

Lithium-Ion Car Battery Recycling Advisory Group Meeting Minutes for 8.17.2021

1. **Call to Order, Roll Call, and Establishment of Quorum** – Caroline Godkin, Deputy Secretary for Environmental Policy and Emergency Response, CalEPA
 - Welcome to the 11th meeting and thank you to UC Davis and Mohammed for the behind the scenes work.
 - Advisory Member roll call:
 - Ana-Maria Stoian-Chu (AS)
 - Mohammed Omer (MO)
 - Hannon Rasool (HR)
 - Terry Adams (TA)
 - Dan Bowerson (DB)
 - Mark Caffarey (MC)
 - Todd Coy (TC)
 - Toshiya Fukui (TF)
 - Perry Gottesfeld (PG)
 - Steve Henderson (SH)
 - George Kerchner (GK)
 - Bernie Kotlier (BK)
 - Jennifer Krill (JK)
 - Nick Lapis (NL)
 - Alison Linder (AL)
 - Teija Mortvedt (TM)
 - Absent for roll call
 - Geoff Niswander (GN)
 - Lou Ramondetta (LR)
 - Les Schwizer (LS)
2. **Administrative items** – Mohammed Omer, Engineer at DTSC
 - Meeting is being video recorded and livestreamed
 - Public can ask questions and comment via chat or calepa.workshops@calepa.ca.gov
 - Approval of prior meeting minutes
 - Minutes approved

- Updates and questions
 - None
- 3. Presentation by Dan Bowerson, Senior Director for Environment and Energy at Alliance for Automotive Innovation
 - Sharing a policy proposal based on a consensus of automotive innovators responsible for 99% of sales in the US
 - Goal of policy is capture as close to 100% of batteries at EoL
 - Proposal for a core exchange and complete vehicle backstop
 - EVs still in service- core exchange program which is detailed by the EV battery supplier.
 - If removed, the entity removing battery is responsible for ensuring disposal
 - If the EV is unwanted at EoL, the auto manufacturer will properly dispose of the battery without cost to the EV owner
 - Responsibility timeline
 - Under warranty: Auto manufacturer is responsible
 - Battery replacement: Entity removing the battery is responsible (needs record keeping)
 - EoL: Auto manufacturer is responsible if in the EV, dismantler is responsible if removed from EV
 - Safety regulations
 - Auction houses can only sell EVs to licensed dismantlers
 - Dismantlers removing batteries act as collection center
 - Potential regulatory opportunities
 - Review of CA hazardous waste rules
 - Require record keeping for service-battery providers
 - Standardization for labeling
 - Apply penalties for non-compliance
 - Why back-stop is appropriate?
 - Batteries are properly reused
 - Doesn't increase upfront costs
 - Doesn't discourage innovation to recyclers
 - Encourages dismantlers to become licensed.

Questions:

TA: Question related to core charge. If I am a repair facility and pull out a battery, I would want the ability to sell and trade battery with as little interference as possible. How would the core charge impact this?

DB: I don't think it would impact them at all. The core exchange is ensuring there is paperwork for the batteries coming out of vehicle. There could be some manufacturers that institute a core charge but that isn't necessary.

TA: A core charge starts distorting the best economic pathway. I would rather see it more like a backstop—if there is no outlet than there is a way to provide a pathway. I would like as few restrictions as possible, except for paperwork.

DB: Good suggestion. I think the core exchange needs to be expanded but we want the flexibility to do so. This would be more for record keeping but at the same time some manufacturers will want a core charge.

NL: thank you so much. I am still trying to wrap my head around the backstop. Lets say you are a dismantler and there is negative cost with a battery you have. Is the proposal that the manufacturer would fund the take-back?

DB: Thank you. We think it is unlikely that the dismantler will be the one with the vehicle because they wont purchase from an auction house. This means the battery will be the responsibility of the auto manufacturer. The manufacturer will be responsible for ensuring transportation and the proper disposal of the battery.

AS: How do orphan batteries fit into this model? Those that are already dismantled or when the manufacturer is out of business.

DB: I don't see this any different than with an EPR. We would have to figure out how to take care of the batteries when an auto manufacturer is out of business.

