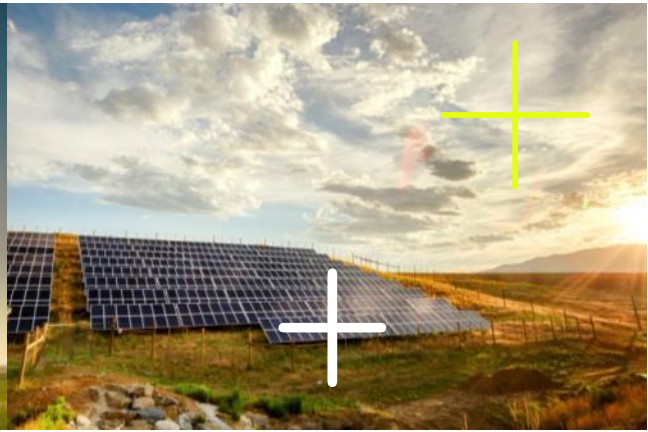
Renewable Project Considerations



The Mining Sector's role in the Just Energy Transition – 4 August 2021

Peter Viljoen – Hatch Regional Director for Energy

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Why a Renewable Energy Solution?

- Remote site – no Grid connection
- Unreliable Grid connection
- Cost
- GHG Emissions reduction:
  - Scope 1, 2 and 3 reductions
  - Fossil Fuel power substitution
  - Shareholder pressure
  - Financier pressure
  - Board mandated goals

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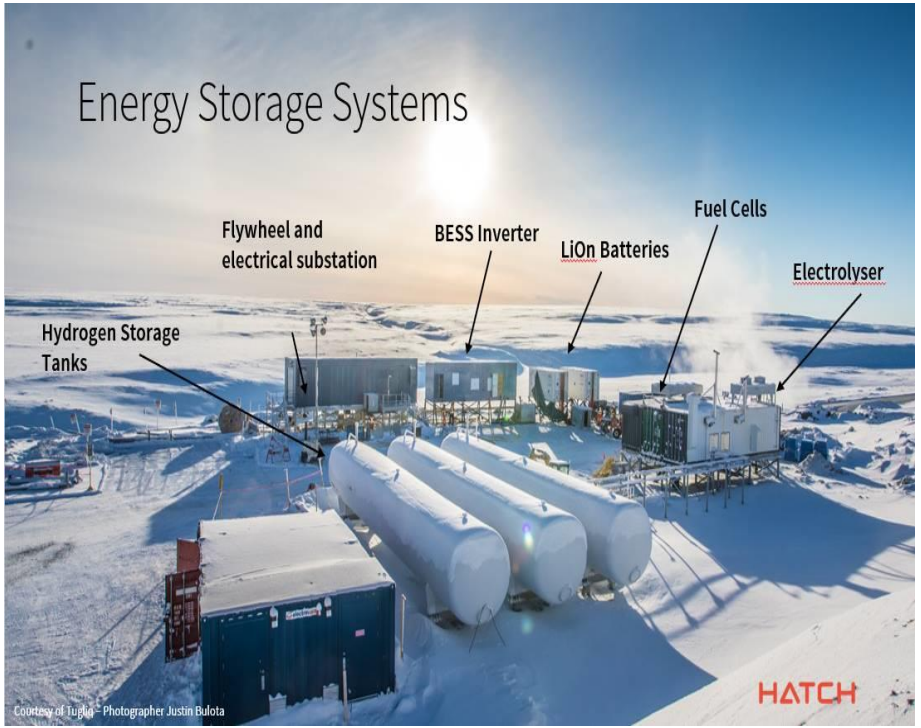
What Solution?

- Optimal solution will vary for each Mine and may comprise a combination of the following:
  - Solar PV
  - Wind
  - Hydro
  - Some form of Storage
    - Batteries
    - Hydrogen
    - CSP
    - Pumped storage, or
  - Backup power
    - Diesel / gas generators
    - Grid connection



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So, what is the best solution for me?

