COMPLIANCE, CRIMINALITY, AND CLIMATE CHANGE POLICY IN THE GRENFELL TOWER FIRE

ABSTRACT

Though the *Report* of Phase 2 the Grenfell Tower Inquiry is critical of many involved in the Grenfell Tower fire, its criticism of regulatory non-compliance by the manufacturers of the products used in the cladding of the Tower has been of a severity which has led to a general public call for some of those manufacturers and their employees to be prosecuted for the most serious criminal offences. This justification of this severity is, however, undermined by the Inquiry 's analysis of the manufacturers' conduct being seriously inadequate in terms of regulatory theory and practice. Differing forms of non-compliance are insufficiently distinguished, and the Inquiry's criticism of private companies is not at all balanced by its criticism of public bodies. But it was public bodies which failed in their specific regulatory duties, and, in pursuit of climate change policies, gave the general impetus to the cladding of the Grenfell Tower which was the cause of the fire.

INTRODUCTION: CRIMINALITY AND THE GRENFELL TOWER FIRE

The publication of the *Report* of Phase 2 of the Grenfell Tower Inquiry (GTI)[1] on 4 September 2024 has led to intense public criticism of the private companies involved in the cladding of the Tower which caused the Grenfell fire. The main headline of *The Times* published on 5 September was 'Killed By Greed and a Culture of Dishonesty'.[2] In her Foreword to the Government's response to GTI published on 26 February 2025, the then Deputy Prime Minister (DPM) denounced "The companies that refurbished Grenfell Tower [which] put profits ahead of safety".[3] Both *The Times* and the DPM observed that "justice" required that criminal prosecutions be brought, and in this they endorsed the publicly expressed wishes of those directly harmed by the fire, such as the survivors and bereaved families of the Grenfell United Group,[4] who regard many of the companies as "little better than crooks and killers" which the Metropolitan Police and the Crown Prosecution Service must ensure "are held to account and brought to justice".[5] There can be no doubt that there is a general public view that the Grenfell fire amounted to serious criminality.

[1] Sir Martin Moore-Bick (Chairman), *Grenfell Tower Inquiry Phase 1 Report*, HC 49-1-IV (2019) and *Grenfell Tower Inquiry Phase 2 Report*, HC 19-I-VII (2024). Each *Report* has chapters numbered consecutively across all of its four and seven volumes respectively, and consecutively numbered paragraphs within each chapter. Unattributed references will normally be given in the form of e.g. Phase 2, ch 21, para 15. The *Reports* and all documents connected with GTI are available via <https://www.grenfelltowerinquiry.org.uk/>.

[2] J Beal and F Hamilton, *The Times* (London, 5 September 2024) 1.

[3] Deputy Prime Minister and Secretary of State for Housing, Communities and Local Government, *UK Government Response to the Grenfell Tower Inquiry Phase 2 Report* (CP 1248 2025) 2.

[4] <https://grenfellunited.org.uk/>.

[5] V Dodd, 'Grenfell Victims Face Three-year Wait for Possible Convictions' *The Guardian* (London, 4 September 2024) 2.

The conduct, motivated by "a drive to create profits",[6] of the manufacturers of the materials used in the Grenfell cladding has been a particular focus of criticism. GTI concluded that:

> "One very significant reason why Grenfell Tower came to be clad in combustible materials was systematic dishonesty on the part of those who made and sold the … cladding … products. They engaged in deliberate and sustained strategies to manipulate … testing processes, manipulate data, and mislead the market".[7]

In one initially scarcely credible episode, discussed prominently in GTI, singled out in the DPM's Foreword, and which will be closely analysed here, the manufacturer of one of the insulation materials used, acting with the very intention that the results of the test would allow its product to be used in housing in which people would live hundreds of feet above the ground, deliberately rigged a fire safety test to exaggerate the product's fire resistance!

But that GTI and the DPM emphasised this act of *prima facie* serious corporate criminality motivated by profit is expressive of a serious mistake in our understanding of the cause of the Grenfell fire, and of its implications for regulatory theory and practice. For what has been criticised is, not a pathological form of profit-seeking, but profit-seeking as itself a pathology. No time shall be spent arguing that this stance cannot be sustained in a liberal democracy which accepts legitimate profit-seeking as integral to the market economy.[8] But profit-seeking is the form in which corporate legal persons pursue self-interest, and it is axiomatic to the theory of regulation that, just as with natural legal persons, the pursuit of self-interest may take beneficent or deleterious forms, and that a legal framework established by sovereign public bodies is therefore essential to channel profit-seeking into courses which enhance public welfare.[9] This is a far more complex regulatory task than can be accomplished by taking a sweepingly critical attitude towards profit-seeking, and successful regulation does not do so. After GTI, nothing has become more glaringly obvious in UK public debate than that the Grenfell fire was a profound regulatory failure, but the fundamental nature of that failure has not been grasped at all.

For far from companies seeking a profit from the cladding of the Grenfell Tower being deplored, such profit-seeking was greatly encouraged by government. The form of cladding system installed at Grenfell was chosen to insulate the building so that it would meet energy efficiency standards required under legislation ultimately in pursuit of the UK's Carbon Target under the Climate Change Act 2008, s. 1. Public bodies not only set the standards, but very actively promoted the growth of the insulation product industry to further the cladding, not just of Grenfell, but of high-rise buildings nationally. The conduct of the private companies involved in the Grenfell fire cannot be understood or evaluated unless placed in this context.

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[6] Phase 2, ch 24, para 4.

[7] Phase 2, ch 2, para 19.

[8] M Weber, 'Prefatory Remarks to *Collected Essays on the Sociology of Religion*' in *The Protestant Ethic and the Spirit of Capitalism* (OUP 2011) 237:

> "[The] naïve manner of conceptualising capitalism by reference to a 'pursuit of gain' must be relegated to the garden of cultural history … and abandoned once and for all. A fully unconstrained compulsion to acquire goods cannot be understood as synonymous with capitalism, and even less with its 'spirit'. On the contrary, capitalism can be identical with the taming of this irrational motivation".

[9] RH Coase, 'The Problem of Social Cost' in *The Firm, the Market and the Law* (University of Chicago Press, 1985) 134: "if self-interest does promote economic welfare, it is because human institutions have been devised to make it so".

The most important criticism GTI levelled at the companies involved in the cladding is that they failed to comply with the fire safety regime under the Building Act 1984, but this was not generally because of a serious criminal intention of private parties not to comply, but because compliance under the regime was, in many and various ways, mishandled by both private companies and public bodies. The facts revealed by GTI disclose that the great majority of compliance issues were of a "commonplace and routine"[10] nature which cannot be understood unless they are distinguished from criminality. However, GTI's explanation of the conduct of private companies does not satisfactorily draw this distinction. This is in part because GTI displays no familiarity with the developments in regulatory theory and practice since the neo-liberal revolution which have, in pursuit of greater effectiveness of regulatory enforcement, restricted criminalisation to the apex of a scale of sanctions by "embed[ding] it in a more sensitive and systematically deployed enforcement structure".[11]

But it is even more important that GTI takes a rather different attitude towards the shortcomings of public bodies as opposed to private companies, and indeed fundamentally explains the public failure to adequately regulate fire safety as the result of private profit-seeking. This is to misunderstand the very rationale of regulation, with the inevitable consequence that one misunderstands the conduct of private companies and public bodies which caused the regulatory failure, to which the government's pursuit of the public interest represented by the Carbon Target was central.

After an account of the loss of life in the fire, this article will analyse GTI's allegations of criminality and building regulation failure, focusing upon the manufacturers of the insulation used in the Grenfell cladding. GTI undoubtedly describes serious or very serious failures of regulation, but its understanding of those failures is handicapped by its generally unbalanced attitude towards the conduct of the private and public involved. The former are overall harshly or very harshly criticised, the latter overall leniently or very leniently. This lenience even goes so far as to all but ignore the essential role that state intervention in pursuit of climate change policy played in creating the conditions in which the Grenfell fire could possibly occur. Though the loss of life at Grenfell throws the issues into the starkest relief, GTI demonstrates the ingrained critical attitude towards profit-seeking, and the ingrained uncritical attitude towards intervention in the claimed public interest, that has undermined the attempt to address the neo-liberal revolution in regulatory theory and practice by the development of "responsive" regulation.

THE CAUSE OF THE LOSS OF LIFE AT GRENFELL TOWER

The design of the Grenfell Tower was initially contemplated in 1963 and the building completed in 1974 during the heyday of local authority construction of ultimately some 6,000 social housing tower blocks. Fire safety policy in the Tower was typical. Fires in tower block flats were, of course, inevitable, but the occupants of flats other than those in which fire broke out or in nearby flats were instructed to "stay put". General evacuation of tower blocks, which of course has its difficulties and hazards, was regarded as posing a greater risk than staying put as fires would remain localised because the structures of the buildings, with floors, rooves, and internal and external walls of reinforced concrete, were fireproof, ensuring the

[10] K Hawkins, *Law As Last Resort* (OUP 2002) 16.
[11] Ibid.

"compartmentation" of fires. Evacuation of some or all occupants staying put could eventually be organised, or notice be given that the fire had ended, but most commonly nothing at all was done remotely from a fire.

