Force majeure and Climate Change: What is the new normal?

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Introduction

Recent years have brought more evidence that weather patterns are changing: hurricanes are more frequent and severe, major rainstorms and blizzards are more common, and average temperatures are rising. The concept of force majeure – both as a contractual provision and as a statutory or judicial exception – excuses parties from contractual obligations in the face of unusually severe, unexpected weather. But with changing weather patterns, what is "unusually severe"? What is "unexpected"? What is the new normal?

Force majeure can be a contractual or statutory construct. In both, contracting parties and courts applying force majeure provisions often look to historical weather patterns to define unexpectedly severe weather. But shifting weather patterns mean that historical data may not be an accurate predictor of future weather patterns.

This Article focuses on construction contracts in the United States and describes how parties and courts approach force majeure questions in various contexts, including how both currently distinguish expected but severe weather (not generally a force majeure event) from unexpectedly or unusually severe weather (potentially a force majeure event). It then examines how these methods will need to evolve in light of changing weather patterns. This Article also suggests modifications to the various approaches to determining when weather is unusually

severe with the aim of providing flexibility and accuracy in applying force majeure in a world with changing weather patterns.

Part I provides a brief overview of recent scientific evidence of climate change and observed and anticipated changes in weather patterns. Part II traces the history and application of force majeure. Part III explores force majeure as a contractual concept, examining how parties define force majeure events and under what conditions courts add judicially-created requirements of unforeseeability, diligence and causation. Part IV examines the force majeure provisions contained in three commonly-used form construction contracts: the American Institute of Architects ("AIA"), the Engineers Joint Contract Documents Committee ("EJCDC"), and the ConsensusDOCS Contracts. It also analyzes the Federal Acquisition Regulations (applicable to federal public contracts) and the Army Corps of Engineers' agency-specific approach to force majeure clauses. Part V examines how changing weather patterns will affect the established application of force majeure, particularly in the areas of: (1) defining abnormal weather, (2) foreseeability, and (3) necessary mitigation factors. The Article concludes by identifying existing contractual and litigation approaches that can deal most successfully with changing weather patterns and making concrete suggestions for parties to address force majeure issues in contract negotiations.

I. The Science of Climate Change[2]

In recent years, changing weather patterns have become more obvious and more troubling.[3] "Climate change" is defined as "any significant change" in the climate over an extended period (decades or longer), whether measured in changes of temperature, precipitation, wind or other atmospheric conditions.[4] According to the United Nations Intergovernmental Panel on Climate Change, "as Earth's average temperature has increased, some weather phenomena have become more frequent and intense (e.g., heat waves and heavy downpours), while others have become less frequent and intense (e.g., extreme cold events)."[5] Catastrophic events such as hurricanes have increased in frequency and intensity over the past 20 years as the sea surface temperatures (especially in the Atlantic) have risen.[6] "Tropical storm and hurricane frequencies

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[2] The factual assertions in this section come from two authoritative scientific sources: the United States Environmental Protection Agency ("EPA") and the Intergovernmental Panel on Climate Change ("IPCC"), a UN-established body. The IPCC

> is the leading international body for the assessment of climate change. It was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) to provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts. The IPCC is a scientific body. It reviews and assesses the most recent scientific, technical and socio-economic information produced worldwide relevant to the understanding of climate change.

http://www.ipcc.ch/organization/organization.shtml.

[3] As used in this Article, "weather" is the description of atmospheric conditions now or during a discrete period. "Climate" is the broader description of weather patterns over a long period. For example, precipitation may be increasing an average of six percent over the next century (climate change), but next year may bring a drought (weather condition).

[4] United States Environmental Protection Agency, *Climate Change Indicators in the United States* 1, available at http://www.epa.gov/climatechange/pdfs/climateindicators-full.pdf (hereinafter "EPA, *Climate Change Indicators*").

[5] *IPCC Fourth Assessment Report: Climate Change 2007, Working Group I Report,"The Physical Science Basis"*, 1, FAQ 1.2 (Solomon et al., eds. 2007), available at http://www.ipcc.ch/publications_and_data/ar4/wg1/en/contents.html (hereinafter, "IPCC, *The Physical Science Basis*").

[6] EPA, *Climate Change Indicators* at 5.

vary considerably from year to year, but evidence suggests substantial increases in intensity and duration since the 1970s."[7] For example, the average number of Category 4 and 5 hurricanes per year has increased by approximately 75 percent since 1970.[8] Similarly, the number of heat waves worldwide per year has increased since the 1950s, and some areas have seen an increased number of heavy rain events that lead to flooding.[9]

Even "normal" weather events such as daily temperatures and rainfall are changing. Average temperatures have risen, particularly in the United States, which is currently warming at approximately twice the global rate:

> Average temperatures have risen across the lower 48 states since 1901, with an increased rate of warming over the past 30 years. Seven of the top 10 warmest years on record for the lower 48 states have occurred since 1990, and the last 10 five-year periods have been the warmest five-year periods on record. Average global temperatures show a similar trend. . . .[10]

Around 1900, the rate of change for the average temperature both globally and in the United States was approximately 0.13°F per decade. Today, the United States is warming at more than triple that rate, with average temperatures currently rising between 0.35 to 0.51°F per decade.[11] "Temperature is a fundamental component of climate, and it can have wide-ranging effects on human life and ecosystems."[12] Even small increases in temperature can produce significant impacts.

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[7] IPCC, *The Physical Science Basis* at FAQ 3.3.

[8] *Id.*

[9] *Id.*

[10] EPA, *Climate Change Indicators* at 5.

[11] *Id.* at 23.

[12] *Id.* at 22.

Increased temperatures have led to changing precipitation patterns.[13] Precipitation in the United States has increased by approximately six percent in the past century, and precipitation is increasing world-wide.[14] Warmer oceans cause more water to evaporate, and warmer temperatures allow the evaporated water to remain in the air longer, building strength and volume before it falls back to land. Thus, even small temperature changes lead to appreciable changes in precipitation patterns.[15] Changing precipitation patterns lead to differing soil conditions.[16] "A rare 45-year record of soil moisture over agricultural areas of the Ukraine shows a large upward trend" in soil moisture.[17] Data collected from other locations – including China, Russia, Mongolia, India and the United States – also show an increasing amount of soil moisture during the summer months.[18]

In addition to an overall increase in total precipitation, an increasing percentage of precipitation has come from intense, single-day events (whether as rain or snow).[19] Intense, single-day precipitation events can produce severe consequences such as "crop damage, soil erosion, and an increase in flood risk."[20] These effects are due to the intensity of the

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[13] IPCC, *The Physical Science Basis* at 3.3.5 ("Significant large-scale correlations between observed monthly mean temperature and precipitation for North America and Europe have stood up to the test of time and been expanded globally.") (citations omitted).

[14] EPA, *Climate Change Indicators* at 5.

[15] *Id.* at 30.

[16] Changed soil conditions can have a significant effect on construction contracts.

[17] IPCC, *The Physical Science Basis* at § 3.3.4.

[18] *Id.*

[19] EPA, *Climate Change Indicators* at 31.

[20] *Id.* at 30.

precipitation. The same amount of rain or snow over several days or weeks may not have adverse effects.

Although precipitation has been increasing in most parts of the United States, shifting weather patterns have led to decreased precipitation in some areas, such as Hawaii and the Southwest United States.[21] Other areas of the world such as Australia have seen an increasing number of droughts.[22] "Large multi-year oscillations [in precipitation] appear to be more frequent and extreme after the late 1960s than previously in the century."[23] Warmer temperatures cause more precipitation to fall as rain rather than snow, decreasing the amount of snow pack, which leads to diminished water resources in the summer when demand is highest.[24]

Finally, changing weather patterns have affected crop cultivation. The current average growing season is approximately two weeks longer than in the early 1900s. The length has risen slowly, with a marked and faster increase in the past 30 years.[25] In addition, plant hardiness zones – areas where specific categories of plants can survive the winter temperature – "have

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[21] *Id.* at 5. The fact that precipitation or temperature decreases in specific places is not evidence against climate change. As the IPCC explained:

> Another common confusion of these issues is thinking that a cold winter or a cooling spot on the globe is evidence against global warming. There are always extremes of hot and cold, although their frequency and intensity change as climate changes. But when weather is averaged over space and time, the fact that the globe is warming emerges clearly from the data.

IPCC, *The Physical Science Basis* at FAQ 1.2.

[22] *Id.* at § 3.3.5.

[23] *Id.* at § 3.3.4.

[24] *Id.* at FAQ 3.2.

[25] EPA, *Climate Change Indicators* at 7.

shifted noticeably northward since 1900" and "[l]arge portions of several states have warmed by at least one hardiness zone."[26]

These changes – both singularly and collectively – can have a significant impact on many industries, including farming, shipping, oil and gas production, and of course construction.

II. Force Majeure: History and Development

Force majeure excuses a party from performing a contract in the face of an unusual event beyond the control of either party. Because the underlying purpose and past application of force majeure can inform attempts to apply the concept amid changing weather patterns, it is important to understand the history and development of force majeure.

Force majeure is a French word meaning "superior force," and is defined in the law as "[a]n event or effect that cannot be anticipated nor controlled."[27] Although related to events considered "acts of God," force majeure is a broader concept that can be expanded further by contract. Some force majeure events can be considered "acts of God" (such as floods, tornados and volcanic eruptions), while others are acts of people (such as terrorist attacks, labor strikes and new governmental regulations).[28] This Article focuses on weather-related force majeure events (such as hurricanes, tornados, floods and unusually severe rain, wind, snow and temperature), but the interpretation and application of force majeure is relatively consistent regardless of the type of force majeure event.

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[26] *Id.*

[27] Black's Law Dictionary (9th ed. 2009), "force majeure."

[28] *Id.*; *see also* Jennifer Sniffen, *In the Wake of the Storm: Nonperformance of Contract Obligations Resulting from a Natural Disaster*, 31 Nova L. Rev. 552, 555 (2006-2007) ("This term includes both acts of nature (e.g., floods and hurricanes) and acts of people (e.g., riots, strikes and wars.").

Force majeure is derived from the confluence of two Roman legal doctrines: *pacta sunt servanda* ("agreements must be kept") and *rebus sic stantibus* ("things standing thus").[29] Taken together, they support the notion that contracts must be honored provided the circumstances remain the same. The doctrine later appeared in the Napoleonic Code, and from there spread into many different legal systems, changing along the way.[30] Today, force majeure exists in civil law countries such as France, Greece and Germany.[31] A slightly modified version made its way into common law countries, more specifically the British and American legal systems.[32]

Several international sources – such as the International Institute for Unification of Private Law ("UNIDROIT") and the International Chamber of Commerce ("ICC") – have analyzed and consolidated the doctrine of force majeure into a relatively universal statement for purposes of international contracting. Three common themes emerge in interpreting force majeure provisions worldwide: unforeseeability, external causation and unavoidability.[33] An event must have been *unforeseeable* at the time of contracting or the party is presumed to have assumed the risk of that event occurring. An event must be *caused by an external force* (outside of a party's control) in order to be a force majeure event. Finally, the effects of a force majeure event must be *unavoidable* in that a party cannot mitigate or avoid the resulting damage.[34] If a party can take reasonable steps to avoid the occurrence or effects of a force majeure event, then

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[29] Marel Katsivela, *Contracts: Force Majeure Concept or Force Majeure Clauses?*, 12 Unif. L. Rev. 101, 101-02 (2007) (origins of American force majeure); Bruner & O'Connor on Construction Law § 7:229 (linking the two phrases to force majeure); Encyclopedia Brittanica (providing translations).

[30] Bruner & O'Connor on Construction Law § 15:22 (origin in Roman and Napoleonic law).

[31] *Id.* at § 7:229 (French and German law).

[32] *Id.* at § 7:229 (British, French and German law); Katsivela, 12 Unif. L. Rev. at 102 (French, Greek and Quebec law).

[33] Katsivela, 12 Unif. L. Rev. at 103.

[34] In this Article, we will refer to these themes as *unforeseeability*, *external causation* and *unavoidability*.

the party will not be excused from the contract. As a practical matter, external causation and unavoidability are simply two sides of the same coin: the party claiming force majeure must not have been negligent, either by causing the force majeure event (external causation) or by causing or failing to prevent the results of the force majeure event (unavoidability).

Both the UNIDROIT and ICC provisions describe the concepts of unforeseeability, external causation and unavoidability. The UNIDROIT Principles of International Commercial Contracts summarizes the general trends across multiple jurisdictions and expressly incorporates unforeseeability, external causation and unavoidability:

> Non-performance by a party is excused if the party proves that the non-performance was due to an impediment *beyond its control* [external causation] and that it *could not have reasonably be expected* to have taken the impediment into account at the time of the conclusion of the contract [unforeseeability] or *to have avoided or overcome its consequences* [unavoidability].[35]

The International Chamber of Commerce ("ICC") model force majeure clause also requires unforeseeability, external causation and unavoidability.[36] If a party claims force majeure based on an event in the ICC force majeure list, the court will presume that the event is externally caused and was unforeseeable, but the party must still demonstrate that the harm was unavoidable.[37]

In the United States, force majeure continues to occupy a somewhat blurry position among the doctrines of impossibility, impracticability and frustration. One commentator aptly described these doctrines in the following terms:

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[35] UNIDROIT ("International Institute for the Unification of Private Law"), Principles of International Commercial Contracts § 7.1.7, available at http://www.unidroit.org/english/principles/contracts/main.htm.

