Cresco Decarbonisation Solutions

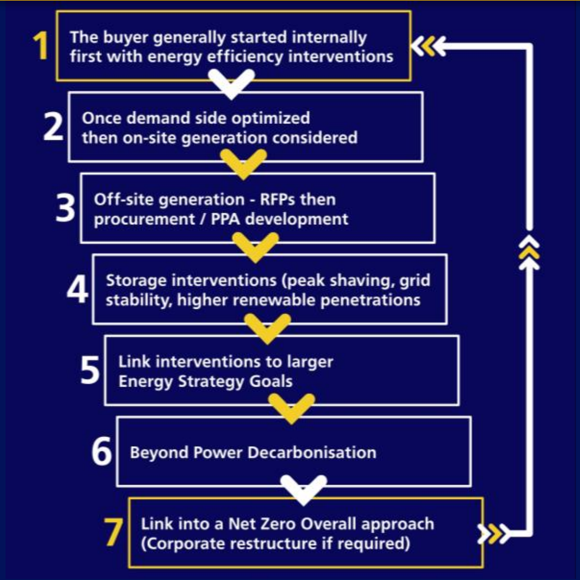
Financial Implications for the Net Zero Journey

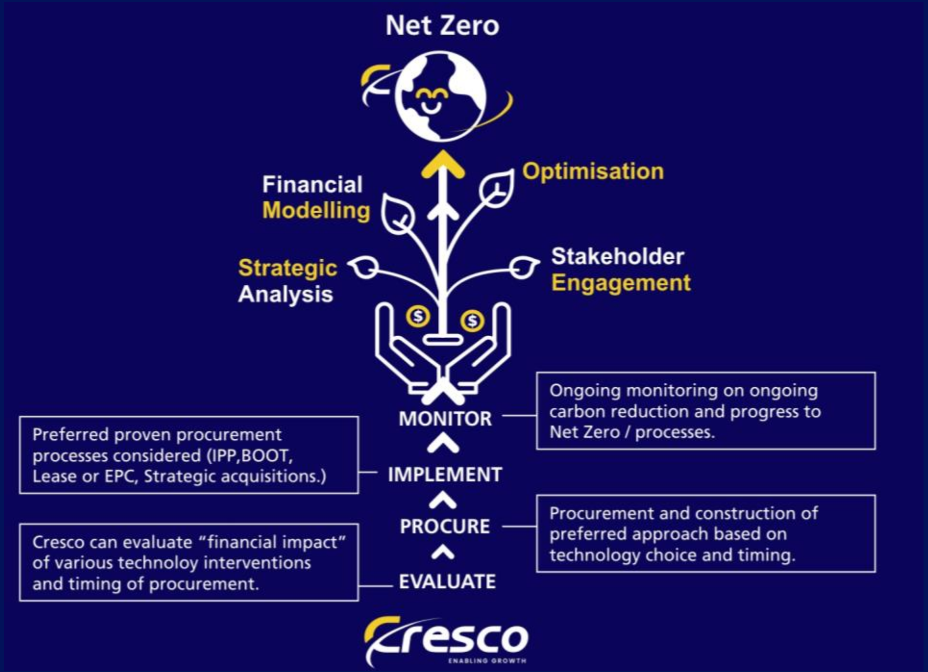
Energy Strategy, Financial & Transactional Advisory
South Africa | Mauritius | Nigeria | Portugal
Cresco is a hands-on Energy Strategy & Financial Advisory firm dedicated to helping ideas across Africa to become reality

Cresco Decarbonisation Journey and linking in with Client Needs

- Cresco's background is a mining-focused financial advisory (financing, feasibility studies)
- Started assisting large corporate buyers in 2014 with procuring both thermal and renewable considerations (initial focus on hybrid solutions for non-grid-connected clients in Africa)
- Since then, Cresco has adjudicated more than 200 captive power bids for more than 20 African mines, providing us with unique insight into this space

Typical 'de facto' Buyer journey





Cresco – Relevant Clients and Partners

Cresco has assisted a number of large energy users on differing decarbonisation journeys with differing “fit for purpose” solutions

