

# HOW TO CREATE A CLIMATE PODCAST



**USC**  
**Annenberg**

*Center for Climate Journalism  
and Communication*

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# THE GENESIS OF ELECTRIC FUTURES

I met Chip Zukoski in 2023 when he was preparing to return to research at USC following his appointment as the university's provost.

A chemical engineer by training, Chip was interested in learning how to advance communication about his work, and particularly about climate change. We discussed possible formats and topics for media that would be compelling to a general audience, settling on a narrative-style podcast examining the people and places where the energy transition is taking place. With a budget of \$100,000, we allocated production funds, set aside money to evaluate podcast perceptions and impact, and hired a producer, a recent alum as an editor, and undergraduate production and research assistants. I have had the pleasure of serving as the podcast's executive producer.

*Electric Futures*, with three full seasons and a bonus season now released, is unique in its approach to environmental storytelling. It is the only climate-related podcast we know of that is built upon climate communication best practices. Our narrative style is also uncommon. We spend time in communities learning the stories of people who live and work there, weaving those interviews with interviews from experts across a range of disciplines.

In other words, Chip doesn't only sit in a studio and talk to people. He gets out in the field with the team and connects with people on the ground. It's a lengthy process, and one that Mallory Carra will delve into later in this report, but we think our storytelling benefits from it.

## **Allison Agsten**

Director, Center for Climate Journalism and Communication  
Executive Producer, Electric Futures

# ELECTRIC FUTURES SO FAR

## **Lithium Valley**

Chip was interested in exploring the contours of lithium extraction in Imperial County, which is located east of San Diego County and north of Baja California. In this guide, we also refer to the county as locals do – Imperial Valley, or “The Valley” – and sometimes, as the media, the state, and business interests refer to it – Lithium Valley. Lithium is considered a “critical mineral,” necessary for the production of electric car batteries and wind and solar energy storage. An abundance of the mineral can be found in the piping-hot reservoirs of underground water, or brines, in the county.

Preliminary research about the region suggested there were many interesting stories to tell. Because of its climate and access to water from the Colorado River, Imperial County produces most of the United States’ winter vegetables. It also has the highest unemployment rate in the state due in large part to seasonal agricultural work. The prospect of more jobs related to lithium extraction was appealing to many people we met in the region.

Others were more concerned about potential environmental impacts. A week after season one dropped, the prospect of lithium extraction dimmed. Environmental justice organizations filed a lawsuit alleging that the county’s review process with one of the lithium extraction companies violated the California Environmental Quality Act. The case is still in court.

## **Public response**

Electric Futures debuted in Apple’s top 50 science podcasts of the week, and was covered by the Los Angeles Times, KCRW, and La Opinion. We were pleased with the public reception and wanted to get a better sense of what worked, what didn’t, and apply those learnings to the seasons ahead.

USC's Annenberg's Norman Lear Center recruited 20 listeners through social media and in-person outreach to answer questions about their responses and reactions to Electric Futures, after having listened to at least one episode of the podcast's first season. Analysis focused on insights into:

- listeners' perceptions of the content and form of what they heard, with an emphasis on research-supported environmental and climate communication practices
- what resonated most and least with the participating listeners
- the perceived impact on knowledge, attitudes, and behaviors
- listeners' media consumption patterns and environmental and climate content they want to see in the future

In addition to understanding listener reception, the qualitative survey was designed as an exploratory inquiry into evidence-based practices of climate communications, adopted into a novel podcast format. The aim was not to generalize findings, but rather to garner insights about listeners' perceptions and experiences and to generate ideas for future climate content and research.

45% of participants said that the podcast changed how they think about the issues. However, more than half said that it did not change how they feel about the issues. This was likely because the vast majority of respondents already felt strongly about climate change, with 95% falling into the concerned or alarmed categories. 35% of respondents said that listening to the podcast inspired them to take action, such as seeking out more information or speaking with a friend or family member about what they learned. Respondents who took action most often reported feeling inspired and hopeful while listening.

We also learned that we had room for improvement. Listeners wanted a faster pace and cared about the music we used, which they sometimes felt did not align well with the content. Perhaps the biggest surprise was learning how much listeners enjoyed the science aspect of the podcast.

In the production process we were concerned that, in spite of our best efforts to simplify explanations on the process of lithium extraction, it would still be too much. However, 100% of respondents said that the content was easy to understand.

The careful writing and editing of these portions was worth it in the end. I also believe audiences benefit greatly from Chip's sensibility as a host. His enthusiasm for his subject matter comes through and it turns out, he's a natural in his role.

### **Season two and beyond**

Season two focused on the creation of a micro-grid community in San Bernardino County, the largest county by area in California, bordered by Los Angeles to the west and Arizona to the east. Builders partnered with the Department of Energy on a tract of homes there that would generate and store their own power.

