

E-Truck Task Force

Meeting 1: Review Initial Findings, Prioritize Work



*Clean Transportation
Technologies and
Solutions* SM

Bill Van Amburg
Senior Vice President

Whitney Pitkanen
Project Manager

June 9, 2011



Webinar Reminder!

- Please remember: enter your **Audio PIN** (shown on your screen) so you can participate when we get to discussion
 - I cannot “open” your line to talk unless you enter PIN
- All attendees in “mute” mode until discussion; unmuted for questions
- Use the Webinar controls to ask questions (raise hand)



Agenda

- Welcome/Introductions
- Goals of Task Force
- Task Force Timeline
- Review Initial Survey Findings
- Prioritize Findings/Focus Areas for Action
- Timeline Review
- Set Next Meetings: Fleet; Industry tracks



Introductions - Staff

- Bill Van Amburg, Senior VP
– bvanamburg@calstart.org
- Whitney Pitkanen, Project Manager
– wpitkanen@calstart.org
- Jamie Hall, Policy Director
– jhall@calstart.org



Introductions – Task Force

Tim Smith, City of Burbank
Jeff Kessen, A123 Systems
John Mikulin , EPA
Nam Thai-Tang, ALTe
Cedric Daniels, Southern Company
Joe Steinberger, BAAQMD
Matt Stewart, City of Chicago
Susan McSherry, NY City DOT
Dean Magistrale, Coca-Cola
Joy Sharma, Amphenol
John Scharffbillig, City of Minneapolis
Glenn Keller, Argonne Natl Lab
Karen Zolna, Prestolite
Niklas Thulin, Volvo
Andrew Meyer, Remy
Stuart Irwin, EDN Group
Brian Pepper, PG&E
Kevin Silbert, MAPC

Tedd Abramson, Zero Truck
George Karbowski, Foothill Transit
Summer Pennino, EVI
Tom Yamaguchi, International Rectifier
Trina Martynowicz, EPA
Mark Kachmarski, Zero Truck
Emelio Garcia, CSS
James Larson, PG&E
Jasna Tomic, CALSTART
Michael Miles, Kers Tech
Anthony Bizjak, Fairfax County
Ron Demick, R.L. Polk
Rudy Tapia, Vision Motor Corp
William Nash, Azure Dynamics
Mira Inbar, Dow Kokam
Duane Woods, Safeway
Sam Waltzer, EPA
David Park, MJ Bradley



Introductions – Task Force

Maria Redmond, State of Wisconsin

Terry Zdan, Province of Manitoba

Mark O'Connell, State of Wisconsin

Doug Ryder, MTC Kenworth

Jesse Shroyer, Smith Electric

Jim Potter, ZF

James Trask, Azure Dynamics

Earl Bloom, Dow Kokam

JJ Livingstone, A123 Systems

Jeffrey Patterson, Belco

Andrew Thomas, FZ Sonick

Rich Serio, Zero Truck

Tom Welsh, Long Island Power

Matt Guilfoyle, Daimler

Dennis Kulzer, City of Ventura

Dale Morin, UPS

John Dabels, EV Power Systems

Jeff Gettys, Zapworld

Michael Mayor, Mayor Logistics

Jamie Hall, CALSTART

Mark Greer, Altec

Joshua Goldman, Proterra

Jordan Smith, SCE

Paul B. Scott, TransPower

Jim Reynolds, A-Z Bus Sales

Dave Navey, Centralina Clean Fuels

Sandor Lau, CSS

Neilesh Mutyala, Seo

Todd Morganson, ITC Truck

Steve Trinidad, Automotive Tech Group

David Mazaika, Quantum Technology

Kelvin Kohatsu, Hawaii Electric Light Co

Jim Castelaz, Motiv

Andy Sleeman, Amphenol

Rick Teebay, LA County

Martin Schuermann, Vision Motor Corp

Anny Pachner, GNA



Goal of Task Force

- *The overall goal of this effort is to speed and support effective E-Truck production and use. In the short term, it will specifically:*
 - *Identify key issues/barriers that need targeting;*
 - *Develop an action plan for addressing those issues; and then*
 - *Work to implement those recommendations with industry and public partners.*



E-TTF Goals/Targets

- The Task Force will target the following issues to both understand and quantify the challenges, speed E-Truck uptake via action steps to target and solve barriers.
 - Identify key market and tech barriers
 - Identify fleet user needs
 - Identify and quantify industry development and production needs
 - Quantify benefits and better validate business case
 - Identify fueling/charging issues and needs
 - Highlight best duty cycles, ways to deploy vehicles and cases for success
 - Collect and report current validated data on performance
 - Collect and outline expected price points for future volumes
 - Recommend action steps to address key barriers identified
 - Report out these findings; including at a special session at HTUF conf in Fall



E-TTF Timeline

- **Initial issues Survey: April-May**
- **First meeting – review, priorities: June 9**
 - Provide initial incentive feedback to ARB, CEC, Air Districts
- **Parallel Track Meetings – through summer**
 - Fleet: 2-4 meetings, every 3 weeks or so
 - Industry: 2-4 meetings, every 3 weeks
- **Draft Findings – First Recommendations: August/September**
- **Work Shop on Recommended Actions – October 11 – Baltimore, MD HTUF Conf**



Initial Survey Results

- Roughly 200 responses
- Nearly 30% fleet users in survey responders
 - 14% vehicle manufacturers
 - 26% suppliers
- Interest: More than 125 willing to take part in Task Force
 - 72 registered for first meeting



Questions/Process

- Given size of Task Force, save questions for discussion
 - Note slide #, question
- If critical issue, “raise hand”
- If having problem – send note to Whitney at wpitkanen@calstart.org



Initial Survey Results

- Major Areas We Reviewed:
 - Perception
 - Performance/Operation
 - Business Case
 - Manufacturing Issues
 - Overall Barriers
 - Incentives

