

CHAPTER 3

Construction Arbitrations Involving Energy Facilities

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Between 1971 and 2019, total energy consumption across the globe has more than doubled,² bringing with it a host of challenges for the construction of energy infrastructure that is capable of extracting secure fuel sources, converting them into energy and distributing them to the end user. Among these challenges are economic and supply disruptions brought about by the covid-19 pandemic, the need to combat the rising price of energy for the consumer and the need to transition towards a clean energy economy, particularly following the growing commitments made by the international community with the COP26 Glasgow Climate Pact.³

Asia is one area that has seen significant growth in both the supply of, and demand for, energy. Between 1973 and 2019, the share of total energy production from non-OECD Asia rose from 5.2 to 13.6 per cent,⁴ while total energy production from OECD Asia and Oceania increased by 5.9 per cent between 1973 and 2020.⁵ Much of the renewable energy development has been in Asia, which in 2021 accounted for close to two-thirds of the global growth in new renewable energy capacity (with China accounting for the lion's share of that growth).⁶

1 Doug Jones AO is an independent international arbitrator. The author gratefully acknowledges the assistance provided in the preparation of this chapter by his legal assistants, Rebecca Zhong and Brendan Ofner.

2 International Energy Agency, 'Key World Energy Statistics' (2021), at 34.

3 See International Energy Agency, 'World Energy Outlook' (2021); International Energy Agency, 'Renewable Energy Market Update: Outlook for 2022 and 2023, (2022); UN Climate Change Conference, 'COP26: The Glasgow Climate Pact' (2021).

4 International Energy Agency, 'Key World Energy Statistics' (2021), at 8.

5 *id.*, at 11.

6 International Renewable Energy Agency, 'Renewable Capacity Highlights' (2022), at 2.

There is no question that commercial arbitration has emerged as the primary forum for the resolution of disputes arising from projects for the construction of energy facilities.⁷ In recent years, construction and energy cases have accounted for the majority of arbitrations administered by the International Commercial Court (ICC).⁸ International enforceability provides a key advantage in an industry that frequently brings together for each project a vendor and a range of specialist contractors from different parts of the world. Procuring the expertise of an experienced energy industry practitioner to preside over a dispute neutralises the risks associated with resolving highly technical disputes in fora that are unsophisticated in international commercial matters. Its increased prevalence is also due to the inclusion of arbitration clauses in leading standard form contracts, including the International Federation of Consulting Engineers (FIDIC) Conditions of Contract for Construction (Red Book), Contract for EPC/Turnkey Projects (Silver Book) and Contract for Plant and Design-Build (Yellow Book) (parts of the 2017 FIDIC Suite),⁹ and the New Engineering Contract, of which the fourth edition (NEC4) was published in 2017.¹⁰

There are unique commercial considerations that apply to energy projects. These include pre-construction considerations and post-construction uses and demands that are specific to energy facilities. These considerations also encompass political factors that can influence legal and economic policy, such as terms of trade, subsidies and taxes. What these projects all have in common, however, is the core need for the mobilisation of resources and expertise for the design and construction of facilities, with risk-allocation provisions that account for these additional risks.

Accordingly, when disputes arise, they are concerned with the usual array of contractual clauses and legal principles that are common to construction disputes. The purpose of this chapter is to provide a broad overview of these issues of risk, and the laws and issues of contract that underline disputes between energy project participants when they do arise. It is hoped that this will serve as a guide that familiarises readers with the landscape in this area.

7 School of International Arbitration, Queen Mary University of London, '2018 International Arbitration Survey: The Evolution of International Arbitration' (2018, Survey), at 30.

8 ICC Commission, 'Resolving Climate Change Related Disputes through Arbitration and ADR', at 13.

9 See Clause 21.6 of these contract forms.

10 See, e.g., Option W3 of the New Engineering Contract, 4th edition [NEC4] contract forms.

The issues that arise in construction arbitrations involving energy projects are explored across five key themes: time, cost, quality, scope, and political, economic and social risk. For each theme, this chapter first explores issues of risk and the manner in which they can be addressed through contract drafting, and then considers the issues of legal and contractual principles that frequently arise in contentious arbitration disputes.

This chapter is concerned with commercial arbitrations between participants in construction projects for energy facilities, as opposed to investor-state claims arising from such projects, which are covered comprehensively in other chapters in this book.

Time

Time-related risk

It is often said that time is everything in construction. The adverse effects and losses that flow from delay in a project's completion are often wide-ranging and severe. They can include an increase in costs for the contractor; lost production and revenue for the owner; adverse effects on the payback of loans to financiers; cash flow and subsequent solvency issues; knock-on delays in multi-phase projects; negative publicity, particularly in government-funded public projects; and breaches of ancillary arrangements to the original contract upon which the project's viability depends (e.g., offtake agreements, contracts for inputs). This final category is highly significant in construction projects for energy facilities. Facility owners will more often than not have entered into a binding offtake agreement to supply energy at a specified level to an offtake partner from the date of project completion, and will become liable for liquidated damages and other claims in the event that they are unable to meet this commitment in a timely manner. The resulting liability is often sizeable.

Time-related risks are generally allocated to the contractor. A detailed project schedule will establish the milestones that a contractor must meet (in addition to a more general project schedule that is developed at an earlier stage of the project).¹¹ The detailed project schedule will encompass key milestones, including targets and dates for a notice to proceed, phase milestones, practical completion, commissioning activities and final completion. The critical path of activities will be evident from this schedule, as will be the level of float available to absorb

11 The International Federation of Consulting Engineers [FIDIC] 2017 Suite, Clauses 8.2 and 8.3; NEC4, Clauses 30 and 31.

some delay in the project's performance. When critical delay to a project occurs, the contractor will find itself subject to an owner's claim for general and liquidated damages.

Despite this default position, delay to a project can equally be a result of events that are the responsibility of the owner. A contractor may find itself aggrieved, and the project hindered, as a result of an owner's acts of prevention, which may include active obstruction of the site; failure to provide designs, materials or other obligations that a contractor needs to perform its scope of works; or imposing contractually valid variations or change orders on the contractor. The contractor may seek a range of remedies against the owner, including extensions of time and damages.

Finally, neutral delays in the form of *force majeure* fall to the contract in accordance with the default position under the common law. By contrast, the 2017 FIDIC Suite confers upon the contractor a right to seek an extension of time in respect of neutral delay events (Clause 19). The characterisation of an event as *force majeure* can form the subject of heated contention. However, it must be noted that since the emergence of the covid-19 pandemic, new contracting parties are more cognisant of the reality of *force majeure* events and may therefore seek to carefully address the risk allocation of this type of event within their contracts.

