Green stars for trucks

.... the missing piece in the freight

decarbonisation puzzle?

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transport   energy   environment

Four topics we'll cover today

Australian market context

Why is a rating the right tool?

How would a truck rating work?

What did we learn from the pilot?

Few enablers

But many barriers

1. Australian market context

- Low fuel taxes -> undermine ZET business case

- No carbon price on fuel

- No fuel efficiency standards

- Limited grants & incentives

- No policies to retire vehicles

- No green freight program / fleet improvement support

- No ZEV mandates, diesel bans, low-emission zones

- Fragmented information

→*Technology availability, awareness, confidence all low*

RESULT #1: AUSTRALIAN LZET SALES GOING THE WRONG WAY

New truck sales very strong since COVID (gov't incentives)

LZET truck sales have been in decline for a decade

2022 and 2023 may be a turning point

But starting from a very low base: speed needs to be supercharged to make a difference

Sales of Alternatively Fuelled and Powered Trucks

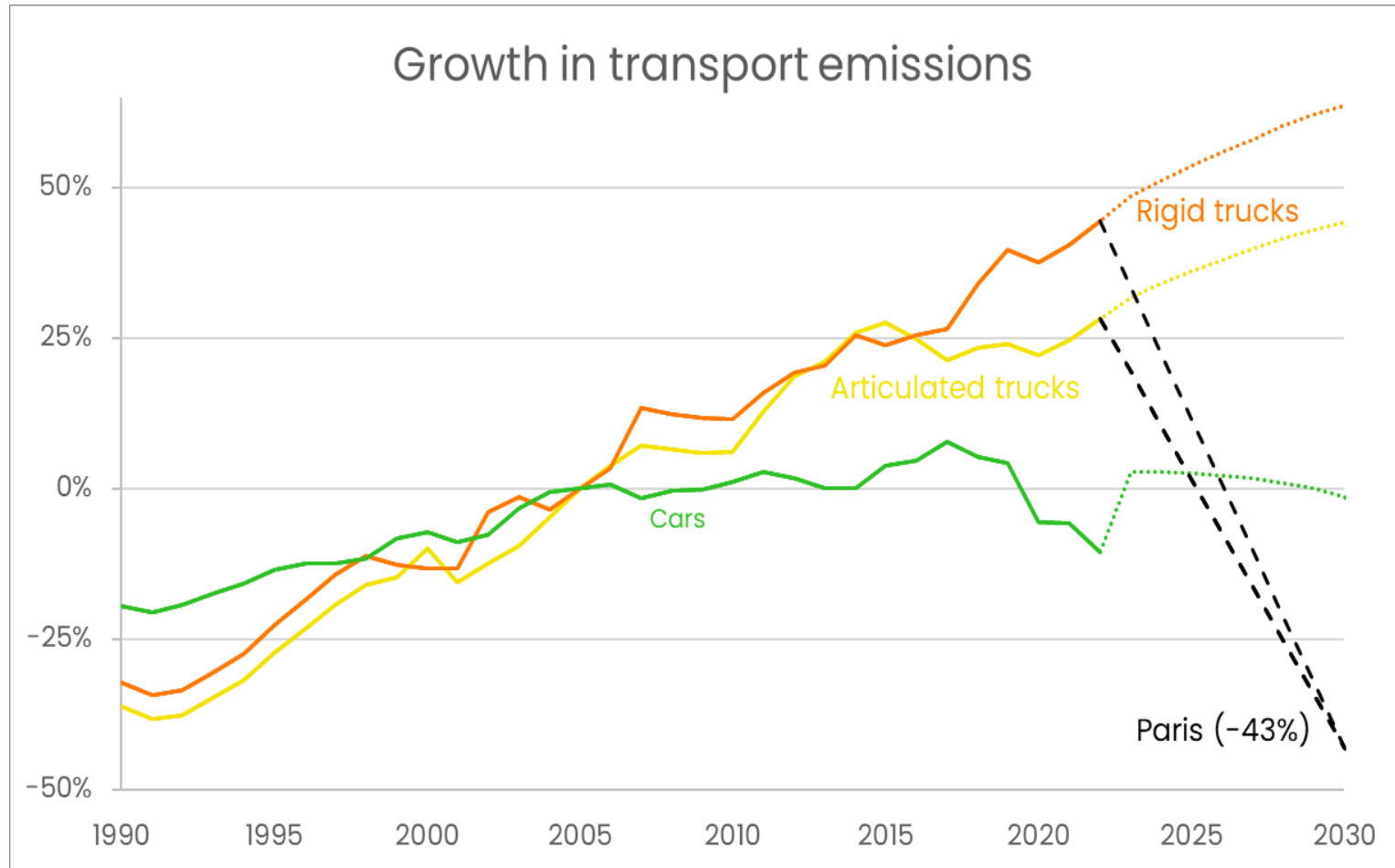Total truck sales   LZET sales

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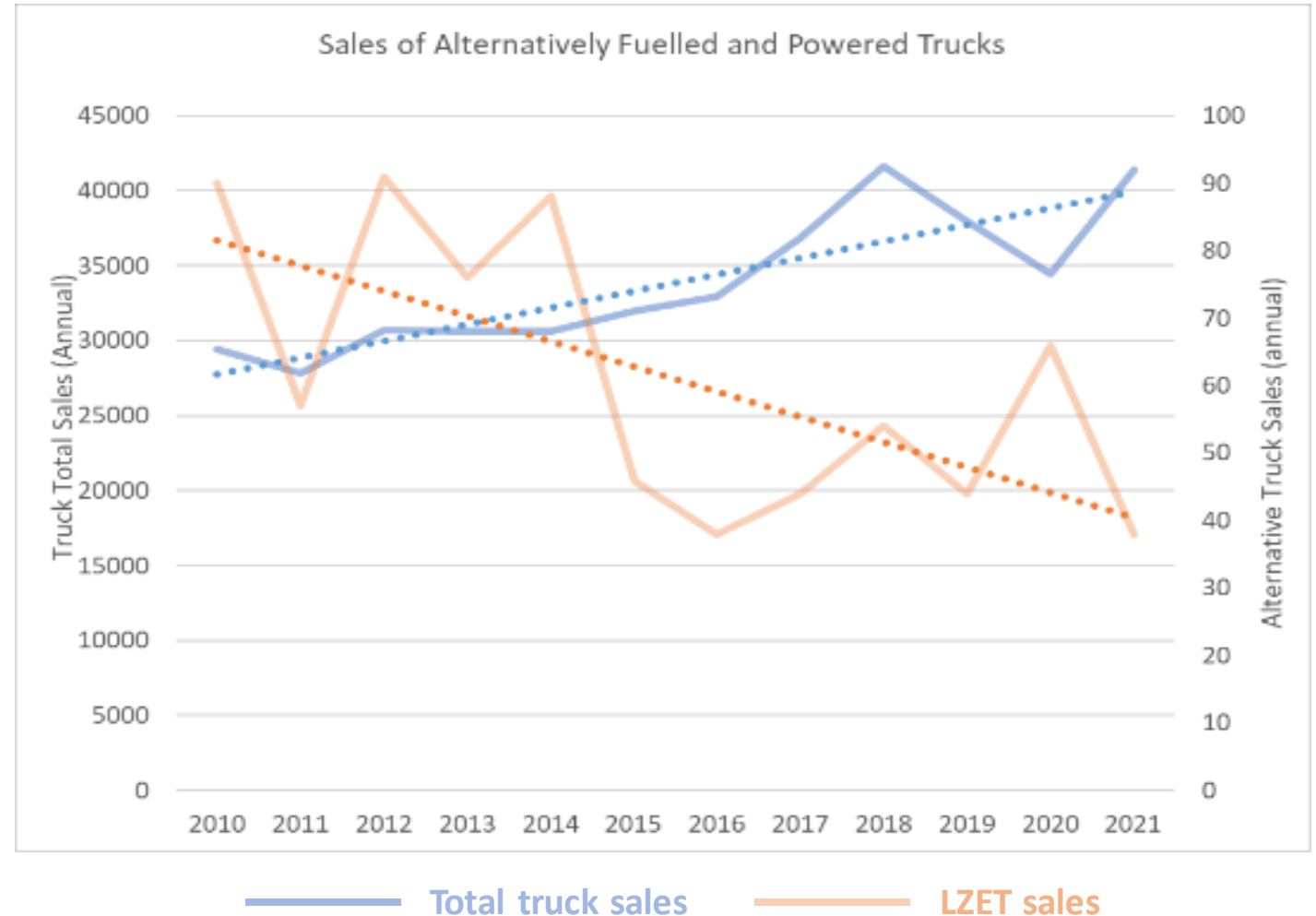
RESULT #2: EMISSIONS GROWING BUT NEED TO DECREASE FAST

