

# The Mott MacDonald Little Book of NEC Contracts



## Table of contents

<b>1. Introduction</b>	<b>3</b>
<b>2. What is the NEC?</b>	<b>4</b>
<b>3. Key principles</b>	<b>5</b>
3.1 Introduction	5
3.2 Clarity	5
3.3 Flexibility	6
3.4 Stimulus to good project management	7
<b>4. Key difference from 'traditional' contracts</b>	<b>8</b>
4.1 Introduction	8
4.2 Collaborative mindset	8
4.3 Communication between contract parties	9
4.4 Contract administration roles and responsibilities	9
4.5 Accepted programme	10
4.6 Timescale for every action	10
4.7 Early warning and collaborative risk management	10
4.8 Compensation event management	10
<b>5. Key impacts of using NEC</b>	<b>11</b>
5.1 Introduction	11
5.2 The need for quality documents	12
5.3 Adequacy of staff resources for better project management	12
5.4 Compatibility with organisational procedures and authority limits	13
5.5 Need for training for staff improvement and cultural change	13
5.6 Need for systems for project/contract management	13
<b>6. Mott MacDonald's NEC advisory team</b>	<b>14</b>
<b>7. Client feedback</b>	<b>15</b>



## 1. Introduction

Mott MacDonald has created this document to provide a quick informative overview of the fundamentals of the New Engineering Contract (NEC) suite of contracts. It includes:

- what is the NEC?
- key principles of the NEC
- key differences between the NEC and ‘traditional’ forms of contract
- key impacts of using the NEC in your organisation.

In June 2017, the NEC launched NEC4, the result of 12 years’ experience with NEC3. It is evolution, not revolution, and the main messages in this document apply to both NEC3 and NEC4.

A new NEC user should use NEC4. The only reason for an NEC3 user not to change to NEC4 is probably the cost of small changes that may be required to any standard additional conditions of contract and contract management forms, and the limited training required.

## 2. What is the NEC?

The NEC started life as the New Engineering Contract. However it:

- is no longer new (a consultative first edition was published in 1991)
- can be and is used for much more than 'just' engineering
- is a method for managing projects and services
  - much more than just a 'contract'

As a result, 'NEC' is now a brand name for a family of standard types of contract forms.

NEC contracts stimulate good management, can be used for a variety of work in multiple commercial situations and are written as clear and simple documents. The NEC family comprises:

### Projects

- Engineering and Construction Contract (ECC)
- Engineering and Construction Subcontract (ECS)
- Engineering and Construction Short Contract (ECSC)
- Engineering and Construction Short Subcontract (ECSS)

### Services

- Professional Service Contract (PSC)
- Professional Service Subcontract (PSS) (new to NEC4)
- Professional Service Short Contract (PSSC)
- Term Service Contract (TSC)
- Term Service Subcontract (TSS) (new to NEC4)
- Term Service Short Contract (TSSC)
- Facilities Management Contract (FMC) (2021)
- Facilities Management Short Contract (FMSC) (2021)

### Supply

- Supply Contract (SC)
- Supply Short Contract (SSC)

### Other

- Framework Contract (FC)
- Dispute Resolution Services Contract (this replaced the Adjudicators Contract in NEC3)

### New to NEC4

- Design, Build and Operate Contract (DBOC)
- Alliance Contract (AC)



## 3. Key principles of the NEC

### 3.1 Introduction

The NEC is fundamentally the same as other contracts, in that it provides a legal framework. But it is also radically different in that it establishes a detailed set of project management procedures. All NEC forms of contract are designed and drafted with three key principles in mind:

- clarity
- flexibility
- stimulus to good project management

These fundamental elements are explained in the sections that follow.

### 3.2 Clarity

NEC contracts are easier to read and understand than many other standard forms because they:

- are written in plain and readable English
- use minimal legal terminology
- are highly organised, orderly, and modular in structure
- are free from references to specific laws.