This policy undoubtedly was a success over the history of high-rise accommodation, and was a success at Grenfell, until between 2012-16 the Tower was refurbished with cladding which effectively furnished the entire building with a new exterior wall. Within a year of its installation, after being ignited following a commonplace fault in a domestic electrical appliance, this cladding became the medium for a rapidly spreading, intense fire that enveloped the exterior of the building, and inevitably permeated the interior. Compartmentation and therefore the very basis of the stay put policy were completely lost, and 70 were killed.[12] And so it was that the cladding of Grenfell Tower led to the situation that "in 21st century London", a 67m tall, 22m square "reinforced concrete building, itself structurally impervious to fire[, was] turned into a death trap".[13]

In order to understand the regulatory issues raised by building work which could have this result, it is necessary to stress four points about the cladding. First, the installation was a major alteration. The "over-cladding of every storey of the existing building with a new insulation and rainscreen cladding system"[14] meant that "Effectively a new external wall was created by attaching a number of components to the existing concrete façade".[15]

Secondly, the cladding was a "ventilated rainscreen system".[16] In contrast to "traditional" cladding directly attached to an existing wall, rainscreen cladding is separated from that wall by a cavity designed to provide ventilation behind the outer panel which is a screen to the elements.[17] At Grenfell, the method of attaching the cladding also created other voids. The "chimney effect"[18] created by "The presence of continuous vertical channels and extensive internal cavities was "almost certain" to have contributed to the rate and extent of vertical flame spread".[19]

Thirdly, the functional components of the Grenfell cladding, the rainscreen panels themselves, and, behind them in the cavity they created, insulation board directly fixed to the existing walls, were made of forms of the polyurethane (PU) class of plastics, and as such had the potential to be highly combustible.

The rainscreen panels were made of aluminium composite material (ACM), in which exterior and interior sheets of aluminium sandwich a core of polyethylene (PE). PE is a combustible plastic "which melts and drips on exposure to heat",[20] and after ignition "burns

[12] 67 people died inside the Tower, and three fell from it: Phase 1, ch 1, para 3; and Phase 2, ch 84, para 11. One frail woman who had suffered serious injury escaping the Tower died seven months later, and though her cause of death was not officially related to the fire, her family believe it was: Phase 1, ch 1, para 3; Phase 1, ch 32, para 1; Phase 2, ch 84, para 2; and Phase 2, ch 93, paras 7-18. A seven month old male foetus was stillborn as a result of the trauma suffered by his mother in escaping: Phase 1, ch 1, para 3; Phase 1, ch 32, para 1; Phase 2, ch 84, para 2; and Phase 2, ch 95, paras 51-71. One woman was in a much earlier stage of pregnancy when she died: Phase 2, ch 97, para79.

[13] Phase 2, ch 1, para 3.

[14] Phase 1, ch 6, para 1. The cladding of floors 1-3 was undertaken with a different purpose and in a different way to the cladding of floors 4-23, and the lower walls were not involved in the fire: Phase 1, ch 6, para 8.

[15] Phase 1, ch 6. Para 7.

[16] Phase 1, ch 6, para 11.

[17] Phase 1, ch 6, para18.

[18] Phase 1, ch 23, para 16.

[19] Phase 1, ch 23, para 8.

[20] Phase 1, ch 6, para 13.

fiercely".[21] It is conceivable that a PE core could be shielded from flame, but the "cassette" system of cladding used at Grenfell, in which flat panels are formed into three-dimensional shapes to accommodate the insulation,[22] exposed it at many points. As installed at Grenfell, ACM cladding was an "extremely dangerous" product which "reacted to fire in a very dangerous way".[23]

The large majority of the insulation boards were made of polyisocyanurate (PIR), and a small number of phenolic foam (PF), which, as installed at Grenfell, "can support rapid flame spread [and] also accelerate the spread of flame on adjacent materials by insulating the cavity and preventing energy being lost from the system".[24] Though not nearly so combustible as PE, PIR and PF "made matters much worse" by "promot[ing the] … rapid heating of the ACM [and so] the rapid and extensive growth of fire".[25] In sum, "the presence of … ACM panels with [PE] cores which acted as a source of fuel", was "The principal reason why the flames spread so rapidly up, down and around the building", and the presence of PIR and PF "behind the ACM panels … contributed to the rate and extent of … flame spread".[26]

The crucial issue for a full explanation of the fire is the performance of the "new external wall", including the cladding system composed of PE, PIR and PF, as a whole. But once one bears this in mind, one can focus on the PIR and PF insulation, and especially on the PIR insulation which was the subject of the rigged fire resistance test, because the issues of regulatory theory and practice raised by the fire, GTI's explanation of it, and the public response to that explanation fully emerge from a discussion of that product.

It is by no means only with hindsight that it should have been known that installing the Grenfell cladding system could lead to the loss of life which it did. As it was put by Professor Luke Bisby, a leading authority on structural fire engineering, in his expert evidence to GTI:

> "if a fire is ignited in a cladding system such as this made from these materials … we have to expect it to spread quickly and catastrophically … On that basis it is unreasonable to expect compartmentation to be maintained, and on that basis it is unreasonable to have a stay put policy in place".[27]

This can usefully be described as the objective standard of knowledge. It is what a reasonable decision-taker should have known when deciding to install the cladding system. The subjective decision to install was, of course, taken in the absence of such knowledge, and the failure to meet the objective standard is the ground of the decision-taker's culpability. But it is intrinsic to the idea of culpability that a person may be culpable to various degrees of blameworthiness, the highest being the commission of a criminal offence attracting a life sentence upon a natural legal person, and an unlimited fine upon a corporate legal person. Numerous Grenfell survivors and bereaved, unsatisfied by the prospect of punishment being confined to fines on companies, desire that charges of gross negligence manslaughter, an offence punishable by life imprisonment with, if a life sentence is passed, a minimum custodial sentence

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[21] Phase 2, ch 2, para 21.
[22] Phase 1, ch 6, para 11.
[23] Phase 2, ch 2, paras 21-22.
[24] Phase 1, ch 6, para 20.
[25] Phase 2, ch 109, para49.
[26] Phase 1, ch 2, para 13.
[27] L Bisby, 'Evidence Given on Phase 1, Day 78' (21 November 2018) 159 <https://prodgti.s3.eu-west-2.amazonaws.com/documents/transcript/Expert-Evidence-21-November-2018.pdf>.

of 19 years, should be brought against employees of the companies.[28] But it is a central theme of modern regulatory theory and practice that we must take possibly varying degrees of culpability for regulatory failure into account. An exclusive or intense focus on the justice to be achieved by criminal prosecution makes it impossible to explain why the fire occurred, and to learn from this explanation.

THE PYRAMID OF ENFORCEMENT

The central theme of the "neo-liberal revolution" in regulatory theory and practice was the criticism of "command and control". A public authority sought to directly control behaviour by issuing commands enforced by legal, paradigmatically criminal, sanction. The criticism of command and control raised the most profound questions about the economic, legal, and political nature of legitimate public authority, but, from the point of view of regulatory theory and practice, the issuance of commands was found to be a deficient technique. When issuing a command, a public authority assumes it is able to monitor and compel compliance, but when systematically questioned, this assumption proved to be so fragile that the effectiveness of "classical" regulation was found to be fundamentally problematic.[29] From, as it were, the opposite direction, the "regulatory unreasonableness" caused by excessive legalism in the attempt to frame ever more detailed commands in pursuit of effectiveness was found to generate wasteful disincentives to desirable behaviour.[30]

The basic response was to move from conceiving of regulation as a hierarchical relationship between public authorities issuing commands and private companies required to obey to conceiving of it as a dialogue in which the latter participate in the formulation of what therefore are seen, not so much as commands backed by sanction, as principles or rules which enlist participation. It was intended that, as participants in the regulatory regime, those regulated would actively seek to comply. The point and possibility of this is that it is wrong to perceive the pursuit of private self-interest only negatively, for though it can indeed motivate non-compliance, it is also the fundamentally positive motivation of economic action which improves welfare. In the terms of Selznick's highly influential definition, regulation is "control exercised by a public authority over *activities valued by the community*".[31]

An aspect of the movement away from command and control can be captured by describing it as "self-regulation", but this description can be misleading in an important way. Although the movement away from command and control is a movement away from hierarchy, regulation which improves welfare requires the continued maintenance of the ultimate subordination of those regulated to the public interest as identified by the public authority. This subordination takes two distinct but linked forms.

Regulation after command and control essentially strives to be "responsive", the idea being captured in the metaphor of an "enforcement pyramid" expressing the way the public authority's

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[28] N Cecil, 'Jail the Grenfell Culprits: Families Call For Manslaughter Charges Over Tower Blaze' *The Standard* (London, 5 September 2024) <https://www.standard.co.uk/news/politics/grenfell-tower-fire-inquiry-met-police-prosecutions-victims-london-b1180265.html>.

[29] S Breyer, *Regulation and Its Reform* (Harvard University Press 1982) 1-4.

[30] R Bardach and RA Kagan, *Going By the Book* (first published 1982, Routledge 2017) 3-7, 25-29.

[31] P Selznick, 'Focusing Organisational Research on Regulation' in RG Noll (ed), *Regulatory Policy and the Social Sciences* (University of California Press 1985) 363 (emphasis added).

choice of regulatory technique should be a response to the attitude of those regulated towards compliance. At the base of the pyramid, the majority of the regulated, wishing to comply but wishing to do so at least cost to themselves, should receive what is best understood as support from the public authority through, for example, guidance on whether conduct reaches the desired standard. The public authority always ultimately monitors the realisation of the public interest, but so long as those regulated fundamentally wish to comply, regulation is most effective (as well as having other desirable properties linked to avoiding public expenditure on coercion) if it is collaborative.

Towards the narrowing apex of the pyramid, however, minorities of the regulated may be unacceptably incompetent or irrational, or determined to act in a way they know is not compliant, and regulation must be "escalated" towards coercively ensuring their compliance or their exclusion from the regulated activity, ultimately by serious criminal sanction. Direct public authority control can valuably be much reduced by making criminal sanction exceptional, but this reduction if possibility only because the possibility of escalated sanction lies in reserve: "Under effective responsive regulation, government need not be large as long as it credibly commits to 'largeness' if delegation fails".[32]

Whether the criminal prosecutions being considered in connection with the fire are, if found to be justified, able to be brought, will be a very important test of the enforcement pyramid's ability to cope at its apex with situations in which "the corporation [is] a rational cheat [or] an untrustworthy irrational resister of the law".[33] But we shall see that the nature of culpability is unclear even in the case of rigging a crucial fire test which has been mentioned, and this has a profound impact on our understanding of the far more general regulatory failures identified by GTI which do not raise an issue of culpability of such serious degree.

