From	**Todd Bessemer, Brendan Ring, Terry Grimwade, Larry Ruff**
To	**Market Reform clients**
Date	**May 30, 2018**
Version	**1.1**
Re:	**Critique of IHS Markit Nuclear Resilience Paper**

1 Objective of this Paper

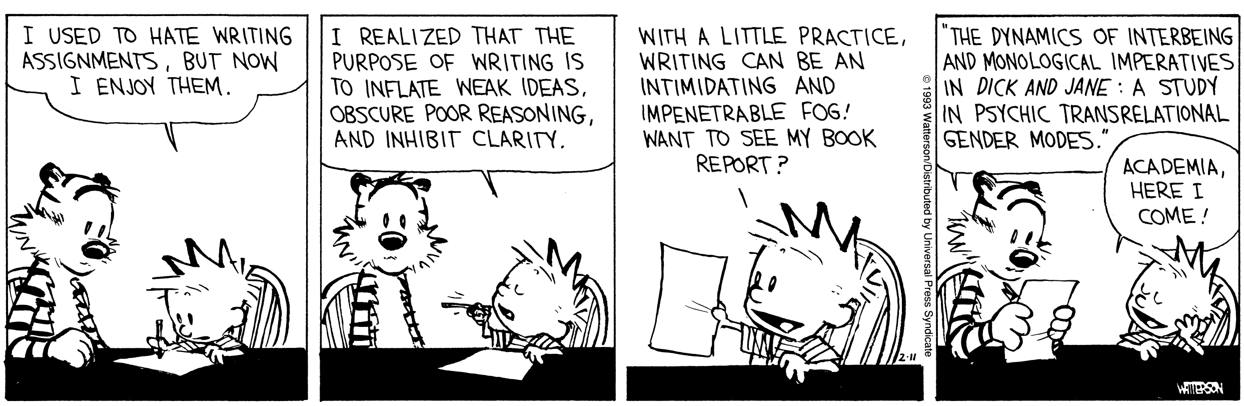
In April 2018, IHS Markit published a paper entitled "Ensuring resilient and efficient PJM electricity supply; The value of cost-effective nuclear resources in the PJM power supply portfolio"[1] (hereafter referred to as the "IHS Paper"). Several clients contacted Market Reform regarding the paper, expressing a concern that it presented a number of wrong-headed, anti-market ideas, and requesting our thoughts. This is our response.

2 Summary

Before getting started, we must declare an unashamedly pro-market view of the world – we don't just work on markets, we believe in them, and aim to expand their reach; a purpose embodied in our company's very name. Our arguments are flavored by this. Part of our annoyance with the IHS Paper is that it also is a clear advocacy piece, but attempts to sit behind a thin veneer of respectability created by its presentation as a quasi-scholarly work by a reputable consultancy.

In our opinion, the IHS Paper is a lengthy – all too lengthy – pleading for special treatment and out-of-market policy intervention to benefit nuclear plants in the PJM market. If this isn't concerning enough, the paper, pointing out PJM's flagship status, unabashedly presents this as the 'thin edge of the wedge' for extending its disturbing prescriptions to other markets.

With respect to substance, the few arguable points its authors make (e.g. the distortive effect of prior policy interventions) are mired in 37 pages of turgid exposition of every argument they seem able to conceive, from concocting a new form of social good ('production cost resilience') to the tiresome repetition of 'uneconomic closure', as some form of self-fulfilling tautological mantra. Most of the arguments presented are tendentious, and their supporting analysis weak and obscure.



Calvin and Hobbes © 1993 Watterson. Reprinted with permission of Andrews McMeel Syndication. All rights reserved.

[1] Lawrence Makovich and Benjamin Levitt, *Ensuring resilient and efficient PJM electricity supply; The value of cost-effective nuclear resources in the PJM power supply portfolio*, IHS Markit, April 2018.

Rather than attempting an exhaustive deconstruction, the following focuses on several major points we regard as both important areas of rebuttal and illustrative of the overall weakness of IHS's arguments.

