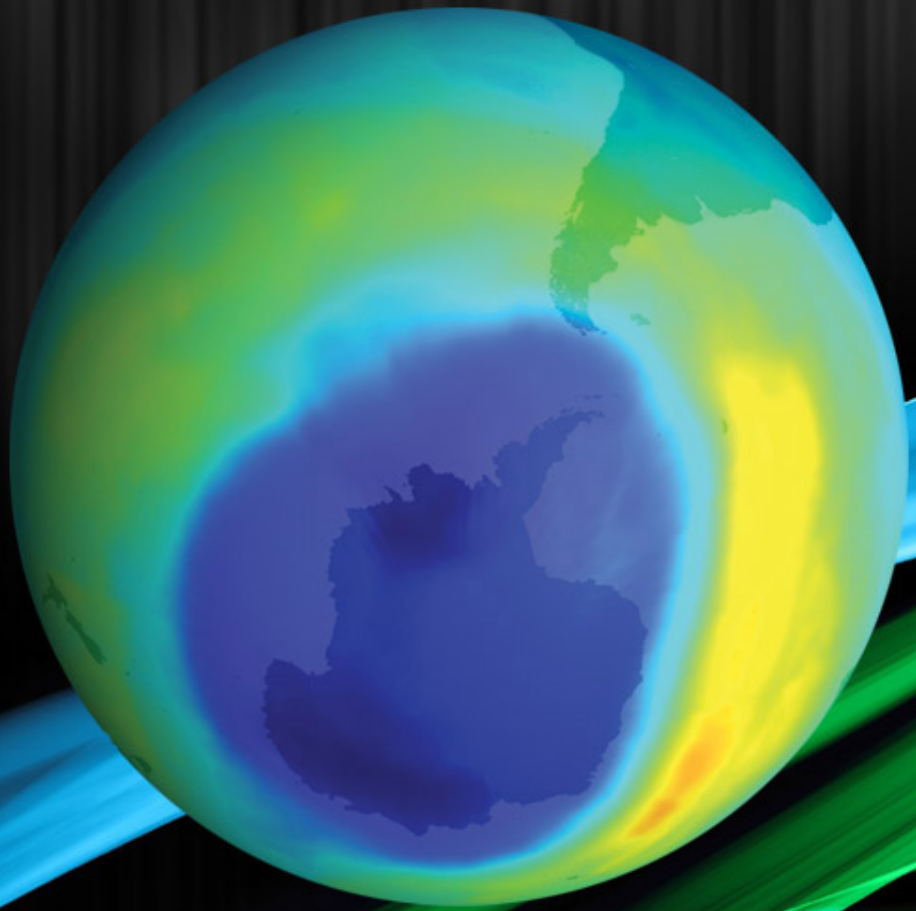
Rethinking the global regime for HFC phase-down

