

## JOBS EV 1.0 WEBINAR

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February 28, 2024

#### **TODAY'S DISCUSSION**

- JOBS EV 1.0 overview
- Methodology
- Default data and assumptions
- Demo and illustrative results
- Next steps for model
- Company investment tracking





https://www.anl.gov/es/jobs-models

JOBS models help energy and economic planners, decisionmakers, and Clean Cities and Communities coalitions and their stakeholders estimate the economic impacts of deploying and operating alternative fuel equipment and infrastructure, including:

- Electric vehicles (EV)
- Electric vehicle charging stations (EVSE)
- Natural gas fueling stations (NG)
- Hydrogen fueling stations (H2)
- Fuel cells in forklifts, backup power or prime power applications (FC)



#### JOBS EV TAKES A HOLISTIC APPROACH TO MODELING ECONOMIC IMPACTS





### JOBS EV 1.0

#### Excel-based tool estimates economic impact for user-defined scenarios:



- Geographic region of interest
- Number, type of vehicles
- Manufacturing includes upstream components manufacturing
- Utilization includes electricity generation and induced sales but not station development
- Default values or user inputs

Expenditures are translated into **dollar flows among industries** using the U.S. Department of Commerce RIMS2 input-output model



# **METHODOLOGY**





### **INPUT-OUTPUT MODELING**

- Output (goods and services) of any industry i is input to other industries j and to industry i itself
- Industry **i** output depends on input requirements to all **n** industries
- Output of many industries **k** are inputs to industry **i**







## **SCOPE AND DEFINITIONS**

- <u>Supply Chain Jobs</u> Directly involved in producing, shipping, installing, constructing and operating stations and in supplying inputs to those activities
- Induced Jobs Re-spending of wages/incomes by supply-chain job holders
- Vehicle manufacturing expenditures:
  - All major vehicle components, variable quantities, uninstalled costs and assembly
  - Shipping expenditures
  - Number of vehicles sold per year

#### Vehicle operation expenditures:

- Annual vehicle miles traveled (VMT)/charging
- Maintenance and repair
- Dealerships

#### Local shares:

- For producing, shipping and assembling each motor vehicle or vehicle component
- Dealership costs



