

Lithium-Ion Car Battery Recycling Advisory Group

Meeting Minutes for 1.26.2021

1. **Call to Order, Roll Call, and Establishment of Quorum** – Caroline Godkin, Deputy Secretary for Environmental Policy and Emergency Response, CalEPA
 - Advisory Member roll call:
 - Teresa Bui (TB)
 - Mohammed Omer (MO)
 - Courtney Smith (CS)
 - Terry Adams (TA)
 - Dan Bowerson (DB)
 - Mark Caffarey (MC)
 - Todd Coy (TC)
 - Toshiya Fukui (TF)
 - Perry Gottesfeld (PG)
 - Steve Henderson (PH)
 - George Kerchner (GK)
 - Bernie Kotlier (BK)
 - Jennifer Krill (JK)
 - Nick Lapis (NL)
 - Alison Linder (AL)
 - Teija Mortvedt (TM)
 - Geoff Niswander (GN)
 - Lou Ramondetta—not present
 - Alisa Reinhardt – not present
 - Thanks to staff, Mohammed, Teresa, technical team, UC Davis team. This time of year is when we start digging into the recommendations and what they will look like going forward. I am looking forward to getting subcommittees off and running
 - Since we last met, the incoming federal administration has announced significant climate change targets and action plans. We work closely with the federal government and will see what that looks like going forward and what that will mean for the charge if this committee.
 - At the start of Jan, Newsom introduced his budget. Principles of budget were based around COVID response, getting Californians vaccinated, providing relief to Californians and small businesses. Also specific in advancing

equitable economic recovery, which is important for the work of this group; how can the recommendations we make support broad-based equitable economic recovery? Budget also entails fiscal stability for DTSC; 300 million investment for cleanup of legacy haz waste communities. Commitment to further circular economy goals and advance EPR policies at CalRecycle

- CS: Part of economic recovery package focuses on rapid transition to ZEV transportation, including a \$1.5B budget to go towards supporting ZEV sales mandate. \$1B will go towards charging and refueling infrastructure, \$.5B to clean vehicle technology. The focus is getting to scale and accelerate private capital investment. I will send out the budget summary in greater detail.
- Link to budget: <http://www.ebudget.ca.gov/2021-22/pdf/BudgetSummary/ClimateChange.pdf>
- Meeting is being video recorded and draft minutes will be uploaded. If anyone wishes to make a comment please note it in the chat. There will be opportunities for public comment. Please note in the chat or email calepa.workshops@calepa.ca.gov

2. Review and Potential Approval of Draft Minutes from December 14, 2020 Meeting - Mohammed Omer, Engineer, DTSC

- [skipped due to technical difficulties, but minutes were approved under item 4]

3. Interim Updates – Caroline Godkin, CalEPA

- CG: Do any AG members have updates they would like to share? Courtney will start off by talking about grant program
- CS: The California Energy Commission oversees grant programs, including the Epic grant. Grant solicitation will be focused on increasing economic viability of recycling methods to recover materials and reuse them in manufacturing. We expected solicitation and award amount to be \$2mil; expect 2 awardees. There is an open call for applications. Priorities are to scale direct recycling processes; evaluate performance of batteries made with recycled materials; conduct environmental and economic analyses that can improve recycling processes. First deadline is Jan 28, March 15 is final application deadline. Workshop held Jan 21 was recorded. Grant is open to public and private entities.
 - Link to grant description: <https://www.energy.ca.gov/event/2021-01/pre-application-workshop-gfo-20-308-research-and-development-high-value>

4. Presentation on Used Vehicle and Spent Lithium-ion Battery Exports – Perry Gottesfeld, Occupational Knowledge International

- I have a background in public health and been a subspecialist in lithium-ion impacts.
- We have not talked about vehicle exports and how they will affect battery

