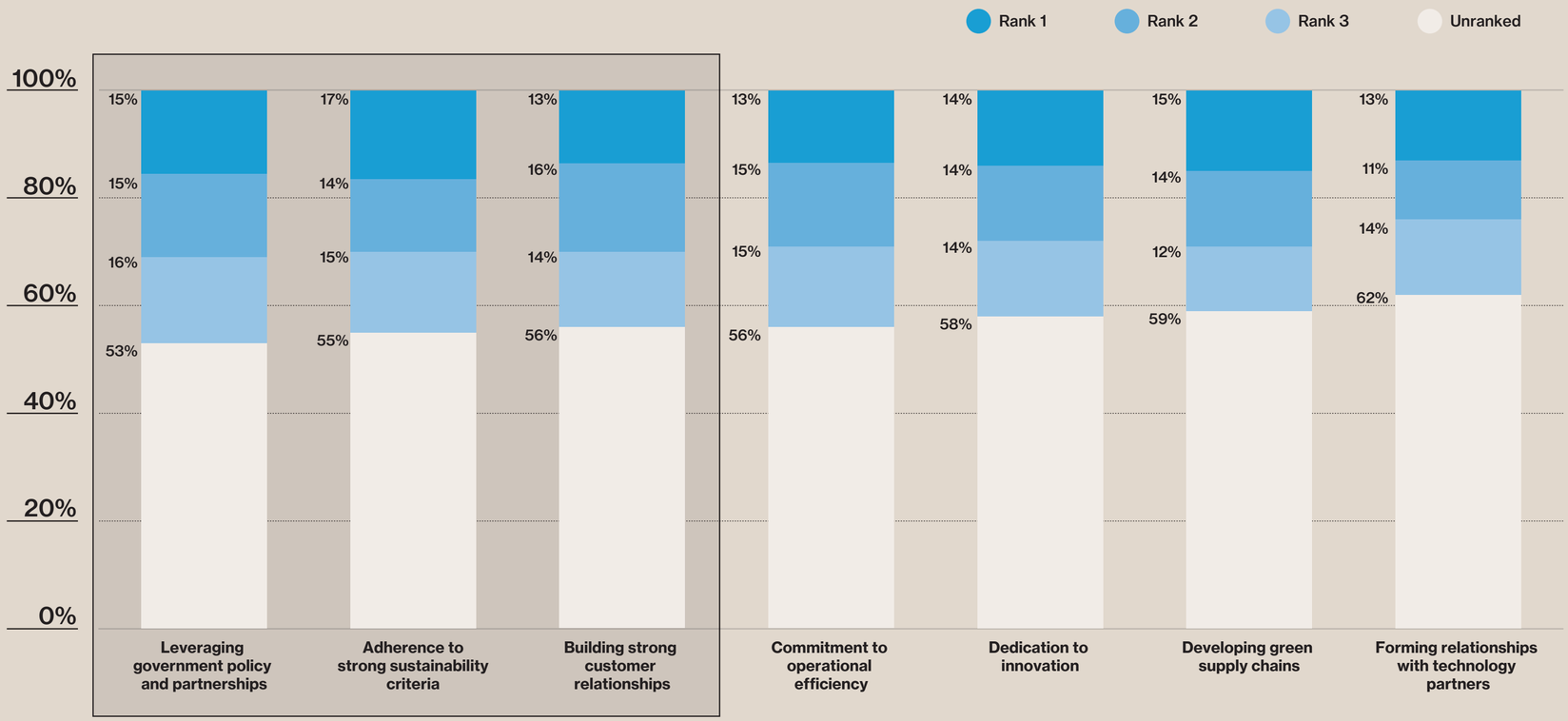
> “Utilities must become more customer-focused.”

Professional Consultant to Water Utilities, Japan

Q6a

From the list given, please rank the top 3 enablers for a utility company trying to achieve their 2030 sustainability targets.

Top Ranking Enablers for Utilities Achieving Net Zero Targets



But across countries and roles, it's customer relationships that sees the widest support as the top net zero enabler.

Takeaway

Utilities must adopt customer-centric models to better enable net zero goals.

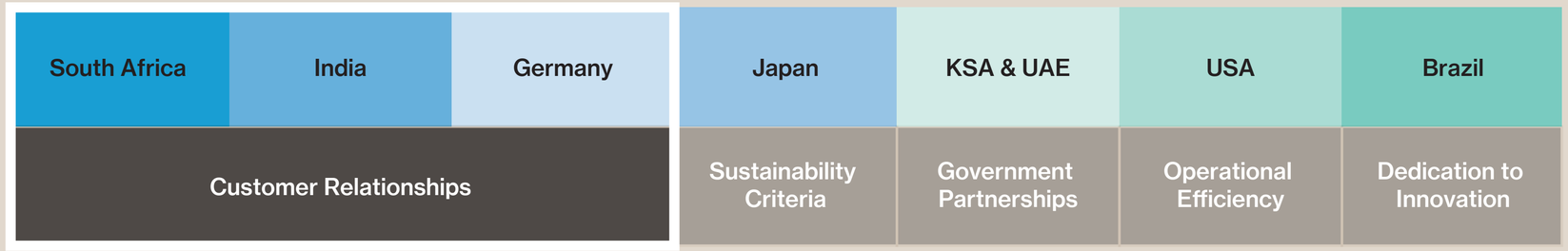
Brazilian respondents rank Dedication to Innovation as the top enabler, while Japanese respondents show clear preference for Sustainability Criteria.

Policy Advisors notably rank Sustainability Criteria No. 1, even higher than Government Partnerships, while Utility Sector Professionals rank Government Partnerships as the top net zero enabler.

Q6a

From the list given, please rank the top 3 enablers for a utility company trying to achieve their 2030 sustainability targets.

Top Ranking Net Zero Enabler by Country (% ranking as top 3)



Top Ranking Net Zero Enabler by Role

When it comes to feasibility, customer relationships are the most likely to be seen as a readily available solution.

Takeaway

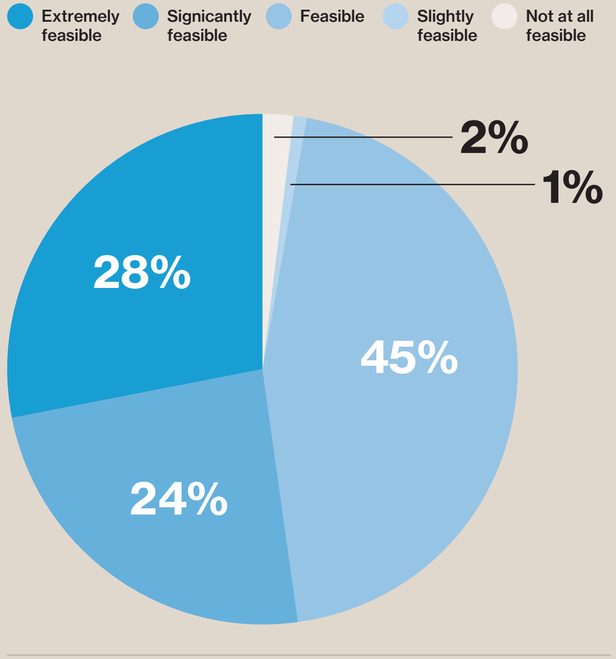
Utilities can transform their operations to better support customer participation and remain competitive, given the extreme feasibility.

