

Renewable Energy Workshop with focus on integrated water–energy management

12th Session of the
Expert Group on Resource Management
26-30 April 2021



RESOURCE MANAGEMENT WEEK 2021
ENABLING SUSTAINABILITY PRINCIPLES IN RESOURCE MANAGEMENT



*UNDA project "Integrated energy and water resource management in support of sustainable development in South-East Europe and Central Asia"

Housekeeping



Chair:

Ms Teresa Ponce de Leão, Vice-Chair, EGRM

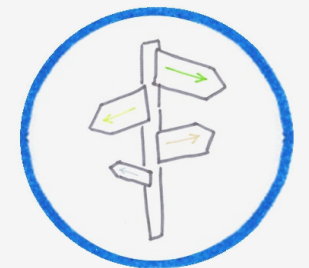


Opening remarks



Mr Jeremy Webb, Chair, EGRM Renewable Energy Working Group

Mr Kostiantyn Gura, Chair, UNECE Group of Experts on Renewable Energy



**Mr Jeremy Webb
Chair, EGRM Renewable
Energy Working Group**



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**Mr Kostiantyn Gura
Chair, UNECE Group of
Experts on Renewable
Energy**



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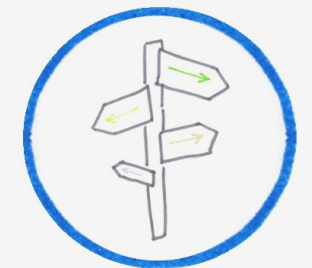


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Fast-Track Energy Transitions Pathways to Win the Race to Zero and Emerging Information Needs

Speaker:

Ms Gauri Singh, Deputy Director General, International Renewable Energy Agency (IRENA)



