Energy Transition Toolkit

User guide

Version 1

WORLD ENERGY COUNCIL

Acknowledgement

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Foreword

We are pleased to share the first edition of the World Energy Council's Energy Transition Toolkit and User Guide. The Toolkit is a unique resource. It has been developed with our members for use by our global energy community and wider stakeholders with the aim of enabling and facilitating successful energy transition.

We do not aim to study transition but seek to enable our members to achieve a step change in their energy transition management capabilities and performance. Our toolkit continues to evolve through wider use and sharing of successes and failures. We don't just publish reports, we use our energy transition tools, individually and in combination to convene energy leaders, future energy leaders and experts from across the world and along the energy value chains. We avoid one-size-fits-all thinking and instead engage diversity and promote good quality strategic conversation to support flexible cooperation and catalyse new forms of collaborative innovation.

Who might use this toolkit, and why?

Energy systems are shifting
For the World Energy Council, success is a well-managed global energy transition that secures the benefits of sustainable energy for all.

Call to Action: **The stakes of global energy transition are high and getting higher.**

Together with our expert community we develop five tools which are flexible, scalable and adaptable to energy transformation challenges around the world.

Our Energy Transition Toolkit combines five tools for analysis, assessment, dialogue and collaboration, which can help energy stakeholders engage with and contribute to new energy realities.

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About the Toolkit

Actionable energy insights, flexible tools for analysis, adaptable transition pathways

Introduction by Christoph Frei and Angela Wilkinson

The World Energy Council supports a global community network of energy leaders and experts in 100 countries in developing new insights on and practical tools for managing robust energy transition. The Council promotes insights that are relevant to effective intervention in regionally diverse energy systems. It engages and enables its members to achieve a step-change in their energy transition management capabilities and performance.

Catalysing collaborative innovation and sustaining flexible cooperation
There is no predictive theory of evolution, but history teaches us that living systems have evolved through cooperation to overcome binding constraints, such as energy scarcity. Similarly, there can be no global energy transition without flexible cooperation among many and more diverse energy system shapers and stakeholders. Cities, communities, consumers, governments, businesses, and societies – all can play a role.

A more coherent and coordinated approach is also needed to address policy trade-offs. For example, using the Council's Trilemma Index, we can help identify opportunities for policy coherence and promote integrated policy innovation. And our new Dynamic Resilience Framework is aimed at enabling governments and firms to better prepare for systemic risks posed by climate change, extreme weather, financial shocks, and cybersecurity threats.

Leading with the future of energy as it emerges

We cannot predict the future energy mix or price, but we believe we can enable our global community network to play their part in accelerating successful transitions in regionally diverse energy systems. We are pragmatically working with the pull of new energy visions and the realities of existing energy systems to enable transformational leadership.

Energy is the pivot of prosperity. Our world can flourish through access to reliable, affordable, and sustainable energy. Contemporary concerns about the future of humanity depend on how challenges of energy access and affordability, as well as security and reliability, will be met without destroying the planet, bankrupting economies, or unravelling societies. In the digital age, energy systems are now more vital than ever.

Large-scale energy systems transition is not a single issue but a messy, multidimensional, and non-linear change process. It cannot be achieved all at once. Defining and driving successful energy transitions also requires effective engagement of many and more diverse energy system actors.

Managing a timely global transition requires flexible cooperation and experimentation. It benefits from a capacity for dynamic resilience – the agility and adaptability of diverse regional and national energy systems to cope with emerging and systemic risks and realise the opportunity of innovation.

The Energy Transition Toolkit

We are pleased to present the first edition of The World Energy Council's Energy Transition Toolkit User Guide. This Guide is designed to serve three functions:

- to explain the purpose of the Energy Transition Toolkit
- to introduce the five tools
- to offer ideas for using the tools.

Why do we need an Energy Transition Toolkit now?
Energy systems are shifting in complex, non-linear, and unpredictable ways.

The ways in which people across the world produce, consume, and trade energy are changing. New roles are emerging, including the energy 'prosumer', a consumer who is also involved in production (for example, generating electricity from solar panels to sell back to the grid). Sector boundaries are blurring. Energy services are flourishing. The increasing diversity of energy sources is mirrored by the increasing social complexity of energy system actors. The rise of new people power is evident – globally connected cities, renewably powered rural communities, and digitally empowered consumers are demanding new and sustainable energy services.

Energy transition is inevitable, but its successful management is not guaranteed
While we have had energy transitions throughout history, a successfully managed, global energy transition that leads to better lives and a healthy planet presents an unprecedented challenge for all of humanity. Energy leaders, in particular, face five key challenges that the tools in the Energy Transition Toolkit are designed to address:

- identify and understand emerging issues related to the energy system as a whole and the energy transition in particular.
- manage the competing demands of the energy trilemma of security, equity, and sustainability.
- engage big-picture, long-term, out-of-the-box thinking about the future.
- build resilience in order to manage systemic risks.
- meet the challenge of disruptive innovation.

The energy transition offers opportunities to rethink challenges

We need to go beyond merely providing basic energy to rural households, for example, and aim for quality energy access for whole communities. Sometimes our problem solving is outpaced by events – for example, the attempt to fix the problem of high-carbon transport is being disrupted by the emergence of a 'new mobility' paradigm. As a technology-and resource-neutral whole-energy system community, the Council promotes the benefits of multiple pathways for accelerating energy transition, whether these new pathways are based on liquids, hydrogen, or electrification. This diversity of approaches allows collaboration to seed the ground of discovery and innovation to respond to the new challenges posed by the energy transition.

What is the purpose of the Toolkit?

