Port Kembla Hydrogen Hub

H2 FUTURE MOBILITY DAY #2

10 June 2021

NSW GOVERNMENT

Future Mobility Day #2 Program

- 10 June 2021

12.00pm	Registration opens – please adhere to Covid regulations	
12.15pm	Welcome	Adam Zarth Business Illawarra
	Heavy Vehicle Cluster	Nigel McKinnon Dept of Regional NSW
12.30pm	Lunch	
12.45pm	Hydrogen Hub Development Initiative	Michael Probert Dept of Planning, Industry & Environment
1.00pm	Heavy Road Transport Deployment Project	Wodek Jakubik Coregas
1.15pm	Hydrogen Commercial Mobility Australian Fleet Opportunities	John Feenan Hyzon
1.30pm	Q & A + Networking	Adam Zarth Business Illawarra

Port Kembla Hydrogen Hub

HEAVY VEHICLE CLUSTER

10 June 2021

NSW GOVERNMENT

Future Mobility

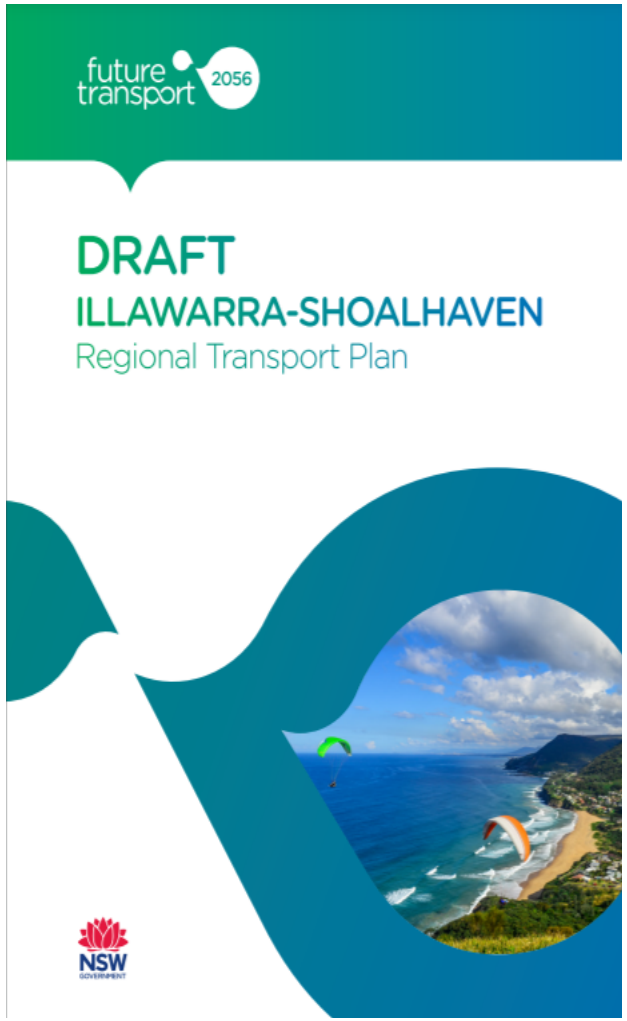
Powered by fossil fuels, the **Internal Combustion Engine (ICE)** has dominated **motive power systems** for cars, trucks, buses, trains, ships and planes for the past century.

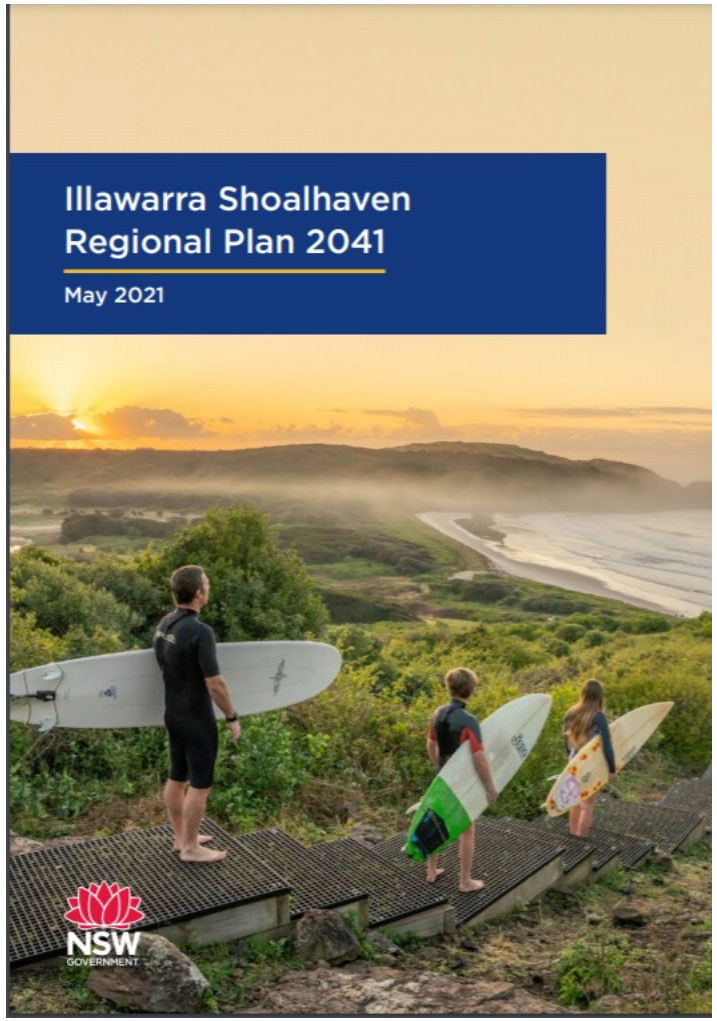
Battery Electric and Hydrogen **Fuel Cell Electric technologies** are set to become the **dominant form** of **motive power** in the future. **Fuel Cell Electric** has several advantages for **heavy vehicle applications.**

The transition to **electric mobility** is a **global mega trend,** driven by **decarbonisation** policies, **technology** improvements and **consumer demand**.