We spoke with homeowners who relished their energy independence and learned about commercial building projects that were taking the same approach. We produced fewer and shorter episodes this time, and hesitated less when it came to explaining the science.

Our greatest challenge was unexpected. In our final weeks of production, Donald Trump took office and sweeping changes in the Department of Energy's programs quickly followed. These changes led to last minute rewrites, booking interviews for a second time to get refreshed perspectives, and a conclusion filled with more questions than answers.

For listeners, seasons one and two of Electric Futures illustrate challenges inherent to the energy transition. For producers, they also illustrate the challenges of creating a podcast focused on timely topics. In short form, quick-turn-around stories, like those you see on the nightly news, this is not an issue. Each day offers the opportunity for refreshed reporting.

However, planning for longer format stories with a story arc, where significant time and resources are devoted to that arc, big changes can be very disruptive. I estimate that 25% of the time spent on season two was used to recalibrate our story.

Cautious of these issues but undeterred, we returned to the Imperial Valley to learn about the region's next great hope – data centers. The valley's rich geothermal resources could provide a clean power source for the plants, which consume massive amounts of energy.

But again, not everyone in Imperial Valley is sure that data centers are an answer to an employment issue that has grown even since our first visit.

Since we got started in 2023, we have learned a lot from our own experiences, the Lear Center's research, and feedback from people interested in the energy transition and in podcasting. We hope this interest will translate into more environmental storytelling. The Electric Futures team created the guide that follows to help chart a path that a range of practitioners across disciplines can use to get started.

**Allison Agsten**

# CLIMATE COMMUNICATIONS BEST PRACTICES

We applied a set of climate communication best practices to each season of the Electric Futures podcast. These straightforward approaches are drawn from peer-reviewed academic research on effective communication as it relates to the environment. The practices can be applied by anyone working across a range of media.

## **Tell the story of today**

For decades we heard that climate change was coming. Today, it is here. That is a good enough reason to talk about real time experiences of climate change, but our psychological experience of time bolsters the case.

Researchers have found that people can more easily embrace issues they are confronted with today versus those that are predicted to happen in the future.

## **Avoid jargon**

*Electric Futures* and other podcasts that focus on science must take time and extra care to translate complex concepts so that a general listener can understand. Chip spent countless hours on this aspect of the work and those who aren't scientists, like Mallory and I, would let him know when we were confused. That was a sign that more edits were needed.

It's also very important to spell out acronyms. Internally, we may talk about the DOE, but in the podcast, Chip says, "Department of Energy."

## **Communicate about solutions**

The era of doom and gloom communication is (hopefully) coming to an end. Storytelling that only highlights the problem of climate change without presenting possible solutions can risk creating inaction in those who read, watch, and hear those stories. Of course, if there were an easy one-size-fits-all solution to climate change, it would be in place by now. In reality, climate change will be disrupted by a combination of technologies and policies.

We are careful when talking about solutions to not imply that any of them alone are the panacea. We also do our best to validate whether or not potential solutions are actually viable.

## **Listen to the people most impacted**

Climate change disproportionately impacts women, people of color, and people with few resources. It is crucial to include those people in climate storytelling. It is also invaluable to work with people from the communities in which the story unfolds. Natalie Lopez, a USC student and our associate producer, grew up in the Imperial Valley. Her insight greatly shaped seasons one and three of the podcast. And, because she is a Spanish speaker as are many from her area, she created and narrated a Spanish language episode summarizing that season's storyline.

We hired another USC student, production assistant and San Bernardino County native, Rebecca Torres, to work with us on season 2. She also helped give us perspective on an area that wasn't our own.

**Allison Agsten**

# INTRO TO PRODUCTION

## **I know this is intimidating – I’ve been there! Read on...**

At USC Annenberg, I teach undergraduate journalism students in a lab class called JOUR 206: Reporting and Writing Practicum (Live Production), where they report for the daily TV news show and radio show/podcast. As they start the course, I ask them about their interests and goals. Thankfully, it’s always some version of: “I want to get experience on as many platforms as possible.”

I don’t blame them. In this media landscape, you need to be versatile. I tell my students to visualize their journalism skills like a toolbelt – you need as many tools in there as you can fit to make yourself marketable in journalism and beyond.

What strikes me the most, though, is that their attitude is a stark contrast to mine as an undergraduate journalism student at NYU in the early 2000s. I never considered getting experience in audio journalism and was barely aware of NPR or any radio stations beyond Z100 and WLIR, my childhood favorite FM stations in NYC. I set my sights on being a newspaper journalist, a flawed plan that collapsed along with several newspapers and Lehman Brothers during the 2008 recession.

And that’s when I made my first pivot – but not my last. Over the next decade, I pivoted to screenwriting, copywriting, entertainment journalism, SEO-driven breaking news online, and more.

Even 15 years into my career, when I thought there was no place else to pivot, I changed gears once again when I got hired full-time at Spotify and worked at its in-house true crime and dark history podcast studio, Parcast.

