



solutions for europe
natural refrigerants

19 & 20 April, 2016 – Barcelona

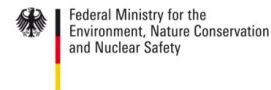


Promoting R290 Air-Conditioners
Philipp Denzinger
Atmosphere, AC Session
Barcelona, 19th April 2016

Supported by



On behalf of



of the Federal Republic of Germany

Benefits and Challenges of R290 AC

Benefits:

- Almost zero emissions (R290 has a GWP of 3)
- Higher cooling capacity and coefficient of performance than conventional refrigerants
- Energy saving benefits
- Less Intellectual Property (IP) patent right issues

Challenges:

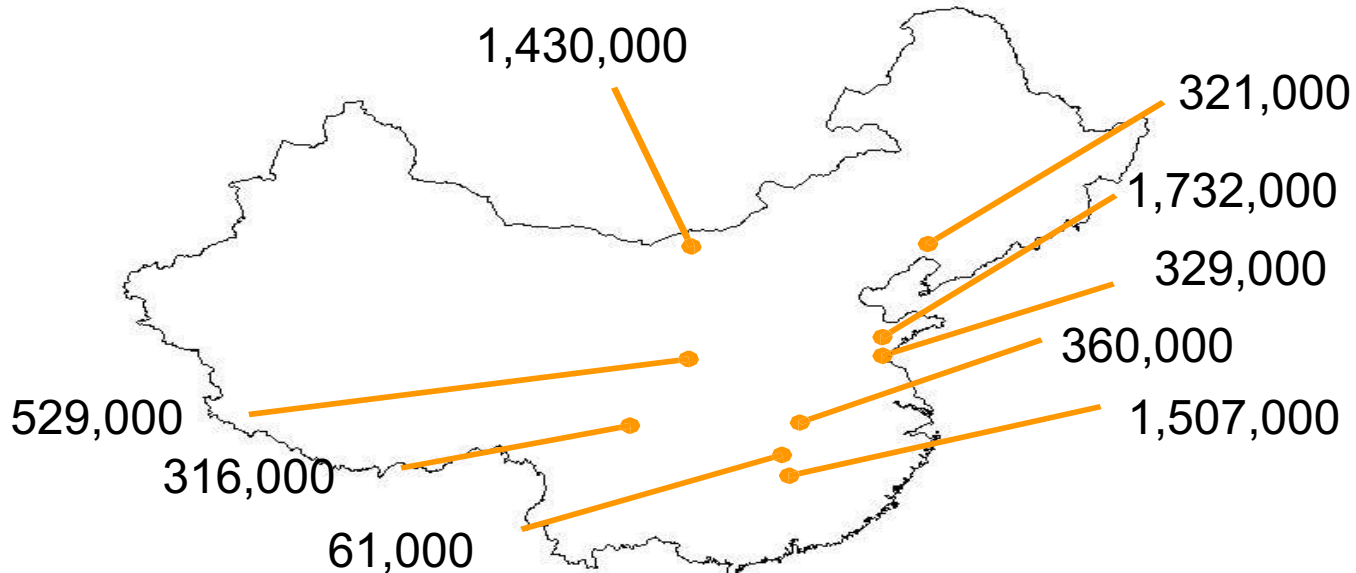
- Flammability and limited charge sizes
- Restricted standards and building codes
- Capacities of technicians and certification schemes
- Supply chains

There are solutions!

Overview R290 Split ACs

	India	China
SACs National Demand	2.27 million units (2012)	18.4 million units (2015)
R290 SAC Production	capacity 180.000 units (Godrej & Bocye, 2012)	capacity 1.8 million units (5 manufacturers, 2015)
R290 Energy Efficiency	EER 3.9	EER 3.78 (Haier)
Sales Figures	200.000 units 2016	Production ongoing!

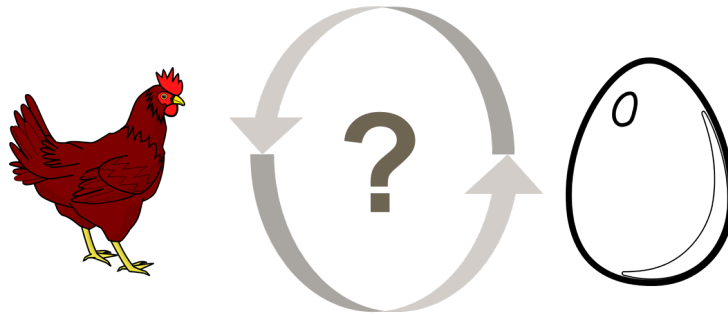
R290 production capacity for RAC in China



There will be soon 20 production lines in China

Source: MEP- FECO/CHEAA, 2013

Supply and Demand Challenge



- Mutual influence between market supply and demand
- No demand = no supply!
- No supply = no demand!
- Increasing demand with growing market penetration
- Decreasing unit costs with increasing demand → **economies of scale**

Thank you!
Questions?

Companies, Organisations, and Government Institutions aiming at a reduction of emissions from the cooling sectors. **Become a member!**

Contact:

philipp.denzinger@giz.de

GIZ Proklima International

www.giz.de/proklima

www.green-cooling-initiative.org

