Transportation Transformation:
The Path to Net Zero Emissions

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Cummins

HADEY Foods, LLC

SHEHADEY

Family Foods, LLC

EV Class 8 Tractor Project

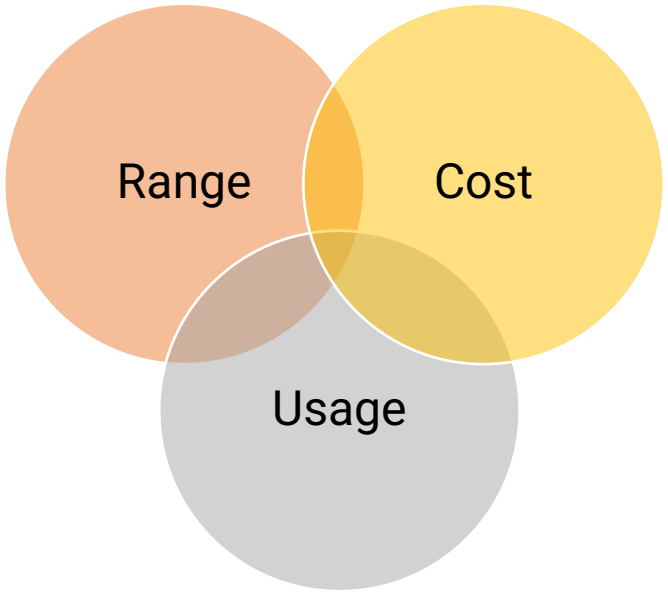
Erik Covey CAFM, CPFP – Fleet Manager

ONE AT A TIME

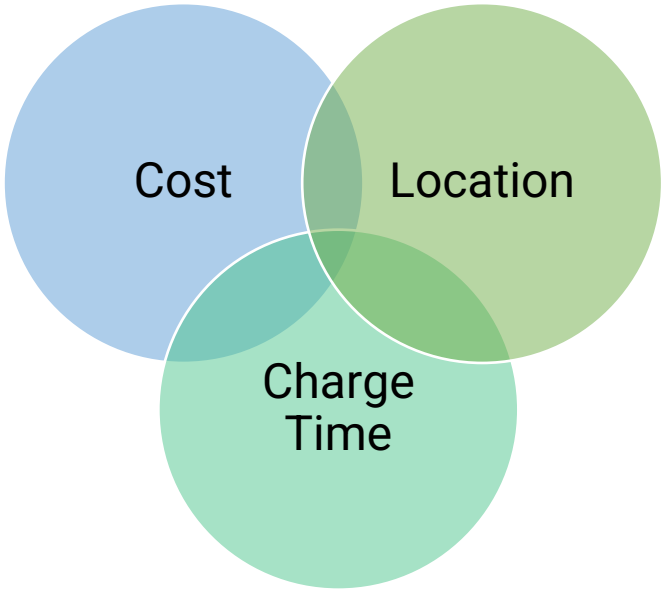
Scope of Protects

Vehicles > Charging > Time > Scope > Use > Grants > Funding

Vehicles



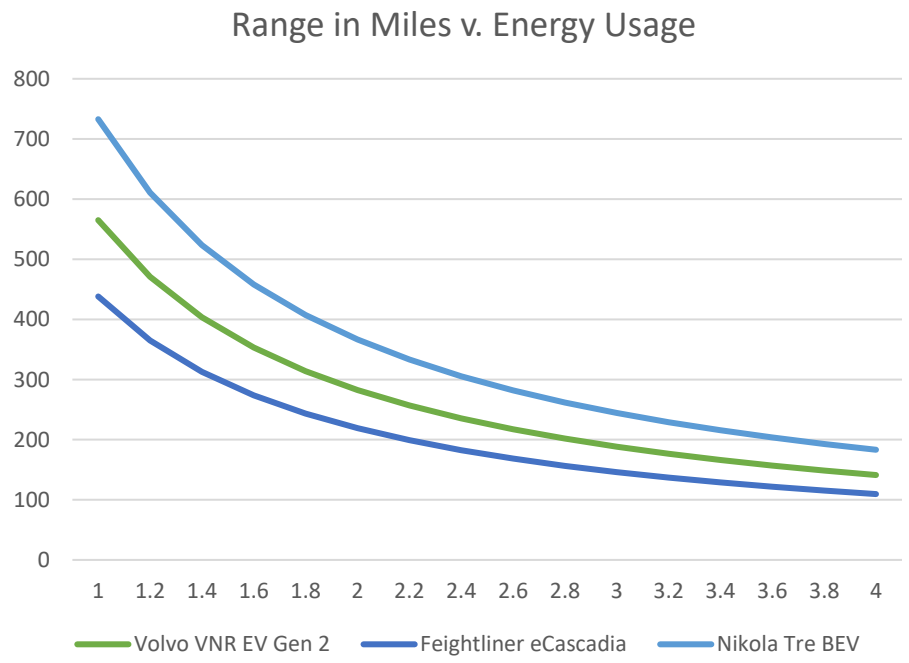
Infrastructure



Selecting the Vehicle

Volvo EV VNR
- Very Similar Driving and Platform
- Existing Tractor Design
- Good Power Levels