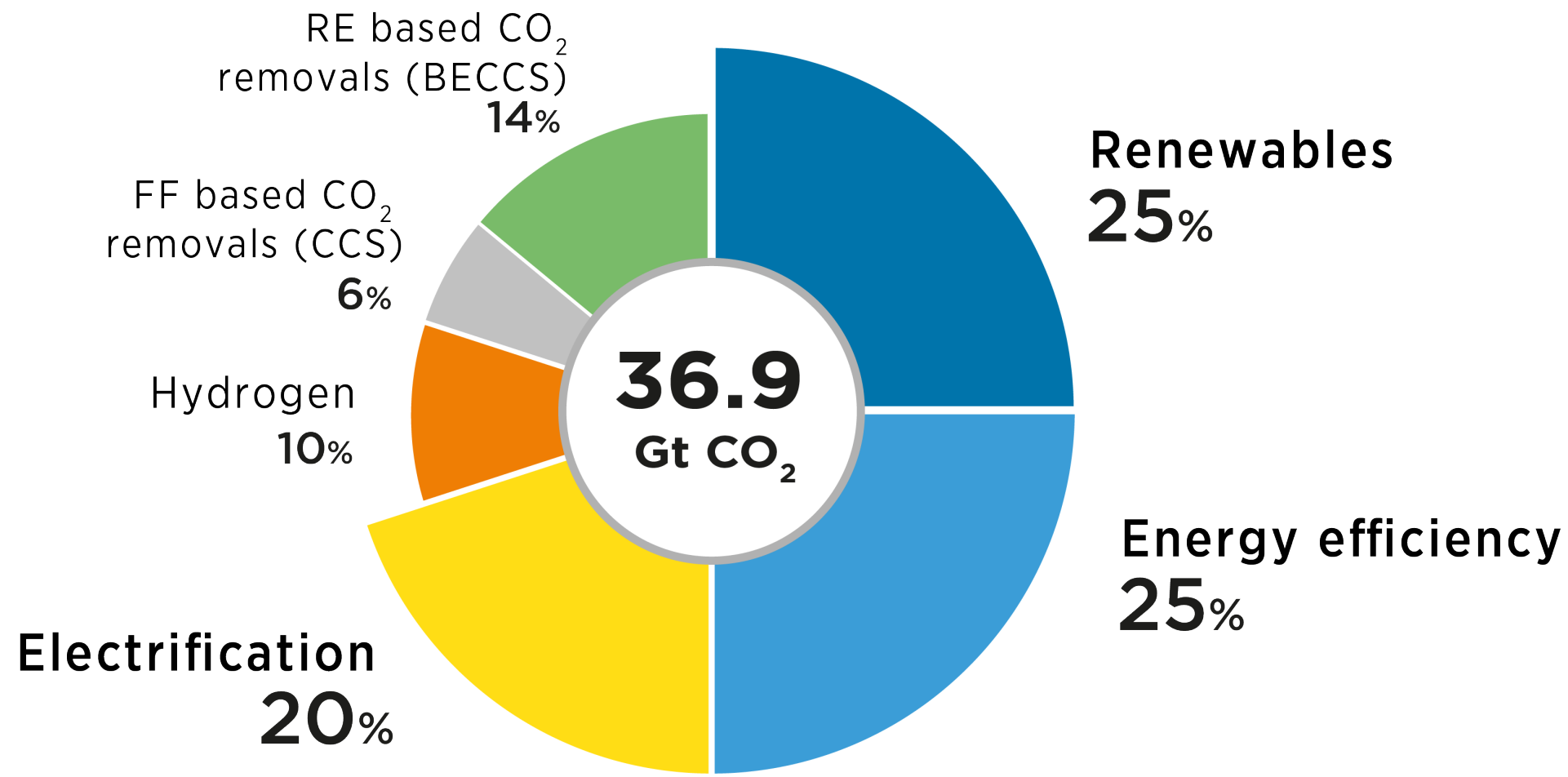


WORLD ENERGY TRANSITIONS OUTLOOK

1.5°C Pathway

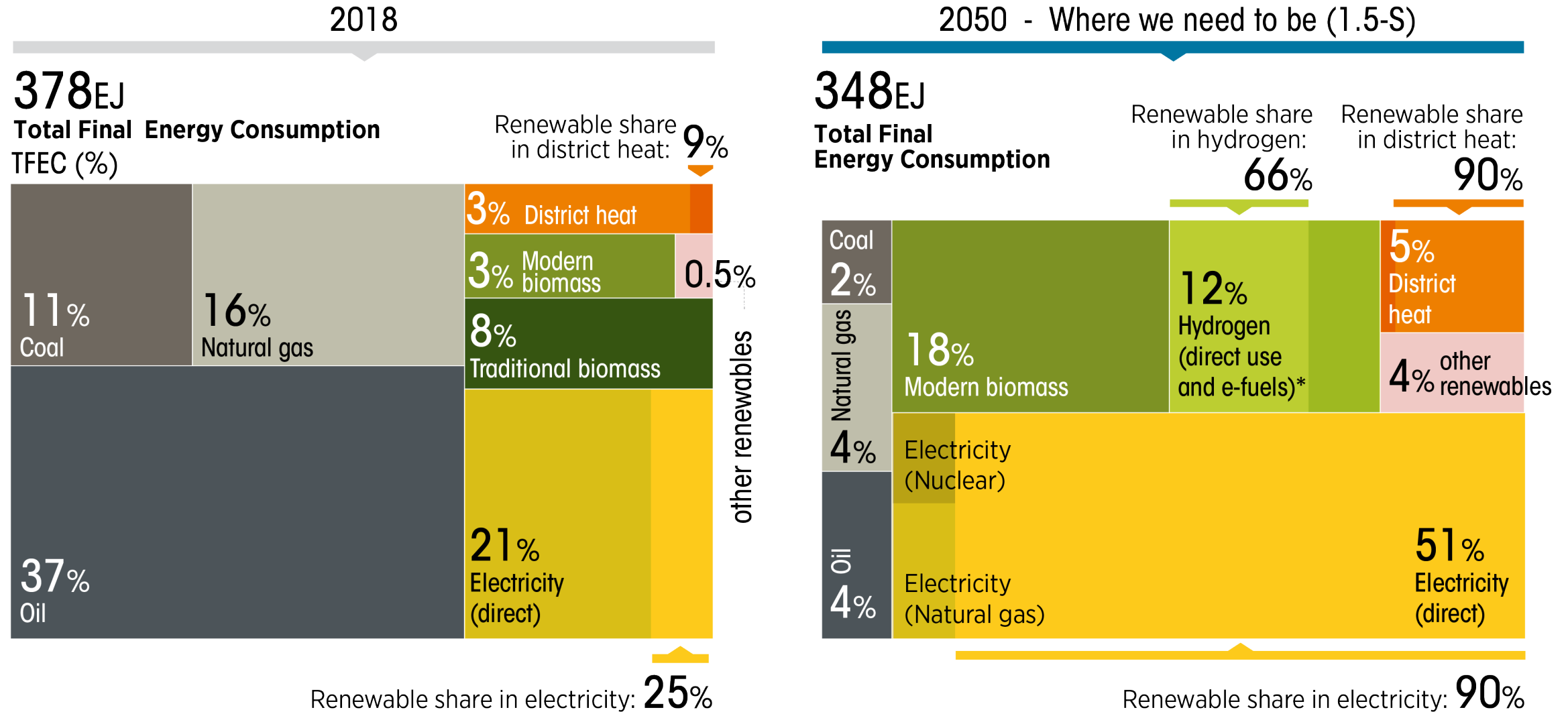
***Fast-Track Energy Transitions Pathways
to Win the Race to Zero and Emerging Information Needs***