## **DEFAULT DATA AND ASSUMPTIONS**





#### **JOBS EV 1.0 TOOL**

Manu	ifacturing & Utilizat	tion Steps												
Step 1 - BEV Types														
Step 2 - Number of BEVs Manufactu	ired													
Step 3 - BEV Component Expenses (	uninstalled)													
Step 4 - BEV Component and Assem	bly Expenses – Local S	Share Percentages												
Step 5 - BEV Assembly Expenses														
Step 6 - Number of BEVs Sold Each	Year													
Step 7 - BEV Utilization Expenses				Man	ufacturing & Utiliza	ition Steps								
Step 8 - BEV Maintenance and Rep	air Expenses			Step 1 - BEV Types			^							
Step 9 - BEV Shipping-Related Expe	nses			Step 2 - Number of BEVs Manufact	ured									
Stop 10 REV Deployship Bolated E	in a second			Step 3 - BEV Component Expenses	(uninstalled)									
				Step 4 - BEV Component and Asse	mbly Expenses – Local	Share Percentages								
			VE	Step 5 - BEV Assembly Expenses										
				Step 6 - Number of BEVs Sold Each	Year									
		All do	lar values ar	Step 7 - BEV Utilization Expenses										
		All doi	iai values ai	Step 8 - BEV Maintenance and Rep	air Expenses			Restore Default	Values	Restore All				
Stop 2 REV Component E	(nonce luninete)	llad)		Step 9 - BEV Shipping-Related Exp	enses			for Current S	tep	Default Values				
Step 5 - BEV Component E	kpenses (uninstal	neu)		Stan 10 - REV Daslarchin-Dalstad	Fynansas		¥							
DIRECTIONS: In Step 3a, specify t	he expenditure for ea	ach component cate	gory for a singl											
3c. Assembly expenses can be spe	cified in Step 4. In St	ep 3b, specify the q	uantity of comp	ļ			VEH	ICLE UTILIZATIO	N RELATED EX	(PENSES				
3a - Component Expense (\$/Ur	nit)			-		All dol	lar values are in 2		ocified entries	must be entered	l in 2020\$			
Component Name	Passenger Car	Passenger Car				All dol	iai values are ili 2	ozoş. Ali üser-sı	echieu entries	must be entered	1 111 20203.			
	dimension b		Compact SUV (											
	(2WD)	(AWD)	Compact SUV (	Step 7 - BEV Utilization Ex	penses									
E-motor drive transmission	(2WD)	(AWD)	Compact SUV ( Parts Uniq	Step 7 - BEV Utilization Ex DIRECTIONS: Please enter the to	penses Ital number of BEVs o	on the road by year a	nd vehicle type. This	value may be different	from the number	entered in the previo	us step if there are a	lready BEVs present i	n the geographic regi	on of study.
E-motor, drive, transmission	(2WD) \$1,344 \$10,555	(AWD) \$1,344 \$10,555	Compact SUV ( Parts Uniq	Step 7 - BEV Utilization Ex DIRECTIONS: Please enter the to Default values are based on natio	penses otal number of BEVs o onal data on the total	on the road by year a number of each vehi	nd vehicle type. This cle type, inclusive of i	value may be different CEVs, and should be a	: from the number djusted based on yo	entered in the previou our anticipated BEV p	us step if there are a enetration rates.	ilready BEVs present i	n the geographic regi	on of study.
E-motor, drive, transmission Battery cell/pack Power electronics	(2WD) \$1,344 \$10,555 \$1,704	(AWD) \$1,344 \$10,555 \$1 704	Compact SUV ( Parts Uniq \$1 \$1	Step 7 - BEV Utilization Ex DIRECTIONS: Please enter the to Default values are based on natio 7a - Number of Battery Electri	penses otal number of BEVs o nal data on the total c Vehicles on Road	on the road by year a number of each vehi	nd vehicle type. This cle type, inclusive of I	value may be different CEVs, and should be a	: from the number djusted based on yo	entered in the previo our anticipated BEV p	us step if there are a enetration rates.	lready BEVs present i	n the geographic regi	on of study.
E-motor, drive, transmission Battery cell/pack Power electronics	(2WD) \$1,344 \$10,555 \$1,704	(AWD) \$1,344 \$10,555 \$1,704	Compact SUV ( Parts Uniq \$1 \$1 Other Be	Step 7 - BEV Utilization Ex DIRECTIONS: Please enter the tr Default values are based on natio 7a - Number of Battery Electri	penses otal number of BEVs o mal data on the total : Vehicles on Road	on the road by year a number of each vehi	nd vehicle type. This cle type, inclusive of i	value may be different CEVs, and should be a	: from the number djusted based on yo Ye	entered in the previor our anticipated BEV p ear	us step if there are a enetration rates.	lready BEVs present i	n the geographic regi	on of study.