Range
- 300 Miles at 2 kw/mi
- 200 Miles at 3 kw/mi
- 100 Miles at 4.2 kw/mi



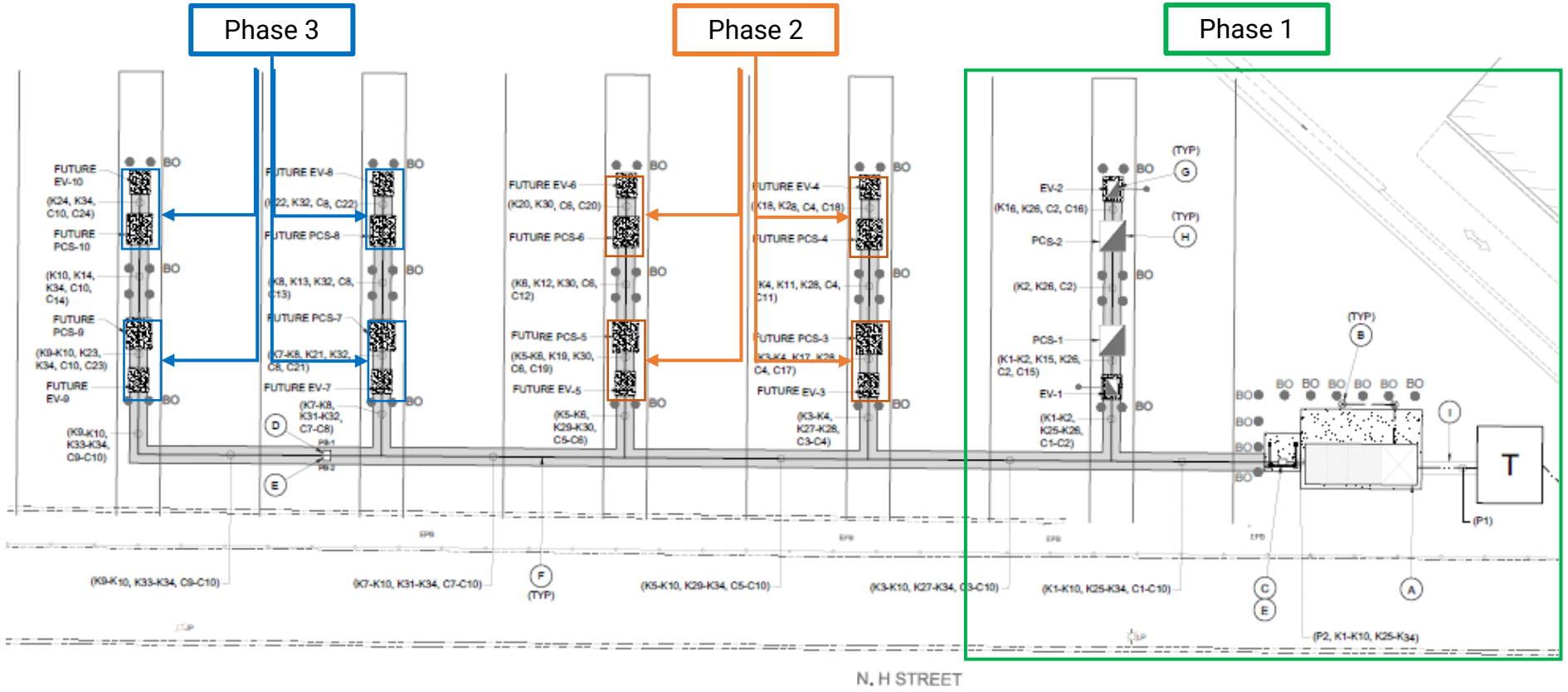
SHEHADEY
Family Foods, LLC

Project Design

Get what you **need** in the design

Doesn't have to be the whole project at once

Know your full project needs



NOURISHING LIVES ONE AT A TIME

Funding

What grants & funding are available that fit our fleet?

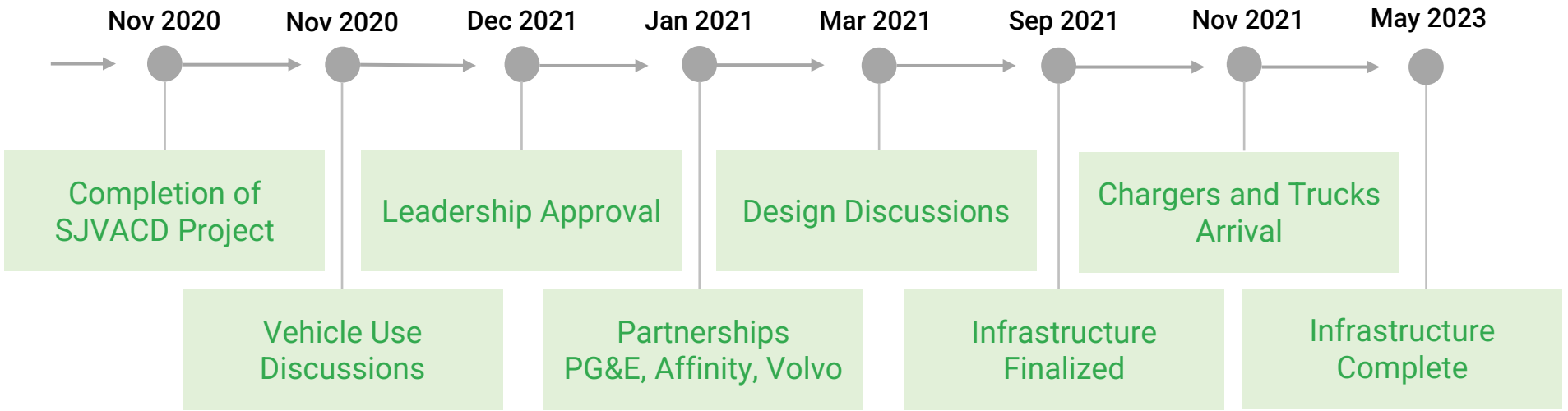
- Local Air Pollution Control District
  - San Joaquin Valley - Air Pollution Control District
    - Standard Truck Replacement
- Hybrid and Zero-Emission Truck and Bus Voucher Incentive Program (HVIP) Total Program Fund – $446,721,684
- PG&E EV Fleet Program – Total Program Fund – $236,000,000
- Carl Moyer – Total Program Fund – $1,038,100,000
- https://fundingfindertool.org/

CALIFORNIA HVIP

San Joaquin Valley AIR POLLUTION CONTROL DISTRICT

SHEHADEY
Family Foods, LLC

Overall Project Timeline



Advance Clean Fleets Rule

Percentage of vehicles that must be zero-emission	10%	25%	50%	75%	100%
Milestone Group 1: Box trucks, vans, buses with two axles, yard tractors, light-duty package delivery vehicles	2025	2028	2031	2033	2035 and beyond
Milestone Group 2: Work trucks, day cab tractors, buses with three axles	2027	2030	2033	2036	2039 and beyond
Milestone Group 3: Sleeper cab tractors and specialty vehicles	2030	2033	2036	2039	2042 and beyond

https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-summary

Learnings

Vehicle Selection
- Partnership is key!
  - Manufacture
  - Dealership
  - Training

Deployment
- Driver’s training
- Safety training

Infrastructure Planning
- Charger size & work backwards

EV Charger Selection
- Have wants & needs clearly defined

Installation Process
- Learn to push

Funding
- Ask for everything

SHEHADEY

Family Foods, LLC

California Creamery Operators Association

123rd Annual Meeting

Tuesday June 27, 2023

Kruse Western
Renewable Fuels

Today’s Agenda

- WM Transition to CNG
- CNG Life Cycle
- Benefits of CNG
- Grants and Programs
- Project Partners
- KWRF Station Video