The Toolkit is designed to go beyond the study of the energy transition in order to help our members and wider stakeholders to better manage that transition and to take advantage of the opportunities it offers. The tools themselves can be used individually and in combination to convene present and future energy leaders and experts from across the world and along different energy value chains to engage the whole energy system in diverse, high-quality strategic conversations and to catalyse new forms of collaborative innovation. In turn, these conversations, collaborations, and innovations will help the Toolkit evolve.

Toolkit at a glance

Tool 1

Issues Monitor and Maps

Tool 2

Energy Trilemma Index

Tool 3

World Energy Scenarios

Tool 4

Dynamic Resilience Framework

Tool 5

Innovation Insights

Toolkit principles

Energy transformation can be enabled but not predicted
Our tools can be used to support *better quality* strategic conversations which, in turn, can catalyse new cooperation.

Transition is a complex and non-linear process
Our tools are flexible, scalable and adaptable; many tools are better than one.

Energy systems are characterised by diversity
Engaging with the whole energy system enables new perspectives and better ideas to be generated.

There is no one-size-fits-all approach and transition can't be achieved in one go
Multiple pathways are possible and innovation and experimentation are key.

Dialogue

Diversity

Cooperation

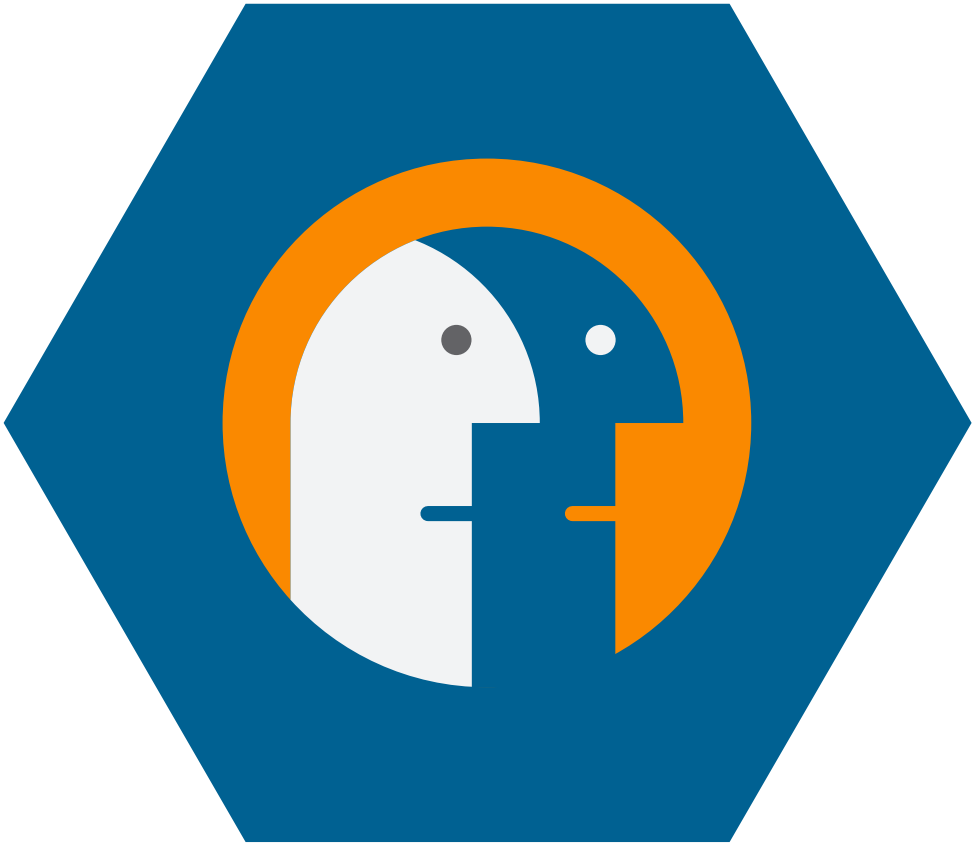
Futures thinking

Experimentation

2
The five tools

A brief description of the Council's five main Energy Transition Tools

Tool 1
Issues Monitor and Maps



The reality check tool – mapping perspectives on key challenges

Energy leaders need to identify and understand emerging issues related to the energy system as a whole and the energy transition in particular.

The World Energy Council's Issues Monitor survey is an annual horizon scan based on the perspectives of energy leaders from 94 countries and from both public and private institutions along the energy value chain. For the last ten years, the Issues Monitor has tracked the responses to 42 questions that relate to a broad range of issues relevant to energy transition. In addition to the annual *Issues Monitor Report*, Issues Monitor findings are also presented through an interactive online tool through and interactive online tool which generates focused Issues Maps. The online tool provides tailored and analysis and interactive graphics.

Four types of Issues Maps offer a large range of opportunities for grounded strategic conversations leading to the identification of priorities for action:

- **Geography Maps** can be used to showcase the status of energy issues at the national, regional, and global levels. The national maps include member committee commentaries; the regional maps offer an overview of the national perspectives of countries in a specific region; and the global map is an overview of the national perspectives of 94 countries across 6 continents.
- **Cluster Maps** offer perspectives on trends relating to specific topics, events, or drivers of the energy transition.
- **Tracking Maps** visualize how issues are gaining or losing attention over time at the national, regional and global levels.
- **Bespoke Maps** for individual organisations can provide a basis for executive team or board level dialogue on differing priorities and target markets.

Managing issues for a sustainable energy transition

Issues Maps

National Maps

National perspectives of energy leaders and shapers representing keys sectors in the energy value chain on energy issues and their relevance at the national level.

Regional Maps

The sum of national perspectives of countries in a specific region on energy issues and their relevance at the regional level.