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E-motor, drive, transmission Battery cell/pack Power electronics Wheels and tires Climate control, engine cooling Chassis Audio, telematics	(2WD) \$1,344 \$10,555 \$1,704 \$418 \$4,694 \$696	(AWD) \$1,344 \$10,555 \$1,704 \$418 \$1,445 \$4,694 \$696	Compact SUV ( Parts Uniq \$. \$1 \$. Other Be \$. \$.	Step 7 - BEV Utilization Ex DIRECTIONS: Please enter the t Default values are based on nation 7a - Number of Battery Electri BEV Type Passenger Car (2WD) Passenger Car (2WD) Compact SUV (2WD) Compact SUV (2WD)	penses tal number of BEVs con- nal data on the total vehicles on Road 2023 991,313 496,304 237,097 812,206	2024 991,313 496,304 812,206	nd vehicle type. This cle type, inclusive of i 2025 991,313 496,304 237,097 812,206	2026 991,313 495,304 237,097 812,206	from the number djusted based on yo <u>Ye</u> 2027 991,313 495,304 237,097 812,206	entered in the previou our anticipated BEV p ar 2028 991,313 496,304 237,097 812,206	2029 991,313 496,304 812,206	2030 991,313 496,304 237,097 812,206	2031 991,313 495,304 237,097 812,206	on of study. 2032 991,313 495,304 237,097 812,206
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E-motor, drive, transmission Battery cell/pack Power electronics Wheels and tires Climate control, engine cooling Chassis Audio, telematics Electronics, electrical Axles and driveshafts Interior Passenger restraints Body glass Braking Steering	(2WD) \$1,344 \$10,555 \$1,704 \$418 \$1,445 \$4,654 \$656 \$4,138 \$950 \$1,786 \$466 \$192 \$960 \$504	(AWD) \$1,344 \$10,555 \$1,704 \$418 \$1,445 \$4,694 \$596 \$4,138 \$550 \$1,786 \$4,684 \$550 \$1,786 \$4,684 \$550 \$1,784 \$550 \$1,784 \$550 \$1,784 \$550 \$1,794 \$550 \$1,794 \$550 \$1,794 \$550 \$1,794 \$550 \$5,704 \$5,704 \$5,	Compact SUV ( Parts Uniq S, \$11 S, Other B, S,	Step 7 - BEV Utilization Ex DIRECTIONS: Please enter the to Default values are based on natic 7a - Number of Battery Electrit BEV Type Passenger Car (2WD) Compact SUV (2WD) Compact SUV (2WD) SUV (2WD) SUV (2WD) Pickup (2WD) Pickup (2WD) Pickup (2WD) 7b - Total Battery Electric Vehi DIRECTIONS: Please enter the to	penses tal number of BEVs c nal data on the total vehicles on Road 2023 991,313 496,304 237,097 812,206 135 75,043 137 23,687 vital anual miles driven tal annual miles driven	2024 991,313 496,304 237,097 812,206 135 75,043 137 23,687 en by battery electric	nd vehicle type. This cle type, inclusive of 1 2025 991,313 496 304 237,097 612,206 1335 75,043 137 23,687 vehicle type. Defaul	value may be different CEVs, and should be a 991,313 496,304 237,097 612,226 135 75,043 137 23,687 t values are based on	: from the number djusted based on yo 991,313 496,304 237,097 812,206 1355 75,043 137 23,687 national miles drive	entered in the previous our anticipated BEV previous 991,313 496,304 237,097 812,206 1325 75,043 137 23,697 ndta inclusive of ICI	us step if there are ae enetration rates. 991,313 496,304 237,097 812,206 1355 75,043 137 23,687 23,687	2030 991,313 496,304 237,097 812,206 135 75,043 137 23,687 djusted based on your	2031 991,313 496,304 237,097 812,206 133 75,043 137 23,687 anticipated BEV pen	2032 991,313 496,304 237,097 812,206 135 75,043 137 23,687 23,687 etration rates.
E-motor, drive, transmission Battery cell/pack Power electronics Wheels and tires Climate control, engine cooling Chassis Audio, telematics Electronics, electrical Axles and driveshafts Interior Passenger restraints Body glass Braking Steering Sussension	(2WD) \$1,344 \$10,555 \$1,704 \$418 \$1,445 \$4,654 \$5565 \$4,138 \$950 \$1,786 \$413 \$950 \$1,786 \$459 \$4,594 \$596 \$510 \$5504 \$5504 \$5505 \$5504 \$5505	(AWD) \$1,344 \$10,555 \$1,704 \$4,18 \$1,445 \$4,54 \$696 \$4,138 \$5950 \$1,786 \$4,584 \$4,594 \$696 \$1,786 \$4,595 \$1,786 \$4,594 \$4,595 \$1,786 \$4,595 \$1,595 \$1,786 \$4,595 \$1,595 \$1,786 \$4,595 \$1,595 \$1,786 \$4,595 \$2,595 \$1,595 \$1,595 \$1,595 \$2,595 \$1,595 \$2,595 \$1,595 \$2,59	Compact SUV ( Parts Uniq S SI) SI Other Be S S S S S S S S S S S S S S S S S S S	Step 7 - BEV Utilization Ex DIRECTIONS: Please enter the to Default values are based on natio 7a - Number of Battery Electri BEV Type Passenger Car (AWD) Compact SUV (AWD) Compact SUV (AWD) SUV (AWD) SUV (AWD) Pickup (AWD) Pickup (AWD) 7b - Total Battery Electric Vehi DIRECTIONS: Please enter the to BEV Type	penses tal number of BEVs on nal data on the total vehicles on Road 991,313 496,304 237,097 812,097 81	on the road by year an number of each vehi 991,313 496,304 237,097 812	nd vehicle type. This cle type, inclusive of 1 (99),313 496,304 237,997 812,206 1325 75,043 137 23,687 vehicle type. Defaul	value may be different CEVs, and should be a 2026 2029 495,304 237,097 812,206 1335 75,043 137 23,667 t values are based on	from the number djusted based on ye 2027 991,313 496,304 237,097 812,206 1355 75,043 137 23,667 hational miles drive Ye	entered in the previous our anticipated BEV p ar 2028 991,313 496,304 237,097 812,207 812,207 812,207 132 75,043 133 23,687 en data inclusive of ICI ar 2000	2029 991,313 496,304 237,097 812,206 135 75,043 137 23,687	2030 991,313 496,304 237,097 812,206 1325 75,043 137 23,687 djusted based on your	2031 991,313 496,304 237,097 812,206 1335 75,043 137 23,687 enticipated BEV pen	2032 2032 496,304 237,097 812,206 135 75,043 137 23,687 etration rates.
