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City and State Cohorts: The Center for Transportation Electrification Innovation

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Summary

The Electrification Coalition boosts subnational electrification actions by encouraging peer-sharing networks between governmental bodies. In cities, car sharing in St. Paul, Minnesota; dealer education in Orlando, Florida; and clean fleet acceleration in Philadelphia, Pennsylvania are examples of how a cohort of cities with technical support can become leaders in electrification. In states, facilitated "boot camps" bring stakeholders together to reach goal-conditioned policies. These models are vital to developing action across the international community and preparing governments for higher ambition commitments and funding.

Keywords: Electric Vehicle, Charging, Consumers, Deployment, Fleet

1 Introduction

The Electrification Coalition (EC) has a long history of working with cities and states to advance electrification. By establishing cohort and peer-share programming, entities can scale together, shortening the lesson-learn process to drive larger, faster impact. At the city and local level, the Bloomberg American Cities Climate Challenge (ACCC) supports ambitious climate action in large U.S. cities. Since January 2019, ACCC has helped mayors and city staff deliver on their ambition, demonstrating projects at-scale. This collective effort is unprecedented and is among the largest of its kind in terms of scale and coordinated programming. Through this cohort model, cities can access individualized consulting and peer support which is essential to success. Major progressions in this program are documented in various cities, including St. Paul, Philadelphia, and Orlando.

Beyond cities, bringing together state stakeholders is also a key strategy to foster innovation and prepare for international goals and commitments. At the state level, the EC has brought convened stakeholders within a dozen states to advance specific EV legislation. These experiences can be used to bring together the international community as we work towards zero emissions.

1.1 The American Cities Climate Challenge

Local governments and the philanthropic community are rising to the challenges presented by the electrification transition. Launched in 2018, the ACCC supported by Bloomberg Philanthropies was designed to provide support to 25 U.S. cities as they accelerate climate action. The program includes a significant focus on transportation to achieve the ambitious goal of abating 74 million metric tons of CO_2 emissions by 2030.

Cities chosen to participate are in the process of addressing climate issues while also trying to meet the needs of the 21st century. Each participating city received a tailored suite of support, "including additional staff capacity, technical assistance from world class partners, access to intensive peer-to-peer networking and support in launching communications, outreach and education campaigns" [1]. The EC was chosen as the ACCC's lead for providing transportation electrification technical assistance. The approach undertaken is outlined in this report.

As of June 2021, ACCC cities were on track "to reduce emissions by 32 percent below 2005 levels by 2025, which will beat the 2025 Paris Agreement goal of a 26 to 28 percent reduction." Transportation-specific outcomes include 31 policies passed, 41 programs launched, 1,136 new electric vehicles in city fleets, 510 miles of new improved bike lanes, and 37 lane miles of bus/transit improved. The ACCC program has prepared these communities for the release of new federal infrastructure funding [2].

1.2 The Electrification Coalition Approach

The EC is a nationally recognized thought leader for the advancement of U.S. electric mobility. Through a robust business council, board of directors, and industry connections, the EC can unite the industry in unique ways. With a dynamic team, the EC can pivot with each turn taken by this new and emerging industry. To meet the needs of the ACCC program and participating cities, the EC leveraged connections from the Smart City Challenge [3], the Energy Security Leadership Council [4], the International Energy Agency's Global Electric Vehicle Initiative [5], and other programs to build an expansive body of resources to meet the various needs of cities in the process of advancing electric mobility.

At the same time, the EC approached the ACCC effort with a willingness to collaborate with other program partners, including: the Urban Sustainability Directors Network (USDN), C40, the US Climate Mayors, the Climate Alliance, Natural Resources Defence Council (NRDC), and RMI. Through strong and active coordination, the EC maximized the impact of the proposed programs, reduced the burdens and requests directed at city staff, and utilized the expertise and resources of partner organizations to amplify program benefits.

1.2.1 Technical Assistance Delivery

The EC was tasked by Bloomberg Philanthropies with supporting an initial cohort of four ACCC cities upon its launch. Based on a growing demand for technical support—particularly in fleet transition, consumer adoption, and charging infrastructure—and the value the EC demonstrated to those cities, the EC began supporting an additional five cities with a combination of comprehensive fleet assessments and technical expertise.