— Chandra Bhushan



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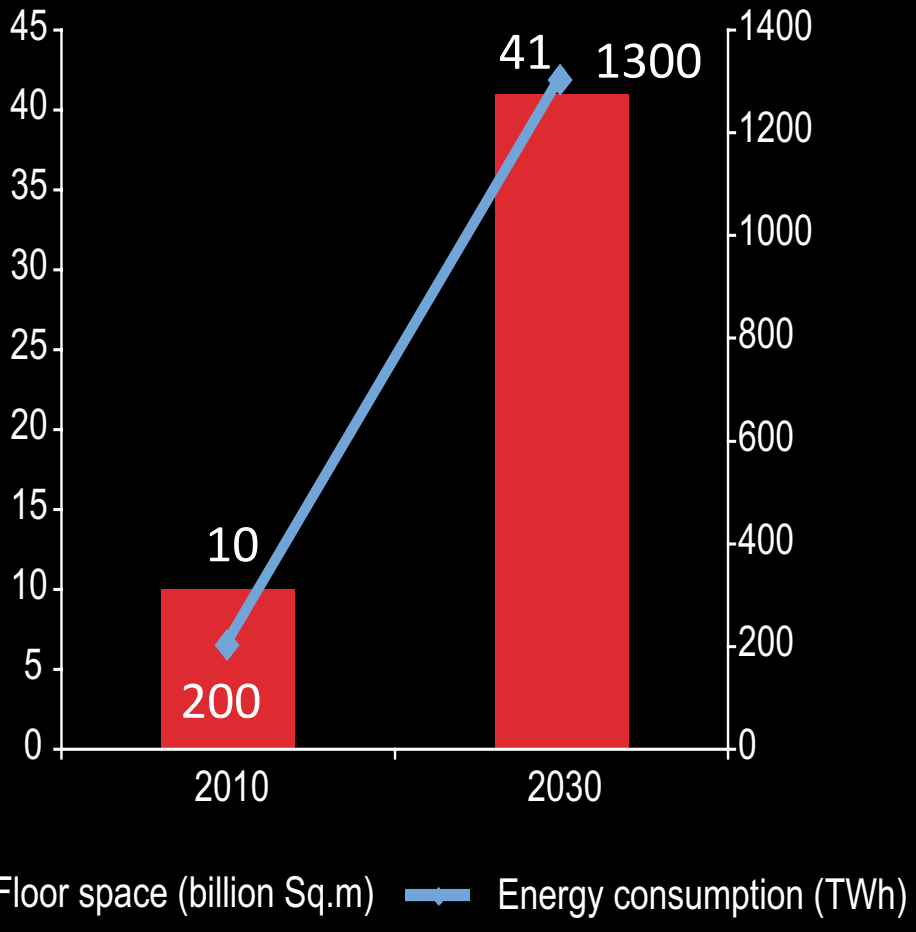
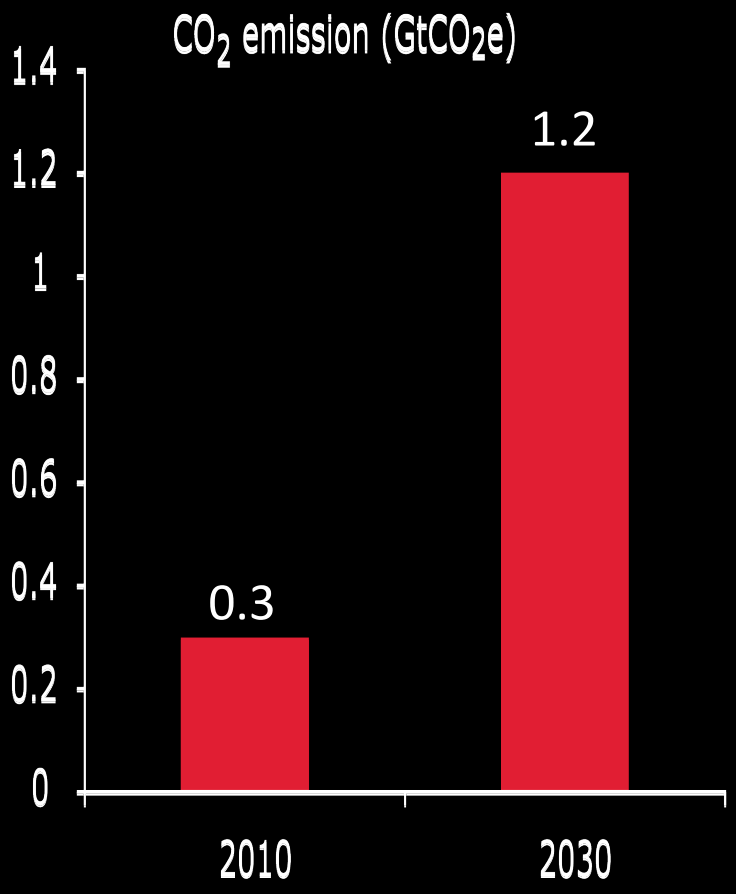
Connecting the dots- the Indian case