- Its more than just adding a bit of Solar or Wind. Consider factors such as:
  - How critical is a constant power supply?
  - Energy efficiency
  - Process optimisation
  - Demand shifting
  - What are my GHG reduction targets?
  - etc

Solution is the development of a robust and over-arching Decarbonization Pathway and Strategy

Scope 1: GHG emissions from sources that are owned or controlled

Scope 2: GHG emissions resulting from the generation of purchased electricity, heat, or steam

Scope 3: GHG emissions from sources not owned or directly controlled, but related to agency activities

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Defining a Decarbonization Pathway

A good decarbonization pathway allows achievement of GHG reduction targets in a way that brings the highest value to your business

Opportunity Identification: First, we bring world-leading process and technology engineering experts to generate an opportunity database of GHG reduction opportunities that are applicable to your operations. This is done through workshops, site visits, and interviews to ensure a comprehensive list is developed for further assessment

Transition Risk Assessment: Next, we review environmental, social and governance trends that could materially impact future business outcomes, such as trends in energy mix and usage, carbon pricing, local market analysis and decarbonization technologies.

Pathway Building: Last, we work with you to leverage our collective experience to assess the list of opportunities using a proven, structured framework. Opportunities are assessed based on expected cost, emissions reduction potential, technology maturity, and technical/commercial risk to identify the best pathway(s)

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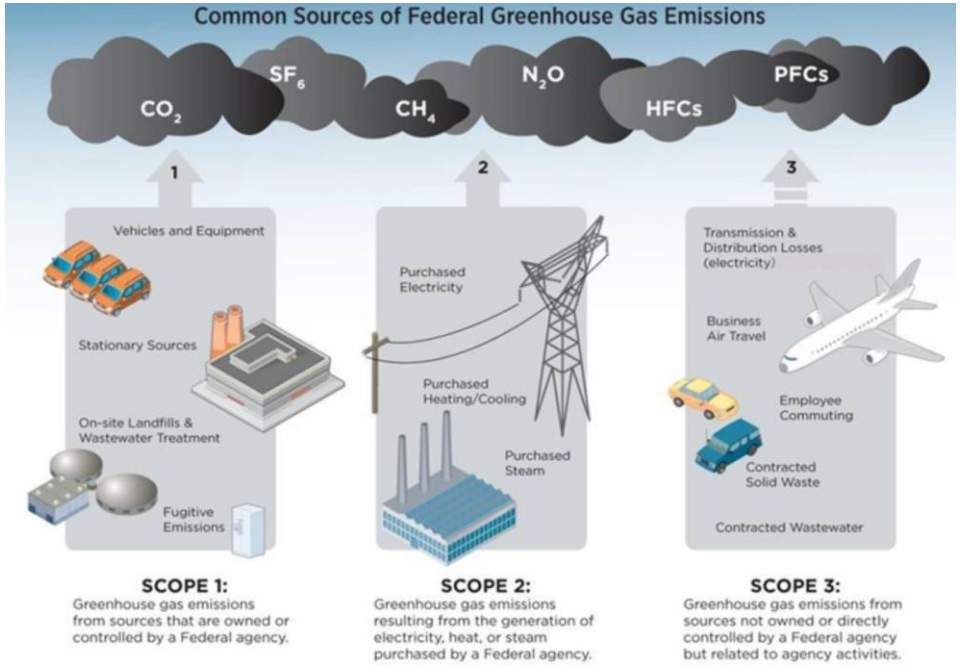
Step 1: Mapping Emissions Sources

- Process experts, working alongside our clients, can help identify and quantify emission sources and energy usage



Source: epa.gov

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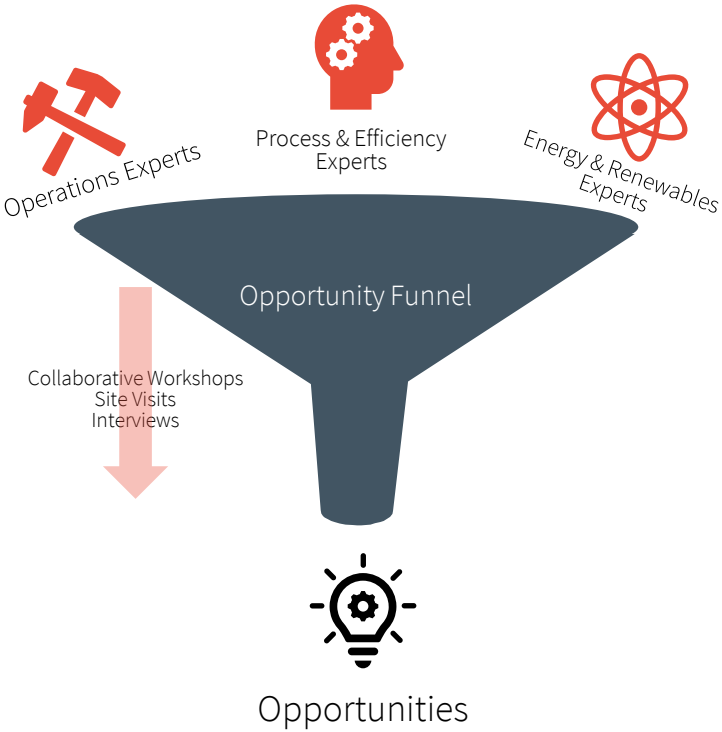
Step 2: Leveraging Expert Team

