



Financial Aggregation Blueprints for Urban Climate Infrastructure - Annex 1: Municipal Pooled Procurement Blueprints

May 2023

RAMCC TRUST FUND

1. CONTEXT

The Argentinian Network of Municipalities Facing Climate Change (*Red Argentina de Municipios Frente al Cambio Climático*), or RAMCC, is a coalition of 270 Argentine municipalities that work under an executive secretariat to coordinate and promote strategic plans to address climate change. RAMCC supports climate change planning, policymaking, implementation, and financing investments in member municipalities. RAMCC is committed to reducing GHG emissions in member municipalities by 45% by 2030, becoming carbon neutral by 2050, and increasing cities' resilience to extreme weather events.

Despite this ambition, many RAMCC members face significant technical and financial barriers to implementing their climate plans. These include:

- **Technical:** Cities lack the technical knowledge on which investments they should prioritize in their climate plans as well as on the technical specifications for technologies they could purchase to meet objectives.
- **Financial:** Municipal budgets are insufficient to fund green investments, and green investments often have a lower priority in city budgets than social spending.

2. CONCEPT

In 2018, RAMCC established the RAMCC Trust Fund to help municipalities finance, manage and deliver projects under their climate action plans (CAP). The Trust comprises thirty municipalities, and all RAMCC municipalities are eligible to join as long as they develop their CAPs, including a climate risk assessment, a GHG emissions inventory for the municipality, and identifying priority sectors (e.g., energy, transport, waste) for climate action.

Each municipality participating in the RAMCC Trust Fund is a Trustee and is represented by its mayor in the Trust's annual assembly – the Assembly of Mayors. The Assembly is a forum where municipalities set out the projects they want to implement for the coming year and are updated on the progress of the climate projects implemented in the previous year. The Assembly also elects the executive committee, the Mayor City Council, comprising a group of 5 mayors (1 president and four vice presidents), which provides strategic oversight for the Trust's financing activities each year. A third body, the Executive Secretariat, provides Trustees with technical support to develop their climate plans, undertake technical studies, and develop financing proposals.

The RAMCC Trust Fund is an innovative financing platform that uses pooled procurement to purchase climate-smart technologies and services for members of the Trust so that they can implement their climate plans. Pooled procurement enables Argentinian municipalities to achieve economies of scale when purchasing technologies

and promotes partnership and collective action, allowing cities to scale up climate investments.

The RAMCC Trust Fund has launched four pooled procurement tenders for climate-smart technologies. All four tenders have been focused on purchasing LED lighting for municipalities. Future tenders are expected to focus on procuring solar heaters, PV panels, and different types of electric vehicles.

3. INSTRUMENT MECHANICS

The pooled procurements process led by the RAMCC Trust Fund follows two stages:

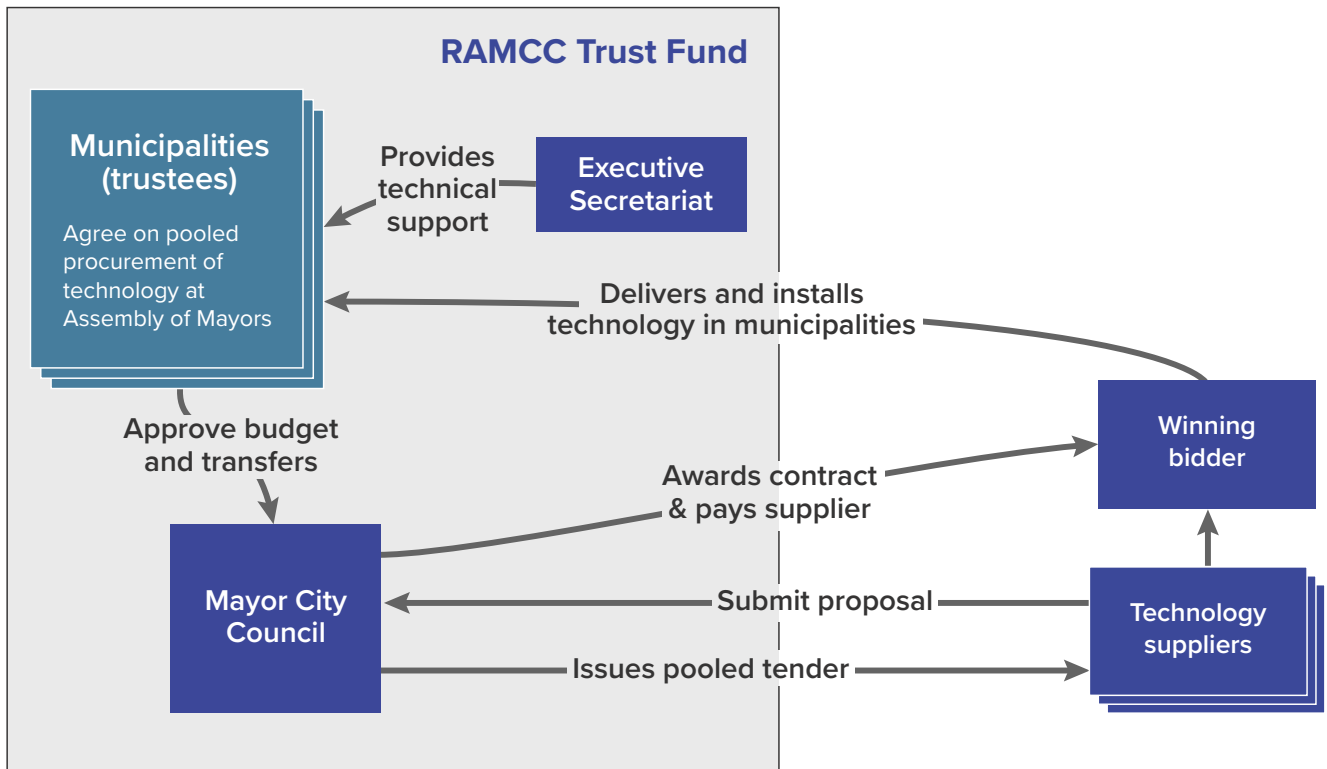
Stage 1: Scoping and technical specification design

- **Project selection:** Trust members decide in the Assembly to pursue a pooled procurement of specific technologies in line with the priorities in their CAPs.
- **Technical specification:** The Secretariat provides technical support to municipalities to define the technical requirements for the technologies they want to purchase (e.g., number of LED lights, quality of technology, etc.). External agencies may also undertake studies with funding from international donors.
- **Funding allocation:** Municipalities approve the budget and transfer funds to the Trust bank account, managed by the Municipal Bank of Rosario and overseen by the Mayor City Council.

Stage 2: Procurement stage

- **Public procurement announcement:** On behalf of municipalities, the Trust releases a public procurement announcement for eligible suppliers to submit bids.
- **Companies submit bids:** Technology providers submit their bids to the Trust.
- **Analysis and selection of winning contract:** A winning bid is selected for the service provider with the most competitive offer based on the price of the technology and the expected energy savings that the technology will deliver.
- **Technologies purchased:** Funds are transferred from the RAMCC Trust Fund bank account to the company with the winning bid.
- **Installation and delivery:** The winning company installs and delivers the technology to each municipality participating in the procurement round.

Figure 1: The RAMCC Trust Fund financial mechanism.



4. IMPACT

In its four LED light procurement rounds, the RAMCC Trust Fund delivered significant impacts for Argentinian municipalities regarding GHG emissions reductions, energy savings, and financial savings:

- **GHG emissions:** Cities avoided the emission of 783,256 tCO₂e per year.
- **Energy savings:** Cities saved KWh 1.6 million of electricity per year.
- **Financial savings:** In the first three procurement rounds, cities saved ARG 6.5 million (USD 40,000) per year

Table 1 presents detailed impact data for each RAMCC Trust Fund procurement round¹.

¹ The total numbers for the fourth purchase have not been calculated yet, so the data is partially incomplete.