Indian building sector





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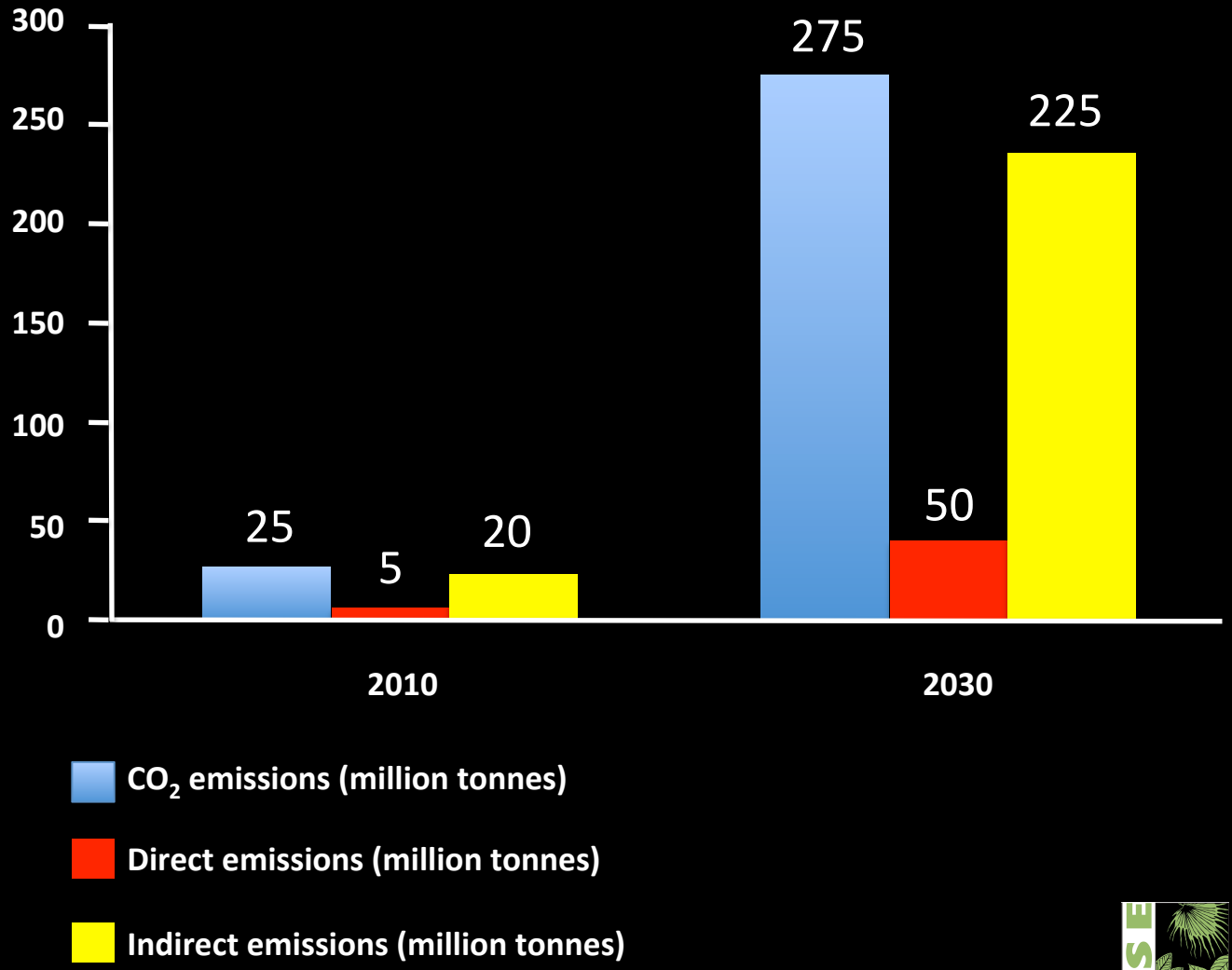
Connecting the dots- the Indian case

Indian domestic RAC sector



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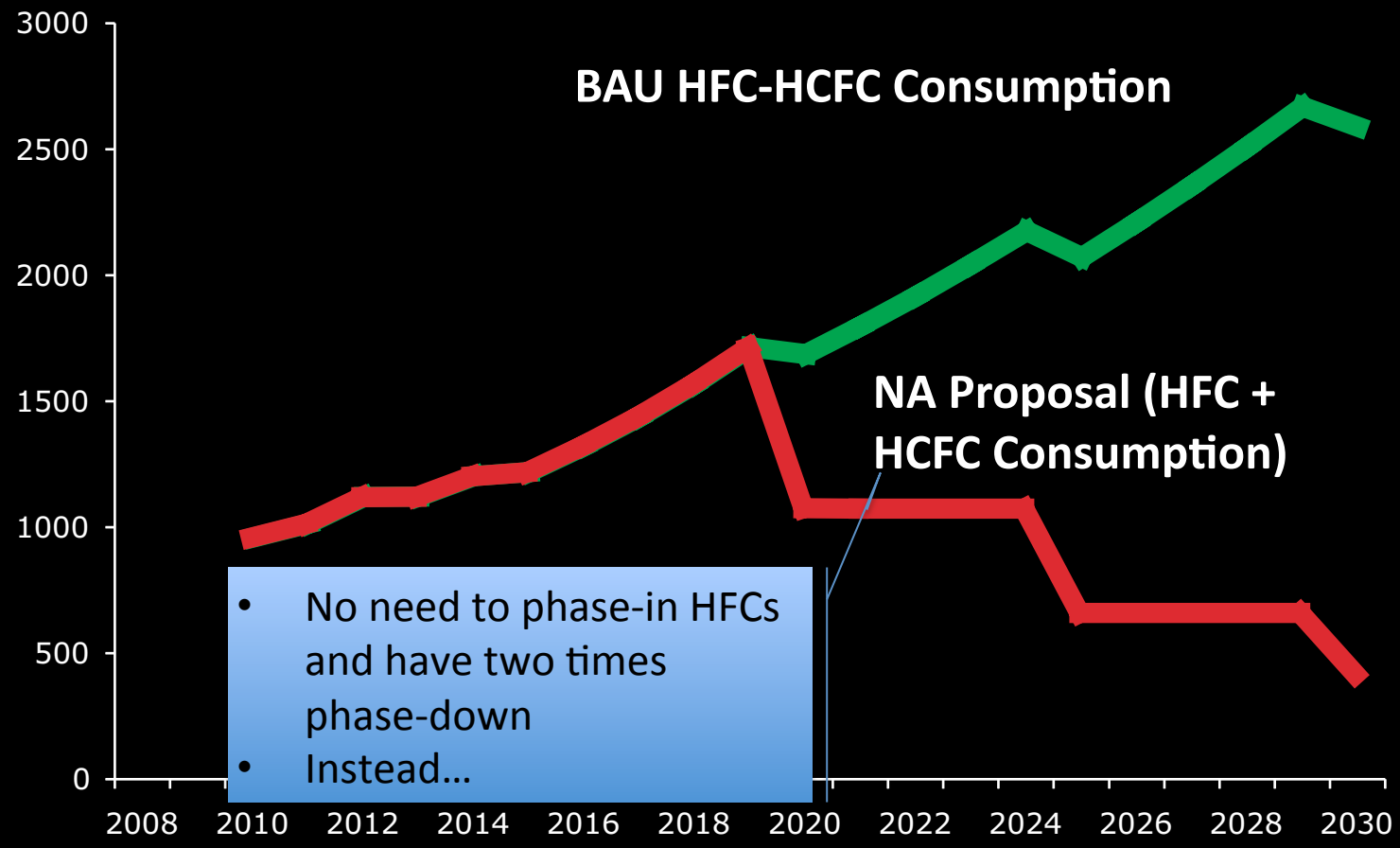
Connecting the dots