AS: Who would provide oversight to this? Is it similar to EPR with enforcement and oversight by a government agency.

DB: There would have to be government oversight. The enforcement needs more oversight for 1) dismantlers, 2) OEMs are acting as a backstop. We would expect that included in legislation.

PG: This seems like it will not apply to all vehicles. It can maybe be added to other vehicles.

DB: When we say complete vehicle we are talking about the vehicles that have not had their parts removed by a dismantler. Vehicles in accidents are still considered a complete vehicle.

PG: Did your proposal state who should be doing the record keeping?

DB: Those removing the battery and completing any kind of transaction. I think this could be part of the core exchange program and be done by the companies. There would likely need to be some auditing, but I think it is an area that needs to be built out a bit more. We don't see a need for a state agency collecting that data but just auditing.

Audrey Depault (Tesla): Tesla supports some of the aspects, mostly to OEM responsibility and we believe this shouldn't preclude bilateral arrangements.

DB: Yes, we don't think that precludes that.

NL: It seems like the proposal from Steve and this could be complimentary and I think it is worth figuring out.

SH: I have been organizing this by who is physically responsible. It seems like the extended producer responsibility is clear about who is responsible. The way I understand with the full vehicle backstop, the responsibility is more diffused but it is with the folks who are dealing with the battery or the manufacturer.

DB: This proposal is a form of EPR, yes.

NL: It seems like if we are relying on either proposal, shouldn't we have standardized batteries across OEMS.

SH: CARB is going to have that in 2022. The entire world, led by the EU, have been working on this. At the global level, at 160,000 km, 8 years, and 80% capacity will have the warranty there by law. CARB is reviewing if that should be higher.

MO: Thank you. We will redistribute the presentation to the AG. The UC Davis group works very hard to capture all these discussions and turn them into policy recommendations and ideas. At this point the AG members should have provided feedback.

4. Presentation by Dr. Alissa Kendall, UC Davis, Final policy recommendation survey

- AG has seen original survey that was sent out, we got some responses and commentary. We want to revise this and send out a final survey for everyone. We want to do this publicly to comply with Bagley Keene. We received feedback from several AG members and others and our goal is to publicly present the updated survey. There will be changes in the future.
- The goal of the survey is to get clear feedback from the Advisory Group to facilitate more clear reporting, but it does not mean that what you see in the survey is what will be in the final report. This is just one tool that we have in a complicated process and make sure we accomplish public facing transparency when we synthesize these conversations.
- In this presentation we will go through the edits to the survey.
- After each slide describing survey questions, I will ask if AG members and/or the public have recommended changes. Please recommend your changes to the question on the slide in the interest of time.
- The question format unless otherwise specified is a proposed policy option.
 - The response options are strongly oppose to strongly support, with an additional option of support with modification.

- The first section is about defining responsibility for EOL management and financing mechanisms. This will be proposed as a Likert scale and then a rank choice.
 - There are seven options. The first is a producer take-back, instead of EPR. We have added the clarification that this be achieved at no cost to the consumer.

SH: Would this include the companion legislation we proposed as necessary as a note? I noticed there was one option with the companion requirements and one without.

AK: There are several options that are similar with minor changes.

SH: Our opinion at Ford is that this requirement is necessary

JD: The second option is changed with that last requirement removed because there was a lot of discussion about that aspect of the policy at the last meeting.

GK: I am assuming that the “no cost to the consumer” means “no cost to the consumer at end-of-life,” is that correct?

NL: That might be worth noting, it could be confusing otherwise that it might be seem like there could be an upfront cost associated with this.

AK: I am going to change this in real-time, does anyone object?

SH: That sounds reasonable to me.

AK: *modified options 1 and 2*

AK: We will move to option three. Dan, we got a lot of comments that people were confused about backstop and complete vehicle and removed it from the title.

DB: I hope that would be clearer after the presentation.

AK: Can I ask other members for their input?

DB: Can we removed ‘unwanted’

TA: My concern is that there are so many ways vehicles go through the system, auctions is just one way. I’m not sure where other vehicles will fit in. The likelihood of someone having a partially dismantled car where something gets pulled off and now it has a negative value, if you want to stick that on the auto dismantler that should be their responsibility, but I think this is defining a narrow case and will only apply to a small percentage of vehicles.