Table 1: RAMCC Trust Fund impact data for four procurement contracts of LED lights²

Impact	Purchase 1	Purchase 2	Purchase 3	Purchase 4	Total
# of Cities	8	12	3	5	28
Quantity of LED lights (#)	766	2,567	1,244	1,6	6,283
GHG savings (tCO ₂ per year)	109,440	364,685	309,131	-	783,256
Energy savings (kWh)	235,686	824,614	544,486	-	1,604,786
Total cost (USD)	49,400	190,070	131,180	229,840	600,490
Total savings (USD)	4,987	24,740	2,794	-	32,522

Besides the energy and emissions savings, LED lights in municipalities have improved public safety by providing better lighting in public spaces such as streets and parks.

5. KEY TAKEAWAYS

This section summarises key takeaways based on the blueprint analysis and is divided into “Challenges” and “Success factors.”

5.1 CHALLENGES:

- **Economic instability and currency devaluation.** The technology acquired through the Trust was heavily impacted by monetary devaluation since 70% of the components are imported. This made recent purchases difficult because municipalities must pay larger amounts (up to three times more) to buy the same technology they purchased the previous year.
- **Political transitions can lead to changes in engagement.** Municipalities’ new political administrations often do not participate in the Trust due to different administrative priorities, which causes less engagement in pooled purchases.
- **High costs of hiring technical support.** The fees for technical support are expensive, often requiring external support through international cooperation. RAMCC pays high fees for the technical feasibility and the installation of new technologies, as well as fees for the Trustee (the bank that manages the funds).

5.2 SUCCESS FACTORS:

- **Coordination by a third party with significant influence and expertise in the local context.** The development and management of the Trust by RAMCC, which is well-

² All estimates in USD were calculated using 2023 dollars and not adjusted for inflation. Therefore, assessments are indicative only.

known and respected among Argentinian municipalities, helps bring cities and other relevant stakeholders (e.g., Bank of Rosario, external agencies, and suppliers) to participate and support the pooled procurement processes.

- **Cities' interest and engagement.** Without cities committed to fighting climate change, interested in participating in the RAMCC Trust Fund, or able to compromise, the pooled procurement platform would hardly work. In this process, it is essential to highlight the role played by RAMCC in engaging cities and linking the Trust to cities' CAPs, as well as in managing cities' expectations throughout the process, particularly when defining the specificities of technologies to be procured – a common challenge faced by pooled procurement instruments.
- **Third-party technical support.** In the case of the RAMCC Trust Fund, different non-profit organizations have approached the Trust to offer their technical support in line with their organizational, partnership, and funding mandates due to the excellent visibility of the pooled procurement platform. This technical support has enabled Argentinian municipalities, particularly the smaller ones, to make smarter purchases and improve the technical specifications of their tenders.
- **Platform focus on a single technology relevant to local governments.** The Trust's focus of the first four tenders on LED lights enabled it to build its expertise and track record. Additionally, where pooled procurement decisions are taken jointly by cities in the Assembly, the Trust governance structure ensures that technologies procured are relevant to cities.

FURTHER READING:

1. RAMCC (2023) Fideicomiso RAMCC. Available at <https://www.ramcc.net/fideicomiso.php>

THE GRAND CHALLENGE

1. CONTEXT

The Indian Government has set a target to achieve net zero emissions by 2070, where the transport sector will play a key role. India has approximately 144,000 public buses (CESL 2023), most of which run on diesel or compressed natural gas (CNG). In Indian cities, state road transport undertakings (SRTUs) are responsible for purchasing buses. SRTUs need to upgrade their aging bus fleets but are financially constrained and often do not have the capital to make upfront investments in e-buses.

2. CONCEPT

The Grand Challenge aimed to scale up the deployment of e-buses in India to help deliver against the Government of India's targets and support SRTUs to transition to low-carbon fleets. Unlike other pooled procurement mechanisms led by cities, the Grand Challenge is coordinated nationally. The Grand Challenge, launched in 2022, was led by Convergence Energy Service Limited (CESL), a public exclusively owned subsidiary of Energy Efficiency Services Limited, under the administration of the Indian Ministry of Power. The Transformative Urban Mobility Initiative TUMI E-bus Mission, an international coalition assisting cities worldwide in developing their electric bus fleets through WRI India, provided technical assistance to CESL for the Grand Challenge.