More than 1 in 4 respondents say building customer relationships is an “extremely feasible” solution, vs. just 1 in 10 for government partnerships.

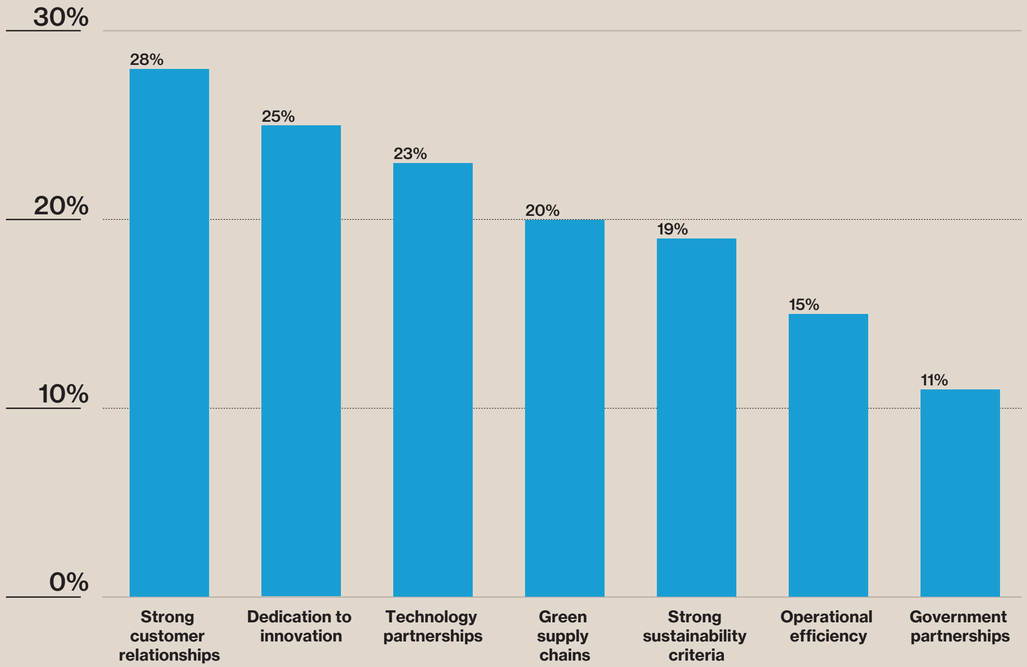
Q6b

From the attributes that are important, rate the feasibility level for each of these.

Feasibility of Building Strong Customer Relationships



% of Respondents - Extremely Feasible Enabler of Net Zero



Diving deeper into customer relationships, more direct empowerment is seen as key to the future success of utilities.

Takeaway

The industry is witnessing a shift towards customer engagement. Utilities need to redefine the value offered to customers and go beyond traditional incentives, instead developing engagement strategies that provide more impactful customer experiences.

Nearly half of respondents say it is “very important” for utilities to give customers the ability to generate their own electricity (49%), conserve water (48%), and feedback into the grid (42%), far outranking more passive elements like custom billing (19%) and incentives (27%).

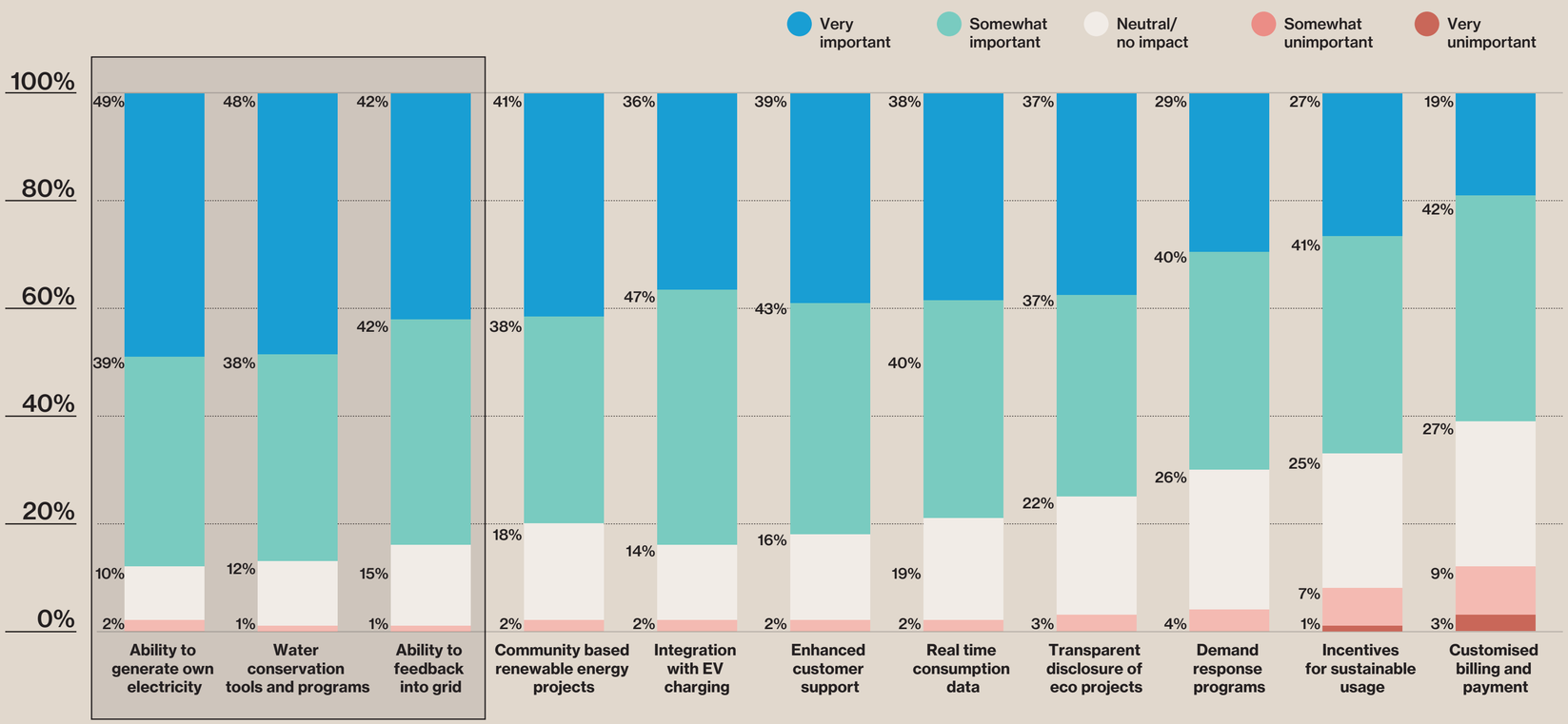
“Utilities must provide energy-efficiency solutions that help individuals reduce energy waste, lower energy costs, and lower their carbon footprints.”

Policy Advisor for Electric Utilities, South Africa

Q8

On a scale of 1 to 5, please indicate how important it is for the utilities of the future to enable the following customer choices.