DB: I hear what you are saying, what if we remove complete and unwanted from the title?

TA: My main position is that I don’t want car manufacturers dictating to car repair facility, forcing them to manage their battery in a way that’s not market-driven or economical. So the core exchange should be a backstop that provides a pathway if they need to use that pathway. Otherwise as long as they are filling out all the paper they should be allowed to management that battery responsibly without a government program dictating how they are going to manage that.

DB: We are not trying to take any opportunity from the repair shops, we are just trying to ensure there is record-keeping to make sure batteries are reused, recycled,

TA: I am supportive of oversight; I just don't want to create an economic issue where you take away from the value of how the shop is run. I think you are right, and we are not unaligned here.

AK: I want to remind everyone where you get to disagree and say you don't like it, we are asking about issues that make it impossible to answer. We have a lot to cover.

PG: I don't know if this really is an option, I think the backstop for unwanted vehicles is not a policy proposal it is an option in addition to other policies.

AK: Yes, and these are not mutually exclusive, and you can include these comments in the survey.

PG: I think it should still say backstop for unwanted vehicles since that is the narrow case we are defining.

TC: I was just curious about the core exchange component. Are replacement components available if you are outside the dealership network? Battery packs are typically sold as a unit and I am not sure modules and cells are available on a broader scope.

DB: We put that as a parenthetical because we don't know what the future will hold, we want to leave that as protection for potential future opportunities.

AL: I think the term "unwanted vehicle" is contradictory to the sentence underneath. We are talking specifically about replacing a damaged module or a damaged battery, we are not talking about an unwanted vehicle.

AK: The idea is that this is a two-part proposal, the first part is a core exchange for replacement batteries and the second part is for end-of-life vehicles.

AL: Why do they need to go together?

DB: Because if you are only address replacement batteries you are only capturing a small percentage of batteries.

AK: The next options, 4-6, are about an environmental handling fee. The only modifications have been omitting language about the current e-waste program run by CalRecycle. Option 7 defines the current owner as the responsible party. There have been no changes to this question. That completes our first group of questions for defining responsibility. We will edit three to match what we just discussed. We also have added a follow-up question to specify which entity should manage the program.

GK: Can we add a third option, so it's "a third party," "a third party under state oversight," and "a state agency"?

No objections

AL: Can we add a provision, I'm trying to think how to phrase it, but I want to say something about preventing the funds from being diverted into the general fund?

TC: I support that comment

AL: I wonder if the terminology needs to be added to the state agency option

MO: The funds are in 4,5, and 6. We can state there that the fund is not to be absorbed for other uses.

CG: I support that specification, but it gets into technical issues that are beyond the scope of how this fund gets set up and the legislature. Specifying that it is a dedicated fee for the purposes of, rather than getting into details of “not to belong to the general fund,” would be better so that we don’t get into technical budgeting details if that works for everyone.

AK: Add “these are dedicated funds for managing EOL batteries and should be preserved for this use”

AL: I would add “under appropriate legislative procedures”

CG: We want to keep these recommendations broad; we aren’t making a specific recommendation on how to achieve them.

JH: I am with Call2Recycle, we run private and public programs. I think how you wrote it is fine, and I wanted to assure everyone that we run programs for industry on behalf of the public and there are mechanisms for keeping those funds separate. I think you captured it appropriately here.

AK: Then there is an open-ended question to write how the fund should be used. The next section is about access to battery information. We had a physical labeling requirement and did not have any comments on this part of the question. We also have a question asking which information should be included as part of a labeling requirement. We omitted composition. *no comments*

The next question is about an electronic information exchange. We did not have any comments on this question. We also deleted composition but otherwise the options for what should be included are unchanged.

Next is the proposal we put together about the universal diagnostic system. We did not have comments on this language. Then a follow-up question asking about requiring access to SOH information without specifying the mechanism.

Next are questions about supporting reuse and recycling industry development. We received a lot of feedback about this and deleted the first option because you cannot make changes like this for specific industries. For the second question which is about all hazardous waste processors, we have omitted “budget” and reworded the policy.