recycling and EV EOL

- The UN Environment Programme Report
 - EU, Japan, and US are largest exporters (about half from CA)
 - Huge growth of vehicles in developing countries, most of which are used vehicles
 - Recommendations on countries to increase incentives for used vehicles that are electric and hybrid.
 - Ignores the hazards of these batteries
 - Hybrids and EVs are a growing segment of the used vehicle market
- US is also a significant exporter of new EVs
 - In 2019, US exported 200,000 new EVs and around 80,000 used hybrid vehicles (10% of all vehicle exports)
- EPA Regulations on exporting spent LIBs
 - US allows for LIB exports even though they are classified as universal/hazardous waste
 - Batteries may be exported to any facility that is “operating or authorized to operate” in the country
 - Exporters must notify EPA of intent to export Universal waste. EPA gets written consent from receiving country
 - The EPA gets this from the embassy in DC, not from an environmental authority
 - After acknowledgement, there is confirmation of receipt from contractual receiving party, then submission of electronic export information
 - Not required: confirmation of recovery or disposal, use of specific customs code for reporting and RCRA hazardous waste manifest
- Conclusions: exports of both new and used EVs and hybrids are significant and likely to grow. We are likely to see larger numbers of used LIBs. State policy may not influence exports but it is important that they are taken into account
- Questions
 - GK: Where did the export data come from? Re: LIBs and hazardous and universal waste, it is still an open question whether EV LIBs are hazardous waste
 - PG: Universal waste classification is taken from EPA, consistent with what we heard from California authorities. Sources are on the slides.
 - GK: I disagree about hazardous waste classification but we can talk about that offline.

- NL: We should factor this in, we have control over what we export as a state. Under the covered electronic waste program we prohibit export to non-OEC countries or countries where it violates local laws to accept it. It would be a violation under the Basel convention unless it has been officially sanctioned on our side. I hope our recommendations factor in some kind of tracking to make sure we are not creating bad conditions overseas.
 - PG: Thanks, I agree
- BK: My question is about the ratification of the treaty. What is the time period when it would have been ratified by the treaty and is it likely that it might be ratified with the new administration?
 - PG: It has existed for 20 years but has come into effect more recently as more countries have ratified. I don't know if there is interest in the federal gov to take this over the finish line but it is an embarrassment that the US has not done so.
 - NL: California does have a resolution urging Congress to ratify the legislation
- TF: Just want to comment, this a great presentation. I know from the OEM perspective, one of the challenges is when batteries are exported to countries that were not intended markets, then customers require support and parts.
 - PG: Adds to what we talked about at the last meeting—for those dealing with vehicle at EOL it's difficult
- Bradley Smith: If a battery is used, shipping it is a hazardous material but not necessarily a hazardous waste. There is a distinction between spent vs used batteries.
- MO: Approval of draft meeting minutes? Silence taken as approval, minutes approved

5. **Presentation on Updated European Union Battery Directive** – *Willy Tomboy, Recharge*

- EU Directive on batteries has existed since 2006, there is also regulation on recycling efficiency that has existed since 2012
 - Recycling efficiency also applies to EV batteries, but Lithium batteries were not addressed in 2006
- Difference between Directive and Regulation
 - Directive is published in European Journal then must be implemented by member states
- 3 categories of batteries mentioned in Directive

- Portable batteries
- Automotive batteries (starter batteries)
- Industrial batteries
 - In upcoming changes, an EV battery will have a new definition. Currently they are considered industrial batteries.
- Collection vs. take back
 - Collection means member states shall ensure appropriate collection schemes are in place for waste portable and automotive batteries
 - Takeback means producers shall not refuse to take back waste industrial batteries at no cost
 - Importers have producer responsibility
- Recycling efficiency targets
 - 65% for Pb acid
 - 75% for Nickel cadmium
 - 50% for other batteries (inc NiMH and LIB)
 - Proposal is to increase targets to 65% in 2025 and 70% in 2030
- EPR
 - The one putting a battery on the market is considered the producer (i.e. that includes the importer)
 - That means they must report batteries placed on market to authorities, batteries collected, battery take back, batteries recycled, demonstrate recycling efficiency
 - EPR can be transferred to a third party
- Collection & Recycling Organization (CRO)
 - Operate on behalf of producers, responsible for meeting objectives and promoting collection/take back. Work closely with authorities
 - Most importers are linked to Febalato in Belgium
- Battery strategies and priorities of the EU commission
 - Extend product life of batteries as waste prevention measures
 - Keep value added as long as possible and eliminate waste
 - Member states shall promote reuse and extension of lifespan
- There are a number of measures that will be taken in the recast of the Batteries Directive (graphic on slide 10). Include legal provisions on second-life, EPR, LCA, performance and lifetime requirements, classification and definition, new collection targets