- 25% of emissions in buildings from domestic RAC sector alone
- But only 20% will be direct HFCs emissions, 80% from energy use
- **Clear pointer:** Efforts to address HFCs MUST address energy efficiency, alternative not-in-kind technologies along with reduction in HFC emissions
- Avoids duplication of efforts between UNFCCC and MP: energy efficiency is one of the focus areas being considered under pre-2020 ambition in UNFCCC → Can't address gas at MP and energy efficiency at UNFCCC

The HFC Deal – A5 countries



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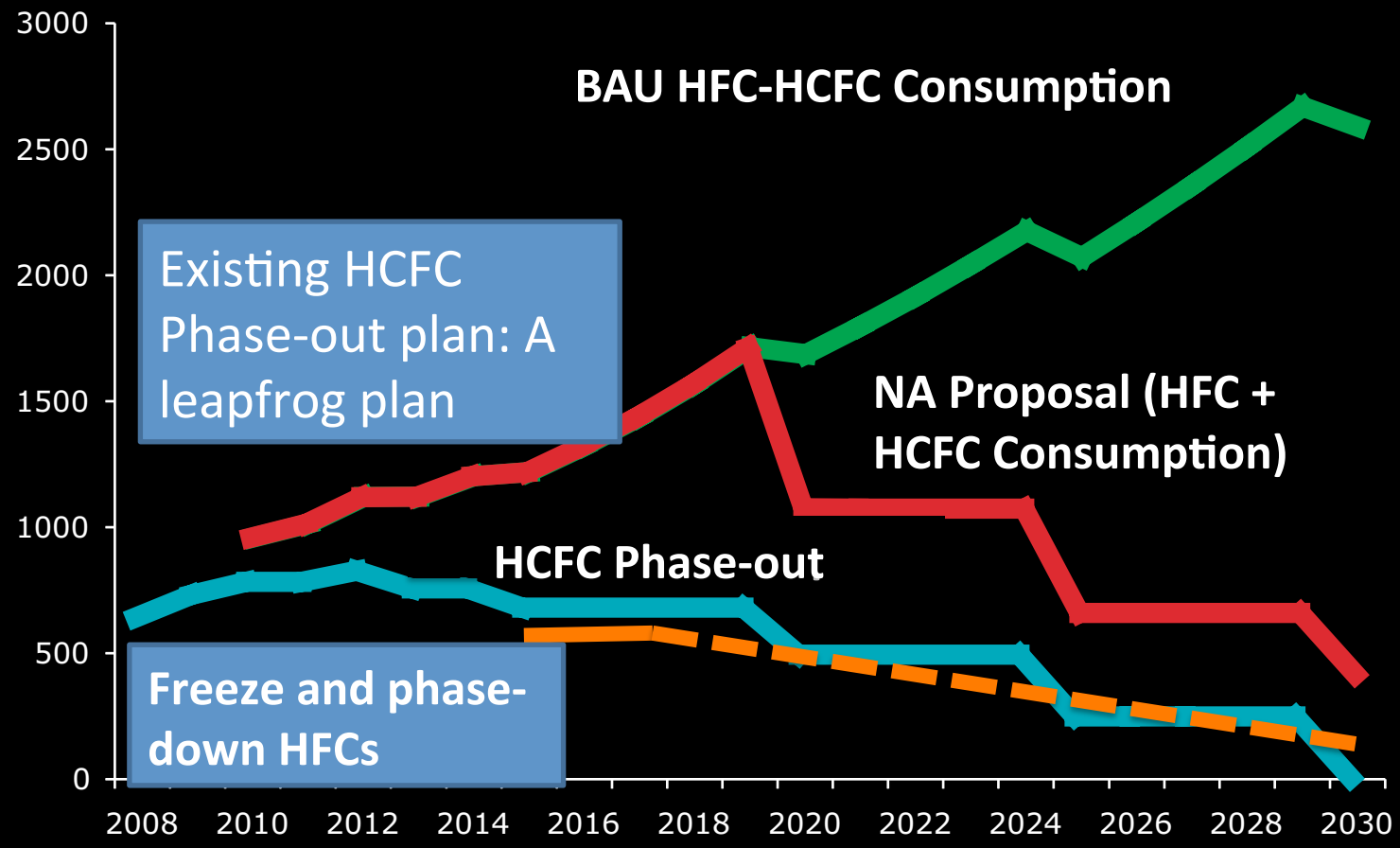
The leapfrog Deal – A5 countries



