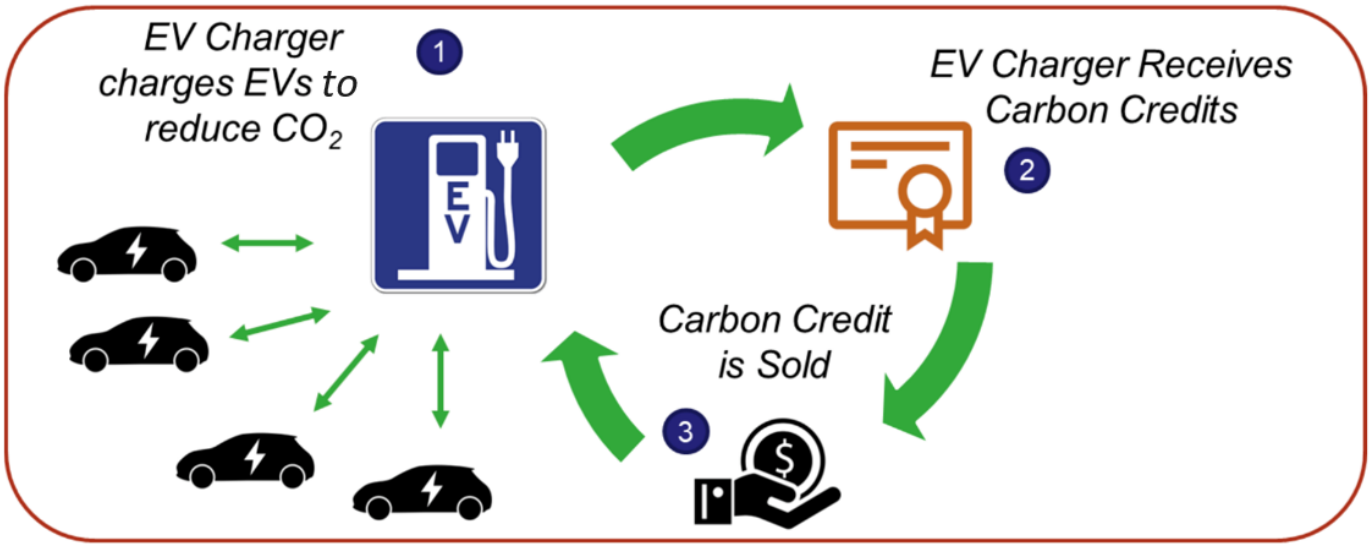
Factsheet Supporting EV Charging Coalition (EVCCC) Sept 18 Press Release
EMBARGOED UNTIL Sept 18 2018, 11 a.m. ET 8 a.m. PT

1. Why is EV charging infrastructure investment needed?
    - EV charging stations represent the "fueling stations of the 21st century" – the infrastructure needed to power electric vehicles (EVs) as they travel distances beyond the range provided by home chargers many EV drivers install. Not only is more widely available infrastructure needed, but faster charging technology is important so that drivers can spend less time waiting for their vehicles to charge.
    - The transition to a low-carbon electricity transportation system is essential for cities, states, companies and other stakeholders to meet their climate goals.
    - Under the Paris Accord, for example, the United States of America (US) originally agreed to target 14 million (m) new EV's and 330,00 public charging outlets by 2025. The US currently has 1m EVs on the road supported by 49,502[i] charging outlets – creating growth targets of 6 x outlets and 14 x EV's to achieve the Paris Accord's EV target.