I had a huge learning curve, coming from the strictly print and online text world to suddenly producing work that comes to life when two hosts read it into a mic. In retrospect, I always call my years at Parcast “podcast boot camp” because it thoroughly taught me how to think about how to best use sound and music, opened up a whole new world of storytelling, and made me realize that the production process wasn’t as complicated as I once thought. Suddenly, there was a new tool (and skill) in my journalism tool belt.

I’m telling you all of that because I’ve been in your shoes. I was intimidated by the process and the mics and the studios. I had ideas, but didn’t know where to start. And most of all, I didn’t understand how and why it was so different from the text process.

Yes, there are many, many steps between the conception of an idea to your grand debut on Spotify and Apple Podcasts, but I like to break it down into simple terms for folks. I have a master’s degree in screenwriting from USC’s School of Cinematic Arts, and, during my time at Spotify, I worked with many colleagues who came from Hollywood, so I always think of the process using film production terms, which I find to be the most accessible to folks unfamiliar with the craft:

- Pre-production (ideas, planning, and outlines)
- Production (interviews, recording, and scripting)
- Post-production (editing, quality assurance, uploading)
- Release, marketing, and promotion (getting the word out! press releases, social media promotion, collaboration, ads)

I’m going to break up this section similarly, because it’s how I think about the process and how I suggest you do, too, so you don’t get overwhelmed.

**Mallory Carra**

Supervising Producer of Electric Futures

# PRE-PRODUCTION

## **Budgeting – Time**

Journalists are used to a rapid pace and quick turnarounds – reporting on the news, doing interviews, writing up a story or script, and the piece goes live the same day.

When I started working at Spotify, I found that podcasting is the exact opposite. You're often working on a series or episodes that won't see the light of day until several months from now. You need to plan accordingly.

And however much time you think it takes...double it, especially if it's your first time doing a project like this. Pre-production can take an indeterminate amount of time, figuring out concepts, story beats, outlines and formats.

Production depends on booking interviews, studio and equipment availability and more. And Post-production depends on the editing process – which is when a lot of the flaws of your production process are suddenly revealed.

At Spotify, it often took 5 months for my episodes to go from conception and research to going live on the platform – and those were the pros. You may want to give yourself more time.

## **Budgeting – Money**

One of the benefits of podcasting as a medium is that you can make one at various budget levels. I've had students make one by just speaking into their Voice Memo on their bedroom floor during the pandemic – a podcast that costs \$0.

I've had others use the Annenberg Media Center's high-tech podcast studio (which is free for students to use as part of their tuition). Both are valid.

Shoestring budget options: You can simply buy a mic online and start podcasting at home. You can use the mic to record via Zoom or another recording platform. You can produce and edit the episode yourself.

- With this type of budget, you can produce the podcast independently – many podcasts start out as one-person bands.

Well-funded budget options: If you do want to go the professional route, make sure to budget for studio time (this can be upwards of \$150+ an hour of audio recording only, including the hiring of a studio engineer – highly recommended). You can hire a team of producers and a dedicated editor.

- With this type of budget, you may be working with a dedicated podcast studio, in-house at a company with a podcast or at a university.

Your budget and how your team looks may depend a lot on your format and what type of entity is funding the work.

## **FORMATS**

### **Video vs. audio only**

More and more, podcasts are embracing video and adding a visual component to their audio shows. This is because YouTube is widely regarded as the top podcast platform in the industry – and has the best analytics/metrics by far.

Our society has always been very visual with the rise of TikTok, vertical video, and how video podcast clips often go viral on the medium – but whether or not they drive traffic to podcast platforms is still debated among podcasters.

When thinking about choosing to add video, consider:

- Will you have visual elements to engage the listener/viewer?
- How will you use those visual elements?

## Choosing a structure

When most people think of podcasts, they think of the standard chat show, where a host sits down and interviews a person for 30 minutes to an hour. But that isn't the only format that exists.

When deciding which type of show you want to do, it's important to consider the benefits and drawbacks of each.

- **Chat/Talk show:** One or two hosts sit down with a guest and talk about a single topic or the guest's expertise.
  - **Benefits:** Requires little editing or sound design (depending on the interview), leading to a shorter post-production process; only requires 1 interview per episode; doesn't require a fully formed script, just a run of show and/or list of questions (recommended); additional voice over recording or tracking not always needed.
  - **Drawbacks:** Highly depending on interview quality and the engagement/charisma of the host and guest; dependent on interview booking; can only go as deep into topics as the guest's expertise; can get repetitive and/or disorganized; requires careful consideration when it comes to the type and ordering of questions to create an engaging conversation.
- **Narrative show:** Like NPR stories and documentary films, this type of podcast weaves multiple interviews and natural sound to take a deep dive into a topic. They take the listener on a journey.
  - **Benefits:** Ability to include more voices and POVs to get a full picture; can explore multiple angles to a topic, creating an in-depth story; more prestigious; often scripted, so the story and engagement is considered at length during that stage.

