

February 3, 2022 Stakeholder Meeting Summary

Hydrofluorocarbons (HFCs) Rulemaking, Chapter 173-443 WAC

Agenda and presentation slides are available on the HFC rulemaking web page (<https://ecology.wa.gov/Regulations-Permits/Laws-rules-rulemaking/Rulemaking/WAC-173-443-455>).

Stakeholder Comments and Ecology Responses

General Rulemaking (process, timeline, documents)

- Will this presentation be available?
 - **Response:** Yes, it is being recorded and will be available.
 - **Response:** We will create a written summary from the recording and post the written summary on the rulemaking web page. The recording is for creating a written summary. However, if anyone would like a copy of the audio version, email me (linda.kildahl@ecy.wa.gov) with that request. We will also post the presentation on the rulemaking web page.
- Will the draft language be available on the HFC rulemaking web page?
 - **Response:** Yes, it is there now. We want to hear your feedback today. Then we will share updated draft language at our next stakeholder meeting. Our goal is to have updated draft language on the web page a week before the meeting.
- How long will the informal comment period be open?
 - **Response:** Stakeholders may provide informal comments online (link is on the rulemaking web page) starting today through the formal comment period on final rule language in 2023. We will not respond to informal comments, but we will consider them as we work on draft rule language. If you have input on the current draft language or on language that we have not yet gotten to, please provide it. You are the experts in your industries.
- Where can informal comments be made?
 - **Response:** Comment online. There is a direct link in chat and toward the end of this presentation. There is also a link on the rulemaking web page. We do not respond to informal comments. We consider all comments. Where we make a change, we will include it in the next version of the draft rule language.
- The rulemaking web page lists Chapter 173-443 WAC and 173-455, yet the start of the PowerPoint only has Chapter 173-443 WAC. Can you clarify?
 - **Response:** That was a judgement call. We will amend the Air Quality Fee Rule, as part of this rulemaking, to add fees for the Refrigerant Management Program (RMP). The primary focus for this rulemaking, including the RMP fees, is Chapter 173-443 WAC and that's what we want to focus on.

End-of-Life Refrigerant Management

- Could you share anything about the next steps for moving forward on an end-of-life refrigerant management program?
 - **Response:** That's a fair question. We can pass it on to the individuals in Ecology's Hazardous Waste and Toxics Reduction, and Solid Waste Management Programs who are working on that topic. The Air Quality Program provides technical support. I do not want to speak for those experts today.
- Is the state planning to implement a reclaimed refrigerant mandate, similar to the State of California program?
 - **Response:** We are operating under the legislation that has passed and been signed into law. So no, we have not talked about doing that. It was discussed in the legislative report, but that is as far as it has gone.
 - **Response:** One of the recommendations out of the report was to have additional listening sessions. We scheduled listening sessions in the summer of 2021 with various stakeholders. Given the legislative deadline to produce the report, we were not able to answer all of the questions that came out of those sessions. The Legislature could ask Ecology to continue working on that topic, but we are not in a place right now where we can provide definitive recommendations.

GWP Thresholds (effective dates, GWP determinations)

- Will the state have building codes updated for mildly-flammable refrigerants in advance of the January 1, 2024 implementation date?
 - **Response:** Yes. The HFC law requires Washington's State Building Code Council (SBCC) to adopt the new safety standards, to address low GWP refrigerants, into the code by January 1, 2023. If the SBCC does not adopt the new standards by that date, Ecology cannot implement the GWP thresholds until at least two years after they do adopt them.
 - **Response:** We have met with the SBCC and we understand that they have updated the state code where they are able to. There are a number of federal standards that must be finalized before they can update the other pieces. I think the updated standards, so far, are for air conditioning, but we will look into it more and get a more firm answer for the next meeting.
- The urgency for benefit is the next 20 years, so why not use 20-year GWP?
 - **Response:** Washington's statutes were based on the 100-year GWP calculations. If an individual or group thinks that the 20-year standard is more appropriate, please comment about why you think that. We should adjust our numbers to incorporate that.
 - **Response:** Our intent is to be consistent with other states in order to create an easier regulatory scheme to follow. California, in particular, has recently adopted their newest HFC rule with these GWP thresholds. Please provide your input and we will consider it.
- Will you be using IPCC AR4 or IPCC AR6 levels?
 - **Response:** We have not yet decided. Given that the draft language does not yet contain definitions, we will be deciding on that in the coming weeks.
- There is a growing body of research that some low GWP HFO's break into trifluoroacetic acid (TFA), acid rain, in the lower atmosphere. Is this a topic on Ecology's radar for further study as