2. Why did the EV Charging Carbon Coalition (EVCCC) form?
    - Any new nationwide public infrastructure investment typically faces hurdles in reaching critical mass: which sector(s) will take the lead to invest? How is investment secured for EV charging when there are fewer EV's on the road? What will best support early stage market development?
    - In response to these questions, the EVCCC was formed to open up access to the carbon credit markets for EV charging systems specifically for the purposes of strengthening their business case fundamentals and thus accelerating their deployment potential
    - EVCCC originally brought together a diverse set of founding partners from the public and private sectors, including EV charging companies, utilities, governmental entities, auto manufacturers, EV equipment suppliers, and financial intermediaries
    - EVCCC members all recognize the essential contribution that EV charging systems make towards accelerating EV adoption: according to Strategic Vision's 2017 *New Vehicle Experience Survey*, expanding EV charging infrastructure and increasing charging speed directly mitigate two reasons why drivers can avoid purchasing EVs.

3. Why did EVCCC members seek to unlock a carbon credit market to benefit EV charging infrastructure?
    - In the early stages of market development for any new infrastructure investment, securing new sources of capital helps accelerate critical mass and scale
    - New sources of "patient capital" are vital contributors to the success of US clean-tech innovation. Experts at MIT[ii] have pointed out that, compared to the information technology software and medical sectors, "clean-tech clearly does not fit the risk, return or time profiles of traditional venture capital investors. … As a result, the sector requires a more diverse set of actors and innovation models; in other words, more "patient capital"."

- EV charging systems' access to carbon credit markets represents just such an innovative, new source of "patient capital".



4. What is the financial benefit of the carbon credit revenues to charging systems?
    - Based on range of carbon market boutique pricing and prevailing utilization rates for EV charging systems, EVCCC's original business case indicated that the carbon credit revenues from EV charging systems could contribute a 5-10 percent return on capital investment (over the ten year project crediting period).

5. How would stronger, expanded EV charging networks benefit other sectors, like utilities?
    - With the carbon credit revenues providing additional financial incentives to expand EV charging infrastructure, other sectors are poised to reap other mission-critical benefits.
    - Take utilities for example: as many regions seek to dramatically ramp up renewables deployment to much higher levels, utilities recognize that additional battery storage capacity is needed to address the resulting "intermittency" challenge, where renewables' electricity must be stored as it's delivered in real-time so that it can be used during later periods of peak electricity demand during the day. Although some stationary battery systems have been installed specifically for this purpose, the growing market of EVs' on-the-road batteries will help utilities secure this essential further storage capacity, as EVs charge, store and discharge power to and from the grid using "vehicle-to-grid" (V2G) services (see # 15 below). Opening up new sources of carbon credit revenues to expand EV charging systems will therefore help accelerate further EV deployment and provide the infrastructure through which utilities can secure these V2G services. The result: expanded access for utilities to the vital further EV battery storage capacity needed to accelerate their renewables investment program.

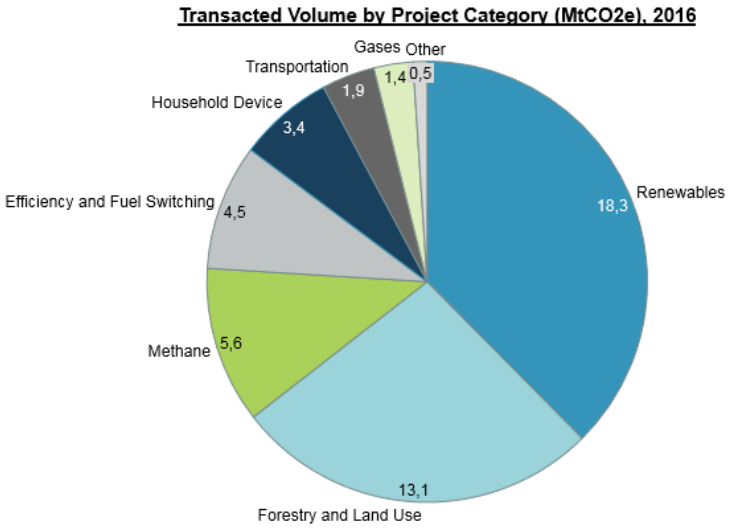
6. What is a carbon credit?
    - Over the last couple of decades, new markets have evolved that place a monetary value on the reduction of GHG emissions which contribute towards global climate change, creating new carbon credit markets. These carbon credit markets comprise both compliance and voluntary markets, which operate in largely complementary ways and have a common objective: to integrate the value of carbon reductions into our marketplaces in order to accelerate the pace of innovation needed to progress more rapidly towards a lower carbon future.
    - A carbon credit represents a reduction of one tonne of CO_2 emissions that can be bought and sold based upon its third-party certification credentials (see questions 11 and 12 below)