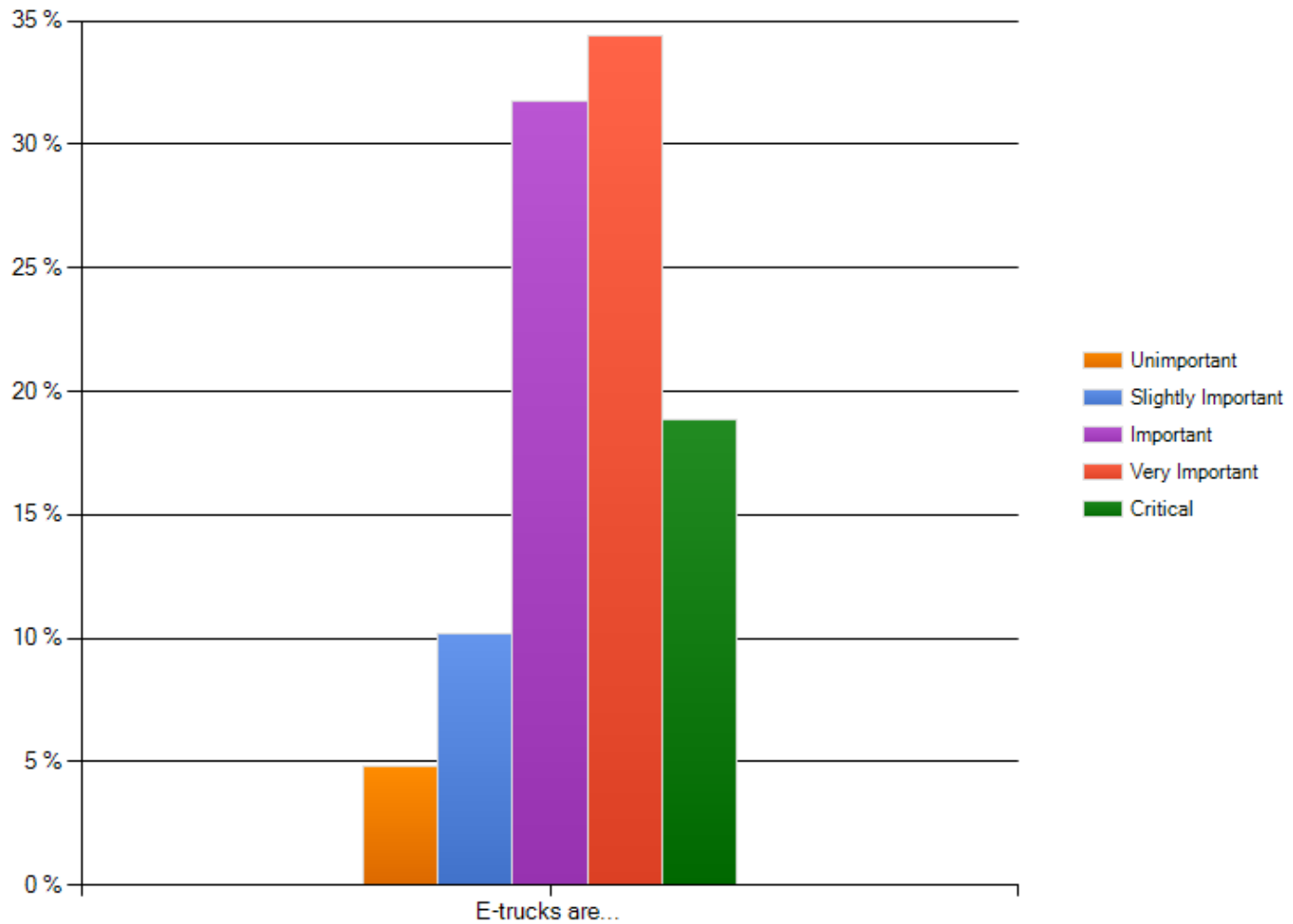


Perception



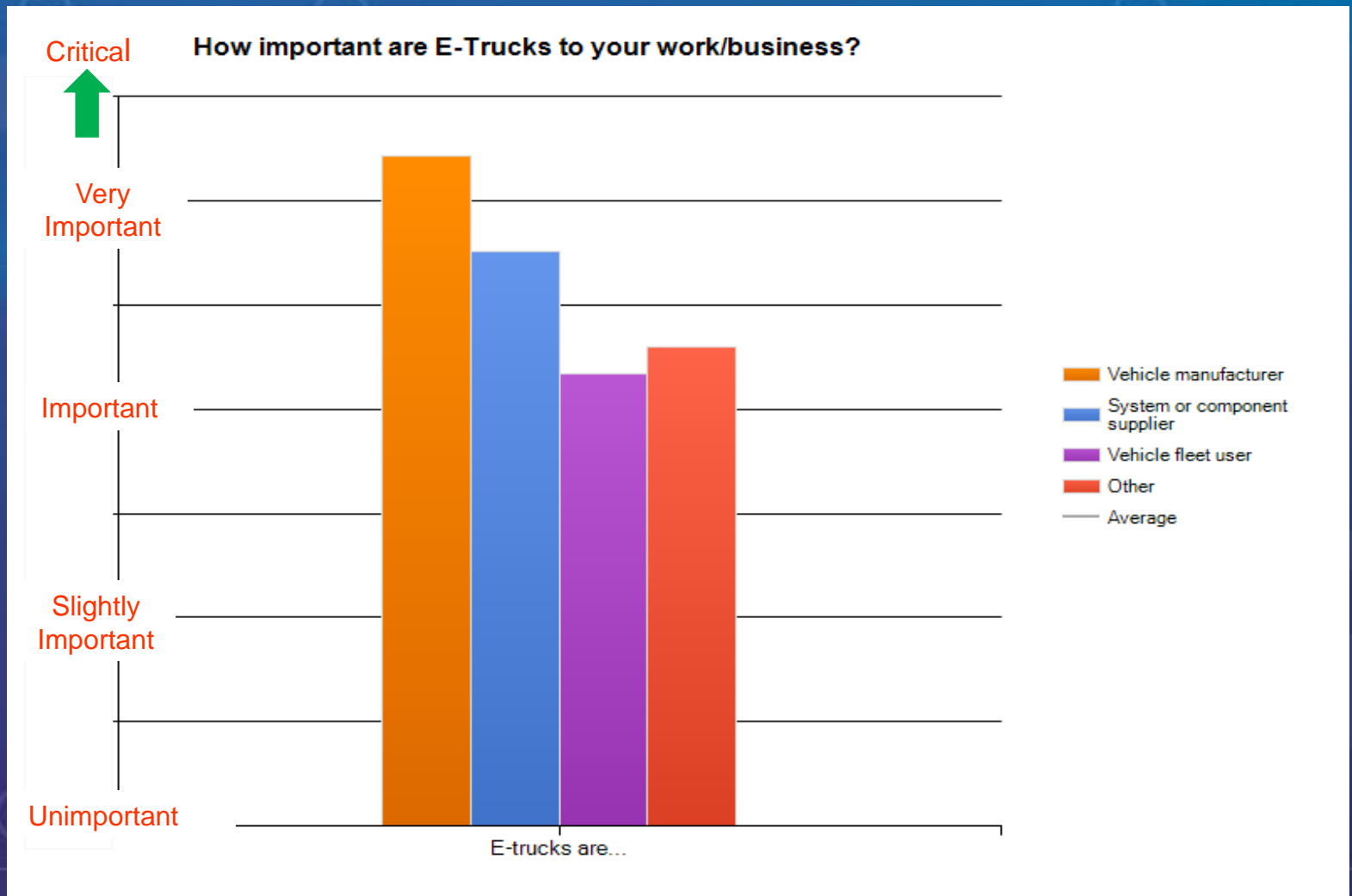
Importance of E-Trucks Overall

How important are E-Trucks to your work/business?





Importance of E-Trucks by Respondent

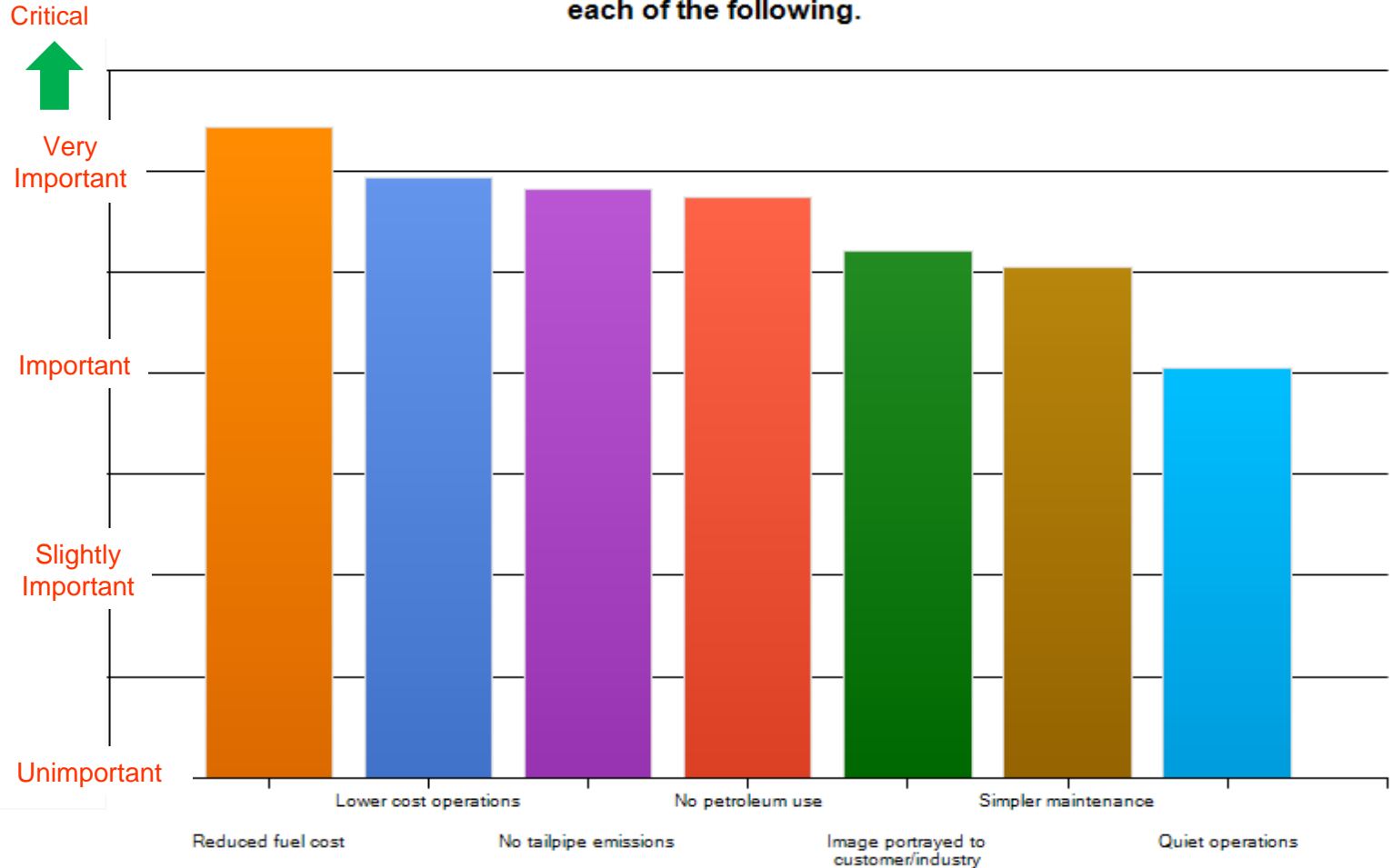




Benefits of E-Trucks

Overall

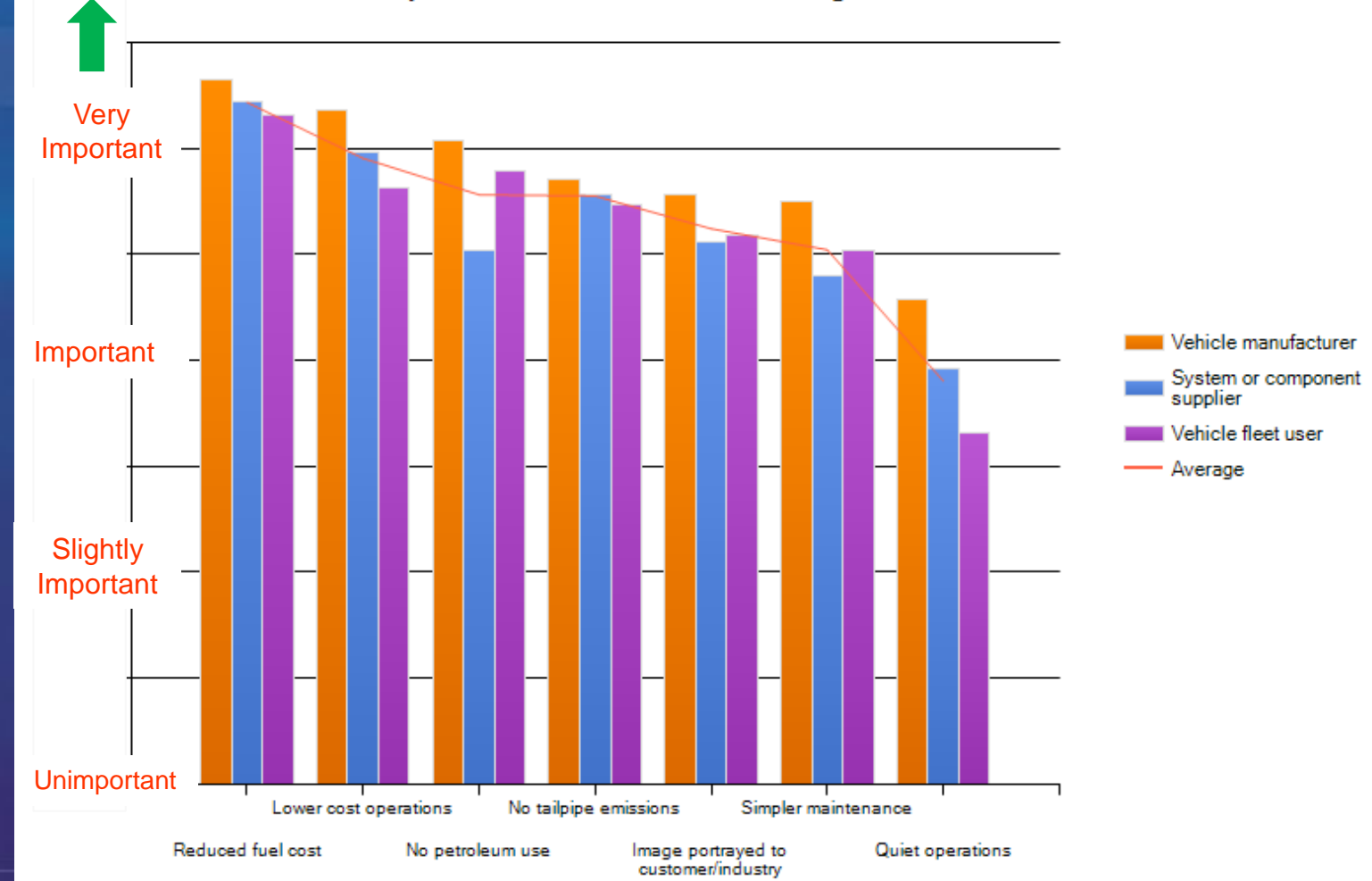
What do you think are the top benefits of using E-Trucks? Please rate the importance of each of the following.