Western Milling’s Transition to R/CNG

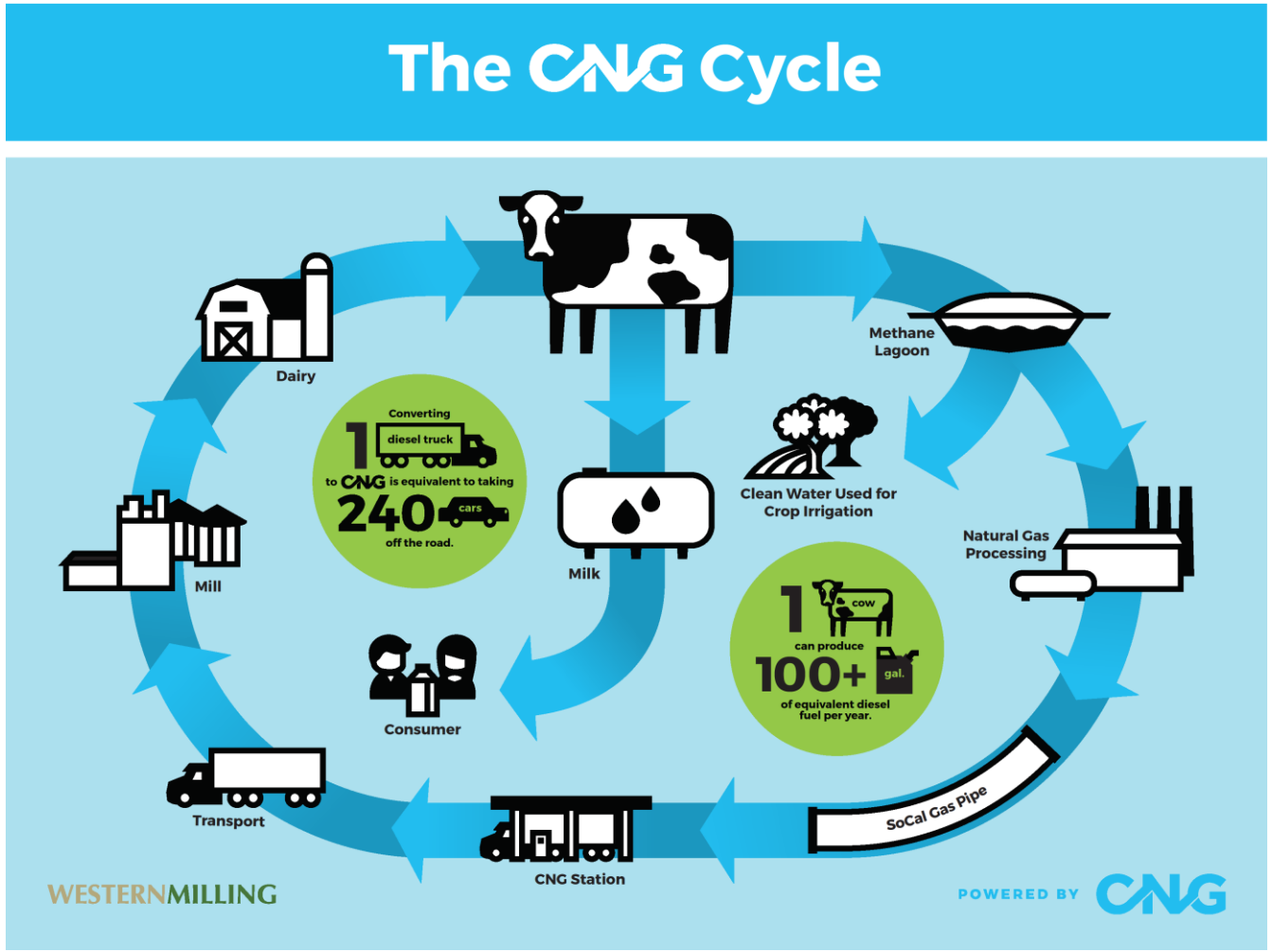
CNG Conversion

- Western Milling began its CNG conversion process in early 2019
- With a goal to partner with local dairies (our customers)
- Western Milling's legacy business is supplying nutrient solutions to dairies in the Central Valley
- We pride ourselves on a having a diversified portfolio and offering support to many industries
- Many diary bio digester projects have started and are producing gas in the Central Valley today




CNG Life Cycle

CNG Life Cycle



- Manure is transported to digesters via pipeline
- Natural gas is extracted, scrubbed, certified (-CI)
- Reinjected into the main pipeline
- KWRF station supplies 100% RNG to our transport division and customers
- Use RNG to fuel our trucks to deliver feed

Benefits of CNG

Benefits of CNG

- On track to reduce 4.9 metric tons of CO2 per year in disadvantaged communities
- Cost effective replacement to diesel
- Avoid fluctuating diesel prices
- Partners with local dairies to reduce Methane emissions
- 80% reduction in CO2 emissions for all trucks running on CNG
- Many grant programs through local air districts to reduce transition costs

SJVAPCD Grants and Programs

SJVAPCD Grants and Programs

- Truck Trade Up Program
  - Truck Trade Up - $100k
  - Fleet Expansion - $20k
  - Truck Replacement - $100k
- Clean Vehicle Fueling Infrastructure Program
  - Up to 50% funding for publically accessible projects

