WORLD ENERGY COUNCIL

SPRINT OR MARATHON?
HOW CRISES ARE IMPACTING THE PACE OF TRANSITIONS

WORLD ENERGY PULSE 2 | | AUGUST 2022

PLACING SOCIETY AT THE HEART OF ENERGY TRANSITIONS: EXPERIENCES AND OUTLOOK FROM THE WORLD ENERGY COMMUNITY

The World Energy Pulse shows that leaders' optimism about the pace of transition has decreased rapidly, with 27% more leaders indicating that the pace of transition will slow as a result of current, rapidly developing national energy strategies (44% compared to 35%) than when the Council's first 2022 Pulse was conducted in April.

At the same time, 18% more leaders are seeing greater fragmentation (43% compared to 36%) as new and cascading crises affect energy systems and consumers worldwide.

"This World Energy Pulse reinforces the importance of placing society at the heart of energy transitions. The conflict in Ukraine and resulting energy supply and cost-of-living crises have served as stark reminders of the challenges that come with tackling supply-side solutions without also addressing demand. In doing so we are not only missing a golden opportunity, but we create real risk of societal unrest. Successfully managing energy transitions must not only involve all three pillars of the World Energy Trilemma but incorporate solutions that speak to the needs of energy consumers." – Dr Angela Wilkinson, Secretary General and CEO, World Energy Council

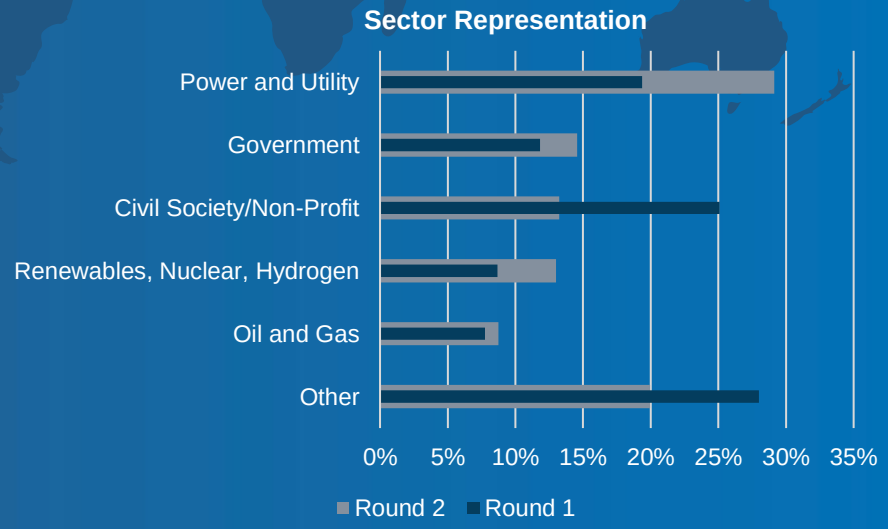
Findings are based on responses to the World Energy Pulse received in July **2022**.

Should you wish to access to more detailed data and insights, please contact us at partners@worldenergy.org

583 RESPONDENTS

ACROSS 6 REGIONS AND

79 COUNTRIES



EXECUTIVE SUMMARY | THE PACE OF ENERGY TRANSITIONS

1. TRANSITIONS IN TURMOIL. The 2020s are expected to be defined by further crises – challenges around energy security and climate security shed light on other insecurities including water, food, industrial competitiveness and jobs. Leaders' optimism about the pace of energy transitions has decreased rapidly, with 27% more leaders indicating that they believe the process will slow (44% compared to 35%) than when the Council's first 2022 Pulse was conducted in April. Climate change is reported as the primary concern in most regions except Europe, but compounding crises are redirecting attention to managing affordability and multi-dimensional security in parallel. Survey responses also point to the need for better-quality leadership dialogue which connects price and systems costs, access and affordability.

2. ENERGY SECURITY IS REFRAMING AFFORDABLE CLIMATE SECURITY ACTIONS. A return to a more balanced World Energy Trilemma approach to energy policymaking appears as a leadership choice globally. Energy security is ranked as highest priority globally, followed closely by environmental sustainability, and lastly by energy affordability and equity. International collaboration for energy transition and the food-energy-water nexus are perceived as the highest risks in the current crises.

3. THE RISING NEED FOR JUST, EQUITABLE AND INCLUSIVE ENERGY TRANSITIONS. Supply-side technologies including electricity storage, low-carbon hydrogen, smart grids, and carbon capture and storage, are regarded as important to accelerating clean and just energy transitions in all regions. Top-down government-led responses to crises appear to be evident across the board, while responses simultaneously indicate an absence of bottom-up or consumer-led leadership models.

4. VOICES, CHOICES AND HOLDING LEADERS TO ACCOUNT. Almost 40% of respondents believe that policymakers are the biggest target audience for energy literacy improvement. That number is highest in North America and Africa (52% and 50%, respectively) in contrast to Latin America and the Caribbean (28%), where citizens are regarded the priority group for energy literacy programmes.

5. NEW INTERVENTIONS BY GOVERNMENTS – THE END OF GRADUALISM? Government intervention is perceived as most important in energy infrastructure, R&D and regulations and corporate tax in order to support energy business and industry operations. Results also suggest that there is no cheap or quick fix to the cost-of-living crisis which has been triggered by the first demand-driven global energy shock, and that energy efficiency incentives and funding, along with subsidies and an overhaul of the market structure and design are needed.

6. HOW WILL THE NEW DRIVERS OF DEMAND-DRIVEN ENERGY SECURITY RESHAPE ENERGY GEO-POLITICS OR VICE-VERSA? In most regions, strengthening and extending the electricity grid, and diversifying the generation mix appear as the highest choices among respondents to address the new energy and climate security challenges. In North America, enhancing resiliency to global energy shocks appears as the priority action from a leadership perspective. In Europe, diversifying the generation mix and energy imports are seen as preferred solutions.

