



# BEYOND THE DIRTY DOZEN:

Is your local supermarket still  
destroying the global climate?

**eia**  
environmental  
investigation  
agency

## ABOUT EIA

The Environmental Investigation Agency (EIA) is an independent campaigning organization committed to bringing about the change that protects the natural world from environmental crime and abuse. As part of our work, we have undertaken groundbreaking investigations into the illegal trade in ozone depleting substances (ODS) and have been closely involved in the international ozone and climate negotiations for well over a decade.

## ACKNOWLEDGEMENTS

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## INTRODUCTION

For a second year, the Environmental Investigation Agency (EIA) has surveyed\* the largest and most influential supermarket chains in the country to determine what retailers are doing to control refrigeration leaks of the super greenhouse gases, hydrofluorocarbons (HFCs), and what steps have been taken to phase-out of these gases.

In 2013, EIA was shocked to discover that these supermarkets were doing very little to control HFC emissions. Even retailing giants, such as Walmart, that had joined a pledge to stop using HFCs in all new stores beginning in 2015 had not even begun to adequately start controlling HFC emissions.

Following the launch of "Dirty Dozen" in 2013, many supermarket retailers provided additional data not available in the public domain, which is reflected in this report. Unfortunately, we are once again disappointed by the lack of progress to address HFC emissions. While it is true that some retailers have begun to open one or two HFC-free stores, and some are beginning to address leaking refrigerant from older systems, EIA has once again learned that most retailers have done very little to address these climate destroying gases.

This lack of progress is especially alarming in face of the extraordinary international and high-level U.S. actions and regulations that were introduced in 2014 to address HFC emissions. President Obama has made controlling HFC emissions a core pillar of his Climate Action Plan, and the U.S. Environmental Protection Agency (U.S. EPA) has begun rulemakings to ban the use of some of the most potent HFCs. In Europe, the newly adopted fluorinated gas regulation will phase down the use of all HFCs, and ban the use of certain HFCs in supermarkets and other end uses.

In contrast to U.S. supermarkets, retailers in Europe, Japan, and Canada, continue to move quickly ahead in transitioning to climate friendly HFC-free alternatives. One retailer in Europe alone increased the number of its HFC-free stores by 30% in one year to 194 stores using climate-friendly systems. In the U.S., the twelve retailers surveyed have only eight HFC-free stores opened or planned in total, whereas Sobeys, a Canadian retailer has nearly 40 HFC-free stores in operation. If these twelve U.S. retailers were to follow their competitors around the world, HFC free technology could be mainstreamed, eliminating up to 40% of U.S. HFC emissions.

Despite commitments, international pressure, and available energy efficient, climate-friendly technologies, U.S. retailers are failing to act.

Will the surveyed supermarkets step up to the plate in the face of regulation and consumer desire for their supermarkets to stop destroying the global climate? EIA will continue to monitor U.S. retailers and is hopeful that action will be taken soon by Walmart and the other retailers to fulfill their commitment to stop building new stores that use HFCs.

\* Survey results are from 2014

# WHAT ARE HFCs AND WHAT IS BEING DONE TO CONTROL THEM



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## a. What are HFCs?

Hydrofluorocarbons (HFCs) are man-made gases used around the world in refrigeration and air-conditioning systems. They were introduced as a replacement for ozone-depleting substances (ODS), which are being phased-out under the Montreal Protocol, and while they do not destroy the ozone, are extremely potent “super” greenhouse gases. For example, one of the most commonly used HFCs by supermarket retailers is HFC-404a, which has a global warming potential (GWP) nearly 4,000 times more powerful than CO<sub>2</sub>.<sup>1</sup> HFCs are one of the fastest growing contributors to climate change. Since 1990, HFC emissions in the U.S. have increased by 310%, and are predicted to triple between 2005 and 2030.<sup>2</sup> If these upward trends were reversed, and HFCs were instead phased out by 2050, up to 0.5°C of warming could be avoided by the end of the century.<sup>3</sup>

## b. The momentum towards a global phase down of HFCs is here

Global momentum towards a phase down of HFCs is increasing exponentially. Since 2008, the United States, Canada, and Mexico along with the Federated States of Micronesia, have submitted proposals to amend the Montreal Protocol to phase down HFCs. In 2015, India also submitted an amendment proposal to the Montreal Protocol. If passed, an amendment could reduce over 90 gigatons of CO<sub>2</sub>e equivalent (CO<sub>2</sub>e) through 2050.<sup>4</sup> Over the past few years, increased momentum towards this global agreement has occurred. World leaders have been making high-level statements and agreements to control HFCs, focusing in on the Montreal Protocol as the forum best suited to address these gases. In a historic agreement on June 2013, the U.S. and China, two of the largest consumers and producers of

“ U.S. supermarkets must move now to HFC-free solutions or be at a significant market disadvantage in the near future.”

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President Obama speaks on the desire of over 100 countries to begin talks to phase down HFCs under the Montreal Protocol at the UN Climate Summit on September 23, 2014.

HFCs, agreed to “work together and with other countries to use the expertise and institutions of the Montreal Protocol to phase down the consumption and production of hydrofluorocarbons.”<sup>5</sup>

Since that initial agreement, the U.S. and China have continued to work together and make strong statements of support for a global phase down. Specifically, in September of 2013, the U.S. and China reaffirmed their June announcement and stressed the importance of using the Montreal Protocol in dealing with HFCs. Most recently, in November of 2014, the U.S. and China agreed to enhance cooperation on HFCs including in a multilateral context.<sup>6</sup> In addition to the U.S. and China, all countries of the G20 also agreed to “support complementary initiatives, through multilateral approaches that include using the expertise and the institutions of the Montreal Protocol to phase down the production and consumption of hydrofluorocarbons.”<sup>7</sup> India and the U.S. in 2014, also agreed that “[t]hey recognized the need to use the institutions and expertise of the Montreal Protocol to reduce consumption and production of HFCs.”<sup>8</sup>

As momentum towards a global agreement on HFCs build, countries, regions and states are taking action now to reduce the emissions of HFCs. Early in 2014, the European Union passed a comprehensive law that regulates the production and

consumption of HFCs.<sup>9</sup> This EU F-Gas Regulation sets out numerous use-restrictions including new product and equipment bans and a phase-down schedule. For the supermarket sector, starting January 1, 2020, virgin HFCs with a GWP of 2,500 or more will no longer be permitted for servicing or maintaining refrigeration equipment with a charge size of 40 tonnes of CO<sub>2</sub>e or larger, minus a few minor exemptions.<sup>10</sup> In other words, supermarkets will not be able to use virgin HFC-404A to service equipment with a charge size of just over 22 pounds of refrigerant.<sup>11</sup> In addition, based on the phase down schedule, supermarkets will most likely begin moving away from HFC-404A even before 2020.<sup>12</sup> There are also two new equipment bans that will affect supermarkets, one is a 2020 ban on HFCs with a GWP over 2500 in hermetically sealed equipment and the other is a 2022 ban on HFCs in multipack centralized equipment, except when used in a cascade system where the primary circuit can use HFCs with a GWP less than 1,500.<sup>13</sup> These bans and phase-down requirements will speed up the uptake in climate-friendly alternatives in Europe.

In the United States, President Obama has made reducing HFCs a key pillar of his Climate Action Plan.<sup>14</sup> As part of the Climate Action Plan, the U.S. EPA released a proposed rule in July of 2014 to ban certain high GWP HFCs.<sup>15</sup> This proposed rule would ban the most common HFC used by supermarkets, HFC-404a, in

new and retrofit retail food refrigeration beginning January 1, 2016.<sup>16</sup> California plans to go even further, and is in the process of writing their Short-Lived Climate Pollutant Strategy, which may include a production and import phase down of all HFCs.<sup>17</sup> President Obama has also made it a central talking point internationally in his climate agenda. For example, during the 2014 U.N. Climate Change Summit hosted by Ban Ki-moon the day before the UN General Assembly, President Obama reiterated his commitment to lead on working on HFCs, and mentioned the September meeting he convened with business leaders who “agreed to do their part to slash consumption of ... HFCs -- slash them 80% by 2050.”<sup>18</sup>

President Obama and President XI of China agreed to work together to tackle HFCs in their own countries, and China is beginning to take action domestically. Specifically, the Chinese government has announced in its National Action Plan on Energy Conservation, Pollution Reduction and Low Carbon Development that it will reduce HFC emissions by 280 million tonnes CO<sub>2</sub>e during the 12th Five Year Plan period.<sup>19</sup>

In addition to the U.S., the EU and China, the Japanese government has recently announced new measures to reduce emissions from HFCs. Besides updating

their F-gas regulation by 2015, Japan too announced in early 2014 an approximately \$43 million subsidy for natural refrigerant technologies.<sup>20</sup>

Business associations and individual companies are likewise taking measures to eliminate the use of HFCs. In September of 2014, the White House held a business roundtable, which announced private sector commitments and executive actions aimed at reducing emissions of HFCs.<sup>21</sup> These actions will reduce 700 million tonnes of CO<sub>2</sub>e through 2025.<sup>22</sup> In addition in 2014, the Consumer Goods Forum reconfirmed their commitment to “begin phasing out HFC refrigerants by 2015 and replace them with non-HFC refrigerants where these are legally allowed and available for new purchases of point-of-sale units and large refrigeration installations.”<sup>23</sup> It is because of that commitment that supermarket chains, such as AEON of Japan and Mark’s and Spenser of the United Kingdom, have made retailer specific commitments to eliminate the use of HFCs.<sup>24</sup>

These policy and regulatory developments around the world are sending clear signals to the market that HFC-based refrigeration-systems will become obsolete. U.S. supermarkets must move now to HFC-free solutions or be at a significant market disadvantage in the near future.

## LEAKING REFRIGERANT: WHY SUPERMARKETS ARE A MASSIVE EMITTER OF HFCs

Supermarkets throughout the U.S. are significant contributors to HFC and ozone depleting substance emissions. Each supermarket on average leaks 25% of its 3,500-pound refrigerant charge. Globally, 32% of HFC consumption is in commercial refrigeration, and when associated loss of energy efficiency is accounted for, almost 50% of a supermarket’s total greenhouse gas emissions come from the refrigeration equipment.<sup>25</sup>

In the United States there are more than 37,000 supermarkets, with each emitting on average 1,556 metric tons of CO<sub>2</sub>e of HFCs a year just from leaks in their refrigeration units.<sup>26</sup> This is the

equivalent climate damaging emissions of approximately 12 million cars, with each supermarket’s leaking the equivalent annual emissions from more than 300 passenger cars.<sup>27</sup> If all supermarkets around the world continued to leak HFCs at a rate of 25%, more than 825 million metric tons of CO<sub>2</sub>e would be leaked from the systems each year, or the same annual emissions as from a 1/3 of all U.S. coal plants.<sup>28</sup>

But, there is good news. By switching the refrigeration system from HFCs to a natural refrigerant such as CO<sub>2</sub>, a supermarket can reduce its carbon footprint by 25%, and eliminate the leakage of these climate-damaging gases.<sup>29</sup>



# THE NATURAL SOLUTION: AVAILABLE ALTERNATIVES TO HFCs

Alternatives to HFC refrigeration systems are available now, and supermarkets around the world are installing them at an exponential rate. These systems are popular not only for the climate benefit, but also because the systems are saving retailers money due to energy efficiency gains.<sup>30</sup> Some supermarkets are seeing energy efficiency gains up to 50% over traditional fluorinated gas systems.<sup>31</sup>

The three main refrigerants used in natural refrigerant systems are CO<sub>2</sub>, hydrocarbons, and ammonia.

