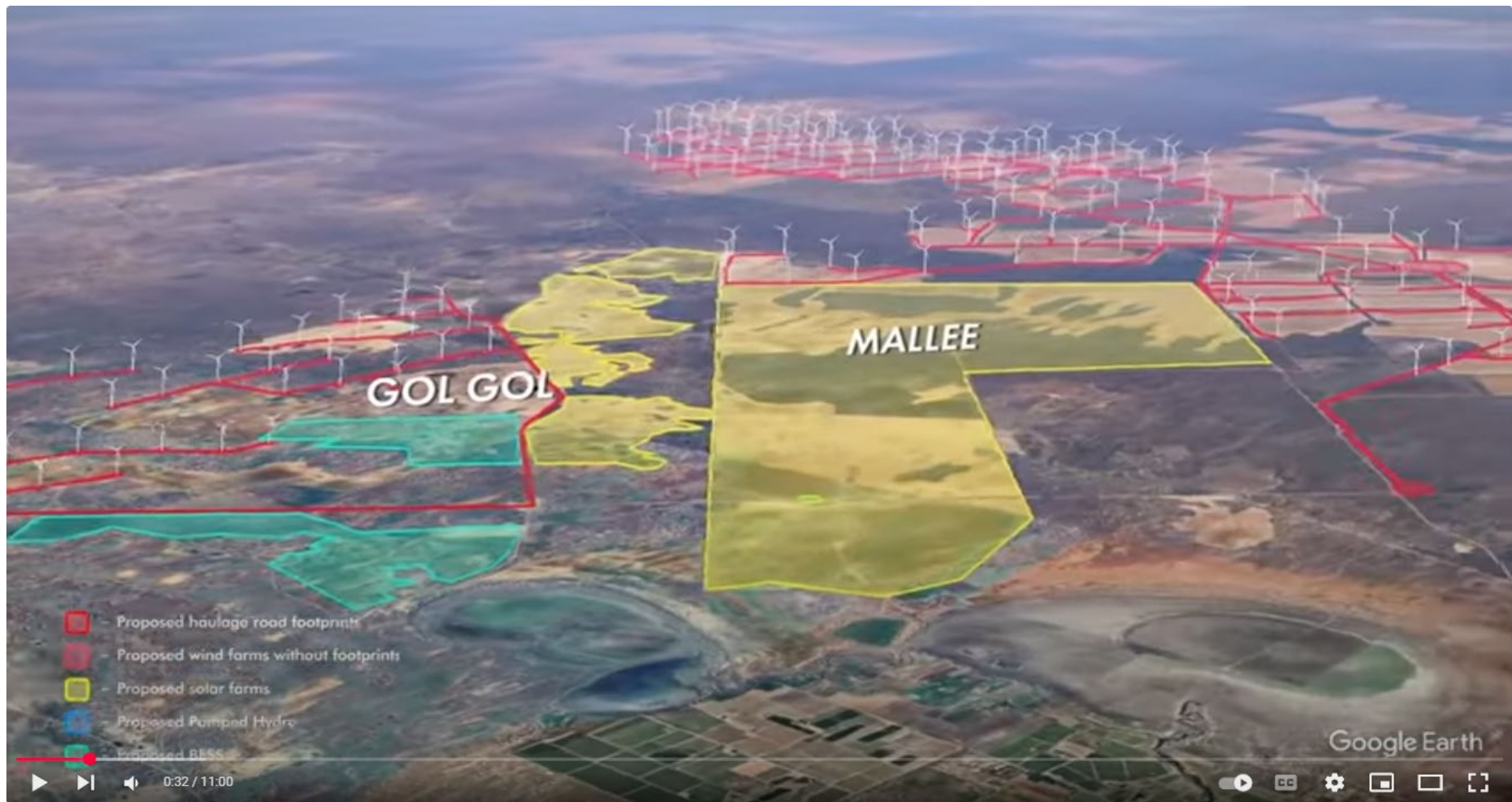


41,000 turbines across Australia plus Solar plus BESS



3d animation mapping of all proposed renewable energy projects in NSW.