The Grenfell refurbishment was governed by the Building Act 1984 and the Building Regulations 2010[34] made under s. 1 of the Act. The Regulations do not attempt to mandate specific technical standards of building work; rather their Sched. 1 had (when enacted) 14 Parts enumerating the "functional requirements" of a building which building work must satisfy, but by means which those carrying out the work may choose.[35] As enacted, s. 6 of the Act empowered the Secretary of State to issue guidance on how to comply, and this was issued in a number of Approved Documents (AD) mapping onto the functional requirements. Section 7 of the Building Act emphasised that literally following the guidance did not in itself mean that the functional requirement had been satisfied, and, conversely, that not literally following the guidance did not in itself mean that the requirement had been contravened, much less that civil or criminal liability had been incurred. The Building Act regime was a carefully reasoned[36] response to the command and control failures of the previous extensive mandating of technical standards, and it should be seen as an important example of "goal-oriented", or "principles-based", rather than "prescriptive", or "command-based", regulation.

Schedule 1, Pt. B of the Regulations concerned fire safety, and Pt. B4(1) required that "The external walls of [a] building shall adequately resist the spread of fire over the walls". Para. 12.5 of AD B on Fire Safety stated that "The external envelope of a building should not provide a

[32] I Ayres and J Braithwaite, *Responsive Regulation* (OUP 1992) 158.
[33] B Fisse and J Braithwaite, *Corporations, Crime and Accountability* (CUP 1993) 152.
[34] SI 2010/2214, as amended up to 2014.
[35] Building Regulations 2010, reg 4(1).
[36] Secretary of State for the Environment, *The Future of Building Control in England and Wales* (Cmnd 8179 1981) and Minister Without Portfolio, *Lifting the Burden* (Cmnd 9571 1985) paras 3.17-3.20.

medium for fire spread if it is likely to be a risk to health or safety".[37] The Building Act regime obviously is directed at the construction industry, but the operation of the Regulations and the Guidance depends on their referring to or incorporating a large number of other laws regulating inputs into building work, including, as we shall see, the suitability of insulation materials. AD B, para. 12 refers, for example, to many British and European standards of fire resistance of building materials in order to assist in identifying materials which will "not provide a medium for fire spread", the use of which would itself assist in satisfying the requirement that walls "adequately resist the spread of fire".

GTI exhaustively described the failures which led to B4(1) obviously not being complied with by cladding that, not merely did not "adequately resist the spread of fire", but "On the contrary … actively promoted it",[38] and recommended very extensive reforms to the building fire safety regime,[39] all of which the Government has said it either accepts or accepts in principle.[40] The core of the failure GTI identified is that the companies involved in the refurbishment did not actively participate in the Building Act safety regime, but rather fell back on literal compliance, treating "the guidance … as prescriptive, thereby making it unnecessary to worry about the functional requirement itself",[41] which defeated the entire basis of the regime.[42] It is central to responsive regulation that non-compliance of this nature should not normally be seen as a criminal matter. Regulatory failure cannot be understood, nor desirable regulatory reform be identified, on a general basis of criminal liability.

But although overwhelmingly not criminal, the conduct of private companies that led to regulatory failure at Grenfell was certainly motivated by profit. If we set aside criticism of profit-seeking as such, the regulatory issues are, then, distinguishing between legitimate and illegitimate profit-seeking, and distinguishing between the appropriate responses to forms of the latter.

GRENFELL TOWER AND BUILDING REGULATION

(i) The Goal of Thermal Efficiency and the Cladding of Grenfell Tower

Had the 1974 Grenfell Tower been a new building proposed in 2012, it would not have obtained planning permission. Though some insulation was bonded to the existing walls, the energy efficiency of those walls was very much poorer than the Building Regulations then required, and the building was cladded in response to this. Another of the functional requirements of the Building Regulations was Conservation of Fuel and Power under Sched. 1, Pt. L, with Pt.

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[37] The Building Regulations Approved Document B (vol 2, 2006 amended up to 2013) <https://prodgti.s3.eu-west-2.amazonaws.com/CLG00000224_The%20Building%20Regulations%202010%20%28Fire%20Safety%29%20Approved%20Document%20B%20%E2%80%93%20Vol%202%20%28Buildings%20other%20than%20dwelling%20houses%29%20B1-B5%2C%202006%20edition%20incorporating%202007%2C%202010%20%26%202013%20amendments_0.pdf>.

[38] Phase 1, ch 2, para 16.

[39] Phase 2, ch 113. GTI does not enumerate its recommendations, but in its response the Government helpfully distinguishes 58: Deputy Prime Minister and Secretary of State for Housing, Communities and Local Government, *UK Government Response to the Grenfell Tower Inquiry Phase 2 Report* (CP 1248 2025) para 4.

[40] Ibid, at para 5.

[41] Phase 2, ch 6, para 17.

[42] Phase 2, ch 6, paras 17-18.

L1(a)(i) requiring that the external walls should reasonably limit heat gains and losses. Detailed guidance on existing dwellings was supplied in the corresponding AD L1B,[43] Table 3 of which set out the standards for the energy efficiency of refurbished insulated walls. These standards were expressed in "U-values", a measure of the rate at which heat is transferred through a material, with a lower U-value indicating better insulation. The U-value is a unit addressing construction or engineering purposes. It expresses the performance of material which may, for example, be fabricated into various shapes, or may be a composite structure such as the Grenfell Tower cladding, or indeed an insulated wall as a whole. The Lambda value, λ, expresses the thermal conductivity of a standard mass of a material, such as the PIR or PF insulation used at Grenfell.

The target U-value for the refurbished Grenfell Tower walls was selected by Max Fordham LLP, the Mechanical and Electrical Services Engineer for the refurbishment. In the *Sustainability and Energy Statement* it prepared for the refurbishment planning application, Max Fordham noted that the existing walls had an energy efficiency rating five times poorer than allowed for a new flat under the then Building Regulations,[44] and it "proposed insulation levels [which] far exceed those required by Building Regulations"[45] in order "to ensure the building would continue to perform well by future standards".[46] This future-proofing was wise in the context of the repeated ratcheting up of standards prior and subsequent to the refurbishment.[47]

A PU insulation product was needed to meet this "aspirational"[48] target in a way which would be consistent with other architecturally desirable or imperative considerations turning on the thickness of material needed. The lower the Lambda value of a material, the less thick it needs to be to achieve a desired U-value, and PU insulation products have a Lambda which led Max Fordham to maintain that it "was the only type of product would provide the … thermal performance [required to meet the target U-value] at a thickness that could realistically be accommodated".[49]

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[43] The Building Regulations Approved Document L1B (2010, amended up to 2011) <https://www.labc.co.uk/sites/default/files/approved_document_l1b_2010_superseded.pdf>.

[44] Max Fordham LLP, *Sustainability and Energy Statement: Grenfell Tower Refurbishment* (17 August 2012) para 1.3 <https://webarchive.nationalarchives.gov.uk/ukgwa/20250320171203mp_/https:/prodgti.s3.eu-west-2.amazonaws.com/MAX00000412_Max%20Fordham%20-%20Sustainability%20%26%20Energy%20Statement%20-%20Grenfell%20Tower%20Refurbishment%20%28Rev%20A%29_1.pdf>.

[45] Ibid, at para. 2.1.

[46] Phase 2, ch 56, paras 6-7.

[47] The current standard for a refurbished wall, established only 6 years after the Grenfell work was completed, approaches the target set by Max Fordham, and the standard for a refurbished roof now is that target: The Building Regulations Approved Document L, vol 1 (2021, amended 2023) Table 4.2 <https://assets.publishing.service.gov.uk/media/662a2e3e55e1582b6ca7e592/Approved_Document_L__Conservation_of_fuel_and_power__Volume_1_Dwellings__2021_edition_incorporating_2023_amendments.pdf>.

[48] Phase 2, ch 56, paras 11-12.

[49] Phase 2, ch 56, para 23.

The thickness of material needed to meet even less demanding targets was the main factor precluding the use of a form of mineral or stone wool, which can be of limited combustibility or even non-combustible, as insulation. The commercial product Rockwool has, for example, the highest relevant fire performance ratings, but was specifically not chosen for reasons of thickness, a choice with which Rockwool itself agreed: Phase 2, ch 56, paras 9-18. This is an important but not, as one might initially think, absolutely essential issue, for a number of reasons, two of which should be mentioned. First, we shall see that the issue was not limited combustibility but how it was that the insulation used at Grenfell obtained certification which Approved Document B allows as an alternative to limited combustibility. Secondly, it will be recalled that the insulation itself played only a subordinate role in the

(ii) The Role of Fire Performance Standards in the Marketing of Insulation

The choice of specific insulation product was a convoluted process into which many of the design and construction companies involved in the refurbishment had an input, but for which Studio E Ltd, the refurbishment's architect, was ultimately responsible (subject to regulatory approval).[50] Beyond the earliest stages of the planning of the refurbishment,[51] the intention was that Celotex RS5000, which had been the basis of Max Fordham's calculation of the performance of insulation in the proposed cladding,[52] would be used. In the end, approximately 95% of the insulation was RS5000, and, for a reason to which we shall return, approximately 5% was Kingspan K15 Kooltherm.[53] Kingspan, founded in 1965 in Ireland, where it is still listed, has grown to become a large multinational company, and arguably the world leader in the sale of insulation products. In 2014, when building work began on Grenfell, Kingspan's market position justified its claim that it was then "a global leader in high performance insulation and building envelopes".[54] Celotex was founded in London in 1925, but in 2012 was acquired by the French construction multinational Compagnie St-Gobain COD. It is and was in 2014 a very important company in the UK insulation industry, but in a market position subordinate to that of Kingspan.