E-motor, drive, transmission Battery cell/pack Power electronics Wheels and tires Climate control, engine cooling Chassis Audio, telematics Electronics, electrical Axles and driveshafts Interior Passenger restraints Body glass Braking Steering Suspension Total	(2WD) \$1,344 \$10,555 \$1,704 \$418 \$1,415 \$4,696 \$4,138 \$950 \$1,786 \$466 \$1122 \$960 \$504 \$7763 \$30,614	(AWD) \$1,344 \$10,555 \$1,704 \$418 \$1,445 \$4,694 \$696 \$4,138 \$550 \$1,786 \$466 \$192 \$960 \$504 \$763 \$30,614	Compact SUV ( Parts Unig S S Other B S S S S S S S S S S S S S S S S S S S	Step 7 - BEV Utilization Ex DIRECTIONS: Please enter the to Default values are based on natir 7a - Number of Battery Electrin BEV Type Passenger Car (2WD) Compact SUV (2WD) Compact SUV (2WD) SUV (2WD) SUV (2WD) Pickup (2WD) Pickup (2WD) 7b - Total Battery Electric Veh DIRECTIONS: Please enter the to BEV Type Bareages Car (2WD)	2015 2015 2015 2015 2015 2015 2015 2015	2024 991,313 496,304 237,097 812,206 135 27,643 137 23,687 en by battery electric 2024 2024	nd vehicle type. This cle type, inclusive of 1 2025 991,313 496,304 237,097 812,206 135 75,043 137 23,667 vehicle type. Defaul 2025 24,890,016,250	value may be different CEVs, and should be a 991,313 496,304 232,007 812,206 135 75,043 137 23,687 t values are based on 2026 14 190,015,550	riom the number djusted based on ye 2027 991,313 496,304 237,097 812,206 135 75,043 1357 23,687 national miles drive 2027 14 490,016,288	entered in the previous ar 2028 991,313 496,304 287,004 102 102 102 102 102 102 102 102 102 102	us step if there are a enetration rates. 2029 991,313 496,304 237,097 812,206 135 75,043 137 23,687 EVs, and should be a 2029 24,460,016,258	2030 991,313 496,304 237,097 812,206 135 75,043 137 23,687 djusted based on your 2030	2031 991,313 496,304 337,997 812,206 135 75,043 1357 23,667 anticipated BEV pen 2031 24,989,106,252	2032 991,313 496,304 237,097 812,206 135 75,043 137 23,687 etration rates. 2032 14 180 016 256
E-motor, drive, transmission Battery cell/pack Power electronics Wheels and tires Climate control, engine cooling Chassis Audio, telematics Electronics, electrical Axles and driveshafts Interior Passenger restraints Body glass Braking Suspension Total	(2WD) \$1,344 \$10,555 \$1,704 \$418 \$1,45 \$4,694 \$695 \$4,138 \$950 \$1,786 \$4466 \$192 \$950 \$122 \$960 \$504 \$763 \$30,614	(AWD) \$1,344 \$10,555 \$1,704 \$418 \$1,445 \$4,694 \$5950 \$1,786 \$466 \$192 \$560 \$504 \$763 \$30,614	Compact SUV ( Parts Unig S S Other B S S S S S S S S S S S S S S S S S S S	Step 7 - BEV Utilization Ex           DIRECTIONS: Please enter the tr           Default values are based on natic           7a - Number of Battery Electri           BEV Type           Passenger Car (2WD)           Compact SUV (2WD)           SUV (2WD)           SUV (2WD)           Pickup (2WD)           Pickup (2WD)           Pickup (2WD)           Pickup (2WD)           Pasenger Car (2WD)           Pickup (2WD)           Pickup (2WD)           Pasenger Car (2WD)           Pessenger Car (2WD)	Penses tal number of BEVs of nal data on the total vehicles on Road 2023 991,313 495,304 237,097 812,206 812,206 812,206 135 75,043 137 23,687 vehicles of Road 137 23,687 vehicles of Road 1440,016,259 7,254,478,908	on the road by year an number of each vehic 991,313 496,304 237,097 812,206 812,206 812,206 812,206 135 75,043 137 23,687 23,687 en by battery electric 2024 14,490,016,259 7,254,478,908	nd vehicle type. This cle type, inclusive of 1 991,313 496,304 237,097 812,205 75,043 137 23,687 vehicle type. Defaul 2025 14,490,016,259 7,254,478,908	value may be different CEVs, and should be a 2026 991,313 495,304 237,094 812,206 135 75,043 137 23,687 t values are based on 2026 14,490,015,259 7,254,478,906	r from the number djusted based on yc 2027 991,313 496,304 237,097 812,206 135 75,043 137 23,687 national miles drive 2027 11,490,016,239 7,254,478,908	entered in the previous enticipated BEV provided BEV prov	2029 991,313 496,304 237,097 812,206 135 75,043 137 23,687 23,687 24,90,016,299 7,254,478,908	2030 991,313 496,304 237,097 812,206 135 75,043 137 23,687 djusted based on your 2030 14,490,016,299 7,254,478,908	2031 991,313 496,304 237,097 812,206 135 75,043 137 23,687 * anticipated BEV pen 2031 14,490,016,259 7,254,478,906	2032 991,313 496,304 237,097 812,206 135 7,50,43 137 23,687 23,687 23,687 24,489,016,259 7,254,478,908