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Turbine Fire Source



FIG 1. GOULBURN JANUARY 2023



FIG 2. REDHILL SOUTH AUSTRALIA, 7th FEBRUARY 2024



FIG 3. PORTLAND VICTORIA, 28th JUNE 2024

B737 Tanker

<https://youtu.be/FvPelvzPT9w>



B737 Tanker, Carnells'/pencil Pine paddock fire 15Mar24

Large Tankers



Australian Government

Australian Transport Safety Bureau

Controlled flight into terrain
involving Boeing 737-3H4
Fireliner, N619SW

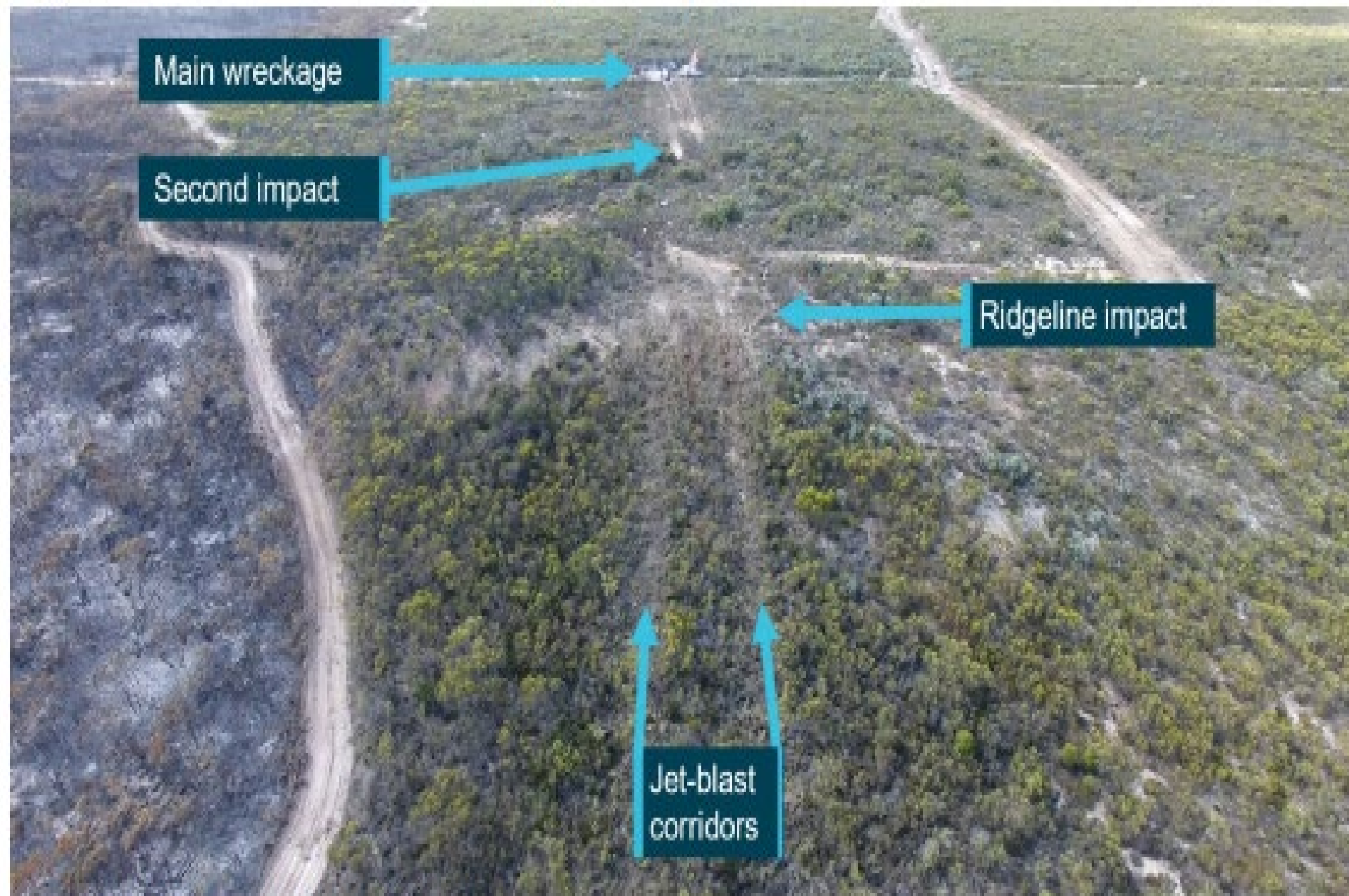
Fitzgerald River National Park, Western Australia on 6 February 2023