Benefits of E-Trucks by Respondent

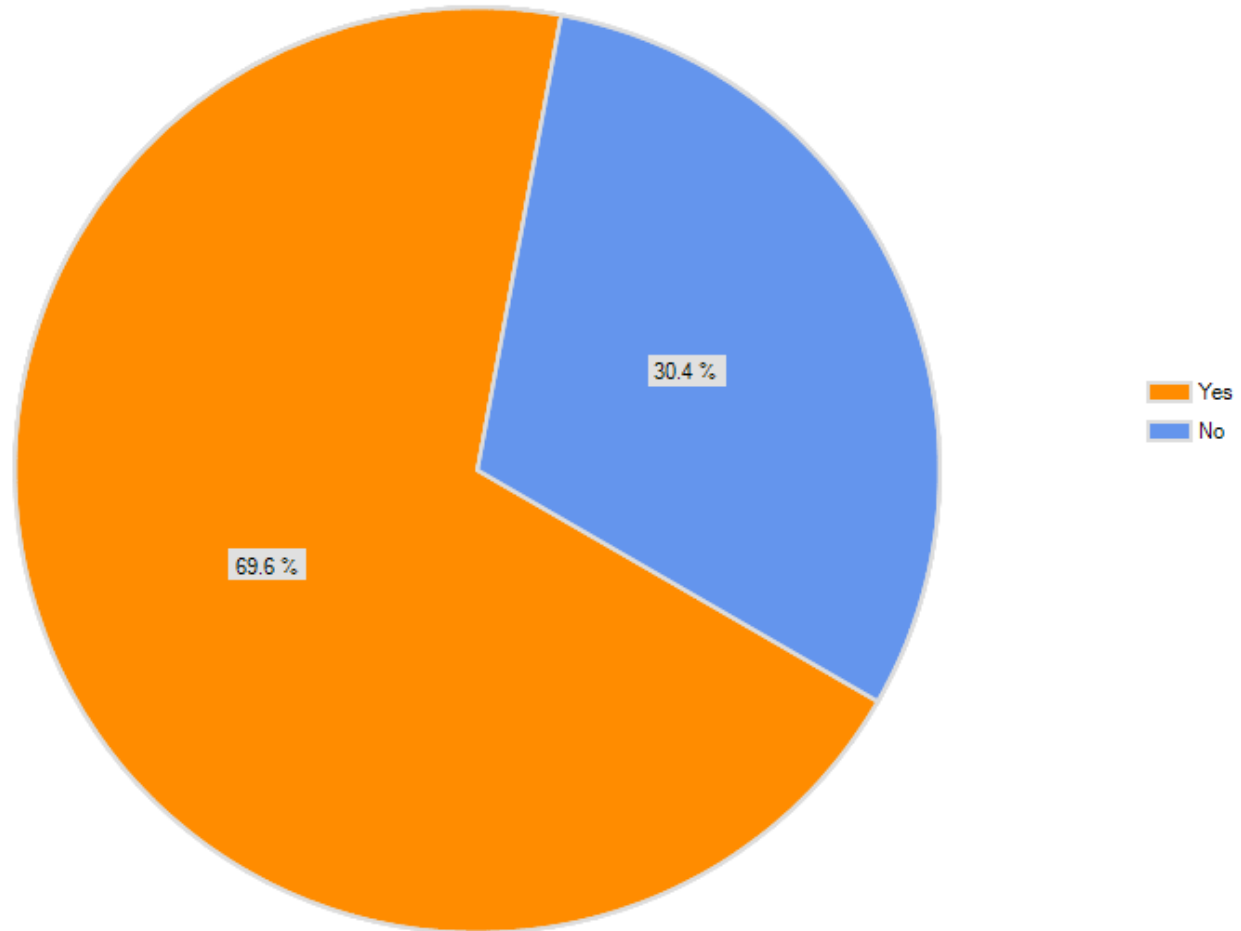
Critical What do you think are the top benefits of using E-Trucks? Please rate the importance of each of the following.





Will You Purchase?

If you have not purchased an E-Truck, is it something you are planning to do, and why or why not?





For Purchase: Why or Why Not?

Why?

- if grant funding or price concessions are available
- to improve environmental image
- due to WA state law requiring govt entities to switch to EV's

Why not?

- Need to verify range, lifecycle costs, and ROI
- Observing early adopters first
- Concerned about reliability
- Prefer hybrids
- Cost is too prohibitive
- Not sure what is available
- Waiting until economy improves
- Not until fuel costs increase



WA State Legislation

1. Alternative Fuel Use Requirement

Effective June 1, 2015, all state and local government agencies **must use 100% biofuels or electricity to operate all publicly owned vehicles.** To phase in this requirement, all state agencies must achieve **40% biofuel or electricity use by June 1, 2013.**

2. Clean Fuel Vehicle Purchasing Requirement

At least **30% of all new vehicles purchased through a state contract must be clean fuel vehicles,** based on the Washington Department of Ecology definitions. The percentage of clean fuel vehicles purchased **must increase at the rate of 5% each year.**

3. Low Carbon Fuel and Fuel-Efficient Vehicle Acquisition Requirement

Washington state agencies **must consider purchasing ultra low carbon fuel vehicles or converting conventional vehicles to use ultra low carbon fuels when financially comparable over the vehicle's useful life.** Ultra low carbon fuels include hydrogen, biomethane, electricity, or at least 90% natural gas.



Barriers Response Analysis

Key Purchase Barriers

1. Incremental Cost – **43%**
2. Operational Issues – **20%**
 - Range limitations
 - Horse power
 - Loss of payload
3. Difficulty in assessing baseline, payback and total lifecycle cost – **14%**
 - Battery life and replacement cost
 - Unproven technology concerns
4. Charging Infrastructure – **13%**
 - Lack of infrastructure
 - Cost
 - Speed of charging
5. Lack of product availability and education on products – **10%**

