

A glass sphere sits on a dark rock in the foreground, reflecting the background scene of a mountain range at sunset. The sky is a mix of orange, yellow, and blue, with soft clouds. The mountains are dark and silhouetted against the sky. The water in the foreground is calm, mirroring the sky and mountains. The overall mood is serene and natural.

AUSTRALIA-AFRICA MINERALS & ENERGY GROUP

DECARBONISATION STRATEGIES ON THE WAY TO NET ZERO

BDO & LYCOPODIUM



OVERVIEW & KEY TAKEAWAYS

1. Changing business landscape - transformational for all businesses, globally.
2. Climate risk & decarbonisation will be a key focus for the foreseeable future
3. Transparency and accountability - Reporting and disclosure will be the tool to drive the sustainable business transformation and energy transition.

(Start ASAP!)

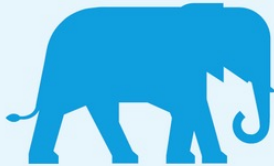
SOMETHING TO THINK ABOUT

WEIGHT OF VERTEBRATE LAND ANIMALS

10,000 YEARS AGO



1% HUMANS



99% WILD ANIMALS

TODAY



32% HUMANS



1% WILD ANIMALS



67% LIVESTOCK

Calculations based on Smil (2011)

WHAT IS SUSTAINABILITY & ESG?

Sustainability =
balance between
environment, equity,
and economy



“meeting the needs of the present
without compromising the ability of
future generations to meet their
needs” Brundtland Report, 1987

ESG = A framework to understand the
sustainability of a business / organisation

Environmental

- Climate change / greenhouse gas emissions
- Energy use
- Air quality
- Water quality & use
- Biodiversity & land use
- Waste management & circular economy
- Hazardous materials



Social

- Health & safety
- Diversity & inclusion
- Indigenous rights
- Human rights
- Local communities
- Labour relations
- Training & education
- Security
- Freedom of association & collective bargaining

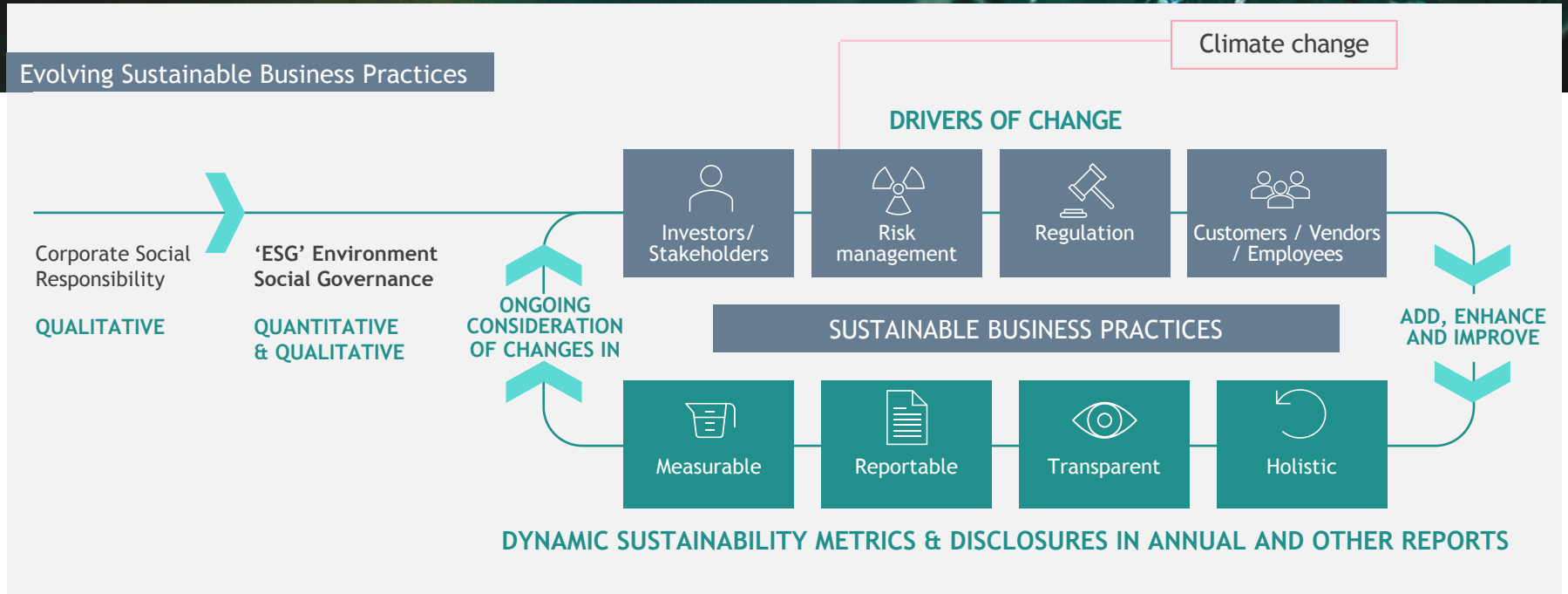


Governance

- Business ethics & transparency
- Board structure
- Remuneration
- Risk management
- Legal & regulatory compliance
- External assurance
- Responsible tax
- Competitive behaviour



