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SURVEY REPORT

## **Accelerating Ambition**

How global industry is speeding up investment in energy efficiency



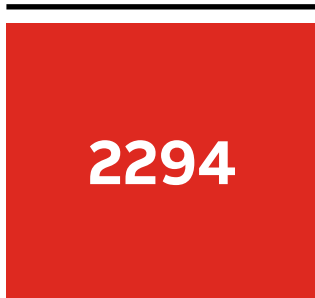
# ABB energy efficiency survey 2022

## Project overview and methodology

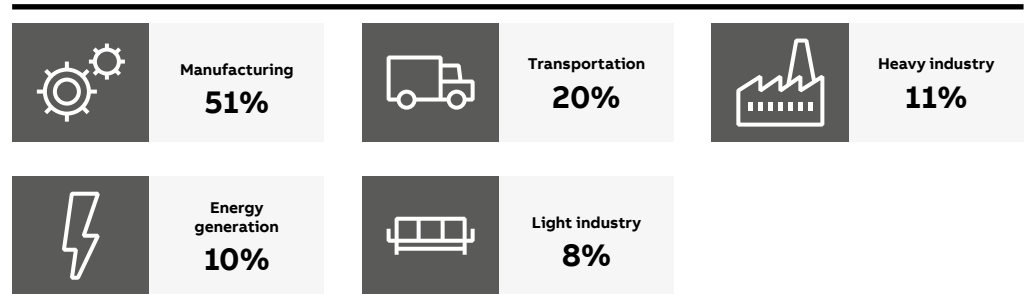
Sapio Research was commissioned by ABB to carry out a comprehensive global survey of 2,294 companies in 13 countries in the manufacturing, transportation, heavy industry, light industry, and energy industries. Respondent companies ranged from small enterprises with under 100 employees to those with a \$5 billion turnover and over 5,000 workers. The survey, which aimed to understand these industries' current and future plans to invest in energy efficiency, took place in February 2022.

The survey targeted energy usage, energy efficiency, process optimization, or business improvement decision-makers in Argentina, Brazil, China, Germany, India, Indonesia, Italy, Malaysia, Mexico, Spain, Sweden, the UK and the US. The online survey was conducted via email invitation, with most of the responses coming from manufacturing (51 percent), transportation (20 percent), and heavy industry (11 percent). The majority of respondents (43 percent) were managers, 31 percent were specialists, and 26 percent were executives or business owners.

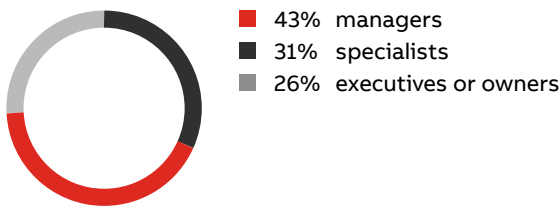
### Total respondents



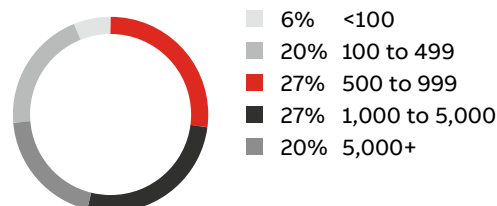
### Company sector



### Role type



### Size of company



  
Argentina

  
Brazil

  
China

  
Germany

  
India

  
Indonesia

  
Italy

  
Malaysia

  
Mexico

  
Spain

  
Sweden

  
UK

  
US

# Foreword

By Tarak Mehta, President, ABB Motion



**TARAK MEHTA**  
President,  
ABB Motion

The world is at a crossroads. The United Nations (UN) Department of Economic and Social Affairs estimates that by 2050, the global population will rise to 9.7 billion. That is around two billion more than in 2019. The UN also expect the global economy to double over the same period. Urbanization and higher living standards will put immense pressure on global energy demand.

This scale of expansion will accelerate climate change if we continue a business-as-usual approach, a consequence we cannot afford. Of equal concern is the state of rising geopolitical tension around the globe. The war in Ukraine will profoundly impact the global energy landscape and its geopolitics. This will make energy security and sustainability even more critical.

Geopolitical threats are unsettling for companies and investors alike. However, at least one multinational investment management company views the current crisis as both an opportunity and an accelerant for positive change. This is because while capital may flow initially to the oil and gas sectors, the spiraling cost of energy could accelerate the transition to a low-carbon economy.

As with the COVID-19 pandemic, such dramatic and unexpected events can be assessed only in retrospect. The true scale of the disruption caused may take years to unravel. Nonetheless, we are approaching a decisive moment for international efforts to tackle the climate crisis. To protect the environment without tempering economic growth, we need to intensify our commitment to reducing the consumption of energy.

## Why energy efficiency matters

A major achievement of the COP26 climate summit in late 2021 was that 90 percent of the world is now covered by net zero targets. As a result, political leaders have a renewed focus on reducing carbon dioxide (CO<sub>2</sub>) emissions and setting targets. Energy efficiency is an essential strategy for achieving these goals.

The International Energy Agency (IEA) built on the COP26 discussions by launching its Energy Efficiency 2021 report. Its key finding is that annual investment in energy efficiency worldwide needs to triple by 2030 to meet the roadmap to achieving Net Zero by 2050. The organization is calling for governments to mobilize the required investment.

Energy efficiency is identified by the IEA as the “first fuel” as it makes the most of existing energy and avoids the need to develop new resources. Industrial motors in particular hold huge potential for energy efficiency measures.

High-efficiency electric motors controlled by variable speed drives need to be an integral part of modern industry as they make their Net Zero journey. However, too many of the world’s electric motor-driven systems are outdated and inefficient.

Investing in the latest energy efficient technology represents a tremendous opportunity. Independent research points out that if the world’s 300 million industrial motor-driven systems were replaced with optimized, high-efficiency equipment, global electricity consumption could be reduced by 10 percent. This reduction equates to more than 90 percent of the entire EU’s annual consumption.

## Energy efficiency investment

Prompted by these research findings, ABB launched the Energy Efficiency Movement in 2021 to raise awareness of how advanced technology can mitigate climate change. We wanted to know if this energy efficiency message resonates with industrial companies across the globe. That’s why we commissioned a global industry survey to better understand the current and future plans of industry to invest in energy efficiency improvements.

The most noteworthy aspect of the findings is the acceleration of investment. Almost 90 percent of businesses surveyed say they will increase spending on energy efficiency over the next five years. More than half (52 percent) are planning to achieve Net Zero within the same period. The survey also indicated that 40 percent plan to make energy efficiency improvements this year.

Another key finding is that nearly all the companies (97 percent) surveyed are already investing or planning to invest in making their energy usage more efficient.

While there is good news to be found in the report, there were also some areas of concern. Cost (50 percent) was listed as the biggest barrier to improving energy efficiency, especially for those that have not invested in energy efficiency to date and have no plans to do so in the future.