Time-related disputes

Owner claim for liquidated delay damages

Construction contracts often include a liquidated damages clause as the principal (or exclusive) remedy available to compensate an owner for a contractor's failure to achieve timely completion. This remedy levies from the contractor an agreed monetary sum that scales per day or per week, subject to an agreed cap fixed at a percentage of the contract price (often 10 to 20 per cent). This sum represents a genuine pre-estimate of the losses that an owner will suffer as a result of delayed completion, and is compensatory rather than punitive in nature. The main rationale behind liquidated damages clauses is to avoid the complex and costly task of proving losses resulting from delay individually in accordance with general principles of contract recovery.

The categories of loss that may be compensable through a liquidated damages clause include those listed in the immediately preceding section of this chapter. In a number of recent landmark decisions, there has been judicial recognition of a broad range of losses, both monetary and non-monetary in nature, that may be taken into account when calculating the rate of liquidated damages payable for delay. The concept of protectable legitimate interests was introduced by the UK

Supreme Court in *Cavendish*.¹² The approaches of the Australian High Court in *Paciocco*¹³ and the New Zealand Supreme Court in *127 Hobson Street Limited v. Honey Bees Preschool Ltd*¹⁴ were broadly consistent with this test of legitimate commercial interest.¹⁵

However, claims for liquidated delay damages are subject to two key limitations; the doctrine of penalties and the prevention principle.

The penalties doctrine

Under the common law, the doctrine of penalties dictates that where a liquidated damages clause stipulates an amount wholly disproportionate to the value of the construction contract, such that it takes the form of a payment *in terrorem*, courts will not enforce the clause.¹⁶ The test for what constitutes an *in terrorem* clause differs substantially in each common law jurisdiction.¹⁷ The fundamental proposition of law is that a liquidated damages clause must be compensatory and not punitive. By contrast, in civil law jurisdictions, a liquidated damages clause that is disproportionate to actual losses suffered is not struck out as void, but rather civil courts will adjust the sum stipulated in the clause to accord with the actual losses suffered. This position is perhaps less arbitrary, though it circumvents to some degree the objective of liquidated damages clauses, being to avoid having to calculate actual losses.

The prevention principle

The prevention principle states that an owner will not be entitled to claim liquidated damages against a contractor for a period of delay infected with delays that are the responsibility of the owner. For instance, if a project falls 10 days behind

12 *Cavendish Square Holding BV v. Talal El Makdessi; ParkingEye Limited v. Beavis* [2015] UKSC 67.

13 *Paciocco & Anor v. Australia and New Zealand Banking Group Limited* [2016] HCA 28 [*Paciocco*].

14 *127 Hobson Street Limited v. Honey Bees Preschool Ltd* [2020] NZSC 53.

15 Although, critically, *Paciocco* differed on the application of the penalties doctrine in equity to non-breaches of contract. *Paciocco* followed the approach in *Andrews v. Australia and New Zealand Banking Group Ltd* [2012] HCA 30, in which it was held that a breach of contract was not necessary to enliven the penalties doctrine, diverging here from the English approach in *Cavendish*.

16 *Clydebank Engineering and Shipbuilding Co v. Don Jose Ramos Yzquierdo y Castaneda* [1905] AC 6; *Dunlop Pneumatic Tyre Co Ltd v. New Garage Motor Co Ltd* [1915] AC 79.

17 For an in-depth consideration of the penalties doctrine across jurisdictions, see Doug Jones, 'Navigating Penalties and Liquidated Damages across Common Law and Civil Law Jurisdictions' (2019), at 36(4), in *The International Construction Law Review*, 526.

schedule, seven of which fall to causes that are the responsibility of the contractor and three to causes that are the responsibility of the owner, the owner will lose altogether the right to claim liquidated damages in respect of the full 10 days. The rationale behind this is that the owner can no longer rely on the original date of completion and so there can be 'no fixed date from which the liquidated damages could run'.¹⁸ Any apportionment of this delay is inimical to the common law prevention principle. The results of this principle may at times seem arbitrary and contrast with the approach taken by civil courts that apportion delay losses. The severe consequences for an owner are further magnified if the parties' agreement specifies that liquidated damages are an exclusive remedy for delay, which may preclude a party from claiming general damages in the alternative.¹⁹

This situation is frequently overcome by an owner by granting an extension of time to the contractor in respect of periods of owner-caused delay. This extension must be sourced within the contract documentation and will often involve a regime that requires a contractor to give notice of owner-caused delays, often within specified time limits, which are then assessed and granted or declined by the relevant umpire (either the project owner or a site engineer). However, these extension of time provisions can create further issues that may interfere with an owner's right to claim liquidated damages. This particularly arises when a contractor fails to comply with notice provisions that are a condition precedent to the contractor's extension of time claim. In situations of concurrent delay, authority has been divided on whether the prevention principle will apply to prevent the owner from claiming liquidated damages if the contractor has not complied with these notice requirements.²⁰ In Australia, this has resulted in many contracts including provisions that allow owners to unilaterally provide extensions of time, regardless of any compliance with notice provisions by the contractor. In these circumstances, courts in Australia have held that when such a unilateral extension of time clause exists, 'there is an implied duty of good faith in exercising the discretion' on the part of the owner.²¹ It therefore seems that in common law

18 *McAlpine Humberoak v. McDermott International* (1992) 58 BLR 1, 21 (Lloyd LJ).

19 *Baese Pty Ltd v. RA Bracken Building Pty Ltd* (1989) 52 BLR 130, 139 (Giles J).

20 *North Midland Building Ltd v. Cyden Homes Ltd* [2018] EWCA Civ 1744; *Multiplex Constructions (UK) Ltd v. Honeywell Control Systems Ltd (No. 2)* [2007] BLR 195; *Gaymark Investments Pty Ltd v. Walter Construction Group Ltd* [1999] NTSC 143. For an in-depth consideration of these issues, see my article, Doug Jones, 'Can Prevention Be Cured by Timebars' (2009), *International Construction Law Review*, 57.

21 *Probuild Constructions (Aust) Pty Ltd v. DDI Group Pty Ltd* [2017] NSWCA 151.

jurisdictions where unilateral extension of time clauses are agreed, owners may be unable to withhold extensions of time merely to invoke the operation of the prevention principle.