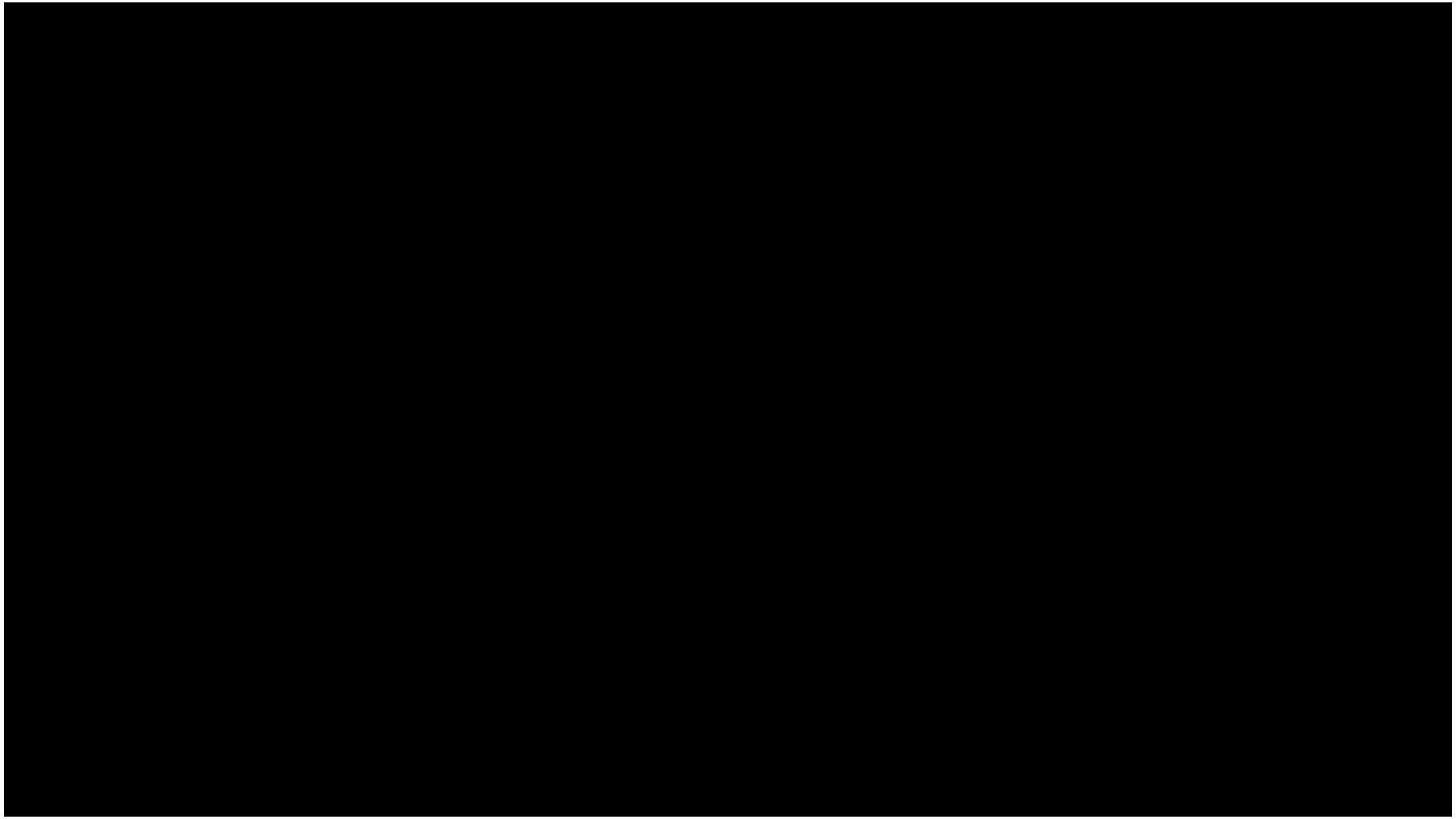
Project Partners

Project Partners

- San Joaquin Valley Air Pollution Control District
- California Air Resources Board - HVIP
- Freightliner – Fresno Truck Center
- Cummins – ISX12N Engine
- Allison Transmission
- A-1 Fuel Systems
- American Natural Gas Vehicle Institute (ANGI)
- Five Creative Group
- And many others..

Kruse Western Renewable Fuels Promo Video

KWRF Promo Video



Q&A:

Website:
Krusewesternrenewablefuels.com

Sales support:
CNGsales@krusewestern.com
Rurquia@westernmilling.com

VOLVO

VOLVO TRUCKS

California Creamery Operators Association

Volvo Trucks

2023-06-26

VOLVO

TOWARDS FOSSIL-FREE TRANSPORT

50%

CO_2 reduction by

2030

100%

CO_2 reduction by

2040

Three parallel roads

COMBUSTION ENGINE | BATTERY ELECTRIC | FUEL CELL ELECTRIC

DAIRY SEGMENT ANALYSIS

BY THE NUMBERS

- 1,709 FLEETS
- 56,600 AVERAGE MILES PER YEAR
- 250-300 AVERAGE MILES PER DAY

VOLVO

WIDEST RANGE OF CONFIGURATIONS

VNR 300
4x2 Tractor
66,000 GCW
4 Battery Pack

VNR 300
6x2 Tractor
82,000 GCW
4 & 6 Battery Pack

VNR 300
6x4 Tractor
82,000 GCW
4 & 6 Battery Pack

VNR 300
4x2 Straight Truck
33,000 GVW
4 Battery Pack

VNR 300
6x4 Straight Truck
54,000 GVW
4 Battery Pack

VOLVO

LEADING THE SHIFT

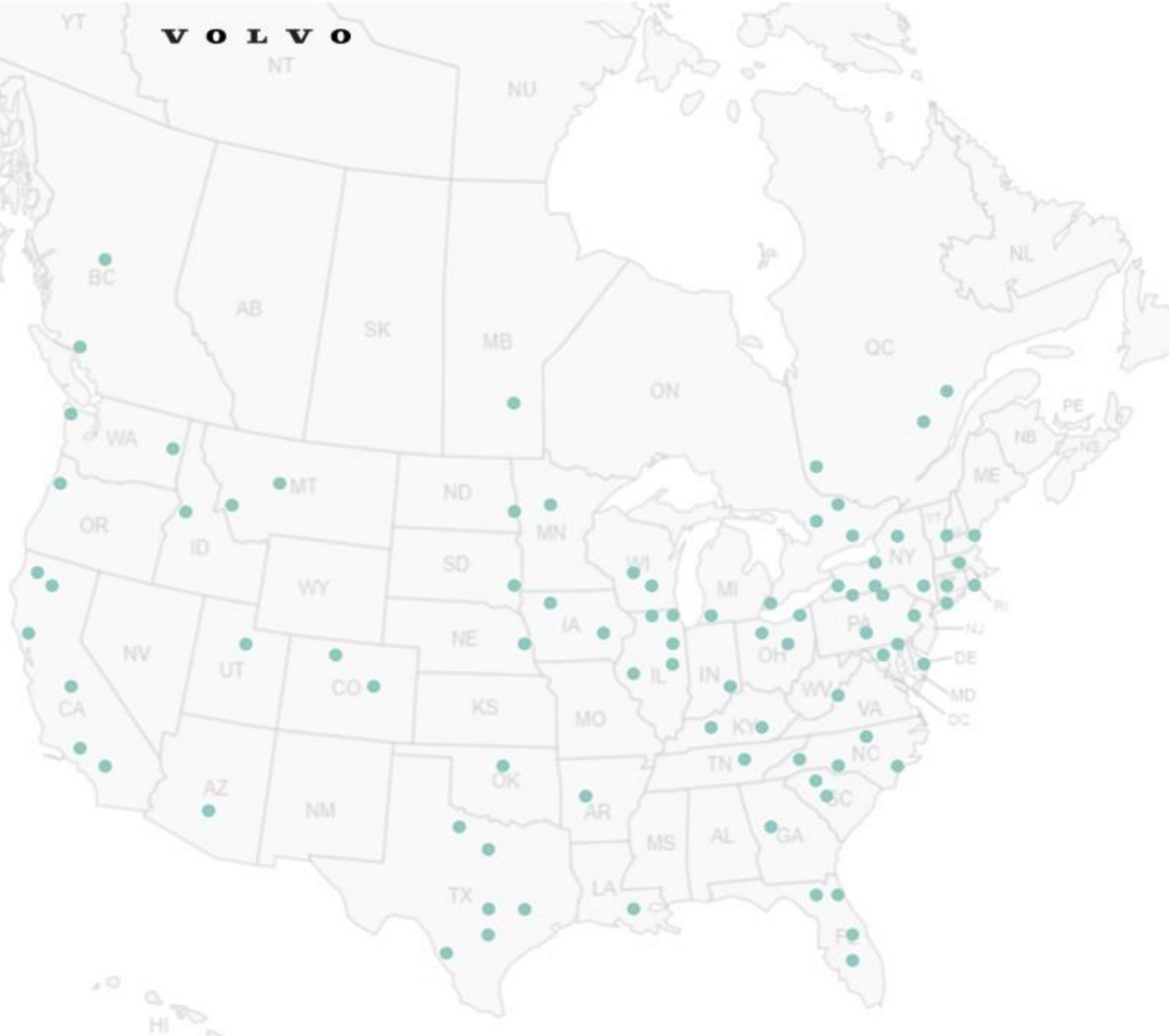
Volvo's Electromobility Ecosystem is guiding the journey for the decarbonization of North American fleets

2023

36 EV Certified Volvo Trucks Dealers

21 states / provinces

56 Dealer certification in process



VOLVO

WE ACT NOW TO DELIVER SUSTAINABLE TRANSPORT SOLUTIONS TO OUR CUSTOMERS

THANK YOU!

VOLVO

California Creamery Operators Association

Justin Loyear

Accelerating toward

Destination Zero

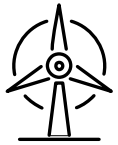
Cummins will continue to innovate and invest as we advance along the path to zero, but we can’t do it alone.

- Action is required today.
- Progress requires partnership.
- Technology leadership is critical.

