



Hydrofluorocarbons (HFCs) Rulemaking Chapter 173-443 WAC

March 31, 2022

Welcome to the Zoom meeting

Connect your audio and join.

No sound? We will check sound 10 minutes and 5 minutes before start.

Join

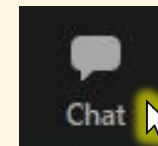
Connect audio and join



Try your computer audio first.

Test your speaker and microphone before joining.

Participate



**Question?
Need help?**
Chat with us!

Audio

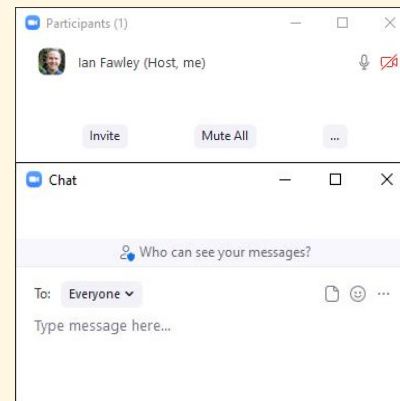
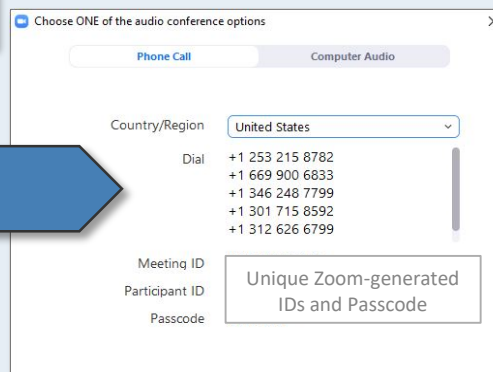
A

Best option: Use computer for audio

B

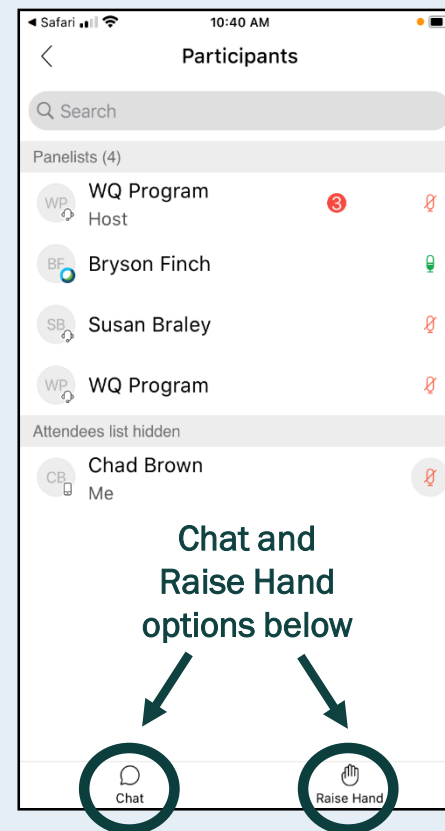
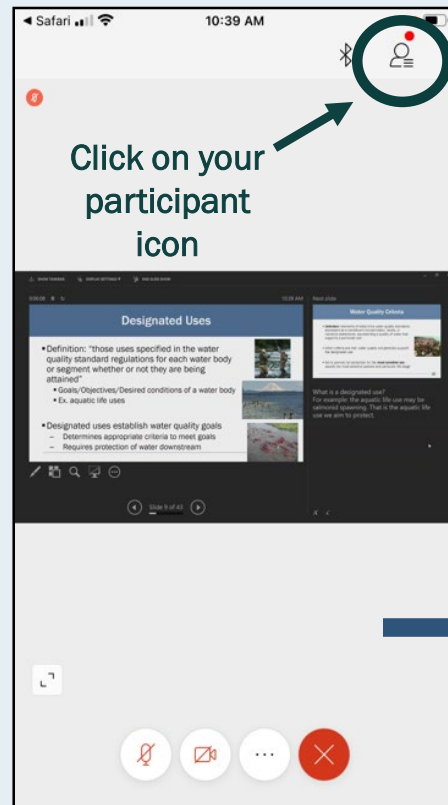
If selecting phone call...

