

Draft Meeting Minutes December 14th, 2020

Call to Order, Roll Call, and Establishment of Quorum by Caroline Godkin

Present:

- Caroline Godkin
- Teresa Bui
- Mohammed Omer
- Terry Adams
- Dan Bowerson
- Mark Caffarey
- Todd Coy
- Perry Gottesfeld
- Toshi Fukui
- Steve Henderson
- George Kerchner
- Bernie Kotlier
- Nick Lapis
- Alison Linder
- Geoff Niswander
- Lou Ramondetta

Joined later:

- Jennifer Krill
- Alissa Reinhardt
- Courtney Smith

CG: Quorum met

MO: We are recording the meeting and it will be available on the webpage along with draft meeting minutes.

- Members may add comments in the Zoom chat box or sending an e-mail. Please subscribe to the list serve.
- Members of the public have the opportunity to participate through chat box on zoom or by emailing calepa.workshops@calepa.ca.gov
- Draft meeting minutes approved from Oct. 13th, 2020
- The last year has been spent going over important topics and now we would like to transition to developing materials.

GK: We have covered a lot of materials over the past year and I believe it would be good for the committee members to hear from those working in the industry of collection, dismantling, recycling, and secondary use. I am looking for an hour and a half of time to present this hands-on experience at the next meeting.

Presentation 1: Jonathon Morrow, The Past President of the Automotive Recyclers Association (ARC)

- About the market:
 - Automobiles are the most recycled item in the US
 - Recyclers process over 12 million vehicles per year; 16th largest industry in the US
 - Reuse provides less expensive items of quality that is environmentally friendly and the purest form of recycling
 - There are rapid shifts in the market, and it is critical to get the right information to members to create training manuals and have a safe industry
- Shifting paradigm in auto recycling
 - Business model, data, inventory, and customer expectations are all changing
 - Industry needs to respond with new training, manuals, and business models
 - Highest revenue generators are engines and transmissions; as cars become electric, dismantlers must be prepared to handle them
- EV ownership will increase
 - How will they bring revenue back to value chain?
 - Increase professional standards and become specialists in the EV
- Safety:
 - At the facility in the Virginia there have been international parties reviewing how they are dealing with EVs safely
 - When a vehicle is in a crash several different damages can occur and the recycler needs to know how to deal with these issues
 - Risks and dangers to workers:
 - Electric shock
 - Physical weight
 - Electrolyte in batteries
 - Health issues such as pacemakers/insulin pumps/electric devices
- Recovery transportation:
 - Cars are assessed in the “resting lot”
 - Identified as hybrid/EV, damage is assessed
 - Initial assessment is vital. E.g. where it is hit, how fast, damage type, battery chemistry
- Dismantling and processing:
 - PPE and high-voltage tools are required
 - Removal of the battery and assessment
 - Cracks in battery housing
 - Color changes
 - Escaping electrolyte
 - Legible information stickers
 - Fitted potential equalization line
- The internal combustion engine is still a large part of the industry and will continue to be, but there is a huge opportunity presented by the electric vehicle
- He is handling 2 to 3 hybrid vehicles a week
- NAATBatt Auto Recycler survey:

- 67% of ARC members currently purchase electric vehicles with lithium-ion batteries
- 30% of the ARC members said they would reject the EV if it did not have value
- 67% said they would assess a fee to process it
- Train smarter not harder: training should be dynamic and they desire to be at the table to figure out how the EVs should be dealt with
- There are currently gaps in available information and resources
 - ARA University → online training and certification programs from top industry professionals
- ARA wants to be at the table to talk about how we are going to handle electric cars; they believe they should be handled by professional recyclers so they can provide the right parts back to customers
 - This working group should be motivated to ensure that EVs are handled by professional automotive recyclers

Questions:

CG: What would be the mechanism for paying the fee and who would be paying it?

- JM: Currently, if we have a hybrid there are core fees. We get paid for those batteries by reselling it to a recycling entity. There is a fear that it will be illegal to sell batteries and they are losing an opportunity to have a revenue stream.

CG: We have been looking at these batteries going outside the automotive industry to home storage. How will this impact your business?