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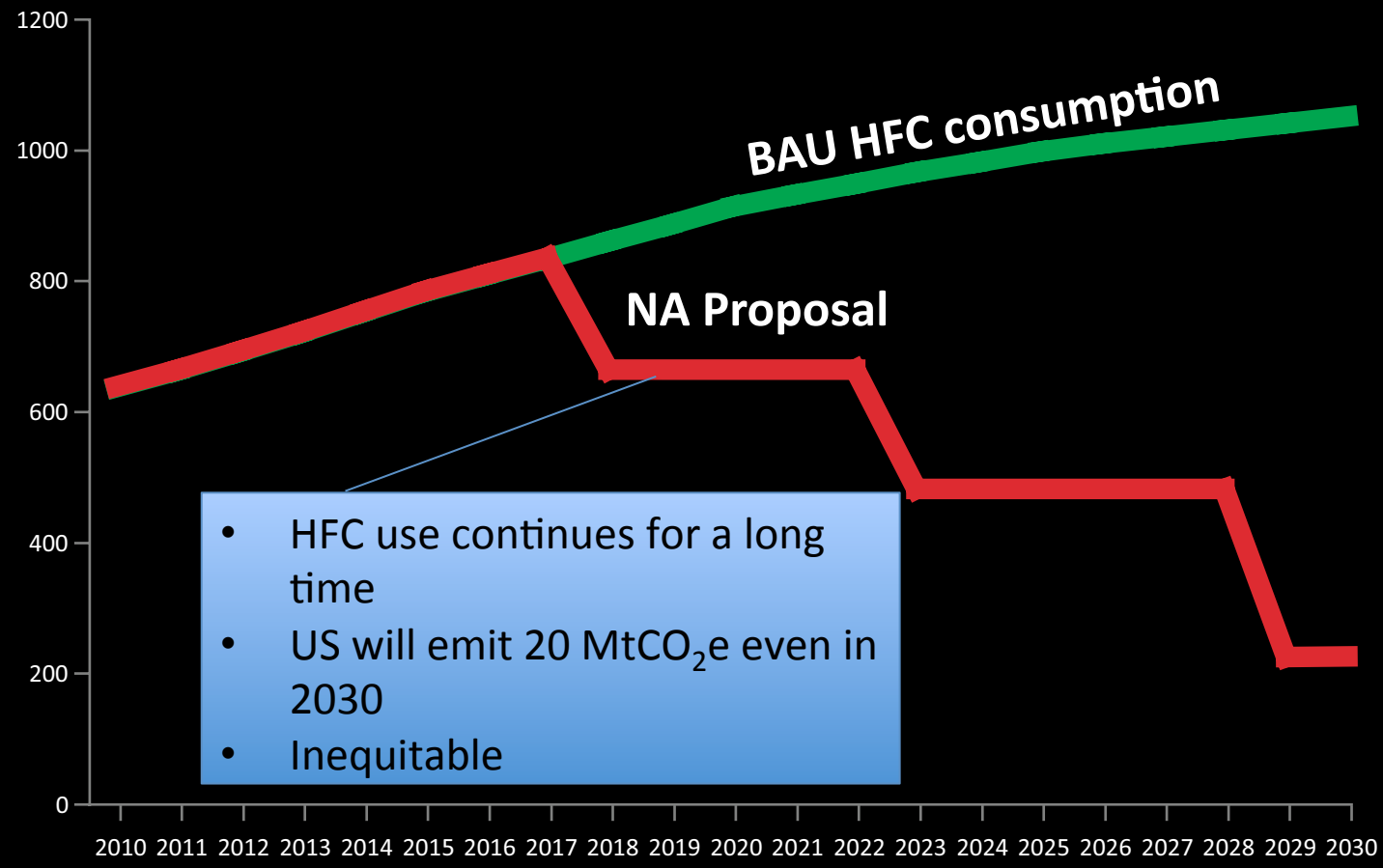
The leapfrog Deal – A5 countries