Global Maps

The sum of national perspectives of 94 countries across 6 continents on global energy issues.

Cluster Maps

Perspectives on trends describing pre-determined topics, events or drivers of the energy transition.

Time-Tracking Maps

A visualisation of how issues are gaining or losing attention over time at the national, regional and global levels.

What makes this tool unique?

- Grounded perspectives of energy leaders across the world and whole energy system.
- Member Committees commentaries explaining the national maps of energy issues.
- Comparability between countries and regions.
- Time tracking of drivers of transition over a decade

The Issues Monitor online tool

- Tailored and on-demand analysis
- Narratives for specific issues maps
- Can be used to explore evolution of issues across geographies and time

The Issues Monitor and Maps provide essential tools for understanding the complex and uncertain environment in which energy leaders must operate.

This tool can be used to:

- Identify drivers of transition and the evolution of the world energy agenda over time.
- Track and compare progress of countries and regions in the energy transition.
- Visualise different energy transition pathways and anticipate future trends.
- Challenge assumptions about the key drivers within the energy landscape.
- Highlight critical risks and uncertainties, especially those requiring immediate action.

World Energy Council members in the public sector use identified trends around critical uncertainties and action priorities to help shape their country's energy agenda through policy dialogues, insights briefs, and public-private sector partnerships. The richness of detail and the capacity to compare information not only from region to region but also through time provide significant opportunities for insights. It's helpful for policymakers to know that, for example, at a global level, decarbonisation, decentralisation, and digitalisation are the key drivers, while regional variations of the drivers include depopulation and resilience issues such as extreme weather events. It's also important for energy leaders to know that in spite of the inertia of the wider energy system, increasing attention is focusing on the role of innovation.

Tool 2
Energy Trilemma Index

Policy pathfinding to manage security, equity and sustainability through transition

Energy leaders need to manage the competing demands of the energy trilemma of security, equity, and sustainability.

The World Energy Council Energy Trilemma Index is an annual measurement of national energy system performances across each of the three trilemma dimensions:

- **Energy security** – management of primary energy supply from domestic and external sources, reliability of energy infrastructure, ability to meet current and future demand.
- **Energy equity** – accessibility and affordability of energy supply across the population.
- **Environmental sustainability** – reduction in energy and CO_2 intensity, transition to renewable and low-carbon energy sources.

At the global level, each country is assigned a three-letter grade that represents the balanced score of the system. Countries are ranked relative to one another with those showing the most developed and balanced trilemma triangles ranking at the top. Long-term assessments show the relative improvements made by countries over time and in the context of national governance systems and markets. Indexation also enables the tool to provide insights about a country's specific improvement in a particular indicator. The Council also publishes Trilemma Briefs – new insights about specific cases of policy progress in relation to the energy trilemma.

Policies for balanced transition pathways

Trilemma Dimensions

Energy Security

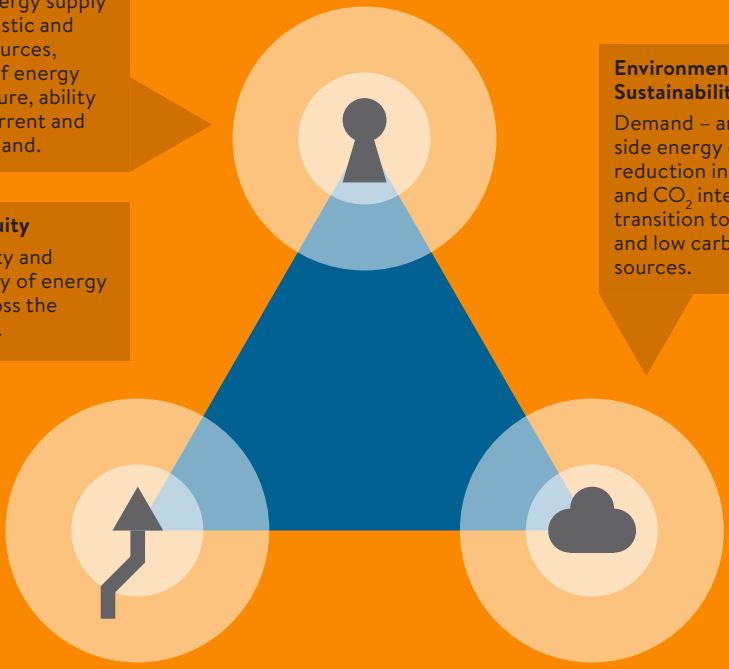
Management of primary energy supply from domestic and external sources, reliability of energy infrastructure, ability to meet current and future demand.

Energy Equity

Accessibility and affordability of energy supply across the population.

Environmental Sustainability

Demand – and supply-side energy efficiency, reduction in energy and CO_2 intensity, transition to renewable and low carbon energy sources.



What makes this tool unique?

- Insights from experts in the region.
- Member Committees commentary on policy impacts at national scale.
- Analysis and scalability.
- Focus on policy coherence can be used to support dialogue on integrated policy innovation.

The online Trilemma tool

- Simulate policy change
- Tailor model to specific country context
- Observe the impacts of best practice policy instruments

The Energy Trilemma Index can be used at regional, national, and sub-national levels to inform policy debate by tailoring it to local circumstances and data to provide actionable insight.

This tool can also be used to:

- Learn from leading performers and best practice.
- Assess effectiveness of energy policies for enabling balanced transition management.
- Analyze the urgency of competing priorities.
- Test the relative impact of focus shifts and new directions.
- Support dialogue on integrated policy innovation.

The World Energy Trilemma ranking provides a good platform for countries to celebrate policy gains, positive trends, and performance relative to neighbours. Using the online Energy Trilemma Index tool, users can also engage in policy gaming by modelling how shifting priorities will affect the balance between dimensions.