I don’t hear any comments or see hands raised so I will move on unless someone wants to bring up any issues. The next question is an economic incentive package provided to lithium-ion battery recyclers. We did not have any comments on this question. The next two questions were also deleted about limiting rule changes to only occur at permit renewal, these are not possible.

Two more where we did not have comments are expanding eligibility for relevant incentive programs to include reused batteries and incentivizing a disassembly industry within California, similar to what we saw for the recycling industry.

GK: Recognizing the difference between reuse and repurposing, repurposing meaning you will use the battery in a different application for which it was used.

AK: I will add repurposed to this definition.

DB: This is in the title of option six as well.

*option 6 modified to include reused *and repurposed* batteries*

GK: It is in the header as well. *modified to “support reuse, repurposing, and recycling industries”

AK: The next section is to support circular economy and quality recycling. The first is on minimum material recovery rates. We did not receive any specific comments on this question.

PG: I am not sure about the definition of material recovery rates.

AK: This applies to a specific recycling facility and the recovery rates they achieve.

PG: I think the large elephant in the room is about “output of usable materials.” That could mean anything to anyone and opens the door to nonsense about what people report as their material recovery rate.

AK: Okay, so would there be a purity requirement or is it an impossibility?

PG: Maybe it's enough to say that a regulatory agency would define what this means at a later date.

AL: Maybe you could define the use? Like “usable in another battery” or define the use somehow?

AK: I think that's right, if you were to use lithium in slag for concrete that shouldn't count.

TA: This becomes a tar baby when you try to figure it out. You can't limit where stuff goes. Materials move down the value chain. Somebody may create a black mass that will capture 100% of the metals and it will move to someone else that may or may not capture all of those things. The next guy, where do you draw the line? It becomes problematic or easy to get around. You are either kicking the can down the road or having some other way to have certified recycling, typically it goes back to the customer. Our customer would be the OEM who will contract with a facility because it meets their requirement. This will be complicated and difficult to enforce.

MO: Harry Kumar left a comment suggesting “usable critical materials.” I agree with Terry that this specific question requires a little more hashing out.

TF: Supporting what Mohammed and Terry just said, I think this target will change and best practices today will be different from best practices in the future. I agree that this is a moving target and will be hard to define.

JH: I agree with Terry as well, moving targets, way too early to start regulating this. Added to this is that if you put a regulation in place, you may force batteries to travel a longer distance to get to a facility with a higher recovery rate but it may have a higher carbon footprint overall.

NL: I have the same concern in the opposite direction, that if there are none of these standards in place it will be a race to the bottom and batteries will be sent to the cheapest facility with the lowest standards.

AS: We might want to add that the targets should be reviewed to acknowledge technological development and modified up or down, we want to have flexibility.

BK: I think even if we don't have the answer for the legislature, we should be messaging them about the complexity and communicate the importance of tracking the evolution of the technology and economics. I think this should be reflected in the report.

AK: The next question is about third-party verification.

TA: Clarification of dismantling vs. disassembly.

TF: Who is going to be selecting and paying for the third-party verification?

AK: We do not have anything about who should pay for it, but did say that the legislature would establish the third-party verification process.

TF: So would the legislature develop that with the state agencies? I think this could be a point of contention in the future—who is paying for it and who is administering it.

TC: It is a rather ambiguous paragraph in my opinion. Shouldn't the permitting process be referenced here as the standard or minimum standard in terms of environmental performance criteria? At which point maybe a third party would come in and require standards that are not aligned with the performance criteria.

PG: This would be above and beyond minimum requirements for permitting, and that is why we provided these examples like E-stewards and PaintCare. It involves an audit and would be performed by a third-party.

AK: And I believe we were also thinking about battery recycling facilities that are not located in California or not in the US, and the need to have a means to ensuring that batteries are recycled in a safe facility.

PG: Correct, the intention is to level the playing field and ensure you are comparing

Thomas Novak: I don't think disassembled

PG: This would only apply to facilities that recycle batteries.

GK: This could go on for an hour, I disagree with the last two commenters.