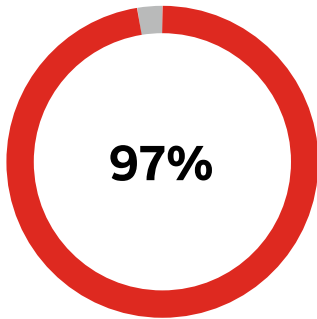
The survey also revealed that only 41 percent of respondents felt they had all the information they needed regarding energy efficiency, while eight percent indicated that they had struggled to gain meaningful guidance. These concerns need to be addressed if global industry is to make significant gains.

Despite the challenges, this survey presents a mainly hopeful picture. Clearly, some of the most important messages about how energy efficiency will influence the path to Net Zero have started to resonate with industrial companies. As a result, many are investing in technology such as high-efficiency motors and drives.

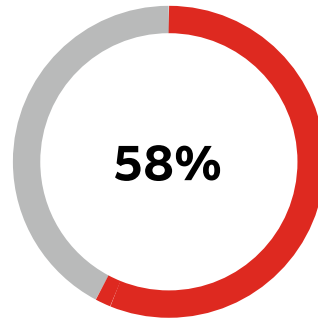
However, much work remains to be done. It is vital for stakeholders across industry to understand that Net Zero need not mean net cost. Quite the opposite in fact. Because saving energy means saving money.

By adopting energy efficient technology, global industry can enjoy a fast return on investment while cutting CO<sub>2</sub> emissions. The bottom line is that energy efficiency is good for business, good for reputation and good for the environment.

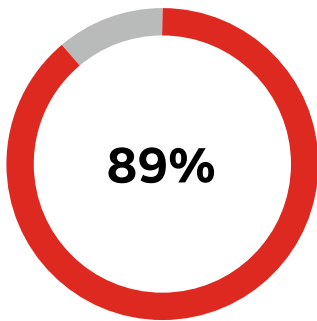
Key survey findings



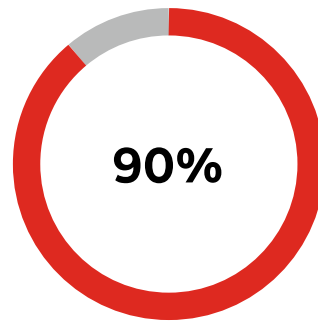
ARE EITHER **ALREADY INVESTING** OR **PLANNING TO INVEST** IN MAKING THEIR ENERGY USAGE MORE EFFICIENT



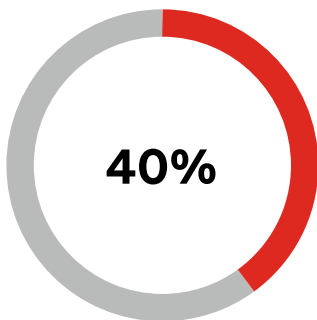
**DON'T** FEEL THAT THE GOVERNMENT AND THIRD PARTIES PROVIDE ALL THE INFORMATION THEY NEED ON ENERGY EFFICIENCY



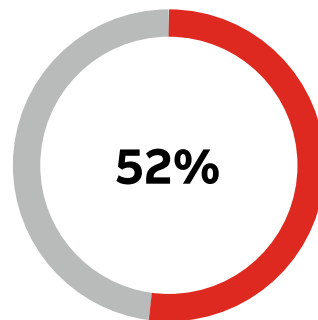
EXPECT THEIR INVESTMENT IN ENERGY EFFICIENCY TO **INCREASE** OVER THE NEXT 5 YEARS



SAY RISING ENERGY COSTS ARE AT LEAST A **MINOR THREAT** TO THE PROFITABILITY OF THEIR BUSINESS; **53%** SAY THEY ARE A **MODERATE OR MAJOR THREAT**



PLAN TO MAKE ENERGY EFFICIENCY IMPROVEMENTS **THIS YEAR**

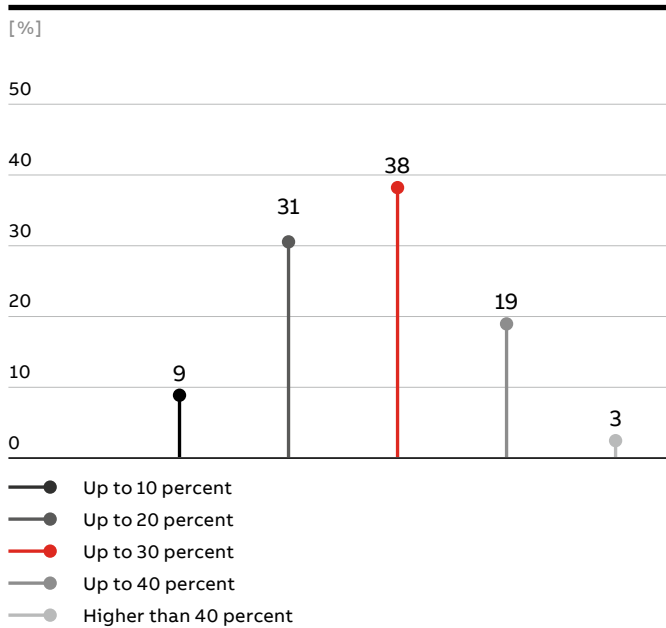


PLAN TO ACHIEVE NET ZERO **WITHIN 5 YEARS**

## What percentage of your annual operating costs is attributable to energy usage?

Respondents reported that, on average, 23 percent of their annual operating costs are attributable to energy usage. Despite being endowed with a rich mix of energy sources, Brazil's energy costs remain higher than its global peers. Respondents from that country indicated they spend nearly 27 percent of their operating budget on energy. In contrast, the US spends roughly 20 percent. With a span of just seven percent between the highest and lowest figures, the indication is that global energy costs are relatively consistent.

**Percentage of annual costs attributed to energy usage**  
Currently spend an average of 23 percent

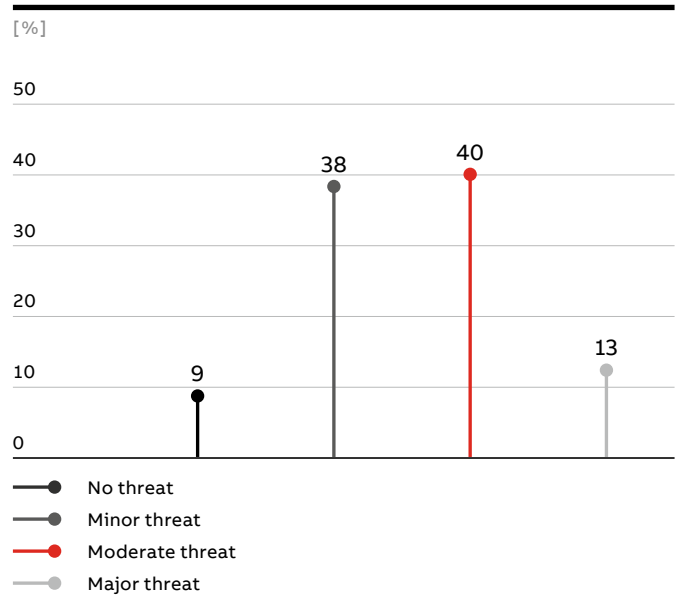


## What level of threat to the profitability of your business is attributable to rising energy costs?

Nine out of ten respondents indicated that rising energy costs are at least a minor threat to profitability. And more than half (53 percent) perceived it as a moderate or substantial threat.