The Grand Challenge reduced the cost of deploying e-buses by aggregating demand from multiple cities. Additionally, it helped reduce the administrative burden for all participants in the tender as cities do not have to undertake the tendering process individually, the private businesses manufacturing the e-buses (OEMs) had to participate in only one tendering process, and the Government of India only needed to follow a single process for distributing subsidies.

The Grand Challenge used an innovative *mobility-as-a-service* approach. Instead of purchasing and operating e-buses (and associated charging infrastructure), private operators provide e-bus *service contracts* where operators own the e-buses and charging infrastructure for 12 years, after which they transfer the assets to the cities. The business model for this approach was a gross cost contract (GCC) model, where suppliers agreed to a service contract – where they both manufacture e-buses and provide the transport service to cities for a fixed, per-kilometer operating cost for a specified number of kilometers over a specified timeframe.³

The national governments provided subsidies to encourage SRTUs to deploy e-buses instead of conventional diesel or CNG buses. The Department of Heavy Industries (DHI) operates the Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME)

³ In some cases, the supplier could be the manufacturer and the operator of the e-buses, while in others a consortium will work together with an OEM manufacturing the e-buses and another company operating them. In their bid, OEMs had to provide a per-kilometre operating cost for the deployment of e-buses, with a daily running rate of 225km or 70,000km per year for 12 years.

Scheme, which partially subsidizes the deployment of e-buses across India. In its second phase, FAME-II provides a subsidy of up to INR 5 million (USD 61,000) per e-bus. In the case of Delhi and Surat, contributions were also provided by State Governments.

In January 2022, CESL issued the first tender under the Grand Challenge to procure 5,450 buses in Delhi, Kolkata, Bengaluru, Surat, and Hyderabad to be deployed between 2023 and 2025. This was the world's largest-ever procurement contract for e-buses - put in perspective, there are currently 10,000 e-buses deployed across Europe (Only Eleven Percent, 2022).

3. INSTRUMENT MECHANICS

The pooled procurement process led by the Grand Challenge followed three stages:

Stage 1: Soliciting demand for e-buses

- **Technical specifications:** TUMI E-bus Mission provided technical assistance to CESL for the Grand Challenge.
- **Participation invitation:** CESL invited cities to participate in the Grand Challenge and requested an estimation of how many e-buses they wanted to procure under the scheme and additional information needed for preparing the tender (e.g., existing charging infrastructure, depot facilities, routes, etc.).
- **Pooled tender document:** CESL aggregated information submitted by cities into a pooled tender document with standardized terms and conditions.