By collaborating with the Council, national Member Committees can work to develop bespoke national and sub-national Trilemma models, which show country performance over time, using more granular national level data and adjusting the indicators to reflect local contexts.

Tool 3
World Energy Scenarios

Bigger picture thinking, revealing deeper assumptions and reframing choices and options

Energy leaders need to engage big-picture, long-term, out-of-the-box *thinking* about the *future*.

The World Energy Scenarios are sets of stories about the future context of the energy system. They describe different pathways forward with different outcomes – alternative versions of what might happen, whether we want it to or not. The Council has been developing plausibility-based (also called exploratory) scenarios for almost a decade, with the latest set being released in 2016 at the 23rd World Energy Congress in Istanbul. The World Energy Scenarios: The Grand Transition has a long-term horizon of 2060 and features three rich narratives supplemented with illustrative quantification:

- **Modern Jazz** is a digitally disrupted, innovative, and market-driven future with an emphasis on achieving individual energy access and affordability through economic growth.
- **Unfinished Symphony** is a world with more 'intelligent' and sustainable economic growth enabled by strong policy, long-term planning, and coordinated climate action.
- **Hard Rock** presents a fragmented world and explores the consequences of weaker economic growth with inward-looking policies and low global cooperation.

These global scenarios can be enriched through creating a focus on regional, national, or sector dynamics:

- *Regional Scenarios to 2040* describes how pathways might diverge and provides a framework for exploring the role of innovation in disrupting value chains and triggering and accelerating new energy ecosystems.
- The Council has recently used *nationally focussed scenarios* to test existing business models and evaluate new ones in specific regional contexts.
- *Global sector scenarios* focus on topics such as natural gas or e-mobility.

> We cannot predict the future but we can better prepare for it

World Energy Scenarios

The Grand Energy Transition

Three plausibility-based scenarios that describe alternative pathways for global energy system transition that are used as a platform for dialogue by energy leaders to engage constructively with uncertainty and identify new opportunities.

Modern Jazz

'digitally disrupted,' innovative, and market-driven future towards achieving individual access and affordability of energy through economic growth.

Unfinished Symphony

a world with more 'intelligent' and sustainable economic growth enabled by strong policy, long-term planning, united climate action.

Hard Rock

fragmented scenario, which explores the consequences of weaker economic growth with inward-looking policies and low global cooperation.

What makes this tool unique?

- Rich narratives supplemented with illustrative quantification
- Enables global and whole system perspectives
- Maintains a technology- and resource -neutral perspective on the future development of energy systems
- Can be focussed on the diversity of regional – and national – energy systems
- Provides a context for making sense of the role of innovation in energy transition

According to the Council's members, the World Energy Scenarios are intuitively easy to use and are distinguished by their embrace of the whole energy system.

They can be used to:

- Explore plausible pathways for the transition to a low-carbon economy.
- Better understand and prepare for the new threats and opportunities of the global energy transition.
- Provide a framework to think 'outside the box' of existing solutions and policies and to forge new common ground.
- Explore new opportunities and test key assumptions that would otherwise remain implicit.
- Facilitate understanding of the role of business model innovation in energy transition.
- Encourage deeper insights into energy transitions on national, regional and global levels.
- Inform strategic decisions, enabling leaders to discover or design solutions to the emerging connected energy challenges.

Scenarios provide a platform for better quality strategic conversation about energy systems and their futures, while touching on the broader landscape of innovation, regional integration, and new global developments. What makes the scenario platform especially valuable is that it offers global and whole-system perspectives and allows a technology – and resource – neutral perspective on the future development of energy systems. Scenarios lead us to consider not what energy future we prefer but how to translate new energy visions into reality whilst navigating through deep uncertainty.

Tool 4
Dynamic Resilience Framework

Preparing for new shocks and stresses, adapting whole systems to emerging and systemic risks

Even as the world transitions to a more sustainable global energy future, we need to prepare for emerging and systems risks and new types of energy shock. The energy sector is highly connected with other sectors – buildings, industry, transport and finance. Energy-, food- and water-systems are also interdependent. The linkages between these systems and sectors is not just complicated, its complex.

The systems-of-systems interactions produce powerful feedback dynamics - emerging and system risks that can spread quickly into the energy system, across the value chain and beyond the energy sector to economies and societies.

For example, the increasing frequency and severity of extreme weather events is disrupting energy systems in many regions - flooding, forest fires, extreme ice, extended droughts impact across the energy value chain and beyond. Digitalisation brings new opportunities in energy design, manufacturing, distribution and maintenance also presents new cyber security threats and data integration challenges. The increase use of renewable energy avoids emissions from burning fossil fuels but also means energy security will become more weather dependent and need new storage options.

It is important to anticipate and manage emerging and systems risks as individual energy organisations, across the value chain and on a whole systems basis.

Achieving resiliency of whole energy systems involves anticipating systemic risks and developing the capacity of the whole system to absorb (withstand and endure), recover (promptly and creatively) and adapt to new and faster changing conditions.

Adaptive strategies for a changing risk landscape

Dynamic Resilience

Extreme Weather

Use case studies to gather lessons learnt form impacts of extreme events on energy systems – identify resilience investment needs.

Cyber risks

Policy gaming to drive dialogue and resilient strategy sharing.

Geo-spatial analysis

Anticipate and respond to risks to energy assets using visualisations and dynamic mappings.

What makes this tool unique?

- Practical insights, drawing on real industry case studies.
- Focus on systemic risks which emerge between policy and industry silos.
- Iterative capability framework, integrating lessons learnt from different risk responses.
- A learning and adaptive framework.

