

Table 2. Overview of relationship between Gothenburg Protocol Review conclusion themes and policy approaches.

	Approach 1 <i>no revision of AGP</i>	Approach 2a <i>targeted revision of AGP</i>	Approach 2b <i>comprehensive revision of AGP</i>	Approach 3a <i>non-binding new instrument</i>	Approach 3b <i>binding new instrument</i>	Approach 4a/b/c cross-cutting
Theme 1 <u>Emission reduction commitments (ERC)</u> or equivalent action on current pollutant set (NO _x , SO ₂ , PM _{2.5} , VOCs and NH ₃)	Focus would remain on further ratification and implementation. New ratifications would result in further emission reductions. For current non-Parties (EECCA, WB countries) ERCs would need to be set when ratifying. For existing Parties no new ERCs beyond 2020 possible in case of no revision.	Focus would be on updating the technical annexes; ERCs would not be directly addressed	Allows for updated commitments on current pollutants, as well as new commitments for new pollutants. It also allows for alternative base years for current non-Parties	A non-binding instrument could enable voluntary ERCs (at national or regional level), likely with risk of having less impact	A new treaty would be an opportunity to consider new or different types of targets, although this can also be achieved via a revision process. A new treaty could potentially be useful to enlarge the scope.	Further capacity building would allow further improvement of emission inventories of current non-parties, which is a prerequisite for proposing meaningful ERCs.
Theme 2 <u>Technical Annexes (TA) / Guidance documents (GD)</u> (updating/other action)	The 'no revision' option would not allow an update of the currently outdated TA, or other amendments to the TA. Existing GD can be updated and new GD can be developed.	Focus would be on updating the TA. This approach would allow targeted amendments to the TA.	Allows for a full update of the TA including changing their scope and focus, introducing new solutions or removing them all together. An update of the TA should be accompanied by corresponding updates of existing or developments of new GD.	Would allow the use of non-mandatory TA / GD	A new treaty could contain new and different ways to house technical information to aid Countries to reduce emissions and/or to achieve other objectives. This could be via TA or another modality. This could also be achieved through a revision process	Further capacity building would increase knowledge of the TA and contribute to the further development of roadmaps and national action plans / reduction strategies for the implementation of the TA

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Theme 3 <u>Ammonia (NH₃)</u> (action on Annex IX/other)	Focus would remain on further ratification and implementation., including of current Annex IX. Focus also on updating the GD on NH ₃ . The ‘no revision’ option would not allow an update of the outdated Annex IX.	Can be addressed through an update to Annex IX.	Could be further addressed with stronger and broader commitments (from a geographic scope) to take action on these pollutants/sector beyond only the measures identified in annex IX (extend scope to e.g. cattle)	This could include a new instrument targeting i.a. new voluntary measures on NH ₃ .	A new treaty could deal with singular pollutants or sectors.	Important for building long-term, sustained awareness and increasing knowledge base of key issues (e.g. NH ₃). Cooperation with other international organizations (e.g., UNEP) is important
Theme 4 <u>Black carbon (BC)</u> (action on BC as component of PM/other)	Focus would remain on further ratification and implementation., including of current Annex X on particulate matter (PM). Focus would also be on further guidance on how to give priority to reduction of BC in reducing PM	Can continue to be indirectly addressed, as component of PM, through an update of Annex X	Could include the option to taking further action on BC including mandatory reporting, emission reduction commitments, extension of Annex IX to BC from agricultural residue burning and/or a separate annex on BC.	This could include a new instrument targeting i.a. new voluntary measures on BC.	A new treaty could contain more specific actions regarding BC (separate BC or new broader protocol cover (ring also e.g. CH ₄). However it is difficult to differentiate BC from wider action on PM (covered by the Gothenburg Protocol)	Important for building long-term, sustained awareness and increasing knowledge base of key issues (e.g. BC). Cooperation with other international organizations (e.g., UNEP) is important
Theme 5 <u>Methane (CH₄)</u> (action on CH ₄ as ozone precursor)	The current Gothenburg Protocol does not address CH ₄ . The ‘no revision’ option would not further reduce emissions of CH ₄ . Focus would be on improving CH ₄ emissions information and development of guidance.	Separate commitments on CH ₄ are not possible under this option.	Could include the option to extend the protocol scope and include CH ₄ as a new pollutant.	This could include a new instrument targeting i.a. new voluntary measures on CH ₄ (e.g. non-binding targets).	A new treaty or instrument could treat specific (CH ₄) or multiple ozone precursors	Important for building long-term, sustained awareness and increasing knowledge base of key issues (e.g. CH ₄). Cooperation with other international organizations (e.g., UNEP) is important

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Theme 6 Removing <u>protocol related barriers</u> (flexibilities/other action)	Protocol barriers will largely remain (inadequate flexibilities, emission inventories insufficient as basis for ERCs, ...). This option only allows minor improvements to current flexibility provisions	Addressed somewhat through simplified TAs, but they would still remain mandatory. This option would also allow amendments to Annex VII on timescales.	Allows for changes to be made to the TA and the Protocol text itself, and addressing both in combination would allow more barriers to be addressed, including by adding new/different flexibilities.	This option would avoid protocol related barriers, as it would not require ratification.	A new treaty would contain new provisions and could be designed differently, with due consideration of barriers, to achieve higher ratification. This could also be achieved via a revision process	Some potential to address ratification and implementation barriers; this is one of the main focuses of approach 4
Theme 7 <u>Removing other barriers</u> (political, financial, institutional, regulatory, capacity)	Would not specifically be addressed	Would not specifically be addressed	Potential to address some of the other barriers (e.g. financial barriers via avoiding expensive retrofitting; regulatory barriers via simplifying legal requirements)	May remove some of the barriers as it concerns a non-binding instrument (e.g. regulatory barriers), but simultaneously also increase others (e.g. lower political will)	A new binding financial mechanism could address financial barriers and support implementation of abatement measures	Some potential to address other barriers, like political barriers via awareness raising, financial barriers via fundraising efforts, etc.
Theme 8 Improving <u>emission inventories</u> (for setting ERCs and assessing policies)	Would not specifically be addressed	Would not specifically be addressed	Allows for changes to the current provisions on developing and reporting inventories, including extension to new pollutants	Would not specifically be addressed	Similar as for a revision of the Gothenburg Protocol	Some potential to address lack of capacity for preparing and improving inventories
Theme 9 Addressing <u>other issues</u> (synergies, non-technical measures, action outside ECE)	'No revision' would not allow to further address synergies or non-technical measures (also needed to achieve long term objective). Focus on new GD	Would not specifically be addressed.	Could be addressed.	Could be addressed	Could be addressed. A new treaty is a way to house new provisions and repeal other protocols or brought under new framework, with consideration of i.a. synergies	Beneficial for extension of activities beyond the UNECE region