



South African National Energy Association NPC



Member of  
**WORLD  
ENERGY  
COUNCIL**

# WORLD ENERGY CONGRESS 24

## 19 November 2019

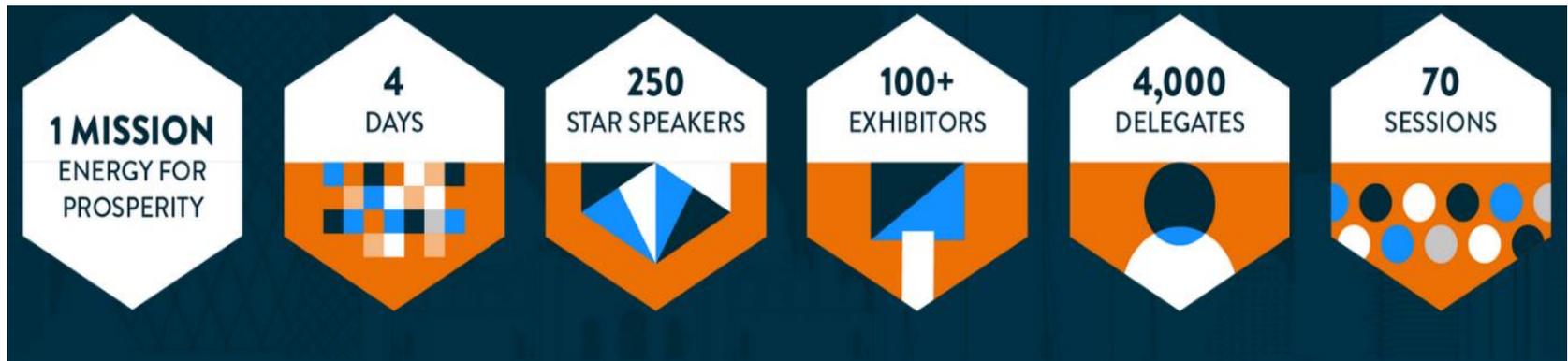


Thinking  
Energy



# Theme of the congress

The overall theme of the Congress was **Energy for Prosperity** and each day of the Congress explored various issues around this central theme. A summary of overarching key issues that emerged on each of the days is detailed below.



# WEC tools

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- Energy communities globally engage with the WEC tools, aimed at helping with the energy transition
- WEC showcased these tools at the Congress and highlighted their value in charting a future path.
- WEC states that they strongly believe that a whole energy system mindset and a flexible Transition Leadership Toolkit are essential to achieving success.
- These tools were woven in to the programme and overall theme for the event.



**WORLD ENERGY ISSUES  
MONITOR**



**DYNAMIC RESILIENCE  
FRAMEWORK**



**ENERGY TRILEMMA INDEX**



**INNOVATION INSIGHTS**



**WORLD ENERGY SCENARIOS**



**ENERGY TRANSITION  
TOOLKIT USER GUIDE**

# Overall reflections from WEC Congress (1)

- Energy market
  - Disruption as usual mindset shift is clear
  - There is a clear consumer centric shift
  - Start-ups are still struggling to get into the market
  - Modular, small innovations are emerging
  - Incremental investments are needed to reduce risk and manage uncertainty
  - Innovation ecosystems have blossomed
- Energy Transition
  - The energy transition is moving faster.
  - The world is trending towards fragmentation, but ecosystem innovation and collaboration is needed for transition
  - Constant change must be built into thinking and planning – design for disruption
  - A “Just” Transition is a non-negotiable for developing countries

# Reflections from WEC Congress (2)

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- Climate change
  - Deep carbonization is necessary - all low carbon and related technologies are needed, as well as new levels of innovation and cooperation
  - Zero carbon focus of developed economies
  - Energy efficiency is the place to start
  - More electrification (moving from another energy source to electricity) is required for deep decarbonisation
- Technology and energy mix
  - Coal as efficient as possible, consideration given to conversion of coal to gas, carbon capture usage and storage and green hydrogen co-blend with coal
  - Storage and smart grids are vital enabling technologies
  - The move away from fossil fuels will happen slowly over time
  - Hydrogen and ammonia will be key energy carriers going forward
  - Having close to 80% renewables means you need low carbon base load

# Congress statement

Moving beyond volume-based, commodities growth to enabling **consumer-centric services**

Growing **acceptance of the Energy Trilemma**

**Avoiding climate crisis is more challenging** and adaptation will require a mix of all technologies and broader innovation

Recognizing that **fragmented leadership** poses the biggest risk of all

# WEC further identified 10 areas for action which align well with the SANEA risk report

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- Adopt a whole energy system leadership stance
- Adopt a healthy mix of technologies
- Accelerate trade in clean molecules
- Enable energy infrastructure action planning
- Enable new market designs
- Promote international dialogue on useful access and socially just energy transitions
- Provide networked, and flexible security and invest in ‘dynamic’ resilience
- Strengthen sector coupling strategies for affordable and deeper decarbonisation
- Develop a new economics of energy transition
- Close the skills and capabilities gaps

# Day 1

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## **NEW VISIONS OF ENERGY FOR PROSPERITY**

The first day was focused on and started off with, the launch of WEC's refreshed scenarios to help answer the question: "What are key implications for the energy sector and how can we leverage emerging growth opportunities in a fast shifting landscape of disruptive innovation?"