- Measure 2: Second-life
 - No definition of second life in current directive
 - M2 will introduce new
 - Distinct from reuse
 - Repairing, rebuilding, remanufacturing, reassembling → batteries can be marketed as exchange units
- New regulation to be implemented in the EU as of Jan 1 2022 with specific objectives through 2022-2030
- Summary: what is needed
 - Doing away with regulatory grey zone is necessary to develop second life business
 - Useful & descriptive def of second-life/repurposing included
 - Necessity of early diagnosis to determine tipping point between product phase and waste phase
 - Decide on moment of transfer of ownership or change of application to determine EPR
 - Ensure traceability throughout complete life cycle (from production to recycling)
 - Ensure safety, quality, and consumer protection requirements
- Questions and comments
 - MO: interesting that there is no legal definition of second-life, which is often interpreted. EU seems to be struggling with transfer of ownership, which we have also been working on. Can you comment as a private citizen on what the bias is from transfer of ownership?
 - WT: From an OEM perspective, they want a clear transfer of ownership because they want to make sure their batteries are used for intended purpose. If someone starts using the batteries for something else and there is an incident, OEMs don't want to be liable. We are starting to see business agreements between OEMs and repurposers or recyclers that ensure batteries that have been placed on the market. BMW and Daimler are remanufacturing their batteries for stationary storage applications. From a recyclers point of view, they want to see batteries classified as waste immediately so they go directly to recycling. So it depends which angle you look at things. Overall when I look at the whole value chain, what the EU is trying to do makes a lot of sense. They address industrial batteries used in EVs, they address micromobility batteries with a collection target for e-bikes. There are still problems of course but they are going in the right direction. There is more harmonization with other regulations; i.e. chemical regulation in production. From

an environmental perspective things are moving in the right direction

- PG: What is the process for addressing the issues you pointed out that need to be resolved?
 - WT: I made this slide some time ago and in fact all the issues are being addressed in the new regulation that we will have as of Jan 2022. The rollout of some of these items will probably take until 2030 or even 2035.
- PG: Are recycling efficiencies reported by recyclers? Some room for interpretation re: useful outputs
 - WT: Recycler has to prove that from the volume input vs volume output, he reaches a certain efficiency. Question is that they receive big batteries, small batteries. In 2012 we did batch trials with specific batteries. Now each recycler has to demonstrate efficiency each year, and producers have to demonstrate the recycling efficiency of batteries they have placed on the market. Calculation is subject to a lot of debate and there is a lot to be improved.
- BK: Good presentation, thank you. My question is the tension between the societal objectives that repurposed batteries are safe and to make sure that batteries are repurposed and that the cost and testing do not create a burden that impedes the deployment of repurposed batteries. How is this handled in Europe?
 - WT: I have been looking into repurposing for the last ten years. Why do people repurpose EV batteries? It is to reconvert them into stationary applications. The thing is those batteries are high tech, high quality, very expensive, so they last a long time—almost lifetime of vehicle, 10-15 years. Imagine I have a 10 year old battery and then I repurpose it and bring it back on the market, knowing there is a revolution going on in battery technology; how will batteries be 10 years from now? Will it be interesting for me as a consumer to buy a repurposed battery vs a new battery? Exchange units are usually sold 35-40% below price of new unit, so that's a key to the economics of repurposing and I'm not sure how that will look 10 years from now. I think there will be business but I'm not sure how big it will be .
- BK: Is there a testing requirement?
 - WT: When you place a new battery on the market you have to go through UN testing procedures.
 - GK: I will speak to UN 38.3 requirements in my presentation, it's key.

- TB: You touched on the extension of product service life, are there expectations for manufacturers putting a warranty on products? Any discussion on design-for recycling?
 - GK: We used to talk about DFR. There are so many options—you can have a smaller battery with a lower range, a larger battery at a higher cost. They are starting to market batteries like they used to market engines. OEMs want to sell cars and spare parts because they want to make money. I don't know. It's an interesting question but I don't know.