[36] ICC Force Majeure Clause 2003 § 1.

[37] *Id.* at § 3.

> Physical impossibility can be described as the destruction of the subject matter of a contract which makes performance objectively impossible, i.e., the thing cannot be done. If the contract is capable of being performed, but the underlying purpose of the contract no longer exists, one should speak of frustration of purpose. . . . In a case of commercial impracticability, performance is still possible and the purpose of the contract can still be fulfilled. However, due to a change in circumstances, the performance of the promisor's obligations has become economically senseless.[38]

Force majeure is slightly different than any of these three doctrines, but overlaps with all of them. Some force majeure events may make a contract impossible to perform. For example, a tornado may destroy a building and make it impossible for a contractor to finish a remodeling project. A force majeure event also may frustrate a contract, as when a hurricane destroys a manufacturing facility and compromises the essential purpose for building a parking lot for that facility. Force majeure events may make the contract commercially impracticable, where repeated flooding changes the soil composition, rendering it cost-prohibitive to construct a building at that site. Finally, a force majeure event may fall in none of these categories, such as a severe weather event that simply delays completion of the contract for a period of time.

III. Force Majeure in Contracts

Force majeure applies in different contexts, including tort law, statutory enforcement and contract claims. A force majeure event can preclude tort liability when it causes a reasonably-constructed dam to break and flood a nearby area.[39] A force majeure event also can exempt a party from compliance with state or federal law, such as where a party is excused from exceeding water pollution limits during a hurricane or "hundred year flood."[40] Finally, a force

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[38] P.J.M. Declercq, *Modern Analysis of the Legal Effect of Force Majeure Clauses in Situations of Commercial Impracticability*, 15 J. L. & Commerce 213, 215 (1995).

[39] *Cf. Barr v. Game, Fish and Parks Comm'n*, 497 P.2d 340 (Col. Ct. App. 1972), discussed at the text surrounding footnotes 81-85.

[40] See also footnotes 102-110 and corresponding text.

majeure event can excuse a party from non-performance of a contract. This Article, for the most part, focuses on this last context.

Force majeure is a narrow exception to the rule that contracting parties are bound to fulfill the contract or pay damages. In the United States, force majeure is akin to an affirmative defense, although it can also be used offensively to terminate a contract.[41] As a starting point, "the risk of abnormal weather is commonly held to be assumed by a [ ] contractor, except where provision otherwise is made in the contract;" [42] though the notion is softened by the common law doctrines of impossibility, impracticability and frustration. Understanding this risk, some parties choose to allocate the risk differently, by including a force majeure clause in their contract. In such circumstances, the force majeure clause trumps the three common law doctrines. As one court noted: "Contractual terms are controlling regarding force majeure with common law rules merely filling in gaps left by the document."[43]

A. Defining the Force Majeure Event.

At the time of contracting, both parties are operating behind a veil of ignorance with respect to future force majeure events. Each party has an *ex ante* interest in defining force majeure events with enough specificity that it can anticipate how the provision will be applied, while leaving enough flexibility to allow the provision to apply with equal effect to an

[41] Williston on Contracts § 77:31 (4th ed. Richard A. Lord) (akin to affirmative defense); Bruner & O'Connor on Construction Law § 7:229 (can be used to terminate contract). Because force majeure can be invoked by either a plaintiff or a defendant, we refer to the party seeking a force majeure exemption as "the party claiming force majeure."

[42] *Assoc. Engineers & Contractors, Inc. v. State of Hawaii*, 568 P.2d 512 (Haw. 1977); *see also* Bruner & O'Connor on Construction Law § 7:230 ("There are no shortage of cases holding that contractors on a fixed-price contract assume weather risks."); *Eastern Air Lines, Inc. v. McDonnell Douglas Corp.*, 532 F.2d 957, 991-92 (6th Cir. 1976) ("[T]he purpose of a contract is to place the reasonable risk of performance on the promisor, [who] is presumed . . . to have agreed to bear any loss occasioned by an event which was foreseeable at the time of contracting.").

[43] *R & B Falcon Drilling Co. v. Am. Exploration Co.*, 154 F. Supp. 2d 969 (S.D. Tex. 2000).

unexpected or new type of event.[44] Drafting a force majeure clause too broadly would erode one of the core purposes of a contract: to guarantee performance at the agreed-upon price during the agreed-upon time.[45] Conversely, drafting the provision too narrowly could unfairly burden the contractor when the source of delay was truly outside of its control. Parties seek to draft force majeure provisions that are narrow enough to prevent parties from misusing it to avoid the consequences of an unfavorable bargain, but generous enough to provide necessary relief if a material unforeseeable event does occur.

Parties generally use one of two approaches when drafting a force majeure provision: (1) a clause with general language, or (2) a clause that provides a list of specific force majeure events. General force majeure clauses often include language relating to unforeseeability, external causation and unavoidability.[46] Such a provision may describe a force majeure event as "not reasonably within the [party's] control . . . and which, by the exercise of due diligence of such party, could not have been prevented or is unable to be overcome."[47] Alternatively, a contract may address the consequence of the event rather than attempting to define the event

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[44] For example, after the September 11th terrorist attacks, several commentators noted that future force majeure provisions should specifically address whether terrorism is a force majeure event. *See* Bruce Leshine, *Force Majeure after 9/11: New Issues in a New World*, available at http://www.outsourcing-center.com/2003-02-force-majeure-after-911-new-issues-in-a-new-world-article-37927.html.

[45] *N. Ind. Public Serv. Co. v. Carbon County Coal Co.*, 799 F.2d 265, 275 (7th Cir. 1986) ("A force majeure clause is not intended to buffer a party against the normal risks of a contract. The normal risk of a fixed-price contract is that the market price will change. If it rises, the buyer gains at the expense of the seller . . . ; if it falls, as here, the seller gains at the expense of the buyer. The whole purpose of a fixed-price contract is to operate this way. A force majeure clause, interpreted to excuse the buyer from the consequences of the risk he expressly assumed, would nullify a central term of the contract.").

[46] *See, e.g., URI Cogeneration Partners, LP v. Board of Governors for Higher Education*, 915 F. Supp. 1267, 1276 (D.R.I. 1996) (external causation and unavoidability).

[47] *Tejas Power Corp. v. Amerada Hess Corp.*, No. 14-98-00346-CV, 1999 WL 605550 *1, *3 (Tex. Ct. App. Aug. 12, 1999).

itself, by providing relief for any event that causes a certain amount of delay.[48] The greatest benefit of a general force majeure clause is that it provides flexibility. The drawback is that it is difficult to predict how a court will interpret and apply a general force majeure clause, which makes it little better than relying on the common law doctrines of impossibility, impracticability and frustration.[49]

The second approach in drafting a force majeure clause is to provide a list of specific events, often preceded or followed by a catch-all phrase. This approach allows for greater clarity at the contracting stage, but the clause may prove to be too narrow because of the difficulty of anticipating and enumerating all of the possible events that could disrupt a contract. Some courts may refuse to apply a force majeure clause to a situation different from the listed events even though the clause itself provides that the list is not exclusive.[50] As one court noted: "Ordinarily, only if the force majeure clause specifically includes the event that prevents a party's performance will that party be excused."[51] A comprehensive list may unduly limit parties if a later-occurring event is not listed in the parade of horribles in the force majeure clause.

The definition of the force majeure event is only a starting point. A party claiming force majeure must also satisfy any additional requirements in the contract (such as providing notice of the force majeure event in a designated away), along with any judicially-created requirements for claiming force majeure. These include elements such as external causation, unavoidability, notice and foreseeability.

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[48] For example, the Army Corps of Engineers uses contractual provisions that provide relief from the contract if weather delays exceed a given amount of time in a defined period. *See* Part IV.D.

[49] *See* Sniffen, 31 Nova L. Rev. at 559-60 (describing the limits of a general force majeure clause).

[50] *URI Cogeneration Partners*, 915 F. Supp. at 1276 (holding that zoning approval was not force majeure event because it was not mentioned in the contract's non-exclusive list and it was foreseeable).

[51] *Id., quoting Kel Kim Corp. v. Central Markets, Inc.*, 519 N.E.2d 295, 296 (N.Y. Ct. App. 1987).

B. Additional Contractual Requirements: External Causation, Unavoidability and Notice

In addition to defining force majeure, some contracts require that the party seeking relief demonstrate that it did not cause the event, took reasonable measures to prevent the damage, and gave timely notice of the event.

Contracts commonly provide that a force majeure event cannot be caused by the party claiming force majeure (external causation). For example, a contract may require that a force majeure event be "due to events beyond the reasonable control of and without the fault or negligence of the party claiming Force Majeure,"[52] or be caused by an act of God "or any other cause of like kind not reasonably within the [seller's] control . . . and which, by the exercise of due diligence of such party, could not have been prevented or is unable to be overcome."[53]

Other contracts focus on whether *the effects* of the force majeure event were impossible to avoid (unavoidability). For example, a contract may provide a laundry list of force majeure events, plus language like this: "however, [force majeure] shall not mean or include any cause which by the exercise of due diligence the party claiming force majeure is able to overcome."[54] In this circumstance, a contractor who fails to secure building materials and reasonably protect the project from the effect of a hurricane may be unable to claim force majeure because, although the hurricane itself was unavoidable, the damage to the materials might have been

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[52] *URI Cogeneration Partners*, 915 F. Supp. at 1276 (construction contract).

[53] *Tejas Power Corp. v. Amerada Hess Corp.*, No. 14-98-00346-CV, 1999 WL 605550 *1, *3 (Tex. Ct. App. Aug. 12, 1999) (force majeure is an act of God "or any other cause of like kind not reasonably within the [seller's] control . . . and which, by the exercise of due diligence of such party, could not have been prevented or is unable to be overcome"); *Gulf Oil Corp. v. FERC*, 706 F.2d 444, 454 (6th Cir. 1983) ("Gulf must show that it tried to overcome the results of the events' occurrences by doing everything in its control to prevent or minimize the event's occurrence and its effects.").

[54] *Gulf Oil Corp.*, 706 F.2d at 448 n.8.

prevented if the contractor had taken reasonable steps.[55] When avoidability is an issue, a party "must show that it tried to overcome the results . . . by doing everything within its control to prevent or to minimize the event's occurrence and its effects."[56]

For example, in *McDevitt & Street Co. v. Marriott Corp.*,[57] a federal district court denied a contractor's claim for an extension of time because the contractor failed to take actions that could have prevented the weather damage:

> [W]hile [the contractor] does not control the weather, [the owner] has pointed to specific precautionary measures [the contractor] could have taken to minimize the adverse effects of precipitation. In some instances, these preventive or mitigating measures were contractually required. Yet [the contractor] chose not to take these actions. This failure to prevent or mitigate the effects undercuts its claim for excusable delay.[58]

In the court's view, the fact that *the weather* was outside the control of the contractor was not enough; the contractor had to prove that *the effects* of the weather were also outside its control. The mitigation measures in *McDevitt* were in the contract – albeit not in the force majeure provision – but courts have applied the concept of unavoidability even when there was no contractual requirement to take specific precautions.[59]

When viewed through the prism of unavoidability, force majeure is essentially a restatement of duty and negligence principles. In his seminal article, Professor Binder wrote: "It

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[55] The avoidance requirement is related to causation – whether the detrimental effects were caused entirely by the force majeure event or were partially caused by the party's negligence. *See* Part III.A.4 (describing causation in relationship to force majeure events). The avoidance requirement is also an analog to the tort doctrine of force majeure. A party will be liable for damage to another unless the event was outside the control of the party and it took reasonable steps to avoid the damage.

[56] *Gulf Oil Corp.*, 706 F.2d at 454.

[57] 713 F. Supp. 906 (E.D. Va. 1989).

[58] *Id.* at 915.

[59] *See, e.g., Domar Ocean Trans., Ltd. v. Indep. Refining Co.*, 783 F.2d 1185 (5th Cir. 1986).

is time to recognize that the act of God defense mirrors the standard issue of duty. . . . [A]n act of God exists only when reasonable foreseeability and reasonable measures would not prevent the incident."[60] Although Professor Binder analyzed tort defenses, his observation is equally applicable to contractual force majeure provisions. An event is not force majeure if the party, taking reasonable precautions, could have avoided the event or its effects.

Some contracts require a party claiming force majeure to give the other party notice within a defined period. A notice requirement may allow the other party to gather evidence during the pendency of the force majeure event, preventing a surprise claim of force majeure months later during litigation over some other portion of the contract. "The utility of a written request, or its functional equivalent, is that it would have provided [the owner] with a meaningful opportunity to evaluate the legitimacy of [the contractor's] claim" prior to litigation.[61] To provide such notice, the party claiming force majeure is often required to keep adequate records to document the weather or other site conditions and the resulting delays and interference with performance. Such records may be necessary to establish the force majeure event caused the delay or damages to the project.[62]

At least one court has held that a notice requirement is not a condition precedent to the contract; in which case the party claiming force majeure can succeed if the lack of notice is not a material breach of the contract.[63] When the other party had actual notice that the factory had been hit by a hurricane and was in daily contact discussing the damage with the party who later

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[60] Denis Binder, *Act of God? Or Act of Man?: A Reappraisal of the Act of God Defense in Tort Law*, 15 Review of Litig. 1, 64-65 (1996).