- JM: This drastically changes the value stream. We are currently selling the used batteries to be reused in another car. I don't care who uses it, I do care that they are sold at a lower price to people who need lower cost options.

GN: I work in the household waste industry. Thank you for talking about safety and PPE. You mentioned that when wrecks come to the yard and there is an assessment done. About how long does it take your staff to assess one vehicle.

- JM: We just identify what kind of car. Is it a hybrid? EV? The car gets dropped off to a specific location, assessed, car type identified, a check to make sure nothing has obviously punctured the battery. Then a red magnetic cap to it. At that point, if it is not damaged it goes to a dismantling shop. The battery is then taken out of the car.

GN: Are we talking ten to fifteen minutes per car? How many EVs or Hybrids until you all get swamped and fall behind because there is no easy way to assess.

- JM: We are doing about 1.3 vehicles per day, including dismantling. If we could have the tool to assess battery and see the battery life. The only thing we are currently looking at is damage.

GN: I bring this up because there is not an EV equivalent to an OBD system.

- JM: From ARA perspective, we believe there are so many opportunities to partner so that we are all doing it the same way or environmentally friendly.

GK: Great presentation. You started with talking about discharging the battery. If you get a car and you don't have the information on how to safely discharge, what do you do?

- JM: We are sometimes looked at as the oddball of the industry. We have started to begin the university platform with a member from the UK. Some dismantling team leads are like engineers, they are looking through processes and procedures through resources online. If people who are not trained get ahold of these vehicles and try to dismantle them, it could be really bad

GK: Are you including hybrid as electric or making the distinction between the two?

- JM: In Virginia we don't have as many EVs, mostly just hybrids, although they have many different lithium-ion batteries. We have never had a full EV for a complete dismantle. We have had some Ford EVs from a testing site, but the battery was already removed.

PG: I would love to know more about the economics. Who is your market for those and what price are they sold for? Is there a point where they are so old that there is not a market?

- JM: The customer base is collision centers, mechanics, and individuals. It is anyone who has access to our inventory is our customer. We don't have any hybrid only facilities that would be a primary customer. Sometimes it is even a yard to yard transaction. I can't talk about pricing but it can go \$2800- \$3000 down to \$400. It depends on the battery and the vehicle. I don't know what to do with the batteries if they don't sell. Each battery has a whole pallet and takes up a lot of the space.

PG: What do you do with a damaged battery?

- JM: If it is not a lithium-ion we send it to the OEM. If they are lithium-ion batteries, we put them in battery safe totes. There is no inexpensive way to get rid of the battery. At this point I know it is a commodity, but I don't know what to do with it. The worst thing to do is put it in a crusher or the landfill. We are sort of at a standstill.

TA: I also grew up in the auto dismantling business. In metal scrapping/recycling industry, when you are buying an EOL vehicle, you have the value from the catalytic converter and shrapnel/ scrap metal. For hybrids or EVs there is a double whammy of no catalytic converter plus a charge for battery management. This all negatively affects scrap value and pushes those cars into a less desirable category. On battery recycling side, Retriev has facilities in Ohio that handle these types of batteries but depending on chemistry there is often a charge depending on value. They do not often pay for batteries.

- JM: If you are prohibited from selling something or have to pay to dispose of something it cuts down on business opportunity

LR: You mentioned that the engine and transmission is the value. What is the percent?

- JM: In 2020 engines were 20% of revenue, transmission is 11%. It can go from 30 to 40% of revenue.

LR: You don't recycle the batteries?

- JM: We don't recycle, correct.

LR: If you had the utopian solution, what would you recommend?

- JM: I would recommend having professional people on our side handling the battery. I do think they should be certified. I also think that the battery should be reused in a different vehicle. I want a return on my investment as well.

SH: We are used to having gasoline in cars which is dangerous, but we learned to deal with it. I think we should with EVs as well. We are adding expensive inverters, motors, and control systems. I believe the value of those are similar to motors. Are you receiving value from these?

- JM: I don't think the wave of EVs have hit us to gain value. The product is designed to last and therefore there is opportunity to gain value. We want to have a partnership with one of the big three. I think there is an opportunity to partner and gain insight for how we can complement each other.