Freight task growing strongly

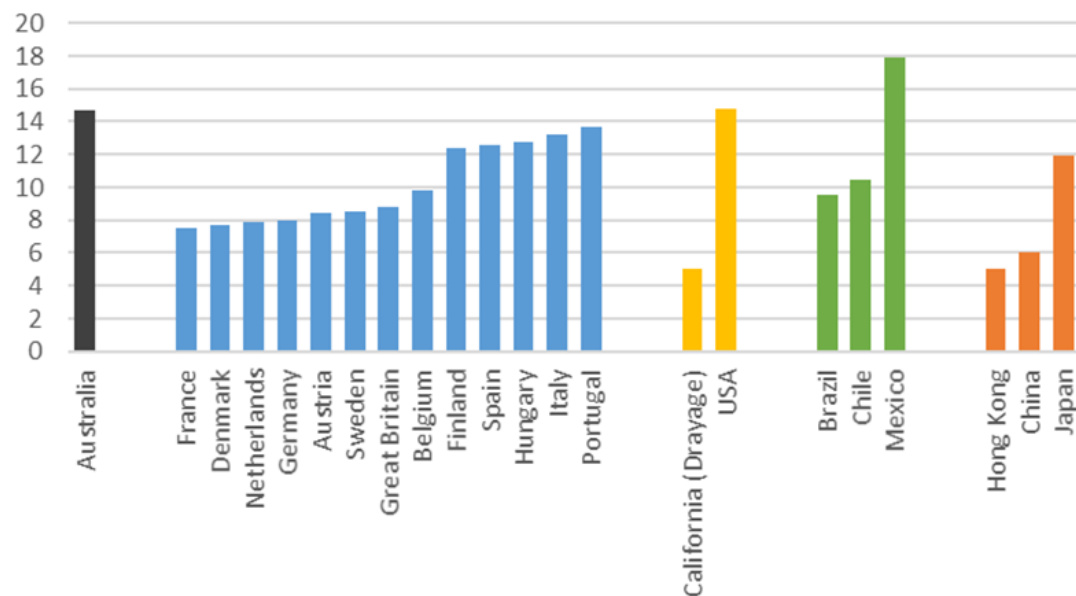Benefits from fuel efficiency, high productivity vehicles, and alternative fuels are small and not enough

