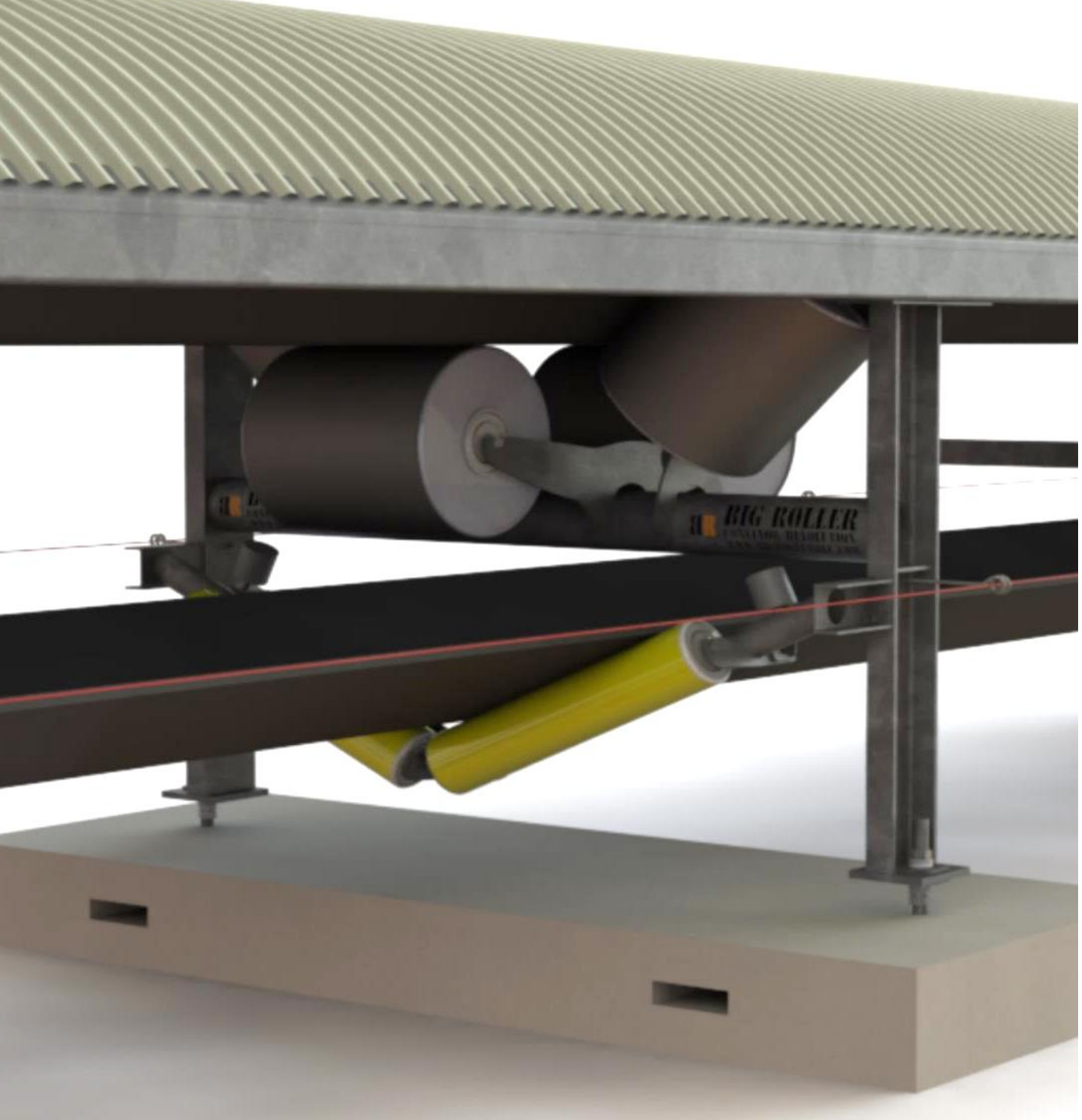


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# Overland Conveyor Optimisation

