



CLEAN CITIES CONNECTION

Every Monday
3-4pm MST



Future Clean Cities Connections

- **Next Week:**
 - Creative Mobility
 - Monday at 3 pm
 - Guests from Juggernaut eCargobikes, Via Mobility, eGo CarShare
- **Future Webinars:**
 - Motiv Systems: Lesson Learned from Electric Truck and Bus Deployments
 - October 27 at 10 am
 - EV WATTS Project Overview Webinar
 - October 28 at 10 am



Utility EV Ready Programs

Guest Speakers:

- Tri-State, Mike Frailey and Matt Fitzgibbon
- Black Hills Energy, Sarah Bockleman and Aaron Carr
- SWEEP, Matt Frommer
- San Isabel Electric, Laura Getts and Jon Beyer
- CEO, Zach Owens from the Colorado EV Coalition subgroup on Beneficial Electrification



REVOLUTIONIZING THE FUTURE.

Ready EV

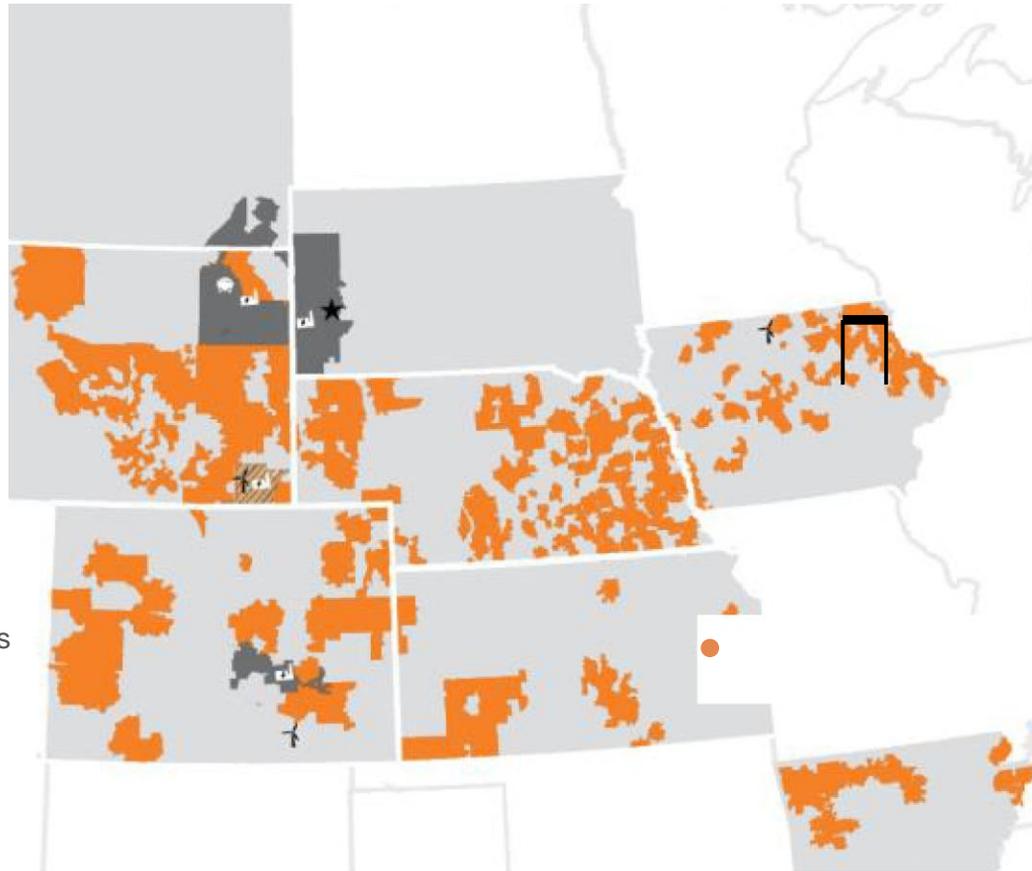
**Black Hills Energy's Electric Vehicle
Program Overview**

October 19, 2020



Customer-focused, growth-oriented utility company with a tradition of exemplary service and a vision to be the energy partner of choice.

