NGN Forum

Phil Coughlan (AU) – International NGN Chair

Housekeeping

- Toilets 
- Mobile phones and other devices 
- Water / coffee  
- Food 
- Audience participation opportunities  

Join the NGN Forum Sparkup session

About the facilitator

- Graduated from RMIT University (Victoria, Australia)
- Consultancy – Electrical Design Engineer
- Government – Utilities Specialist working on major transport infrastructure projects
- CIGRE – 2017 to present in various roles
  - Australian Technical Committee (ATC) Secretary
  - AU NGN Co-Chair
  - AU SC B1 NGN Panel Liaison
  - International NGN Chair
- Triathlons and spending time with kids

Agenda

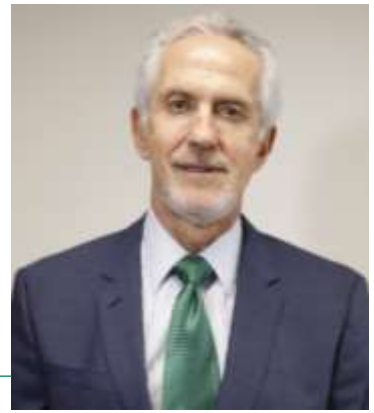
Section 1 of 2

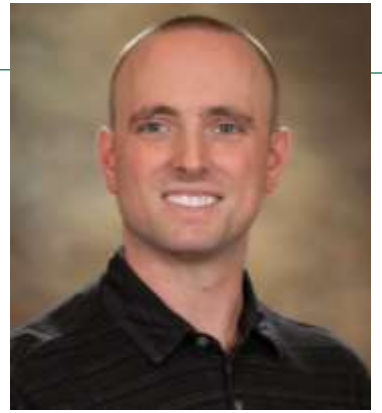
11:00-11:10	• Introduction
11:10-11:30	• Rena Kuwahata (International Energy Agency) • Grid integration from wind and solar
11:30-11:40	• Harry Evans and Stephanie Phillips • Taskforce: Speeding up the energy transition
11:40-12:00	• Adam Middleton and Sabrina Mercer (Siemens Energy) • Macro economic situation, energy transition, Impact upon people
12:00-12:20	• Panel discussion
12:20-12:30	• Claudia Blanco (GE VERNOVA) • Sponsor presentation

Agenda

Section 2 of 2

12:30-12:45	• Intermission / Trivia
12:45-13:05	• Marcio Szechtman (CIGRE VP-Technical) • NGN and Study Committees
13:05-13:20	• NGN Presentations • Brazil, India, Czech Republic and Slovak Republic
13:20-13:35	• Facilitator session • Word cloud
13:35-13:50	• NGN Presentations • Australia, United States, Turkey
13:50-14:00	• Final comments





Snapshot 2022 to 2024

NGN Groups 34 (+7)

NGN Executive Team 7 (+3)

NGN Showcase nominations 55 (+25)

Electra 18

LinkedIn 2869 (+2556)

Study Committee 16

Webinars 29 (-4)

Future Connections 2 (+2)

International NGN Forums 4

YouTube 21 (+21)

Incoming International NGN Chair and Vice-Chair: Paris 2024 - 2026

Chair

Conor Mulholland (IE)

Vice-Chair

Aditie Garg (IN)

CIGRE PARIS SESSION 2024

Electrical engineer in energy transition

Rena Kuwahata, Belgium

My experience

- Grew up in Japan and Australia
- Graduated from Monash University in Australia with Bachelors' degrees in Engineering and Languages 2003
- Worked at the Australian Energy Market Operator for 3 years
- Moved to Europe with ambition to learn from advanced sustainable energy policies, completed European Masters in 2010
- Lived and worked in Germany for 12 years as a consultant and business developer for private companies
- After 6 years of repeated attempts, joined the IEA in 2022
- Member of Renewables Integration & Secure Electricity Unit at IEA

Rena Kuwahata

Advising on Power System Transformation for Renewables Integration and Secure Electricity

Talks about #powergrid, #electricity, #climateaction, #energysecurity, and #energytransition

https://www.linkedin.com/in/renakuwahata/

What is the IEA and what does it do?

- Intergovernmental organization under OECD.
- 31 member countries, 13 association countries, 5 accession countries.
- Policy recommendations, analysis and data on global energy sector.


HEVIA-KOCH Pablo, IEA/EMS/RISE
TESSIER Jérémy, IEA/EMS/RISE
KIM Jinpyung, IEA/EMS/RISE
PORTUGAL Isaac, IEA/EMS/RISE
LEE Jae Sun, IEA/EMS/RISE
NAGATOMI Yu, IEA/EMS/RISE
JORQUERA Javier, IEA/EMS/RISE
HUNGERFORD Zoe, IEA/EMS/RISE
TRIPPE Lukas, IEA/EMS/RISE
EVERHART Keith, IEA/EMS/RISE
PAILLARD Camille, IEA/EMS/RISE

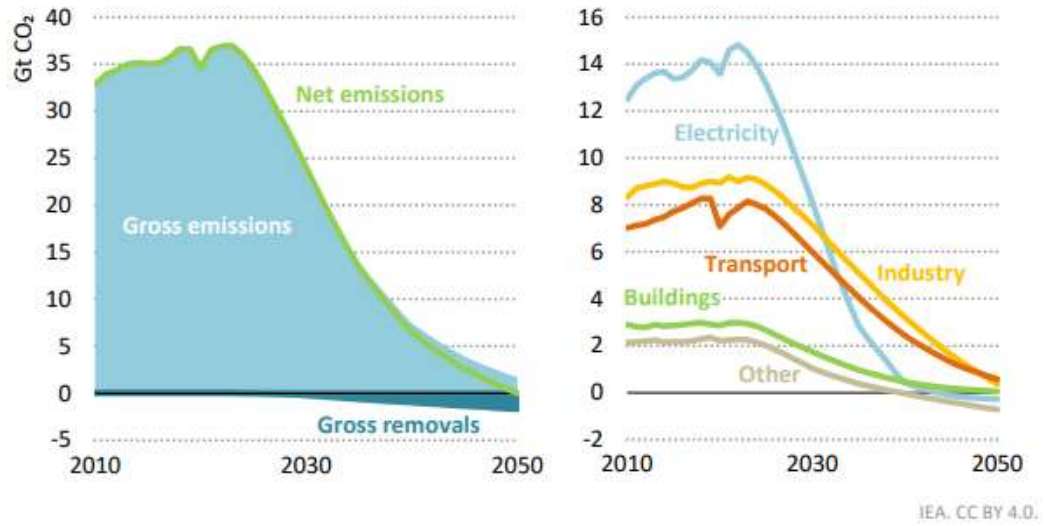
HART Craig, IEA/EMS/RISE


FUTURE OF
THE GRID
by Enlit Asia
EMBRACING DISRUPTION & DRIVING A SUSTAINABLE FUTURE
25-26 OCTOBER 2023
SANDS EXPO AND CONVENTION CENTRE, SINGAPORE
FUTURE OF THE GRID
by Enlit Asia
25-26 OCTOBER 2023

Rising importance of Electricity in global energy landscape

Where emission reductions come from

Figure 2.2 ▹ Energy sector gross emissions and removals, total net CO_2 emissions, and net emissions by sector in the NZE Scenario, 2010-2050



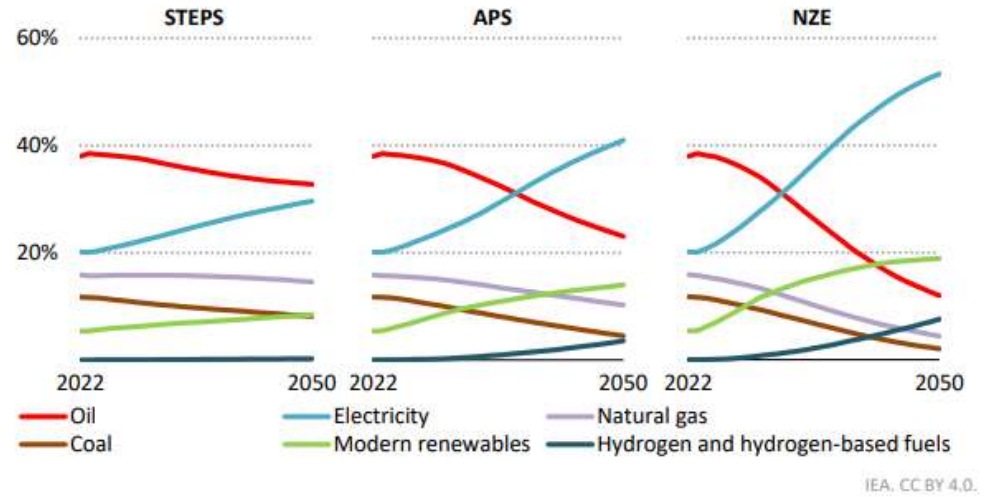
IEA. CC BY 4.0.

Energy sector CO_2 emissions are reduced 65% by 2035 and reach net zero by 2050, with residual emissions of 1.7 Gt balanced by atmospheric removals of the same magnitude

[Net Zero Roadmap 2023]

Future society relies on clean electricity

Figure 3.4 ▹ Share of global total final consumption by selected fuel and scenario, 2022-2050



IEA. CC BY 4.0.

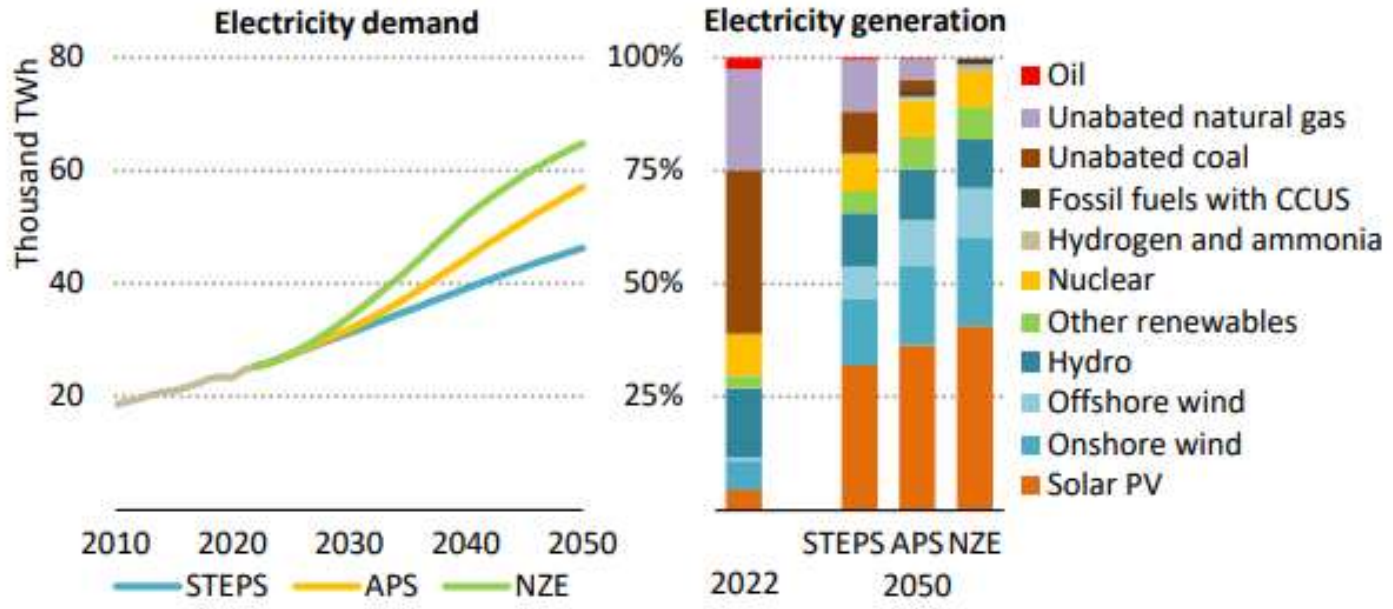
The contributions of electricity and modern renewables increase while the share of fossil fuels declines in each scenario

Note: Modern renewables refers to the direct use of renewable energy sources excluding the traditional use of biomass.

[World Energy Outlook 2023]

Electricity demand growth and supply mix transformation

Figure 3.13 ▸ Global electricity demand, 2010-2050, and generation mix by scenario, 2022 and 2050



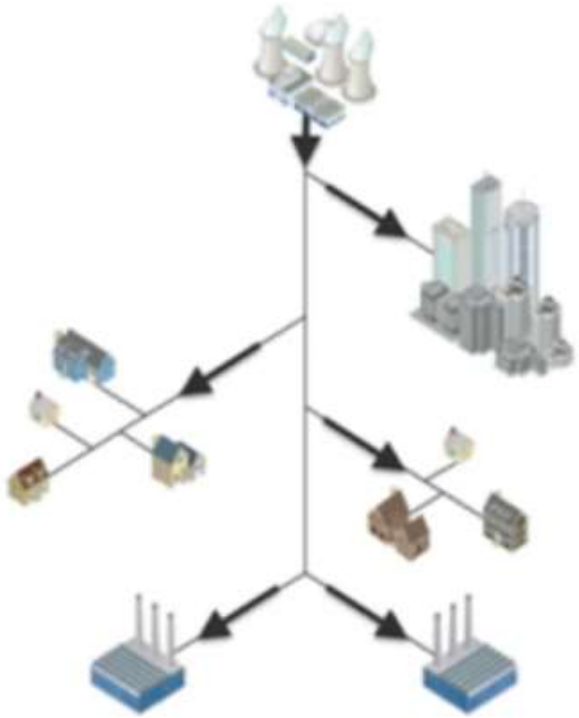
Electricity demand rises over 80% to more than 150% by 2050 across scenarios and is met increasingly by low-emissions sources at the expense of unabated coal and natural gas

Notes: TWh = terawatt-hours. Other renewables include bioenergy and renewable waste, geothermal, concentrating solar power and marine power.

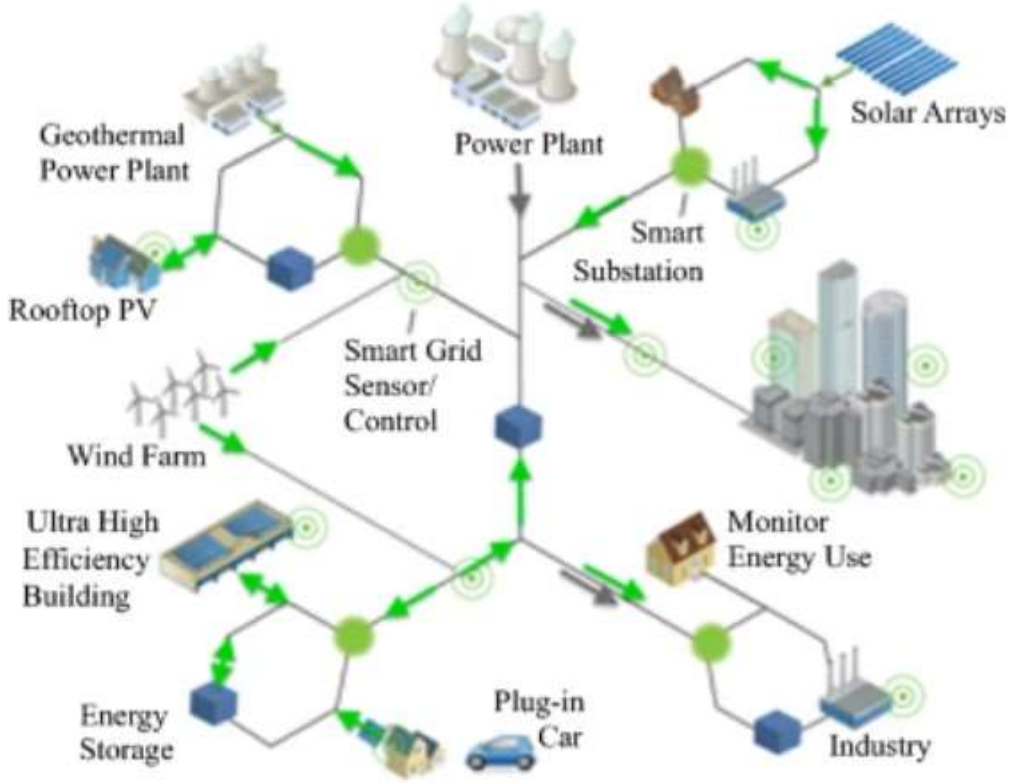
World Energy Outlook 2023

Necessity of power system transformation

Current Power System



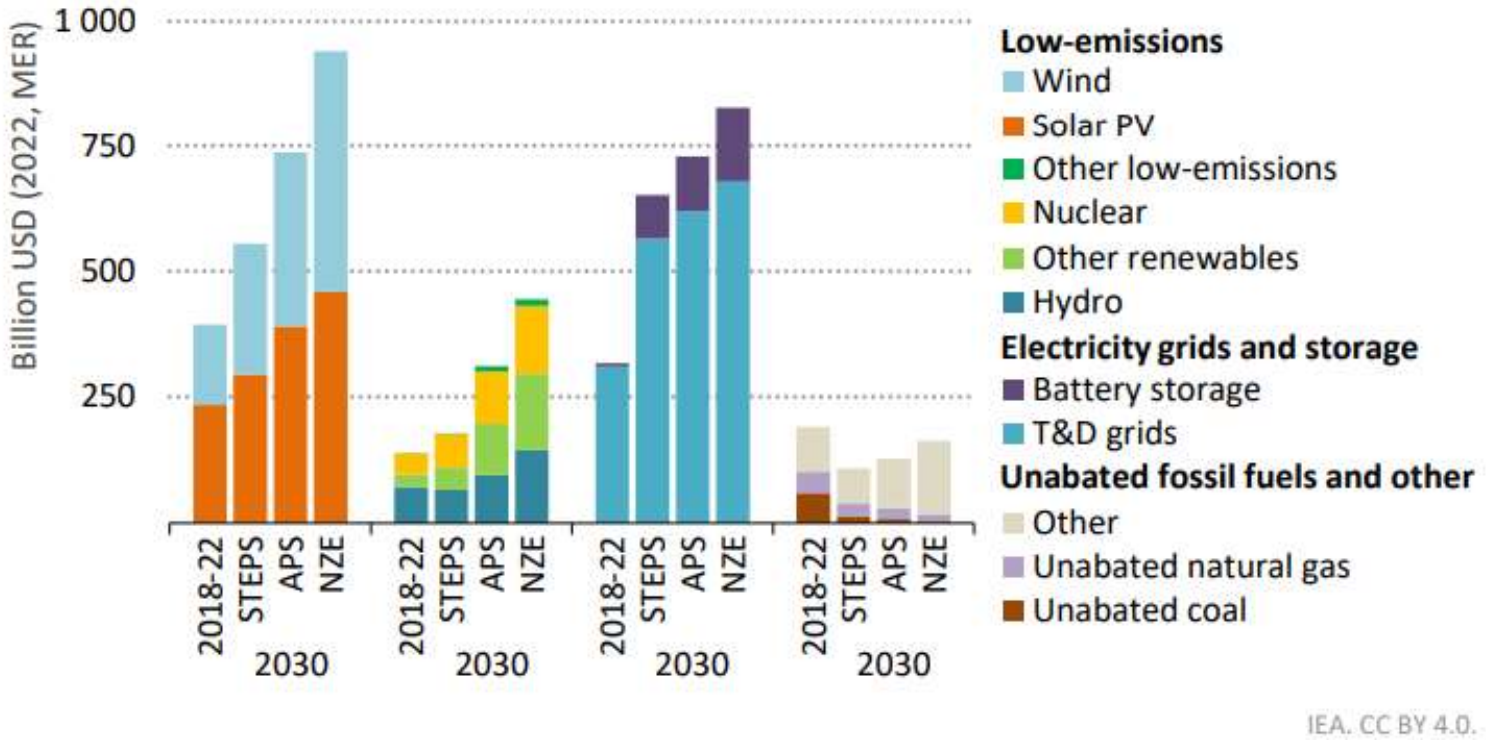
Future Power Systems



https://link.springer.com/article/10.1557/s43577-021-00244-8

Infrastructure development needs to accelerate to keep up with transitions

Average annual global investment in the power sector by type and scenario, 2018-2022 and 2030