Strategic Context

- Regional transition to a zero emissions future
- Continued growth of Port Kembla, Australia's largest vehicle importation centre
- Increased regional freight task
  - **20 million tonnes by road**
- Facilitate fleet transition to emissions free technology





Port Kembla Hydrogen Hub

VISION - Develop Australia's first 5GW+ scale clean hydrogen hub to service domestic and export markets by 2030

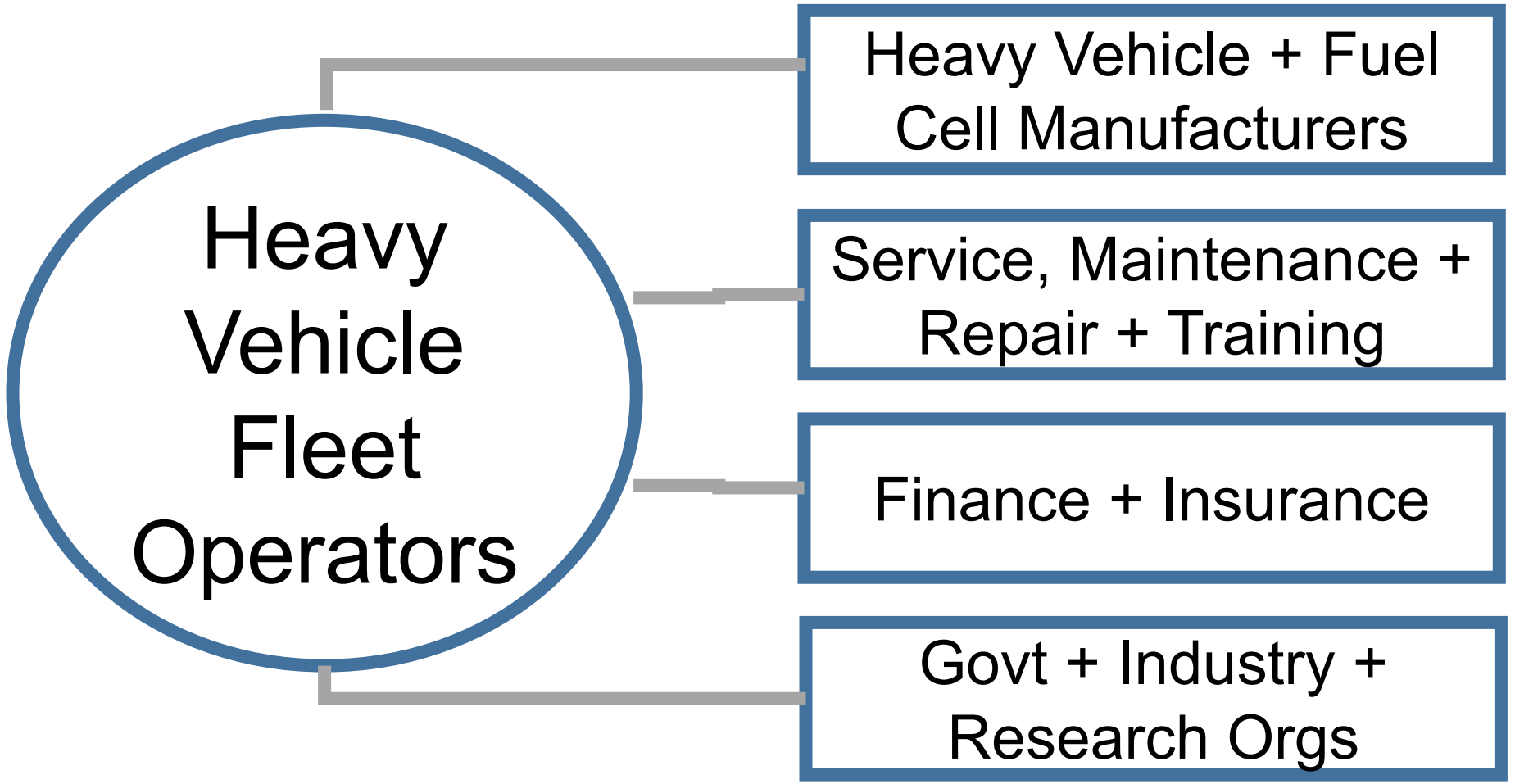
MISSION - Build a world class hydrogen hub ecosystem to maximise opportunities:

- **Facilitate** the $12.5+ billion of major energy projects in hydrogen production, power generation, gas pipeline and terminal infrastructure
- **Support** technology demonstration projects that leverage existing infrastructure, connect industry expertise with research institutions and create new highly skilled jobs
- **Educate** the community about the benefits of a hydrogen economy to build public trust, confidence and social licence to operate

Heavy Vehicle Cluster

- **Trucks – Heavy Road Transport Trial**
- Buses
- Trains
- Mining equipment
- Materials handling equipment