Truck emissions will increase to 2030 and beyond

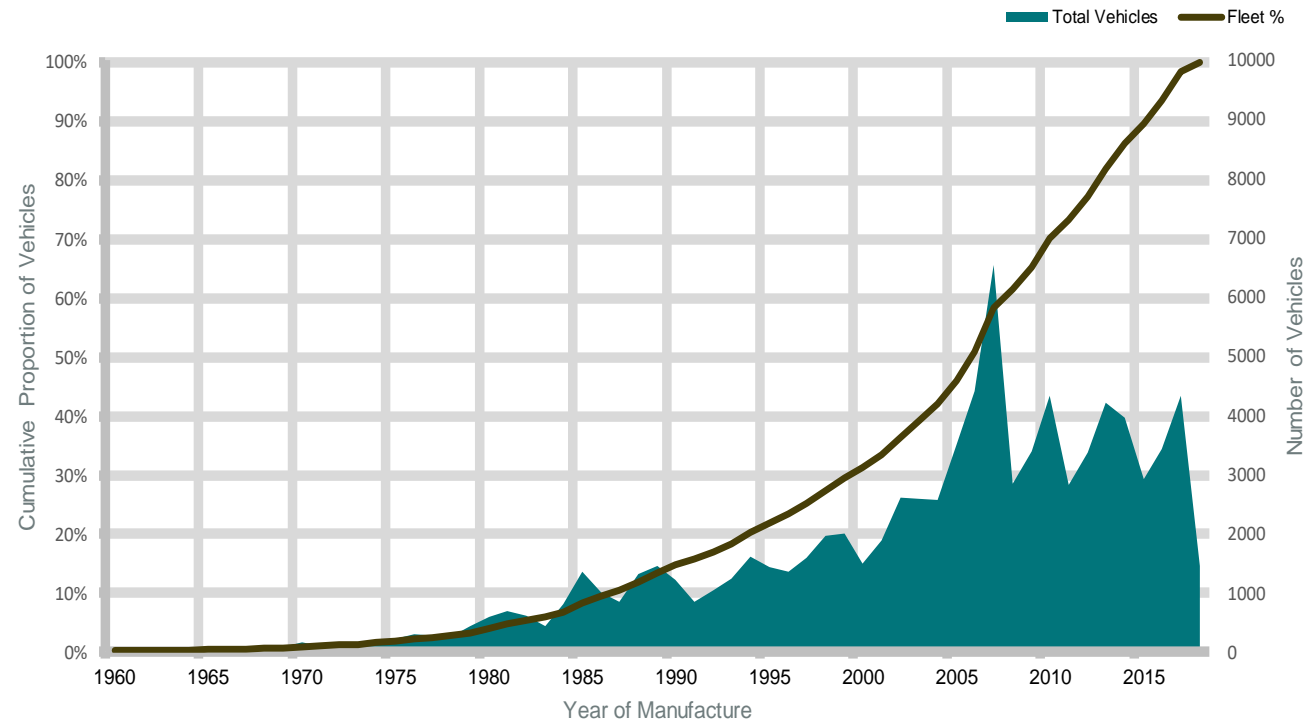Need to use all tools available to reverse the trend

Growth in transport emissions

RESULT #3: FLEET REPLACEMENT IS VERY SLO..O..O..O..W

Average Truck Age, by Region

Average age of trucks ~ 15 years (and >15y in NZ)

One of the oldest fleets in the OECD / world

Almost one quarter are >23 years old

Even a ZEV mandate today would take 30+ years to transform truck parc

→ *NEED EFFECTIVE ACTION AND TOOLS FOR ALL TRUCKS OF ALL AGES*

A simple, reliable decision-making tool

- Truck energy analysis is complex, challenging

- A visual metric can summarise & simplify comparison

- Dozens of other sectors use them effectively

★★☆ 2. Why is a rating the right tool?

Tackles major barriers & market failures
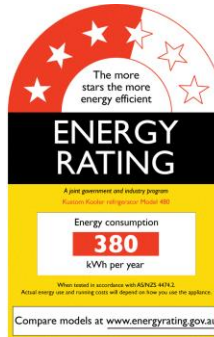
- Differentiates vehicles (vs efficiency standards)

- Informs/educates users

- Based on factors an operator CAN influence

- <u>Missing link</u> in policies, incentives, procurement, comms

- Can be used across supply chain

Ratings work

everywhere

- Research covering 428 Green Star certified building projects.
- 62% fewer GHG emissions
- 66% less electricity
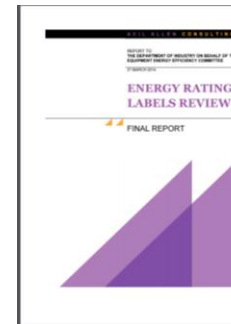
- Review of ERL in Aus & NZ
- Universally recognised (97%)
- Interpreted correctly (72%)
- Primary research tool (62%)

- Independent review of WELS Scheme
- Water saving ~$1.5b by 2015
- Projected to reach ~$4.8b by 2030
- Program costs 2014–15 ~$1.44m

BUT WAIT, TRUCKS ARE DIFFERENT & COMPLICATED !!