In civil law jurisdictions, there is no explicit equivalent of the prevention principle. Instead civil courts rely on the principles of good faith and fair dealing to give effect to the universal principle that one shall not benefit from one's own wrongdoing.²² Some countries, such as China and South Korea, provide codified authority for courts to better apportion any liquidated damages amounts between the loss caused by the owner's preventing conduct and the contractor's delay.²³ Others, such as Germany and France, provide authority that a party will not be liable for non-performance or delay that has resulted from an external cause not attributable to that party.²⁴ Any failure to do so may disentitle the contractor to an extension entirely or permit the contract administrator to reduce the period of extension accordingly.²⁵

Contractor's claims for disruption

Disruption disputes are concerned with a contractor's loss of productivity as a result of some form of disturbance by the employer. These disputes will commonly centre around the 'uneconomic working' of the contractor as a result of the employer's conduct.²⁶

A contractor will be entitled to claim damages only in respect of disruption caused by the project owner. The right of claim may be defined by contract or, absent express contractual provisions, as a breach of an implied term of contract that the owner will not prevent or hinder the contractor in the execution of its work.²⁷ The Society of Construction Law's Delay and Disruption Protocol (the SCL Protocol) comments that 'most standard forms of contract do not expressly

22 See *Interfoto Library Ltd v. Stiletto Visual Programmes Ltd* [1988] 1 All ER 348, 352 to 353 (Bingham LJ).

23 Contract Law of the People's Republic of China (Adopted at the Second Session of the Ninth National People's Congress on 15 March 1999 and promulgated by Order No. 15 of the President of the People's Republic of China on 15 March 1999) Art. 114; Korean Civil Code Art. 398-2.

24 German Civil Code (BGB) S. 280(1); French Civil Code Art. 1147.

25 *Buildability Ltd v. O'Donnell Developments Ltd* [2010] BLR 122; *Ho Pak Kim realty Co Pte Ltd v. Revitech Pte Ltd* [2010] SGHC 106.

26 *Baulderstone Hornibrook Pty Ltd v. Qantas Airways Ltd* [2003] FCA 174, [100]; *Kay Lim Construction & Trading Pte Ltd v. Soon Douglas (Pte) Ltd* [2012] SGHC 186, [72].

27 See Society of Construction Law, 'Delay and Disruption Protocol' (2nd ed, February 2017), at [18.3] to [18.4].

address recovery for disruption’;²⁸ however, while limited in number, there do exist standard form contracts setting out terms that oblige compensation ‘for specific events that could lead to disruption’.²⁹

Contractors making disruption claims are required to demonstrate a connection between the alleged disruptive event and the increased costs associated with their loss of productivity or uneconomic working. This will generally require a comparison between the tender schedule and delivery mechanisms, and the adapted schedule and mechanisms as a result of the disruption. There are a variety of methods by which disruption and productivity costs can be calculated and the law is not prescriptive of any one method over another.³⁰

A common approach taken by contractors is the ‘measured mile’ approach, in which the contractor will compare its rate of productivity in a part of the project that has not been disrupted with the rate of productivity in the disrupted part of the project. Productivity in this approach is measured by the number of hours taken to produce a unit of work. This approach may be impracticable if a project has been disrupted from its inception, meaning that there is no baseline productivity from which to measure the disruption. As an alternative, the tender will usually specify an expected level of productivity, and a loss of productivity is realised when the actual productivity rate is less than the planned productivity rate.

Claimants should also be wary that when selecting a baseline period of work that is not disrupted to compare with disrupted work, there must be a reasonable degree of comparability between the specific work and surrounding circumstances at both ends of the project.³¹ The value of any comparison is otherwise substantially diminished. For example, the laying of foundations that is free of disruption cannot be used a measurement for the disrupted piping fabrication of a project.

28 *id.*, at [18.4].

29 *id.* See, e.g., NEC4, Clause 25.3.

30 See The Society of Construction Law, ‘Delay and Disruption Protocol’ (2nd ed, February 2017), at [18.12].

31 See *Clark Concrete Contractors, Inc v. General Services Administration*, GSBCA 14340, 99–1, B.C.A. 30, 280, 1999 WL 143977 (1999), cited in Jeff Fuchs and Tong Zhao, ‘Disruption: Technical (Evaluation of Causation and Quantification Methods’ in Kim Rosenberg, Erin Miller Rankin and Bryan Dayton (eds), *Dealing with Delay and Disruption* (forthcoming, Sweet & Maxwell) 273, 287.

Contractor's claims for prolongation

Prolongation disputes involve contractor claims for costs associated with delay as a result of owner-based action. They can comprise a broad range of overhead costs, opportunity costs and additional direct costs incurred as a result of the delay. These are often determined by reference to the tender schedule and, importantly, any express provisions contained in the construction contract setting out terms of recovery of prolongation costs.

A contractor asserting a claim for prolongation costs will need to first prove the causation of delay and form of the prolongation. In arbitrations involving energy facilities, this frequently requires the engagement of programming experts to analyse and identify the delay (often through a schedules analysis approach), and then a quantum expert to particularise the various cost items to substantiate the prolongation claim.

Cost items that are often claimed as prolongation costs include direct costs associated with additional performance days, such as labour costs, utility expenses and security expenses; indirect home office overheads incurred by the contractor's corporate management, job site and engineering support personnel costs; idle equipment costs; and mitigation costs.³²

Suspension of work by a contractor

Primacy is given to the contract for matters concerning the suspension of work by a contractor. The contractor's right to suspend is generally tied to financial concerns, namely non-payment or a failure by the owner to show evidence of its financial arrangements.³³

A contractor has no common law right to suspend work.³⁴ An exception occurs where the non-payment may be characterised as repudiatory conduct or in breach of an essential term of the contract, in which case the contractor may accept the repudiation of the contract and terminate.³⁵

32 Wiley R Wright III and Mark Baker, 'Damages in Construction Arbitrations' in John A Trenor (ed), *The Guide to Damages in International Arbitration* (Law Business Research, London, 2016).

33 FIDIC Suite 2017, Clause 16.1.

34 *Carillion Construction Ltd v. Felix (UK) Ltd* [2001] BLR 1, [34]; *Longyuan-Arrk (Macao) Pte Ltd v. Show and Tell Productions Pte Ltd* [2013] SGHC 160, [75].

35 *Wui Fu Development Co Ltd v. Tak Yuen Construction Co Ltd* [1999] HKCFI 93.

In the event of a dispute, there will often be allegations of wrongful suspension and claims for damages to compensate losses flowing therefrom. The liability that may follow can be substantial and can include costs to complete (considered later in this chapter). A contractual right to suspend work must therefore be exercised with caution.

Termination of contract and consequences

The right to terminate arises both contractually³⁶ and at common law. In general, a party may not unilaterally terminate without lawful reason. The main causes for termination include repudiation, anticipated repudiation, serious breach, frustration, illegality, statutory conferral of the right, or where contractually allowed. The burden of proving lawful termination lies on the party purporting to terminate the contract.³⁷

The consequences of termination may be defined by the parties' contract, but will otherwise be subject to the common law principles described below.