Interestingly, despite Brazil's high operating spend on energy, only five percent of survey participants from that country saw rising energy costs as a major threat, the same as the US. In contrast, soaring energy costs are proving a major stumbling block in Italy, with 28 percent of respondents viewing it as a major threat. The country is hugely dependent on imports, with gas accounting for most of Italy's primary energy consumption.

**Threat of rising energy costs to business profitability**  
9 in 10 say rising energy costs are at least a minor threat to profitability



## Are you planning to invest, or have you invested, in making your energy usage more efficient?

The overwhelming majority (97 percent) of companies that took part in the survey are either already investing or planning to invest in improving their energy usage efficiency.

Bigger companies (5,000+ employees) and those with higher annual turnover (over \$5bn per annum) were most likely to have already invested in energy efficiency, with 62 percent and 64 percent respectively having done so. China is leading overall investment at 66 percent, indicating its government's strong commitment to addressing climate change as reflected in its five-year plan.

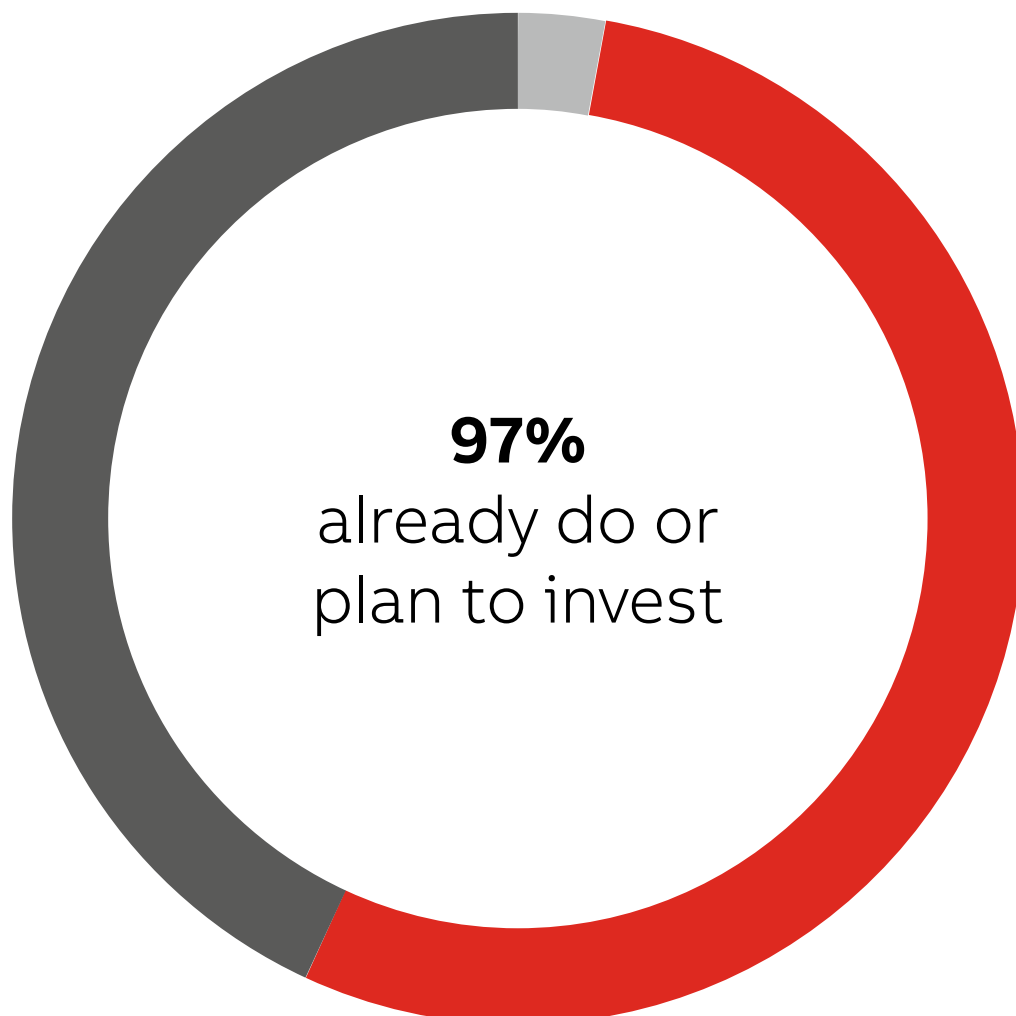
Properly designed regulations and incentives can significantly promote the adoption of more efficient equipment, such as high-efficiency electric motor technologies. This is

particularly true of the regulations implemented by large industrial producers, such as China, Europe, and the United States. China, in particular, has recognized the importance of efficient motors as a matter of policy. The government introduced a new national standard in June 2021, which requires motors to have a minimum efficiency level of IE3.

Soon after, in July 2021, the EU's Ecodesign Regulation also set IE3 as the minimum standard for a wide range of electric motors. This regulation will be expanded in 2023 to raise the base level for specified motors to IE4 super-premium efficiency.

### Investment plans to make energy usage more efficient

- 54% Yes, we are already investing in this
- 43% Yes, we are planning to invest in this
- 3% No, we have not and don't intend to invest in this



## What aspects of your operation do you intend to make more energy efficient?

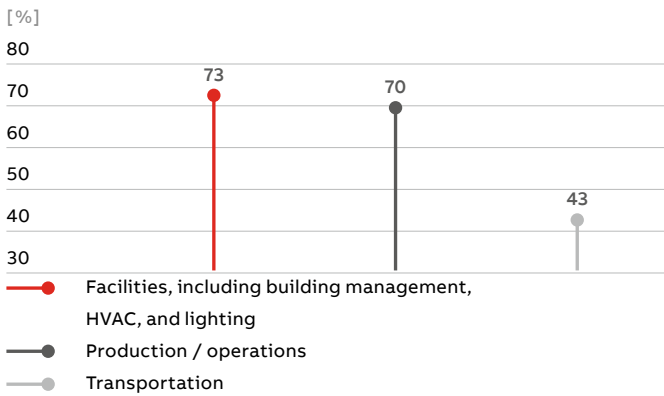
Nearly three-quarters of businesses (73 percent) plan to improve energy efficiency in facilities, including building management, heating, ventilation, and air conditioning (HVAC), and lighting. Over 80 percent of Mexican companies will focus on this aspect, with Sweden on the low end of the scale at 57 percent.

Production and operations are in close second place, with 70 percent of respondents directing their energy efficiency efforts towards this area.