[61] *Marriott Corp. v. Dasta Constr. Co.*, 26 F.3d 1057, 1067 (11th Cir. 1994).

[62] Adequate records and weather data are also necessary to establish that the weather was "abnormal" or "unusually severe," and thus within the force majeure clause. *See* Part IV for a discussion of the evidence and weather data necessary to establish force majeure claims.

[63] *Toyomenka Pac. Petroleum, Inc. v. Hess Oil Virgin Islands Corp.*, 771 F. Supp. 63, 67 (S.D.N.Y. 1991).

claimed force majeure, the court held that failure to give a formal notice of force majeure was not a material breach of the contract.[64]

C. Judicially-Imposed Requirements.

1. Foreseeability.

Even if an event qualifies as a force majeure occurrence under the contractual definition and other requirements, it does not necessarily follow that a party will be excused from performance. Foreseeability often plays a crucial role in determining whether a party may obtain force majeure relief.[65] Foreseeability applies in two ways: (1) it is an additional element that a party seeking force majeure relief must satisfy; or (2) it is a factor in determining the intent of the parties.

An important case applying the unforeseeability requirement to a contractual force majeure clause is *Gulf Oil Corp. v. Federal Energy Regulatory Commission*.[66] There, the Sixth Circuit reversed FERC's grant of force majeure, reasoning:

> The Commission defined the contract term to allow force majeure as an excuse to a party's performance whenever an event can be classified as one of the twenty-six listed in Article X of the contract. We find the Commission's definition in legal error. . . . [I]t is well-settled that a force majeure clause . . . defines the area of unforeseeable events that might excuse nonperformance within the contract period.[67]

The Court concluded it was not enough for the force majeure event to meet the contractual definition; it also had to be unforeseeable, even though the contract imposed no such condition.

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[64] *Id*.

[65] Anthony Whitley, *Understanding and Controlling the Risk of Volatile Material Prices*, Texas Constr., Oct. 1, 2008 Vol. 16, issue 10, (p. 63?) (2008 WLNR 19791321) ("Whether explicitly stated or not, courts will often impose a similar foreseeability requirement before enforcing the force majeure clause.").

[66] 706 F.2d 444 (6th Cir. 1983). Although *Gulf Oil* addressed a warranty contract, other courts have expanded the reach of the court's holding. *See, e.g., Valero Transmission Co. v. Mitchell Energy Corp.*, 743 S.W.2d 658, 658 (Tex. App. 1988).

[67] *Gulf Oil*, 706 F.2d at 452.

Other courts disagree. In *Eastern Air Lines, Inc. v. McDonnell Douglas Corp.*,[68] the district court held that a party could not invoke a force majeure clause – despite the fact that the event was specifically listed in the clause – because the force majeure event was foreseeable.[69] The Fifth Circuit reversed, holding that the court should not change the allocation of risk that was agreed upon in the contract.[70] Another court agreed, holding: "it is not for the reviewing court to determine why parties contracted as they did."[71]

Although *Gulf Oil* treated unforeseeability as an additional element necessary to receive relief under a force majeure clause, other courts use it as a tool to help determine whether an event falls within a force majeure clause containing specific, enumerated examples. For example, in *URI Cogeneration Partners, LP v. Board of Governors for Higher Education*, the court ruled that failure to obtain a zoning variance was not a force majeure event even though the force majeure clause included a provision for "any changes in applicable laws or regulations affecting performance." While the result is unremarkable, the court's reasoning provides an interesting insight into a judicial approach to distinguishing force majeure and non-force majeure events:

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[68] 532 F.2d 957, 992 (5th Cir. 1976) ("Therefore, when the promisor has anticipated a particular event by specifically providing for it in a contract, he should be relieved of liability for the occurrence of such event regardless of whether it was foreseeable."). Similarly, some courts have refused to impose a requirement that the force majeure event be outside a party's control (unavoidability, *see* discussion *supra*), when not required by the contract. *See, e.g., PPG Indus., Inc. v. Shell Oil Co.*, 919 F.2d 17, 18 (5th Cir. 1990). The court stated: "[w]e decline to substitute the 'mercantile sense and reason' of either this court or Professor Hawkland for that of these two sophisticated corporations." *Id.* at 19.

[69] *Eastern Air* Lines, 532 F.2d at 990-93.

[70] *Id.* at 992 ("Therefore, when the promisor has anticipated a particular event by specifically providing for it in a contract, he should be relieved of liability for the occurrence of such event regardless of whether it was foreseeable."). Similarly, some courts have refused to impose a requirement that the force majeure event be outside a party's control (unavoidability, *see* discussion *supra*), when not required by the contract. *See, e.g., PPG Indus., Inc. v. Shell Oil Co.*, 919 F.2d 17, 18 (5th Cir. 1990). The court stated: "[w]e decline to substitute the 'mercantile sense and reason' of either this court or Professor Hawkland for that of these two sophisticated corporations." *Id.* at 19.

[71] *Kodiak 1981 Drilling P'ship v. Delhi Gas Pipeline Corp.*, 736 S.W.2d 715, 722 (Tex. Ct. App. 1987).

> What distinguishes the Biblical plagues described in [the contractual force majeure clause] from a failure to procure zoning permission is the question of foreseeability. As the Board points out, force majeure clauses have traditionally applied to unforeseen circumstances – typhoons, citizens run amok, Hannibal and his elephants at the gates – with the result that the Court will extend [force majeure] only to those situations that were demonstrably unforeseeable at the time of the contracting.[72]

Some courts have applied a similar analysis when deciding whether an event triggers a "catch-all" phrase in a force majeure clause.[73]

Once a court decides to impose an unforeseeability requirement, it must decide how to define unforeseeability. Courts disagree on whether "unforeseeable" means "incapable of being imagined," or simply "extremely unlikely." Some courts apply what might be termed a strict definitional approach: the event must have been incapable of imagination. This strict definitional approach can lead to a narrow interpretation of the force majeure clause. For example, the court in *Bende & Sons, Inc. v. Crown Recreation, Inc.*,[74] held that a train derailment that destroyed a shipment of boots was foreseeable. The court stated that an event could be foreseeable even if the precise manner in which it occurred was not contemplated beforehand.[75] Because "common sense dictates that [the parties] could easily have foreseen" a train derailment, the court denied the force majeure claim.[76]

Other courts apply a more flexible definition of unforeseeability, recognizing explicitly or implicitly the difficulties in drawing a bright line between foreseeable and unforeseeable events.

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[72] *URI Cogeneration Partners*, 915 F. Supp. at 1276.

[73] *See Clean the Uniform Co.*, 300 S.W.3d at 610 ("The purpose of a general, catch-all phrase such as 'causes beyond [the parties'] control,' in a force majeure or escape clause is to relieve a party of liability when the parties' expectations are frustrated due to an 'unforeseeable occurrence' beyond the parties' control. . . . [Here, the alleged force majeure event] was not only reasonably foreseeable, but actually foreseen.").

[74] 548 F. Supp. 1018, 1022 (E.D.N.Y. 1982).

[75] *Id.* at 1022 ("[T]he foreseeability requirement does not entail contemplation of a specific contingency.")

[76] *Id.*

One commentator noted: "Even though it is true that all catastrophic events, even wars or floods, can be foreseen by the parties at the time of contracting, what we are really looking for in this regard is the accompanying elements of abnormality, surprise and rarity of the event."[77] This practical approach draws the boundary between rare events and typical events instead of focusing on the somewhat academic question of whether a person could theoretically foresee or imagine a given possibility.

2. Ultimate (or external) causation

Courts also require the party claiming force majeure to bear the burden of proving the force majeure event caused its damages. It is not enough to prove a hurricane occurred, the contractor also must show that the hurricane actually impeded its contractual performance.[78]

As a starting point, a party must prove the force majeure event occurred. Courts generally will not take judicial notice of the occurrence of a force majeure event.[79] In some cases, proving the occurrence is as simple as providing news clippings or government records demonstrating that a tidal wave or tornado struck a given location on a given date. These types of events – tornados, tidal waves, hurricanes, etc. –are generally considered acts of God and are easily proved. By contrast, "unusually severe weather" or "abnormal weather" is more problematic because the existence of rain, snow, or high or low temperatures alone does not establish a force

[77] Katsivela, 12 Unif. L. Rev. at 105.

[78] A force majeure event can cause damages or delay either directly or indirectly. For example, a hurricane could directly delay the project because it was impossible to work during the hurricane. A hurricane could indirectly delay the project by disrupting supply channels for key construction materials.

[79] *S.J. Lemoine, Inc. v. St. Landry Parish School Board*, 527 So. 2d 1150, 1153 (La. Ct. App. 1988) (reversing a trial court opinion that took judicial notice of a force majeure event because "there was no proof" of the occurrence of the event).

majeure event. It must be "unusual" for the given time and place. This raises a tricky line-drawing question of separating the abnormal weather from the normal weather.[80]

Even when a force majeure event has been established, courts will not assume that delays contemporaneous with the force majeure event were in fact caused by it. Instead, courts require proof of causation. One dramatic example of separating the effects of force majeure events from the effects not caused by force majeure events is *Barr v. Game, Fish and Parks Commission*.[81] In *Barr*, the defendant constructed a dam that created a reservoir. Unfortunately, the low point of a natural ridge on the other side of the reservoir was four feet lower than the top of the dam, and the dam had an inadequate spillway system that could accommodate only 4,500 cubic feet per second (cfs).[82] A severe rainstorm flooded the reservoir and sent a significant amount of water over the natural ridge.[83] At the high point of the flood, the water was flowing at 158,000 cfs, dwarfing the previous known high water flow of 27,500 cfs.[84] Despite this undoubtedly unusual water flow, the court rejected the force majeure defense. The court concluded that the defendant could have predicted the high water flow by using "modern meteorological techniques."[85] Thus,

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[80] *See* discussion at Part V.A.

[81] 497 P.2d 340 (Col. Ct. App. 1972); *see also* Binder, 15 Review of Litig. at 19-21 (describing the Johnstown flood of 1989, the basis for *Barr*, where over 2,000 people were killed when a negligently maintained dam broke during exceptionally strong rains). While *Barr* is a tort case, it is equally applicable to contract provisions as it effectively illustrates the problem of separating harm stemming from force majeure events and harm stemming from expected events.

[82] *Barr*, 497 P.2d at 342.

[83] *Id.*

[84] *Id.* at 342-44.

[85] The opinion also notes that a "normal" amount of rainfall would have caused the flooding, regardless of whether the defendant could predict the severe rain using "modern meteorological techniques." However, the court's opinion focused on the foreseeability of the excessive rainfall, not on the inevitability of the dam's failure even under normal conditions.

in the court's view, the defendant's negligence was the cause of the damage, not the severe rainstorm.

In another example, the Sixth Circuit required the party claiming force majeure due to a hurricane to "establish that the [ ] damage and mechanical breakdowns would not have occurred if there had not been a hurricane."[86] The court noted that equipment breakdowns have many possible causes, and refused to infer they were caused by the force majeure event despite the temporal overlap. The Sixth Circuit explained:

> It is incumbent on Gulf to establish that the pipe damage and mechanical breakdowns in issue would not have occurred if there had not been a hurricane. Pipe damage occurs because of normal wear and tear and therefore can be anticipated. If the *force majeure* event causes the inability to deliver the gas rather than the inability to obtain the gas, the supplying party has the burden of proving that the inability to deliver was not caused by routine maintenance.[87]

The court then remanded the case "for a determination of the appropriate number of volumes attributable to *force majeure*."[88]

A party can demonstrate causation by producing construction logs or other evidence showing the days on which bad weather (or any other force majeure event) actually interfered with work, as well as the conditions of the force majeure event that day.[89] Contemporaneous logs illustrating things like adverse weather conditions or trade channel interruptions due to a force

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[86] *Gulf Oil Corp.*, 706 F.2d at 453.

[87] *Id.* at 453.

[88] *Id.* at 456.

[89] *See, e.g., Fru-Con v. United States*, 44 Fed. Cl. 298, 314 (Ct. Cl. 1999) (delay not excused when contractor failed to show on which days, if any, excessive heat hindered or stopped critical work); *Appeal of Skip Kirchdorfer, Inc.*, A.S.B.C.A. No. 40515, 00-1 B.C.A. ¶ 30622, 1999 WL 965047 *1 (A.S.B.C.A. Oct. 18, 1999) (delay excused only for those days where unusual weather actually halted work).

majeure event are crucial for documenting the actual effect of the force majeure event (as well as the existence of the event) on the contract performance.[90]

Causation is particularly complicated when the force majeure event *indirectly* affects the contract such as, for example, disrupting shipping channels. In *Toyomenka Pacific Petroleum, Inc. v. Hess Oil Virgin Islands Corp.*,[91] an oil supplier argued that a customer violated the contract by failing to take delivery of oil for eleven days after the shipping port was hit by a hurricane. The supplier noted that the customer accepted deliveries from other suppliers and argued the delay was caused by post-hurricane congestion combined with the customer's preference for other suppliers, not the hurricane itself. The court rejected the argument, noting "[s]uch a strained reading of the force majeure clause would undermine the purpose of the clause. [The seller] has not provided either reason or authority for such an interpretation of the contract."[92] Instead, the court concluded that the drastically reduced shipping volume was caused by the hurricane's damage to shipping channels, and thus the delay in receiving deliveries was attributable to the hurricane even though it was not a direct result.[93] The holding of *Toyomenka* is interesting, because the party claiming force majeure (the customer) might have been able to receive the shipments and avoid the damages if it had prioritized its deliveries differently. Thus, the delay was not caused *solely* by the hurricane; it was also a function of the party's priorities. Nonetheless, the court found that a compensable force majeure event had occurred.[94]

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[90] *See, e.g., Toyomenka Pac. Petroleum,* 771 F. Supp. at 66-67.