Fleet assessments are tailored to each city, capturing their real-world driver data to show the current daily vehicle usage and providing recommendations for EVs that meet the operational needs for the vehicles. The recommendations are shared with city fleet managers to pinpoint exact cost and emission savings that electrification can generate, providing certainty when choosing EVs best suited for respective portions of fleet operation. Of note, Cincinnati, Pittsburgh, and Charlotte emerged as early leading fleets from this cohort, resulting in early EV purchases.

In tandem with these assessments, the EC supports cities and municipalities in EV deployment by connecting them with available incentives and new funding opportunities; supplying driver training materials; conducting webinars and in-person trainings; and facilitating networking between fleet managers to share best practices and lessons learned on effective vehicle deployment. This work collectively supports city fleet electrification goals, ensuring best possible outcomes and full utilization of EVs in daily fleet operation.

The EC offers technical support for fleet managers to streamline the vehicle selection and procurement process. This support includes the Climate Mayors Purchasing Collaborative (the Collaborative)—which provides specialized support for ACCC cities—and recommendations both on financing options and charging stations. The EC has assisted various cities that applied for federal funding for transit bus electrification and will continue this support as new Volkswagen settlement, federal, and state grant funding opportunities become available. Having the EC on the ACCC team to offer in-depth knowledge on the Collaborative and other procurement options has proven critical in ensuring cities meet their EV goals.

The EC proposed additional services to follow the natural progression of the program in the second year of ACCC programming. Driver training had proven to be important for successful deployment of electric options and to optimize utilization. Continuing this type of instruction enabled the EC to coordinate and align technician trainings conducted by OEM representatives, ensuring proper in-house support for EVs.

Cities continued to demonstrate the need to plan and prepare for charger deployment throughout their region. The EC assisted cities by identifying optimal charging locations; disseminating best practices for site planning; training fleet managers and city staff on existing tools that could meet the needs of their municipality; developing new tools as necessary; and identifying effective EV charging policy. As ACCC cities became increasingly proactive in advancing public charging, consumer adoption programs, workplace charging, EV Ride and Drives, and dealership engagement, the EC has provided extra capacity for this program element, in close coordination with ACCC partners already working in this space. The EC has leveraged lessons learned from its related programs to maximize impact of consumer adoption work.

2 City Innovation

2.1 St. Paul – EV Carshare and Large-Scale EV Charging Hub

The City of St. Paul, MN is developing the Midwest's largest EV charging network and EV carshare service, which the EC has supported as a technical partner. Thus far, the City has secured the purchase of 160 EVs for the Evie carshare service, with plans for 80 more. For charging, the EV Spot Charging Network features 70 charging destinations across the Twin Cities region, providing charging for carshare users and private EV owners alike. The initial reception of the Evie Carshare Program was phenomenal, with immediate uptake of the Chevy Bolts by regular carshare subscribers. St. Paul also passed an EV pricing ordinance, designed by the EC, based on learnings from other ACCC city partners to offer equitable, competitively priced charging rates while creating sustained revenue to support charging network operation and growth for years to come.

2.1.1 Evie Carshare

Evie Carshare is America's first 100% renewably powered all-electric carshare service. Operated by HourCar, Evie serves communities in Saint Paul and Minneapolis. Customers use a mobile application on their cellular phones to reserve and unlock an Evie vehicle, which may be driven as needed [6]. As part of Saint Paul's Twin Cities Mobility Network, the EC accelerated EV procurement for the program from 50 to 175 EVs through analysis of procurement options and leasing strategies. The EC also supported the EV charging priority by reviewing RFPs and conducting siting and usage calculations for charging hubs to maximize the investment.

St. Paul and its carshare vendor, HourCar, remain on target for a full launch of the Evie Network Carshare Program in 2022, having conducted a soft launch in fall 2021. Throughout the year, the EC focused efforts on navigating procurement of the initial 101 Chevy Bolts for fleet deployment, identifying an approach allowing for scaled procurement into the future. Initial launch of the pilot was met with excitement by carshare subscribers [7].

Despite setbacks posed through the broader GM recallof Chevy Bolts, the EC worked with the City and dealer partners to identify a new launch date to safely redeploy serviced Bolts back into service.

2.1.2 EV Spot Network

As part of this project, 70 electric vehicle charging hubs (EV Spots) were built throughout the Twin Cities. At each EV Spot, at least one charger is committed to be available for public use, while others are reserved for HourCar's car-sharing vehicles. These EV Spots have substantially grown the existing charging network. One of the goals of creating this network is to make it easier for people to purchase EVs knowing that they can easily charge them throughout the cities.