BUYERS OF ENERGY

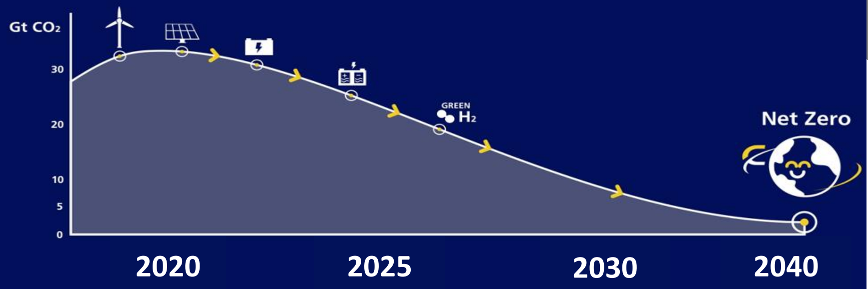
Scaw Metals Group, Manganese Metal Co, AngloGold Ashanti, Samancor Cr, rbh, Mondi, Exxaro, Netcare, Anglo Platinum, Transalloys, AngloAmerican, Illovo Sugar Limited, Richards Bay Minerals, Teraco, De Beers, Sasol, Glencore, RioTinto

SERVICE PROVIDERS (IPP / EPC / OEM / ENG)

Aggreko, Enertrag, Wärtsilä, thyssenkrupp, Crossboundary, AIIM African Infrastructure Investment Managers, Mulilo Renewable Energy, Engie, Fluor, ibvogt, Abengoa, ACWA Power, Voltalia, Akuo, BWSC, Mulilo Renewable Energy, juwi, CAT Financial

ENGINEERING AND CONSULTANTS

DRA, WSP, PwC, Royal HaskoningDHV, GIBB, Zutari, Wood, Harmattan Renewables, WorleyParsons, Hatch



FINANCE

Swedfund, the dti, EEP, AFD, ICBC, Ecobank, DBSA, Harith, Afreximbank, Proparco, European Investment Bank, AFC, IDC, Barclays, FMO, KFW DEG, Bank of China, Norfund, AIIM, Nedbank, Standard Chartered, JBIC, African Development Bank, IFC International Finance Corporation, EXIM, RMB, Euler Hermes, Sinosure, FCMB, Absa, Standard Bank, Investec

Cresco is supporting some of the world’s largest energy consumers to evaluate, procure, implement & monitor decarbonisation solutions

The Energy Transition: Why Net Zero?

Climate change is being regarded as perhaps the greatest challenge humankind has ever faced – IEA

The Green Revolution is shaping up to be the biggest technology overhaul since the Industrial Revolution

Fossil Fuel Divestment and Climate Funding is the largest financial movement in world history – The Guardian

"Getting to net zero carbon emissions by 2050 is going to require a revolution in the production of everything we produce, and a revolution in everything we consume.

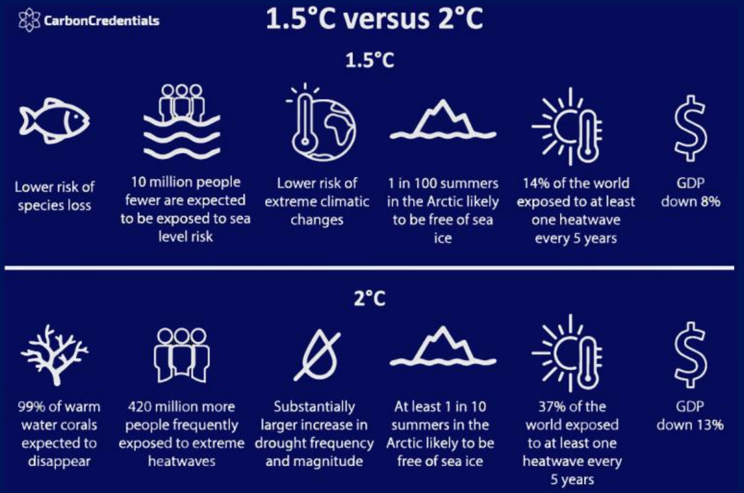
To bring down the "green premium" and make clean technologies more affordable will require significant capital investments"

Larry Fink, CEO of Blackrock

Low Carbon Investments Annually: Current vs. Net Zero 2050

Cresco Decarbonisation Solutions

Cresco's Decarbonisation Solutions enables corporates to progress on their Net Zero targets in a structured "realistic" manner – taking lessons learnt an improving on likelihood of success