3 Declaring closures "uneconomic" doesn't make them so

The mantra of "uneconomic closures" – recited, with its variants, 48 times throughout the document – forms the cornerstone of the IHS Paper, often as part of a circular argument that: closures result in uneconomic outcomes because the outcomes are the result of uneconomic closures. For those patient enough to make it through to page 27, though, we finally get a look-in on the central thesis – that the 'going-forward' cost of existing nuclear plant is cheaper than new capacity (principally combined-cycle natural gas). These conclusions, though, are based on poor data and dodgy statistics.

Fundamental to this assertion is the claim that the levelized annual cost of energy is $33.9/MWh for 'going forward' nuclear, and $52/MWh for new gas plant. There are several problems with this data:

- The levelized cost for new gas plant is at best dubious, and probably just plain wrong. The 2017 PJM State of the Market Report[2], published by the Independent Market Monitor, for example, provides a levelized cost of $37/MWh.
- The cost provided for existing nuclear plants is an average – in fact, what Huff, in his classic bestseller *How to Lie With Statistics*[3], refers to as "the well-chosen average", which when presented in a "gee-whiz graph"[4], gives the impression that all nuclear is cheap. However, the IHS Paper (Table 5) makes it clear that the average costs for multi-unit and single-unit nuclear are substantially different ($31.6/MWh and $41.4/MWh respectively), and in actuality each plant will have its own levelized cost.
- Generators don't offer into the capacity and energy markets as a technology-based bloc; they offer based on the economics and characteristics of their individual plants, which have different designs, ages, efficiencies, maintenance history and projected life, which can itself be a function of the organizations running them[5].

Thus the implication that all existing nuclear is cheaper than all new gas can be seen as inherently flawed. This quick examination indicates that there is at least a subset of nuclear plants whose costs exceed that of new entry, and whose exit would therefore be entirely economic. More importantly, actual PJM auction results bear this out. As best we understand, these are the same plants looking to exit the PJM market – not all nuclear, as the IHS paper might have us believe.

4 Confection of an entirely new 'social good'

In their paper, IHS concoct an entirely new social good, which they term 'production cost resilience', and attempt to impute a value to it. In doing so, they take the *de rigeur* term of 'resilience' – which, while ill-defined, is generally viewed as an extension of traditional 'reliability' concepts – and press-gang it into entirely new service. As defined, 'production cost resilience' seems to be the inverse of price volatility – a lack of movement in price in response to inputs. The argument for this new 'good' is nigh-on impenetrable, but seems to boil down to the contention that: consumers like a nice flat price; someone should take care of it for them, and; don't worry about using those pesky financial hedges.

In constructing this tortured narrative, the paper seems to miss some foundational tenets of energy markets:

---

[2] Monitoring Analytics, LLC, *2017 State of the Market Report for PJM*, Volume II, Table 7-8, p316.
[3] Darrell Huff, *How to Lie With Statistics*, W.W. Norton & Co., 1954.
[4] Ibid.
[5] Anecdotal discussions with investors, for example, indicate that Exelon is widely regarded as one of the best-run utilities in the US, First Energy one of the worst.

4.1 There is someone taking care of price volatility, and other complexities – the retailer

Regardless of a retail customer's attitude to price variation, and their willingness to respond to price signals – topics addressed in more detail in Section 3.5 below – the way to address this is not to suppress price fluctuation in the wholesale spot market by gerrymandering the fuel mix. This whole line of argument ignores the essential role played by retailers in energy markets, who intermediate between the complexity of the wholesale market and the goods and services desired by the end consumer. These frequently differ by class of consumer, based on the nature of their load(s), financial sophistication, appetite for risk, etc.. Knowing and meeting these needs is a retailer's essential function.