Black Hills Corp a ·on Ov rv1ew



- e,** Electric Utilities
- 9** Natural Gas Utilities
- e** Electric and Natural Gas Utilities
- e** Mine
- Power Generation**
- *1-** Wind Generation
- Company Headquarters**

Electric and Gas Utility Company*		Strong Financial Base*	
1.28 Million	Utility customers in 8 states	\$7.6 billion	Total assets
46,000 miles	Natural gas lines	9 billion	Total rate base
1.4 Gigawatts	Electric generation	7 billion	Capital investment 2020-2024
Electric lines			Market capitalization
2,900	Employees		

Information from 2019 Form 10-K Annual Report Filing as of Dec. 31, 2019; market capitalization as of Sept 11, 2020
 *1. Includes 49.9 percent ownership in Colorado IPP owned by a third party, representing approximately 1100 megawatts

READY EV

Black Hills Energy's Electric Vehicle Strategy Development

History

- A cross-functional team was developed to explore, create, and execute an electric vehicle plan for BHE in December 2018.
- During the first two months of program development the team conducted extensive research of the industry and other utility EV programs.
- With an expanded knowledge of electric vehicle programs several critical strategies were identified. Those strategies are listed in the table on the right.
- This deck highlights a few of the strategies, details, and accomplishments.

Business Plan Development

- Conduct market analysis for BHE territory (Complete)
- Conduct cost/benefit analysis for BHE territory (Complete)
- Create human resource plan for alternative fuel program management (Complete)

Marketing and Public Relations

- Develop a comprehensive internal and external education plan (In Process)
- Create a program to encourage employee advocacy and adoption (In Process)
- Develop an internal fleet strategy that includes electric vehicles (In Process)
- Engage local dealerships in electric vehicle strategy (In Process)

Economic and Business Development

- Identification of stakeholders and development of engagement strategy (In Process)
- Development of public and private partnerships (Future)
- Develop an external fleet strategy (Future)

Infrastructure and Engineering

- Launch technical and financial evaluation of infrastructure ownership models (Complete)
- Develop strategy on infrastructure deployment (Complete)
- Monitor electric vehicle related technology changes (Future)
- Investigate system impacts of technology/infrastructure on system planning (Future)

Regulatory

- Develop a stakeholder engagement strategy (In Process)
- Develop an electric vehicle pilot program and determine optimal rate design by jurisdiction. Complete associated tariff filing (In Process)

Public Charging Station Goals-Eliminate Range Anxiety

Infrastructure deployment strategy:

- Ensure appropriate deployment of charging infrastructure as it directly impacts electric vehicle adoption.
- Two vendors identified for BHE's Rebate Program: Chargepoint and enel X.
- Goal for EV infrastructure deployment: by 2022 have infrastructure in place to support 2024 forecasted charging needs. This amounts to approximately 200 chargers by year end 2022 for our Colorado service territory.



enel x

- Residential (JUICEBOX Pro 32,40,80)
- Commercial (JUICEBOX PRO 32C,40C, 80C)
- DC Fast Charger

chargepoint

Residential and Commercial – AC

Commercial – DC

Fleet and Multi-Family



Home Flex
7.7-12 kW



CPF25
7 kW



CT4000
7 kW



CPE250
62.5 kW



Express Plus
500 kW

Rebate Information



- Commercial Level 2 charging station with 2 charge ports likely to cost between \$8k-\$15k depending on location/existing infrastructure.
- Piloting rebates in advance of approved Transportation Electrification Plan

Customer	Rebate
Residential	\$500 rebate; 1 per customer & \$1,000 rebate for qualified low income
Government and non-profit	100% of total costs for level 2 installation up to \$3,000/port
Business	100% of total costs for level 2 installation up to \$2,000/port
Public DC fast charger	100% of total costs for DCFC installation up to \$35,000/station; limited quantities

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Ready EV Additional Information

- Asking for three new EV specific tariffs-TOU benefits and lower demand charges
- Approval of rebates and recovery
- Ready EV Program Manager
- Stakeholder engagement
- Community education events
- Employee engagement
- Fleet conversions
- Dealership marketing

JOIN THE REVOLUTION.

QUESTIONS?