Important Customer Choices Provided by the Utilities of the Future



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Policy Advisor for Electric Utilities, South Africa

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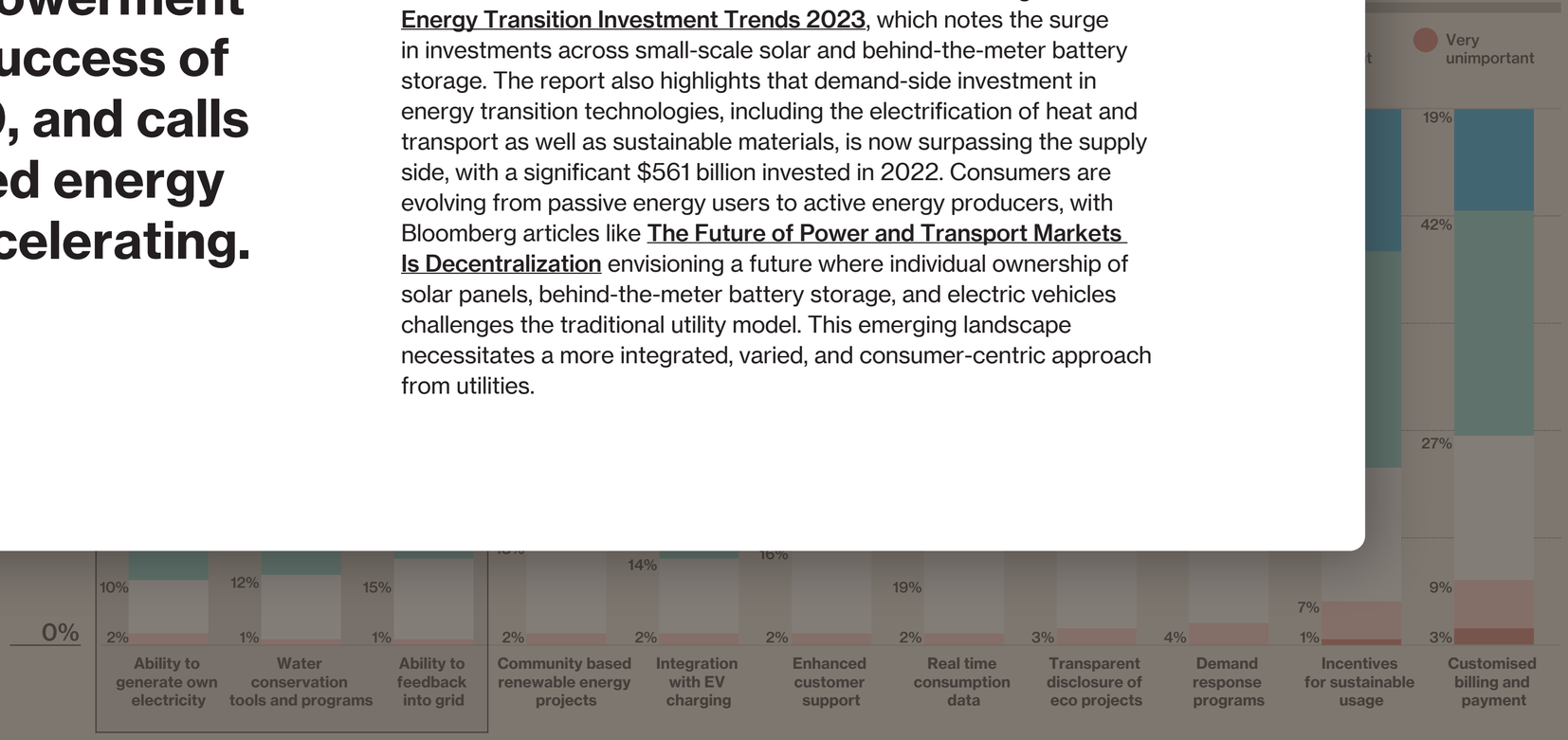
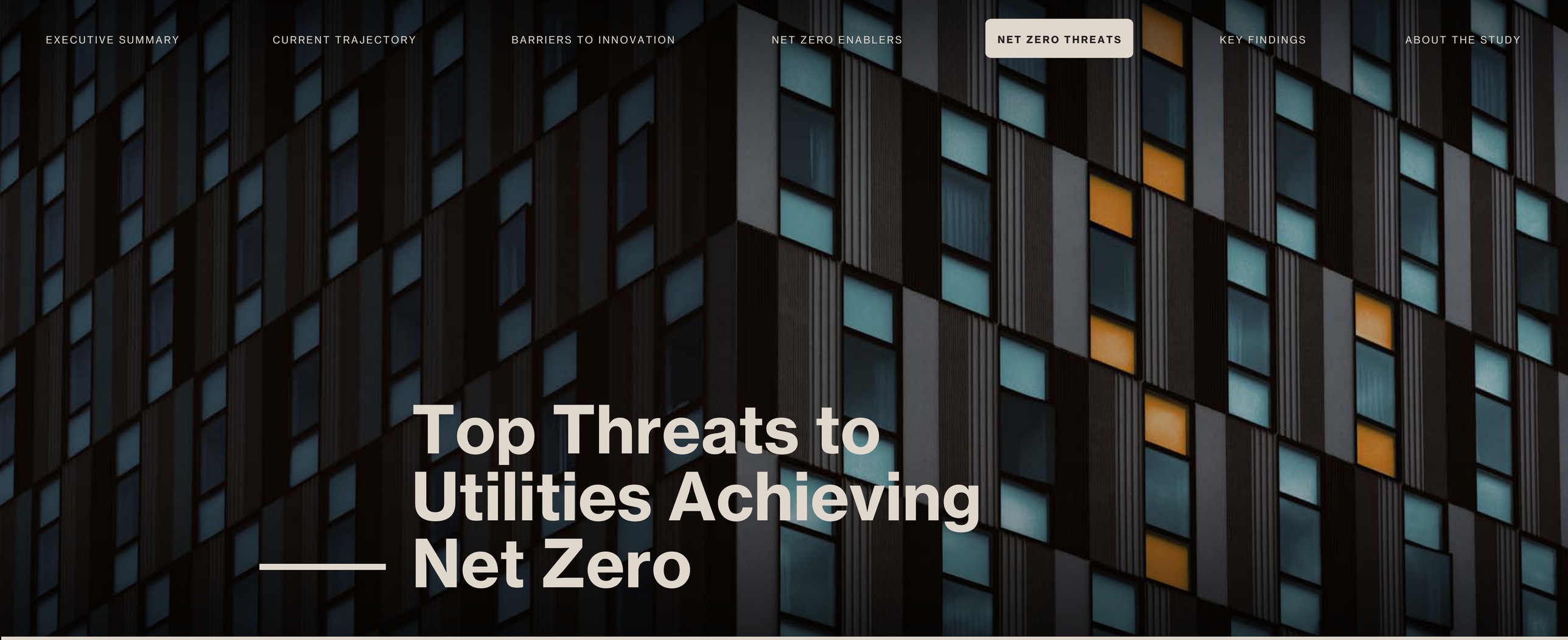
The Finding

Consumer empowerment is vital for the success of utilities in 2030, and calls for decentralized energy systems are accelerating.