Figure 2: Bomber 139 retardant drops and accident site



Source: Department of Fire and Emergency Services, annotated by ATSB

Figure 5: Jet-blast corridors and ridgeline impact



Bulldozer fire tracks constructed after the accident.

Source: ATSB

Relatively Flat Terrain

Relatively flat undulating terrain and a guide aircraft to assist, but still a collision with the ground occurred.

The captain reported at interview that the second approach was conducted through drift smoke from the fire, and they were unable to identify the target until they exited from the smoke.....The co-pilot reported not being able to see the target on final.”



Investigation finds NSW Rural Fire Service failed to fully communicate dangers before Large Air Tanker crashed near Cooma in January 2020



By Antoinette Radford

Bushfires

Mon 29 Aug 2022



The charred wreckage of a C-130 Hercules which crashed in southern NSW, north-east of Cooma, killing its three US crew members. (Supplied: NSW Police)

Aerial Firefighting

- Hazardous activity
- Remaining clear of smoke is not compatible with the task.
- Large Tankers will be excluded from area.

Capacity Factor ~30% = works 2 days per week at design capacity.

Long Term Capacity Factor - 52 weeks - 30.81% (Last Week - 30.60%)

Long Term Capacity Factor - 412 weeks - 29.79% (Last Week - 29.77%)

For the IPC to consider

- Massive overbuild.
- Many Transmission lines needed.
- Synchronous Condensors needed.
- Dispatchable (gas/diesel/coal) backup needed.
- Batteries further destroy environmental credentials.
- Massive sunk energy and materials required.
- Short lifespan thus constant replacement
- No net environmental benefit
- Actually counterproductive
- Not for 'the greater good'

Efficiency

- If NSW needs 11GW and you use an inefficient method of making that power, you will ultimately use more resources overall.
- 1st and 2nd Laws of Thermodynamics

Wishful thinking won't do it

- The Laws of thermodynamics trump an Act of Parliament.
- Climate Change (Net Zero Future) Act 2023

