

CARB

Advanced Clean Off-Road Equipment List Fact Sheets



Air Quality Planning and Science Division
Mobile Source Analysis Branch
Off-Road Diesel Analysis Section
January 2025

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Executive Summary

Advanced Clean Equipment, including battery-electric and hydrogen fuel cell technologies, will be key to meeting climate change goals, addressing regional air quality, and reducing exposure to air toxics in disadvantaged communities.

California Air Resources Board (CARB) staff has compiled and updated a list of zero-emission (ZE) equipment models and energy supply and storage systems (CARB staff defined as alternative charging solutions).

This list provides a valuable technology snapshot in off-road sectors and it will be a reference to show electrification potential by equipment type and manufacturer. Since 2020, 956 hybrid and ZE equipment models have been added to the list and Table 1 shows the number of equipment models per sector per technology type. It also includes temporal energy storage and portable energy supply options expected to overcome the limitation of battery-electric technology and electrify more medium- and heavy-duty equipment types.

Table 1. Number of the listed equipment models by electrification type

Category	Number of equipment models (07/09/2024)
Electric Construction and Mining Equipment	325
Alternative Charging Solutions	69
H2FC Construction and Mining Equipment	11
Grid-electric Construction & Industrial Equipment	40
Zero-Emission Agricultural Equipment	29
Electric Industrial & Airport GSE	57
Zero-Emission Forklifts	402
Hybrid and Zero-Emission Aircraft	26
Total	959

Advanced Clean Equipment (ACE) List

Off-road equipment (ORE) sector includes a broad spectrum of equipment and vehicle types, such as construction, agricultural, industrial, cargo handling equipment, locomotive, marine vessels, etc.

ORE manufacturers have put a significant effort into implementing various zero-emission technologies into their conventionally fueled equipment. Many demonstration projects are currently underway, with a growing number becoming commercially accessible. This web page is a showcase of zero-emission off-road equipment (known to CARB) that are currently available in the market or are in various stages of research, development, or demonstration. By sharing this list, CARB's staff intends to achieve the following objectives:

- Demonstrate progress in off-road zero-emission equipment availability.
- Provide a comprehensive reference of zero-emission off-road equipment for incentive or regulatory strategies.
- Introduce alternative charging options and strategies.

Engine power and battery capacity information may be subject to change as manufacturers continue to develop and update their demonstration project units.

CORE eligibility refers to the eligible equipment catalog of the Clean Off-Road Equipment Voucher Incentive Project (CORE)¹. Technology Readiness Level (TRL) represents the outcome of a comprehensive technology status assessment jointly conducted by CALSTART and CARB², offering insights into the status and market readiness of ZE equipment technology. The TRL scale ranges from 1 to 9, with increasing values indicating higher levels of technological maturity and readiness for deployment. TRL values around from 5 to 6 indicate the equipment's involvement in demonstration projects, while approximately TRL 7 indicates advanced technology demonstration or pilot projects. Approaching TRL 9, the ZE technology is considered primed for market assessment and commercial viability. The absence of TRL values signifies that the relevant equipment types were not included within the analysis scope.

Please contact us via junhyeong.park@arb.ca.gov to add unlisted zero-emission equipment cases or updated information. CARB staff are in progress of adding information on powertrain and battery capacity as well.

Electric Construction and Mining Equipment

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Excavators	Pon / Caterpillar	323 Z-Line	Electric 26-Ton Excavator		6.94
Excavators	Pon / Caterpillar	320 Z-line	Electric 25-Ton Excavator		6.94
Excavators	Pon / Caterpillar	310 Z-line	Electric 12-Ton Excavator		6.94
Excavators	Volvo CE	EX2	World's first fully electric compact excavator prototype according to the advertisement.		6.94

¹ <https://californiacore.org/equipmentcatalog/>

² <https://calstart.org/off-road-assessment/>

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Excavators	Volvo CE	ECR25	Trench digging equipment. Operating time is up to 4 hours		6.94
Excavators	Volvo CE	EC18	Electric Compact Excavator		6.94
Excavators	Volvo CE	ECR18	Electric Compact Excavator		6.94
Excavators	Volvo CE	EC230 E	22-metric-ton EC230 electric excavator	O	6.94
Excavators	Suncar HK	TB216e	Electric excavator		6.94
Excavators	Suncar HK	TB260e	Electric excavator		6.94
Excavators	Suncar HK	TB1140e	Electric excavator		6.94
Excavators	Doosan	DX300LC Electric	30-ton crawler excavator		6.94
Excavators	Doosan	DX140	Electric excavator		6.94
Excavators	Doosan	DX165W	16.5-tonne excavator		6.94
Excavators	Doosan	DX300	30-tonne Excavator with battery swapping system		6.94
Excavators	Doosan	DX340	Electric excavator		6.94
Excavators	Doosan	DX380/420	Electric excavator		6.94
Excavators	Doosan	DX480/520	Electric excavator		6.94
Excavators	Komatsu	PC210LCE	20-ton excavator		6.94
Excavators	Doosan & Danfoss		16-ton wheel excavator with battery-swapping tech		6.94
Excavators	Doosan & Danfoss		30-ton crawler excavator with battery-swapping tech		6.94
Excavators	Hyundai	HX 260 ALE	26-ton crawler excavator with interchangeable battery packs		6.94
Excavators	Hyundai	HW 140	15-ton rubber wheeled excavator with interchangeable battery packs		6.94
Excavators	Hitachi	Zeron ZE160LC peakshaver+			6.94
Excavators	Hitachi / Nasta	ZE85			6.94
Excavators	HÍDROMEK	HMK 70W	Rubber wheeled excavator		6.94
Excavators	LiuGong	906E-EV	6-ton class tracked excavator		6.94
Excavators	LiuGong	922F-EV	22-ton class tracked excavator		6.94
Excavators	LiuGong	924FTN-EV	Tracked excavator		6.94
Excavators	HEVI Greenland Electric	GEX-8000			6.94
Excavators	SOCMA	HP12517-G202W-R4U4	8-ton wheeled excavator		6.94
Excavators	SOCMA	12TON ELECTRIC WHEEL EXCAVATOR Lithium Ion	12-ton wheeled excavator		6.94
Excavators	SOCMA	HNE150W-EL 15-ton wheeled excavator	HNE150W-EL 15-ton wheeled excavator		6.94
Excavators	SOCMA	HNE150C-EL 15-ton crawler excavator	HNE150C-EL 15-ton crawler excavator		6.94
Excavators	SOCMA	22ton Electric Crawler Excavator Lithium Battery	22ton Electric Crawler Excavator Lithium Battery		6.94
Excavators	SOCMA	Wheeled excavator	36-ton wheeled excavator		6.94
Excavators	SOCMA	Electric Crawler Excavator	52 ton Lifting Capacity Electric Crawler Excavator		6.94
Excavators	Jingong Machinery	JGM9085e	5-ton wheeled excavator		6.94
Excavators	SDLG	E660F-Ex	6-ton capacity tracked excavator		6.94

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Excavators	Sinomach	323Ev			6.94
Excavators	Sinomach	950E			6.94
Excavators	Bosch		Wheeled excavator concept		6.94
Excavators	Sany	SY215E	20-ton excavator, dual gun charging, DCFC		6.94
Excavators	Liebherr	R 9400 E	210-tonne Electric Mining Excavator (Cable Connected)		6.94
Excavators	Nullutslipp AS / Kubota	U17-3	Battery electric excavator		6.94
Excavators	Nullutslipp AS / Kubota	KX019-4	Battery electric excavator		6.94
Excavators	Nullutslipp AS / Kubota	KX027-4	Battery electric excavator		6.94
Excavators	Nullutslipp AS / Kubota	KX037-4	Battery electric excavator		6.94
Excavators	Nullutslipp AS / Kubota	KX057-4	Battery electric excavator		6.94
Excavators	Nullutslipp AS / Kubota	ET90	Electric excavator		6.94
Excavators	John Deere	Fully electric excavator	Introduced at CES 2023		6.94
Mini excavator (Compact Excavator)	Deutz	kteg ze25 excavator	Battery electric mini excavator		8.46
Mini excavator (Compact Excavator)	Terex	Twin Drive TC16	Mini excavator		8.46
Mini excavator (Compact Excavator)	CASE	CX15 EV	Mini excavator for 2023 release		8.46
Mini excavator (Compact Excavator)	Liteng Machinery	LT20EV	Mini excavator		8.46
Mini excavator (Compact Excavator)	Liteng Machinery	LT12EV	Mini excavator		8.46
Mini excavator (Compact Excavator)	Yanmar	SV17e	Mini excavator prototype for EU 2022 release		8.46
Mini excavator (Compact Excavator)	Mecalac	E12			8.46
Mini excavator (Compact Excavator)	Caterpillar	301.9 Electric Mini Excavator			8.46
Mini excavator (Compact Excavator)	CASE	CX15 EV			8.46
Mini excavator (Compact Excavator)	Doosan	DX17Z-5			8.46
Mini excavator (Compact Excavator)	Doosan	DX220/225			8.46
Mini excavator (Compact Excavator)	Doosan	DX19			8.46
Mini excavator (Compact Excavator)	Green Machine / Takeuchi	e210			8.46
Mini excavator (Compact Excavator)	Green Machine / Takeuchi	e240	10 hours to fully recharged with 220V outlet. 9 hours of operating hours at 65% of full load, on a full charge.		8.46
Mini excavator (Compact Excavator)	Takeuchi	TB 20e	Electric Hydraulic Compact Excavator		8.46
Mini excavator (Compact Excavator)	Takeuchi	TB220e			8.46
Mini excavator (Compact Excavator)	Suncar HK	TB216E			8.46
Mini excavator	Wacker Neuson	EZ17e			8.46

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
(Compact Excavator)					
Mini excavator (Compact Excavator)	Sherpa / Cratos	CMX18			8.46
Mini excavator (Compact Excavator)	Kato	9vxe			8.46
Mini excavator (Compact Excavator)	Kato	17VXE			8.46
Mini excavator (Compact Excavator)	Bobcat	E10 e	1-ton battery hydraulic electric mini-excavator		8.46
Mini excavator (Compact Excavator)	Kobelco	SK17SR			8.46
Mini excavator (Compact Excavator)	Bobcat	E19e	2-ton battery hydraulic electric mini-excavator		8.46
Mini excavator (Compact Excavator)	JCB	19C-1 E-TEC			8.46
Mini excavator (Compact Excavator)	Komatsu	PC30E-5			8.46
Mini excavator (Compact Excavator)	HR E&I Co Ltd.	1.7e	1.7-ton mini excavators		8.46
Mini excavator (Compact Excavator)	HR E&I Co Ltd.	3.5e	3.5-ton mini excavators		8.46
Mini excavator (Compact Excavator)	HR E&I Co Ltd.	1.2e	Mini electric excavators		8.46
Mini excavator (Compact Excavator)	Hyundai/Cummins		3.5-ton Hyundai excavator prototype with Cummins BM4.4E flexible battery modules		8.46
Mini excavator (Compact Excavator)	XCMG/Cummins	XE35U-E	3.5-tonne battery electric excavator, with Cummins BM5.7E battery modules		8.46
Graders	HBM-NOBAS	BG 120 TA-E	Electric grader		6.21
Graders	MEDATech	Conversion of CAT 12M3	Mining application in Canada. A converted version of CAT 12M3.		6.21
Graders	Maclean Engineering	GR5			6.21
Graders	Miller Technology		Low profile road grader		6.21
Graders	Elphinstone	Motor grader			6.21
Off-Highway Trucks	XEMC	Retrofitted 120 ton electric truck (XEMC SF31904 conversion)	A conversion of 108 t class XEMC SF31904 AC drive rigid truck to 120t mining haul truck		7.36
Off-Highway Trucks	EPCA(Electric Power Conversion Australia)	EPCA 50-70 Electric 100 ton mining truck	Green Machine Project / electrified a CAT 777 100-ton (91-t) mining truck using a Xerotech Battery System.		7.36
Off-Highway Trucks	BELAZ	7558E 90 t class prototype	7558E 90 t class prototype		7.36
Off-Highway Trucks	SAEAN	30-ton articulated electric dump truck	Prototype		7.36
Off-Highway Trucks	Komatsu	eDumper			7.36
Off-Highway Trucks	Epiroc	Minetruck MT42	Low-profile battery-electric articulated haul truck		7.36
Off-Highway Trucks	Sandvik (Artisan)	50T underground haul truck	Interchangeable battery pack equipped		7.36
Off-Highway Trucks	Breton (BOLAIDUN)	95ton mining dump truck			7.36
Off-Highway Trucks	Medatech / Western star	4900XD EV	26-ton cap heavy dump		7.36
Off-Highway Trucks	IVI Quevbec / Western star	6900XD	40-ton cap heavy dump		7.36
Off-Highway Trucks	RDH-Scharf	Haulmaster 800-20EB	Underground mining dump truck		7.36