Stage 2: Tendering process

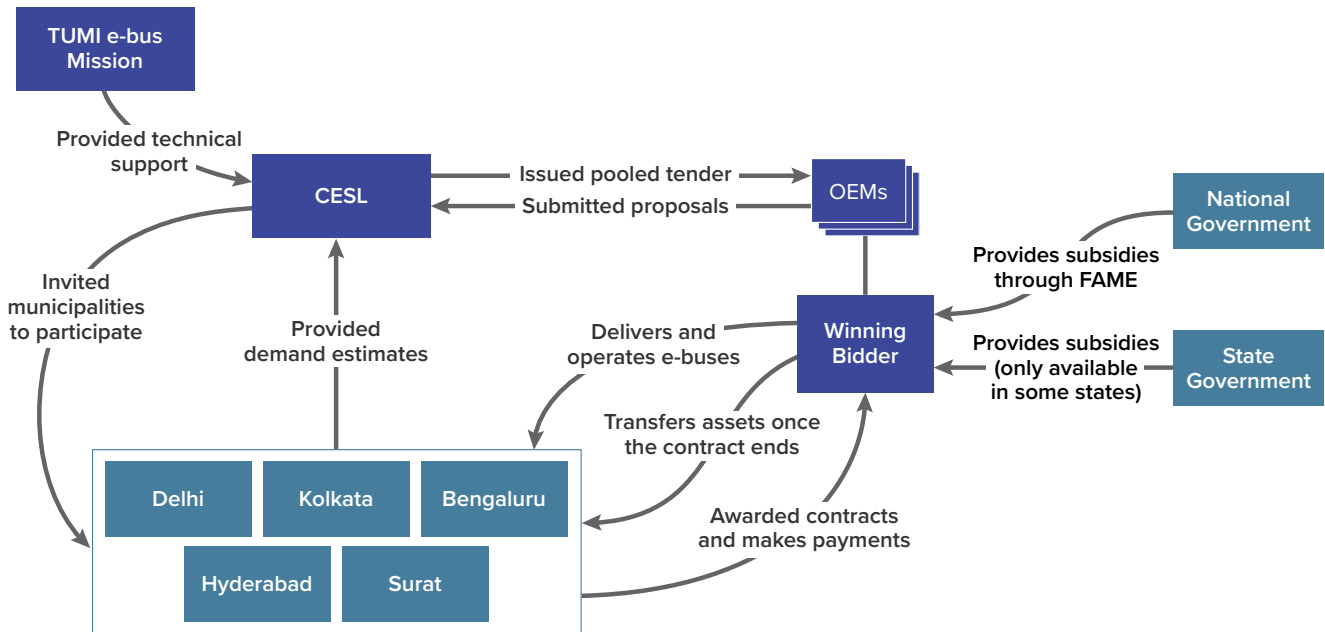
- **Consultations with OEMs:** CESL held informal discussions and released an initial expression of interest for comment and questions to understand OEM's capacity to manufacture, deliver and operate e-buses and adjust the tender.
- **Public procurement announcement:** CESL released a public procurement announcement for eligible suppliers to submit bids - the tender was split into five lots for buses with different technical specifications.
- **Suppliers submit bids:** Suppliers providers submitted their bids CESL.
- **Analysis and selection of winning contract:** The winning bid was selected based on the lowest cost quote per kilometer.

Stage 3: Deployment of e-buses and payment

- **Information of GCC rates:** CESL informed SRTUs of the GCC rates, who confirmed the rates and issued a Letter of Award to the winning bidder and, in the case of state subsidies, to relevant state government agencies for approval.
- **Contract signature:** A contract was signed between the cities and the winner.
- **Service payment:** Suppliers submitted invoices to cities and the DHI for the payment under the FAME program - 20% paid upon contract signature, 40% paid upon e-bus delivery, and 40% paid after six months of operation. When applicable, invoices were also sent to state governments for the payment of state subsidies.

- **Manufacture and operation:** The supplier will manufacture the e-buses and charging infrastructure, deliver them to cities, and operate the fleet - the supplier can also subcontract the operation to a local private operator paid in monthly installments at the agreed IRS/km rate.
- **Asset transfer:** Once the 12-year contract is over, operators will transfer the ownership of the e-buses and charging infrastructure to the SRTUs.

Figure 2: The Grand Challenge financial mechanism



4. IMPACT

The Grand Challenge delivered multiple benefits in terms of GHG emission reduction, job creation, and market development:

- **GHG emissions:** Cities avoided the emission of 3.31 million tCO₂e over the 12-year duration of the service contract – 1.88 billion liters of fuel were saved.
- **Job creation:** The production and operation of the buses are expected to create 25,000 jobs (Ministry of Power 2022).
- **E-vehicles market:** As a result of the program, e-buses are now, on average, cheaper to operate than diesel and CNG by 27% and 23%, respectively - with subsidies, these figures increase to 35% and 31% (CESL 2023). This could have ripple effects in setting new price thresholds for e-buses, spurring competition in the industry and ultimately making e-buses cheaper than conventional ones.

Having seen The Grand Challenge’s success, the Government of India has launched a National Electric Bus Programme (NEBP), which will deploy 50,000 e-buses across India by 2030 (WRI 2022).

5. KEY TAKEAWAYS

This section summarises key takeaways based on the blueprint analysis and is divided into “Challenges” and “Success factors.”

