Council of Enviro Excellence

Topic :-

Flue Gas Desulfurization(FGD) System Optimisation for enhanced SO2 control options for the Indian Power Plants.

ENvX

3rd NATIONAL POWER-GEN ENVIRONMENT EXCELLENCE SUMMIT & AWARDS 2024

Speaker :-

Mr. Sandeep Chittora,
Director, KPMG

Flue Gas Desulfurization

Need beyond regulation

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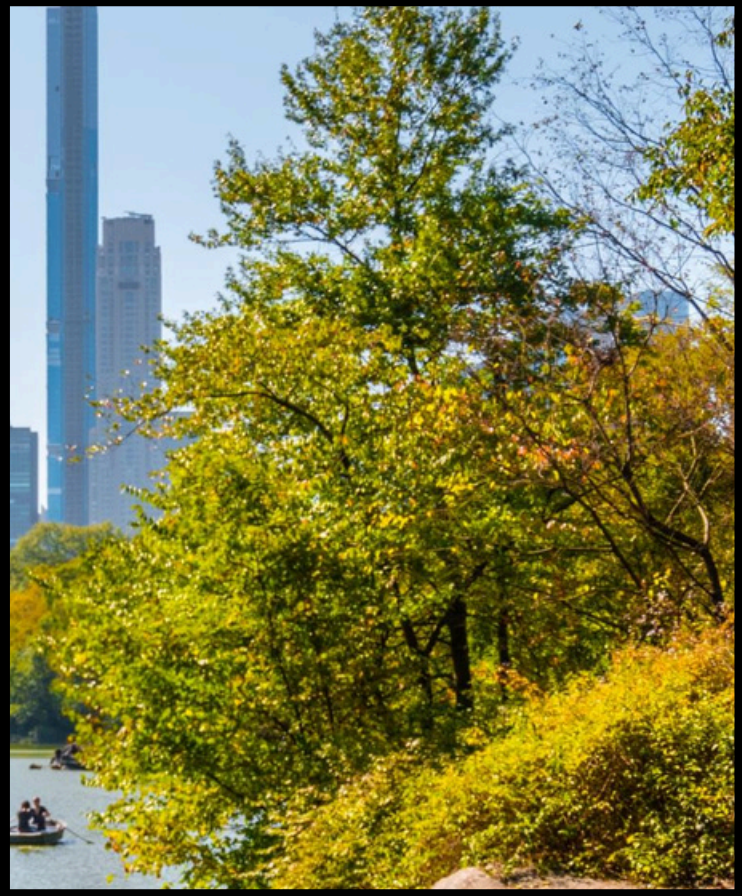
June 2024



Critical forces impacting the Climate Change agenda

Physical and societal forces driving the agenda that impact organizations.

Market forces and resulting outcomes are heavily interconnected and non-exclusive.

Market forces:
- Climate change
- Energy tetralemma
- Global economy
- Political landscape
- Social justice
- Nature & biodiversity
- Stakeholder behaviour

Global focus on tackling climate change

- Increasing reality of climate change and its im pact
- Enhanced focus on resilience and adaptation
- Acceleration of decarbonisation and energy transition

Greater focus on basic human rights

- Human rights and inequality incl. food security, water and health
- Right to participate in the workforce and earn a living wage
- Just transition

Increased regulation, reporting and incentives

- Use of regulation and incentives to drive change
- Corporate reporting, climate reporting and legislation (e.g. CSRD, UK transition plans, US SEC rules and CBAM)

Major reorientation of capital

- Reallocation and (re)mobilisation of capital
- Emergence of a different value system
- Investment into the Global South and emerging economies

Increased focus on trust and transparency

- Stakeholder m anagem ent
- Increased responsibility for ESG by C-Suite
- Litigation and greenwashing