Disassembling is an area where we see a lot of safety concerns and I think it should be part of that first sentence. The way this is written, guaranteeing high quality recycling, that is what the whole permitting process is about in California. There is a high bar and make sure it is a level playing field across the US and internationally we should say that. I think this needs a lot of work. I wasn't part of the group that helped draft this so I am out of the loop but this language makes me nervous.

NL: The key point is that we don't want batteries shipped overseas and mismanaged overseas and we should clarify that.

BK: I agree with Nick, I think this even playing field is really important and expressing concern about shipping materials overseas. Shipping materials overseas is a high carbon-footprint and particulate pollution activity, and those considerations should be

referenced as part of the even playing field. Beyond that we need to be concerned about the even playing field within the United States because we know states have various rules and regulations.

TC: I think the intention is wonderful, I think the ability to meet those intentions may be somewhat nebulous in terms of the purpose of this committee and the State of California in an attempt to influence what occurs outside the state of California. If the intention is the application of a level playing field, the ability of this committee to influence activities outside the state is questionable. If this is an entity within California it is adding another level of bureaucracy that may not be adopted by other states outside California or in other destinations where batteries may end up. California already has a high bar and we have seen the consequences of that.

AK: The purpose of the survey is for people to say unequivocally, I don't like this. We are running out of time and I want to make sure we can go through all of these before we run out of time.

PG: My suggestion on the language is to say "Even playing field in any jurisdiction." This is not some foreign concept that was invented in the context of these batteries. Everyday governments decide where to ship used electronics based on battery recycling practices. In terms of the carbon footprint we would need to separate the facility and the shipper.

TA: We are just getting so deep in the weeds, talking about the carbon footprint, it never ends and this is so far beyond what we can control.

AK: Thanks Terry, we have not added any of the language about the carbon footprint to this text.

Next questions: develop a reporting system for retired/exported batteries and develop a reporting system for lithium-ion battery recycling rates.

TA: Does this also include repurposing batteries?

AK: It states that companies repurposing EV batteries are responsible for reporting the final recipient. Clarify title as "retired from EV use"

PG: You have taken out CalRecycle, are you insinuating that California as a state should do this or who are you suggesting will do this?

AK: We received feedback that we should take CalRecycle out.

PG: Add for the state of California in the title

AK: The next one here is recycled content standards, this proposes a mandatory recycled content standards to ensure the use of recycled materials and battery manufacturing. Added that the rates should be phased-in and reviewed/revised to account for technical developments. The last one is design for reuse and recycling, we did not receive any comments for this.

BK: This goes back to the definition of reuse, and whether reuse and repurposing should be included.

AK: *Added repurposing* The final section is supporting safe and efficient reverse logistics. The first one had no changes about developing training materials. The second one is supporting existing efforts to improve the enforcement of unlicensed dismantling laws. We have removed the information about the pending senate bill on this and add that increased resources should be provided to improve the enforcement of unlicensed dismantling laws.

TA: Change last sentence to “unlicensed dismantling facilities”

AK: We did not receive any comments on pre-approval to bid on EVs at auctions, but we received quite a bit of feedback on the interpretation of universal waste regulations. We deleted most of this.

MO: Change first sentence to “facilitate battery reuse, repurposing and recycling”

AK: 5 and 6, develop strategic collection and sorting infrastructure and identify strategies to reduce the burden of transportation, received no comments. That’s all the policy options. As a reminder, the final survey will be emailed by August 19 and is due back to us on September 9th.

MO: Kudos to you Alissa for getting through all those slides. We will meet on August 31 if folks still want to so if we want to discuss the survey more we can do that then and plan our fall meetings. Please fill out the survey so I don’t have to remind folks via email. Do we have any public comments to the email? *no*. I did see some comments in the chat:

- Ryan Barr: “There is a survey question about incentives for recycling on slide 23. I would propose duplication of that question plus replacement of "recycling" with "repurposing"
- “also, I suggest removal of "reuse" from the survey question on slide 25 which mentions SGIP. This questions seems to relate exclusively to repurposing”

MO: Does anyone have any comments they would like to make before Caroline adjourns our meeting?

SH: Well done getting all of this done today.

CG: Thank you everyone and thank you to Mohammed for facilitating today’s meeting. If there are any other issues anyone wants to cover please reach out to Mohammed or I, thanks everyone and meeting adjourned.