7. Why did EVCCC seek to unlock the <u>voluntary</u> carbon markets? How does the voluntary market relate to a regulated carbon market such as the State of California's cap and trade programs? Or the Low Carbon Fuel Standard Program (LCFS)?
    - Voluntary carbon markets can complement and operate alongside regulated carbon markets such as California's cap/trade market. Most compliance markets are limited to particular regions (such as California or selected east coast states' Regional Greenhouse Gas Initiative). Voluntary carbon credits, however, can be issued in a broader set of geographical regions beyond those that have specific regulated carbon compliance markets, giving more locales access to the value that carbon markets can contribute.
    - See also insert box in Appendix

8. Who typically purchases carbon credits from the voluntary market? What drives value in the voluntary carbon markets?
    - Voluntary credit purchasers span a remarkable range of companies and organizations seeking to go carbon-neutral, including cities, university campuses, utilities, individuals, etc.
    - In 2010, for example, Chevrolet[iii] made a $40m commitment to purchase 8m tons of carbon credits and retire them on behalf of the planet. Lyft more recently committed to purchasing 1m tons of carbon credits a year to make their ride shares carbon neutral.
    - While the revenue per ton of voluntary carbon credits is currently below compliance market pricing, the volume of credits issued in the US voluntary carbon market is reasonably comparable to the US compliance credit markets and could increase with more awareness. It therefore represents a compelling source of new capital to support successful clean tech deployment

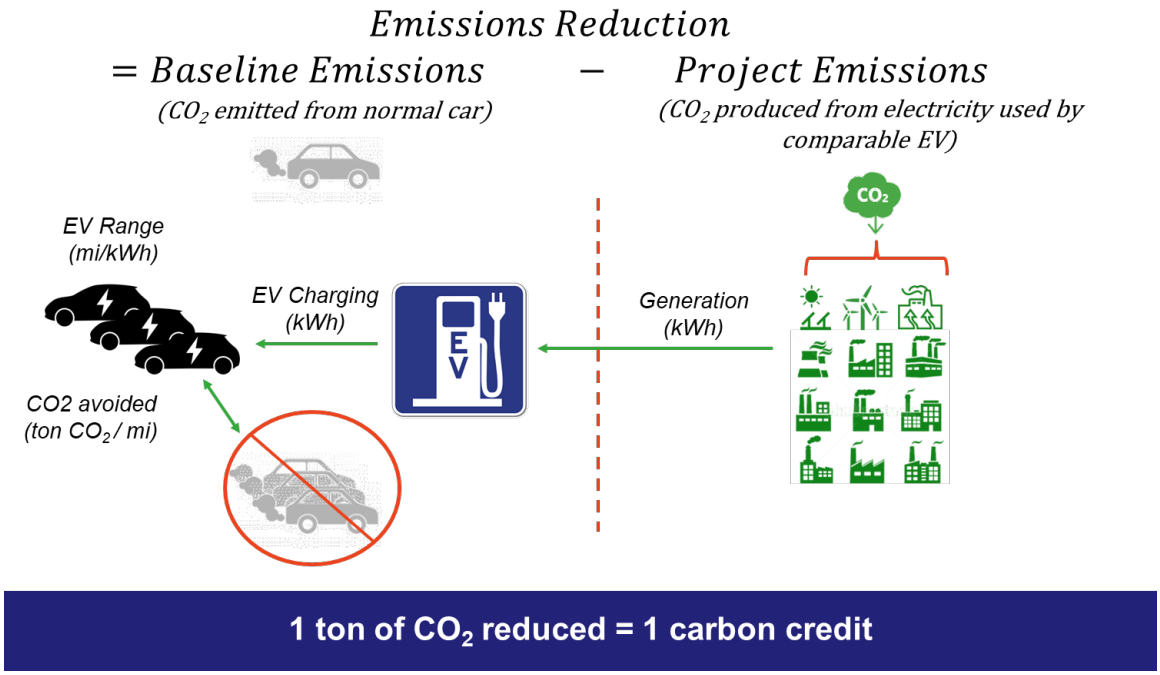
9. What makes EV charging credits distinctive in this voluntary carbon market?
    - EV charging credits form part of a less common category of carbon credits arising from the transport-based reductions. According to Ecosystem Marketplace, transportation credits by volume were among the smallest named segments in the 2016 voluntary carbon market (see chart below).