- Dial: **253-215-8782 (Tacoma)**
- Enter Zoom Meeting ID **810 4677 9245**, followed by “#”
- Enter your unique Zoom Participant ID, followed by “#”
- (If you do not enter the Participant ID, you will be prompted to enter the passcode.)



Turn on the chat box and participant list from your toolbar.

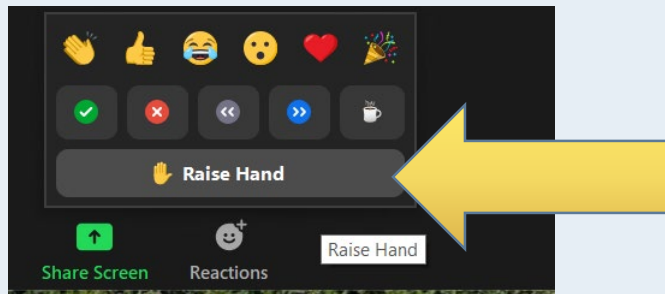
For Those Joining via Phone or Tablet



How To Participate

During today's question-and-answer period:

- Participants using computer or mobile app: Use the “Raise Your Hand” button. This button is located in the lower right hand corner of the participant list window.



- Participants listening in on the phone: Press *3 on your phone. The system will show you have your hand raised. The host will unmute you at your turn and the system will announce that you are unmuted.

Start Recording

We will start recording at this time.