[91] 771 F. Supp. 63, 66-67 (S.D.N.Y. 1991).

[92] *Id*. at 67.

[93] *Id.*

[94] Considering *Toyomenka*, parties may want to include a contractual clause requiring priority or at least equivalent treatment with other contractors after a force majeure event.

D. The Effect of Successfully Invoking a Contractual Force Majeure Provision

Presuming an event meets the contractual definition of force majeure and satisfies any other contractual or judicially imposed requirements, the effect of successfully invoking a force majeure clause will depend on the type of agreement (e.g., construction, supply, warranty) and the language of the contract. In general, force majeure provisions suspend – but do not terminate – the duties of a contractor for as long as the force majeure event prevents performance.[95] For example, a force majeure clause in a construction contract may mean that neither party has liability for delay: the owner will not be liable for the additional overhead costs of the contractor and the contractor will not be liable for liquidated damages to the extent the force majeure event causes the contractor to miss the contractual completion date.[96] Force majeure clauses may excuse parties from liquidated damages in other types of contracts, as well.[97] In more rare situations, successfully invoking a force majeure clause may even lead to termination of the contract.[98]

E. Force Majeure in the Absence of a Specific Contractual Provision.

Even if the contract fails to include a force majeure provision, a party still may be able to successfully claim force majeure in the context of a contract. This might occur by using the doctrines of impossibility, impracticability or frustration already discussed, or the court might explicitly reference force majeure.

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[95] *See, e.g., Stinnes Interoil, Inc. v. Apex Oil Co.*, 604 F. Supp. 978, 982 (S.D.N.Y. 1985) (sale of goods); *URI Cogeneration Partners*, 915 F. Supp. at 1276 (construction contract).

[96] Anthony Whitley, *Understanding and Controlling the Risk of Volatile Material Prices*, Texas Constr., Oct. 1, 2008 Vol. 16, issue 10, (p. 63) (2008 WLNR 19791321) (describing construction contracts); *see also Toyomenka Pac. Petroleum*, 771 F. Supp. at 64 (sale of goods).

[97] *Gulf Oil Corp.*, 706 F.2d at 454-55 (discussing excuse from liability for liquidated damages under sales and warranty contracts).

[98] *See* Sniffen, 31 Nova L. Rev. at 558.

Additionally, parties may have a statutory basis for claiming force majeure. For example, UCC § 2-615 is a default provision that applies if there is no force majeure clause in a contract for sale of goods. Section 2-615 was designed to provide a statutory basis to excuse performance when the doctrine of impossibility is not applicable and the parties did not include an agreed-to force majeure provision in the sales contract.[99] The UCC provides that delay in delivery of a product is not a breach of contract "if performance as agreed has been made impracticable by the occurrence of a contingency the non-occurrence of which was a basic assumption on which the contract was made."[100] The UCC expressly allows parties to alter this allocation of risk by additional provisions, including a force majeure provision.[101]

Some states have enacted statutory excuse provisions for non-sales contracts where there has been a force majeure event. Similar to the two options for contracts, some states statutorily create force majeure or excuse clauses that list the characteristics of a force majeure event, such as Arizona's definition of a force majeure event as "an act of God or nature, a superior or overpowering force or an event or effect that cannot reasonably be anticipated or controlled and that prevents access to the [ ] location."[102] Other states specifically list potential force majeure events and contain general catch-all provisions. The types of force majeure events in these state-created lists can be divided into several categories:

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[99] Declercq, 15 J. L. & Commerce at 224.

[100] UCC § 2-615. Note that South Carolina has extended the UCC excuse provision to leases, not only sale of goods. *See* S.C. Code § 36-2A-405.

[101] UCC § 2-615 (applying "[e]xcept so far as a seller may have assumed a greater obligation"); *see also Stinnes Interoil*, 604 F. Supp. at 982-83; La. Civil Code art. 1873 (outside the context of a sale of goods, providing that a promisor is not liable for failure to perform if non-performance is caused by a "fortuitous event" *unless* the promisor assumed the risk of that event).

[102] Ariz. Rev. Stat. § 33-801(6); *see also* Mass. Gen. Laws Ann. § 62 (defining force majeure as "an uncontrollable force or natural disaster not within the power of the operator or the commonwealth"); N.M. Rev. Stat. § 12-12-12(H) (defining force majeure as an "act of God" or any cause outside the control of the supplier); Va. Code Ann. § 59.1-21.18:2(7) (same).

- Weather-related issues (e.g., "unusually severe weather", "unusual and unforeseeable weather conditions", action of the elements, floods, torrential rain, hail, tornadoes, hurricanes, lightning, acts of God[103], "the elements", drought, and "major storm or major flood"[104]);

- Naturally-occurring non-weather-related issues (e.g., volcanic eruptions, tidal waves, epidemic diseases, pest outbreaks, and earthquakes[105]);

- Governmental and regulatory issues (e.g., court action, illegality, embargo, expropriation, confiscation, and nationalization[106]);

- Acts of war and other violent conflict (e.g., acts of war, carnage, blockade, acts of the public enemy, and terrorism[107]);

- Combustion (e.g., fire, explosion, implosion, and conflagration[108]);

- Interruption of trade or society (e.g., interruption of transportation, labor strikes, rationing, shortage of labor, equipment or materials, riot, public disorder, and power shortage[109]).

Many of these statutes also include some of the familiar elements from contract, or judicially-imposed overlays, such as unavoidability. For example, the Georgia statute provides for excuse for non-performance as a result of an act of God, unless the party could have avoided the effect of the act of God.[110]

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[103] Col. Rev. Stat. §§ 32-9-103(6.7) & 43-1-1402(4.5) (note that these are often weather related issues but not always).

[104] *See, e.g.*, Col. Rev. Stat. §§ 32-9-103(6.7) & 43-1-1402(4.5); Ga. Code Ann. §§ 48-7-40.24(3) & 48-7-40.25(2); La. Rev. Stat. title 8 ch. 1 § 1.

[105] *See, e.g.*, Haw. Rev. Stat. §§ 182-1 & 209E-2.

[106] *See, e.g.*, Col. Rev. Stat. §§ 32-9-103(6.7) & 43-1-1402(4.5); Ga. Code Ann. §§ 48-7-40.24(3) & 48-7-40.25(2).

[107] *See, e.g.*, Ga. Code Ann. §§ 48-7-40.24(3) & 48-7-40.25(2).

[108] *See, e.g.*, Col. Rev. Stat. §§ 32-9-103(6.7) & 43-1-1402(4.5); Ga. Code Ann. §§ 48-7-40.24(3) & 48-7-40.25(2).

[109] *See, e.g.*, Col. Rev. Stat. §§ 32-9-103(6.7) & 43-1-1402(4.5); Ga. Code Ann. §§ 48-7-40.24(3) & 48-7-40.25(2); Haw. Rev. Stat. §§ 182-1 & 209E-2.

[110] Ga. Code Ann. § 13-4-21.

IV. Force Majeure Provisions in Standard Form Contracts and Mandatory Provisions for Government Contracts

Particularly in the construction area, parties generally use one of a few model contracts – the American Institute of Architects ("AIA") contracts, the Engineers Joint Contract Documents Committee ("EJCDC") contracts, and, more recently, the ConsensusDOCS contracts, which contain a force majeure provision. Construction companies that contract with the federal government must abide by the Federal Acquisition Regulations ("FARs"), which also contain a force majeure provision. Two of these contracts (the AIA and the EJCDC contracts), along with the FARs, govern the majority of complex construction projects in the United States.

A. Standard Form Contracts

Parties often rely on model or standard form contracts because it allows them to better anticipate how courts will apply the contractual provisions. This section focuses on two common construction contracts – the AIA and the EJCDC – as well as the more recent ConsensusDOCS contracts.

1. *The AIA Contract*

One of the most commonly-used standard form construction contracts is published by the AIA. AIA A201 (2007), "General Conditions of the Contract for Construction," does not have a force majeure clause by name but contains an excusable delay clause that operates in a similar way. "Excusable delay" clauses exempt a party from paying damages that the other party incurs based on the delay. Such clauses are common in construction contracts, which often also contain liquidated damages that impose significant fines for late completion.

Section 8.3.1 of AIA Form A201 provides:

> If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; *or by*

> *labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control . . .* then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.[111]

This clause covers delays that fall outside of the doctrine of force majeure (e.g., owner-caused delays) but also covers force majeure events ("acts of God" such as "other causes beyond the Contractor's control" and "acts of people" such as "labor disputes, fire"). The modifying clause at the end of the Section 8.3.1 list – "*other*" causes – signals that all of the previously listed events, such as labor disputes or fire, must be outside the control of the contractor – the previously discussed concepts of external causation and unavoidability.

This approach to defining the force majeure event is unusual because it contains a list of events *and* a general clause describing the characteristics of force majeure events. Most force majeure clauses choose one or the other approach. The AIA's choice of the listed force majeure events is also interesting: it includes two events in the category "disruption of trade" (labor disputes and unusual delay in deliveries), one combustion event (fire) and one other event (unavoidable casualties). The clause does not attempt to be comprehensive even within the categories of events mentioned, and does not mention any weather-related or naturally occurring events by name (e.g., hurricanes, earthquakes).

In contrast, a previous version of Section 8.3.1 included "adverse weather conditions not reasonably foreseeable" as one of the enumerated possible events justifying excusable delay.[112] Two questions immediately arise: (1) why were adverse weather conditions the only event on the list that had to be unforeseeable; and, perhaps more importantly, (2) can contractors using the current version of the AIA still legitimately claim weather delays as excusable?

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[111] AIA Doc. No. 201 (General Conditions of the Contract for Construction) 2007 § 8.3.1 (emphasis added).

[112] A.H. Gaede, Jr. and John J. Park, Jr., *Delays and Disruptions*, Constr. Contracts and Litig. (PLI Order No. N4-4532) 757, 766 (1990) (based on 1987 edition of AIA).

As to the first question, the reference to foreseeability in the AIA's previous version is unsurprising, given the evolution of the force majeure doctrine. It is curious, however, that the unforeseeability requirement applies only to weather conditions and not to other force majeure events. Adverse weather is not the only listed event that could be foreseeable. For example, two parties could sign a contract when one of them knows a labor strike is scheduled to begin in two days. Under the plain language of the previous version of the AIA contract, the labor strike would still be a force majeure event because the foreseeability requirement only applied to weather events. On the other hand, a company signing a contract knowing a hurricane is projected to reach the project site in two days would not be able to claim excusable delay.[113]

But adverse weather is different from a labor strike, and perhaps the differential treatment makes sense. Every construction project will encounter some adverse weather, even if it is a typical event such as minor rain or snow. Not every weather event is a force majeure event, though, and the unforeseeability requirement is intended to separate the typical events (e.g., minor rain) from the unusual "act of God" events (e.g., tornado, hurricane) without providing a list of unusual weather events. This special requirement of unforeseeability for weather conditions can be seen in other contractual and statutory definitions of force majeure, and will be discussed further in Part IV.B.

The answer to the second question – if weather-based delays are excusable under the current version of the AIA contract – is undoubtedly yes. Weather events still fall within the list of "*other* events outside the reasonable control" of the contractor. Further, Section 15.1.5.2 of AIA Form A201 describes the specific requirements for weather delays:

[113] A court may still refuse to allow the contractor to take advantage of the excusable delay clause in the labor strike example, because of the judicially-imposed conditions discussed in Part III. The point, however, is that the previous version of the AIA contract would not expressly exempt the foreseeable labor strike, but it would expressly exempt a foreseeable weather event.

> If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.[114]

Such a provision would be unnecessary if adverse weather could not qualify as an excusable delay. Note that this provision also requires unforeseeability and ultimate causation – not novel concepts for force majeure clauses – and describes the evidence a contractor must use to establish the delay was excusable.

Under either version of the AIA contract, courts require a contractor to affirmatively demonstrate abnormal weather. In *S.J. Lemoine, Inc. v. St. Landry Parish School Board*,[115] which dealt with the previous version of AIA Section 8.3.1, the trial court ruled in favor of the contractor claiming excusable delay based on rain and cold weather. The trial court noted that "[n]o express testimony was adduced by either side as [to] specific [weather] conditions on each day" when delay was claimed, but noted that "some weight" must be given to the contractor's prompt notification of delay.[116] The court proceeded to take judicial notice of the "extreme weather" during a portion of the contract, and awarded the contractor a 20-day extension (although the contractor had requested a 29-day extension).[117] The Louisiana Court of Appeals reversed, reasoning:

> We agree that truly unforeseeable bad weather might, if proved, justify a delay in performance. In the present case, however, there was no proof. . . . The record does not contain evidence on which we can determine whether 29 days of rain in Eunice on working days in 13 months is below average, average, or above average, and to say that that number of days is enough to justify a delay in

[114] AIA Doc. No. 201 (General Conditions of the Contract for Construction) 2007 § 15.1.5.2.