As will be discussed at length, GTI explained the conduct of Celotex over the certification and marketing of RS5000 as the result of competition with Kingspan. Competition over the sale of these products, as with any goods, turns on a wide range of issues including quality and price, but GTI of course focused on claims about the fire performance of K15 and RS5000. Neither Kingspan nor Celotex had any role beyond providing sales information in the choice of their products for the refurbishment,[55] but, of course, Studio E, Max Fordham, and others involved in making that choice relied on that information. Claims about fire performance are based upon one or more of the large number of forms of national and European certification awarded by quasi-public bodies licensed by government.[56] Certificates of conformity therefore "were a powerful marketing tool".[57]

We have seen that Sched. 1, Pt. B4(1) of the Building Regulations required external walls to "adequately resist the spread of fire", and that para. 12.5 of AD B stated that such walls

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fire, and the marginal effect of mineral wool instead of PU insulation on the burning of the ACM PE core is a complex, hypothetical matter which need not be considered here.

[50] Phase 2, ch 56, paras 3, 12.

[51] There would appear to have been more than an element of fortuity in the choice of RS5000 rather than K15: Phase 2, ch 56, paras 9, 23, 25, 48, 50.

[52] Max Fordham LLP, above n 44, Tables 2.2, 2.3.

[53] Phase 2, ch 22, para 1.

[54] Kingspan Group plc, *2014 Full Year Results* (2015) <https://www.kingspangroup.com/content/dam/kingspan-group-website/documents/2015-reports---presentations/kingspan-full-year-results-presentation-2015.pdf>.

[55] Kingspan did not know of the use of K15 until after the fire: Phase 2, ch 22, para 2. Celotex did generally promote RS5000 to the company eventually appointed cladding sub-contractor to the refurbishment, but it has insisted that it was not involved in the choice of its product, and its marketing literature had been misused by those making the choice, continuing to maintain this after the release of the Phase 2 *Report*: C Lago, 'Grenfell Manufacturers Respond to the Inquiry's Report' *Construction Management* (5 September 2024) <https://constructionmanagement.co.uk/grenfell-manufacturers-respond-to-the-inquirys-report/>**.** GTI in fact offers much corroboration of both of Celotex's points: Phase 2, ch 65, paras 44-51.

[56] Phase 2, ch 5.

[57] Phase 2, ch 15, para 4.

"should not provide a medium for fire spread". Para. 12.5 , specifically recognised that the use of "combustible materials in [a] cladding system … may present such a risk in tall buildings", and, to go to the nub of the matter, required in para. 12.7 that "In a building with a storey 18m or more above ground level, any insulation product … used in the external wall construction should be of limited combustibility". Para. 12.7 defined a material as being of limited combustibility when it will not flame, or flame only to a limited extent, and will not rise in temperature beyond certain limits, after being subjected to one of a number of officially certified tests.[58]

Paragraph 12.5 of AD B also allowed that an alternative "route to compliance",[59] effectively a claim that a material would perform as well as a material classed as being of limited combustibility, could be based on the standard BR135 set out in a guidance document issued by the Building Research Establishment (BRE).[60] Certification to BR135 was established by fire tests conducted according to prescribed methodologies, including the one for cladding affixed to the concrete face of buildings as at Grenfell set out in British Standard BS8414.[61]

(iii) The Testing and Certification of RS5000

It was in pursuit of Celotex's strategy of using BR135 as the alternative route to compliance[62] that the crucial fire test was rigged,[63] occasioning the possibility of serious criminal offences raised by GTI and the DPM. RS5000 "was marketed … as the first PIR board to successfully test to BS8414" and therefore "as acceptable for use in buildings above 18 metres in height".[64] But GTI claimed that this was a stark example of the "systematic dishonesty" to which GTI attributed the fire because RS5000 "was not a material of limited combustibility and was therefore not capable of conforming to the guidance … in paragraph 12.7 of [AD] B".[65] After failing an earlier BS8414 test,[66] the test was redesigned to ensure the desired result, principally by placing an extraneous fire resistant material between the RS5000 and the test devices

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[58] Approved Document B, above n 37, at Appendix A, para 9; Appendix A, Table A7, Line 8.
[59] Phase 2, ch22, para8.
[60] S Colwell and T Baker (Building Research Establishment), *Fire Performance of External Thermal Insulation for Walls of Multistorey Buildings* (3rd edn, 2013) <https://assets.grenfelltowerinquiry.org.uk/CEL00003364_BR%20135%20Third%20Edition%20-%20Fire%20performance%20of%20external%20thermal%20insulation%20for%20walls%20of%20multistory%20buildings._0.pdf>.
[61] British Standards Institute, *Fire Performance of External Cladding Systems*, Pt.1 (BS8414-1:2002) (2002) <https://assets.grenfelltowerinquiry.org.uk/CTAR00000022_BS%208414-1_%202002.%20%20Fire%20performance%20of%20external%20cladding%20systems.%20%20Test%20methods%20for%20non-load%20bearing%20external%20cladding%20systems%20applied%20to%20the%20face%20of%20a%20building%20%28superseded%20by%20BS%2084.pdf>.
[62] Phase 2, ch 24, paras 19, 109, 115; Phase 2, ch 25, para 7. See further Celotex Ltd, *Rainscreen Cladding Compliance Guide When Specifying Celotex RS5000 in Buildings Above 18 Metres* (nd) <https://webarchive.nationalarchives.gov.uk/ukgwa/20250320180513mp_/https:/prodgti.s3.eu-west-2.amazonaws.com/CEL00001239_Celotex%20Rainscreen%20Cladding%20Compliance%20Guide%20when%20specifying%20RS5000%20in%20buildings%20above%2018%20metres..pdf>.
[63] Phase 2, ch 24, paras 1, 59-64.
[64] Phase 2, ch 24, para 1; quoting Celotex marketing literature.
[65] Phase 2, ch 24, para 1.
[66] Phase 2, ch 24, paras 53-57.

measuring temperature.[67] In this second test, the RS5000 satisfied the BR135 criteria,[68] and in subsequent use of the certification in marketing, the presence of the extraneous material was concealed.[69]

It is with no intention of denying that this use of BR135 could amount to serious corporate and individual criminality, and indeed it is with the intention of clarifying the issues of regulatory theory and practice involved in reaching a conclusion about this, that it must be pointed out that GTI's focus on the misleading use of BR135 as motivated by profit-seeking is itself misleading. We must be more precise about the nature of the regulatory failure. GTI does not suggest that Celotex, or other private companies manufacturing building materials such as Kingspan, took a decision to, for example, fraudulently claim to have certification they did not have in order to sell highly dangerously combustible cladding materials in the full knowledge that incidents such as Grenfell would occur. The products *had* been granted the certification by the approved bodies. Reading GTI would, however, initially lead one to imagine that it was Celotex, in the interest of profit-seeking, that was ultimately responsible for the BS1414 testing. This was not the case. Celotex of course had very extensive input into the testing of RS5000, and took private advice about it throughout the process.[70] But it was BRE that conducted the test and decided that RS5000 had passed it, thereby certifying the product to BR135.

BRE[71] was originally founded in 1921 as a directly government-funded laboratory for research into construction technology. It was partially privatised in 1997, and has since done commissioned work for government, principally for what is now the Ministry of Housing, Communities and Local Government, and for private customers. BRE may overall be described as a non-profit, arms-length agency, and the standards it sets are central to ensuring compliance with the Building Regulations, exemplified by the way that AD B, para. 12.5 relied on BR135 to ensure equivalence to limited combustibility.

GTI could hardly have been more critical of BRE's BS8414 testing,[72] and indeed was generally critical of the testing methods[73] and the product certification bodies[74] involved in the Grenfell fire,[75] and ultimately of the government, which "failed to discharge [its] responsibilities" "for establishing and maintaining a system for the regulation of construction work in the interests of public safety".[76] It cannot be overemphasised that the claims Kingspan and Celotex made about K15 and RS5000 were based on certification which *had* been awarded by the bodies licensed by government, which bodies thereby "provided assurance to the market of the quality and characteristics of the product".[77]

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[67] Phase 2, ch 24, para 59.
[68] Phase 2, ch 24, para 64.
[69] Phase 2, ch 24, paras 77-152; Phase 2, ch 25.
[70] Phase 2, ch 24, paras 22-76.
[71] Phase 2, ch 49, para 2. See further Phase 2, ch 5, paras 2, 51-58.
[72] Phase 2, ch 29, paras 28-33.
[73] Phase 2, ch 5.
[74] Phase 2, ch 29.
[75] GTI made similar criticisms of all involved in the equivalent approval of the building work, and its recommendations call for a total reshaping of the treatment of fire safety throughout the entire construction industry: Phase 2, ch 113, paras 1-40.
[76] Phase 2, ch 29, para 2.
[77] Phase 2, ch 2, para 20.