The Dynamic Resilience Framework considers five sets of capabilities which energy stakeholders need to address in order to develop whole systems resilience and move away from situation risk response:

1. Baseline Reserves – Collaborative Networks / Policies / Stockpiles
2. Situational Awareness / Assessment of Risks
3. Agility / Speed of Response
4. Adaptive Capacity / Flexibility
5. Regenerative / Preventative Capacity

This tool can be used to:

- Move beyond passive security measures, adapting to complex and evolving risk situations.
- Strategically plan across different risk realities of weather, water, cyber, and other systemic and emerging risks
- Design processes to safely embed new digital technologies, applying an adaptive and anticipatory approach.
- Enable forward thinking regulation, by helping regulators can use the DR approach to anticipate evolving risks and signal strategies for regulation to industry.

Tool 5
Innovation Insights

Moving transition innovation from the margins to mainstream

Energy leaders need to meet the challenge of *disruptive innovation*.

The World Energy Council Innovation Insights project has two dimensions: innovation briefs and innovation forums. The Innovation Insight Briefs, available online, treat themes such as blockchain, equality of access, the new hydrogen economy ("Power to X"), and others that might trigger or accelerate disruptions of existing value chains in the energy sector. Innovation Forum events convene impact investors, start-up entrepreneurs, key industry players (including innovative incumbents), and policymakers to identify synergies and partnership opportunities. In addition to the Innovation Forum itself ("What If?"), the Innovation Insights tool also uses interactive online platforms such as webinars and hackathons. While Innovation Insights work does not depend on making technology bets, it does take into account new energy start-ups as well as incumbent innovation.

Innovation Insights themes are continually being updated through feedback from Council Members who engage in strategic conversations and other activities. Examples of Innovation Insight themes and activities include:

- **Blockchain 2.0** – Explore the suitability of blockchain for energy systems through the lens of creators, regulators, and those in between.
- **Quality energy access** – Explore the triggers and accelerators of emerging quality energy-access ecosystems and identify effective intervention points and synergies for partnerships.
- **Sector coupling** – Share strategies for affordable emissions reductions and intermittency and storage challenges.
- **Aging and stranded infrastructure** – Discover innovative solutions to underused assets.

Innovations to fast forward a sustainable energy transition

The "What If?"

Blockchain 2.0

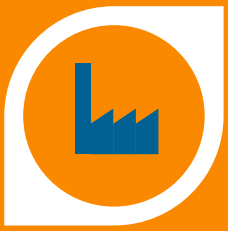
Explore the suitability of blockchain for energy systems through the lens of creators, regulators and those in between.

Quality Energy Access

Explore the triggers and accelerators of emerging quality energy access ecosystems and identify effective intervention points and synergies for partnerships.

Sector coupling

Strategies for affordable emission reduction and intermittency and storage challenges.



Re-valuation of existing and stranded infrastructure

Innovative solutions to underused assets.

What makes this tool unique?

- Technology neutral
- Agile interactive learning cycle
- Broader landscape of technology-pull and social- push factors
- Convene entrepreneurs and incumbents involved in innovation

Our members use the Innovation Insights tool to:

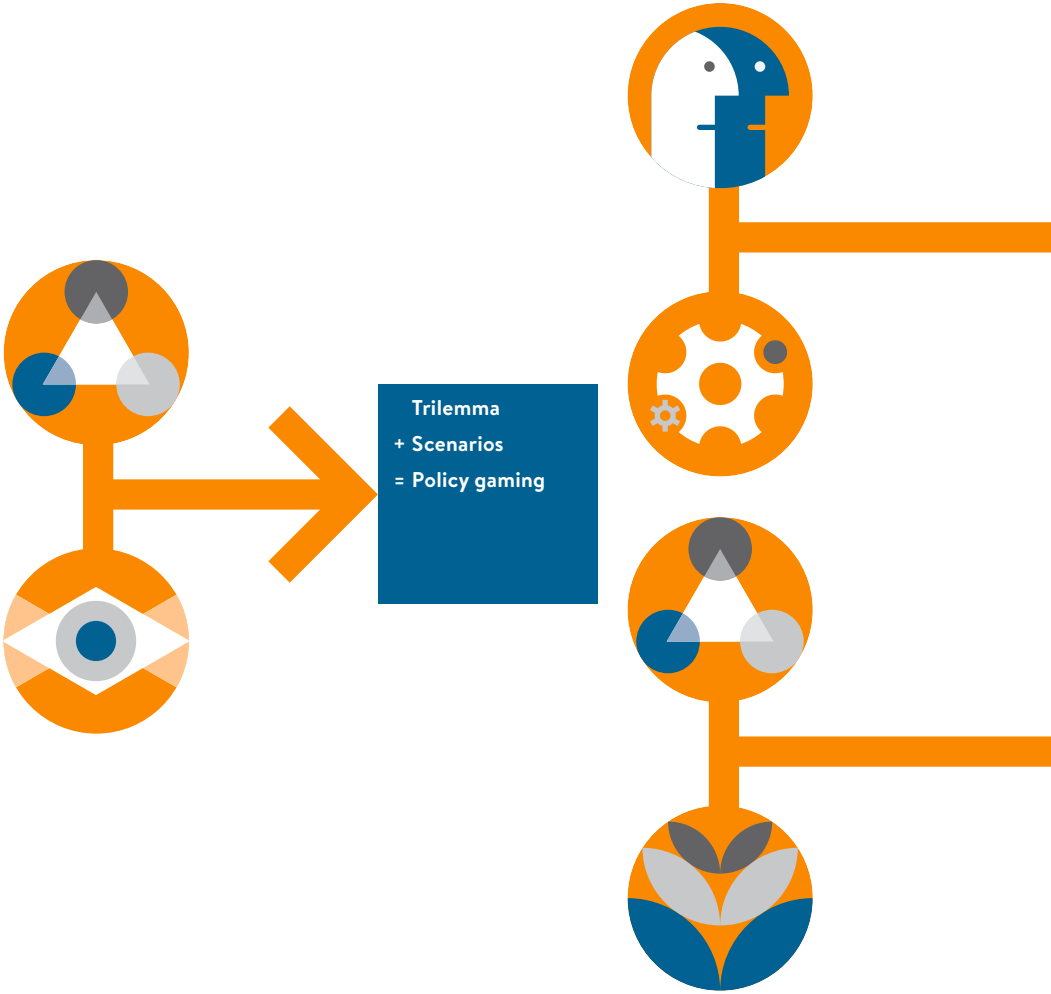
- See the latest information on developments in relation to specific innovation themes.
- Navigate innovation hype in order to understand the scale, scope, and pragmatic significance of new technologies and non-technological innovations.
- Learn about emerging trends and opportunities.
- Identify priority areas for policy preparedness.
- Engage with pioneering energy innovators across the globe.
- Share best practices and strategies.

