

# THE IMPORTANCE OF AMBITION IN THE 2016 HFC PHASE-DOWN AGREEMENT

The stakes are high as the Montreal Protocol undertakes a series of meetings to agree on a global phase-down of hydrofluorocarbons (HFCs).

Following the adoption of the Dubai Pathway on HFCs,<sup>1</sup> Parties are set to negotiate and adopt an HFC amendment to the Montreal Protocol in 2016, the first major test of the Paris Climate Agreement and the global commitment “to pursue efforts to limit the [average global] temperature increase to 1.5° Celsius.” The level of climate ambition in the agreed HFC phase-down will be crucial in determining whether or not Montreal Protocol passes the test.

There is no substitute for an ambitious HFC phase-down for both non-Article 5 (non-A5, developed) and Article 5 (A5, developing) Parties. It will not only achieve significant short-term climate benefits but also ensure long-term sustained reductions in HFC consumption. And, importantly, it is significantly less expensive as it will maximise leapfrogging of HFCs altogether and incentivise transitions to final low-GWP solutions rather than proceeding along a slow and costly progression from high-GWP to medium-GWP to lower-GWP HFCs. With as few as five years left at current global emissions levels before the option to limit warming to 1.5°C is lost, there has never been a more critical time for the Montreal Protocol to take the most ambitious path forward.<sup>2</sup>

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## NON-A5 PARTIES

Ambition must start with non-A5 Parties for several reasons:

- **Commercialisation of Low-GWP Technologies**

Non-A5 Parties must move quickly and decisively to ensure rapid development, increased scale of production and higher market penetration of low-GWP technologies for future transfer to A5 Parties. Such action also promotes innovation in the handful of subsectors where alternatives are not yet readily available. Without ambition in non-A5 Parties setting the stage, it is unreasonable to expect A5 Parties to be ambitious in their own right, which would be a particularly unfortunate outcome since A5 Parties, who are currently phasing out hydrochlorofluorocarbons (HCFCs), have a time-limited opportunity to leapfrog HFCs altogether and transition from HCFCs to climate-friendly alternatives.

- **Lowering Costs of the Phase-Down**

Ambition for non-A5 Parties lowers the costs of low-GWP technologies, reducing the amount of Multilateral Fund (MLF) funding required from non-A5 Parties and lowering the costs for A5 Parties.

- **Common but Differentiated Responsibilities**

Given the level of ambition being demanded of A5 Parties, it is only appropriate that non-A5 Parties match and exceed that level of ambition themselves.