Additionally, each member of the NEC family has similar structure, concepts and language. The principle of clarity in the NEC provides clear roles for all involved, and clear processes defining exactly what people must do and within what time periods.

### 3.3 Flexibility

The NEC family provides a contract for any project, service, or supply:

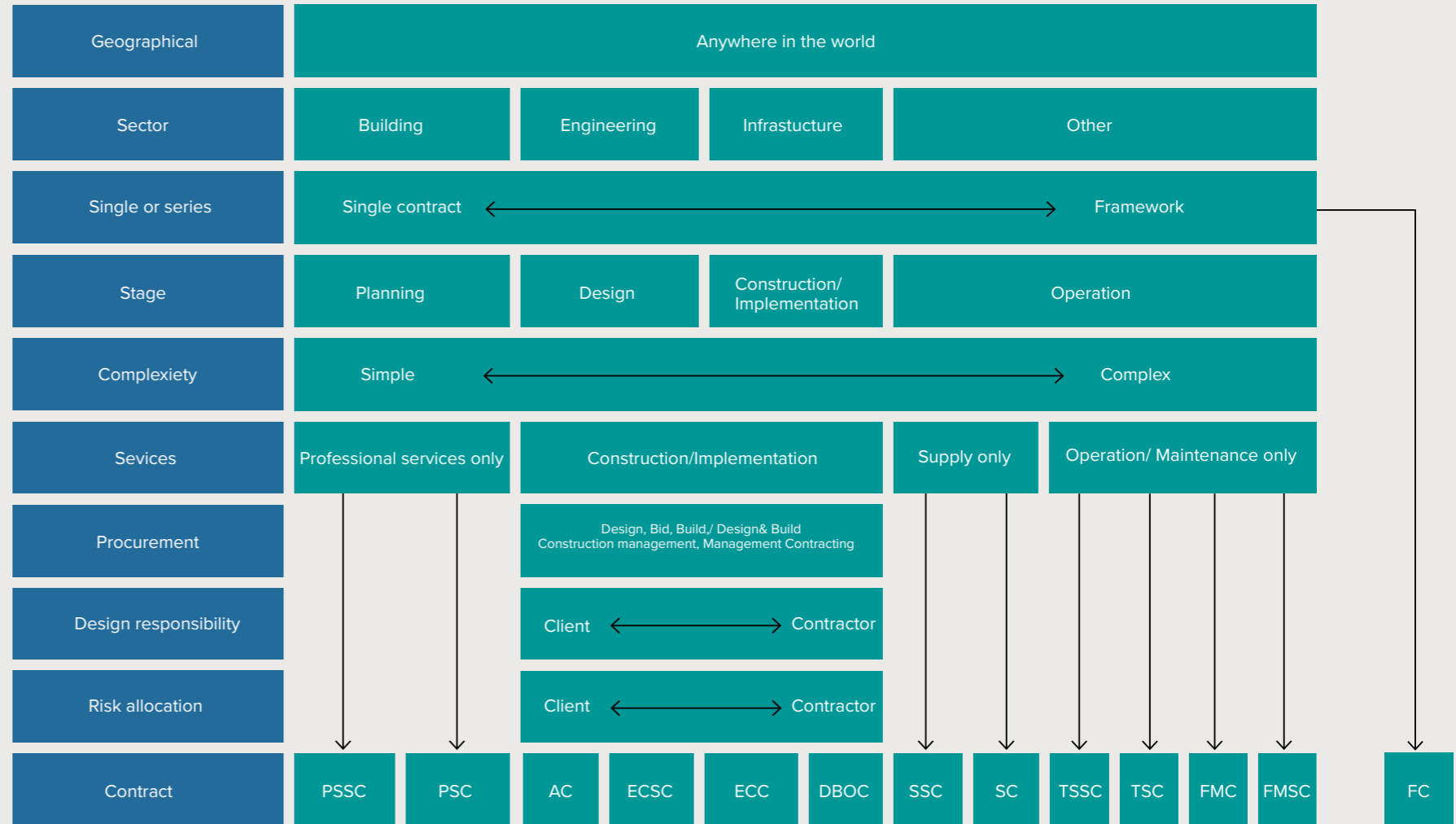
- anywhere in the world (globally applicable)
- in any legal jurisdiction
- in any sector
- with any level of complexity
- with any level of design responsibility by the supplier
- under almost any procurement strategy
- with different payment options
- with different levels of risk allocation between contract parties