The EC supported selection of charging vendors and identification of sites for scaled deployment. The siting of EV Spots was based on the belief that car sharing is most successful in areas with a high density of residents and good transit service. Additionally, siting could address issues of equity and access within the community. The siting goal was set to expand access in Saint Paul and Minneapolis, placing EV Spots in neighborhoods that have never had car-sharing before so that more people can access this resource.

Within each service area neighborhood, the team is working to make hubs conveniently and centrally located. A host of factors were considered, including placing hubs in proximity to affordable housing, multi-family housing units, local businesses, schools, libraries, recreation centers, public transit networks, and bike-friendly streets. Logistic factors were considered as well, including where there is space available; other city planning activities; hyper-local information such as unmarked loading zones; and other local curbside activities [8].

2.2 Philadelphia – EV First Fleet Procurement

The City of Philadelphia, Pa., released its Clean Fleet Plan [9] in Fall 2021, which creates a new "EV-First" procurement direction for 6,000 municipal vehicles to phase out gas procurement in favor of electric and other alternative fuels. Electrifying these fleet operations will keep the City on track for achieving carbon neutrality by 2050. This project began from the ground up, with the EC engaging advocates and policymakers at the state level to set the tone for the Clean Cars Rule. Philadelphia's plan draws from Cincinnati and Charlotte through the cohort learning model. The Clean Fleet Plan has since been adopted by the City and shared broadly, influencing other cities to employ similar policies with the help of the EC and the ACCC.

2.2.1 Background

In January 2021, the City of Philadelphia committed to achieving carbon neutrality by 2050. This goal requires the elimination of emissions in the building, energy, transportation, and waste sectors by 2050 and is in line with what experts indicate is needed to prevent the worst effects of climate change. Philadelphia's Municipal Clean Fleet Plan (Plan) lays out a strategy to transition the City's fleet -- which represents around 13% of the municipal government's carbon footprint -- to EVs. This transition will allow the City to lead by example in reducing carbon pollution. The following table provides a summary of the recommendations outlined within the body of the Plan, for both fleet vehicles and necessary supply infrastructure. The Plan prioritizes the electrification of Philadelphia's fleet to achieve reduced operating costs and emissions, in line with the City's goal for carbon neutrality by the year 2050.

Table ***1***: Municipal Clean Fleet Plan: Recommended Actions

Action	Goals and Activities
1. Adopt goals for the fleet that will provide a pathway to zero emissions	By 2025, lay out a procurement strategy to achieve 100% procurement of EVs by 2030. By 2030, reduce light- and medium-duty vehicle emissions by at least 45% from 2019 levels by transitioning to zero-emissions EVs. Procure no new fossil-fuel consuming vehicles after 2030.
2. Institute a Clean Fleet Procurement Policy	Support the above goals by establishing a vehicle procurement hierarchy that prioritizes EVs and discourages gas- and diesel-fueled vehicles (with some flexibility for heavy-duty classes). The policy would also aim to reduce the overall size of the fleet and the share of SUVs.

3. Limit procurement of medium- and heavy-duty (MHD) vehicles in the short term; pilot new fuels where feasible	This recommendation is meant to support achievement of the procurement targets listed as part of #1 above, and to move towards piloting new fossil-free fuels including electricity, hydrogen, and renewable diesel, and to scale them.
4. Conduct an EV suitability assessment	Using fleet telematics and data analysis is a best practice for supporting data-driven fleet electrification on a mass scale.
5. Establish a Clean Fleet Committee (CFC) to support infrastructure coordination and to track goals	This Committee will track progress and refine implementation of the Plan. It would meet at least semi-annually and include representatives from Office of Fleet Management; Procurement Department; Office of Transportation, Infrastructure, and Sustainability; Department of Public Property; the Office of Sustainability / Energy Office; Fleet Liaisons from various departments; and other stakeholders as needed.
6. Develop funding programs to connect capital procurement and fuel cost/operational savings	Accrued vehicle fuel and maintenance savings should be used to offset the price differential between an internal combustion engine (ICE) vehicle and its comparable EV equivalent in future procurements.
7. Optimize alternative fueling and EVSE infrastructure	Moderately expand CNG while deploying renewable natural gas (RNG); procure RNG for its current CNG-fueling facility. Evaluate E85/B20 Fueling Locations – Consolidate where possible. Consolidate Alternative Fuel infrastructure and EVSE management under a single department.

