



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



SUSTAINABLE DEVELOPMENT GOAL 9
INDUSTRY, INNOVATION AND INFRASTRUCTURE

Sustainable Technologies for Air Conditioning – workshop

Conversions to HC in HPWH and RAC sectors in China

Montreal, November 18, 2017

Presented on behalf of MEP/FECO/China by:
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Outline

- HPMP stage I;
- HPMP stage II; and
- Concluding remarks.





Current conversions with external funding

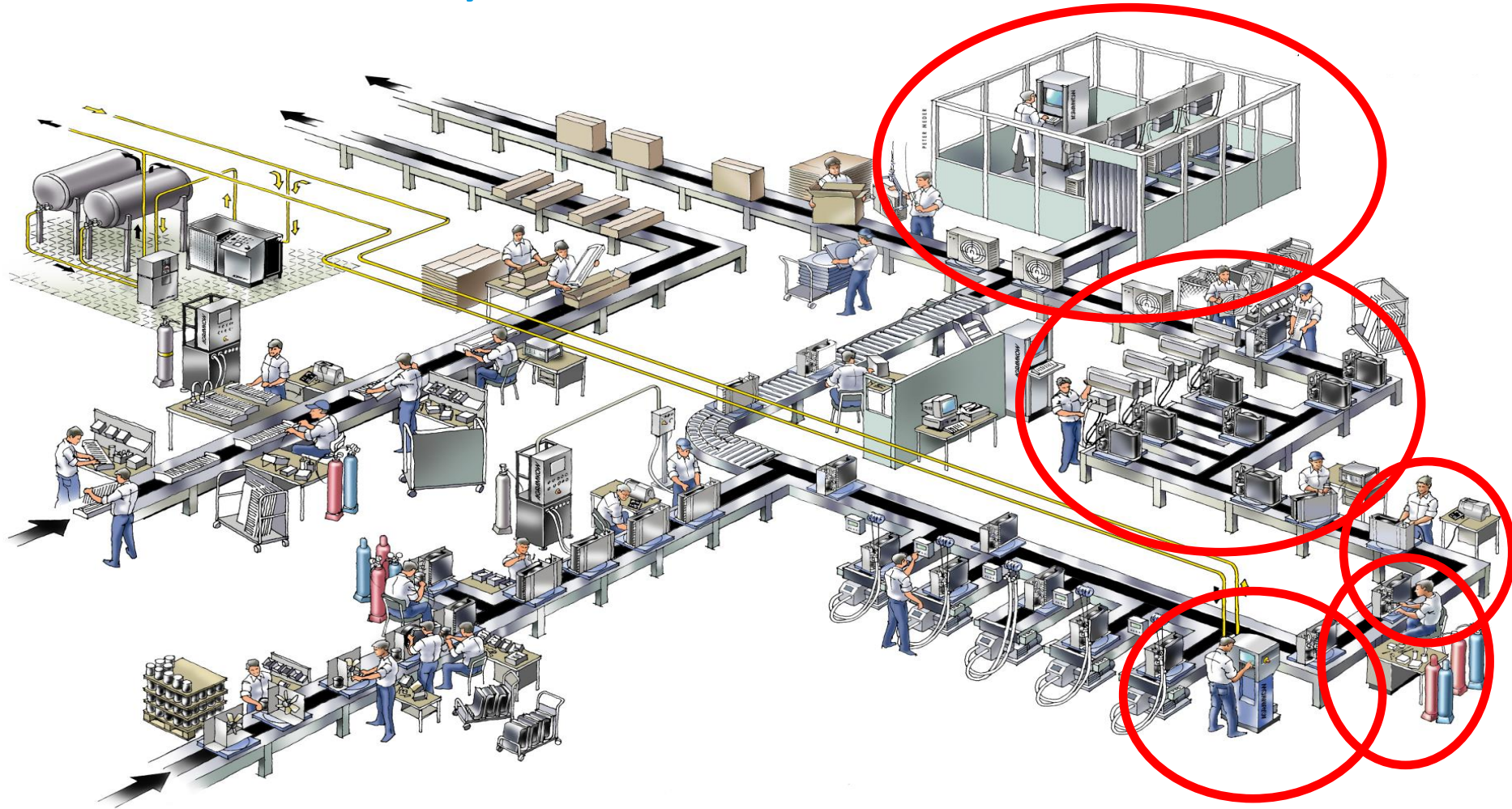
- GIZ demonstration @ Gree (split) – R-290;
- UNIDO demonstrations @ Midea (split) and GMCC (compressor) – R-290;
- HPMP stage I (2011 – 2016):
 - 18 split lines converted into R-290;
 - 8 split lines converted into R-410;
 - 3 compressor lines converted into R-290;
 - Potential annual output: 6 M R-290 split A/C's;
 - Substantial research; and
 - Awareness raising.