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E-motor, drive, transmission Battery cell/pack Power electronics Wheels and tires Climate control, engine cooling Chassis Audio, telematics Electronics, electrical Axles and driveshafts Interior Passenger restraints Body glass Braking Steering Suspension Total 3b - Component Quantity (Unit	(2WD) \$1,344 \$10,555 \$1,704 \$418 \$1,445 \$4,694 \$696 \$4,138 \$950 \$1,786 \$466 \$192 \$950 \$466 \$192 \$950 \$504 \$7763 \$30,614 Passenger Car	(AWD) \$1,344 \$10,555 \$1,704 \$418 \$1,445 \$4,694 \$696 \$4,138 \$5950 \$1,786 \$466 \$192 \$960 \$504 \$763 \$30,614 Passenger Car	Compact SUV ( Parts Unig S S Other B S S S S S S S S S S S S S S S S S S S	Step 7 - BEV Utilization Ex           DIRECTIONS: Please enter the to           Default values are based on national states are based on national states are based on an are states are state	Penses tal number of BEVs of nal data on the total : Vehicles on Road 2023 991,313 495,304 237,097 812,206 135 75,043 137 23,687 cle Miles Driven tal annual miles driven tal 4,480,016,259 7,254,478,908 3,465,645,085 11,877,012,011	2024 991,313 495,304 237,097 812,206 135 75,043 137 23,687 en by battery electric 2024 14,480,016,259 7,254,478,908 3,465,645,08	nd vehicle type. This cle type, inclusive of 1 2025 991,313 496,304 237,097 812,206 135 75,043 137 23,667 vehicle type. Defaul 2025 14,480,016,259 7,254,478,908 3,465,645,08 1,687,012,011	value may be different CEVs, and should be a 2026 991,313 495,304 237,007 812,206 135 72,043 137 22,667 t values are based on 2026 14,490,016,259 7,254,478,908 3,465,545,063	rom the number djusted based on ye 2027 991,313 496,304 237,097 812,206 135 75,043 75,045 75,045 75,045,045 75,045,045,045,045,045,045,045,045,045,04	entered in the previous enticipated BEV pour anticipated between the pour sector and the pour sector a	2029 991,313 496,304 237,097 812,206 135 75,043 137 23,667 23,667 24,480,016,259 7,254,478,908 3,465,645,085	2030 991,313 496,304 237,097 812,206 135 75,043 137 23,687 djusted based on your 2030 14,4980,016,259 7,254,478,908 3,465,645,08 11,872,012,011	2031 991,313 496,304 237,097 812,206 135 75,043 137 23,687 anticipated BEV pen 2031 14,490,016,259 7,254,478,906 3,465,645,08	2032 991,313 496,304 237,097 812,206 133 75,043 137 23,687 etration rates. 2032 14,490,016,259 7,254,478,908 3,465,645,085 3,465,645,085
E-motor, drive, transmission Battery cell/pack Power electronics Wheels and tires Climate control, engine cooling Chassis Audio, telematics Electronics, electrical Axles and driveshafts Interior Passenger restraints Body glass Braking Stuspension Total 3b - Component Quantity (Unit Component Name	(2WD) \$1,344 \$10,555 \$1,704 \$418 \$1,445 \$4,694 \$695 \$4,694 \$695 \$4,694 \$695 \$1,286 \$1,286 \$1,286 \$466 \$122 \$950 \$524 \$763 \$30,614 \$ Passenger Car [2WD]	(AWD) \$1,344 \$10,555 \$1,704 \$418 \$1,445 \$4,694 \$5950 \$1,786 \$456 \$456 \$456 \$466 \$192 \$560 \$504 \$763 \$30,614 Passenger Car (AWD)	Compact SUV ( Parts Unig S S Other B S S S S S S S S S S S S S S S S S S S	Step 7 - BEV Utilization Ex DIRECTIONS: Please enter the to Default values are based on natic 7a - Number of Battery Electri BEV Type Passenger Car (2WD) Compact SUV (2WD) Compact SUV (2WD) SUV (2WD) Pickup (2WD) Pickup (2WD) Pickup (2WD) Pickup (2WD) 7b - Total Battery Electric Veh DIRECTIONS: Please enter the to BEV Type Passenger Car (2WD) Compact SUV (2WD) Compact SUV (2WD) SUV (2WD) SUV (2WD)	Penses tal number of BEVs of nal data on the total vehicles on Road 2023 991,313 495,304 237,097 812,206 135 75,043 137 23,687 rds 449,00,016,259 7,254,478,908 3,465,645,085 11,872,012,011 11,956,338 2023 2025 202	2024 991,313 495,304 237,097 812,206 135 75,043 137 23,687 23,687 23,687 249,0016,259 7,254,478,908 3,465,645,085 11,872,012,011 11,872,012,011 11,966,338	nd vehicle type. This cle type, inclusive of 1 991,313 496,304 237,097 812,206 812,206 812,205 75,043 137 23,687 vehicle type. Defaul 2025 14,490,016,259 7,254,478,908 3,465,645,085 14,872,012,011 11,972,012,011 11,976,338	value may be different CEVs, and should be a 2026 991,313 495,304 237,094 812,206 135 7,5,043 137 23,687 t values are based on 2026 14,490,015,259 7,254,478,900 7,254,478,900 3,465,549,085 11,872,012,011 11,872,012,011 11,965,333	trom the number djusted based