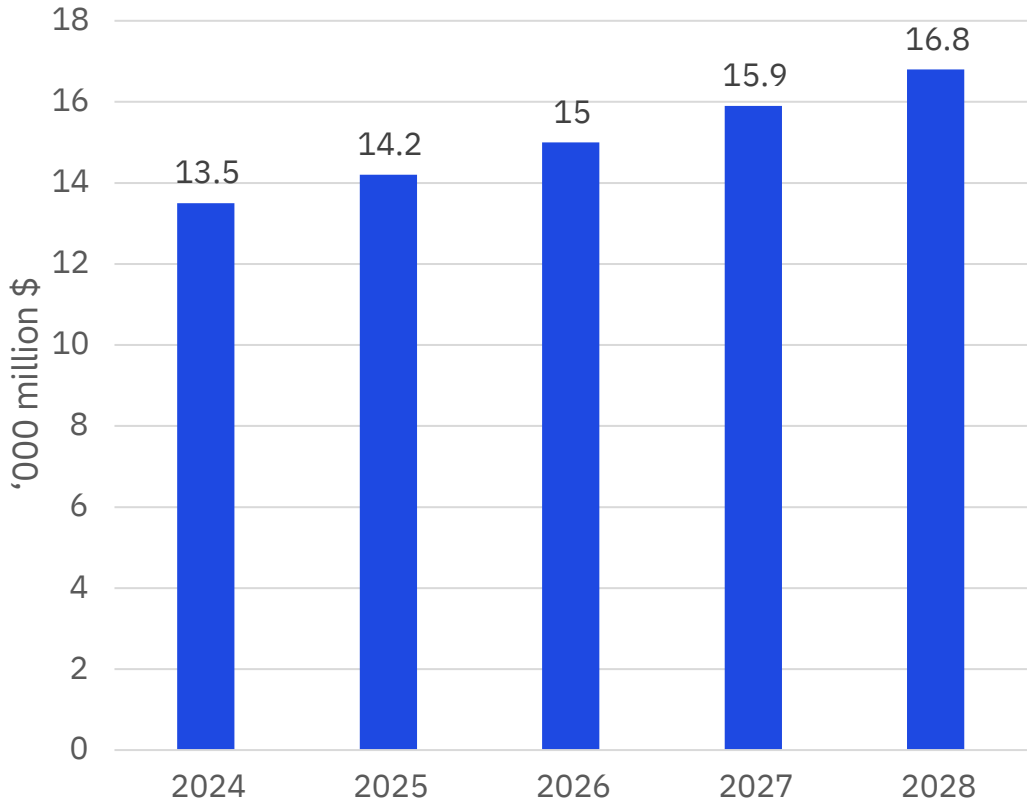
Responsible resource use and impact on nature

- The importance and value of nature and biodiversity
- Sustainable resource use (e.g. circular econom y)
- Resource depletion

Deployment of digital and tech into the ESG agenda

- Web 3.0
- IoT
- Blockchain for ESG
- Emergence of quantum computing
- Use of satellites and analytics etc
- Data collection, monitoring and verification