Hydrofluorocarbon Rulemaking Team

Eman Jabali – Meeting Host

Tina Maurer – Meeting Host

Leonard Machut – HFC Unit Supervisor

Jason Alberich – Rules & Planning Unit Supervisor

Linda Kildahl – HFC Rulemaking Lead

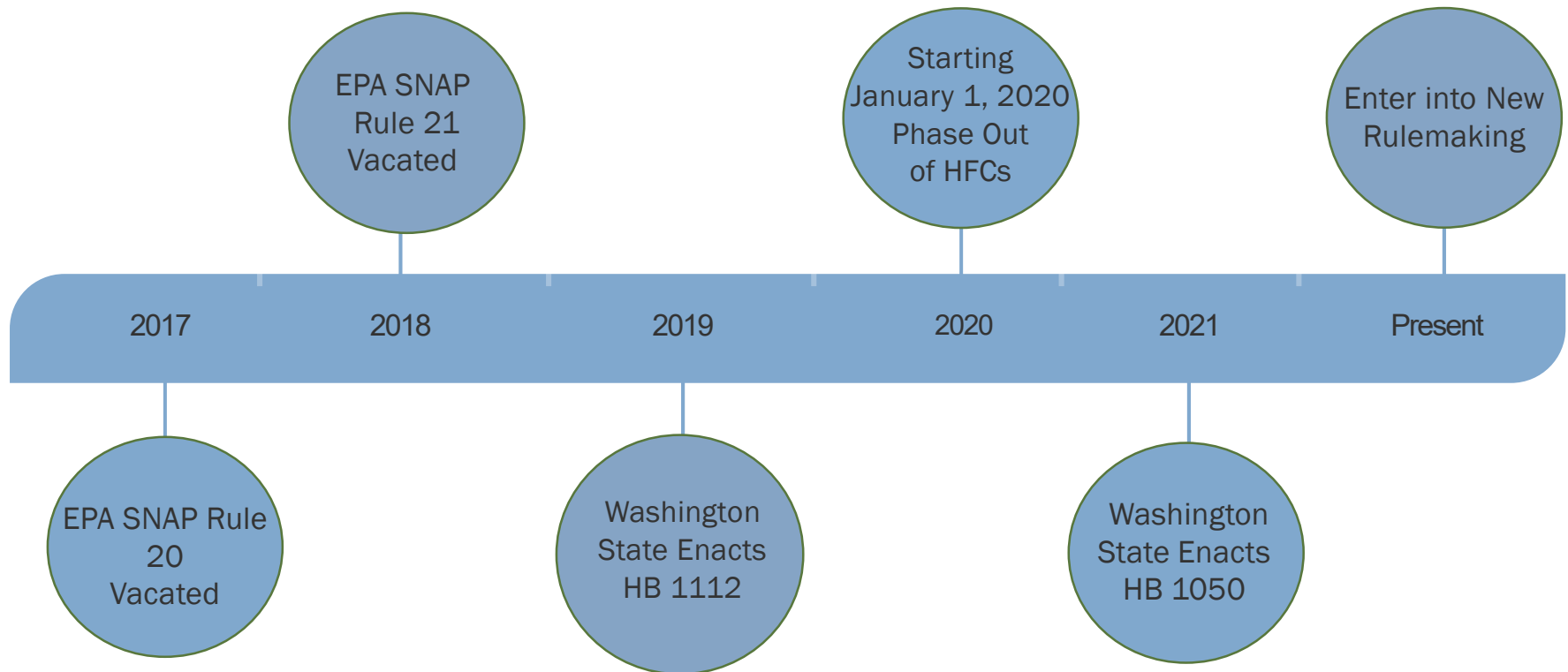
Tamara Dumitrescu – HFC Technical Lead

Janée Zakoren – Community Outreach & Engagement Specialist

Agenda

- Welcome
- February meeting review
- Draft rule language
 - Definitions
 - Refrigeration and air conditioning continued
 - Automotive refrigerant and other products
- Wrap up, future meetings

Federal Rules and State Legislation Overview



February Meeting Recap

- GWP thresholds for new refrigeration and air conditioning equipment
 - Effective dates, labeling, and recordkeeping
 - Exemptions
 - Variances
- Follow-up items
 - Intentions for EOL
 - Use of reclaimed refrigerants

Draft Rule Language Review

- Definitions
- New refrigeration and air conditioning equipment
(continued from February)
RCW 70A.60.020 (HB 1050, Section 8)
- MVAC recharge cans and other products
RCW 70A.60.080 (HB 1050, Section 5)

030: Terms for Discussion

- Air conditioning
- Chiller
- Industrial process refrigeration
- GWP
- New

Air Conditioning

“Air Conditioning” means the process of treating air to meet the requirements of a conditioned space by controlling its temperature, humidity, cleanliness, or distribution. **Air conditioning includes chillers, except for purposes of WAC 173-443-040, and heat pumps.**

Air conditioning applies to stationary equipment and does not apply to mobile air conditioning, including those used in motor vehicles, rail and trains, aircraft, watercraft, recreational vehicles, recreational trailers, and campers.

from HB 1050 (RCW 70A.60.010)

Chiller

“Chiller” means a water or heat transfer fluid chilling equipment package custom built in place or a factory-made and prefabricated assembly of one or more compressors, condensers and evaporators, with interconnections and accessories including controls, designed for the purpose of cooling or heating water or a heat transfer fluid. A chiller is a machine specifically designed to make use of a vapor compression cycle or absorption refrigeration cycle to transfer heat from a cold water or heat transfer fluid circulating system to the air, a heat transfer fluid, or other heat exchange media. Chillers can be water-cooled, or evaporatively cooled. Chillers include, but are not limited to, rotary chillers, centrifugal chillers, and positive displacement chillers, including reciprocating, scroll, and screw chillers.

from CARB 2021 HFC rule with modifications

Centrifugal Chiller

"Centrifugal chiller" means air conditioning equipment that utilizes a centrifugal compressor in a vapor-compression refrigeration cycle typically used for commercial comfort air conditioning. Under this definition, a centrifugal chiller is a chiller intended for comfort cooling and does not include chillers for industrial process cooling and refrigeration.