1. TRANSITIONS IN TURMOIL

1.1 Slow return to stability

1.2 Compounding crises

1.3 Outlook for fragmentation

1.4 Multiple paces of transition

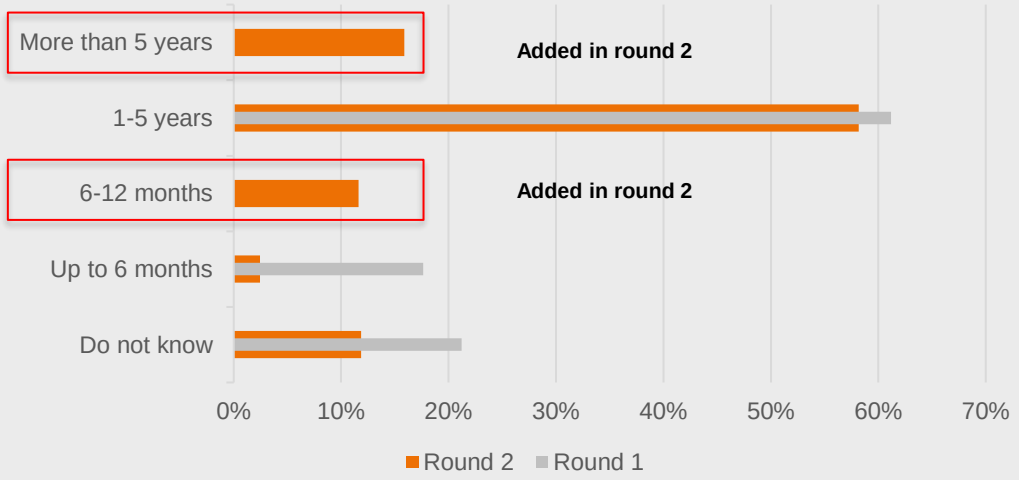
1.1 | Leaders see no quick return to stability as multiple “once-in-a-lifetime” crises shake energy systems

Recovery is not anticipated anytime soon, with a majority of 58% of global respondents agreeing that it will take between 1-5 years before we return to stability, in addition to 16 % who think that it will take more than 5 years.

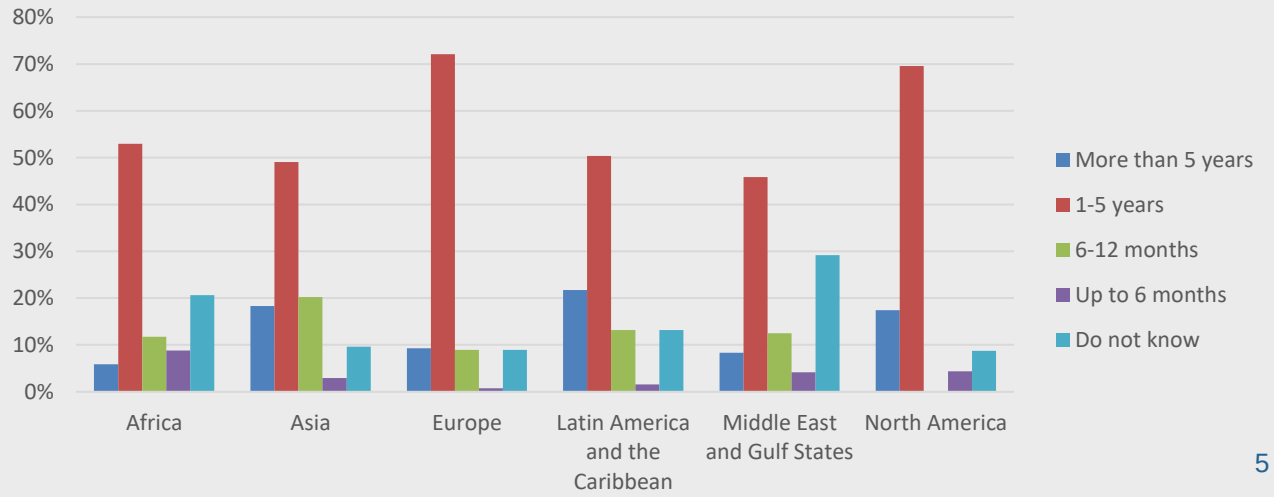
The 2020s/this decade is expected to be defined by further crises – challenges around energy security and climate security shed light on other insecurities including water, food, industrial competitiveness and jobs.

Based on national responses to dealing with these crises, how long before return to stability?

Global view



Regional view



1.2 | New and compounding crises, cascading disruptions impact all world regions

In Europe, 55 % of respondents ranked the "European energy security crisis" as the leading concern, followed by 18% for "climate change". Elsewhere, "climate change" was the leading concern for energy leaders.

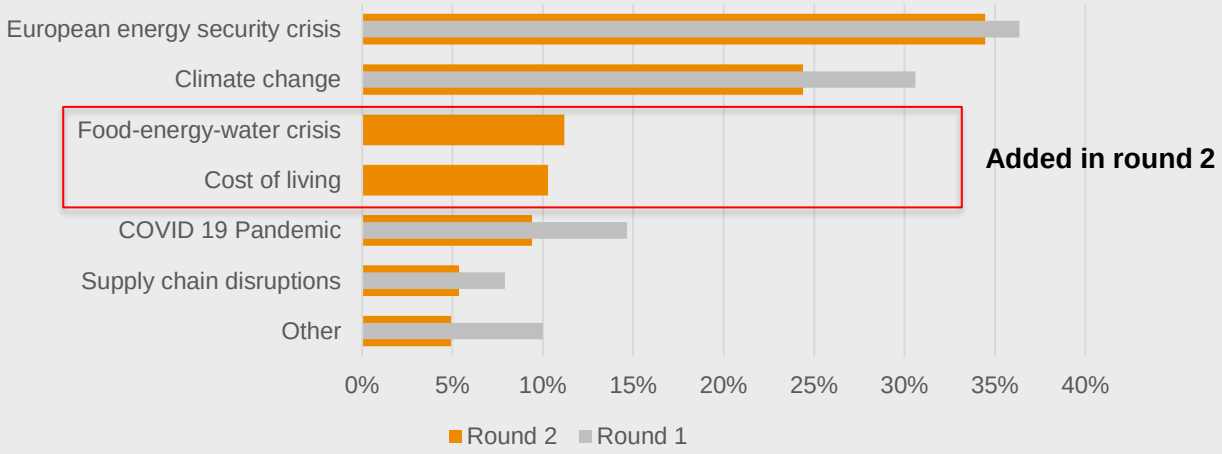
In Africa, several crises were reported equally as the leading concerns for energy leaders: climate change (21%), food-energy-water crisis (21%), and cost of living(18%)

In Asia, climate change (25%) and the European energy security crisis (24%) are head-to-head as the leading concerns.

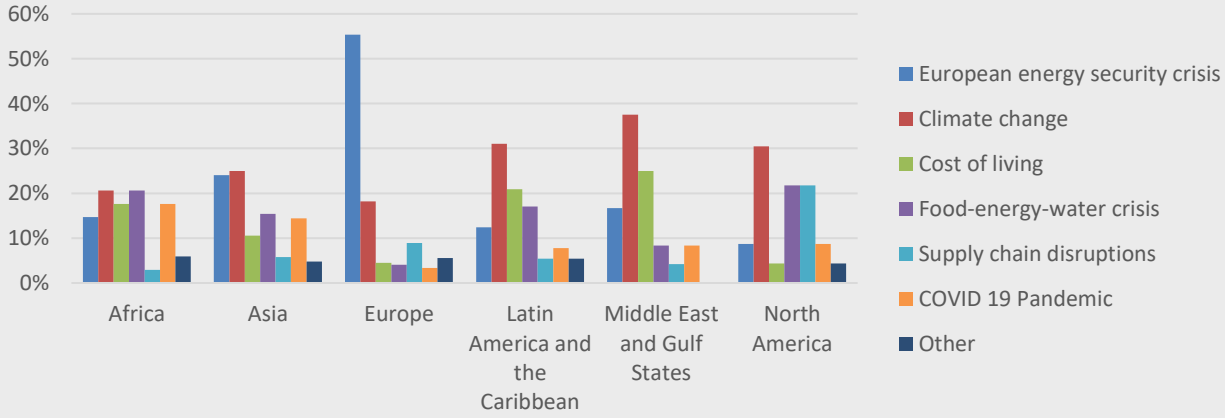
Climate change is the primary concern in most regions (except Europe), but compounding crises are redirecting attention to managing affordability and multi-dimensional security in parallel.