FOR MORE INFORMATION:

WWW.BLACKHILLSENERGY.COM/EV

BHE.ELECTRICVEHICLES@BLACKHILLSENERGY.COM



How Utilities can Accelerate Transportation Electrification in Colorado

Matt Frommer
Southwest Energy Efficiency Project
mfrommer@swenergy.org



Colorado needs more EV charging stations to accelerate the EV market.

- **Lack of EV charging is one of the biggest barriers** to purchasing an EV.
- “6 in 10 Americans are unlikely to buy an EV because there are **not enough places to charge** (58%) or they are concerned they will **run out of charge while driving** (57%).” - AAAsurvey (2019)
- Colorado needs **15 times as many charging stations in the next 10 years** to support our EV targets.

Number of required charging ports in Xcel Energy's Colorado territory

EVSE type	2020	2025	2030
Home L2	13,399	74,638	199,314
Public L2	648	3,619	9,638
Workplace L2	923	5,154	13,727
DCFC	132	650	2,250
Total	15,101	84,061	224,929

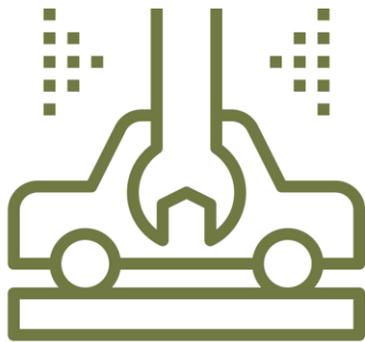
Source: E3 Consulting, TEP Cost-Benefit Analysis (2020)

Two Main Types of Savings from EVs

For each EV driver:

Annual operating cost savings
(cheaper fuel & less maintenance):

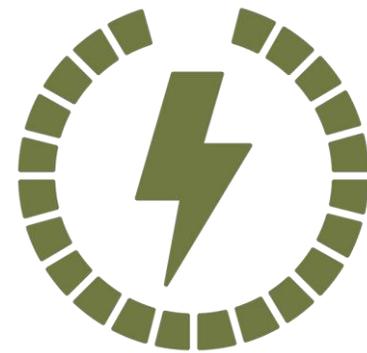
- **\$650 per year vs a gasoline car**
- **\$8,000 in lifetime fuel cost savings**



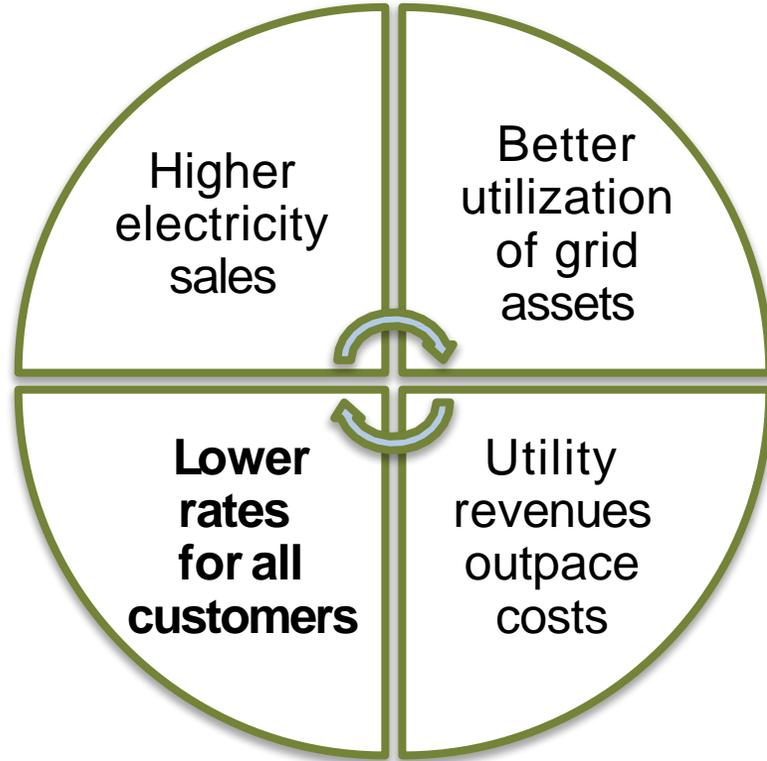
For each electric utility customer:

EVs put downward pressure on energy bills,
even for ratepayers who don't own one.