MO: We also had a question if second life batteries include batteries that are produced for another use.
 - GK: Yes, it typically refers to batteries that are taken out and used in stationary storage. We are also seeing hobbyists taking EV batteries and putting them in antique cars. I think this is dangerous, I find this an unhappy development and I'm not sure how regulations will deal with this. These are exceptional cases and the bulk of repurposing will happen from OEMs and in B2B contracts. In the US, Dirk Spiers has B2B contracts with most OEMs
- DB: Thanks, I'll be quick. In terms of process for the EU, you mentioned regulation was released 2 weeks ago.
- WT: It was a proposal, not a regulation
- DB: That was my question—what is the process
 - WT: The commission issued the proposal, the proposal goes to European parliament, they can make recommendations, the commission reads it and can accept changes or not, it will go back and forth. European council also talks about it and gives advice. But normally with this proposal which is nearly 70 pages long, I do not see a lot of difficulty and I think the proposed time target for Jan 1 next year is achievable.
- TC: First I want to say I agree with you about second use, it is a challenge to be certain. In the US, UL came up with a certification for companies that wanted to reuse batteries in stationary storage. Does Europe have any such program maybe through the CE or another body that may be looking at this?
 - WT: Standardization bodies have been looking into this as well. For example we have used the UL definition of repurposing. Also looking into standardized practices for diagnosis and making design more uniform
- MO: Now we will shift to an industry presentation on relevant regulations

6. Battery, Automotive, and Recycling Industry Presentation on Applicable Regulations – *George Kerchner, Executive Director, PRBA – The Rechargeable Battery Association; Todd Coy, Executive Vice President, KBI Recycling*

A. Presentation from George Kerchner

- This is a great opportunity and good timing as we head into subcommittees
- Start with DOT regulations
 - LIBs and battery powered vehicles are regulated as Class 9 hazard materials
 - Hazmat regulations are applied consistently across all 50 states which promotes interstate commerce
- Test and criteria are specified in subsection 38.3 of the UN manual of tests and criteria
 - Cell design goes through a series of tests, then batteries are subject to a series of tests, then modules + packs could be subject to additional tests. This is an internationally recognized standard.
 - Every cell or battery in the market is subject to these tests
 - It's a paper trail to track how batteries are moved
 - modified batteries will be subject to 38.3
- If you compare lead-acid to LIBs, they are subject to exceptions that facilitate transportation and collection of waste batteries.
- Failure to comply with HMR may result in civil penalties of up to \$83,439 per day per violation. Federal Motor Carrier Safety Admin and states have separate regulations that mandate driver training, licenses, registration of vehicles for transporting hazardous materials
- Damaged and defective Li-ion batteries, 49 CFR 173.185(f)
 - Necessary because otherwise it was impossible to move damaged batteries without special permission
 - Three biggest challenges:
 - Assessing whether battery is damaged/defective
 - Securing costly packaging that meets HMR requirements
 - Cost of transporting battery
- International Fire Code and LIBs
 - IFC in 2024 will impact companies that store LIBs
 - Facilities will likely require:
 - Permits from local enforcement authorities having jurisdiction
 - Fire safety plans
 - Automatic fire detection & alarm systems
 - Compliance with new construction mandates

- Limits on outdoor storage
- Hazardous waste, secondary use, refurbishing, remanufacturing
 - Definitions of refurbished/remanufactured (used for same purpose) vs. repurposing/second life from EU proposed battery regulation, 2021
 - What are the TSD permitting implications? What are the UN 38.3 battery certification implications? Repurposers should be required to meet those requirements and be aware of this
- EU Battery regulations
 - They have been effective at modifying dangerous goods transport to provide regulatory relief and facilitate collection and recycling
- Summary
 - OEMs are working with battery recyclers and have existing arrangements to collect & recycle LIB EV batteries
 - A mandatory EPR program with unrealistic mandates will create obstacles
 - Significant uncertainty remains over how refurbishing/remanufacturing LIB EV batteries would impact an EPR program
- Questions
 - TC: New information for me about Netherlands, and the member states that have adopted regs for LIBs. Do you know what they are being regulated for?
 - GK: I don't know, good question
 - BK: Question about differences between UN 38.3 and the UL standard?
 - Biggest difference is that UN 38.3 is mandatory for any market that is placed on the market. UL standard is not mandated
 - Can't speak to specific differences, not familiar enough with UL standard
 - NL: Question about last slide—you suggest that an EPR with unrealistic mandates will hinder recycling. Can you explain what you mean?
 - GK: Because we have these grey areas about how we would calculate recycling rates for EV batteries, trying to develop a recycling rate recognizing that many batteries are exported or broken down and the OEM may be out of the picture, how to come up with a recycling rate with so many variables would be an enormous undertaking. In the EU, the only thing required is recycling efficiency
 - NL: So the tracking is the problem?
 - GK: yes and who would be responsible at the end of life, especially

if you repurpose. Factoring that into a collection and recycling rate, is an enormous challenge. We're better going to recycling efficiency for batteries.