5.1 CHALLENGES:

- **Long-term commitments are required to procure large and capital-intensive infrastructure.** Procuring such infrastructure requires long-term commitments which do not always align with political cycles. There is a risk that the political will to sustain such programs can change over time, or new political parties will not honor the commitments of previous governments. In this case, a quick tendering process helped limit this risk.
- **Limited option of suppliers for procurement at scale.** Mobility-as-a-service and GCC models at scale require suppliers with sufficient room for capital expenditure and huge manufacturing capacity. This limits the options of suppliers with the right financial conditions to engage in the bid.
- **Supply chain constraints for delivering large volumes of purchases.** For instance, the deployment of green technologies has been hindered in the past two years as global supply chains have seen labor, goods, and services shortages. To fulfill orders of the volume of the Grand Challenge, e-bus suppliers may need to expand production capacity rapidly and purchase large volumes of inputs, which could potentially lead to delays in deploying e-buses to cities.

5.2 SUCCESS FACTORS:

- **National, state, and city-coordinated action.** Sound multi-level governance with different levels of governments playing vital and complementary roles was crucial to the program’s design. National governments led the process and provided subsidies, state governments topped those subsidies, and cities informed the demand and purchased e-buses. This would not have been possible without national, state, and municipal governments committed to the program and fighting climate change.
- **Consultation with suppliers.** Informal discussions and initial expression of interest for comment with suppliers before announcing the tender enabled CESL to adjust it to local market realities, attracting more high-quality bidders. In this process, the assistance provided by TUMI E-bus Mission should be highlighted.
- **Mobility-as-a-service approach and upfront payment of subsidies.** Together, these actions moved the investment burden away from cities and suppliers. Mobility-as-a-service allowed cities to have ongoing operational expenditure instead of upfront capital expenditure. Upon contract signature, the upfront payment of subsidies by DHI enabled suppliers to cover their upfront costs, ensuring a smoother production of e-buses at scale.

- **Split of tender into lots with different specifications.** This maneuver enabled cities to purchase the e-buses best suited to their contexts and avoid compromises to pre-defined technical specifications.

FURTHER READING:

1. Business Standard (2023). CESL accelerates on the green track and opens bids for 6,4565 electric buses. Available at https://www.business-standard.com/article/specials/cesl-accelerates-on-the-green-track-opens-bids-for-6-465-electric-buses-123010400916_1.html
2. CESL (2022). Grand Challenge Invitation for Bids. Available at <https://jmkresearch.com/wp-content/uploads/2022/01/cesl-e-bus.pdf>
3. CESL (2023). 'The Grand Challenge' for Electric Bus Deployment: Outcomes and Lessons for the Future. Available at: https://www.convergence.co.in/public/images/electric_bus/Grand-Challenge-Case-Study-Final-Web-Version.pdf
4. Dawra, M., Pandey M.D., Bhatia, S. (2022). Expanding the Footprint of the Grand Challenge Across Tier-II India. WRI India. Available at <https://wri-india.org/blog/expanding-footprint-grand-challenge-across-tier-ii-india>
5. The Economic Times (2023). CESL floats tender for 4,675 e-buses worth Rs 5,000 cr. Available at <https://economictimes.indiatimes.com/industry/renewables/cesl-floats-tender-for-4675-e-buses-worth-rs-5000-cr/articleshow/96763298.cms>
6. Only Eleven Percent (2022). Learning from the Grand Challenge – the world's largest e-bus procurement tender. Available at <https://www.onlyelevenpercent.com/learning-from-the-grand-challenge-the-worlds-largest-e-bus-procurement-tender/>
7. Ministry of Power (2022). CESL discovers lowest ever prices for 5450 buses under the FAME II Scheme. Press Release. Available at <https://pib.gov.in/PressReleaselframePage.aspx?PRID=1820225>
8. Modi, Rohan Shailesh (2022). The Grand Challenge: An Aggregated Approach to E-Bus Procurement in India. TUMI. Available at <https://www.transformative-mobility.org/news/the-grand-challenge-an-aggregated-approach-to-e-bus-procurement-in-india>
9. UITP (2022). Aggregation delivers more savings than subsidy in recent Indian electric bus tenders. Available at [Aggregation delivers more savings than subsidy in recent Indian electric bus tenders](#)

CLIMATE MAYORS ELECTRIC VEHICLE PURCHASING COLLABORATIVE

1. CONTEXT

In 2017, the United States federal government withdrew from the Paris Agreement. In the face of federal inaction, municipalities – led by the Climate Mayors network composed of 470 cities – committed to demonstrating climate leadership and leading the energy transition in the United States through municipal action focusing on the transport sector in the U.S. accounts for 27% of total emissions (EPA, 2022).