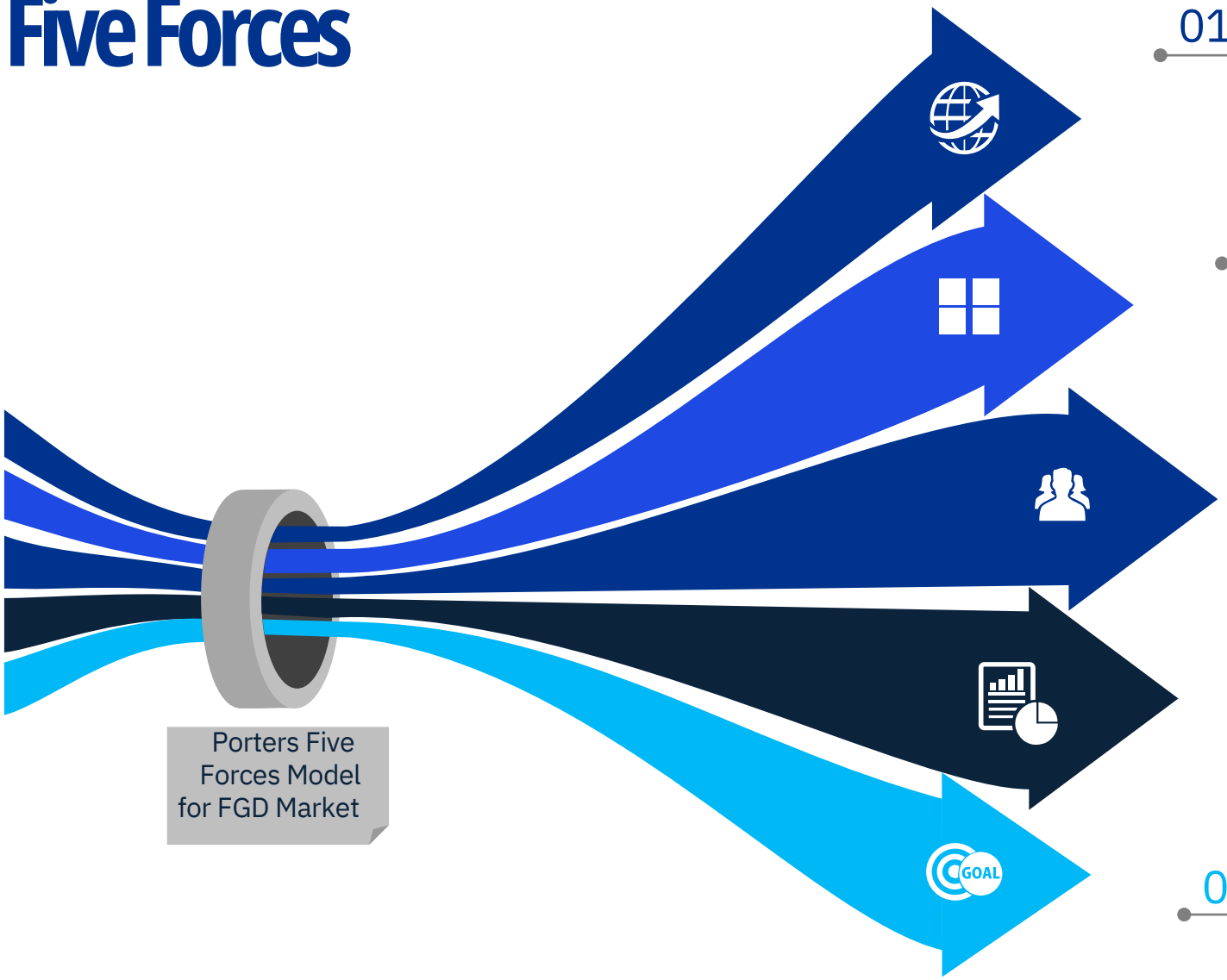
Market Size



5.5%

CAGR and Accelerating Market

Five Forces



Porters Five Forces Model for FGD Market

01 Threat of New Entrants - Low

02 Threat of Substitutes - Low

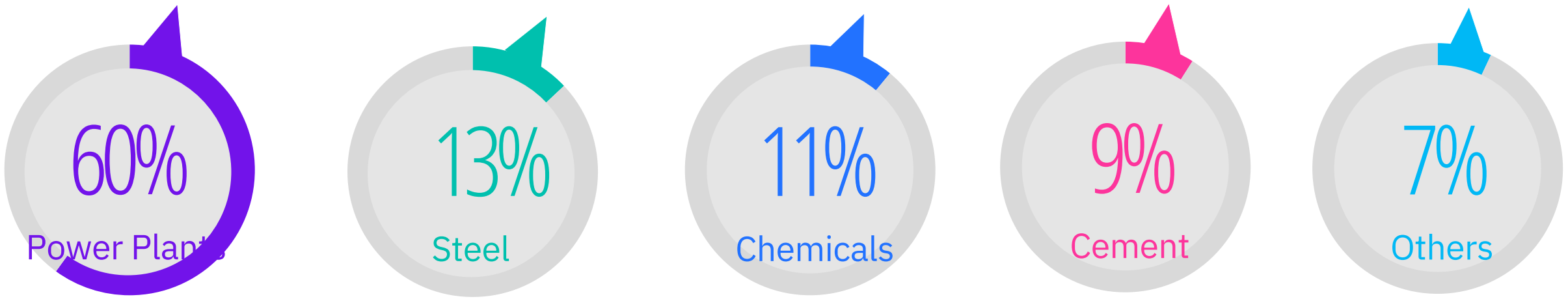
03 Threat of Rivalry – Medium

04 Bargaining Power of Suppliers – Medium to Low

05 Bargaining Power of Buyers - Low

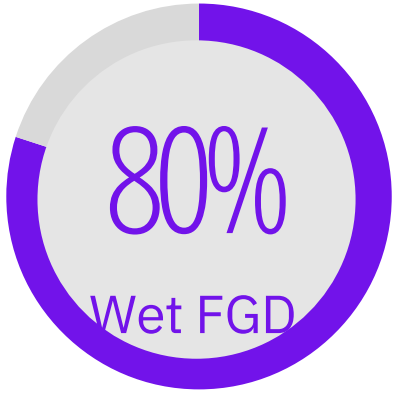
No change in forceable future

Industrial share for FGD Implementation



Preparing for implementation

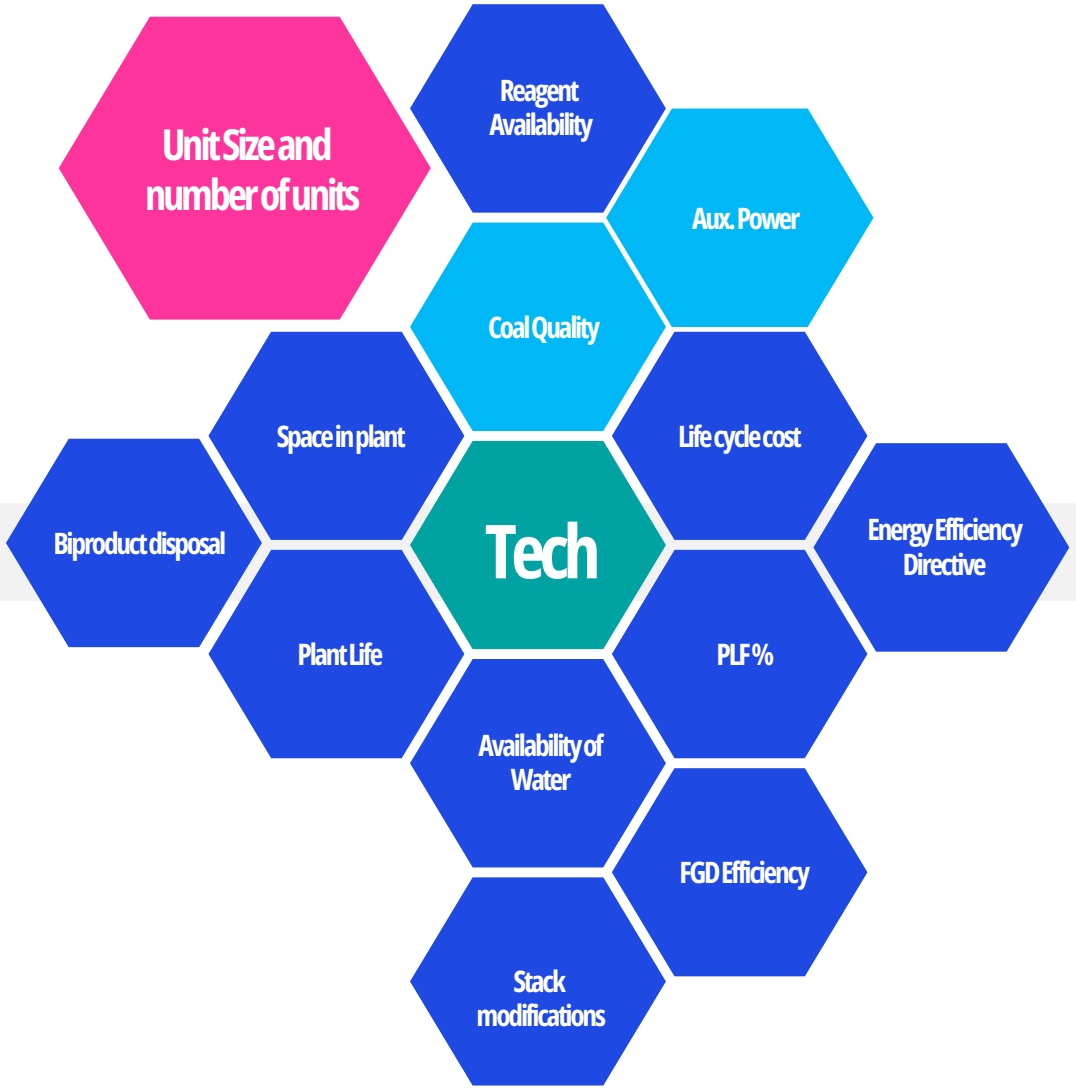
Technology – Dry / Wet FGD



1. Ammonia Based
2. Seawater Based
3. Sodium Based
4. Limestone Based

Other Key Considerations

Capex required for FGD depends on Plant Size, Configuration, Sulfurin Coal, Supplier Technology



Adapting to the rapidly evolving policy framework with a view of risks and opportunities will prepare Power & Utilities sector for low GHG

Sector Impacts

Horizon scanning

Best practices that may be voluntary today may be a requirement tomorrow.

Regulations under consideration may have a profound impact on the future operations of companies in the Power and Utilities sector.

