

RAMA

REFRIGERATION & AIRCONDITIONING MANUFACTURERS ASSOCIATION

September 24, 2009

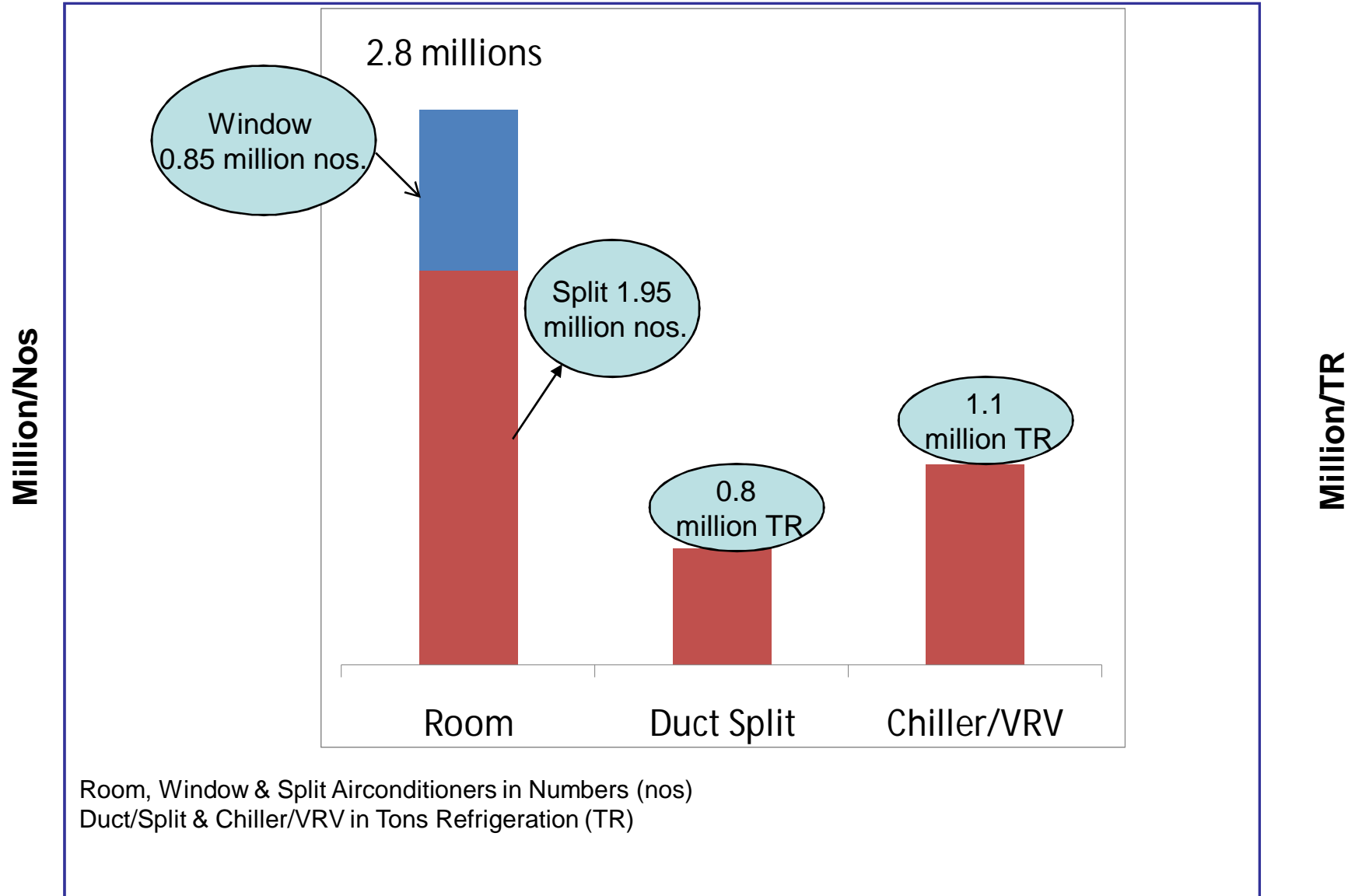
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Airconditioning & Refrigeration Industry – (1)