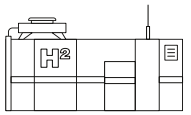
ENERGY SOURCES

LOW CARBON FUELS

GREEN HYDROGEN ECONOMY

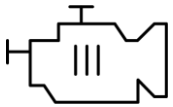


DECARBONIZED GRID



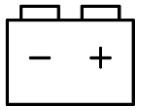
STORAGE

POWER SOLUTIONS

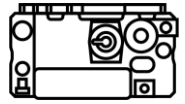


ADVANCED ENGINES

HYBRID

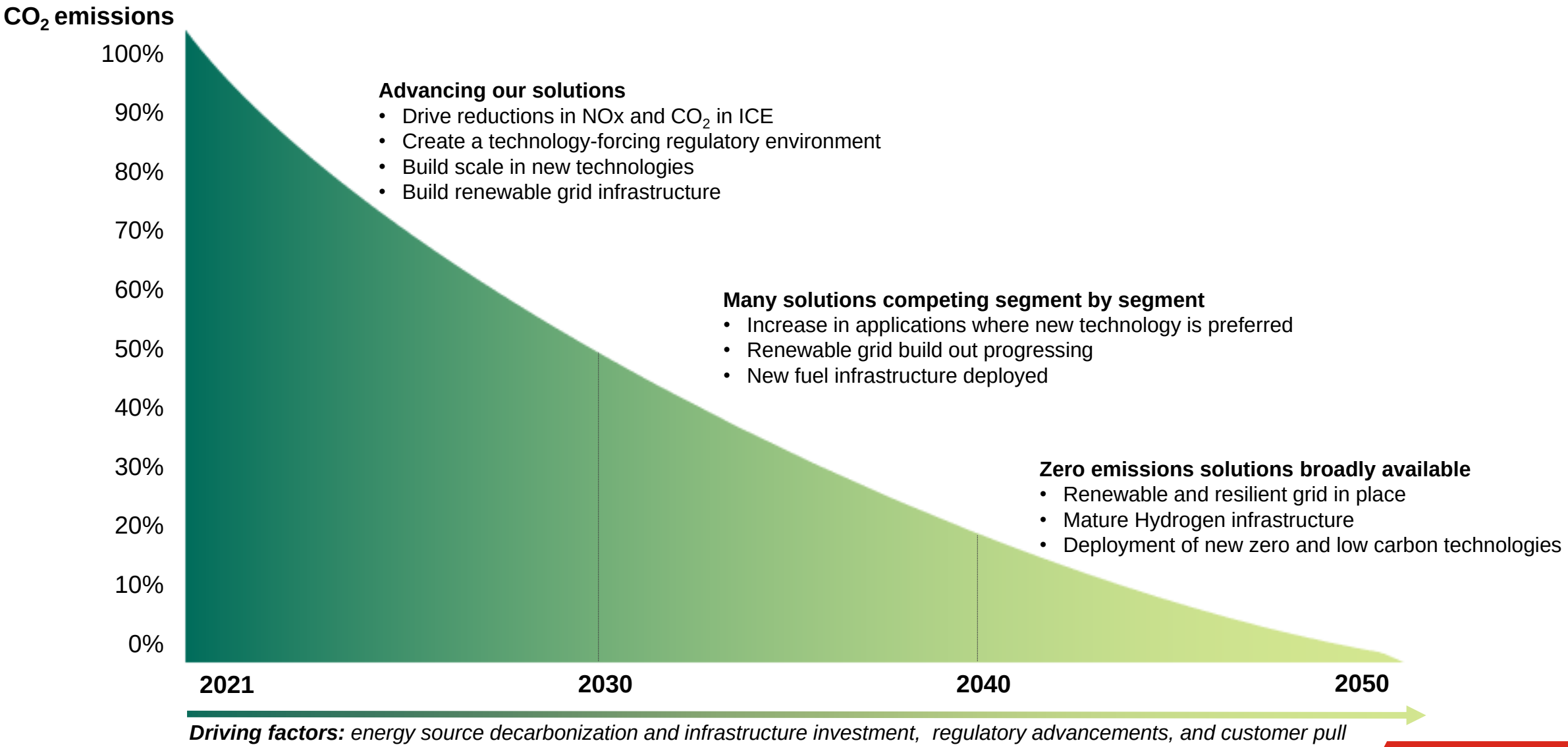


BATTERY ELECTRIC



FUEL CELL ELECTRIC

Reaching Destination Zero



Advancing our solutions
- Drive reductions in NOx and CO_2 in ICE
- Create a technology-forcing regulatory environment
- Build scale in new technologies
- Build renewable grid infrastructure

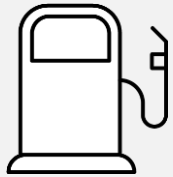
Many solutions competing segment by segment
- Increase in applications where new technology is preferred
- Renewable grid build out progressing
- New fuel infrastructure deployed

Zero emissions solutions broadly available
- Renewable and resilient grid in place
- Mature Hydrogen infrastructure
- Deployment of new zero and low carbon technologies

Driving factors: *energy source decarbonization and infrastructure investment, regulatory advancements, and customer pull*

Different Use Cases: Complementary Technology

Diesel



Versatile
Reliable
Low Cost
Ubiquitous

Use Case

Regulations

Incentives

ESG

Infrastructure

Business Model

…

Zero CO_2 Technologies

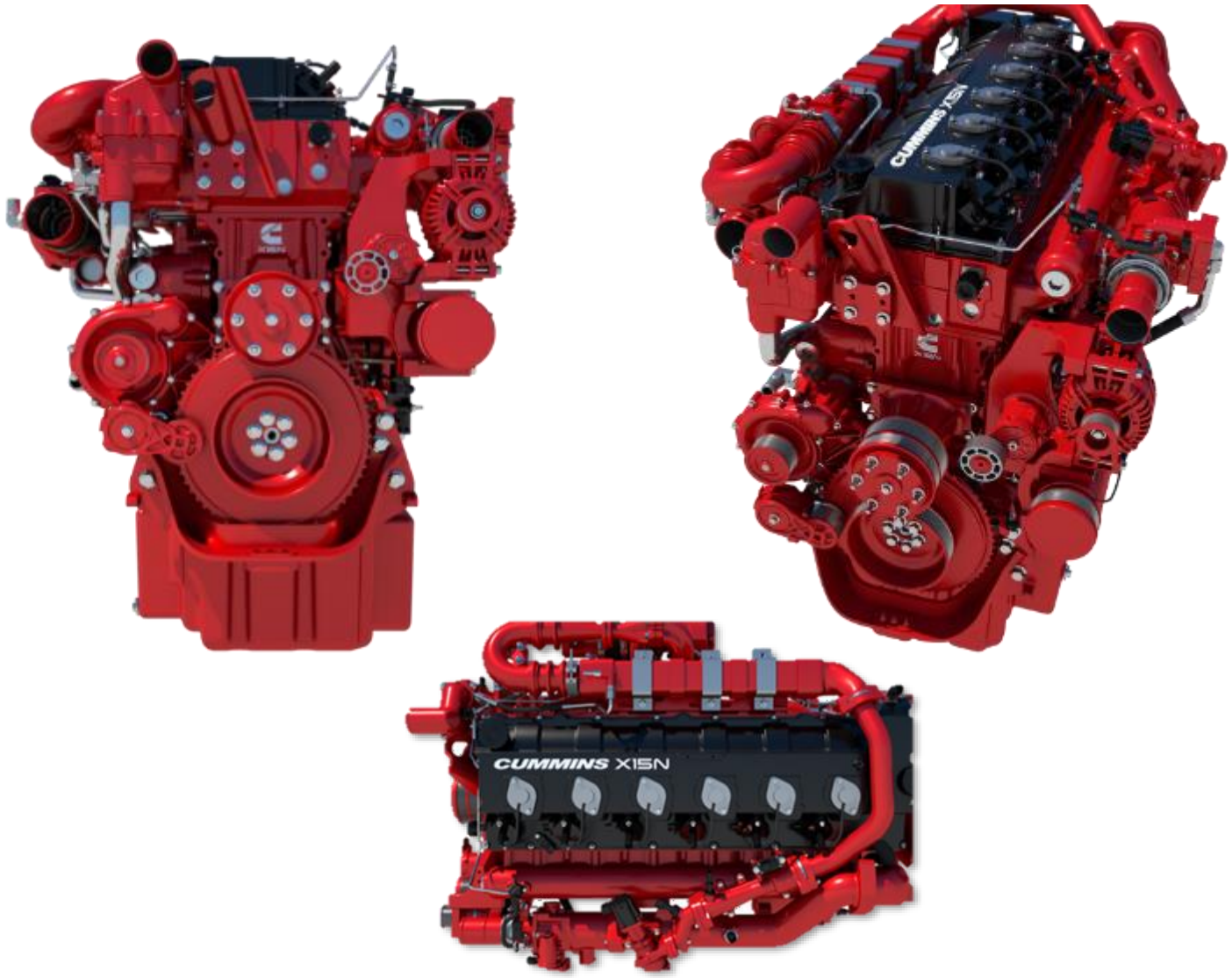
- Battery Electric Vehicles
- H2 Fuel Cell
- H2 ICE
- Renewable Natural Gas
- Renewable Diesel