- **\$5,027 in lifetime benefits per EV**
(ratepayer + driver + SCC savings)



The Virtuous Cycle of Utility EV investments



1. More EVs = higher electricity sales
2. Higher electricity sales during off-peak times = better utilization of grid assets.
3. Better utilization of grid assets (grid efficiency) = revenues outpace costs.
4. When utility revenue outpaces costs =

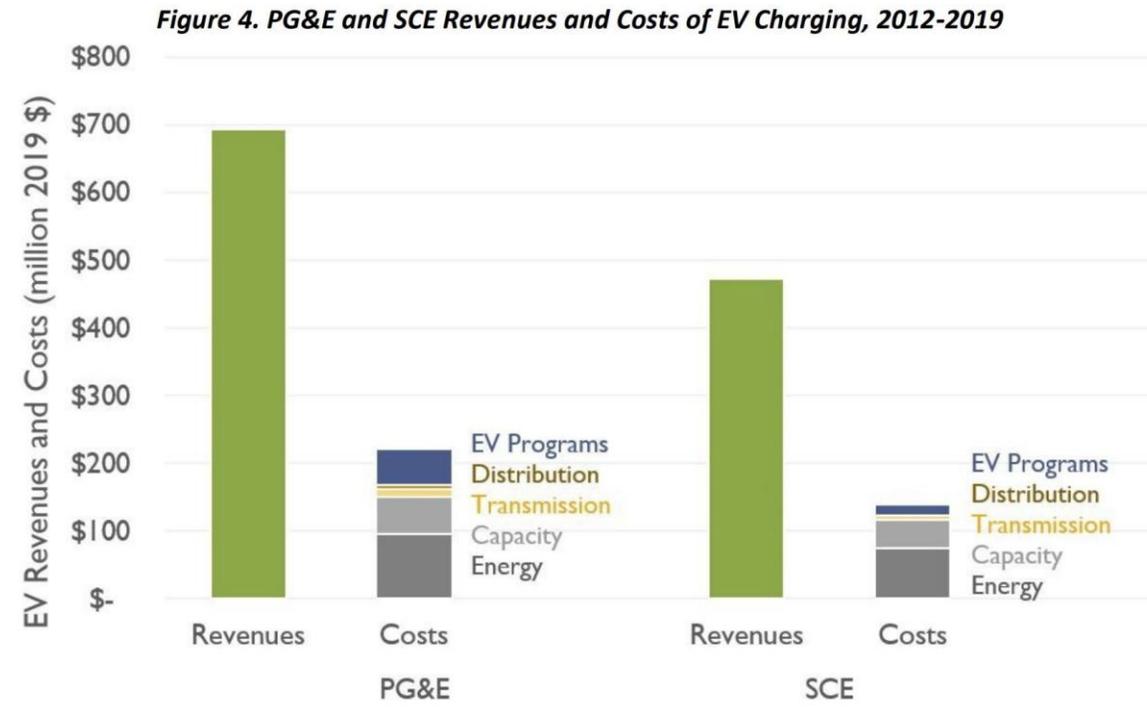
**Virtuous cycle of clean
transportation investments**