- Leverage world-leading process and technology engineering experts to populate an opportunity database of reduction initiatives.
- Map and categorize opportunities across the value chain.



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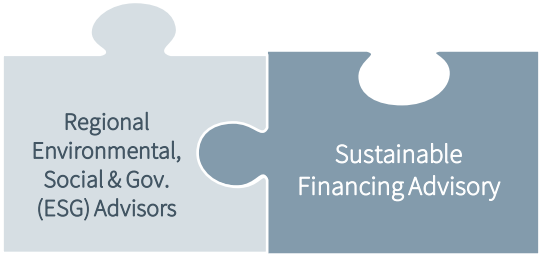
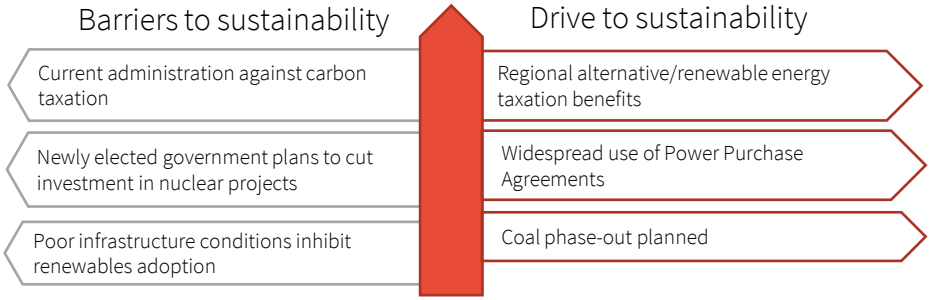
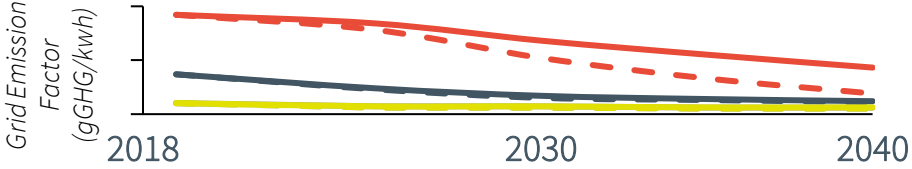
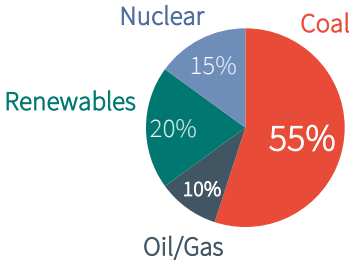
Step 3: Transition Assessment

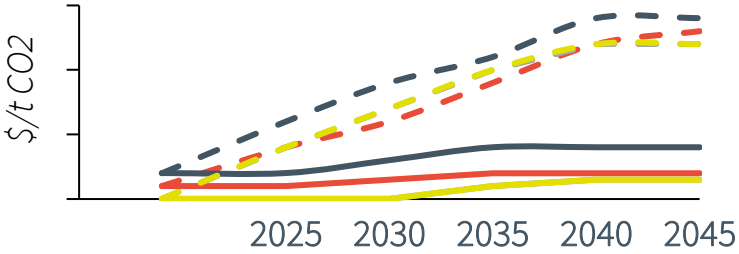


- Review of environmental, social and governance trends that could materially impact business outcomes
- Trends in energy usage, local market analysis and decarbonization initiatives