Thermodynamics wins, we all lose

The Climate Change (Net Zero Future) Act 2023

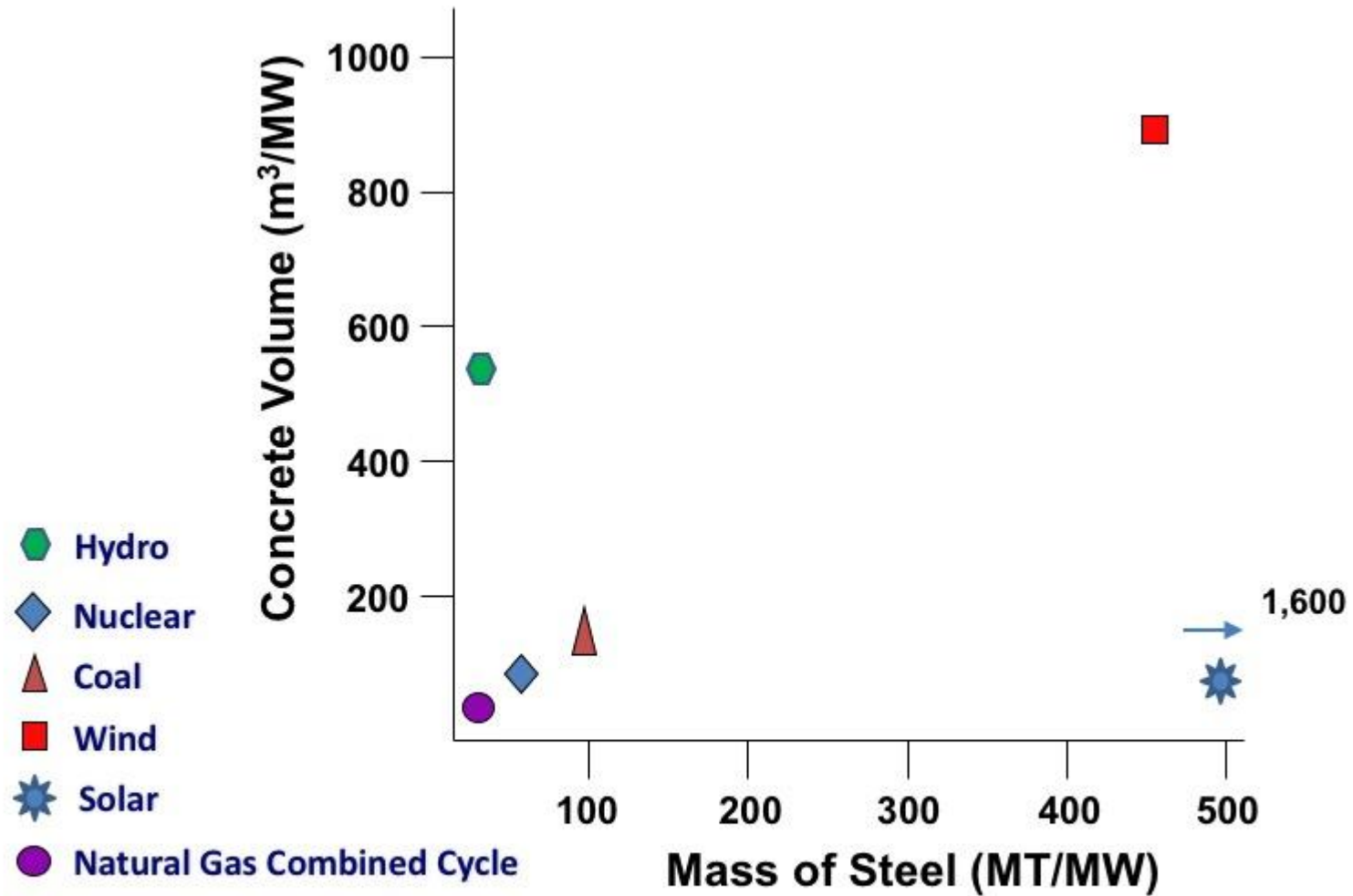
Legislating our commitment to meet our State's ambitious emissions reduction targets



Inefficient Use of Resources

- Wind, solar, and batteries require 1,000% more steel, concrete and glass; 300% more copper; and 4,200%, 2,500%, 1,900%, and 700% more lithium, graphite, nickel, and rare earths, respectively, than fossil fuels, to produce the same amount of energy.
- International Energy Agency (and others).

Counterproductive



Materials needed to install various energy systems

Inefficiency = more materials

Copper is critical to the energy transition.

Copper is critical to the energy transition, including the manufacture of electric cars, wind turbines and solar panels.

The need for responsibly produced Australian copper is clear.