- **Drawbacks:** Much bigger lift when it comes to production; requires many more interviews, natural sound, and production work; requires more editing and sound design, in which the story is woven together; additional voice-over work from the host needed; scripts required.

### **Always-on vs. seasons**

Some podcasts never take breaks or vacations – these workaholics are known as always-on podcasts. Listeners can look to them for new episodes on a consistent, predictable basis – called a cadence. Popular cadences include daily, twice weekly, or weekly. Chat shows and true crime podcasts are often always-on. For a chat/talk show podcast, consider if you want to group guests by theme or interview whoever you can get when you get them.

Some podcasts split their episodes into thematic bunches, called seasons. These seasons can come out on a predictable or unpredictable basis. Prestige shows like *Heavyweight* and *Stolen*, winner of a Pulitzer Prize for audio reporting, don't have set seasonal cadences, frequencies or a set number of episodes.

*Electric Futures'* seasonal release and number of episodes are dependent on our reporting process.

### **Length of episodes**

Episode length is widely debated in the podcasting community, because there is no one answer. In 2019, a study by [Pacific Content](#) found that the average podcast episode length is 41 minutes, 24 seconds. However, there are some podcasts which have episodes that are several hours long.

When deciding episode length, consider the following:

- What you're trying to accomplish
- Your audience and their attention span
- Is this part of a whole season? How many parts of the whole will there be?
- How much content do you have?
- Release cadence - is this a quick daily news podcast that comes out every day or a narrative deep dive that'll require your listeners to think?

## **Number of episodes**

This should be determined by your content. If you're doing a narrative podcast, try to realistically plan out how much content your reporting can yield. It's okay if it changes over time – most plans in journalism change during the reporting process.

## **Roles**

If you have the space, time and money to build a team for your podcast, you'll need to look into having several roles within the production process.

### **Host/Reporter**

Often, your podcast's main reporter will also be the host of the podcast. Your reporter will be the chief interviewer, personality, and, in a narrative podcast, can also be your chief narrator.

The host/reporter interface the most with interviewees and listeners. They'll know them the most because they'll know this person's voice.

Later in this report, Charles Zukoski, Electric Futures' host, will have more insights about taking on a host/reporter role as a non-reporter.

### **Audio Editor**

Some podcasts will have a dedicated audio editor to edit episodes together. Some give the duty to a producer. It depends on how the team is structured. A key member of the team who puts all the elements together into a cohesive, high-quality podcast. A dedicated audio editor may also be given sound designer/sound mixing duties as well.

### **Producers**

When my students ask what a producer does, I often joke “whatever needs to be done,” but it's true. Producers are the backbone of the production process and should be game to take on tasks as small as picking up lunch for the team and as big as leading the production process. Truly, the adage that there is no task too small applies here.

Here's what you can expect as typical duties at the following producer levels.

### **Associate Producer**

Associate Producers, or APs, are often the lowest producer rank, but still incredibly crucial to productions. Typical duties for APs include: coordinating and booking guests, drafting questions for interviews, doing background research, coordinating and scheduling tracking/recording sessions, writing show copy and promos, audio editing episodes together and/or performing quality control on edits.

### **Producer**

This title is often a catch-all because a lot of podcasts will have one sole producer and maybe an AP to help them. So in that case, the podcast producer really does whatever needs to be done – from booking guests and running tracking sessions to editing episodes and managing deliverables.

The producer is mostly responsible for running tracking sessions, working with hosts, reviewing and editing scripts, and executing the daily deliverables for the podcast. Sometimes, their job also involves audio editing, depending on the structure of the team.

### **Senior Producer, Supervising Producer or Executive Producer**

These high-level producers work less with the day-to-day of production, and they oversee the entire process – and the jobs themselves go by many different names. Depending on how the team is structured, some shows, or companies call this job the senior producer, but others may call it a supervising producer (because it is a supervisory role with direct reports, often other producers) or the executive producer.

No matter what you call it, this major role views the whole process from the top while supervising other producers and APs. It also deals with high-level parts of the podcast production, such as budgets, hiring, partnerships, optimization, marketing, promotion, coordinating ad sales, and working with the company or podcast's leadership on the creative direction of the show.

These are the main 3 levels and types of producers you'll encounter in podcasting, but by all means not the only ones. Here are a few other producer roles you might see in a production:

- **Coordinating producer:** A producer who coordinates calendars and schedules, along with deliverables for productions.
- **Creative producer:** A producer who works with the development and/or pitching of new shows and concepts. May also specialize in the creative side of production, including overseeing the writing and editing of podcast scripts.
- **Managing producer:** A producer who primarily works in the operations part of podcast production, managing budgets, logistics, external contractors or freelancers, and administrative paperwork.
- **Production assistant:** A Production Assistant (PA) can be helpful with other production needs that arise. For example, we hired a PA based in Imperial Valley for Electric Futures Season 3 to attend public meetings and interview local residents about their concerns.