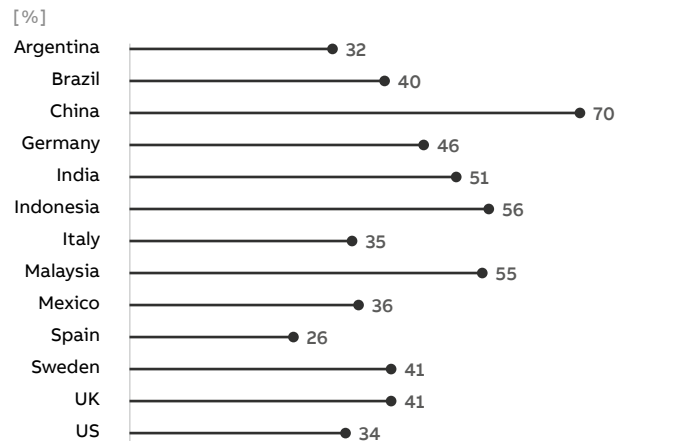
In China, a considerable 86 percent of businesses plan to make their operations more energy efficient. This is a tangible result of the government’s five-year plan.

Lower down in priority is transportation, where just 43 percent of companies plan to improve their energy usage. However, in the transportation industry itself, 68 percent of survey respondents intend to improve their energy efficiency rapidly.

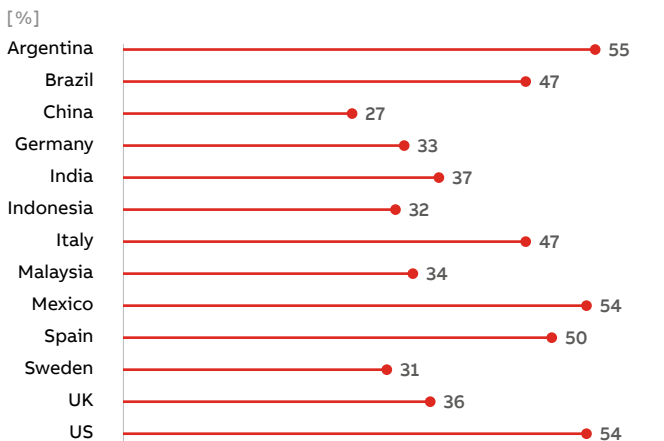
### Aspects for investment



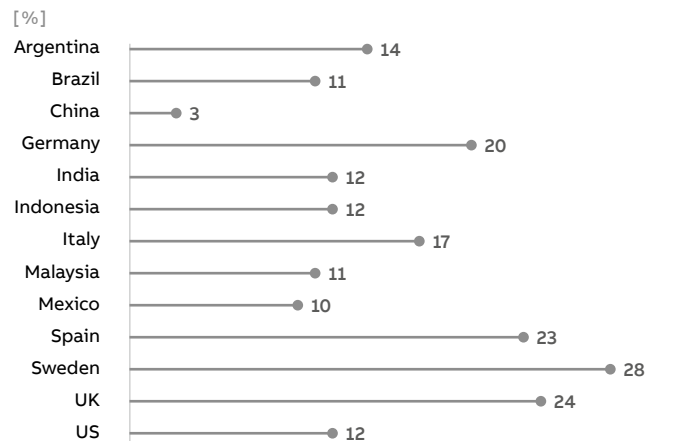
### Production/operations



### Facilities



### Transportation



## What are your biggest barriers to improving energy efficiency?

The two most significant barriers to improving energy efficiency were cost (50 percent) and downtime (37 percent). More than half of respondents from the UK (56 percent), Germany (56 percent), Spain (51 percent), Sweden (52 percent), the US (54 percent), and Indonesia (54 percent) listed cost as a barrier. Cost was also by far the biggest barrier for those who have not and do not intend to invest in energy efficiency. For the energy industry, cost was less important – with only 39 percent naming it as a barrier.

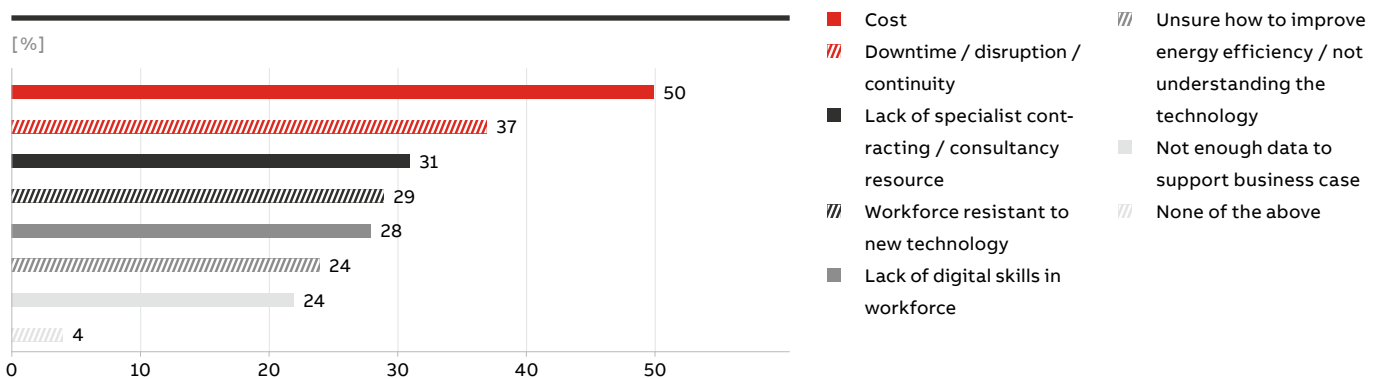
However, an important upside to investing is that saving energy means saving money. Depending on the application, investments can have a quick payback time of 6 to 24 months while delivering long-term benefits for the environment.

More than two in five respondents from India, China, and Brazil mentioned workforce resistance to new technology as a significant barrier to improving energy efficiency.

India and China are equally affected, with 43 percent listing this as a barrier and 41 percent in Brazil. This is not surprising since the introduction of new technology in the workforce has historically posed a threat to workers' sense of security, stability, and purpose. Actively engaging workers during the pre-implementation phase may help companies lead from a position of empathy. It will also enable them to adopt strategies that address people's concerns and reservations.

Another big concern for industrial companies in China is a lack of digital skills, with nearly half of Chinese respondents (48 percent) naming it a substantial barrier to improving energy efficiency. Expanded public-private partnerships may help address the gap between workforce skills and employers' needs.