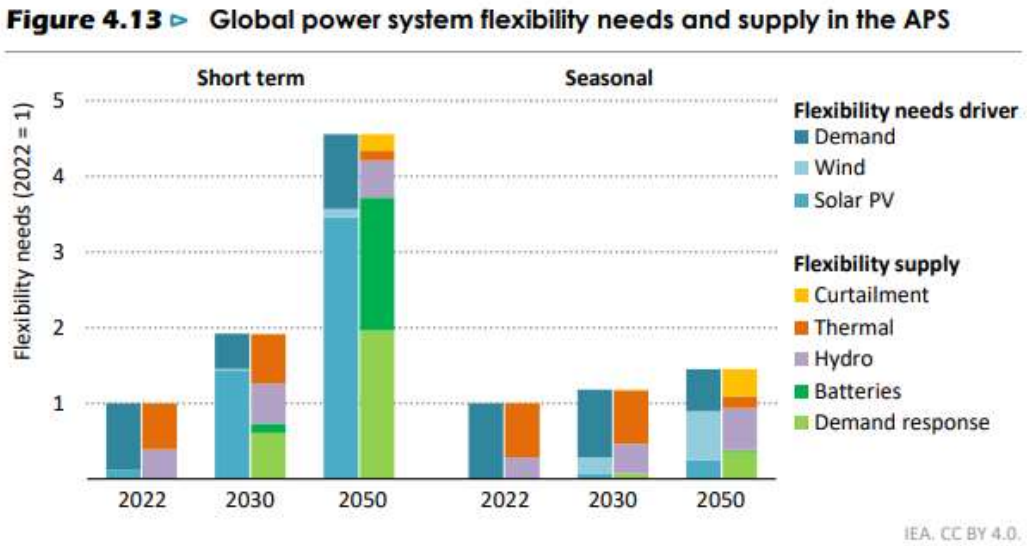


Power sector investment rises by 50% to 2030 in the STEPS, 90% in the APS, mainly due to higher spending on solar PV, wind, grids and storage, but the NZE Scenario calls for more

Notes: MER = market exchange rate; T&D = transmission and distribution. Other low-emissions include fossil fuels with CCUS, hydrogen and ammonia.

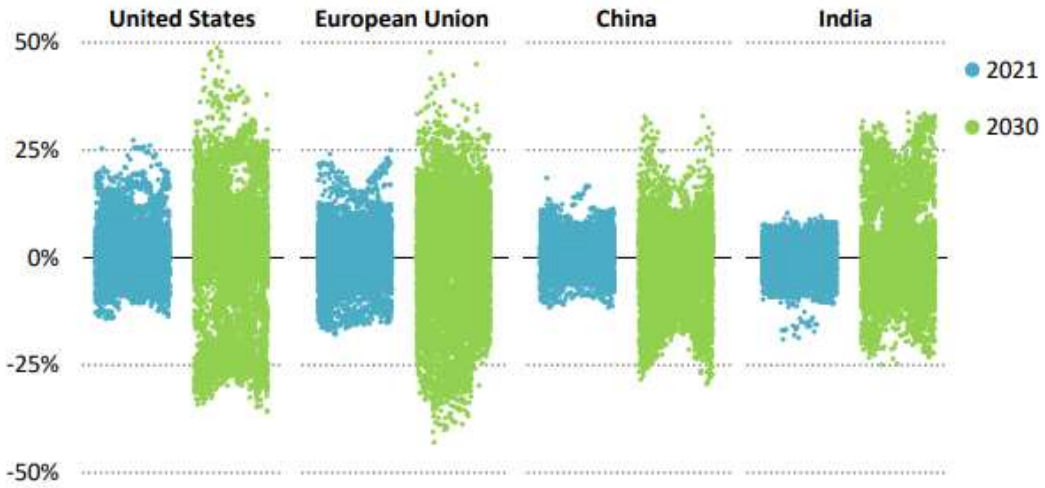
Changing proportions of flexibility need and providers

Global power system flexibility needs and supply in the APS



World Energy Outlook 2023

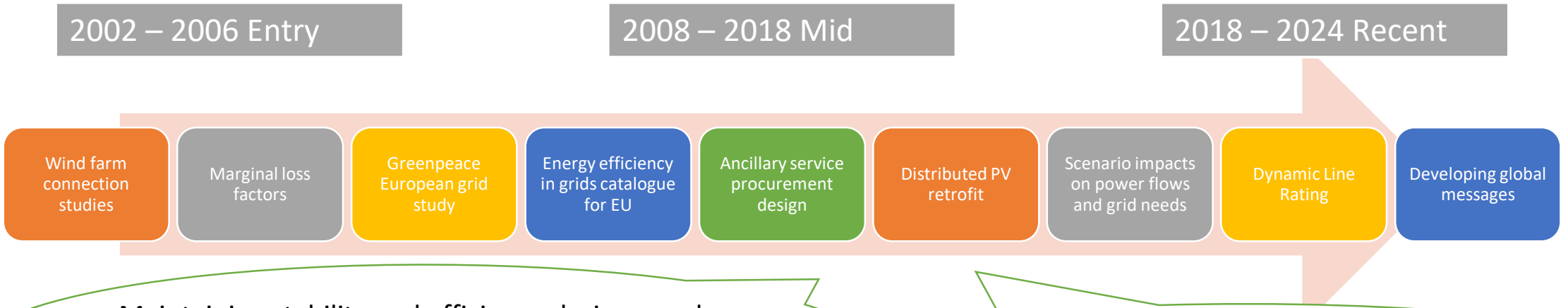
Hour-to-hour flexibility needs in the United States, European Union, China and India in the APS, 2021 and 2030



World Energy Outlook 2022

Flexibility needs double in the APS by 2030. Provision of power system flexibility becomes less reliant on unabated fossil fuels over time, moving towards low-emissions sources, battery storage and demand response.

Reflecting on 20 years in renewables integration & power systems…



Globalisation makes the world is more interdependent	Boundaries are wider	Be open to new tech and challenges	Be comfortable with multidiscipline and diversity	Trust in handing over	Be proud to be a technical expert and deliver	Get your hands on, be on top of trends	Be proactive, seize opportunities

Thank you!

rena.kuwahata@iea.org

CIGRE PARIS SESSION 2024

CIGRE NGN Taskforce

2024 Paris Session NGN Forum

Speeding up the energy transition

Harry Evans (UK)
Stephanie Phillips (AU)

Task Force – Speeding up the energy transition

- **Objectives**
  - Review CIGREs current involvement in the energy transition and work being done to support the acceleration of this transition
  - Identify any obstacles with CIGRE operations which may by inhibiting the organization and young engineers within CIGRE from supporting the speeding up of the energy transition
  - Extract the dimensions of actions that can be undertaken in order to give recommendations specifically for young engineers and decision-makers in the environment of CIGRE.

Task Force – Progress to date

TF Section	Progress
Definitions	Drafted – under peer review
Motivations	Drafted – under peer review
Status Quo	Drafted – under peer review
Obstacles	Survey responses assessed – two major obstacles identified
Actions	To begin drafting after obstacles section is finalised

Task Force – Obstacles

- **Survey**
  - Received responses from 16 countries across 6 continents
  - Respondents had from 0 – 5 years experience with CIGRE
  - 70% of respondents believe CIGRE is doing enough to support the energy transition
  - 57.5% of respondents have experienced obstacles when trying to get involved in CIGRE activities
  - Two key themes identified through the survey

Task Force – Obstacles

- **Communication and access to CIGRE**
  - Lack of transparency on how to access technical activities for NGN members
  - Communication around CIGRE activities and involvement
- **Technical activities and collaboration outside of CIGRE**
  - Focus tends to be on in person large events which are not always accessible
  - Technical activities appear to be limited to experienced members
  - Primary contributors to CIGRE are from the transmission industry

Task Force – Sparkup - Obstacles

- **Which of these obstacles do you see as the biggest barrier to collaboration and engagement of NGN members in CIGRE**

Task Force – Sparkup - Actions

- **What actions do you feel CIGRE should be taking to address these Obstacles?**

Task Force – Sparkup - Actions

- **What actions do you feel CIGRE should be taking to address these Obstacles, if you answered none of the above**

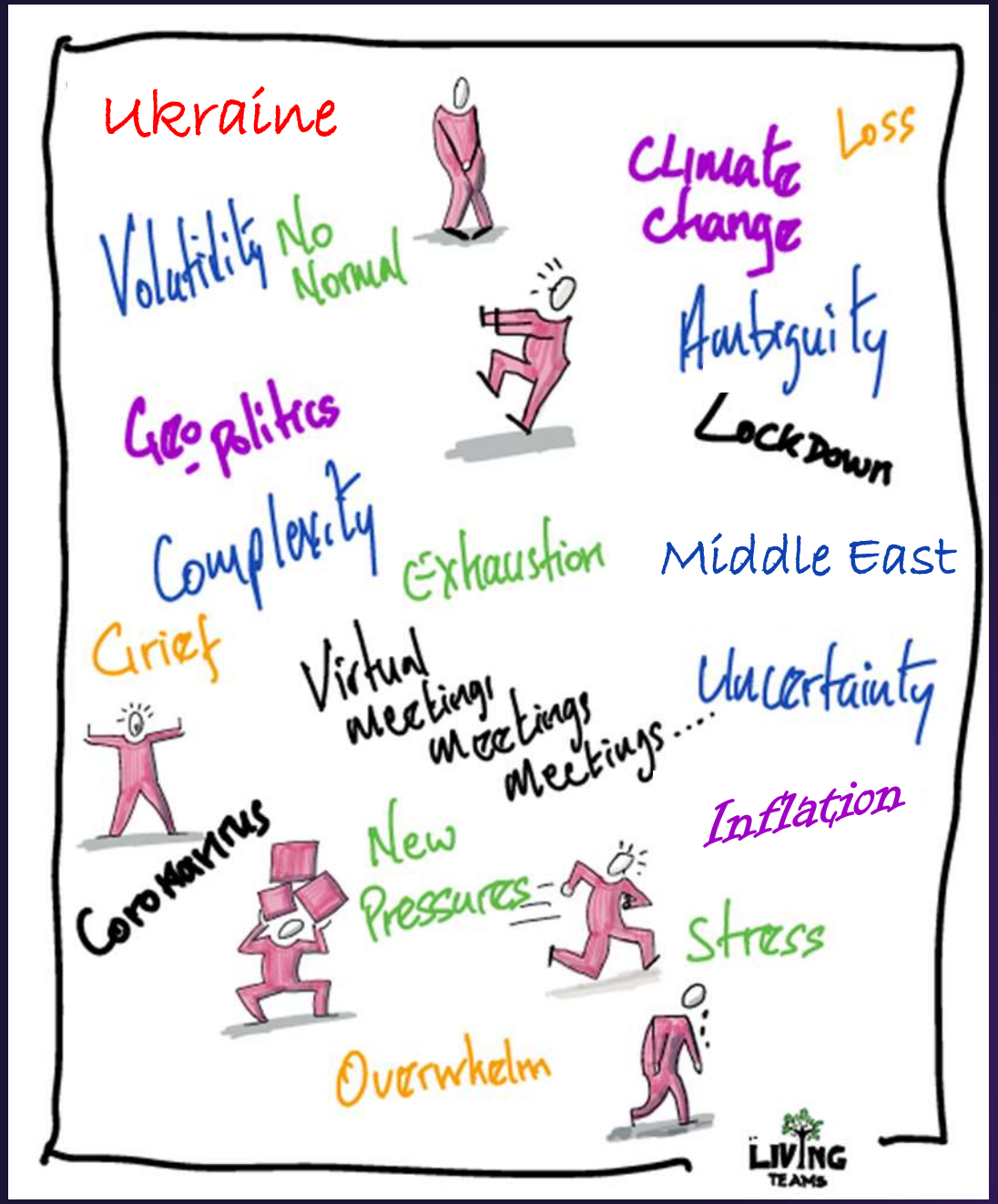
Energy Transition

The (tricky) things that they never told you in Engineering School

CIGRE Session Paris / NGN Presentation

Adam Middleton & Sabrina Mercer
28 August 2024 Rev2

What’s Happening?



What's Going On in the World?

- Unprecedented times
- Post COVID period
- What are people going through?
- What's coming next around the corner?

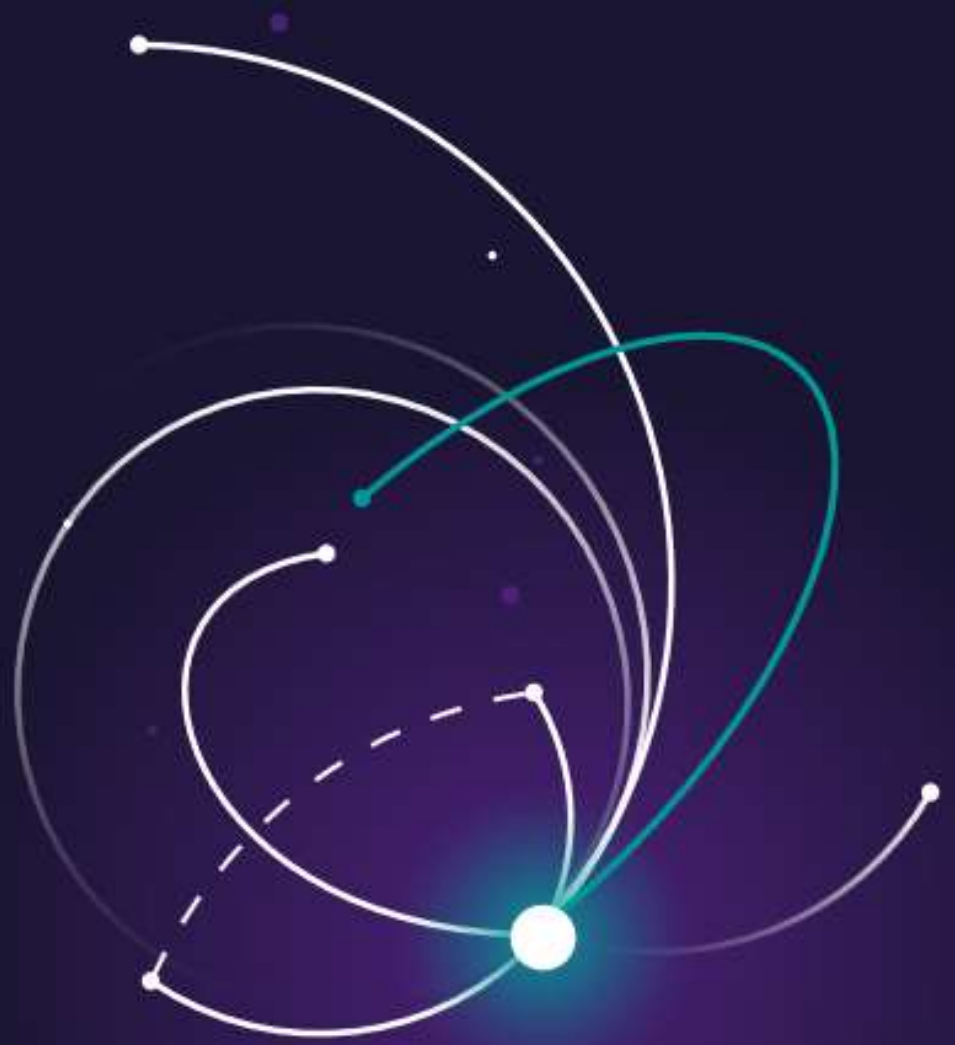
How does the "New Normal" affect the Energy Industry and how can we deal with it?

A successful energy transition requires balancing

affordability, reliability, and sustainability.