The flexibility in application of NEC4 is illustrated in the Figure on the right.

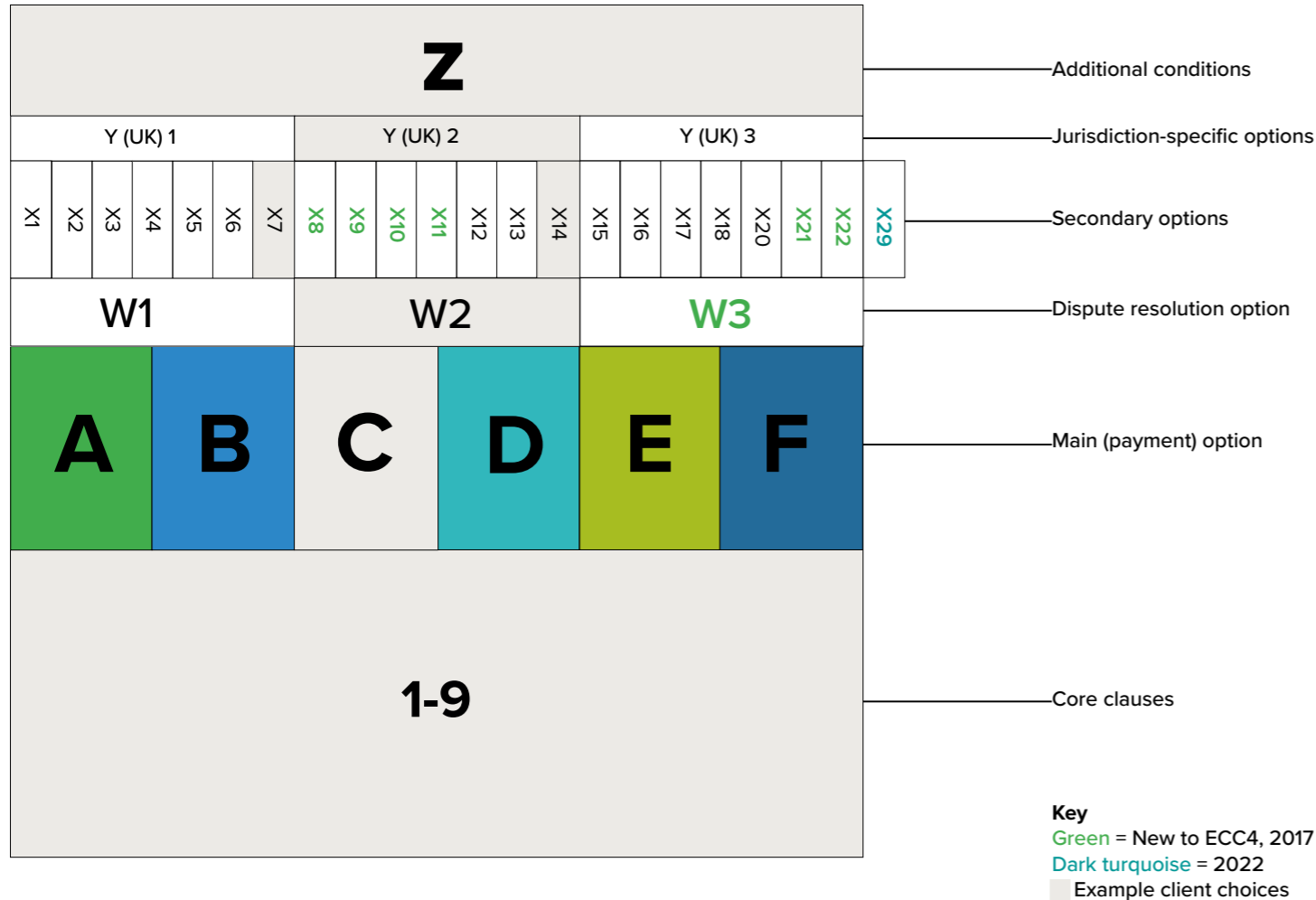
Once the appropriate contract is chosen, NEC’s application flexibility is further illustrated by the modular structure of the NEC Engineering and Construction Contract (ECC).