- NL: So would the suggestion be that we require an efficiency rate for facilities but require that batteries go to those facilities? For example, we mandate that all batteries go to facilities that have met those efficiency requirements?
 - GK: No that is not what I mean, recognizing that recycling is lacking here, but if we are going to measure anything, recycling efficiency would be easier to address than collection & transportation
- MO [reading comment in chat from Lauren Roman]: UN 38.3 is about transportation, UL standard is about safety and performance
 - TA: Does DOT distinguish between used and new batteries? We seem to be dancing around this.
 - GK: There is nothing in regulations, either US or international, that distinguishes between new and used. There is a provision in 49 CFR for batteries shipped for disposal or recycling.

B. Presentation from Todd Coy, KBI

- KBI is located in Anaheim, CA. Permitted to manage batteries in CA. Do not recycle batteries, or smelt, shred, refine
 - Demanufactures batteries and returns lead to secondary markets
 - Established offsite facility in Brea to support OEMs. Provides
 - Dealer support
 - New battery warehousing
 - Repair on large battery packs
 - Provide DOT compliant battery pack transportation logistics
 - Provides collection and consolidation for downstream partners
- Dispelling myths
 - Recycling exists in North America and more capacity is projected to come online over time, we don't know what the recycling rate but is greater than 5%, it is unlikely that EV batteries will end up in municipal waste
 - Industry is working on closing supply chain and creating circular LIB economy
 - Technology adoption remains fluid
 - Many OEMs have developed programs for managing EOL batteries

- Important to understand relationship between dealers and OEMs
 - EV market is growing and chemistries are changing
 - A lot of batteries are shipped from Brea, CA to Trail, BC
- In California
 - There are no permitted LIB recyclers
 - There are many facilities that collect batteries, mainly e-waste processors
 - There are 2nd use companies being developed
 - Most collectors operate as a universal waste handler
 - Notifications to the state
 - EPA ID number issued
 - No treatment or processing
- California regulation
 - LIBs are a California regulated hazardous waste
 - Recyclers would be considered hazardous waste treatment and subject to hazardous waste operation permitting requirements (part B permit status)
 - Part B permitting in California
 - Issued by CA EPA for hazardous waste treatment activities
 - Renewal for existing facility averaged 4 years to take (2 years after submission for their review) and they operate still in this grey area
 - New facility permit (7 to 10 years)
- New opportunity
 - R&D of high value recycling pathways for LIBs
 - Development of direct recycling technology for reuse in cathode materials
 - Challenge may be for proof-of-concept processing for commercialization
 - They proposed a pilot recycling project with Duracell and it was discontinued bc there was no regulation that would allow for a proof-of-concept
 - They assume most EVs sold in CA will reach EOL in the state
- I am a CA native and protecting the state is the top priority but this is an

- opportunity to look at policy reform and changes.
- Questions:
 - PG: Can you tell us how much it cost to get the permit and how long it took?
 - TC: The permitting process in California takes a long time and in Ohio they got a quicker response. The process took 12-15 months. Companies are planning to locate in Nevada
 - DB: Are there regulations or requirements that would prevent you from recycling LIBs and other battery types in the same facility?
 - California requires a permit modification to incorporate lithium treatment or processing in the state, although we haven't looked at it.
 - It would be relatively easy to do in Ohio

LUNCH until 1:00 pacific time

7. **UC Davis Team Introductions and Discussion of Format for Subcommittee Meetings** – *Dr. Alissa Kendall, UC Davis*

- MO: UC Davis Team are paid experts who have been assisting in this process and should have been formally introduced in November 2019.
- AK: This will be a short presentation to introduce our role in the subcommittee role
- Workplan
 - Each subcommittee will have an assigned facilitator and notetaker from UC Davis.
 - Subcommittees will nominate a Chair. The Chair will help ensure that the subcommittee is effective in achieving workplan targets
 - The Chair will collaborate with UCD team on meeting agendas and presentations to AG during quarterly meetings
 - Each subcommittee will report on their progress to the larger group during quarterly meetings
 - The UCD team will be responsible for writing up the results of subgroup discussions and filling in the draft outline and report
 - Documents will be publicly viewable on Box. Changes and comments can be emailed directly to UCD team, who will edit and reupload the publicly viewable document accordingly.
- Team introductions
 - Reuse= Alissa, Recycling= Jess, Logistics =Meg

