



# COOL-FIT

## Pre-insulated plastic pipe

Urs Rudischhauser 25.01.2018

# The need for efficient cooling

The need for efficient cooling

# History of cooling

- Birth of “artificial refrigeration” was a paper from Carl Linde at a Brewery Conference in Vienna Austria (1870).
- Previously ice transportation was the primary method to cool fish etc. In 1890 25 millions tons of ice was imported by USA from the Arctic.



The need for efficient cooling

# Do not underestimate the global importance of cooling



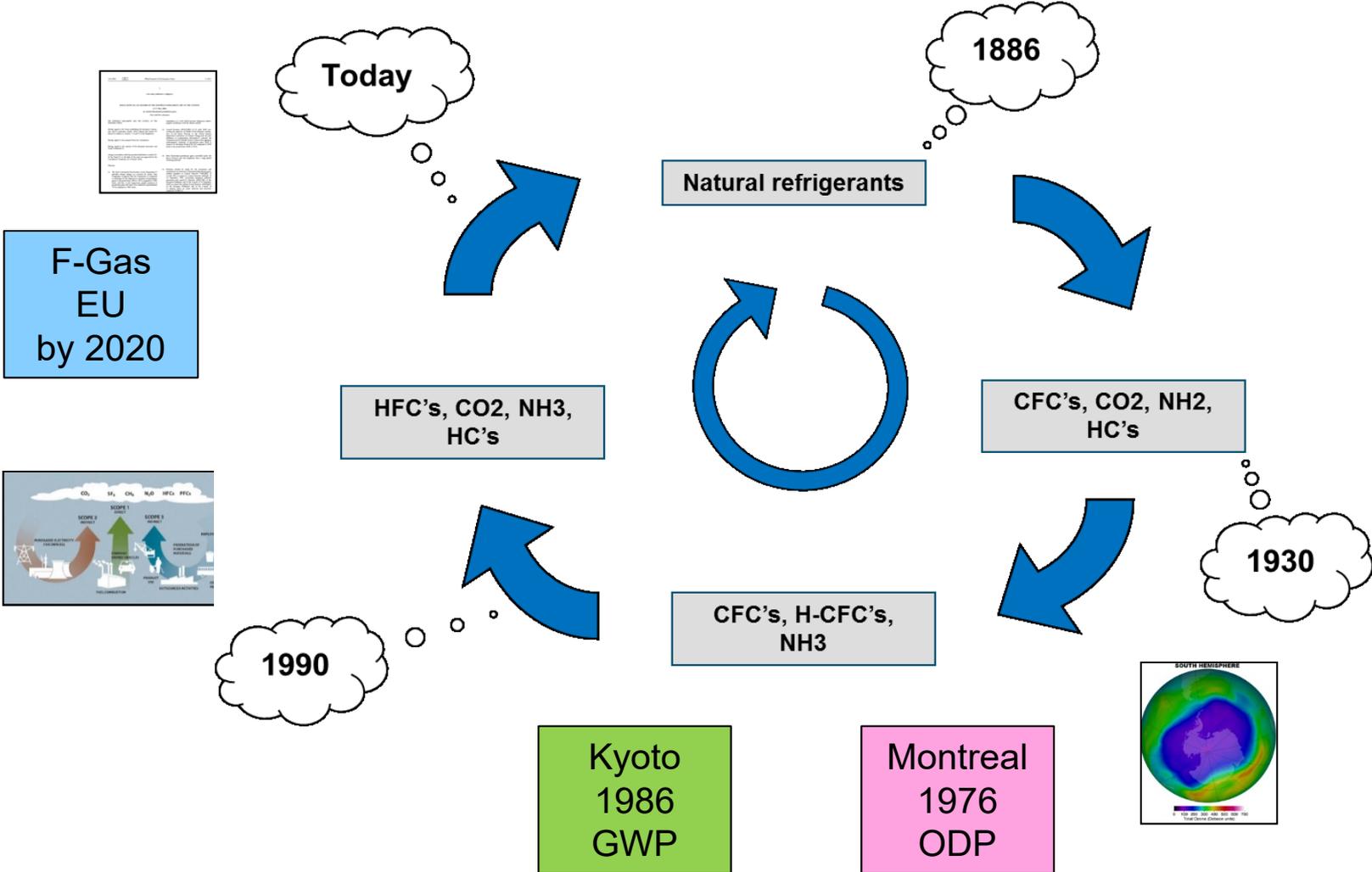
17%



of all electricity consumption is for Cooling Applications

The need for efficient cooling

# Keeping cool is making us hot

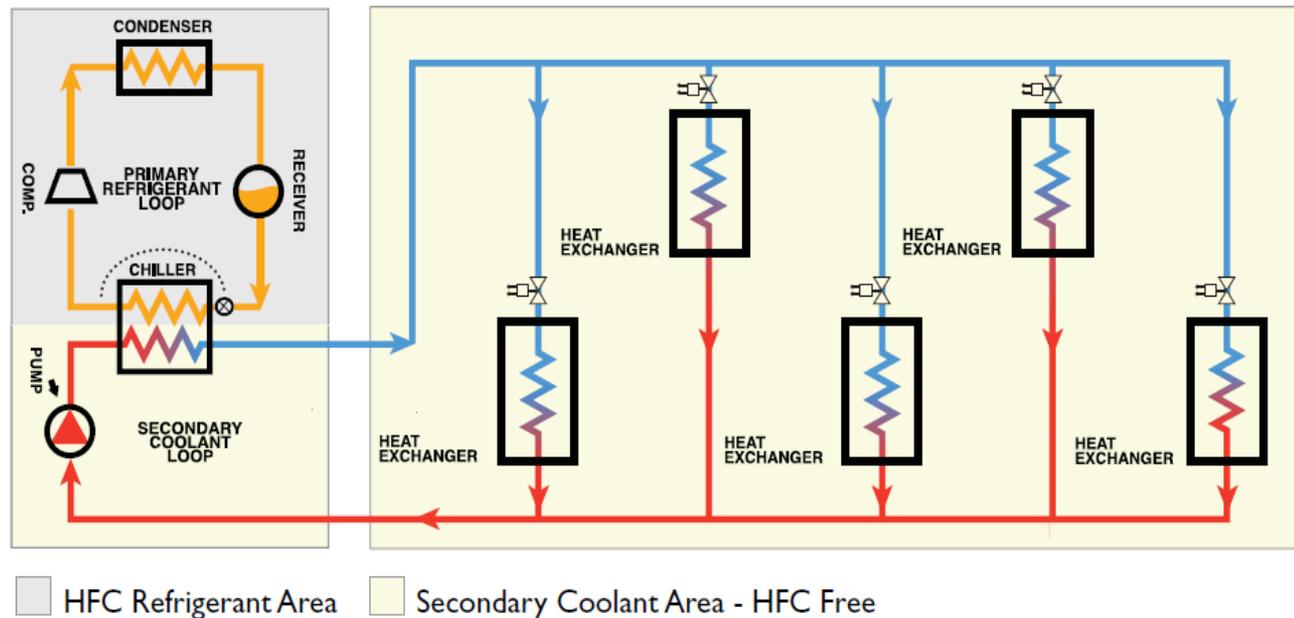


The need for efficient cooling

# Reduce the gas charge will reduce negative effects on the environment

- 80% Less primary refrigerant charge
- Reduce leakages to ZERO
- Safer and simpler

## Secondary or Indirect Cooling Plants



The need for efficient cooling

# Pains: a bad secondary system can cost you money



The need for efficient cooling

# Pains: a bad secondary system can cost you money

## The HVAC Factor: Insulation For Chilled Water Piping

By William A. Lotz, P.E.

*from the July/August 2015 Issue*

“... all jackets were covered with mold ...”

“... only the glass fibre did not absorb condensation ... resulting in thermal degradation ...”

“... phenolic gained 400%-1000% moisture ... PUR gained 1000% moisture ...”