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Off-Highway Trucks	RDH-Scharf	Liftmaster 600EB	Utility mining truck with scissor lift body		7.36
Dumper	Mecalac	ed6	6-ton ed6 dumper		7.36
Rollers (Compact)	Hamm	HD CompactLine	Fully electric tandem asphalt compactors		7.32
Rollers (Compact)	Dynapac	Z.ERA CC900 e	Z.ERA Electric 35" Dual Drum Asphalt Roller	O	7.32
Rollers (Compact)	Dynapac	Z.ERA CC1000 e	Z.ERA Electric 40" Dual Drum Asphalt Roller	O	7.32
Rollers (Compact)	Dynapac	D.ONE trench roller			7.32
Rammers	Dynapac	Dynapac Rammers			
Mix spreader	Dynapac	S100	Walk behind, self-propelled mix spreader		
Rollers	BOMAG	BW 120 AD-5 E	2hr intended operation to match observed rental use		7.32
Rollers	BOMAG	BW 100 AD-5 E	2hr intended operation to match observed rental use		7.32
Rollers	Volvo CE	DD25	Electric asphalt compactor		7.32
Rollers	BAM Infra	BAM electric road roller	World's first electric road roller / 3wheel static roller, Diesel chassis converted to BEV, 73L/day fuel savings		7.32
Rollers	HAMM / Wirtgen / John Deere	HD 12e VV	Electric Roller		7.32
Rollers	Green Road Equipment	Conversion	Wheel static roller, Diesel chassis converted to BEV, KWS already using 4 of these, others using as well		7.32
Rollers	XCMG	26tonne PTR	Electric rubber tired pavement roller		7.32
Rollers	Dynapac	CC900e "Z.ERA"			7.32
Rollers	Jingong Machinery		Battery electric road roller		7.32
Rollers	Changlin	8226EV	Battery electric vibratory roller articulated single roll		7.32
Rollers	Ammann	eARX-26-2	Battery electric compact twin roller compactor		7.32
Rollers	Wacker Neuson	RD28e	2.8-ton battery electric compact twin roller compactor		7.32
Rubber Tired Loaders	Schaeffer	23E			7.38
Rubber Tired Loaders	Schaeffer	24E			7.38
Rubber Tired Loaders	Kramer	5055e			7.38
Rubber Tired Loaders	Aramine	L140b			7.38
Rubber Tired Loaders	epiroc	Scooptram ST14 Battery	Articulated Mining Load Haul Dump		7.38
Rubber Tired Loaders	Sandvik	LH518B	self battery swapping 18T load haul dump		7.38
Rubber Tired Loaders	Caterpillar	R1700XE	load haul dump. OEM conversion of existing machine design.		7.38
Rubber Tired Loaders	GE Fairchild	AC LHD	Load Haul Dump		7.38
Rubber Tired Loaders	GE Fairchild	35C-WH-AC	Mining Scoop		7.38
Rubber Tired Loaders	LiuGong	856H-EV	Battery electric wheel loader with CATL 423 kWh LFP battery pack, coupled to a LiuGong EAT700 transmission.	O	7.38
Rubber Tired Loaders	RDH-Scharf	Muckmaster 300EB	Load Haul Dump		7.38

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Rubber Tired Loaders	RDH-Scharf	Muckmaster 600EB	Load Haul Dump		7.38
Rubber Tired Loaders	Komatsu	Joy 22HD	Load haul dump mining loader, up to 950hp equivalent from combined battery and diesel		7.38
Rubber Tired Loaders	Komatsu	Joy18HD	Load haul dump mining loader, up to 950hp equivalent from combined battery and diesel		7.38
Rubber Tired Loaders	Komatsu		wheel loader, direct electric actuators; 2022 concept		7.38
Rubber Tired Loaders	ESDI EV / Leibherr	580	Wheel loader conversion		7.38
Rubber Tired Loaders	Everrun	erel04	Wheel loader		7.38
Rubber Tired Loaders	Everrun	erel06	Wheel loader		7.38
Rubber Tired Loaders	Lonking	LG855N-E	5 ton wheel loader		7.38
Rubber Tired Loaders	Xinhai (Yantai) Mining Engineering Co., LTD	Electric LHD WJD-2	4 ton load haul dump		7.38
Rubber Tired Loaders	Xinhai (Yantai) Mining Engineering Co., LTD	Electric LHD WJD-3	6 ton load haul dump		7.38
Rubber Tired Loaders	Xinhai (Yantai) Mining Engineering Co., LTD	Electric LHD WJD-1.5	3 ton load haul dump		7.38
Rubber Tired Loaders	Xinhai (Yantai) Mining Engineering Co., LTD	Electric LHD WJD-1	2 ton load haul dump		7.38
Rubber Tired Loaders	Xinhai (Yantai) Mining Engineering Co., LTD	Electric LHD WJD-0.6	1.2 ton load haul dump		7.38
Rubber Tired Loaders	Jingong Machinery	JGM757HEV	5 ton wheel loader concept		7.38
Rubber Tired Loaders	Jingong Machinery	JGM857E	5500kg capacity		7.38
Rubber Tired Loaders	Wings Machinery	5.0t Electric Wheel Loader	5 ton wheel loader		7.38
Rubber Tired Loaders	Changlin	955EV			7.38
Rubber Tired Loaders	Changlin	960ev			7.38
Rubber Tired Loaders	Forload	H906D electric mini wheel loader	Half-ton wheel loader		7.38
Rubber Tired Loaders	Ensign Heavy Industries LTD	YX656EV			7.38
Rubber Tired Loaders	Highland Machinery	LHD	Load Haul Dump		7.38
Rubber Tired Loaders	Highland Machinery	model 280	Mining Scoop		7.38
Rubber Tired Loaders	Highland Machinery	HMC 320dm	Mining Scoop		7.38
Rubber Tired Loaders	Dongfeng	MORV platform	Wheel loader		7.38
Rubber Tired Loaders	HEVI Greenland Electric	GEL-1800	Wheel loader		7.38
Rubber Tired Loaders	HEVI Greenland Electric	GEL-5000	Wheel loader		7.38
Rubber Tired Loaders	Danfoss	Wheel Loader	Wheel loader design exercise/powertrain product		7.38
Rubber Tired Loaders	SEM	SEM658F	Wheel loader 5500kg lift capacity		7.38

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Rubber Tired Loaders	Tobroco	G2200E			7.38
Rubber Tired Loaders	MultiOne	EZ7 electric	Articulated loader		7.38
Rubber Tired Loaders	MultiOne	EZ 8 Electric Loader	Articulated loader		7.38
Backhoes	MultiOne	EZ 8 Electric Backhoe			7.33
Top Front End Payloader	MultiOne	EZ 8 Electric General Bucket			
Top Front End Payloader	MultiOne	EZ 8 Electric Dumper			
Top Front End Payloader	MultiOne	EZ 8 Electric Grapple Bucket			
Trencher	MultiOne	EZ 8 Electric Trencher			7.00
Trencher	Ditch Witch	c12e	Chain bar walk behind trencher. An equivalent model uses 12 hp diesel engine		7.00
Pavers	Volvo CE	electric P4820	P4820-based battery electric paver		6.54
Pavers	LeeBoy	8520C	Electric 8520C Asphalt Paver		6.54
Pavers	Newindu	Electric Concrete Asphalt Paver RP451L			6.54
Pavers	Dynapac	SD2500CS e "Z.ERA"	Asphalt spreader		6.54
Pavers	Dynapac	SD1800We	Asphalt spreader city		6.54
Pavers	Gomaco	CC-1200e	Slipform paver, curbs		6.54
Pavers	Topp & Screed, Twin Tec	TS 6100e	Screed concrete leveler laser guided		6.54
Pavers	Paclite	m900-eco	Power trowel, walk behind		6.54
Pavers	CM srl with Tazzari Group	F175 eco (wheeled)	Narrow track asphalt paver, wheeled		6.54
Pavers	CM srl with Tazzari Group	F180 eco (tracked)	Narrow track asphalt paver, tracked		6.54
Pavers	Wirtgen/BAM Infra		asphalt spreader--in action as of 7/2022		6.54
Pavers	Vogele / John Deere	Mini500e	asphalt spreader (tracked)		6.54
Pavers	Vogele / John Deere	Mini502e	asphalt spreader (wheeled)		6.54
Skid Steer Loaders	Gehl	165E	Concept model		8.22
Skid Steer Loaders	Bobcat & Doosan	T7X	All-electric Skid Steer Loaders	O	8.22
Skid Steer Loaders	Sherpa	100 ECO Electric Mini Skid-Steer	Walk behind/ride-on skid steer		8.22
Skid Steer Loaders	Toro	e-Dingo			8.22
Skid Steer Loaders	Giant	G2200E X-tra	Electric Skid Steer Loader		8.22
Skid Steer Loaders	First Green Industries	eLise 700	Electric Skid Steer Loader	O	8.22
Skid Steer Loaders	First Green Industries	eLise 900 Lithium battery	Electric Skid Steer Loader + Lithium Battery	O	8.22
Skid Steer Loaders	First Green Industries	eLise 900 240 Ah battery	Electric Skid Steer Loader + Lead Acid Battery	O	8.22
Skid Steer Loaders	First Green Industries	eLise 900 400 Ah battery	Electric Skid Steer Loader + Lead Acid Battery	O	8.22
Skid Steer Loaders	Toro	e-Dingo	walk behind		8.22
Skid Steer Loaders	Movex Innovation	Minidozer	remote controlled confined space skid steer		8.22
Skid Steer Loaders	Movex Innovation	Minidozer-High Speed	remote controlled confined space skid steer		8.22