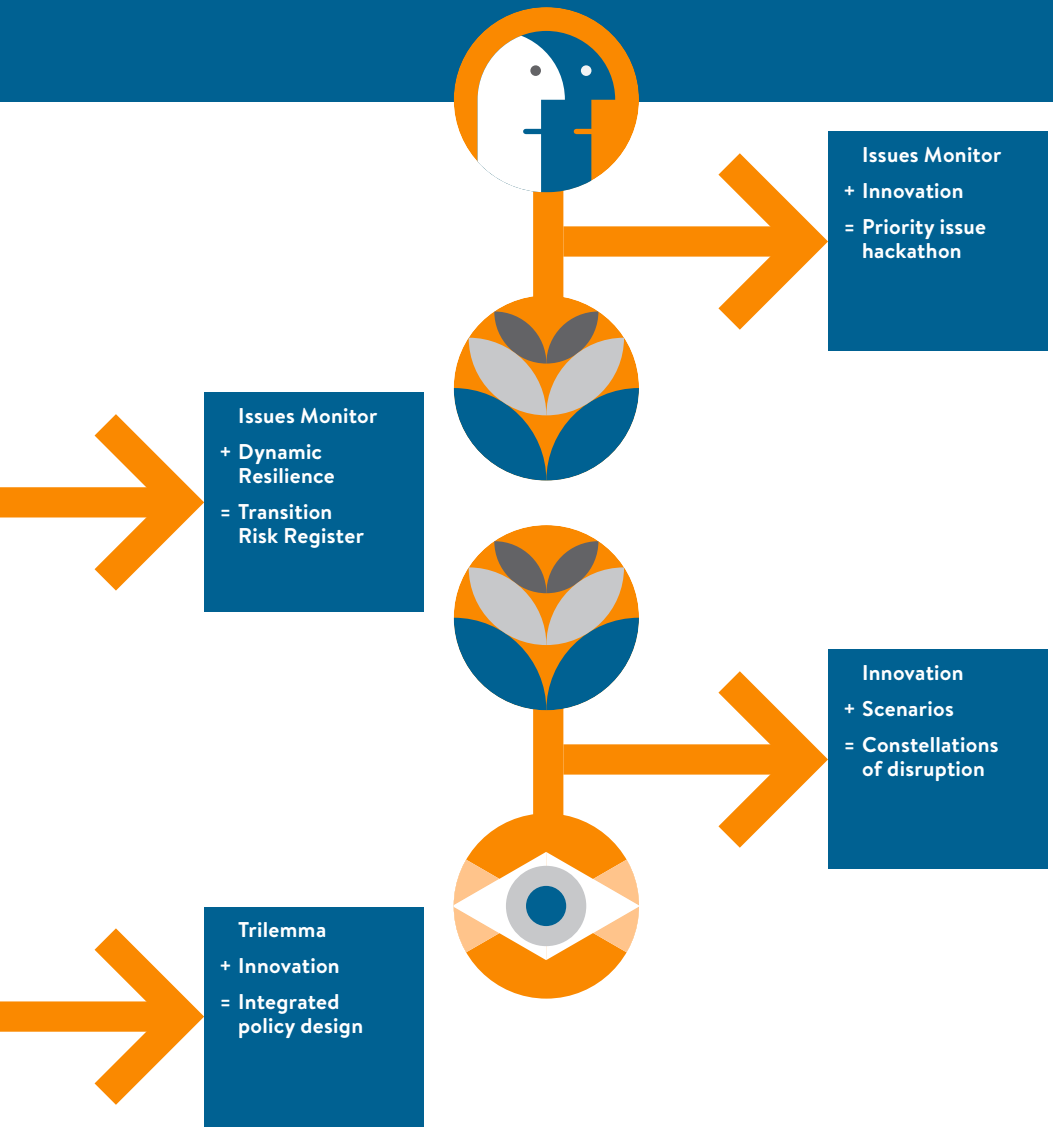
3
Toolkit in action

Using the Council's tools, sharing stories of success, triggering and accelerating energy transition

Synergize!

Leveraging synergies among the tools is an opportunity to create innovative solutions.




Issues Monitor
+ Innovation
= Priority issue hackathon
Issues Monitor
+ Dynamic Resilience
= Transition Risk Register
Innovation
+ Scenarios
= Constellations of disruption
Trilemma
+ Innovation
= Integrated policy design

Level Up!