Heavy Vehicle Technology Cluster Map



NSW hydrogen hub development for the freight sector

April 2021

NSW Government support for hydrogen

Forthcoming NSW Hydrogen Strategy

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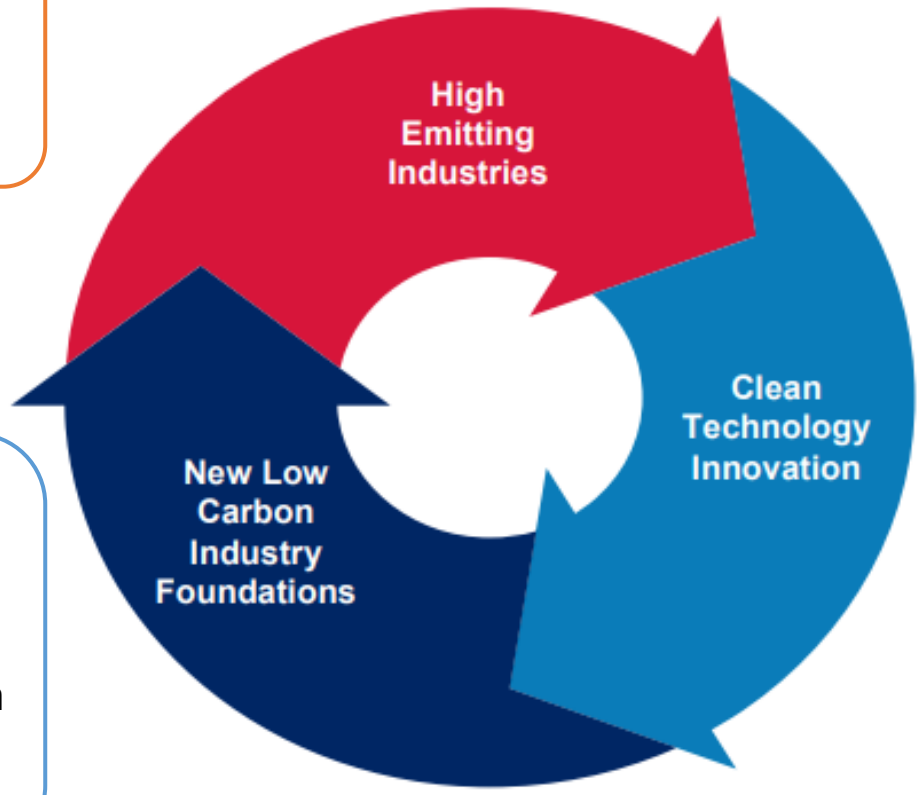
NSW Net Zero Industry and Innovation Program

The $750 million Net Zero Industry and Innovation Program is the NSW Government's plan to accelerate clean technology development and decarbonisation efforts across our high emitting industries.

$380 million to deploy low emissions technologies and infrastructure



$195 million to support the development and continued innovation of emerging clean technologies

$175 million to lay the foundations for low emission industries, including **at least $70 million** for hydrogen hub development.

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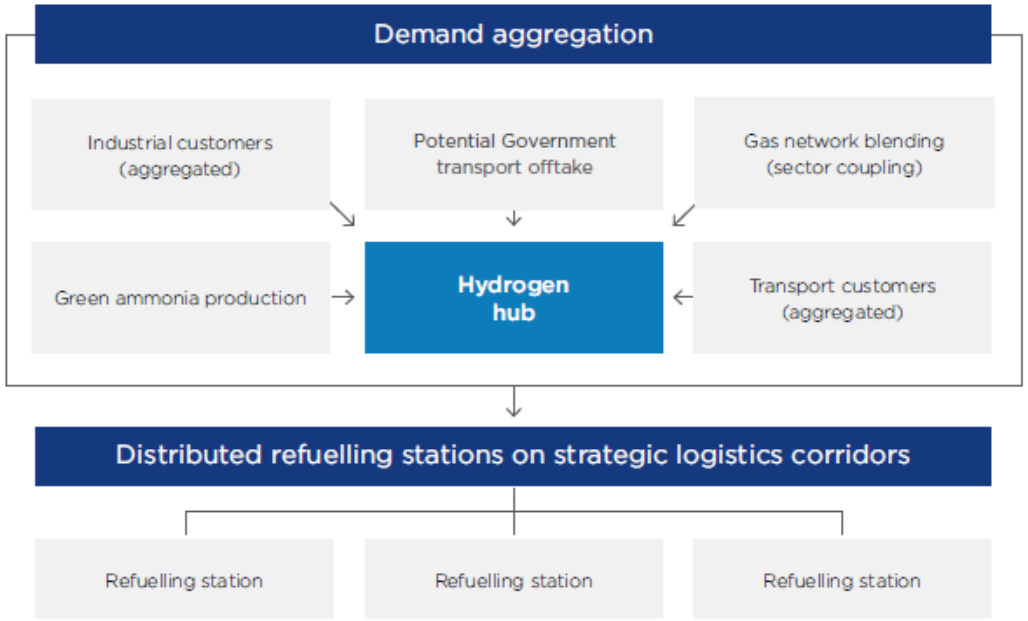
Heavy transport to support hydrogen hubs

- We are committing at least **$70 million** to develop hydrogen hubs as part of the Net Zero Industry and Innovation Program.
- Grant funding can be applied to any capital costs of a Deployment Project to make it commercially viable. This includes equipment or assets necessary for the distribution and consumption of hydrogen (e.g. plant upgrades, **hydrogen refuelling stations and vehicles**).
- This initiative aims to use the heavy transport sector as a catalyst to grow the clean hydrogen industry in NSW and support the broader **rollout of refuelling stations** at and along strategic logistics corridors.
- NSW Government plans to help **connect potential hydrogen users** and hydrogen hub project proponents.