[115] 527 So. 2d 1150 (La. Ct. App. 1988).

[116] *Id.* at 1153 (quoting the trial court's opinion).

[117] *Id.*

> performance is an adjudicative fact that cannot be judicially noticed.[118]

This opinion emphasizes that it is crucial to demonstrate not only that bad weather occurred and delayed the project, but also that the weather and resulting delays were unusually bad. Abnormal weather conditions must be documented by data, which raises additional important questions: what is the correct type and source of data? How can you tell if the weather is "abnormal?" These questions will be addressed in detail in Part IV.A.

2. *The EJCDC Contract*

The EJCDC C-700 Standard General Conditions of the Construction Contract specifically mentions weather conditions in its force majeure clause, while not employing the term "force majeure." Section 12.03 of the C-700 provides that a contractor can seek a time extension for "delays beyond the control of [the] [c]ontractor," which "shall include, but not be limited to, . . . fires, floods, epidemics, *abnormal weather conditions*, or acts of God."[119] However, "Contractor shall not be entitled to an adjustment in the Contract Price or Contract Times for delays within the control of Contractor."[120] The contractor further must give notice of the force majeure event within 30 days.[121]

The EJCDC does not define the term "abnormal weather conditions." A Louisiana state court recently defined the scope of the clause, holding that "abnormal weather" is not the same as "adverse weather." As a result, denied a contractor's claim because the amount of rain was not

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[118] *Id.*

[119] EJCDC C-700 § 12.03(A).

[120] *Id.* at § 12.03(E).

[121] *Id.* at §§ 10.05(B), 12.02(A), 12.03(A).

unusual for that area.[122] The EJCDC contract also includes provisions that require external causation and unavoidability, but notably does not mention unforeseeability. Unforeseeability may play a role, however, because the contract only covers "abnormal" weather events. Presumably, weather events that are normal also are foreseeable.[123]

3. *The ConsensusDOCS Contracts*

In recent years a third source for standard contracts – the ConsensusDOCS contracts – has gained recognition in the construction industry. Several states have passed legislation allowing public entities to use the ConsensusDOCS contracts for public contracts, and the United States Department of Agriculture uses the ConsensusDOCS contracts for some construction projects.[124]

The ConsensusDOCS' force majeure provision allows additional time for delays caused or authorized by the owner, changes to the contract, "Hazardous Materials unanticipated by the [contractor] . . ., labor disputes . . ., fire, Terrorism, epidemics, adverse governmental actions, unavoidable accidents or circumstances, [or] *adverse weather conditions not reasonably anticipated.*"[125] The ConsensusDOCS' language plainly implicates unforeseeability, external causation and unavoidability. For example, the clause only covers adverse weather and hazardous materials if they are unanticipated – i.e., unforeseeable. It covers accidents only if they

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[122] *Hartec Corp. v. GSE Assoc., Inc.*, 2012 WL 600611 *1, *7 (La. Ct. App. Feb. 24, 2012).

[123] *See, e.g., McDevitt & Street Co.*, 713 F. Supp. at 911 (weather that was not abnormal was foreseeable).

[124] ConsensusDOCS, Press Release, *Federal Government Approves Use of ConsensusDOCS Template Contracts for Use in Construction Projects*, 2009, available at http://www.consensusdocs.org/pressreleases/2009/11/federal-government-approves-use-of-consensusdocs-template-contracts-for-use-in-construction-projects/.

[125] ConsensusDOCS Doc. 410 "Standard Design-Build Agreement and General Conditions Between Owner and Design-Builder" § 6.3.1 (emphasis added).

were "unavoidable." Yet the ConsensusDOCS form does not explicitly require unforeseeability and unavoidability for each different cause of delay.

There is little or no case law specifically interpreting the ConsensusDOCS term "adverse weather conditions not reasonably anticipated," but it is predictable that courts would treat abnormal or unusually severe weather as "not reasonably anticipated."[126] Therefore, courts interpreting the ConsensusDOCS' language will likely analyze the historical weather patterns even though the text does not explicitly require the weather to be abnormal or unusually severe.

B. Governmental Regulations and Entities

1. The FARs.

Construction contracts with the federal government have mandatory contractual provisions, the Federal Acquisition Regulations (FARs).[127] The FARs establish provisions for different types of contracts including construction contracts. Various federal agencies, such as the Army Corps of Engineers, have agency acquisition regulations that implement or supplement the FARs. The purpose of the FARs is to set a uniform policy and procedure for government contract formation.[128]

The FAR fixed-price construction contract – like the AIA and EJCDC form contracts – does not contain a force majeure clause by name, but its excusable delay clause functions like one. Under the excusable delay provision, the government can terminate a contract with a contractor who "refuses or fails to prosecute the work . . . with the diligence that will insure its

[126] *See, e.g., McDevitt & Street Co.*, 713 F. Supp. at 911 (implying that weather conditions that are abnormal are "not reasonably anticipated").

[127] Codified in Title 48 of the federal regulations, 48 C.F.R. §§ 1-53.

[128] F.A.R. § 2.101(b).

completion within the time specified in [the] contract"[129] unless the delay is caused by "unforeseeable causes beyond the control and without the fault or negligence of the Contractor," such as

> (i) acts of God or of the public enemy,
> (ii) acts of the Government in either its sovereign or contractual capacity,
> (iii) acts of another Contractor in the performance of a contract with the Government,
> (iv) fires,
> (v) floods,
> (vi) epidemics,
> (vii) quarantine restrictions,
> (viii) strikes,
> (ix) freight embargoes,
> *(x) unusually severe weather,* or
> (xi) delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers.[130]

The list of force majeure events is interesting: it provides for many commonly-named force majeure events (e.g., fires, floods, strikes) but also includes "quarantine restrictions," which is rarely seen in private contractual provisions.

The final listed force majeure event (xi) requires the force majeure event be unforeseeable and "without the fault or negligence of the Contractor." The referenced fault or negligence is likely two-fold: fault in causing the event and fault in failing to prevent the negative effects of the event. Under the FARs, the force majeure event must satisfy both the external causation and unavoidability concepts previously discussed. And although foreseeability is referenced only with respect to "causes beyond the control . . . of . . . the Contractor," some

[129] F.A.R. § 52.249-10(a).

[130] F.A.R. § 52.249-10(b)(1) (emphasis added).

courts have held that the "unusually severe weather" event included in the FARs list also must be unforeseeable for the contractor to invoke the excuse provision.[131]

Additionally, the FARs require the party claiming force majeure to give written notice within ten days of the beginning of the delay.[132] If the government grants the claim, a time extension is given, but the contractor is not entitled to additional reimbursement for costs associated with the delay.[133]

2. State regulations.

Some state statutes also address the obligations of a state government contractor who encounters a force majeure event. For example, a California statute provides that a public agency cannot require a contractor to pay for restoring damage that was caused by an earthquake or tidal wave.[134] A public contractor in Montana has not breached a contract if "the delay is caused by an accident or casualty produced by physical cause which is not preventable by human foresight, i.e., any of the misadventures termed an 'act of God'."[135] The Colorado code takes a similar approach as the FARs and includes specific requirements for government contracts, including a definition of the term "force majeure" as it should be used in design-build contracts with the

[131] *See U.S. v. Brooks-Callaway*, 318 U.S. 120, 123 (1943) (holding that the provisions in a predecessor to FAR § 52.249-10 must be read to require unforeseeability).

[132] F.A.R. § 52.249-10(b)(2).

[133] *Id.; see also Carman v. United States*, 166 F. Supp. 759, 762 (Ct. Cl. 1958). Contractors who encounter "differing site conditions" are entitled to compensation for the delay, but courts have uniformly rejected claims that severe weather falls within the differing site conditions clause. *See, e.g., Turnkey Enterprises v. United States*, 597 F.2d 750, 754 (Ct. Cl. 1979).

[134] Cal. Code. Ann. § 7105(a) & (b)(2).

[135] Mont. Stat. § 18-2-312.

state.[136] Other states use form contracts such as the AIA rather than creating their own default contractual terms by statute or regulation.[137]

3. The Army Corps of Engineers' approach.

The U.S. Army Corps of Engineers ("the Corps") has a unique approach to applying the "unusually severe weather" provision in the FARs. The Corps adheres to an agency-specific regulation, USACE Engineering Regulation § 415-1-15 (titled "Construction Time Extensions for Weather"). The regulation defines "adverse weather" as "atmospheric conditions at a definite time and place that are unfavorable to construction activities"[138] and defines "unusually severe weather" as "weather that is more severe than the adverse weather anticipated for the season or location involved."[139]

The Corps' regulations also require that each construction contract contain a schedule of expected, adverse weather delay days. The Corps' regulations dictate that the schedule be based on "National Oceanic and Atmospheric Administration or similar data for the project location."[140] The Corps need only consult some data, not "all relevant available information,"[141]

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[136] Col. Rev. Code § 43-1-1402(4.5) ("'Force majeure' means fire, explosion, action of the elements, strike, interruption of transportation, rationing, shortage of labor, equipment, or materials, court action, illegality, unusually severe weather, act of God, act of war, or any other cause that is beyond the control of the party performing work on a design-build transportation or utility relocation project and that could not have been prevented by the party while exercising reasonable diligence.").

[137] *See, e.g., S.J. Lemoine, Inc.*, 527 So. 2d at 1150 (using the AIA model contract).

[138] Engineering Regulation ("E.R.") § 415-1-15(5)(a).

[139] E.R. § 415-1-15(5)(b).

[140] E.R. § 415-1-15(App. A)(2).

[141] *Daewoo Eng. and Constr. v. United States*, 73 Fed. Cl. 547, 562 (Ct. Cl. 2006).

and courts give the Corps wide latitude to use a variety of sources and time periods to determine anticipated adverse weather delays.[142]

The anticipated delays are placed on a schedule that is incorporated into the contract as follows:[143]

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY
WORK DAYS BASED ON (5) DAY WORK WEEK

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
(#)	(#)	(#)	(#)	(#)	(#)	(#)	(#)	(#)	(#)	(#)	(#)

The information then is used "to determine the delays due to the occurrence of unusually severe weather through comparison of the anticipated adverse weather delay with the actual delays due to adverse weather experienced at the project site during construction."[144] The contractor can only seek an extension if the number of days on which adverse weather actually delays the project is greater than the number of days anticipated by the contract.

The Corps' approach requires parties to consider the risk of adverse weather conditions at the time of contracting and expressly incorporate their predictions into the contract. The parties' analysis and the weather data they rely upon is made part of the contract, thereby reducing disputes about the applicable weather data in the context of a subsequent claim.[145] Although not perfect, the approach has the benefit of ensuring that the parties explicitly consider weather data and use the same source and period for data when forming the contract.

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[142] *See, e.g., id.* (accepting use of USACE in-house planning data over an undefined historical period); *Potomac Iron Works*, E.N.G.B.C.A. No. 5248, 88-1 B.C.A. ¶ 20514, 1988 WL 44456 (E.N.G.B.C.A. Jan. 29, 1988).

[143] E.R. § 415-1-15(App. A)(2).

[144] E.R. § 415-1-15(6)(a).

[145] While including weather data in the contract may not completely eliminate all challenges to such data, requiring the parties to agree on such data at the time of contracting limits the ability of one party to dispute the proper weather data if a suit is later filed, thereby providing a larger measure of certainty.

The courts' deference to the Corps' data is a sensible approach because it reflects information included in the contract that the parties presumably agreed upon. Courts occasionally will refuse to rely on the data incorporated into the contract, though, if the court finds the data is patently unreasonable or that the Corps had unreasonable power over the other contracting party. For example, one court found the Corps' use of weather data unreasonable because it failed to consider weather events other than rain or snow.[146] If the contractor's weather research matches the Corps' result, however, courts are unlikely to allow the contractor to later challenge the schedule as unreasonable.[147]

Having agreed on the calculus for measuring weather-related force majeure, relief turns on what actually occurred on the project. The contractor and the Corps must identify which days during the performance of the contract qualify as adverse weather days. The Corps applies a bright-line rule that adverse weather must delay activities for 50 percent or more of a contractor's scheduled work day in order for the day to qualify as an adverse weather delay work day.[148] This rule is predictable and fairly easy to apply, but has all of the usual problems of a bright-line rule. It underestimates delay by failing to account for delays lasting less than 50 percent of the day, but overestimates delay by failing to account for work that may have been accomplished in the few workable hours on days that are later judged to be "adverse weather work delay days."

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[146] *D.F.K. Enters. v. United States*, 45 Fed. Cl. 280 (Ct. Cl. 1999). Curiously, in *D.F.K.* the court did not grant an excusable delay, but rather held that the weather data were an affirmative representation of past weather conditions and opined that the Differing Site Conditions clause would be applicable. This approach is out of step with other case law. *See* discussion around footnotes 127-132.

[147] *Daewoo*, 73 Fed. Cl. at 563 (contractor who did its own analysis that generally comported with the government data could not later challenge that data).

[148] E.R. § 415-1-15(App. A)(3).