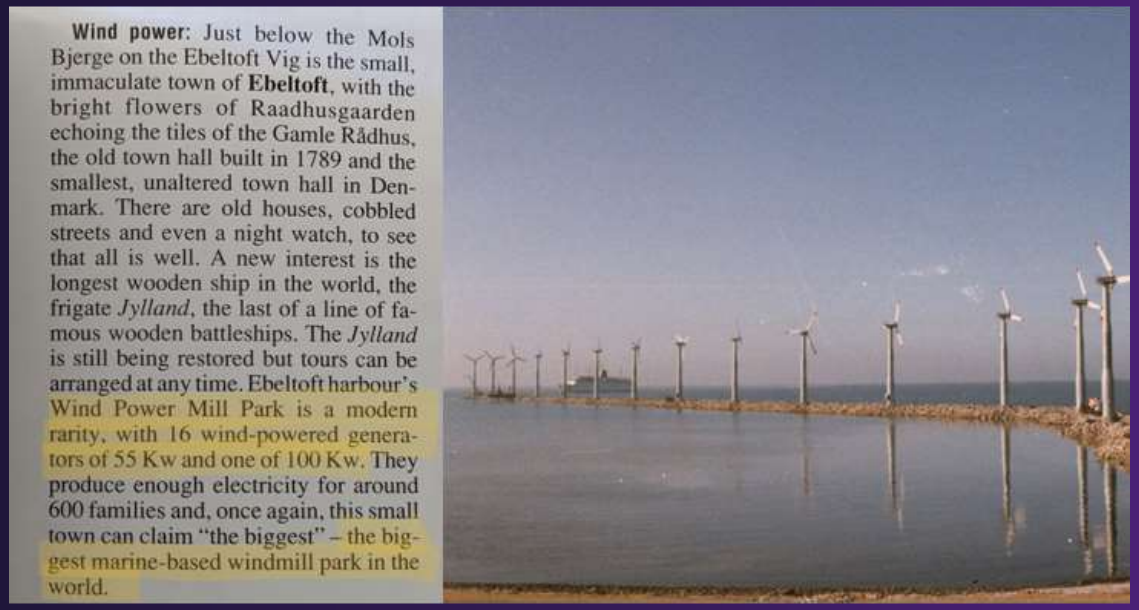
The Energy Transition

Introductory Thoughts



How times change…

Denmark (Insight Guides) 1993
“modern rarity – biggest in the world”

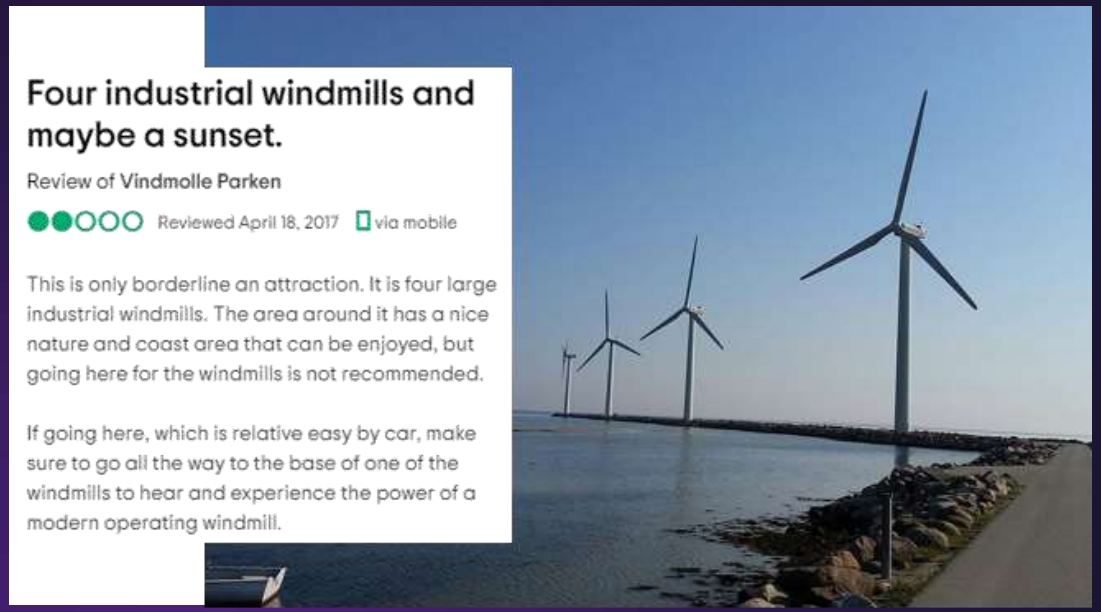


Wind power: Just below the Mols Bjerge on the Ebeltoft Vig is the small, immaculate town of **Ebeltoft**, with the bright flowers of Raadhusgaarden echoing the tiles of the Gamle Rådhus, the old town hall built in 1789 and the smallest, unaltered town hall in Denmark. There are old houses, cobbled streets and even a night watch, to see that all is well. A new interest is the longest wooden ship in the world, the frigate *Jylland*, the last of a line of famous wooden battleships. The *Jylland* is still being restored but tours can be arranged at any time. Ebeltoft harbour's Wind Power Mill Park is a modern rarity, with 16 wind-powered generators of 55 Kw and one of 100 Kw. They produce enough electricity for around 600 families and, once again, this small town can claim "the biggest" – the biggest marine-based windmill park in the world.

Ebeltoft harbour was the world’s first semi-offshore windfarm, built on a harbour pier in Denmark in 1985. It consists of 16 Nordtank 55 kW wind turbines & one 100kW = 980kW total.

Note that the guidebook calls it a “*windmill park*”!

Tripadvisor 2017
“only borderline an attraction”



…and in 2024 few would even stop to look.

The UK's energy transition is already into deep decarbonisation

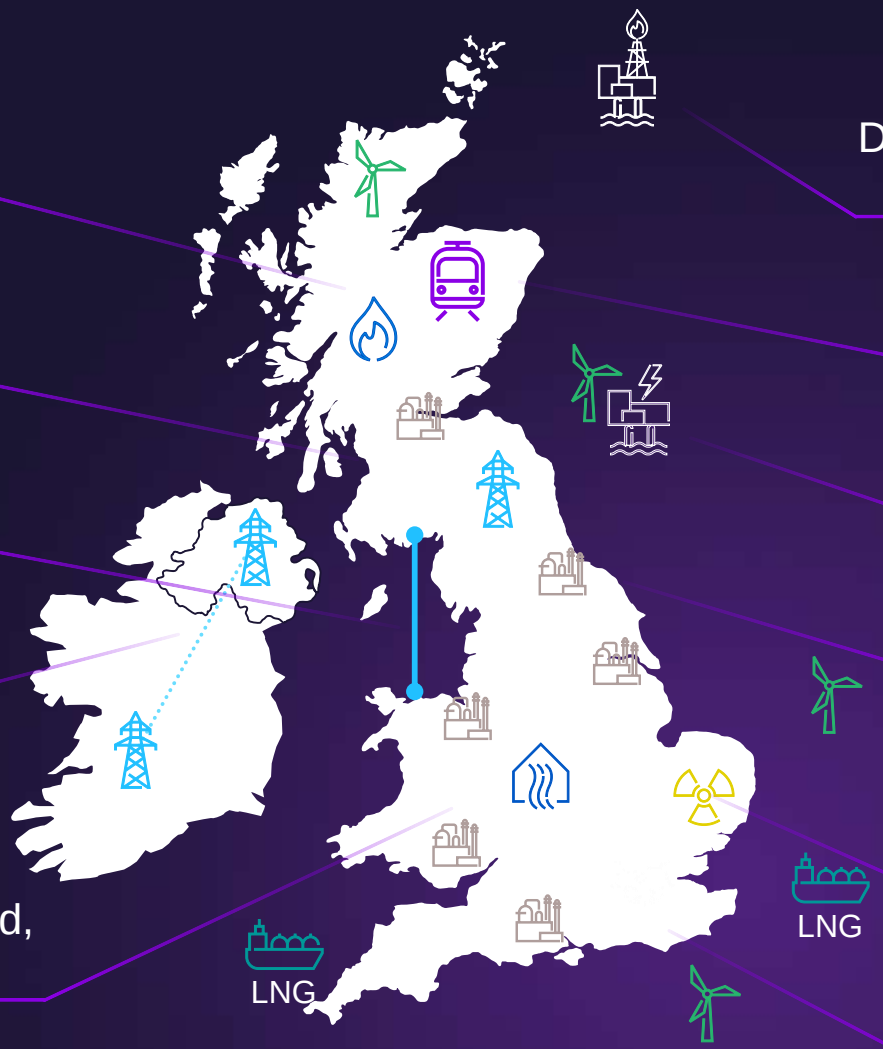
Coal to gas switch complete

Geology that supports
CO_2 and H_2 storage

10GW+ interconnectors installed
(with more in the pipeline)

Ireland & Northern Ireland
form an **all-island grid**

Inefficient housing stock
(85% natural gas heating, poorly insulated, very little district heating)



Drive to **decarbonize the North Sea**
50% emissions reduction by 2030

Transport to shift from fossil
fuels to cleaner alternatives

Huge **offshore wind** resource;
the lowest cost in Europe?

Heavy industry
largely **grouped in clusters**

Positive development
in nuclear & CCS
(cost is deciding factor)

Net Zero has all-party support
2035 net zero electricity system

Business Environment

Europe's (Green) Engine Room: The North Sea

Security of supply

- Growing security challenges

Massive wind deployment

- 300 GW by 2050 means 20,000 15 MW turbines deployed

Huge challenges for grid development & stabilization

- Technological
- Process / Deliverability

So: Revolution, not evolution?
And who is willing to take the risk?

“No (Energy) Transition without Transmission”

Stakeholder coordination at European level

- Country coordination a prerequisite
- International coordination now essential

Manage supply chain constraints

- Standardization; frame agreements
- Simplification

Resource management

- Constrained supply
- Context: Inflation Reduction Act (IRA)

In 2010 we already saw the key market drivers…
…but emphasis and urgency have changed

2010: Market subservient to company set-up

Market drivers

Oil & Gas
- 'Depletion' -> enhanced oil recovery
- CO_2 mitigation
- Deepwater exploration

Power Generation
- Load swings → operating flexibility
- Regulatory targets for renewables
- Lifetime extension + efficiency improvements

Transmission & Distribution
- Aging infrastructure
- Grid integration of bulk renewables
- Urbanization and fast-growing megacities
- Smart Grid

2024: Company is set-up along energy value chain

Reducing GHG emissions and energy consumption in industrial processes

› Transformation of Industry

Low- or zero-emission power generation

› Gas Services

› Siemens Gamesa

Transport and storage of energy

› Grid Technologies

Energy Transition: Industrialize and Deploy

How can we deploy at Speed?

Government Support

- 2030/2050 goals need longer term view

Overcome Regulatory Constraints

- Regulation for future networks, rather than sticking with legacy models

Define & build industry standards

- 15 MW offshore turbines
- 2 GW HVDC connections, bipolar (offshore), scalable

Social Acceptance

- Communicate: Work with what we have

Innovation, Resilience, Weatherproofing

VUCA

Introduction and Rationale:

- Originated in the military in the late 1980s; has since been adopted in the business and leadership context
- Emphasizes the need for
  - Agility
  - Flexibility
  - Strategic thinking

  to navigate unpredictable & complex environments effectively

"It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change."

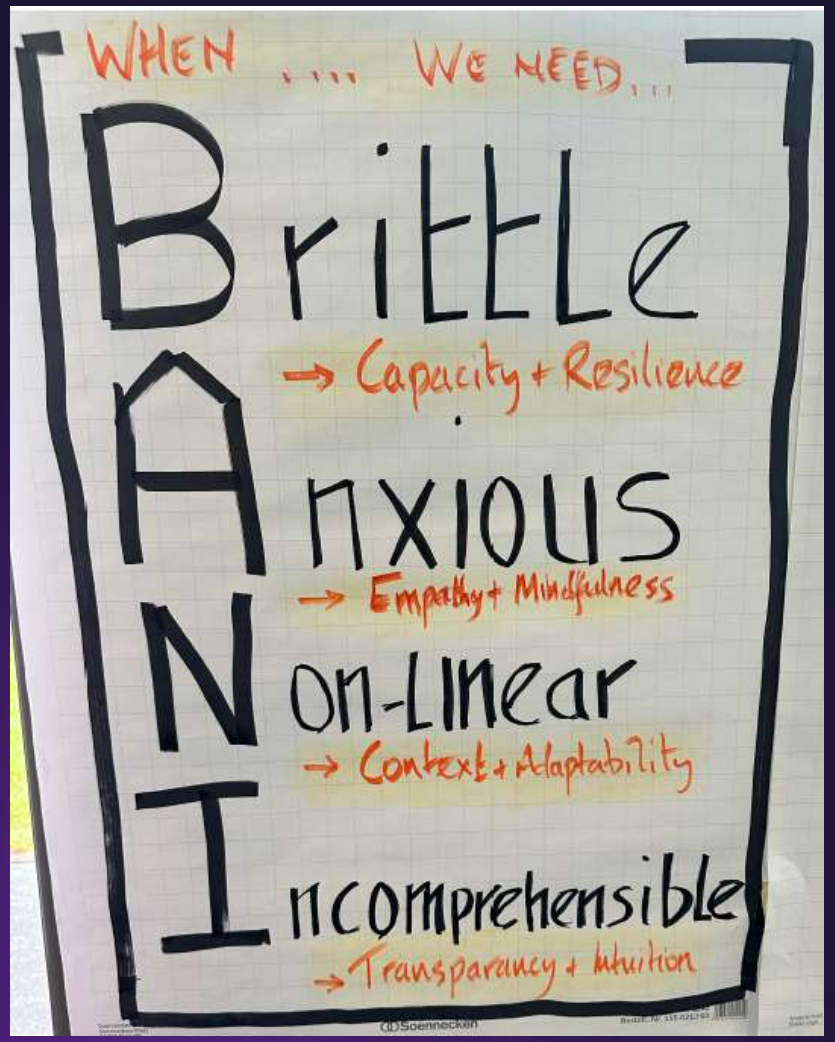
(Charles Darwin)

BANI – Building collaboration

Introduction and Rationale:

- Goes back to Jamais Casco (2018):
  What happens when our expectations about patterns fail? (BANI is “a taxonomy of chaos”.)
- “Chaos of BANI”: a human inability to fully understand what to do when pattern-seeking and familiar explanations no longer work.
- Positive BANI responses are the ways humans have long adapted to periods of upheaval.
- Successful organizations will be able to “collaborate with equity” despite the complex and challenging environments.

Build collaborations in times of chaos!



"The greatest danger in times of turbulence is not the turbulence; it is to act with yesterday's logic."

(Peter Drucker)

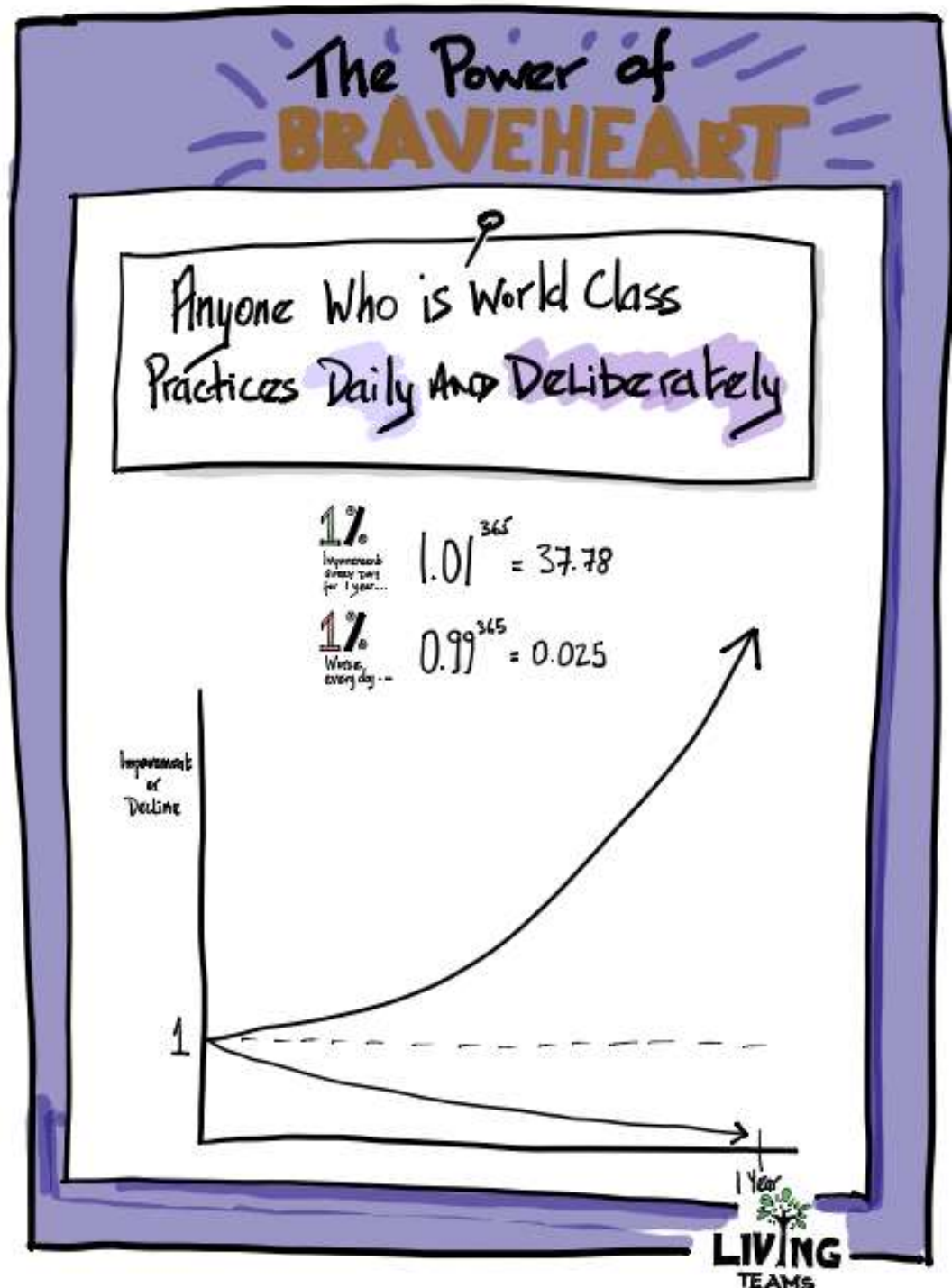
Knowing What I Now Know … How Might it be Different?

The Power of Marginal Gains
(with thanks to Sir Dave Brailsford)

Why Marginal Gains:

- Premise: Continuous improvement (team & individual)
- Speed of Change:
  No time for major (top down) change programs.
- Agility: We need constant course correction.
- We need operational teams to make decisions.
- Incremental change, daily:
  Building momentum & a culture of improvement

The Great Teams are only slightly better than the rest … in a lot of places



28 August 2024

Learning Points

If we are serious about Energy Transition, then some fundamental things will have to change … ***quickly***

1. **Energy Transition needs radical change. Technology alone won't be enough.**
2. **We live in times of change. Hone your awareness of what is happening in the wider World.**
3. **Demand is unprecedented and increasing. Work with what we have, then move to the new.**
4. **How we deal with extreme volatility and constant change will be critical.**
5. **HOW: The only way to go forward is to collaborate, and to collaborate like never before.**

Energy Transition:
A tale of speed & scale

What we want you to remember:

“There is no (Energy) Transition without Transmission”

- Business as usual will not deliver 2030/50
- Scale needs industrialization: standardization, simplification, collaboration & partnering
- Understand all supply constraints (supply chains as well as people)
- Look global, not regional / country

A final thought (courtesy: David Molenaar)

Let's **aim** to leave the **planet**
in a **better shape**
than we found it

And **dare** to have some **serious fun**
while making it happen!