An NEC ECC contract is built up from:

- the nine core clauses (common to all main payment options)
- one of six main payment options – including lump sum, re-measurement, target cost and cost reimbursable
- one dispute resolution option
- a choice of secondary options to suit the specific requirements of the contract
- a choice of jurisdiction-specific secondary options designed for particular local legal issues
- any additional conditions of contract (‘Z’ clauses). The flexible nature of the options means that, ideally, there should be little need for additional conditions of contract



The structure of the NEC Engineering and Construction Contract (ECC4) is illustrated below. (The TSC and PSC are similarly structured).



The ECC can be used for any level of design by the contractor. The works can be fully designed by the client, fully designed by the contractor, or somewhere in between as set out in the scope.

### 3.4 Stimulus to good project management

The NEC is fundamentally the same as other contracts, in that it provides a legal framework. But it is also radically different in that it establishes a detailed set of project management procedures.

The NEC is designed as a set of project management processes to encourage good management and better forecasting of the final time and cost. Compared with other standard forms, it requires (and encourages) these key elements:

- a collaborative mindset – with joint management
- accepted programme – one that is real, visible, and regularly updated
- timescales – meeting the defined duration for every action
- risk management: a ‘no surprise’ culture – obligation and direct financial incentivisation (on the contractor) to raise and address issues as (or before) they occur – ‘early warning’: collaborative risk management
- pre-assessment of change – management of change by forecasting and agreeing in advance the effects of a change or any event that is a ‘compensation event’ in the contract

(The only events under an NEC contract that entitle the contractor to a possible increase in the ‘prices’ and/or a delay to the ‘completion date’ or ‘key date’ are called ‘compensation events’.)

The above elements represent the key differences of the NEC compared with more traditional forms of contract. The better forecasting of the outturn date for completion and cost and the facilitation of collaboration are the key drivers for using NEC.



## 4. Key differences from ‘traditional’ contracts

### 4.1 Introduction

The NEC is radically different from other traditional forms of contract because of its focus on the stimulus to good management. Using the NEC as a rigorous project management tool is an investment in controlling quality, time, and budget, which requires active ‘real time’ management by the client (and its ‘project manager’) – significantly more so than most other forms of contract. The objective and benefits of this approach for the contract parties is ‘greater certainty of outcome’. The key differences and management processes are described under these headings:

- collaborative mindset
- communication between contract parties
- contract administration roles and responsibilities
- accepted programme
- timescale for every action
- early warning and collaborative risk management
- compensation event management (including the use of ‘forward pricing and time forecast’ approach)

### 4.2 Collaborative mindset

The first key difference is the collaborative mindset, which each of the contract parties should have in order to establish the

‘one project’ team to jointly manage the contract in a partnering approach. This is expressed clause 10.2 in the ECC: ‘The parties, the project manager and the supervisor act in a spirit of mutual trust and co-operation.’

That clause follows clause 10.1: ‘The parties, the project manager and the supervisor shall act as stated in this contract.’

This emphasises the active nature of the contract and gives effect to the rest of the clauses which, uniquely for a contract, are written in the present tense. In the UK the word ‘contractual’ has been ‘stolen’ by some to mean ‘adversarial’.