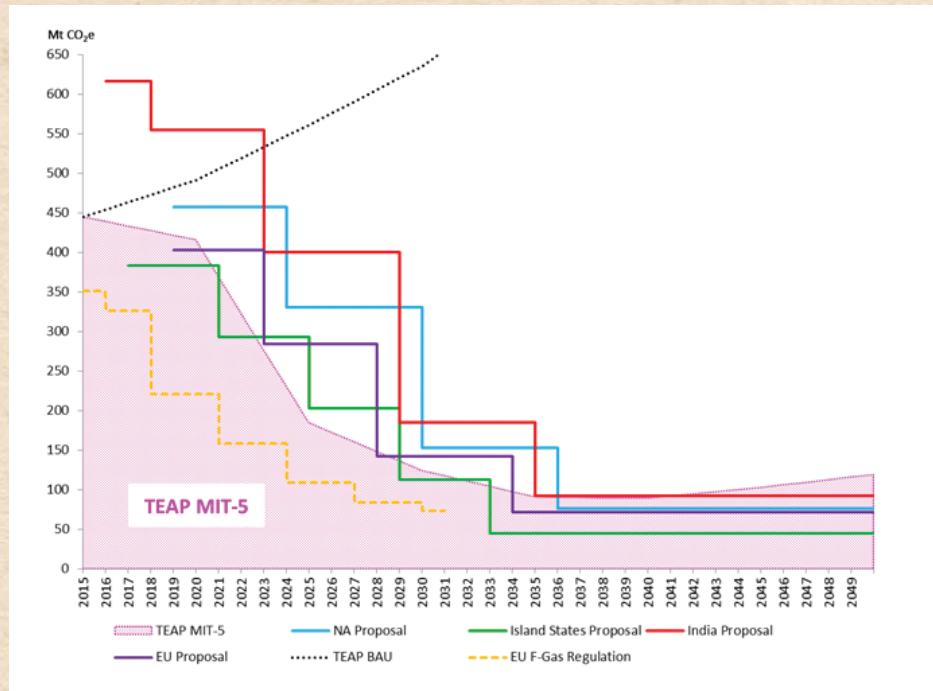
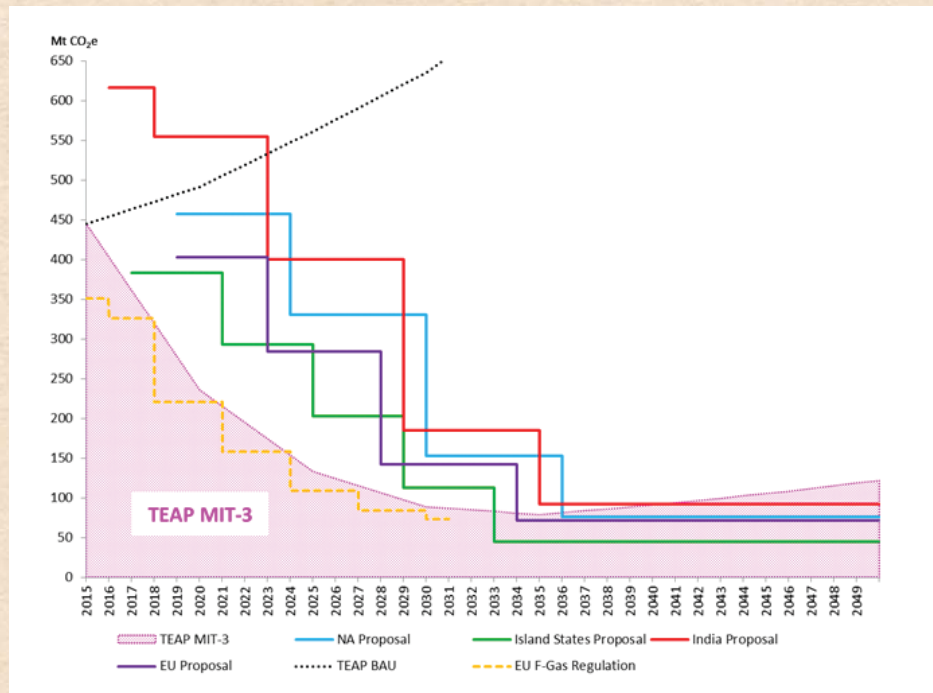
The European Union (EU) continues to lead in this regard; domestically, the EU has adopted the EU F-Gas Regulation, which is more ambitious than all of the amendment proposals and both mitigation scenarios for non-A5 Parties outlined by the Technology and Economic Assessment Panel (TEAP). Other non-A5 Parties, such as the United States and Australia, have concrete domestic proposals that commit their countries to HFC reductions in the near-term that are in line with the most ambitious amendment proposals.<sup>3</sup>





**FIGURE 1:**  
Comparison of HFC amendment proposals for non-A5 Parties with MIT-3 and MIT-5

“MIT-5 is incompatible with ambition for Non-A5 Parties.”



A comparison with the TEAP mitigation scenarios is illustrative of the ambition being left on the table by non-A5 Parties. The first TEAP scenario, the more ambitious MIT-3, anticipates completing manufacturing conversion by 2020 with various restrictions on the GWP of refrigerants in new equipment from 2020 onward.

The second TEAP scenario, the less ambitious MIT-5, anticipates completing manufacturing conversion by 2025 with various restrictions on the GWP of refrigerants in new equipment from 2025 onward. Figure 1 charts MIT-3 and MIT-5 against the HFC amendment proposals for non-A5 Parties.<sup>4</sup>

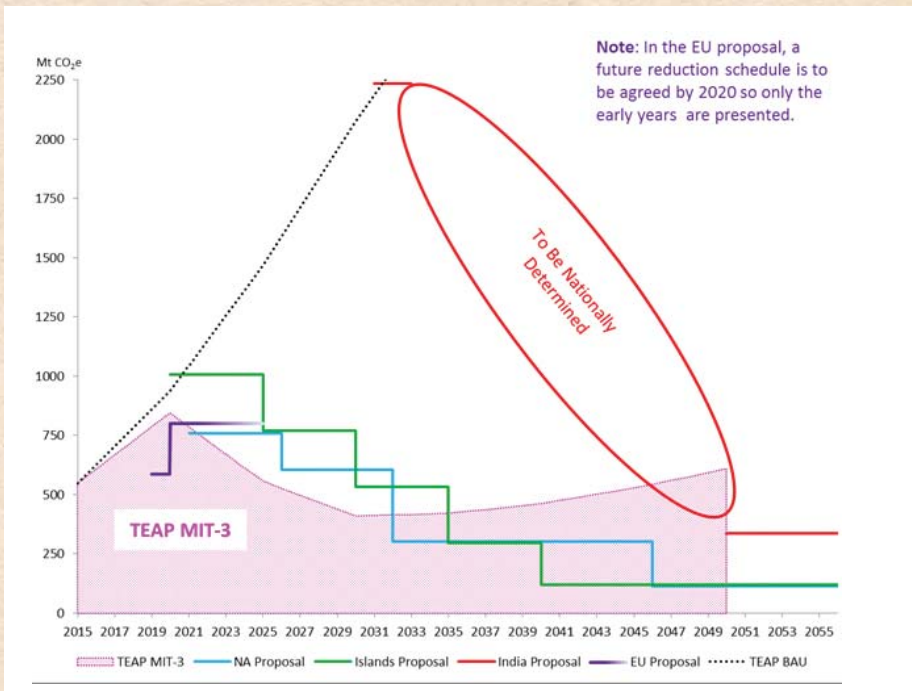
● **MIT-3 is Feasible for Non-A5 Parties**