part of this process? There could be an unintended consequence of regulation and it would be best for the state to provide an assessment, if so.

- **Response:** Yes, it is on our radar. I will ask the others to speak to that in more detail.
Response: I asked Ecology's Toxics Cleanup Program, one of the programs working with the Washington Department of Health on the state action levels about TFA. They are not yet working on it. We are aware of some of the recent literature out of the European Union and are keeping an eye on it. As of yet, though, Ecology does not have specific plans around TFA.
- **Response:** That is a fair assessment. We are aware of the research and want to educate ourselves. I think that Washington, just as with ODS and HFCs, may become part of the evolution. So, yes, it is on our radar. If stakeholders have information to share as part of your comments, we will review them. It is a developing area of science that is of interest to Ecology.
- Is Ecology planning to add provisions regulating supermarkets, similar to California (example: company-wide GWP reductions)?
 - **Response:** Yes, it is in the table at the top line (slide 26). I should have been more specific for what types of refrigeration equipment count in the General End Use column on the left side. For retail refrigeration, we are instituting the GWP threshold the same as other equipment. We do not anticipate doing a company-wide weighted average approach. We are not saying "absolutely no," but that is not how the law envisioned it, as we understand it. Retail food refrigeration will have to meet the GWP threshold by the effective date.
- Will the effective date be based on the product built date, printed on the product plate or the product's sale date?
 - **Response:** I don't have an answer to that at this point. We have not gotten there yet.
- What is the reasoning for considering different effective dates for existing facilities? California's dates were the same for GWP limits in new and existing facilities.
 - **Response:** Our reasoning is to allow more time for retailers to make better use of equipment that is in working order. It's easier for a new retail facility to use a low GWP refrigerant. For California, I thought they did split up the dates between new and existing facilities, but I may be incorrect. They went with a company-weighted average for new equipment in existing facilities, so they made a distinction between the two. For Washington, the dates for new facilities are the earliest dates allowed under Washington's law. For existing facilities, we would be open to giving them a little bit more time.
- Do the prohibited substances rely on only virgin HFC's? Similar to California, will Washington allow the use of reclaimed refrigerant without restrictions?
 - **Response:** We have not yet dived into that topic. It's a fair comment and we need to look into it. I'm not prepared to say anything beyond that.
 - **Response:** I could add that it is more likely to be tied to the Refrigerant Management Program, Section 9 of HB 1050. We are working on Section 8 today. To the specific question, we can consider it as we work through this rulemaking.
 - **Response:** We will continue this discussion in our next meeting. We can have something by that time to show that we've thought about it and have some initial conclusions.