Six components of the energy transition strategy



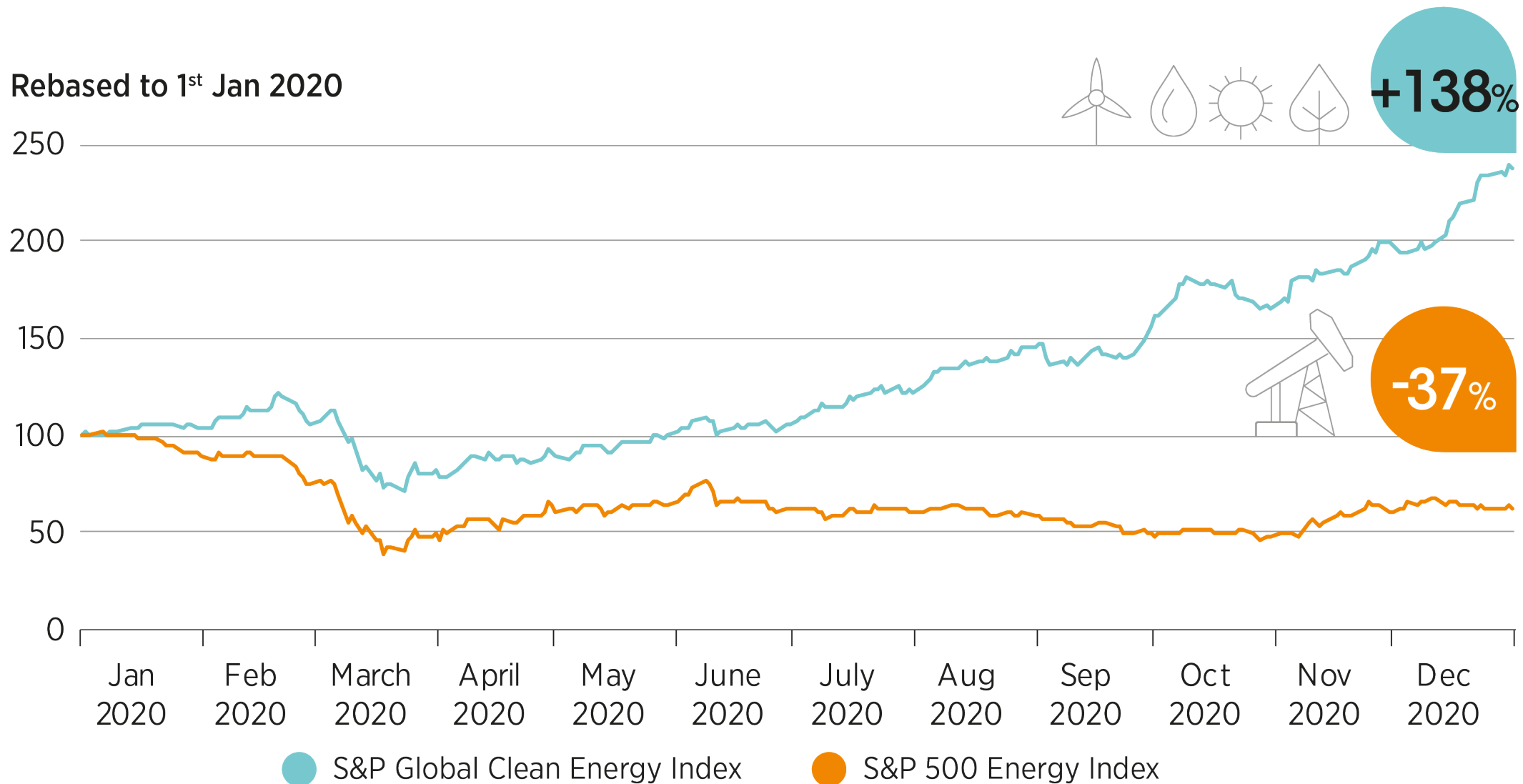
90% of all decarbonisation in 2050 will involve renewable energy through direct supply of low-cost power, efficiency, electrification, bioenergy with CCS and green hydrogen.