2. CONCEPT

The Climate Mayors Electric Vehicle Purchasing Collaborative (CMEVPC) supports municipalities and other sub-national public sector bodies (e.g., counties, courts, school districts, public utilities, public universities, and state governments) to accelerate their fleet transition by lowering the cost of electric vehicles (EVs) and charging infrastructure. CMEVPC is a partnership between Climate Mayors, the Electrification Coalition (a not-for-profit organization providing technical support to cities transitioning their fleets), and Sourcwell (a public agency providing cooperative purchasing services for government, education, and not-for-profit organizations).

More specifically, the CMEVPC pools municipalities' demand for electric vehicles and allows municipalities to purchase EVs and associated charging infrastructure for prices at or below the manufacturer's suggested retail price (MSRP). By investing in EVs and the supporting charging infrastructure, CMEVPC sends a message to manufacturers that there is widescale demand for EVs and to private owners that the needed charging infrastructure is in place for them to change their internal combustion vehicles for electric alternatives.

Under CMEVPC, cities use the one-stop-shop online portal DriveEVFleets.org to get technical advice on transitioning their fleets and access the Sourcwell procurement network – one of the United States' largest cooperative purchasing platforms – to purchase vehicles and charging infrastructure. Unlike other pooled procurement instruments, Sourcwell negotiates favorable fixed vehicle prices and charging infrastructure at or below MSRP with suppliers before the actual order and displays the negotiated prices on their platform. Besides lower prices, municipalities can access a wider selection of EV models that might otherwise be unavailable through the platform. Furthermore, by accessing DriveEVFleets.org, cities save significant time and resources needed to conduct market research and issue and evaluate public tenders, particularly relevant for smaller municipalities.

3. INSTRUMENT MECHANICS

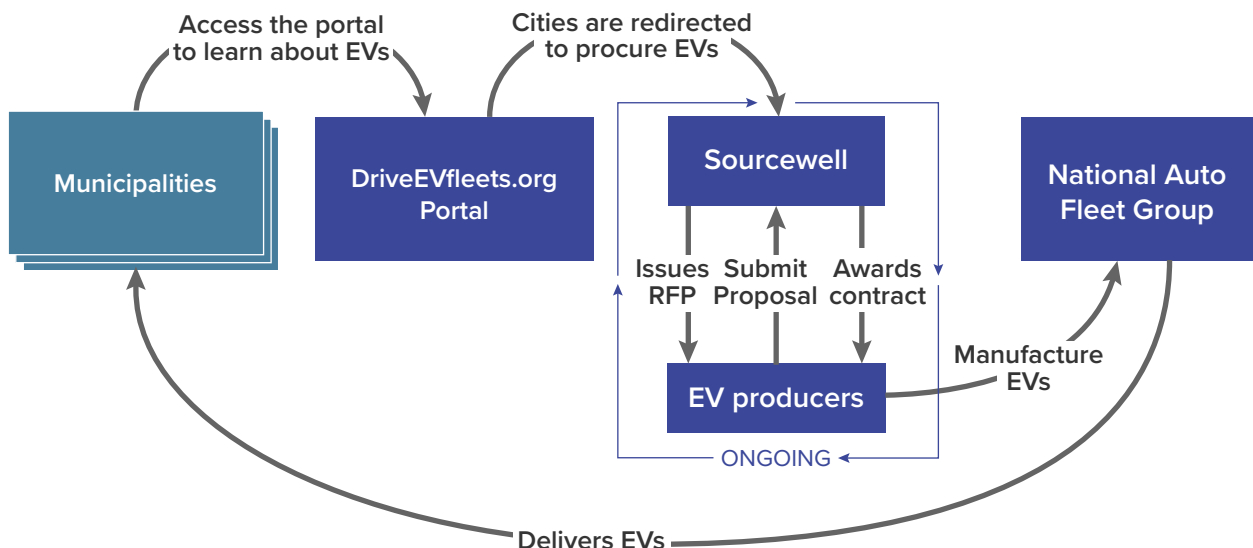
The design of the online portal DriveEVfleets.org followed four steps:

1. **Establishment of the Climate Mayors network:** The network was created by mayors committed to delivering the Paris Agreement commitments at the local level.
2. **Partnership signed with the Electrification Coalition:** Climate Mayors identified the transition to EVs as a key climate action for cities and established the partnership with the Coalition to provide technical support to cities in their transition.
3. **Design of the online portal:** The Coalition prepared DriveEVfleets.org to support cities with transitioning their fleets - the platform provides information on different EV technologies, lifecycle costing of EVs versus other vehicles, and case studies.
4. **Partnership signed with Sourcewell:** Coalition selected Sourcewell as the procurement partner and the Sourcewell-awarded supplier National Auto Fleet Group to deliver EVs to cities and linked the Sourcewell platform to the portal.

The pooled procurement process led by the CMEVPC follows five steps:

1. **Cities use the online portal to inform their fleet transition:** Cities access DriveEVfleets.org for information and technical support for their transition.
2. **Cities join Sourcewell:** Cities using the online portal are redirected to Sourcewell, where they apply for membership using a simple online form.
3. **Municipalities order e-vehicles and charging infrastructure:** Using Sourcewell, cities order EVs and charging infrastructure by choosing from various options and features such as seat configuration, materials, color, and safety features and make payments directly to suppliers.
4. **Vehicle manufacturing:** The selected producer manufactures the EVs or sells them directly if they are in stock.
5. **Vehicle delivery:** The National Auto Fleet Group delivers the EVs to the city.

Figure 3: The CMEVPC financial mechanism



4. IMPACT

Since its launch in 2018, cities participating in the CMEVPC have bought approximately 4,000 electric vehicles (3,400 light-duty EVs, 25 medium and heavy-duty EVs, and 525 e-buses), leading to:

- **GHG emissions:** Annual avoidance of 25.4 million tons of CO₂ - 4.7 million liters of gasoline saved.
- **Financial savings:** Significant savings as most charging infrastructure contracts range between 10-20% below MSRP.

Due to CMEVPC's success, participating cities have committed to purchasing 2,000 EVs by the end of 2023.

5. KEY TAKEAWAYS

This section summarises key takeaways based on the blueprint analysis and is divided into "Challenges" and "Success factors."

5.1 CHALLENGES:

- **City officials require technical support transitioning from a capital expenditure to an operational expenditure mindset.** Although EVs can be cheaper for cities on a total cost of ownership model, this longer-term thinking requires cities to change their planning and budgeting processes.
- **Supply chain distribution issues.** For instance, EV deployment has faced challenges in the past two years as global supply chains have seen shortages of goods and services. Prices for all vehicles have gone up, which has made it less financially attractive for manufacturers to sell discounted EVs through Sourcwell to municipalities.

5.2 SUCCESS FACTORS:

- **One-stop online procurement portal.** The portal helps the decision-making process by informing city officials of possibilities for their fleet transition and providing a platform for procurement that offers lower prices and more options than usually available – which eases issues associated with cities agreeing to procure the same technology. These factors reduce the direct and indirect (municipal officials' time) financial burdens on cities. Also, by using the platform, cities do not need to wait for specific pooled procurement windows, accelerating the procurement process.
- **The partnership between specialized institutions.** CMEVPC combines and leverages the expertise of each of the partners: Climate Mayors has access to cities; Electrification Coalition provides technical support to cities for their fleet transitions; and Sourcwell channels cities' orders through its established procurement platform.

- **Cities' engagement in the pooled procurement platform.** Cities established the Climate Mayors network, which led to the implementation of CMEVPC. Without cities committed to fighting climate change and filling in the gap left by the National government, the procurement platform would hardly work.

FURTHER READING:

1. Climate Mayors (2020). Climate Mayors Electric Vehicle Purchasing Collaborative. Available at <https://driveevfleets.org>
2. EPA (2022). Fast Facts on Transportation Greenhouse Gas Emissions. Available at <https://www.epa.gov/greenvehicles/fast-facts-transportation-greenhouse-gas-emissions>