Scope 1 – power and gas emissions generated by company

Scope 2 – power and gas emissions procured from third parties

Scope 3 – full supply chain emissions materials/product sourcing to recycling and disposal emissions

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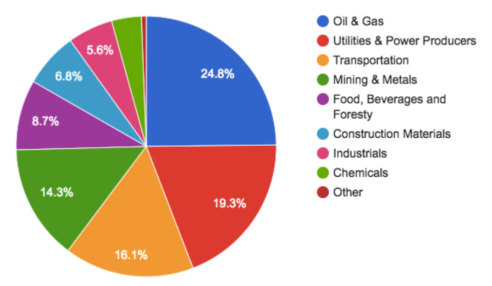
Net Zero Targets and Progress to Date

Climate Action 100+
Global Investors Driving Business Transition



RE100
RE100 is the global corporate renewable energy initiative bringing together the world's most influential businesses committed to 100% renewable electricity

89% of global emissions now covered by net zero target, after COPO26 in Glasgow – Dec 2021

Private sector: More than 700 corporations have set Net Zero targets or goals, including many of the world's top 160 largest carbon emitters

Climate100+: 615 investors, $60 trillion in assets forcing the evaluation and implementation of Net Zero strategies

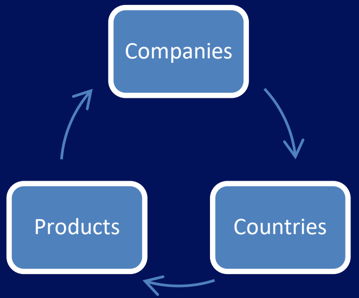
RE100: Amazon-led coalition of 300 large corporates racing to implement 100% renewable energy and zero carbon grids

E.g.: Apple and Rio Tinto developing Green Metals product for low carbon iPhone 14

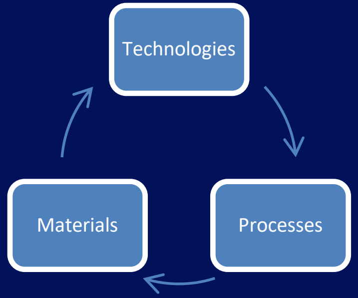
We are accelerating change towards zero carbon grids at scale

RE100 is the global corporate renewable energy initiative bringing together hundreds of large and ambitious businesses committed to 100% renewable electricity.

Decarbonisation is occurring at three levels:



...and is being driven by:



What will be needed to achieve Net Zero?

Cresco's Decarbonisation Solutions helps clients to understand the opportunities in achieving these ambitions goals in a structured manner

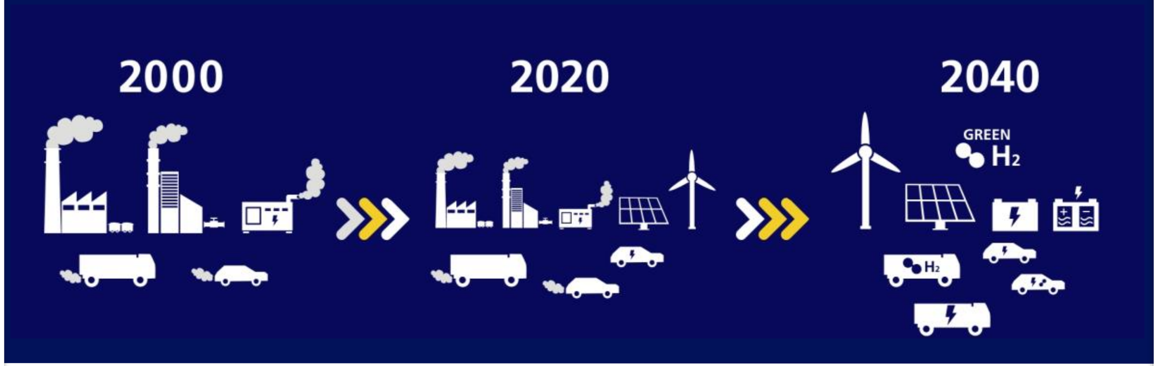
- 75% of total GHG emissions are from the energy sector
- 25% from power generation
- Power Decarbonisation is currently well underway globally:
- it is both the main target for emissions reduction and the main opportunity to affordably adopt viable solutions now that can sometimes cause cost savings