Electricity becomes the main energy carrier in 2050



90% of total electricity needs will be supplied by renewables by 2050.

Recent trends in financial markets



Investors and financial markets are anticipating energy transition and allocating capital away from fossil fuels towards energy transition technologies, such as renewables.

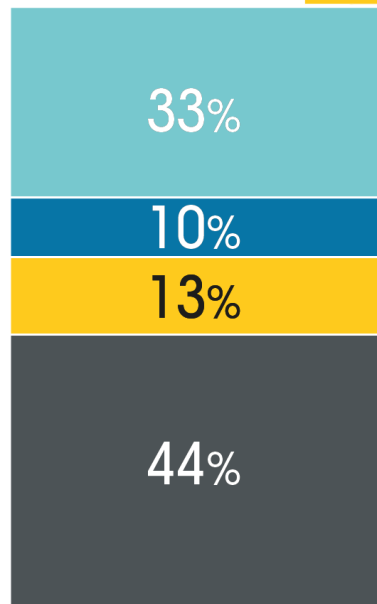
New investment priorities: renewables, efficiency and electrification

Where we are heading (PES)

Where we need to be (1.5-S)

3.4
trillion USD
per year

98
trillion USD



2021-2050

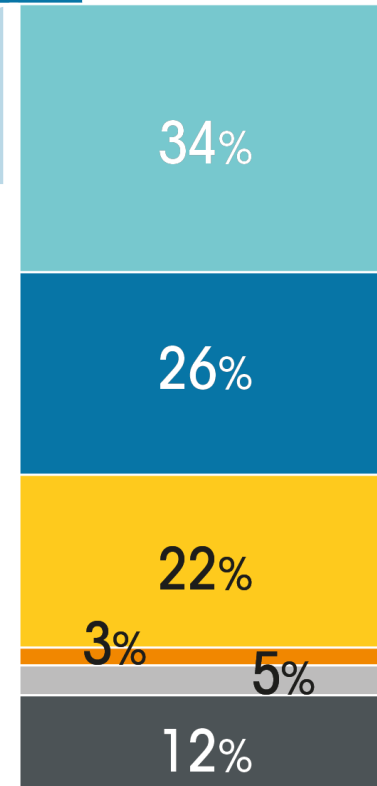
131
trillion USD

4.4
trillion USD
per year

Total additional
33 trillion USD

+1
trillion USD

Annual
additional

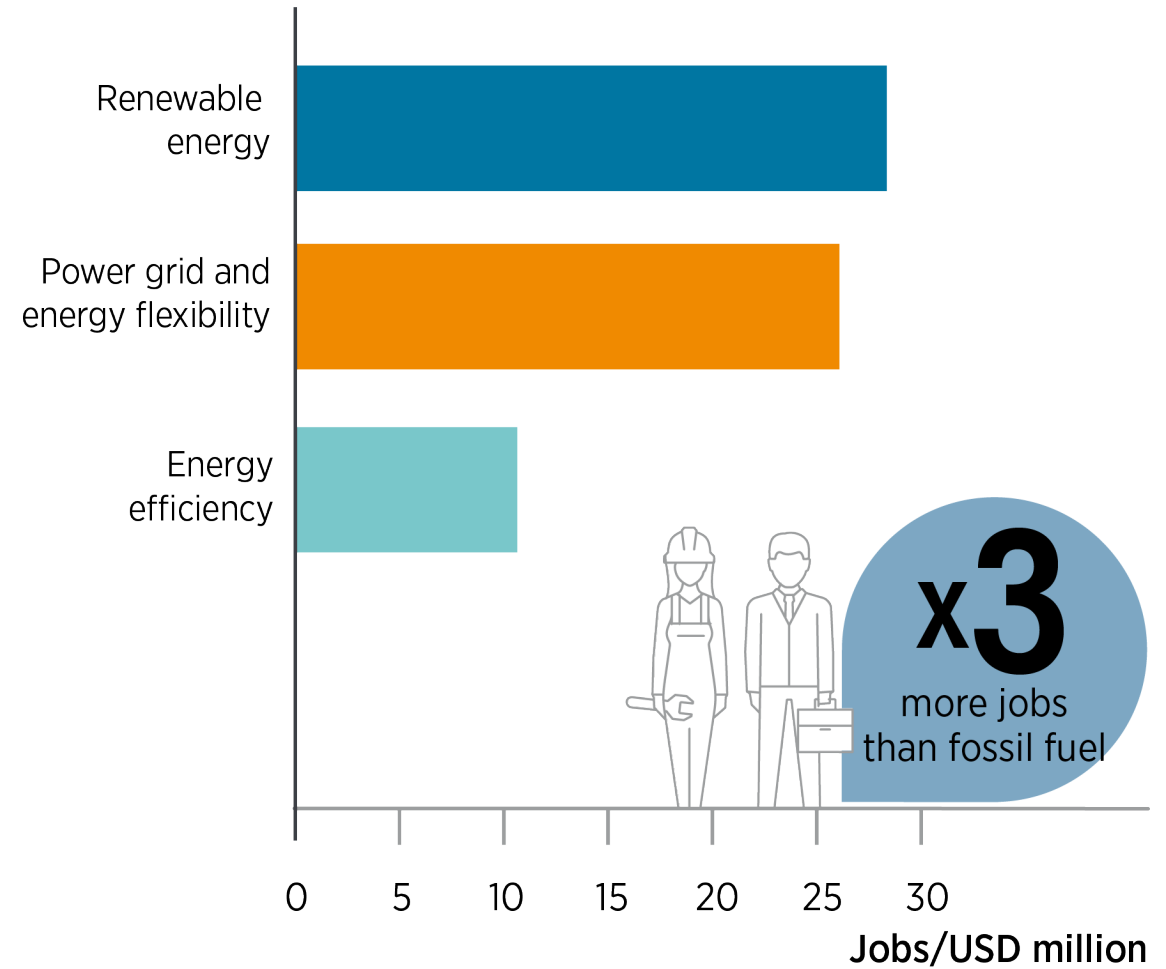
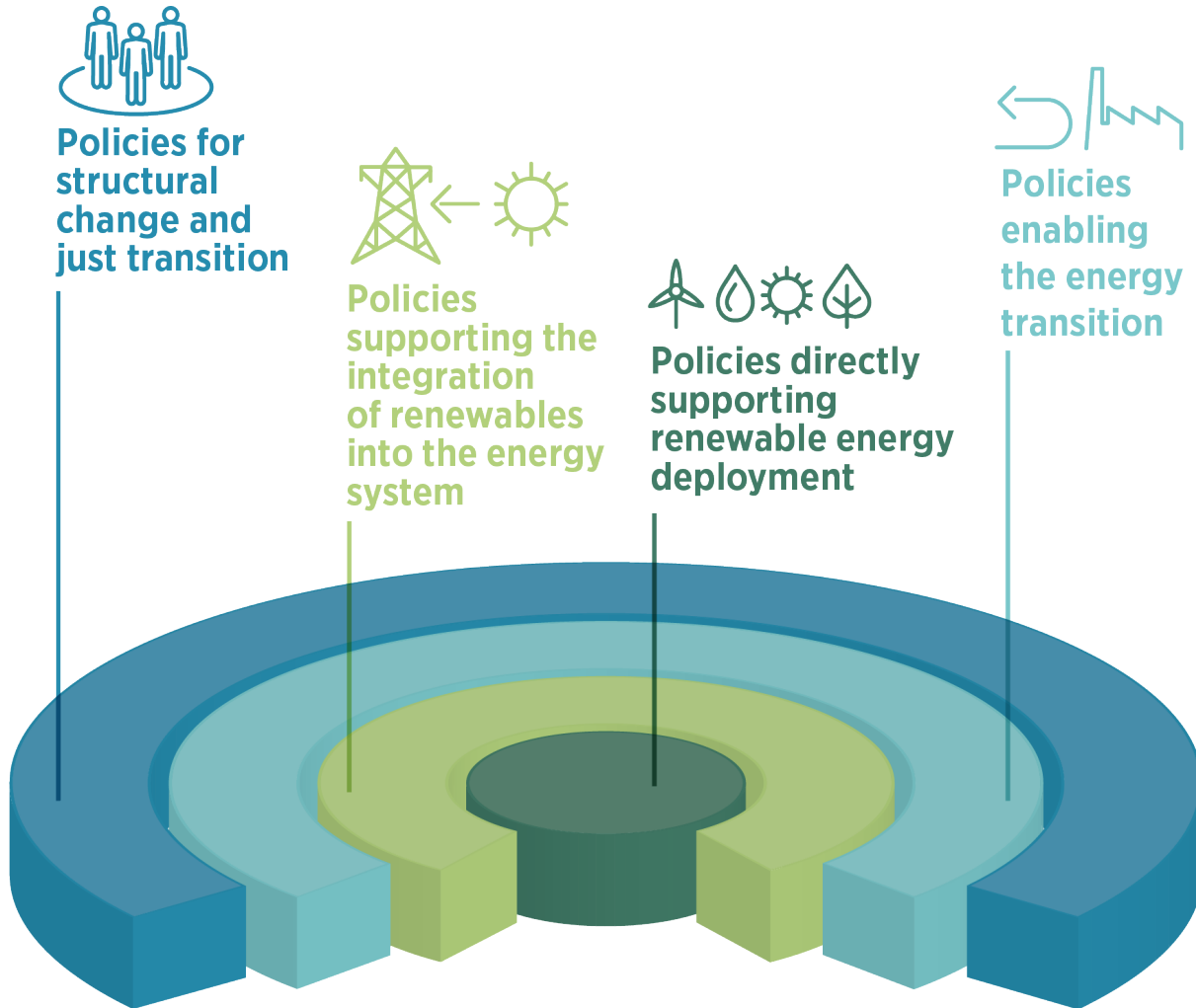


2021-2050

- Energy efficiency
- Renewables (power and direct use)
- Electrification and infrastructure
- Innovation
- Others (carbon removals and circular economy)
- Fossil fuel and nuclear

A climate-safe future calls for the scale-up and redirection of investments towards energy transition technologies, away from fossil fuels.