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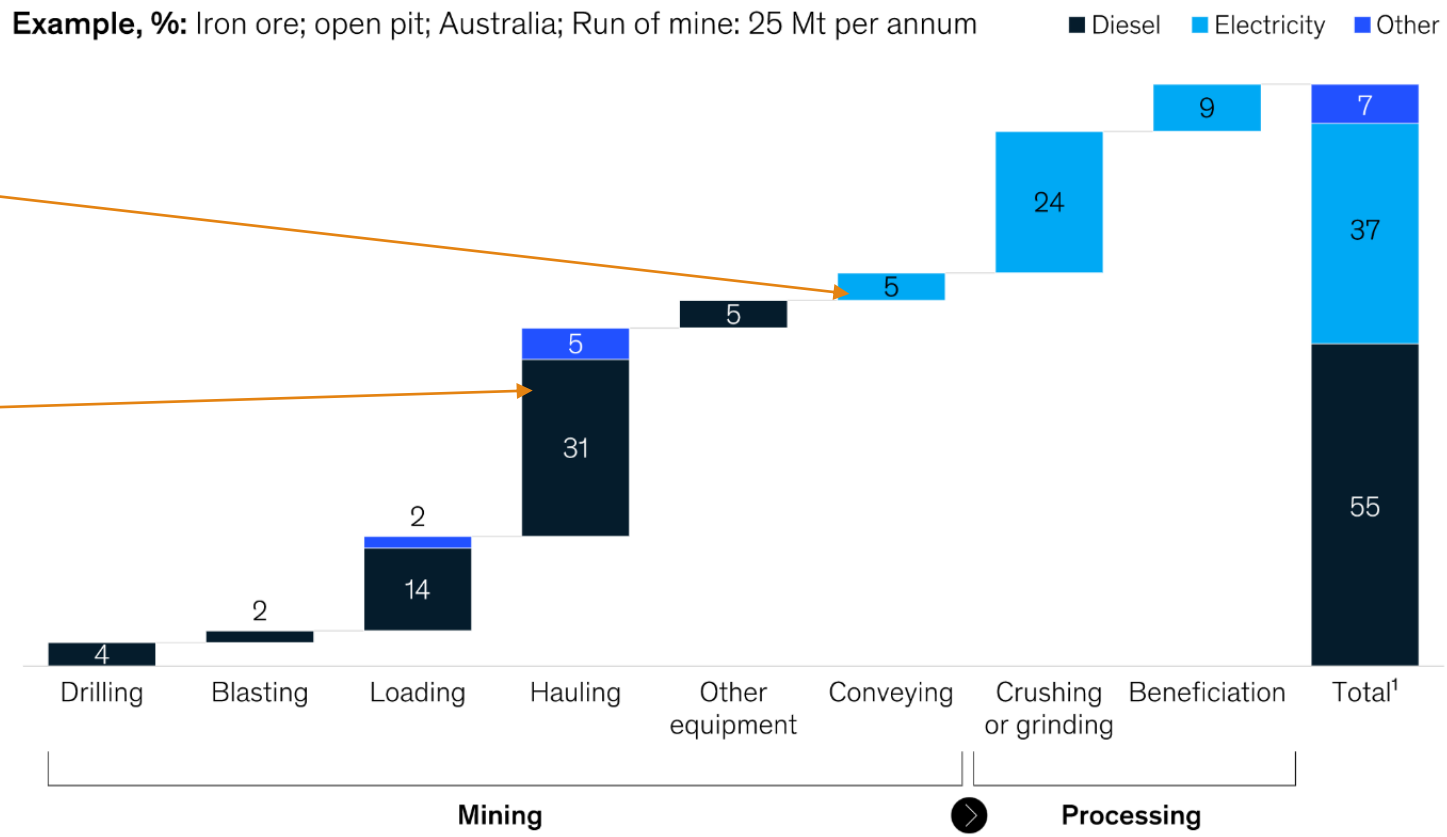
BIG ROLLER™
WWW.BIGROLLEROLC.COM