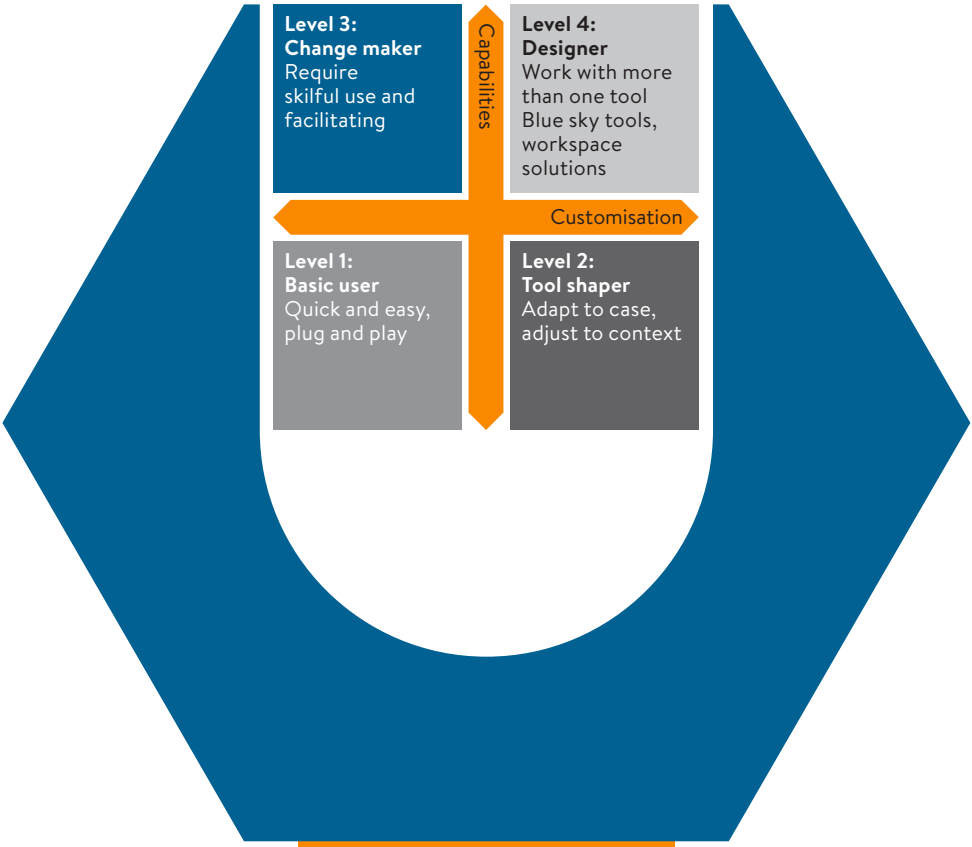
Think about purpose, users, and available resources, and then select the tool to fit the job. The five tools are flexible and scalable and can be applied by a range of users and at a range of levels to address different problems.