The Context

The trend towards decentralization is detailed in **BloombergNEF's Energy Transition Investment Trends 2023**, which notes the surge in investments across small-scale solar and behind-the-meter battery storage. The report also highlights that demand-side investment in energy transition technologies, including the electrification of heat and transport as well as sustainable materials, is now surpassing the supply side, with a significant $561 billion invested in 2022. Consumers are evolving from passive energy users to active energy producers, with Bloomberg articles like **The Future of Power and Transport Markets Is Decentralization** envisioning a future where individual ownership of solar panels, behind-the-meter battery storage, and electric vehicles challenges the traditional utility model. This emerging landscape necessitates a more integrated, varied, and consumer-centric approach from utilities.





Top Threats to Utilities Achieving Net Zero

The complexity of integrating renewables, the vulnerability of supply chains, and lack of access to capital far outweigh climate, geopolitical, and regulatory threats to net zero, with regulation actually seen by most respondents as a positive net zero enabler.

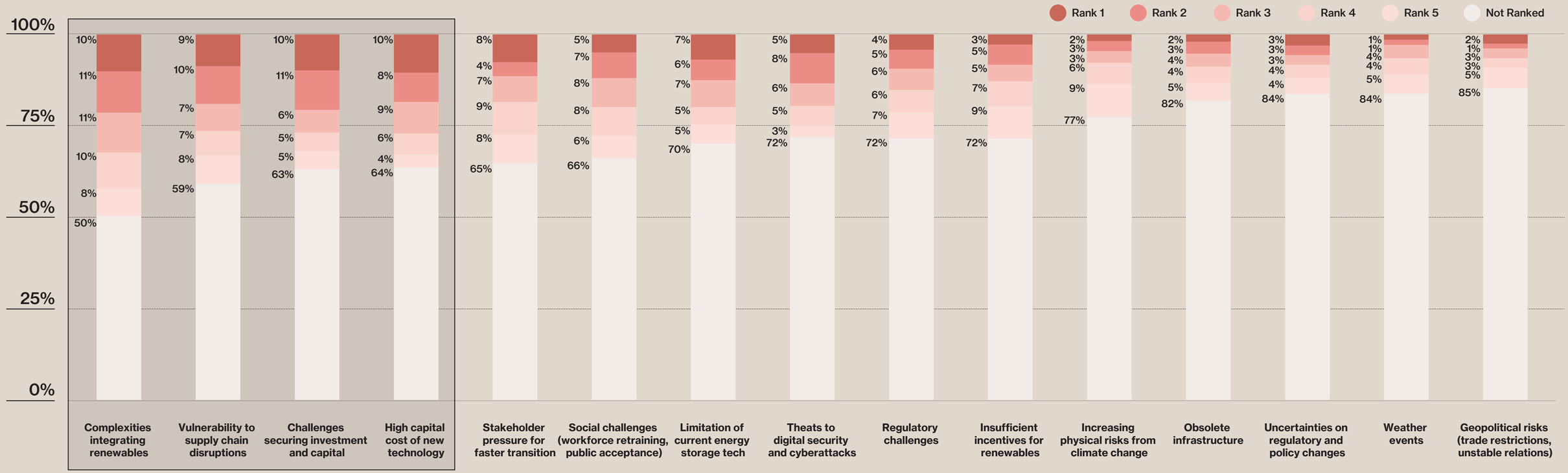
The complexity of integrating renewables, supply chain, and capital access far outweigh climate and regulatory worries.

1 in 2 respondents ranked “complexities integrating renewables into existing grids” as a top 5 threat.

Takeaway

Utility leaders need to spearhead innovation in grid technology to ensure seamless incorporation of renewables, which is essential to meeting net zero targets.

Top Ranking Domestic Threats to Utilities Achieving Net Zero



Q7a Below is a list of factors that people have mentioned as current or future threats the utilities sector to achieving net zero. Could you identify the top 5 challenges from these for your country?

The complexity of integrating renewables, supply chain, and capital access far outweigh clima

1 in 2 respondents ranked “complexities integrating renewables into existing grids” as a top 5 threat.

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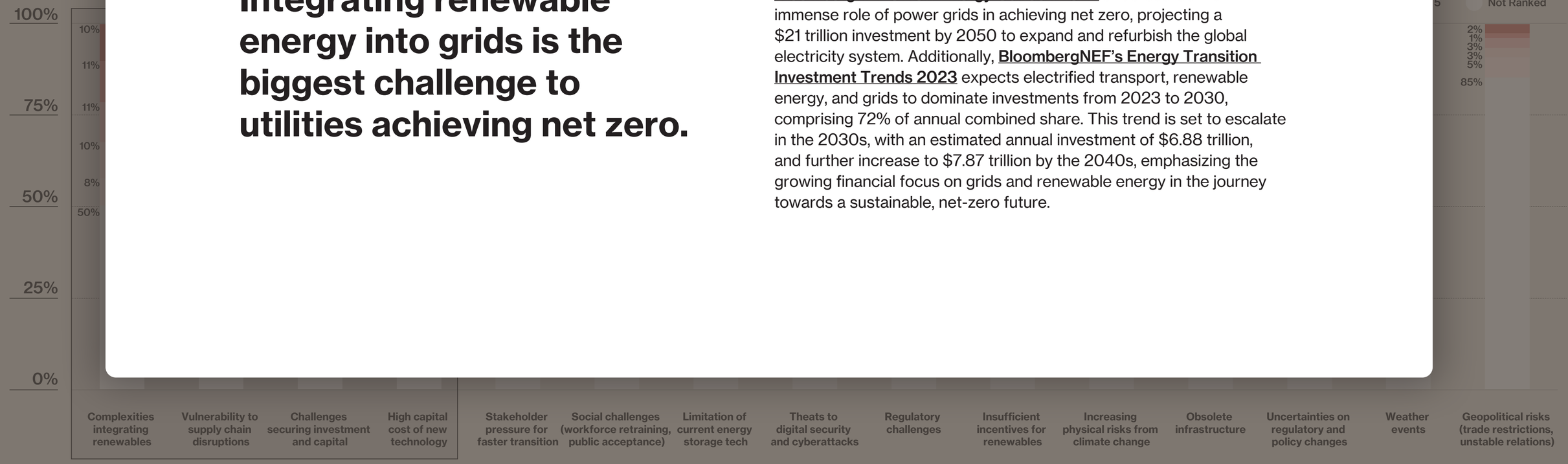

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The Finding

Integrating renewable energy into grids is the biggest challenge to utilities achieving net zero.