- For existing facilities, what is the definition of new equipment? If a retailer replaces a closed door display lineup, can the existing refrigerant still be used?
 - **Response:** We have not yet crafted definitions. I believe there was specific criteria in the original HFC rulemaking. I don't have those off the top of my head. I think that California identified what constitutes a retrofit that would qualify as new, but we haven't gotten there yet. We request your input in this area. There will be a threshold, either when you spend enough money or make specific changes. It will count as new equipment at that point.
 - **Response:** One thing to add to that is that it may depend on the size.
- I have two comments on humidifiers. One is that the refrigerant R32 is illegal and not allowed to be used in the USA until EPA approves it. I just wanted you to be aware of that. You have to also provide time for transition. You have to be careful about the assessment report (regarding R32) and if you choose the wrong assessment report, you'll have prohibited the use, allowing no dehumidifiers in Washington. Dehumidifiers are very tricky. Probably best to wait until things are flushed out with EPA. AR4 is what the other states and EPA rely on, so I don't see why you would deviate from that.
 - **Response:** Are there alternative low GWP refrigerants to R32?
 - **Comment:** R32 is what the industry is going to generally use. The other alternatives are not. EPA is working on approval of R32, but it comes back to EPA. They take time. We don't know when it will be done.
 - **Response:** Washington law allowed us to adopt a date for the humidifiers, January 1, 2023. This date is not possible to make because we won't be done with the rulemaking by then. We tentatively chose January 1, 2024.
 - **Comment:** I think it was just momentum. California had 2023, so right now, California is not going to have humidifiers in the state to be able to be sold unless they do something. We explained that to them during the board consideration. Right now, it's safe to say "no chance."
- I wanted to echo what the last speaker said about EPA and dehumidifiers. There is an impossibility paragraph in your rulemaking that allows people to submit saying that it is impossible to meet your deadline. We would ask that that you make the wording around that carefully. Additionally, we will be submitting comments through the informal process that was laid out in the chat. We would like the definition of residential dehumidifiers, that Ecology has not adopted yet, to mirror that of California. So when EPA does adopt a rule, there is some consistency among states and humidifiers are classified formally across the states. Making sure those definitions are aligned makes it helpful to manufacturers in building products consistent with regulations.
 - **Response:** Thank you. Please send in your comments. On the definitions and California, we would need to have a good reason not to use the California definition. To the extent that it will help, I cannot imagine us not using that definition. It's not 100 percent, but it's close.
- I'm just a little concerned that whenever you throw out that R32 as the only refrigerant available, that that is for dehumidifiers. There are other options. R454-B is also available for air conditioning. Do not get locked into just R32. My other point, as was mentioned, IPCC AR4 versus IPCC AR6: AR4 is the standard, whereas AR6 makes a very dramatic shift in the global warming potential of several key refrigerants that would be considered.
 - **Response:** I thought I saw that California had AR4 or AR5.

- **Comment:** Yes, there is an AR5, but it doesn't change dramatically. AR6 has not been formally accepted. It's documented that that portion doesn't change in a week or a month. It's been years in the development, so, it's probably not going to change much. AR5 does not shift the GWPs that dramatically; whereas, in fact, I think for R32, it even takes it down a few numbers. AR6 takes it up to where, all of a sudden, it can potentially be above the 750 – which is why everyone looks for that gold standard. So we have consistency. You brought up earlier that you want to have consistency, but that's something from industry's perspective that we don't have. We don't want to build one unit for Washington, another unit for California, and for New York, etc. Consistency is where the AR4 comes in. I'm not trying to sway you to AR4, but that is, so far, the standard. EPA may change. In which case, then we'll just track them and be prepared for change.
 - **Response:** That's a fair comment. I will say that we are having conversations with other states. I put the qualifier in, where possible, because it is dependent on individual state legislatures that may tweak their statutes for their own reasons.
 - **Response:** Thank you for the comment. We are certainly not doing this rulemaking in a bubble outside of other states. We are working together.
 - **Comment:** You have an approach that I really like. I'm impressed with it. I look forward to working with you on this subject.
- I was on a UN call and missed the first part, but I wanted to thank you for the great stakeholder interaction. You are doing a very nice job of it and will continue to participate with the comment process – both formal and informal. I wanted to raise the question: EPA granted petitions in this space, from an air conditioning, but also refrigeration perspective, in early October of 2021. They must complete rulemaking by October 2023 within that two-year timeframe, for a 750 GWP limit for air conditioning equipment in 2025 and 2026, and for commercial refrigeration equipment. If we could see some harmonization across the country—to the point made earlier—that would be very helpful. I think the provision was added, if I remember correctly, in HB 1050, that if EPA moves forward with that, Ecology could look at this, perhaps, in a different way. So I wanted to explore that with you all around how we might coordinate all this on a national level.
 - **Response:** Yes, you are right. EPA did grant those petitions. My understanding right now is that the states that are taking this on are moving forward while we wait to see what comes out of EPA. We work with the Climate Alliance states for consistency and harmonization. Washington is authorized and not required to adopt these thresholds, so there is room. We are required to be consistent with other state and federal requirements to the extent possible. The best place to do that is to work with the Climate Alliance. With regard to EPA, it may come out with rules that could take the place of Ecology's rules. If Ecology's rules were to be duplicative, we could step away and not adopt. But until we see that, we have to move forward in a consistent way with other states to the extent possible.
 - **Response:** The key language in the HFC law is that it needs to be "substantially duplicative." We are keeping an eye on what EPA does, but at the same time, we have been given direction from the Legislature to move forward. If there is something that ends up being duplicative and we can concentrate on other things where there is not duplication, that is more efficient for limited state resources.
 - **Comment:** I'm not trying to oppose moving forward. I just want to do it in the most effective way possible that doesn't add anything from an environmental perspective. I am not trying to thwart this. I want to make sure it's done in the most efficient manner possible. We want to coordinate with EPA. We know the impact will be much greater if