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Skid Steer Loaders	Vermeer / Conneq	AS15	walk behind skid steer, direct electric propulsion drive with 4 wheel motors		8.22
Skid Steer Loaders	SOCMA	Electric Skid Steer Loader	Lithium Battery Electric Skid Steer Loader		8.22
Skid Steer Loaders	Yuchai Heavy Industry	S150 Electric Skid Steer Loader	Currently the largest tonnage electric skid steer loader available. This model features a built-in battery thermal balance system, maximizing the battery's efficiency. By 1-hour fast charging, it can work for 8-9 hours.		8.22
Skid Steer Loaders	Yuchai Heavy Industry	S35 Electric Skid Steer Loader	6-8 hours on a full charge		8.22
Skid Steer Loaders	Yuchai Heavy Industry	S35MAX Long-Endurance Electric Skid Steer Loader	The long-endurance S35 MAX Electric Skid Steer Loader can work continuously for 9 to 11 hours on a full charge		8.22
Skid Steer Loaders	Yuchai Heavy Industry	S35Pro Electric Skid Steer Loader	6-8 hours on a full charge		8.22
Skid Steer Loaders	Yuchai Heavy Industry	X35 Max Electric Skid Steer Loader			8.22
Wheel Loader (Compact)	Yuchai Heavy Industry	Z25 Mini Loader	1. Energy cost decreased by 91% 2. zero maintenance during 2,000 operation hours 3. Battery capacity increased by 40% 4. Battery life increased by 50%		8.79
Wheel Loader (Compact)	Caterpillar	Cat 906			8.79
Wheel Loader (Compact)	JCB	403E	First fully electric wheeled loader		8.79
Wheel Loader (Compact)	GreenFox	GreenFox 500			8.79
Wheel Loader (Compact)	Poclain Hydraulics	miniZEV			8.79
Wheel Loader (Compact)	Volvo CE	L20 Electric Compact Wheel Loader	1.8-ton payload and parallel type linkage	O	8.79
Wheel Loader (Compact)	Kramer	KL25.5e Electric Wheeled Loader			8.79
Wheel Loader (Compact)	Schaffer	24E Electric Wheel Loader			8.79
Wheel Loader (Compact)	Tobroco	G2200E			8.79
Wheel Loader (Compact)	Knikmops	KM130e			8.79
Wheel Loader (Compact)	Weidemann	1160 eHoftrac			8.79
Wheel Loader (Compact)	Wacker Neuson	WL20e			8.79
Wheel Loader (Compact)	LiuGong	820TE	Battery electric wheel loader		8.79
Wheel Loader (Compact)	SOCMA	HNL-07EL	0.7 ton Electric Mini Wheel Loader		8.79
Wheel Loader	SOCMA	HNL-18EL	Electric wheel loader		8.77
Wheel Loader	SOCMA	HNL-35EL	3.5 ton wheel loader		8.77
Wheel Loader	SOCMA	HNL-50EL	Electric wheel loader		8.77
Wheel Loader	LiuGong	856HE	Purpose built battery electric wheel loader with CATL 423 kWh LFP battery pack, coupled to a LiuGong EAT700 transmission.	O	8.77

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Wheel Loader	LiuGong	870HE	Battery electric wheel loader		8.77
Wheel Loader	Caterpillar	Cat 950 GC			8.77
Wheel Loader	Liebherr	L 507 E	Liebherr Group's first electrified wheel loader.		8.77
Wheel Loader	Volvo CE		L90H based conversion. 15 ton wheel loader with interchangeable battery packs		8.77
Wheel Loader	Volvo CE		L110H/L120H based conversion. 20 ton wheel loader with interchangeable battery packs		8.77
Wheel Loader	Danfoss Editron	Editron Wheel Loader			8.77
Wheel Loader	Tobroco-Giant	G2500 HD Electric Wheel Loader			8.77
Wheel Loader	Tobroco-Giant	G2500 HDX-TRA00E Electric Wheel Loader			8.77
Wheel Loader	Tobroco-Giant	G2700	Articulated Loader with Jungheinrich 520 Ah, 48V lithium-ion battery		8.77
Wheel Loader	Liebherr	L580			8.77
Wheel Loader	Mecalac	es1000	1000-litre swing loader		8.77
Wheel Loader	Shantui	Le56-X2	5-ton Electric Wheel Loader		8.77
Wheel Loader	Breton (BOLAIDUN)	BRT956EV	5000kg electric wheel loader with Lithium Iron Phosphate Battery		8.77
Wheel Loader	Breton (BOLAIDUN)	BRT958	5.5-ton capacity wheel loader		8.77
Wheel Loader	Breton (BOLAIDUN)	BRT936	3-ton capacity wheel loader		8.77
Wheel Loader	Liteng machinery	LT958EV (LW500KV)	5-ton capacity wheel loader		8.77
Wheel Loader	Liteng machinery	LT910EV	1-ton capacity wheel loader		8.77
Wheel Loader	Liteng machinery	LT906EV	600kg capacity wheel loader		8.77
Wheel Loader	XCMG	XC968EV	6-8 hour run time normal loading. 5-6 hour run time heavy loading. 60 minute charge time with 300kW charger. 100 minute charge time with 180kW charger		8.77
Wheel Loader	John Deere	Electric 244 X-Tier Compact Wheel Loader	Electric 244 X-Tier Compact Wheel Loader / 50% less noise from the equipment		8.77
Wheel Loader	Avant	Avant e513	Mini articulated loader		8.77
Wheel Loader	Avant	Avant e527	Mini articulated loader		8.77
Wheel Loader	Avant	Avant e6	Mini articulated loader		8.77
Tracked Loader	Shantui	DE17-X2 XL	Shantui Electric bulldozer		7.00
Tracked Loader	Shantui	DE26-X2	Shantui Electric bulldozer		7.00
Tractors / Loaders / Backhoes	Wacker Neuson	WL20e	48-volt lithium-ion battery wheel loader		7.33
Tractors / Loaders / Backhoes	Volvo CE	L25	Pallet handling, loading material, grading, sweeping, light infra work, gardening, landscaping and agriculture		7.33
Tractors / Loaders / Backhoes	CASE	580 EV	Electric Backhoe Loader		7.33
Tractors / Loaders / Backhoes	Fendt	e100-vario	Utility tractor		7.33
Tractors / Loaders / Backhoes	Rino electric	Rino	Zero radius landscape maintenance tractor		7.33
Tractors / Loaders / Backhoes	Avant Tenco	Avant e5	Mini articulated loader		7.33

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Tractors / Loaders / Backhoes	Avant Tenco	Avant e6	Mini articulated loader		7.33
Tractors / Loaders / Backhoes	John Deere	310	Frontend loader backhoe		7.33
Tractors / Loaders / Backhoes	JAMA	SBU 800E	Mining scaler (wheel loader with hydraulic hammer)		7.33
Tractors / Loaders / Backhoes	JAMA	JMS 7000	Mining scaler (wheel loader with hydraulic hammer)		7.33
Tractors / Loaders / Backhoes	Loxley Innovation	Blue.E2	Utility ag tractor conversion, orchard use		7.33
Tractors / Loaders / Backhoes	CHN	T4 Electric Power light utility tractor	Autonomous-ready equipment		7.33
Tractors / Loaders / Backhoes	John Deere	SESAM concept	Medium/large BEV tractor		7.33
Tractors / Loaders / Backhoes	John Deere	310 X-Tier Backhoe	22.8 mph max travel speed		7.33
Tractors / Loaders / Backhoes	John Deere	SESAM2	Medium/large BEV tractor		7.33
Tractors / Loaders / Backhoes	First Green Industries	MiniZ	Mini Electric Track Loader		7.33
Drill Rigs (Mobile)	Epiroc	Boomer E2 Battery Face Drill Rig			7.28
Drill Rigs (Mobile)	Epiroc	Boomer E2 Battery drill	Blast hole drill		7.28
Drill Rigs (Mobile)	Epiroc	Boltec E	Rock bolting drill rig		7.28
Drill Rigs (Mobile)	Epiroc	Boltec M	Rock bolting drill rig		7.28
Drill Rigs (Mobile)	Epiroc	SmartROC T35 E	surface blast hole drill		7.28
Drill Rigs (Mobile)	Foundiz / Soilmec	SM-13E micro drilling rig	Full electric micro drilling rig		7.28
Drill Rigs (Mobile)	Liebherr	LB 16 Unplugged	Retrofitted by Suncar, the first battery-powered drilling rig in the world		7.28
Drill Rigs (Mobile)	Liebherr	LB 25 Unplugged			7.28
Drill Rigs (Mobile)	Liebherr	LB 30 Unplugged			7.28
Drill Rigs (Mobile)	Liebherr	LRH 200 unplugged	Battery-powered piling and drilling rigs		7.28
Drill Rigs (Mobile)	Liebherr	LRH 100.1	Battery-powered piling and drilling rigs		7.28
Drill Rigs (Mobile)	Duratherm / WE Engineering / Conrad Stanen	300-E ground-drilling rig	World's first all-electric ground-drilling rig		7.28
Drill Rigs (Mobile)	Epiroc	Boomer E2 Battery drill	Blast hole drill		7.28
Drill Rigs (Mobile)	Sandvik	DD422iE Development drill rig	Blast hole & rock bolting drill		7.28
Drill Rigs (Mobile)	Sandvik	DC300Ri electric	blast hole surface drill rig		7.28
Drill Rigs (Mobile)	Hilti	Jaibot	Semi-autonomous ceiling drill for finishing poured concrete structures		7.28
Drill Rigs (Mobile)	BAUER	eBG 33	100-tonne plug-in electric drilling rig		7.28
Drill Rigs (Mobile)	Klemm	KR 606-3	grid-tied electric		7.28
Drill Rigs (Mobile)	Klemm	KR 702-2R	grid-tied electric		7.28
Drill Rigs (Mobile)	Aramine	miniDriller DM901HDE	electric drill, diesel traction		7.28
Drill Rigs (Mobile)	Vermeer		Electric grid or genset tied		7.28
Drill Rigs (Mobile)	Skylift	MD6000-E	battery with engine backup		7.28
Drill Rigs (Mobile)	Epiroc / Fortescue Future Industries	D65 conversion	Hydrogen Fuel Cell		7.28

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Drill Rigs (Mobile)	Junttan	PMx2e	Battery electric, 8-14hrs of operating hours		7.28
Drill Rigs (Mobile)	Woltran/Dieseko	90DR-E	Battery electric		7.28
Drill Rigs (Mobile)	FES	YTR200AE	Battery electric		7.28
Drill Rigs (Mobile)	Sumitomo / Hillcon Piling Equipment	HSCX1500GLS-E	Battery electric		7.28
Drill Rigs (Mobile)	Komatsu	ZJ21 electric drill	Battery electric		7.28
Drill Rigs (Mobile)	Junttan	PMx2e	electric pile driving rig		7.28
Crawler Crane	SANY	SCE1350A-EV	135-ton Crawler Crane		
Telescopic Crawler Crane	Sennebogen	653 Electro Battery electric crane	First ever 50-ton battery-powered telescopic crawler crane		
Material Handling Equipment	Sennebogen	825 E-Series material handler	30-ton zero-emission material handler		7.92
Mining Quarry Vehicle	Kleemann	Mobirex MR 130(i) PRO	All-electric concept impact crusher with the option of an external power supply		
Underground Mining Equipment	Sandvik	LH518B	Self-battery swapping 18T Load/Haul/Dump (LHD)		8.01
Underground Mining Equipment	Sandvik (Artisan)	Sandvik (Artisan)	Electric 4-tonne Load/Haul/Dump (LHD) underground mining vehicle		8.01
Underground Mining Equipment	Sandvik (Artisan)	Sandvik (Artisan)	Electric 10-tonne Load/Haul/Dump (LHD) underground mining vehicle		8.01
Underground Mining Equipment	Caterpillar	R1700XE	LHD underground mining vehicle. Charged by the Cat MEC500 Mobile Equipment Charger, Fully charged in 30 mins or in 20 mins with dual gun charging.		8.01
Underground Mining Equipment	GE Fairchild	AC LHD	Load/Haul/Dump (LHD) underground mining vehicle		8.01
Underground Mining Equipment	GE Fairchild	35C-WH-AC	Mining Scoop (LHD)		8.01
Underground Mining Equipment	Epiroc	Scooptram ST7 Battery Electric Loader	Mining Load Haul Dump articulated		8.01
Underground Mining Equipment	Epiroc	Scooptram ST14 Battery	Mining Load Haul Dump articulated		8.01
Underground Mining Equipment	Epiroc	Scooptram EST1030 Electric Loader	Mining Load Haul Dump articulated		8.01
Underground Mining Equipment	Epiroc	Scooptram EST2D Electric Loader	Mining Load Haul Dump articulated		8.01
Underground Mining Equipment	Epiroc	Scooptram EST3.5 Electric Loader	Mining Load Haul Dump articulated		8.01
Underground Mining Equipment	Epiroc	Minetruck MT2010 Battery	Mining Load Haul Dump articulated		8.01
Underground Mining Equipment	Epiroc	Minetruck MT42	Mining Load Haul Dump articulated		8.01
Underground Mining Equipment	XCMG	TFT125 e Truck	Electric mining wheel dump Truck		8.01
Underground Mining Equipment	Kuhn Schweiz	Elektro Dumper/eDumper	Electric mining wheel dump Truck		8.01
Underground Mining Equipment	Wacker Neuson	DT10e Compact Electric Wheel Dumper	Mini tracked dumper		8.01
Underground Mining Equipment	Wacker Neuson	DW15e Electric Wheel Dumper	Mini wheeled dumper		8.01
Underground Mining Equipment	Normet	Charmec MC 605 VE SD	Multipurpose mining utility vehicles with two direct drive permanent magnet electric motors		8.01