HOW SUSTAINABILITY IS CHANGING THE BUSINESS LANDSCAPE



CLIMATE CHANGE IS A GLOBAL ISSUE

Physical risk

Changing climate
Increased extreme weather events

Asset / property damage



Impacted asset value
Increased insurance costs
Supply chain disruption

Transition risk

Regulatory reform
Social adaptation
Technological innovation

Disruption from
adjustment to a low
emissions economy



Impacted pricing & demand
Stranded assets
Loan defaults

Liability risk

Stakeholder litigation
Regulatory enforcement

Inadequate consideration
or response to climate
change risks & impacts



Business disruption from litigation
Reputational damage
Legal penalties

Credit: APRA Prudential Practice Guide: CPG 229 Climate Change Financial Risks, November 2021

TRANSITION RISK - MATERIALS DILEMMA

In short -

- Decarbonising the world's energy systems is seeing a massive expansion in solar, wind & battery.
- Unsustainable demands for minerals vs market expectation on speed of energy transition
- To eliminate fossil fuels by 2040, IEA estimates
 - Lithium - 4,200%
 - Graphite - 2,500%
 - Nickel - 1,900%
 - Cobalt - 700%

Challenges

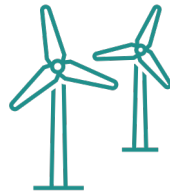
- Scale of mining materials required to build new energy system - tonnage of earth that will need to be moved!
- Material intensity of mining materials needed for green economy is going to grow.
- Efficiency gains are hard won
- Land requirements
- Escalation of biodiversity loss / fragile ecosystems
- Social / moral costs in mining expansion
- Geopolitics - critical minerals (US dependent on 100% of 17 critical minerals)
- Fast rise in demand = increase prices
- Become net zero!

100 MW = 75,000 homes



Natural Gas-fired turbine

100 MW
300 tons iron ore
2,000 tons concrete
100 tons of specialty metals
Size = residential house



Wind

100 MW
20 windmills
30,000 tons iron ore
50,000 tons concrete
900 tons non-recyclable plastics
1,000 tons of specialty metals
Size = 10sq miles



Tonnage of cement, steel and glass is 150% greater than wind

TRANSPARENCY & ACCOUNTABILITY

Financial reporting + Sustainability reporting = **Corporate reporting**

Global Frameworks - ESG

- WEF / IBC
- GRI
- SASB
- IR
- SDGs
- SFDPR
- Equator Principals
- PRI
- UN Global Compact
- ISO

Industry Frameworks - Mining

- Responsible Gold Mining Principals World Gold Council
- Towards Sustainable Mining (Canada)
- IRMA - Initiative for Responsible Mining Assurance Standards
- ICMM - International Council of Mining & Metals Principles
- CERA - Certification of Raw Materials

Climate / Carbon Frameworks

- TCFD
- SBTi (released net zero methodology Oct 21)
- CDSB
- CDP
- ISO14001

500+
sustainability
related
reporting/commu-
nication
standards

Global Reporting Standard (2025?)
International Sustainability Standards Board

BDO ENERGY TRANSITION DIAGNOSTIC TOOL

Take the survey to receive a free Personalised Benchmark Report on where your company sits versus others in the Mining industry

CLICK HERE TO
TAKE THE
FREE SURVEY

BDO ENERGY TRANSITION - FRAMEWORK



AWARENESS & DEPLOYMENT

What level of awareness and deployment is your organisation in adopting renewable energy.

Cleaner solutions for powering machinery and operations should be part of a company's strategic plan for lowering carbon emissions.



ENERGY EFFICIENCY

What energy efficiency solutions & activities have been adopted and/or evaluated in efforts to gain efficiencies and reduce carbon emissions.

The migration to alternative energies will always be, in part, a commercial decision. An understanding of the potential commercial benefits of addressing Climate Change is crucial.



CHALLENGES & OPPORTUNITIES

What are the main challenges and opportunities around adopting renewable energy.