unchanged from current HFC rule

Positive Displacement Chiller

"Positive displacement chiller" means vapor compression cycle chillers that use positive displacement compressors, typically used for commercial comfort air conditioning. Positive displacement chiller in this definition is a chiller intended for comfort cooling and does not include cooling for industrial process cooling and refrigeration

unchanged from current HFC rule

Industrial Process Refrigeration

“Industrial process refrigeration” means to cool process streams at a specific location in manufacturing and other forms of industrial processes and applications. These complex, customized systems are directly linked to the industrial process. Where one appliance is used for both industrial process refrigeration and other applications, it will be considered an industrial process refrigeration systems if 50 percent or more of its operating capacity is used for industrial process refrigeration. Industrial process refrigeration or cooling using a chiller is regulated as a chiller. Industrial process refrigeration not using a chiller is regulated as industrial process refrigeration equipment.

from CARB 2021 HFC rule with modifications

GWP

“Global Warming Potential,” “GWP,” “Global Warming Potential Value,” or “GWP Value” means 100-year GWP value as it appears in WAC 173-441-040, and if not contained in WAC 173-443-040, then the GWP value means the 100-year GWP value published by the Intergovernmental Panel on Climate Change (IPCC) in its Fifth Assessment Working Group 1 Report (AR5) (IPCC, 2013).

- Relies on 100-year GWP values from WAC 173-441-040 to maintain consistency in WA regulatory framework.
- Chapter 173-441 WAC, Reporting of Emissions of Greenhouse Gases
Values adopted from 40 CFR Part 98 Subpart A, Table A-1

New

“New” means:

- Products or equipment that are manufactured after the effective date of this chapter;
- Products or equipment first installed for an intended purpose with new or used components;
- Products or equipment expanded by the addition of components to increase system capacity after the effective date of this chapter; or
- Products or equipment replaced or cumulatively replaced such that the cumulative capital cost of replacement exceeds fifty percent of the capital cost of replacing the whole system.

unchanged from current HFC rule

Questions or Comments

040: List of Prohibited Substances

- Table 1. SNAP-like prohibitions
- Table 2. New refrigeration equipment
- Table 3. New air conditioning equipment
- Table 4. Automotive refrigerant and other products

040: Table 2 – New Refrigeration Containing >50 Pounds Refrigerant

Refrigeration End-Uses > 50 Pound Charge	Prohibited Substances (Refrigerant GWP)	Effective Date
Retail food refrigeration (new and existing facilities)	150+	January 1, 2024
Chillers used for industrial process refrigeration purposes	150+	January 1, 2024
Cold storage warehouses (new and existing facilities)	150+	January 1, 2024
Industrial process refrigeration excluding chillers (new facilities)	150+	January 1, 2024
Industrial process refrigeration excluding chillers (existing facilities)	2,200+	January 1, 2024
Ice rinks (new facilities)	150+	January 1, 2024
Ice rinks (existing facilities)	750+	January 1, 2024

040: Table 3 – New Air Conditioning

Air Conditioning End-Uses	Prohibited Substances (Refrigerant GWP)	Effective Date
Room/wall/window air conditioning equipment, PTACs, PTHPs, portable air conditioning equipment, and residential dehumidifiers (new) (new and existing facilities)	750+	January 1, 2024
Other types of air conditioning equipment (new) used in residential and nonresidential applications (new and existing facilities)	750+	January 1, 2025
Variable refrigerant flow (VRF) or volume system (new) (new and existing facilities)	750+	January 1, 2026

050: Exemptions

- Table 1. SNAP-like prohibitions (new exemptions)
- Table 2. New refrigeration equipment (new exemptions)
- Table 3. New air conditioning equipment (new exemptions)

040: Table 1 – Exemptions for Snap-Like Prohibitions

Chillers (SNAP)	Prohibited Substances	Exemptions
Centrifugal chillers Positive displacement chillers	HFC-134a	Military marine vessels where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements; Replacement of a refrigeration component in an existing facility as part of normal maintenance if the cumulative replacement within any three-year period does not exceed 50 percent of the capital cost of replacing the entire refrigeration system or equipment; and Facilities with new refrigeration equipment with approved building permit applications before the effective date.
Centrifugal chillers Positive displacement chillers	HFC-134a and R-404A	Human-rated spacecraft and related support equipment where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements. Replacement of a refrigeration component in an existing facility as part of normal maintenance if the cumulative replacement within any three-year period does not exceed 50 percent of the capital cost of replacing the entire refrigeration system or equipment, excluding the cost of refrigerated display cases; and Facilities with new refrigeration equipment with approved building permit applications before the effective date.