- it is done nationally rather than only with a handful of states. We are pushing really hard to get this done with EPA. A uniformed, harmonized standard is always better.
- **Response:** During my time with Ecology's Toxics Cleanup Program, where we could collaborate and work together, it was more efficient for our resources. EPA was always clear in that they essentially set the baseline for everything. If individual states decide to go above and beyond, there is a fair amount of common ground for discussions.
 - **Comment:** The other thing to note is price increases as much as five times the price they were last year. There is an economic incentive for transition. In 2024, we will be at about half of where we were three years ago when it comes to available refrigerant supply and that will force the move forward as fast as possible. My hope is that EPA will get this done, take this job off your hands, and solve reclaim together. I also wanted to mention the assessment reports and GWPs. I wanted to clarify that from a technical perspective, whether you use AR4, AR5, or AR6, a 20-year or 100-year, you may shift those GWPs around a bit, but comparatively they won't change that much. R410A is still going to be much higher than R32 from an air conditioning perspective regardless of what metric you use. It doesn't make sense to switch metrics to confuse people, when internationally at the Montreal Protocol and nationally at EPA, people are basically using a yard stick versus a metric stick.
 - **Response:** We have an informal comment system open for your comments.
- We want to thank Ecology for holding this stakeholder workshop on implementation of additional regulations to reduce hydrofluorocarbons. The continued state leadership on HFCs is vital to support the national implementation of the greenhouse gas emission reduction targets. We would urge Washington to continue to move forward with the GWP limits, covering refrigeration and air conditioning sectors, using the soonest feasible effective dates for both new and existing facilities for refrigeration and supermarkets, in particular, no later than 2024. Washington has a head start on the federal government and implementing the HFC phase down and, along with California, sends a strong signal for the rest of the country on what is needed to meet the demand reduction to 60 percent below the baseline required nationally.
 - **Response:** Thank you for your comment.
 - I'm an energy consultant and I've been working on natural refrigerant systems as far back as 2010. A general comment: These regulations are referring only to HFCs referring to reducing the GWP of HFCs. And many of you already know the chemical industry is already producing HFO blends and HFCs to bring down the GWP. Some of those have serious, unintended consequences, particularly HFOs. Within two weeks, it is known that they're breaking down in the atmosphere. So when we lower the GWP, the chemical industry is responding by producing lower GWP refrigerants, but that is not the only thing we need to pay attention to. The reason why I moved to natural refrigerants back in 2010 is that with CO₂ or ammonia or propane, for example, you get down to a GWP of 1 and remove all toxic products. The regulations are going to have to come to terms with that and I'm not suggesting it happen right now, but I wanted to bring this up. The industry is moving along pretty quickly and so is the national refrigerant industry. When you say low refrigerant, there needs to be a distinction between HFC, HFO, HFO/blends. Those are the choices. It's not simply a lower GWP that's going to save the environment. A complex, sophisticated evaluation is going to be needed. It may start with looking at the HFOs. The way these regulations are being presented, they are being over-simplified for the reality of the market. And the reality of the impact that is coming, especially when you have an entire city saying that it's going to decarbonize and move to heat pumps. Everyone's going to get these chemical refrigerants, so there will need to be other steps to address unintended consequences.