Acting as stated in the contract is not ‘adversarial’ – it is just acting contractually and professionally and as required by clause 10.1. It is critical that both ‘sides’ understand this at the start of the contract. Acting in a spirit of mutual trust and collaboration has attracted much attention from lawyers. At a practical level just ‘talk and listen to each other’ (TALTEO) before ‘doing what it says in the contract’ (DWISIT\_C).



### 4.3 Communication between contract parties

The drafters of the NEC recognised that a significant failing in traditional contracts was the lack of emphasis, clarity, and timeliness in communication between the parties. Lack of communication creates uncertainty, which breeds undesirable behaviours and is the seedbed for dispute and disagreement.

The NEC provides clear procedures and timescales to encourage more effective and earlier communication in all aspects of contract management, including the assessment of change, regularly updated programmes, and early warning of risks. The objective is to reduce the number of disputes, enable a speedy close out of the contract and to provide greater certainty of outcome for all those involved through the life of the contract. Active and open communication in the NEC is about reinforcing the best behaviours of good project management practice.

### 4.4 Contract administration roles and responsibilities

A key NEC principle is that a contract should have a clear division of function and responsibility between those involved. NEC ECC provides for two discrete administrative roles – the project manager and the supervisor.

These people are engaged by the client, but under law (in the UK and elsewhere) are required to act impartially and in accordance with the contract. The supervisor looks after compliance, and testing and defects (with a minor role relating to title).

The testing and defects role is covered by only one and a half pages of core clause 4 and is the same irrespective of the payment option.

The supervisor often audits the records of testing carried out by the contractor, as required by the contract. The supervisor and contractor manage the notification and management of tests and defects throughout construction.

In contrast, the project manager carries out all the other roles one might recognise as ‘contract administration’. The key routine processes, include:

- changes to the scope
- early warning and updating the ‘early warning register’ (unhelpfully known as the ‘risk register’ in NEC3)
- design acceptance
- subcontractor acceptance
- programme acceptance
- payment assessment
- change and compensation event management, including agreeing cost and time effects

With these key roles it should be clear that the project manager has ‘technical’ and ‘commercial’ roles. They will therefore need technical and commercial experience and/or support. From experience, the most important issue relating to the project manager is their ability and authority to issue necessary changes to the scope and to deal with, accept, or assess quotations for compensation events.

The project manager carries out all the actions set out in the contract with no formal requirement for approval from the client. However, in reality, they should agree with the client when at least dialogue is appropriate before undertaking an action under the contract. These are the normal obligations for project management, including changing requirements and accepting quotations.

The project manager’s role is one of active ‘joint management’ with the contractor, rather than more passive ‘contract administration’. This is particularly the case when target cost or reimbursable options are used, and the contractor is, in effect, spending the client’s money.

#### 4.5 Accepted programme

Another key difference in the NEC regime from traditional standard forms of contract relates to the programme (called the 'schedule' in North America).

Under many traditional standard forms of contract, the administrator has no contractual obligation to accept or approve any programme submitted by a contractor. They might acknowledge the contractor's programme, but no approval would be given because that might be construed as relieving the contractor of some of its responsibilities or duties under the contract.

However, this is not the case with NEC contracts. The programme, more specifically the accepted programme is key to the successful administration of the contract. The ECC recognises the importance of the programme in construction and puts it at the heart of the contract. There is an extensive list of requirements for each programme to promote 'best practice' project programming. The programme must be updated regularly (normally at least monthly) and must reflect the actual status of the project, including the effect of compensation events.

The accepted programme is a critical tool for those involved and forms the basis of the assessment of the effect of all compensation events. The project manager is required to accept the programme and there are clear reasons for not doing so stated in the contract. Importantly though, the acceptance of a programme does not change the contractor's responsibilities under the contract (see core clause 14.1).