The result is that two contractors in fairly similar situations could be treated differently. At the extremes, consider this scenario: In one month, Contractor A encountered four days of adverse weather above the number contained in the contract. On each of these days, 50 percent of the work was delayed (and 50 percent was performed). In contrast, during that same month Contractor B experienced four days of adverse weather above the number contained in the contract, but the work on those days was delayed only 49 percent (while 51 percent of the work was performed). Thus, Contractor A was able to perform two days' worth of work and was delayed by the equivalent of two days, while Contractor B was able to perform just slightly over two days of work, and was delayed by just under two days. Despite the similarity of circumstances, under the Corps' rules Contactor A will receive a four-day extension and Contractor B will receive no extension.

While it is unlikely that many cases will have facts at the extremes cited in this example, it is predictable that there are some weather patterns such as daily rain that might delay a contract for two or three hours per day on several days but not contractually result in any excusable delay at the end of the month. Thus, while the Corps' approach has the predictability and certainty contracting parties often desire, it can also produce harsh results for a contractor.

V. The Effect of Climate Change on Application of Force Majeure.

Force majeure is a complex doctrine that becomes even more complex when it is applied in an era of changing weather patterns.

A. How Defining the Force Majeure Event May Change: "Unusually Severe" or "Abnormal" Weather.

Except for rare, catastrophic events (such as hurricanes or tornadoes), weather-based force majeure claims are difficult to prove because the very existence of the force majeure event

is often in dispute. Changing weather patterns only make it more difficult to separate "normal" from "abnormal" weather.

1. *How courts define unusually severe weather today.*

Adverse weather events are common and unexceptional; only those events that are uncommon can be force majeure events. Although different contracts describe the terms differently – e.g., "unusually severe weather" in the FARs or "abnormal weather conditions" in the AIA and EJCDC contracts[149] – the concept is the same: weather must be adverse and unusual in order to be a force majeure event.

"'Unusually severe weather' has been defined as 'adverse weather which at the time of year in which it occurred is unusual for the place in which it occurred.'"[150] Unusually severe weather is"weather surpassing in severity the weather usually encountered or reasonably to be expected . . . during the time of the year involved."[151]

To decide whether an event is "unusually severe weather," courts often examine past weather data. As a source of such data in construction cases, parties frequently rely upon and courts review the project logs to establish daily temperature, rainfall and other weather conditions at the site throughout the project. If no site-specific data is available, courts and parties may rely on official weather data from a nearby city or weather observation point, but parties must demonstrate that the weather at the contract site is substantially similar to the weather at the observation point.[152] When submitted by the parties, courts also examine

[149] This section addresses the meaning and application of these two terms simultaneously.

[150] Government Contracting Guidebook § 29:12 (p. 856).

[151] *Allied Contractors, Inc.*, I.B.C.A. No. 265, 1962 B.C.A. ¶ 3501, 1962 WL 9712 (I.B.C.A. Sept. 26, 1962).

[152] *See Olsberg Excavating Corp.*, D.O.T.C.A.B. No. 1288, 84-1 B.C.A. ¶ 16,931, 1983 WL 13424 (D.O.T.C.A.B. Nov. 17, 1983); *McDevitt & Street Co*, 713 F. Supp. at 911.

historical weather data to develop a baseline and then compare the weather during the contract to the historic weather patterns.[153]

There is no standard source or time frame for weather data the parties may submit to the court. Typically, courts give greater weight to historical weather data collected by government agencies, such as the National Weather Service or the National Oceanic and Atmospheric Administration.[154] Courts look at widely different ranges of historical data, from as little as five years to as much as 86 years, with 10 years being perhaps the most common range.[155] Whereupon, courts then use this data to generate a "historical average" (mean) temperature or level of precipitation.[156]

After determining the proper source of data, courts must decide how to use the data. In *Handex of the Carolinas, Inc. v. County of Haywood*, the parties agreed on the appropriate weather source, but could not agree on how to interpret that data. The court supplied that here:

> The contract provided that "abnormal weather conditions" were to be determined based upon the National Weather Service's thirty-year average. The evidence before the jury provided two different interpretations of what constituted the time frame for measuring these conditions, thus affecting calculations of whether it was above or below the National Weather Service's thirty-year average. It was also unclear, as testified to by [one of the witnesses], whether the "average" was to consider days of rain, or

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[153] *Allied Contractors, Inc.*, I.B.C.A. No. 265, 1962 B.C.A. ¶ 3501, 1962 WL 9712 (I.B.C.A. Sept. 26, 1962).

[154] *See Olsberg Excavating Corp.*, D.O.T.C.A.B. No. 1288, 84-1 B.C.A. ¶ 16,931, 1983 WL 13424 (D.O.T.C.A.B. Nov. 17, 1983) (National Weather Service); *McDevitt & Street Co.*, 713 F. Supp. at 911 (NOAA).

[155] *See, e.g., Appeal of Skip Kirchdorfer, Inc.*, 1999 WL 965047 (five-year period); *J & B Constr. Co.*, I.B.C.A. 667-9-67, 70-1 B.C.A. ¶ 8,240, 1970 WL 822 (I.B.C.A. Apr. 17, 1970) (ten-year period); *Potomac Marine & Aviation*, A.S.B.C.A. No. 42417, 93-2 B.C.A. ¶ 25,865, 1992 WL 448368 (A.S.B.C.A. 1992) (forty-five year period); *Potomac Iron Works*, 88-1 B.C.A. ¶ 20511, 1988 WL 44456 (E.N.G.B.C.A. Jan. 29, 1988) (using eighty-six year data provided by Army Corps of Engineers).

[156] *Appeal of Potomac Marine & Aviation, Inc.*, 93-2 B.C.A. ¶ 25902, 1992 WL 448368 (A.S.B.C.A. Feb. 24, 1992). The Board of Contract Appeals reviews disputes relating to federal contracts.

> inches of rain, and where the statistical data for the weather conditions was to be collected.[157]

In light of the unnecessary dilemmas in *Handex,* parties who contractually agree on the source of data may want to also identify the range and type of data that would be used in any dispute.[158]

Outside of the context of an agreement regarding how to use the weather data, parties and the courts often employ such data to compare the current and past weather patterns. In this context, courts universally agree that small deviations from the historical pattern are not sufficient to establish that weather is unusually severe.[159] "Variances in amounts of precipitation and of a few degrees of temperature are the rule rather than the exception in weather conditions."[160] But aside from minor variations in temperature or precipitation, courts typically do not take a principled approach in comparing historic weather and current weather. In most cases the court carefully lays out historical and observed weather patterns, and then summarily concludes that the observed weather was or was not unusual without explaining the reasoning behind the conclusion.[161]

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[157] *Handex of the Carolinas, Inc. v. Cty. of Haywood*, 607 S.E.2d 25, 34-35 (N.C. Ct. App. 2005).

[158] Incorporating weather data into a contract, absent a force majeure clause, does not automatically entitle a party to relief. One contractor argued that incorporating weather data into the contract constituted a guarantee by the owner that weather conditions would conform to the historical data; the court rejected the party's argument and held that the contractor was not entitled to force majeure relief in the absence of a force majeure provision. *Assoc. Engineers & Contractors, Inc. v. Hawaii*, 567 P.2d 397, 408 (Haw. 1977).

[159] *Bateson-Chevres Constr.*, 1967 WL 241.

[160] *Id.*

[161] *See, e.g., Appeal of Federal Builders,* A.S.B.C.A. No. 30164, 86-3 B.C.A. ¶ 19235 (A.S.B.C.A. 1986) (rejecting wind as unusually severe weather because only peak wind figures were offered and "Kansas is a windy state"); *Allied*, I.B.C.A. No. 265 (accepting Department of Commerce Weather Bureau report indicating a record for cold temperatures during the first 16 days of March as evidence proving unusual severity).

Occasionally, a court will provide a more detailed explanation of its reasoning. In *Appeal of Potomac Marine & Aviation, Inc.*,[162] for example, the Board of Contract Appeals rejected a contractor's claim that the January and February snowfall experienced during a project constituted unusually severe weather.[163] In doing so, the Board compared the snowfall with the historical monthly average, the historical monthly maximum and the historical 24-hour maximum. The Board found against the contractor, noting that the total amount of snowfall at the construction site in January was only slightly above the average January snowfall, and that the total snowfall at the project (6.5 inches) was only about half the 24-hour maximum snowfall in the past 45 years and less than one quarter the amount of maximum January snowfall in the past 45 years.[164]

The Board's focus on historical average data, while typical, is problematic. Unless the observed weather matches the historical average almost exactly, the historical average is of limited use without information about the variation in the data. The historical average provides a starting point, but no yardstick by which to measure deviation. For example, the historical average temperature in March in Minneapolis, Minnesota is 32°, but the 100-year high temperature is 83° and the 100-year low is -32°.[165] Clearly, the variation in March temperatures in Minneapolis is quite large. Looking only at the historical average of 32°, a 20-degree difference (12° or 52°) may appear surprising and unusual. But given the 115° difference

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[162] 93-2 B.C.A. ¶ 25902, 1992 WL 448368 (A.S.B.C.A. Feb. 24, 1992). The Board of Contract Appeals reviews disputes relating to federal contracts.

[163] *Potomac Marine & Aviation*, 93-2 B.C.A. at ¶ 25902.

[164] *Id*. at ¶ 25903.

[165] http://www.weather.com/outlook/travel/vacationplanner/wxclimatology/monthly/USMN0503.

between the 100-year high and low temperatures, the variation of 20° is not so dramatic.[166] By comparison, the historical average March temperature in Honolulu, Hawaii is 74°, with a 100-year high and low of 89° and 53°, respectively. A 20-degree variation in March in Hawaii would be remarkable: it would exceed the 100-year high (94° versus 89°) and would almost match the 100-year low (54° versus 53°).[167]

Historical averages are of limited value unless the court also examines the spread or variation in the observed weather data. Courts could more accurately and effectively utilize historical averages by starting with the standard deviation of the weather variable and then establishing a certain degree of (im)probability that must be met for a weather event to be considered "abnormal" or "unusually severe." Rather than a more rigorous statistical analysis of the variation from the historical average, however, courts seem to rely heavily on intuition about whether a number is "far enough" away from the historical average to be considered unusually severe.

The Board's focus in *Potomac Marine & Aviation* on record-breaking weather is similarly problematic. A record-breaking weather event is by definition anomalous. As such, it is not a reasonable starting point for measuring unusual weather events. A weather event might be highly unusual and unforeseeable, but still substantially less severe than the most severe weather event of its type in the historical record.

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[166] Temperatures are used as an example here, but the analysis applies equally to average precipitation.

[167] As described below, focusing on record-breaking patterns also is a problematic method for identifying unusually severe weather. The historical highs and lows described above do not affirmatively demonstrate whether a 20-degree difference is unusual or significant, but they do give a general idea of the potential range of weather events. It is theoretically possible (although not actually true) that almost all Minneapolis temperatures in March are closely clustered around 32° and almost all Honolulu temperatures in March are clustered around the historic records, which could make a 20-degree difference unusual in Minnesota but not in Hawaii. This example further underscores the need to look at the standard deviation in the observed weather patterns in order to appropriately and consistently decide whether specific weather events are unusual.

An expert witness who examines weather data by looking at the standard deviation would help alleviate this problem. At least one federal court has been persuaded by an expert's analysis of NOAA data and the expert's conclusion that the weather could have been "reasonably anticipated."[168] Such expert testimony is missing in other judicial opinions, and could have played an important role. For example, in *Appeal of Federal Builders*,[169] the decision-maker rejected a force majeure claim when the contractor provided only the peak wind measures, not the strength of the sustained winds. The court ruled that the peak figures were insufficient to prove a force majeure event, because "Kansas is a windy state." [170] An expert witness retained by the contractor could have presented analysis to persuade the court that the peak winds were "unusually severe"; an expert witness retained by the owner could have presented evidence that the peak winds were typical of the "windy state."

Parties cannot control the method the court will use to analyze weather data, but they can attempt to shape the issues by providing statistical analysis or expert testimony analyzing the weather data. The key to a successful force majeure argument (whether offensive or defensive) is explaining to the decision-maker why the particular event is or is not an abnormal weather event. An expert witness can review the weather data and opine as to whether the conditions encountered were "abnormal" or "unusually severe."[171] The proper approach should be a statistical analysis of the historical snowfalls (provided by an expert witness), not an arithmetic comparison of means and maximums.

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[168] *See, e.g., McDevitt & Street Co.*, 713 F. Supp. at 911 (considering expert testimony and ruling that "based on the NOAA records, the weather conditions encountered by [the contractor] . . . could have been 'reasonably anticipated,' and were no more severe than the normal weather conditions for the area at that time of year").

[169] *See, e.g., Appeal of Federal Builders*, A.S.B.C.A. No. 30164, 86-3 B.C.A. ¶ 19235 (A.S.B.C.A. 1986) (rejecting wind as unusually severe weather because only peak wind figures were offered and "Kansas is a windy state").

[170] *Id.*

[171] *See, e.g., McDevitt & Street Co.*, 713 F. Supp. at 911.