Which of the following crises are you/your leadership paying MOST attention to?

*Global view**



Regional view



*Global view influenced by weight of Europe in responses

1.3 | A more fragmented and constrained outlook

The declining trend of globalisation and the rise of local and regional security priorities continues. Between April and July 2022, outlooks on the international cooperation have increasingly shifted to a more fragmented world, with 43% of respondents expecting a more fragmented and constrained outlook (up 18% from April).

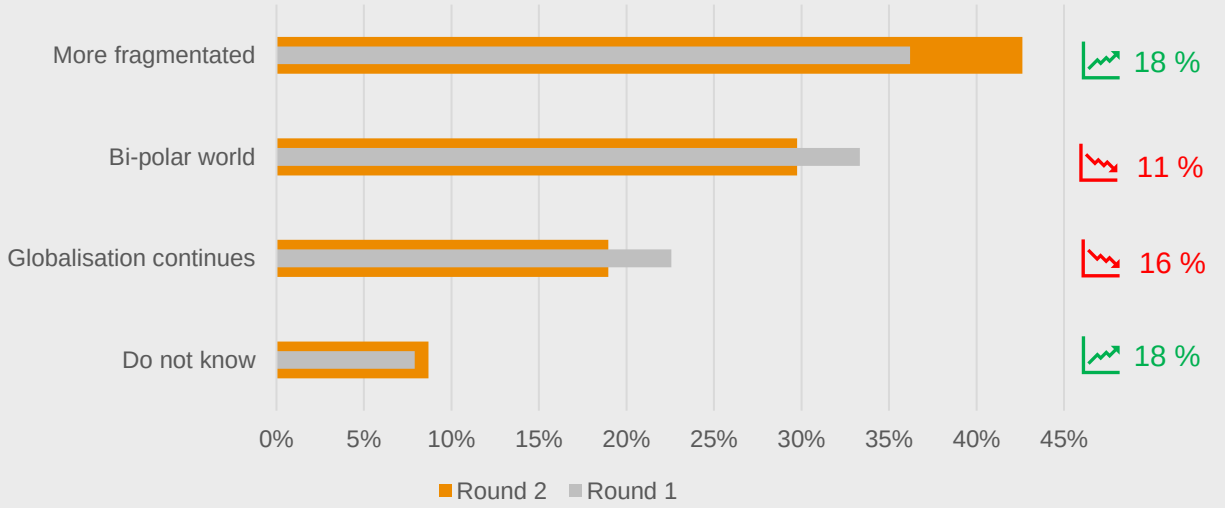
Less than a quarter of respondents (19%) expect continued globalization as the outlook for international cooperation, while a larger share of respondents expect a bi-polar (30%) or a more fragmented world (43%).

Uncertainty on international cooperation has increased slightly between April and July 2022, with 9% reporting not knowing what to expect from international cooperation as as we move forward.

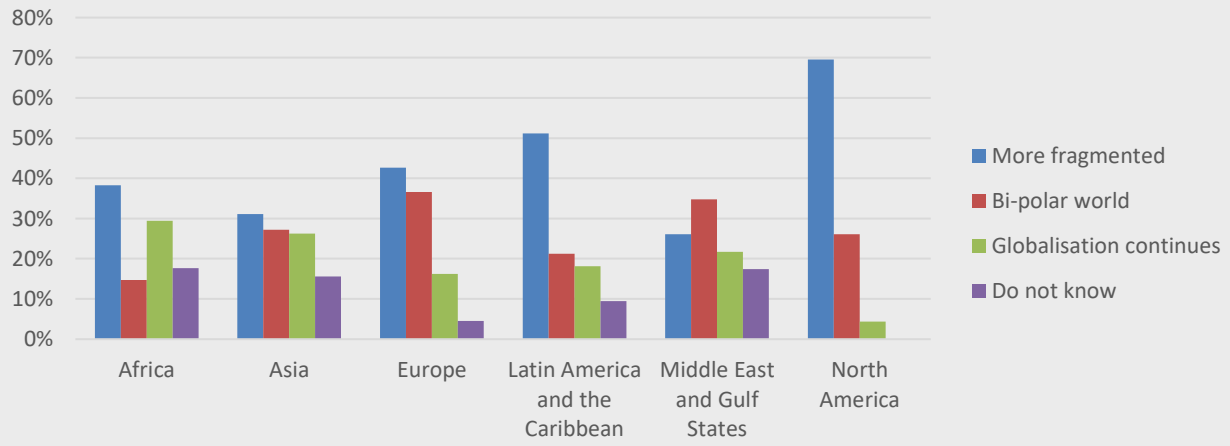
Expectation of increasing fragmentation in most regions, and in particular within the Americas. MEGS is the only region showing greater expectation towards a bipolar world order.

How do you see the outlook for international cooperation?

Global view



Regional view



1.4 | Leaders are less optimistic about the pace of transition under current, rapidly developing national energy strategies

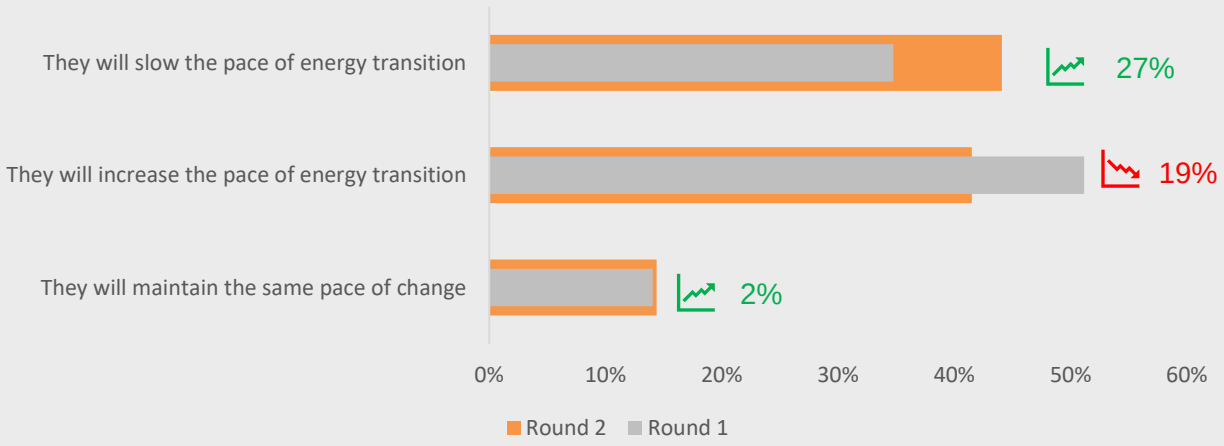
Globally, respondents are split with diverging views that transitions will be either accelerated or slowed. Over 44% of global respondents expect a slower energy transition as a result of the responses to the multiple crises, compared to a 42% expecting the opposite – an increase in the pace of the energy transitions.