Urban | **Regional** | **Long Haul**

Daily Mileage (miles) 200 400

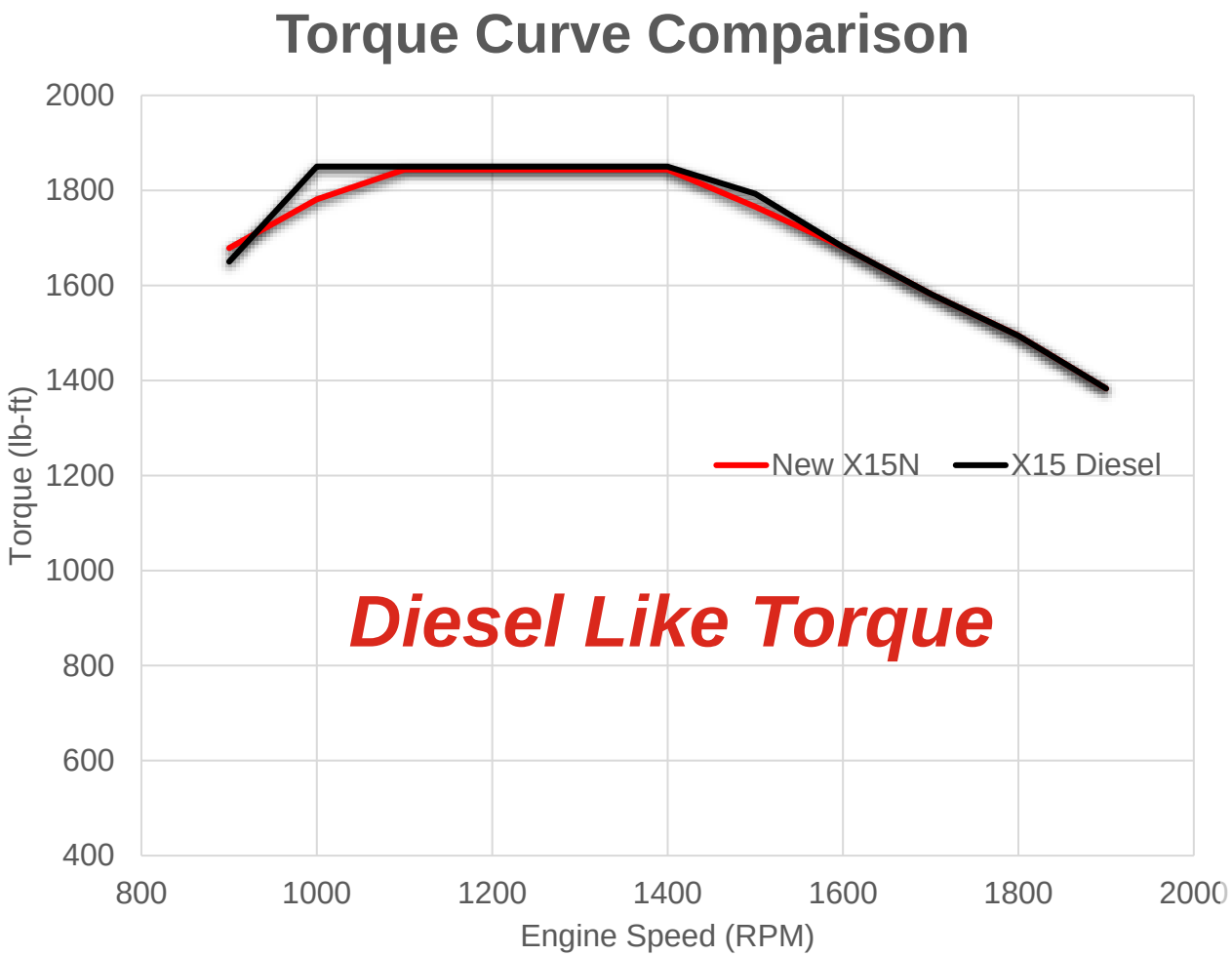
Investments to Destination zero

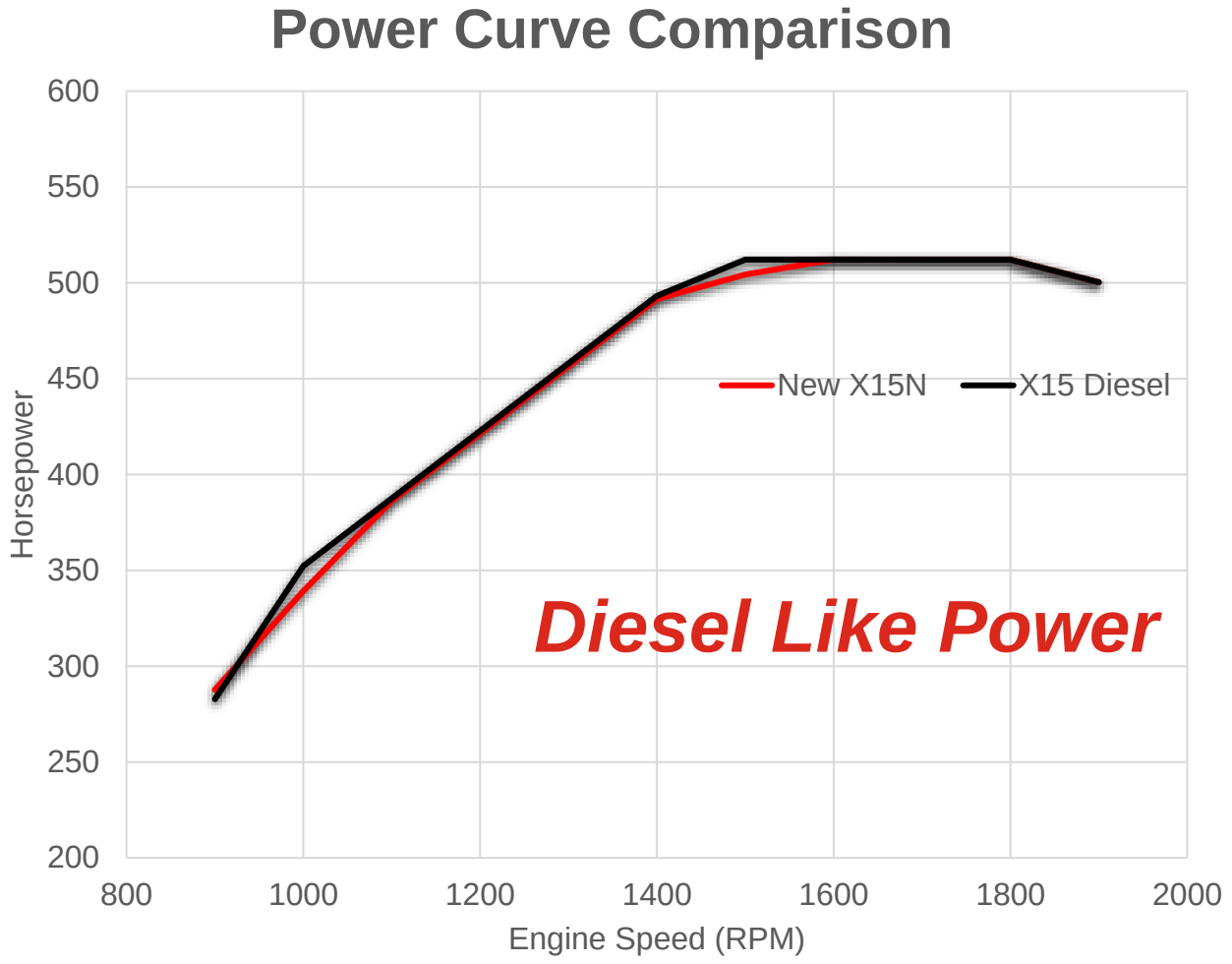
Cummins New X15N



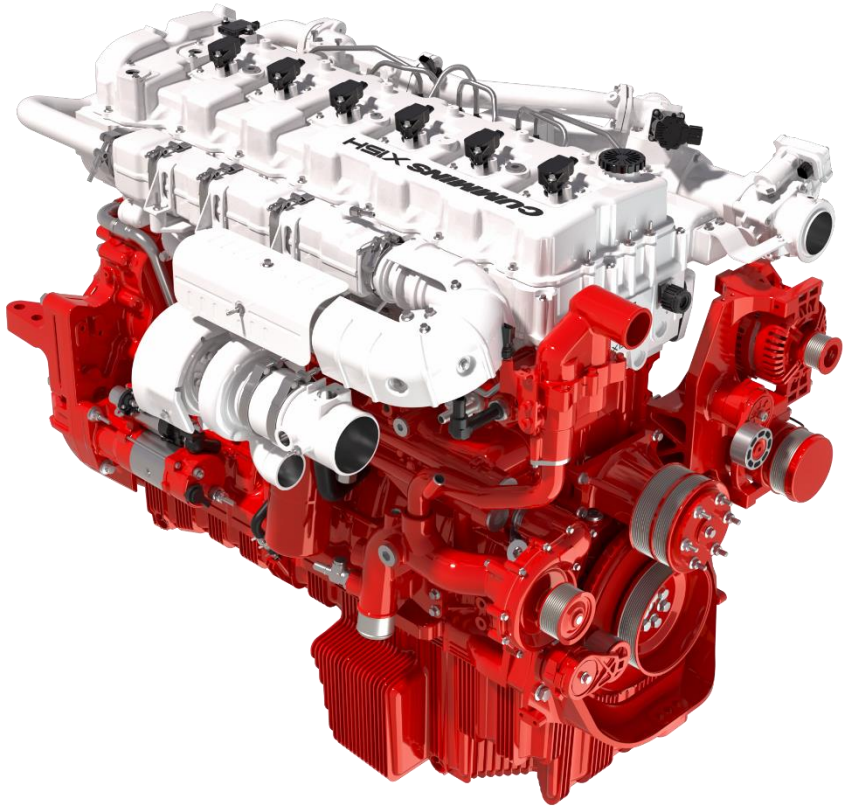
- Better fit for linehaul duty-cycles
- Up to 500 hp / 1850 lb-ft
- 500 lbs lighter than X15 and 300 lbs lighter than ISX12N
- Leverages RNG for carbon-negative powertrain options
- Maintenance free passive aftertreatment

X15N™ vs. X15 Diesel *Preliminary*





Hydrogen ICE: Engine Specs



Engine	X15H
Displacement	15-liters
Fuel	Hydrogen
Power	400 - 500 hp
Torque	1450 - 1850 ft lb
Fuel Economy	6.25 miles/kg
DEF Consumption	0.00375 gal/mile (similar to diesel)
Dry System Weight	2,500 lbs
CO_2	99%+ lower tailpipe than 2022 diesel standard
NO_x	75% lower tailpipe than 2022 diesel standard

A Class 8 sleeper cab Hydrogen Engine powered vehicle will generate 144 fewer metric tons of CO2/year and 1,437 fewer metric tons of CO2 over its lifetime vs. the same diesel-powered vehicle*.

* Tailpipe CO2 emissions modeled using EPA's Greenhouse Gas Emissions Model (GEM) for Medium- and Heavy-Duty Vehicle Compliance.

FOUNDATION FOR THE FUTURE

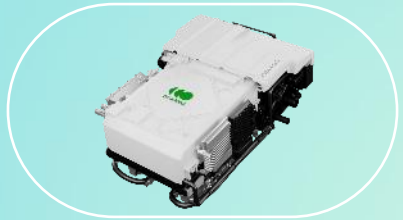
Accelera's Core Technologies

Electrolyzers

Creating solutions for industrial and commercial hydrogen generation and megawatt-scale energy storage