Broad set of policies required for a just transition





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Do integrated energy companies need integrated information systems?



Moderator:

Mr David MacDonald, Chair, EGRM

Speakers:

- **Ms Long Seng**, Research Fellow, Loughborough University, UK, and Chair, EGRM Solar Subgroup
- **Mr Bernard Seiller**, EGRM Vice-Chair and Past Chair, SPE Oil and Gas Reserves Committee
- **Mr Markus Klingbeil**, Senior Resource Consultant and member EGRM Solar Subgroup
- **Mr Matthias Hartung**, Energy Expert and member EGRM Commercial Applications Working Group



Do Integrated Energy Companies need Integrated Information Systems?

Bernard Seiller, Past Chair SPE
OGRC



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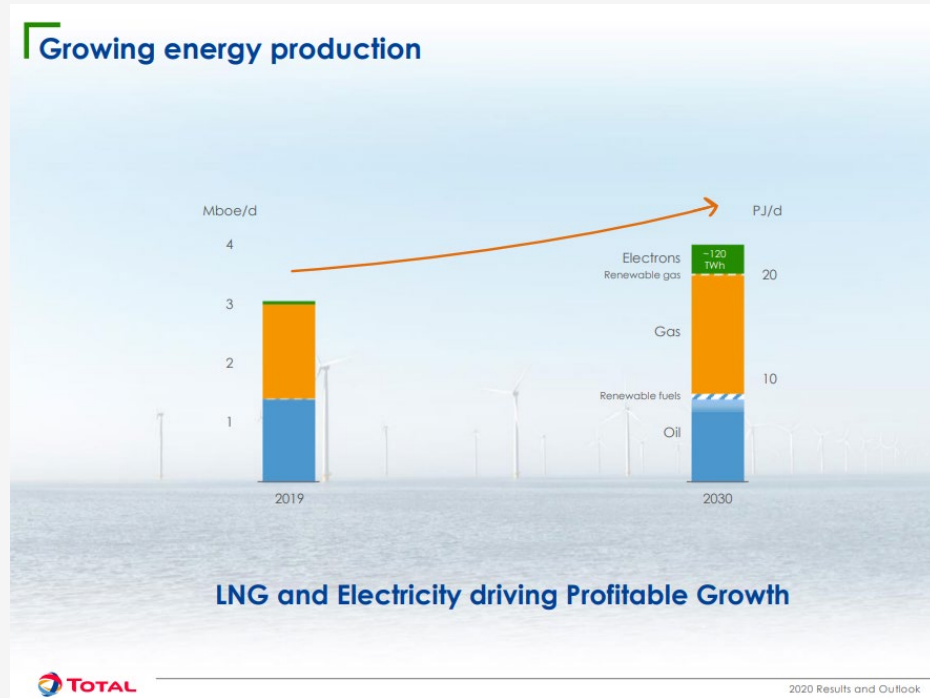


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Integrated Energy Companies



- Will look at Business Needs, Financial Reporting and Communication



INTEGRATED GAS
INTEGRATED ENERGY SOLUTIONS IN QUEENSLAND, AUSTRALIA

Full suite of energy demands served through integrated value chains

- LNG export & domestic gas sales serve local and global customers ...
 - QGC** 7.8 MT sold globally, 2.5 BCM domestic sales
 - arrow energy** 0.5 BCM supplied to QGC
- ... with power retailing established and a solid customer base ...
 - term** 17 TWh annual sales
- ... and renewable energy investments supply core customer demand ...
 - Gangarri** 120 MW solar farm being built
 - sonnen** Since 2016 providing energy storage
 - ESCO Pacific** 680 MW solar projects developed and sold
- ... and nature-based solutions help offset emissions
 - SelectCarbon** 10 million ha in 70 projects