From a regional perspective, slight majorities in Asia and the Americas expect a slower pace for energy transitions. On the contrary, slight majorities in Europe and the Middle East and Gulf States expect a faster pace. In Africa, a clear majority (59%) expect a slow down.

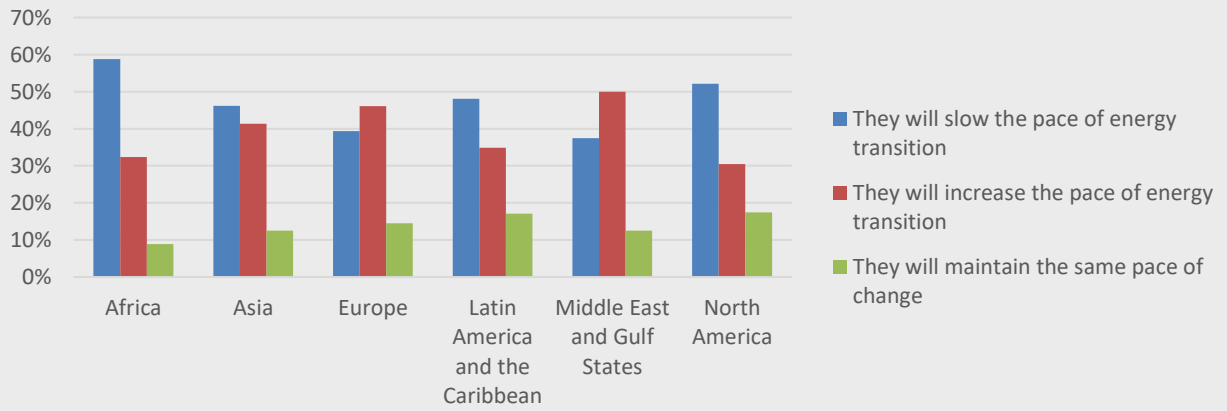
Results suggest that clean and just energy transitions are at risk and a better-quality leadership dialogue which connects price and systems costs, access and affordability is urgently needed.

Which statement best reflects your opinion on the impact of national responses to dealing with these crises?

Global view



Regional view



2. Energy security is reframing affordable climate security actions

2.1 Energy Trilemma challenges

2.2 International collaboration at risk

2.1 | Energy trilemma management challenges are everywhere, but the policy menu varies from region to region

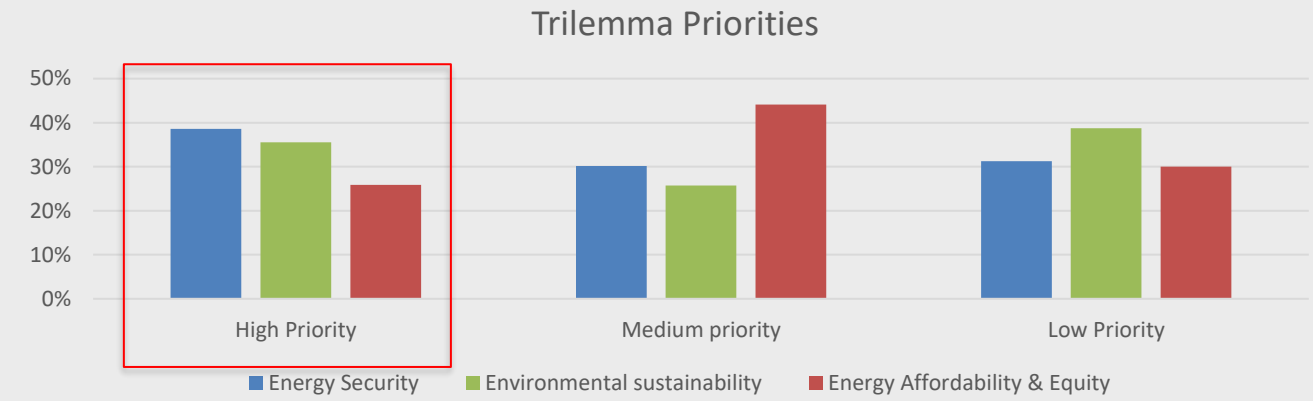
The World Energy Trilemma measures and tracks national performance in securing reliable, affordable, and clean energy. Results show a return of the Trilemma everywhere even though priorities vary place to place.

Globally, energy security ranked as highest priority, followed closely by environmental sustainability, and lastly by energy affordability and equity.

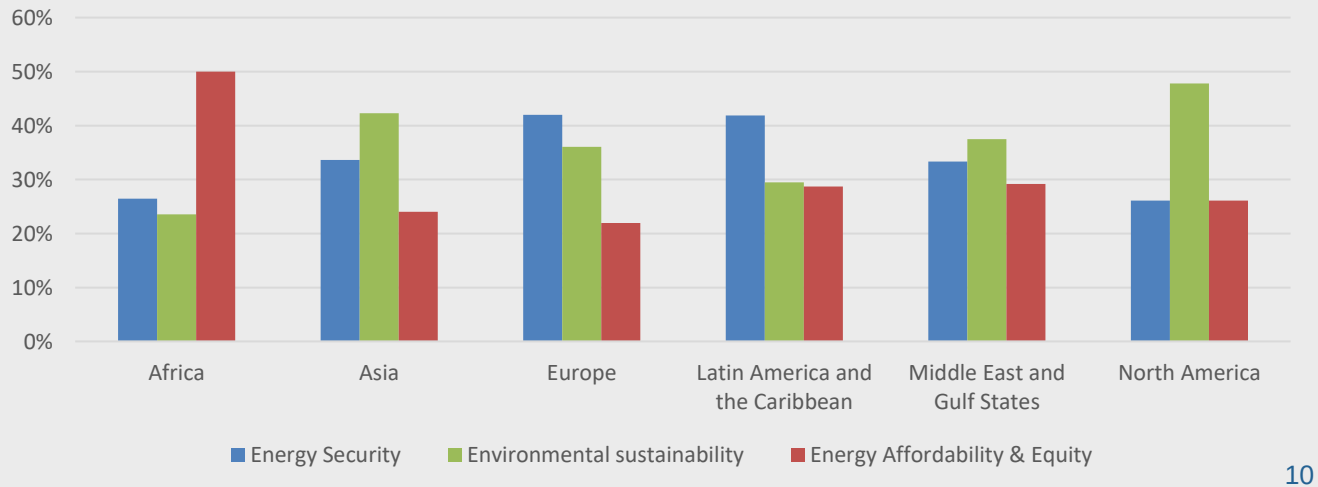
Regionally, high priorities differ, with Energy Security ranking as highest priority in Europe and Latin America, Environmental Sustainability ranking highest in Asia, MEGS, and North America; and Energy Affordability & Equity ranking highest in Africa.