2. *How the definition of and basis for defining unusually severe weather will need to change*

As weather patterns change with climate change, it will be even more difficult to separate normal and "abnormal" weather. Even if courts use the standard deviation of a weather variable to determine "unusually severe" weather, as suggested above, they must still rely on historical data which may not be an accurate predictor. A focus on historical weather data – however analyzed – is fundamentally problematic because *it assumes that historical patterns will continue in the future.* Increasingly strong evidence suggests that weather patterns are undergoing a substantial shift. If future weather patterns do not conform to historical patterns, then historical data is an inherently flawed measure for predicting future weather patterns. This measure will become increasingly erroneous over time.

That said, using historical data will typically benefit the contractor because weather events that were unusual in the past are becoming more common. An extreme event of a given magnitude had a lower probability of occurrence in the past century than it will have in the next century. For example, there is evidence that the United States has been seeing both an increased amount of precipitation and an increased number of high-intensity, one-day precipitation events (e.g., heavy rainfall or blizzards). These severe storms may be atypical when comparing historical data, but are increasingly becoming part of the expected weather patterns today. Heavier rainfall, more intense storms and increased flooding are the "new normal."

There are at least three potential solutions to this problem. First, limit the historical data to the past 10 or 20 years. The advantage of this approach is that, although any analysis of unusually severe weather delay claims will still fall behind changing weather patterns, it will fall behind by a smaller measure than if a court were to analyze data from the last 80 or 100 years. The disadvantage is that using fewer years lowers the potential quality of the data by not

allowing for as many observations, especially considering the wide degree of annual variation in weather patterns. Whether the resulting rise in accuracy from using more current weather patterns outweighs the negative effects of having less data is an open question.

Second, adjust historical data by accounting for changing weather patterns. For example, if scientists expect that precipitation (or temperature) will increase six percent every 100 years, historical precipitation (or temperature) patterns could be adjusted upward by a corresponding factor. That would not be the end of the analysis, though. Parties and the courts also would have to consider how the increased precipitation (or temperature) would affect the contract. Many of the effects would be negative, such as flooding or wet soil, but some could be positive.

For instance, heavier precipitation leads to greater soil moisture, which could have a detrimental impact on excavating and other construction activities. Changing patterns in the distribution of precipitation (i.e., increased intense-precipitation events) may lead to new concerns about flooding and storm damage (especially when combined with increased soil moisture). On the other hand, increasing temperatures could have a positive effect if they lead to later freezes and earlier thaws, potentially allowing for a longer working period for temperature-sensitive activities such as concrete work.

One drawback with this approach is that with all the potential variables, it may be impossible or prohibitively costly to incorporate a sufficient number of changing climatic effects into the analysis. While it may be possible to increase the precipitation levels shown in the historical data overall, it would be much harder to adjust the data to account for the increased likelihood of intense precipitation events. Even if it were possible to adjust the data appropriately, such adjustments may have only a minimal effect given the large amount of yearly variation in weather patterns.

Third, consult a weather resource that will predict the weather patterns for a certain period of time (such as the next year) and incorporate those assumptions into the contract. This is similar to the Army Corps of Engineers' approach,[172] and has the benefit of providing flexibility for the contracting parties and greater certainty in applying the force majeure provision. Another benefit of expressly incorporating weather assumptions into the contract would be to put the parties on notice of the anticipated weather events. That said, construction contracts often are entered into many months, if not years, in advance of the work to be performed. Some weather events may be impossible to predict far in the future, although they are capable of prediction several months in advance. For example, scientists have linked the strength the El Niño effect to various conditions such as temperature, wind patterns and other weather phenomena. It may be impossible to predict whether a given location will experience strong El Niño effects several years from now, although it may be possible to predict (with a reasonable degree of probability) the strength of the effect a month or two from now. While these predictions may not materialize, drafting such predictions may put the parties on notice of the likelihood of the events and provide them the opportunity to account for the risks when determining contract terms such as price and completion date.

B. How Analyzing Foreseeability May Change.

As weather patterns change, views of the foreseeability of certain weather events also change. As one-day severe precipitation events increase, contractors and owners will eventually come to expect more blizzards and heavy rains. Some events may cross the threshold of being "unforeseeable" to being "foreseeable."

1. *How courts define unforeseeability today*

[172] *See* Part IV.B.3.

One of the most crucial concepts in force majeure is unforeseeability, even if the term is nowhere to be found in a force majeure provision. This is because if an event is deemed foreseeable, it is presumed that the promisor assumed the risk of that contingency arising.

"Foreseeability" seems to be a judgment of whether a risk was sufficiently appreciable for the court to assess a party with the risk of the event occurring. Consider unforeseeability as an equitable principle designed to protect a performing party. If a party properly researched the subject of the contract, carefully considered the likely risks and diligently undertook to perform the contract, the party should not be held liable for the occurrence of a catastrophic and extremely unlikely event, even if one could have recognized the event as a remote possibility prior to contracting. In this way, force majeure events are simply so unlikely and so catastrophic that courts will release parties from their contractual relationships for reasons of basic fairness.

This interpretation could explain why courts add an unforeseeability requirement when applying a force majeure clause to an event not specifically listed in the clause.[173] If the event was sufficiently likely, it will be deemed foreseeable, and thus a party assumed the risk. Reconsider the facts in *URI Cogeneration Partners, LP v. Board of Governors for Higher Education*.[174] The court ruled that denial of a zoning variance did not fall within the catch-all clause of a force majeure provisions.[175] The court distinguished the zoning decision from the

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[173] However, it does not explain why some courts impose a foreseeability requirement for events specifically listed in the force majeure clause. *See* Part III.C.1. Indeed, it is difficult to understand how parties foreseeing a specific risk might be able to contractually reallocate the burden of that risk when courts add an unforeseeability requirement on top of the contractual terms. Some courts, recognizing this problem, only apply the unforeseeability requirement to events not listed in the force majeure clause. *See, e.g.*, *Kodiak Drilling P'ship*, 736 S.W.2d at 721 (refusing to apply unforeseeability requirement to listed force majeure event); *see also* Jay D. Kelley, *So What's Your Excuse? An Analysis of Force Majeure Claims*, 2 Tex. J. Oil Gas & Energy L. 91, 103 (2007). (describing the Texas "rule that unforeseeability is not a requirement for specifically listed events, but is a requirement for events that may otherwise be covered by a catch-all clause").

[174] *See* text surrounding footnote 72.

[175] *URI Cogeneration Partners*, 915 F. Supp. at 1276.

"Biblical plagues" described in the force majeure clause by noting the zoning decision was foreseeable whereas other events (e.g., typhoons) are not.[176] The court's description is not strictly accurate: the events listed in the force majeure clause were foreseeable enough for the drafter to consider them and insert them in the contract. In this sense, all listed possibilities in force majeure clauses are technically foreseeable, and in fact are foreseen. Then what separates "typhoons, citizens run amok, Hannibal and his elephants at the gates," blockades and tornados[177] from zoning board decisions and mechanical breakdowns[178]?

The unstated distinction between foreseeable and unforeseeable events is the likelihood and type of the event. The likelihood in the United States of an unfavorable zoning decision is much greater than the likelihood of a riot or armed invasion. Moreover, it is the type of event and risk that a party to a contract can be expected to research and account for when forming a contract. The risk is closely related to the subject of the contract, as opposed to external and unrelated sources. A diligent construction manager can be expected to understand local zoning policy when zoning permission is necessary for construction, but may not be a political expert able to estimate or even foresee the risk of a government appropriation or blockade.

Virtually all events are foreseeable to some degree. The real difference is the likelihood of their occurrence. We can foresee (i.e., recognize) that a hurricane could strike Miami, Florida, or a tornado could hit Des Moines, Iowa. But the likelihood of either of those events occurring in

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[176] *Id.*

[177] *Id.* (typhoons and Hannibal are force majeure); Ga. Code Ann. § 48-7-40.24(3)(C) (blockades and tornados are force majeure).

[178] *URI Cogeneration Partners*, 915 F. Supp. at 1276 (zoning board decision is not force majeure event); *Gulf Oil Corp.*, 706 F.2d at 444 (mechanical breakdown is not force majeure event).

a given year is extremely small.[179] The National Hurricane Center Risk Analysis Program estimates that there is a 33-year "return period" for a Category 5 hurricane in Miami, Florida.[180] This means we would predict that Category 5 hurricanes will pass within 86 miles of Miami approximately three times in the next 100 years.[181] It is possible that twelve Category 5 hurricanes will hit near Miami in the next 100 years; it is possible that no Category 5 hurricanes will hit near Miami during that time. However, the most likely number is three. As creators of insurance models understand, force majeure events are nothing more and nothing less than extremely low-probability, high-liability events.[182]

The concept of foreseeability is especially challenging for force majeure claims based on unusually severe weather because a contractor is expected to account for normal weather delays, and can only seek protection under a force majeure clause if the weather is "abnormal" or "unusually severe." The foreseeability principle is an equivalent to the assumed risk of expected/foreseeable/"normal" weather events. Thus, unforeseeability and abnormality are equivalents.

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[179] For further information on the likelihood of a hurricane hitting a particular location, consult National Hurricane Center Risk Analysis Program ("HURISK"), *Gulf Coast Return Period for Category 5 Hurricanes*, available at http://www.nhc.noaa.gov/HAW2/pdf/cat5.pdf..

[180] *See id.*

[181] HURISK, *Return Periods*, available at http://www.nhc.noaa.gov/HAW2/english/basics/return.shtml. For an article explaining the method used to calculate a return period based on limited data, *see* Mark E. Johnson & Charles C. Watson, Jr., *Hurricane Return Period Estimation* (1999), available at http://www.oas.org/cdmp/document/taos/retnestm.htm. For a tool to help predict the likelihood of encountering a rare event (e.g., 100-year flood), *see* National Weather Service Weather Forecast Office, *Flood Return Period Calculator*, available at http://www.srh.noaa.gov/epz/?n=wxcalc_floodperiod. Note that calculating the probability of encountering a 100-year flood in the next 10 years is more complicated than simply dividing 10 by 100. (In fact, the probability is 9.6 percent. *Id.*)

[182] In fact, there are insurance and investment options to protect against these risks. Companies can purchase weather hedges, a derivative investment that allows companies to manage the risk of financial consequences of unusually severe weather. *See* Joanne Morrison, *Managing Weather Risk: Will Derivatives Use Rise? ("Managing Weather Risk")*, Futures Industry 26 (Jan/Feb 2009). Parties can also purchase force majeure insurance. *See* William Cary Wright, *Force Majeure Delays*, The Constr. Lawyer 33, 37 (2006).

2. *How the definition of unforeseeability will change*

With changing weather patterns, the concept of foreseeability will become more difficult to apply. As hurricanes increase in frequency and severity or the patterns of El Niño shift, events that were unforeseeable before will become increasingly more likely, nudging up the risk spectrum toward foreseeability. At what point will courts make the shift and decide that a previously unforeseeable event is now foreseeable?

Today's legal framework is unable to effectively address subtle shifts in weather-related risks because the current legal model is an on/off decision, a bright line drawn on an unchanging spectrum. An event is declared foreseeable or unforeseeable when in fact virtually all events are foreseeable or imaginable, with differing levels of probability attached to their occurrence. Numerous industries have been facing problems emanating from shifting weather patterns. Farmers experience lower crop output based on excessively hot summers and lower precipitation in the Midwest.[183] Construction companies and oil and gas producers experience disruptions due to increasing numbers of hurricanes and precipitation. Insurance companies must constantly re-evaluate and re-assess their risk models in light of new data and changing future predictions. The use of weather derivatives has dramatically increased in the last decade,[184] and there is considerable insurance-industry literature analyzing the necessary steps to properly account for weather-related risks that have an increasingly weak connection to historic weather patterns.

For one-time events such as hurricanes and tornadoes, the changing weather patterns will most likely not affect courts' interpretation of unforeseeability in the near future. The increasing number, duration and severity of hurricanes means that it is more likely – and more foreseeable –

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[183] *See* Joanne Morrison, *Managing Weather Risk: Will Derivatives Use Rise?*, Futures Industry 26, 27 (Jan/Feb 2009).

[184] *Id*.

that a hurricane will strike a given location and will be more severe than in the past. But the likelihood of this event occurring in a predictably specific location is still extremely small. Even a large percentage increase in frequency still produces a extremely small probability of a hurricane *for any given location*. Thus, courts that interpret "foreseeable" to mean "extremely unlikely" will not soon be altering the current legal model.

It is quite possible, however, that courts applying a strict definitional approach to foreseeability will begin finding certain weather events foreseeable that were previously considered unforeseeable. We believe this shift is fairly likely, because, in our view, humans tend to mischaracterize risk in predictable ways. People tend to overestimate the risk of high-profile, severe or bizarre events, especially when they learn that such an event has recently occurred.[185] "[H]ighly publicized events are likely to lead people to be exceedingly fearful of statistically small risks."[186] Conversely, we often underestimate risks "when certain risks, not easily accessible, seem invisible."[187] For example, studies have shown that sales of flood or earthquake insurance rise sharply after a flood or earthquake, and then diminish steadily until the next major event.[188] While the actual risk of a flood or earthquake remained constant through that entire period, people's assessment of the risk of a flood or earthquake increased dramatically.

Given the media's focus on major weather events as a significant category of news reporting, catastrophic but extremely rare events are frequently brought to public attention. This

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[185] *See, e.g.*, Cass R. Sunstein, Risk and Reason: Safety, Law, and the Environment 33-35 (Cambridge Univ. Press 2002).