### **Equipment needs**

If you're doing interviews in the field, you'll need a high-quality audio recorder, like a Zoom H6 with an omni microphone. Another well-known option in the audio profession are the Tascam recorders. USC Annenberg uses the Zoom H6, which produces professional-level sound.

For Natural Sound or "natsound," an omni mic and a shotgun or boom mic are useful.

This equipment is also useful if you want to record your podcast at home and not rent out a professional studio.

# PRODUCTION

## Interviews

### Who to interview

For both narrative and chat podcasts, interviews should enrich your podcast, not distract or subtract. The people you interview should have a certain level of expertise to provide, POV, or personal experience that can't come from anywhere else.

When thinking about who to interview, consider:

- What viewpoints and POVs do you want represented?
- Who can provide those viewpoints?
- Do you want to interview all experts or do you want an even split between regular people and experts?

## Pre-interviews

Something unique to podcasting is the pre-interview. Its equivalent in journalism is pre-reporting and it's often not recorded. It's a conversation to fill in the interviewee/source on what you're looking for in an interview, how it'll go, potentially what you'll ask about, and one big question: will they be willing to go on the record?

Why have a pre-interview? The stakes are higher when people's voices are out there in a podcast, so a lot of interviewees want to know what they're lending their voice to. This is a standard practice in the podcast industry. Pre-interviews can also help your chat show guests prepare anecdotes in advance, which can make editing more seamless.

## Planning your questions

As I always tell my students, you need to plan your questions! You don't just go in and wing it; I don't recommend that method at all for podcast interviews, because there's an order and a logic to how and when you ask certain questions.

## **Review: Journalism terms**

- On the record: Can be recorded and quoted; quotes/soundbites can be attributed to the person.
- On background: information can be used in the podcast, but cannot be attributed to the person or directly quoted; often “sources said” or “a person familiar with the matter” are used; the conversation is not recorded. This is often what pre-interviews are considered.
- Off the record: The information cannot be used for the podcast or anywhere else.

## **Consider:**

- Start with some softball, general warm-up questions to test your equipment and give the interviewee more time to become comfortable with you.
- Build up to your hardest-hitting questions
- Ask descriptive questions and set a scene – how did it feel, what was the first moment you met, what was going through your mind, etc.
- There are no stupid questions – it’s better to confirm the facts while you have the person with you while recording than scrambling to confirm or remember them later.

## **Recording Interviews**

In a post-pandemic world, you have many options on how to record your interviews:

- In-person
  - In the studio - made to record good sound!
  - With a recorder and a microphone in the field, you’re at the mercy of the equipment’s quality, the type of room you’re in, outside noises, etc.
  - Your phone - Voice memo apps are surprisingly good now, but not the best
  - Your laptop - The same goes for its voice memo app.

- Remote
  - Via Zoom, Riverside, Zencast - however, remember that these are at the mercy of internet connections and will have that virtual meeting sound.
    - **Pro tip:** To improve the sound quality and cut down on room sounds/echoes, you and your interviewee should wear headphones - even AirPods can help.

## **Places to Record**

When looking to record the best sound, always remember you need “soft walls.” Soft walls make you sound like NPR and cut down on reverb.

- **Studios:** Yes, recording studios are known for their soft walls. That’s why you sound so good in them, when you talk and record your voice! That and a high-quality microphone.

Believe it or not, you have more soft walls around you than you think. You can record flawless narration/VO in:

- Your closet
- Your car
- Under a blanket/comforter - make an igloo!
- In a pillow fort

Many audio journalists and hosts, including Ira Glass, recorded in these places during the pandemic.

## **Room Tone**

You will hear people say this all the time: Always get room tone. Room tone is the natural sound of the room without any dialogue.

- Record 30 seconds to 1 minute of silence with the recorder you are using.
- Room tone will help with transitions while editing to fill in silences/breaks in sound.
- Remember: “The tone of a room is never the same twice.”

## **Run of show for chat shows**

Many chat/talk show podcasts don't have a full script, but a run of the show that displays the plan for the episode. It can include the planned questions, an outline of topics – anything that could be useful for your host and their guest. You want to make sure your hosts and guests are prepared to see where the episode is going.

## **Writing scripts for narrative podcasts**

Writing for the ear is between text and broadcast TV writing. Script narration should have short, pithy sentences - avoid wordiness and flowery language. Introduce 1 fact per sentence, flow from topic to topic without jarring the listener and be conversational.

Remember, it should sound like your host or whoever is reading the copy – not you. And you should utilize commas and breaks to let them breathe.

The main goal is for the stories to sound pleasing to the ear and sound natural.