### Biggest barriers to improving energy efficiency



### Country overview of biggest barriers to improving energy efficiency

	Argentina	Brazil	China	Germany	India	Indonesia	Italy	Malaysia	Mexico	Spain	Sweden	UK	US
Cost	50	47	45	56	42	54	50	50	31	51	52	56	54
Downtime/disruption/continuity	39	34	33	42	35	40	36	39	44	25	37	46	45
Lack of specialist contracting/ consultancy resource	34	30	28	27	43	39	25	37	25	27	31	31	32
Workforce resistant to new technology	14	41	43	25	43	20	18	36	25	18	23	26	29
Lack of digital skills in workforce	25	25	48	31	34	40	22	30	26	24	28	20	18
Unsure how to improve energy efficiency/ not understanding the technology	5	8	42	32	27	27	10	31	17	18	30	25	27
Not enough data to support business case	25	11	39	20	17	35	21	28	16	20	37	22	14



## What steps are you taking to be more energy efficient?

Of those companies already investing in making their energy usage more efficient, almost two-thirds (65 percent) are upgrading their equipment to best in class efficiency ratings, such as installing high-efficiency electric motors and variable speed drives (VSDs). The percentage increases with company size, with the uptake in China the highest at 83 percent.

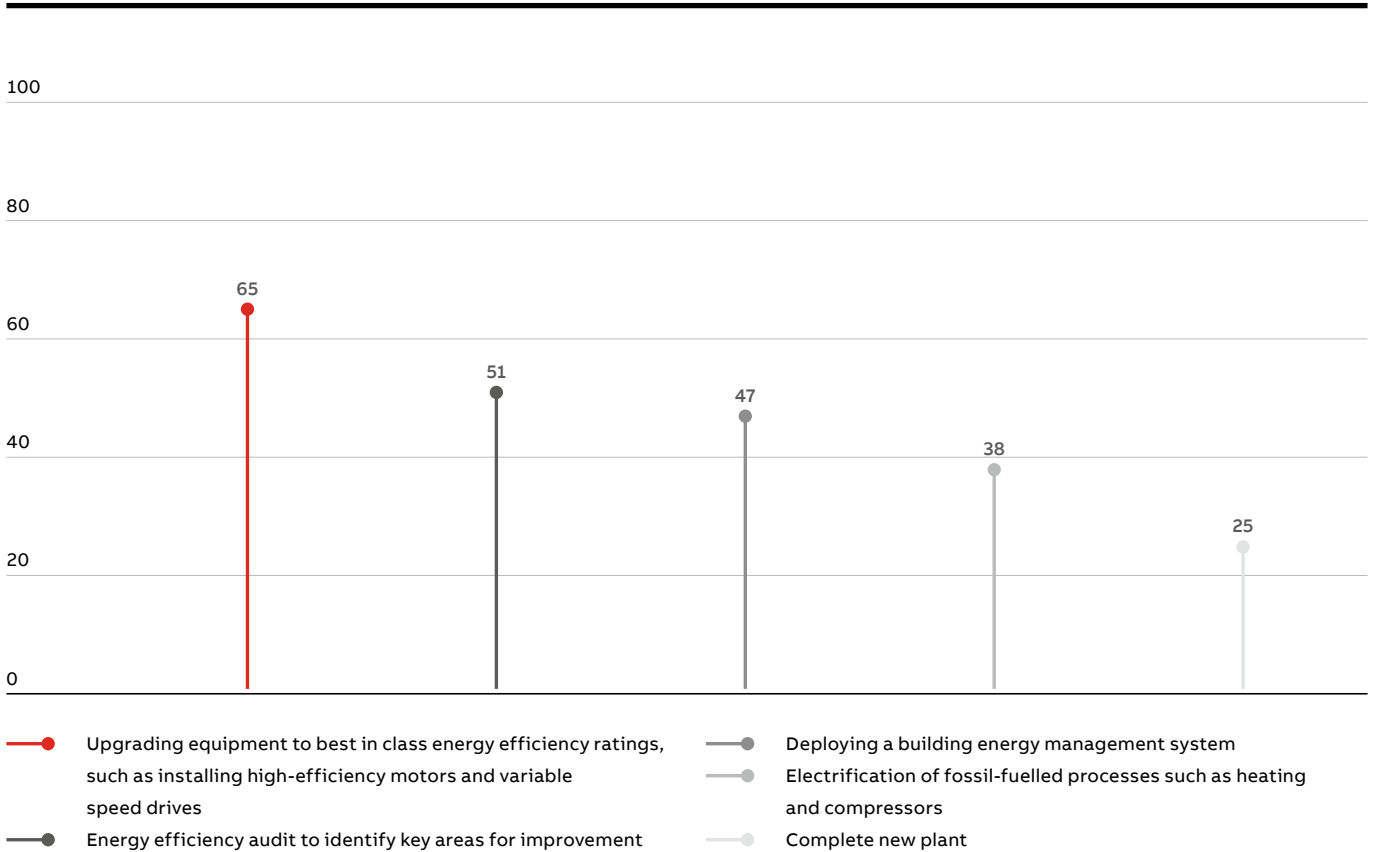
Just over half (51 percent) of companies are conducting audits to identify critical areas for improvement, with China again topping the charts at 71 percent. The percentage in

Sweden is relatively low at 33 percent, possibly due to the country’s documented progress in energy efficiency improvement because of long-term policies.

Other steps companies are taking include deploying a building energy management system (47 percent) and the electrification of fossil-fuelled processes such as heating and compressors (38 percent).

### Steps to become more energy efficient

Nearly two thirds are upgrading equipment to best in class energy efficiency ratings



## Do you expect your investment in energy efficiency to grow during the next five years?

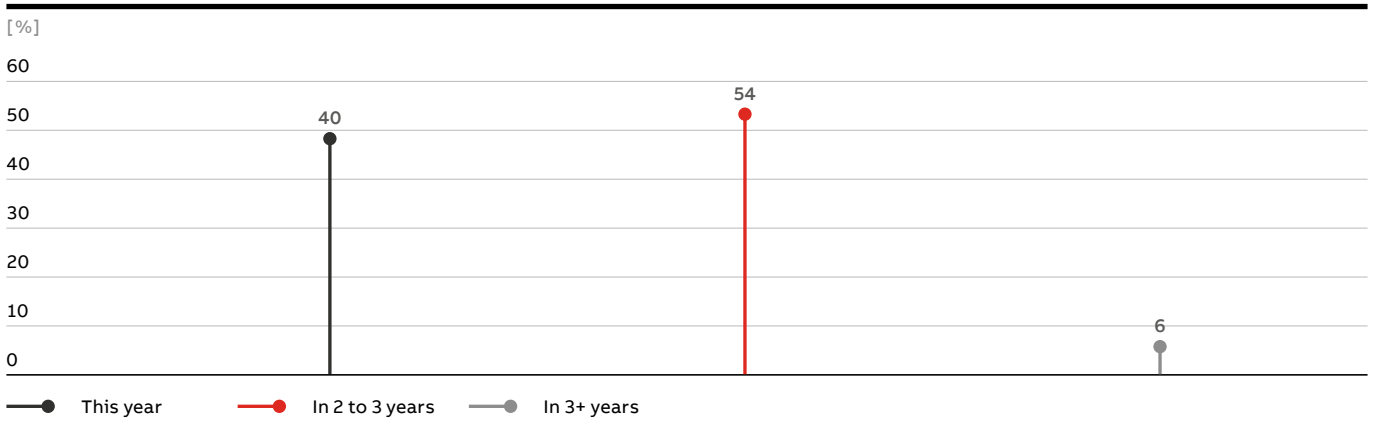
Investments in energy efficiency improvements are critical to ensure a sustainable yet prosperous world economy. After all, the more effective a company’s transition to becoming energy efficient, the less vulnerable it is to rising energy prices.