4.2 Variation has a value

In positing wholesale price volatility as an ill that needs to be remedied, the IHS Paper also seems to miss the point that price variation – both temporal and locational – is an intended feature of electricity (and gas) markets, and in and of itself is not a bad thing, providing the necessary signals to ration when supply is tight, purchase when plentiful, and invest at the right times and in the right places. This does not mean that the end consumer – and their retailer – does not care about volatility; there are important reasons to do so, including certainly of cashflows, etc. Which brings us to hedges…

4.3 Hedging is indispensable

IHS seem to suggest that in order to protect consumers from price fluctuation (for those who wish to be), retaining baseload physical nuclear can serve as a substitute for using hedging instruments. This is non-sensical. Any prudent electricity retailer requires a hedge portfolio of some sort.

This requirement isn't avoided just because nuclear is in the market mix; the spot price being hedged is a marginal price, and rarely set by (inflexible) nuclear plant. Nor is the required level of hedging affected by fuel mix. But, the appropriate hedging instrument is not a rolling month-ahead call option on natural gas, as suggested by IHS. If the desire is to insulate end consumers from power price fluctuations, the commodity to be hedged is electricity, not natural gas (even though correlated), and given the hedge is meant to be a financial substitute for baseload quantities, a simple swap/futures contract would suffice[6].

Further, IHS suggest that hedging is systemically more expensive than relying on good-old physical nuclear production. If this were truly were the case, nuclear plants should just get into the market and sell a few hedges, and their revenue worries would be solved. It similarly defies belief that a legion of energy traders would leave such a large arbitrage opportunity unexploited. IHS's assertion also fails to recognise the difference in economic value between physical plant output – which is subject to stochastic events, such as forced outages, with potentially severe financial consequences – and a financial product – which 'performs' without fail.

Finally, as part of their 'who needs hedges when you have a nuclear big brother' paean, IHS assert that futures aren't that good at predicting the spot price anyway. This seems to miss the entire purpose of forward trading. While convergence of futures and spot prices is important, particularly as the time of delivery approaches, the futures markets are not intended as some sort of infinitely prescient 'Magic 8-Ball' for prediction of future spot prices. They are a risk management tool that allow parties to secure risk to their cashflows. When selling electricity futures, the concern of the seller is not to exactly predict average spot prices in the delivery period, which may be years hence, it is to ensure that they lock in cashflows sufficient to service debt, pay for fuel (also hedged) and other costs, and lock in margin. When the actual 'spot' period arrives, this may mean the hedger 'leaves something on the table' versus going unhedged, or it may mean they 'dodge a bullet'. Either way, if they are effective traders they should have 'enough', and at much reduced risk.

[6] A call option requires the payment of an option premium, which depending on the strike price, could be substantial – and unnecessary in this instance, as the scenario painted by IHS is the replacement of nuclear generation, all of which is baseload. Thus, any related hedge is a proxy to baseload.

Ultimately, 'production cost resilience' is a rent-seeking attempt to fabricate a social good, the cost of which is then socialized to the market as a whole.

5 Appeals for policy-maker intervention, but only when it suits

Embedded within the IHS paper is a dichotomy. It decries the "distortions of wind and solar subsidies and mandates" and points out that the support which schemes such as Renewable Portfolio Standards (RPS) create for favored types of generators can suppress energy and capacity prices (as the favored class receive some of their revenues through a different source of cashflows). This is true[7]. However, the paper then goes on to propound further policy-maker intervention, arguing that "market interventions can offset the impacts of market distortions." In other words, policy-maker intervention is bad when it benefits others, but fine when it benefits me. It is hardly an argument from principle.

Sadly, this hypocrisy weakens what is probably the paper's strongest point – if CO_2-free generation is the environmental good that policy-makers are looking to encourage, then incentives that only support renewables are not treating all providers equally(though in some cases, this was the policy-makers' precise intent). In such case, a strong argument could be made for a zero-emission credit (ZEC) scheme, or similar mechanism, aligned with or replacing RPS. However, there is real danger doing this in a piecemeal, state-by-state manner. Generators with subsidizing cashflows in one state may suppress the energy market price in larger swathes of the market, impacting those in other states who do not receive those subsidies, which could lead to further rent-seeking subsidy requests, in a vicious circle. This creates a strong argument for regional action.