040: Table 2 – Exemptions for Refrigeration Equipment

End-Use	Prohibited Substances (Refrigerant GWP)	Exemptions
Retail refrigeration equipment Cold storage warehouses	150+	Equipment with 50 pounds or less of refrigerant; Replacement of a refrigeration component in an existing facility as part of normal maintenance if the cumulative replacement within any three-year period does not exceed 50 percent of the capital cost of replacing the entire refrigeration system or equipment, excluding the cost of refrigerated display cases; and Facilities with new refrigeration equipment with approved building permit applications before the effective date.
Industrial process refrigeration, excluding chillers	150+	Equipment with 50 pounds or less of refrigerant; Replacement of a refrigeration component in an existing facility as part of normal maintenance if the cumulative replacement within any three-year period does not exceed 50 percent of the capital cost of replacing the entire refrigeration system or equipment; Very low temperature (VLT) refrigeration or cooling uses; and Facilities with new refrigeration equipment with approved building permit applications before the effective date.

050: Table 3 – Exemptions for Air Conditioning Equipment

End-Use	Prohibited Substances (Refrigerant GWP)	Exemptions
Room/wall/window air conditioning equipment, PTACs, PTHPs, portable air conditioning equipment, and residential dehumidifiers (new)	750+	Facilities with new refrigeration equipment with approved building permit applications before the effective date.
Variable refrigerant flow (VRF) or volume system (new)	750+	Facilities with new refrigeration equipment with approved building permit applications before the effective date.
Other types of air conditioning equipment (new) used in residential and nonresidential applications	750+	Facilities with new refrigeration equipment with approved building permit applications before the effective date.

040 Table 4, MVAC and Other Products

RCW 70A.60.080

Regulated refrigerants—Substitutes—Nonessential consumer products containing hydrofluorocarbons—Limitation on sale or purchase.

No person may sell, offer for sale, or purchase any of the following:

- 1) A substitute with a global warming potential of greater than 150 or a regulated refrigerant in a container designed for consumer recharge of a motor vehicle air conditioning system or consumer appliance during repair or service;
- 2) Nonessential consumer products that contain hydrofluorocarbons with a global warming potential of greater than 150 and chlorofluorocarbons or other ozone-depleting chemicals, and for which suitable alternatives are readily available. Products affected under this subsection shall include, but are not limited to, party streamers, tire inflators, air horns, noise makers, and cleaning sprays designed for noncommercial or nonindustrial cleaning of electronic or photographic equipment. Products and equipment subject to restrictions on applications or end uses under RCW 70A.60.060 are not nonessential products for which hydrofluorocarbons are restricted under this section.

150 GWP threshold – effective July 25, 2021

- Small cans of automotive refrigerant and nonessential consumer products
- No sell through provisions

Draft Rule Language Wrap Up

- Comment online:
<https://aq.ecology.commentinput.com/?id=6FM8R>
(listed on the HFC rulemaking web page)

Future Meeting Dates

- May 10, 2022
- July 6, 2022
- August 16, 2022
- September 29, 2022
- All meeting times: 9:30 a.m. – noon PDT

Ecology Contacts

Compliance/Technical Assistance

Tamara Dumitrescu

tamara.dumitrescu@ecy.wa.gov

HFC@ecy.wa.gov

Rulemaking

Linda Kildahl

linda.kildahl@ecy.wa.gov

Outreach & Engagement

Janée Zakoren

janee.zakoren@ecy.wa.gov

More Information

HFC Web Pages

Compliance assistance, submitting reports

<https://ecology.wa.gov/Air-Climate/Climate-change/Reducing-greenhouse-gases/Hydrofluorocarbons>

Rulemaking

<https://ecology.wa.gov/Regulations-Permits/Laws-rules-rulemaking/Rulemaking/WAC-173-443-455>

Informal comments

<https://aq.ecology.commentinput.com/?id=6FM8R>