Also, each accepted programme replaces all previous programmes. Should any accepted programme not, for any reason, be in place, this gives rise to one of the situations in which the project manager is required to assess compensation (see core clause 64.1).

#### 4.6 Timescale for every action

In traditional forms of contract, the contractor and/or contract administrator are often required to act or give information and/or decisions within a 'reasonable time'. But 'reasonable' is not

defined. The NEC is different. It provides a clear timescale for every action that the contractor, project manager and supervisor are required to take: there is no 'reasonable time'. The parties can agree to extend the time but there should always be a clear timeframe for every communication required under the contract.

#### 4.7 Early warning and collaborative risk management

Early warning is fundamental to NEC contracts, to relationships on site, and to the success of a project. The entire principle of early warning under an NEC is one of proactive risk management. If either the contractor or project manager becomes aware of any matter that could affect time, cost or quality, that party must notify it to the other party as an 'early warning' as soon as they become aware. The early warnings are discussed in an 'early warning meeting' to agree how best to mitigate the risk.

During these meetings, the project manager and contractor should openly share possible solutions to the problems. This requires a high level of mutual trust and collaboration. The early warning process is recognised as one of the best enablers of effective project management.

For projects procured through more traditional forms of contract, in which adversarial relationships between the parties are more common, people can have a hidden agenda and cover up problems with delaying tactics deployed to protect their own interest.

In an NEC ECC the contractor is commercially incentivised to give early warning notifications to the project manager. If the contractor fails to do so, ECC4 clause 63.7 enables the assessment of any subsequent compensation to allow for what mitigating actions could have been taken had the contractor provided the notification.

#### 4.8 Compensation event management

The terminology of 'compensation event' is more positive than the 'claims' in traditional contracts. The contractor is compensated for risks it was not intended to price – the term 'claim' does not appear in the NEC. The events are simply listed mainly in clause 60.1 (with some other events in main and secondary options).

Project management is mostly about managing change. The NEC, as a contract to support project management, is therefore heavily focused on change management. Identical processes for managing compensation events apply to all of them. Five of the 17 pages of the core clauses relate to compensation events under core clause 6. These provide the processes, options and rules for dealing with these.

NEC processes for notifying, assessing and implementing compensation events are clear. Used well, they encourage prompt decision making and ensure both parties are clear at any time on the contractual outturn value of the prices and the required completion date.

The NEC requires the forecast effect of a compensation event on time and cost resulting to be assessed at the same time as the event arises (unless the project manager chooses to obtain a quotation for a proposed instruction). The use of 'forecast' is a key differentiator from other forms of contract.

The assessment of cost is NOT based on tendered rates or prices or on the actual cost but on the forecast effect of the event on the contractor's 'real' cost ('Defined Cost') and programme.

The compensation event management procedures use a 'sort it out now' approach and so enable the project manager and contractor to manage change and risk more effectively. This gives the client more flexibility and better control over changes while maintaining 'incremental certainty' of outturn price and time.

In this way the NEC promotes better project management throughout the contract. Rather than agree a forecast when the compensation event is notified, the norm under a traditional contract (and a badly managed NEC contract) is to 'keep records' and hope to 'sort it out later'.

As a result, there is often no clarity at any stage on the forecast outturn cost to the client or the contractually required completion date.

## 5. Key impacts of using the NEC

### 5.1 Introduction

NEC contracts, correctly implemented by well-trained staff with appropriate systems, are likely to lead to:

- better communication and collaboration between the parties for a joint project management
- better incremental certainty of outturn price and project completion dates
- minimisation and, ideally, avoidance of disputes. Such outcomes should be weighed against the real cost of the investment required in people and systems to use the NEC properly

NEC encourages and requires:

- better preparation of documentation
- more active contract management. It is essential that these cultural differences and challenges are addressed at the outset of the contract.