100% DISPATCHABLE CLEAN ENERGY

A Net Zero Power System will require a shift from:

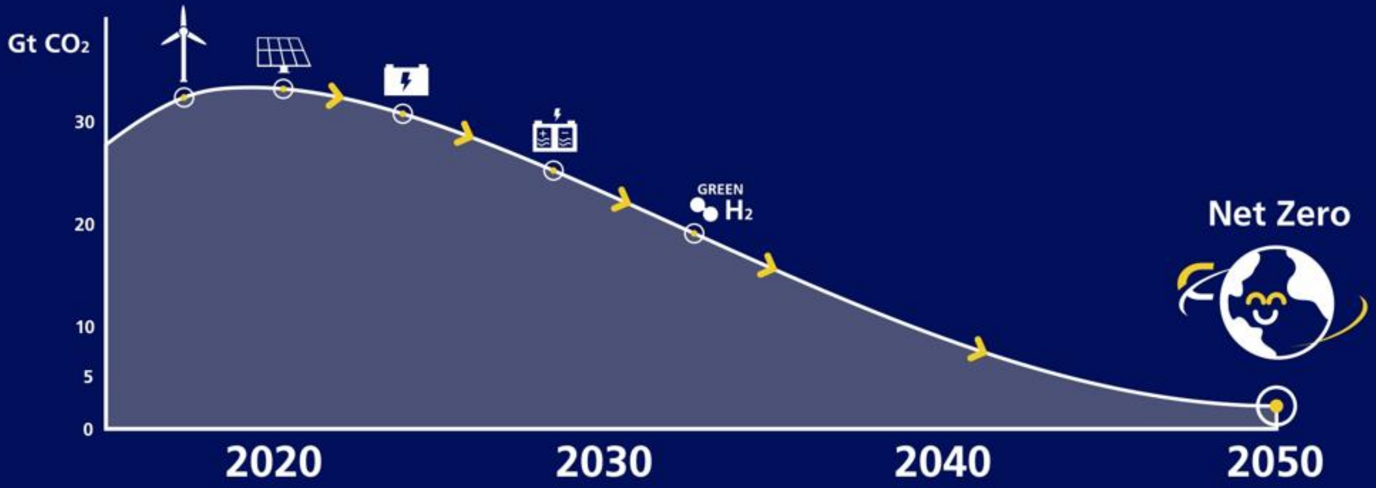
- fossil fuels to mining
- fuels to hardware and software
- opex-heavy to capex-heavy investments
- large projects to multiple small interconnected projects

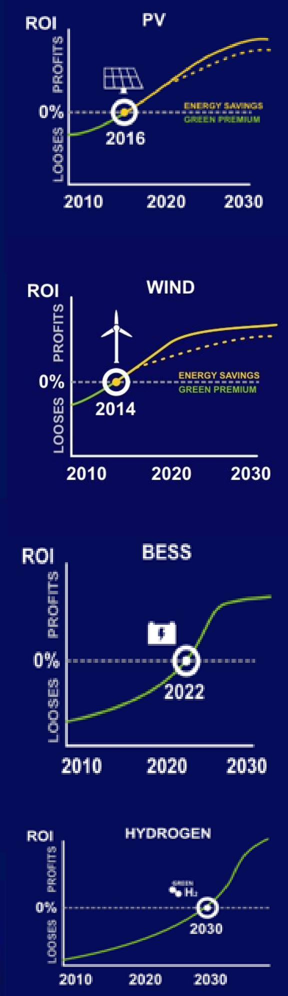
The Energy Transition: Past, Present, Future



Power Sector Decarbonisation

The typical power sector decarbonisation technology interventions over time with reasonable target dates for larger users:





- Solar and Wind have achieved cost parity against most grid-connected utility tariffs
- Batteries and even hydrogen are fast approaching cost parity for some remote off-grid operations burning diesel
- What is the right point to **evaluate, procure and implement** these technology solutions for your organization?