Nearly 90 percent of all businesses expect their investment in improving energy efficiency to increase over the next five years, with 42 percent expecting a significant increase and 47 percent a moderate increase. This is encouraging. It’s not surprising that China again leads the charge.

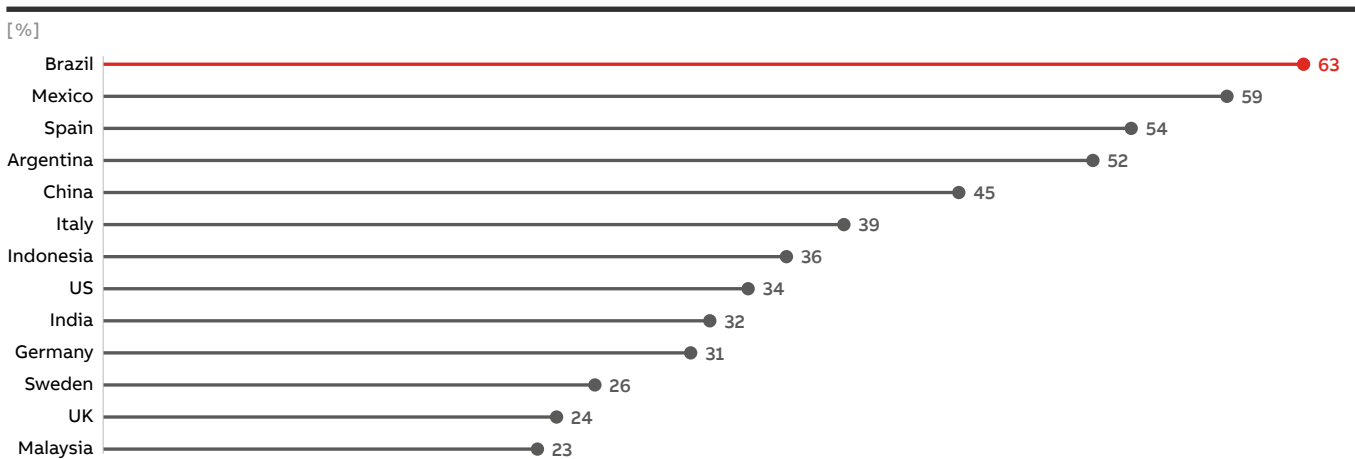
However, nearly all the companies responding expect increased investment in the near future.

Two in five survey participants (40 percent) plan to make energy efficiency improvements this year, with a further 54 percent planning to make them within the next 2 to 3 years. Respondents in Brazil and Mexico were most likely to implement improvements over the next 12 months, while Malaysia and the UK were the least likely.

Time frame for making energy efficiency improvements



Planned energy efficiency improvements in 2022



## What are your most important reasons to invest in energy efficiency?

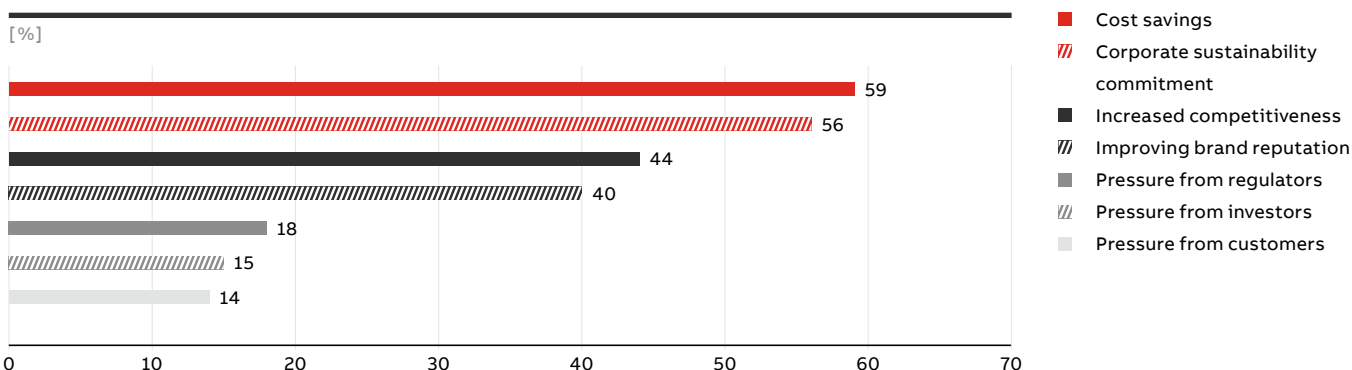
Despite cost being a significant barrier to investing in improving energy efficiency, cost savings were the most important reason for investing (59 percent), closely followed by corporate sustainability commitments (56 percent).

Businesses, cities, and countries have already taken steps to support the uptake of electric vehicles and renewable energy sources as part of their sustainability commitments. The same now needs to be done for sustainable technologies, such as high-efficiency electric motors and drives, that

promise to deliver even greater benefits for the environment and the global economy.

Increased competitiveness (44 percent) and improving brand reputation (40 percent) were the other principal reasons for increased investment.

### Most important reasons to invest



### Country overview of most important reasons to invest in energy efficiency

	Argentina	Brazil	China	Germany	India	Indonesia	Italy	Malaysia	Mexico	Spain	Sweden	UK	US
Cost savings	50%	71%	47%	58%	50%	72%	65%	70%	51%	51%	54%	63%	70%
Corporate sustainability commitment	50%	69%	68%	51%	49%	75%	53%	56%	67%	49%	48%	49%	50%
Increased competitiveness	50%	30%	60%	46%	45%	55%	38%	51%	46%	45%	44%	37%	43%
Improving brand reputation	43%	43%	41%	38%	51%	28%	36%	39%	32%	31%	42%	42%	46%
Pressure from regulators	20%	10%	30%	21%	15%	16%	17%	22%	12%	16%	14%	22%	18%
Pressure from investors	7%	9%	21%	16%	19%	8%	13%	12%	5%	15%	24%	22%	14%
Pressure from customers	7%	5%	19%	20%	19%	6%	8%	11%	6%	14%	19%	20%	13%

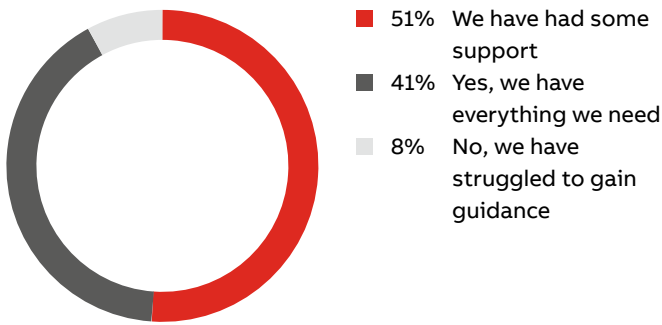
## Do you feel sufficient information is available from government and or third parties on energy efficiency?