Please rank the following issues from lowest to highest according to priority for you/your organisation's leadership in the next 3-6 months

Global view



Regional view of high priorities



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2.2 | International collaboration is essential and at greater risk

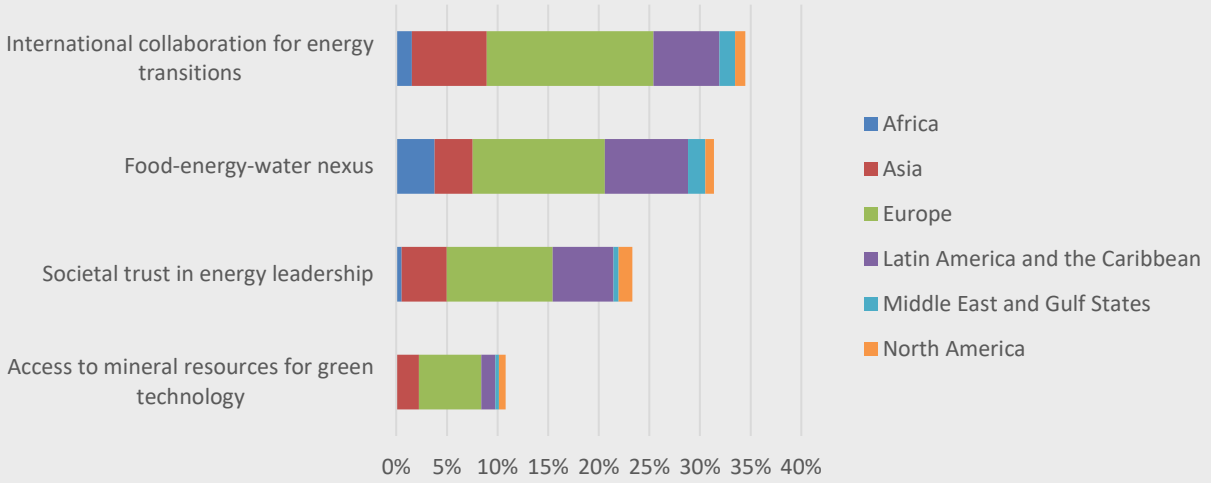
International collaboration for energy transition and the food-energy-water nexus are perceived as the highest risks in the current crises according to global respondents (34% and 31% respectively).

Regionally, majority of African respondents (65%) recognise water and food security concerns as rising. Likewise, Latin America and the MEGS respondents share the same risk perception, but with the international collaboration on energy transition also keeping their energy leaders awake at night.

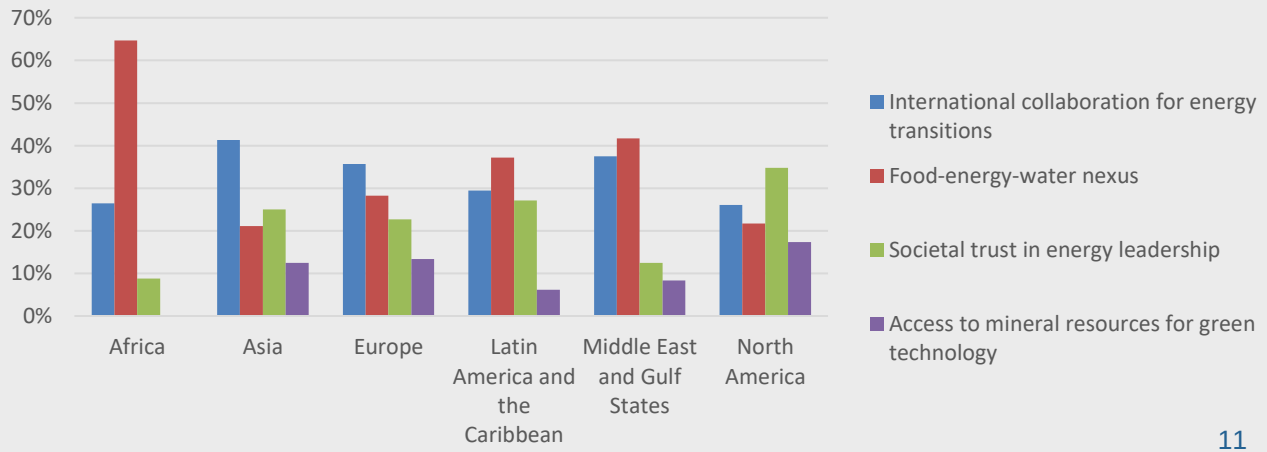
Materials crunch, mineral resource depletion/dependency is not (yet) flagged as a major concern.

Q9: In your view, which of the following is most at risk in the current crises?

Global view



Regional view



3. The rising need for just, equitable and inclusive energy transitions

3. 1 he role of tech and user behaviour

3.2 Outlook for bottom-up action

3.1 | Supply-side technologies and user behaviours are seen as key for accelerating transitions

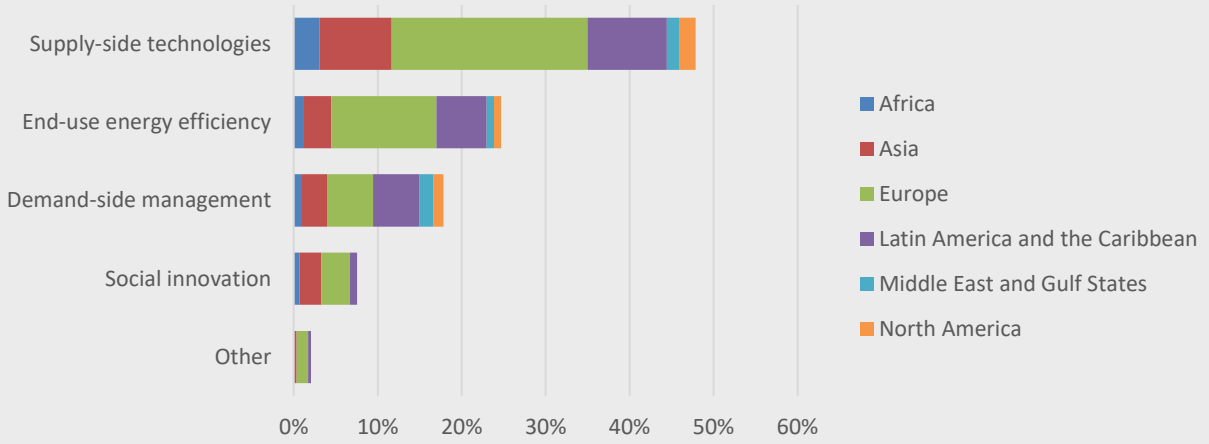
48% of global respondents consider supply-side technologies including electricity storage, low-carbon hydrogen, smart grids, carbon capture and storage as important in the technology innovation mix for accelerating clean and just energy transitions in all regions.