# Opportunity
# Haul and convey - 41% total energy

1) Displace conventional overland conveying designs

2) Alternative to Haulage
1. BEV/FCEV haul + Fully Mobile In Pit Crush and Convey
2. BEV/FCEV haul + Ex Pit Crush and Convey




[1]Figures may not sum to 100%, because of rounding.
Source: McKinsey Mine Decarbonization Model

# Prior Research
# Big Roller™ vs Conventional Conveying

Testing at TUNRA shows Big Roller™ reduces Primary Losses

1) **Indentation Rolling Resistance (IRR) by up to ~50%***
2) **Idler bearing Drag by >65%** @4N/idler – Normal friction

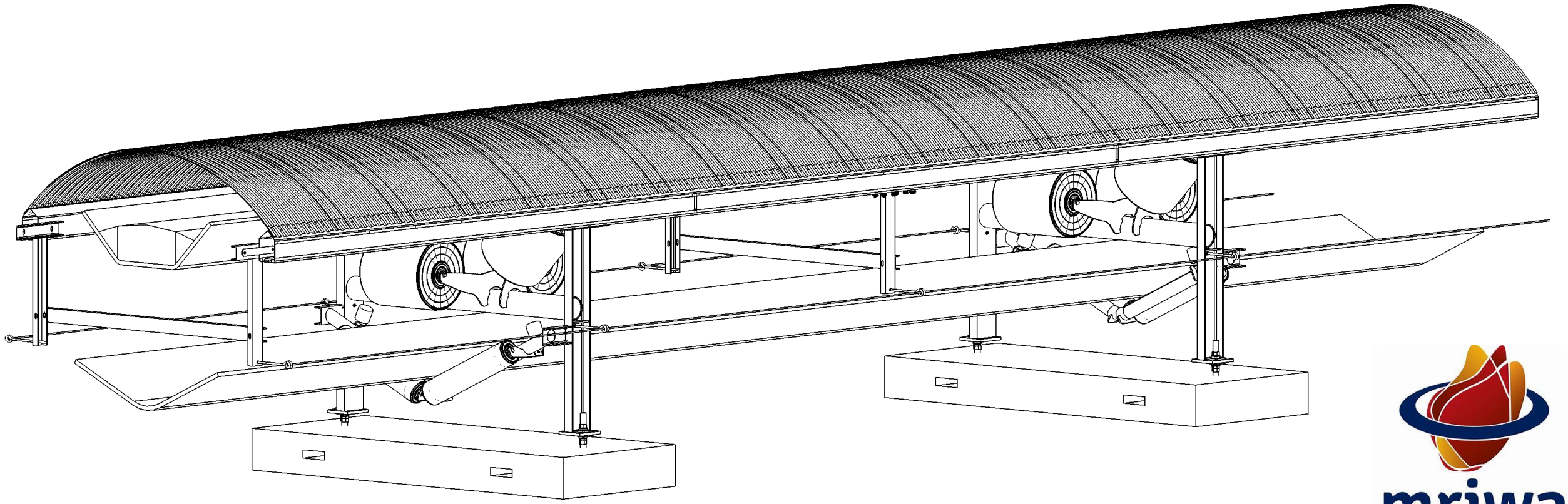
Other Primary Losses

3) **Alignment and Flexure losses** also reduced

* AS1333-2024 Type II Testing required for each projects specific belt construction, loads and operating conditions

# Ground module: 12 months

## End game: TRL 7 & ready for in field conveyor deployments



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# Roller Product Development and Testing