Overall, eight percent of the respondents said they have struggled to gain meaningful information on energy efficiency from the government and third parties. This rises to over a third for those who have not invested and don't intend to, suggesting insufficient knowledge could be a barrier to investment.

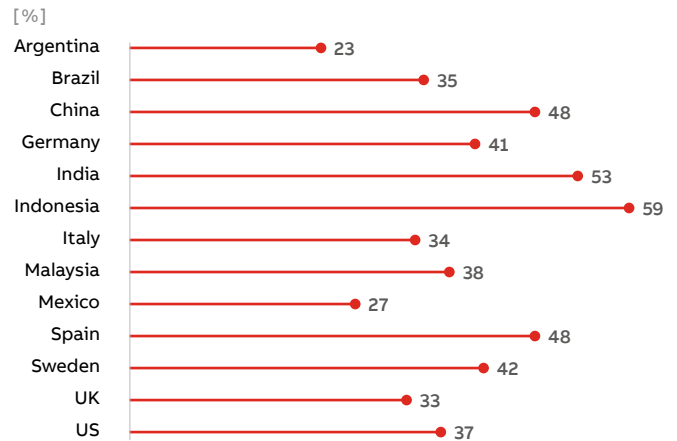
Globally, 41 percent of respondents indicated they have all the energy efficiency information they need.

Respondents from Argentina (66 percent), Mexico (65 percent), the UK (60 percent), Italy (59 percent), and the US (56 percent) indicated that they have had some access to support but that they could do with more information.

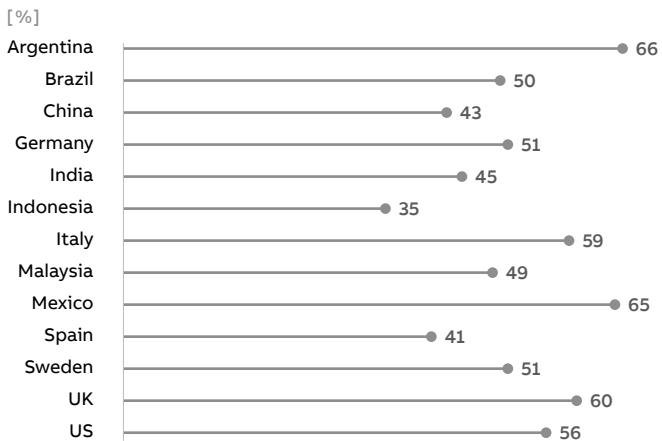
To help industry accelerate the adoption of existing technology that will cut emissions, governments and energy-focused agencies may need to re-evaluate or re-double their outreach.



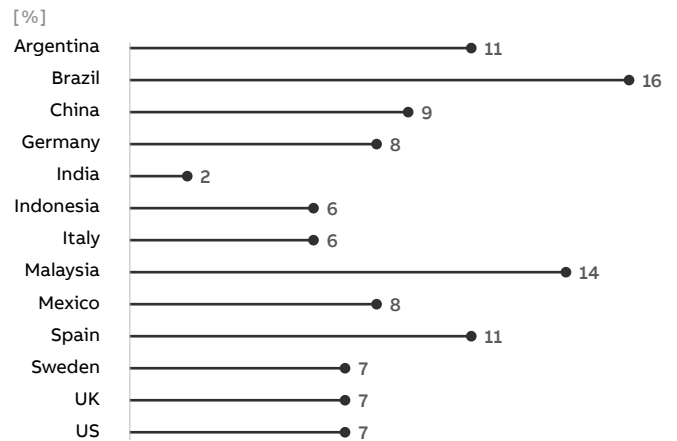
### Yes



### Somewhat



### No



## What is your target date for achieving Net Zero within your business?

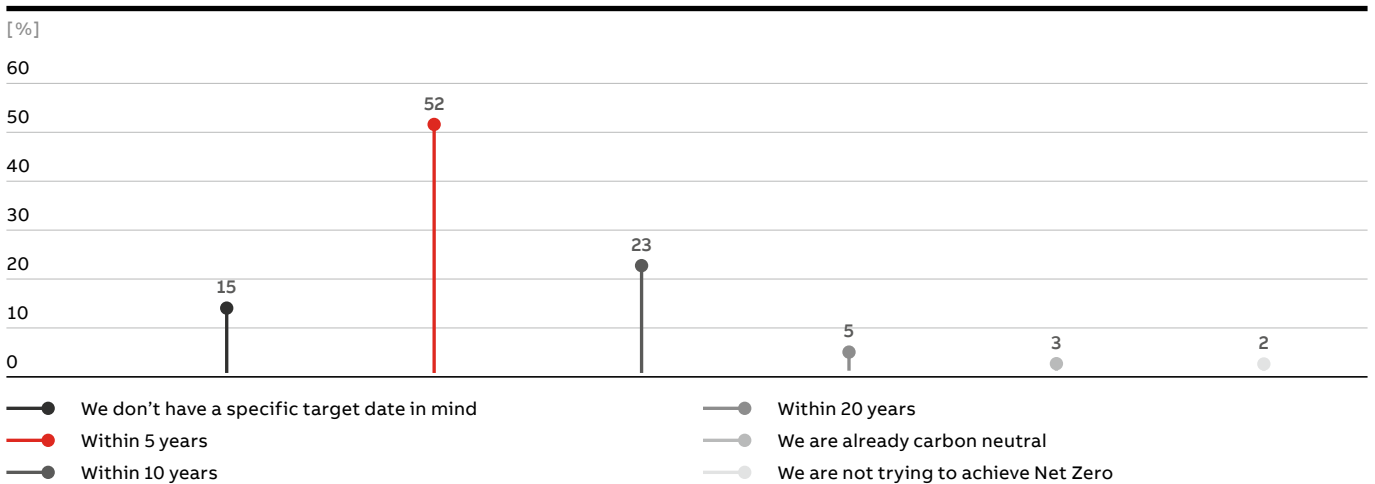
Time to avert dangerous climate change is running out. Therefore, it was reassuring to see that more than half of the survey participants (52 percent) indicated that they plan to achieve Net Zero within five years. Three percent of respondents indicated that they've already achieved carbon neutral status.

Even more encouraging is that this commitment is driven from the top, with 61 percent of people at the executive level responding to the question. Only two percent of respondents are not trying to achieve Net Zero.