Q&A

Thank you for your attention

Published by Siemens Energy

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NGN CIGRE 2024
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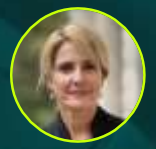
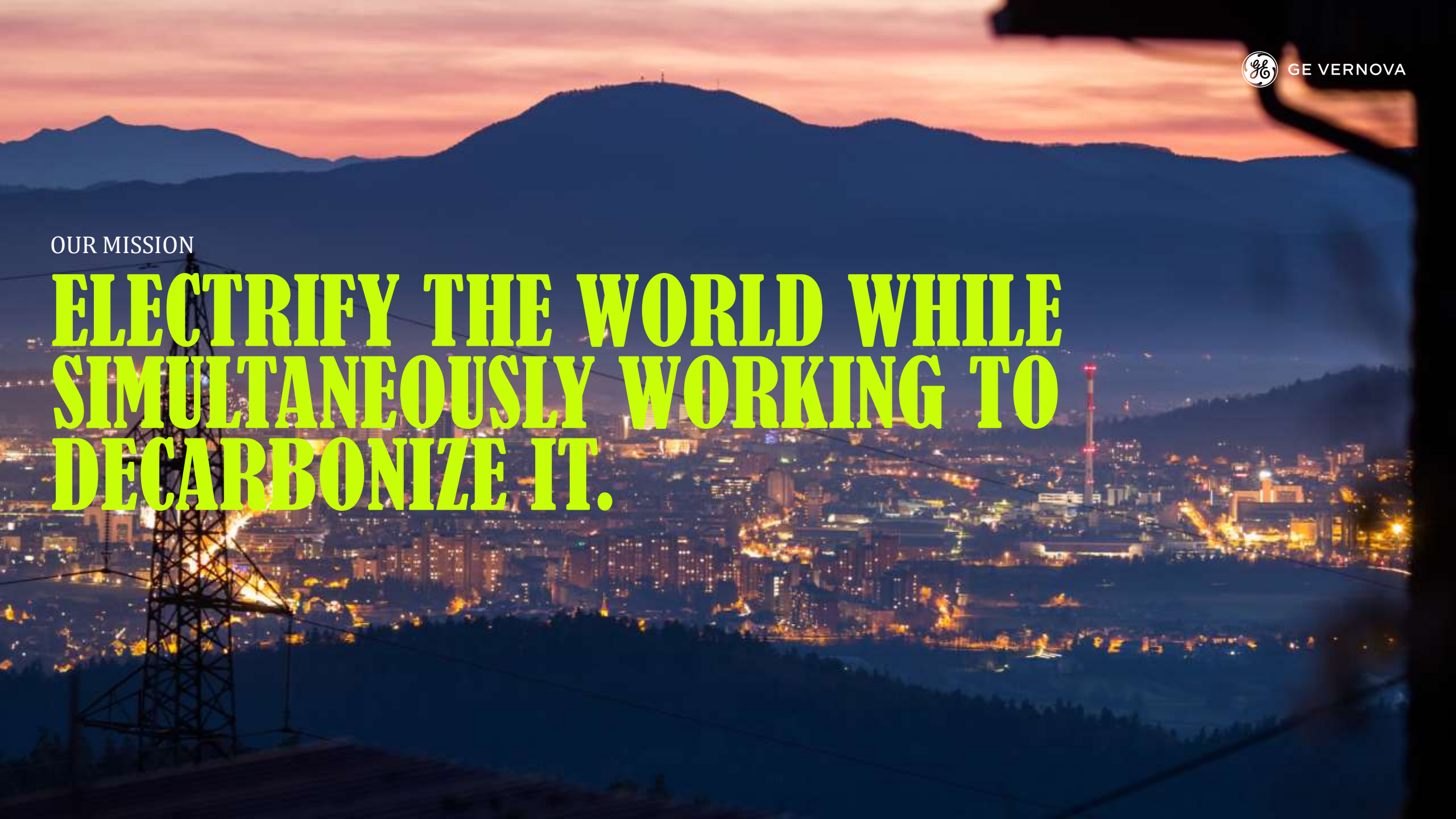


Claudia Blanco
Innovation & Partnerships General Manager of GE Vernova's Electrification business

GE VERNOVA

OUR PURPOSE

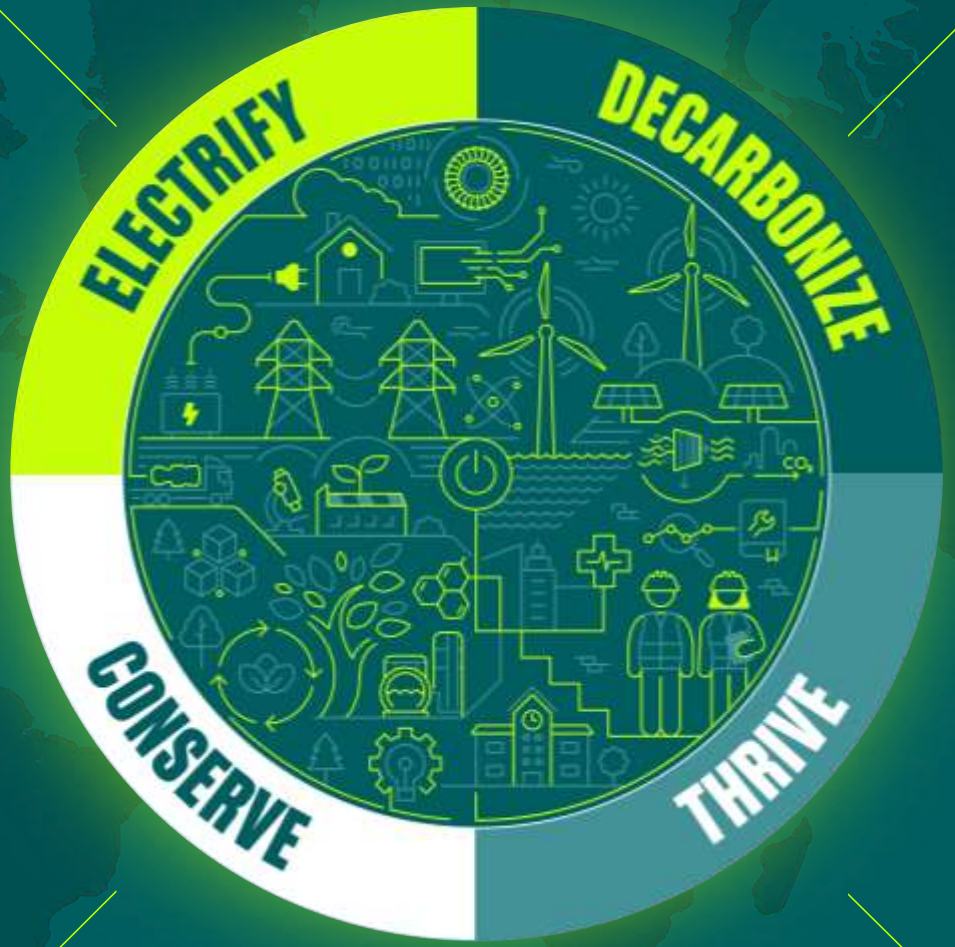
PROVIDE ENERGY TO CHANGE THE WORLD.


GE VERNOVA
OUR MISSION
ELECTRIFY THE WORLD WHILE SIMULTANEOUSLY WORKING TO DECARBONIZE IT.

SUSTAINABILITY FRAMEWORK

GE VERNOVA

We deliver innovative technologies to create a more **sustainable electric power system**



Catalyze access to more secure, sustainable, reliable, and affordable electricity to help drive global economic development

LEADING GOALS

- Be a leading provider of new generating and grid capacity
- Enable electrification in regions lacking secure, reliable, sustainable, and affordable access to electricity
- Support workforce development, with a focus on underserved populations globally

Innovate more while using less, safeguarding natural resources

LEADING GOALS

- Carbon neutrality for Scope 1 and 2 greenhouse gas emissions by 2030
- 90% of our top products covered by our circularity framework by 2030

Invent, deploy, and service technology to help decarbonize and electrify the world

LEADING GOALS

- Innovating toward our 2050 Scope 3 net zero ambition for sold products
- Reducing carbon intensity

Advance safe, responsible, and equitable working conditions in our operations and across our value chain

LEADING GOALS

- Fatality-free operations
- Demonstrate progress on global gender representation and locally underrepresented populations
- Train 100% of our salaried employees on Ethics and Compliance
- Partner with suppliers to promote and uphold human rights in our value chain

A New Company with a Focus on the New Era of Energy

75K

Global employees

100+

Countries

POWER

Gas Power, Hydro Power, Nuclear, Steam Power

WIND

LM Wind Power, Onshore Wind, Offshore Wind

ELECTRIFICATION

Electrification Software, Grid Solutions, Power Conversion, Solar & Storage Solutions

ACCELERATORS

Advanced Research, Consulting Services, Financial Services

Uniquely Positioned to Help Lead the Energy Transition

GE VERNOVA

ENERGY SOURCE

- Nuclear
- Gas
- Wind
- Solar
- Water

GENERATE

Our technology helps generate approximately 30% of the world's electricity.

TRANSFER

Grid solutions to transfer power more reliably and efficiency.

ORCHESTRATE

Automated, digital power management systems.

CONVERT

Science, systems, and advanced technology to improve efficiencies in power conversion.

STORE

Intelligent solar and storage solutions to address the variability of renewable energy supply.

ENERGY DESTINATION

- Homes
- Businesses
- Industry

GE Vernova is uniquely positioned

to play a key role in the energy transformation to address **climate change.**

Scope | GE Vernova's Offerings

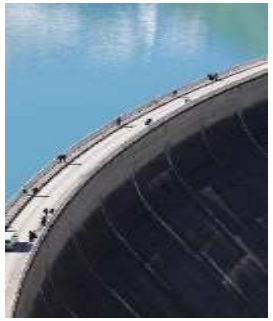
GE VERNOVA

GAS POWER

STEAM POWER

NUCLEAR POWER

HYDRO POWER



ONSHORE WIND

OFFSHORE WIND

GRID SOLUTIONS

POWER CONVERSION

SOLAR & STORAGE SOLUTIONS

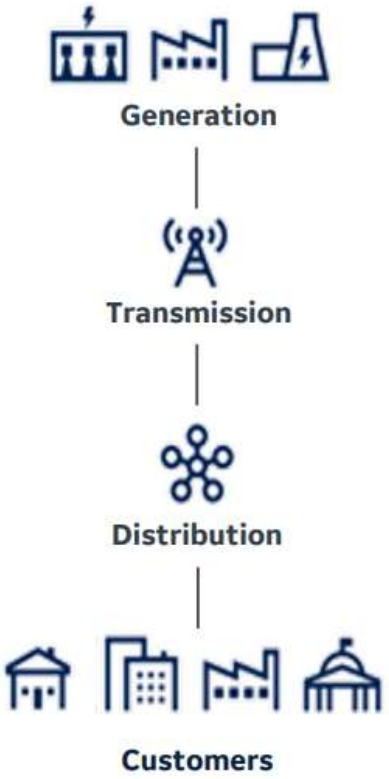
ELECTRIFICATION SOFTWARE

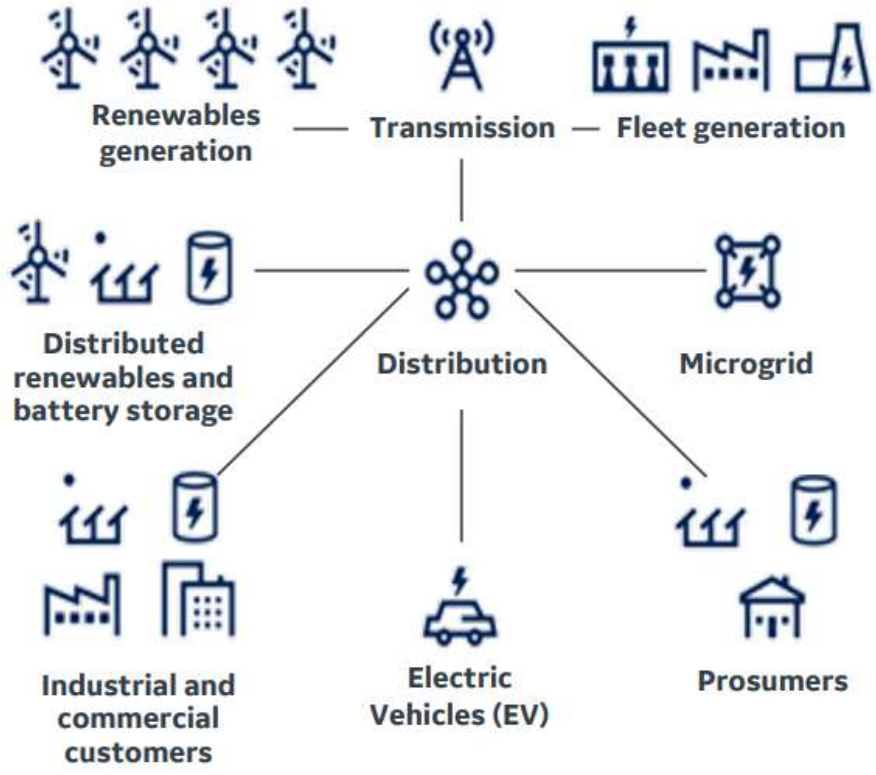
FINANCIAL/CONS. SERVICES

Grid | Power Demand and Complexity is Increasing

GE VERNOVA

YESTERDAY: Balanced and predictable	Transition Point	TODAY: Constantly changing, unprecedented complexity
Unidirectional	Power Flow	Multidirectional
High	Grid Stability	Low
Dispatchable	Generation Technology	Variable
Centralized	Generation Location	Distributed
Limited	Market Participants	Many
Moderate	Climate Change Risks	Significant
Limited	Cyber Threats	High



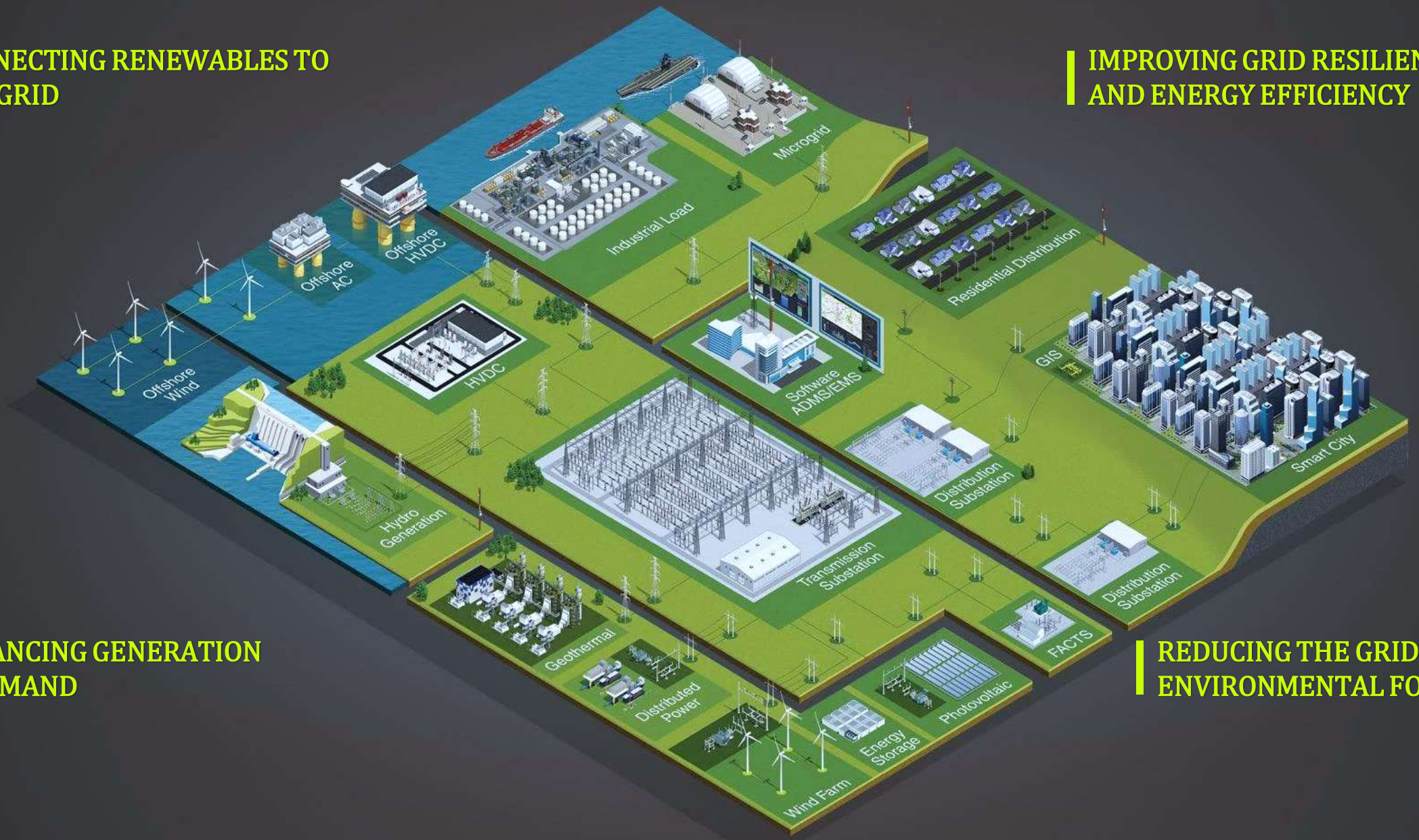


Understanding Our **Industry Challenges**

GE VERNOVA

CONNECTING RENEWABLES TO THE GRID

IMPROVING GRID RESILIENCE AND ENERGY EFFICIENCY



BALANCING GENERATION & DEMAND

REDUCING THE GRID'S ENVIRONMENTAL FOOTPRINT

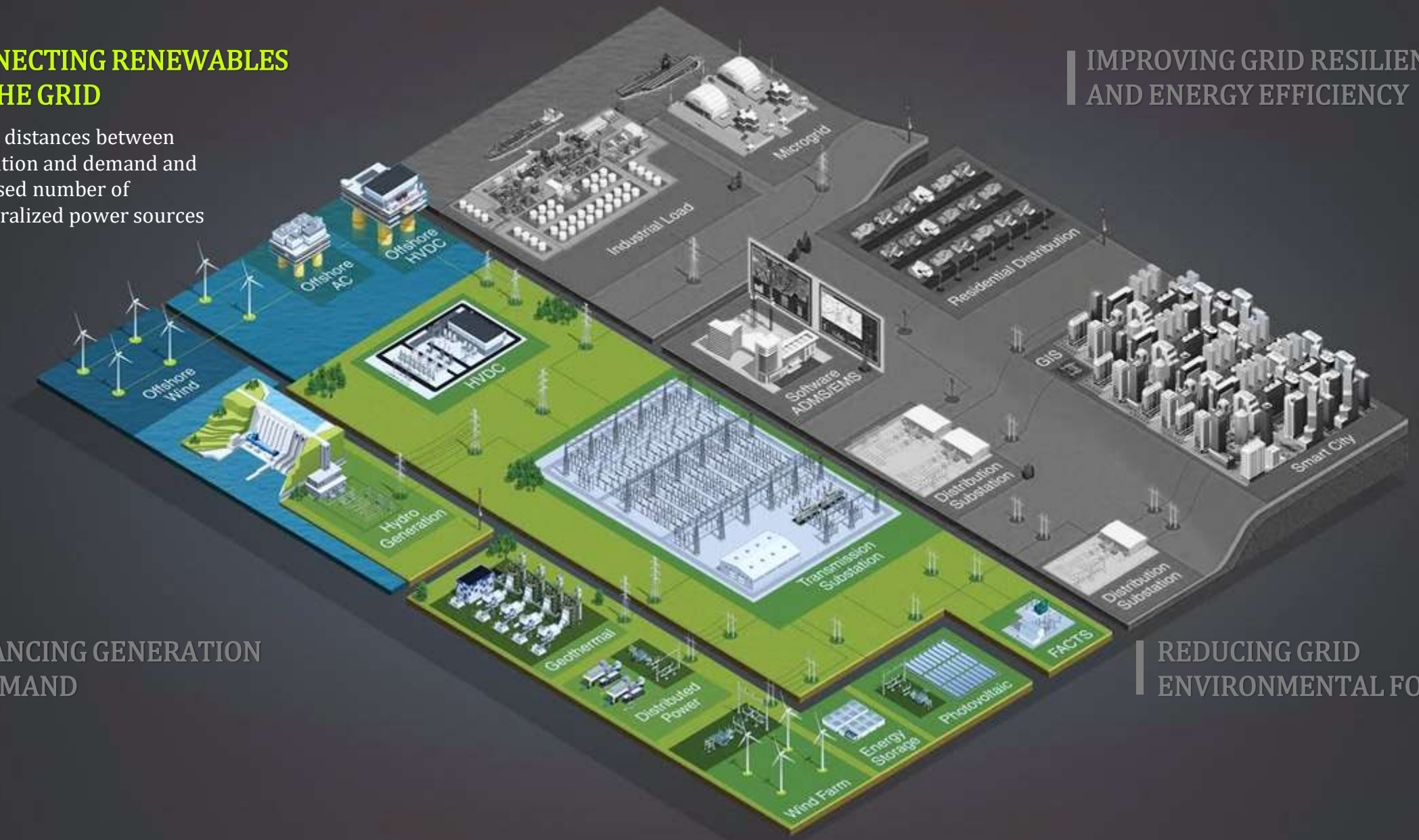
Understanding Our **Industry Challenges**