The MEGS region shows a slightly stronger emphasis on demand-side management rather than supply-side technologies.

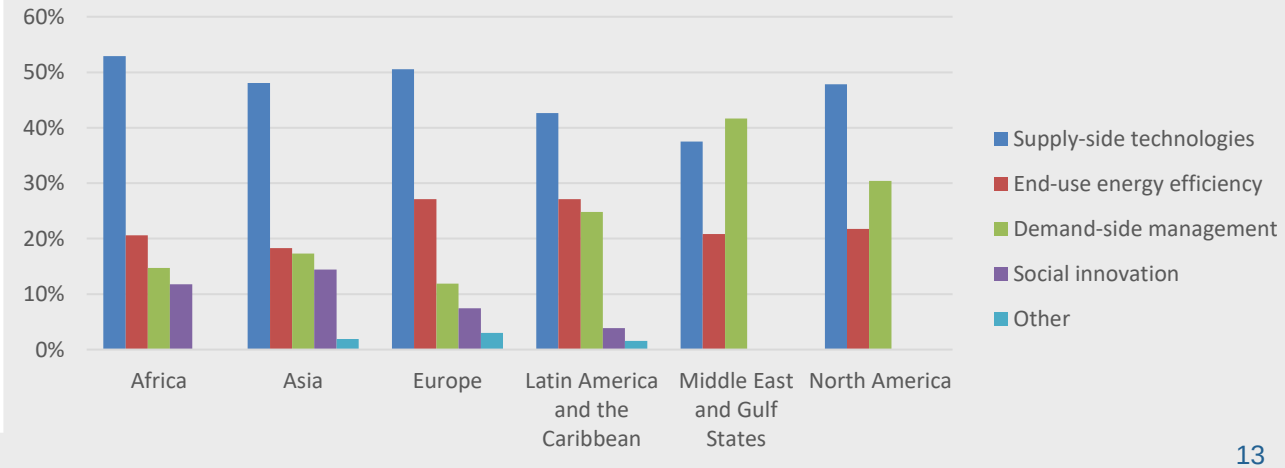
Globally, end-user energy efficiency ranked as the second greatest untapped potential for innovation (25%)

Where is the greatest untapped potential for innovation to accelerate energy transitions in the wake of the current crises?

Global view



Regional view



3.2 | Top-down responses to the world's first demand-driven crisis will not be enough

Bottom-up leadership occurs when policy, projects and innovation are informed by the people impacted by them. This can be enabled via community empowerment, participatory approaches, and by making use of smart technology for better communication between industry and consumer.

Globally, 57% of respondents believe there is no or very little evidence of a bottom-up leadership models emerging in their country. Another 36% consider the evidence emerging "to some extent".

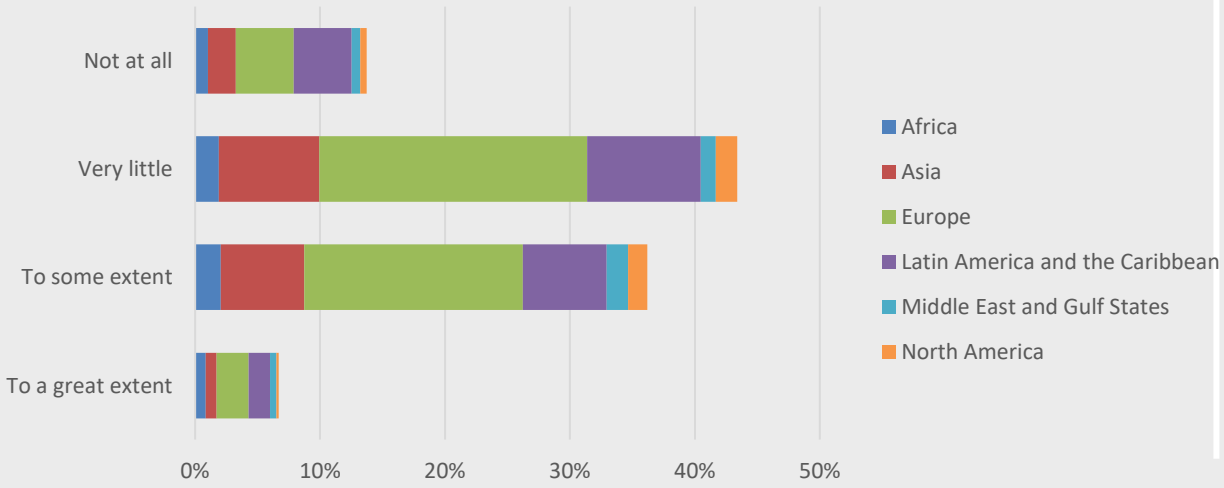
Instead, top-down government-led responses to crises appear to be evident in all regions.

A minority of 7% of the global respondents reported recognising evidence of bottom-up leadership models emerging to a great extent in their countries.

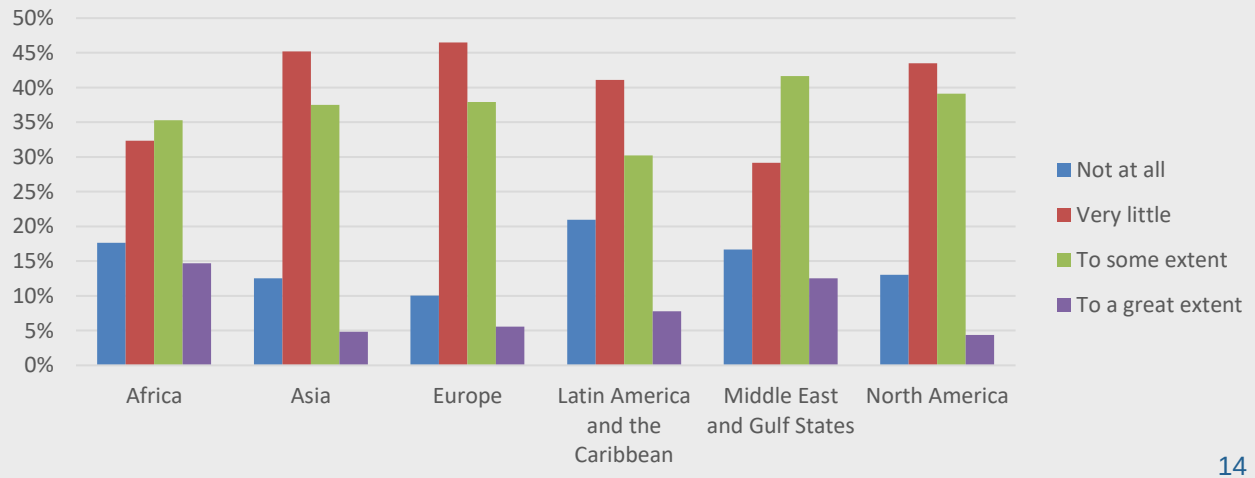
Regionally, only Africa and MEGS regions have a majority of respondents seeing signals of bottom-up leadership models to some extent.