2.2.2 EV-First Procurement Policy

As noted previously, the Plan includes seven recommendations to advance carbon reductions in the City's municipal fleet, from which the clean fleet procurement policy was quickly adopted. Goals of the clean fleet procurement policy are to reduce the overall size of the fleet, right size SUVs and larger vehicles as feasible, deploy managed idle technologies to reduce fuel consumption of legacy vehicles, and require departments to prioritize electric or zero emission vehicles in the procurement process. Strategies to help reduce the size of the fleet include leveraging alternative transport options for city staff, such as car-sharing services and pre-tax transit benefits that staff may use in lieu of pool vehicles. Both strategies can be used to help eliminate underutilized fleet assets, as well as provide an avenue to increase efficiency and the number of electric miles travelled by staff (if the car-share service includes EVs).

Requests for new vehicles would be evaluated and authorized by the Office of Fleet Management (OFM), which would determine if a new vehicle procurement is warranted; if the vehicle request follows rightsizing principles; and if a pool vehicle/resource such as a city-staff carshare, bikeshare, or transit benefits cannot meet the need. OFM would then follow the highest-to-lowest decision hierarchy to ensure that fleet procurement goals align with the City's carbon neutrality and cost management targets. This decision-hierarchy may be updated with the consensus of the Clean Fleet Committee by the Transportation Electrification Manager as new fossil-fuel free technologies emerge, and the tiers may be revised to more accurately account for GHG emissions potential.

2.3 Orlando – EV Readiness Ordinance and Electrified Dealership

Through tiered ACCC action across multiple EV priorities, the EC has assisted Orlando, FL and local partners on advancing with the passage of the EVSE Readiness Ordinance, bringing new charging readiness requirements for multi-unit dwelling and commercial properties and removing barriers to charging access for thousands of residents. The EC provided written and verbal testimony at the hearing for the EVSE Readiness Ordinance and coordinated stakeholder engagement meetings with developers. Through the cohort, best practices were developed and workshopped to create the best possible ordinance. The success of this project was due in part to the EC's continued collaboration with the Orlando Utilities Commission (OUC) and the expansion of the OUC Electrified Dealership Program, which provides certification and education to area dealers (in addition to incentives available for sales staff and OUC customers alike). This programming includes a unique EV Ride and Drive program, which has driven more than 150 participants to Electrified Dealers to test various EV models. This model has sparked interest in peer cities and is now being pursued by Albuquerque, NM.

2.3.1 Approach Background

Accelerating EV adoption and preparedness necessitates the employment of various tools. By providing EV education and promotion through exciting and targeted methods, an EV accelerator community engages diverse audiences and heightens exposure to the benefits of EVs and EV charging infrastructure. For example, in just 18 months, the Rochester EV Accelerator program hosted 1,036 EV test drives, assisted 13 local workplaces with expanding EV charging for their employees, and fostered an uptick in county EV adoption that more than doubled the percentage of new vehicle sales. The following table highlights the various approaches that the EC employs in accelerating communities.

Table ***2***: Accelerator Community Approaches

Approach	Description
EV Ride and Drive	A relaxed test-drive event that offers people hands-on experience driving an EV. Ride and Drives are most compelling strategy for convincing people to purchase an EV.
Workplace Charging Program	A step-by-step initiative for workplaces to install EV charging stations for their employees. A study conducted by the Department of Energy found that employees with access to workplace EV charging are six times more likely to drive an EV than the average employee.
Group Buy Program	A promotional discount offered to members of a business or organization(s) on the purchase or lease of a new EV. The discount is often offered by an OEM, dealership, or utility. The group buy created by the Rochester EV Accelerator program sparked a 700 percent increase in EV sales at a participating dealership over the duration of this promotion.
Advertising Campaign	Paid, targeted advertising distributed across social media platforms, website ads, local publications, and radio. This is an effective way to reach a wide audience and draw participation to key components.
Dealership Engagement	As a critical link to consumer adoption, dealers must be empowered and educated to the advantage and demand of EVs for consumers. By directly engaging dealers and integrating them into programming, dealers can serve as helpful support while in turn seeing a boost in consumer sales.
Fleet Workshop	Educational events tailored for select groups of fleet managers, sustainability directors, and executives.

The EC's goal with Orlando was to support fleet electrification and prioritize consumer adoption. This included the launch of the Orlando Electrified Dealer Program. Work was prioritized by expanding the Orlando Utilities Commission Electrified Dealers Program and passage of the EV Readiness Ordinance. Seven dealers joined the Dealership program in certification, with additional dealers expected to join in the new year. Regular trainings and technical support from EC staff have ensured residents are able to confidently find and purchase EVs across the Orlando region.