**Hydrocarbons**, including isobutane, propane, and propylene have much lower GWPs than HFCs. One main hydrocarbon system is the integral system, which uses stand-alone hydrocarbon systems that are connected by pipes with water circulating among the units, allowing for 90% reduction in refrigerant charge.<sup>32</sup>

This system is being used by multiple retailers in the United Kingdom, with Waitrose alone having over 100 stores using this technology with reported energy efficiency gains of 20% when compared to an HFC refrigerated store.<sup>33</sup> In the U.S., the grocery store chain H-E-B opened a supermarket in 2013 in Texas that uses propane and is expecting 50% energy reduction compared to a typical store refrigeration load.<sup>34</sup>

**Ammonia** has been used as a refrigerant for over 100 years because of its high thermodynamic efficiency. Compared to common HFC refrigerants, which have an average GWP between 2,000-4,000, ammonia has a GWP of less than one. Many supermarket retailers use ammonia in warehouses and other larger distribution centers.<sup>35</sup> Additionally, ammonia can be used in cascade system, which is a system designed with two compressor rack systems, a medium temperature side and a low temperature side with the two systems linked by a common heat exchanger. Ammonia is used as the primary refrigerant to chill CO<sub>2</sub>, which is then pumped throughout the refrigerated display cases in the store. In the U.S., Supervalu installed this technology at a store in Carpentaria, California, and is projected to see a 30% energy efficiency savings.<sup>36</sup> Whole Foods has plans to open a store in California that will also use an ammonia/CO<sub>2</sub> cascade system.<sup>37</sup>

**Carbon dioxide** is a climate-friendly alternative to HFC refrigerants because it has a GWP of 1 and is non-flammable. CO<sub>2</sub> is used in multiple types of systems, such as CO<sub>2</sub> transcritical systems, in the low temperature for a cascade system, and in a secondary loop system. Transcritical CO<sub>2</sub> systems have become very popular with retailers, because the systems have shown to be 10 to 35% more energy efficient than synthetic refrigerant-based systems.<sup>38</sup> In addition, the rate of return on investment is fairly low, the U.S. EPA has estimated that CO<sub>2</sub> transcritical systems have a rate of return on investment of just over 5 years, due to savings in energy costs and refrigerant costs.<sup>39</sup>





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## METHODOLOGY OF EIA'S SURVEY

In order to get an overview of the supermarket industry in the United States, 11 of the largest supermarket chains were chosen as they make up approximately 45% of the total number of stores in the industry.<sup>40</sup> Since 2013, one store was removed and another added due to changes in ownership. The retailer Supervalu was removed, as part of the company was sold making it no longer in the top eleven largest stores, and was thus dropped from the list.<sup>41</sup> In its place, Albertsons, under the ownership of AB Acquisitions LLC, has been added to the list, as the company now operates ACME, Albertsons, Jewel-Osco, Lucky, Shaw's, Star Market and Super Saver, and stores under the United Family of stores, making it the 10th largest retailer in the U.S.<sup>42</sup> Along with the 11 largest stores, Whole Foods was again added to the list because of their focus on environmental sustainability.<sup>43</sup>

The data on each retailer was collected using publicly available information, specifically annual reports, sustainability

reports, where available, and news stories. EIA assembled and sent this information to each retailer with a letter requesting confirmation that the data was valid and complete, and asking for any updates or additional information on that supermarket chain's HFC and environmental policies. More than half of the stores responded, confirming that they had received the survey and many provided additional information or clarifications regarding their use of refrigerants. Whole Foods, Ahold, Delhaize, Meijer, Walmart and Kroger's responses included information not available in the public domain and consequently all received additional points for the climate-friendly actions they are taking.

The stores were graded based on eight categories that fall under the four main themes of (1) HFC Use and Policy, (2) Partnerships and Pledges, (3) Maintenance, and (4) Energy Efficiency. Each store could earn up to five points per category, for a total of 40 points.

# RESULTS:

## SMALL STEPS FOR AN HFC-FREE FUTURE

This year's *Beyond the Dirty Dozen* report reaffirms the findings from the first edition of the report – that voluntary pledges alone will not adequately move retailers towards climate friendly options. Luckily, new regulations and government initiatives may begin to move supermarkets towards using state of the art, climate-friendly refrigeration solutions.

### ALBERTSONS

#### THE GOOD:

- An Albertsons' store in California was retrofitted in 2012 with an ammonia/CO<sub>2</sub> cascade refrigeration system and has 10 distribution centers using ammonia refrigeration systems.

#### THE BAD:

- Albertsons has not built or retrofitted any additional HFC-free stores or hybrid stores in the past three years.<sup>44</sup>

### AHOLD

#### THE GOOD:

- Ahold will open a CO<sub>2</sub> transcritical store in 2015 in Burke, VA.<sup>45</sup> They have also installed doors on dairy cases, and are testing doors on produce and meat.<sup>46</sup> Their plans are to retrofit the whole fleet with doors and LED lighting.<sup>47</sup>

#### THE BAD:

- Ahold USA has not committed to match even its parent company who has already reduced its refrigerant leakage rate to 6.6%.<sup>48</sup>

### COSTCO

#### THE GOOD:

- Costco uses ammonia refrigeration systems in 12 distributions centers across nine states.<sup>49</sup> Costco is also reducing its refrigerant leakage rate to 19.5% or less due to a settlement agreement with the EPA.

#### THE BAD:

- Costco has neither installed nor made public plans to install HFC-free refrigeration systems in any of its stores.

### DELHAIZE

#### THE GOOD:

- Since last year, Delhaize has announced that they are considering a complete phase-out of HFCs across the company.<sup>50</sup> Additionally, Delhaize has initiated a public policy to "Switch refrigerants from ODS and high-GWP HFCs to ozone-friendly and low-GWP refrigerants"<sup>51</sup>

#### THE BAD:

- Delhaize is still using ozone depleting gases in over 800 stores, and HFC systems in over 400 stores.<sup>52</sup>

### HEB

#### THE GOOD:

- HEB has 14 distribution centers in Texas using ammonia as a refrigerant. HEB also operates a store in Texas that uses a propane refrigeration system with a water cooled condenser unit and evaporator.

#### THE BAD:

- HEB has not opened up any additional stores using HFC free technologies, nor has any public plans to do so.

### KROGER

#### THE GOOD:

- Kroger is planning to open a CO<sub>2</sub> transcritical store in Holland, Ohio in the next year and are using ammonia in most of their distribution centers and plants.<sup>53</sup>

#### THE BAD:

- Little progress has been made on reducing refrigerant leaks or rolling out additional HFC free stores.

## MEIJER

### THE GOOD:

- Meijer uses an ammonia refrigeration system in 4 distribution centers in Indiana, Michigan, and Ohio, but does not have a HFC-free policy.

### THE BAD:

- Meijer has neither installed nor has plans to install HFC-free refrigeration systems in any of its stores at this time.

## PUBLIX

### THE GOOD:

- Publix has initiated a refrigeration management plan based on zero-leak tolerance. Publix is a member of the EPA's GreenChill Partnership and was recently awarded the Store Certification Excellence and Store Re-Certification awards for achieving 26 GreenChill store certifications in one year.

### THE BAD:

- Publix has neither installed nor made public plans to install HFC-free refrigeration systems in any of its stores.

## SAFeway

### THE GOOD:

- All of Safeway's 18 distribution centers and manufacturing plants use HFC-free ammonia refrigeration systems.

### THE BAD:

- Safeway is a member of the CGF, but has stated that "Safeway was not included in the CGF HFC pledge." Additionally, they have no public plan for reducing HFC emissions by installing HFC-free or hybrid refrigeration systems.

## TARGET

### THE GOOD:

- Target has recently announced plans to roll out hybrid R134a/CO<sub>2</sub> systems in all new stores. These systems have a 65% smaller carbon footprint than previously used systems.<sup>54</sup> The company also has five stores that use carbon dioxide refrigeration systems and commits to expanding this technology to two additional sites in 2015.<sup>55</sup>

### THE BAD:

- Target has not installed nor made public plans to install HFC-free refrigeration systems in any of its stores.

## WALMART

### THE GOOD:

- As of 2014, more than 168 stores and two Sam Clubs in the U.S. utilized hybrid systems containing glycol or CO<sub>2</sub>, along with HFCs. Walmart deployed its first all natural low temperature system in December of 2013, which uses a smaller charge of HFCs.

### THE BAD:

- Walmart has neither installed nor made public plans to install HFC-free refrigeration systems in any of its stores. Walmart also does not have a plan to install doors on refrigerated units, nor is it a member of the EPA's GreenChill Partnership.

## WHOLE FOODS

### THE GOOD:

- Since 2013, Whole Foods has opened the first completely HFC-free store in the U.S. This store features a CO<sub>2</sub> transcritical system and a combined heat and power plant. Whole Foods also has plans to open a store using ammonia/CO<sub>2</sub> cascade system and to retrofit an existing store with a CO<sub>2</sub>/HFC hybrid system.<sup>56</sup>

### THE BAD:

- Whole Foods has not made a commitment to phase-down their use of HFCs nor have they committed to only build new HFC-free stores

While there was some progress over the past year, retailers continued to fail at adequately addressing their refrigeration carbon footprint and **all but one supermarket chain received 50% or less of the available points**. Even the retailer that received more than 50%, Delhaize, did not have a passing grade, only receiving 58% of the points.

Some retailers received additional points this year for providing information about their maintenance and leak detection policies. Proper maintenance and leak detection programs are vital for controlling emissions from older installed refrigeration systems, and can help mitigate emissions prior to a store retrofitting with a new HFC-free system.<sup>57</sup> Delhaize for example, has reduced its leakage rates by 2% in its Food Lion brand and 5% in its Hannaford brand in the last 3 years, bringing its leakage rates to 13.5% and 16% respectively. Unfortunately, other retailers such as Target have no publicly available leakage or maintenance plan.