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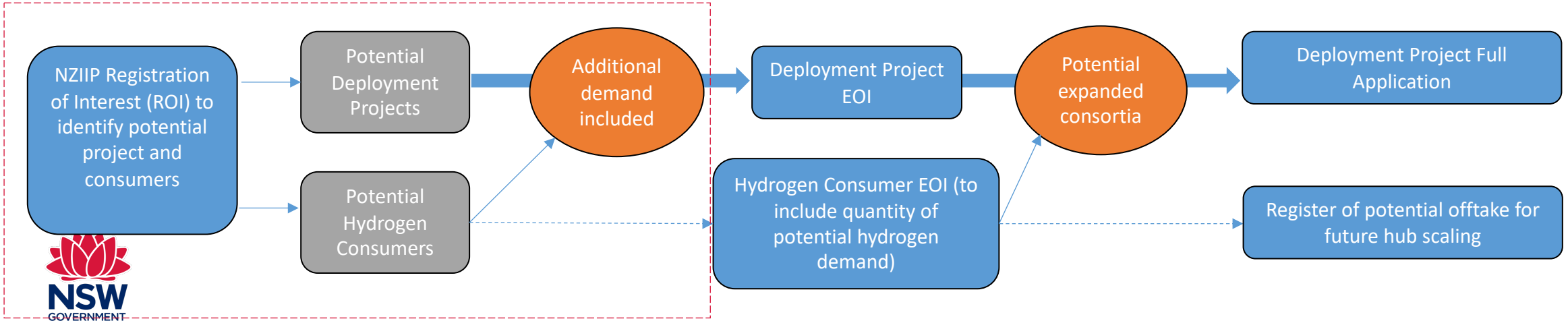
Demand aggregation and application process

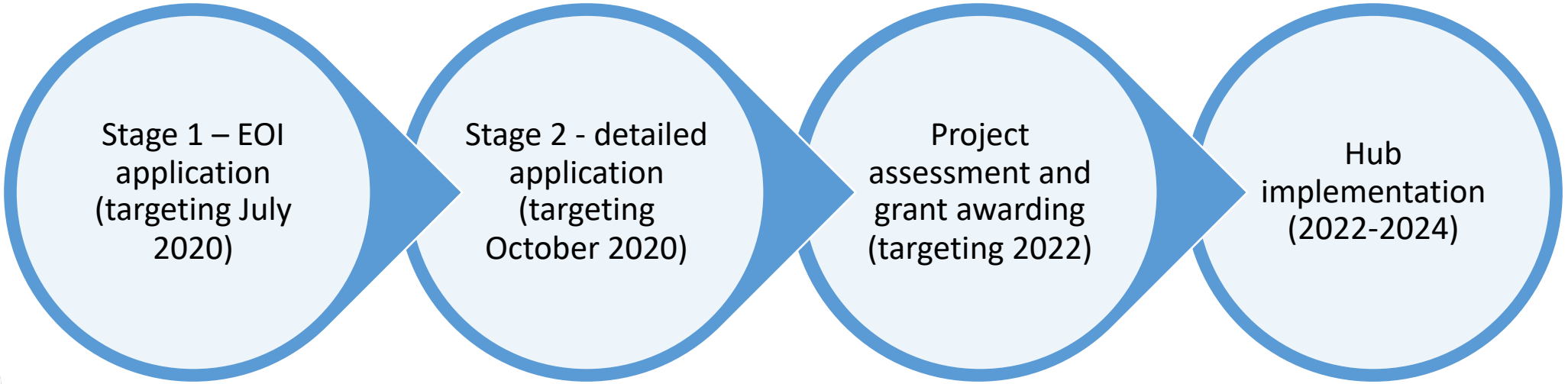
A key focus of the initiative is to facilitate partnerships between Deployment Projects, potential hydrogen users and the rest of the hydrogen supply chain. This will enable Deployment Projects to achieve larger scale while providing hydrogen competitive costs thanks to shared infrastructure.

- We aim to do this by:
  - identifying potential hydrogen demand in hub regions at the Registration of Interest and EOI application stages
  - connecting Hydrogen Consumers with Deployment Project proponents through the application process and our digital collaboration platform.



$70m Hydrogen Hub Initiative application process

- The application process for the $70 million Hydrogen Hub Initiative is a two stage competitive process targeting launch in late July this year.
- Registrations and applications will likely fall into two categories:
  - Hydrogen project proponents (full supply chain with confirmed offtake)
  - Potential hydrogen users (e.g. freight companies, fleet operators, existing industrial users of hydrogen)



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Collaboration platform

We are rolling out a digital platforms to improve collaboration between Deployment Projects and Hydrogen Consumers.

Port Kembla Hydrogen Transport Hub

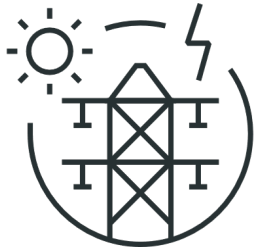
Wodek Jakubik, Coregas 10th June 2021

Hydrogen rush. Why now?