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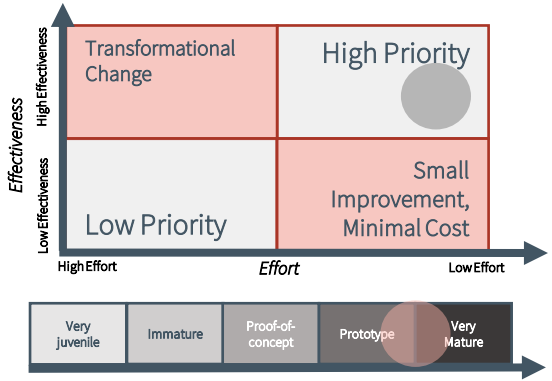
Step 4: Opportunity Assessment

- Working with our clients, we leverage the collective experience of the team to assess opportunities using a proven, structured framework



Business Applicability

	1	2	3	4
A				X
B	X			
C		X	X	
D	X			
E			X	X

Key Financial KPIs

NPV (MMUSD)	Levelized Cost of Carbon (USD/t)
25	125
CO2e Reduction in 2030 (t CO2e)	**IRR (%)**
150,000	14

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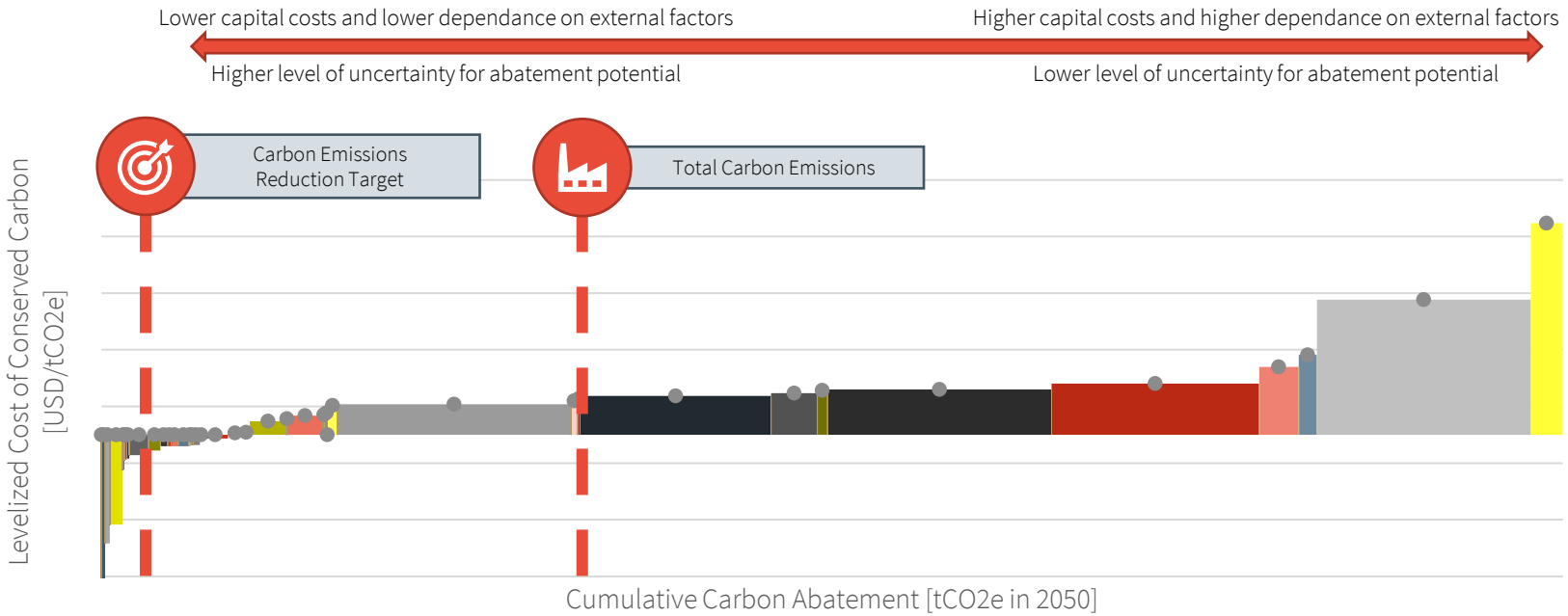
Levelized Cost of Conserved Carbon Curve



Total Emissions Abatement: # $MtCO_2e$
Target Emissions Abatement: # $MtCO_2e$

NPV: # USD

LCCC: # USD/tCO2e

CAPEX: # USD

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Thank you.

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