on ye 2027 991,313 496,304 237,097 812,206 135 75,043 137 23,687 7,254,478,908 2027 14,490,016,259 7,254,478,908 3,465,645,085 11,872,012,011 1,966,338	entered in the previous enticipated BEV provided BEV prov	2029 991,313 496,304 237,097 812,206 135 75,043 137 23,687 23,687 2449,016,259 7,254,478,908 3,465,645,08 3,465,645,08 11,872,012,011 11,966,338	2030 991,313 496,304 237,097 812,206 1357 75,043 137 23,687 23,687 44,490,016,259 7,254,478,908 3,465,645,085 3,465,645,085 11,872,012,011 11,956,338	2031 991,313 496,304 237,097 812,206 135 75,043 137 23,687 * anticipated BEV pen 2031 14,490,016,259 7,254,478,908 3,456,457,85 11,872,012,2011 11,956,338	2032 991,313 496,304 237,097 812,206 135 7,50,43 137 23,687 7,52,447,908 249,016,259 7,254,478,908 3,365,645,085 11,672,012,011 11,672,012,011
E-motor, drive, transmission Battery cell/pack Power electronics Wheels and tires Climate control, engine cooling Chassis Audio, telematics Electronics, electrical Axles and driveshafts Interior Passenger restraints Body glass Braking Steering Suspension Total 3b - Component Quantity (Unit Component Name	(2WD) \$1,344 \$10,555 \$1,704 \$418 \$1,445 \$4,694 \$696 \$4,138 \$950 \$1,786 \$4,138 \$950 \$1,786 \$4,138 \$950 \$1,728 \$4,694 \$950 \$1,728 \$4,694 \$950 \$1,728 \$4,694 \$950 \$1,728 \$4,694 \$950 \$1,728 \$4,694 \$950 \$1,728 \$4,694 \$950 \$1,728 \$4,694 \$950 \$1,728 \$4,694 \$950 \$1,728 \$4,694 \$950 \$1,728 \$4,694 \$950 \$1,728 \$4,694 \$950 \$1,728 \$4,694 \$950 \$5,749 \$950 \$5,749 \$950 \$5,749 \$950 \$5,749 \$950 \$5,749 \$950 \$5,749 \$950 \$5,749 \$950 \$5,749 \$950 \$5,749	(AWD) \$1,344 \$10,555 \$1,704 \$418 \$1,445 \$4,694 \$596 \$4,138 \$5950 \$1,786 \$466 \$192 \$560 \$5504 \$763 \$30,614 Passenger Car (AWD)	Compact SUV ( Parts Unig S S S Other B S S S S S S S S S S S S S S S S S S S	Step 7 - BEV Utilization Ex           DIRECTIONS: Please enter the to           Default values are based on nation           7a - Number of Battery Electric           BEV Type           Passenger Car (AWD)           Compact SUV (AWD)           Compact SUV (AWD)           SUV (AWD)           Pickup (2WD)           Pickup (AWD)           Pickup (AWD)           Pickup (AWD)           Pickup (AWD)           Pickup (AWD)           Passenger Car (2WD)           Passenger Car (AWD)           Compact SUV (AWD)           Ster (AWD)           Possenger Car (2WD)           Passenger Car (AWD)           Compact SUV (2WD)           SUV (2WD)           SUV (2WD)           SUV (2WD)           SUV (2WD)	Penses tal number of BEVs on nal data on the total and data on the total 2023 991,313 496,304 237,097 812,206 135 75,044 137 23,687 7,254,478,908 3,465,645,085 11,872,012,011 19,9605,337 2036,573 2037 2036,573 2036,573 2037 2036,573 2036,573 2036,573 2036,573 2037 2036,573 2036,573 2036,573 2036,575 2037 20	2024 991,313 495,304 237,007 812,206 135 75,043 137 23,687 23,687 2,254,473,508 3,465,645,085 11,872,012,011 19,66,338 10,96,905,337 203,673	nd vehicle type. This cle type, inclusive of 1 991,313 496,304 237,097 812,206 1335 75,043 137 23,687 2,254,478,908 7,254,478,908 7,254,478,908 3,465,645,085 14,972,012,011 1,966,338 1,096,905,337 2,003,679	value may be different CEVs, and should be a 991,313 496,304 237,097 812,206 135 75,043 73,043 137 23,687 t values are based on 2026 14,490,016,259 7,254,478,908 14,479,016,259 14,479,016,259 14,479,016,259 14,479,016,259 14,479,016,259 14,479,016,259 2,016,538 11,976,538 11,976,905,237 2,003,678	: from the number djusted based on yo 991,313 496,304 237,097 812,206 1355 75,043 137 23,687 14,490,015,259 7,254,478,900 14,490,015,259 7,254,478,900 3,465,645,085 11,872,012,011 1,966,338 1,056,905,337 2,003,573	entered in the previous our anticipated BEV previous ar 991,313 496,304 237,097 812,206 1325 75,043 137 23,687 14,490,015,29 7,254,478,508 3,465,645,085 11,976,6338 1,969,503,37 2003,678	2029 991,313 496,304 237,097 812,206 135 75,043 137 23,687 24,400,016,259 14,490,016,259 7,254,478,500 14,490,016,259 3,465,645,085 11,872,012,011 11,966,538 10,96,505,387 2,003,678	2030 991,313 496,304 237,097 812,206 135 75,043 137 23,687 235,478,508 14,490,015,259 7,234,478,508 14,490,015,259 3,465,645,085 11,872,012,011 1,965,63,38 1,095,905,337 2,203,673	2031 991,313 496,304 237,097 812,206 1335 75,043 75,043 13,77 23,687 2,23,687 2,24,478,900 3,465,645,085 14,872,012,011 19,966,338 10,969,905,33 2,008,907,32	2032 991,313 496,304 237,097 812,206 135 75,043 137 23,687 etration rates. 2032 14,490,015,259 7,254,478,900 3,465,645,085 14,479,012,011 1,966,338 1,096,905,337 2,004 678