Two of the retailers that did receive points this year for maintenance and leakage programs were as a result of consent agreements signed after the U.S. EPA filed legal complaints against the retailers. Due to the consent agreements, Safeway must pay a fine of \$600,000 and reduce emissions at 659 stores and Costco must pay \$335,000 and fix leaks and make other improvements at 274 of its stores.<sup>58</sup>

The largest retailers should lead the way for the smaller retailers, and while Kroger did agree to join Greenchill and is opening up its first CO<sub>2</sub> transcritical store, and Target announced that its new stores would use a reduce HFC charged cascade system, Walmart has made little to no progress. Since last year, Walmart has not opened any HFC-free stores, nor have they rolled out any new programs addressing leaks or refrigerator doors. In contrast, Delhaize has installed doors on refrigerated cases in 800 stores, and at all stores on freezer cases.

The most disappointing fact revealed by this review of the twelve retailers is that not a single retailer has publicly committed to a total phase-out of HFC refrigeration. Delhaize has indicated that they may in the future, but no other U.S. retailer even stated that they were considering it. Furthermore, even though there are nearly 4,000 stores around the world using HFC-free refrigeration systems, there are only eight HFC-free stores open or planned by these twelve retailers combined.

## a. Walmart falls behind more climate-friendly competitors

In June 2011, President and CEO of Walmart International called on the world's major retailers at the Consumer Goods Forum (CGF) Summit in Barcelona to join Walmart in securing large scale reductions of HFC emissions, the climate damaging refrigerant chemicals used by Walmart and most supermarket retailers to keep commercial refrigeration chilled. Walmart was introducing, he said, a hybrid refrigeration technology that would reduce these emissions by over 90%. Mr McMillon was referring to the CGF resolution passed in 2010 and approved by the Board of the CGF which included Walmart. Then CEO, Mike Duke had personally endorsed the CGF resolution which agreed to "begin phasing out HFC refrigerants by 2015 and replace them with non-HFC refrigerants where these are legally allowed and available for new purchases of point-of-sale units and large refrigeration installations."<sup>59</sup>

The impact of the CGF pledge on reducing climate-damaging emissions could be significant,<sup>60</sup> but only if retailers follow through with their promise and take the



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“ Of the more than 1100 new or significantly remodeled stores in the U.S. since 2010, Walmart has installed zero HFC-free refrigeration systems. .”

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necessary steps to install HFC-free refrigeration systems. Currently, Walmart has done little to nothing to move away from HFC refrigeration, despite the fact that refrigeration accounts for 12% of Walmart’s total greenhouse gas emissions and 30-50% of the energy consumption of their buildings.<sup>61</sup>

Since the CGF pledge in 2010, Walmart has built more than 800 new stores in the U.S. and more than 2,500 stores have been added under the Walmart International banner.<sup>62</sup> In addition, over 350 discount stores have been converted into super centers in the U.S., which either adds or increases the stores refrigeration footprint.<sup>63</sup> **Of its more than 1100 new or significantly remodeled stores in the U.S. since 2010, Walmart has installed zero HFC-free refrigeration systems.**<sup>64</sup>

In fiscal year 2015 alone, Walmart added 332 additional units in the U.S. alone, none of which are HFC-free.<sup>65</sup> If an average charge size of HFCs were used in each of these stores, Walmart will add more than 500,000 tonnes of CO<sub>2</sub>e emissions to the atmosphere each year just from those 332 new stores.<sup>66</sup> This is the equivalent emission as from more than 100,000 passenger cars.<sup>67</sup> In addition, Walmart will add more than 1.8 million tonnes of CO<sub>2</sub>e emissions to the atmosphere this year alone, just from those stores built or significantly remodeled after making a pledge to move to HFC-free refrigeration.<sup>68</sup> Despite Walmart undercutting the CGF commitment to HFC free refrigeration, other retailers are taking strides to meet the CGF pledge, and even retailers who are not members of the CGF have begun installing HFC-free systems. One of Walmart’s biggest competitors internationally, Tesco, with nearly 7,000 stores around the world,<sup>69</sup> has installed 194 natural refrigerant systems, and has increased the number of its HFC-free systems by 30% in one year.<sup>70</sup> Another of the world’s largest retailers and CGF

member, Carrefour, with more than 10,000 stores worldwide<sup>71</sup> has installed 133 natural refrigerant systems, and has pledged to stop using HFC-based equipment in new store installations from 2015.<sup>72</sup>

Additionally, smaller non-CGF retailers in the U.S. have taken strides to install HFC free systems ahead of Walmart, such as Angelo Caputo’s Fresh Markets, which owns only eight stores in total and has already installed an HFC-free store in Illinois.<sup>73</sup> Other smaller retailers such as Sprouts and Roundy’s Supermarket Inc., which each have approximately 160 stores, have both installed HFC free stores in Georgia and Wisconsin, respectively.<sup>74</sup> Walmart has fallen behind its competitors internationally and behind even small participants in the U.S. market in addressing HFC emissions.

Walmart claims that it is not using natural refrigerants at this time because they use more energy. Other retailers who have installed these technologies around the world state that this is not the case. For example, one natural refrigerant system, CO<sub>2</sub> transcritical systems, have shown to have 10 to 35 percent better energy efficiency than synthetic refrigerant based systems in low and medium ambient regions.<sup>75</sup> In the Southern U.S., HEB has opened a store using propane which they predict will receive a 50% energy reduction compared to a typical store.<sup>76</sup> Thus, Walmart needs to stop dragging its feet and begin transitioning to HFC-free refrigeration systems.

In addition to building new stores that do not use HFCs, Walmart has the opportunity to address refrigerant leakage from existing stores.<sup>77</sup> In the United Kingdom, Walmart’s subsidiary ASDA has taken great strides to significantly reduce leaks. In 2011, new ASDA stores had a 2.6% leakage rate, and a total fleet of average leakage rate of 7.1%.<sup>78</sup> This was down



from a 20% leakage rate in 2005.<sup>79</sup> These reductions allowed ASDA to reduce operational carbon emissions by nearly 150,000 tonnes between 2007 and 2010, despite opening 50 new stores and serving more than 2.5 million additional customers each week during the same timeframe.<sup>80</sup> Despite this success, Walmart has not implemented the same policies in the U.S., leading the retailer to equate 12% of its total greenhouse gases emissions from refrigerants.<sup>81</sup> According to Walmart's own data, emissions from refrigeration only went down from 2.7 million metric tons CO<sub>2</sub>e in 2010 to 2.5 million metric tons CO<sub>2</sub>e in 2013, or an approximately 11% reduction.<sup>82</sup> Walmart should implement a maintenance and leakage reduction policy that is equivalent to and preferably exceeds what ASDA in the UK has achieved, and reduce the average U.S. refrigerant leakage rate to 7% or less.

Walmart also has the opportunity to reduce energy use in refrigeration by installing doors on refrigerated cases. Internationally, Walmart has been eliminating open cases, as it seeks to put doors on cases in all international markets other than Canada and the UK.<sup>83</sup> This includes the addition of doors on all refrigerated cases in new and remodeled super- markets in Brazil and Mexico.<sup>84</sup> Walmart has been rolling out this policy by installing doors in 750 stores in Mexico, Brazil and Central America in 2013 alone.<sup>85</sup> Walmart anticipates that these efforts have led to a decrease of more than 50 million kilowatt hours, and that it expects a reduction in energy consumption of up to 50% with a rate of return on the doors of approximately three years.<sup>86</sup> Despite this success, Walmart has not announced plans to roll out a similar program to eliminate open cases in the U.S.

In the summer of 2014, the CGF board members reaffirmed the 2010 commitment "to begin phasing-out of hydrofluorocarbons (HFCs) in new refrigeration installations by 2015 and replace them with non- HFC refrigerants."<sup>87</sup> Walmart has still not taken any public steps to meet this commitment or provided any clear path or plan on how they are going to meet it. As the world's largest retailer, Walmart has the responsibility to lead and not to under-cut sustainability commitments.<sup>88</sup> Moreover, due to its size and buying power, Walmart has the ability to shape sustainability measures for the supermarket industry, and the retailer has shown in the past that it has the ability to do just that.<sup>89</sup> For example, in 2005 Walmart set a goal to be supplied by 100% renewable energy, and has taken great strides in that field.<sup>90</sup> By the end of 2014, Walmart will have installed 250 solar systems in the U.S. alone, and in Mexico, Walmart will run over 1,200 stores with renewable energy, up from just two in 2010.<sup>91</sup> Walmart international has also more than doubled the amount of renewable energy procured since 2012.<sup>92</sup> This type of progress shows that when Walmart decides to take action on sustainability measures, it can move quickly to implement those policies. Unfortunately, Walmart has not used its size and influence to move the other retailers forward on HFC-free refrigeration, but instead has done next to nothing to install these climate-friendly available alternatives.

Doug McMillon must restate his commitment to establishing Walmart as a leader in phasing out emission heavy HFC technologies. As he himself has stated "[t]here are so many ways that Walmart can make a difference around the world. We're committed to doing just that. We will strengthen the trust we've established with customers and the communities we serve."<sup>93</sup> EIA calls upon Walmart to strengthen the trust in the company's commitment to sustainability by fulfilling its pledge to the CGF, to its costumers, and to the global climate by immediately pledging to only build new stores with HFC-free systems, and release a comprehensive phase down plan for HFC use across its suite of stores.

For a retailer that claims that environmental sustainability is an "essential ingredient to doing business responsibly and successfully,"<sup>94</sup> the current stingy actions are not enough to reduce the substantial contributions Walmart's refrigeration is having to climate change.

# CONCLUSIONS

Voluntary measures and even the fear of regulation have not caused retailers to move forward and away from leaking climate damaging refrigerants. Instead, U.S. supermarket retailers continue to fall far behind their European and Japanese competitors by failing to use HFC-free refrigeration systems. Clearly, strong and

robust regulations must be put in place to curb the use of HFCs in the supermarket sector. The Obama administration and the U.S. EPA need to continue its strong stance on regulating HFCs and pushing for an international phase down of the use of these climate-destroying gases.

## EIA RECOMMENDATIONS AND A CALL TO ACTION

### CALL TO ACTION:

**EIA calls on all U.S. retailers to publicly commit to eliminate the use of HFCs in all new store builds now, and produce a plan with clear time frames to retrofit existing stores with HFC-free technologies in line with progress made in Europe.**

- Members of the CGF must fulfill their commitment to “begin phasing out HFC refrigerants by 2015 and replace them with non-HFC refrigerants where these are legally allowed and available for new purchases of point-of-sale units and large refrigeration installations.”
- Walmart must substantially increase its financial investment to build stores with HFC-free refrigeration and to enact a comprehensive program to dramatically reduce its refrigerant emissions.
- U.S. retailers should establish a publicly available company-wide maintenance program that is focused on reducing refrigerant leakage and beats the EPA GreenChill Gold certification leakage rate of 15%.
- U.S. retailers should publicly commit to install doors on refrigerators and freezer cases in all new stores, and have a roll-out plan to install case doors in existing stores.
- The U.S. EPA must continue rulemakings to ban the highest GWP HFCs in all end sectors and maintain near-term dates for those bans.
- Countries should pass an amendment to the Montreal Protocol to phase-out HFCs and create a mandatory transition to HFC-free technologies, as voluntary measures by retailers and other end users have not worked.