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Underground Mining Equipment	Normet	Charmec MF 605 V Long End SD	Multipurpose mining utility vehicles with two direct drive permanent magnet electric motors		8.01
Underground Mining Equipment	Normet	Utilift MF 540 SD	Scissor lift vehicle. Mining utility vehicles with two direct drive permanent magnet electric motors		8.01
Underground Mining Equipment	Normet	Spraymec 8100 VC SD	Self-propelled, mobile concrete sprayer for tunneling projects. Mining utility vehicles with two direct drive permanent magnet electric motors		8.01
Underground Mining Equipment	Normet	Utimec MF 500 Transmixer SD	Mining utility vehicles specialized in concrete mixing and transportation. Two direct drive permanent magnet electric motors		8.01
Underground Mining Equipment	Normet	Multimec MF 100 SD	Mining utility vehicle with two direct drive permanent magnet electric motors		8.01
Underground Mining Equipment	Normet	Utimec MF 205 PER SD	Mining utility vehicle with two direct drive permanent magnet electric motors		8.01
Underground Mining Equipment	JAMA	SBU 8000E	Mining roof scaler		8.01
Underground Mining Equipment	Probst	MM-GREENLINE	Tracked load carrier/hoist		8.01
Underground Mining Equipment	Xinhai (Yantai) Mining Engineering Co., LTD	Electric Mobile Rock Splitter SJD-400	Articulated rockhammer on wheel loader frame		8.01
Slurry Wall Construction Equipment	Liebherr	LBX 600 unplugged	Carrier machine for slurry wall construction		
Multipurpose Equipment	DANNAR	Mobile Power Station 4.0	Multipurpose off-road equipment with Bucket, Tow, Lift attachments, etc.	O	
Floor Scraper	National Equipment	7700	Floor scraper		
Floor scraper	Husqvarna	BMS 220ADB	Floor scraper		
Compact Dumper	Ausa	D101AEA Compact dumper	load capacity of 1,000 kg / 39inch wide		
Compact Dumper	Ausa	D101AEA dumper	load capacity of 1,000 kg / 42.5inch wide		
Compact Dumper	Ausa	D151AEG dumper	load capacity of 1,497 kg		
Compact Dumper	JCB	1TE			
Compact Dumper	JCB	3TE			
Forestry	Regal		Tree harvester & forwarder in demo		
Forestry	Malwa	Electric Combi	Tree harvester and processor		

Hydrogen Fuel Cell Construction, Mining, and Industrial Equipment

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Off-Highway Trucks	Komatsu		Komatsu hydrogen mining truck / Retrofitted 930E-4		7.36
Wheel Loader	XCMG	XC968-FCEV	Hydrogen electric loader		8.77
Wheel Loader	HD Hyundai Infracore	Concept-X 2.0			8.77
Excavators	JCB	20-tonne H2FC Excavator 220X	The first working prototype of an H2FC excavator in the world.		6.99
Excavators	Mourik/Liebherr	H2FC 30-ton Excavator	Converted from Liebherr R926 Generation 8		6.99

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Excavators	Veidekke/Applied Hydrogen AS/Ballard		FCmove-XD 120kW fuel cell engine equipped		6.99
Excavators	Hyundai	14-ton hydrogen Excavator HW155H	Advertised as it offers the same operating performance as a diesel-powered model. 20 mins refueling time		6.99
Forklifts	Hyundai	5-ton Hydrogen forklift	Up to 5 operation hours, refueling in 5 mins		8.31
Boom lift	Niftylift	HR17 H ₂	50ft Hydrogen-Electric boom lift (Niftylift and Speedy)		
Articulate Hauler	Volvo CE	35-ton HX04	H2FC Articulate Hauler		
RTG Crane	Mi-Jack				8.12
Reach Stacker	Hyster		H2Ports Project		

Grid-electric Construction & Industrial Equipment

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Rope Shovels	Caterpillar	Model 7395	70 Ton Electric Rope Shovel		
Rope Shovels	Caterpillar	Model 7495 HD	90 Ton Electric Rope Shovel		
Rope Shovels	Caterpillar	Model 7495 HF	120 Ton Electric Rope Shovel		
Rope Shovels	Caterpillar	Model 7495	120 Ton Electric Rope Shovel		
Rope Shovels	Komatsu	P&H 1900XPC			
Rope Shovels	Komatsu	P&H 2300XPC			
Rope Shovels	Komatsu	P&H 2800XPC			
Rope Shovels	Komatsu	P&H 4100C			
Rope Shovels	Komatsu	P&H 4100C Boss			
Rope Shovels	Komatsu	P&H 4100XPC			
Rope Shovels	Komatsu	P&H 4100XPC AC-90			
Rope Shovels	Komatsu	P&H 4800XPC			
Drill Rigs (Mobile)	Seattle Traction Co.	historical from 1899	Grid-tied electric		7.28
Rubber Tired Loaders	Aramine	L110E	Loader		7.38
Rubber Tired Loaders	Aramine	L130E	Loader		7.38
Rubber Tired Loaders	Aramine	L150E	Loader		7.38
Demolition Robot	Yuchai Heavy Industry	D170	Electric Remote-Controlled Demolition Robot. Saving 90% fuel cost, and Zero maintenance in 2000 hours		
Mini excavator (Compact Excavator)	Komatsu	PC78USE-11			8.76
Mini excavator (Compact Excavator)	Sunward/Seetao	SWE18 UE	1.8-ton electric grid-tied mini-tracked excavator		8.76
Excavator	Sunward/Seetao	SWE550FE	Electric grid-tied tracked excavator		6.99
Excavator	Volvo CE	EC500 Electric	47.8 - 50.2 t Volvo Excavator EC500 Electric		6.99
Excavator	Hitachi / Nasta	Zeron ZE350LC	Cable reel 38-ton electric track excavator		6.99
Excavator	SOCMA	HNE250C-EP	Grid Power Crawler Excavator		6.99

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Excavator	SOCMA	HNE3C-EP	Grid Power Crawler Excavator		6.99
Material Handler	Sennebogen	817E	Grid-connected Material Handler		7.92
Material Handler	Sennebogen	818E	Grid-connected Material Handler		7.92
Material Handler	Sennebogen	821E	Grid-connected Material Handler		7.92
Material Handler	Sennebogen	825E	Grid-connected Material Handler		7.92
Material Handler	Sennebogen	830E	Grid-connected Material Handler		7.92
Material Handler	Sennebogen	840E	Grid-connected Material Handler		7.92
Material Handler	Sennebogen	850E	Grid-connected Material Handler		7.92
Material Handler	Sennebogen	855E	Grid-connected Material Handler		7.92
Material Handler	Sennebogen	865E	Grid-connected Material Handler		7.92
Material Handler	Sennebogen	870E	Grid-connected Material Handler		7.92
Material Handler	Sennebogen	875E	Grid-connected Material Handler		7.92
Material Handler	Sennebogen	885E	Grid-connected Material Handler		7.92
Material Handler	Sennebogen	895E	Grid-connected Material Handler		7.92
Material Handler	Sennebogen	8400E	Grid-connected Material Handler		7.92
Underground Mining Equipment	Vermeer	TG5000E Tub Grinder	industrial chipper/grinder		8.01
Underground Mining Equipment	Fambition	FL 14E	grid-tied electric		8.01

Clean Agricultural Equipment

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Agricultural Tractors (Compact)	Solectrac	e25 Backhoe	Compact electric tractor	O	7.76
Agricultural Tractors (Compact)	Solectrac	e25G Utility Tractor	Compact electric tractor	O	7.76
Agricultural Tractors (Compact)	Solectrac	e UT+ Narrow	Narrow Electric Utility Tractor	O	7.76
Agricultural Tractors (Compact)	Voltis	Electric tractor	High clearance vineyard tractor		7.76
Agricultural Tractors (Compact)	Fendt	e100 Vario Electric Tractor	All-electric compact tractor		7.76
Agricultural Tractors (Compact)	Escorts	Farmtrac 26E	Compact vineyards and horticulture Tractor		7.76
Agricultural Tractors (Compact)	Rigitrac	Rigitrac SKE 50	Compact Ag Tractor		7.76
Agricultural Tractors	Kremer-Energie	T4e	High clearance vineyard tractor		6.33
Agricultural Tractors	Steyr	Konzept	Med/large ag tractor		6.33
Agricultural Tractors	John Deere	GridCON / Joker	Automated equipment		6.33
Agricultural Tractors	John Deere	SESAM electric tractor	Conceptual automated ag tractor (Cable-powered)		6.33
Agricultural Tractors	Kubota	Electric Kubota Bx2350			6.33
Agricultural Tractors	Kubota	X tractor	Conceptual automated ag tractor		6.33
Agricultural Tractors	Tadus	TADUS tractor	German electric agricultural tractor		6.33
Agricultural Tractors	Monarch	MK4	Utility ag tractor		6.33

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Agricultural Tractors	Monarch	Electric Compact Tractor MK-V XLR	ZE Agricultural Tractors	O	6.33
Agricultural Tractors	Monarch	Electric Compact Tractor MK-V XLR + Extra Battery (EB) + Swap Station (S)	ZE Agricultural Tractors	O	6.33
Agricultural Tractors	Monarch	Electric Compact Tractor MK-V LR	ZE Agricultural Tractors	O	6.33
Agricultural Tractors	Rigitrac	SKE50 electric	Utility Ag Tractor		6.33
Agricultural Tractors	Rigitrac	SKE40 electric	Utility Ag Tractor		6.33
Agricultural Tractors	Keestrack	B1e	Battery-electric Utility Ag Tractor		6.33
Agricultural Tractors	Monarch Tractor	MK4	Utility Ag Tractor		6.33
Agricultural Tractors	Knegt	Knegt 304G2e	Utility Ag Tractor		6.33
Agricultural Tractors	CASE IH	Farmall 75C Electric Tractor	4 hours operation / Automation capability / DC Fast charging enabled		6.33
H2FC Agricultural Tractors	H2Trac	EOX 175	H2FC Ag Tractor		
H2FC Agricultural Tractors	New Holland	NH2 fuel cell tractor	H2FC Ag Tractor		
Electric Spray Truck	M.M. SRL	M2204011	Self-propelled ag sprayer		
Self-propelled Mixer Wagons	Faresin	Leader PF Full Electric	Precision Feeding self-propelled wagon		
Sprayer	NZ0 / TRS		Electric Foilage Sprayer		
Planter	John Deere	Exactshot	Agricultural Robot Planter		