Barriers and actions taken

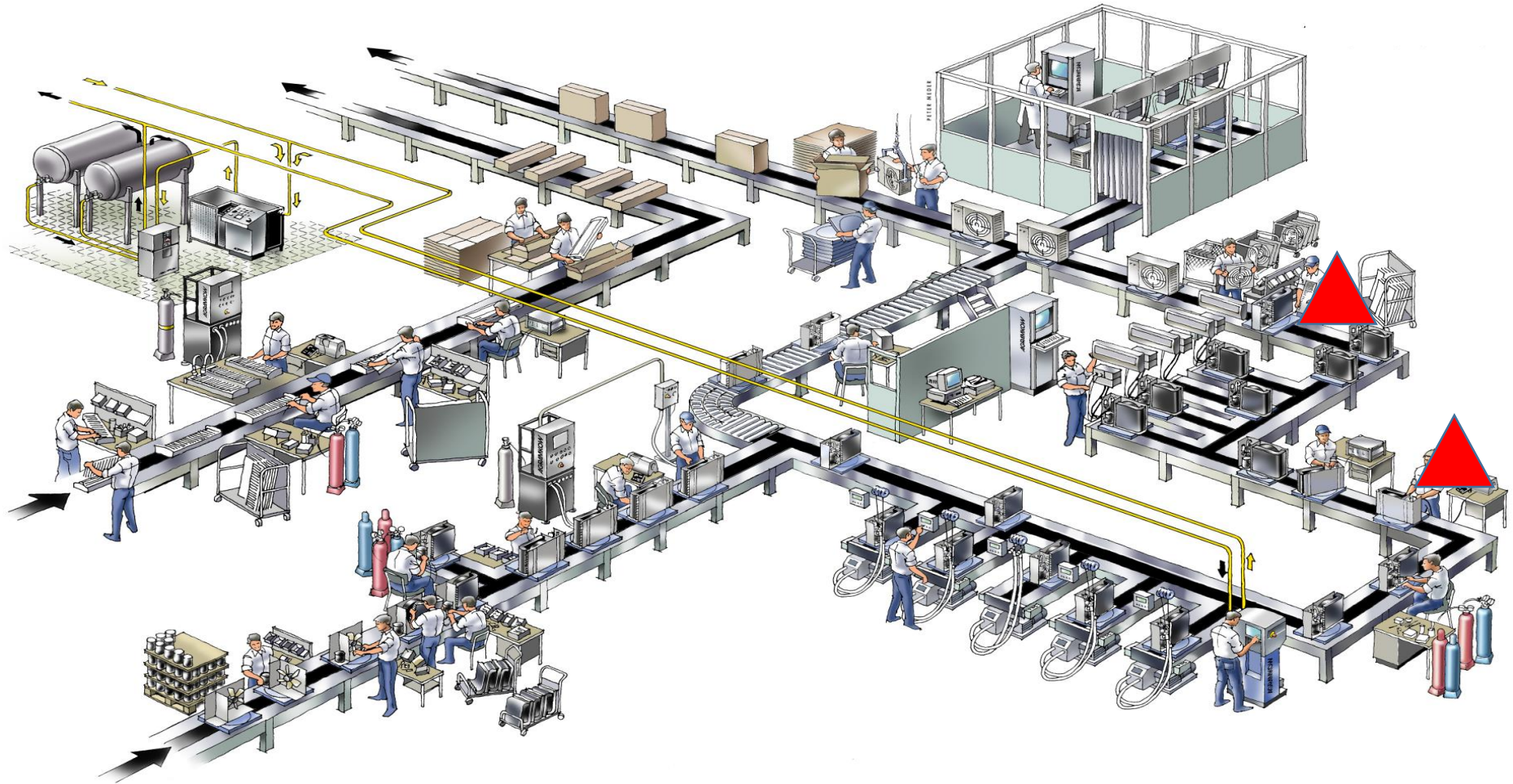
- **Restrictive standards:**
 - Active participation from Chinese industries;
 - Working group on A3 requirements:
- **Charge limitations:**
 - Research undertaken as part of HPMP; e.g. on charge distribution; maximum leakage; compressor design; HX design; etc.
 - How to handle larger A/C's; i.e. larger than 2 TR?
- **Production safety**
 - Resolved.