The Context

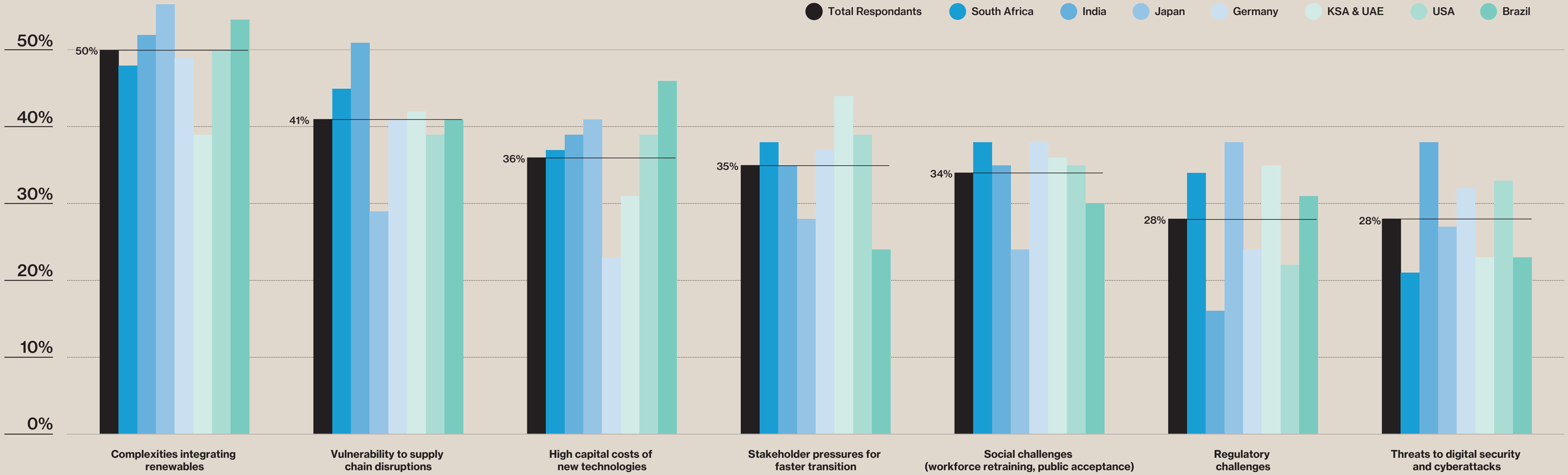
BloombergNEF’s New Energy Outlook 2022 underscores the immense role of power grids in achieving net zero, projecting a $21 trillion investment by 2050 to expand and refurbish the global electricity system. Additionally, BloombergNEF’s Energy Transition Investment Trends 2023 expects electrified transport, renewable energy, and grids to dominate investments from 2023 to 2030, comprising 72% of annual combined share. This trend is set to escalate in the 2030s, with an estimated annual investment of $6.88 trillion, and further increase to $7.87 trillion by the 2040s, emphasizing the growing financial focus on grids and renewable energy in the journey towards a sustainable, net-zero future.

The largest threats across countries remain renewables integration and supply chain disruptions, but key nuances emerge.

Q7a

Below is a list of factors that people have mentioned as current or future threats to the utilities sector achieving net zero. Could you identify the top 5 challenges from these for your country?

Top Domestic Threats to Net Zero: % Ranking in Top 5



There are distinct regional concerns, with each country showing outsized concerns for different potential threats.

Q7a

Below is a list of factors that people have mentioned as current or future threats to the utilities sector achieving net zero. Could you identify the top 5 challenges from these for your country?

Top Domestic Threats to Net Zero by Country

South Africa

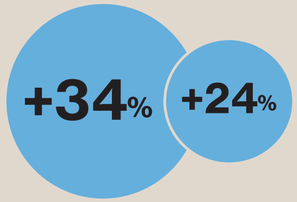
more likely to rank **social challenges** as a top threat (vs. the average respondent).

Germany

more likely to rank **social challenges** as a top threat.

Both RSA and Germany are mostly aligned with total respondents, but notably see social challenges like workforce retraining and public acceptance as larger threats.

India



more likely to rank **cybersecurity** and **supply chain disruptions** as top threats.

In India, disruptions are top of mind, whether it's cyberattacks or supply chains, rating both as more pressing threats than those rated by all other countries.

> "To defend against online threats and guarantee the protection of vital infrastructure, [utilities] must strengthen their cybersecurity procedures."
>
> **Utilities Sector C-Level Executive, Water Distribution, India**

Japan

more likely to rank **regulatory challenges** as a top threat.

Japan, more than any other country, sees regulatory challenges as a top threat to a sustainable future.

KSA & UAE

more likely to rank **stakeholder pressures for faster transition** as a top threat.

KSA and UAE are the only countries that did not rank renewables integration as No. 1. Instead, they see stakeholder pressure and potential reputation risk as the top issue.

Brazil

more likely to rank **high capital costs of new technologies** as a top threat.

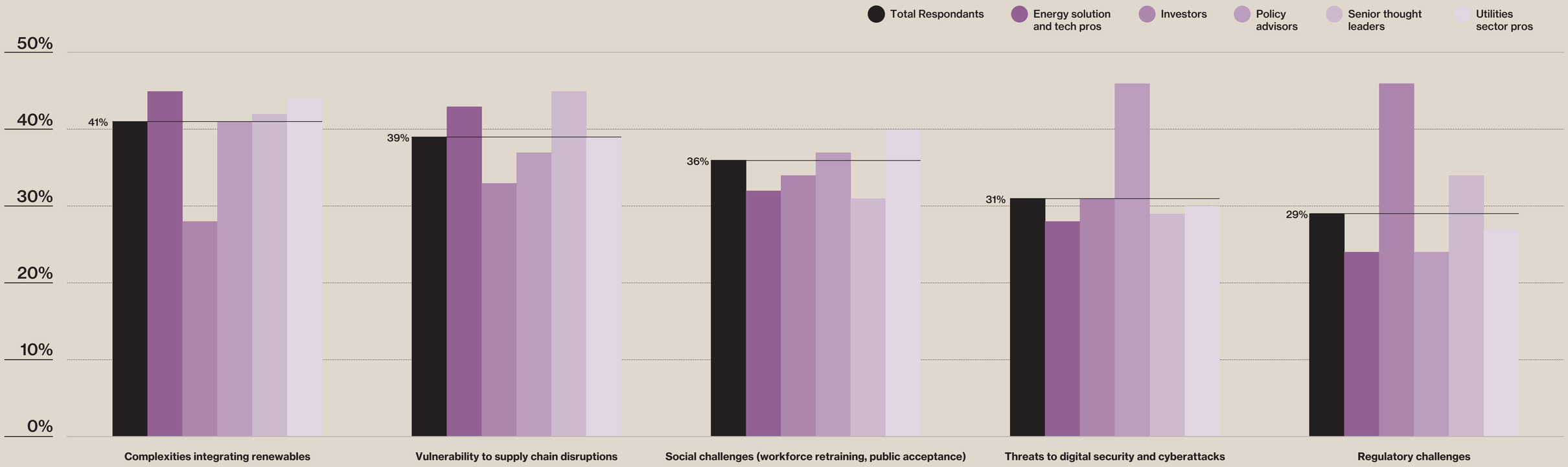
Brazilian respondents are the most concerned with cost, appearing most in need of mobilized capital.

Top threats vary more by role, with Investors, Policy Advisors, and Thought Leaders especially divided on the top threats to net zero.

Q7b

Below is a list of factors that people have mentioned as current or future threats to the utilities sector achieving net zero. Could you identify the top 5 global challenges from these?