Design basis: 20” / 20kg, 45°/ 1500 Belt Width

Product range design extension

| **Manufacturer** | | tribotech ROLLERS BUILT TO LAST | |
|---|---|---|---|
| Diameter | mm | 508 | |
| Wall thickness | mm | 8.5 | 14 |
| Mass | Kg | 20 | 24 |
| Rotational Mass | Kg | 13 | 17 |
| Rotational Inertia | $Kgm^2$ | 0.63 | 0.94 |
| $L_{10}$ @6.4m/s | hours | 65,000 | |
| Bearing | | 6309 | |
| Shell material | | Nylon (WearTech) | |
| End Disc material | | Nylon | |

TUNRA BULK SOLIDS

## Third Party Validation Tests

- Rim drag and breakaway force at 20°C
- Shell to end cap load – resistance to pressing out
- Dust ingress
- Water ingress
- T.I.R. / M.I.S.
- Dynamic unbalance
- Self-noise

## Energy Efficiency (IRR) Tests

- Indentation Rolling Resistance @20”

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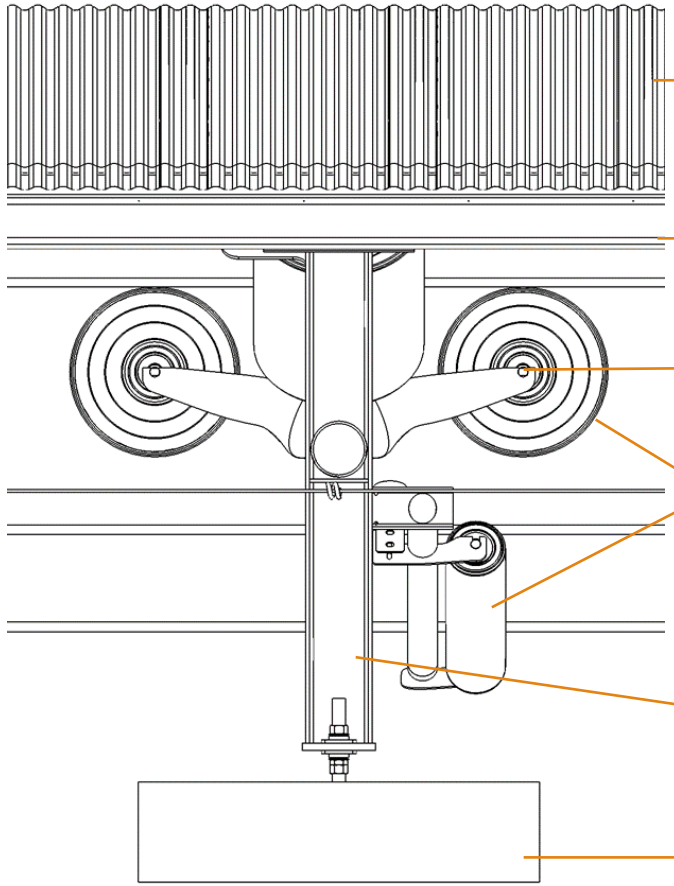
# Ground model - Commercial demonstration

Strake Engineering - 3rd party engineering review

1. AS4100 / AS3990 / AS3600
2. Client's specification / design criteria



Fielders / Lysaght

Boyd Metal Industries / AD Coote

H-E Parts (machining)

Tribotech

R&R Robotics / BossOng / Excel Robotics

RECO Precast

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# Partners sought

Scope – opportunity to tailor for Partner's requirements and preferred belt suppliers

- Ground module / roller designs to cater for all commodity process requirements
  - **25 to 40 MTPA** (Iron Ore, waste ore)

VALE BHP Fortescue RioTinto ROY HILL MINERAL RESOURCES

  - **5 to 20 MTPA** (coper ore, bauxite)

ANGLO AMERICAN CODELCO GLENCORE Teck FREEPORT-McMoRan SOUTH32 ALCOA

  - **1 to 5 MTPA** (gold, nickel, manganese, coal, lithium, sands)

GOLD FIELDS FIRST QUANTUM MINERALS LTD. GEMCO Premier Coal MANAGED BY THE YANCOAL AUSTRALIA GROUP TALISON LITHIUM Atlas Energy Solutions

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# CONVEYOR REVOLUTION