



Energy+Environmental Economics

Distribution Cost Impacts of High Electrification

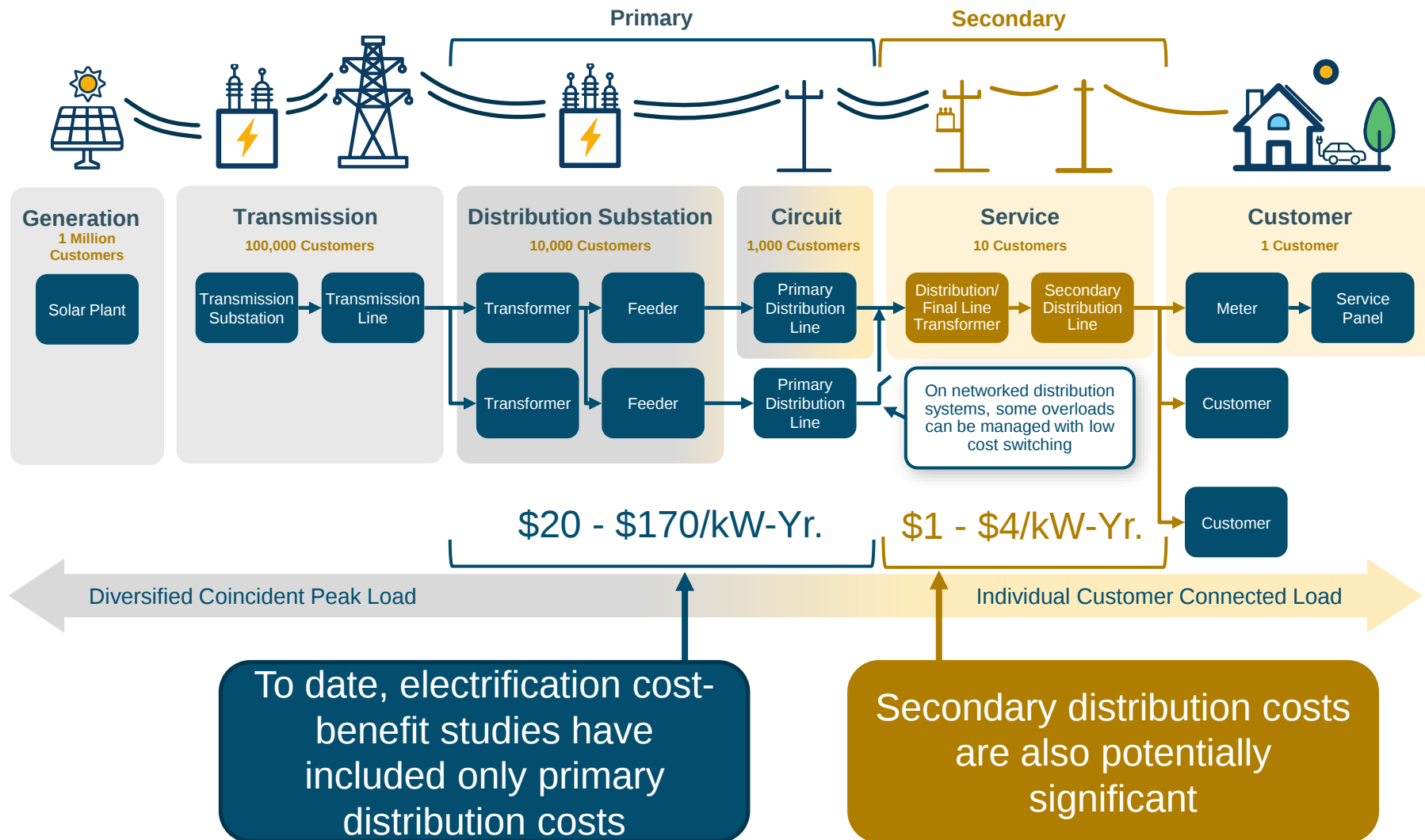
National Academy of Sciences EV Workshop – Day 3