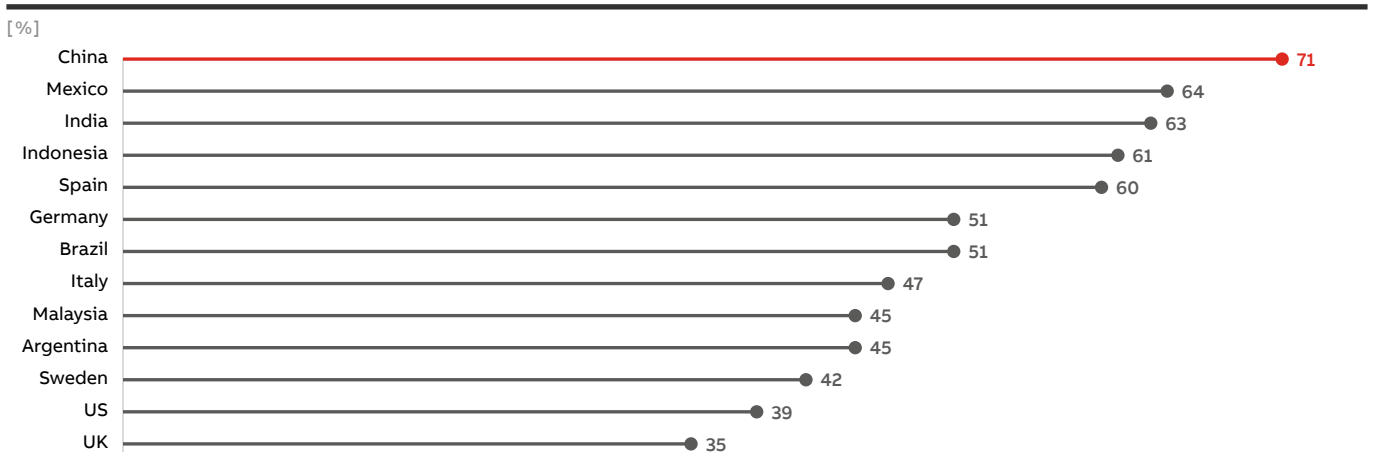
Yet, this is not going to be an easy feat. The key finding of the IEA's Energy Efficiency 2021 report is that annual investment in energy efficiency worldwide needs to triple by 2030 to meet the 2050 Net Zero target. This will be a steep hill to climb for many companies.

While there is reason for optimism, the transition to a more sustainable future will require a concerted effort from industry to accelerate the adoption of the high-efficiency technology that exists today.

Target date to achieve Net Zero



Aiming to achieve Net Zero within five years



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# Energy efficiency can accelerate the transition to a sustainable future

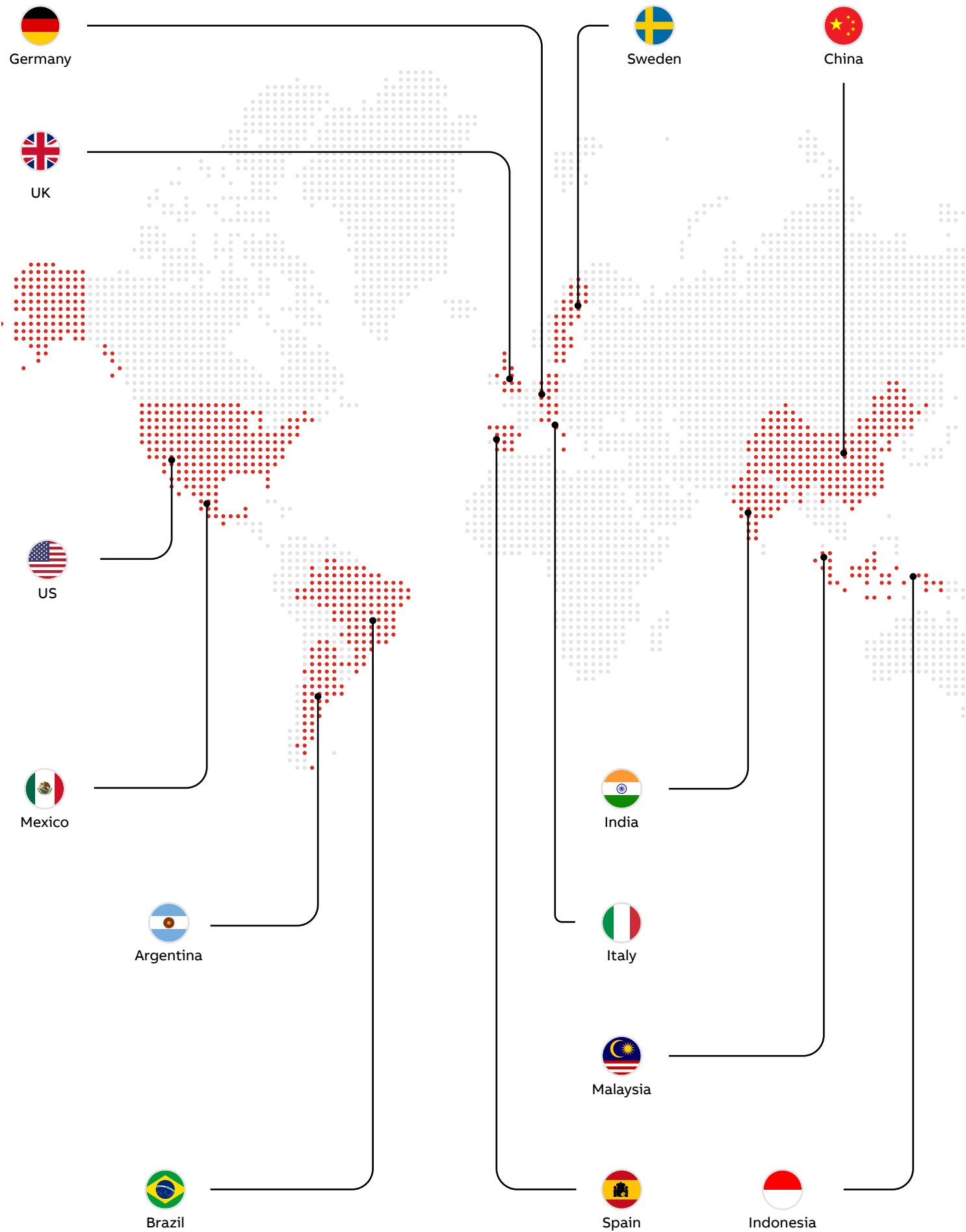
The key takeaway from this survey is that energy efficiency should be a key pillar of government infrastructure programs, and authorities need to find new ways to incentivize the adoption of the latest technology. From the private sector, investors concerned about sustainability should make capital available to speed investments.

Technology providers, like ABB, that can help industry deliver energy efficiency improvements and achieve Net Zero need to do even more to explain the economic and environmental value of these technologies. This calls for an ongoing

commitment to education and communication. The aim must be to create an ever-deeper understanding of how high-efficiency solutions can benefit both the bottom line and the environment.

The businesses that have recognized the multiple benefits of energy efficiency and committed to investing to achieve them should be applauded. However, to reach climate goals, we all have a critical role to play in accelerating the transition to a more sustainable future.







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