When a contractor accepts termination at common law for the owner's conduct, for example by repudiation, non-payment or serious breach, there are three avenues of recovery available: damages, *quantum meruit* and a debt action for amounts payable at the time of termination. A contractor is entitled to recover losses flowing from termination of the contract to put the contractor in the position it would be in had the contract been performed, including reliance and expectation losses in accordance with general principles of the recoverability of damages for breach of contract.

Alternatively, a contractor may seek to recover in *quantum meruit*, that is, on restitutionary principles that a contractor is entitled to reasonable payment for work completed to the point of termination.³⁸ A *quantum meruit* claim, however, is subject to limitations prescribed in the contractual agreement,³⁹ relinquishes a contractor's ability to claim loss of profits on the remainder of work⁴⁰ and requires the contractor to choose between making a claim for damages or *quantum meruit*.⁴¹

36 See FIDIC Suite 2017, Clause 15 (Termination by Employer) and Clause 16.2 (Termination by Contractor).

37 *Urban I (Blonk Street) Ltd v. Ayres* [2013] EWCA Civ 816, [55].

38 *Heyman v. Darwins Ltd* [1942] AC 356; *Len Lichtnauer Developments Pty Ltd v. James Trowse Constructions Pty Ltd* [2005] QCA 214; *Sopo v. Kane Constructions Pty Ltd (No. 2)* [2009] VSCA 141, [5]; *Mann v. Paterson* [2019] HCA 32.

39 *Mann v. Paterson* [2019] HCA 32, [14]; *Heyman v. Darwins Ltd* [1942] AC 356.

40 As a *quantum meruit* claim acts as an alternative to a damages claim.

41 *United Australia Ltd v. Barclays Bank Ltd* [1941] AC 1, 29 to 30.

When an owner accepts termination at common law for conduct of the contractor, it is usually entitled to recover damages flowing from the termination. For example, if the owner engages a new contractor to complete some work, the owner is generally able to claim any increase in project costs associated with the new contractor against the defaulting contractor by way of contractual rights, or first-limb damages under *Hadley v. Baxendale*.⁴² The owner is still under a duty to mitigate its losses. A contractual power to terminate will usually dictate the rights of owners and contractors, or if a clause does not prescribe the consequences of termination, claims for direct losses are usually implied into the contract.⁴³ Insofar as liquidated damages, or second-limb *Hadley v. Baxendale* damages, are concerned, an owner's right to liquidated damages in general is valid until the point of termination.⁴⁴ The parties may alter this right by agreement in the terms of the contract. On restitution grounds, and therefore separate to damages, an owner may be entitled to recover overpayment to the contractor, provided the contractor has totally failed to deliver any consideration for the overpayment.⁴⁵ In Australia, however, the position is that the contract price will generally operate as a 'cap' on the value, which can be recovered by a *quantum meruit* claim.⁴⁶

A contract may also be terminated on mutual terms, either by agreement or abandonment. If a contract is terminated by mutual agreement, the procedure for doing so is dictated by the contractual terms; however, parties may need to evidence some form of deed or consideration.⁴⁷ If a contract is terminated by mutual abandonment, however, it is necessary to show that one party has indicated it will not proceed with the contract (in some cases, non-performance by both parties over a period is sufficient) with the consent of the other.⁴⁸

42 [1854] EWHC J70.

43 *McNab NQ Pty Ltd v. Walkrete Pte Ltd* [2013] QSC 128, [29].

44 *Bluewater Energy services BV v. Mercon Steel Structures BV* [2014] EWHC 2132 (TCC), [526].

45 *DO Ferguson & Associates v. Sohl* (1992) 62 BLR 95.

46 *Mann v. Paterson* [2019] HCA 32, [101], [205]. Nettle, Gordon and Edelman JJ refer to exceptional circumstances in which it may be necessary or appropriate that the value of the work be determined without reference to contract price, including when there is no expressly stipulated contract price: at [203].

47 *Commodore Homes WA Pty Ltd v. Goldenland Australia Property Pty Ltd* [2007] WASC 146 [32].

48 *Eastgate Properties Pty Ltd v. J Hutchinson Pty Ltd* [2005] QSC 196, [52]; *Letizia Building Co Pty Ltd v. Redglow Asset Pty Ltd* [2013] WASC 171, [116].

As the right to termination appears both in contract and in common law, it is critical that the parties make clear which route of termination is being pursued. Although the broad effect of termination under both routes will align, the legal consequences and procedures that accompany the termination will invariably differ.

Relief for force majeure

A contractor may seek an extension of time on the grounds of *force majeure* under most standard form contracts for major construction work.⁴⁹ The term *force majeure* is a label that is used by contracting parties to refer to a supervening act or event beyond the control of the parties. However, this concept originates from French civil law and is not a recognised doctrine in Australian or English law. In common law, it is a creature of contract and will be interpreted by the ordinary rules of contractual interpretation. The elements for a successful claim for relief will typically include that an event occurred that was unforeseeable and beyond the reasonable control of either party. The threshold for a *force majeure* claim, however, will usually be lower than that required to invoke the doctrine of frustration in common law. The party seeking relief will often be required to comply with notice requirements and mitigate the effects of the neutral delay events on the project.

Specific examples of *force majeure* events that may affect energy projects include sudden shortages in the supply of labour or materials, labour strikes, weather conditions, economic events and government actions. As mentioned earlier, a contractor's entitlement to relief for *force majeure* is founded solely in contract. The default allocation of neutral risks at common law falls against the contractor.⁵⁰ As previously mentioned, however, in light of disputes arising from delays associated with the covid-19 pandemic, later contracting parties are likely to be more wary of the risks of *force majeure* events and should be careful to allocate risk expressly in the contract.

49 See, e.g., JCT Design and Build Contract 2016, Clause 2.25.14; NEC4, Clauses 19, 60.1(19); FIDIC Red Book 2017, Clauses 18.1 to 18.6.

50 See foundational case of *Company of Proprietors of the Brecknock and Abergavenny Canal Navigation Co v. Pritchard* (1796) 6 TR 750.

Cost

Cost-related risk

The need to complete work within budget is known as the cost risk. Projects for the construction of energy facilities generally adopt a lump-sum fixed price contract structure, which naturally places cost risk on the shoulders of the contractor. This fee will be based on careful negotiation and cost assessment. Nonetheless, cost overruns will eat directly into the contractor's profit margin.

There are two categories of exceptions to this default position. The first comprises cost overruns that the law mandates will not be borne by the contractor. These may include costs overruns flowing from an owner's acts of prevention or breach of contract. The second category comprises cost overruns arising from neutral events for which the contractor is not responsible according to the terms of the relevant contract. The parties are free during the negotiation of the terms of the contract to allocate risk for neutral delays in whatever manner they see fit.