What we heard: *"It can't work, trucks are too hard"*

- Too many shapes and sizes

- Too many duty cycles / applications

- No steady-state conditions

- Driver makes all the difference

- No technologies available

How would a truck rating work?

What we heard:

"Needs to do more than just one thing"

Points awarded for features that reduce energy loss

Euro VI,
alternative fuels,
ZE drivetrain

Aero parts

Points scores in
multiple categories

Low RR tyres

SMART TRUCK
RATING

STR Vehicle Number:
LR070034

Duty Cycle: Urban
VIN Number: 29434TYS024A37

Pollution Score	4 / 15
Efficiency Score	32 / 70
Smart systems	12 / 15

AU Pat App No. 2017100251

Three stakeholder groups

- **Steering Group** – guide project, assist w/ industry support

- **Technical Reference group** – expert advice on equipment availability and performance in Australia

- **Field test group**
  - ➢ participated in field scoring and interviews
  - ➢ manufacturers, suppliers, dealers, fleets

What did we learn from the pilot?

The pilot trial was co-funded by the Australian Government (Department of Industry) and State Governments

Concept was trialled with real trucks at dealers and online

Participants

SCANIA   HINO   ISUZU TRUCKS

LINDSAY TRANSPORT   ALLPURPOSE TRANSPORT — MOVE WITH CONFIDENCE

COVID interrupted participants — AUSTRALIA POST   BRISBANE CITY

Brands scored

HINO   ISUZU TRUCKS   FREIGHTLINER   KENWORTH   SCANIA   VOLVO   TESLA   MACK   WESTERN STAR   SEA Electric
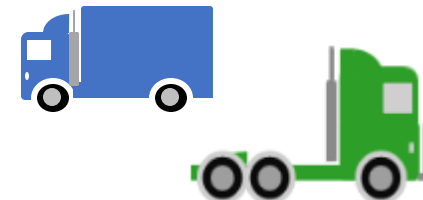
54 real trucks scored