Do you see evidence of bottom-up leadership models emerging in your country?

Global view



Regional view



4. Voices, choices and holding leaders to account

4.1 Energy literacy gaps

4.1 | Policymakers need to improve their energy literacy

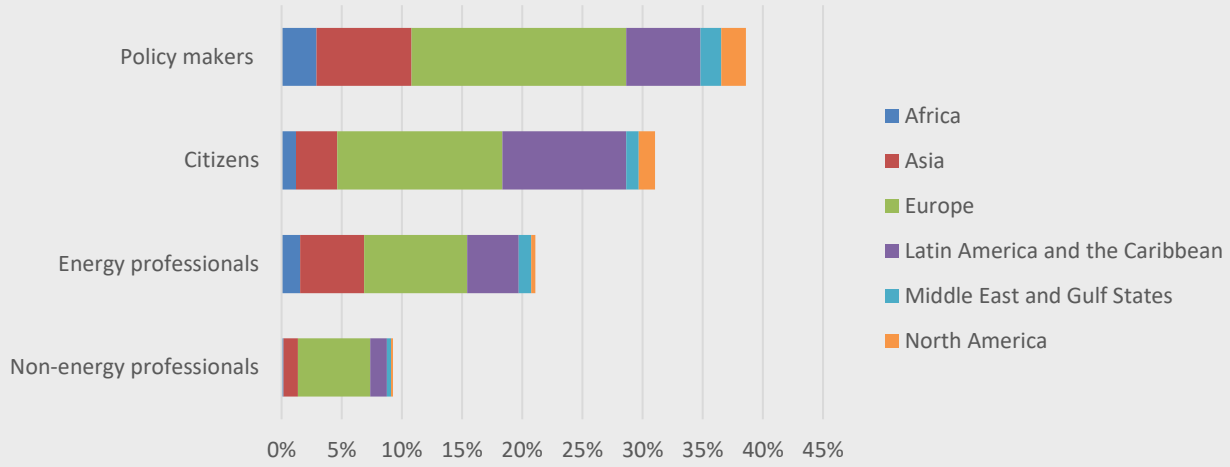
Energy literacy empowers people to make wise choices about energy, to participate in policy debates, and to hold energy leaders to account. Where is the starting point?

Almost 40% of respondents believe that policymakers are the biggest target audience for energy literacy improvement.

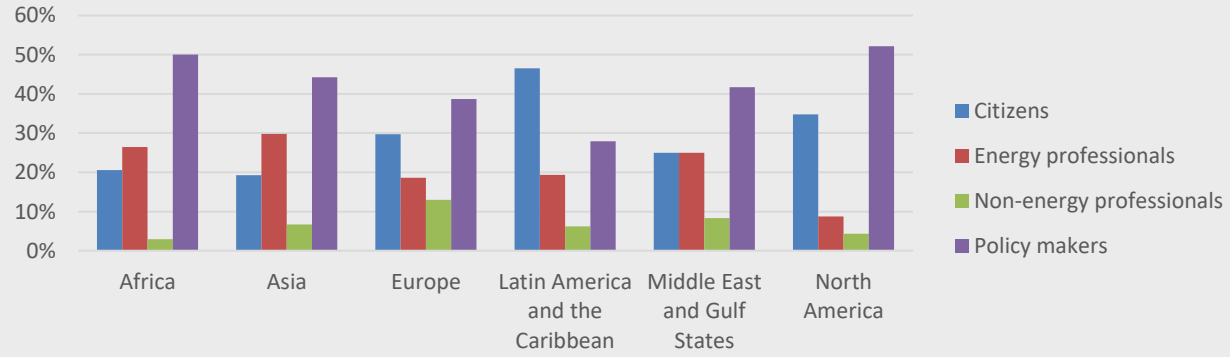
Latin American and the Caribbean countries see citizens as the priority group for energy literacy improvements.

Which target group is most in need of energy literacy improvement?

Global view



Regional view



5. New interventions by governments – the end of gradualism?

5.1 Business needs

5.2 Consumer needs

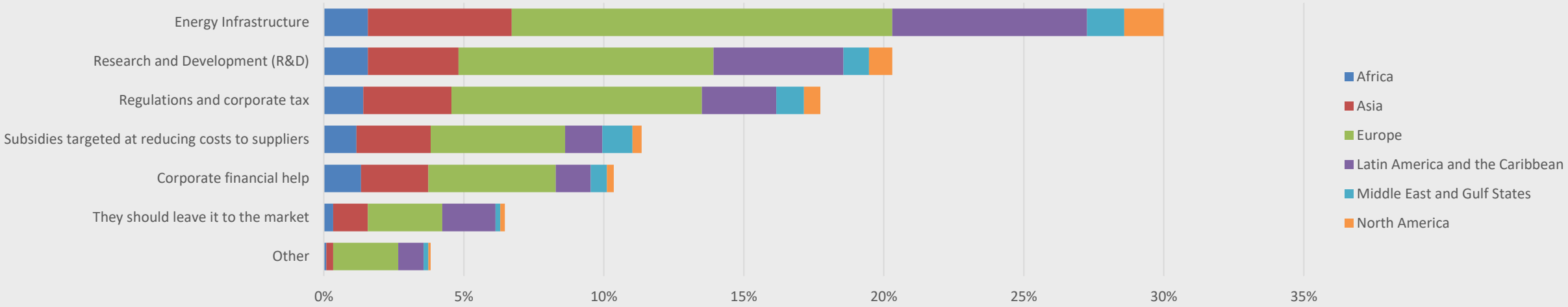
5.1 | Government support for energy business should focus on infrastructure and R&D

Globally, government intervention is seen as a long-term approach and most important in areas such as energy infrastructure, R&D and regulations and corporate tax in order to enable energy business and industry operations.

Short-term interventions including subsidies and corporate financial help are perceived as a secondary priority, while free market regulation is not regarded as a strong and desired response to the impact of crises on the energy market.

Where should your government intervene to support energy businesses and industry with the impact of crises? Tick all that apply.