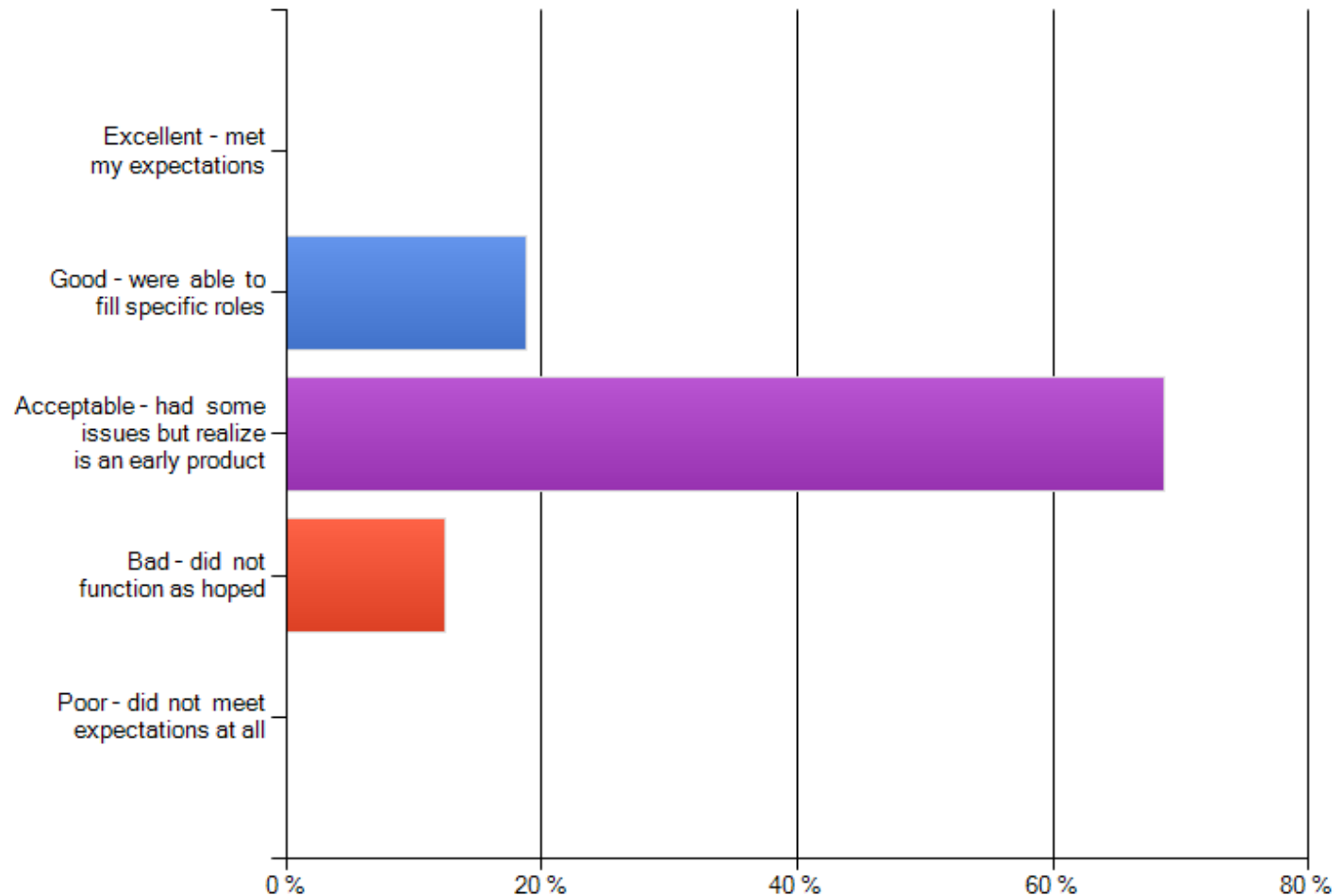


Performance/Operation



Experience with E-Trucks

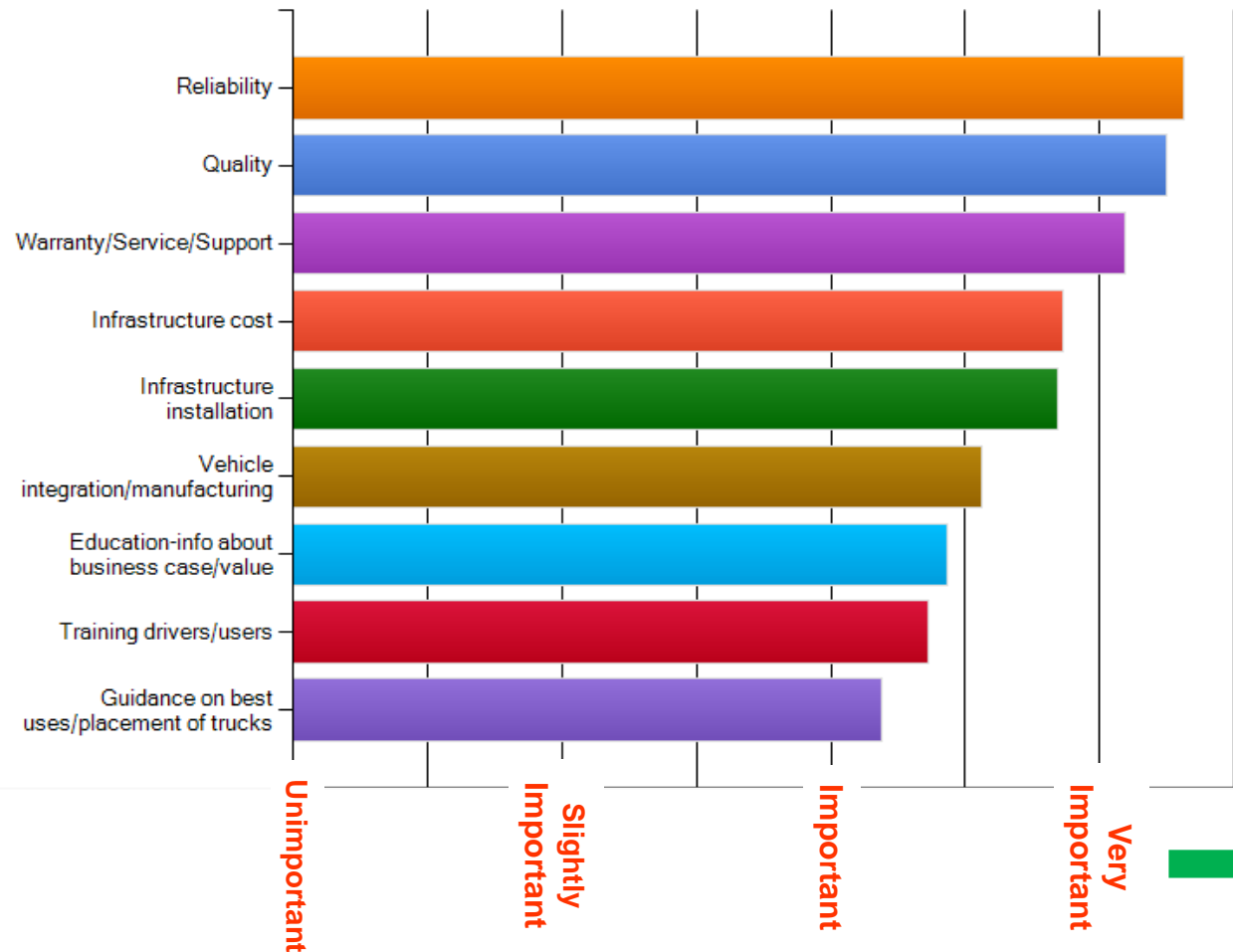
If you have purchased E-Trucks, what has been your experience with the vehicles? (If you have not purchased E-Trucks, skip ahead to question 11.)





What Needs Attention Overall

What about E-Trucks needs the most attention/improvement from a user perspective? Please rate the importance of each of the following.

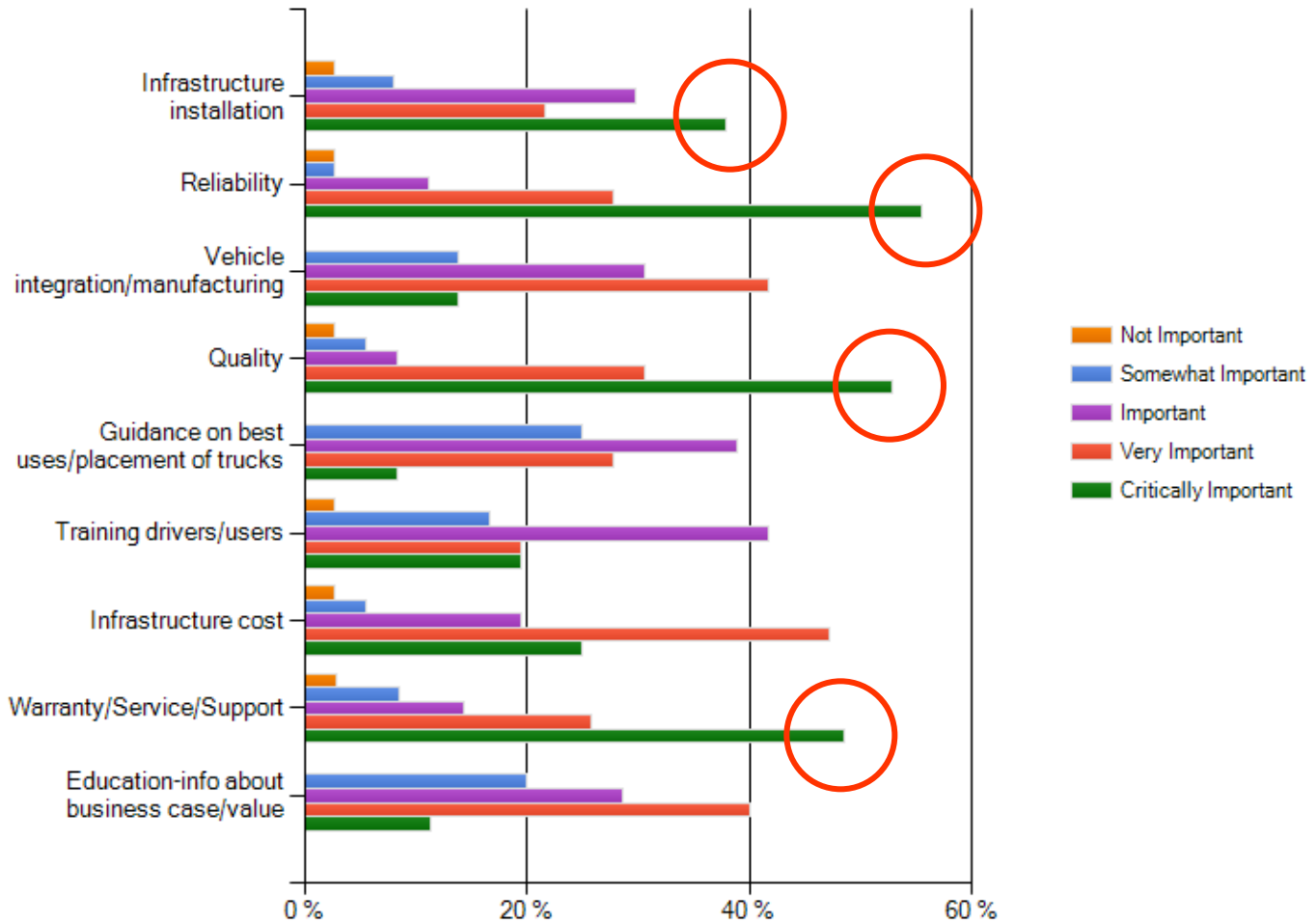


Critical



What Needs Attention Detail

What about E-Trucks needs the most attention/improvement from a user perspective? Please rate the importance of each of the following.