- 29 in-person, on site; 25 online

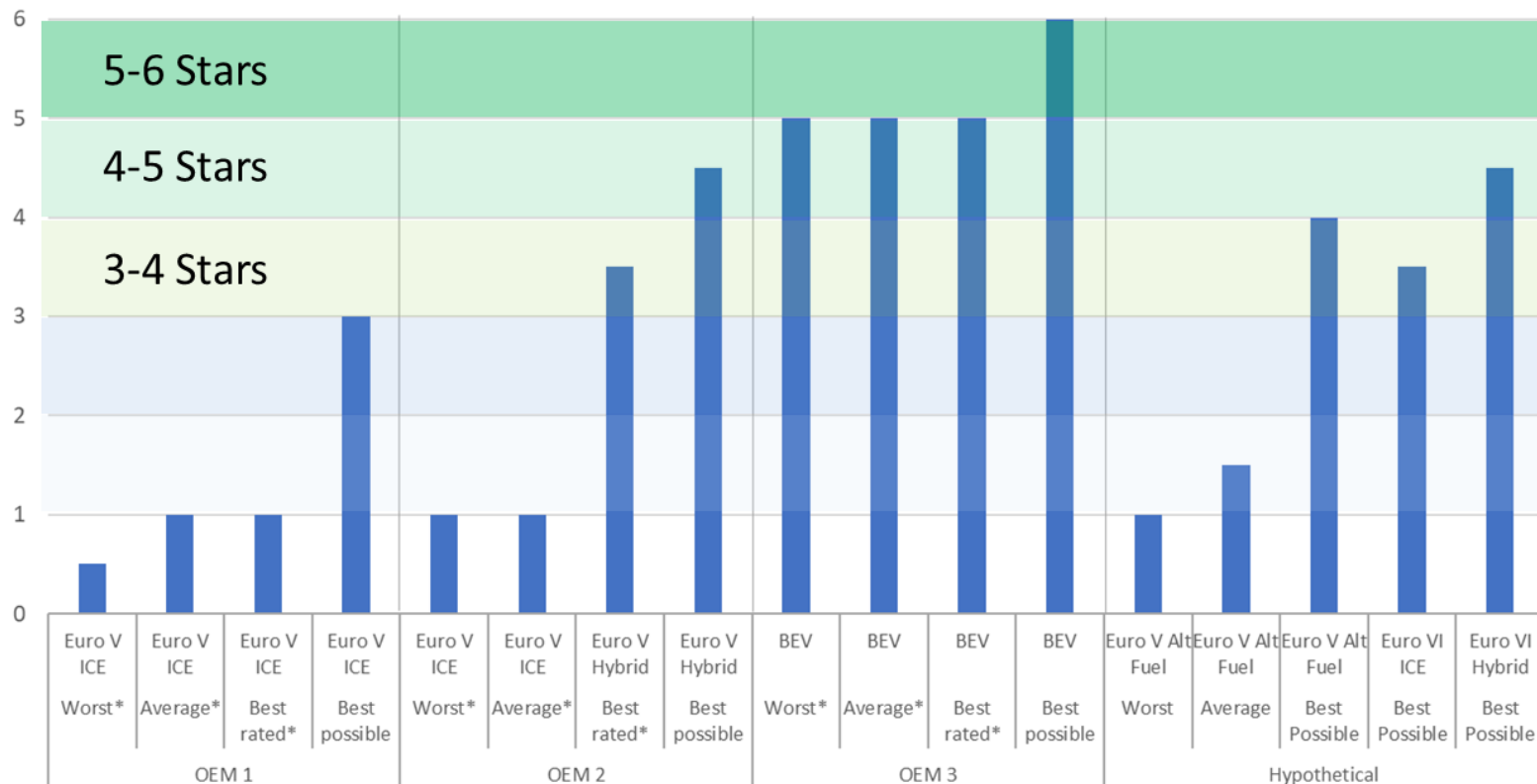## 2 duty cycles / applications tested representing around half all sales