# SUPERMARKET MATRIX

	ALBERTSONS*	AHOLD USA
<b>HFC USE AND POLICY</b> The retailer publicly committed to a total phase-out of HFC refrigeration on a fixed timetable	No corporate policy in the public domain committing to a phase-out of HFCs.	No corporate policy in the public domain committing to a phase-out of HFCs.
	0	0
The retailer has opened or is planning to open new or retrofitted HFC-free stores	An Albertsons in California was retrofitted in 2012 with an ammonia/CO <sub>2</sub> cascade refrigeration system and shows 13-30% gains in energy efficiency compared to a conventional system. <sup>1</sup>	Ahold plans to open a CO <sub>2</sub> transcritical store in early 2015 in Burke, VA. <sup>v</sup>
	1	1
The retailer is trialling HFC/natural refrigerant hybrid technologies that reduce HFC emissions	No publicly available information was found that suggests Albertsons is trialling hybrid technologies.	Ahold USA operates hybrid technologies in three stores, and installed single-loop systems in six new stores in 2013 to prevent refrigerant leakage, decreasing the amount of refrigerant used in those stores from an average of 3,500 pounds into an average of 1,500 pounds. Its three hybrid systems include a propylene glycol/HFC hybrid system at its Hartford, CT Stop & Shop which reduced its HFC charge by 58%, a similar system in a Giant Food Store in Harrisburg, PA, and a CO <sub>2</sub> /propylene glycol system in a Giant store in Arlington, VA. <sup>vi</sup>
	0	2
The retailer has installed and have a policy for HFC-free systems in distribution centers and manufacturing plants	Albertsons operates 8 distribution centers or manufacturing facilities using ammonia systems, but does not have an HFC-free policy. <sup>ii</sup>	Ahold USA has two distribution centers or manufacturing facilities using ammonia systems, but does not have a HFC-free policy. <sup>vii</sup>
	3	2
<b>PARTNERSHIPS &amp; PLEDGES</b> The retailer is a member of the Consumer Goods Forum (CGF) and a part of the resolution to use HFC-free equipment in new stores by 2015	Albertsons is not a member of the CGF nor has made a comparable HFC pledge.	Ahold is a member of the CGF and is on the Sustainability Steering Committee. <sup>viii</sup>
	0	5
The retailer is an Environmental Protection Agency GreenChill Partnership member	Albertsons is a member of the GreenChill Partnership, but currently has no certified stores. <sup>iii</sup>	Ahold USA is not a member of the GreenChill Partnership. <sup>ix</sup>
	1	0
<b>MAINTENANCE</b> The retailer has established a company-wide maintenance program designed to reduce refrigerant leakage or has increased maintenance to reduce leakage rates	Albertsons does not have a publicly available established company-wide maintenance program designed to reduce refrigerant leakage.	Ahold USA installed single-loop systems in 6 new stores in 2013 to prevent refrigerant leakage. 122 new leak detectors were fitted to refrigeration systems in the U.S. bringing the total to 613. Unfortunately, due to significant leaks in a few of Ahold's stores, its refrigerant leakage percentage went up from 12.9% in 2013 to 13.4% in 2014. <sup>x</sup>
	0	3
<b>ENERGY EFFICIENCY</b> The retailer has a policy to improve refrigeration energy efficiency and/or is implementing improved efficiency programs	Albertsons does not have a company-wide policy to improve refrigeration efficiency, however its store in Carpinteria, CA has been showcased as a model for efficiency, with feature such as LED lighting and glass doors on refrigerated displays. <sup>iv</sup>	Ahold USA is reducing energy use from its refrigeration system by installing electronic commutated motor fans, solar panels on 30 stores, and energy efficient lighting including LEDs in 179 stores. <sup>xi</sup> Ahold has also installed doors on dairy cases, and are testing doors for produce and meat. They plan to retrofit the whole fleet with doors and LED lighting. Ahold has an overall energy efficiency target to reduce CO <sub>2</sub> per square meter by 20% by 2015 from a 2008 baseline. <sup>xii</sup>
	1	4
<b>POINT TOTAL</b>	<b>6</b>	<b>17</b>

\* Albertsons is under the ownership of AB Acquisitions LLC.

COSTCO	DELHAIZE	HEB	KROGER
No corporate policy in the public domain committing to a phase-out of HFCs.	Delhaize America does not currently have a policy to phase-out HFCs, but has announced since last year that is considering a complete phase-out of HFCs across the company. <sup>xvii</sup>	No corporate policy in the public domain committing to a phase-out of HFCs.	No corporate policy in the public domain committing to a phase-out of HFCs.
0	1	0	0
Costco has neither installed nor made public plans to install HFC-free refrigeration systems in any of its stores.	Delhaize America opened the first U.S. store to use a CO <sub>2</sub> transcritical system at a Hannaford store in Maine. In addition, they will continue to pilot and install natural refrigerants in the US and are researching options for the southern US. <sup>xviii</sup>	HEB operates a store in Texas, which uses an R290 hydrocarbon (propane) refrigeration system with a water cooled condenser unit and evaporator. The system is 50% more efficient than their typical store. HEB has not opened any additional HFC-free stores since last year. <sup>xxv</sup>	Kroger plans to open its first pilot CO <sub>2</sub> transcritical store this year in Holland, OH. <sup>xxx</sup>
0	2	1	1
Costco has committed to installing glycol secondary loop refrigeration systems in all medium-temperature refrigeration in all one-story stores opened in the next three years. <sup>xiii</sup>	Delhaize America has four stores that operate with a low-temperature CO <sub>2</sub> secondary loop or as a cascade system which reduces the amount of HFCs used by up to 60%. It also operates a medium temperature glycol secondary loop system. <sup>xix</sup>	HEB has neither installed nor made public plans to install hybrid refrigeration systems in any of its stores.	Kroger has neither installed nor made public plans to install hybrid refrigeration systems in any of its stores.
1	2	0	0
Costco uses ammonia refrigeration systems in 12 distribution centers or manufacturing facilities across nine states, but does not have a HFC-free policy. <sup>xiv</sup>	Delhaize America uses ammonia in 7 distribution centers and manufacturing facilities, but does not have a HFC-free policy. <sup>xx</sup>	HEB has 4 distribution centers and manufacturing facilities in Texas that use ammonia as refrigerant, but does not have a HFC-free policy. <sup>xxvi</sup>	Kroger operates 33 distribution centers using ammonia refrigeration systems, but does not have a HFC-free policy. <sup>xxxi</sup>
4	3	2	4
Costco is not a member of the CGF nor has made a comparable HFC pledge.	Delhaize is a member of the CGF and on the Sustainability Steering Committee. <sup>xxi</sup>	HEB is a member of the CGF. <sup>xxvii</sup>	Kroger is a member of the CGF and is also on the Sustainability Steering Committee. <sup>xxxii</sup>
0	5	3	5
Costco is not a member of the GreenChill Partnership.	Delhaize is a member of the GreenChill Partnership and has two certified stores: a Food Lion store received gold certification and a Hannaford store in Maine received platinum certification. <sup>xxii</sup>	HEB is not a member of GreenChill.	Kroger has announced it will become a member of the GreenChill Partnership. <sup>xxxiii</sup>
0	2	0	1
In a recent settlement with the EPA, Costco agreed to retrofit and replace equipment in 30 of its stores, and implement a refrigerant management system to reduce its corporate-wide average leak rate to 19.1% or less within three years. <sup>xv</sup>	Delhaize America uses state-of-the-art management practices to reduce refrigerant leakage. It is because of these programs that the mass of refrigerant leaking per square foot has been gradually declining since they started measuring it in 2006. In the past three years, Food Lion stores have shown a 2% reduction in leakage, while its Hannaford stores have declined by over 5%. Delhaize conducts quarterly reporting on leaks to identify and address potential problem areas. <sup>xxiii</sup>	HEB uses infrared diagnostic equipment to test and repair air leaks in the seals of the refrigeration units. HEB has not publicly reported quantifiable data on leakage reductions as a result of this program. <sup>xxviii</sup>	Kroger has a tracking and reporting system in place for fugitive emissions from its refrigeration systems and has achieved a 20% reduction in leaks since 2011. <sup>xxxiv</sup>
2	4	2	3
Costco has stated that they are using energy controls that are localized refrigeration sensors, but has not provided information on energy savings or the number of stores these systems are being used in. In addition, Costco states that they are using night screens that are reducing annual energy consumption by 22,150 kWh, but does not provide the number of stores or units this is being used. Costco also states that its refrigeration systems have become more efficient due to larger coolers and freezers. <sup>xvi</sup>	Delhaize America is continuing to install LED lighting, putting doors on refrigerated cases, and installing solar panels. Overall, Delhaize has installed doors and LED lighting in cases in approximately 800 stores in the U.S. and has estimated \$8 million in energy savings per year. Delhaize has also installed doors on all freezer cases at all stores. Delhaize has also set goals to reduce their carbon equivalent emissions by 20% by 2020 compared to 2008 levels. <sup>xxiv</sup>	HEB has installed 215 night blinds on open refrigerators. Also, all of HEB's stores shutdown lighting in refrigerated cases at closing and several stores have installed energy efficient fans in its refrigerated spaces. <sup>xxix</sup>	Kroger has installed LED lighting in refrigerated cases and refrigeration control systems in its new and retrofitted stores. Kroger also uses a prototype for its stores that uses a distributed refrigerant system, which reduces refrigerant charge by 45%. Kroger is also piloting the introduction of glass doors and motion sensors, but has no current policy to roll out glass doors or night curtains throughout the company. <sup>xxxv</sup>
1	4	3	2
8	23	11	16