Fire testing of construction materials is, of course, very costly, and after initially being deterred by that cost,[78] Celotex paid for BS1414 testing in the context of BRE giving assurances "that obtaining the classification was likely to be commercially advantageous".[79] The BS1414 test and retest were carried out in the burn hall at BRE's "world-leading" testing facilities near Watford, "overseen"[80] by the extremely experienced Burn Hall Manager, Mr Philip (Phil) Clark.[81] "Overseen" does not convey the extent of the protracted and extensive co-operation between BRE and Celotex about the design of the testing and retesting aimed at securing the certification of RS5000, and BRE's involvement is described by GTI as having "amounted to giving advice on the best way to satisfy the criteria in BR135" in a way which "undermined the independence, objectivity, and rigour" of the process.[82] Mr Clark denied knowing of the inclusion of the extraneous material in the second test, but GTI concluded that he did know.[83]

Mr Clark's actual knowledge has the significance it has because BRE was the guarantor of the integrity of the test. The very important paragraph of GTI alleging "systematic dishonesty on the part of those who made and sold the … products [used in the Grenfell cladding]" which alluded to BS8414 testing as an instance of the manipulation of testing processes and misrepresentation of test data, concluded with the following sentence:

> "In the case of … RS5000 … BRE was complicit in that strategy".[84]

What are we to understand GTI to have meant by "complicit"? There is no allegation that Mr Clark, or other employees of BRE, were, for example, bribed by Celotex to rig the test, and indeed GTI not merely found that Mr Clark knew of the rigging of the test, but that "The way in which Celotex behaved in arranging the test was wholly inconsistent with any plan to deceive BRE".[85]

The tests GTI describes are not situations where the fire performance of a product are known in advance. They are situations the essence of which is that those properties are unknown and are being established. The motivation of the companies making the products is undisputed. They incur the expense of testing in order to obtain certification, in order to make sales, in order to make profits. Their default attitude towards the resolution of uncertainties in the testing process will be to resolve them in favour of the tested product as this will assist in the product satisfying the standard at least cost. Being integral to competitiveness, this could not, nor should not, be otherwise, but it creates the necessity of regulating profit-seeking so that it is channelled within legitimate bounds. This is the regulatory work of the certifying bodies, which decide whether the product has passed the test, and in carrying out this work it is obvious that they should be aware of the motivation of the private companies;[86] or what is the point and justification of regulation?

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[78] Phase 2, ch 24, para 14.
[79] Phase 2, ch 24, para 31.
[80] Phase 2, ch 24, para 53.
[81] Mr Clark's experience of BS8414 testing at BRE went back to 1999, and indeed he was involved in the development of the test. As Burn Hall Manager since 2004, Mr Clark was responsible for the successful test that allowed Kingspan to claim BR135 for K15: Phase 2, ch 22, paras 13, 16.
[82] Phase 2, ch 29, paras 31, 30.
[83] Phase 2, ch 24, paras 65-76; Phase 2, ch 29, para 32.
[84] Phase 2, ch 2, para 19. See also Phase 2, ch 2, para 29.
[85] Phase 2, ch 24, para 75.
[86] Phase 2, ch 29, para 30.

In their sales efforts, should Kingspan and Celotex have undermined the certification by refusing to highlight the fact that they had obtained the official assurance, and instead dwelt on uncertainties in the process by which it was obtained?[87] To ask this question is, one would have thought, to answer it, and it is a matter of serious concern that the answer GTI gave is wrong. GTI described anything other than the fullest disclosure in private companies' sales efforts in terms of a failure "to behave honestly and with integrity by avoiding false statements".[88] On the other hand, though their failures are exhaustively described, the quasi-public bodies, which it must again be said were responsible for the certification, were portrayed as "vulnerable to manipulation",[89] and so "the victim[s] of dishonest behaviour on the part of unscrupulous manufacturers".[90]

Even Mr Clark, who on the account given in GTI is *prima facie* as culpable for the fire as any other natural person, and whose evidence about this GTI could not believe, is ultimately viewed sympathetically:

> "We have been critical of Mr Clark … However, he had received no training from BRE of any kind on what was required by way of independence and impartiality, nor had he had any discussion at any time with any of his managers about what might constitute impermissible advice and consultancy services. There was no mandatory training or centralised record of training within BRE and its staff responsible for their own training records. Quite simply, Mr Clark did not know where to draw the line and he crossed it on various occasions. The failure to provide training of that kind represents a failure to establish proper management systems".[91]

The terms in which GTI has generally described the behaviour of private companies will have great weight in the consideration of criminal prosecutions. But what will be the implications for such prosecutions of GTI envisaging that the sanction for public bodies which were complicit being merely their reorganisation, and the sanction for their employees being merely more extensive training devised by the human resources departments of the reorganised bodies?

The regulator and those regulated must be placed in their proper relationship in order to grasp the significance of BS8414 being passed with the active co-operation and ultimate endorsement of the agency the UK government made central to guaranteeing the fire safety performance of building materials. We must ask how plausible it is in light of that relationship to regard even the way that Celotex obtained BR135 for RS5000 as the most serious criminal conduct by private companies and their employees? This question may best be answered by moving down the pyramid of enforcement, leaving the rigging of the BS8414 test *prima facie* at its apex, and considering issues of compliance and non-compliance at a broader level of the pyramid which are raised by other certification obtained by RS5000.

[87] Phase 2, ch 23, para 29.
[88] Phase 2, ch 22, para 32.
[89] Phase 2, ch 2, para 48.
[90] Phase 2, ch 2, para 43. See further Phase 2, ch 2, para 49; Phase 2, ch 29, paras 45, 51
[91] Phase 2, ch 29, para 33.

COMPETITION AND COMPLIANCE

(i) Creative Compliance

GTI tells us that by 2011 Celotex "had become aware that it was losing sales as a result of not having a product which could be used on high-rise buildings in accordance with the guidance in [AD] B",[92] and RS5000 was developed "In an attempt to break into the market for insulation suitable for use on high-rise buildings, created and then dominated by Kingspan K15".[93] Grenfell Tower was an early "flagship project" in that attempt.[94] We have seen that a low Lambda value is central to the marketing of an insulation product such as RS5000. These values are certified to BSEN13165.[95] GTI is again highly critical of the way Celotex obtained BSEN13165 from the licensed certifying body, the British Board of Agrément (BBA), describing this "Lambda story" as a "very revealing" characteristic episode in "a history … of data manipulation and dissimulation"[96] stemming from "a culture of breaking the rules and misleading external bodies".[97] But this is, rather, a story of much more mundane compliance issues than the rigging of the BS8414 test.

BSEN13165, para. 7.3 states that "The minimum frequencies of tests [to be carried out by a manufacturer] shall be in accordance with Annex B of this standard", clause 4.2.1. of which requires a minimum of 10 measurements overall, with a minimum of one taken during each 24 hours of the test. GTI described Celotex as "actively seeking to conceal" from BBA the way it, first, took "a number of measurements each day [and selected] for the purposes of the standards (and ultimately, of course, for the purposes of marketing) the most favourable measurement without declaring the rest", and, secondly, sought to "avoid [BBA] finding evidence" of this practice. [98] In one case when two more favourable results were followed by an unfavourable one, a conscious decision was taken not to pass on the last result to BBA.[99] It is incontrovertible that

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[92] Phase 2, ch 24, para 14. See further Phase 2, ch 24, para 19.
[93] Phase 2, ch 2, para 28. See further Phase 2, ch 24, paras 15, 19.
[94] Phase 2, ch 56, para 130.
[95] British Standards Institute, *Thermal Insulation Products for Buildings: Factory Made Polyurethane Foam (PU) Products* (2013)
<https://webarchive.nationalarchives.gov.uk/ukgwa/20250103112900/https:/assets.grenfelltowerinquiry.org.uk/CEL00001204_BS%20EN%2013165%202012%20-%20thermal%20insulation%20products%20for%20buildings%20-%20factory%20made%20polyurethane%20foam%20(PU)%20products%20-%20specification.pdf>. BSEN signifies that the British standard implements an EU standard (*norme Européene*).
[96] Phase 2, ch 24, para 6.
[97] Phase 2, ch 24, para 8.
[98] Phase 2, ch 24, paras 6-7; referring at n 1166, to Celotex Ltd, 'Internal Email' (22 July 2009)
<https://webarchive.nationalarchives.gov.uk/ukgwa/20230302120403/https:/assets.grenfelltowerinquiry.org.uk/CEL00010498_Celotex%20intenal%20correspondence%20re%20Hipchen%20Lambda%2022%20rolling%20results.pdf> and at n 1169 to Celotex Ltd, 'Internal Technical Report' (9 December 2009)
<https://webarchive.nationalarchives.gov.uk/ukgwa/20250103025818/https:/assets.grenfelltowerinquiry.org.uk/CEL00010272_Celotex%20Technical%20Report%20for%20Hipchen%20Thermal%20Sampling%202009%20options%20for%20storage%20of%20selected%20data.pdf>.
[99] Celotex Ltd, 'Internal Email' (2 October 2012)
<https://webarchive.nationalarchives.gov.uk/ukgwa/20240307040357/https:/assets.grenfelltowerinquiry.org.uk/CEL00010456_Internal%20Celotex%20email%20from%20Jodey%20Hammond%20to%20Paul%20Evans%2C%20Ian

Celotex approached the testing with the intention, not of disclosing all results, but of showing that RS5000 met the target Lambda value; presented BBA with selected results when presenting all results would have raised a question whether the target had been met; and intended not to show that the presentation of results involved selection in this way. Even so, one has to ask whether this Lambda story justifies the very adverse judgement GTI passed on Celotex's conduct.

GTI's precise criticism of Celotex was that BSEN13165:

> "requires the product to be tested at least once every 24 hours. It may be tested more often, but there is nothing in the standard to suggest that if the product is tested more than once every twenty four hours it is permissible to select from among the results thus obtained".[100]

GTI was right that there is nothing in BSEN13165 to suggest selection, but that is because it only stipulates the minimum number of results to be obtained, and says nothing whatsoever about how many results might be obtained, or what use may be made of them. It certainly does not mandate the disclosure of all results. Had this been the case, less than full disclosure would have been non-compliance by rule-breaking. But given what BSEN13165 actually provided, selection was the sort of thing that regulation routinely encounters, and with which it must deal by means far more sophisticated than the application of words which connote conduct towards the apex of the enforcement pyramid.