A/C assembly line – intervention - flammable





A/C assembly line – intervention - flammable

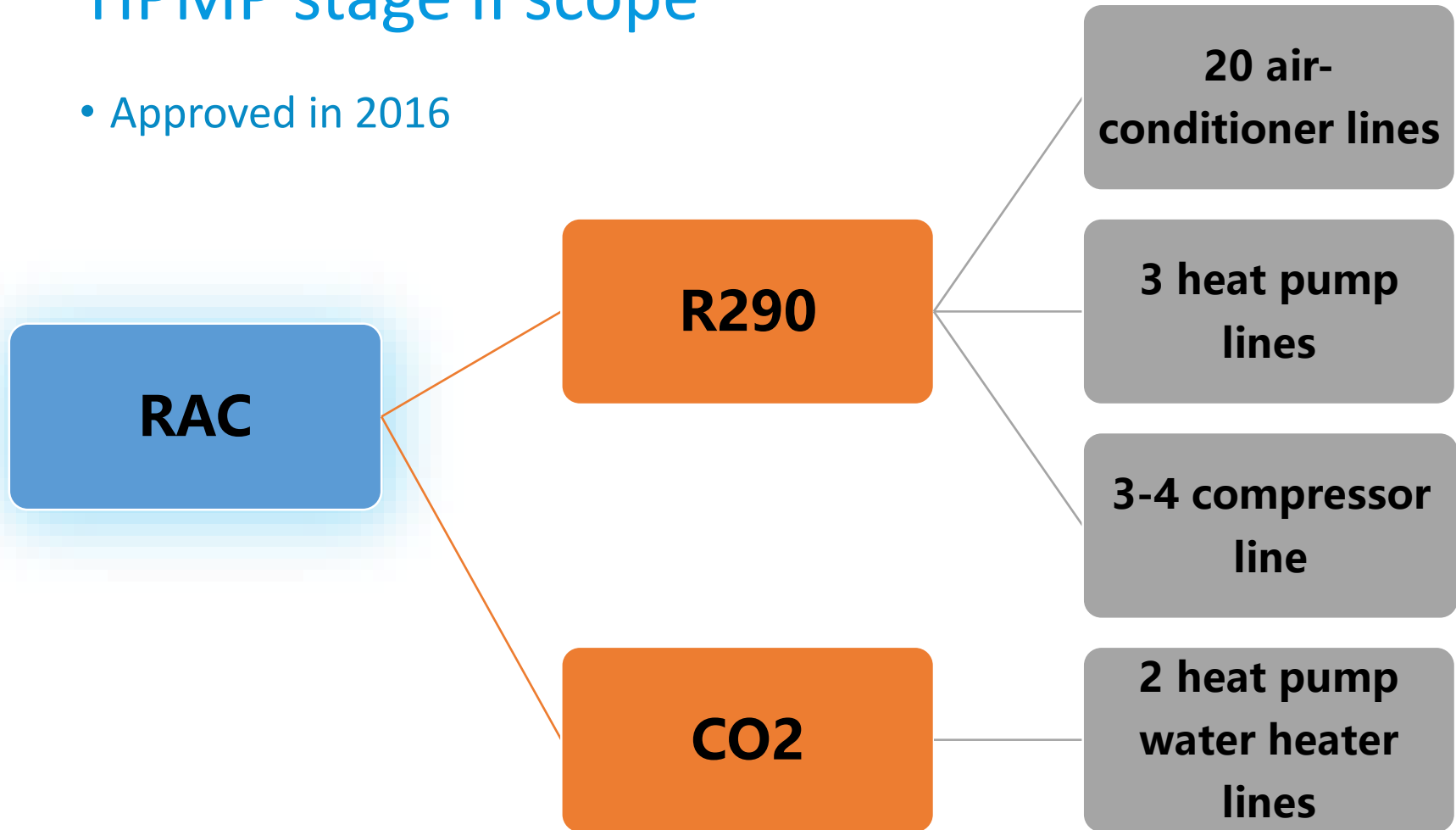






HPMP stage II scope

- Approved in 2016





Concluding remarks

- Progress globally in recognition of R-290 A/C:
 - Technically very promising;
 - Safety issues; but manageable.
- Interest from many countries in having access to R-290 products;
- Substantial know-how built-up in China on R-290;
- Ozone Day Workshop 2017 discussed barriers:
 - Incremental operating costs;
 - Sufficiently skilled service personnel; and
 - Effectiveness in installation



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Thank you for your attention