Additional costs incurred as a result of increases in the scope of work are dealt with separately further below. Leaving scope changes aside, there are a multitude of issues that can arise during the course of a project that result in inflated costs, some of which arise from intentional conduct, others from factors that were completely unforeseeable. Explored immediately below are some of the common claims and issues that arise in this context.

Cost-related disputes

General damages

General damages seek to restore an aggrieved contractual party to the position he or she would have been in had the contract been properly performed.⁵¹ They are compensatory in nature.

The seminal case of the modern understanding of general damages is the English High Court case of *Hadley v. Baxendale*.⁵² So far as calculating damages is concerned, the Court established what is today referred to as the 'two limbs' of damages; direct losses (those that arise naturally out of the breach) and indirect losses (those that arise as a result of breach and are said to be within the contemplation of both parties at the time of the contract's inception).

51 *Robinson v. Harman* (1848) 154 ER 363, 365; *Clark v. Macourt* [2013] HCA 56, [7]; *Bunge SA v. Nidera BV* [2015] UKSC 43, [14]; *MFM Restaurants Pte Ltd v. Fish & Co Restaurants Pte Ltd* [2010] SGCA 36, [54] to [56].

52 [1854] EWHC J70.

These foundational principles provide the basis for a range of claim types, including for costs of disruption, acceleration or prolongation as well as costs to correct or complete the work, or both. However, they are subject to the aggrieved party's obligation to take reasonable measures to mitigate its losses.⁵³

Contractor's global and total cost claims

A contractor who suffers cost overruns as a result of events that are the responsibility of the owner may seek to recover these costs using the total cost method.⁵⁴ This allows causation of the various heads of loss to be proved collectively, when it would otherwise be impracticable to disentangle them.⁵⁵ The principles of law governing total cost claims as espoused by the courts are many.⁵⁶ Four elements have emerged in Canadian jurisprudence:

- that the contractor's tender was reasonable;
- that the actual cost is fair and reasonable;
- that the overruns resulted from changes or overruns; and
- the lack of another practical method available to quantify the damages.⁵⁷

Formulations of the requirements in Australia,⁵⁸ the United States⁵⁹ and the United Kingdom⁶⁰ are broadly consistent with this position. In all these jurisdictions there is also an extremely high threshold to be met before a total cost claim will succeed.⁶¹ Accordingly, it will be preferable in the majority of cases for a contractor to particularise and separately prove its heads of loss.

53 *Lagden v. O'Connor* [2004] 1 AC 1067, 1077 to 1088.

54 For a detailed analysis of total cost claims, see Steven Stein and Yelena Archyan, 'The Total Cost Method: Is it Dead Yet? A Cross-Jurisdictional Comparative Analysis' [2016], *The International Construction Law Review*, 430.

55 *Golden Hill Ventures Ltd v. Kemess Mines Inc* [2002] BCSC 1460.

56 *Walter Lilly and Company Ltd v. Giles Patrick Cyril Mackay* [2012] EWHC 1773 (TCC).

57 *Eco-Zone Engineering Ltd v. Grand Falls-Windsor (Town)* [2005] NLTD 197, [238].

58 *DM Drainage & Constructions Pty Ltd v. Karara Mining Ltd* [2014] WASC 170, [99].

59 *Baldi Bros Constructors v. United States*, 50 Fed CL, 74 (2001).

60 *Walter Lilly and Company Ltd v. Giles Patrick Cyril Mackay* [2012] EWHC 1773 (TCC); *William Clark Partnership Ltd v. Dock St PCT Ltd* [2015] EWHC 2923 (TCC).

61 See *Mainteck Services Pty Ltd v. Stein Heurtey SA* [2014] NSWCA 184, [191] to [192]; *Neal & Co v. US*, 36 Fed. Cl. 600 (1996), cited in John B Tieder Jr, 'Total Cost and Modified Total Cost Claims in the United States' (Speech, DRBF 13th Annual International Conference & Training Workshop, 2 to 4 May 2013).

Acceleration damages

Acceleration claims arise when a contractor has incurred additional costs for expediting construction. A decision to accelerate may be made pursuant to the owner's instruction or as a commercial decision when the contractor has not been given an extension of time and believes that the costs of acceleration will be less than the liquidated damages it must pay for delayed completion. The question of whether the contractor is entitled to acceleration costs is ultimately one of contract interpretation, and depends on whether the contractor or the owner is responsible for the need to accelerate.

In general, acceleration costs are the total cost of performing the work in the accelerated manner, less the costs of performing the work at the rate specified in the contract. It has been recognised that the specific costs that may be incurred by a contractor accelerating construction may include premium pay, costs of additional tools, equipment, labour and overtime.⁶² Therefore, it is critical that the contractor record all relevant costs incurred during the accelerated period, such as the cost of additional resources and the amount of overtime worked.

There is currently no consensus among relevant consultants, contractors and employers concerning how acceleration claims should be calculated. Possible methods include a global cost or total cost approach, a time impact methodology, and formulaic approaches (as specified in the contract).⁶³

Contractor's claims for latent conditions

A range of neutral issues lead to cost overruns (and delay). A few include unforeseen physical ground conditions that are common given the often remote locations where energy facilities are often built. These are known as latent conditions.

The meaning of latent condition and the availability of relief for the contractor will differ between contracts. The time risk and cost risk associated with hidden ground conditions will fall by default to the contractor, in the absence of contractual provisions stipulating otherwise.⁶⁴ This is due to the assumption that a principal will select a contractor on the basis of its expertise and, therefore, the contractor is better placed to assess the ground conditions likely to be encountered. However, the allocation of risk for latent defects under several standard

62 Overton Currie, 'Avoiding, Managing and Winning Construction Disputes' [1991], *The International Construction Law Review*, 344, 369.

63 P R Davison, 'Evaluating Contract Claims', Oxford (Blackwell, 2008).

64 *Thorn v. London Corporation* (1876) 1 App Cas 120; *Worksop Tarmacadam Co Ltd v. Hannaby (CA)* (1995) 66 Con LR 105; *Thiess Services Pty Ltd v. Mirvac Queensland Pty Ltd* (2006) 22 BCL 437.

forms, including the FIDIC Suite, is subject to an objective test of whether the condition was reasonably foreseeable by an experienced contractor'.⁶⁵ This is a complex question for which a resolution may require the expertise of an arbiter with an astute technical understanding.⁶⁶

Limitation, exclusion and indemnity clauses

Limitation and exclusion of liability clauses are often featured in construction contracts to protect a party from incurring excessive liability for delayed or defective performance.

A popular limitation or exclusion clause is one that limits or excludes the recoverability of indirect or consequential losses.⁶⁷ An aggrieved contractor may thereby be limited to claiming direct losses.⁶⁸ The characterisation of losses as direct or indirect will often be a point of contention between disputing parties, and so astute contract drafters will often be explicit in what type of loss is not recoverable, for example, by listing loss of earnings as an excluded or limited loss.