ENERGY SAVINGS
GREEN PREMIUM

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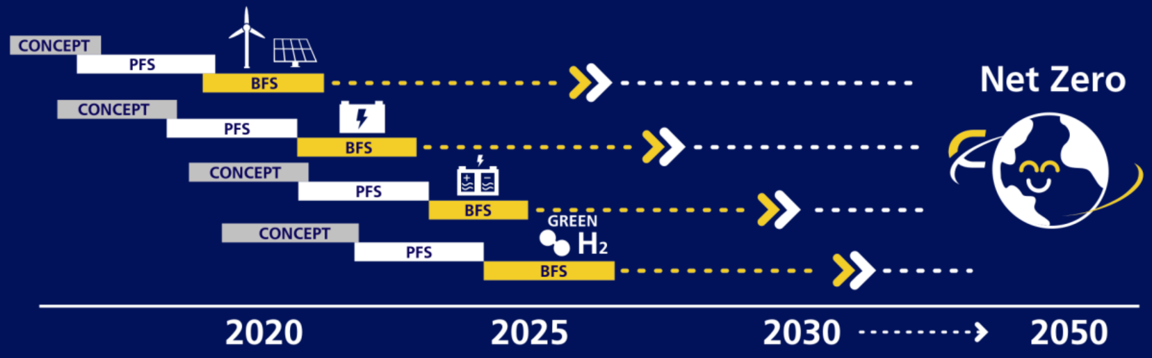
Energy Strategy for Decarbonisation Solutions



Cresco's unique insight and Lessons Learned from conducting Energy Strategies and Procurement Support for more than 20 mines and adjudicating more than 200 bids

Each technology intervention considered

Battery and Energy Storage Systems (BESS)

Long Duration Energy Storage technologies (LDES)

PFS – Pre-Feasibility studies
BFS – Bankable Feasibility Studies

Cresco’s Decarbonisation Solutions to Net Zero

Cresco’s Decarbonisation Solutions enables corporates to progress on their Net Zero targets in a structured “realistic” manner – taking lessons learnt and improving on likelihood of success

Carbon scope reduction

Scope 1 – power and gas emissions generated by company

Scope 2 – power and gas emissions procured from third parties

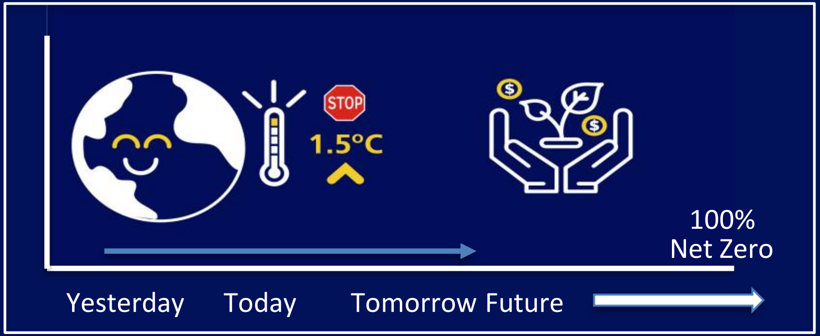
Scope 3 – full supply chain emissions materials/product sourcing to recycling and disposal emissions

Technology Considerations

(Differing levels of maturity)

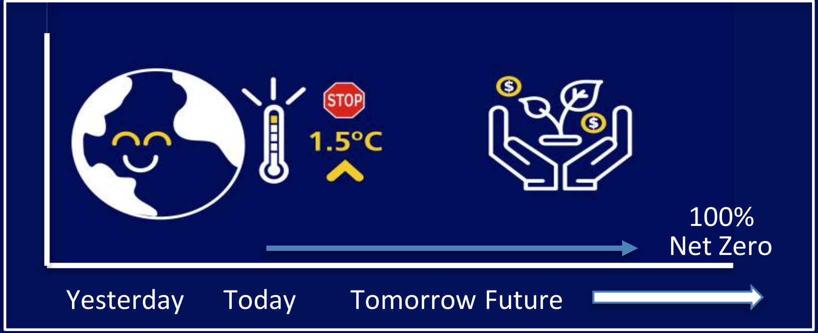
From concept evaluation to financial close, Cresco can help you navigate the energy transition in the best way for your organization

Cresco's Decarbonisation Solutions to Net Zero (part 1)