Recognition of the commercial rewards and challenges of using alternative energy and other mitigating technologies will drive corporate change.



STRATEGY & COMMITMENT

How does your organization rank against the industry in creating targets and commitments to reducing its carbon footprint.

Climate change should be a strategic governance issue, one routinely on the Board agenda and included in portfolio reviews, investment decisions and risk management oversight.



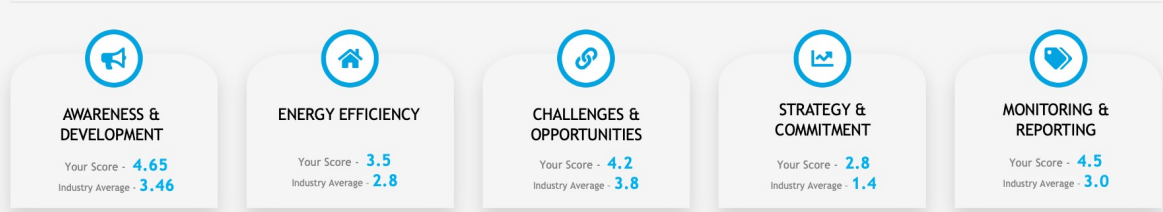
MONITORING & REPORTING

How do you manage and monitor the success of the energy transition initiatives

“What gets measured, gets managed.” The path to sustainability requires a serious effort to understanding the current situation and starting an accurate monitoring of carbon emissions.

PERSONALISED BENCHMARKING

Your Results

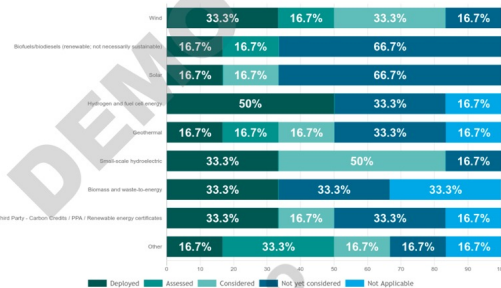


Detailed Report

AWARENESS & DEVELOPMENT

The push to lower carbon emissions will continue to grow in urgency as governments and industry bodies respond with new policies and incentives to meet targets.

1.1 Which of the following alternative energies have been considered / assessed / deployed in your own operations or facilities?

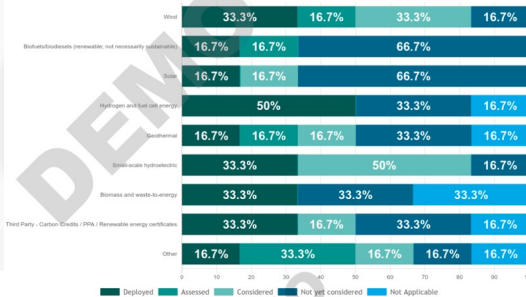


Show more >

ENERGY EFFICIENCY

The push to lower carbon emissions will continue to grow in urgency as governments and industry bodies respond with new policies and incentives to meet targets.

2.1 To what extent has your organisation explored and exploited the following energy-saving solutions?



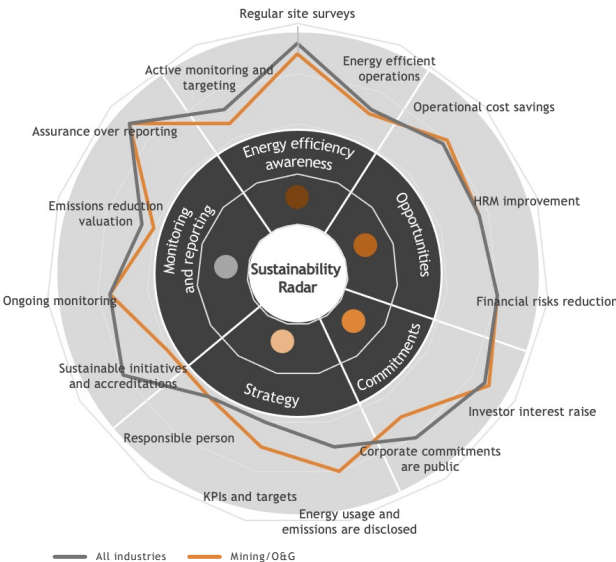
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The Energy Transition tool is aimed at delivering insights that can better steer a company's strategic decisions around how and what solutions may best suit their organisation.