- HCFC phase-down plan to become the leapfrog plan
- Article-5 countries agree to freeze HFCs at **X year levels**
- Article-5 countries to negotiate HFC phase-down schedule individually
- Time limited exemption of SOME sectors from HCFC phase out where non-HFC alternatives are not available.
- Simultaneous phase down of HCFC and freeze in HFC galvanizes markets and R&D towards finding non-HFC and other not-in-kind technologies

The HFC Deal – A2 countries



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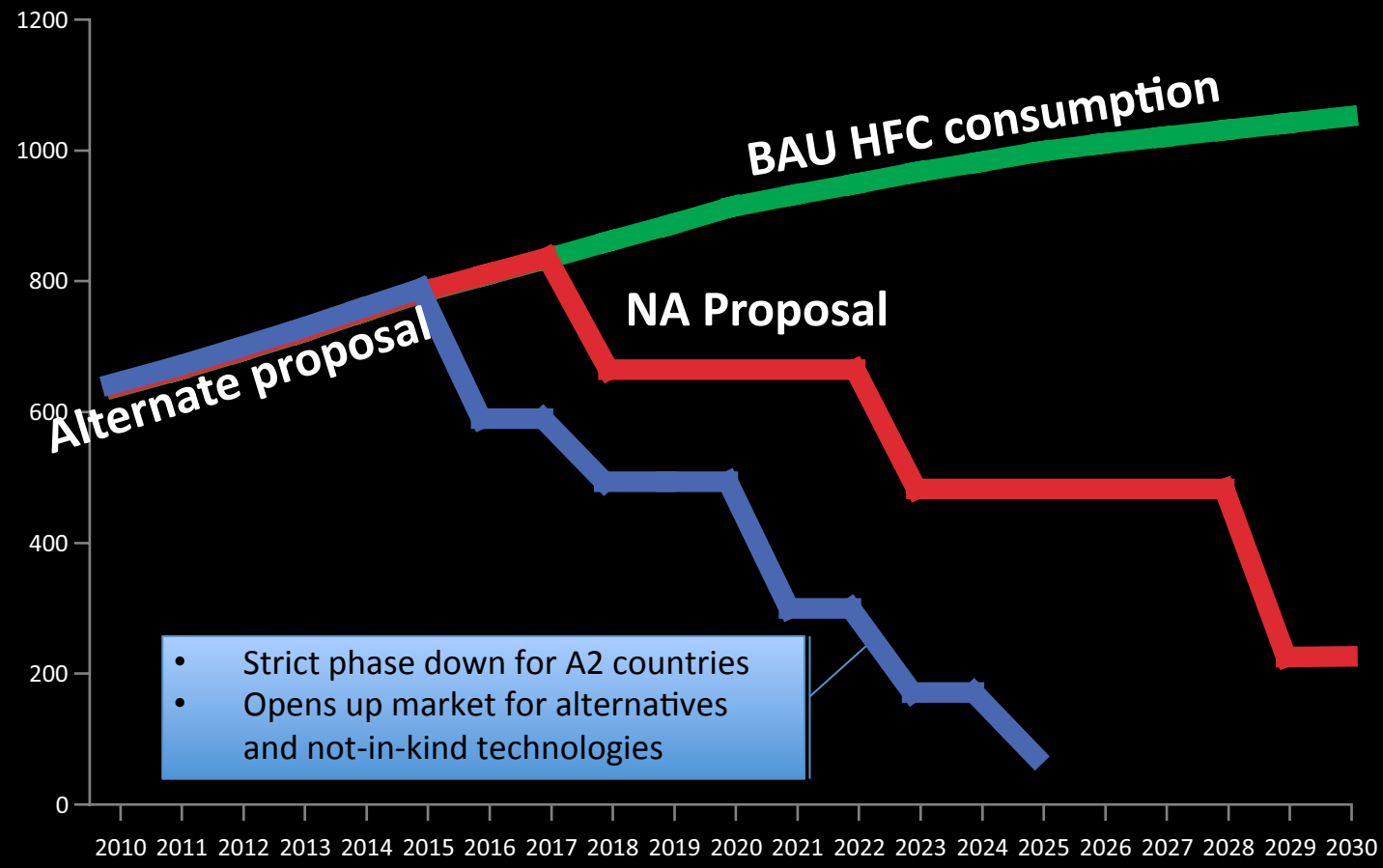
The Leadership Deal – A2 countries