Having processes to anticipate and take proactive steps to future regulations and policies in the relevant geographies will be key to the sector being able to adapt their operations and avoid disruptions.

Policy scenarios

A key building block of a sector level transition plan will be scenario analysis which requires feeding in impacts of both current regulations and policies and future policy scenarios.

For a sector like Power and Utilities, their progress will determine the transition of the rest of the economy.

Opportunities

Investing in clean energy can bring benefits like tax incentives, better overall risk-adjusted outcomes and generate revenue opportunities.

Decarbonization of the sector could entail both unprecedented workforce growth and the elimination of entire workforce segments. Job growth is expected to mostly stem from the buildout of solar and wind generation capacity.

Risks

Litigation related to climate change could lead to financial and reputational damage as the world becomes more environmentally conscious.

Furthermore, mandates related to data privacy, cybersecurity, supply chains, and other evolving areas are also an emerging concern.

The 4Ds – Decarbonization, Decentralization, Digitalization and Demand Shifts – are the trends associated with the sector's transformation

Decarbonization

Reduction of emissions intensity of electricity

Key technology options: renewable and nuclear generation

- Renewable energy sources are already cheaper than building new large-scale coal and gas plants
- Stakeholders are demanding that businesses become sustainable by purchasing renewable energy, and necessitating that new buildings are built to be sustainable and energy-efficient
- Companies are under pressure to provide products/services with lower carbon footprint as consumers are becoming more environmentally aware

Decentralization

Transition from a large national grid to autonomous local micro grids

Key technology options: decentralized and distributed grids and energy systems

- Decentralizing a region's energy supply will help in deploying cost-efficient, cleaner and more sustainable electricity
- Decentralized energy systems are more robust and reliable as any localized issues can be repaired more quickly
- Decentralization as a solution could reduce prices for consumers, improve energy security and reduce emissions

Digitalization

Analyzing energy systems data using digital technologies to meet power demand

Key technology options: digitalization at grid level and end use

- The distributed devices such as solar panels, batteries, electric vehicles, etc. produces a large amount of data throughout the energy chain
- Digital technologies such as IoT and artificial intelligence have the potential to analyze the captured data and deliver energy based on the consumer demand
- As new business models emerge due to technological innovation, some long-lived physical infrastructure and assets will become obsolete

Demand Shifts

Existing electricity demand to drop and shift due to electrification of assets

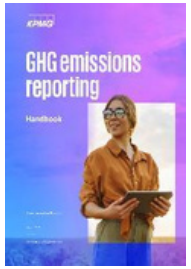
Key technology options: energy efficiency and energy managment, storage

- Global electricity demand is growing faster than the deployment of renewables2
- Replacing the existing electrical equipment and appliances with the energy-efficient ones is going to play a significant role in decreasing the energy demand
- On the other hand, electrification of industrial assets, vehicles, etc. from the existing conventional fuel-based options will increase the energy demand

Sources: 1. Renenergy; 2. IEA; 3. Inenco

We share our established market voice in relation to climate, nature and decarbonization (1/2)

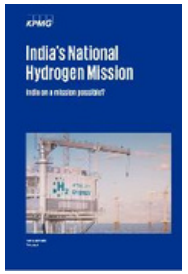
Repowering Europe



GHG emissions reporting

From Linear to Circular, Sustainability in Medical Devices

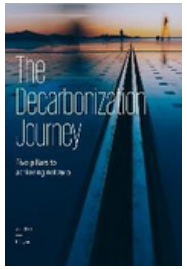
Hong Kong Banking Report 2022



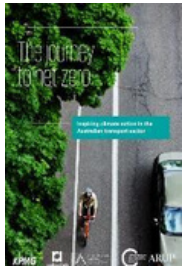
India's National Hydrogen Mission: India on a mission possible?

Plugged In (kpmg.com)

Embodied carbon management for global infrastructure



The Decarbonization Journey: Five pillars to achieving net zero



Journey-to-net-zero

Financing agriculture adaptation in Africa

In the race toward urgent climate action

Banks' climate-related disclosures (Phase 2)

Taking risk management to the next level in banking

Net zero readiness spotlight: Cities

Cities net zero (kpmg.com)

Carbon Border Adjustment Mechanism (CBAM)

Charting a course to net zero

We share our established market voice in relation to climate, nature and decarbonization (2/2)

Net Zero Equity Financing

Can Capital Markets Help Save the Planet?