## SUPERMARKET MATRIX (CONTINUED)

	MEIJER	PUBLIX
<b>HFC USE AND POLICY</b> The retailer publicly committed to a total phase-out of HFC refrigeration on a fixed timetable	No corporate policy in the public domain committing to a phase-out of HFCs.	No corporate policy in the public domain committing to a phase-out of HFCs.
	0	0
The retailer has opened or is planning to open new or retrofitted HFC-free stores	Meijer has neither installed nor has plans to install HFC-free refrigeration systems in any of its stores at this time. <sup>xxxvi</sup>	Publix has neither installed nor made public plans to install HFC-free refrigeration systems in any of its stores.
	0	0
The retailer is trialling HFC/natural refrigerant hybrid technologies that reduce HFC emissions	Meijer has neither installed nor made public plans to install hybrid refrigeration systems in any of its stores.	Publix has 14 stores with some form of hybrid system using natural refrigerant. This includes 13 stores that have installed either medium-temperature secondary loop, medium temperature and low temperature secondary loop, or medium temperature glycol refrigeration systems along with an HFC system. They have also installed a CO <sub>2</sub> low temperature system in Georgia. <sup>xlii</sup>
	0	3
The retailer has installed and have a policy for HFC-free systems in distribution centers and manufacturing plants	Meijer uses an ammonia refrigeration system in 5 distribution centers or manufacturing facilities but does not have a HFC-free policy. <sup>xxxvii</sup>	Publix has 6 distribution centers or manufacturing facilities that use ammonia refrigeration systems, but does not have a HFC-free policy. <sup>xliii</sup>
	2	3
<b>PARTNERSHIPS &amp; PLEDGES</b> The retailer is a member of the Consumer Goods Forum (CGF) and a part of the resolution to use HFC-free equipment in new stores by 2015	Meijer is a member of the CGF. <sup>xxxviii</sup>	Publix is a member of the CGF. <sup>xliiv</sup>
	3	3
The retailer is an Environmental Protection Agency GreenChill Partnership member	Meijer is a member of the GreenChill Partnership, and has three Silver certified stores in IL. <sup>xxxix</sup>	Publix is a member of the GreenChill Partnership and was recently awarded the Store Certification Excellence and Store Re-Certification awards for achieving 26 GreenChill store certifications in the past year. <sup>xliv</sup>
	2	4
<b>MAINTENANCE</b> The retailer has established a company-wide maintenance program designed to reduce refrigerant leakage or has increased maintenance to reduce leakage rates	Meijer states that it has established a company-wide maintenance program conforming with Green Chill guidelines, but does not make quantifiable data on leakage reductions publicly available. <sup>xi</sup>	Publix has initiated a refrigeration management plan based on zero-leak tolerance. They have invested in technology and maintenance which has resulted in further leak reductions. <sup>xlvi</sup>
	1	3
<b>ENERGY EFFICIENCY</b> The retailer has a policy to improve refrigeration energy efficiency and/or is implementing improved efficiency programs	Meijer is piloting several efforts to improve efficiency, including retrofit glass doors, LED lighting, and motion sensors. They are also developing a refrigerant system recommissioning program to replace older systems, which includes installing more efficient cases with glass doors. Meijer unfortunately does not provide data on how many stores these efforts are rolled out to. <sup>xli</sup>	Publix is implementing LED technology in freezer and cooler applications to reduce energy usage. Over 780 stores have LED lighting and motion sensors on the refrigerated door cases, saving nearly 100,000 kWh annually per store. Just from the installation of digital valves on the refrigeration systems alone, Publix has reduced 46,500 kWh per store. In addition, Publix has installed energy efficient case doors and night shades. Overall, Publix has lowered CO <sub>2</sub> emissions per square foot of building space by 7.2% since 2011, but has not set a public goal for future energy efficiency gains. <sup>xlvii</sup>
	3	4
<b>POINT TOTAL</b>	<b>11</b>	<b>20</b>

\*\* Safeway has recently merged with AB Acquisition LLC, the owner of Albertsons LLC and New Albertsons. AB Acquisition is controlled by an investor group led by Cerberus Capital Management, L.P.

SAFeway**	TARGET	WALMART	WHOLE FOODS
No corporate policy in the public domain committing to a phase-out of HFCs.	No corporate policy in the public domain committing to a phase-out of HFCs.	No policy in the public domain committing to a complete phase-out of HFCs, however, Walmart's 2014 Global Responsibility Report indicates an "intention to phase down overall reliance on high-GWP refrigerants and reduce energy consumption." <sup>ix</sup>	No corporate policy in the public domain committing to a phase-out of HFCs.
0	0	0	0
Safeway has neither installed nor made public plans to install HFC-free refrigeration systems in any of its stores, though they have indicated to EIA they have a team looking at an HFC-free option that could be incorporated into their stores. <sup>xlviii</sup>	Target has neither installed nor made public plans to install HFC-free refrigeration systems in any of its stores.	Walmart has neither installed nor made public plans to install HFC-free refrigeration systems in any of its stores.	Whole Foods opened a new CO <sub>2</sub> transcritical store in Brooklyn, NY in December 2013. They also have plans to open a new CO <sub>2</sub> /Ammonia cascade system in northern California. <sup>lxvi</sup>
0	0	0	2
Safeway has neither installed nor made public plans to install hybrid refrigeration systems in any of its stores.	Target has recently announced plans to roll out hybrid R134a/CO <sub>2</sub> systems in all new stores. These systems have a 65% smaller carbon footprint than previously used systems. <sup>liv</sup> The company also has five stores that use carbon dioxide refrigeration systems and commits to expanding this technology to two additional sites in 2015. <sup>lv</sup>	As of 2014, more than 168 stores and two Sam Clubs in the U.S. utilized hybrid systems containing glycol or CO <sub>2</sub> along with HFCs. Walmart deployed its first all natural low temperature system in Washington, D.C. H Street store in December 2013, which uses a smaller charge of HFCs. <sup>lxi</sup>	Whole Foods has 8 hybrid refrigeration projects in 6 states: 3 low-temperature secondary systems and 5 are cascade systems. Whole foods is also currently retrofitting a low temperature refrigeration system in a store in California to CO <sub>2</sub> . <sup>lxvii</sup>
0	3	4	2
All of Safeway's 18 distribution centers and manufacturing plants use HFC-free ammonia refrigeration systems. <sup>xlix</sup>	Target has installed an ammonia refrigeration system in 6 distribution centers or manufacturing plants <sup>lvi</sup> , including two recently opened cold storage facilities. <sup>lvii</sup> But, Target does not have a HFC-free policy.	Walmart uses HFC-free, ammonia refrigeration systems in 40 distribution centers or manufacturing plants in 28 states, but does not have a HFC-free policy. <sup>lxii</sup>	Five out of ten of Whole foods distribution centers use ammonia refrigeration systems. <sup>lxviii</sup>
5	2	4	3
Safeway is a member of the CGF, but has stated that "Safeway was not included in the CGF HFC pledge." <sup>l</sup>	Target is not a member of the CGF nor has made a comparable HFC pledge.	Walmart is a member of the CGF and on the Sustainability Steering Committee. <sup>lxiii</sup>	Whole Foods is not a member of the CGF nor has made a comparable HFC pledge.
1	0	5	0
Safeway is not a member of GreenChill. <sup>li</sup>	Target is a member of the GreenChill Partnership and has one gold certified store in California. <sup>lvii</sup>	Walmart is not a member of the GreenChill Partnership.	Whole foods is a member of the GreenChill Partnership and has 2 platinum, 2 gold, and 7 silver certified stores. <sup>lxix</sup>
0	2	0	3
Safeway has a publicly available Refrigerant Compliance Plan designed to, among other priorities, report, repair, and prevent leaks. Due to a violation in 2013 of the Clean Air Act, Safeway signed a consent order with the EPA that will require them to reduce their leak rate from 25% to 18% by 2015. <sup>lii</sup>	Target joined the GreenChill partnership to reduce its refrigerant emissions, but does not mention a specific leak management plan.	Walmart initiated a refrigerant leak reduction program across domestic stores and clubs in 2011. In 2012, Walmart reduced its refrigeration related emissions by nearly 8% compared to 2005 baseline facilities. Across its fleet, while refrigerant emissions have stayed about the same, Walmart has decreased its refrigerant emissions per retail area from 2.9 metric tons CO <sub>2</sub> e per 1,000 square feet to 2.4 metric tons CO <sub>2</sub> e per 1,000 square feet. <sup>lxiv</sup>	Whole Foods has a tracking and reporting system in place for refrigerant leaks and achieved a 17% leak reduction in 2011, but no data on leak reductions has been quantified in the past several years. <sup>lxx</sup>
2	1	2	3
Safeway focuses on using energy efficient fans, and LED lighting in its refrigeration units. Some of its stores also feature "no heat" frozen food doors. The stores also collect real-time data to monitor and reduce energy consumption of refrigeration, lighting, and other systems. Doors installed on medium temperature refrigerators saved 96,000 kWh in 2013. <sup>liii</sup>	Target's refrigeration efficiency actions include equipment monitoring HVAC motor speeds, LED lights in refrigerated cases contributing to a 60400 kWh of efficiency gains in 2013, and piloting a program to put glass doors on medium-temperature cases. Target has also implemented an automated fault detection diagnostic system that continuously monitors the store's systems. <sup>lix</sup>	Throughout the US, Walmart installed LED lighting in its low and medium temperature refrigerated cases and all new super centers in the U.S. will be nearly 100% LED. Going 100% LED, Walmart has seen a store consume 34% less energy than a conventional store. Internationally, but not domestically, Walmart is also in the process of eliminating open freezers. <sup>lxv</sup>	Whole Foods has a program to reduce energy use from its refrigeration by installing night curtains, energy efficient doors, triple-pane glass, and LED lighting in all refrigerated cases. In 2010 they announced a goal to reduce energy usage by 25% per square foot off of their 2008 baseline year. <sup>lxxi</sup>
3	3	1	4
11	11	16	17