Electric Industrial Equipment & Airport GSE

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Ice Resurfacers	Zamboni	552AC Li-ion			
Yard Trucks	BYD	Q1A Yard Truck	Logistic tractors		8.25
Yard Trucks	BYD	Q1M Yard Truck	Logistic tractors		8.25
Yard Trucks	Kalmar Global and TransPower		Battery-electric yard truck		8.25
Electric Port Machine	SOCMA	HNRS4531E	Electric Reach Stacker		6.96
Electric Port Machine	SOCMA	SECH90C8E	Electric Empty Container Handler		6.96
Top-pick Container Handler	Taylor Machine Works and BYD		Battery-electric top handlers		6.96
Top-pick Container Handler	Hyster/Nuvera Fuel Cells	Hyster® H1050-1150XD-CH top-pick container handler	E-45 fuel cell engine equipped / 8~10 hours operation after 15 mins refueling		
Crane 35ton or more	Zoomlion	ZTC250N-EV	Concept 25-ton ZEV truck telescopic crane		7.92
Crane 35ton or more	Liebherr-Werk Nenzing	LR 1130.1 unplugged	Electric Crawler Crane		7.92
Crane 35ton or more	Liebherr-Werk Nenzing	LR 1160.1 unplugged	Electric Crawler Crane		7.92
Crane 35ton or more	Liebherr-Werk Nenzing	LR 1200.1 unplugged	Electric Crawler Crane - maximum lift capacity of 220 tons	O	7.92

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Crane 35ton or more	Liebherr-Werk Nenzing	LR 1250.1 unplugged	Electric Crawler Crane - up to 275 tons	O	7.92
Crane less than 35ton	Galizia	GF600	60-ton crane		8.11
Crane less than 35ton	Manitex	18 Series	Light Cranes. Max lifting capacity: 1,990 lbs		8.11
Crane less than 35ton	Manitex	25 EL	Light Cranes. Max lifting capacity: 4,950 lbs		8.11
Crane less than 35ton	Manitex	25E	Light Cranes. Max lifting capacity: 5,500 lbs		8.11
Crane less than 35ton	Manitex	35 EVO	Light Cranes. Max lifting capacity: 7,715 lbs		8.11
Crane less than 35ton	Manitex	V 90R	Medium Cranes. Max lifting capacity: 18,000 lbs		8.11
Crane less than 35ton	Manitex	160 SE	Carry deck crane. Max lifting capacity: 36,000 lbs		8.11
Crane less than 35ton	Manitex	220 SE	Carry deck crane. Max lifting capacity: 48,500 lbs		8.11
Crane less than 35ton	Zee Crane	4500	4.5-ton Carry deck crane		8.11
Crane less than 35ton	Zee Crane	9000	9-ton Carry deck crane		8.11
Crane less than 35ton	Jekko	SPX312C+	Jekko Battery Mini Crane		8.11
Crane less than 35ton	Jekko	SPX424C+	Jekko Battery Mini Crane		8.11
Crane less than 35ton	Jekko	SPX429C+	Jekko Battery Mini Crane		8.11
Crane less than 35ton	Jekko	MPK20	Minipickers: Pick & carry self-propelled electric crane		8.11
Crane less than 35ton	Jekko	MPK50	Minipickers: Pick & carry self-propelled electric crane		8.11
Crane less than 35ton	Bailey	BC-18			8.11
Crane less than 35ton	Bailey	retrofit			8.11
Concrete Mixer	Liebherr	Concrete truck	Readimix truck		
Concrete Mixer	Liebherr	ETM1005	BEV mixer body & chassis conversion		
Concrete Mixer	Liebherr	ETM1205	BEV mixer body & chassis conversion		
Concrete Pump	Liebherr	70E	Pump trailer		
Sweeper	Leeboy	RB50	Electric Sweeper with Rosco Electric Brooms		
Telehandler	SOCMA	HNTE4007-4Z	Electric Telehandler		8.56
Telehandler	LGMG	H625E	Electric Telehandler		8.56
Telehandler	JLG / Deutz	G5-18A			8.56
Telehandler	Manitou	MT 1135	Electric telehandler		8.56
Telehandler	Manitou	2260e	6-ton Rotating telehandler 22m		8.56
Telehandler	Manitou	2660e	6-ton Rotating telehandler 26m		8.56
Telehandler	JCB	505-20E	Telescopic Forklift Handler with lithium-ion battery	O	8.56
Telehandler	JCB	525-60E	Two electric motors - one for driveline, the other for lifting operations - powered by a 96-volt lithium-ion battery.	O	8.56
Telehandler	Merlo	e-Worker 25.5-90	Telehandler (4-wheel drive)		8.56

Equipment Type	Make	Model	Description	CORE Eligibility	TRL
Telehandler	Merlo	e-Worker 25.5-60	Telehandler (2-wheel drive)		8.56
Telehandler	AUSA	T164E	Telehandler 4m, 1600kg		8.56
Telehandler	Snorkel	SR5719e	Telehandler 5732lbs		8.56
Telehandler	JCB	525-60E			8.56
Telehandler	Faresin	Electric Telehandler 6.26	1. Two electric motors, a 51kW motor for the transmission and a 23kW motor dedicated to the machine's services. 2. 45.36 kWh lithium-ion battery pack		8.56
Telehandler	Dieci	Mini Agri-e	Battery electric telehandler		8.56
Telehandler	JLG	E313 electric telehandler	Battery electric telehandler		8.56
Boom Truck	Maclean Engineering	BT3	Boom Electric Truck		
Aerial lift	GENIE	Aerial Pros	Large mining utility vehicles, Concrete spraying, manlift, palletized vocational body carrier, etc.		
Aerial Boom Truck	Altec	Aerial Boom Vehicle with JEMS			
Aerial Boom Truck	Hyster	Ascender AWP			
Aerial Boom Truck	JLG	JLG ES4046 Electric Scissor Lift	Electric Scissor Lift		
Aerial Boom Truck	Lion Electric Co.	LION8 All-Electric Class 8 Bucket Truck			
Aerial Boom Truck	Yale	AEREO AWP			
Lift Truck	Daewoo	BC30S			

Zero-Emission Forklifts³

Equipment Type	Make	Model	Lift Capacity (lbs.)	CORE Eligibility	TRL
Forklifts	BYD	ECB 16	3,400		9.00
Forklifts	BYD	ECB 18	3,950		9.00
Forklifts	BYD	ECC 2	4,851		9.00
Forklifts	BYD	ECC32	7,055		9.00
Forklifts	Carer Electric Forklift Solutions	A100X	21,800	O	8.67
Forklifts	Carer Electric Forklift Solutions	A120X	26,500	O	8.67
Forklifts	Carer Electric Forklift Solutions	A140S	30,500	O	8.67
Forklifts	Carer Electric Forklift Solutions	A160 (at 1200X)	34,900	O	8.67
Forklifts	Carer Electric Forklift Solutions	A160 (at 900S)	34,900	O	8.67
Forklifts	Carer Electric Forklift Solutions	A160S	34,900	O	8.67
Forklifts	Carer Electric Forklift Solutions	A160X	34,900	O	8.67
Forklifts	Carer Electric Forklift Solutions	A200 (at 1200X)	44,000	O	8.67
Forklifts	Carer Electric Forklift Solutions	A70X	15,400	O	8.67
Forklifts	Carer Electric Forklift Solutions	A70X	15,400	O	8.67
Forklifts	Carer Electric Forklift Solutions	A80 (at 900X)	17,400	O	8.67
Forklifts	Carer Electric Forklift Solutions	A80/1100	17,500	O	8.67
Forklifts	Carer Electric Forklift Solutions	A80X	17,400	O	8.67
Forklifts	Carer Electric Forklift Solutions	A80X	17,400	O	8.67
Forklifts	Carer Electric Forklift Solutions	R45H2	9,800	O	8.67
Forklifts	Carer Electric Forklift Solutions	R45H2	9,800	O	8.67
Forklifts	Carer Electric Forklift Solutions	R50H2	10,900	O	8.67
Forklifts	Carer Electric Forklift Solutions	R50H2	10,900	O	8.67
Forklifts	Carer Electric Forklift Solutions	R50-SHORT	10,900	O	8.67
Forklifts	Carer Electric Forklift Solutions	R50-SHORT	10,900	O	8.67
Forklifts	Carer Electric Forklift Solutions	R55-SHORT	12,000	O	8.67
Forklifts	Carer Electric Forklift Solutions	R55-SHORT	12,000	O	8.67
Forklifts	Carer Electric Forklift Solutions	R60H2	13,000	O	8.67
Forklifts	Carer Electric Forklift Solutions	R60H2	13,000	O	8.67
Forklifts	Carer Electric Forklift Solutions	R70H2	15,000	O	8.67
Forklifts	Carer Electric Forklift Solutions	R70H2	15,000	O	8.67
Forklifts	Carer Electric Forklift Solutions	R80H2	17,400	O	8.67
Forklifts	Carer Electric Forklift Solutions	R80H2	17,400	O	8.67
Forklifts	CAT	EP14ANT	3,086		9.00
Forklifts	CAT	EP16ACN	3,527		9.00
Forklifts	CAT	EP16ACNT	3,527		9.00
Forklifts	CAT	EP16AN	3,527		9.00
Forklifts	CAT	EP16ANT	3,527		9.00
Forklifts	CAT	EP18ACN	3,968		9.00
Forklifts	CAT	EP18ACNT	3,968		9.00
Forklifts	CAT	EP18AN	3,968		9.00

3 CARB Forklift Models, <https://ww2.arb.ca.gov/sites/default/files/2023-11/Available%20ZEF%20Models%20.xlsx>

Equipment Type	Make	Model	Lift Capacity (lbs.)	CORE Eligibility	TRL
Forklifts	CAT	EP18ANT	3,968		9.00
Forklifts	CAT	EP20AN	4,409		9.00
Forklifts	CAT	EP20ANT	4,409		9.00
Forklifts	CAT	EP25ACN	5,511		9.00
Forklifts	CAT	EP25AN	5,511		9.00
Forklifts	CAT	EP30ACN	6,613		9.00
Forklifts	CAT	EP30AN	6,613		9.00
Forklifts	CAT	EP35AN	7,716		9.00
Forklifts	CAT	EP40N	8,818		9.00
Forklifts	CAT	EP45N	9,920		9.00
Forklifts	CAT	EP50CN	11,001		9.00
Forklifts	CAT	EP50N	11,001		9.00
Forklifts	CAT	EP50NH	11,023		9.00
Forklifts	CAT	EP55NH	12,125		9.00
Forklifts	Clark	ECX 20	4,000		9.00
Forklifts	Clark	ECX 25	5,000		9.00
Forklifts	Clark	ECX 30	6,000		9.00
Forklifts	Clark	ECX 32	6,500		9.00
Forklifts	Clark	GEX 20	4,000		9.00
Forklifts	Clark	GEX 25	5,000		9.00
Forklifts	Clark	GEX 30	6,000		9.00
Forklifts	Clark	GEX 30S	6,000		9.00
Forklifts	Clark	GEX 32	6,500		9.00
Forklifts	Clark	GEX 40	8,000		9.00
Forklifts	Clark	GEX 45	9,000		9.00
Forklifts	Clark	GEX 50	10,000		9.00
Forklifts	Clark	SE 15T (ESWB)	3,000		9.00
Forklifts	Clark	SE 15T (ESWB-T)	3,000		9.00
Forklifts	Clark	SE 15T (SWB)	3,000		9.00
Forklifts	Clark	SE 15T (SWB-T)	3,000		9.00
Forklifts	Clark	SE 17T (MWB)	3,500		9.00
Forklifts	Clark	SE 17T (SWB)	3,500		9.00
Forklifts	Clark	SE 20T (MWB)	4,000		9.00
Forklifts	Clark	SE 20T (MWB-T)	4,000		9.00
Forklifts	Clark	SE 20T (SWB-T)	4,000		9.00
Forklifts	Clark	SE 25T (MWB-T)	5,000		9.00
Forklifts	Clark	SE 25T (SWB-T)	5,000		9.00
Forklifts	Clark	TMX 15	3,000		9.00
Forklifts	Clark	TMX 15s	3,000		9.00
Forklifts	Clark	TMX 17	3,500		9.00
Forklifts	Clark	TMX 20	4,000		9.00
Forklifts	Clark	TMX 25	5,000		9.00
Forklifts	Clark	TWLI20	4,000		9.00