Global view



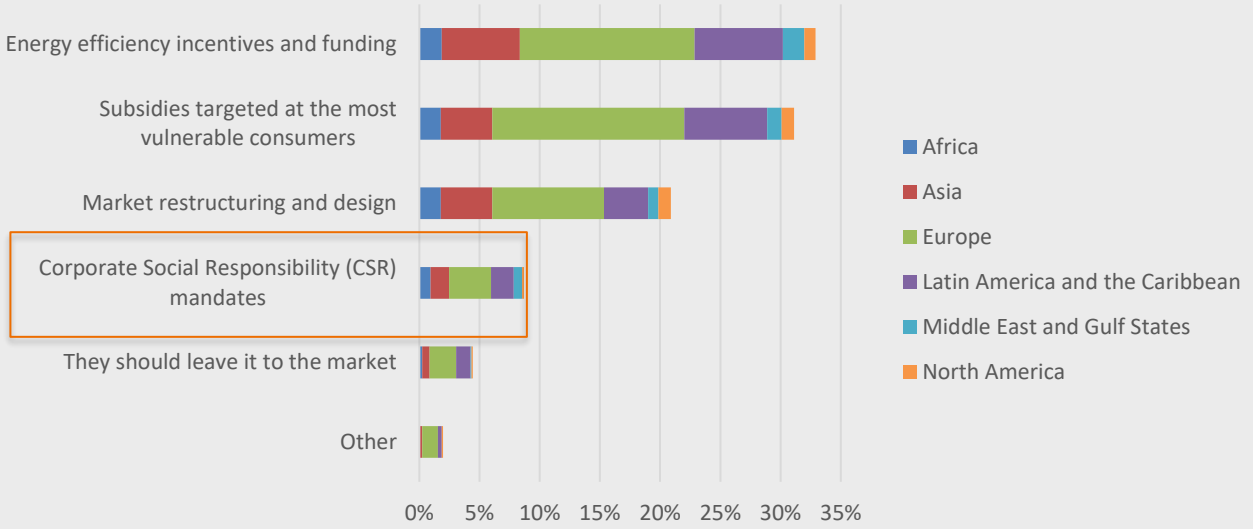
5.2 | Gap between global views on government intervention and governments' own views

Global results suggest that there is no cheap or quick fix to the cost-of-living crisis which has been triggered by the first demand-driven global energy shock, and that energy efficiency incentives and funding, along with subsidies and an overhaul of the market structure and design are needed.

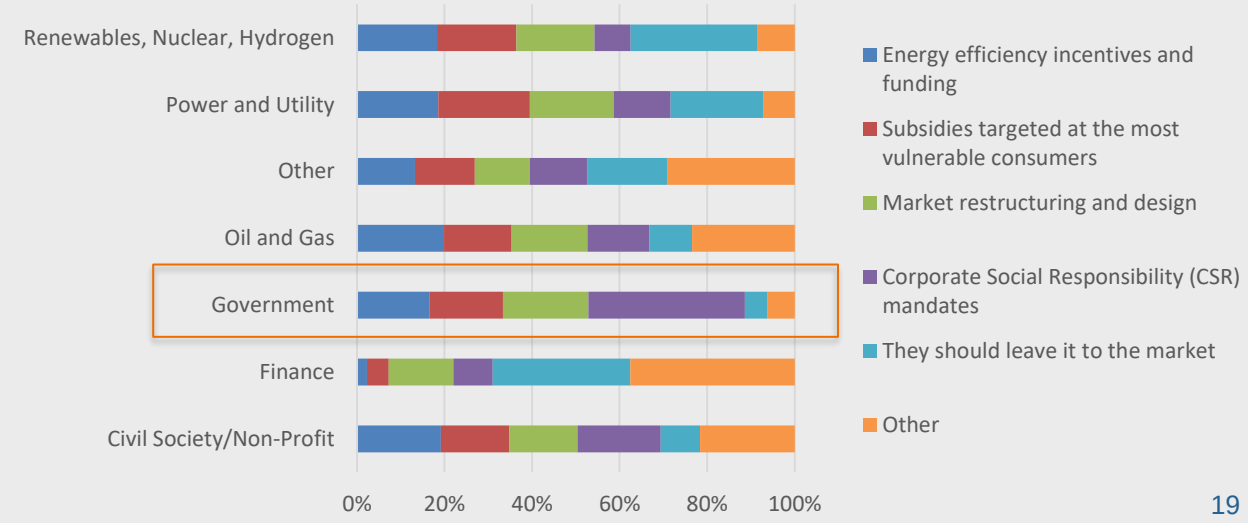
On the other hand, from a sectoral perspective governments seem to rely on CSR mandates to protect consumers rather than on direct government intervention.

Where should your government intervene to protect energy consumers from the impact of crises? Tick all that apply.

Global view



Sector view



6. How will the new drivers of demand-driven energy security reshape energy geo-politics or vice-versa?

6.1 Priority focus areas

6.1 | Power grid and generation mix seen as priority focus area

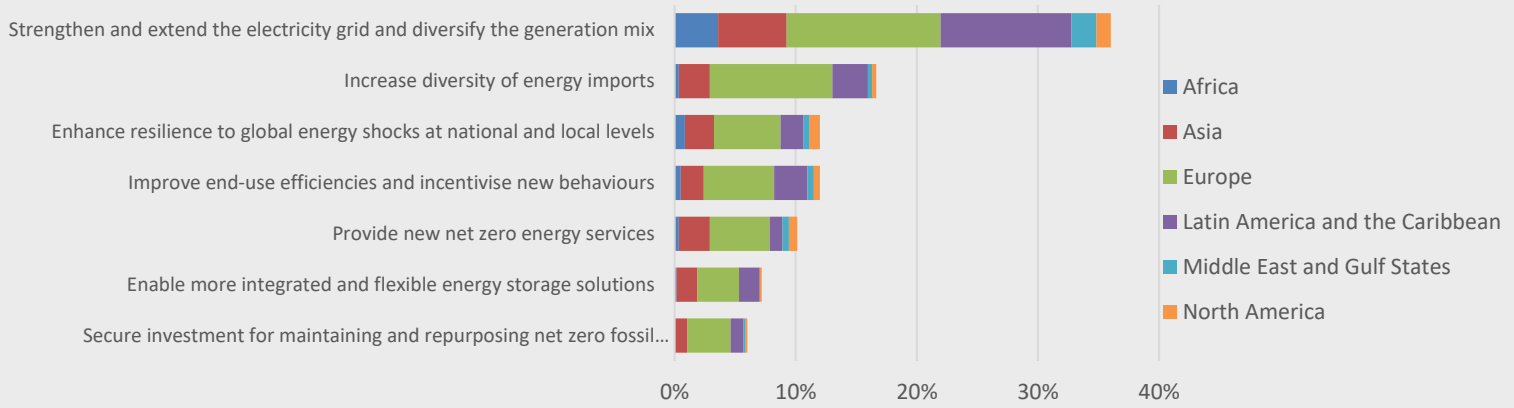
In most regions, strengthening and extending the electricity grid and diversifying the generation mix appear as the priority choices among respondents to address the new energy and climate security challenges.

In North America, enhancing resiliency to global energy shocks is the top priority.

In Europe, diversifying the generation mix diversifying the energy imports appear to lead leadership choices.

Which of the following solutions is your country/company focusing on to address the new energy- and climate security challenges? Please indicate the highest priority.

Global view



Regional view