# REFERENCES

- 79 Fed Reg 46126,46143(Aug. 2014).
- EPA, Overview of Greenhouse Gases, <http://epa.gov/climatechange/ghgemissions/gases/fqases.html>; EPA, EPA's Significant New Alternatives Policy (SNAP) Program and Hydrofluorocarbons. DOE FEWG/CAWG Web Teleconference. (2013) available at: [http://homer.ornl.gov/sesa/sustainability/fewg/epa\\_snap\\_prgm\\_hfcs\\_14nov13.pdf](http://homer.ornl.gov/sesa/sustainability/fewg/epa_snap_prgm_hfcs_14nov13.pdf)
- Xu, et al. The role of HFCs in mitigating 21st century climate change (2013) <http://www.atmos-chem-phys.net/13/6083/2013/acp-13-6083-2013.pdf>
- <http://www.epa.gov/ozone/intpol/mpagreement.html>
- <http://www.whitehouse.gov/the-press-office/2013/06/08/united-states-and-china-agree-work-together-phase-down-hfcs>
- <http://www.whitehouse.gov/the-press-office/2014/11/11/us-china-joint-announcement-climate-change>
- <http://www.whitehouse.gov/the-press-office/2013/09/06/united-states-china-and-leaders-g-20-countries-announce-historic-progress>
- <http://www.whitehouse.gov/the-press-office/2014/09/30/us-india-joint-statement>
- Regulation (EU) No 517/2014 Of The European Parliament And Of The Council available at [http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L\\_.2014.150.01.0195.01.ENG](http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2014.150.01.0195.01.ENG) (hereinafter EU F-Gas Regulation).
- Id. at Article 13.
- EIA, Chilling Facts VI (2014) available at <http://eia-international.org/wp-content/uploads/EIA-Chilling-Facts-VI-los-res.pdf>
- Id.
- EU F-Gas Regulation at Annex III.
- <http://www.whitehouse.gov/sites/default/files/image/president27climateactionplan.pdf>
- Protection of Stratospheric Ozone: Change of Listing Status for Certain Substitutes Under the Significant New Alternatives Policy Program, 79 Fed Reg 46126 (Aug. 6., 2014).
- 79 Fed Reg at 46127.
- [http://arb.ca.gov/cc/shortlived/slcip\\_booklet.pdf](http://arb.ca.gov/cc/shortlived/slcip_booklet.pdf)
- <http://www.whitehouse.gov/the-press-office/2014/09/23/remarks-president-un-climate-change-summit>
- [http://unfccc.int/files/bodies/awg/application/pdf/O2\\_china\\_liu\\_yang.pdf](http://unfccc.int/files/bodies/awg/application/pdf/O2_china_liu_yang.pdf)
- [http://www.r744.com/articles/japan\\_36\\_million\\_in\\_subsidies\\_for\\_natural\\_refrigerants\\_as\\_new\\_f-gas\\_measures\\_loom](http://www.r744.com/articles/japan_36_million_in_subsidies_for_natural_refrigerants_as_new_f-gas_measures_loom)
- <http://www.whitehouse.gov/the-press-office/2014/09/16/fact-sheet-obama-administration-partners-private-sector-new-commitments>
- Id.
- Walmart Global Responsibility Report, 92 (2014) available at <http://cdn.corporate.walmart.com/db/e1/b551a9db42fd99ea24141f76065f/2014-global-responsibility-report.pdf> and see Consumer Goods Forum (2010) <http://www.theconsumergoodsforum.com/consumer-goods-industry-announces-initiatives-on-climate-protection>
- <http://eia-international.org/wp-content/uploads/Time-to-Commit-on-HFCs.pdf>
- [http://www.epa.gov/ozone/downloads/EPA\\_HFC\\_ComRef.pdf](http://www.epa.gov/ozone/downloads/EPA_HFC_ComRef.pdf); See Woolworth Limited Sustainability strategy 2007-2015, 13 available at: [http://www.woolworthslimited.com.au/icms\\_docs/130514\\_Doing\\_the\\_Right\\_Thing.pdf](http://www.woolworthslimited.com.au/icms_docs/130514_Doing_the_Right_Thing.pdf)
- FMI (2013) <http://www.fmi.org/research-resources/supermarkets-gases>; EPA, Profile of an Average U.S. Supermarket's Greenhouse Gas Impacts from Refrigeration Leaks Compared to Electricity Consumption <http://tinyurl.com/maz3ceb>
- EPA, Greenhouse Gas Equivalencies Calculator <http://tinyurl.com/2ftnuvl>
- There were 530,000 supermarkets world wide in 2010, EPA (2010) available at: [http://www.epa.gov/ozone/downloads/EPA\\_HFC\\_ComRef.pdf](http://www.epa.gov/ozone/downloads/EPA_HFC_ComRef.pdf); there were 557 industry power plants using coal as their prominent energy source in the U.S. in 2012. [http://www.eia.gov/electricity/annual/html/epa\\_04\\_01.html](http://www.eia.gov/electricity/annual/html/epa_04_01.html)
- EPA. Transitioning to Low-Gwp Alternatives In Commercial Refrigeration (2010) available at [http://www.epa.gov/ozone/downloads/EPA\\_HFC\\_ComRef.pdf](http://www.epa.gov/ozone/downloads/EPA_HFC_ComRef.pdf)
- EIA, Putting the Freeze on HFCs (2014) available at [http://eia-global.org/images/uploads/Putting\\_the\\_Freeze\\_on\\_HFCs\\_Final.pdf](http://eia-global.org/images/uploads/Putting_the_Freeze_on_HFCs_Final.pdf)
- See H-E-B. [http://www.hussmann.com/en/Press%20Releases/Hussmann\\_H-E-B\\_Propane\\_072513.pdf](http://www.hussmann.com/en/Press%20Releases/Hussmann_H-E-B_Propane_072513.pdf)
- R744.com, UK: ACR Show Seminar series highlight benefits of natural refrigerants (2012) available at <http://www.r744.com/news.viewprintable/2340>.
- Based on information supplied by Waitrose for EIA's 2013 Chilling Facts V report
- [http://www.hussmann.com/en/Press%20Releases/Hussmann\\_H-E-B\\_Propane\\_072513.pdf](http://www.hussmann.com/en/Press%20Releases/Hussmann_H-E-B_Propane_072513.pdf)
- See, EIA, Putting the Freeze on HFCs (2014) [http://eia-global.org/images/uploads/Putting\\_the\\_Freeze\\_on\\_HFCs\\_Final.pdf](http://eia-global.org/images/uploads/Putting_the_Freeze_on_HFCs_Final.pdf)
- EPA, GreenChill: Ammonia Cascade Systems (2013) <http://tinyurl.com/mzzf825>
- Response to EIA information request by Whole Foods.
- Shecco & UNIDO, Natural Solutions for Developing Countries, 17 (2013) available at [http://www.r744.com/web/assets/paper/file/1508\\_guide2013naturalsolutions.pdf](http://www.r744.com/web/assets/paper/file/1508_guide2013naturalsolutions.pdf).
- The capital cost of a CO2 transcritical system is equivalent to an incremental cost of nearly \$32,000 per supermarket, but the annual savings are estimated at about \$5,900 per supermarket. Global Mitigation of Non-CO2 Greenhouse gases 2010-2030 (Sep 2013) available at [http://www.epa.gov/climatechange/downloads/EPAactivities/MAC\\_Report\\_2013.pdf](http://www.epa.gov/climatechange/downloads/EPAactivities/MAC_Report_2013.pdf)
- The top 11 list was determined by combining the supermarket news top 75 retailers & wholesalers list with the Super 50 ratings from progressive grocer. <http://www.stagnitodigitalmedia.com/super50/> and <http://supermarketnews.com/rankings-amp-research/changes-brewing-2013-top-75>. Additionally, "the top ten retailers accounting for approximately 45% of the total number of stores," meaning that these stores are a large swath of the industry. As shown in Understanding the Grocery Industry (2011), the sales of the stores surveyed in our report made up more than 60% of total supermarket sales in 2011. [http://www.dffund.org/what\\_we\\_do/resources/Understanding%20Grocery%20Industry\\_for%20fund\\_102411.pdf](http://www.dffund.org/what_we_do/resources/Understanding%20Grocery%20Industry_for%20fund_102411.pdf).
- Supervalu now ranks 16th on both Supermarket news list of top food retailers and progressive grocers "Super 50" list. See <http://supermarketnews.com/2014-top-75-clickable-list> and <http://www.stagnitodigitalmedia.com/super50/slider-landing-page/16>
- [http://www.cerberuscapital.com/news/safeway\\_and\\_albertsons\\_announce\\_definitive\\_merger\\_agreement\\_and\\_http://supermarketnews.com/2014-top-75-clickable-list](http://www.cerberuscapital.com/news/safeway_and_albertsons_announce_definitive_merger_agreement_and_http://supermarketnews.com/2014-top-75-clickable-list)
- Whole Foods cites one of their core values as "the necessity of active environmental stewardship so that the earth continues to flourish for generations to come." <http://www.wholefoodsmarket.com/mission-values/core-values/declaration-interdependence>
- There is no publicly available information that indicates Albertsons has built or has plans to build any HFC free stores or hybrid system stores
- Phone call with Jihad Ritzkallah (July 8, 2014).
- Id.
- Id.
- <https://www.ahold.com/Media/Ahold-highlighted-as-EIA-Green-Cooling-Leader.htm>
- Center For Effective Government - The Right to Know Network, RMP Facilities with name(s) "Costco" (2014) [http://www.rtknet.org/db/rmp/rmp.php?search\\_name=Costco](http://www.rtknet.org/db/rmp/rmp.php?search_name=Costco)