Best Use / Duty Cycles

General

1. Fixed route applications - **70%**
 - Stop and go
 - Localized, dedicated routes
 - Short haul
 - Limited range
 - 'Spoke and hub'
 - Urban Delivery, Refuse, Mail trucks, Transit Buses
2. Facility vehicles – **19%**
 - Airports, seaports, railyards, military bases, parks, resorts
 - Warehouse support and maintenance
 - Cargo handling
3. High idle, work site applications – **11%**
 - Aerial devices
 - PTO
 - Utility vehicles



Best Use for Business Case Prelim OEM Conversations

To get sufficient payback, need to drive maximum miles possible (or maximum use of energy)

- Dedicated, return-to-base routes with known daily mileage highly valuable

High Utilization/Daily miles (5-7 days a week) seems important

70-100 miles/day seems like an initial “sweet spot” for fuel savings payback

THIS IS AREA WE WANT TO EXPLORE FURTHER

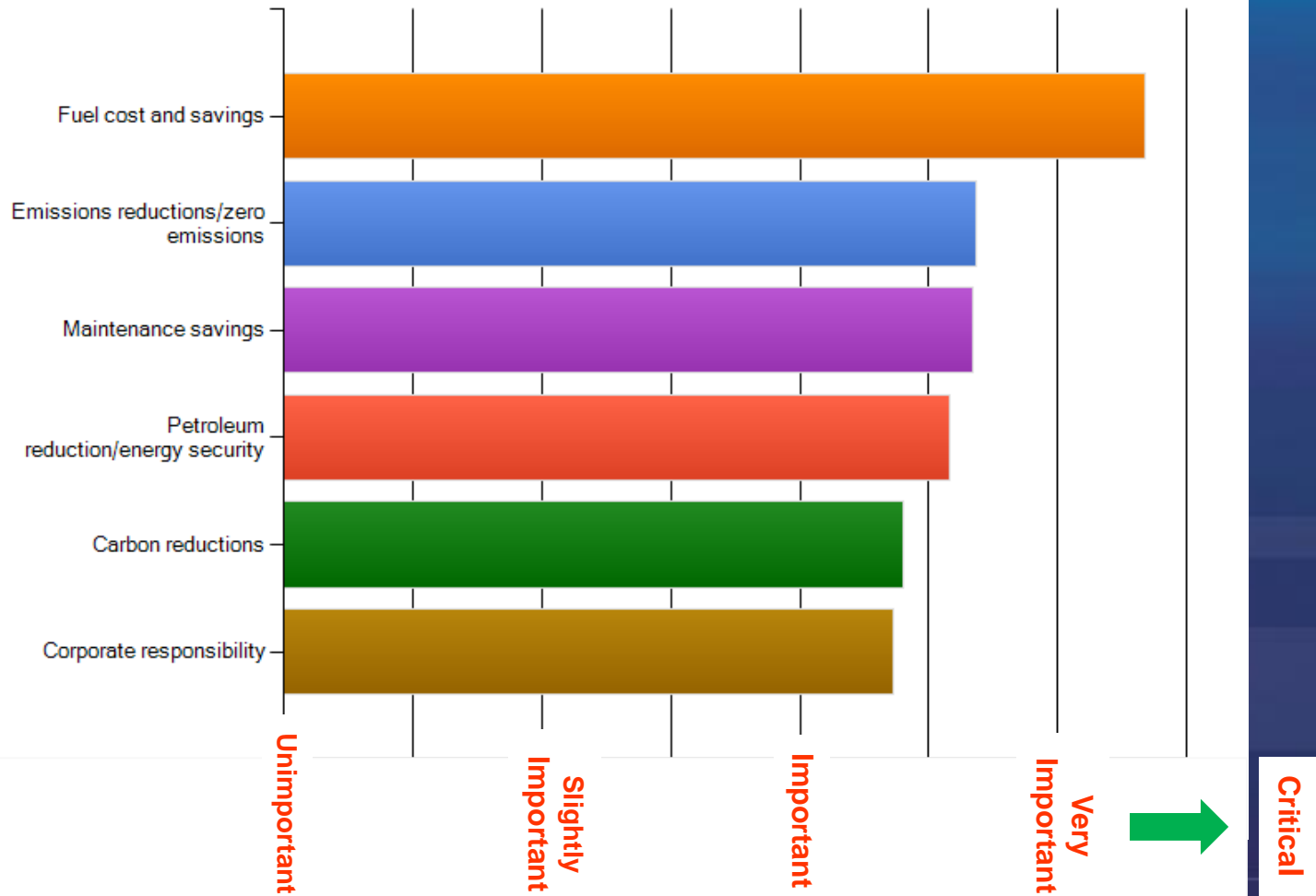


Business Case



What Drives the Business Case Overall

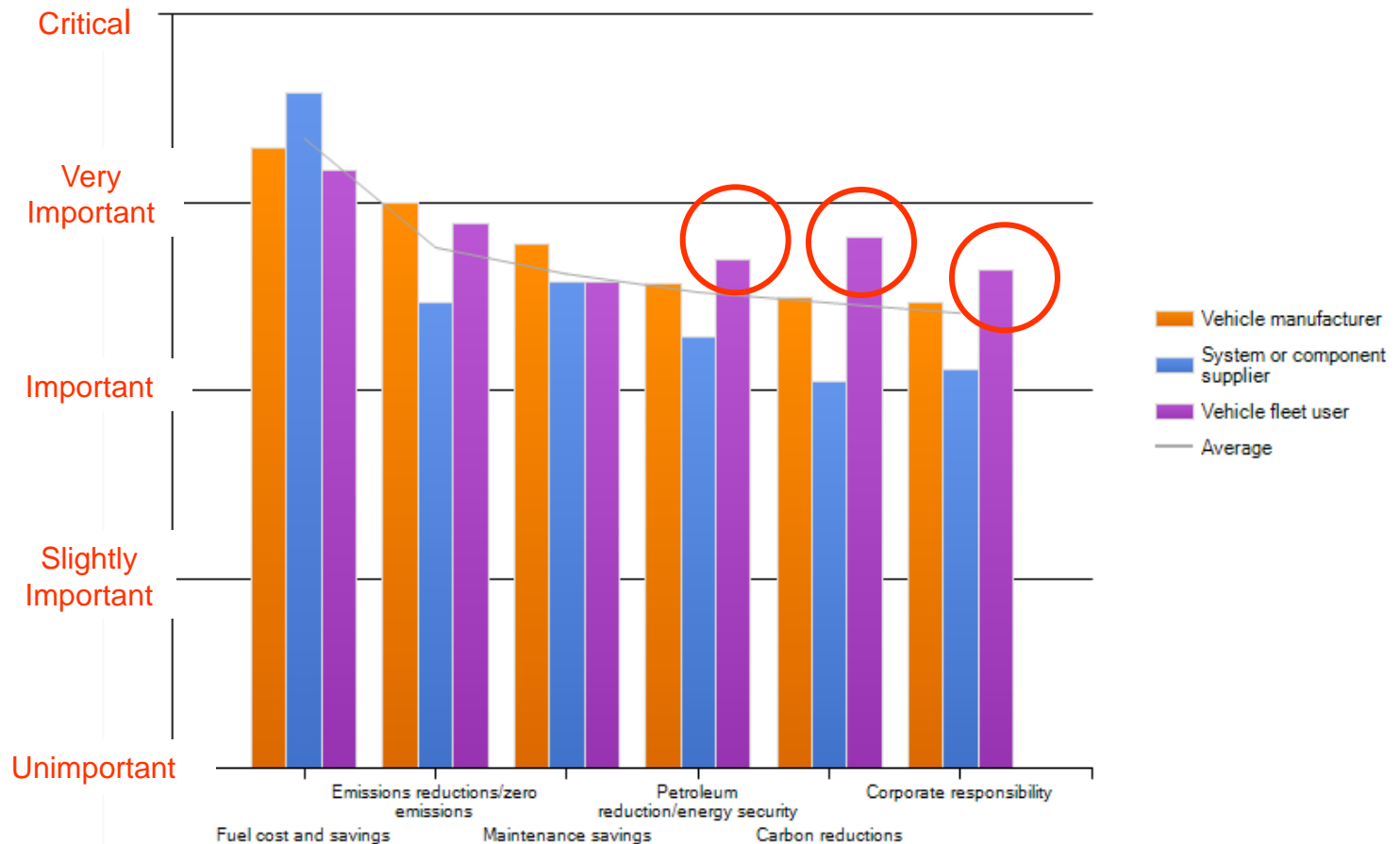
What drives the business case for ETrucks? Please rate the importance of each of the following considerations.





What Drives the Business Case by Respondent

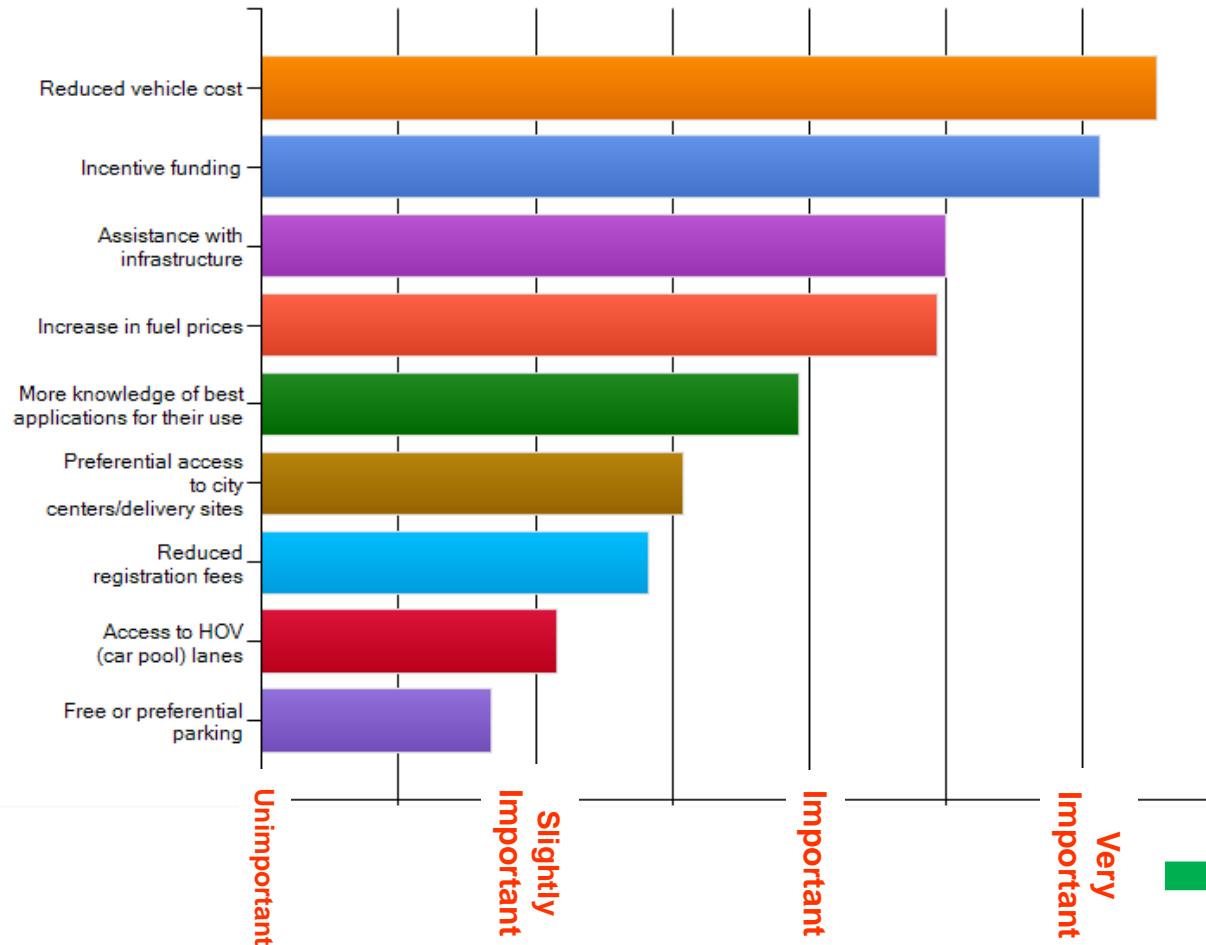
What drives the business case for ETrucks? Please rate the importance of each of the following considerations.