Equipment Type	Make	Model	Lift Capacity (lbs.)	CORE Eligibility	TRL
Forklifts	Crown	FC 5215-40	4,000		9.00
Forklifts	Crown	FC 5215-50	5,000		9.00
Forklifts	Crown	FC 5225-40	4,000		9.00
Forklifts	Crown	FC 5225-50	5,000		9.00
Forklifts	Crown	FC 5225-55	5,500		9.00
Forklifts	Crown	FC 5225-60	6,000		9.00
Forklifts	Crown	FC 5245-50	5,000		9.00
Forklifts	Crown	FC 5245-55	5,500		9.00
Forklifts	Crown	FC 5245-60	6,000		9.00
Forklifts	Crown	FC 5245-65	6,500		9.00
Forklifts	Crown	SC 5715-30	3,000		9.00
Forklifts	Crown	SC 5725-30	3,000		9.00
Forklifts	Crown	SC 5725-35	3,500		9.00
Forklifts	Crown	SC 5745-35	3,500		9.00
Forklifts	Crown	SC 5745-40	4,000		9.00
Forklifts	Crown	SCF 6241-35	3,500		9.00
Forklifts	Crown	SCF 6241-40	4,000		9.00
Forklifts	Crown	SCF 6261-40	4,000		9.00
Forklifts	Crown	SCF 6261-43	4,300		9.00
Forklifts	DOOSAN	B15T-7	3,000		9.00
Forklifts	DOOSAN	B16X-7	3,200		9.00
Forklifts	DOOSAN	B18T-7	3,500		9.00
Forklifts	DOOSAN	B18X-7	3,600		9.00
Forklifts	DOOSAN	B20T-7	4,000		9.00
Forklifts	DOOSAN	B20X-7	4,000		9.00
Forklifts	DOOSAN	B22X-7	4,500		9.00
Forklifts	DOOSAN	B25X-7	5,000		9.00
Forklifts	DOOSAN	B30X-7	6,000		9.00
Forklifts	DOOSAN	B35X-7	7,000		9.00
Forklifts	DOOSAN	B40X-7	8,000		9.00
Forklifts	DOOSAN	B45X-7	9,000		9.00
Forklifts	DOOSAN	B50X-7	10,000		9.00
Forklifts	DOOSAN	BC15S-5	3,000		9.00
Forklifts	DOOSAN	BC18S-5	3,500		9.00
Forklifts	DOOSAN	BC20S-7	4,000		9.00
Forklifts	DOOSAN	BC20SC-5	4,000		9.00
Forklifts	DOOSAN	BC25S-7	5,000		9.00
Forklifts	DOOSAN	BC25SE-7	5,000		9.00
Forklifts	DOOSAN	BC30S-7	6,000		9.00
Forklifts	DOOSAN	BC32S-7	6,500		9.00
Forklifts	Hyster	A25XNT	2,500		
Forklifts	Hyster	A30XNT	3,000		
Forklifts	Hyster	E100XN	10,000	O	

Equipment Type	Make	Model	Lift Capacity (lbs.)	CORE Eligibility	TRL
Forklifts	Hyster	E100XNS	10,000	O	
Forklifts	Hyster	E120XN	12,000	O	
Forklifts	Hyster	E30XN	3,000		
Forklifts	Hyster	E35XN	3,500		
Forklifts	Hyster	E40XN	4,000		
Forklifts	Hyster	E40XNL	4,000		
Forklifts	Hyster	E45XN	4,500		
Forklifts	Hyster	E50XN	5,000		
Forklifts	Hyster	E50XNL	5,000		
Forklifts	Hyster	E55XN	5,500		
Forklifts	Hyster	E60XN	6,000		
Forklifts	Hyster	E60XNL	6,000		
Forklifts	Hyster	E65XN	6,500		
Forklifts	Hyster	E70XN	7,000		
Forklifts	Hyster	E80XN	8,000	O	
Forklifts	Hyster	E90XN	9,000	O	
Forklifts	Hyster	E100XN	10,000	O	
Forklifts	Hyster	E120XN	12,000	O	
Forklifts	Hyster	J100XN	10,000	O	9.00
Forklifts	Hyster	J100XNL	10,000	O	9.00
Forklifts	Hyster	J110XN	11,000	O	9.00
Forklifts	Hyster	J120XN	12,000	O	9.00
Forklifts	Hyster	J155XNSL	15,500	O	9.00
Forklifts	Hyster	J170XNSL	17,000	O	9.00
Forklifts	Hyster	J175XNL36	17,500	O	9.00
Forklifts	Hyster	J190XNL	19,000	O	9.00
Forklifts	Hyster	J230XD	23,000	O	9.00
Forklifts	Hyster	J250XD	25,000	O	9.00
Forklifts	Hyster	J280XD	28,000	O	9.00
Forklifts	Hyster	J300XD	30,000	O	9.00
Forklifts	Hyster	J300XD	30,000	O	9.00
Forklifts	Hyster	J30XN	3,000	O	9.00
Forklifts	Hyster	J30XNT	3,000	O	9.00
Forklifts	Hyster	J330XD	33,000	O	9.00
Forklifts	Hyster	J330XD	33,000	O	9.00
Forklifts	Hyster	J35XN	3,500		9.00
Forklifts	Hyster	J35XNT	3,500		9.00
Forklifts	Hyster	J360XD	36,000	O	9.00
Forklifts	Hyster	J360XD	36,000	O	9.00
Forklifts	Hyster	J360XD36	36,000	O	9.00
Forklifts	Hyster	J360XD36	36,000	O	9.00
Forklifts	Hyster	J360XD48	36,000	O	9.00
Forklifts	Hyster	J360XD48	36,000	O	9.00

Equipment Type	Make	Model	Lift Capacity (lbs.)	CORE Eligibility	TRL
Forklifts	Hyster	J40XN	4,000		9.00
Forklifts	Hyster	J40XNL	4,000		9.00
Forklifts	Hyster	J40XNT	4,000		9.00
Forklifts	Hyster	J40XNTL	4,000		9.00
Forklifts	Hyster	J45XN	4,500		9.00
Forklifts	Hyster	J50XN	5,000		9.00
Forklifts	Hyster	J50XNL	5,000		9.00
Forklifts	Hyster	J60XN	6,000		9.00
Forklifts	Hyster	J60XNL	6,000		9.00
Forklifts	Hyster	J70XN	7,000		9.00
Forklifts	Hyster	J80XN	8,000	O	9.00
Forklifts	Hyster	J90XN	9,000	O	9.00
Forklifts	Hyster	P200	20,000		
Forklifts	Hyster	P250	25,000		
Forklifts	Hyster	P300	30,000		
Forklifts	Hyster	P350	35,000		
Forklifts	Hyster	P400	40,000		
Forklifts	Kalmar Mobile Solutions	ECG100-12	22,000	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG100-6	22,000	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG120-12	26,000	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG120-6	26,000	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG127-6	28,000	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG140-6	31,000	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG150-12	33,000	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG150-6	33,000	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG160-12	36,000	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG160-6	36,000	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG160-9	36,000	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG180-6	40,000	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG50-6	11,000	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG55-6	12,100	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG60-6	15,400	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG70-6	15,400	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG80-11	17,600	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG80-6	17,600	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG80-9	17,600	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG80-9S	17,600	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG90-6	20,000	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG90-6L	19,800	O	8.00
Forklifts	Kalmar Mobile Solutions	ECG90-6LS	19,800	O	8.00
Forklifts	Komatsu	FB15MU-12	3,000		9.00
Forklifts	Komatsu	FB15U-12	3,000		9.00
Forklifts	Komatsu	FB18MU-12	3,500		9.00

Equipment Type	Make	Model	Lift Capacity (lbs.)	CORE Eligibility	TRL
Forklifts	Komatsu	FB18U-12	3,500		9.00
Forklifts	Komatsu	FB20AU-12	4,000		9.00
Forklifts	Komatsu	FB20MU-12	4,000		9.00
Forklifts	Komatsu	FB20SHGU-6	4,000		9.00
Forklifts	Komatsu	FB20SHU-6	4,000		9.00
Forklifts	Komatsu	FB25SHGU-6	5,000		9.00
Forklifts	Komatsu	FB25SHU-6	5,000		9.00
Forklifts	Komatsu	FB30SHU-6	6,000		9.00
Forklifts	Komatsu	FB32SHU-6	6,500		9.00
Forklifts	Mitsubishi	FB14ANT	3,086		9.00
Forklifts	Mitsubishi	FB16ACN	3,527		9.00
Forklifts	Mitsubishi	FB16ACNT	3,527		9.00
Forklifts	Mitsubishi	FB16AN	3,527		9.00
Forklifts	Mitsubishi	FB16ANT	3,527		9.00
Forklifts	Mitsubishi	FB18ACN	3,968		9.00
Forklifts	Mitsubishi	FB18ACNT	3,968		9.00
Forklifts	Mitsubishi	FB18AN	3,968		9.00
Forklifts	Mitsubishi	FB18ANT	3,968		9.00
Forklifts	Mitsubishi	FB20AN	4,409		9.00
Forklifts	Mitsubishi	FB20ANT	4,409		9.00
Forklifts	Mitsubishi	FB25ACN	5,511		9.00
Forklifts	Mitsubishi	FB25AN	5,511		9.00
Forklifts	Mitsubishi	FB30ACN	6,613		9.00
Forklifts	Mitsubishi	FB30AN	6,613		9.00
Forklifts	Mitsubishi	FB35AN	7,716		9.00
Forklifts	Mitsubishi	FB40N	8,818		9.00
Forklifts	Mitsubishi	FB45N	9,920		9.00
Forklifts	Mitsubishi	FB50CN	11,001		9.00
Forklifts	Mitsubishi	FB50N	11,001		9.00
Forklifts	Mitsubishi	FB50NH	11,023		9.00
Forklifts	Mitsubishi	FB55NH	12,125		9.00
Forklifts	Taylor Machine Works	Z-360L	36,000	○	8.00
Forklifts	Taylor Machine Works	ZH350-L	35,000	○	8.00
Forklifts	Taylor Machine Works	ZH360-L	36,000	○	8.00
Forklifts	Toyota	7FBCU35	8,000		9.00
Forklifts	Toyota	7FBCU45	10,000		9.00
Forklifts	Toyota	7FBCU55	12,000		9.00
Forklifts	Toyota	8FBCHU25	5,000		9.00
Forklifts	Toyota	8FBCU15	3,000		9.00
Forklifts	Toyota	8FBCU18	3,500		9.00
Forklifts	Toyota	8FBCU20	4,000		9.00
Forklifts	Toyota	8FBCU20-COMP	4,000		9.00
Forklifts	Toyota	8FBCU25	5,000		9.00