Key: Gas (red), Power (blue), LNG (green)

Royal Dutch Shell | February 11, 2021 | All sales volumes reported are 100% sales volumes for 2020 in/from Australia. | 49

Business Needs

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- Final Investment Decisions are taken at ExCom level
- Decision gates are similar between O&G, R&M and Renewable Projects
 - Project Pipeline with gates
- Economical criteria are specific to each type of projects
- An example: Hurdle Rates:
 - Marketing 15%
 - Renewable 10%
 - Integrated Gas 12%
 - Chemicals 12%
 - Upstream 18%

Financial Reporting

Type Subtitle Here



- Today Reporting depending on Business and Stock Exchange requirements
- O&G: Reserves are a requisite (DD&A based on Reserves)
 - Resources may be published
- No Requirement (yet) to communicate on Renewable resources

Communication

Type Subtitle Here



- Integrated companies communicate significantly on Renewable to the Investors and Stakeholders (including governments)
 - To show they walk the talk
- No homogeneity in data presented
 - Upstream O&G: production and Reserves / resources
 - Renewables: capacity installed or to be installed
 - Sometimes forecast in PJ for the future

Suggestions for Way Forward

Or how to convince IECs to adopt UNFC)



- Convince Stock Exchanges to require Global resources
 - UNFC would be the ideal tool (the only one covering the full range)
 - BUT... may need simplification (2D versus 3D, ...)
- Define a Common Communication Standard
 - Capacity is different from future production
 - Standard of conversion of direct products into comparable Unit to be developed
- An Integrated Information System will be needed at Corporate Level
 - To ensure Integrated Communication (now) and Financial Reporting (eventually)
- UNFC/UNRMS needs to be expanded beyond just Resources volumes
 - Need iso LTP data (profiles, costs,...)

Thank you!
Merci!

Seiller Bernard
Past Chair, SPE OGRC

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Date 26 | 04 | 2021, Geneva



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Panel discussions



Speakers:

- **Ms Gioia Falcone**, Chair, EGRM Geothermal Subgroup and Rankine Chair – Professor of Energy Engineering Systems, Power and Energy Division, School of Engineering, University of Glasgow
- **Mr Mike McCurdy**, Managing Director – Energy Advisory Services, ICF
- **Mr Harikrishnan Tulsidas**, EGRM Technical Lead, UNECE Sustainable Energy Division



Panel Discussion



- The **transition to net zero** greenhouse gas emissions - How's your project pipeline looking?
- The **pipelines of investments and finance**
- Scaling of **low carbon investments**



Ms Gioia Falcone

Rankine Chair – Professor of Energy Engineering Systems, Power and Energy Division, School of Engineering, University of Glasgow



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**Mr Mike McCurdy
Managing Director –
Energy Advisory Services
ICF**



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Mr Harikrishnan Tulsidas
EGRM Technical Lead
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Governance (**regulation/planning**)

Speakers:

- Ms Teresa Ponce de Leão, President, LNEG
- Mr Manajit Sengupta, Chief Scientist, National Renewable Energy Laboratory, US

**Ms Teresa Ponce de Leão
President, LNEG, Portugal**



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**Mr Manajit Sengupta
Chief Scientist,
NREL, USA**



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Next steps - **Applying UNFC to renewable energy projects and resources**

Mr Jeremy Webb, Chair, Renewable Energy Working Group



End of Session 2

Thank you!

Please Join tomorrow 27 April at 10:00 for Session 3
Zoom platform

Workshop on UNFC and UNRMS to support food-water-energy
nexus and “build back better” from the COVID-19 pandemic

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