TF: I am glad there is interest in a partnership. Money is made by selling parts, so if there isn't demand than that vehicle will get pushed to the back of the line. Regarding the Prius, there was a pretty big demand for the second generation. Those parts were purchased for second generation. Concern of the OEM is when something is changed from the original design and there is an accident. The OEM is concerned by lack of control over products with their logo

- JM: I don't want to restrict sales, but the chain of custody starts earlier. In auctions anyone can purchase an electric vehicle.

Presentation 2: Hanjiro Ambrose, UC Davis

HA: Today we will recap the information reviewed this year.

- January meeting:
 - The goal of AG is to ensure as close to 100% of batteries are recycled but the waste hierarchy was introduced.
 - California has an opportunity to develop the types of infrastructure, logistics, and knowledge to close the loop of battery materials.
 - There are many knowledge gaps including the diversity of cathode chemistry and the value from the recycling industry.
- There are policy barriers, economic barriers, and safety challenges that to battery recycling.
 - In particular, labelling of cathode chemistry, data and information sharing challenges (use of battery, cathode, state of health)
 - Overview of processes for battery recycling that have different environmental, economic, and material recovery: hydro, pyro and cathode refunctionalization (direct).

- May: Dug into testing, reuse, second-life applications
 - Market potential opportunity to meet storage goals and facilitate renewables integration
 - Ryan Barr presented on behalf of Repurpose
 - Energy, and suggested that second-life batteries should be eligible for key incentives to enable competition with new battery systems. Also suggested that
 - Lauren Roman from Everledger
 - Presented on the Battery Passport initiative to improve data visibility along battery value chain
 - Key takeaways:
 - Batteries are a relatively new technology and are continuing to evolve
 - Data sharing is a barrier and essential to create a more efficient second life industry
 - Clear liability for secondary use is necessary
- July: Recycling
 - We dug into the weeds about recycling processes
 - Highlighted that there are multiple viable recycling pathways
 - There is a need to develop metrics to select econ/environ preferable processes
 - Li-Cycle
 - Presented about their recycling process and suggested incentivizing entire value chain including local production and manufacturing
 - ReCell
 - Presented on “direct cathode recycling” (aka “cathode refunctionalization”, a promising thing)
 - ReCell is also conducting other research to facilitate recycling
- Key questions to be answered by AG
- October meeting:
 - This meeting focused on the policy for LIB end of life internationally
 - Dr. Oliver Heidrich, University of Newcastle
 - The current policies for recycling and reuse of lithium-ion batteries in the European Union (EU) are ineffective. Research on where the batteries will be located at their end-of-life and novel recycling techniques (direct recycling) is needed. EU policies are currently being updated.
 - Dr. Alissa Kendall, UC Davis
 - Comparison of global policy approaches regulating lithium-ion battery end-of-life. Many of the policies were created specifically for consumer electronic batteries or different chemistries entirely.
 - Dr. Meredith Williams and Valetti Lang, Department of Toxic Substance Control
 - DTSC’s mission is to protect people, communities, and the environment by enforcing the hazardous waste laws. The material recovery and EPR is primarily implemented by CalRecycle; management falls under DTSC if material is identified as hazardous waste. The hazardous waste and universal waste classifications were defined in detail.

Presentation 3: Dr. Alissa Kendall, UC Davis

- Restated 2832 requirements
- Three subgroups will be created to make the workflow more manageable:
 - Reuse
 - Recycling
 - Logistics
- Offer a moment for questions: This is a plan and a draft. We are open to comments
- Phase 1:
 - Complete understanding of current laws
 - Should there be a focus on in state or national scale?
 - Deliverable: Draft outline of final report
- Offer a moment for questions.

MO: These are suggestions; everything here is a proposal, and we will continue to discuss whether the goals or scopes need to change, and whether we should rename or revise the content. Phase 1 and phase 2 are for each subgroup. They will differ by each subgroup.