2.3.2 EV Readiness Ordinance

Orlando City Council approved their EV Readiness code in August of 2021. The ordinance requires "new construction projects to meet current EV charging needs through installation of charging stations and prepare for future demand with 'EV Capable' parking spaces" [10].

To assist in the development of the EV Readiness Ordinance, the EC hosted the USDN EV Charging Policy Workshop and ACCC EV Charging Cohort, incorporating 75 city attendees, including ACCC cities. These facilitated discussions led to the development of new policy for Orlando, as well as in Washington, DC and Columbus, OH. To ensure successful implementation of the City's EV Readiness Ordinance, the EC worked with City staff to create a detailed EV Readiness Guide [11] for residents and businesses, alongside a streamline of the City's permitting website [12] to improve navigation of City resources.

2.3.3 Electrified Dealership Program

The EC launched the Orlando Utilities Commission Electrified Dealers Program, connecting consumers to an improved EV buying experience by providing education to dealers and creating new incentives for consumers and dealers. The programs coordinate sales staff training with dozens of dealerships to bolster consumer access to EVs and increase consumer confidence by offering a positive buying experience. New dealers continue to join in

the programming across respective cities, incorporating the learnings as part of their sales strategy. Additionally, the Program created $150,000 in new incentives for dealers and consumers and established a new requirement for ensuring an improved experience for EV buyers, leading to national exposure for the Program. While some consumer adoption priorities were delayed due to COVID-19, the EC worked with partners to pivot campaign content and identify new contingencies to continue campaigning into the new year. The EC is scaling this program to other ACCC cities to improve consumer education and adoption in additional locations.

3 EV State Policy Accelerator and Boot Camps

In 2020, the EC launched the EV State Policy Accelerator, designed to bring together a close group of states to advance key EV action and priorities across their regions. By utilizing a similar cohort/roundtable model on the state level to accelerate policy action, regional and state-wide stakeholders have come together, making it easier to find shared goals and coordination around each participant's role. The EC has hosted almost a dozen of these boot camps to advance state policy and the electrification of school buses.

The first five bootcamps hosted by the EC in 2020 engaged close to 500 participants in an examination of key policy plays and the importance of national security, environmental, and equity considerations. Participants included one governor, one lieutenant governor, several state senators and representatives, and key leaders in the advocacy and corporate spaces. By convening a broad community of experts, agency leaders, and advocates from the equity, health and transportation electrification fields, the EC has spurred conversations and connections that are galvanizing state-level decision makers in ACCC priority states to drive more ambitious policy, informed by the broad benefits of transportation electrification.

The EC developed a one-of-a-kind package of tools and resources to support EV policy action in its five priority states and beyond. The new EV Policy Showroom [13] boasts an interactive EV Policy Dashboard [14], EV Funding and Financing Guide [15], EV Roadmap Roundup [16], and EV Tools and Calculators Clearinghouse [17]. In 2020, with input from stakeholders, the EC authored five policy blueprints, which provided a policy scan of each priority state, identified key players and messages, and prioritized policy opportunities that guided campaigns in 2021.

Table ***3***: 2021/2022 Policy Opportunities in Priority States

Michigan	**Nevada**	**North Carolina**	**Pennsylvania**	**Virginia**
Pass Legislation Enabling Direct EV Sales	Pass Transportation Electrification Planning Requirement Legislation	Introduce LD ZEV Regulations	Pass Transportation Electrification Planning Requirement Legislation	Pass Legislation, Adopt Regulations, Secure EO on LD ZEV Regulations
Set Target/EV First Policy on Electrifying State Fleets (Ex Order)	Adopt ZEV Regulations and Related Incentives	Set MHD Electrification Targets and Build to MHD ZEV Rule	Pass Legislation EnablingDirect EV Sales	Optimize Spend of VWSettlement Funds on EVs
Optimize Spend of VW Settlement Fundson EVs	Pass Legislation Enabling Direct EV Sales	Defend against punitive EV fees/ensure EVSE carve out	Secure EO Setting MHD Electrification Targets and Launching Creation of MHD ZEV Plan	Secure Joining of NESCAUM MHD ZEVMOU
Secure MHD Electrification Targets and Launching Creation ofMHD ZEV Plan	Secure Joining of NESCAUM MHD ZEV MOU	Set Ambitious Statewide Target on Transit Bus Electrification	Optimize Spend of VW Settlement Funds on EVs	Set Target/EV First Policy on Electrifying State Fleets (Ex Order)
Explore Developmentof Low Carbon Fuel Standard	Pass Legislation/Adopt Regulations on MHD Electrification Targets	Pass Legislation Enabling Direct EV Sales	Secure Dedicated Transportation Electrification Dollars	Pass Legislation/Adopt Regulations on MHD Electrification Targets
Explore Developmentof State EV-Ready Building Codes	Set Target/EV First Policy on Electrifying State Fleets (Ex Order)	Explore Development ofState EV-Ready Building Codes	Compel PUC to Require EV TOU Rates and EV Friendly Demand Charges	