## **Narrative structure**

Many narrative podcasts use the three-act structure, which is popular in fiction and screenwriting. Quite simply, think of it as:

- Beginning
- Middle
- End

## **Script elements**

Just hearing one voice for a long time is not engaging. For a narrative podcast, you should weave together:

- Voice over (VO) - your host!
- Actualities (the audio version of SOTs or quotes) - audio from your sources/interviews

- Natural sound (known colloquially as “natsound”)/ambient/sound effects - can turn your podcast into a truly immersive experience, but you need to know when those sounds begin and end. Include cues for both of these, so you know what to use and for how long during the editing and sound design process.
- Music - Engaging podcasts often use music, but to do that, you need to mark the in and out points for those tunes in the script. This can help cement your vision during the editing and sound designing process. It can be as simple as text that says “MUSIC STARTS HERE.”
- Timecodes - Cues are helpful, but timecodes are even specific and necessary, especially when it comes to the use of archival clips and interviews. It’ll help take the guesswork out of editing and make it so much more precise.

### **Elements to consider for chat and narrative podcasts**

- Pronouncers: Podcast scripts are meant to be read and you shouldn’t assume every word and name has an obvious pronunciation. Always double-check them and include phonetic spellings in parentheticals. For example, the Irish name Siobhan would get the pronouncer “(SHIV-an).” My rule of thumb is to check YouTube to see how other sources pronounce the word or name and use the pronunciation that’s used the most – however, a video of the person saying their name’s preferred pronunciation is always best.
- Host instructions: Depending on your host(s), the podcast script is a way to share your vision for the episode with your hosts – and communicate it in specifics, like if you want the hosts to banter or improvise about a certain topic. Make sure to include clear instructions and directly address the hosts in the text. It’s also a good practice to make sure these instructions are in a different color or style font, so you and the host(s) can identify that it’s different from the other text to be read for the show.

- Color coding: It can help you know what's narration, sound, an interview clip, etc. just by sight alone. It can help you balance out all the elements in your script
- Source lists and footnotes: It's always good to cite obscure facts, so you can always refer back to them.
- Transcription of clips: This can help the editing process go smoother and be much more precise.
- Intro: The hallmark of a professional podcast is having a formal introduction at the beginning of an episode and closing it with credits. For example, the intro can be as simple as “This is [Title of Podcast], a podcast about [subject] and I'm your host, [Name]...” at the very beginning or after a short, but tantalizing tease or cold open.
- End credits: Remind the listeners who are the host(s), what they've been listening to and give credit where it's due to the talented team behind the scenes (even if it's just you). Good closers also include where the podcast can be regularly heard (Spotify, Apple Music, etc.), where to find links to additional resources and transcripts, and a clever sign-off from the host(s).

### **Actualities/Soundbites**

Beginner journalists, no matter the medium, tend to rely heavily on quotes – don't do that, as tempting as it may be! Actualities should be a minute, at most, in narrative podcasts. Around this time, I find that your experts end their point and start to ramble.

*Remember that actualities should be used like seasoning, not sauce.*

# POST-PRODUCTION

Putting it all together.

## **Editing software**

There's no standard when it comes to editing software. You can use:

- Adobe Audition
- Pro Tools
- Descript
- Hindenburg
- & more.

For the most part, most DAWs - aka "Digital Audio Workstation," the audio industry term for editing software - are very similar.

It's also somewhat similar to video editing, just no video.

If you know Adobe Premiere, you will get to know Audition quickly (they each have their own quirks).

If you're not familiar with these DAWs, give them a shot! There are lots of online tutorials on how to use them around the internet and they'll take you through the process step-by-step.

## **Common challenges**

ISSUE: All my audio is at different volumes?! It sounds weird.

Adjust levels during editing. Make sure your levels are between -6 and -12.

ISSUE: My audio has popping noises.

In Audition, you can use Audio Heal.

ISSUE: The editing between VO and actualities sounds choppy and weird.

Use crossfades and make sure to use ambient/natsound and room tone throughout.

### **After Editing: Quality Assurance (QA)**

Make sure to have someone who isn't your editor QA and listen to the episodes. Like the written word, editors too can get too close to an audio track and need another set of ears to catch any awkward silences and pacing, mistimed music cues, and bad quality audio that snuck into your podcast.

# PUBLISHING, RELEASE, MARKETING & PROMOTION

Congratulations! You're almost done.

## **Publishing**

Podcasts still use RSS feeds and you can set them up and publish to platforms in numerous ways:

- Spotify for Creators
- Apple for Podcasters
- Simplecast
- Megaphone
- Substack

Keep in mind that most of these options can post your podcast across platforms (Spotify, Apple, Amazon music). Where you publish depends on your priorities and what you find easiest for your show.

## **Publicizing: Podcast discovery**

So, you've published your podcast online...now what? It can feel like these episodes get uploaded into the ether of a very crowded podcast market. That's because next, you need to promote your podcast and get ears to listen.

There are several options:

- Media coverage: The toughest option, just because there aren't many journalists who cover podcasting anymore and the ones left who do mostly cover the industry as a whole. But you should still try, especially if your podcast has a particular news hook.