- Phase 2:
 - Brainstorm for policy solutions
 - Each group will have the support of the UCD team
 - Deliverable: Draft outline of policy recommendations. These should include advantages and disadvantages of each policy.
- Phase 3:
 - Completion of final report
- Phase 4:
 - Edit and finalize report
 - Present report to legislatures

Questions and comments:

PG: I noticed CA and federal law are in phase 1. I would like this to include the international laws as well. We are the only country not in Basel Convention and batteries are often exported therefore we should be aware of relevant international landscape

GK: Question as to the needed capacity. Does this mean the capacity as to the infrastructure to the recycling?

- AK: Yes, this is the capacity for each subgroup. The recycling, reuse, and reverse logistics.
- MO: This is projecting the amount of capacity we need for the batteries at the end of their life. For example, how much recycling capacity will be required?

GK: I have a question about the Bagley Keane. How does this work with three subgroups?

- MO: This will be answered after the break

CS: How do we go to brainstorming to recommending them in phase 2 Could be useful to develop evaluation criteria as a group on the goals we are trying to achieve. Are there some policy options that are nonstarters? Agreed upon criteria for each subgroup would be helpful to structure, it would be useful to flesh out phase 2.

- MO: Yes, great point. We will continue to discuss this and overarching rules on how this will work.

CS: I think it's one thing to identify pros and cons and another to make value tradeoffs of the options.

SH: The three things we talk about are end-states, but we don't talk about how they will get there.

- MO: Yes, the policy will shift them to their end of life.
- AK: Are you talking about the design or EOL?

SH: I am worried that the batteries will end up in the wrong places. Making that happen without costing a lot of money is difficult.

- AK: There are distinct policy related end points but all of them can be made easier by things discussed over the year. There will be some that aren't as important for some subgroups. Maybe we can talk about breaking up and coming together to talk about this.

DB: Thank you. Very great presentation. I assume the subgroups will come up with their ideas. How will this be shared with the bigger group?

- MO: The work of the different subgroups will be visible at all times to the larger group. Comments and suggestions will be sent through Alissa's team at UC Davis.

BK: My comment is on thinking beyond the US due to integration as well as learning from policy's already enacted.

LR: How do we decide teams? Who will be writing the recommendations?

- MO: Choosing a team will be voluntary (0 to 3). The UC Davis folks will consolidate discussions and ideas of subgroups. The subgroups will have access to suggest edits to bring up at meetings.

TF: will there be minimum number of members for each subgroup?

- MO: We have not identified a minimum number, no.

TF: If we only have one person involved in a team then it can skew that recommendation. My second question is how the process work after the recommendation does is given to the legislature.

- CG: there is a mechanical process where the report is submitted to the legislature. It is then up to the legislature to decide what they would like to do.

TF: How realistic do we want to make the policy? Do we put dream goals, or should we be conservative based on limitations?

- CG: I think this is an opportunity for a spectrum of recommendations from realistic to the moon shot. We need to define this as a group

GN: We can't be upset with the legislature that comes from this group if we don't provide all the options.

LUNCH BREAK until 1pm pacific time

Presentation 4: Salwa Bojack, Bagley Keane

- Background on advisory bodies covered by Bagley Keane (BK)
 - If convened by a statute they are covered by BK
 - If the body only has two members, they are not covered by BK and can convene
 - If there are three or more persons, they are subject to BK and need to have open meetings to public with advance notice
 - AG can create a body by
 - Voting to create committees
 - AG can delegate a member to create committees
 - AG can ratify committees proposed by a member
 - Committee chair can create a body
 - If the committee is created by staff or an unofficial act by an AG member, it's not a body
 - Formal committees can be delegated tasks & authority to take certain actions and these are subject to Bagley Keane
 - Requirements for delegated bodies
- Restrictions on attendance and open notice of committees and subcommittee meetings
 - Committees of 3 or more must be open to the public & notified
 - If a task force is officially created by AG and includes 2 AG members plus a member by the public that is also subject to BK
 - Smaller committee meetings (2 ppl) that are not subject to BK must report back to AG
 - If a 2-person committee meets staff can attend and it doesn't need to be subject to BK
 - If the AG creates five committees and they are all three or more people and they are scheduled back-to-back, members of full body can attend other meetings as observers

Questions:

MO: To clarify, if there are multiple subcommittees who meet back-to-back-to-back, members of AG who are not part of subcommittee may only attend as observers. Does that mean they have the same level of participation as a member of the public? For instance, can I, as someone who is not a member of subcommittee X, participate as an observer?