Top Global Threats to Net Zero: % Ranking in Top 5



Each role reported a different top threat to achieving net zero.

Q7b

Below is a list of factors that people have mentioned as current or future threats to the utilities sector achieving net zero. Could you identify the top 5 global challenges from these?

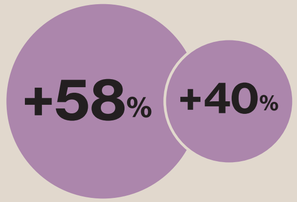
Top Global Threats to Net Zero by Role

Energy Solution and Tech Professionals

more likely to rank **complexities integrating renewables** as a top threat (vs. the average respondent).

Energy Technology Pros show the largest alignment with average respondents, and most recognize the complexity of integrating renewables.

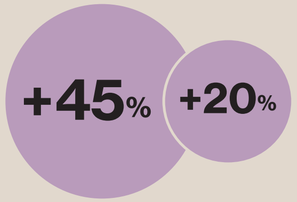
Investors



more likely to rank **regulatory challenges** and **uncertainties on policy changes** as top threats.

Investors are the most skeptical of regulation, far more likely than other roles to say regulators or the uncertainties their policies create are a real threat.

Policy Advisors



more likely to rank **cybersecurity** and **insufficient incentives** as top threats.

Policy Advisors rank cybersecurity as the highest threat, while they are also wary of the lack of incentives, possibly justifying their role in picking up that slack.

Senior Thought Leaders

more likely to rank **supply chain disruptions** as a top threat.

Senior Thought Leaders are most wary of supply chains, and see potential disruptions for critical components as paramount.

Utility Sector Professionals

more likely to rank **social challenges** and **workforce retraining** as a top threat.

Those working in the utilities sector itself are more likely to encounter and rank social challenges as real threats, and are potentially more aware of the talent shortage and public skepticism.

> “[Utilities] must invest in workforce training to make them skilled in using modern technology.”
>
> **Utilities Sector C-Level Executive, Electricity Generation, Transmission, and Distribution, Japan**

Regulation is largely seen as an enabler of net zero, with only 5% reporting that their regulatory environment is a hindrance.

Takeaway

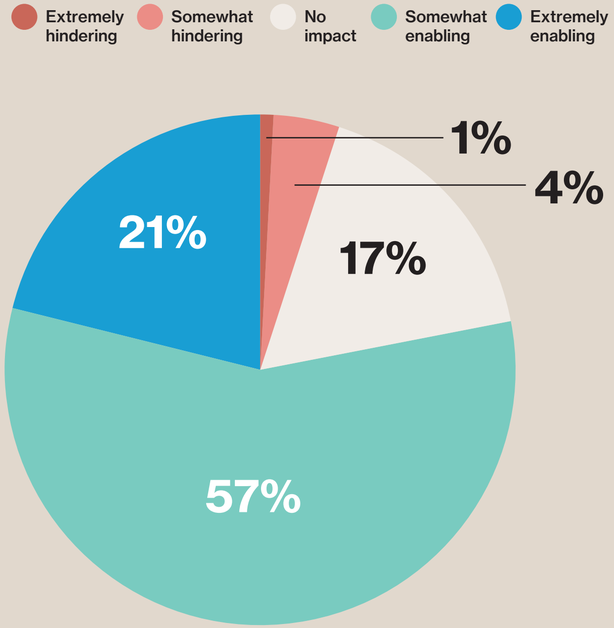
More than 3 in 4 respondents say regulation is enabling the transition to net zero.

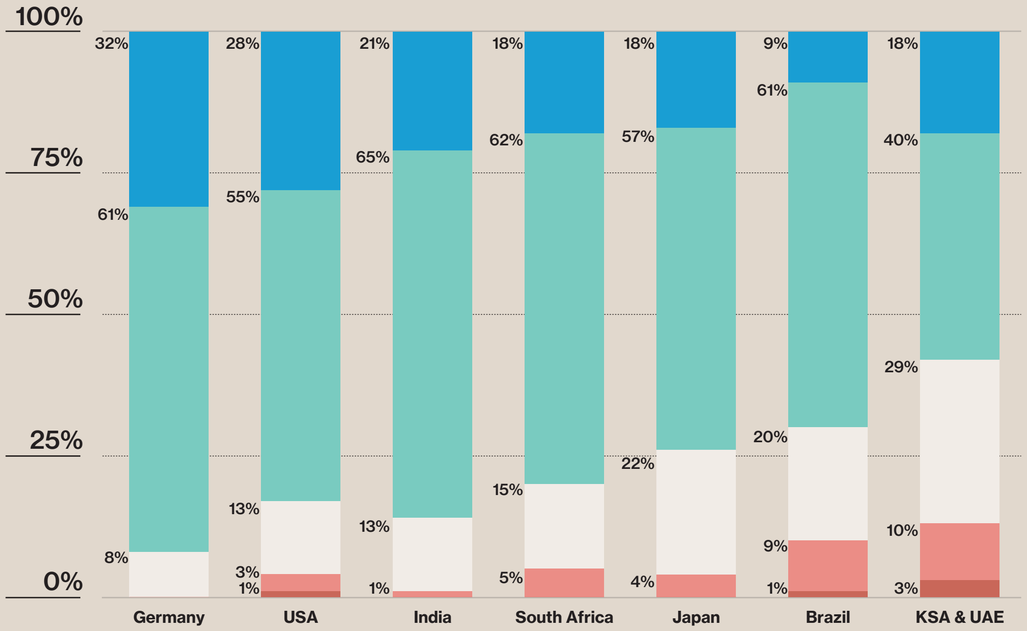
Germany, USA, and India are notably the most positive on regulation's relationship to net zero, while Brazilian, KSA, and UAE respondents are slightly more likely to see it as hindering.

Q16

To what extent is the current regulatory environment in your domestic market enabling the transition to net zero?

Current Regulatory Environment Enabling Net Zero





Overall, facilitating renewable integration is seen as the top benefit, but each country values regulation differently.