In a similar vein, construction contracts may also feature indemnity clauses that oblige one party to reimburse another in circumstances in which the latter suffers losses arising from a specific event, usually third-party actions. These indemnity clauses will often be present in contracts between owner and contractor or in between a head contractor and subcontractors and, like limitation or exclusion clauses, assist with risk allocation in the contract. For example, indemnity clauses may be used to indemnify the owner for claims by third parties against the owner arising out of the contractor's construction of the asset. It follows that when designing indemnity clauses, it is crucial that the parties clearly stipulate the scope and the extent of the indemnity that is intended.

Exclusion of liability and indemnity clauses will be given the ordinary meaning, but in the event of ambiguity, will be interpreted *contra proferentem*.⁶⁹

65 For a detailed discussion of latent conditions, see Gordon Smith, 'Latent Conditions and the Experienced Contractor Test' [2016], *International Construction Law Review*, 390.

66 UK cases on latent conditions include *Obrascon Huarte Lain SA v. Her Majesty's Attorney General for Gibraltar* [2014] EWHC 1028 (TCC), and *Van Oord UK Ltd and SICIM Roadbridge Ltd v. Allseas UK Ltd* [2015] EWHC 3074.

67 FIDIC Suite 2017, Clause 17.6.

68 *Aquatec-Maxcon Pty Ltd v. Barwon Region Water Authority* [2006] VSC 117 [103].

69 *Elvanite Full Circle Ltd v. AMEC Earth & Environmental (UK) Ltd* [2013] EWHC 1191 (TCC), [297]; *Erect Scaffolding (Australia) Pty Ltd v. Sutton* [2008] NSWCA 114, [87].

Quality

Quality risk

A further fundamental risk in construction relates to defects in a contractor's performance or in the ultimate facility under construction. The risks associated with quality fall broadly into two categories: (1) the risk that performance does not comply with express contractual stipulations for materials and workmanship (commonly by reference to accepted industry standards, for example the internationally recognised standards set by the International Organization for Standardization); and (2) the risk that the ultimate facility is not fit for purpose (i.e., suitable to meet targets and earn revenue upon completion). Quality risks are particularly pertinent given the rapid development of new technologies involved in renewable energy projects. These risks involve technical inquiries that are often within the purview of an independent project engineer.

Underlying these risks most commonly are issues in design, materials and workmanship. More subtle factors that are also relevant to consider include the risk that a poorly conceived delivery structure will cause challenges in delivering a compliant facility, as well as cultural differences between the parties that can have an impact from the time of parties meeting at the negotiating table through to activities at the site and thereafter (such as language barriers, business culture clashes, legal customs and heritage).

The adverse consequences of poor-quality construction of energy facilities are wide-ranging. If defects lead to output falling short of production targets, this can result in third-party liability on the part of the project owner to an offtake partner or financier. When major projects for national infrastructure are involved, the risks can be magnified and shortfalls in power or water supply may have repercussions for local industry and communities. The owner may seek indemnities from the contractor, or otherwise pursue a claim for damages against him or her in respect of third-party liabilities.

Quality-related disputes

Breach of contractual standards or fitness for purpose

If a contract includes a fitness for purpose obligation, the contractor must ensure that the completed works will be fit for their intended purpose. In construction projects where the contractor was also procured to undertake the design phase, this quality standard is usually implied into the contract.⁷⁰ To avoid ambiguity,

⁷⁰ *McKone v. Johnson* [1966] 2 NSW 471, 472 to 473; *Jurong Towne Corp v. Sembcorp Engineers & Constructors Pte Ltd* [2009] SGHC 93, [7]. See FIDIC Suite 2017, Clause 4.1.

best practice dictates that the owner should specify expressly in clear terms the essential requirements for the ultimate project facility. Some desired purposes are capable of definite assessment, examples being having a design life of a certain number of years⁷¹ or particular outputs from the construction of a power plant. In other cases, however, the contract may require the project to have the capacity to achieve certain results in a range of conditions. Determinations that materials or workmanship breach specified contractual standards, on the other hand, entail a comparison against a fixed baseline. This is a technical inquiry of fact in the first instance, but the issue of remedies for breaches of building and design standards involves additional questions of contract and law that are addressed below.

A particular source of tension that may arise in this area is in the conflict between design life and design standards where these two requirements are not strictly aligned (for example, if the design life requirement obliges the contractor to go beyond the design standards specifications). This is of pertinence in energy construction projects where design requirements and specific purposes will often be stipulated. Indeed, a conflict between such design specifications and design life provisions seemed to arise in *MT Højgaard A/S v. E.ON Climate & Renewables*,⁷² wherein a specified design for the foundation of a wind turbine was unable to fulfil (unknown to the contractor) a stipulated design life of 20 years. In that case, it was held these requirements were not incompatible but additional. Nevertheless, the interplay of design requirements and purpose obligations must be considered by parties when allocating risk within the contract, bearing in mind that performance obligations will often be prioritised in conflicts with design specification obligations.

Project engineer or contract administrator

The project engineer is frequently the neutral arbiter called upon to resolve disputes about quality at the project site, armed with the power to issue certificates as to time, cost and quality. The status of that certificate will be determined in the first instance by contract, but also in accordance with applicable rules of law.

71 Although this has been interpreted as an approximate lifetime following *MT Højgaard A/S v. E. On Climate & Renewables UK Robin Rigg East Ltd* [2015] EWCA Civ 407.

72 *MT Højgaard A/S v. E.ON Climate & Renewables* [2017] UKSC 59. See also *SSE Generation Ltd v. Hochtief Solutions AG and Another (CSOH)* [2016] CSOH 177 (CSIH); *125 OBS (Nominees 1) and Another v. Lend Lease Construction (Europe) Ltd and Another (QBD (TCC))* [2017] EWHC 25 (TCC).

Important aspects of the project engineer's role include the following:

- The duty of independence and impartiality. This manifests both in various standard form contracts and at common law. It is a quintessential duty of a decision maker to avoid conflicts of interest and associations that might give rise to bias or the appearance of bias. A breach of these requirements can have the effect of invalidating certificates for payments, certificates as to the achievement of milestones or certificates as to the quality of work.
- Acting in accordance with procedural fairness, by affording due process and a right to be heard to each party interested in the outcome of a decision. However, this right may be curtailed or eliminated when the contract so provides.
- The potentially final and binding nature of certificates. The character of engineers' certificates is a question of interpretation of the contract terms and, specifically, whether the parties intended an engineer's or administrator's certification to be a final and binding determination of quality of work (or other contractual milestone). If indeed this is found to be the case, grounds for challenging the quality of work will depend on a party's ability to overturn the certificate on one of several narrow grounds of appeal, which may include a manifest error, fraud, bad faith or gross negligence. Parties may wish to specify in their contracts the grounds on which the certificate may be revoked. When a final and binding certificate protects an engineer from challenge by a contractor, the owner may still be entitled to claim damages against the engineer for breach of contract or negligence for careless errors in the certification process.