What Would Cause Increased Purchases? Overall

What would cause you to purchase or increase your purchase of E-Trucks? Please rate the importance of each of the following.



Critical

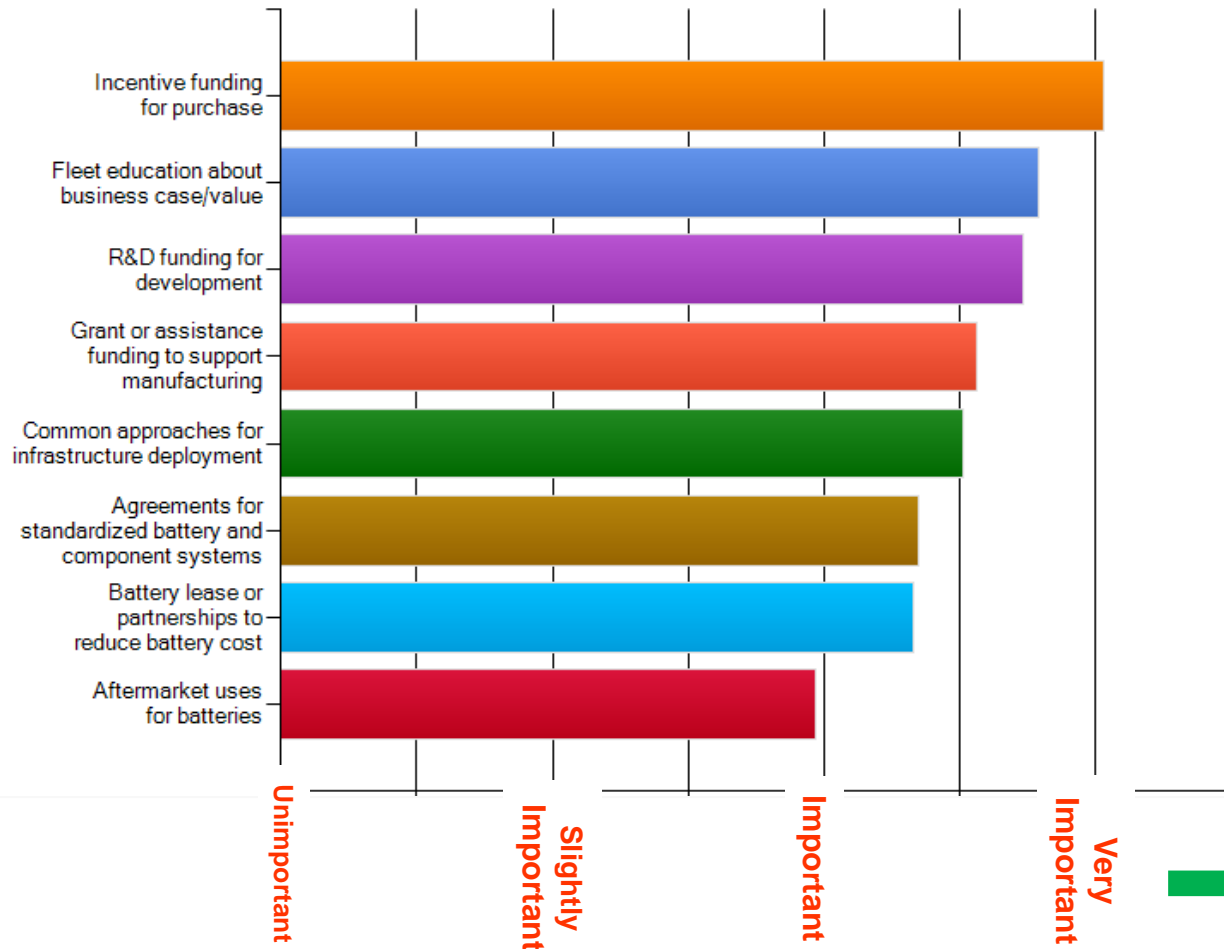


Manufacturing



What Would Increase Production? Overall

What do you need most to help increase production of E-Trucks and systems? Please rate the importance of each of the following.





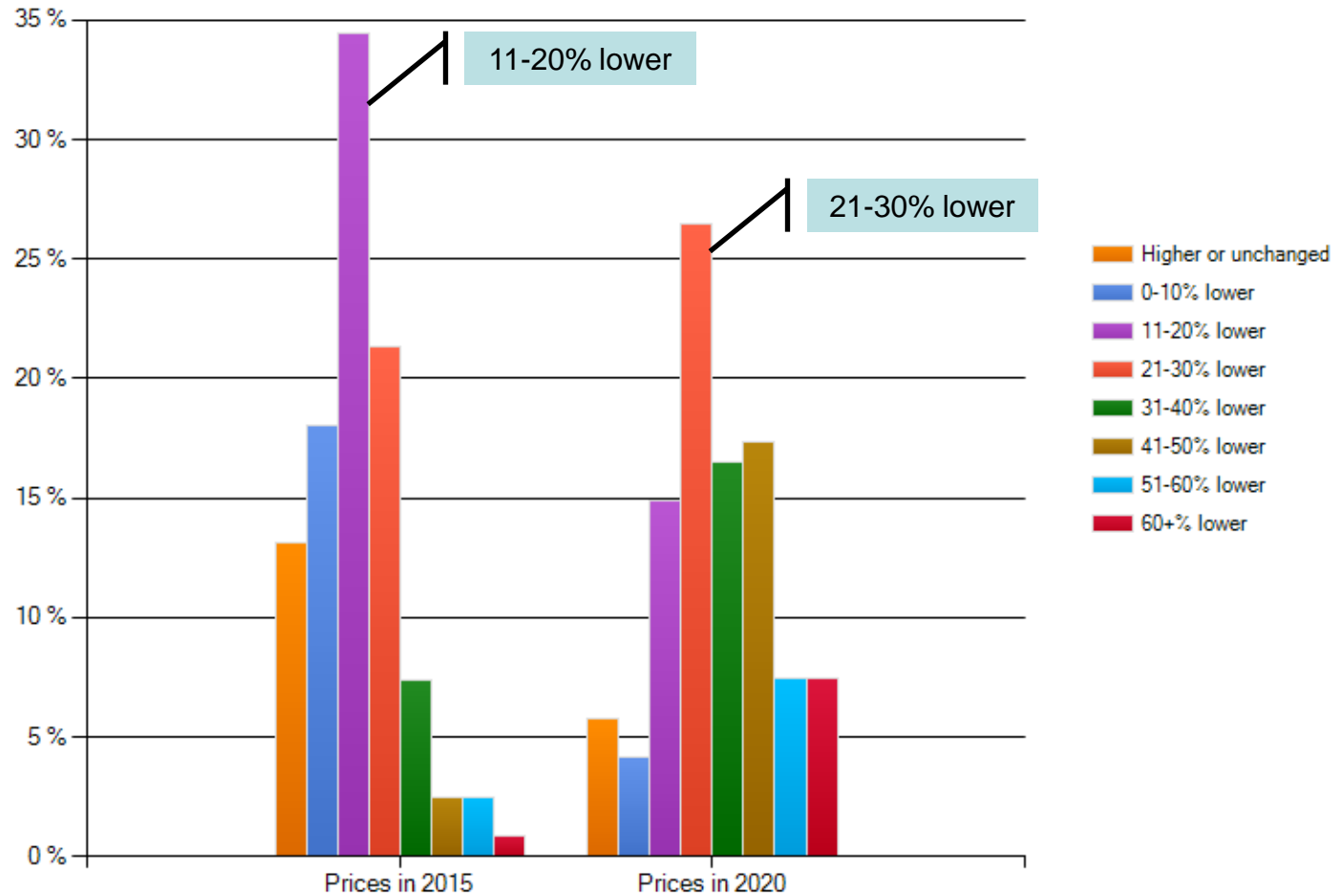
Barriers to Production

1. Incremental Cost – **39%**
2. Battery cost and technology -**16%**
3. Product reliability – **13%**
 - Range anxiety , Payload capacity , Maintenance anxiety , Weather concerns , Limited duty cycles, Unclear environmental benefits
4. Lack of charging Infrastructure – **8%**
5. Lack of product volumes and availability (economies of scale) – **8%**
6. Lack of user education, public awareness and acceptance – **7%**
7. Business case, ROI – **3%**
8. Lack of demand – **3%**
9. Financial issues – **2%**
 - Down economy, Need for incentives
10. Other - **1%**
 - Lack of differential rate for electricity
 - Industry unwillingness to separate operating duty cycles among vehicles to allow for lower range EV's



Price Expectations

Will prices for E-Trucks (or their components) be reduced in the near term? Please indicate your expectations for E-Truck prices in 2015 and 2020 compared with today's prices.