Environment
Climate Change

Energy Storage

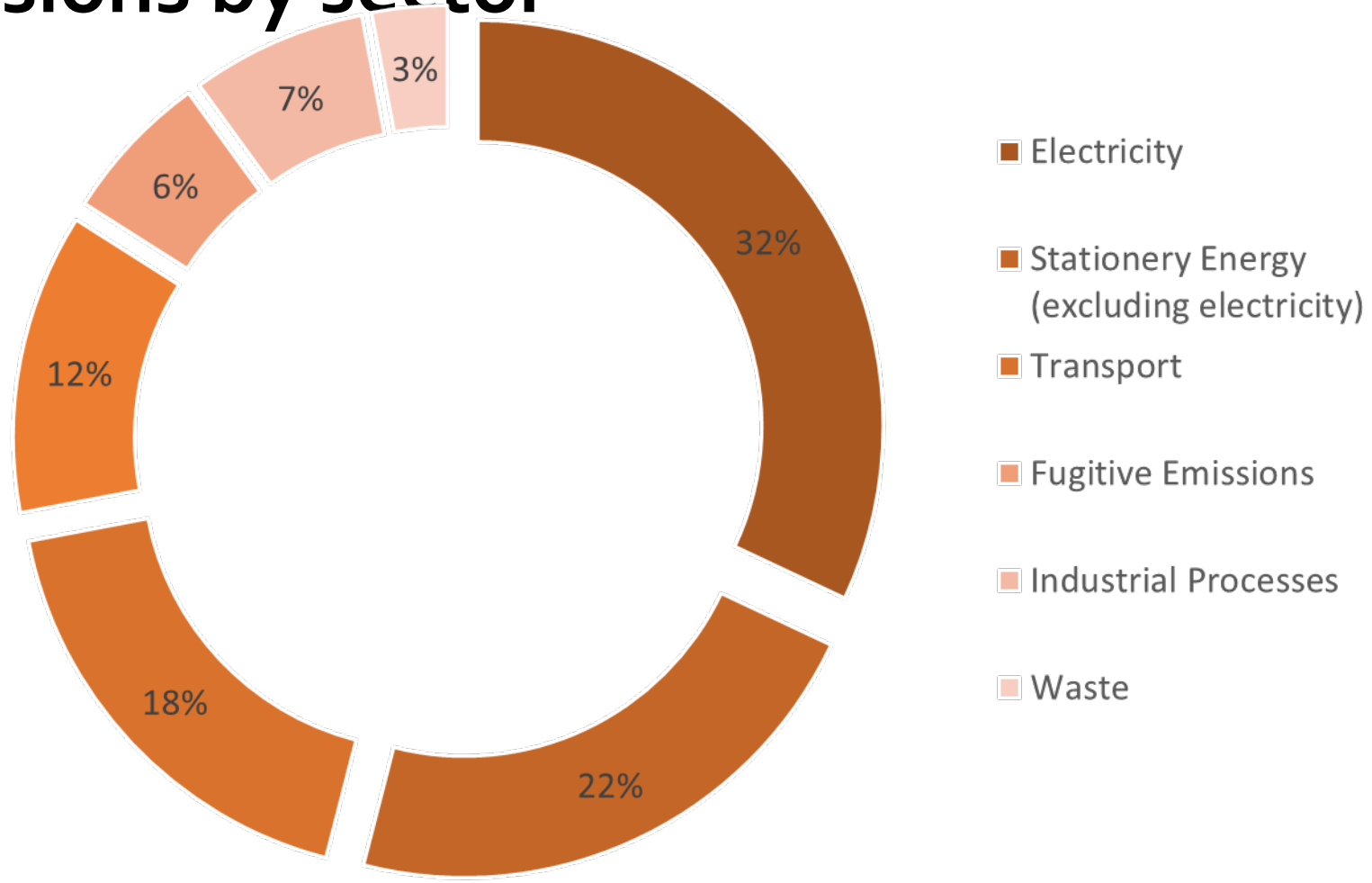
Greener grid



Energy Security

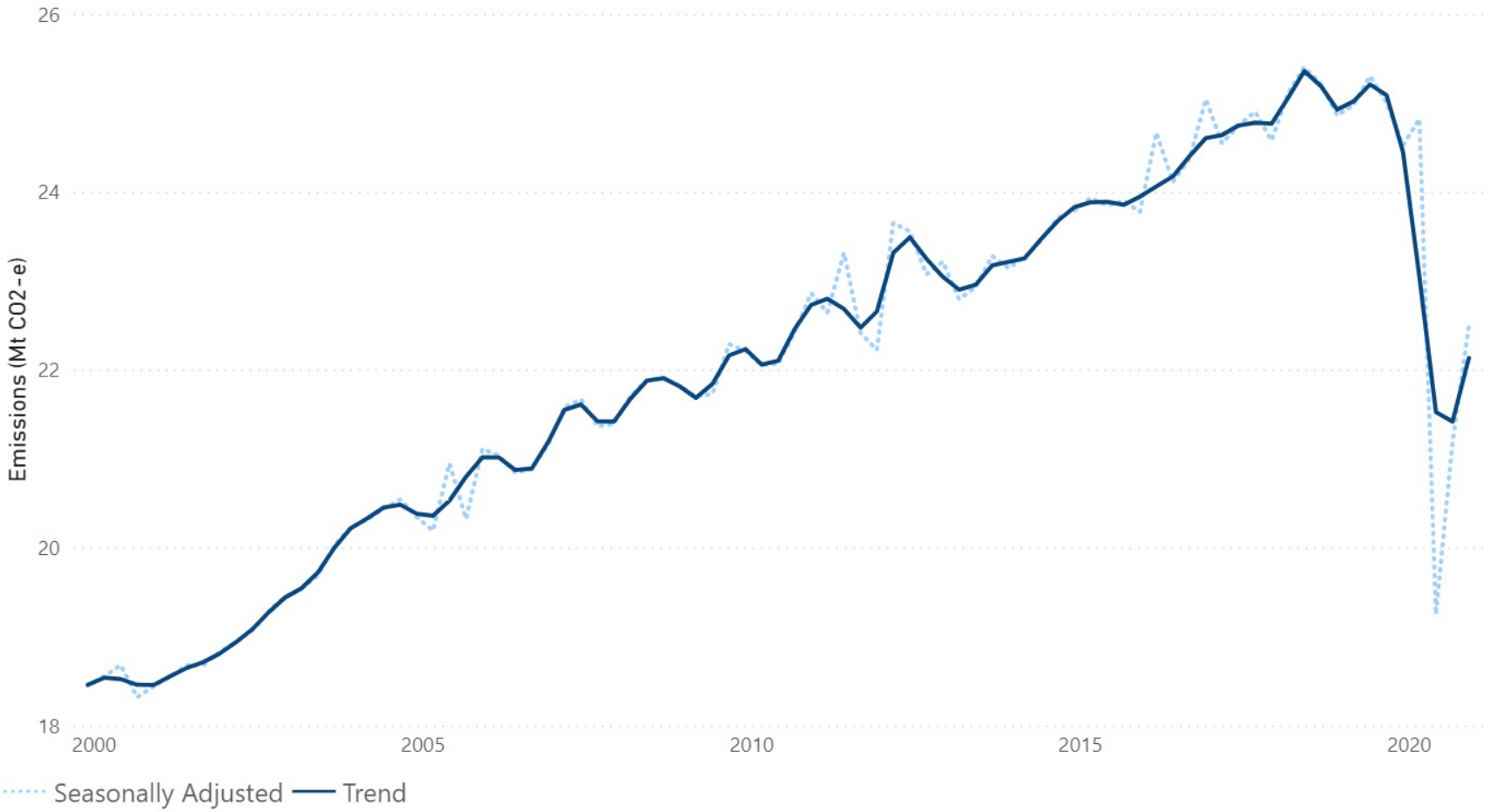
Economic
Development

CO_2 emissions by sector



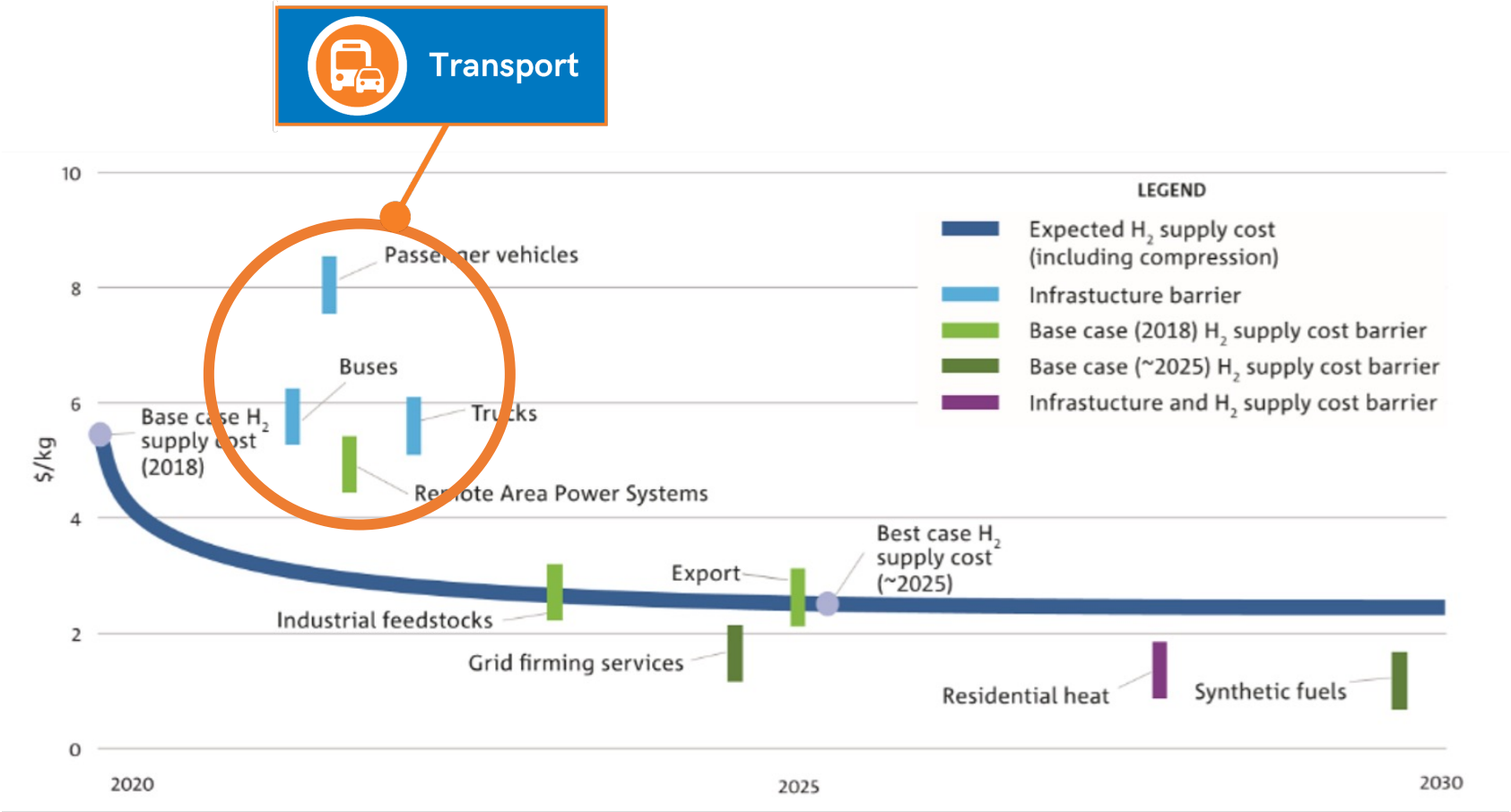
Source: National Greenhouse Gas Inventory Quarterly Update: December 2020

CO_2 emissions from transport



Source: National Greenhouse Gas Inventory Quarterly Update: December 2020

Domestic H2 demand will be led by transport



Source: CSIRO Hydrogen Roadmap

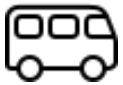
Source: National Greenhouse Gas Inventory Quarterly Update: December 2020

Hydrogen transport demand

Forklift: 5 kg for 24 hours operation

Passenger car: 7 kg, 600 km range

Garbage truck: 30 kg per day



Bus: 20 kg per day;

Truck: 40 kg per day; back to base model with 650 km range

6,000 public buses in NSW alone; 20 kg x 100 buses = 2 TPD
100,000 heavy trucks in Australia; 40 kg x 100 trucks = 4 TPD

So….what is required to start transition?