+

Lower electric bills for all ratepayers

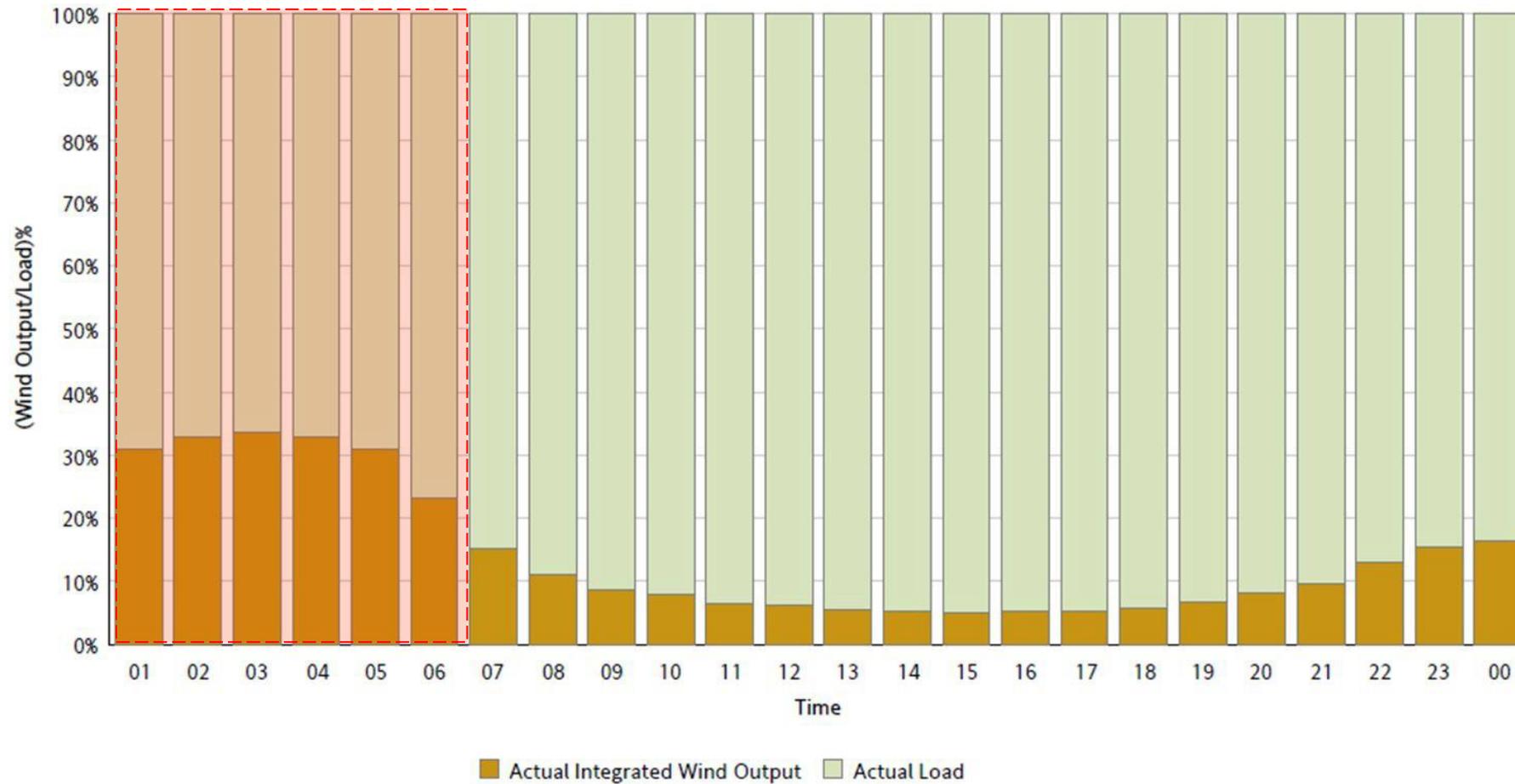
For every \$1 spent on EV charging infrastructure, Xcel will make \$3 in additional revenue from electricity sales to EV drivers.

EVs put downward pressure on rates for all utility customers



“Over those eight years, EV drivers in PG&E’s and SCE’s service territories have contributed \$806 million more in revenues than associated costs, driving rates down for all customers.”

Integrating Variable Renewable Energy Resources



Xcel Energy's Transportation Electrification Plan (TEP)

Transportation Electrification Plan Overview



- \$102 million dollars, with a maximum cap of \$127 million.
- Covers 2021-2023.
- 5 portfolios, 20 programs.
- 20,000 EV charging ports

Delivering EV benefits to low-income customers & disadvantaged communities

- EV charging station rebates for low-income customers
- Working with community-based organizations on EV education & awareness
- Improving air quality in disadvantaged communities by electrifying trucks & buses
- Electric buses: [RTD's electric buses](#), Electric school bus charging ([DPS and BVSD pilots](#))
- [Mariposa Affordable Housing & eGo electric carshare](#)
- Community charging hubs with fast-charging and electric bikes



eGo electric carshare program.



Electric HOP bus in Boulder.

San Isabel Electric

- Laura Getts & Jon Beyer
- Link to EV Page:
<https://siea.com/empowereveducation/>