Phase	RE Integration	RE + Storage	Highly Decarbonised Power Supply
Impact on the Buyer	20-35% power decarbonisation • Direct and Indirect emissions (captive power or PPA) • Quantify energy savings	25-55% power decarbonisation • Direct and Indirect emissions (captive power or PPA) • Energy savings or green premium? • Quantifying ancillary benefits and value stack modeling	60-100% RE penetration • Expand RE share, over-sizing • Long Duration Energy storage, Hydrogen • Beyond Power Decarbonisation: Transport, Process, Heat/Steam Decarbonisation • Digitalisation / Trading • Procurement and Implementation Timeline: phased approach?
Technology adoption		Hybrid Microgrids	GREEN H_2 Hybrid Microgrids Li-Bess

Cresco’s Decarbonisation Solutions to Net Zero (part 2)



Phase	Beyond Power Decarbonisation	Scope 3 ´Value Chain´ focused Decarbonisation	Pathways to Net Zero
Impact on the Buyer	TOTAL DECARBONISATION • Transport Decarbonisation, EV / Mobility • Heat/Steam Decarbonisation • Energy Efficiency • Low Carbon Process Equipment • Fugitive emissions, Cogen, Waste re-use	TOTAL DECARBONISATION • Upstream: Sustainable Raw Materials sourcing • ´Green product´ development • Downstream: disposal, recycling, reuse, circular economies	TOTAL DECARBONISATION • Net Zero strategy plans, offsets, developing new climate solutions and technologies to address the need • ´Telling the Story´, marketing, greenwashing avoidance • Competitive positioning
Technology adoption	Various	Various	Various

Example Case Study: 10 Loads / 10 Sites

A typical client roadmap (behind the meter, wheeling / storage)

Milestones / approach

1. 2022 Grid Energy Consumption – No Renewables
2. 2023 First Energy Solar PV - on-site procurement – +-10% penetration
3. Scalability in Solar – Wheeling Options – +-25% Penetration

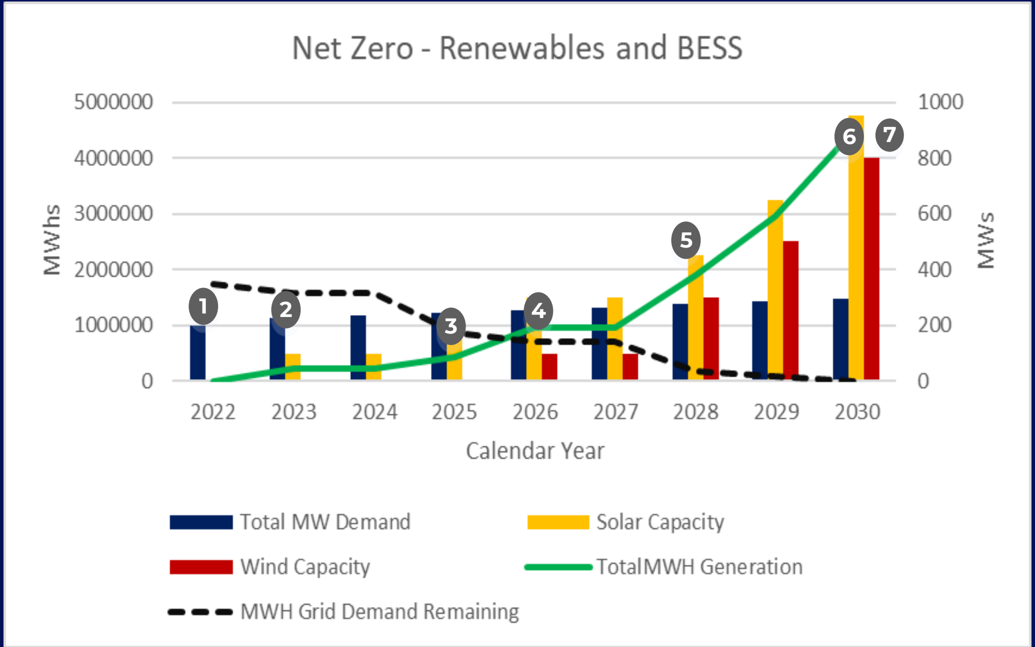
4. Wind Procurement and BESS

- First energy Wind – procured off-site
- BESS technology installed for wind and solar PV – greater dispatchability
- +-50% Penetration achieved – positive savings achieved.