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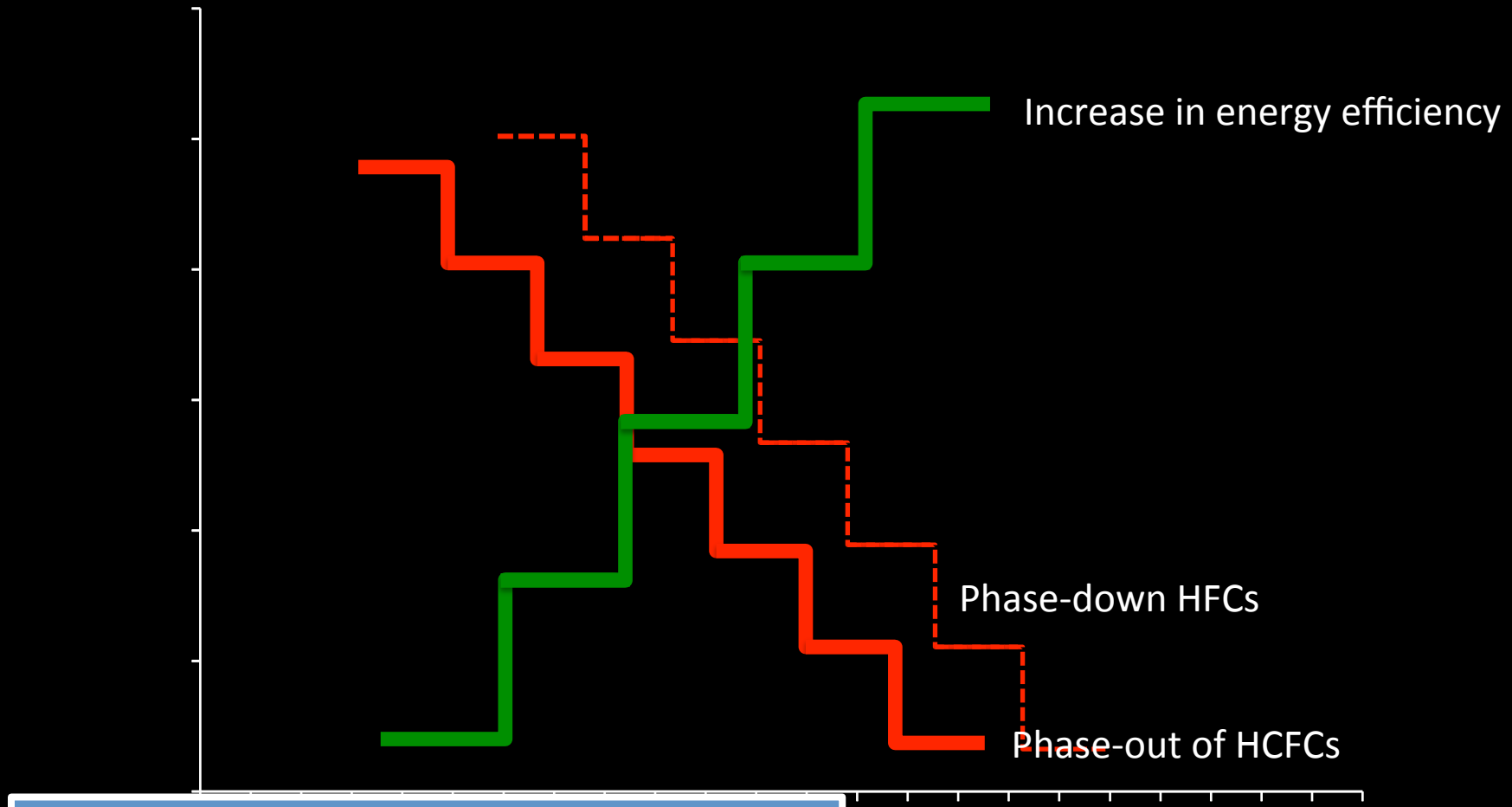
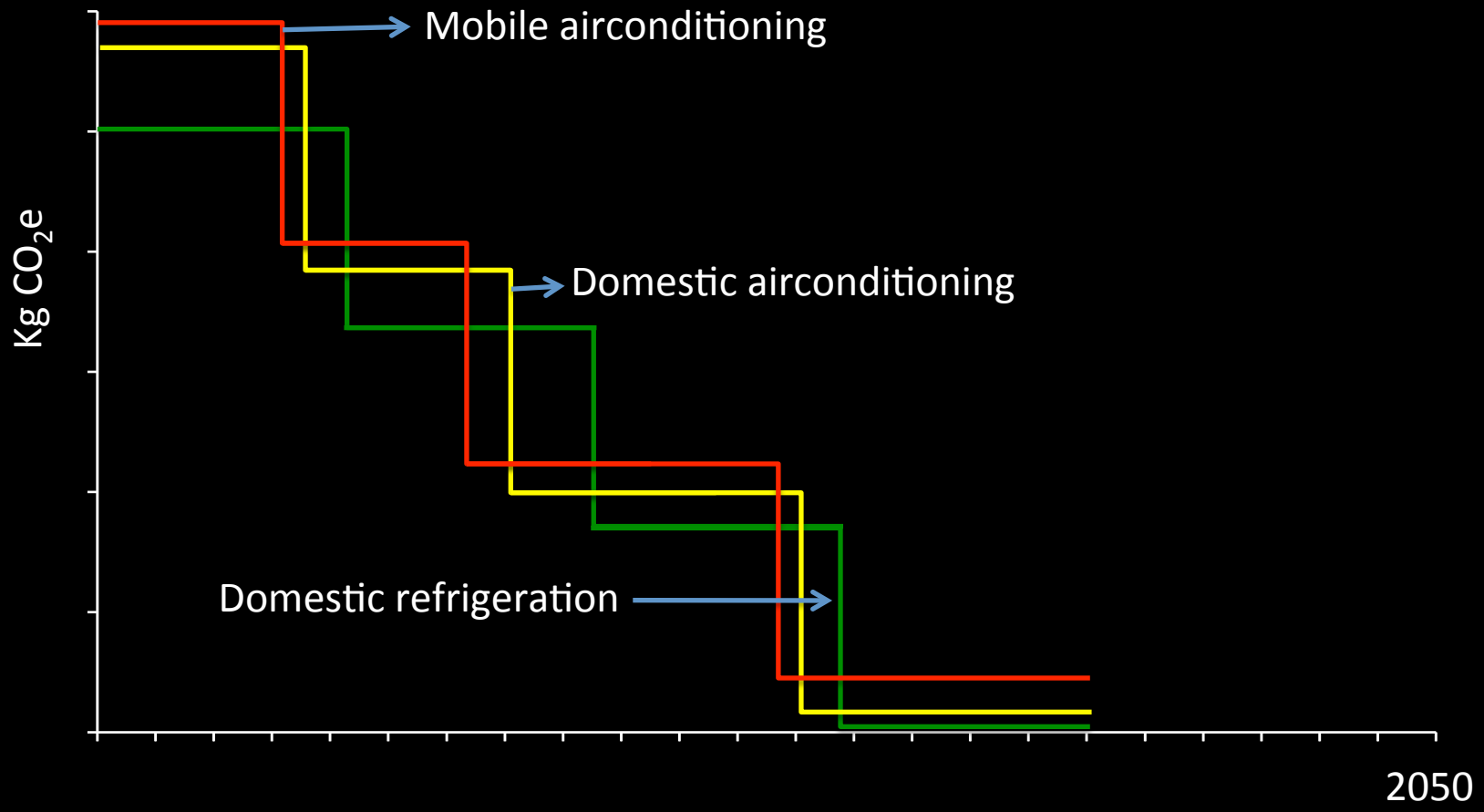
A complete deal: HFC+ Deal