“... fragile jacket is the main reason for heat gain ... when the jacket is damaged or corroded it is only a matter of time until the insulation fills up with condensation and fails ...”

**FACILITY EXECUTIVE**  
Creating Intelligent Buildings

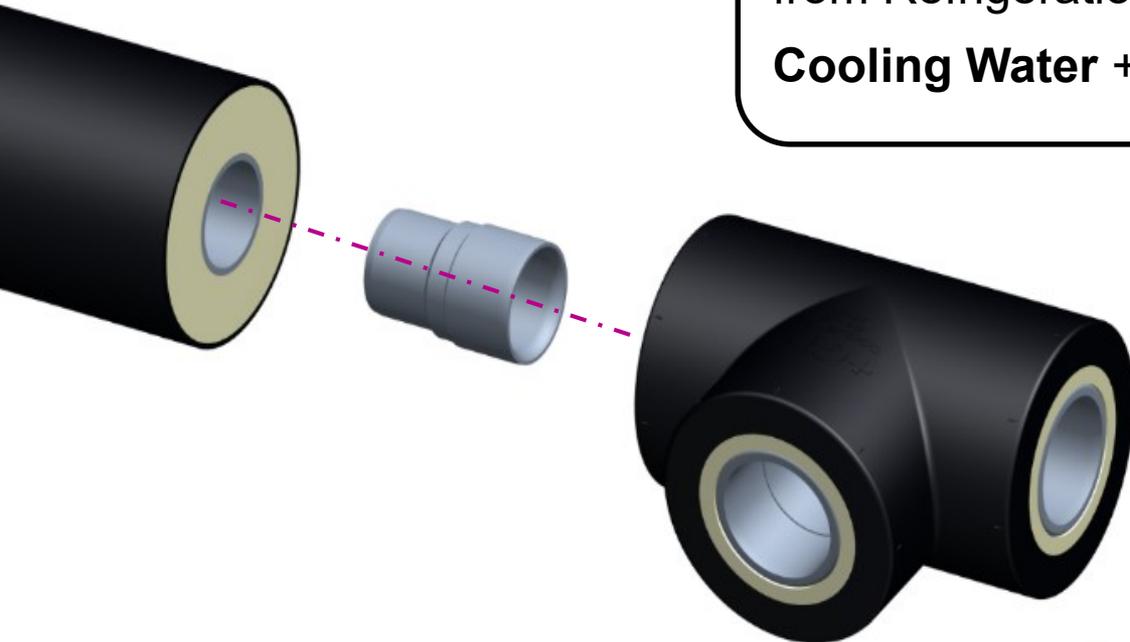


**Table 3:**  
**Chilled Water Piping Heat Gain**  
(With Time, Btu/hr. sq. ft.)

Date	Wicking Glass Fiber	Polyurethane
2005	49	11.
2010	16.0	15.
2012	19.5	28.

# The need for efficient cooling Evolution

from Cemented ABS to **Welded (fused) PE-100**  
from Refrigeration to **Air-Con + Industrial Cooling Water + Data Centres...**