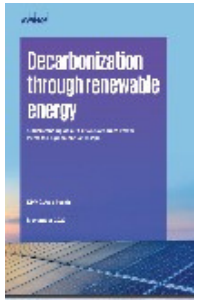
Resourcing the Energy Transition

You can't go Green without Blue

The (Blue) Wealth of Nations

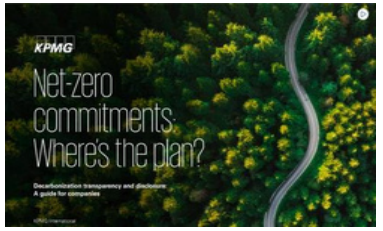
EU Green Deal Policy Guide

Boardroom climate competence: Getting ahead of the curve



Decarbonization through renewable energy

Net Zero Readiness Index

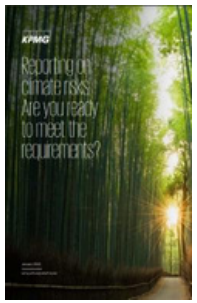


Net Zero Commitments: Where is the Plan?

Climate Change & Corporate Value

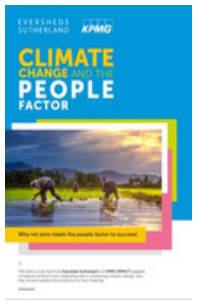
Effect of Green Innovation on Economic Growth

The green, electric future of oil and gas



Reporting on climate risks

Climate Accounting your stakeholders want to see



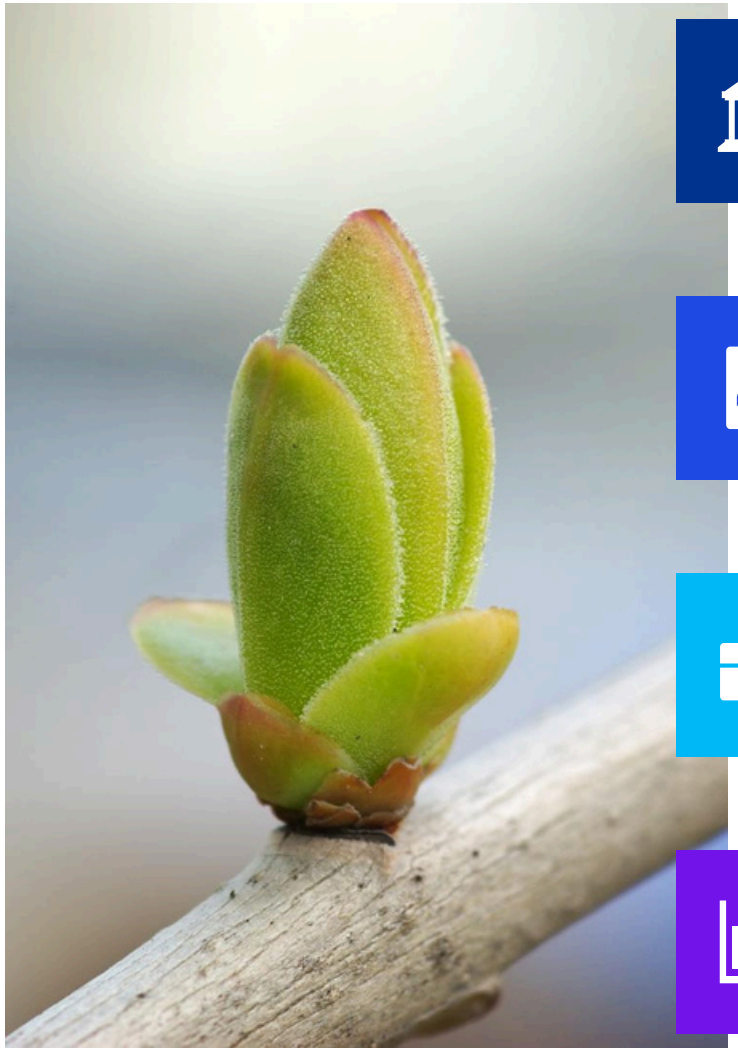
Climate Change and the People Factor

Human Rights and Climate Change

Digitization and Decarbonization in the new Reality

Towards Net Zero: How the world's largest companies report on climate risk and net zero transition

Key Takeaways



- Adoption for FGD for cleaner environment
- Best Practices Sharing
- Localized equipment
- Ecosystem Development

Contact

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Thanking You
on Behalf of !