- SB: No, they cannot.

PG: Can someone who is not a part of the larger committee be part of the subcommittee?

- SB: Members of the fuller committee cannot speak even during public committee meeting. I believe quorum is ten members. Let's say the committee is eight people and seven members of the fuller body are in the audience. If all of the folks were able to speak, then there would be over ten members which is a quorum and Bagley Keane applies.

PG: Can members not part of the larger body be included?

- SB: This sounds like a task forced. Subcommittees will have authority to invite staff or invited experts. Inviting outsiders to be a part of the committee formally would require authorization from larger group

GK: The industry is going to make a presentation and we will need to get together via webinar. Would this be a violation of Bagley Keane?

- SB: If AG formally instructs a group to do this, yes. But if four people get together independently to come up with a presentation without being formally instructed to do so that is not

GK: In order to develop materials for that advisory group meeting three or four of us will be getting together. Is this acceptable?

- SB: If the advisory group said, "you two go and work on this presentation" that will be a committee.

TF: Can people talk outside of the AG if they are under quorum?

- SB: What creates the Bagley Keane is if the committee has an ability to act. There is a violation if members not part of the meeting participate and there is a quorum.

MO: There is a quorum of 11. If the advisory group members in different subcommittees could chat without being under the Bagley Keane.

- SB: Correct

PG: Can you please send an updated list of committee members?

- MO: Yes

BK: So can people speak outside of committee if it is about the advisory group?

- SB: They cannot discuss things they are tasked with e.g. the recycling of batteries.

GN: Once the subcommittees are formed and we have established subcommittees. Does this prohibit us from conversing via email? Are we not allowed to reply all?

- SB: That is correct. You will be limited to only the scheduled time to meet. Options are to delegate writing to one member and then publicly notice a meeting and create a public material to review in advance at a public meeting.

BK: I understand each subcommittee will be working with a member of the UC Davis staff person? In which case there will be two people communicating at a time.

- SB: This raises the issue of serial meeting (hub and spoke) which is an issue of Bagley Keane. It is fine if each person contacts the UCD member and they can combine it but to present everything at a meeting.
- MO: Bernie thank you for anticipating a question we had and how we will work together.

LR: Let me make sure I understand. Making the assumption that I'm on a recycling committee with six other people, one of them happens to be Mohammed. I can pick up the phone and email Mohammed back and forth all I want, no violation. But if a third person joins that is a violation

- SB: That's okay but if there is a fourth person that creates a quorum and then that would be subject to BK. The three or more aspect is about whether the body is subject to Bagley Keane at all; then, if it is, Bagley Keane says that a publicly notified meeting is required if a quorum of people are getting together

Round table comments by members:

SH: Thank you for the excellent presentations. I don't have an answer as to which committee I would like to join. I have to come back with that

PG: I propose a different version of the subcommittee's based on lifecycle and legislative targets. Subcommittee's 1) would be on the supply chain side e.g. design, chemistry. 2) the end users or those that reuse the battery e.g. consumers, fleet owners, dismantlers 3) recycling and remanufacturing side.

- CG: Can you talk more about legislative targets?
- PG: Recommendations would be targeted towards who we would be talking about and breaking it down a little bit differently.
- CG: Can you write that down and send it over to be presented at the next meeting.

TF: Great that we started discussing some of the details. We have a challenging next year. I agree we should limit this to three subgroups.

TC: The three topics seem relevant and great.

MC: I agree that we should limit ourselves to the three subgroups. The outline Perry suggests resembles the European approach. I would like to be part of the logistics group. Although my expertise is in recycling, logistics is the weakest link.

DB: The first presentation gave us a little more information into what is happening on the ground. I think there is a great opportunity to give this information. I am leaning towards the logistics sub-committee.

TA: Great presentations. One thing I want to point out is their business model is high value insurance model—this gives a little bit of a different profile as to the money that you can pull out. I think it would be helpful to look at the end product that we should be presenting to the legislature. Can we have an example? I would gravitate towards the recycling sub-committee.