Equipment Type	Make	Model	Lift Capacity (lbs.)	CORE Eligibility	TRL
Forklifts	Toyota	8FBCU25-COMP	5,000		9.00
Forklifts	Toyota	8FBCU28	5,500		9.00
Forklifts	Toyota	8FBCU30	6,000		9.00
Forklifts	Toyota	8FBCU32	6,500		9.00
Forklifts	Toyota	8FBE15U	3,000		9.00
Forklifts	Toyota	8FBE18U	3,500		9.00
Forklifts	Toyota	8FBE20U	4,000		9.00
Forklifts	Toyota	8FBEH18U	3,500		9.00
Forklifts	Toyota	8FBES15U	3,000		9.00
Forklifts	Toyota	8FBM16T	3,000		9.00
Forklifts	Toyota	8FBM18T	3,500		9.00
Forklifts	Toyota	8FBM20T	4,000		9.00
Forklifts	Toyota	8FBM25T	5,000		9.00
Forklifts	Toyota	8FBM40T	8,000		9.00
Forklifts	Toyota	8FBM45T	9,000		9.00
Forklifts	Toyota	8FBM50T	11,000		9.00
Forklifts	Toyota	8FBMK16T	3,000		9.00
Forklifts	Toyota	8FBMK20T	4,000		9.00
Forklifts	Toyota	9FBH80T	17,500		9.00
Forklifts	Toyota	9FBM20T	4,000		9.00
Forklifts	Toyota	9FBM25T	5,000		9.00
Forklifts	Toyota	9FBM30T	6,000		9.00
Forklifts	Toyota	9FBM35T	7,000		9.00
Forklifts	Toyota	9FBM60T	13,000		9.00
Forklifts	Toyota	9FBM70T	15,500		9.00
Forklifts	Toyota	9FBM80T	17,500		9.00
Forklifts	Toyota	9FBMH80T	17,500		9.00
Forklifts	Toyota	9FBMK20T	4,000		9.00
Forklifts	Toyota	THDE1500-24	15,000		9.00
Forklifts	Toyota	THDE1800-24	18,000		9.00
Forklifts	Toyota	THDE2000-24	20,000		9.00
Forklifts	Toyota	THDE2200-24	22,000		9.00
Forklifts	Toyota	THDE3000-24	30,000		9.00
Forklifts	Toyota	THDE3500-24	35,000		9.00
Forklifts	Toyota	THDE4000-24	40,000		9.00
Forklifts	Toyota	THDE3000-30	30,000		9.00
Forklifts	Toyota	THDE3500-30	35,000		9.00
Forklifts	Toyota	THDE4000-30	40,000		9.00
Forklifts	Toyota	Turret Forklift	2,500		9.00
Forklifts	Wiggins	W1.0M2e	40,000	○	9.00
Forklifts	Wiggins	W1.0M2e XXR	40,000	○	9.00
Forklifts	Wiggins	W1.0Me	40,000	○	9.00
Forklifts	Wiggins	W1.0Me-XR	40,000	○	9.00

Equipment Type	Make	Model	Lift Capacity (lbs.)	CORE Eligibility	TRL
Forklifts	Wiggins	W1.0Me-XXR	40,000	O	9.00
Forklifts	Wiggins	W1.3M2e	54,000	O	9.00
Forklifts	Wiggins	W1.3M2e XR	54,000	O	9.00
Forklifts	Wiggins	W1.3M2e XXR	54,000	O	9.00
Forklifts	Wiggins	W1.3Me	54,000	O	9.00
Forklifts	Wiggins	W1.3Me-XR	54,000	O	9.00
Forklifts	Wiggins	W1.3Me-XXR	54,000	O	9.00
Forklifts	Wiggins	W3.2Me	48,000	O	9.00
Forklifts	Wiggins	W3.2Me	48,000	O	9.00
Forklifts	Wiggins	W3.2Me-XR	48,000	O	9.00
Forklifts	Wiggins	W3.2Me-XR	48,000	O	9.00
Forklifts	Wiggins	W3.2Me-XXR	48,000	O	9.00
Forklifts	Wiggins	W3.2Me-XXR	48,000	O	9.00
Forklifts	Wiggins	W450YXXLe (W450YXXLe-170)	45,000	O	9.00
Forklifts	Wiggins	WYe-108 (W100Ye-108)	10,000	O	9.00
Forklifts	Wiggins	WYe-108 (W120Ye-108)	12,000	O	9.00
Forklifts	Wiggins	WYe-108 (W155Ye-108)	15,500	O	9.00
Forklifts	Wiggins	WYe-120 (W200Ye-120)	20,000	O	9.00
Forklifts	Wiggins	WYe-120 (W220Ye-120)	22,000	O	9.00
Forklifts	Wiggins	WYe-120 (W260Ye-120)	26,000	O	9.00
Forklifts	Wiggins	WYe-130 (W300Ye-130 XR)	30,000	O	9.00
Forklifts	Wiggins	WYe-130 (W300Ye-130 XXR)	30,000	O	9.00
Forklifts	Wiggins	WYe-130 (W300Ye-130)	30,000	O	9.00
Forklifts	Wiggins	WYe-130 (W335Ye-130 XR)	33,500	O	9.00
Forklifts	Wiggins	WYe-130 (W335Ye-130 XXR)	33,500	O	9.00
Forklifts	Wiggins	WYe-130 (W335Ye-130)	33,500	O	9.00
Forklifts	Wiggins	WYe-130 (W365Ye-130 XR)	33,500	O	9.00
Forklifts	Wiggins	WYe-130 (W365Ye-130 XXR)	33,500	O	9.00
Forklifts	Wiggins	WYe-130 (W365Ye-130)	33,500	O	9.00
Forklifts	Wiggins	WYeH-140 (W365YeH-140)	33,500	O	9.00
Forklifts	Wiggins	WYeXXL-190 (W700Ye XXL-190)	70,000	O	9.00
Forklifts	Wiggins	WYXLe-150 (W520TXLe-150)	52,000	O	9.00
Forklifts	Wiggins	WYXXLe-150 (W365YXXLe-150 XR)	36,500	O	9.00
Forklifts	Wiggins	WYXXLe-150 (W365YXXLe-150 XXR)	36,500	O	9.00
Forklifts	Wiggins	WYXXLe-150 (W365YXXLe-150)	36,500	O	9.00
Forklifts	Wiggins	WYXXLe-160 RR (W550YXXLe-160 RR)	55,000	O	9.00
Forklifts	Wiggins	WYXXLe-170 (W550YXXLe-170)	55,000	O	9.00
Forklifts	Wiggins	WYXXLe-170 (W600YXXLe-170)	60,000	O	9.00
Forklifts	World Forklifts	World Lithium WFE80L	8,000	O	9.00
Forklifts	Yale	ERC030VA	3,000		9.00
Forklifts	Yale	ERC035VA	3,500		9.00
Forklifts	Yale	ERC040VA	4,000		9.00

Equipment Type	Make	Model	Lift Capacity (lbs.)	CORE Eligibility	TRL
Forklifts	Yale	ERC040VGL	4,000		9.00
Forklifts	Yale	ERC045VG	4,500		9.00
Forklifts	Yale	ERC050VG	5,000		9.00
Forklifts	Yale	ERC050VGL	5,000		9.00
Forklifts	Yale	ERC055VG	5,500		9.00
Forklifts	Yale	ERC060VG	6,000		9.00
Forklifts	Yale	ERC060VGL	6,000		9.00
Forklifts	Yale	ERC065VG	6,500		9.00
Forklifts	Yale	ERC070VG	7,000		9.00
Forklifts	Yale	ERC080VH	8,000	○	9.00
Forklifts	Yale	ERC090VH	9,000		9.00
Forklifts	Yale	ERC100VH	10,000	○	9.00
Forklifts	Yale	ERC100VHS	10,000	○	9.00
Forklifts	Yale	ERC120VH	12,000	○	9.00
Forklifts	Yale	ERP025VC	2,500		9.00
Forklifts	Yale	ERP030VC	3,000		9.00
Forklifts	Yale	ERP030VF	3,000		9.00
Forklifts	Yale	ERP030VT	3,000		9.00
Forklifts	Yale	ERP035VF	3,500		9.00
Forklifts	Yale	ERP035VT	3,500		9.00
Forklifts	Yale	ERP040VF	4,000		9.00
Forklifts	Yale	ERP040VFL	4,000		9.00
Forklifts	Yale	ERP040VT	4,000		9.00
Forklifts	Yale	ERP040VTL	4,000		9.00
Forklifts	Yale	ERP045VL	4,500		9.00
Forklifts	Yale	ERP050VL	5,000		9.00
Forklifts	Yale	ERP050VLL	5,000		9.00
Forklifts	Yale	ERP060VL	6,000		9.00
Forklifts	Yale	ERP060VLL	6,000		9.00
Forklifts	Yale	ERP070VL	7,000		9.00
Forklifts	Yale	ERP080VM	8,000		9.00
Forklifts	Yale	ERP090VM	9,000		9.00
Forklifts	Yale	ERP155SVNL	15,500		9.00
Forklifts	Yale	ERP170SVNL	17,000		9.00
Forklifts	Yale	ERP100VM	10,000	○	9.00
Forklifts	Yale	ERP100VML	10,000		9.00
Forklifts	Yale	ERP110VM	11,000	○	9.00
Forklifts	Yale	ERP120VM	12,000	○	9.00
Forklifts	Yale	ERP155VNL	15,500	○	9.00
Forklifts	Yale	ERP170VNL	17,000	○	9.00
Forklifts	Yale	ERP175VNL	17,500	○	9.00
Forklifts	Yale	ERP175VNL36	17,500	○	9.00
Forklifts	Yale	ERP190VNL	19,000	○	9.00

Equipment Type	Make	Model	Lift Capacity (lbs.)	CORE Eligibility	TRL
Forklifts	Yale	ERP230DF	23,000	O	9.00
Forklifts	Yale	ERP250DF	25,000	O	9.00
Forklifts	Yale	ERP280DF	28,000	O	9.00
Forklifts	Yale	ERP300EF	30,000	O	9.00
Forklifts	Yale	ERP330EF	33,000	O	9.00
Forklifts	Yale	ERP360EF	36,000	O	9.00
Forklifts	SOCMA	HNF100-EL	22,046		8.31
Forklifts	SOCMA	HNF120-EL	22046 lbs. (10,000kg)		8.31
Forklifts	SOCMA	HNF150S-EL	26455 lbs. (12,000kg)		8.31
Forklifts	SOCMA	HNF160-EL	33069 lbs. (15,000kg)		8.31
Forklifts	SOCMA	HNF180-EL	35273 lbs. (16,000kg)		8.31
Forklifts	SOCMA	HNF200-EL	39683 lbs. (18,000kg)		8.31
Forklifts	SOCMA	HNF320-EL	44092 lbs. (20,000kg)		8.31
Forklifts	SOCMA	HNF350-EL	70547 lbs. (32,000kg)		8.31
Forklifts	SOCMA	HNF450-EL	77161 lbs. (35,000kg)		8.31
Rough Terrain Forklifts / Telehandler	Deutz/JLG	G5-18A	99208 lbs. (45,000kg)		8.31
Rough Terrain Forklifts	Merlo	e-Worker 25.5-90	4-wheel drive version		8.31
Rough Terrain Forklifts	Merlo	e-Worker 25.5-60	2-wheel drive version		8.31
Rough Terrain Forklifts	Galizia	multis 636 6t electric			8.31

Alternative Charging Solutions (Portable Energy Storage System)

Equipment Type	Make	Model	Description (Energy Storage Information)	CORE Eligibility
H2FC Generator	Deutz / Westfalen / VOITH / AVS	H2-tank integrated H2 Genset		
H2FC Generator	Geopura	H2 Generator	216kWh	
H2FC Generator	SFC Energy, Auto AG Group & Test-Fuchs	H ₂ Genset 28-10/0	10 kW nominal and 28 kW peak output.	
H2FC Generator	SFC Energy, Auto AG Group & Test-Fuchs	H ₂ Genset 28-10/4	10 kW nominal and 28 kW peak output / 136 kWh el (4 H2 tanks (8.4 kg at 700 bar))	
H2FC Generator	SFC Energy, Auto AG Group & Test-Fuchs	H ₂ Genset 28-10/7	10 kW nominal and 28 kW peak output / 243 kWh el (7 H2 tanks (14.6 kg at 700 bar))	
H2FC Generator	EODev	GEH2	110 kVA / 88 kW	O
H2 Mobile Charger	AmpCart	AmpCart H2	It aims to release into the market in Q4 2024 or Q1 next year.	
Energy Module Box (Modular Batteries)	ZQuip	ZQ140	140kWh	

