1. Background on the rule-CA’s approach and the timing for other states are in adopting the rule

a. Will it be a regional/national market? [discuss EPA retreat from SNAP; discuss joint effort of selected states that have signed initiative in order to lead by example; place in context of Climate Alliance’s [Short-Lived Climate Pollutant Challenge](https://www.usclimatealliance.org/slcpchallenge/) and [SLCP Challenge to Action roadmap](https://www.usclimatealliance.org/slcp-challenge-to-action); quote from [Climate Alliance press release](file:///S:\OFFICE_OF_CLIMATE_CHANGE\SLCPs\SLCPs%20overall\Climate%20Alliance%20announcement%20about%20SLCPs%20-%209-13-2018.pdf) and [Malloy press release](https://www.ct.gov/deep/cwp/view.asp?A=4965&Q=604906).]

**Connecticut has already begun to experience the consequences of climate change.** Connecticut is highly vulnerable to changes in climate due to regional characteristics including a dense population, aging infrastructure, and proximity to the coast. Given the demonstrated impacts of climate change on the citizens of Connecticut and across the nation, Connecticut and other states have taken action to significantly reduce GHG emissions at a local and regional scale.

**In order to meet Connecticut’s greenhouse gas (GHG) reduction targets under XX, an effort has been made to address hydrofluorocarbons (HFCs).** HFCs are short-lived climate pollutants, but the impact, or global warming potential (GWP), of HFCs in the atmosphere is hundreds to thousands of times greater than that of an equivalent mass of CO2. They are also the fastest growing source of emissions in the U.S. and globally (CITE).  Reducing HFCs in the near-term will provide immediate and significant climate benefits while other Connecticut policies to reduce longer-lived GHGs, such as CO2, are implemented.

**Since 2005, HFC emissions have risen more than 45% in the US (CITE).** HFCs were introduced into the market as a replacement to ozone depleting substances (ODS), which were used primarily in refrigeration and air conditioning applications. The phase out of ODS under the Montreal Protocol (CITE) has been successful, but the resulting rise in HFCs and other fluorinated gases is problematic. The Kigali Amendment (CITE) was intended to address this issue with phase outs starting in 2019, and many states are looking to further reduce use of these super pollutants. However, HFCs are used in many industrial, commercial, and residential refrigeration and air conditioning units, as well as in industrial foams, solvents, and propellants. Collection, disposal and/or replacement of HFCs will require additional investment and research.

**As part of a national GHG reduction strategy, the federal Significant New Alternatives Policy (SNAP) Program established prohibitions on high-GWP HFCs.** When it finalized its HFC rules in 2015, EPA estimated that the rules would avoid 26 to 31 million metric tons of greenhouse gases emissions in the U.S. annually by 2020 (CITE). However, in August 2017, the D.C. Circuit Court of Appeals published a decision limiting U.S. EPA’s ability to require replacement of HFCs under the SNAP Program. Following a lawsuit by manufacturers of HFCs against the EPA over the proposed rules, the D.C. Circuit Court affirmed EPA’s legal authority to prohibit the use of HFCs as replacements for ozone-depleting substances, except as to some manufacturers. But in April 2018, EPA Administrator Scott Pruitt issued “guidance” that effectively rescinded the 2015 rules in their entirety\*.

*\*As of November 2018, SNAP rule 20 has been “partially” dismissed. SNAP rule 21 is still in effect, but under litigation. Rule 20 (and 21) use Section 612 of the Clean Air Act to phase out the use of certain HFCs in various industrial and commercial applications. Section 612 establishes a “safe alternatives policy” and the EPA retains discretion to revise the lists of approved and prohibited alternatives “at any time”. Two foreign manufacturers of products containing HFCs filed a lawsuit challenging EPA’s regulatory ability of these new “not acceptable” alternatives to HCFC and CFCs. Judge Kavanaugh held that the EPA could not require those manufacturers which had already switched to HFCs to switch to an HFC-alternative through Section 612 of the CAA. The term “replace” was interpreted to mean a “one-time only” action, and after a replacement was done, the EPA had no authority to call for a replacement of HFC. Additionally, according to the ruling, HFCs are not considered ODS, and EPA cannot regulate their phase out. HOWEVER, after SNAP regs were created, NASA found that HFCs are indeed ODS (*[*https://www.nasa.gov/press-release/goddard/nasa-study-shows-that-common-coolants-contribute-to-ozone-depletion*](https://www.nasa.gov/press-release/goddard/nasa-study-shows-that-common-coolants-contribute-to-ozone-depletion)*).*

**After it was announced that the U.S. would pull out of the Paris Agreement, the U.S. Climate Alliance (USCA) was formed to develop and strengthen state-specific climate action plans.** The USCA is a bipartisan coalition of 17 governors committed to reducing greenhouse gas emissions consistent with the goals of the Paris Agreement. The USCA has issued a commitment to reduce short-lived climate pollutants (SLCPs), which includes HFCs. The alliance has stated that strategies to reduce HFC emissions ‘promote more energy efficient systems that lower costs for businesses and households, support the leadership of US businesses developing alternatives to HFCs, and increase the need for skilled technicians and system designers.’ It is estimated that if all USCA states adopted SNAP regulations, over 21 million metric tons of CO2-equivalent could be avoided (CITE WORKSHEET?).