[186] *Id.* at 34.

[187] *Id.*

[188] *Id.* at 33.

repeated focus on major weather events – such as hurricanes, floods, droughts and heat waves – could lead courts to overestimate the risk of these major weather events, transforming them into "foreseeable" events. These courts may also overemphasize the effect of climate change. Although precipitation and temperature are increasing, they are increasing at a fairly small incremental amount. The tendency to overemphasize the likelihood of catastrophic events or the rate of climate change, combined with extensive reporting on climate change, increases the possibility that courts will deem a catastrophic weather event foreseeable, even when it is still very unlikely.

One possible way to address changing weather patterns is to switch from focusing on the foreseeability of the *event* and to address the foreseeability of the *effects*. Rather than trying to determine whether a particular event is foreseeable, courts could focus on whether the effects of an event are extremely unlikely.[189]

Focusing on the effects of the event will help a contractor receive relief when there are severe effects from a mildly severe weather event, and will bar relief when there are minimal effects from a severe weather event. Under the current framework, a contractor may be denied a time extension for the severe effects of a rainstorm, yet still receive an extension for the minimal effects of a hurricane. Focusing on the foreseeability of the impact of the event, rather than the event itself, more closely aligns the harm with the contractual delay or force majeure provision.

[189] The Army Corps of Engineers takes such an approach, focusing on the amount of delay instead of the precise events causing the delay. *See* text at Part IV.B.3, *supra*.

C. How Analyzing Unavoidability and Ultimate Causation May Change.

Changing weather patterns may also change how courts and parties view causation and mitigation (i.e., unavoidability).[190] A claimant must demonstrate its damages were caused by a force majeure event, not an expected or "normal" event. Causation principles are not greatly affected by changing weather patterns when the force majeure event is a major weather event (such as a tornado or hurricane). But when the claim is based on an unusually-severe weather event, it is more difficult to distinguish between increasingly-severe "normal" weather and unexpected "unusually severe" weather. Consider again the facts of *S.J. Lemoine, Inc. v. St. Landry Parish School Board*.[191] The claimant presented a claim based upon a 29-day rain delay. A court finding that the amount of rain was unusually severe will apportion the 29-day delay between anticipated delay due to normal weather events and delay caused by the force majeure event.

It is just as likely that a court's view of mitigation will change as weather patterns change. As severe weather events increase in severity and number, and normal weather events change significantly, the expectation of precautionary mitigation increases.

VI. Recommendations For Addressing The Increasing Uncertainty In Weather Patterns And Force Majeure Provisions.

Force majeure is already a difficult concept to apply to real world weather events. It will become increasingly more difficult to apply it as weather patterns shift, altering the standard by which courts judge foreseeability and unusually severe weather. We foresee a period of flux,

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[190] Changing weather patterns will not have an appreciable effect on the other aspect of force majeure claims – whether the event itself (not the effects of the event) is outside the party's control. Thus, this section does not address this topic.

[191] 527 So. 2d at 1150; *see* text surrounding footnotes 115-118.

while courts and contracting parties struggle to understand how changing weather patterns affect force majeure provisions. These changing weather patterns challenge one of the most basic contractual assumptions: that past weather data is a reliable predictor of future weather patterns. When past weather data is no longer a reliable predictor of future weather patterns, a new approach is necessary.

In the face of uncertain and changing weather patterns, contracting parties should consider negotiating force majeure provisions that address this uncertainly. There are two primary ways for parties to address climate change: (1) incorporate a more robust definition of "unusually severe" or "abnormal" weather; or (2) mimic the Army Corps of Engineers approach, where the "length" of the delay trumps the cause of delay. The reasonableness of either option will likely depend upon factors including the location of the project; the size and cost of the project; the likelihood of a weather impact on the project schedule; and the amount of time available during the negotiation period. We encourage contracting parties to build some of their assumptions into the contract, to eliminate sources of potential dispute.

A. Defining "unusually severe" weather.

The key to drafting a contractual provision that accounts for climate change is to define "unusually severe" weather. Such a provision can be easily incorporated into the most common form contracts (AIA, EJCDC and ConsensusDOCS) as well as contracts governed by the Federal Acquisition Regulations. We propose the following as a starting point in the parties' contractual negotiations:

> Abnormal Weather Conditions. [192] A contractor may obtain an extension of the contract time based on "abnormal weather conditions" if the following conditions are satisfied.

[192] If a contractor is using this provision with the AIA forms, this provision defines "abnormal" weather as mentioned in § 15.1.5.2 of AIA Form A201. If a contractor is using this provision with the EJCDC forms, this provision defines "abnormal weather conditions" as mentioned in EJCDC C-700 § 12.03(A). If a contractor is

(1) For the purposes of this contract, "abnormal weather conditions" are defined as:
    (a) Any weather event that has not occurred within the past 10 years in the calendar month in which it occurs at the Project Site (or one calendar month earlier or later).
    (b) Any weather event that has a likelihood of occurrence of less than 10 percent in a given calendar year, when compared to the weather patterns for the past 40 years.
    (c) The following weather events are deemed to be "abnormal weather conditions" if they occur at the Project Site regardless of whether they meet the standards of subsections (a) or (b): flash floods, tornadoes, and hurricanes.
(2) The Contractor bears the burden of proving that "abnormal weather conditions" occurred.
(3) The Parties agree that the source of weather data for the comparisons described in subsections (1)(a) and (1)(b) shall be the weather data from the National Weather Service at the National Oceanic and Atmospheric Administration **[or alternate weather source[193]].** To the extent that past weather data is not available for the historical periods described in subsections (1)(a) and (1)(b), the Parties agree that historical weather data for **[add city, town or area]** shall be used as a substitute.
(4) The Contractor must take commercially reasonable measures to protect the Project Site and avoid unnecessary delays due to abnormal weather conditions.
(5) The Contractor is only entitled to an extension of time for any delay attributable to the abnormal weather conditions. If part or all of the delay could have been avoided by commercially reasonable measures as described in subsection (4), the Contractor is not entitled to an extension such periods of time.

This proposed provision addresses four commonly-disputed areas: the source of weather data (§ 3); mitigation (§ 4); causation(§ 5); and foreseeability (§ 1). It addresses the concept of foreseeability within the context of improbability. This definition of "abnormal weather

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using the ConsensusDOCS model contract, this provision should define "adverse weather conditions not reasonably anticipated" as mentioned in § 6.3.1 of ConsensusDOCS Form 410. If a contractor is using this provision with a contract that follows the FARs, this provision defines "unusually severe weather" as mentioned in F.A.R. § 52.249-10(b)(1)(x).

[193] The most reliable source of data will depend on the geographic location of the project and the nearest, reasonably-equivalent weather point that has historical data for the desired time period. Contracting parties should consider whether a different source (other than NOAA) would be more accurate. For example, parties may rely on weather from a specific weather tower, a local airport, a private business (such as a transportation company or agricultural business that tracks weather daily), or a local scientific building. For example, a construction project created

conditions" addresses unforeseeability in three ways. First, some weather events are automatically considered to be abnormal weather events (§ 1(c)). Second, an event is unforeseeable if that weather event has not happened in the past 10 years, within two calendar months of the event at the Project Site (§ 1(a)).[194] Third, our provision is designed to capture weather anomalies even if they have occurred recently (§ 1(b)).[195]

We prefer our provision over existing form language because it eliminates disputes about the source of weather data and proper date range for comparison, and provides a framework for a decisionmaker to determine whether weather is unusual. Instead of relying on intuition or simple mathematical comparisons, this clause provides the decisionmaker with a slightly more workable basis for comparing the disputed weather with relevant historical weather patterns. This provision does not require in-depth study or technical analysis during contract formation. The parties select a weather source and an agreed-upon time frame, two fairly simple terms to negotiate.

B. Defining the expected delay.

Instead of focusing on unusual weather as the source of the delay, the contracting parties may mimic the approach of the Army Corps of Engineers by specifying an expected period of

[194] Our provision is designed to capture truly unusual events, or weather that is occurring out of season. For example, suppose a Project Site in Fargo, North Dakota experienced 20°F temperatures in May. These temperatures may be very unusual for May, even if they would be expected in Fargo in the winter or early spring. Section 1(a) would define this weather as an abnormal weather condition if there were no reported instances of temperature 20°F or lower at the agreed-upon weather location in April, May or June of the past 10 years (the calendar month of the weather and one calendar month earlier or later).

[195] For example, a location may suffer two historic droughts in a five-year period, due to random effects of weather. Under section 1(a), the second drought would not be an "abnormal weather condition" even if it were the second drought in the entire century, simply because it followed closely after the first drought. Section 1(b) is our attempt to balance the unduly harsh effects of two highly unusual weather events occurring in close temporal proximity, with the effect of climate change. Contracting parties can alter the risk (10%) and the time period (40 years) if they believe a different comparison is preferable. A shorter period will yield more accurate results for areas with consistent weather (such as Hawaii in March) or with greater effects from climate change. A longer period may be necessary for areas with greater weather variability (such as Minnesota in March) in order to get an accurate sense of the "expected" weather variability.

delay. This approach is more time consuming at the contracting stage, but allows the parties to avoid the issue of "normal" versus "abnormal" weather, by focusing on the length of delay, instead of the cause of delay. We propose a clause that draws from some of the strengths of the Corps' approach, but modifies it to account for changing weather patterns.

First, parties should consider agreeing on the source and period of relevant weather data when establishing the substantial completion date for the project. Parties who use historical data should know that the data is an imperfect predictor of future weather patterns; they can adjust contract terms regarding price and time to account for this risk. Alternatively, parties could agree to adjust the historical data or projected number of delay days to account for the risk.

Second, the contracting parties can use the relevant weather data to form an agreement about the number of weather-delay days. The parties can agree about the types of weather events that qualify as abnormal, or they can jointly dictate that any weather event that interferes with contractual performance shall constitute abnormal weather.

Third, the contracting parties should consider agreeing on the calculation of adverse-weather days. Rather than relying on the Corps' 50 percent rule, the parties would be wise to calculate delay based upon the approximate number of hours that work is delayed on each day.[196]

Here is our suggested language:

> Abnormal Weather Conditions. A contractor may obtain an extension of the contract time based on "abnormal weather conditions" if the following conditions are satisfied.
>
> (1) For the purposes of this contract, "abnormal weather conditions" are defined as any delay attributable to weather in excess of the estimated delay days in a given month, as established by Figure A below.
> (2) The Contractor bears the burden of proving that "abnormal weather conditions" occurred.

[196] For example, if a work day is eight hours long and a party encounters a four-hour delay on Day One and a four-hour delay on Day Two, the party could be entitled to a one-day extension. The parties may want to ignore delays of a given amount – such as delays of less than one hour.

(3) The Contractor must take commercially reasonable measures to protect the Project Site and avoid unnecessary delays due to abnormal weather conditions.
(4) The Contractor is only entitled to an extension of time for any delay attributable to the abnormal weather conditions. If part or all of the delay could have been avoided by commercially reasonable measures as described in subsection (4), the Contractor is not entitled to an extension such periods of time.
(5) All delays must be entered in a log at the Project Site. The Contractor must include in the log: the start and end time of the delay, the weather event causing the delay, the type of work to be performed, and a brief explanation of why the weather event made continuation of work impossible.
(6) The occurrence of delaying weather events must be verified by a weather source. The Parties agree that the following source shall be used for purposes of verifying a delaying weather event: the National Weather Service at the National Oceanic and Atmospheric Administration **[or alternate weather source[197]]**.
(7) Any delay of less than one hour in a working day shall not be counted for purposes of this provision. Any delay of more than one hour and less than one working day shall be counted in quarter hours. Delays of less than a full working day over multiple days may be added together to comprise one or more full days of delay. For the purposes of this provision, a working day shall be comprised of eight (8) hours.

Figure A: Monthly Anticipated Adverse Weather Delay (Based on 5-Day Work Week)

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

We propose this language because it increases certainty among the contracting parties. It expresses more clearly the parties' assumptions of risk, allowing courts to better distinguish which risks were allocated to a particular party and which risks were not considered. It also forces both parties to carefully consider the historical weather data, which may lead parties to set

[197] *See* footnote 193for explanation of reasons parties would use alternate sources.

more realistic timelines than if they considered the construction tasks without accounting for weather.

This provision requires more time during the negotiation phase than the provision described in Section VI.A. For contracts involving a small fee or limited time period, contracting parties may prefer the provision outlined in Section VI.A. For contracts involving an extended period of time, large monetary value, or locations with historically unpredictable weather, contracting parties may prefer the provision outlined in this section.

Conclusion

Changing weather patterns have important implications for the interpretation and application of force majeure clauses, most importantly when determining whether the encountered weather event is "unusually severe" and when determining whether it was unforeseeable. Changing weather patterns undermine the basic assumption of courts and parties that historical weather patterns are an accurate predictor of future weather. Climate change is changing the "normal," thereby changing the scope of weather events that are abnormal or unusually severe. In this area of increasing uncertainty, parties would do well to expressly incorporate their weather-based assumptions into the contract and provide a mechanism by which to seek reimbursement or extensions for delays without controversy over whether a particular amount of rainfall or flooding is "abnormal." Absent these contractual provisions, the application of a force majeure clause will remain uncertain, as courts and parties dealing with climate change struggle to find the "new normal."