- Alissa Kendall
 - Professor of Civil & Environmental Engineering and Chair of the Energy Systems graduate program at UC Davis
 - Joint PhD in Civil & Environmental Engineering and Natural Resource Policy from University of Michigan (2007)
 - Previous experience includes work in automotive engineering on early hybrid and electric vehicles at Ford
- Jessica Dunn
 - MSc Degree in Economics and Policy of Energy and the Environment from University College London
 - Private sector experience in wind and battery operations at Customized Energy Solutions and renewable energy economic forecasting at 3Degrees
 - PhD researcher at UC Davis with a focus on using industrial ecology principles to create sustainable lithium-ion battery end-of-life policy
- Meg Slattery
 - BA in Science, Technology & Society from Vassar College (2015)
 - Worked for a rural development NGO in Nicaragua for three years
 - M.S. in Energy Systems from UC Davis (2020). PhD research focus: Using mixed-methods (i.e. qualitative + quantitative) research to understand the lithium-ion battery supply chain and end-of-life management.

8. Assignments for Subcommittee Membership – *Mohammed Omer, DTSC*

- Three subcommittees will be established by the advisory group and then we will go through and self-select
- Approval of dividing the subcommittees into reuse, recycling, logistics
 - CG: Aye
 - TB: Yes
 - MO: yes
 - CS: yes
 - TA: yes
 - DB: yes
 - MC: yes
 - TC: yes
 - TF: yes

- PG: yes
- SH: yes
- GK: yes
- BK:
- JK: yes
- NL: yes
- AL: yes
- TM:
- GN: Yes
- LR:
- AR:
- **Subcommittees established by quorum**
- People indicated preference in the last meeting and through a survey with Mohammed, but now we will formally make committee assignments.
- Subcommittee assignments:
- Reuse:
 - (1) Todd Coy
 - (2) George Kerchner
 - (3) Bernie Kotlier
 - (4) Teija Mortvedt
 - (5) Geoff Niswander
 - (6) Alison Linder
 - (7) Lou Ramondetta
- Recycling:
 - (1) Terry Adams
 - (2) Todd Coy
 - (3) Toshiya Fukui
 - (4) Perry Gottesfeld
 - (5) Steve Henderson
 - (6) Nick Lapis
 - (7) Teija Mortvedt
 - Mohammed Omer
- Logistics:

- (1) Dan Bowerson
 - (2) Mark Caffarey
 - (3) George Kerchner
 - (4) Jennifer Krill
 - (5) Teija Mortvedt
 - (6) Teresa Bui
 - (7) Alisa Reinhardt
- AK: We will have to schedule meetings with ten days notice
 - Questions
 - TC: Meg put the Scope of Logistics in the chat– the same things should be done to define What is the mission statement for each of the groups. Minimize project creep. Important to clarify scope of each group so that we know what is relevant to look at and what is not
 - PG: Question about drafting, can people provide feedback directly to UC Davis?
 - Clarification that everything needs to flow into UC Davis and then be publicly updated
 - DB: Will there be an opportunity during the meetings to understand what the subcommittee has agreed to?
 - MO: UC Davis will take comments and feedback and present updated drafts at meeting
 - MO: Chairs will assist UCD team in developing agenda and making sure people reply to emails, Mohammed will notice meetings
 - MS: The goal and scope of each subcommittee are defined in the meeting materials from last time, but part of the purpose of having a notetaker and facilitator at each meeting is that Jessica and I will be present for nearly every meeting so we will be able to identify potential areas of overlap or conflict between the recommendations of each group
 - SH: Thank you, the Bagley-Keane has me somewhat intimidated. Will we have watchdogs that make sure we are doing everything correctly?
 - CS: I suggest that you always check if you have any questions because there violating BK can result in criminal charges
 - CG: Reminder that if you are not a member of a subcommittee you may attend but not participate in their meetings, and we are operating in this format due to the state of emergency during the pandemic. This may change and we will inform everyone if and when anything changes

9. **Guiding Principles for Advisory Group Recommendations** – *Caroline Godkin, CalEPA*