Industrial processes and fueling stations: PEM generator, alkaline hydrogen generator

Critical and uninterruptible power supply, power-to-gas technology



Fuel Cell Systems

Creating and integrating fuel cells for mobility and stationary power applications

Electric mobility: heavy-duty truck, transit bus, rail

Utility: microgrids, megawatt-scale grid firming and renewable integration

Commercial/Industrial: manufacturing, data centers, water treatment facilities, hotels/resorts

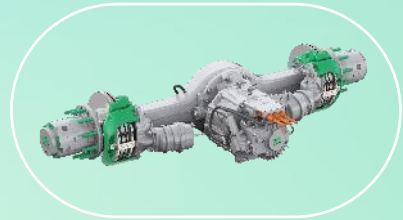
Electrified Components

Creating technologies and products for commercial battery electric vehicles and battery energy storage systems

On-highway: transit bus, school bus, medium-duty truck, walk-in van

Off-highway: construction equipment, terminal tractor, material handling, energy storage systems

Components: battery modules, battery packs, PCAs



ePowertrain Systems

Creating technologies and delivering eAxles for electrified vehicles

On-highway: medium-duty truck, heavy-duty truck, walk-in van, transit bus, school bus

Off-highway: construction equipment, terminal tractor

Components: integrated eAxles

Traction Systems

Creating technologies and delivering electric traction systems for electrified vehicles

On-highway: medium-duty truck, heavy-duty truck, walk-in van, transit bus, school bus

Off-highway: construction equipment, terminal tractor

Components: motors and inverters for remote mount and eAxle


Cummins