GE VERNOVA

CONNECTING RENEWABLES TO THE GRID

Larger distances between generation and demand and increased number of decentralized power sources

IMPROVING GRID RESILIENCE AND ENERGY EFFICIENCY



BALANCING GENERATION & DEMAND

REDUCING GRID ENVIRONMENTAL FOOTPRINT

Understanding Our **Industry Challenges**

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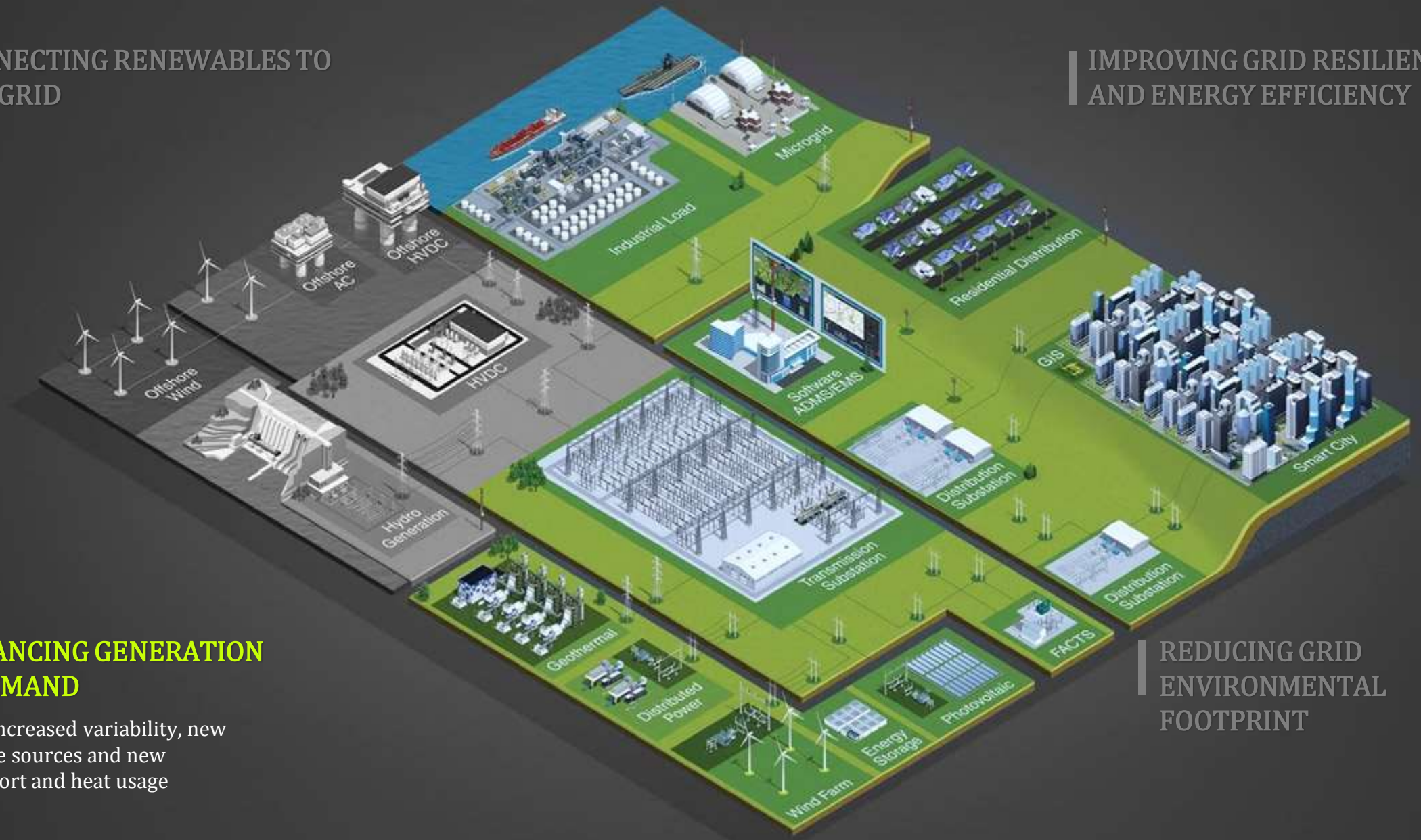
IMPROVING GRID RESILIENCE AND ENERGY EFFICIENCY



BALANCING GENERATION & DEMAND

With increased variability, new flexible sources and new transport and heat usage

REDUCING GRID ENVIRONMENTAL FOOTPRINT

Understanding Our **Industry Challenges**

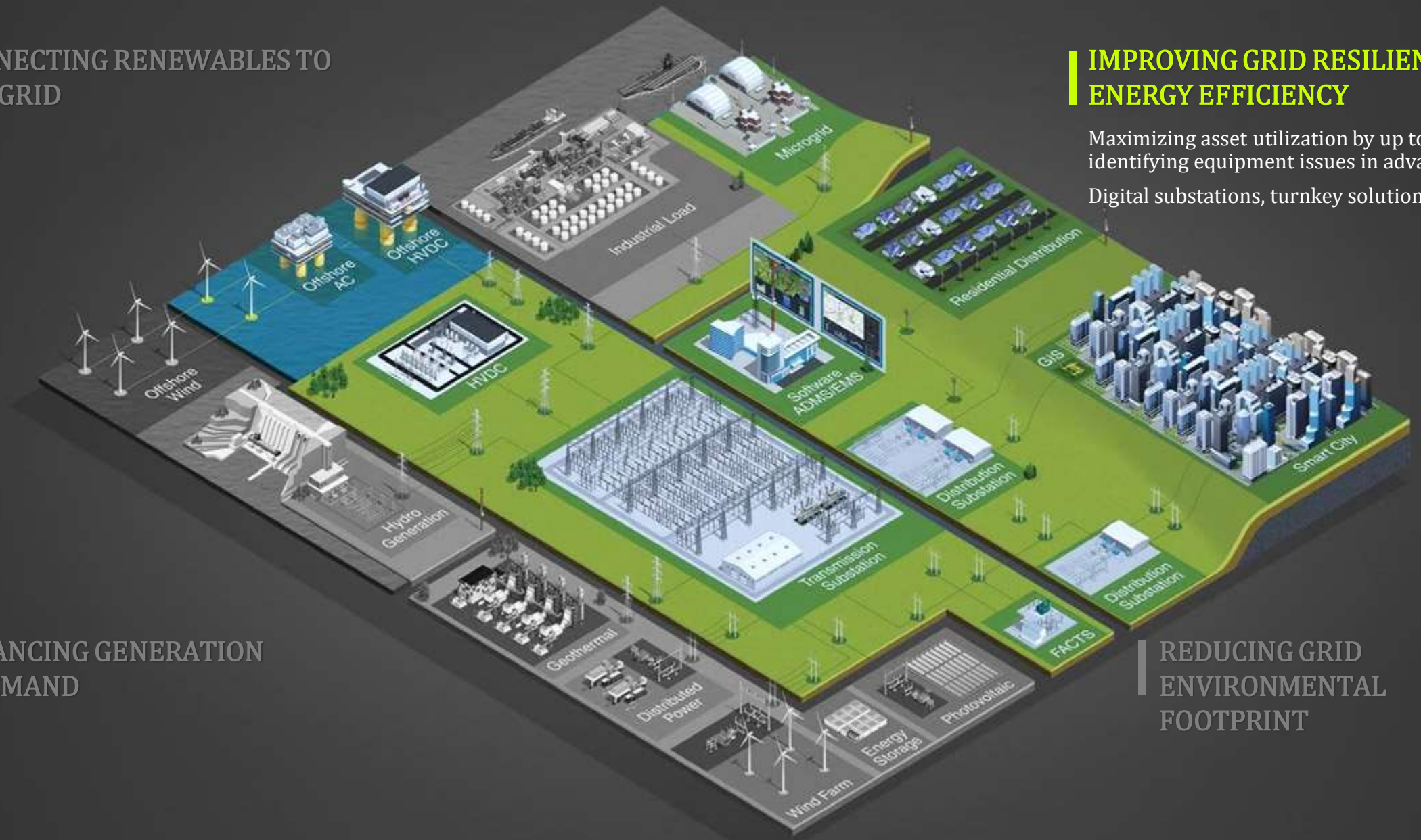
GE VERNOVA

CONNECTING RENEWABLES TO THE GRID

IMPROVING GRID RESILIENCE AND ENERGY EFFICIENCY

Maximizing asset utilization by up to 15% and identifying equipment issues in advance.

Digital substations, turnkey solutions, services.



BALANCING GENERATION & DEMAND

REDUCING GRID ENVIRONMENTAL FOOTPRINT

Understanding Our **Industry Challenges**

GE VERNOVA

CONNECTING RENEWABLES TO THE GRID

IMPROVING GRID RESILIENCE AND ENERGY EFFICIENCY

BALANCING GENERATION & DEMAND

REDUCING THE GRID'S ENVIRONMENTAL FOOTPRINT

Reduce the environmental impact of grid infrastructure to cope with regulations and objectives.

GRID OF THE FUTURE: WHAT SHOULD YOU EXPECT?

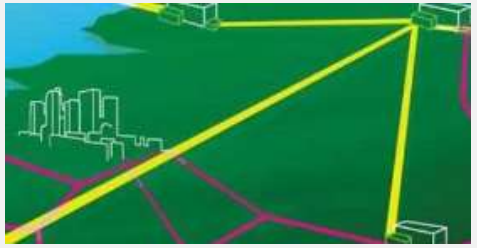
- Will enable the **development of offshore wind** and **interconnections** with a hybrid AC-DC grid with multiterminal-multivendor HVDC systems
- Will **leverage new technologies and digital tools** to orchestrate a grid that balances the system on a milliseconds basis resorting to flexibility sources across all the layers of the grid
- Will fully **exploit the potential of data analytics**, artificial intelligence, and machine learning to increase reliability and resiliency
- Will **be mindful of its sustainability,** reducing **the full life cycle impact** of grid infrastructure

New Technology Focus | Solutions for a Modern Age

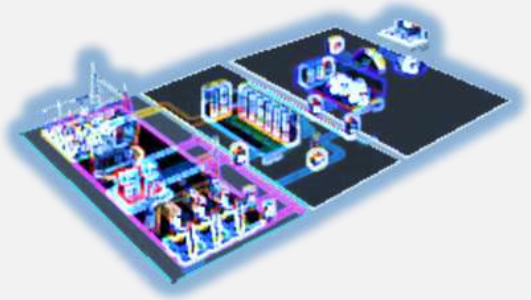
Elimination of SF_6
Greenhouse Gas

Power Electronics for
Flexible Power Grids

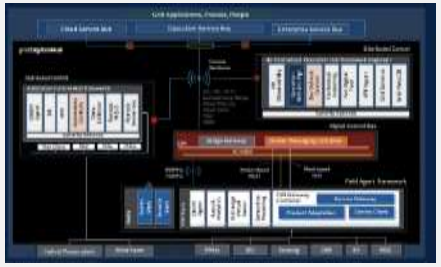
HVDC Multi-terminal
Multi-vendor | InterOPERA



Next-Generation Substation
Flexibility, Data Access, Remote Device Management



Zonal Autonomous Control for
Enhanced Grid Resilience



OT Comms Infrastructure
Optical & Private LTE

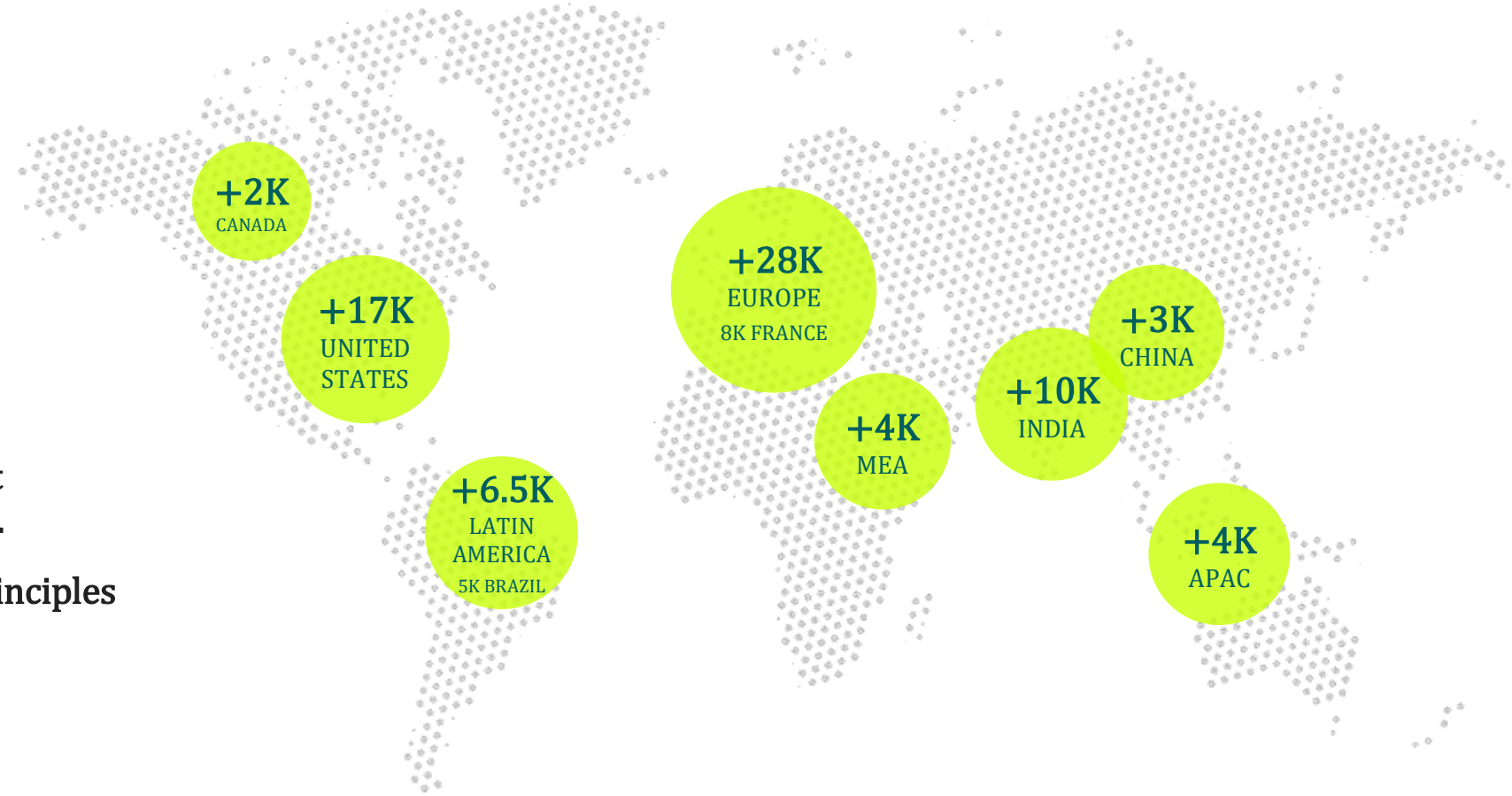
Diverse problems will require diverse talent

Employees

Keep and draw amazing talent around the globe

A place to…

- Make an **impact**
- Foster **safety and integrity**
- Drive leading **technology**
- Stoke **creative spirit**
- Collaborate with **diverse global talent**
- Learn, develop, and grow your **career**
- Achieve through **performance and principles**
- Find flexibility to **balance life**



The **Six Key Contributors** To My Professional Growth

Self Awareness

My Goals

Mentorship
Coaching

Bravery,
Not Perfection

Personal
Growth

Health

"We are united by a single, urgent purpose to electrify and decarbonize the planet, and together, we have the energy to change the world."

SCOTT STRAZIK

CEO, GE Vernova

GE VERNOVA

Q+A


GE VERNOVA

NGN Forum
August 28th, 2024
Paris

For power system expertise

Topic: TC Chair Views on CIGRE
Marcio Szechtman

Objectives

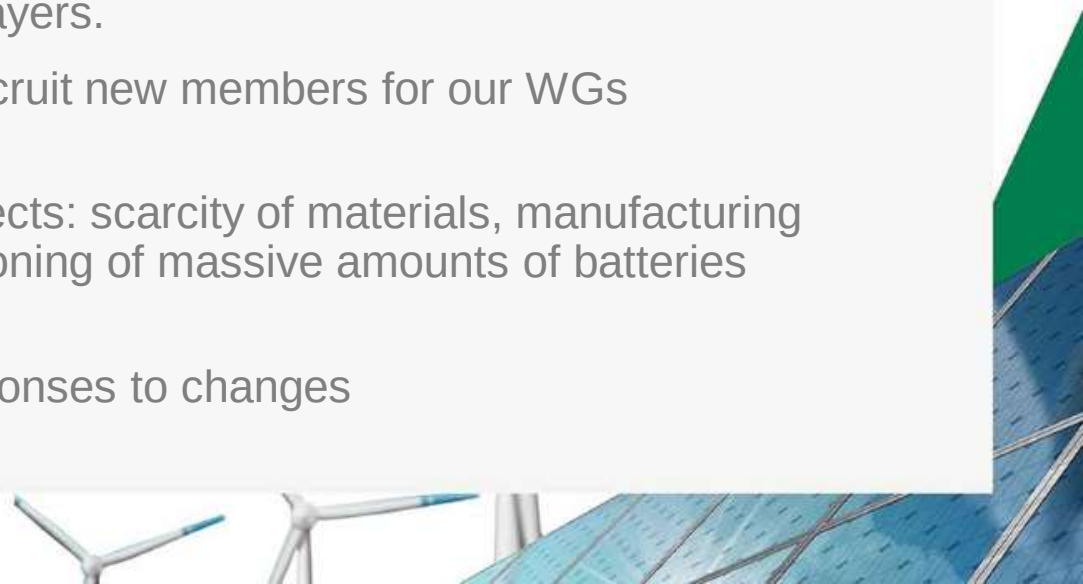
- The basis of the TC revised Strategic Plan
- The Dynamics of the 16 Study Committees and Working Group Formations
- The NGN recognized added value to CIGRE
- The Future Connections Newsletter
- Some personal views on CIGRE and Energy Transition
- CSE and publications Scopus Indexed

- Q&A.