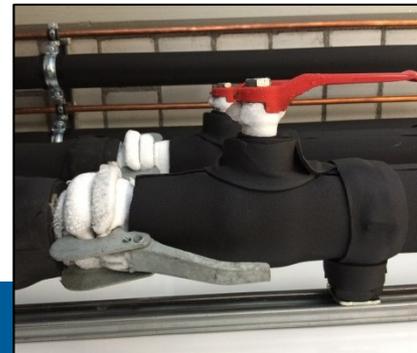
# The revolution for efficient cooling

The revolution for efficient cooling

# Challenges with existing systems



Robustness



Condensation / Corrosion



Joining method

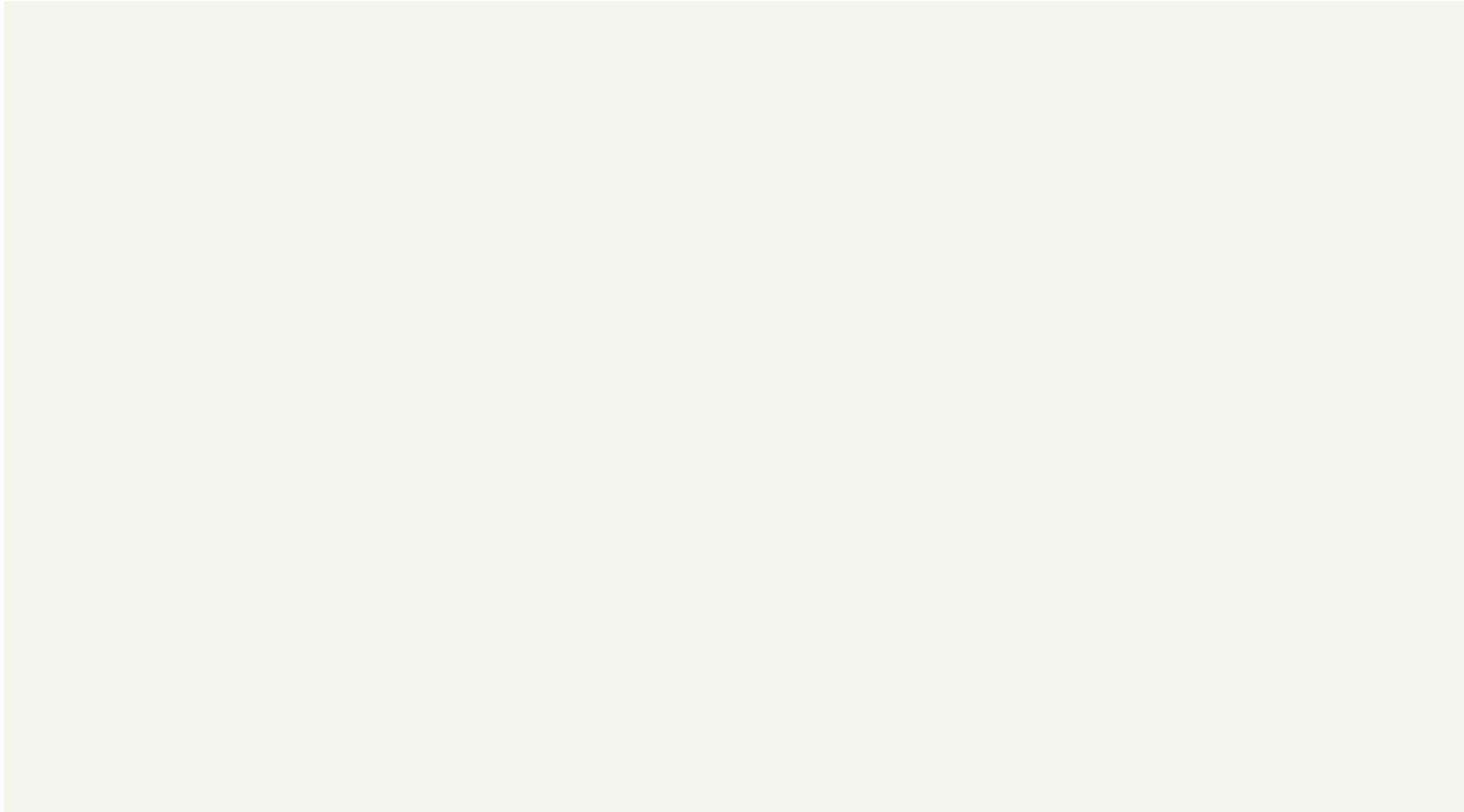


Weight



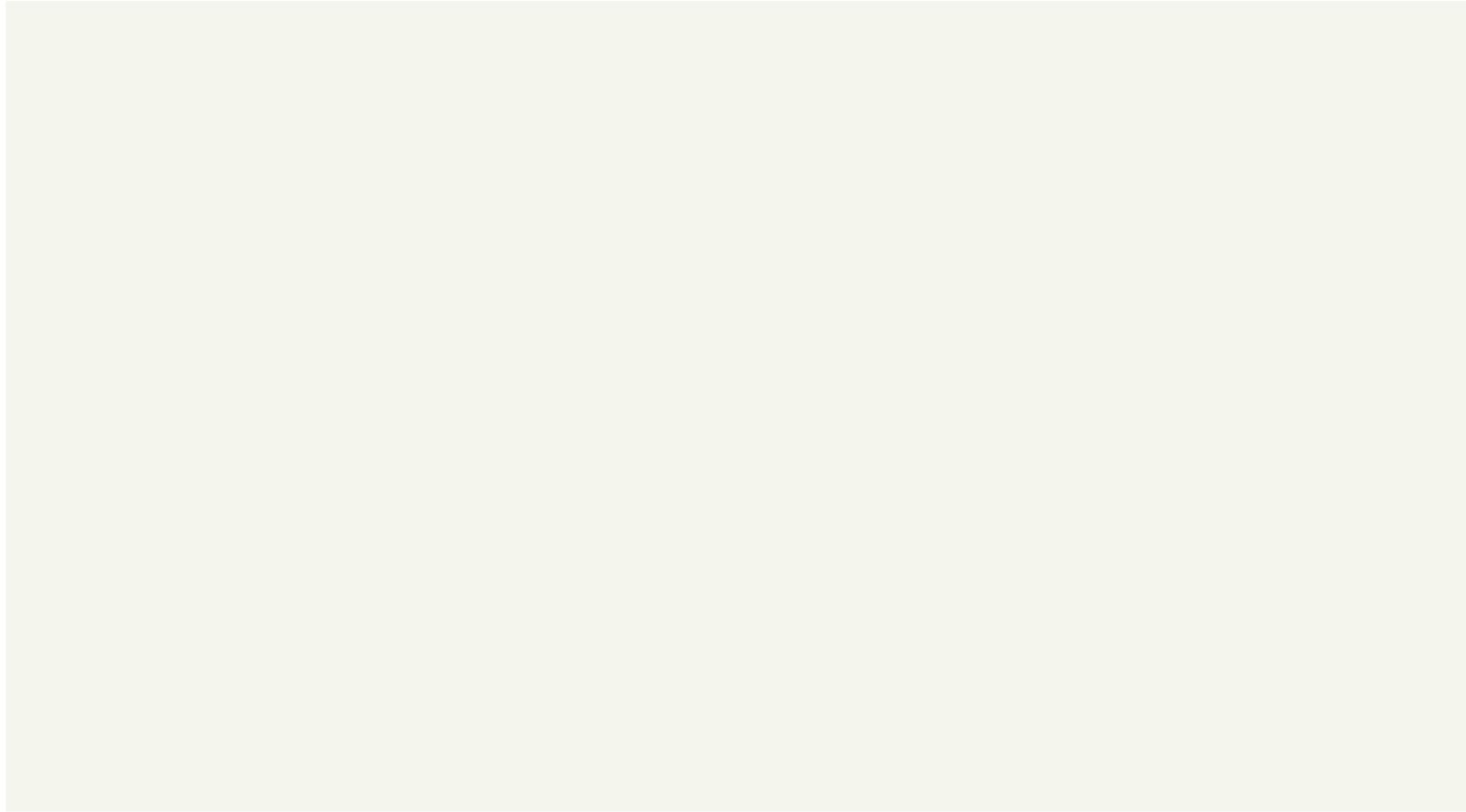
The revolution for efficient cooling

# Video



The revolution for efficient cooling

# Video



The revolution for efficient cooling

# Advantages

- **100%** Corrosion free
- **50%** Faster installation
- **30%** Better energy efficiency



## Cooling applications

Chilled-Cooling Waters  $>0^{\circ}\text{C}$   
COOL-FIT 2.0



Process-cooling (PCW)



HVAC



Data Centres

Industrial / Comm. Refrigeration  
 $<0^{\circ}\text{C}$  COOL-FIT 4.0



Brewer-/Wineries



Super markets



Diaries



Vegetable-/Fruit-processing



Bakeries



Meet-/Fish processing



Cold stores

**Thank you for your attention!**