Barriers / Incentives



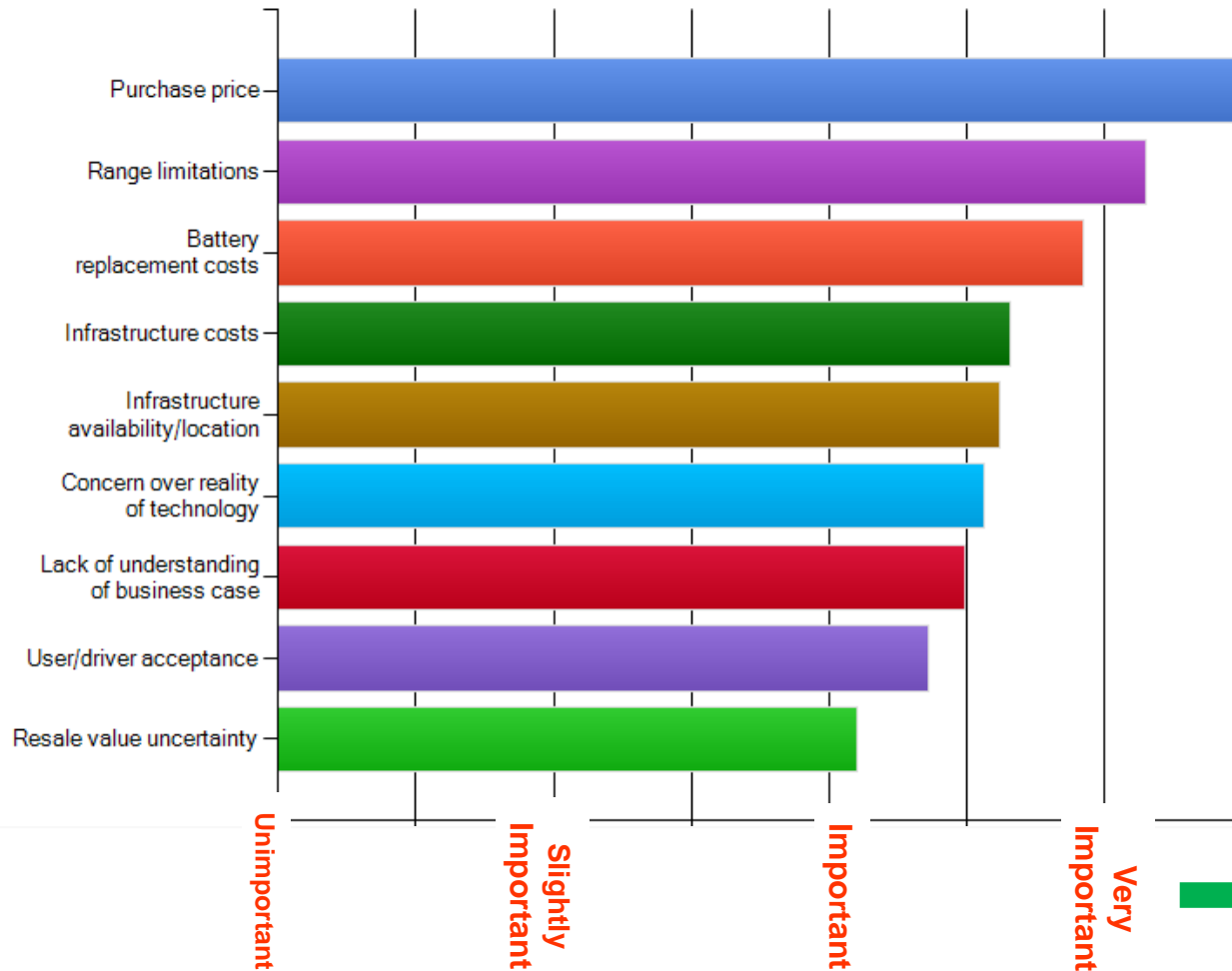
What is Most Needed to Spur E-Truck Manufacturing, Sales, and Purchase?

1. Demonstration of reliability (equal or better than baseline trucks) – **24%**
2. More rebates, incentive programs, grant funding, private investment – **21%**
3. Reduced purchase cost, competitive pricing – **10%**
4. Improved battery technology and reduced cost – **8%**
5. Improved operation – **7%**
 - increased range, fast recharge ,Increased load carry capacity
6. Increased demand, motivated buyers – **7%**
7. Proof of e-truck business case and 2-3 year payback - **7%**
8. Infrastructure development – **6%**
9. Public/fleet education and awareness – **5%**
10. Policy issues – **5%**
 - eliminate oil subsidies, clear US policy on carbon, more govt regs and restrictions



Key Barriers to Expansion Overall

Please rate the importance of each of the following barriers to wider deployment and use of E-Trucks.