- Government support and policies ✓
- Standards and clear approval process
- Hydrogen supply ✓
- Refueling infrastructure ✓
- Skills ✓
- Public license
- Vehicles ✓
- Scale

HyPort next steps

- Project kick-off 1st June 2021
- Future Mobility Day at BlueScope Visitors Centre – 10th June 2021
- FCEV Engagement Program (Coregas/Hyzon) – June-July 2021
- Coregas refueller and two FCEV (hydrogen) trucks in 2nd qtr 2022
- Filling capacity for 3rd parties' trucks without additional investment in hydrogen production and refueling infrastructure
- Renewable hydrogen available in 2022
- If demand from local trucking companies, public refueling station can be built for 50-100 trucks by 2023/24
- NSW Government financial support for hubs with confirmed demand

HyPort: Port Kembla zero emission transport hub

Thank you

Contact

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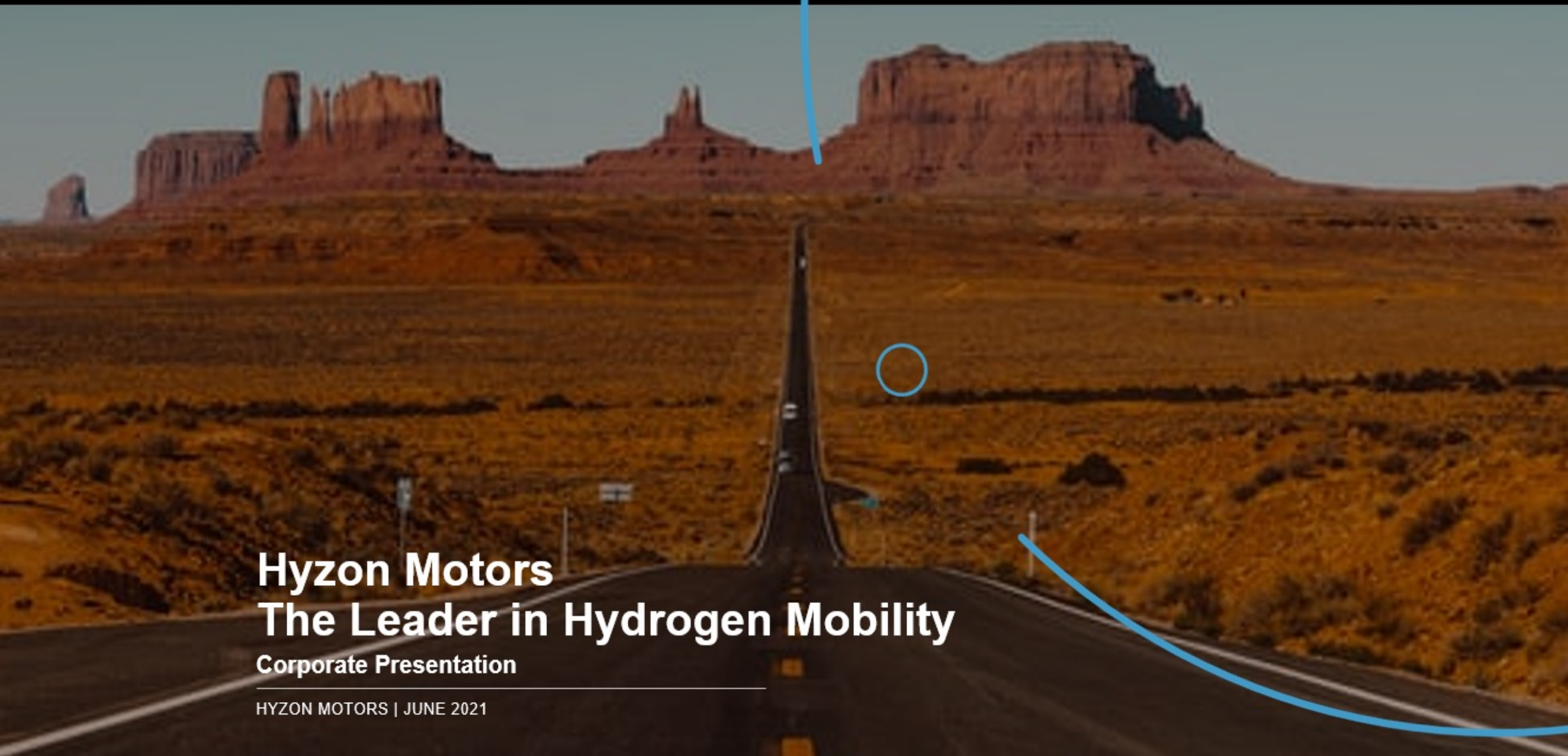
coregas



Hyzon Motors
The Leader in Hydrogen Mobility

Corporate Presentation

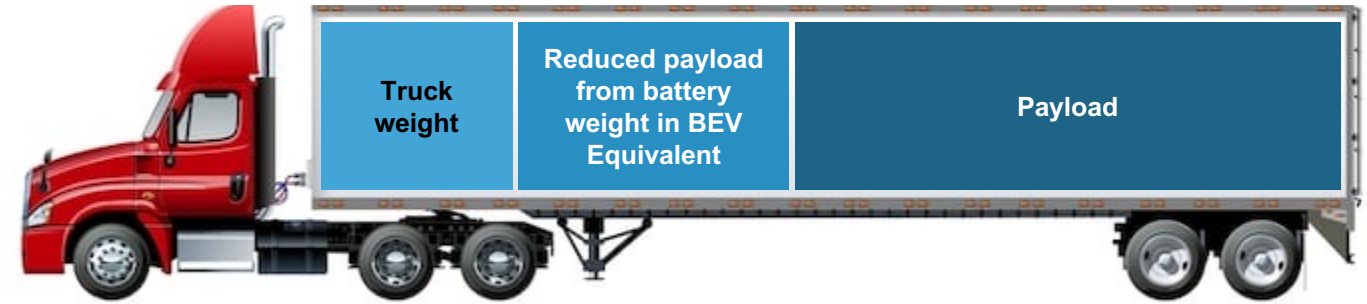
HYZON MOTORS | JUNE 2021

Hyzon Motors: Accelerating the energy transition

Hydrogen is Superior in Heavy Duty and High Utilisation Use Cases

Structural advantages versus battery alternatives

BATTERY WEIGHT AND CHARGING TIMES ARE MATERIAL ISSUES FOR BEV TRUCKS



Advantages of Hydrogen over BEV

- Faster Refueling
- Better Range
- Environmentally Cleaner
- Higher Payload

In the US, the max weight allowance for Class 8 trucks is 36 tons (approximately 80,000 lbs)