Clients (and contractors) using the NEC must:

- develop their staff (through training and development programmes)
- put in place procedures and systems for the management and implementation of the NEC
- provide joint training for the project manager, supervisor and contractor on the NEC and the systems proposed to manage it.

It is vital to work with business leaders and senior managers to ensure:

- the business objectives of using the NEC are clearly understood by the client's organisation and its supply chain
- the NEC is tailored and well used to deliver the business objectives

An important element is to work with the client's legal department and any external legal advisors. Before adopting an NEC in a project procurement, the organisation should normally consider:

- the need for any modifications of additional clauses to comply with the local law
- the need for quality documents
- the adequacy (or otherwise) of staff resources for better project management
- the compatibility with organisational procedures and authority limits
- the need for training for staff improvement and cultural or behavioural change
- the need for the establishment of appropriate systems for contract management.

These issues are discussed in the next sub-sections.



### 5.2 The need for quality documents

The NEC acts like a searchlight – it tends to bring attention to good and not so good documents. The contractor has to “Provide the works in accordance with the scope” (see core clause 20.1). This document sets out the requirements and constraints on providing those works. Any change to the requirements and constraints set out in the scope is a compensation event to be managed. The quality of the contract documents is thus critical. Of course, this is the case for any other form of contract. However, with the ECC, the need for active management of those events at the time tends to highlight any inadequacies in the contract documents. However, the NEC does provide the management tools to deal with the resulting changes.

A key aspect of developing good contract documents to minimise post-award change will be the concise, structured description of the requirements in the scope. When preparing documents these details should be considered:

- documents should be developed from templates and/or guidance for the use in, for instance, contract data and scope.
- there is a need to review all standard tender documentation, including conditions of tender, special conditions of contract, specifications, drawings, and, as the case may be, method of measurement if bills of quantities are to be used to ensure consistency with the language and the document structure used in the contract. It should be noted that standard specifications may conflict with process requirements in the conditions.
- consider carefully the testing, requirements for completion and any performance testing required and set this out in the scope.
- the scope should be reviewed at planned and regular intervals to ensure the agreement of all stakeholders.

Poor quality documentation often results in numerous changes to the scope, resulting in incessant compensation events to manage. Appropriately, the contractor will get the benefit of such changes (see clause 63.10). However, if the scope is inappropriate, unclear or incomplete, much time and effort will be needed to manage changes as compensation events. The ‘sort it out now’ approach under the NEC will help in arriving at incremental price and time certainty through timely implementation of compensation events.

### 5.3 Adequacy of staff resources for better project management

Compared with other forms of contract, the processes of the NEC require additional investment in proper project management, including more rigorous updating of the programme and the ongoing management of change.

Although the client should value the higher level of certainty of outturn price and completion date throughout the project, they will ask: ‘How much extra staff resource is required to cope with the project management under the NEC compared with using traditional procurement?’

Normally, the level of resources for the project manager will also depend on how well the documents, especially the scope, are written and the efforts of the team to minimise change required to be managed after the contract is awarded. However, it would usually be expected that a project manager might require support as follows:

### Technical

- any changes to the scope
- acceptance of any post-contract design submitted by the contractor
- acceptance of subcontractors

### Technical/commercial

- acceptance of revisions to the accepted programme
- management and updating of the early warning register

### Commercial

- Payment assessment
- Agreement on the time and cost effect of compensation events

The resources required for the supervisor role will depend on:

- how much testing the scope requires
- the proportion of that testing required to be directly witnessed by the supervisor (as opposed to reliance on an audit of the contractor's quality assurance processes)
- the quality and standard of workmanship of the contractor

The incremental price and time certainty resulting from the 'sort it out now' compensation event management process often allows the final account be agreed soon after completion. As such, it is likely that the increase in staffing costs incurred during the construction phase will be offset, at least partly, by the corresponding staff savings due to earlier settlement of the final account and a reduction in the number of disputes. However, the client must realise there is a learning process to be navigated.