It is again not the intention here to deny that Celotex's practice was questionable, nor indeed that an improvement of regulation reforming such a practice is *prima facie* strongly desirable. But attempts at improvement must start from acknowledging that the practice was not an instance of "breaking the rules and misleading external bodies" in the way GTI claimed. The rules were broken only in the sense in which "Regulatory rule-breaking is commonplace and routine",[101] and the BBA was misled only in the sense that a selection of results within the rules was "not so much *non*-compliance – 'flagrant breach of regulations' – as … 'creative compliance' [the a]dvantageous interpretation of grey areas [and] seeking out loopholes in specific rules".[102] Effective regulation must not conflate this with criminality at the apex of the enforcement pyramid. Hawkins' seminal discussion of the turn to responsive regulation, which was quoted in the introduction to this article, more fully runs:

> "Prosecution remains central to these designs[, which] would not abandon the power to prosecute, but rather embed it in a more sensitive and systematically deployed enforcement structure … Regulatory rule-breaking is commonplace and routine … The usual response to a theoretically prosecutable breach … is to inform, bargain, demand compliance, or issue a notice. To set the number of prosecutions against the huge number of theoretically prosecutable matters leads inexorably to the conclusion that … prosecution is an enforcement measure of the last resort".[103]

%20Parker%20and%20Joe%20Mahoney%20re%20results%20of%20PB4015%20thermal%20test%20and%20discussion%20as%20to%20whether%20to%20submit%20the%20sample_0.pdf>.

[100] Phase 2, ch 24, para 5.

[101] Hawkins, above n 10 at 16.

[102] D McBarnet and C Whelan, *Creative Accounting and the Cross-eyed Javelin Thrower* (Wiley 1999) 6.

[103] Hawkins, above n 10, 15-17.

On the facts provided by GTI, Celotex's conduct in obtaining BR135 and its conduct in obtaining BSEN13165 should be located at different levels of the enforcement pyramid, and the responses to them differentiated accordingly. The rigging of the fire test was *prima facie* wholly negative conduct at the apex of the pyramid which should be prevented; the selective presentation of results was an inadequate form of conduct towards the base of the pyramid which should be reformed, *but the core of which must be maintained*. GTI tells us that the development of RS5000 was part of "a drive within Celotex to produce products with a lower declared lambda value … as a way of differentiating them from other PIR products on the market, and as a way of competing with Kingspan in the market for insulation on buildings".[104] Competitive marketing of goods is the process by which standards of product quality are established in the market economy, and that the possession of the valuable property of fire performance effectively became the possession of certification (as is the case with very many other properties of very many other goods) does not detract from competition over it fundamentally being, in Selznick's terms, an "activit[y] valued by the community".

GTI's criticism of the Lambda story and the conduct of private companies of which it is said to be revelatory follows from GTI's inability to give the public value of that conduct any weight as its focus on profit-seeking is exclusively on the sense in which profit-seeking can, as indeed it can, give rise to a race to the bottom.[105] GTI attributes Celotex's conduct to "the malign influence of the competition with Kingspan",[106] and the point is that GTI's attitude towards competitive profit-seeking is entirely negative. This is not, of course, expressly stated, and no doubt GTI would not maintain such an attitude if pressed to make a make a considered statement of its position. Nevertheless, that Celotext had, as of course it had, "a culture of maximising profits"[107] is *itself* criticised:

> "The dishonest and cynical way in which RS5000 was tested and marketed reflected a culture within Celotex … The corporate culture of Celotex before its acquisition [by Saint-Gobain in 2012] had been marked by a drive to create profits and increase the company's share price with a view to a sale, and that continued to be the case after the sale … As a consequence of the focus on sales, budgets and the business generally were very lean. After the acquisition, Saint-Gobain set an annual budget for increasing profits, of which at least 15% was expected to come from new products … As well as a culture of maximising profits, there had been a history within Celotex of data manipulation and dissimulation".[108]

One's initial surprise at finding GTI to be possessed of such knowledge of Celotex's corporate culture disappears when one realises that GTI was not making an empirical claim about the company; it is making an *a priori* claim about profit-seeking as the motivation of the conduct of private companies. But when Celotext developed RS5000 in order to have a product which by being competitive on the market would increase the company's profitability and share price, it was doing, not merely exactly what we should expect, but exactly what we should wish.

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[104] Phase 2, ch 24, para 6.
[105] This phrase is not found in GTI, but it is productively used in an urgent review of building regulation published, after an almost immediate interim *Report*, within a year of the Fire: Dame Judith Hackitt, *Building a Safer Future: Final Report of the Independent Review of Building Regulations and Fire Safety* (Cm 9607 2018) 5.
[106] Phase 2, ch 24, para 8.
[107] Phase 2, ch 24, para 6.
[108] Phase 2, ch 24, paras 4-6.

We want private companies to innovate in pursuit of profit. That RS5000 played an essential part in the Grenfell fire cannot be criticised just because it was an exercise in profit-seeking, but GTI fails to advance a sufficiently nuanced explanation to allow us to explain what actually went wrong because it views the very existence of a market for insulation only in a negative manner.

GRENFELL TOWER, THE INSULATION INDUSTRY, AND CLIMATE CHANGE POLICY

(i) Regulatory Capture

Reflecting a position taken in much influential commentary,[109] in evidence to GTI it was claimed that "industry capture of an inadequately robust regulatory regime" had taken place.[110] Whilst GTI did not use this term, nor the term "regulatory capture", it certainly provided a number of case studies of the lack of "vigour" in ensuring compliance that has been central to the concept of regulatory capture since its inception.[111] The following comment on BRE is representative:

> "BRE had by degrees lost sight of the importance of maintaining a proper distance between itself and clients and of the need for scientific rigour and independence. Its internal controls were not the subject of regular and robust training and there was no independent supervision that ensured that conflicts of interest were properly managed. It had gradually become much closer to its clients and wanted to work with them to find solutions to their problems".[112]

But although GTI is to be praised for raising another issue of great concern by showing that the certifying agencies did not maintain sufficient independence from private companies to allow them to exercise their regulatory function, it would be quite wrong to attribute the cladding of the Tower to regulatory capture. Such an attribution must rest on a view of regulatory capture as the setting of the public agenda by private interests: "regulation is acquired by [an] industry and is designed and operated primarily for its benefit".[113] This of course may happen, but it is not what happened over the cladding of Grenfell Tower. Kingspan and Celotex certainly welcomed and engaged with the legislative initiatives which led to the cladding of high-rise buildings throughout the UK, but it was not private interests that set the legislative agenda. It was set by government commitment to the Carbon Target.

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[109] E.g. P Apps, *Show Me the Bodies: How We Let Grenfell Happen* (Oneworld Publications 2022) 146. Mr Apps is a construction journalist who has been to the forefront of bringing facts about the fire to public attention. His book was awarded the 2023 Orwell Prize for Political Writing.

[110] Team 1 of Recognised Legal Representatives of the Bereaved, Survivors and Residents Group, 'Evidence Given on Phase 2, Day 293' (20 June 2022) 8 <https://webarchive.nationalarchives.gov.uk/ukgwa/20241217032037mp_/https:/prodgti.s3.eu-west-2.amazonaws.com/documents/transcript/Transcript%2020%20June%202022.pdf>.

[111] MA Bernstein, *Regulating Business by Independent Commission* (Princeton University Press 1955).

[112] Phase 2, ch 24, para 76.

[113] GJ Stigler, 'The Theory of Economic Regulation' in *The Citizen and the State* (University of Chicago Press 1975) 114.

(ii) GTI's Account of the Market for Insulation

At one point, GTI sums up its treatment of the issues by saying that Kingspan created a "spurious market for [plastic] insulation … suitable for use on high-rise buildings … which drew in Celotex as a competitor".[114] GTI regarded the market as spurious in the sense that, as K15, and subsequently RS5000, were not suitable for buildings over 18m, there was no actual "over 18 metre market".[115] GTI did not, of course, deny that empirically there was a market, and indeed its explanation of RS5000 testing turns on an important aspect of that market's structure. The use of Kingspan K15 for 5% of the insulation at Grenfell was a "last minute"[116] response by some of those involved in the refurbishment building work to their inability to secure sufficient RS5000, and GTI is very critical of the way this decision was made.[117] All that need be noted here is that the turn to K15 followed from its being a very widely known and used building material. First manufactured in 2002, K15 was central to Kingspan's dominance of the high-rise insulation market at the time the Grenfell refurbishment was being considered. Through processes of which GTI could hardly be more critical,[118] K15 had obtained various certifications for its use on high-rises, including in 2005 satisfying BS8414 so that K15 could claim BR135 suitability for use over 18m as an alternative to limited combustibility.[119] GTI's overall view is that:

> "From 2005 … Kingspan knowingly created a false market in insulation for use on buildings over 18 metres in height by claiming that K15 had been part of a system successfully tested under BS8414 and could therefore be used in the external wall of any building over 18 metres in height".[120]

This use of "created" to describe Kingspan's economic power goes beyond even the views of Karl Marx, surely the most significant of those who have ever argued that capital is driven by profit maximisation in disregard of all other concerns. Marx insisted that, though the capitalist is interested only in a commodity's exchange-value, to have an exchange-value the commodity must be sold, and to be sold it must have a use-value for a buyer.[121] The last thing that can be said of Marx's economics is that he handled use-value well, but he did not deny its essential role.