- Many carbon credit purchasers recognize that transport-based emissions form a large proportion of their GHG "footprint" so the opportunity to purchase credits which reduce emissions in this same sector is very attractive



*Source: "Unlocking Potential: State of the Voluntary Carbon Markets 2017" by Ecosystem Marketplace, https://www.forest-trends.org/wp-content/uploads/2017/07/doc_5591.pdf

10. How are the EV charging credits calculated?
    - The kWh of electricity delivered through the chargers is measured and, based on the average kWh/100 mile ratings for the EV's on the road using Level 2 or direct current fast chargers (DCFC), the resulting EV miles driven is calculated.
    - By identifying a comparable fossil fuel vehicle for each EV model and given the number of these EV models on the road, the methodology then estimates the equivalent "mile per gallon" (MPG) figure for what would otherwise have been the conventional fossil fuel miles driven. Applying this "average MPG" to the EV miles driven thus estimates the gallons of fuel that would have been consumed, from which, given the GHG emissions from a gallon of fuel, the resulting GHG emissions ***avoided*** can be calculated (the baseline emissions)
    - The GHG emissions ***incurred*** arise when the electricity needed to power the EVs is generated (the project emissions). Their GHG impacts are calculated by applying the GHG per kwh rating for the relevant generation region to the kwh consumed by the chargers when servicing the EVs.
    - The resulting credits' GHG ***reductions*** equal the GHG avoided less the GHG incurred



11. How can we help unlock the carbon capital market for a new clean technology? What are the steps involved?
    - Carbon credits can only be issued in the voluntary market once certified by an independent third-party auditor such as Verra's Verified Carbon Standard (VCS) program. This provides the credible assurance needed for buyers to have confidence in the market's credits.
    - For the VCS program to certify credits, it must be able to use a set of stringent technical standards, captured for each sector/technology in a carbon methodology, against whose requirements any project put forward seeking credit issuance must be independently validated and verified by VCS.
    - EVCCC therefore invested in the development of such a methodology standard, tailored for EV charging infrastructure, collaborating with dozens of stakeholders whose insights help to shape the methodology's approach. VCS then applied its rigorous assessment procedures, using accredited carbon methodology experts, before accepting the final methodology into its program.
    - As a result, EV charging projects can now request that credits be issued on a VCS-certified basis
    - Once purchased, the transactions and resulting credit ownership is tracked through registry systems that underpin and govern the voluntary carbon market's operations and ensure buyer confidence.

12. What does it take for EV charging systems to issue certified carbon credits and make them available for sale?
    - EV charging projects must present their credentials to the VCS program so that their projects can be validated as meeting the methodology's requirements; credits are then

verified by VCS, typically annually, in order to be issued. The process begins with the operator or investor writing up a project description that conforms to the methodology's requirements.

13. Why are EV charging projects' carbon reductions "additional" and credible?
    - One key test that is applied during project validation identifies whether the market penetration for EV's in the country or region where the EV charger is located is under 5%. This "additionality" test is designed to examine whether the chargers and the resulting EV miles driven are "beyond business as usual". This ensures that credits are issued while EV charging markets are still at an early stage of development when carbon capital finance is most warranted.