- [http://www.r744.com/articles/target\\_s\\_big\\_atmosphere\\_america\\_2014\\_announcement\\_switch\\_to\\_co\\_2\\_sub\\_refrigeration](http://www.r744.com/articles/target_s_big_atmosphere_america_2014_announcement_switch_to_co_2_sub_refrigeration)
- <http://sustainabilityreport.delhaizegroup.com/group-performance/group-progress-against-goals/#sthash.MhK4Vn0j.G2bdrSWS.dpuf>
- Communications with Delhaize.
- Letter from Suzanne Linsa-Walter to EIA (July 29, 2014).
- [http://www.r744.com/articles/target\\_s\\_big\\_atmosphere\\_america\\_2014\\_announcement\\_switch\\_to\\_co\\_2\\_sub\\_refrigeration](http://www.r744.com/articles/target_s_big_atmosphere_america_2014_announcement_switch_to_co_2_sub_refrigeration)
- <http://www.whitehouse.gov/the-press-office/2014/09/16/fact-sheet-obama-administration-partners-private-sector-new-commitments>
- Response to EIA by Whole Foods (Sept. 4, 2014).
- <http://www.epa.gov/greenchill/downloads/RetirofitGuidelines.pdf>
- EPA, United States settles with Costco to cut ozone-depleting and greenhouse gas refrigerant emissions nationwide available at <http://yosemite.epa.gov/opa/advpress.nsf/0/46B711F34B94328985257D480058E7CE>
- Walmart Global Responsibility Report, 92 (2014) available at <http://cdn.corporate.walmart.com/db/e1/b551a9db42fd99ea24141f76065f/2014-global-responsibility-report.pdf> and see Consumer Goods Forum (2010) <http://www.theconsumergoodsforum.com/consumer-goods-industry-announces-initiatives-on-climate-protection>
- See <http://www.theconsumergoodsforum.com/consumer-goods-industry-announces-initiatives-on-climate-protection>
- Walmart Global Responsibility Report (2015) available at <http://cdn.corporate.walmart.com/c0/24/2383f0674d27823dcf7083e6fbc6/2015-global-responsibility-report.pdf>
- There have been 299 Supercenters built in the U.S. since 2010, 44 new Sam's Clubs, 478 neighborhood markets, discount and smaller format stores, and 353 discount and smaller format stores converted to Supercenters. Walmart, 10-k filing for fiscal year ending January 31, 2015, available at <http://stock.walmart.com/financial-reporting/sec-filings/>
- Id.
- The 2014 Global Responsibility Report identifies that 168 stores and 2 Sam's Clubs are using glycol and CO2, and that one store, in Washington, D.C. has deployed Walmart's first natural low temperature system. None of these systems are HFC free. See Walmart Global 2014 Responsibility Report supra note 59 at 93.
- <http://cdn.corporate.walmart.com/66/e5/9f9a87445949173fe56316ac5f/2014-annual-report.pdf>
- According to the EPA, the average supermarket leaks the equivalent emissions of 1,556 metric tonnes of CO2 each year. [http://www2.epa.gov/sites/production/files/documents/gc\\_averagestoreprofile\\_final\\_june\\_2011\\_revised\\_1.pdf](http://www2.epa.gov/sites/production/files/documents/gc_averagestoreprofile_final_june_2011_revised_1.pdf)
- <http://www.epa.gov/cleaneenergy/energy-resources/calculator.html#results>
- According to the EPA, the average supermarket leaks the equivalent emissions of 1,556 metric tonnes of CO2 each year. [http://www2.epa.gov/sites/production/files/documents/gc\\_averagestoreprofile\\_final\\_june\\_2011\\_revised\\_1.pdf](http://www2.epa.gov/sites/production/files/documents/gc_averagestoreprofile_final_june_2011_revised_1.pdf); Walmart built or converted to super centers 1157 stores, including Sam Clubs, in the US between 2010 and fiscal year end 2015. Walmart, 10-k filing for fiscal year ending January 31, 2015, available at <http://stock.walmart.com/financial-reporting/sec-filings/>
- [http://www.tescopic.com/files/pdf/reports/ar14/download\\_annual\\_report.pdf](http://www.tescopic.com/files/pdf/reports/ar14/download_annual_report.pdf)
- <http://eia-international.org/wp-content/uploads/EIA-Chilling-Facts-VI-los-res.pdf>
- [http://www.carrefour.com/sites/default/files/RA\\_VGB\\_OK\\_BD\\_0.pdf](http://www.carrefour.com/sites/default/files/RA_VGB_OK_BD_0.pdf)
- <http://eia-international.org/retailers-have-a-key-role-in-counteracting-global-warming>
- <http://www.hillphoenix.com/wp-content/uploads/2011/06/Caputos-to-use-transcritical-refrigeration.pdf> and <http://caputomarkets.com/t/StoresLanding>
- <http://www.hillphoenix.com/roundys/>; <http://yosemite.epa.gov/opa/advpress.nsf/0/12176E9B3F44F6E885257D16006F6DC3>
- Shecco and UNIDO, Natural Solutions for Developing Countries, 17 (2013) available at: <http://conf.montreal-protocol.org/meeting/mop/mop-25/ngo-publications/NGO%20Publications/GUIDE%20UNIDO%20-%20Natural%20Solutions%20for%20Developing%20Countries.pdf>
- <http://www.achnews.com/articles/124279-propane-ammonia-and-co2-are-natural-choices-for-supermarkets>
- Reducing leaks from refrigeration is an additional part of the Consumer Goods Forum toolkit recommendations. Walmart contributed to the creation of that toolkit. See CGF, Sustainability Activation Took Kit, 33 (2013).
- Walmart Global Responsibility Report (2012) [http://c46b2bcc0db5865f5a76-91c2ff8eba65983a1c33d367b8503d02.r78.cf2.rackcdn.com/d3/35/66be9cc44c2b8d096565166e79f4/2012-global-responsibility-report\\_129823695403288526.pdf](http://c46b2bcc0db5865f5a76-91c2ff8eba65983a1c33d367b8503d02.r78.cf2.rackcdn.com/d3/35/66be9cc44c2b8d096565166e79f4/2012-global-responsibility-report_129823695403288526.pdf)
- Id.
- Id.
- Walmart Global Responsibility Report (2015) available at <http://cdn.corporate.walmart.com/c0/24/2383f0674d27823dcf7083e6fbc6/2015-global-responsibility-report.pdf>
- <http://cdn.corporate.walmart.com/db/e1/b551a9db42fd99ea24141f76065f/2014-global-responsibility-report.pdf>
- Walmart Global Responsibility Report (2012) [http://c46b2bcc0db5865f5a76-91c2ff8eba65983a1c33d367b8503d02.r78.cf2.rackcdn.com/d3/35/66be9cc44c2b8d096565166e79f4/2012-global-responsibility-report\\_129823695403288526.pdf](http://c46b2bcc0db5865f5a76-91c2ff8eba65983a1c33d367b8503d02.r78.cf2.rackcdn.com/d3/35/66be9cc44c2b8d096565166e79f4/2012-global-responsibility-report_129823695403288526.pdf)
- <http://corporate.walmart.com/microsites/global-responsibility-report-2013/energyEfficiency.html>
- 2014 suitability report, pg 92 <http://cdn.corporate.walmart.com/db/e1/b551a9db42fd99ea24141f76065f/2014-global-responsibility-report.pdf>
- [http://c46b2bcc0db5865f5a76-91c2ff8eba65983a1c33d367b8503d02.r78.cf2.rackcdn.com/d3/35/66be9cc44c2b8d096565166e79f4/2012-global-responsibility-report\\_129823695403288526.pdf](http://c46b2bcc0db5865f5a76-91c2ff8eba65983a1c33d367b8503d02.r78.cf2.rackcdn.com/d3/35/66be9cc44c2b8d096565166e79f4/2012-global-responsibility-report_129823695403288526.pdf)
- <http://www.theconsumergoodsforum.com/the-consumer-goods-forum-calls-for-binding-global-climate-change-deal>
- With over 4,000 stores in the United States, and over 6,000 stores through out the rest of the world, Walmart continues to be the world's largest retailer. See <http://www.forbes.com/pictures/mlf45eqejd/no-1-wal-mart-stores>; <http://business.time.com/2012/07/02/retail-giants-walmart-changed-the-world/>. In 2014 alone, the retail giant brought in \$473 billion in net sales and employed more than 2.2 million people. <http://news.walmart.com/walmart-facts/>
- For example, 14% of Proctor and Gamble's sales are to Walmart. [http://www.pg.com/fr\\_FR/downloads/annual-reports/2013\\_AnnualReport\\_en.pdf](http://www.pg.com/fr_FR/downloads/annual-reports/2013_AnnualReport_en.pdf)
- <http://cdn.corporate.walmart.com/eb/80/4c32210b44ccbe634d4d418a27/walmarts-approach-to-renewable-energy.pdf> In addition, over 450 suppliers have opened offices near Walmart's headquarters since the 1990s, in order for "sales representatives ... to be near Wal-Mart buyers to meet the competition." <http://usatoday30.usatoday.com/money/industries/retail/2003-01-28-walmartnation.x.htm>.
- Walmart Global Responsibility Report, 5(2014) available at <http://cdn.corporate.walmart.com/db/e1/b551a9db42fd99ea24141f76065f/2014-global-responsibility-report.pdf>
- <http://corporate.walmart.com/global-responsibility/environmental-sustainability/energy>
- <http://news.walmart.com/executive-views/picking-up-the-pace-of-change-for-the-customer>
- <http://corporate.walmart.com/global-responsibility/environmental-sustainability>