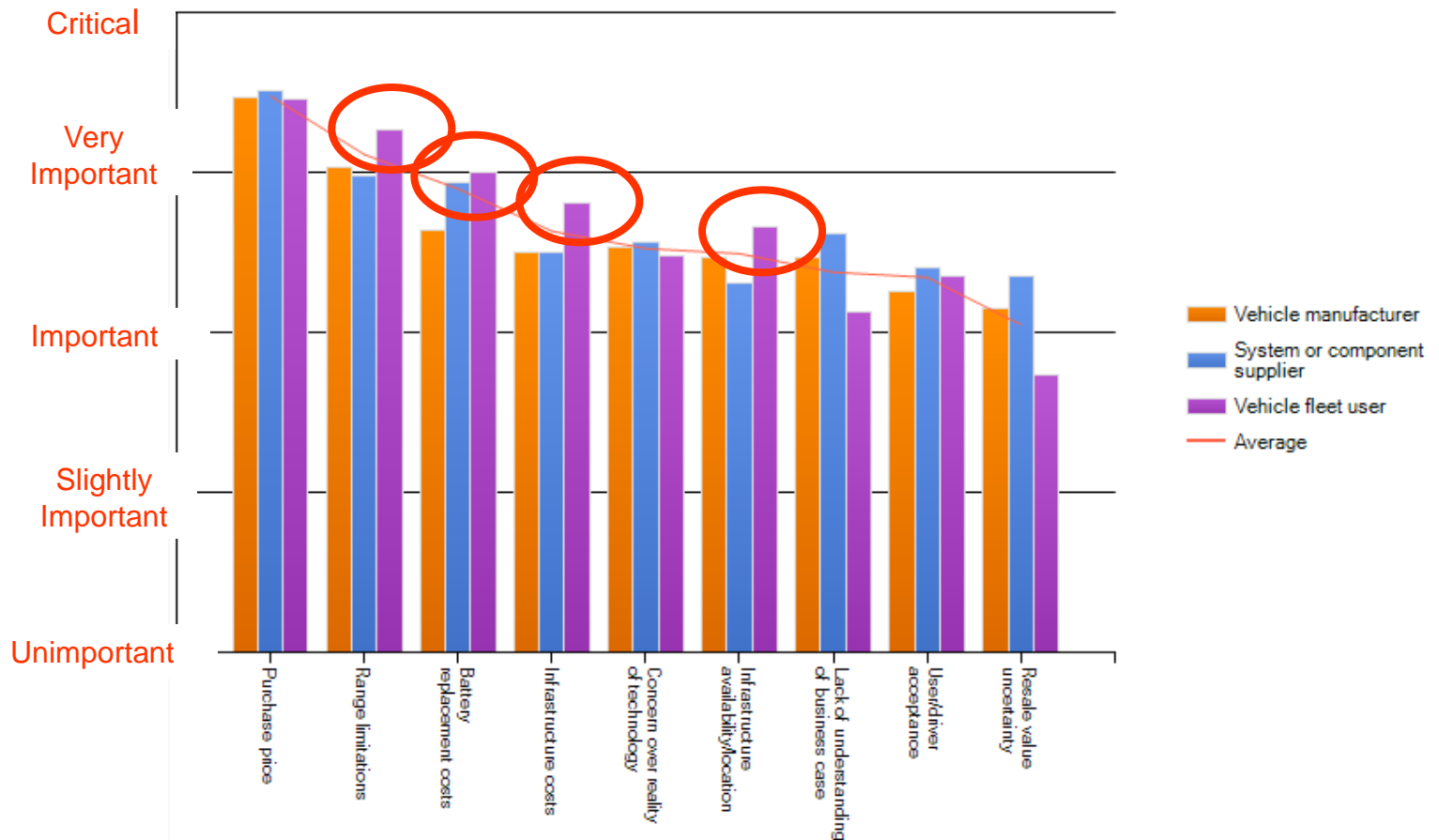


Critical



Key Barriers to Expansion By Respondent

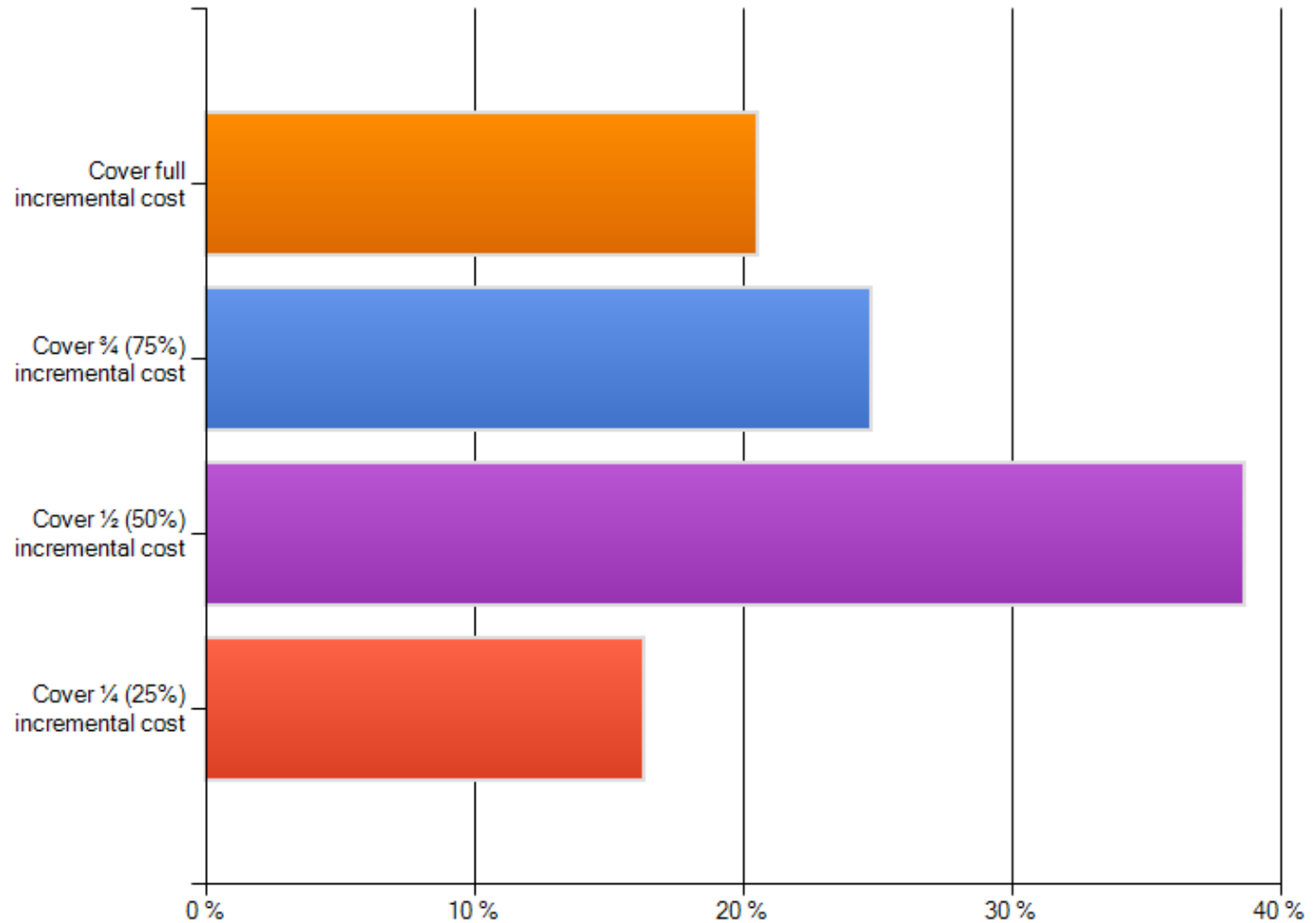
Please rate the importance of each of the following barriers to wider deployment and use of E-Trucks.





Desired Level of Incentives

What level of incentive funding do you feel is needed to support E-Truck purchase?





Pending CEC Funds Increase Incentives for E-Trucks in HVIP

Table 2: Eligible Truck and Bus Voucher Amounts

Gross Vehicle Weight in Pounds (lbs)		Base Incentive ¹	Additional Incentive (Battery Electric Vehicles Only) ^{4,5}	<i>E-Truck Total</i>
8,501 – 10,000 lbs ²	Plug-in Hybrid	\$10,000	\$0	
	Zero-Emission	\$15,000	\$0	
10,001 – 14,000 lbs		\$15,000 ³	\$10,000	\$30,000
14,001 – 19,500 lbs		\$15,000 ³	\$20,000	\$40,000
19,501 – 33,000 lbs		\$20,000	\$25,000	\$45,000
33,001 – 38,000 lbs		\$25,000	\$25,000	\$50,000
> 38,000 lbs		\$30,000	\$30,000	\$60,000

1 The first HVIP-eligible vehicle purchased by a fleet and ARB-certified hybrid vehicles above 14,000 lbs are each eligible for an additional \$5,000 voucher.

2 This weight category includes plug-in hybrid and zero-emission vehicles only.

3 Zero-emission commercial vehicles in this weight category are eligible for \$20,000

4 The California Energy Commission is providing funds from the Alternative and Renewable Fuel and Vehicle Technology Program established under Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007) to match ARB's Base Incentive for eligible Battery Electric Vehicles capable of freeway operation. Total funds expended under this category are subject to availability under ARB's Interagency Agreement with the California Energy Commission.

5 Vehicles manufactured or assembled in California qualify for a 20 percent higher incentive in each category. For example, an eligible 13,000 lbs battery electric vehicle would qualify for a \$12,000 incentive; an eligible 16,500 lbs battery electric vehicle would qualify for a \$24,000 incentive; an eligible 33,000 lbs battery electric vehicle would qualify for a \$30,000 incentive; and an eligible 48,000 lbs battery electric vehicle would qualify for a \$36,000 incentive.

- Calif Energy Commission adding \$4M to ARB Voucher program for hybrid and electric trucks and buses
- Totals reach >50% of incremental cost in most cases, much higher in some



Questions on Data?

Please note slide # or question

“Raise Hand” in webinar controls



Initial Key Findings

- ✓ Vehicle Cost/Price are Easily Top Issues
 - Production/battery costs; need for incentives
 - 50% (or greater) funding of incremental cost needed
 - But costs do show decline over time
- ✓ Vehicle Quality/Support Needs to Improve
- ✓ Validation of Performance and Business Case are Key Gaps
- ✓ Infrastructure is a Next Tier Issue
 - Once cost addressed it could be next major barrier
- ✓ Better Guidance on Placement, Use



Discussion

- ✓ Agree?
- ✓ Other issues?
- ✓ Specific areas to target?



Possible First Targets

- Fleet Track:
 - Support and quality needs
 - Performance validation data
 - Business case validation
 - Infrastructure needs
- Industry Track:
 - Support and quality responses to fleets
 - Pull together performance, biz case data
 - Battery/component common approaches
 - Infrastructure needs



Timeline Review

- Initial issues Survey: April-May
- First meeting – review, priorities: June 9
 - Provide initial incentive feedback to ARB, CEC, Air Districts
- Parallel Track Meetings – through summer
 - Fleet: 2-4 meetings, every 3 weeks or so
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- Draft Findings – First Recommendations: August/September
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Next Steps

- Meeting Notes and Materials out to Task Force
 - By June 13
- Share prelim incentive data with agencies
 - By June 17
- Set Fleet Meeting 1 – tentatively June 30
 - Agenda TBD
- Set Industry Meeting – tentatively July 7
 - Agenda TBD
- Research:

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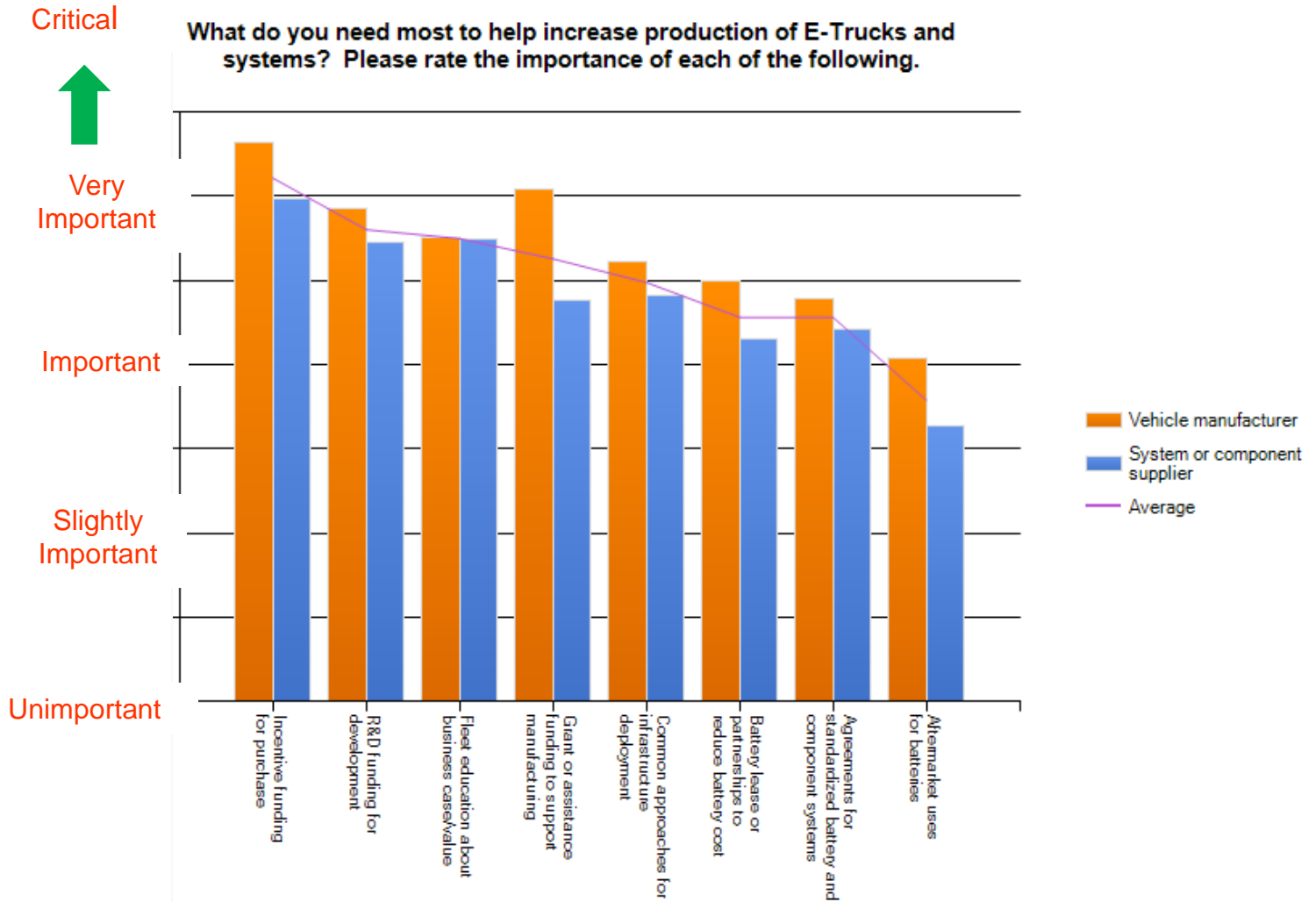
For info contact:

**Bill Van Amburg
(626) 744-5600**

bvanamburg@calstart.org



What Would Increase Production? By Respondent





What Would Cause Increased Purchases? Detail

What would cause you to purchase or increase your purchase of E-Trucks? Please rate the importance of each of the following.