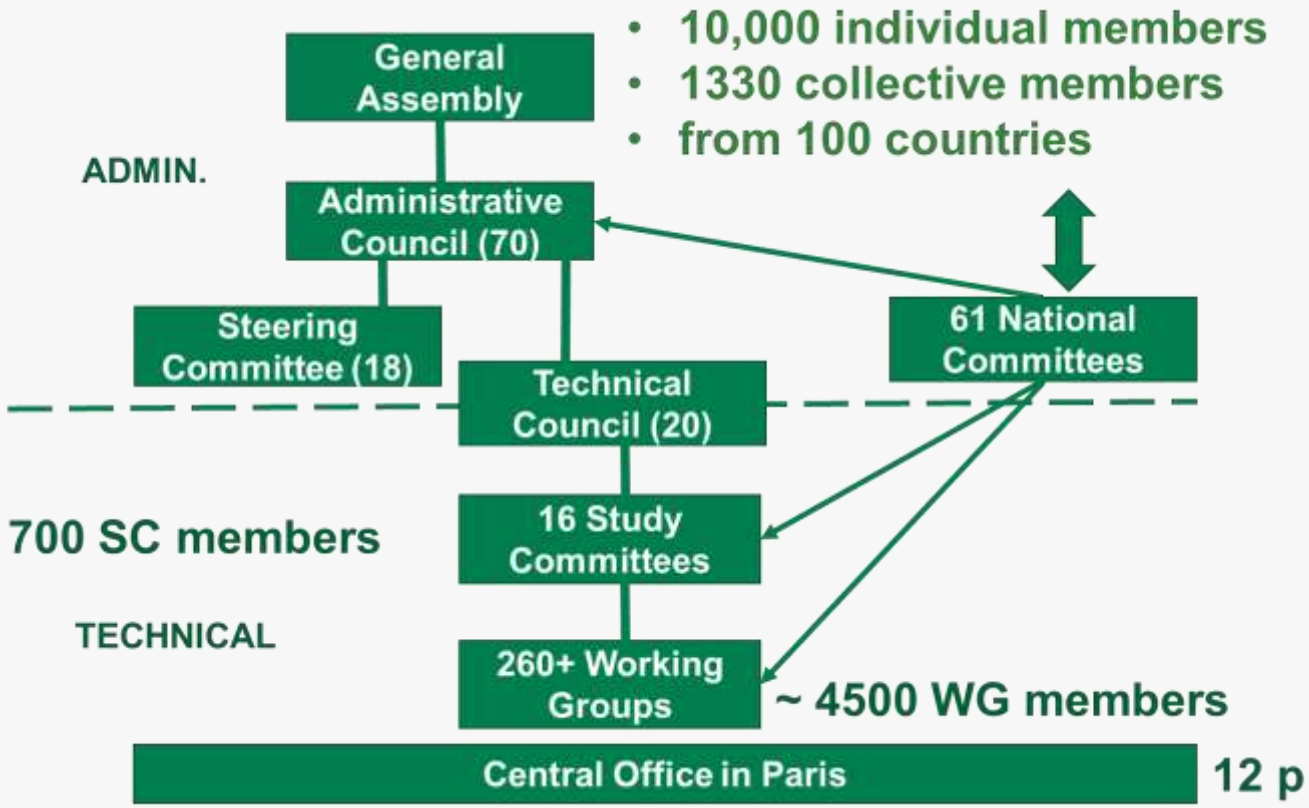
Target Points of the Strategic Plan

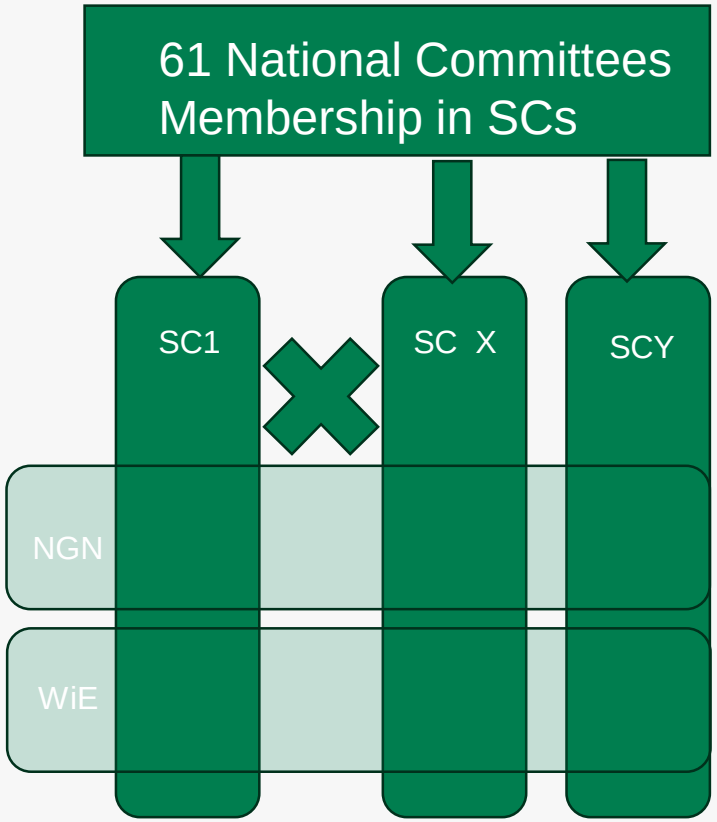
- Capture all relevant aspects of the Energy Transition (including Digitalization, ESG, Distributed Generation)
- Be a truly E2E forum for information exchange on power system
- Expanding CIGRE activities according to the expansion of the electricity business – CIGRE's growth

- Current and future scopes of each SC. Better way to Grouping?
- Overlaps among SCs
- Gap Analysis
- Suitable links with parent organizations?
- CIGRE: an Energy Organization OR keep its leadership tradition on Power System
- CIGRE reaching regulators, politicians, and governmental bodies with unbiased documents
- Mechanisms to better attract non-traditional professionals to CIGRE - new players.
- Mechanisms to recruit new members for our WGs activities.
- Sustainability aspects: scarcity of materials, manufacturing limits, decommissioning of massive amounts of batteries and solar cells.
- Faster (agile) responses to changes

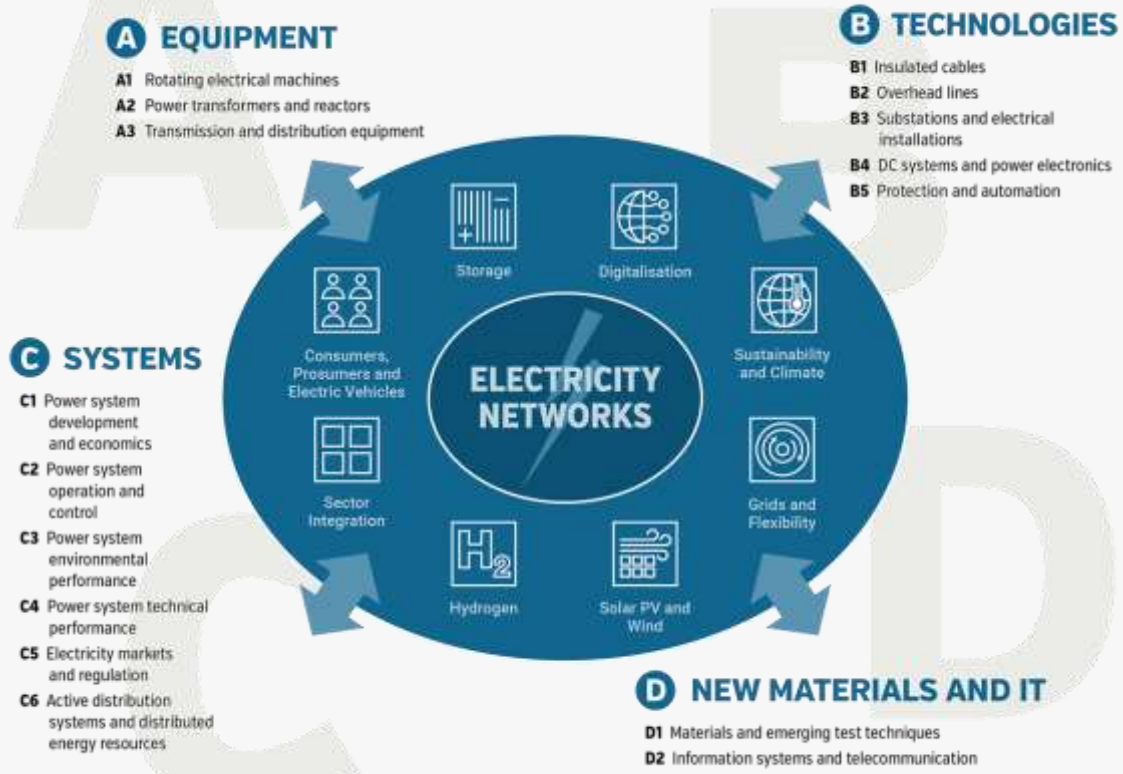


The TC within CIGRE's Governance





CIGRE's Door Entrances



New WG Formation

SC discusses and proposes a new WG ToR to the TC Secretary

The TC Secretary opens a Doodle process for all Sc Chairs (15 days)

TC Secretary sends the ToR and the Doodle results to the TC Chair

The TC Chair analyzes and approves the new WG

The new ToR is made available for the SC to recruit members

Future Connections Newsletter promotes the activities

Who am I?

- Started participation in Paris Sessions in 1982 (!!!); attended to every since then
- CIGRE Career of WG Convenor, Special Reporter, SC Chair (B4) and TC Chair
- Honorary Member in 2008; CIGRE Medal in 2014
- Technical Career developed in Research Center, International Consulting & Large Utility
- Interested in Power Electronics/HVDC, Environmental Aspects, Transmission and Distribution Regulation, Energy Transition Studies, Green Hydrogen and Electric Power Utilities Performance.

	HISTORICAL		ANNUAL AVERAGE REQUIRED	
(BILLIONS USD 2022)	2015	2022	2026-2030	2031-2035
Total EMDCs	538	773	1,784-2,222	2,219-2,805
By country/region				
China	287	511	730-853	850-947
India	55	59	253-263	325-355
Southeast Asia	28	30	171-185	208-244
Other Asia	21	23	68-85	93-112
Africa	26	32	160-203	207-265
Latin America	63	66	150-243	209-332
Europe and Eurasia	33	31	111-188	127-232
Middle East	24	21	122-202	176-318

SOURCE: IEA AND IFC, 2023

2.2 WHY ARE PIPELINES OF BANKABLE PROJECTS SO SCARCE?

2.2.1 A SUCCESSFUL PILOT DOES NOT MAKE A PIPELINE

Many countries, despite initiating a handful of successful pilot projects, may encounter difficulties in scaling up renewable energy deployment. Often, these countries were able to propose a bankable environment for one project or two but are not able to replicate the government support or mitigants at a broader program level. Additionally, there might be a limited willingness at the country level to actively promote renewable energy.

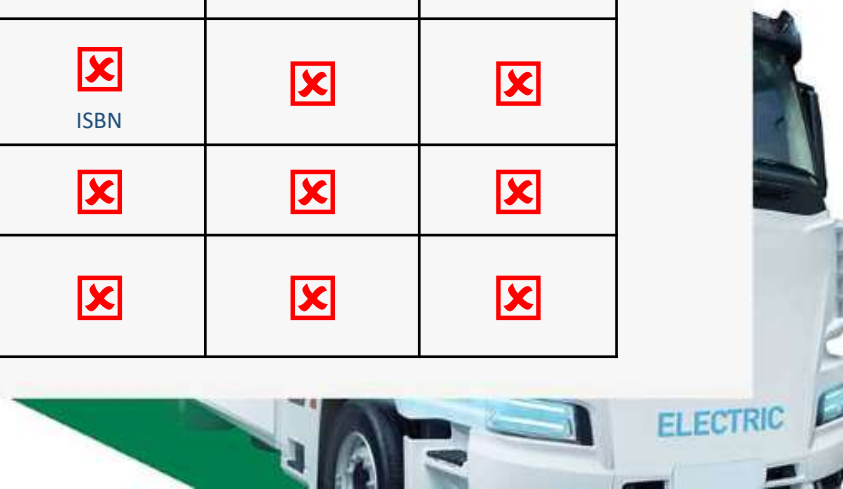
World Bank SRMI: How to Unlock Pipelines of Bankable Renewable Energy Projects in Emerging Markets and Developing Countries (EMDC)?

CIGRE and Scopus Index Publications

CSE is already Indexed. Springer & Cigre are working for Green Books.

Scopus seems to allow Journal papers and Books.

SCOPUS requirements	CSE	Electra	Technical Brochures	Session papers	Symposia papers
Publish peer-reviewed content and have publicly available peer review policies/processes listed on its website	☑	☒	☒	☒	☒
Have content relevant to an international readership	☑	☑	☑	☑	☑
Provide English-language abstracts and titles	☑	☑	☑	☑	☑
Include references in Roman script	☑	?	☑	☑	☑
Be a serial title that's published regularly (i.e., bi-monthly)	☑	☑	☒	☒	☒
Have ISSN International Centre registration	☑	☑	☒ ISBN	☒	☒
Have a publicly available publication ethics and malpractice statement	☑	☒	☒	☒	☒
In general, Scopus also requires that journals have a publication history of 2+ years	☑	☑	☒	☒	☒



CIGRE Brazil NGN

2024 Paris Session NGN Forum

Joyce Meireles
Brazil

Agenda

1. Introduction of NGN Brazil
2. Recent Highlights
3. Future focus – between now and Paris 2026

Next Generation Network

Introducing NGN Brazil

- **Structured in 2022**
- **226 NGN members**
  - 23% female
  - 28% students

NGN Mentor - Prof. Dr. José Sidnei Martini

Co-chair NGN
Joyce Meireles

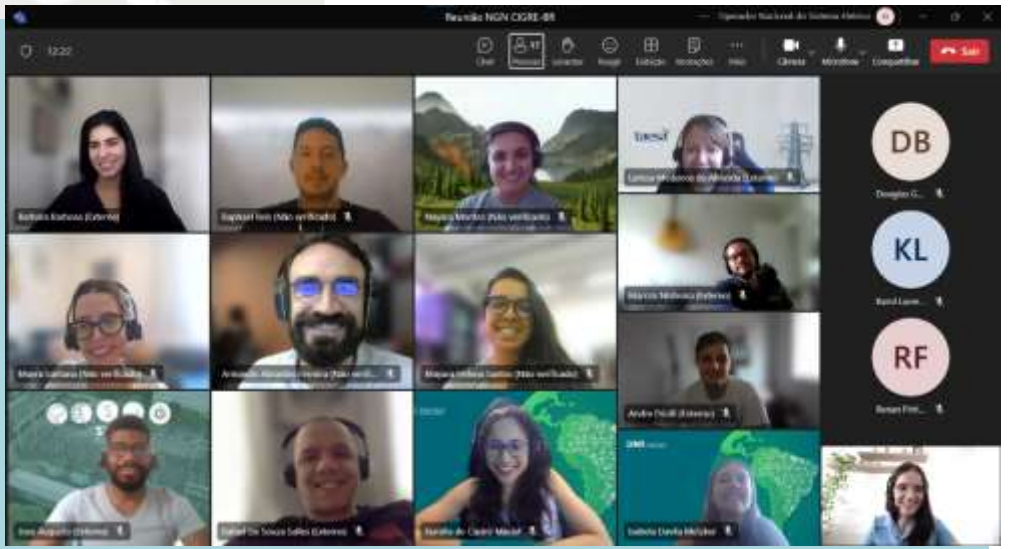
Co-chair NGN
Bárbara Duarte

Study Committee Liaisons

- A1
- D2

Member Engagement Coordination

Mentoring Coordination



cigre Next Generation Network

NGN Brazil – Recent Highlights

Seminar – XXVII SNPTEE 2023

NGN Showcase:

- 28 NGN technical presentations.
- 14 NGN members received the award for the best NGN paper at each respective Group Discussion Meeting of the seminar.

Other Activities at the event:

- **NGN Networking Event** – Happy hour cocktail.
- **WiE Forum** – NGN participation to share the perspective of young women.
- **Podcast NGN episode –** How to attract young people to careers in the energy sector.

NGN Brazil – Recent Highlights

Other events and initiatives:

- Seminar XIX ERIAC 2023 – Participation at the WiE/NGN Forum.
- Technical presentations/webinars in 2024 in collaboration with IEEE PES.
- Established the **Maternity Benefit** to promote gender diversity within the organization and to increase female participation during and after maternity leave (collaboration with UNICENPE and WiE-Brazil).

Future Focus: Between now and Paris 2026

NGN Brazil

- **Increase Webinars**

Host more professional and educational webinars to share knowledge.

- **Strengthen the collaboration with universities**

In collaboration with UNICENPE, strengthen the collaboration with some universities to engage young engineers and students.

- **Pilot Mentorship Program**

Launch a pilot mentorship program to support professional development and knowledge transfer.