10/27/2021

Eric Cutter - Senior Director



Distribution cost drivers



GOLDMAN SCHOOL
OF
PUBLIC POLICY
UNIVERSITY OF CALIFORNIA BERKELEY

2035

THE REPORT

2035 REPORT 2.0

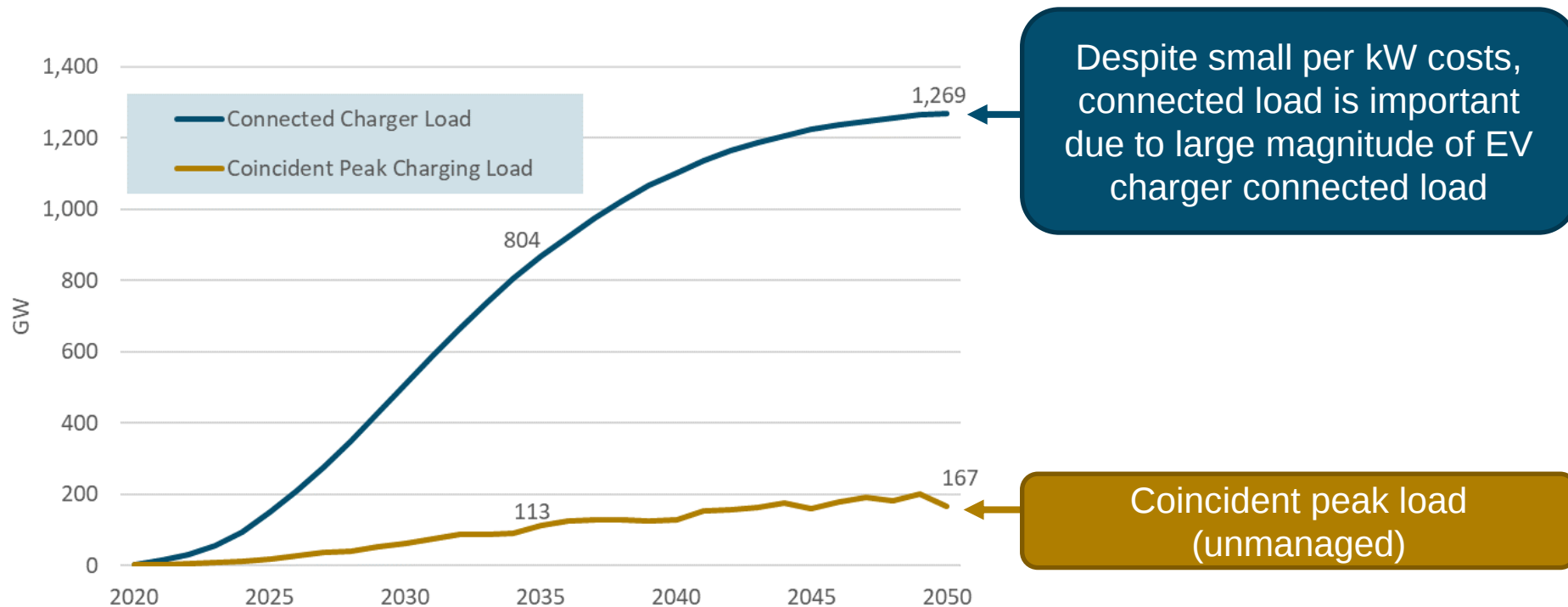
*Plummeting Costs and Dramatic Improvements
in Batteries Can Accelerate Our Clean
Transportation Future*

TRANSPORTATION





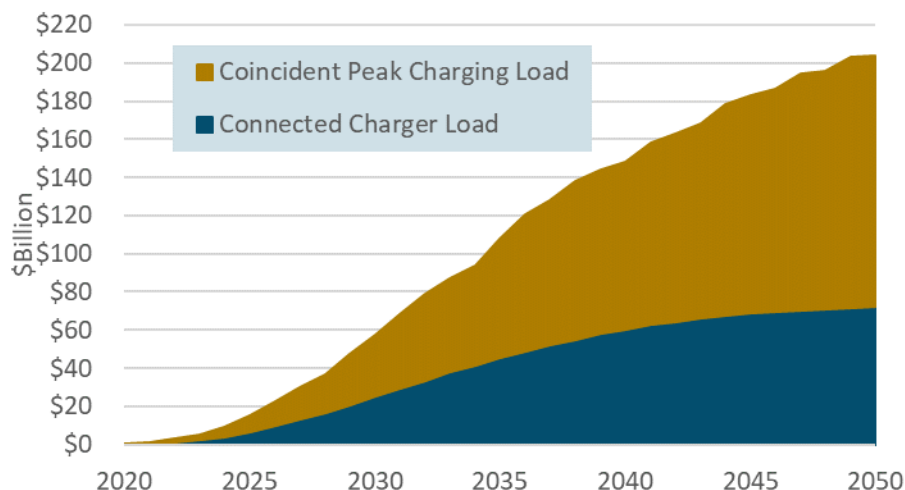
Load Impacts – Drive Clean Scenario





High Cost Case

(\$2020)		2035	2050
Cumulative Investment	\$billion	\$47	\$204
Total Cost per EV	\$/EV	\$735	\$859
Total Cost per Charge Point	\$/Charge Point	\$1,350	\$1,773



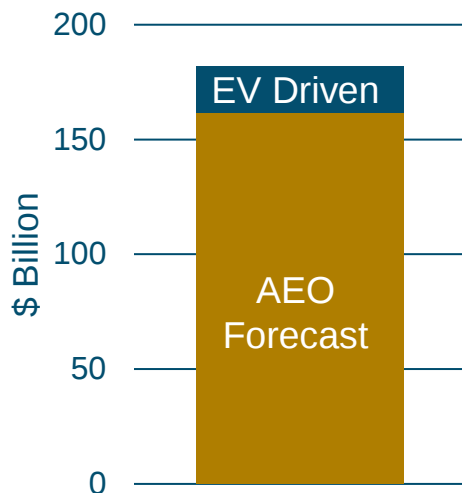
Currently, managed charging can reduce coincident peak costs..

...but not connected load costs

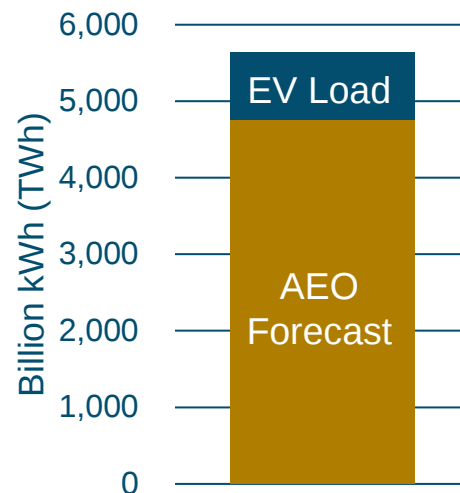


2050 Distribution Rate Impacts

2050 Distribution Annual Revenue Requirement



2050 Load



+ Rate calculation in detail for 2050

	Units	AEO	EV	Total
Revenue Requirement	\$Billion	\$162	\$20	\$182
Load	TWh	4758	882	5640
Rate	\$/kWh	0.034	0.023	0.032

Reduction in average distribution rate of 5%



Building Electrification Load in Cold Climates is Much Larger

Minnesota 2035 Peak Loads with High Electrification