### JOBS EV 1.0 TOOL (CONT'D)







# **DEMO/TOOL WALKTHROUGH**





## **NEXT STEPS**





#### JOBS MODELS FACT SHEET AND AFDC LINK

#### **ARGONNE TOOLS HELP QUANTIFY** THE ECONOMIC BENEFITS OF PROPOSED TRANSPORTATION FUELING INFRASTRUCTURE

Argonne's JOBS tools quantify how deploying transportation energy infrastructure creates jobs and "ripple effect" economic activity.

Transportation technologies change and grow, and so do the jobs they support. When we invest in developing transportation fueling infrastructure-such as for the planning. manufacture, installation and operation of equipment-employment, earnings and economic output rise. This is true for the industries that supply equipment as well as for the industries in their supply chains. Moreover, employment, earnings and economic output also increase when earnings related to these activities re-enter the economy ("ripple effect"). That spending supports even more service and support industries, which further adds to the economic impact of the Infrastructure itself.

Argonne's team of experts evaluates how existing and emerging fuel technologies, including electric batteries, natural gas, hydrogen and

COENERGY US Department of Energy Bourdary or a

stationary fuel cells, affect economic systems. The JOBS EVSE tool, for example, measures the economic impact of electric vehicle charging based on the electric vehicle supply equipment (EVSE) deployed at the station. Expenditures are translated into dollar flows among industries using the U.S. Department of Commerce's RIMS2 input-output model.

This tool, as well as others from Argonne, is built on data from Installers and developers, EVSE network providers, utilities, equipment manufacturers, site planners, U.S. Department of Energy (DOE)designated Clean Cities coalitions, analysts and researchers. Collectively, these tools offer what decision-makers need to estimate the economic impact-on jobs, local economies and industries-of proposed alternative fueling installations.