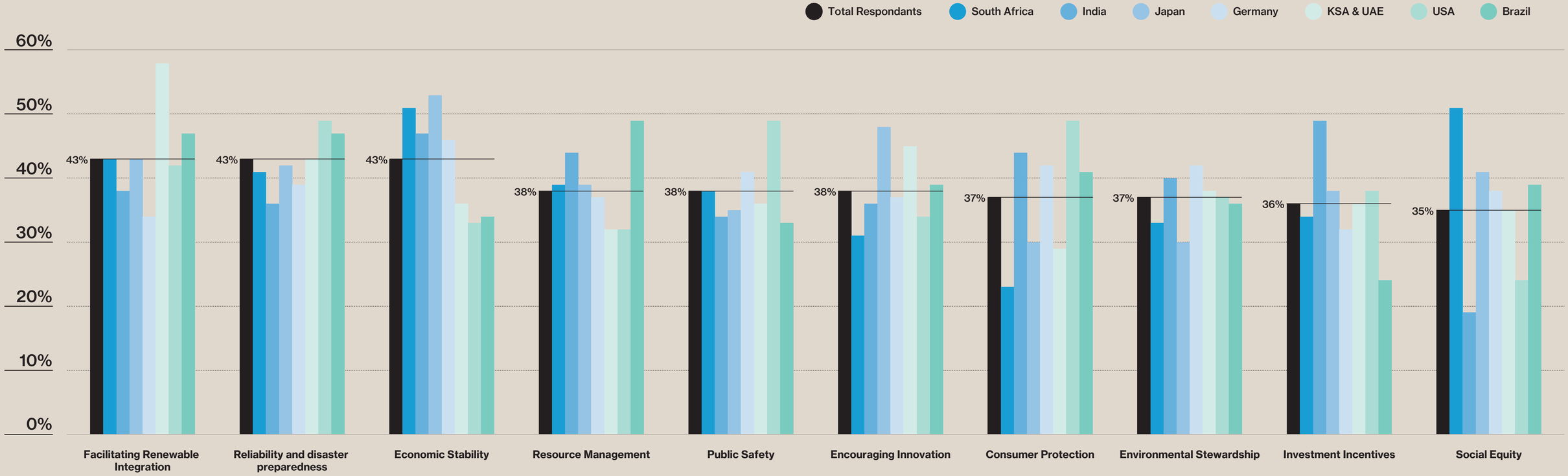
Takeaway

Regulation's top benefit is dealing with the sector's top-ranked threat to net zero—integrating renewables, while protection from unknowns, whether economic or natural disasters, is also high on the list.

Q15

In your view, what are the top 5 most significant benefits of regulation in the utilities sector?

Top Benefits of Regulation in Utilities: % Ranking in Top 5



Respondents from across the globe differ on the main benefits of regulation, all ranking distinct elements at the top.

Q15

In your view, what are the top 5 most significant benefits of regulation in the utilities sector?

Top Benefits of Regulation by Country

South Africa

more likely to rank **social equity** as a top benefit of regulation (vs. the average respondent).

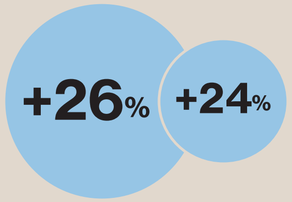
RSA uniquely sees social equity as something regulation is best equipped to encourage, ranking it as the top benefit.

India

more likely to rank **investment incentives** as a top benefit.

Indian respondents value the incentives for further investment provided by regulation, the only country to rank this factor No. 1.

Japan



more likely to rank **encouraging innovation** and **economic stability** as top benefits.

Japan sees the widest range of regulation's abilities, appreciating its ability to both spur innovation and stabilize economic conditions.

Germany

more likely to rank **environmental stewardship** as a top benefit.

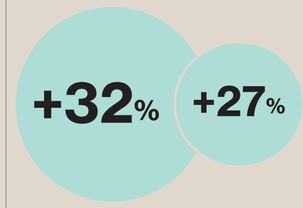
Germany is the most likely country to see regulation as an environmental steward, ranking this higher than many technical or business benefits of regulation.

KSA & UAE

more likely to rank **facilitating renewable integration** as a top benefit.

More than any other countries, KSA and UAE respondents look for regulation to help with the sector's top perceived threat: integrating renewables.

USA



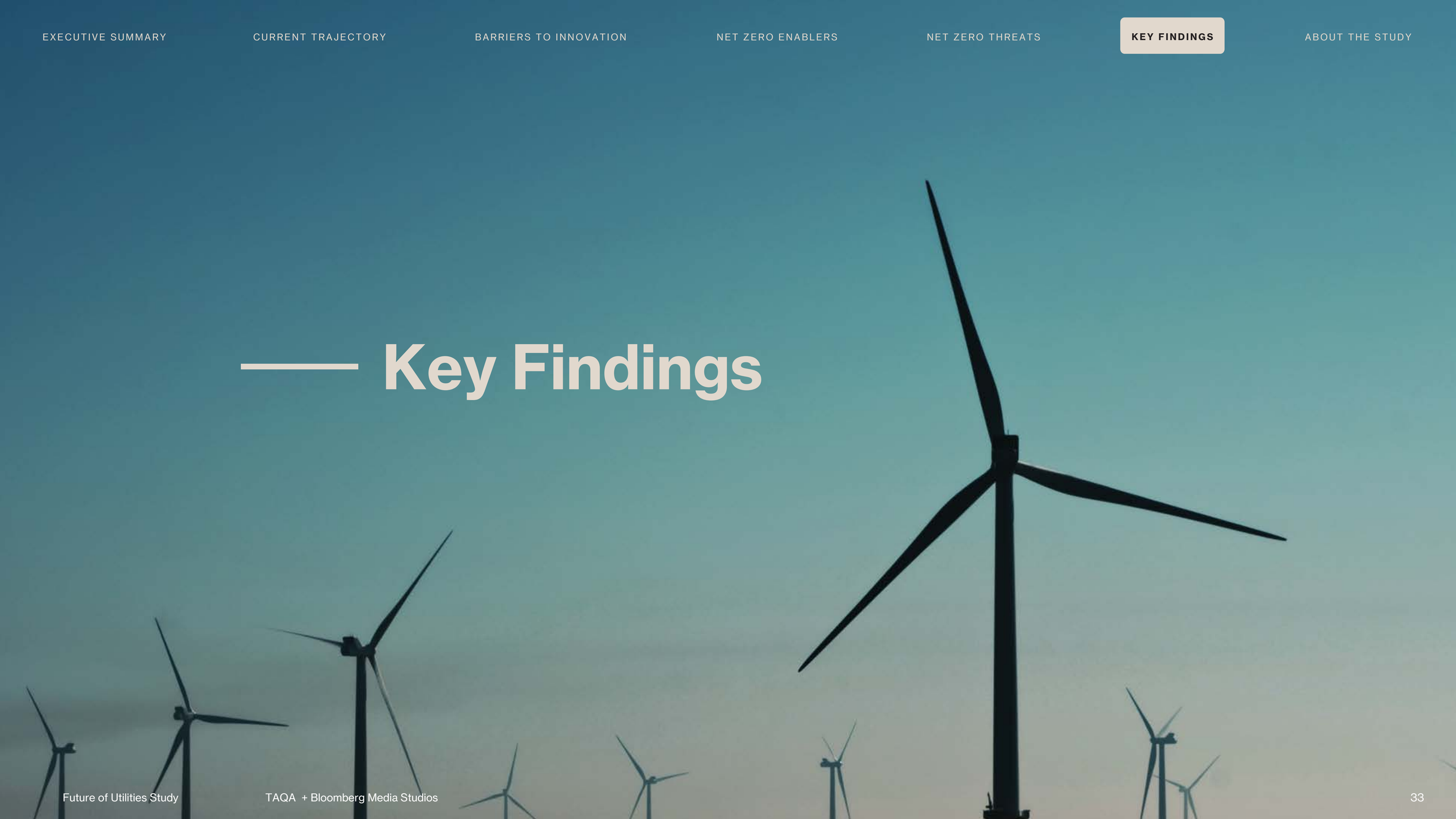
more likely to rank **consumer protection** and **public safety** as top benefits.

In the US, regulation is seen primarily as a safeguard for consumers and the wider public, rather than a facilitator of innovation or competition.