A review of the assumptions underlying MIT-3 and the measures in the EU F-Gas Regulation shows that MIT-3 is not only feasible but that it can be exceeded through simple measures which address the servicing practices of existing HFC-based commercial and industrial refrigeration equipment.

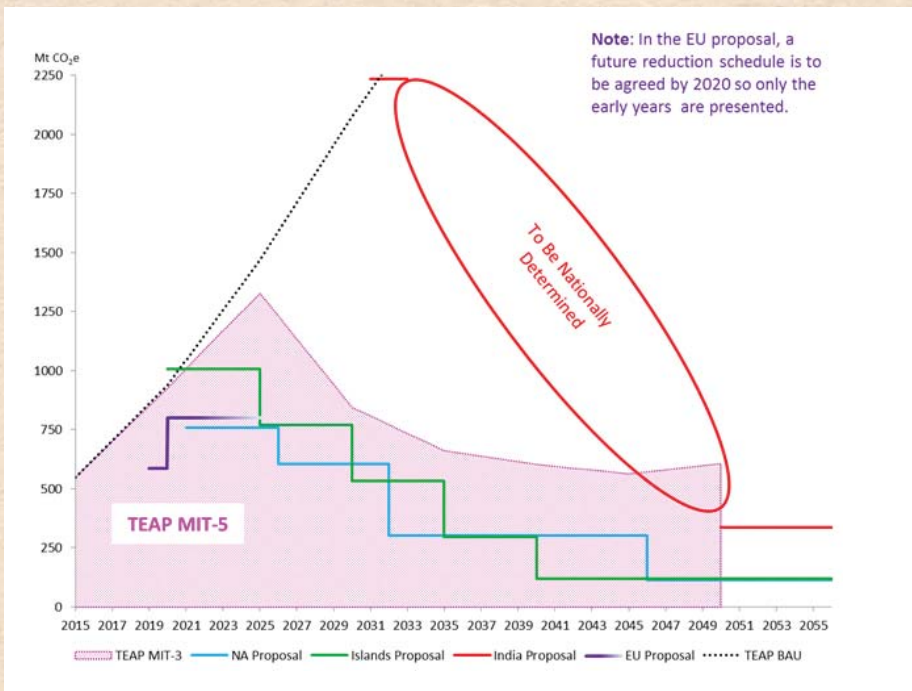
● **MIT-5 is Incompatible with Ambition**

Proposals submitted by non-A5 Parties set out non-A5 phase-down schedules which are less ambitious than MIT-5, whereas those same proposals set out A5 schedules more ambitious than both MIT-5 and MIT-3, as shown in Figures 1 and 2. Non-A5 Parties must match the ambition they are seeking of A5 Parties, meaning all Parties should be required to achieve MIT-3.





**FIGURE 2:**  
Comparison of HFC amendment proposals for A5 Parties with MIT-3 and MIT-5



“The HFC phase-down becomes much more expensive for all Parties if action is delayed.”

## A5 PARTIES

Ambition must also be demonstrated by A5 Parties. This is particularly important because most of the climate benefits of an HFC phase-down will be achieved by preventing growth in HFC consumption in developing countries. To capture these climate benefits, an ambitious HFC phase-down schedule in non-A5 Parties is required, one that commercialises low-GWP technologies and lowers the costs of early adoption of these technologies in A5 Parties. A5 Parties must also undertake early enabling activities, funded through the MLF, to allow for the introduction of low-GWP technologies into their markets, such as capacity-building, development of standards for flammable refrigerants and improved training and certification programmes.

TEAP has also outlined two achievable mitigation scenarios for A5 Parties. The first TEAP scenario, the more ambitious MIT-3, anticipates beginning manufacturing conversion in 2020 with restrictions on the GWP of refrigerants in new equipment from 2020 onward.