14. Who is eligible to apply for carbon credits and issue them for sale?
    - This methodology is applicable to EV charging systems serving both the light duty vehicle (cars, trucks) and heavy-duty vehicle (e.g. buses) EV markets, not only in the United States but in many other countries as well.
    - EV charging systems owners are eligible to issue credits – or can agree to have other organizations collaborate to put projects forward on their behalf on an aggregated, "grouped" basis.

15. What happens if EV's practice "V2G" or infrastructure providers install renewable power?
    - The methodology accounts carefully for any "vehicle to grid" (V2G) exchanges of electricity between the EV itself (with its battery), the grid and any charging station's separate battery storage systems and renewable energy installations. So the resulting carbon credits can appropriately "parse" the greenhouse gas benefits arising from such innovative system practices.
    - This is particularly helpful because many leading states recognize that the storage capacity which EVs' and onsite charging stations' batteries deliver will be essential if renewable energy is to reach the ambitious scale which these regions have set for themselves. This is because large scale investments in renewables will require regions to be able to address the "intermittency" challenges – when renewable energy must be stored until dispatched to meet demand at different times of day. V2G practices can therefore provide an important new tool to help these intermittency challenges – and in so doing help regions to scale up their renewable energy investments.

16. What is a carbon methodology and why is it needed?
    - Without a carbon methodology, the third-party certification programs such as VCS would not have the "rules of the road" – the requirements against which to ensure that EV charging project credits are issued on a credible basis
    - The VCS EV Charging methodology provides the instructions and formulas for EV infrastructure investors to develop precise project descriptions that can become eligible for credible carbon marketplace sales after they are validated and verified. Specifically, the methodology details how measurement of electricity (in kilowatt hours) dispensed

at EV chargers corresponds to a reduction of carbon emissions from equivalent fossil fueled vehicles. The methodology adjusts for the carbon content of localized electricity from utilities as well as project emissions consumed by the EV charging equipment to generate transportation fuel.

17. How do projects address issues relating to double counting?
    - Carbon credit methodologies preclude double counting in many ways. For example, voluntary credits cannot typically be issued in markets with cap and trade systems which mandate GHG reductions in the same EV charging or transportation sector. So voluntary EV charging credits cannot be issued in California currently (which includes transportation emissions under its cap) but can be issued in RGGI states whose caps do not yet cover the transportation sector.
    - If renewable electricity is supplied by the EV charger, a project can only count this electricity as "zero carbon" in its credit calculations if it can demonstrate that any renewable energy credits associated with such electricity have not already been sold to another party.

18. Can carbon compliance markets avoid double counting credits issued in their same region while also using voluntary market mechanisms to issue in-state credits?
    - Washington State created a Clean Air Rule as a cap and trade system in which it was able to issue in-state credits (using voluntary market methodologies which the state has accredited) in sectors which were also included under its cap (such as transportation) without double counting. It achieved this by creating a "set aside" reserve so that any in-state, transport-based project credits (such as those from EV charging) would draw down allowances from the set aside reserve as their credits were issued; thus, this avoids double counting the resulting reductions against the importing fossil fuel providers' compliance obligations.
    - This innovative approach meant that investors committed to "mission critical" clean technology deployment, such as EV charging, could receive the value of the carbon credits their investments delivered even when these were located in-state under the cap. Such well-designed incentives strengthen in-state investment in energy and transport sectors – recognizing that such "downstream" clean tech investors are very often not those "upstream" parties who are regulated under the cap and who would otherwise be the only recipients of the carbon value that downstream investors deliver.