Level 1 – **Basic user:** Quick and easy, plug and play

Level 2 – **Tool shaper:** Adapt to case, adjust to context

Level 3 – **Change maker:** Skillful use and facilitation

Level 4 – **Designer:** Multi-tool synergies and strategic dialogue

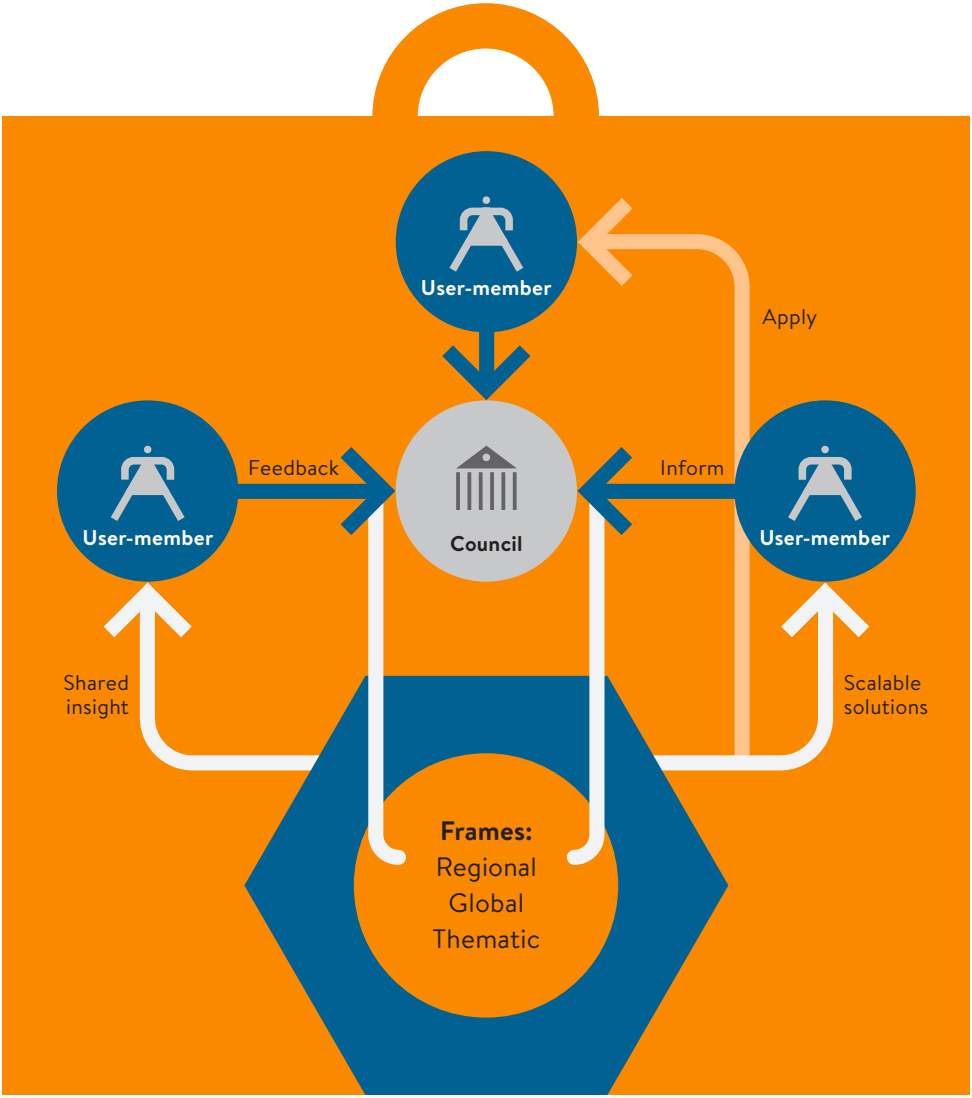


Think about purpose, users and resources available, then select the tool to fit the job

Sharpen the tools!

The Council's tools grow iteratively – the more we use them and the more we learn from other users, the better the tool becomes.

Checklist for users – what to do next		
Apply	Connect with stakeholders	○
	Start a dialogue using a tool	○
Extend	Build partnerships with other users	○
	Create opportunities for impact at interactive events and briefings	○
	Develop toolkit mastery by taking part in our interactive sessions, workshops, and labs	○
Experiment	Identify an emerging problem	○
	Leverage tool synergies to address the problem	○
Share best practice	Tell the Council how you are using the tools and the results of your experiments	○
	How can we improve the tools?	○


User-member
Apply
User-member
Feedback
Council
Inform
User-member
Shared insight
Scalable solutions
Frames:
Regional
Global
Thematic

4
A Toolkit Template

Because the purpose of the toolkit is to encourage strategic conversation and to catalyse collaborative innovation, the tools are designed to be used in groups. While this User Guide is not a facilitation guide, it's useful to consider five key characteristics of effective strategic collaboration.

1. Dialogue –
Driving the quality of strategic conversations
A good quality strategic conversation can enable attention not just to what others are saying but also to the common ground from which a new, shared future can emerge. Using conversation as a form of interactive, social learning process that enables complex and connected challenges to be seen and re-seen from a diversity of perspectives enables deeper understanding of the underlying situation.

2. Diversity –
Convening stakeholders from across the energy system
Inclusiveness is not a task of melding difference into one undifferentiated whole, but of rendering and working with a number of genuinely different yet logical perspectives on any messy, connected challenge.

3. A systems approach –
Considering the energy system as a whole in every focused discussion
Our usual approach to problems is incremental and mechanistic: take apart the whole, divide it into manageable smaller pieces, and solve in relation to each piece. But this approach does not work in dealing with the complex, multi-faceted, and connected challenges we are now facing. Every challenge is embedded within a complex, adaptive, dynamic whole in which many different parts interact and co-evolve.

4. Futures thinking –
Using visioning and scenarios, rather than relying only on forecasts
We can't think a better future into existence, but without learning with the future and reflecting on what a better future might be, we risk overlooking important choices. In an era of big data, we can use scenarios to enable better-quality futures learning experiences, and we can use gaming to explore the implications of individual actions in relation to the emergent behaviour of the whole system.

5. Experimentation –
Trying out new ideas and solutions
In this context, uncertainty is a source of hope – a friend, not a foe, because it reminds us of the possibilities to shape the unpredictable future and the new opportunities that are emerging.

*Adapted from Angela Wilkinson and Betty Sue Flowers, "Five Principles of Realistic Hope," Realistic Hope: Facing Global Challenges. Ed. Wilkinson and Flowers, Amsterdam University Press, 2018.

A Toolkit Template

	Dialogue	Diversity
	Context dialogue	
	Policy dialogue	
	Dialogue about current realities and critical challenges	
	Dialogue for mapping contingency	
	Disruptive dialogue – Considering “What if?” questions	

Cooperation	Futures thinking	Experimentation

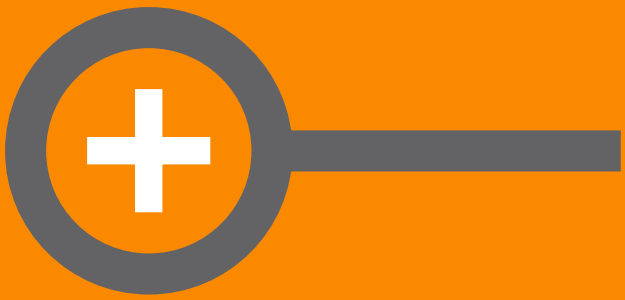
About the World Energy Council

The World Energy Council is the principal impartial network of energy leaders and practitioners promoting an affordable, stable, and environmentally sensitive energy system for the greatest benefit of all.

Formed in 1923, the Council is the UN accredited global energy body, representing the entire energy spectrum, with over 3,000 member organisations in over 90 countries, drawn from governments, private and state corporations, academia, NGOs, and energy stakeholders. We inform global, regional, and national energy strategies by hosting high-level events, including the World Energy Congress, and by publishing authoritative studies, and we work through our extensive member network to facilitate the world's energy policy dialogue.

We gratefully acknowledge the support of the following partners who are instrumental in the development of the Council's Tools: Accenture Strategy, Arup, Marsh & McLennan Companies, Oliver Wyman, PwC, Swiss Re Corporate Solutions.

Further details at **www.worldenergy.org** and **@WECouncil**



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