CG: Thanks, we will put our heads together and put forth some example legislative reports. If anyone else has participated in something similar, please feel free to share.

GK: The presentation of all the topics was helpful. The first presentation reinforced the concerns that we have about the young industry and they are phasing all types of challenges. I think it is really important for this group to remember that—we want the industry to grow and placing additional burdens will only slow down the growth of that industry. CA has a great opportunity here to get out in front and promote those industries. Challenges and barriers are really important in the outline for this report to emphasize that we don't want to burden the industries. I would like to be in the logistics sub-committee and if I have the time, the recycling as well.

MO: Here is the draft outline of the report that we will be creating and the topics that the sub-group might bring up into a report.

BK: First of all, thanks to presenters and staff. My comments are focused on underscoring some of the points that Jonathan Morrow made in his presentation. He talked about the importance of reuse and generally it's important that we focus on the benefits of reuse as a priority; of course, this includes GHG emissions reductions, lower cost of energy storage adoption. I would like to volunteer for the reuse committee because that is a major interest that I have in this discussion. I also wanted to see if we have a confirmed date and time for January meeting?

JK: I am grateful for the presentations. I think Mark Caffrey suggested that it be reviewed by the committee. I would like to be part of the recycling subcommittee. My second would be the reuse committee.

NL: Great day of presentation. I would sign up for the recycling subcommittee. We still need to have the more overarching conversation of how we ensure these things and secure funding. It is the hardest but most important thing. Not addressing how we fund this means either we don't do it or we subsidize it. There needs to be a focus on how we fund these things and subsidize the costs.

AL: The first speaker mentioned we are at a tipping point. I think this is an exciting accomplishment and the subcommittees are a great starting point. I would like to be part of the reuse or logistics subcommittees. We need a hierarchy between reuse and recycling, therefore we should make sure there is coordination between the committees. I noticed the document points out the barriers, but I think we also need to point out the opportunities. The process getting from where we are at now to the policy recommendations would be helpful. The outline is also missing a more thorough list of

the stakeholders. We also need to address the bigger picture as well as the more specific points.

GN: The main takeaway from the first presentation was that there are going to be sections of the country that will not be ready to handle it. Training and safety is going to need to be on the forefront of whatever we do. I like the subcommittees. Take the best of all the sections which overlap and make one great report. Don't leave anything out. I would like to be in the reuse subcommittee. Waste reduction is a huge part of my industry and this overlaps with reuse.

LR: I think the structure of the subcommittee's makes sense. It would be nice to have consistency of the number of people per group. I am not sure which I would prefer, but most likely recycling or reuse. I think it is great that you are leveraging the UC Davis team. We should try to leverage what was completed by the European Union.

AR: Thank you for the overview. I represent the new car dealers and I have been trying to determine which section we fit in. We could be part of the reuse but also the logistics. Any feedback on that would be great.

CS: Preemptive thanks to staff for the work you'll have to do navigating transparency requirements, if I can be helpful in sharing lessons learned I'm happy to since we do it every day at the CEC. My hope and goal is to make sure we are not forgetting what George said early on, which is that we can design this policy in a way that creates no more additional weight on our EV market. Important to have reality checks re: used batteries participating in energy storage markets. We are focused on rolling out public charging infrastructure to support ZEVs. This is different for light-duty vs. medium/heavy-duty. I could see this being an important bifurcation as these subgroups meet; particularly for logistics, fleet opportunities could remove some of the barriers that we expect to hit. I'd love to see this group come up with a set of guiding principles for how we evaluate policy options. Making sure policy options are supportive of ZEV market; establishing loading order; these are examples I've heard today.

MO: Thank you to UC Davis for all their help. The first presentation really emphasized the safety being critical. To reiterate members can be in more than one committee. I would be in the reuse. I also think we need to prioritize what we do with recommendations.

CG: I truly appreciate all the time going towards this. Thank you!

Public comments: None

Closing comments:

MO: We would like to have a meeting in January and will send out a poll for January 25th, 26th, and 27th.

CG: Thank you to everyone and have a very safe holiday season.