Brazil

more likely to rank **resource management** as a top benefit.

Brazil appreciates regulation's ability to help manage natural resources, ranking this higher than any other country.



Key Findings

Takeaway

93% of total respondents say comprehensive or reasonable change is needed.

With 93% of respondents anticipating the need for either comprehensive (49%) or reasonable (44%) change, it's evident that utilities are poised for a significant transformation to align with the anticipated requirements of the 2030 energy environment.

The leadership in these entities must be visionary, adaptable, and committed to steering their organizations through a transformative journey that will redefine the utilities sector.

Current Trajectory

Confidence in utilities achieving 2030 targets is low.

Despite 79% of respondents believing utilities are actively pursuing a more sustainable future, the confidence level of reaching domestic net zero targets is a mere 44%, with Japan on the more bullish end (51%) and Germany the least confident (36%).

There's an urgent need for utility leaders around the globe to actively pursue more robust policies and innovative solutions.

Barriers to Innovation

Innovation is limited most by poor collaboration and lack of awareness.

Most respondents rank non-financial and non-regulatory barriers highest:

- Water Utility Experts: **Lack of awareness of available technology** (+23% more likely to rank as a top barrier vs. the average respondent)
- Brazil, India: **Inadequate Internal Expertise** (+38%, +21%)
- Japan: **Organizational Resistance to Change** (+21%)

In a sector bracing for change, utility leaders must work to establish more effective collaboration and knowledge dissemination mechanisms.

Top Net Zero Enablers

Customer-centric models are key to enabling net zero goals.

Customer relationships are the top-ranking enabler among many countries (RSA, India, Germany) and roles (Energy Solution and Tech Professionals, Investors), and 97% say it's a feasible net zero solution.

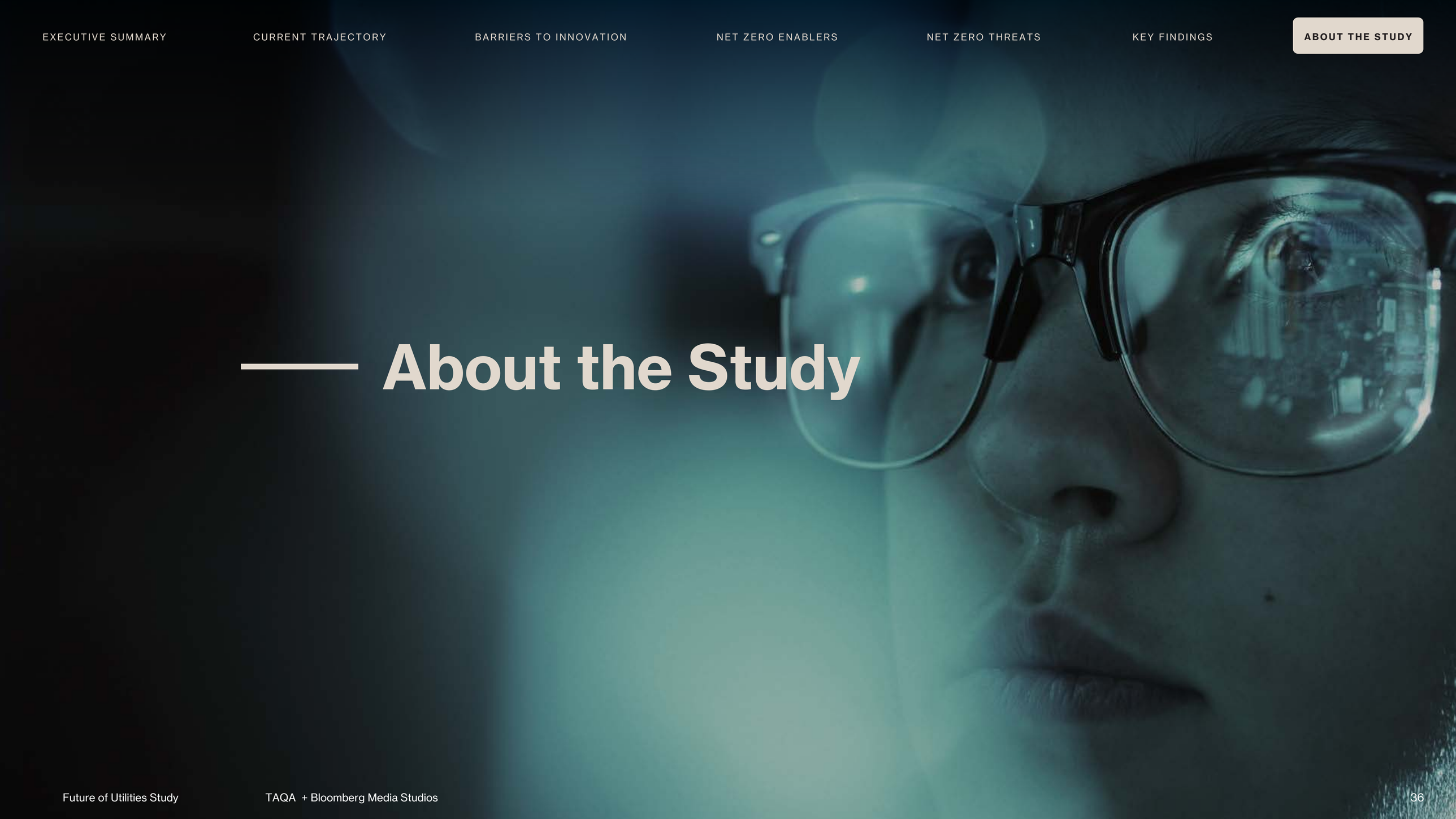
And with half of respondents saying it's "very important" to give customers the ability to generate their own electricity, **utilities will need to redefine the value offered to customers and develop engagement strategies that provide more impactful experiences.**

Top Net Zero Threats

Integrating renewable energy is widely considered the biggest threat.

The complexity of integrating renewables is considered a top threat by half of respondents, with supply chain disruptions (41%) and capital access close behind (37%). Ranking far lower are geopolitical (15%), weather (16%), and regulatory (28%) threats. Regulation is actually recognized by 78% of respondents as a net zero enabler, with facilitating renewable integration seen as the top-ranking benefit.

Utility leaders must spearhead innovation in grid tech to ensure seamless incorporation of renewables, thereby negating the largest perceived threat to net zero.



About the Study

Methodology

What

A 20-minute survey designed by Bloomberg Media and TAQA and fielded by Feedback Insights Inc.

Who

Global decision makers with 10+ years' experience working with utilities, spanning across:

- Utilities Sector Professionals N=247
- Energy Solution and Technology Professionals N=112
- Investors N=80
- Policy Advisors N=68
- Senior Reps from Think Tanks, International Organizations, Consulting Firms, Academia N=62

Total Respondents N=569

Respondent market breakout

Expected 50–75 per country

- South Africa N=87
- India N=77
- Japan N=79
- Saudi Arabia and UAE N=77
  KSA N=41, UAE N=36
- Germany N=79
- Brazil N=70
- USA N=100

When

The study was fielded September 7 to October 5, 2023.

TAQA + Bloomberg Media Studios