Though we have been seen that competition plays no positive role in GTI's account of the marketing of K15 and RS5000, that account is so valuably detailed that numerous instances of difficulty or anticipated difficulty in meeting customers' demands for information about products does in fact emerge from it.[122] It is very significant that, however, these instances are lost as an overall impression is given of Kingspan and Celotex (and others) being effectively unconstrained by those demands because they were generally able successfully to "mislead" "an unsuspecting market"[123] composed of buyers of 'poor understanding' which were 'ignorant and credulous in

[114] Phase 2, ch 22, para 135.
[115] Phase 2, ch 22, para 10.
[116] Phase 2, ch 65, para 52.
[117] Phase 2, ch 56, paras 131-153; Phase 2, ch 65, para 55.
[118] Phase 2, ch 22, para 134.
[119] Phase 2, ch 22, paras 5, 9-22. See further Phase 2, ch 2, para 36; Phase 2, ch 22, para 102.
[120] Phase 2, ch 2, para 32.
[121] K Marx, *Capital*, vol 1 in K Marx and F Engels, *Collected Works* (vol 35, International Publishers 1996) 51.
[122] Phase 2, ch 24, paras 131-32.
[123] Phase 2, ch 22, paras 20, 70.

relation to matters of fire safety".[124] Even corporate buyers will, of course, have varying degrees of always imperfect knowledge, but this setting at tantamount to nought the commercial acumen of the building industry is so implausibly exaggerated that the power of GTI's drawing attention to specific market failures is dissipated, and once again an important criticism of what happened at Grenfell loses force.

Even if we allow for the purposes of argument that Kingspan and Celotex were by their "systematic dishonesty" able to entirely "mislead" the "unsuspecting market", this does not tell us why the buyers of K15 and RS5000 wanted to buy those products. On the basis of their certification, K15 and RS5000 could serve the use buyers had for them, and those buyers therefore demanded them, but what was that use? GTI's discussion of this is, with respect, vestigial, and the opposite of informative. On the few occasions of such discussion, GTI referred to a "rapid development of the market for cladding systems, driven by the need to construct more energy efficient and sustainable buildings".[125] But this merely pushes the issue back. Why was there such a need, or, more precisely, why was it able to constitute an effective demand leading to a "rapid development of the market" at the time of Grenfell? GTI further referred to it having been "environmental considerations, including energy efficiency, that lay at the heart of the U-value that was chosen [by Max Fordham for the refurbishment]".[126] It will be recalled that this was indeed the case; but we must and can be very much more precise about the "environmental considerations". It is essential to see that AD L U-value standards insert pursuit of the Carbon Target into building law and practice. The Grenfell fire cannot possibly be explained without taking this fundamental reason for the cladding of the Tower into account, and GTI's failure to do so is a major cause of the shortcomings we have seen in its examination of non-compliance by Kingspan and Celotex as profit-seeking private companies.

(iii) The Role of Climate Change Policy

The Phase 2 *Report* was published more than seven years after the fire, the result of the most painstaking deliberations. It was preceded by a Phase 1 *Report* published on 30 October 2019, two years after the fire, which prepared the ground for Phase 2 by establishing the basic facts, but also by making certain recommendations which could not await the conclusion of full deliberations. One such recommendation was so urgent that GTI found it unnecessary to formally make it. At the time of the Phase 1 *Report*, GTI told us that 400 buildings with dangerous cladding had been identified in the aftermath of Grenfell, and remarked that recommending this cladding be removed "as soon as possible" was otiose as the government had already accepted this.[127] But there then was no national level official information about the amount of cladding work that had been done, and though 400 has proven to be far too low a figure,[128] GTI[129] has had a most commendable influence on ensuring that the size of the cladding

[124] Phase 2, ch 24, para 13.
[125] Phase 2, ch 49, para 5.
[126] Phase 2, ch 56, para 7.
[127] Phase 1, ch 33, para 6.
[128] As an estimate of the number of, in effect, ACM cladded buildings, 400 was tolerably accurate. The number of such buildings is now estimated at 503: National Audit Office, *Dangerous Cladding: The Government's Remediation Portfolio* HC 303 (4 November 2024) para 9.
[129] The Hackitt *Review*, above n 105, has also played a most valuable part.

problem has since been identified. It is currently estimated that between 9,000 and 12,000 buildings over 11m in height are affected, and that remediation costing up to £22.4 billion, will take at least until 2035 to complete.[130] To understand the Grenfell fire, it is essential to realise that Grenfell Tower was but one of thousands of buildings which had their structural character altered by government programmes to mandate or strongly encourage the "retrofitting" of existing buildings to improve their thermal performance in order to reduce the fuel needed to heat (or cool) them, and so reduce the carbon emissions attributable to them.[131]

Within the overall context of the Carbon Target, secondary legislation[132] transposing the very important 2010 EU Directive on the Energy Performance of Buildings has sought to reduce "energy consumption …in the buildings sector [to] allow the Union to comply with the [1997] Kyoto Protocol"[133] by requiring that (new buildings and) refurbished existing buildings must obtain certification of their having met a range of energy targets.[134] U-values are central to the specification of these targets, and the lowering of these values in AD L has been the main way that requiring increased thermal efficiency has been inserted into building law and practice. In the case of Grenfell,[135] the principal certification sought was of energy performance under the then obtaining version of the Building Research Establishment Environmental Assessment Method, which was first launched in 1990, and is now one of the world's most widely used methods of rating the "sustainability" of buildings.[136]

The overall aim of reducing U-value targets was to realise intentions expressed in, to choose one of very many such places, a very important 2010 national policy document, *Warm Homes, Greener Homes*. In the Foreword of which he was joint author, Mr Miliband, then in his first term as Secretary of State for Energy and Climate Change, observed that "The most cost-effective way to save carbon emissions is to avoid needing to burn fossil fuels to generate energy in the first place", and para. 34 of the document identified the role of tower blocks such as Grenfell in doing this:

> "Social housing has the potential to make a big contribution in both reducing carbon emissions from homes and in developing the supply chain necessary to deliver carbon reductions more widely. Social housing is often in large purpose-built apartment blocks, or on large estates where social tenants remain the majority tenure.

[130] NAO, above n 128, paras 1.16, 2.16.
[131] A very large theoretical literature now situates the retrofitting of buildings within a general concept of the retrofitting of the urban environment in pursuit of climate change goals: K Theobald and K Shaw, 'Urban Governance, Planning and Retrofit' in T. Dixon *et al* (eds), *Urban Retrofitting for Sustainability: Mapping the Transition to 2050* (Routledge, 2014).
[132] The principal measure is The Energy Performance of Buildings (England and Wales) Regulations 2012 (S.I. 2012/3118) (as amended).
[133] Directive 2010/31/EU of the European Parliament and the Council Directive on the Energy Performance of Buildings, preamble para 3. This replaced Directive 2002/91/EC of the same name. The 2010 Directive has since been repeatedly amended and was recast in 2024, with reference to the Kyoto Protocol replaced by reference to the 2015 Paris Agreement.
[134] R Keating, 'Retrofitting' in N Plemming *et al* (eds), *The Law of Net Zero and Nature Positive* (London Publishing Partnership 1981).
[135] Max Fordham LLP, above n 44, paras 3.3, 4.1.
[136] For the position as Grenfell was being refurbished see S Kuba, *Handbook of Green Building Design and Construction* (2nd edn, Elsevier 2016).

> Both situations offer the potential for energy companies to support carbon reduction measures at scale".[137]

Prior to the fire, the cladding of Grenfell Tower had been seen as a commendable success by the local authority which built it, the Royal Borough of Kensington and Chelsea (RBKC). Required by the then Local Government Act 2003, s. 87 to prepare a housing strategy showing how it proposed to comply with central government policies including policies on climate change, in 2012 RBKC adopted a strategy which aimed to promote "energy efficient" "greener housing", and Grenfell Tower was put forward as an instructive achievement:

> "we acknowledge the importance of seeking reasonable alterations to the existing building stock to mitigate the causes of and adapt to the effects likely to occur due to climate change. We have recently agreed to clad a high-rise block in the north of the borough, which will improve the energy efficiency of all the properties within it".[138]

(iv) The Response of the Insulation Industry

We have seen that the crux of GTI's account of regulatory failure in the insulation industry was Celotex's attempt to gain a share of "the market for insulation suitable for use on high-rise buildings created and then dominated by Kingspan". But that Kingspan created this market certainly was not how the matter was understood by Kingspan or Celotex, or by the industry generally. In 2016, commercial market analysis identified "the increase in demand for energy efficient solutions" as one of the "Key drivers" of sales in rainscreen cladding which had trebled since 2012, with "The Energy Performance of Buildings Directive [being] the key legislative driver to reduction in greenhouse gases [which is] largely … be achieved through amendments to the Building Regulations".[139] The predominant theme of Kingspan's annual company reports during the years in which it obtained certification for K15 (this theme continues to the present day) was that "Kingspan [is] in the best position within the building sector to lessen the impact of CO_2 emissions and make a significant contribution to the reduction of global warming".[140] Its entire 2007 report was entitled "Climate for Change", and the Chairman's statement told its readers that: .

> "Kingspan has approved capital expenditure in the Insulated Boards business this year to position the Group to meet the expected growth in demand for insulation in its existing markets resulting from the EU Energy Performance of Buildings Directive … global warming is seen by governments as a major issue requiring immediate action[. This presents] very significant opportunities which Kingspan has

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[137] Department of Communities and Local Government and Department of Energy and Climate Change, *Warm Homes, Greener Homes* (March 2010) para 34 <https://www.housinglin.org.uk/_assets/Resources/Housing/OtherOrganisation/warm_homes_greener_homes.pdf>.
[138] RBKC, *Housing Strategy 2013-17* (nd) 10 <https://www.rbkc.gov.uk/PDF/Housing%20Strategy%202013%20to%202017.pdf>. This *Strategy* was recommended for approval at the meeting of the RBKC Cabinet on 19 July 2012.
[139] AMA Research Ltd, *Wall Cladding Market Report: UK 2016-20 Analysis* (2016) paras 10.1, 4.6. The current author can supply a copy of this Analysis, which like all such commercial analysis is not readily publicly available.
[140] Kingspan Group plc, *Annual Report and Financial Statements 2006* (2007) 6 <https://www.annualreports.com/HostedData/AnnualReportArchive/k/LSE_KGP.L_2006.pdf>.