# SUPERMARKET MATRIX CITATIONS

- i. [http://www.r744.com/news/viewprintable/4332;www.r744.com/articles/supervalu\\_opens\\_it\\_s\\_first\\_natural\\_refrigerant\\_store](http://www.r744.com/news/viewprintable/4332;www.r744.com/articles/supervalu_opens_it_s_first_natural_refrigerant_store)
- ii. Center For Effective Government - The Right to Know Network, RMP Facilities with name(s) Albertsons [http://www.rtknet.org/db/rmp/rmp.php?search\\_name=albertsons](http://www.rtknet.org/db/rmp/rmp.php?search_name=albertsons)
- iii. <http://www2.epa.gov/greenhill/greenhill-partners>
- iv. <http://www.ewbinc.com/Albertsons%20Carpinteria%20Story%208-27-12.pdf>
- v. Communication between Jihad Ritzkallah, LEED AP, Vice President of Store Planning for Ahold USA and Danielle Gagne (July 8, 2014).
- vi. Green Retail Decisions, Stop & Shop Store Adds Advanced Refrigeration Technology (04/28/2011) <http://tinyurl.com/ppnkp6s>; Supermarket News, Giant-Carlisle Outlet Employs Green Refrigeration System (03/12/2010) <http://tinyurl.com/lvtlwms>; Ahold, Responsible Retailing Report, 49 (2013) <https://www.ahold.com/Responsible-retailing-5/Responsible-Retailing-Reports.htm>
- vii. Center For Effective Government - The Right to Know Network, RMP Facilities with name(s) "Ahold" (2014) [http://www.rtknet.org/db/rmp/rmp.php?search\\_name=Ahold&splash=6&detail=0](http://www.rtknet.org/db/rmp/rmp.php?search_name=Ahold&splash=6&detail=0)
- viii. Consumer Goods Forum, Current Members of the Consumer Goods Forum, <http://tinyurl.com/kns9zac>; Consumer Goods Forum, Sustainability Steering Committee, <http://tinyurl.com/lly3fj8>
- ix. <http://www2.epa.gov/greenhill/greenhill-partners>
- x. Ahold, Responsible Retailing Report, 25 (2013) <https://www.ahold.com/Responsible-retailing-5/Responsible-Retailing-Reports.htm>; Ahold, Responsible Retailing Report, 41 (2014) <https://www.ahold.com/Media/Ahold-publishes-Responsible-Retailing-Report-2014.htm#://Responsible-retailing-5/Responsible-Retailing-Reports/Responsible-Retailing-Report-2014.htm>
- xi. Ahold, Responsible Retailing Report 2012, 43, (2012) <http://tinyurl.com/jvp3vbw>
- xii. Communication between Jihad Ritzkallah, LEED AP, Vice President of Store Planning for Ahold USA and Danielle Gagne (July 8, 2014); <https://www.ahold.com/Media/Care-for-the-environment.htm>
- xiii. As part of a settlement with the EPA, Costco will pay \$335,000 in penalties for Clean Air Act violations and will fix refrigerant leaks and make other improvements at 274 of its stores. <http://yosemite.epa.gov/opa/admpress.nsf/0/46B711F34B9432898525704800587CE>
- xiv. Center For Effective Government - The Right to Know Network, RMP Facilities with name(s) "Costco" (2014) [http://www.rtknet.org/db/rmp/rmp.php?search\\_name=Costco](http://www.rtknet.org/db/rmp/rmp.php?search_name=Costco)
- xv. <http://yosemite.epa.gov/opa/admpress.nsf/0/46B711F34B9432898525704800587CE>; <http://www.wsj.com/articles/costco-to-pay-335-000-to-settle-clean-air-act-charges-1409765542>
- xvi. Costco, Annual Report, 12 (2014); Costco, Annual Report, 12-13 (2013); Costco, Sustainability Power Point website (2012) <http://phx.corporate-ir.net/External.File?item=UGFY2W50SU9MTcyMjQ2fENoaWxkSU09LTF8VHlwZT0z&t=1>
- xvii. Communications between EIA and Delhaize Group.
- xviii. Id.
- xix. Id.
- xx. Center For Effective Government - The Right to Know Network, RMP Facilities with name(s) "Delhaize", 2014, [http://www.rtknet.org/db/rmp/rmp.php?search\\_name=Delhaize](http://www.rtknet.org/db/rmp/rmp.php?search_name=Delhaize)
- xxi. Consumer Goods Forum, Current Members of the Consumer Goods Forum, <http://tinyurl.com/kns9zac>; Consumer Goods Forum, Sustainability Steering Committee, <http://tinyurl.com/lly3fj8>
- xxii. <http://www2.epa.gov/greenhill/greenhill-partners>; <http://www2.epa.gov/greenhill/greenhill-store-certification-awards>
- xxiii. Communication between EIA and Delhaize Group
- xxiv. Id.; Delhaize Group, Sustainability Progress Report 2012: Everyday Practices, 12, (2012) <http://www.delhaizegroup.com/SustainabilityReport/2012/index.html>
- xxv. Shecco, US first: Texas supermarket opts for R290 store refrigeration system, (2013), [http://www.hydrocarbons21.com/articles/us\\_first\\_texas\\_supermarket\\_opts\\_for\\_r290\\_store\\_refrigeration\\_system](http://www.hydrocarbons21.com/articles/us_first_texas_supermarket_opts_for_r290_store_refrigeration_system)
- xxvi. Center For Effective Government - The Right to Know Network, RMP Facilities with name(s) "H.E. Butt", 2014, [http://www.rtknet.org/db/rmp/rmp.php?search\\_name=H.E.+Butt](http://www.rtknet.org/db/rmp/rmp.php?search_name=H.E.+Butt)
- xxvii. Consumer Goods Forum, Current Members of the Consumer Goods Forum, <http://tinyurl.com/kns9zac>
- xxviii. HEB, Green Building, <http://www.heb.com/sectionpage/about-us/community/environment/green-building/sd80010>
- xxix. Id.
- xxx. Letter from Suzanne Lindsay-Walker, Director, Sustainability for The Kroger Co. to Allan Thornton, president of EIA, July 29, 2014.
- xxxi. Center For Effective Government - The Right to Know Network, RMP Facilities with name(s) "Kroger", 2015, [http://www.rtknet.org/db/rmp/rmp.php?search\\_name=kroger](http://www.rtknet.org/db/rmp/rmp.php?search_name=kroger)
- xxxii. Consumer Goods Forum, Current Members of the Consumer Goods Forum, <http://tinyurl.com/kns9zac>; Consumer Goods Forum, Sustainability Steering Committee, <http://tinyurl.com/lly3fj8>
- xxxiii. <http://www.whitehouse.gov/the-press-office/2014/09/16/fact-sheet-obama-administration-partners-private-sector-new-commitments->
- xxxiv. Letter from Suzanne Lindsay-Walker, Director, Sustainability for The Kroger Co. to Allan Thornton, president of EIA, July 29, 2014.
- xxxv. Kroger, Corporate Sustainability Report (2014) available at [http://sustainability.kroger.com/1-Kroger\\_30043\\_CSR14.pdf](http://sustainability.kroger.com/1-Kroger_30043_CSR14.pdf); Letter from Suzanne Lindsay-Walker, Director, Sustainability for The Kroger Co. to Allan Thornton, president of EIA, July 29, 2014.
- xxxvi. Letter from Erik A. Petrovskis, Director, Environmental Compliance and Sustainability and Mitch Boucher, Manager of Engineering and Energy to Danielle Gagne, August 26, 2014.
- xxxvii. Center For Effective Government - The Right to Know Network, RMP Facilities with name(s) "Meijer", 2014, [http://www.rtknet.org/db/rmp/rmp.php?search\\_name=Meijer](http://www.rtknet.org/db/rmp/rmp.php?search_name=Meijer)
- xxxviii. Consumer Goods Forum, Current Members of the Consumer Goods Forum, <http://tinyurl.com/kns9zac>
- xxxix. <http://www2.epa.gov/greenhill/greenhill-partners>; <http://www2.epa.gov/greenhill/greenhill-store-certification-awards>
- xl. Letter from Erik A. Petrovskis, Director, Environmental Compliance and Sustainability and Mitch Boucher, Manager of Engineering and Energy to Danielle Gagne, August 26, 2014.
- xli. Id.; Meijer, Green Living, 2013, [http://www.meijer.com/content/corporate.jsp?pageName=green\\_living](http://www.meijer.com/content/corporate.jsp?pageName=green_living); Contracting Business, Refrigeration Roundtable - Supermarket Managers & Contractors Work Toward Energy Efficiency Goals, 12/04/2012, <http://contractingbusiness.com/archive/refrigeration-roundtable-supermarket-managers-contractors-work-toward-energy-efficiency-goal>
- xlii. Publix, Refrigeration/ Air Conditioning, 2013, [http://sustainability.publix.com/what\\_we\\_are\\_doing/energy\\_refrigeration.php](http://sustainability.publix.com/what_we_are_doing/energy_refrigeration.php); Publix, Social and Environmental Stewardship Summary 2012, 15, (2012) <http://digital.turn-page.com/t/72587/15>; Michael Garry, Sustainable Culture (09/07/2009) <http://supermarketnews.com/sustainability/sustainable-culture>
- xliiii. Center For Effective Government - The Right to Know Network, RMP Facilities with name(s) "Publix", 2014, [http://www.rtknet.org/db/rmp/rmp.php?search\\_name=Publix](http://www.rtknet.org/db/rmp/rmp.php?search_name=Publix)
- xliiii. Consumer Goods Forum, Current Members of the Consumer Goods Forum, <http://tinyurl.com/kns9zac>
- xliiii. <http://www2.epa.gov/greenhill/greenhill-partners>; <http://www2.epa.gov/greenhill/greenhill-store-certification-awards>
- xliiii. Environmental Protection Agency, GreenChill Launch Event, 11/27/2007, <http://www.epa.gov/greenchill/downloads/GCLaunchBrochure.pdf>
- xliiii. Publix, Social and Environmental Stewardship Summary (2013) <http://digital.turn-page.com/t/7063>
- xliiii. Letter from Chris Ratto, Director of Sustainability for Safeway, Inc to EIA, August 18, 2014.
- xliiii. Communication between EIA and Chris Ratto (11/19/2012); [http://www.rtknet.org/db/rmp/rmp.php?combined\\_name=safeway&sum\\_expand=C&datatype=T&retype=f&detail=1&submit=GO](http://www.rtknet.org/db/rmp/rmp.php?combined_name=safeway&sum_expand=C&datatype=T&retype=f&detail=1&submit=GO)
- i. Letter from Chris Ratto, Director of Sustainability for Safeway, Inc to EIA, August 18, 2014; Consumer Goods Forum, Current Members of the Consumer Goods Forum, <http://tinyurl.com/kns9zac>
- ii. <http://www2.epa.gov/greenhill/greenhill-partners>; <http://www2.epa.gov/greenhill/greenhill-store-certification-awards>
- iii. Safeway Inc., Refrigerant Compliance Plan, 04/11/2007, <http://www.tecmehwi.net/PDFs/RefrigerantCompliance.pdf>; Department of Justice, United States of America v. Safeway Inc. (2013) <http://tinyurl.com/l6vknzy>
- iii. <http://csr.site.safeway.com/home/planet/climate-energy/>; Safeway Inc., 2010 Corporate Social Responsibility Summary Report, 2010, [http://safewaycsr.com/wp-content/uploads/2012/PDF\\_Report\\_CVR-1.pdf](http://safewaycsr.com/wp-content/uploads/2012/PDF_Report_CVR-1.pdf)
- liii. [http://www.r744.com/articles/target\\_s\\_big\\_atmosphere\\_america\\_2014\\_announcement\\_switch\\_to\\_co\\_sub\\_2\\_sub\\_refrigeration](http://www.r744.com/articles/target_s_big_atmosphere_america_2014_announcement_switch_to_co_sub_2_sub_refrigeration)
- liii. <http://www.whitehouse.gov/the-press-office/2014/09/16/fact-sheet-obama-administration-partners-private-sector-new-commitments->
- liii. Center For Effective Government - The Right to Know Network, RMP Facilities with name(s) "Target" (2014) [http://www.rtknet.org/db/rmp/rmp.php?search\\_name=Target](http://www.rtknet.org/db/rmp/rmp.php?search_name=Target)
- liii. <http://www.whitehouse.gov/the-press-office/2014/09/16/fact-sheet-obama-administration-partners-private-sector-new-commitments->
- liii. <http://www2.epa.gov/greenhill/greenhill-partners>; <http://www2.epa.gov/greenhill/greenhill-store-certification-awards>
- liii. Target, 2012 Corporate Responsibility Report (2012) [https://corporate.target.com/\\_media/TargetCorp/csr/pdf/2012-corporate-responsibility-report.pdf](https://corporate.target.com/_media/TargetCorp/csr/pdf/2012-corporate-responsibility-report.pdf); Target, 2013 Corporate Responsibility Report (2013) [https://corporate.target.com/\\_media/TargetCorp/csr/pdf/2013-corporate-responsibility-report.pdf](https://corporate.target.com/_media/TargetCorp/csr/pdf/2013-corporate-responsibility-report.pdf)
- liii. Walmart, Global Responsibility Report (2014) <http://cdn.corporate.walmart.com/db/el/b551a9db42fd99ea2414f76065f/2014-global-responsibility-report.pdf>
- liii. Id.
- liii. Center For Effective Government - The Right to Know Network, RMP Facilities with name(s) "Wal Mart," 2014, [http://www.rtknet.org/db/rmp/rmp.php?search\\_name=Wal+Mart](http://www.rtknet.org/db/rmp/rmp.php?search_name=Wal+Mart)
- liii. Consumer Goods Forum, Current Members of the Consumer Goods Forum, <http://tinyurl.com/kns9zac>; Consumer Goods Forum, Sustainability Steering Committee, <http://tinyurl.com/lly3fj8>
- liii. Walmart, Global Responsibility Report (2014) <http://cdn.corporate.walmart.com/db/el/b551a9db42fd99ea2414f76065f/2014-global-responsibility-report.pdf>; WalMart, Global Responsibility Report 2013, [http://corporate.walmart.com/microsites/global-responsibility-report-2013/pdf/Walmart\\_GRR.pdf](http://corporate.walmart.com/microsites/global-responsibility-report-2013/pdf/Walmart_GRR.pdf); Id.
- liii. Communication between Mike Ellinger of Whole Foods and EIA, 2014
- liii. Mike Ellinger, Whole Foods presentation at ATMosphere Business Case Conference, June 18-19, 2014 available at [http://www.atmo.org/presentations/files/416\\_1\\_ELLINGER\\_WHOLEFOODS.pdf](http://www.atmo.org/presentations/files/416_1_ELLINGER_WHOLEFOODS.pdf); Mike Ellinger response to EIA, 2014.
- liii. Communication between Mike Ellinger of Whole Foods and EIA, 2014
- liii. <http://www2.epa.gov/greenhill/greenhill-partners>; <http://www2.epa.gov/greenhill/greenhill-store-certification-awards>
- liii. Whole Foods Market Green Mission Report, 2012 available at <https://www.wholefoodsmarket.com/sites/default/files/media/Global/PDFs/2012GreenMissionReport.pdf>
- liii. Whole Foods Market Green Mission Report, 2012 available at <https://www.wholefoodsmarket.com/sites/default/files/media/Global/PDFs/2012GreenMissionReport.pdf>

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