- **Response:** Thank you for your comment. We appreciate it.
- Does the 2024 deadline apply to residential only or also to non-residential? And the second part of the question is who has the responsibility for complying with the effective date? Is it the installing contractor, the building owner, or both?
 - **Response:** Who is responsible for compliance with the GWP threshold effective date would go both ways. The manufacturer must not sell into Washington equipment that does not meet the GWP threshold after the effective date, and likewise, any Washington retailer or other type of facility should not buy equipment that does not meet the GWP threshold after the effective date. It goes multiple directions.
 - **Response:** In terms of air conditioning equipment?
 - **Comment:** It doesn't say, so that's the assumption I'm going to make. It is air conditioning.
 - **Response:** The answer is that it depends. I don't have a full definition of that yet, but I suspect that the dates would be on the right (slide 27).
 - **Response:** It also depends on the type of air conditioning equipment.

Exemptions

- I wanted to let you know about a couple of projects and things that we are working on today. We found some technical challenges for some types of ice machines, as well as some building code limitations, for use in hallways and areas of egress. We actually have started a research project around alternate refrigerants to try to find lower GWP refrigerants that might be workable as solutions. We also have found some challenges around some of the medical uses, especially for storage and shipping of vaccines. So there may be some other uses from the refrigeration side that you may want to consider. I don't know of anything on the air conditioning side, but certainly, we'll come back to it if we find any technical issues.
 - **Response:** Yes, thank you. I'm glad you mentioned that. I saw that, for instance, California added something for the very low temperature refrigeration and I wondered if that was for vaccine or other medical type use.
 - **Comment:** Blood banks, vaccines, there is some laboratory and analytical uses. We can provide you with a list of the ones where we have seen challenges. And there are some military and other uses, where again, some technical challenges may be faced.
 - **Response:** A list would be great. I wanted to raise that issue here, so I appreciate that you did that. For air conditioning, I didn't see anything, but there might be something that I am unaware of. Thank you.

Labeling

- There are some safety standard requirements around labeling as well as energy efficiency standards have some requirements. Hopefully, if the information is present on a label, then it is not an additional requirement.
 - **Response:** That's an excellent point. Yes, existing labeling that meets these requirements will work. Is that what you're referring to here?
 - **Comment:** Yes, that's what I'm suggesting.
 - **Response:** Thank you. The answer is yes.
- Just quickly on the labeling. You have to recognize safety standard labels as acceptable by AHAM (Association of Home Appliance Manufacturers). The law gets at this and we are supportive of that provision in the law – that there are UL requirements. No sense in putting on a whole new label.

- **Response:** Yes, we allowed the UL label in the last HFC rule for that reason and we would do it here too. Existing labels that meet the requirements will meet the labeling requirement.
- I would like to see a GHG emissions warning label and caution of “only to be handled by certified professionals.” And there have been a couple of comments saying that they understand that this is problematic. Trying to control products and distribution will be a huge challenge.
 - **Response:** I appreciate those suggestions. Please send them in. There is room with the labels and we have flexibility. We want to hear all input.

Variance

- I wanted to thank you for including this. We’ve all had some very painful lessons. And so, I think this is very helpful to incorporate this. I did not realize the limitations. We may go back and try to fix that. I appreciate that.
 - **Response:** Thank you. That is Ecology’s interpretation at this point, although it is limited. We were glad to see this (variances) too because it is easier for Ecology if there is a situation where somebody absolutely has tried, but can't comply.