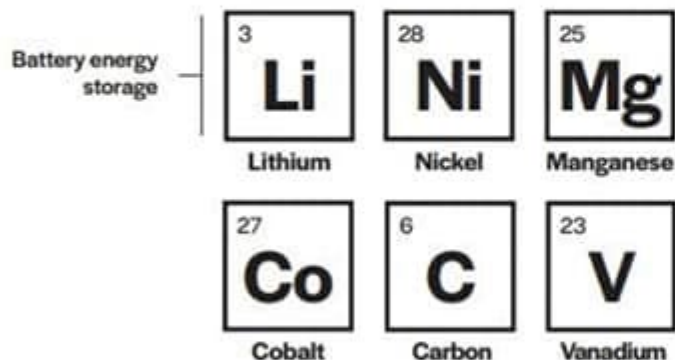
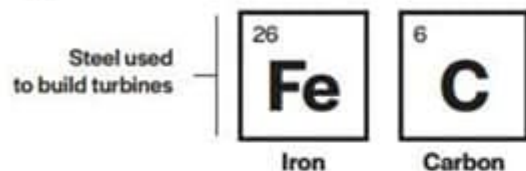
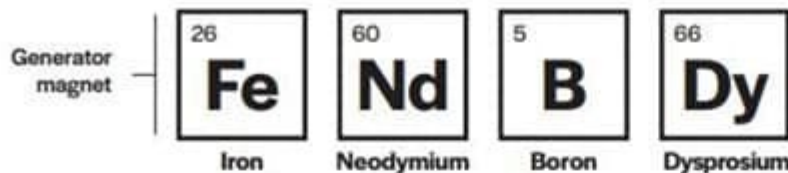
It's happening now at BHP.

To discover how, visit bhp.com/critical

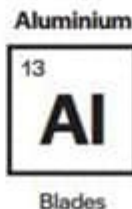
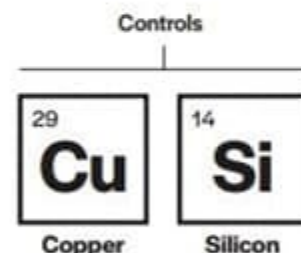
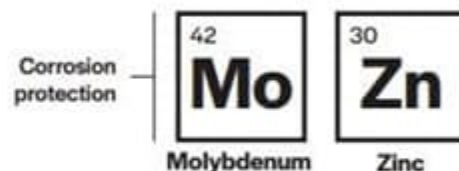
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Australia's global
resources company





There's more to
**Australian
Mining**



29 More than 220 tonnes of coal is required to build a wind turbine.
Wind farms

Wind power across Australia

Wind farms generated 26,800 gigawatt hours of electricity across Australia in 2021 – enough to power over four million homes. More than 8,900 megawatts of wind capacity is now connected to the grid, with wind generation accounting for around 10 per cent of Australia's total electricity generation.

Volvo says emissions from making EVs can be 70% higher than petrol models - and claims it can take up to 9 YEARS of driving before they become greener

By Rob Hull For [Thisismoney.co.uk](https://www.thisismoney.co.uk)

Updated 05:50 EDT 05 Nov 2021



Miners love Electric Cars

Minerals in

ELECTRIC VEHICLES VS GAS CARS

Electric vehicles require a wider range of minerals for their motors and batteries compared to gas cars.