- Urban distribution <10t

- Prime movers, long haul

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12

Results: light rigid urban delivery

All Light Rigid - Star rating

- "Pre-built" basic spec & floor stock scored low (1-2 star)
- Up to 3.5 stars achieved with an optimised diesel truck
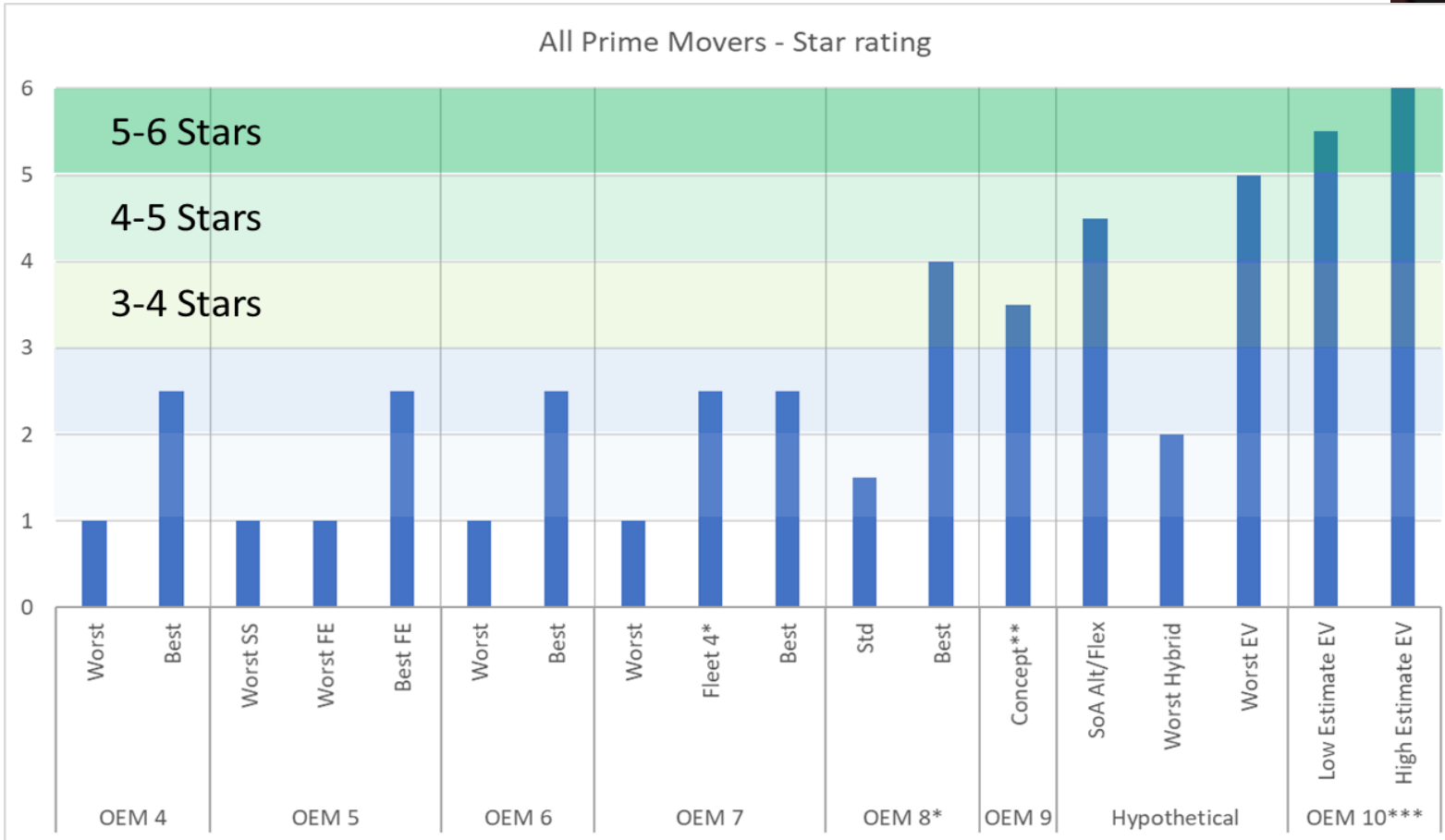- Hybrid and alternative fuels achieved up to 5 stars
- BEVs rated up to 6 stars
- Old / used trucks can also be scored on same scale

Results: prime mover, long haul

All Prime Movers - Star rating

Star rating band
5-6 Stars
4-5 Stars
3-4 Stars

OEM 4: Worst (1), Best (2.5)
OEM 5: Worst SS (1), Worst FE (1), Best FE (2.5)
OEM 6: Worst (1), Best (2.5)
OEM 7: Worst (1), Fleet 4* (2.5), Best (2.5)
OEM 8*: Std (1.5), Best (4)
OEM 9: Concept** (3.5)
Hypothetical: SoA Alt/Flex (4.5), Worst Hybrid (2), Worst EV (5)
OEM 10***: Low Estimate EV (5.5), High Estimate EV (6)

"Pre-built" base spec floor stock scored low 1-2.5 stars

Up to 4 stars achieved with an optimised diesel truck

Few diesel alternatives; but could reach 4.5 if available

ZEVs (Hydrogen or BEV) could achieve up to 6 stars

Old / used trucks could also be scored on same scale

Pilot showed a rating _could_ be effective & viable

- Cover wide sample of each duty-cycle   More = better

- Understand features available by brand   ✓

- Understand sales process and buying behaviour   ✓

- Consider where scheme would fit in sales process   ✓

- Confirm it could influence purchase decision/spec   ✓

- Test the scoring and stars across all technologies   ✓

- Confirm suitability for used / second-hand trucks   ✓

Thanks to the Australian Government (Department of Industry)
and State Governments for funding the pilot

Did we achieve aims of the pilot?

QUESTIONS?