19. What will EVCCC be doing in the future?
    - EVCCC partners will be bringing EV charging carbon credit projects forward for certification – with a target of having credits available for sale in 2019
    - EVCCC is also committed to sustaining the VCS methodology and to encouraging other EV charging projects and investors to come forward to similarly gain access to this innovative new capital market

20. When will EV charging credits be available for purchase?
    - The first EVCCC partner projects from Electrify America, EVgo and Exelon should have credits available in early 2019

21. What is CNBN and what role did it play in the EVCCC?
    - The Climate Neutral Business Network (CNBN) is an independent advisory services company dedicated to identifying where the carbon capital markets can most accelerate our progress towards a 21st century low-carbon future. CNBN collaborates with clean-tech pioneers to develop the carbon market foundations needed to open up access to this new source of "patient capital" for mission critical clean technologies.
    - CNBN's role with the EVCCC included:
        i. The original idea of harnessing carbon capital markets to fund EV infrastructure and convened the founding members of the EVCCC to form the coalition
        ii. Developing the carbon business case which first examined whether carbon capital could provide a salient level of return that could accelerate EV charging investment
        iii. Consulting with dozens of stakeholders to examine how the most credible foundations for an EV charging carbon methodology
        iv. Held bi-monthly meetings with EVCCC partners to review development progress, gather input and achieve consensus
        v. Developing and securing VCS program accreditation for the EV charging methodology
        vi. Supporting EVCCC partners in then seeking project certification to issue credits
        vii. Engaging broader policy and market stakeholders to examine how EV charging credits could optimally be deployed across a variety of regional settings

22. What is Verra and the VCS program?
    - Verra is the new brand name under which the Verified Carbon Standard (VCS) program is managed and operated. The VCS program provides third party independent certification services for carbon credit issuance in the voluntary carbon markets.
    - The VCS Program is the world's most widely used voluntary GHG program. More than 1300 certified VCS projects have collectively reduced or removed more than 200 million tonnes of carbon and other GHG emissions from the atmosphere.

Appendix: Carbon Voluntary and Compliance Markets

What are the compliance carbon markets?
Compliance markets, such as those in California, Washington and the eastern seaboard, value carbon based upon a regulatory requirement for certain larger GHG emitters to cap their emissions (on a declining basis), allowing them to trade reductions under the cap between themselves. This enables these emitters to meet the cap's requirements in the most cost-effective manner. Those who can

invest in new technologies or encourage reductions among their customers can sell excess allowances to those who cannot. These "cap and trade" compliance markets also allow capped entities to purchase carbon "offset" credits, typically taken from uncapped sectors such as forestry and agriculture, in limited volumes in order to meet their obligations. These carbon credit "offset" projects must meet stringent requirements to demonstrate that their GHG reductions are "beyond business as usual" – that is they are "additional" – and meet other integrity standards which are enforced through third party project certifications. Certifying entities, such as the Climate Action Reserve in California, examine projects' eligibility and the volume of credits generated using accredited methodologies which provide the rules against which such credits are evaluated and issued.

What is the voluntary carbon market?

Voluntary carbon capital markets arise as a result of the voluntary purchasing of credits made by a wide range of organizations spanning companies like Microsoft and Google, utilities like Seattle City Light, cities from the Carbon Neutral Cities Alliance, campuses committed to Second Nature's American College & University Presidents' Climate Commitment (ACUPCC) and even individuals – all seeking to achieve carbon neutral goals or other GHG objectives. These project credits are not purchased because these organizations have regulatory compliance requirements; their purchasing is driven largely by sustainability and competitive/business interests which the credits can help to secure. Carbon credit purchases have thus become an integral part of many companies' sustainable business strategies as they seek to "do well by doing good." Independent certification of credits in the voluntary market, through organizations such as Verra's Verified Carbon Standard program, the Gold Standard, and American Carbon Registry, is still the foundational bedrock of credits' credibility.

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[i] Center for American Progress, https://www.americanprogress.org/issues/green/reports/2018/07/30/454084/investing-charging-infrastructure-plug-electric-vehicles/

[ii] https://energy.mit.edu/wp-content/uploads/2016/07/MITEI-WP-2016-06.pdf

[iii] https://www.gm.com/mol/m-2015-nov-1118-carbon.html