# **Business-As-Usual Lifecycle**

EMITTED REFRIGERANTS HEAT UP THE PLANET

HFCs are potent greenhouse gases. The Global Warming Potential of one commonly used refrigerant, R-410A, is 2,088 times that of carbon dioxide.

As climate change intensifies, the world will increasingly rely on cooling appliances to cope with rising temperatures. The majority of these units use synthetic refrigerants like hydrofluorocarbons (HFCs) to generate cool air. But once these refrigerants are charged into equipment, where do they go?

Follow the expected path of refrigerant charged into a residential air conditioning unit in California, USA1:



Refrigerants are produced and charged into new equipment during the manufacturing process.

**EQUIPMENT** 

REFILLED

Service technicians

recharge leaky equipment

100% OF INITIAL CHARGE PLACED INTO **NEW EQUIPMENT** 

~60%

OF INITIAL CHARGE

IS ADDED OVER

**QUIPMENT LIFETIME** 

LEAKS

## **EQUIPMENT IN USE**

### **OVER LIFETIME**

Over its operating lifetime, equipment leaks refrigerant, which compromises performance and energy efficiency.

#### **END OF LIFE**

AT END OF LIFE,

When equipment reaches the end of its useful life, the remaining refrigerant is commonly released ("vented") to the atmosphere. Some refrigerant is recovered by technicians for reclamation or destruction.

ACROSS EQUIPMENT ~75% OF THE INITIAL CHARGE LEAKS

OF REMAINING REFRIGERANT IS VENTED

REFRIGERANT **IN STORAGE** 

When refrigerant is being stored, a small amount will leak into the atmosphere. The remainder will be reclaimed or destroyed.

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OF RECOVERED GAS

~70%

IS RECLAIMED<sup>2</sup>

Destroyed

Reclaimed

Emitted

**REFRIGERANT RECLAIMED** 

WHERE REFRIGERANT GOES

Recovered gases are chemically refurbished to virgin purity standard and can be used again.

## **REFRIGERANT DESTROYED**

Refrigerants are broken down, permanently preventing damage to the environment.

AT END OF LIFE. ~20% OF REMAINING **REFRIGERANT IS** RECOVERED

~30% OF RECOVERED GAS IS DESTROYED<sup>2</sup>

with virgin refrigerant.

<sup>1</sup>Leakage, refill, and recovery rates derived from California Public Utilities Commission, 2022, "Refrigerant Avoided Cost Calculator" <sup>2</sup>Reclamation and destruction rates approximated from U.S. Environmental Protection Agency, 2023, "Refrigerant Reclamation Summary 2000-2022" and United Nations Environmental Program, 2023, "Destruction of Controlled Substances"