HFC phase down a means to achieve overall GHG emission reductions and not an end in itself

HFC+ Deal – Sector Specific LCCP benchmarks as guiding principle



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Getting serious about Finance, Patents, Technology transfer and RD&D

- In the past, Montreal Protocol has paid for technology transfer and patents, but has NOT facilitated technology transfer of the scale required
- Investing in local R&D was discouraged and technology demonstration was not of the scale required
- **Both essential for the leapfrog deal**
- **Reform MLF:** Funding criteria and procedures to facilitate leapfrog and transition to low/zero carbon technologies
- Funding guideline will have to incorporate energy efficiency and technology improvements
- Patents will have to be provided for all - process, usage and application

Getting serious about Finance, Patents, Technology transfer and RD&D

- Funding requirements will be higher. How much ????
- An additional USD 3.5 billion a year needs to be made available for research, development and demonstration (RD&D) by 2030 to mainstream low/zero carbon technologies in Heating and Cooling equipment's in building sector (IEA, 2011).
- RD&D not just for gas-based alternatives but also for not-in-kind technologies such as solar cooling, district heating & cooling, heat pumps, absorption cooling technology etc.

Saying YES to precautionary principle

- Breakdown products, especially Trifluoroacetic acid (TFA), a persistent pollutant is an issue. It is phytotoxic and some studies find it to be toxic to aquatic ecosystems as well.
- While environment effects are considered negligible currently, but alternatives such as HFO1234yf are expected to contribute 5 times as much. Also, the use of HFOs will be far higher
- Need to study overall impact of growth in HFOs on TFA levels an other potential environmental impacts **especially in hot and humid conditions.**
- Need to avoid the situation where we will have to create a global convention 20 years from now to address increasing levels of TFA