- **Integrate with NGN Groups Worldwide**

Strengthen connections with NGN groups from other countries to foster international collaboration and exchange.

cigre
Next Generation Network Brasil

Thank you!

ngn@cigre.org.br
https://cigre.org.br/

CIGRE India NGN

2024 Paris Session NGN Forum

Saravanan Balamurugan
India NGN – Social Media Lead

Agenda

- Introduction of NGN India
- Recent Highlights
- Future focus – between now and Paris 2026
  - Challenges and Opportunities

NGN India at a Glance

SteerCo
5 members

cigre India | Next Generation Network

Launched end Oct 2023

Chair
Aditie Garg

Secretary
Sasi kumar Vettaiyappan

Social Media Coordinator
Saravanan Balamurugan

Academia Coordinator
Jajna Prasad

Events Coordinator
Gopal Subramaniam

Total Membership **46**

Working Group Participation **7+**

NGN India

- Webinar
- Sessions

Present

- Technical

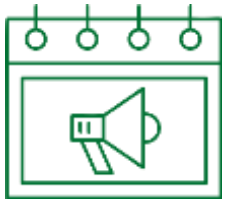
Learn & Network

- NGN

Travel & Win

- Working Group &

Participate

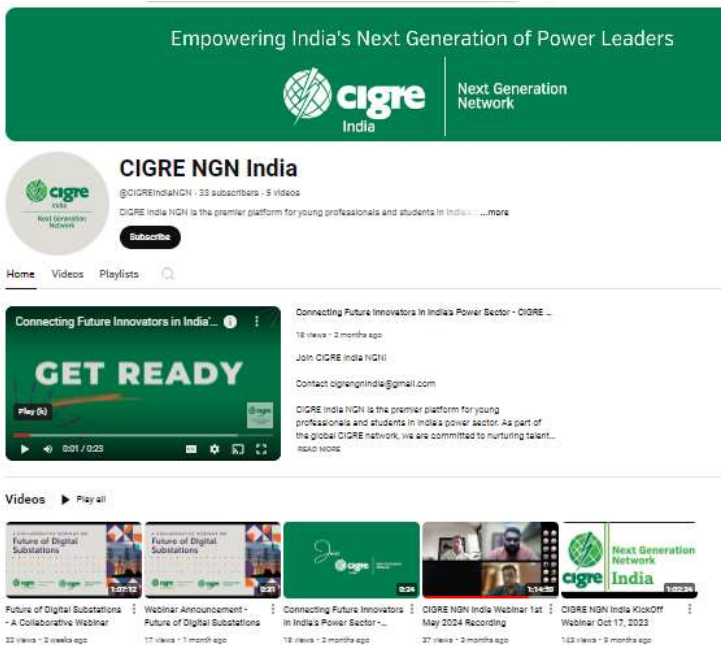


Events 2023-2024 **3+**

Published Articles **2**

Collaborate and Grow

NGN India: Highlights

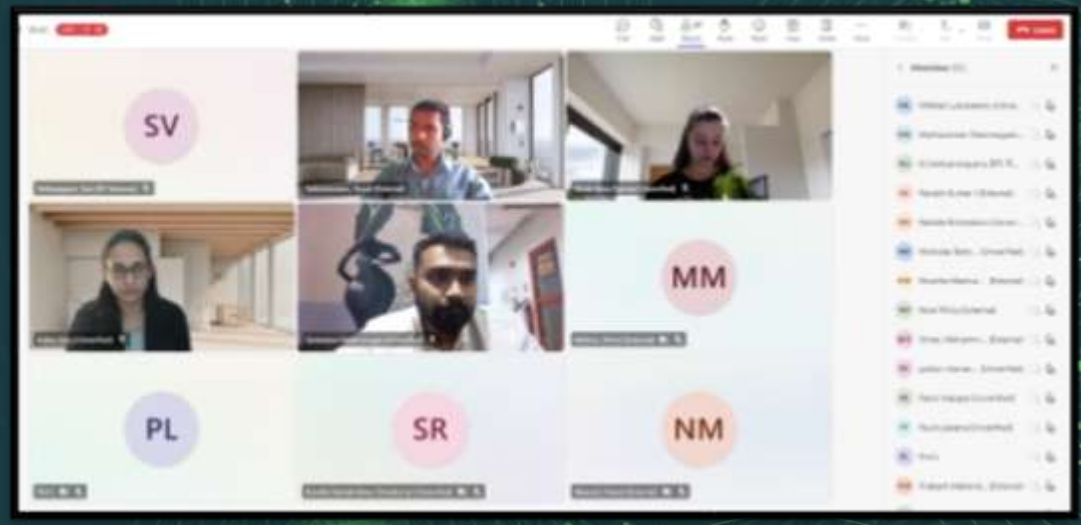


LinkedIn : [CIGRE India NGN LinkedIn]

YouTube: [CIGRE India NGN- YouTube]

Future Focus: Between now and Paris 2026

- Plan to develop a website for NGN India to increase visibility
- Automate membership process for getting added to CIGRE
- Increase participation of student, academic and industry partners participation by introducing NGN India in local conferences within the country
- Increase representation in WGs from India.
- Social media collaboration and participation other international NGN.
- Experience and Knowledge Sharing between NC and NGN



Thank You for Listening!

cigre India

Next Generation Network

Follow us on LinkedIn and YouTube

Please reach us at cigrengnindia@gmail.com

CIGRE Czech Republic and Slovak Republic NGN

2024 Paris Session NGN Forum

Branislav Pilát, Slovak Republic

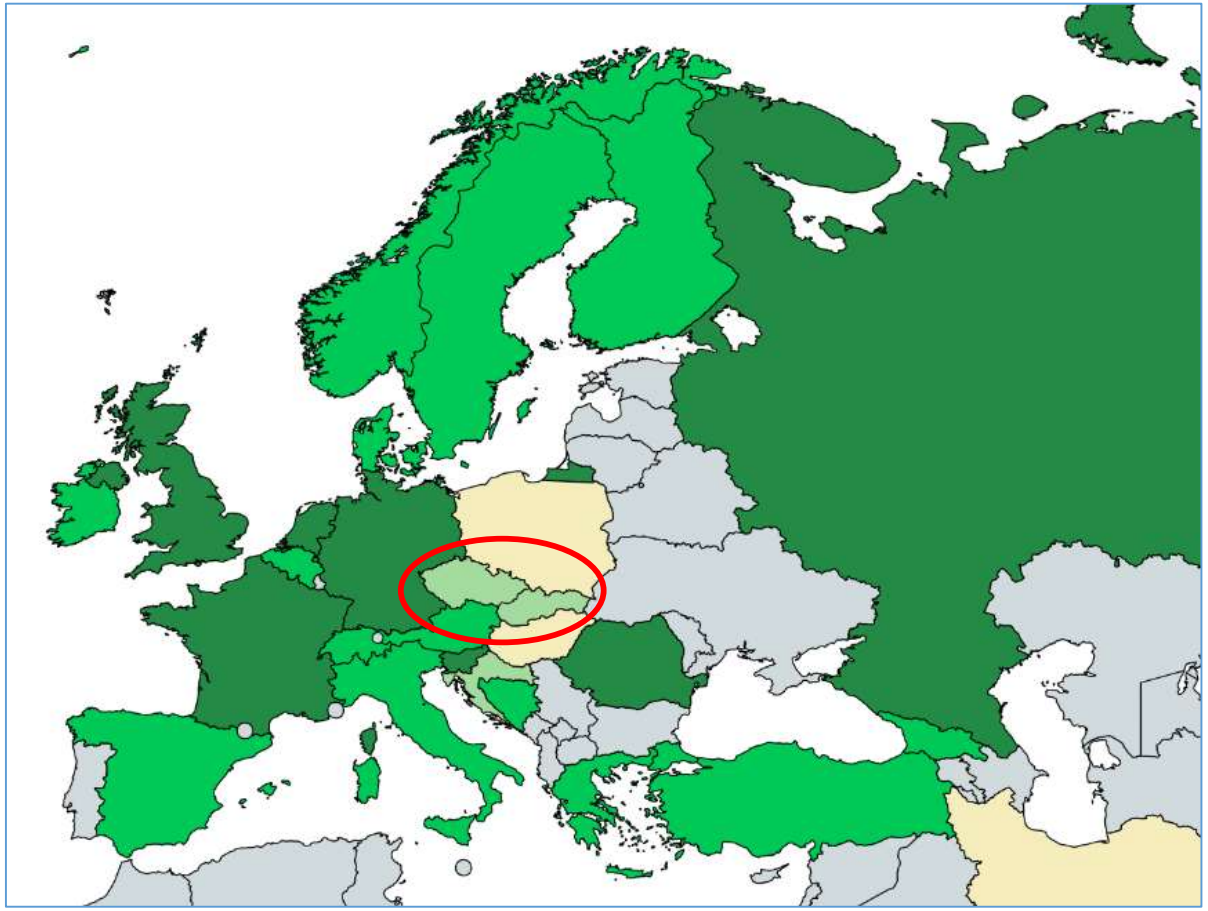
Agenda

- Introduction of CIGRE in Czechia and Slovakia
- How, when and why?
- Future challenges and opportunities

CIGRE NGN CZ&SK
LinkedIn

Introduction of CIGRE Czechia and Slovakia

- Total population of around 16 million
- NC has 10 collective members and more than 70 individuals
- Little involvement in promoting CIGRE at national level

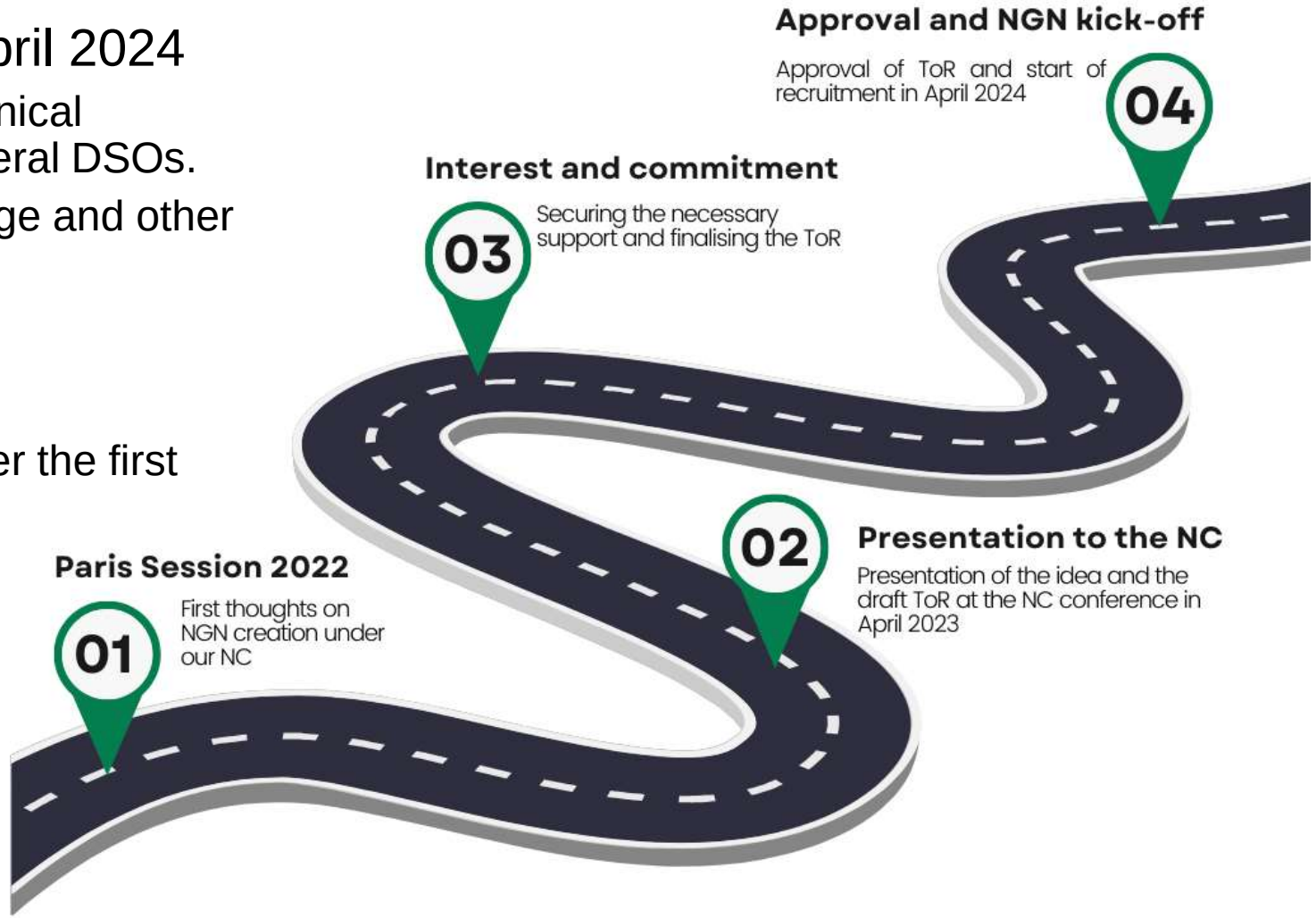


How, when and why?

NGN ToR were approved in April 2024

- Initial discussions with 7 technical universities, 2 TSOs and several DSOs.
- Creation of NGN LinkedIn page and other marketing / PR materials.
- Still in early stages.

More than 15 new NGN members after the first round.



How, when and why?

* po splnení základných podmienok aktívneho členstva v CIGRE NGN CZ&SK.

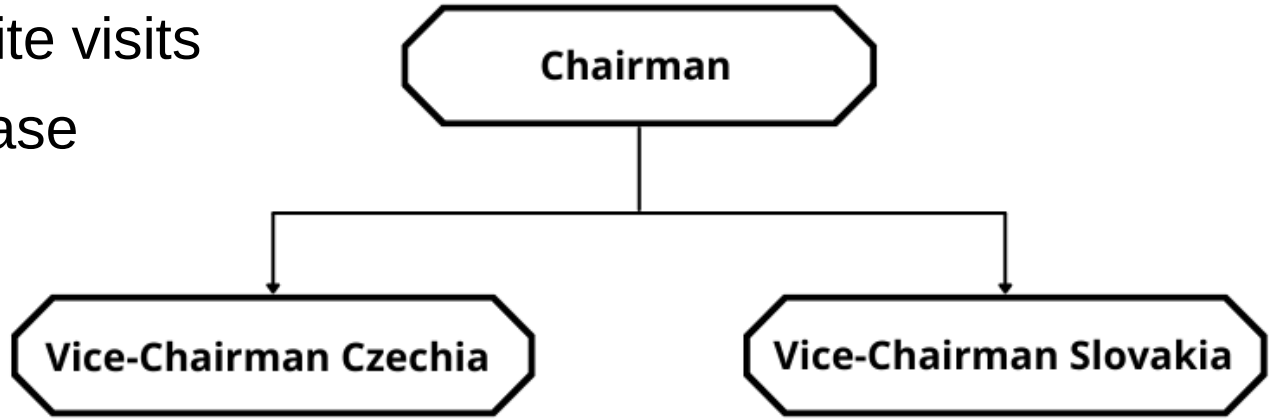
Challenges and opportunities: What lies ahead?

Approved Terms of Reference

- 7 pages
- Focus on activities and opportunities that should help our members
- Clear definition of fees and benefits along with responsibilities

Activities

- Technology webinars and workshops
- Excursions / site visits
- Thesis showcase



Challenges and opportunities: What lies ahead?

1

CIGRE Paris Session

August 2024

2

Second round of recruitment and discussions

Q3 & Q4 2024

3

NGN Workshop

Hosted by ČEPS

- Introduction to CIGRE
- Technical presentations

4

Seminar of the Czech and Slovak CIGRE National Committee

Q2 2025

Thank you for your attention

branislav.pilat@sepsas.sk

CIGRE Australia NGN

2024 Paris Session NGN Forum

CIGRE Australia NGN Co-chair
Adrian Lloyd

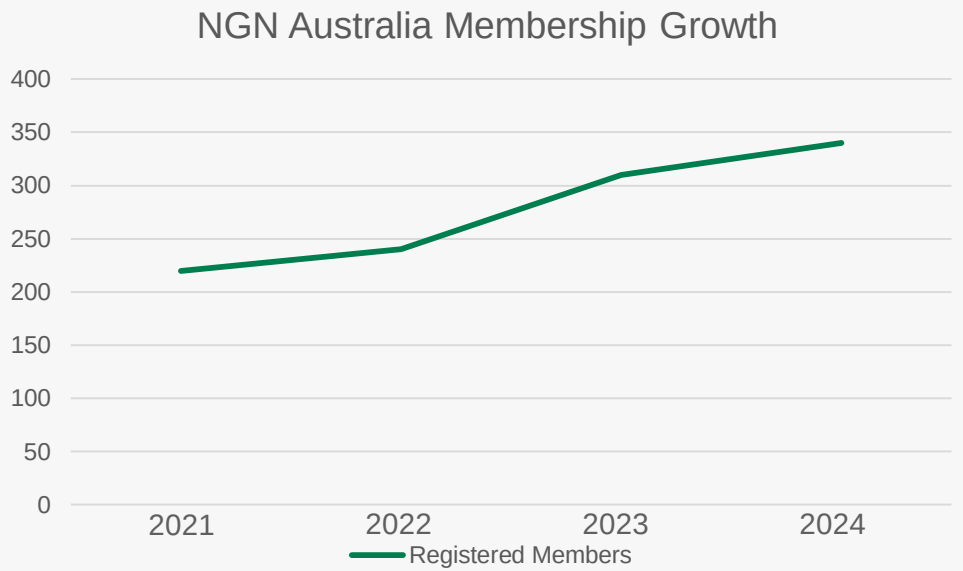
Agenda

1. Introduction of NGN Australia
   - *Committee Structure*
2. Recent Highlights from 2023-24
3. Future focus – between now and Paris 2026
   - *Strategic Sub-committee: Student Membership Growth*
   - *NGN Au Observer Program*
   - *NextGen Professionals Development Program*

Introducing NGN Australia

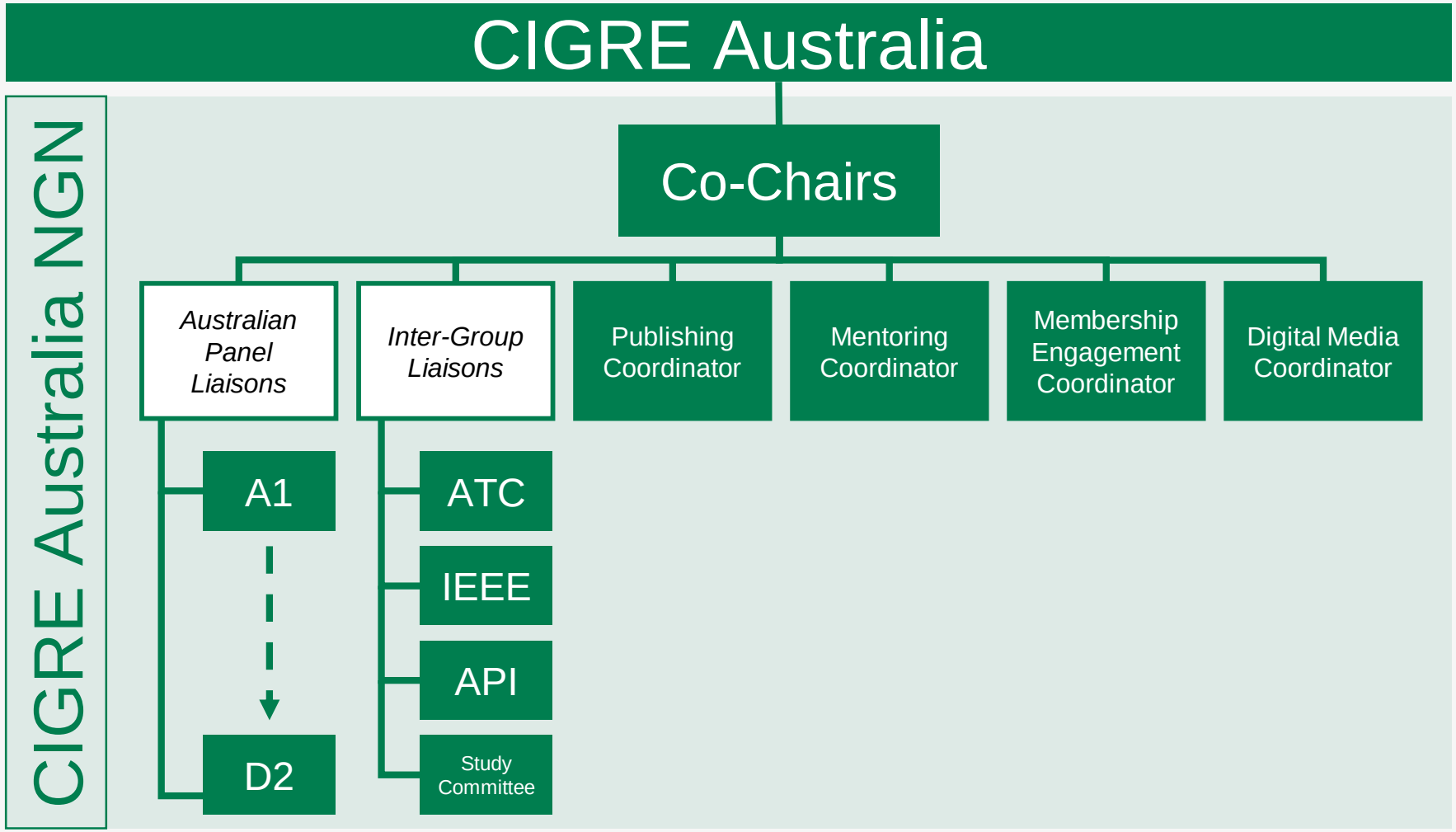
Established in 2011. As of July 2024:

- 350+ NGN Au members
- 18% Female, 82% Male
- 7% Students
- 27 committee members
- Quarterly committee meetings
- Targeting monthly events or activities (webinar, site visit, networking, etc)



Introducing NGN Australia

Committee Structure



NGN Australia: 2023-24 Highlights

Cairns Symposium

NGN Forum

- Panel Session: *"Enabling Knowledge Transfer & Energising Industry Transition"*

Panelists: Peter McIntyre, Jacqui Bridges, Tara-lee McArthur, Conan

- Interactive Breakout Session

Discussing solutions to current industry challenges as posed by the 6 panelist challenge questions
Facilitated by panelists, volunteers from each group presented a discussion summary to the audience

- NGN Presentations

12 Australian and International NGN presenters

Other Activities

- NGN Booth, NGN Networking Event, Breakfast hosted by WiE Australia

Other Events

- 6 technical in person and online presentations hosted
- 3 networking events held
- 2 technical site visits / tours facilitated *(see photo below)*



Cairns Symposium events 2023

Wilson Transformers site visit 2024

Future Focus: Between now and Paris 2026

NGN Australia

Strategic Sub-Committee: Student Membership Growth – *in progress*

- Launched 2023, includes 3 existing committee members, co-chairs form the steer-co
- Focus is to grow the number of student members through various initiatives

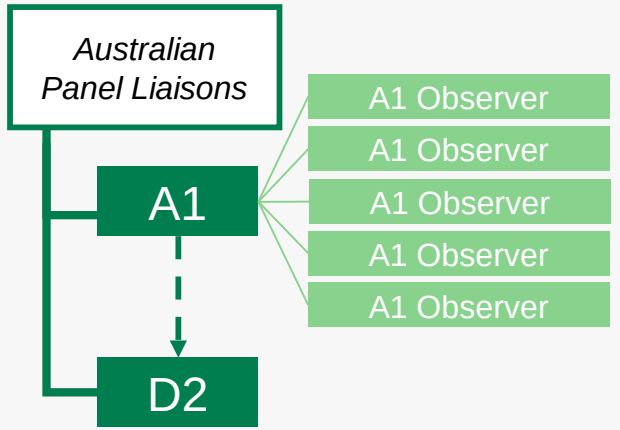
NextGen Professionals Development Program(s) – *proposed*

- Included in CIGRE Australia 2024-27 Strategic Plan
- Focus will be on the technical and professional capability development of the next generation of power industry professionals

2023 | 2024 | 2025 | 2026

NGN Au Observer Program – *planned*

- Launch planned for Q4 2024
- Expands access to the technical study committees for non-committee NGN members
- Panel Liaison to remain the NGN lead
- Up to 5 Observers are provided access to observe and contribute to study committee activities

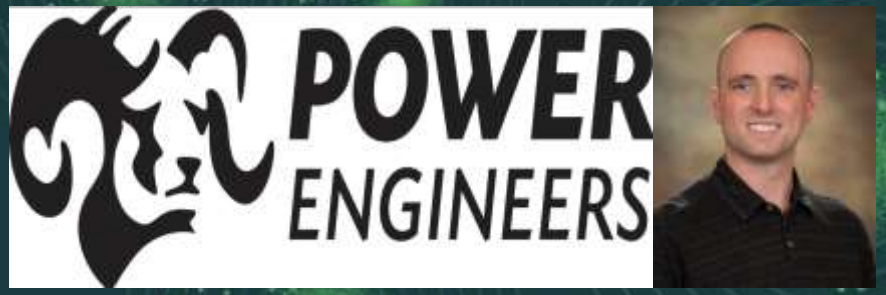


CIGRE PARIS SESSION 2024

CIGRE United States NGN

2024 Paris Session NGN Forum

James Berger



Agenda

- Introduction of NGN: United States NGN
- Recent Highlights
  - Very successful year for NGN Paper Competition submissions (28)
  - NGN Gathering in Seattle during IEEE PES conference
- Future focus – between now and Paris 2026
  - 2024 and 2025 Paper Competition
  - Focus on university collective memberships
  - Maintaining Webinar pace (~1 per month)
  - Transition to new NGN chair in 2025

Introducing NGN United States

- Founded in 2011
- 373 NGN members
  - 146 students
- 11 Committee Members
  - 8 Companies Represented

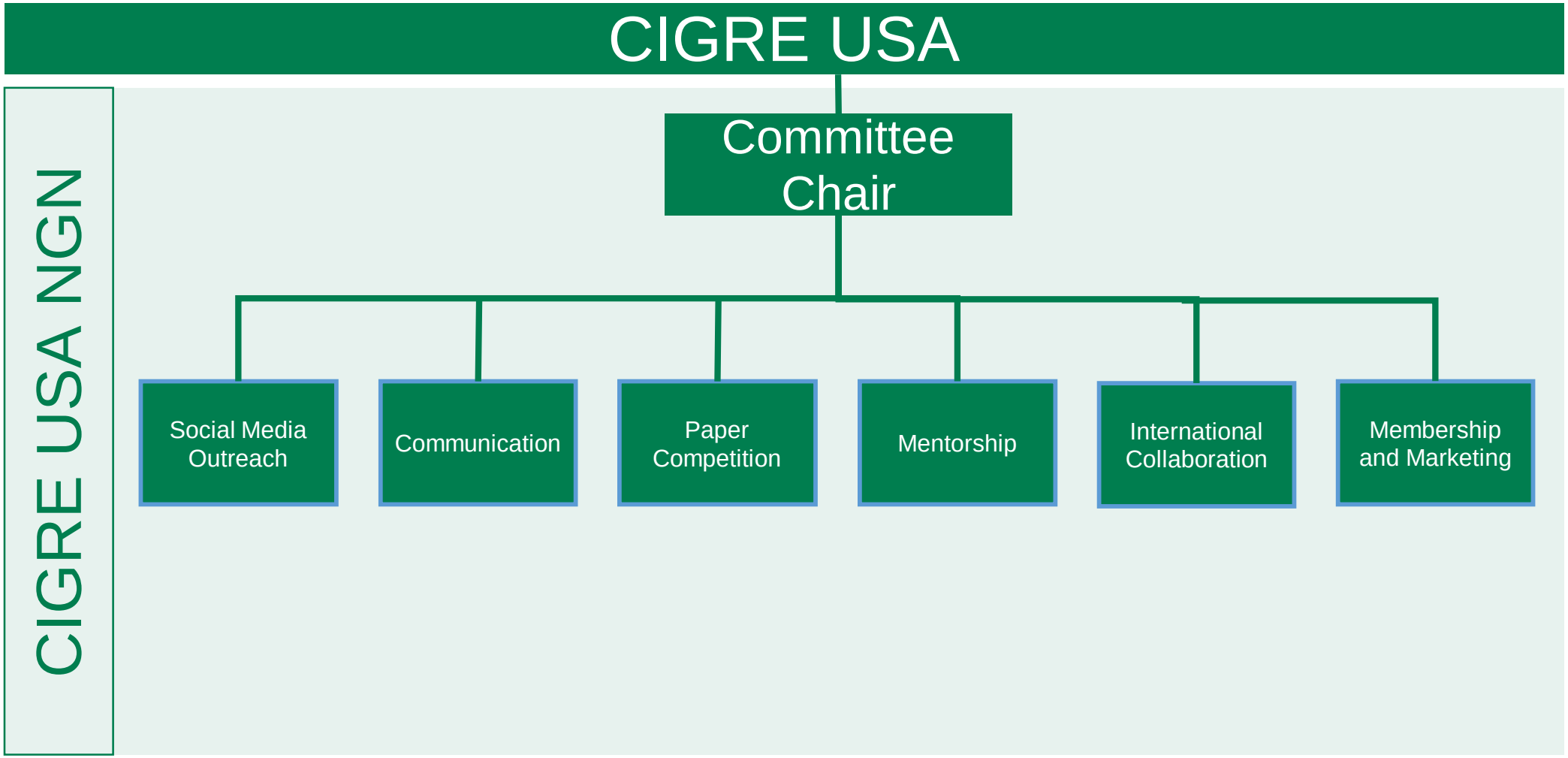
GOAL

→ *Helping to connect experienced engineers with the next generation of talent and innovation*

→ *Educate and connect the next generation of industry professionals with their international counterparts*

Introducing NGN USA

Committee Structure



NGN USA: 2024 Highlights

Grid of the Future Conference

- NGN Paper Competition
  - Showcase NGN industry knowledge and expertise
  - Winner awarded Paris Conference registration and travel stipend
- NGN Breakfast
  - Opportunity for NGN members to meet industry leader from conference host company
- NGN Dinner and Networking Event
  - Young members get the opportunity to network with their peers from across the country
- Smart Substation Tour
  - GOTF attendees got the opportunity to tour the local utility smart substation

Other Events

- Monthly webinars focused on technical areas and professional development
- NGN meetup at IEEE PES General meeting in Seattle

Future Focus: Between now and Paris 2026
NGN USA

- 2024 and 2025 Paper Competition
  - Excellent turnout in 2024
  - Work to drive continued high engagement in 2025
- Focus on university collective memberships
  - Coordinate efforts with National Committee to continue to engage student membership and retain them in early career
- Maintaining Webinar pace (~1 per month)
  - Growing available content to help engage and teach next generation industry professionals
- Transition to new NGN chair in 2025
  - Form transition plan to help ensure success of new chair starting in 2025

CIGRE Türkiye NGN

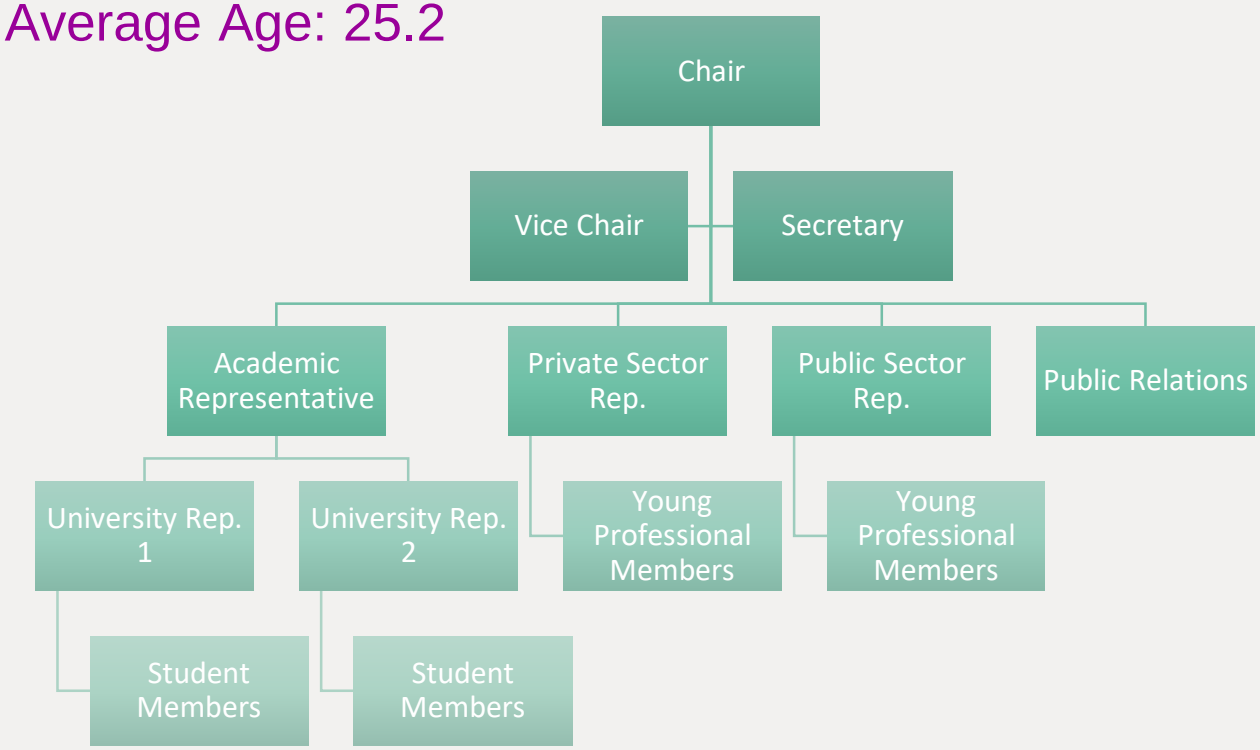
2024 Paris Session NGN Forum

CIGRE NGN Türkiye Initiative; CIGRE NGN Student Branches

Committee Hierarchy

- Established in 2020
- Membership Status: Total ~500 Members Average Age: 25.2

- 6 Student Branches were established. (YTU, Gazi University, ATU, Akdeniz University, Manisa Celal Bayar University, İzmir Demokrasi University)
- Clubs organize training, technical trip, social events, bootcamps.
- CV Preparation and Interview Techniques, Phyton, DIgSILENT, Turkey Electrical System General Appearance and Transmission Planning Studies, etc.




ORION TEAM
İsmail Ofluoğlu
Teknik Üye
Alper İhtiyar
Story Teller
Murat Beydilli
Veri Analizci
Encouraging producers to renewable energy sources
Reducing electricity prices
Ensuring network supply security
Lowering the cost of renewable energy
Emin Tümtürk
Strateji
Tahsin Keçici
Ar-Ge

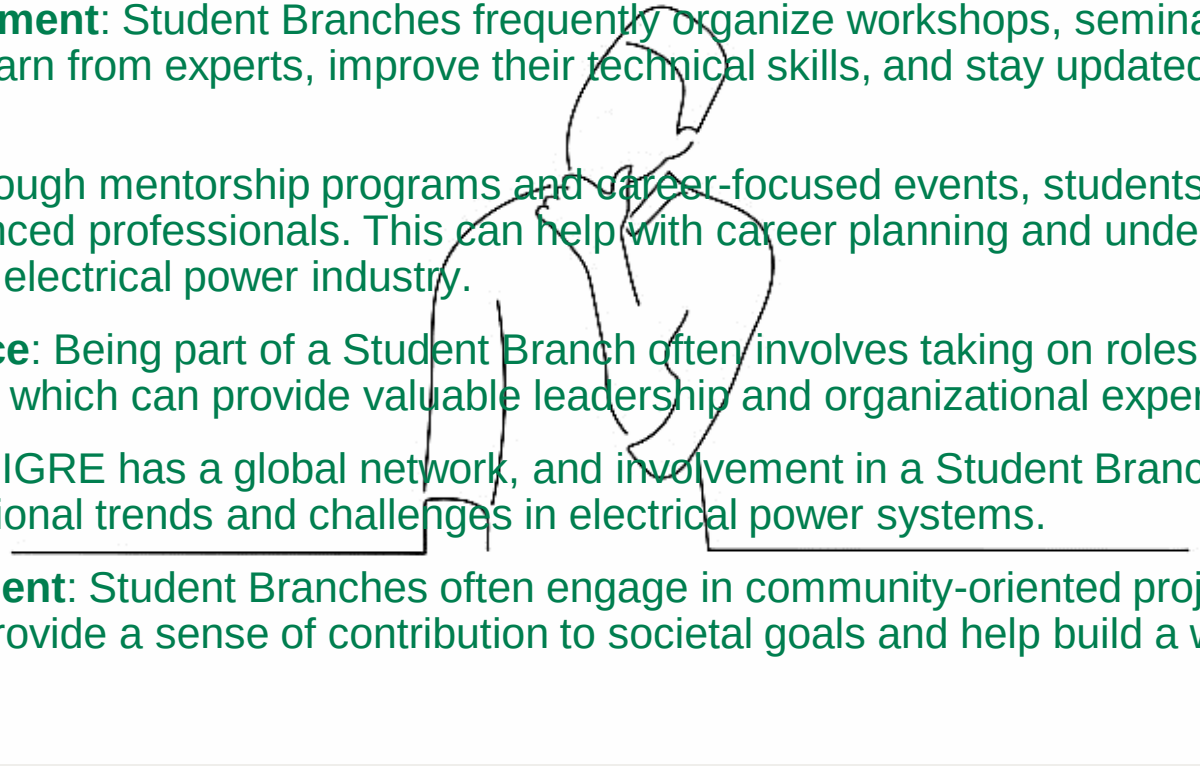

4th SEERC
ISTANBUL


ASIRLARA BEDEL
CENTURIES


AKDENİZ ÜNİVERSİTESİ
cigre

What Can CIGRE NGN Student Branches Offer Us ?

- **Networking Opportunities**: Student Branches offer a platform to connect with industry professionals, academics, and other students who share an interest in electrical power systems. This networking can be valuable for future collaborations, internships, and job opportunities.
- **Professional Development**: Student Branches frequently organize workshops, seminars, and conferences where members can learn from experts, improve their technical skills, and stay updated on industry advancements.
- **Career Guidance**: Through mentorship programs and career-focused events, students can receive advice and guidance from experienced professionals. This can help with career planning and understanding the various career paths within the electrical power industry.
- **Leadership Experience**: Being part of a Student Branch often involves taking on roles and responsibilities within the organization, which can provide valuable leadership and organizational experience.
- **Global Perspective**: CIGRE has a global network, and involvement in a Student Branch can provide a broader perspective on international trends and challenges in electrical power systems.
- **Community Engagement**: Student Branches often engage in community-oriented projects or outreach programs, which can provide a sense of contribution to societal goals and help build a well-rounded professional profile.



Close & AOB

NGN Forum

Wrap up and thank you