Equipment Type	Make	Model	Description (Energy Storage Information)	CORE Eligibility
Energy Module Box (Modular Batteries)	ZQuip	ZQ70	70kWh	
Battery Power Bank	JLR	Allye MAX BESS	Second-life Range Rover and Range Rover Sport PHEV batteries / Seven second-life batteries, and can store 270kWh of energy	
Battery Power Bank	Deutz	Power Tree	126kWh	
Battery Power Bank	JCB	Power pack 1.25Qe	23kWh	
Battery Power Bank	JCB	Power pack 1.50Qe	46kWh	
Battery Power Bank	NULLUTSLIPP AS (NO)	ZE Line	3kWh	
Battery Power Bank	Offgrid Energy	Portable Power Unit / INGENIUM SX (ranges from model 20-100)	5kWh - 15kWh	
Battery Power Bank	Offgrid Energy	Energy Storage system / INGENIUM MX/LX	200kWh	
Battery Power Bank	Tadano	E-Pack	32kWh	
Battery Power Bank	Portable Electric	Mobile EV Charger	27kW (Cont. output) / 80 kWh / 3.5 hours (charging time)	
Battery Power Bank	Boels	The Load Balancer	32A 9 x 230V	
Battery Power Bank	Moxion (Out of business)	MP-75	31~75kW / 600kWh (nominal) (540kWh, usable) / 10 hours for full charge	
Battery Power Bank	Moxion (Out of business)	MP-30	20~40kW / 200kWh (nominal) (180kWh, usable) / 5 hours for full charge	
Battery Power Bank	Caterpillar	Cat XES120	Mobile battery energy storage system	O
Battery Power Bank	Caterpillar	Cat XES60	Mobile battery energy storage system	O
Battery Power Bank	Taylor Machine Works	Taylor ZECS	Portable battery energy storage with integral chargers	O
Battery Power Bank	Taylor Machine Works	Taylor ZECS	Portable battery energy storage	O
Mobile Power Unit	Range Energy, Inc.	Range RA-01 100 kWh	Trailer type driving range extender	O
Mobile Power Unit	Range Energy, Inc.	Range RA-01 200 kWh	Trailer type driving range extender	O
Mobile Power Unit	Southern Beams Builds, Inc	Dragon Wings 223075	Mobile modular renewable generator storage	O
Mobile Power Unit	Viridi Parente	SBR30-150	Mobile Power Unit with up to 33 kVA rated power output	O
Portable Battery Bank	Hybrid Power Solutions	Batt Pack Energy	3kW / 2.5kWh LiFePO4 Battery	
Portable Battery Bank	Hybrid Power Solutions	Batt Pack Pro	5kW / 5.1kWh LiFePO4 Battery	
Portable Battery Bank	Hybrid Power Solutions	Batt Pack Jupiter	7kW / 7.2kWh LiFePO4 Battery	
Portable Battery Bank	Hybrid Power Solutions	Batt Pack Spark	24kW / 28kWh LiFePO4 / Weight: 453.5 kg [1,000 lbs]	
Portable Battery Bank	Hybrid Power Solutions	TERRA 150kW	150kW / 153.6kWh LiFePO4 / Weight: 4700 kg [10,362 lbs]	
Portable Power Station	Liebherr	Liduro Power Port 40, 80, 100, 120, & 160	Battery-based energy storage on wheels	
Portable Power Station	RIC Electronics	CleanGen A25	25kWh battery capacity with 10kVA output	
Portable Power Station	RIC Electronics	CleanGen J250	250kWh battery capacity with 100kVA output	
Portable Power Station	Generac	Battery energy storage	NMC based stationary battery energy storage systems (BESS) 125kW / 500kWh	
Portable Power Station	Generac	Battery energy storage	NMC based stationary battery energy storage systems (BESS) 250kW / 500kWh	

Equipment Type	Make	Model	Description (Energy Storage Information)	CORE Eligibility
Portable Power Station	Generac	Battery energy storage	NMC based stationary battery energy storage systems (BESS) 500kW / 500kWh	
Portable Power Station	Generac	Battery energy storage	NMC based stationary battery energy storage systems (BESS) 250kW / 1000kWh	
Portable Power Station	Generac	Battery energy storage	NMC based stationary battery energy storage systems (BESS) 500kW / 1000kWh	
Portable Power Station	Generac	Battery energy storage	NMC based stationary battery energy storage systems (BESS) 1000kW / 1000kWh	
Portable Power Station	Generac	Battery energy storage	Lithium iron phosphate (LFP) based stationary battery energy storage systems (BESS) 125kW / 500kWh	
Portable Power Station	Generac	Battery energy storage	Lithium iron phosphate (LFP) based stationary battery energy storage systems (BESS) 250kW / 500kWh	
Portable Power Station	Generac	Battery energy storage	Lithium iron phosphate (LFP) based stationary battery energy storage systems (BESS) 500kW / 500kWh	
Portable Power Station	Generac	Battery energy storage	Lithium iron phosphate (LFP) based stationary battery energy storage systems (BESS) 250kW / 1000kWh	
Portable Power Station	Generac	Battery energy storage	Lithium iron phosphate (LFP) based stationary battery energy storage systems (BESS) 500kW / 1000kWh	
Portable Power Station	Generac	Battery energy storage	Lithium iron phosphate (LFP) based stationary battery energy storage systems (BESS) 1000kW / 1000kWh	
Portable Power Station	Atlas Copco	ZBP 30-60 208V Energy Storage System	24kW (nominal) / 53.6kWh (net)	
Portable Power Station	Atlas Copco	ZBP 30-75 208V Energy Storage System	24kW (nominal) / 71.42kWh (net)	○
Portable Power Station	Atlas Copco	ZBP 40-60 240V Energy Storage System	32kW (nominal) / 53.6kWh (net)	
Portable Power Station	Atlas Copco	ZBP 40-75 240V Energy Storage System	32kW (nominal) / 71.42kWh (net)	○
Portable Power Station	Atlas Copco	ZBP 120-120 Energy Storage System	120kW (nominal) / 114.5kWh (net)	○
Portable Power Station	Atlas Copco	ZBC 500-250 Energy Storage System	500kW / 246kWh	○
Portable Power Station	Atlas Copco	ZBC 250-575 Energy Storage System	250kW (nominal) / 520kWh (net)	○
Portable Power Station	Atlas Copco	ZBC 300-300 Energy Storage System		
Portable Power Station	Atlas Copco	ZBC 1000-1200 Energy Storage System		
Portable Power Station	Wenzlau Engineering	UES-500-BD-5	Bidirectional Power Conversion, simultaneous charge/discharge	○
Portable Power Station	Wenzlau Engineering	UES-500-BD-6	Bidirectional Power Conversion, simultaneous charge/discharge	○
Portable Power Station	Wenzlau Engineering	UES-500-BD-7	Bidirectional Power Conversion, simultaneous charge/discharge	○
Portable Power Station	Wenzlau Engineering	UES-500-BD-8	Bidirectional Power Conversion, simultaneous charge/discharge	○

Equipment Type	Make	Model	Description (Energy Storage Information)	CORE Eligibility
Portable Power Station	Wenzlau Engineering	UES-500-UD-5	Unidirectional Power Conversion, charge or discharge	○
Portable Power Station	Wenzlau Engineering	UES-500-UD-6	Unidirectional Power Conversion, charge or discharge	○
Portable Power Station	Wenzlau Engineering	UES-500-UD-7	Unidirectional Power Conversion, charge or discharge	○
Portable Power Station	Wenzlau Engineering	UES-500-UD-8	Unidirectional Power Conversion, charge or discharge	○
Portable Power Station	AMPD Energy	Advanced energy storage system		
Portable Power Station	Portable Electric	Voltstack 5k	4.8kW (Cont. output)/5.6kWh / 2 hours(charging time)	
Portable Power Station	Portable Electric	Voltstack 30k	27kW (Cont. output)/80kWh / 3.5 hours(charging time)	○

Hybrid and Zero-Emission Aircraft

Equipment Type	Make	Model	Description
Hybrid Electric Aircraft	AMPAIRE	Electric EEL	Cessna 337 (Skymaster)-based hybrid electric model / Cost Saving Factors Advertised - Fuel: 50 - 70%, Maintenance: 25 - 50%
Plug-in Hybrid Electric Aircraft	AMPAIRE	Eco Caravan	Cessna 208B Grand Caravan (and EX Variant) based hybrid electric aircraft / Cost Savings - Fuel: 50-70%, OPEX Savings: Up to 40%
Hybrid Electric Aircraft	AMPAIRE	Eco Otter	DHC6 (Twin Otter) based hybrid electric aircraft / Cost Savings - Fuel: 20-30%, Maintenance: 10~25%
ZE Aircraft	AMPAIRE	Tailwind	Conceptual ZE Airplane
ZE Aircraft	Pipistrel	Velis Electro	Pipistrel advertised Velis Electro is world's first electric powered airplane to receive a Type Certificate (EASA.A.573 TCDS).
ZE Aircraft	Diamond Aircraft	eDA40	EASA/FAA CS/Part 23 certified electric airplane
Hybrid Electric Aircraft	Diamond Aircraft	HEMEP	Multi-engine Hybrid Electric Aircraft
Hybrid Electric Aircraft	Diamond Aircraft	DA36 E-Star2	Serial hybrid electric aircraft
Hybrid Electric Aircraft	Diamond Aircraft	DA36 E-Star	Serial hybrid electric aircraft
Hybrid Hydrogen Aircraft	AIRBUS	ZEROe Turbofan	Hybrid-hydrogen turbofan engines provide thrust. / Range: 2,000+ nm Passengers: <200
Hybrid Hydrogen Aircraft	AIRBUS	ZEROe Turboprop	Hybrid-hydrogen turboprop engine / Range: 1,000+ nm Passengers: <100
Hybrid Hydrogen Aircraft	AIRBUS	Blended-Wing Body (BWB)	Hybrid-hydrogen turbofan engines provide thrust. / Range: 2,000+ nm Passengers: <200
H2FC Aircraft	AIRBUS	Fully Electrical Concept	Range: 1,000 nm Passengers: <100
Urban Air Mobility (UAM)	Joby Aviation	S4	5-passenger eVTOL (pre-production prototype) / In late 2020, Joby agreed to acquire the UBER Elevate division.
Urban Air Mobility (UAM)	EHang	VT-30	Battery-electric 2 passenger eVTOL for long distance travel (prototype) / Range: 300 km (186 m)
Urban Air Mobility (UAM)	EHang	EH-216	Commercialized version multirotor aircraft
Urban Air Mobility (UAM)	Volocopter	VoloCity	Battery electric UAV / Range: 35 km / Battery swapping time: 5 min / 9 lithium-ion battery packs
Urban Air Mobility (UAM)	Volocopter	VoloRegion	Battery electric UAV
Urban Air Mobility (UAM)	Volocopter	VoloConnect	4 passenger battery electric UAV

Equipment Type	Make	Model	Description
Urban Air Mobility (UAM)	Lilium	Lilium Jet	7 passenger 5th generation eVTOL (the first electric vertical take-off and landing jet)
Urban Air Mobility (UAM)	Hyundai	Supernal S-A1	S-A1 eVTOL PAV (Personal Air Vehicle)
Urban Air Mobility (UAM)	Autoflight	Prosperity	Battery-electric Air Taxi / demo in Japan, Range: 250km +
Urban Air Mobility (UAM)	Vertical Aerospace	VX4	Battery-electric Air Taxi / Range: 100 mile (160 km)
Urban Air Mobility (UAM)	Overair / Hanhwa	Butterfly	Battery electric eVTOL (pilot + 5 passenger) / Range: 100 mile (160 km)
Urban Air Mobility (UAM)	Beta Technologies, Inc.	ALIA-250	Battery electric eVTOL (pilot + 5 passenger) / Range: 250 mile (500 km)
Urban Air Mobility (UAM)	Jaunt Air Mobility	Journey	Battery electric eVTOL (pilot + 4 passenger) / Range: 80 mile