> recognised. For this reason, Kingspan has put itself at the centre of the debate, playing a major role in providing lasting solutions that will significantly benefit the environment, whilst generating long-term profit growth for the Group … environmental pressure to reduce the effects of global warming and stricter building guidelines has confirmed Kingspan's strategy to provide zero carbon solutions".[141]

Celotex's annual reports are to the same effect,[142] but clearer picture of how the company understood the situation may be obtained from comments in the trade media of the PU products industry by Mr Rob Warren, an employee of Celotex between 2004-18 who held a senior position during the time of the refurbishment and the fire.[143] Mr Warren was (and is) a significant industry figure who, as the representative of an important trade body, was seconded to the Department of Energy and Climate Change to help develop the government's "flagship"[144] policies about the energy efficiency of buildings called the Green Deal.[145] In a 2015 interview, Mr Warren said that it had his been his previous experience that "'You cannot give insulation away and the public are not really interested'",[146] but that the prospects of sales of PIR insulation were now greatly better:

> "regulatory change in the construction sector had been the greatest driver of the UK's PIR insulated panel board market. The UK government's Part L document … is the current regulatory guide for the insulated panel market …The document's key purpose is the conservation of fuel and power … "It is paramount for those involved in the construction of buildings to comply with the regulations set out by the government in the Part L document" … That is why the Part L document is so important to the PU industry … the need to reduce energy consumption and CO_2 emissions is driving legislation which … is "creating an open door for high performance PIR."[147]

And in what could have been an explanation of the thinking by those who chose RS5000 for the Grenfell refurbishment, Mr Warren went on to say:

> "'Over the years, the Part L document has required U-values to be lower and lower … Traditionally, this meant the material used to insulate the property became

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[141] Ibid, at 4-8.

[142] For example, Celotex Ltd, *Report and Financial Statements 31 August 2005* (2005) 2:

> "With the government committed to Kyoto Protocol, Part L of the Building Regulations will be amended [and] Celotex Limited expects significant growth as a result and will continue a process of investment … to cope with this growth".

Older Celotex reports appear no longer to be available via the internet, but the current author can supply a copy of this report.

[143] RG Warren, 'Witness Statement to GTI' (6 September 2019) paras 3, 8-13 <https://webarchive.nationalarchives.gov.uk/ukgwa/20240916210428/https:/prodgti.s3.eu-west-2.amazonaws.com/CEL00010043_Witness%20Statement%20of%20Robert%20Gary%20Warren%20%28Celotex%29.pdf?VersionId=0pL6QeziDAeIAnFSq7ODlk_dYkag09eL>.

[144] D Hough and E White, *The Green Deal*, House of Commons Library SN/SC/05763 (2014) 1.

[145] Warren, above n 143, at paras 20, 22-23.

[146] J Denny, 'Drivers for PU/PIR Insulation Board Industry in the UK and Beyond' *Urethanes Technology International* (London, 26 October 2015) <https://www.utech-polyurethane.com/information/drivers-for-pupir-insulation-board-industry-in-the-uk-and-beyond>. The views of Mr Warren are generally paraphrased, but direct quotation from him is placed in single inverted commas.

[147] Ibid.

> incrementally thicker … That is something that house builders absolutely do not want' … it was the need to balance the U-value with a thickness limit that led housebuilders towards PIR insulation boards".[148]

The influence of climate change policies on the choice of Grenfell cladding was raised in submissions to GTI on behalf of the Bereaved, Survivors and Residents group granted Core Participant status.[149] It was argued that the refurbishment was "a predictable, yet unintended consequence of [a] laudable desire to reduce carbon emissions"[150] which led to an "over-focus on sustainability, an ostensibly laudable aim, at the expense of fire safety".[151] The influence of these policies was, however, not merely not explored, but was all but completely ignored by GTI, the most substantial relevant statement in all of the 2,500 pages of the *Reports* being the brief reference to "environmental considerations" which we have discussed. This lack of interest in the vital role of climate change policy severely handicapped GTI by making it impossible to locate the fire within the imperatives of the nationwide cladding programme, and it is to the consequences of this for GTI's treatment of the regulatory issues considered in this article that we now turn in conclusion.

CONCLUSION

GTI has performed very great service by exhaustively revealing the facts of the Grenfell Tower fire. Its explanation of the fire is, however, fundamentally inadequate, and, following from this, its attributions of culpability for the fire to public bodies and private companies are so ill-balanced that they offer but little penetration into the issues raised. Compliance failures are attributed to competitive profit-seeking by private companies, and whilst this is undoubtedly right, it is so only up to a point, which GTI far exceeds by making, not ill-regulated profit-seeking, but profit-seeking as such the explanation of those failures. But we have seen that the very concept of regulation involves the channelling of private self-interest by sovereign public bodies, and GTI's effective reversal of the regulatory process has three predictable and unwelcome effects.

Generally describing profit-seeking in terms so pejorative as to connote criminal or serious criminal conduct, GTI fails to accommodate the variety of forms of non-compliance by private companies, and therefore the variety of appropriate public responses, though responsiveness to this variety has been the core theme of regulatory reform since the neo-liberal revolution. This not only has had the effect of undermining the response based on dialogue appropriate to non-compliance at the lower and broader level of the enforcement pyramid, but has the further paradoxical effect of undermining the possibility of prosecution for serious criminal offences for non-compliance at the pyramid's apex. When GTI established a *prima facie* case for such

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[148] Ibid.

[149] It is not possible here to address the considerable literature raising the issue outside of GTI.

[150] Team 1 of the Recognised Legal Representatives of the Bereaved, Survivors and Residents Group, 'Module 6 Written Opening Submission' (24 November 2021) para 1 <BSR00000096_BSR Team 1A - Phase 2 Module 6 Written Opening (Government, FRA, Testing and Certification) Submissions [Bindmans, Hickman & Rose, Hodge Jones & Allen].pdf>.

[151] Team 1 of the Recognised Legal Representatives of the Bereaved, Survivors and Residents Group, 'Opening Submissions to Module 1' (20 December 2019) paras 8.2-8.3 <https://assets.grenfelltowerinquiry.org.uk/BSR%20Team%201%20Mod%201%20Opening%20subs.pdf>.

prosecution, its exhaustive and objective account of the episode also showed that the public regulatory bodies were complicit in the private non-compliance in a way which must raise questions about the nature and extent of the private culpability.

The most serious shortcoming of GTI's approach is, however, its complete failure to locate the cladding of the Grenfell Tower within the national programme of cladding high rise buildings in pursuit of the Carbon Target. It is not possible to explain or evaluate the regulatory failure which occurred without placing it in this context. The cladding of tower blocks altered their structural nature, turning formerly fireproof buildings into buildings which could readily be destroyed by fire. In so doing, it also undermined the pillars on which fire safety rested: compartmentation and stay put. In the case of Grenfell tower, the particular cladding system used completely destroyed, not only the building, but fire safety within it. It was an unpredictable conjuncture of events that led the fire to occur at Grenfell on the night of Wednesday 14 June 2017, but the conditions for those events were established nationwide.[152] Objectively, it did not need hindsight to see that a fire of the magnitude that took place could result from the installation of cladding. But, of course, this result was not subjectively foreseen, and so stay put remained in place as the fire raged, and 70 people were killed. It is not possible to trace a mistake of this scale and scope to individual private companies or even individual quasi-public organisations charged with the regulation of those companies. It was a mistake of a national scale which could be made only by government operating at the macro-level.

None of this emerges from GTI, which thereby adds to the litany of the UK state's failures to understand its responsibility for recurring fiasco[153] and disaster.[154] An in itself justified, if poorly executed, criticism of the conduct of private companies by GTI is undermined by that conduct being given a role in the explanation of the fire which distorts the parts played by private and public bodies. This is acute further evidence that, after all the enormous effort of regulatory reform since the neo-liberal revolution, two errors, the identification of which were major stimuli of that revolution, continue to run through the practice of the new regulatory state. At the general level, there persists a gross imbalance between our keen perception of "market failure" and our poorly developed perception of "government failure".[155] More specifically, there also persists an underlying pervasive suspicion about the pursuit of private economic interest which has no parallel when it comes to governmental pursuit of the public interest.[156] The shortcomings of GTI emphatically demonstrate that adequate regulatory theory and practice requires a united approach which even-handedly weighs the positive and negative dimensions of both the private and the public in order to understand and evaluate the actions of either.

[152] A truly disturbing aspect of the fire which it has not been possible to examine here is that there were previous fires in the UK and internationally that should have led to the most thoroughgoing questioning of the cladding of tower blocks prior to Grenfell, but the response to these incidents by those involved in ensuring fire safety was, trying to choose the correct adjective whilst avoiding the benefit of hindsight (Phase 2, ch 8, para 31.), grossly inadequate: Phase 2, ch 2, para 5; Phase 2, chs 7-9; Phase 2, ch 75.

[153] M Moran, *The British Regulatory State* (OUP 2003) 171-79.

[154] P Dunleavy, 'Policy Disasters: Explaining the UK's Record' (1995) 10 *Public Policy and Administration* 52.

[155] EW Williams Jr and RH Coase, 'The Regulated Industries: Discussion' (1964) 54 *American Economic Review (Papers and Proceedings)* 192, 195.

[156] A Downes, *An Economic Theory of Democracy* (Addison Wesley 1957).