### 5.4 Compatibility with organisational procedures and authority limits

Under the NEC regime, the client's staff and/or their consultants will be appointed to perform different roles. Each will need different attitudes and behaviours from those practised when working on a traditional contract.

Time and costs are saved by having the right people in place to make the right decisions at the right time based on the right information. Further changes to the client's internal procedural system/practice may also be required to enable compatibility with the concepts and principles of the NEC. A key issue is often the defined and short time available to respond to submissions from the contractor – particularly related to designs and quotations for compensation events.

### 5.5 Need for training for staff improvement and cultural change

NEC contracts can and sometimes do go badly wrong, often simply because the parties do not 'do what it says in the contract'. If this is the case, neither party will reap the benefits of good project management and 'incremental certainty that can be achieved when NEC is properly used'. A key requirement is good training. It is a common view that, to successfully implement NEC and benefit from the many best practice principles, both parties require a trained and knowledgeable team of right-minded people ready and willing to be collaborative.

Training is often overlooked on NEC contracts yet it is critical to success. A proper 'training needs assessment' is required. To ensure effectiveness, training should be provided at the right time to the right people. At the very least a one-day team-building project workshop is a valuable investment to help to ensure all project team members understand the NEC and how it will be managed.

### 5.6 Need for systems for project/contract management

Another fundamental requirement for proper implementation of the NEC is appropriate systems to enable the required project/contract management procedures to operate effectively. The system must allow the parties to carry out and record their actions in a way that is efficient and actively contributes to the project management. NEC contracts are criticised by some as overly administrative. However, all they do is reflect the need for communication and the need to record the communication as having taken place. Some new to the NEC resist the need to 'act as stated in the contract', which is seen by some as 'getting contractual', a term that has (wrongly) come to mean adversarial. This resistance

must be overcome by training and the joint agreement and provision of the systems required to implement NEC contracts. For a simple contract or one with little change, simple forms in 'Word' and 'Excel' will usually suffice. It is paramount for a party using the NEC to develop a set of 'standard' templates for key communications and registers required to manage the contract, but they should recognise that other project partners may come with their own ways of working. It is vital to develop a common approach from the start. For larger, longer duration and more complex projects, it will be worth investing in one of the several excellent cloud-based propriety systems developed to manage NEC contracts. In our digital world we should surely be using the available digital tools to manage our contracts.

In parallel to the set-up and operation of systems, regular audit is required. On partnered, long-term frameworks, many clients put in place systems for 'technical audit' and 'cost audit'. What often gets missed out is an audit on how well the underlying contracts are being implemented. Such a planned audit is recommended to highlight potential issues in advance and to spread good practice.

However, whatever system is used, it is vital to engender a culture of developing and agreeing quotations and programme revisions, ideally face to face, and then use the system to formally record the agreement and move on.

## 6. Mott MacDonald's NEC advisory team

Using the NEC suite of contracts is an important business decision. Our NEC advisory team provides:

- early advice on procurement options
- a broad perspective on the use of the NEC
- knowledge and experience of the use of the NEC
- knowledge and experience in developing, drafting, and managing contracts
- well-informed opinions and advice
- experience of the areas of risk in developing model documentation
- audit/peer reviews
- advice and support on contract management systems
- training/education and mentoring.





## 7. Client Feedback

“Mott MacDonald clearly has the expertise and has delivered more than expected in an appropriate and professional manner. You have developed the NEC courses to meet the needs of our people. We have had only positive feedback from our staff –and lots of it.”

Investment delivery team and training coordinator,  
**Northumbrian Water**

“Mott MacDonald’s high quality and experienced staff fully understood our needs, were flexible, proactive and always fast in turning around the required documents. We were really satisfied with the professional approach to the process and the outputs.”

Commercial manager,  
**Bristol Water**

“Your training must have been the best I’ve had because your name always springs to mind when I think of NEC!”

Team manager, Procurement,  
**East Sussex County Council**



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