

Implementing hydrocarbons with customers in Asia Pacific

6th September 2017 Bangkok







Liebherr Appliances Milestones

1954 Liebherr **Appliances** founded in Germany



1993

1st manufacturer to convert entire range to **HCFC/CFC-free** refrigerant in **Europe**



1999

Liebherr Appliances opened a third manufacturing facility in Marica, Bulgaria with only HC refrigerant



2017

Introduce new generation chest freezers with HC refrigerant as standard for APAC/US markets



1980

Liebherr Appliances opened a second manufacturing facility in Lienz, Austria



Household appliance range for Europe was offered with HCrefrigerants only



Liebherr appliances acquired a manufacturing facility in Kluang, Malaysia





2008

The entire commercial-

range was available with

HC-refrigerants

2011

Introduced HC refrigerant appliances for APAC markets



2018

Target to phase out **HCFC** refrigerants from all appliances produced in all factories globally by 1st Quarter of 2018



Market adoption of HC

Interestingly, 3rd world developing countries like India & its sub-continents started adopting HC refrigerant

Purely HC

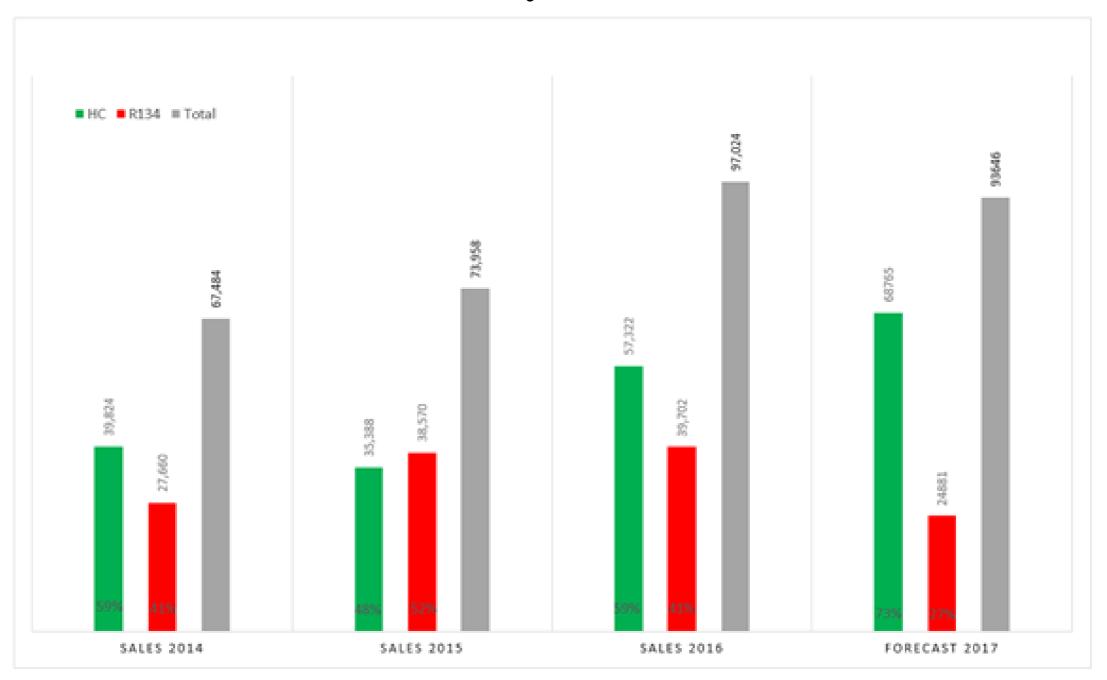
Mix of R134a & HC

R134a only





Cabinets sold in APAC last 3 years — ~330,000 units





Obstacles on HC refrigerants

- Importation regulations of propane gas in different countries
- Require certifications for appliances equipped with HC refrigerant (e.g Vietnam, Indonesia)
- Market perception of HC refrigerants as hazardous due to flammable nature
- Concerns on availability of HC refrigerants in developing countries e.g
 Laos, Cambodia, Vietnam, Indonesia, etc
- Technicians lack of technical knowledge on safely handling HC refrigerant appliances



Support on HC transition

- Comply on importation rules of countries on HC refrigerant
- Attain certifications with local representatives
- Provide information and training on handling HC refrigerants
- Ready to provide cylinders of R290 refrigerant to service-partners in markets with limited supply
- Provide local training and workshops to customers, service providers and dealers