#### Tools

The Alternative Fuels Data Center offers a large collection of helpful tools. These calculators, interactive maps, and data searches can assist fleets, fuel providers, and other transportation decision makers in their efforts to advance alternative fuels and energy-efficient vehicle technologies.





TransAtlas

B





Estimate a city or state's need for vehicle charging and the effect on electric load.







AFLEET Tool Calculate a fleet's petroleum use, cost of ownership, and emissions.

#### Vehicle Cost Calculator

Compare cost of ownership and emissions for most vehicle models. 🗂 mobile

VICE Model Evaluate the financial case for natural gas

14



vehicles and battery electric buses.

Estimate economic impacts of deploying alternative fuel and charging infrastructure

Heavy-Duty Vehicle Emissions Calculate the emissions of alternative fuel medium- and heavy-duty vehicles.



#### ATRAVEL Tool

(牛)

Estimate costs, travel time, and emissions for private vehicles and other travel modes Data Searches



Vehicle Search





Alternative Fuel Corridors Find maps and station data to help with nominating alternative fuel corridors.

Analyze vehicle densities and locations of

fueling stations and production facilities.

Laws and Incentives Search

Search for laws and incentives related to alternative fuels and advanced vehicles

#### Battery Policies and Incentives

Find policies and incentives for batteries developed for EVs and energy storage.

**Biofuels Atlas** 

Coalition Locations

information for coordinators.

Energy Zones Mapping Tool

Identify potential energy resource areas

and energy corridors in the United States

Compare feedstocks and analyze biofuel production by location

#### **Fuel Properties Comparison**

Compare alternative fuel properties and haracteristics

Find Clean Cities coalitions and contact

Compare fuel efficiency, costs, carbon footprints, and emissions.



Find a Car

Find state information about alternative fuels and advanced vehicles

https://afdc.energy.gov/tools



chain jobs (those directly or indirectly producing, shipping, installing, constructing and operating fueling infrastructure) and "Induced" (obs (created when supply-chain job holders re-spend wages), earnings and economic output (money spent across the economy). The result: a more complete

picture of transportation fueling infrastructure's impact on employment and economies.

April 2022

#### CONTACT

THE IMPACT

Argonne's approach examines the full economic impact

of transportation energy infrastructure. It considers supply

Marianne Mintz Principal Transportation Systems Analyst Argonne National Laboratory Phone: 630-252-5627 Email: mmintz@anl.gov www.anl.gov/es

### **JOBS EV: NEXT STEPS**

- Posting of model, tutorial, and presentation materials to Argonne's JOBS models website (<u>https://www.anl.gov/esia/jobs-ev</u>)
- JOBS EV 1.1:
  - More granular/state-specific defaults for upstream manufacturing
  - Include end-of-life
- JOBS EV 2.0:
  - M/HDV
  - Improved integration with JOBS EVSE





## **INVESTMENT TRACKING**

• We are carefully tracking corporate announcements for manufacturing investment in electric vehicle and battery supply chains



New U.S. electric vehicle component and assembly plant investments announced under President Biden:

- Over \$40 billion announced so far
- Over 150 new or expanded sites for EV assembly and EV component or charger manufacturing
- Over 50,000 potential new jobs

https://www.energy.gov/invest

U.S. DEPARTMENT OF ENERGY Argonne National Laboratory is a U.S. Department of Energy laboratory managed by UChicago Argonne, LLC



### **VEHICLE AND BATTERY PRODUCTION**

- Battery production is being announced in similar locations as historical production of vehicles
- Companies have announced over \$200B in investments since 2000,
   <sup>3</sup>⁄<sub>4</sub> of which in last three years

Clean Vehicle & Battery Cell Announcements







### **PRODUCTION DEMAND AND CONSTRAINTS**

- We also track material and component production to compare with demand
- Technical analysis to be published next month



Агдоппе		ANL-24/14
Quantificatio Component S	on of Commercially Supply in North Ai	/ Planned Battery nerica through 2035
by David Gohlke, Rakesh Krish Energy Systems and Infrastr	namoorthy lyer, Jarod Kelly, Astrid Pene ructure Analysis Division, Argonne Nation	Njine Monthe, and Xinyi Wu al Laboratory
Tsisilite A. Barlock Nuclear Technologies and N	iational Security Directorate, Argonne Na	tional Laboratory
Charbel Mansour Transportation and Power Sy	ystems Division, Argonne National Labor	atory
March 2024		



#### **THANK YOU!**

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#### **QUESTIONS?**

This work is supported by the Vehicle Technologies Office in the USDOE's Office of Energy Efficiency and Renewable Energy, under Contract DE-AC02-06CH11357.