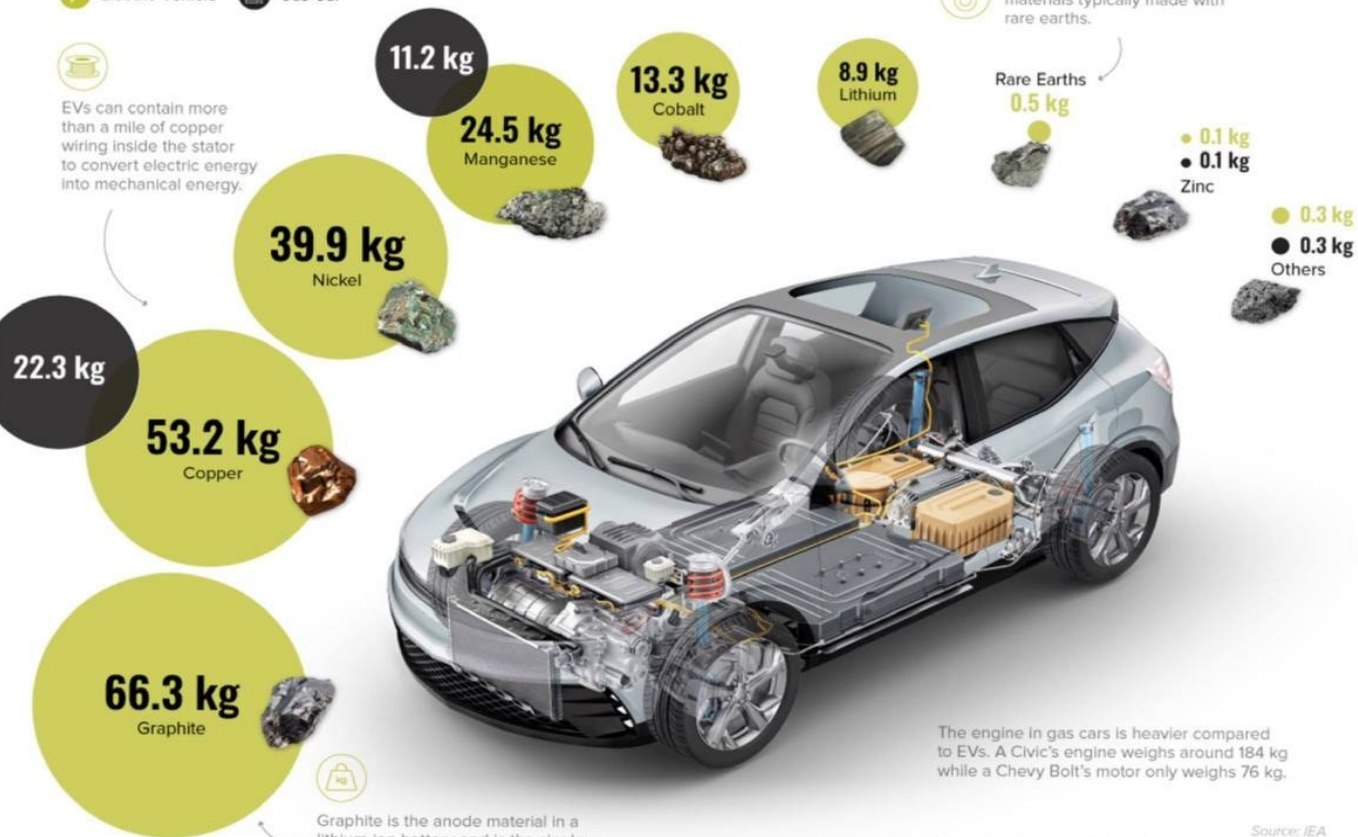
In fact, an EV can have 6 times more minerals than a gas car and be on average 340 kg heavier.

Mineral content kg/vehicle *Steel and aluminum not included.*

Electric Vehicle Gas Car



EVs can contain more than a mile of copper wiring inside the stator to convert electric energy into mechanical energy.



Many EV motors use magnetic materials typically made with rare earths.

The engine in gas cars is heavier compared to EVs. A Civic's engine weighs around 184 kg while a Chevy Bolt's motor only weighs 76 kg.

Source: IEA

The values are for the entire vehicle including batteries and motors. The intensities for an electric car are based on a 75 kWh NMC (nickel manganese cobalt) 622 cathode and graphite-based anode.



The Purple Transition – the start of a possible solution

Simon P. Michaux
Associate Professor Mineral Processing & Geometallurgy



The Purple Transition – the start of a possible solution. Associate Professor Simon Michaux