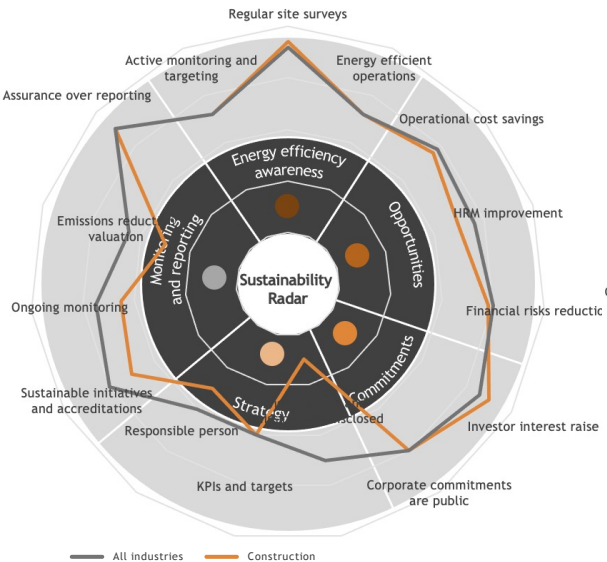
For illustration purposes only.

INDUSTRY BENCHMARKING

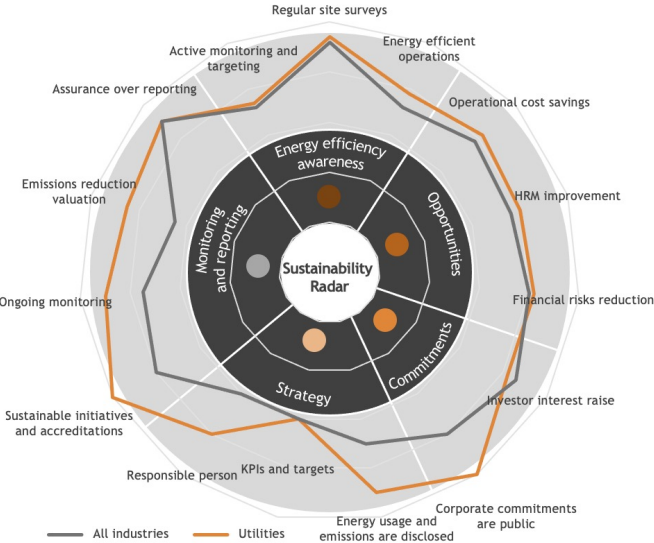
Mining / O&G vs All Industries



Construction vs All Industries



Utilities vs All Industries



Source: BDO Energy Transition Diagnostic Tool survey - based on pilot survey data collected from Mining/OG, Utilities & Construction industries | N=91 | Geo - US, Canada, Australia, South Africa



WHAT DO WE DO?

BDO aims to inspire, educate and lead an unstoppable movement for sustainable business practice in our markets



Reporting

- ESG baseline development
- Sustainability reporting framework alignment
- Materiality assessment & gap analysis
- Sustainability / ESG Disclosure Report
- Improvement roadmap
- Climate risk analysis & reporting (TCFD)
- Tech solution onboarding



Advisory

- Peer benchmarking
- Trend analysis & target setting
- Sustainability strategy & policy development
- Risks & opportunities management
- Industry standards alignment
- UN Sustainable Development Goals (SDGs) integration
- ESG-linked remuneration



Education & Engagement

- BDO Sustainability Management Program
- BDO Sustainability Networking Forum
- Sustainability training & awareness
- Industry reports

A tailored approach practically designed with industry intelligence

Key Contacts:



Catherine Bell | Principal - Sustainability

Catherine works with clients to develop and articulate strategic sustainability programs, roadmaps and tactical approaches addressing the continuous improvement in a structured and proactive approach.

Catherine helped establish BDO's global sustainability practice, including supporting sustainability adoption and integration across BDO's 167 country firms.

Recently Catherine transitioned into BDO Australia to lead the sustainability practice in Western Australia. Catherine has worked with leading global brands such as the The Economist, IDC, Mercer and The National Australia Bank. She has also held government positions with Australia's DFAT in Copenhagen and Sweden, AUSAID in Thailand and at Parliament House in Canberra.

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Kira Sorensen | Senior Manager - Sustainability

Kira supports clients to identify strategic and tactical risks and opportunities across the business, and develop and implement effective sustainability improvement programs to capitalise on their unique strengths and market position.

Kira is a highly skilled sustainability professional with over 10 years' experience within the resources sector spanning strategic policy and advocacy with the Chamber of Minerals and Energy Western Australia, and operational management at Alcoa and Rio Tinto mining and construction projects in Western Australia and Guinea, Africa. Kira brings with her substantial expertise and industry intelligence across the environmental policy and regulatory landscape, research and stakeholder engagement, strategic planning, technology, and operations management and business improvement.

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