- Podcast recommendation newsletters: Many of these exist just to introduce new podcasts to people. Try to pitch your podcast to these newsletters.
- Social media: A lot of podcast discovery now happens through social media, primarily via short viral clips on Instagram and TikTok. But even if you're not using short-form video to promote your podcast, dedicated social media accounts can help spread the word.

### **Tips for newcomers trying to get familiar with podcasting:**

- Find mentorship that you feel comfortable asking questions to. What is “natsound”? What sort of email etiquette should I be using? What makes a good podcast?
- Listen to other podcasts. Once you start paying attention to the value production of other podcasts, you can create higher-quality content in your own projects.
- Do your own research. Especially in a climate podcast, staying up to date with the latest news will guide your questions and validity.

# HOSTING

The talent sets that go into building a podcast are broad. By reading the above, you will see that hosting is but a small part of the effort.

My introduction to podcasting was, as Allison discusses, fortuitous. It occurred in a conversation outside Annenberg Hall on a warm Southern California spring morning when Allison offered to help me build a podcast discussing the reading I was doing on lithium extraction from geothermal brines in the Imperial Valley. In that conversation, I went from an ex-academic administrator who was spending time re-opening long dormant neurological pathways associated with research, science and engineering to, boom! essentially instantaneously, having an Executive Producer, Producer, and Associate Producer and Editor.

My contributions to the podcast process were and remain largely naive. What I bring is a broad and often deep knowledge of the subjects being explored and years of experience explaining subjects to students and large audiences.

My career path has taken me through the ranks of assistant, associate and full Professor at the University of Illinois in Urbana Champaign, to a period working in Singapore helping to manage major research institutes and then at two research Universities as Provost - the Chief Academic Officer. As a faculty member, I prepared and delivered lectures and assigned problem sets aimed at helping students learn things like: in-minus-out-equals-accumulation, thermodynamics, fluid mechanics, harnessing chemical and physical principles to engineering useful things.

Much of my early academic career was focused on developing a research program where we studied topics related to suspensions of small particles - think milk or paint or cement. In this capacity, I worked primarily with graduate students to conceive of and execute experiments to illustrate a principle we hoped to demonstrate, write papers and deliver talks in front of often receptive but sometimes hostile audiences.

As I drifted into academic administration the presentations became more formal - often set pieces where I was speaking for the institution and the script was carefully written to ensure I delivered the correct message. And let me assure you, the hostility and cynicism of the audiences grew as my position moved up the academic hierarchy.

Formal speeches often left me reading as opposed to speaking on the basis of a deep knowledge of the subject as I had in describing material in front of a class or to research colleagues. After miserably failed attempts to ad-lib these speeches I buckled down to the formal presentations and teleprompters. I learned from these experiences to ensure that what was on the teleprompter captured my voice and cadence.

In podcasting, the script can be changed easily and on a moment's notice. As a result while I read the podcast, the production methods allow me to relax, try out ways of delivering and have retakes of areas where quality is not up to standard.

In the speaking and writing processes of my faculty and administrative work, my role was often to transfer information and explain concepts. The many years of practice are important in how I approach my role as a podcast host. I craft my language to transfer information and understanding. I am sensitive to the audience's attention and anticipate skepticism. I have a sense of what different audiences struggle to understand and work on those explanations (and take advice from my team when, even with these efforts, I am not on mark).

In the role as a host, having had experiences with public speaking in a variety of settings has been an asset. Being willing to take advice has been essential.

In developing Electric Futures, we have had time. In part because we wanted to explore the impact of narrative podcasts in climate communication and in part because we are not tied to a timeline by fiscal considerations, we were able to develop ideas and scripts - not in a leisurely manner - but certainly not under the deadline pressure of a rapid cadence podcast. There are deadlines and there are financial pressures and these are enforced by Allison and Mallory.

However, our need to turn a profit does not add to these pressures. This is enabled by the support of the University of Southern California where my role as a faculty member is to conduct research and scholarship. I am able to define the work I do on Electric Futures as impactful scholarship and thus a fraction of my faculty time (and salary) is devoted to this effort.

For would-be faculty hosts in technical disciplines, I encourage seeking and gaining support of your colleagues for this approach to scholarship. At this stage in my career (40 years in), I have established my research, teaching and administrative chops and have the luxury of devoting myself to podcasting. If communication to the public about the technical side of climate change is a direction you seek early in your careers, I encourage you to seek guidance from Bill Hammack in the Department of Chemical Engineering and Materials Science at the University of Illinois Urbana-Champaign whose communications career landed him election the National Academy of Engineering - the highest honor bestowed on an engineer.

As a newbie to journalism, I have stumbled over topics which I had not encountered related to cold calling potential interviewees, convincing the reluctant to let us record, and the ethical issues related to conducting interviews. In particular I had to wrestle with how to incorporate voices with which I do not agree. Allison and Mallory spend hours working with me to think through the line between journalism and advocacy and the difference between storytelling and propaganda.