The EC's policy team operationalized a state and local Rapid Response policy mechanism to lend strategic support to a growing number of proactive and defensive policy efforts that complement and extend our efforts in the priority states. When conducting the policy scan across multiple states, the EC identified a consistent lack of diversity in voices and messages, which is highly problematic for successful policy development. By lending informed perspectives alongside robust policy insights, the EC established itself as a reputable expert on advancing transportation electrification.

The following sections include highlights from several boot camp participant states.

3.1 Michigan

In Michigan, the EC worked with EV manufacturers and advocates to protect direct-sales, educating lawmakers about the negative impacts of proposed legislation guarding against passage during an upcoming lame duck session. This issue continued to receive attention in 2021 and 2022. The EC played a leadership role in convening a broad coalition of direct-sales advocates.

The EC partnered with Michigan Governor Gretchen Whitmer's new Office of Future Mobility and Electrification to develop a shared vision of the policy bootcamp. The Office turned to the EC frequently for strategic guidance and technical information as it, and the newly appointed Council on Future Mobility and Electrification, develops its electrification priorities. The EC sat on Gretchen Whitmer's Council on Future Mobility and Electrification (CFME) working group in coordination with Council members from Rivian and the Michigan Energy Innovation Business Council to ensure policy priorities are ambitious and achievable. The Michigan CFME released its 2021 report [18] in October, outlining several recommendations for state policymakers. The updated CFME report supports many of the EC's recommended policies, including consumer incentives (written by the EC), resources for transit and school bus electrification, EVSE investments, and studies of additional policies to accelerate and fund the transition to EVs, including a clean fuels standard.

The EC worked with an unlikely coalition of free market groups, EV manufacturers, and environmentalists to educate lawmakers about the risks presented by a proposal to limit direct-to-consumer EV sales. The policy proposal would have forced all manufacturers to use a traditional dealership franchise/network. The EC delivered national and economic security arguments to legislators while mobilizing bootcamp attendees to engage in the policy discussion. Those efforts were successful in tabling the measure.

3.1.1 Policy Priorities & Key Legislation

The EC enlisted support from a low carbon fuel standards (LCFS) expert to create a white paper regarding the development of a clean fuels standard policy (CFS) in the Midwest. The EC co-hosted a workshop on CFS for Michigan Clean Energy Advocates, the Ecology Center, and the EV working group of the Governor's Council on Future Mobility and Electrification. The workshop served as a forum for fielding questions and discussing the pros and cons of CFS. It provided the opportunity for consideration of this issue as an area of recommended study.

The EC joined a small group of EV advocates convened by a Senate EV champion to develop policy for a slate of EV bills, including state lands charging strategy, state-level EV data reporting, and dealership EV education and state certification.

3.1.2 Outreach & Campaigns

Michigan joined the EC's new State Fleet Electrification Cohort to explore the development of an EV First or similar procurement target. The EC organized a meeting with members of the administration, including the Governor's Senior Advisor on Energy & Environment and the Policy Director for the Department of Labor & Economic Opportunity, the agency that houses the Office of Future Mobility &Electrification. A wide-ranging group of NGOs and business stakeholders attended the meeting, unified in supporting Michigan's leadership toward a MHD zero emission vehicle future.

3.2 Nevada

The EC team worked closely with advocates, elected officials, and appointed officials in Nevada to advance transportation electrification. The state convened public hearings on the "clean cars" rules. The EC provided behind-the-scenes technical and strategic support. This support included sharing and evaluating a case study from Colorado that includes a breakdown of myths surrounding EVs. The state launched a climate program, with transportation electrification as a significant part of its emissions reduction plans. The EC provided technical support as well as public support on policies without goals, continuing to educate members of the state legislature on the importance of transportation electrification.