# WEC Scenarios (1)

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The WEC scenarios are called Modern Jazz, Hard Rock and Unfinished Symphony

- **Jazz:** A market-led, digitally disrupted world with faster-paced and more uneven economic growth. Recent signals suggest that this entrepreneurial future might accelerate clean energy access on both global and local scales, whilst presenting new systems integration, cyber security and data privacy challenges.
- **Symphony:** A strong, coordinated, policy-led world, with long-term planning and united global action to address connected challenges, including inequitable access and affordable decarbonisation. Recent signals suggest increased activism and commitment to addressing climate change at the sub-national level, and an expansion of the focus from climate change mitigation to a broader, socially inclusive and economically affordable sustainable development agenda.
- **Hard rock:** A fragmented world with inward-looking policies, lower growth and less global cooperation. Recent signals, such as the rise of populist leaders and uncertainty about the outlook for international cooperation, imply that this scenario is also evolving into a story of regionally firmer security foundations rather than total fragmentation and “harder rock”

# WEC Scenarios (2)



# TAKEAWAYS FOR SOUTH AFRICA DAY 1

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- The world is becoming more fragmented and so multilateralism will be key to unlocking regional and other markets
- The pressure for decarbonisation is increasing but how to make it “just” remains a key issue for South Africa
- There is no silver bullet we must explore all low carbon opportunities
- The Smart Grid is a key enabler and investment in South Africa is required
- Storage technologies provide significant opportunity for South Africa to unlock renewables and increase economic growth

# Day 2

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## **BUSINESS AS (UN)USUAL: OPPORTUNITIES FOR CHANGE**

The second day of 24th World Energy Congress focused on the importance of the private sector, innovation and new business opportunities, regional perspectives and building resilience in the energy sector.

Two notable sessions were the World Energy Leaders Dialogue (WELS) which is a private CEO/Ministerial roundtable and presentations from WEC's Start-up Energy Transition Awards Finalists. At the WELS meeting, how can energy leaders can prepare for a world where disruption is simply business as usual was discussed.

# Cyber security

CYBER SECURITY: 3 CLICKS FROM COLLAPSE



Produced by [www.voiceinshape.com](http://www.voiceinshape.com)

# TAKEAWAYS FOR SOUTH AFRICA DAY 2

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- Our energy planning could be reviewed in light of the need to plan for disruption and take incremental, smaller decisions
- Funding for fossil fuel projects will become increasingly difficult
- Our city planning needs to shift and incorporate energy considerations in a new and innovative way.
- The increasing use of gas, hydrogen and ammonia as energy carriers needs to be factored into our energy planning and R&D going forward
- Resilience must be expanded to include not only climate adaptation and security of supply but also cyber security for the sector as a whole
- Education and training needs to be adapted to factor in new skills needed for the energy transition and business can play a supportive role
- Blockchain use in the energy sector is increasing, what is our South African strategy?

# Day 3

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## **INCLUSIVE PROSPERITY: NEW POLICY IMPERATIVES**

- The third day of the 24th World Energy Council was dedicated to exploring the new dynamics of energy policy making. 12 parallel sessions and 2 plenary sessions discussed Energy for Prosperity including inclusivity, SDGs, regional integration and the importance of communities.

# Launch of the 2019 Trilemma

## Key metrics

Metrics are determined relative to other countries, with the top performer receiving a full bar.

### Energy security <sup>1</sup>

Import dependence



Diversity of electricity generation



Energy storage



### Energy equity <sup>1</sup>

Access to electricity



Electricity prices



Gasoline and diesel prices



### Environmental sustainability <sup>1</sup>

Final energy intensity



Low carbon electricity generation



CO2 emissions per capita



### Country context <sup>1</sup>

Macroeconomic stability



Effectiveness of government



Innovation capability



WEC launched the next version of the Energy Trilemma. They reported that there has been a positive trend with nearly 130 countries improving their Trilemma performances. In WEC's view, an integrated and coherent policy pathfinding approach is essential in managing robust transitions and thus the Trilemma Index should be used to establish national baselines and explore how best to improve performance. South Africa's performance has been mixed

# TAKEAWAYS FOR SOUTH AFRICA DAY 3

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- South Africa has improved slightly in terms of the Trilemma rating (92/128) but still faces major challenges, particularly on environmental performance
- Geopolitics is playing a major role and South Africa needs to increase regional and global collaboration and interconnection and identify clarity of purpose for South Africa
- A joint water food energy strategy should be developed for South Africa in order to address our national resilience, particularly given our water vulnerability
- Although access to energy has improved globally and in South Africa, it remains low in Southern Africa. Strategies to improve this and achieving other SDG's, will be critical for regional market development

