**Clarification Questions and Answers**

**Contract Reference: C20-0443-1538**

**Contract Title: Dispersion Model Selection for AERIUS UK**

1. **Q1: What source types are required for modelling: area, volume, line, point and road?**

**A:** The AERIUS tool implementation in the Netherlands allows users to enter area, line and point sources as part of their submission. Surface based volume sources are included in the data entry interface as an area source with a height parameter (eg building height).  Additionally there is ability to predict road traffic emissions. The UK integrated tool should have this same capability and thus will require a dispersion modelling solution that can accommodate these source types. The AERIUS factsheets <https://www.aerius.nl/nl/factsheets> provide more detail about how each source type is treated such as this one on roads – You will need to set the page to translate to English (top right corner) <https://www.aerius.nl/nl/factsheets/emissieberekening-wegverkeer-standaard/15-10-2020>

1. **Q2: What pollutants need to be modelled?**

**A:** At a minimum the initial AERIUS Pilot tool will need to be able to predict concentrations of nitrogen oxide, ammonia and sulphur dioxide and resulting nutrient nitrogen and acid deposition as found in SCAIL (Simple Calculator for Atmospheric Impact Limits - <http://www.scail.ceh.ac.uk/index.html>) to compare these to the appropriate critical levels and loads for the receptor area. There are currently no critical levels regularly used for concentrations of ammonium, nitrate and nitric acid in the ecological risk assessment process. However, modelling solutions that investigate expanded capability are welcome.

1. **Q3:** **What is the membership of the UK AERIUS Steering Group, Core Project Team and “UK Experts” mentioned in the tender?**

**A**: The UK AERIUS Steering Group currently includes members from Defra, DAERA-NI and the Inter-Agency Air Pollution Group. It is expected that the Steering Group will gather new membership as the project progresses but will be limited to ca. 10 members. The core project team for the pilot tool is currently comprised of Defra (technical teams, air and nature policy), DAERA-NI, JNCC, with advice from the Defra Cloud Centre of Excellence. The expert groups are also being formed and can be adapted to bring in technical expertise identified as the project progresses and are expected to include regulators, conservation agencies, practitioners/professional bodies as well as potential users and other decision makers such as local authorities or legal advisers.

**Q4: Should the dispersion model be able to account for accidental/abnormal releases?**

**A:** The integrated tool is expected to be used for risk assessment of planned emission sources. However, modelling solutions that support expanded capability are welcome. Information about accidental or abnormal releases is not in the specification but could be envisaged as useful in some decision-making contexts.

**Q5: Can you provide an indicative budget?**

**A:** The indicative budget is £75,000 to £100,000 including VAT.

**Q6: How will the contractors building the tool incorporate the dispersion model solution (e.g. API request, internally hosted, coded directly into the pilot tool, etc)?**

**A:** A UK based solution will be discussed as part of the options appraisal in the contract and has not been decided at this stage. In the Dutch based AERIUS, the OPS-model is developed as a standalone library (Linux) and executable (Windows). AERIUS implements a wrapper to run an OPS instance within AERIUS. The same is true for the SRM2 model used for road traffic as part of AERIUS: a wrapper is used to run the SRM2 model in AERIUS.

**Q7: How does this dispersion model options contract sit in context of implementing AERUIS Calculator?**

**A:** This contract will undertake an options appraisal and finalise the design of the dispersion model in a UK AERIUS Calculator pilot tool being built as part of the wider ITAPA (Integrating Tools for Air Pollution Assessment) project. The project will also facilitate technical inclusion of the chosen model in the pilot tool.

**Q8: Will the project include consideration of non-open source models?**

**A:** The options appraisal can include models with any licensing arrangement. The implications of the licensing (eg cost, facilitation of future changes in software, support, etc.) will be undertaken as part of the contract.

**Q9: Will the model used on the Aerius UK platform solely generate Process Contributions from individual proposals and what background data will be used (Defra maps, Air Pollution Information System data)?**

**A:** The AERIUS Calculator generates a process contribution and then uses the background data in a similar way to what is undertaken now. The background data would typically be derived from the APIS 3-year average modelling or Defra map data depending on the purpose. In some cases, a user defined background (eg from monitoring data) could be more appropriate and may form part of the options appraisal if desired.

However, unlike current approaches that rely on including sources not currently in the APIS or Defra map data, the AERIUS Calculator is able to access AERIUS Register and account for banked contributions to a particular grid square/hexagon from previous proposals entered into the system (eg submitted for permission and recorded in Register, not just tested in Calculator).

In the Dutch implementation of AERIUS, AERIUS Register is updated in real time to deal with available “room for development” in each hexagon. The background map is updated annually and will then account for this change in approved emissions. This data from Register is expected to inform the emission maps underlying the modelling that generates the background data for APIS and the Defra background maps.

**Q10: Will the work carried out under this contract require any consideration of background data and dealing with potential ‘double-counting’ of impacts?**

Advice on elements of double-counting from different background data sets and how to address this are welcome as part of the dispersion model options appraisal. It may be something that needs to be addressed in future iterations if not easily solved via the modelling solution that forms the primary basis for this contract. If this sort of advice is envisioned as supplemental to the Work Package 1 or 4 advice, it is appropriate to provide an “optional extras” section in bids for consideration.