The above three points provide fertile grounds for challenges to certificates as to the quality of work.

Defects liability period

A common feature in construction contracts is a 'defects liability/notification period',⁷³ within which an owner can direct a contractor to remedy any defects in the work brought to the contractor's attention. The contractor will need to comply with a properly made request to avoid breaching the contract.

73 See, e.g., FIDIC Suite 2017, Clause 11.

The right of an owner to have a contractor cure defects within this period is subject to such notice requirements as may be specified in the contract, and to principles of waiver and estoppel that may preclude an owner from directing the contractor to correct defects to which the owner has previously, by words or conduct, acquiesced.

Latent defects

A latent defect, as the name suggests, is a hidden defect that could not have been discovered at the time of the project's handover with reasonable inspection. Such a defect may manifest itself many years later and thus demonstrate an earlier breach of contract by the contractor. A prominent example is combustible cladding, which caused the fire at Grenfell Tower in London in 2017 and the Melbourne Lacrosse Building Fire in 2014.⁷⁴ The key issue with latent defects is that the defects liability period will most likely have concluded, so the owner does not have a right to require the contractor to remedy the work under the relevant contractual clause. The owner may pursue a claim for damages in tort or contract, subject to potential time bars under statutes of limitations. However, some jurisdictions, including Australia and the United Kingdom, do not recognise a common law duty of care owed by builders to subsequent purchasers in pure economic loss cases, such as a claim for the cost of rectifying the defect or for diminution in building value.⁷⁵ In those circumstances, there may be statutory regulations that allocate liability.⁷⁶

Overview of remedies for defective work

Subject to applicable terms of contract, the following remedies are available to an owner in respect of defective construction services:

- Damages amounting to the cost of rectifying the defective work are the primary remedy available to an owner. An important qualification of this remedy is that awarding damages in the sum of rectification costs must not be unreasonable having regard to the cost and benefit of undertaking the work. This inquiry into reasonableness involves a broad discretion to take

74 Matthew Bell, "How is that Even Possible?" Raising Construction Regulation from the Ashes of Grenfell Tower' (2018), 35(3), *The International Construction Law Review*, 334.

75 *Brookfield Multiplex Ltd v. Owners Corporation Strata Plan 61288* (2014) 254 CLR 185; *Woolcock Street Investments Pty Ltd v. CDG Pty Ltd* (2004) 216 CLR 515; *Thomas & Anor v. Taylor Wimpey Developments Ltd & Ors* [2019] EWHC 1134 (Technology & Construction Court).

76 See, e.g., Building and Other Legislation (Cladding) Amendment Regulation 2018 (Qld).

into account all relevant circumstances, but will require consideration of whether the aggrieved party suffers real loss, and whether the cost of remedial work is disproportionately large compared to the cost of the original work.⁷⁷ Importantly, it requires an inquiry into ‘reasonableness in relation to the particular contract and not at large’.⁷⁸

- Specific performance, as a remedy reserved for the exceptional circumstances where an award of damages would be inadequate (for example, when urgent repair work is needed and the contractor is the only party capable of performing the work within the required time).⁷⁹
- Other categories of damages may be sought for losses and liabilities incurred as a result of the contractor’s defective performance grounded in ordinary principles of recovery for breach of contract. This may include delay claims and claims for additional costs, as covered earlier in this chapter.

Also relevant are the laws of waiver and estoppel as they apply to potential acquiescence by the owner to defects in the contractor’s work, by words or conduct.

Scope

Scope risk

The scope of work that the contractor is required to complete is generally conceived prior to the bid phase of a project. At this stage, the task entails the selection of a procurement methodology and the specification of core functions and performance criteria for the end-use facility. In projects for the construction of energy facilities, this will generally require designation of a design and construct or turnkey methodology, identification of the key features and layout, and specification of required output capacity (e.g., megawattage generated by a power plant, or barrels produced by oil platforms and pipelines). These criteria will then be formalised, in as much detail as the owner desires, in the final contract documentation. In the FIDIC and ICC standard forms, these are known as the employer’s requirements.⁸⁰

A risk trade-off occurs at this point: more detail in the employer’s requirements results in less flexibility for the contractor in performance and therefore

⁷⁷ *Scott Carver Pty Ltd v. SAS Trustee Corporations* [2005] NSWCA 462, [46].

⁷⁸ *Ruxley Electronics Ltd v. Forsyth* [1996] AC 344, per Lord Jauncey.

⁷⁹ *Taylor Woodrow Construction (Midlands) Ltd v. Charcon Structures Ltd* (1982) 7 Con LR 1 (CA).

⁸⁰ FIDIC Suites 2017, Clause 1.1.31.

a greater risk of change orders. The less detail in the employer's requirements, the less likelihood of change orders but the greater risk that the contractor in performing will produce an ultimate work that does not quite fit the owner's desired facility.⁸¹

To whom does the risk of changes in scope fall? A perfunctory response might be that the risk in a fixed-fee turnkey project lies entirely with the contractor to take such steps as are necessary to complete the facility in a timely manner for the agreed sum. That might be true in the hypothetical situation in which an employer perfectly defines the scope of work in the technical documents. The position is complicated, however, if there are inconsistencies, shortcomings or deficiencies in the designs or other specifications provided by the owner, as is often the case.

These issues are addressed through risk-allocation provisions and contractual clauses that facilitate variations and change orders where necessary. The risk of scope changes arising from shortcomings in the technical information provided by the owner can be allocated in one of three ways:

- strictly against the contractor, as occurs under the 2017 FIDIC Silver Book, which requires the contractor to warrant that it has scrutinised the employer's requirements and is responsible for the accuracy of information in them (except for such information as it is not possible for the contractor to verify) (Clause 5.1);
- strictly against the owner, who is held responsible for errors in design and data, therefore granting the contractor a right to added time and payment for the scope change (as is the case under the JCT Design and Building Contract, Clause 2.1); or
- balanced, so that a contractor may point out errors in the employer's design and data and will have a contractual mechanism to seek additional time and payment for additional work (as is the case under the FIDIC Yellow Book, Clauses 5.1 and 13).⁸²

81 For a discussion of the risk trade-off in defining the employer's requirements, see Eric Eggink, 'Correct scoping of Employer's Requirements: The Prevention of Change Orders?' [2017], *The International Construction Law Review*, 4.

82 A comprehensive work on variations to the scope of work is Michael Sergeant and Max Wieliczko, *Construction Contract Variations* (Informa Law from Routledge, 2014).