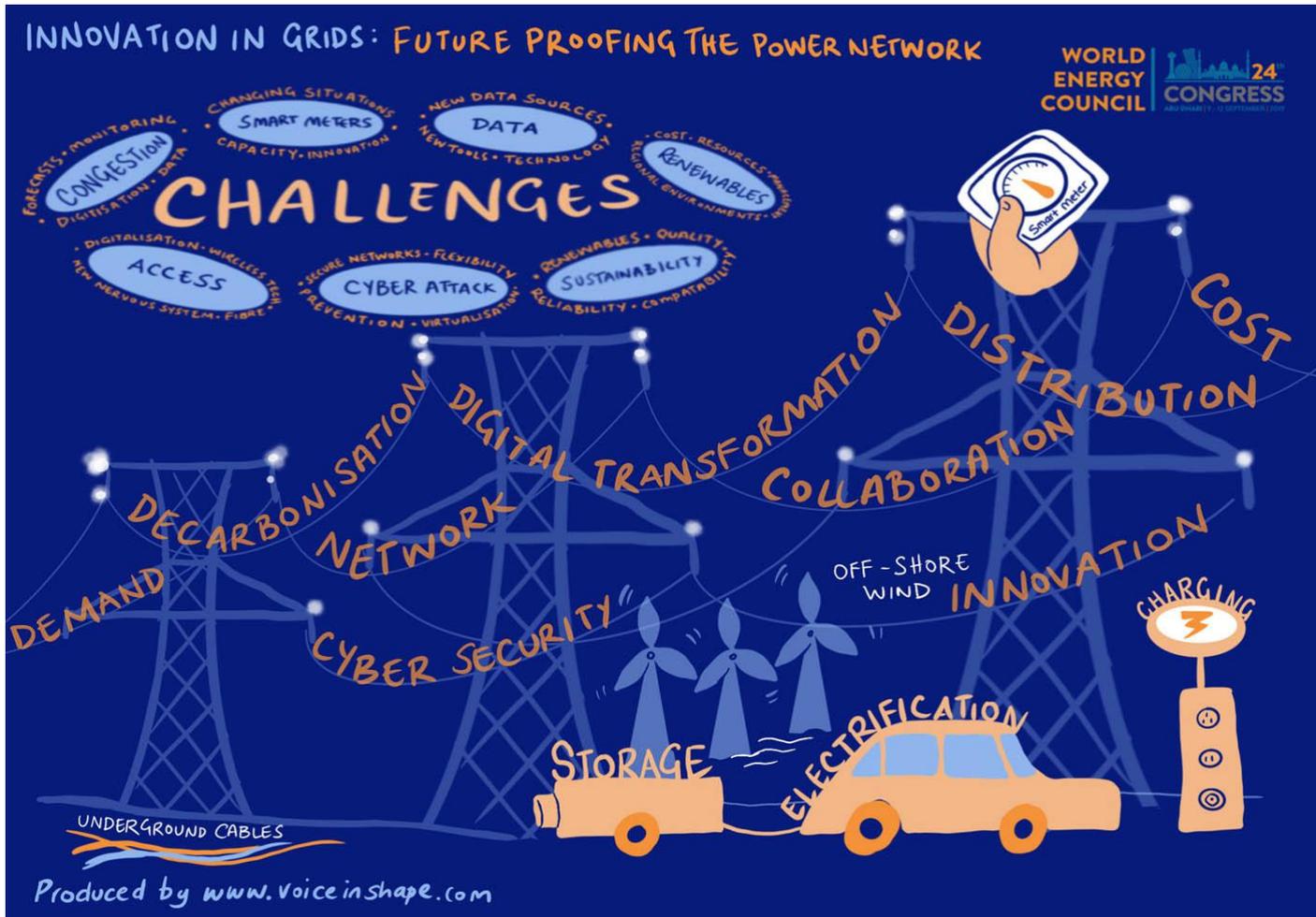
# Day 4

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## START UP ENERGY TRANSITION – THE POWER OF THE BOLD

- The fourth and final day of the 24th World Energy Council focused on energy innovation and innovators and the essential role they play in delivering a successful energy transition. The work being done by the winners of the Start Up Energy Transition Award (SET 100) was a major part of day 4.

# Innovation in grids



# TAKEAWAYS FOR SOUTH AFRICA DAY 4

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- Innovation will be needed if South Africa is address our national challenges and not just in technology, but in financing policy etc. Government and business need to take an integrated approach to innovation
- Legislation in South Africa needs to not hamper investment but be more flexible to the changing environment
- An integrated approach to grid planning, in order to ensure reliability and resilience over the medium to long term needs to start now in South Africa
- Game playing is an excellent way to ensure that people look at multiple, sometime conflicting issues in decision making and a South Africa version could create a platform for debate