3.2.1 Policy Priorities & Key Legislation

In April of 2020, the EC submitted a letter to Clark County, home to Las Vegas, in support of developing EV-ready building codes for residential and commercial structures. The Board of County Commissioners later approved the measure. Later that year, the Omnibus Clean Energy Bill by Senator Brooks, or SB 448, was passed and signed by Governor Steve Sisolak. The bill includes provisions that would require the utility to include transportation electrification planning in its triennial integrated resource plan. The EC submitted letters of support to both the Senate and Assembly Growth and Infrastructure committee members, gave written testimony during hearings, and amplified the bill across social media platforms.

On March 2 of 2021, the EC provided testimony on behalf of Energy Security Leadership Council (ESLC) member Admiral Dennis Blair to the Nevada Committee on Infrastructure and Growth regarding the necessity and urgency of the Nevada direct sales legislation, AB 114. Will Drier, the EC's senior policy analyst, published an opinion piece in Advanced Clean Tech News on direct-to-consumer sale of EVs, detailing its market potential, consumer interest, and its role in advancing widespread EV adoption [19].

3.2.2 Outreach & Campaigns

EC staff wrote and placed an op-ed emphasizing the need for transportation electrification in Nevada, highlighting the intersection of electrification and U.S. national security. The op-ed, "The Nevada leaders must sustain momentum on electric vehicles," was signed by ESLC member Admiral Dennis Blair and published by the Nevada Independent on September 29, 2020 [20].

3.3 North Carolina

The EC team coordinated a discussion between EV stakeholders and the North Carolina Department of Transportation (NCDOT) in March of 2020 to identify areas of collaboration on transit bus electrification. The discussion led to the formation of a working group chaired by the EC which discussed developing a transit fleet analysis to support the creation of a state-wide goal. The EC also participated in a six-month Duke Energy collaborative stakeholder process organized with the NC Public Utilities Staff. The EC provided input into a new set of transportation electrification projects that were filed by Duke Energy in June 2020. This new filing [21] totalled 56 million USD in new programs. The EC also participated in a working group of the state utilities commission to explore future utility programs. This helped strengthen the effort targeting the DOT and leverage EC's engagement at the local level, including in Charlotte, which is moving ahead with bus electrification.

Through relationships with key state, non-governmental organizations and business leaders, the EC positioned itself as a significant contributor to North Carolina's path forward, including a push to create a MHD working group for the state, setting up a stakeholder process with NCDOT to advance transit bus electrification, and shape a clean cars strategy for environmental advocates to bring to the state. The EC facilitated a breakout session during the Virtual North Carolina Electric Transportation Stakeholders Gathering and was enlisted by advocates to help inform and support their work. The EC developed a relationship with Arrival, who in December 2020 announced its North American headquarters in North Carolina. The company asked the EC to work with it and other EV OEMs on a direct sales effort on MHDVs.

3.4 Barriers and Challenges

The EC faced, but largely overcame, several challenges related to the COVID-19 pandemic. The most direct challenge was the slowdowns to legislative and regulatory efforts, as many statehouses and public utility commissions ceased or slowed activity andagency staff were focused on COVID response. Nonetheless, the EC was able to connect with key players, fill in gaps left by local governments, and maintain communication.

The EC needed to shift its plans for in-person policy bootcamps to a virtual approach. The EC responded by creating an interactive experience with online polls, "word cloud" exercises, and a dynamic "fishbowl" discussion session. States experienced budget challenges in 2020 and continued to face constricted economies into 2021. That prompted the EC to develop a comprehensive guide to EV fundingand financing, which was released in January 2021.

With some initial slowdown to manufacturers' release of EV models, the pace picked back up near the end of 2020. Additional challenges included federal policy decisions such as a rescission of California's long-standing waiver to enact clean cars rules. This created more uncertainty in the policy making process but was expected to be reversed under the new administration, alongside other favorable regulatory and funding decisions in 2021.

4 Conclusion

4.1 Key Takeaways

Collective cohort efforts described in this paper lead to critical implications and lessons-learned for scaling growth and deployment of EVs:

1. **Cohorts Give Forum for Early Adopters to Lead Peers** – easy-to-access communication channels expedite ability for peers to share successes, failures, and best practice across implementations.
2. **Aggregate Approach to Public Private Partnership and Other Investment** – Some projects can easily scale with matched investment from outside partners; cohorts can foster such opportunity to easily pursue and consider various investment and funding partners as a group, rather than one-by-one style projects.
3. **Faster Iteration Through Peer Exchange Leads to Scale** – Policies, practices, and other programs can be quickly revised and replicated by peer groups, allowing partners to create a living template that can quickly and easily be improved.