5. Scaling of the power system

- Continued Scale of renewables and BESS
- 60-80% Penetration – limited to no savings achieved
- Green premium analysis

6. Wind Procurement and BESS Solve last 20% of 100% RE through mechanisms available at the time (e.g. Net metering, Energy banking, spot trading of energy on open marketplace and Efficiency initiatives post 2030)



An Optimal Net Zero Power System strategy can be modelled based on Technology Readiness and Price Path Evolution and Financial Implications

Decarbonisation Matrix – Cresco View

Consideration	Phase 1 – 25% Penetration	Phase 2 – 50% Penetration	Phase 3 – 80% Penetration	Phase 4 – 100% Penetration
Implementation	2020	2021	2023	?
Timelines	**2022**	**2024**	**2028**	**2040**
Technologies	or			**+ Green H_2 + Offset + ?**
Energy Purchase	Local currency Variable Tariff	Local currency + USD Variable Tariff	Local currency + USD Variable Tariff + Capacity Charge	?
Dispatchability	✗	✗	✓	✓
Funding Structure	Single Asset Project Finance	Portfolio Project Finance	EnergyCo, Corporate Finance	?
Funding Terms	12-18 Years tenor Local Bank	USD Climate Finance, First Loss	Same As Before	?
Tariff	Cost / kWh – COD	↓	↓↓	↓? ↓? ↓?
Termination	Debt + Equity	↓ Debt + ↓ Equity.	↓↓ Debt + ↓↓ Equity.	?
IFRS	✗	✗	✓	✓

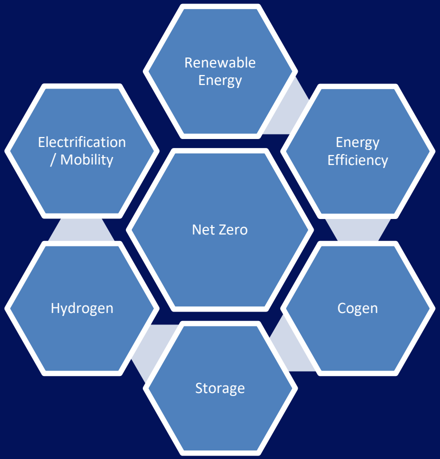
Cresco's approach

Cresco's experience is that "packaging the Project" for the needs of a specific customer is key. Starting with a phase of detailed analysis , Cresco will structure the project options to meet the needs of the client and ensure reliable technical solutions are competitively procured

ANALYSIS	STRATEGY	FUND RAISING
• Understanding project dynamics • Project risk analysis • Gap analysis • Financial modelling • Defining project requirements	• Finance risk mitigation strategy • Fund raising strategies for Development, Equity and Debt • Pro's and Con's to each strategy analyzed	• Development/bridging finance • Project finance: debt • Project finance: equity

TECHNOLOGIES

- Renewables: Solar, Wind, Biomass
- Storage: Lithium BESS, LDES (flow batteries, mechanical, thermal), Hydrogen Storage
- Green Hydrogen
- Cogen, Energy Efficiency



OUTPUTS

- Scenarios
- Base case vs. Optimum vs. High Decarbonisation
- Financial vs. Emissions Reductions perspectives
- Risk Mitigation and Resilience
- Implementation Guidance

Cresco Decarbonisation Solutions – Key Contacts

Dominic joined Cresco Project Finance in December 2021 to lead and develop Cresco's Net Zero strategy and Decarbonisation Business Development and Consulting Services, and to lead the company's expansion into Europe. He has 12 years' experience in the clean energy sector, with an analyst and management consulting background and extensive experience working in EPC, IPP, project development and technology development.

Dominic's former role at Abengoa, as Global VP for Decarbonization Solutions, gave him a strong focus on the commercialization and deployment of new clean energy and energy storage technologies to address climate change resilience and key experience in supporting global companies to reduce reliance on fossil fuels.

Contact: dominic@crescogroup.africa | (27) 79 707 7551

Robert has worked for Cresco Group for the past 16 years across industries but strong focus on mining and infrastructure. He focusses particularly on financial modelling and finance structuring for cross border opportunities. He is a qualified Chartered Accountant who has focused on project finance in Sub Saharan Africa for the past 15 years, with an additionally 4 years' experience in the UK / European market in similar areas.

He has extensive financial modelling experience across various industries. Strategic business development services for start-up and technology entities. He is experienced as project and company turnaround specialist.

Contact: robert@crescogroup.africa | (27) 82 881 1870 | (351) 914 025 616

Cresco

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