The second TEAP scenario, the less ambitious MIT-5, anticipates beginning manufacturing conversion in 2025 with restrictions on the GWP of refrigerants in new equipment from 2025 onward. Figure 2 charts MIT-3 and MIT-5 against the HFC amendment proposals for A5 Parties under discussion.<sup>5</sup>



Ambition in non-A5 Parties can and must be matched by A5 Parties for several reasons:

#### ● Cost-Effective MLF Funding

Given the expected significant increase in HFC consumption in A5 Parties – a combination of economic growth and the fact that the HCFC phase-out is underway – the HFC phase-down becomes much more expensive for all Parties if action is delayed. TEAP estimates the difference between MIT-3 and MIT-5, which represents just a five-year delay, will cost non-A5 Parties an additional \$1.22 billion through 2030 in terms of MLF funding (see Figure 3).<sup>6</sup> Moreover, since incremental costs do not cover full costs associated with a transition from one technology to another, delayed action has long-term financial implications for A5 Parties as well.

**FIGURE 3:**  
TEAP estimates of incremental costs of MIT-3 and MIT-5 to 2030.<sup>7</sup>

TYPE	INCREMENTAL COSTS (\$ millions through 2030)		
	MIT-3	MIT-5	Difference
Manufacturing Conversion	2,300 ± 310	3,220 ± 430	920
Servicing Sector	160 - 240	400 - 600	300
<b>TOTAL</b>	<b>2,500 ± 350</b>	<b>3,720 ± 530</b>	<b>1,220</b>

#### ● Smart Transition or Double Transition

Low-GWP solutions, for example technologies using natural refrigerants, are increasingly available but are

competing with a slew of new mid-GWP HFCs and HFC blends with lower GWPs.<sup>8</sup> A weak HFC phase-down schedule does not provide the proper incentives for a smart transition to truly low-GWP technologies and A5 Parties that do not make a smart transition now will be required to undertake a double transition in the future, which will come with substantial additional costs.

#### ● Early Freeze Critical for A5 Parties

Given the dramatic increase in HFC consumption in A5 Parties during 2020-25 (see Figure 2 BAU), the five-year delay between MIT-3 and MIT-5 creates a significant problem in terms of climate benefits and overall costs of the HFC phase-down. Any HFC amendment agreement must therefore set out an early freeze for A5 Parties, ideally starting by 2020, in order to arrest HFC growth during these critical years and allow for a cost-effective HFC phase-down in the future.

#### ● Mechanism to Promote Early Action in A5 Parties

In any HFC amendment agreement, funding should be made available to A5 Parties that elect to accelerate the HFC phase-down schedule. Many A5 Parties do not want to delay a smart transition any longer but need funding to allow for early action ahead of the schedule.

#### ● Energy Efficiency

Cooling an increasingly populated, urbanised and warming world is set to dramatically increase global energy demand, overtaking the amount used for heating by 2060.<sup>9</sup> Parties need to agree concrete measures that will allow A5 countries to maximise the energy efficiency of alternative low-GWP technologies being funded by the MLF.

## REFERENCES

1. Decision XXVII/1 Dubai Pathway on Hydrofluorocarbons.
2. Analysis: Only five years left before 1.5C carbon budget is blown, Carbon Brief article, 19 May 2016.
3. See Velders *et al*, Future atmospheric abundances and climate forcings from scenarios of global and regional hydrofluorocarbon (HFC) emissions, *Atmospheric Env.* 123 (2015) 200 – 209 (comparing domestic HFC reduction commitments in the EU, U.S. and Japan to the proposed non-A5 schedule in the North American Proposal). The U.S. has also proposed further HFC reductions that should be finalised in 2016. Protection of Stratospheric Ozone: Proposed New Listings of Substitutes; Changes of Listing Status; and Reinterpretation of Unacceptability for Closed Cell Foam Products Under the Significant New Alternatives Policy Program; and Revision of Clean Air Act Section 608 Venting Prohibition for Propane, Vol. 81 FR No. 74 (18 Apr. 2016), at 22823, available at: <https://www.gpo.gov/fdsys/pkg/FR-2016-04-18/pdf/2016-08163.pdf>. Australia has recently proposed a domestic HFC phase-down significantly more ambitious than the North American Proposal. See <https://www.environment.gov.au/protection/ozone/publications/factsheet-opsggm-review-outcomes%20>.
4. TEAP, Decision XXVII/4 Task Force Report: Further Information on Alternatives to Ozone-Depleting Substances (March 2016) (figures for refrigeration and air-conditioning); TEAP, Decision XXV/5 Task Force Report: Additional Information on Alternatives to ODS (October 2014) (figures for foams); TEAP, Decision XXVI/9 Update Task Force Report: Additional Information on Alternatives to Ozone-Depleting Substances (September 2015) (original description of MIT scenarios that have been clarified and modified in subsequent reports).
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7. TEAP, Decision XXVI/9 Task Force Report – Additional Information on Alternatives to Ozone-Depleting Substances (June 2015), pp. 58-65.
8. See TEAP, Decision XXVII/4 Task Force Report – Further Information on Alternatives to Ozone-Depleting Substances (June 2016), pp. 15-19.
9. World set to use more energy for cooling than heating, *Guardian* article, 26 October 2016.

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