Scope-related disputes

If an owner denies a proper claim by a contractor for additional time and payment for out-of-scope work, an arbitrator may grant the following remedies in the context of a later dispute:

- the contractor may claim sums for the cost of the work and an allowance for profit in *quantum meruit*,⁸³ and
- where the contract has an extension of time clause, the contractor will be granted an extension in respect of the delay resulting from the out-of-scope work (thereby reducing the contractor's liability for delay-related damages); or
- where the contract does not have an extension of time clause, the variation may be construed as an act of prevention by the owner that will disentitle it altogether from claiming liquidated damages for delay (see earlier discussion regarding the operation of the prevention principle).

The quantum of out-of-scope work and the amount of time required to complete such work can be a source of contention in construction disputes. They often need to be resolved with the assistance of evidence from experts in matters of quantum and construction scheduling. The pricing of additional out-of-scope work is generally done by reference to either the agreed rates for work used for tender pricing, or another schedule of rates agreed between the parties for the work. Alternatively, the contractor may be entitled to a fair valuation of its costs if reasonably and properly incurred.⁸⁴

Political, economic and social

Political, economic and social factors can have a financial impact on parties to energy projects, owner and contractor alike. These factors are closely intertwined. Political decisions are made based on economic and social considerations leading to legal changes. Three manifestations of these risks that arise from time to time in energy projects, and are accordingly considered, are:

- Risk 1 – changes in applicable laws: including changes in subsidies or tax arrangements, local content requirements, local labour laws, tariffs and other terms of trade.
- Risk 2 – contractor price risk arising from changes in the market for supplies needed for construction.

83 See *Miccon Hire Pty Ltd (in liquidation) v. Birla Mt Gordon Pty Ltd* [2013] QSC 139, [32].

84 *Weldon Plant Ltd v. Commission for the New Towns* [2001] 1 All ER (Comm) 264, [15].

- Risk 3 – owner price risk arising from changes in the market price of the energy commodity to be produced.

Recovery for losses flowing from these risks will only be possible if a contractual right of recovery or contract price adjustment has been negotiated and agreed between the parties. This requires a commercial decision by the parties: whether risk from political, economic and social factors should be left to lie where it falls or be allocated between them.⁸⁵

Turning to Risk 1, the parties' interests are best served when the performance of the project remains a viable and profitable endeavour for both. This ensures timely completion to the requisite standard. During the multiple years that a major energy construction project can run, there is a substantial risk of adverse changes to local laws and regulatory frameworks that may create an imbalance in a contract.⁸⁶ Often it will be the wish of the parties that such a risk not be left to chance. The risk will be allocated so that a contractor will benefit from an increase in the contract price to account for additional costs resulting from changes in applicable laws. In return, the contractor will account for part of any windfall resulting from a beneficial change in the law. Thus, both parties' interests are protected and the uncertainty associated with a change of law is hedged. This same approach applies to risks of adverse changes in tax rates, tariffs and subsidies.

This allocation can be achieved in two ways: through a general provision of risk transfer, or a risk-specific clause.

85 The first and second of these risks arise from express policy decisions by the government of the jurisdiction where the project is located. Accordingly, changes in policy that adversely affect project participants may be the subject of an investor-state claim under an applicable investment treaty. As stated earlier, this chapter is not concerned with the potential investor-state implications, but rather the significance of these issues between contracting parties seeking to achieve an optimal allocation of risk between them.

86 For example, the recent decision of the Court of Justice of the European Union in *Slovak Republic v. Achmea BV*, in which the Court held that the arbitration clause under a Netherlands–Slovakia bilateral investment treaty, and implying that arbitrations under intra-EU bilateral investment treaties more generally, were incompatible with EU law. This has led to concerns as to whether arbitral awards rendered under the Energy Charter Treaty are also unenforceable: see J Robert Basedow, 'The Achmea Judgment and the Applicability of the Energy Charter Treaty in Intra-EU Investment Arbitration' (2020) 23(1), *Journal of International Economic Law*, 271.

The first type is a general provision protecting against an adverse change in applicable laws.⁸⁷ This leaves open to potential dispute whether the change is a change of applicable law, which will depend on the definition of applicable law. This often raises questions of whether a change is a change of mere policy, a change in a private agreement between a project party and a government agency, or a genuine change in the law. Another element that can arise is whether the change in law was foreseeable and therefore expected by the parties at the time the contract was negotiated and agreed.

The second type consists of specific provisions that protect against these risks. One example is a change in local content requirements,⁸⁸ which require international companies to use a minimum level of local labour (or otherwise no more than a maximum percentage of foreign labour). This seeks to preserve local social standards and economies, and achieve sustainability. Local content may be cheaper or more expensive than imported labour. There are a multitude of other risks of legislative change that the parties may specifically wish to include in their allocation of risk. This avoids surprises at a later stage that may jeopardise the financial viability of the project for one of the parties.

As to Risks 2 and 3, price risk will lie where it falls by default. Again, however, if the parties wish to eliminate this element of uncertainty, they can hedge the risk through contract drafting. Part of any windfall or loss to a party can be shifted to the other to maintain a balanced final outcome in a multi-year project. The need for the parties to manage this risk becomes more clearly pronounced in projects whose performance spans many years. The volatility of market prices for materials, equipment and commodities, if left unchecked, has the potential to throw the commercial terms of the negotiated contract out of balance. There are a number of ways this can be addressed. A schedule of prices may be set out in a contract with provision made for adjustments in the contract price for movements in excess of a certain limit. Alternatively, a contract may make more general provision for economic rebalancing of a contract at a later date.

87 See, e.g., JCT Design and Build Contract 2016, Clause 2.26.12; NEC4 Option X2, Clause 17.2; FIDIC Red Book 2017, Clause 18.6.

88 For a discussion of local content laws in Africa, see e.g., Ibrionke T. Odumosu-Ayanu, 'Foreign Direct Investment Catalysts in West Africa: Interactions with Local Content Laws and Industry-Community Agreements' (2012) 35(1) *North Carolina Central Law Review* 65; Bartrand Montembault, 'State Sovereignty in International Projects Takes on a New Luster' (2013) *International Business Journal* 288, 299 to 300.

Conclusion

As is clear, the issues that arise in construction arbitrations concerning energy facilities consist of the same fundamental claims, contractual issues and legal principles as the broader world of construction disputes. The energy industry brings with it additional complexity in the form of international players and risks, economic and political forces at an international level, and strict production-driven scheduling and performance. The risks associated with energy construction have also rapidly evolved in recent years in light of the covid-19 pandemic and the need to address the changing climate in the development of the modern energy economy. This chapter has sought to provide a brief introduction to many of these issues and the associated commercial risks.