The weight of the truck without the battery is ~7-8 tons and the **battery can weigh up to 5 to 8 tons**[1]

A hydrogen fuel cell truck has the potential to generate more revenue because it can carry more weight and **can operate for 24 hours without the need for long recharging times**

Hydrogen enables autonomy in high utilisation, 24/7 assets with significant advantages over battery technology
Hyzon has entered into a collaboration agreement aiming to deploy the world's first fully autonomous, zero-emission truck currently targeted for 2021

> The problem is that batteries are big and heavy. The more weight you're trying to move, the more batteries you need to power the vehicle. But the more batteries you use, the more weight you add—and the more power you need.
>
> Even with big breakthroughs in battery technology, electric vehicles will probably never be a practical solution for things like 18-wheelers, cargo ships, and passenger jets. Electricity works when you need to cover short distances, but we need a different solution for heavy, long-haul vehicles.
>
> BILL GATES
> SEP-2020

[1] Public sources.

Hyzon is a Leader in the Global Decarbonisation of Commercial Transport; Strategy Anchored in Key Attributes

Leading Technology

Nearly 20 years of development behind Hyzon's core technology – the high-power density hydrogen fuel cell

Focus on Commercial Market

High-utilisation, back-to-base business model drives superior economics; added scale and infrastructure to drive down TCO and open regional and long-haul markets

Global Operations

Hyzon already serving customers in Europe, to build out operations in U.S. and Middle East

Experienced Management Team

Founders and executive management have extensive experience across fuel cell and automotive sectors

Exceptional Growth Potential

Commercial fuel cell electric vehicle market expected to grow 34% annually to 2030[1]

[1] Source: McKinsey Center for Future Mobility

Hyzon Leverages Decades of Hydrogen Technology Leadership for a Head Start in Mobility Solutions

Hyzon Motors is Leveraging History of Parent Company, Horizon Fuel Cell Technologies, to Revolutionize Heavy-Duty Mobility

Hyzon parent company **Horizon** has already delivered hundreds of hydrogen fuel-cell power systems for commercial vehicles to customers, including buses and Class 8 trucks

Horizon was founded in Singapore in 2003 and pioneered fuel cells in a variety of global applications

In 2019, Horizon shipped 27MW of fuel cell capacity including 10 units of 150kW stacks, believed to be more output than any other standalone fuel cell company

Hyzon is the technology carve-out to pursue the trillion-dollar market of hydrogen mobility. It has 20 owned provisional patent applications and 40+ co-owned patents and applications with Horizon

Hyzon is launching hydrogen heavy vehicles and expects to ship fuel cell heavy trucks this year

EXISTING FIRST MOVER ADVANTAGE THROUGH HORIZON...

... HAS LED TO DEVELOPMENT OF HYZON'S FUEL CELL, THE WORLD'S MOST POWERFUL, UNIQUELY SUITABLE FOR HEAVY DUTY APPLICATIONS...

...PROVIDING CUSTOMERS WITH THE MOST COMPETITIVE PRODUCT IN THE MARKET

Dedicated focus on hydrogen commercial mobility solutions

Hyzon's range of hydrogen fuel cell powered vehicles **available today and in the pipeline**

HYMAX-450

70t 6x4 Prime Mover

HYMAX-160

24t 6x2 Rigid Truck

CITY BUS

35 Sitting, 35 Standing, low floor

COACH

57 Sitting, High floor

ROAD TRAIN

In development

GARBAGE TRUCK

Local configuration

CONCRETE TRUCK

Local configuration

Hyzon Australia supporting projects across the Asia-Pacific

Hyzon Motors Australia is a 100% owned subsidiary of Hyzon Motors Inc

Hyzon Prime Movers for Port Kembla

Hyzon to deliver its hydrogen fuel cell powered prime mover to Coregas in 2022 leveraging Coregas' commercial hydrogen refuelling station in an Australian first

Hydrogen prime movers to replace diesel trucks providing immediate zero emission solution

- Two Hymax-450 hydrogen fuel cell prime movers
- Manufactured by Hyzon Europe (Netherlands)
- Maximum 70 tonne gross combination mass
- Vehicles to be deployed immediately by Coregas for specialty gas transport

Port Kembla hydrogen heavy-duty mobility hub

Coregas and Hyzon to facilitate the transition to hydrogen commercial vehicles in the Illawarra-Shoalhaven region centralised around Port Kembla freight operations

Port Kembla represents an opportunity to progressively scale hydrogen mobility with fleet operators

- Readily available and reliable hydrogen supply with capacity for scale
- Opportunity for fleet aggregation
- Broader hydrogen hub potential
- Growing need for zero emissions

SEED THE MARKET	GROW THE MARKET	MATURE THE MARKET
Pilot	**Deployment**	**Expansion**
Small scale pilot	**Commercial deployment**	**Wider adoption**
~10 vehicles	50-100 vehicles	Market creation
Coregas refuelling station a basis for future expansion	*Aggregating fleet demand targeting logistics and industrial operations*	*Positioning Port Kembla on the global hydrogen stage as a major sector player*

DRIVING DOWN VEHICLE AND FUEL COSTS THROUGH ECONOMIES OF SCALE

Contact

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