In Electric Futures we explore issues related to the energy transition. The topics we choose are inherently about climate change. Early in development of the podcast, and after having interviewed both skeptics and the alarmed, we concluded we would take a position that climate change is real and has quality of life, economic and political consequences. We seek those who do not share this perspective but we do not allow the debates about the reality of climate change to be the podcast's focus.

Instead we discuss a particular subject - lithium extraction from geothermal brines in a poor, desert, but highly productive agricultural community, or microgrids in an all electric subdivision seeking to avoid rolling blackouts during fire season, or the power, water, noise, and tax implications of having a data center move to town. These topics are chosen as they result from changes in the business world in response to real (or perceived) needs to mitigate the impact of climate change. However, the topics do not immediately blare environmental doomism.

Approaching the topics from a community perspective, we have learned, lets us exemplify how individuals and communities deal with the day-to-day of climate change. Those we interview are aware of and may have strong opinions on one side or another of any given environmental issue. In dealing with the topic at hand, they are, however, rarely motivated by being climate change zealots.

Our approach results from the editorial stand we take in choosing topics, and not all podcasts need to choose this stand. Nevertheless, we do not go in with the question “Do you believe in climate change?” Instead, we go in with questions about a current and day-to-day issue of quality of life and community health.

Environmental issues can be very political. The swing in party of the administration and Congress has had profound impacts on climate change mitigation efforts. In developing Electric Futures, we keep coming back to a mantra that we are not a political podcast. We are careful to steer ourselves back to the topic at hand - for example, what are the issues in building more geothermal power plants with attached lithium extraction chemical facilities in the cultural landscape of the Kumeyaay people? We explore the issues by capturing the concerns of a Kumeyaay elder and an elected official genuinely concerned about uplifting communities through economic expansion.

As the host of Electric Futures, I spend a large amount of time exploring the topic. As this is my scholarship and part of my job description, I immerse myself in the material. My approach is a remnant of my years as a research faculty member. I am driven by curiosity.

Curiosity in a podcast host, I argue, is important. The desire to understand and explore issues and perspectives with those being interviewed can relax the interviewee and shape the conversation so that the topic can be helpfully engaged. We are often successful in gaining the confidence of an interviewee by holding the pre-interview and demonstrating we are not in the business of zingers. We are not investigative journalists. Instead we seek to understand the issues and, in the podcast, will honestly reflect the perspective of those we interview.

Again, this is an editorial decision and need not be – and perhaps should not be – replicated in all podcasts. Our choice is based on the Electric Futures brand being about illustrating the trade-offs of choices communities make when presented with technological options: lithium extraction facilities on cultural landscapes, changing land use patterns in the Midwest to generate electricity at lower prices than is done with coal burning plants, or creation of buildings that consume the electricity of small cities and sometimes deplete the aquifer to feed the calculations that underlie artificial intelligence.

From the host's perspective, I argue developing curiosity and a certain passion for the subject to be discussed, and for narrative podcasts to have the time for research and to interview a range of perspectives are important. But vital to the process is the production team. As a host, I have very limited understanding of how the podcast is created. I rely on Mallory and Allison to steer me clear of journalistic disasters and ensure my reading is clear and persuasive. I am dependent on the skills of Spencer to edit and interweave the music that enlivens the podcast. I rely completely on Natalie to track interviews, create marketing materials, and extract trending data. My expertise lies in discovering the issues, interviewing, writing scripts, accepting edits, taking advice and being recorded.

My recommendations to climate podcasters is: If you are a host, you seek a capable team and if you are a producer, seek a curious host.

**Charles Zukoski**  
Host of Electric Futures

# ELECTRIC FUTURES PRODUCTION CREDITS

## **Season 1**

Chip Zukoski, Host  
Allison Agsten, Executive Producer  
Mallory Carra, Producer  
Spencer Cline, Editor  
Natalie Lopez, Production Assistant  
Cindy Chai, Research Assistant

## **Season 2**

Chip Zukoski, Host  
Allison Agsten, Executive Producer  
Mallory Carra, Co-Lead Producer  
Megan Donis, Co-Lead Producer  
Spencer Cline, Associate Producer and Editor  
Natalie Lopez, Associate Producer  
Rebecca Torres, Production Assistant

## **Season 3**

Chip Zukoski, Host  
Allison Agsten, Executive Producer  
Mallory Carra, Supervising Producer  
Spencer Cline, Associate Producer and Editor  
Natalie Lopez, Associate Producer  
Tahjah Fortune, Assistant Producer

## **Bonus season**

Allison Agsten, Executive Producer  
Mallory Carra, Supervising Producer  
Spencer Cline, Associate Producer and Editor  
Rhysea Agrawal, Associate Producer  
Natalie Lopez, Associate Producer