- The charge to the committee from the statute is that “as close to 100% as possible of LIBs in the state are reused or recycled at end-of-life in a safe and cost effective manner. The policy recommendations shall reflect entire life cycle considerations for lithium-ion vehicle batteries, including but not limited to opportunities and barriers to the reuse of those batteries as energy storage systems after they are removed from the vehicle, best management considerations...” [text from bill]
- Guiding principles
 - Guide us in creating recommendations
 - Purpose is to align work around a shared understanding of the group’s purpose and create a framework for discussing and evaluating recommendations
 - The principles are:
 - (1) Make a significant contribution to meeting the goals of the working group
 - (2) Support the implementation of the Governor’s Executive Order mandating 100% ZEV sales
 - (3) Support economic recovery of the state equitably through the creation of jobs and the protection of vulnerable communities from pollution and harmful chemicals
 - (4) Align with goals of circular economy
- Questions
 - DB: Thanks for putting these together, I think these four points capture the goals of this committee without being too detailed or specific, allowing groups to do that
 - PG: Question on the “aligning with the goals of a circular economy”
 - There is some overlap with the first principle
 - TF: Part of the goal includes putting materials back into the economy, which may be farther down the line
 - NL: Circular economy goes farther and could also include designing for recycling and producer responsibility
 - GN: The difference between 1 and 4 is time; meeting today’s needs without jeopardizing future generations to do the same. 1 is short term, 4 is more longterm
 - CS: I’m not in the recycling world and it sounds like there is disagreement on what we mean by circular economy. The bill that establishes our group articulates having the advisory group consider both in-state and out-of-

state options, so my narrow comment is that we might want to slightly tweak the third bullet so that it allows us to explore options even if they don't have in-state job opportunities. We should also think about what are the values this group wants to uphold. If I were to recast what I've heard, they are:

- Support EV market, minimize environmental and health impacts of battery recycling especially on vulnerable communities (not just in California but beyond our border), support economic opportunities.
 - There is an opportunity to flesh out and/or recapitulate fourth guiding principle
- PG: Suggest delineating goals of a circular economy or dropping it and broadening number 3 beyond the state of California
- CG: Courtney, if you have thoughts on revising this could you share them with me so we can recirculate another draft? Each subcommittee can also think about these principles, then when we come back in March we can have a view that everyone is comfortable with.
- AL: In addition to supporting governor's executive order on ZEVs, but we might also want to encourage supporting a decarbonized energy system (relevant to reuse)
 - CG: Suggestion that guiding principle can be "supports overall climate goals"
- BK: Support that statement and call out SB 100, it's impossible to have 100% renewable energy system without storage and if we are able to facilitate cost effective storage we could contribute to the goals of SB 100
- TA: We are straying from our original goal of lithium car battery recycling and we already have a lot on our plate. Adding global economy and carbon free and all those things are great but we aren't going to be able to have a large impact on that. We should focus on what we are doing and not try to solve all the problems of the state
- TF: I support Terry's statement and Courtney's statement. For number 1, I was thinking we could add something about looking for the most sustainable and efficient solutions that maximize the value of the batteries
- MO: Todd and Lou both agree with Terry. I agree with Courtney talking about the values, specifically. I agree in principle that we have a specific mandate and not a lot of time. I don't see 2,3,4 as being requirements. It's more that when we are evaluating options they should be aligned with climate goals and equitable recovery.
- GN: Suggest that they say complement instead of support
- CG: Thank you for these discussions, we will update a draft and share that, *then each subcommittee can have a more detailed discussion*

10. Subcommittee Meeting Schedule and Workplan – Mohammed Omer, DTSC

- MO: Now that we have figured out each subcommittee, UCD Facilitators will reach out to the members of their subcommittee to decide a good day to meet that will allow us to notice the meeting, so please be on the lookout for that but we won't discuss those dates here in this meeting.
- For our next larger meeting, we will catchup on the subgroup meetings and discuss technical issues, possibly another presentation from DTSC on permitting. We were able to get this meeting scheduled quickly by asking folks to pull out their calendars. Can everyone please take a minute to look at their calendars? We are looking at the week of March 22
 - CG: Ask to avoid the week of March 29
 - Tuesday March 23 is decided after back and forth
- BK: Who will the emails come from so we can make sure it does not go to spam?
 - Jessica, Meg, or Alissa; Mohammed will share their contact info

11. Public Comment on Items Not on the Agenda

The Advisory Group may not discuss or take action on any matter raised during the Public Comment section that is not included on this agenda, except whether to decide to place the matter on the agenda of a future meeting. (Gov. Code, §§ 11125, 11125.7, subd. (a).)

- No additional questions or comments have been received

12. Adjournment – Mohammed Omer, DTSC

- Summarized meeting items
- Caroline: Thanks everyone for your time, this was a very productive meeting and I am looking forward to working with everyone this year. We are adjourned