FY 2008 ~ 09	<u>Rs/cr</u>
AC&R industry market size	: 14,200 (US\$ 3.0 B)
❖ Airconditioning systems	: 11,000
❖ Commercial refrigeration	: 2,000
❖ AC&R servicing	: 1,200
Air conditioning Systems:	
❖ Room Air-conditioners	: 5,100
❖ Central Plants	: 3,200
❖ Duct/package	: 1,800
❖ VRF systems	: 400
❖ Precision/Telecom	: 500

Airconditioning & Refrigeration Industry –(2)



Air conditioning & Refrigeration Industry – (3)

Air conditioning Systems

➤ Growth during last 5 years : **over 20%**

Present penetration level is barely 3%

>Expected growth during medium term (3~5 years) :
:15~20%

Segment-wise growth rate trend:

- ❖ Room air-conditioners :20%
- ❖ VRF systems :40%
- ❖ Chillers :10%
- ❖ Ducted/package :10%
- ❖ Others (precision/telecom) : 25~30%

Airconditioning & Refrigeration Industry – (4)

Commercial Refrigeration Sector

- Growth during last 5 years : **~10%**

- Expected growth during medium term (3~5 years) :
: **10~12%**

- Segment-wise growth rate trend:
 - ❖ Water Dispensers :20%
 - ❖ Storage Water Coolers :05%
 - ❖ Display/storage equipment :15%

Present Technology Trends

- Focus on energy efficient technologies:
 - a) Use of Rotary, Scroll Compressors, Inverter Technology & precision controls for regulating temperature/humidity.
 - Very quiet, energy efficient and highly sensitive
 - Replaced reciprocating compressor in room air-conditioners
 - b) VRF (Variable Refrigerant Flow) air-conditioning systems for commercial use with HFC refrigerants.
 - c) Large chillers with HFC refrigerants. New manufacturing capacities for chillers with HFC refrigerants.
- Benefits to users:
 - i) Lower emission of HCFC 22 due to improved manufacturing systems
 - ii) Higher energy efficiency through investment in product upgrades
 - iii) Improved product reliability & value added features
 - vi) Economical solutions through new technology options

Industry's Current status

Dependence on HCFC 22 refrigerant:

- a) Room air-conditioners, largest segment: almost 100% use of HCFC 22.
- b) Ducted & Package systems: Dominant use of HCFC 22
- c) Commercial refrigeration systems: Dominant use of HCFC 22
- d) Central Air conditioning: Dominant use in smaller systems

Industry, including vendors, have made large investment for capacity expansion considering availability without controls till 2015 as per original HCFC phase out plan.

Emerging Scenario

- ✿ RAMA extends full support for Implementation of “Accelerated Phase-out of HCFCs.” and shall actively participate in HPMP
- ✚ Industry expects challenges as enumerated in the following slides and looks forward to Government’s guidance & support to overcome the same while achieving the projected growth.

CHALLENGES (1)

Concerns on switchover to alternate refrigerant:

1. Research & Development on new products including Costs associated with Technology transfer fees.
2. New investments for refurbishing of manufacturing/ testing facilities
3. Cost increases of raw materials/components such as alternate refrigerant ,compressor, heat exchangers, controls, drier, etc.
4. Heavy dependence on 100% import of refrigerant, compressors, copper tubes, controls, etc.

CHALLENGES (2)

Support required by the Industry

1. Testing & product development facilities. & Research need to be funded.
2. Technology Sourcing: Lump sum fee & royalty payments.
3. Investments on refurbishing or setting up of new manufacturing.

Immediate Clarification required by the Industry

1. How govt. will control / monitor the consumption
2. Need more clarification on how the funds will be disbursed to the industry.

Alternate Technologies

1. As an alternative to HCFCs (R22), HFCs (R410a & R407c) are the only viable refrigerants (TEAP report , May'09).
2. Industry shall be investing in Research / development, manufacturing equipments, components & processes, for which adequate funding should be made available under HPMP.
3. There is also a move to regulate & phase down consumption of HFC's & Decision has been made to identify key areas for conceptual discussions.(Ref:29th meeting of the OEWG,15-18th July'09)
4. In such an eventuality industry should be eligible for second funding as new investments will be required for changing over to low GWP refrigerants.

RAMA

Thanks!!!