4.2 Summary

Many cities, regions, and states in the United States have been able to devise plans to electrify their community with the continued support of peers. By bringing subnational governments together, we can ensure they are nimble and fast-acting on ambitious international commitments. Cities and states in the U.S. experience both challenges and opportunities that are uniquely expressed in each geography. Nonetheless, working within cohorts and with significant technical assistance, subnational governments are able to identify their unique needs, establish ambitious yet appropriate goals, and implement the knowledge and policy infrastructure necessary to achieve emission reductions in the transportation sector.

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References

[1] Bloomberg Philanthropies American Cities Climate Challenge. https://www.bloomberg.org/environment/supporting-sustainable-cities/american-cities-climate-challenge/. Accessed: 23 Mar 2022.
[2] Ibid.
[3] United States Department of Transportation. https://www.transportation.gov/smartcity. Accessed 28 Mar 2022.
[4] Securing America's Future Energy. https://secureenergy.org/energy-security-leadership-council/. Accessed 28 Mar 2022.
[5] International Energy Agency. https://www.iea.org/programmes/electric-vehicles-initiative. Accessed 28 Mar 2022.
[6] Evie Carshare. https://eviecarshare.com/. Accessed 28 Mar 2022.
[7] HourCar. https://www.cleanenergyresourceteams.org/hourcar-centers-equity-outreach-new-electric-vehicle-service. Accessed: 28 Mar 2022.
[8] City of St. Paul. https://www.stpaul.gov/departments/public-works/transportation-and-transit/ev-spot-network/ev-spot-network-project. Accessed 28 Mar 2022.
[9] City of Philadelphia. https://www.phila.gov/media/20211006130414/Philadelphia-Municipal-Clean-Fleet-Plan-202110.pdf. Accessed 28 Mar 2022.
[10] City of Orlando. https://www.orlando.gov/Our-Government/Departments-Offices/Executive-Offices/CAO/Sustainability-Resilience/Initiatives/Electric-Vehicle-and-Transit-Initiatives/Electric-Vehicle-Readiness-Policy. Accessed 28 Mar 2022.
[11] City of Orlando. https://www.orlando.gov/files/sharedassets/public/departments/sustainability/orlandoevreadyguide_2021.pdf. Accessed 28 Mar 2022.
[12] City of Orlando. https://www.orlando.gov/Building-Development/Permits-Inspections/Other/Get-a-Permit-for-an-EV-Charging-Station. Accessed 28 Mar 2022.
[13] Electrification Coalition. https://www.electrificationcoalition.org/work/ev-policy-showroom/. Accessed 28 Mar 2022.
[14] Electrification Coalition. https://www.electrificationcoalition.org/dashboard/. Accessed 28 Mar 2022.
[15] Electrification Coalition. https://www.electrificationcoalition.org/how-to-amp-up-the-transportation-transformation-a-guidebook-for-funding-and-financing-electrification/. Accessed 28 Mar 2022.
[16] Electrification Coalition. https://www.electrificationcoalition.org/roadmap-roundup/. Accessed 28 Mar 2022.
[17] Electrification Coalition. https://www.electrificationcoalition.org/category/ev-tools-and-calculators/. Accessed 28 Mar 2022.
[18] State of Michigan. https://www.michigan.gov/documents/leo/CFME_Report_2021_738091_7.pdf. Accessed 28 Mar 2022.
[19] Drier, Will. "Direct-to-Consumer Sale of EVs is a No Brainer." Act News. https://www.act-news.com/news/direct-to-consumer-sale-of-evs-is-a-no-brainer/. Accessed 28 Mar 2022.
[20] Blair, Dennis. "Nevada leaders must sustain momentum on electric vehicles." The Nevada Independent. https://thenevadaindependent.com/article/nevada-leaders-must-sustain-momentum-on-electric-vehicles. Accessed 28 Mar 2022.
[21] Duke Energy. https://news.duke-energy.com/releases/after-stakeholder-input-duke-energy-files-phase-ii-electric-transportation-program-in-n-c. Accessed 28 Mar 2022.

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