**Connecticut, and other USCA states, are pursuing the means to preserve key SNAP prohibitions with regards to HFCs.** On September 13, 2018, Governor Malloy pledged that Connecticut would develop regulations to de-escalate the use of HFCs. His statement also mentions phasing out coal power and is as follows: “If the federal government will not act to mitigate the impacts of climate change, it is incumbent upon states to act to protect the one planet that we have. By joining the Powering Past Coal Alliance, and phasing out the use of hydrofluorocarbons, Connecticut is sustaining its commitment to hold true to the goals of the Paris Agreement.”

b. CA’s approach and timing [base on CA documentation posted on Sharepoint]

c. Other states’ approach and timing [summarize from understanding of other states’ emerging plans and documentation posted on Sharepoint]

**Currently, New York, Delaware, Washington, and Maryland have also made pledges to limit HFCs, with California well on their way to policy implementation by 2023.** In March 2018, California adopted regulations very similar to SNAP rules 20 and 21, with notable exceptions. The California HFC regulations target new equipment and includes residential air conditioning, but do not include regulation on vehicle air conditioning. While these regulations would cut 3.4 million metric tons of CO2-equivalent emissions reductions annually by 2030 (CITE), it isn’t enough to meet their mandated future reduction target.

*\*Other states are still in regulation writing stage. I believe the only states working on HFC emission reduction are USCA states, and those states are following SNAP regs.*

2. Estimated GHG reductions we expect to achieve-this could be a high-level cost-benefit analysis [Based on CT GHG inventory + projection of BAU emissions. Explain how SIT attributes ODS emissions. Jeff has prepped chart showing SIT figures for ODS substitutes (1990-2030) and sent note to Andrea Denny requesting info that will allow us to estimate HFC somewhat more specifically.]

**Currently, Connecticut accounts for HFC emissions through an annual GHG inventory.** Connecticut’s methodology for GHG accounting largely follows the procedures outlined in EPA’s State Inventory Tool. The tool calculates sector-by sector GHG emissions based on numerous state level data sets. Direct accounting of HFC emissions, in the annual inventory, come primarily through industrial processes *(\*and are labeled ODS)*. The amount of HFCs from this sector in 2016 was ~1.8 MMTCO2e (*the SIT calculates that ODS at 1.765 MMTCO2e, whereas USCA calculates HFCs to be at 1.845 MMTCO2e*).

**For 2016, the most recent year for which statewide emissions are available, Connecticut emissions were 41 MMTCO2e.** If Connecticut were to implement SNAP rules 20 and 21, 3.84 MMTCO2e would be avoided from 2020 to 2030 (from a BAU scenario). If Connecticut were to follow guidelines in the Kigali Amendment, 5.48 MMTCO2e would be avoided from 2020 to 2030 (from a BAU scenario).

3. How this rule fits in with other GHG mitigation strategies we are pursuing as part of the portfolio of strategies in the climate action plan (GHG reduction potential and timeframe for implementation) [Discuss relationship to other SLCPs.] [Reduction potential: GHG inventory + projection of BAU emissions + estimate of policy effectiveness] [timeframe: TBD]

**The heating, ventilation, and air conditioning (HVAC) industry is one the industrial sectors that will be impacted by HFC regulation.** Moreover, they are a sector that will be undergoing large-scale change in the next 3-5 years due to the Department of Energy (DOE) new energy-efficiency compliance guidelines. This provides an opportunity to “swap out” (change this wording) HFCs and other high-GWP ODs with lower-GWP HFCs during the transition phase (bad wording).

**In an effort to continue being competitive in the global market, the U.S. introduced a bi-partisan bill in February 2018 called the *American Innovation and Manufacturing Act****.* This bill largely follows the guidelines of the Kigali Amendment and would grant the EPA legal authority to phase out HFC’s. Canada and the European Union have already adopted fluorinated-gas (F-gas) regulation and HFC prohibitions as part of the Kigali Amendment, with other countries likely to follow suit. By passing this bill, the US would remain competitive in the global market by investing in new technologies, as well as protecting jobs in manufacturing. While this bill’s future is uncertain, it is strongly supported by both environmentalists and industry alike.

4. Discussion of the point of regulation and details on what we know about the market

a. Who are we regulating? [base on EPA documentation]

b. Why are we recommending this point of regulation? [base on EPA documentation]

c. What is the size of the regulated community? [base on EPA documentation]

d. What is the timeframe for implementation? [TBD – One point to emphasize: CT has a unique legislative review process for regulations that includes a second level of review not found in most states, typically requiring an additional 9-12 months.]

e. Do we have any estimates on the costs to businesses in the state or the cost [base on EPA documentation]

f. Who is responsible for enforcement? [DEEP]