# Amendment to the IChemE Form of Contract for Reimbursable Contracts (The Green Book) Fourth Edition 2013, including all reprints

## Guidance on Artificial Intelligence

IChemE has decided to issue guidance on the application and management of Artificial Intelligence which shall be applicable to all of the following Contracts published by the ICheme from the date of this amendment as set out below:

- Lump Sum, The Red Book, Fifth edition, 2013
- Reimbursable, The Green Book, Fourth edition, 2013
- Target Cost, The Burgundy Book, Second edition, 2013
- Subcontracts, The Yellow Book, Fourth edition, 2013
- Subcontract for Civil Engineering Works, The Brown Book, Third edition, 2013
- Professional Services Agreement, The Silver Book, First edition, 2017
- Minor Works, The Orange Book, Third edition, 2018
- Engineering, Procurement and Construction Management Contract (EPCM), The Blue Book, First edition, 2023

The following guidance on Artificial Intelligence (AI) has been developed to bring to the attention of IChemE contract users and members of the institution, potential concerns that may arise if the uncontrolled application of the technology is applied to process industry projects. Such use may have very serious consequences, particularly if the information, generated by AI is used without its validity being thoroughly checked. This can have a range of consequences that can lead to physical hazards, failures of performance, safety issues, breaches of confidentiality and ethics resulting in potential legal action against the party that has used the technology. Based on recent guidance issued to legal professionals, and Government Departments, the IChemE's Contract Committee, has decided that for all IChemE published contracts, a guide note should be incorporated to make users aware of the risks. Such guidance will be included in all future contracts but in the meantime the following addendum is issued to make users aware of the Institution's concerns on this matter.

## Guidance on AI and advanced evolving technologies

In the rapidly evolving technological landscape, particularly where Generative and other forms of Artificial Intelligence (AI) are being employed, users of such systems should consider the risks and rewards that AI may bring. Such AI may include complex and rapidly changing software such as large language model (LLM) systems and machine learning, leading to combinations of Artificial Super Intelligence, Artificial General and Narrow Intelligence. Such systems are capable of independent development based on a range of learning techniques that are becoming so complex that they are independent of external supervision.  Inevitably these systems are increasingly being used by engineering, commercial management and project management professionals in the development of products, process plants, general manufacturing and to improve a wide variety of industrial applications.

The following guidance has been included to identify potential risks when AI is used in critically important elements of project execution. It is vital that matters such as health, safety,

environmental, quality control, financial and legal aspects of any elements of design or project development and execution that are produced by AI systems, in whole or in part, are recognised by the parties and adequate risk provision made.

Given the potentially all-pervasive nature of AI technology, it is important that the underlying accuracy of the information that has formed the basis of any output from an AI system can be verified by independent means to enable those involved with all aspects of a project's development and the subsequent plant operation to discharge their obligations regarding legal and ethical standards, parties' confidentiality and to maintain confidence in the systems employed. The current status of AI development suggests that this may not be the case since the sheer scope and speed of the software processes being developed is beyond any established methods of fault detection or benchmarking protocols, leaving the users open to the risk of non-compliance with applicable laws, regulatory codes and practices. In particular, the security of confidential information and intellectual property could be at some risk and could inadvertently lead users of AI to exposure to legal claims and a consequential threat of substantial damages.

Parties should note that legal and ethical guidance is developing in most jurisdictions and that there have already been situations where AI systems have provided false information which, when subjected to rigorous independent third-party forensic analysis, has led to legal action.

Most legal and ethical guidance is generally based on following principles:

  i.   safety, security and robustness of the processes used, and the accuracy of the outputs generated;
  ii.  appropriate transparency and explain-ability of the software used in the generation of AI;
  iii. fairness, particularly when dealing with human factors or contractual arrangements;
  iv.  accountability and governance that enables the users of AI to comply with codes of practice, legal, corporate and ethical standards;
  v.   contestability and redress to enable external auditing of the systems to meet pre-defined operating standards.

This guidance is not exhaustive and only intended to identify the main contractual considerations for the use of AI systems. It is important that legal advisors, engineers and managers involved with contract drafting and administration are made aware of any elements of a project that may be subject to reliance upon information generated from AI based systems so that the technical and commercial risks involved can be recognised and addressed.


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