A related argument the paper fails to make is that of political risk. For plants built before renewable incentives were introduced – which would include all nuclear plants – there is an arguable case that this policy action has undermined their investment thesis after-the-fact[8]. When judged material, the most common remedy to such risk has been to make defined structural adjustment payments.

6 Creative carbon pricing

One of the stronger arguments in the IHS Paper is that nuclear closures and replacement by a natural gas-dominant fuel mix would result in an increase in CO_2 emissions. This is straight-forward enough. The problem comes in the paper's attempt to ascribe a value to this.

For the sake of this discussion, let us concede the premise that policy-makers will wish to see no net increase in CO_2 emissions, and are willing to act to ensure this. This is important because emissions permits, zero emissions credits and similar instruments are 'synthetic' commodities – they are defined administratively, have no physical or electrical form, and only have a value to the extent that policy-makers are willing to stipulate a requirement to hold them and penalties for not doing so[9]. Surely, then, the resultant CO_2-related cost of nuclear closure is the cost of abating these emissions to restore the status quo. In trying to arrive at a number, the IHS Study throws out several prices:

- "Implicit" prices of $220/MT as the cost of "policy-driven renewable resource development" (for which no source is given), and $59/MT, based on the cost of including renewables at a 15% ratio in the replacement resource mix.
- A "social cost of carbon" of $43/MT, derived from an environmental policy paper.
- Market prices of $3.50 - $8.50/MT, set in the RGGI market.

---

[7] In fact, it is the whole intent of the policy – to create a scheme that incents the development of favored types of generation. The directly foreseeable consequence is that less-favored generation is pushed out.

[8] Similar arguments were used by a number of utilities when competitive reforms were introduced, to claim 'stranded cost' reimbursement for investments made under the prior regulatory framework, which were rendered uneconomic.

[9] These penalties tend to define the price cap for the market, as beyond that it is cheaper to pay the fine than buy the product.

The paper's authors then proceed to select $43/MT, purportedly because it is the "midpoint estimate". This is statistics at its most unscientific, and smacks of what Huff[10] called the "sample with built in bias." Its effect pollutes all calculations thereafter, most particularly the claimed abatement benefit of $2 billion, which looks an order-of-magnitude too high.

In making an *economic* argument, a price set explicitly in a transparent marketplace is superior in every way to an implied price, or one inferred from an abstruse academic derivation of 'social cost'. Even considering that the need to procure extra allowances would drive the market price up, it is still certain to clear well lower than $43/MT – which is 11 times higher than the $3.79 price the last RGGI auction cleared at.[11] Taking this back to the argument for nuclear subsidies, if the aim is to achieve environmental policy at least cost, why would anyone in their right mind pay a nuclear plant $43/MT to remain operational for carbon abatement purposes, when they could buy emission allowances that achieve the same abatement[12] for an order-of-magnitude less?

7 Though shalt not take the name of the Consumer in vain

The IHS paper frequently invokes the consumer and consumer preferences. In attempting via inductive reasoning to divine these preferences, it often over-reaches in its conclusions.

For example, in trying to defend their invented good of 'production cost resilience', IHS argue that, because consumers have shown little appetite to take up wholesale price pass-through products, that they "do not have the flexibility to benefit from shifting electricity use through time…" This is another self-serving over-statement. Just because a residential or commercial consumer doesn't wish to reap the whirlwind and take full exposure to wholesale passthrough products, does not mean that they don't have some, or even considerable, flexibility to modify their consumption, and willingness to be exposed to associated price incentives. There is much evidence to the contrary.

As discussed in Section 3.2.1, bridging between the wholesale and retail markets, to offer products desired by end consumers, in a risk format suitable for them, is in fact the *raison d'etre* of electricity retailers (and aggregators, DR providers and similar entities). Such products have readily evolved in electricity markets with vibrant retail competition, and the ability to freely choose their retailer and the products they purchase is what gives consumers free expression of their preferences. IHS's paternalistic prescription doesn't offer consumers a choice, and pays no attention to their individual preferences and risk appetite. Instead, their answer is for nuclear plants to be subsidized to provide a socialized solution to a confected problem. But as Adam Smith said, "I have never known much good done by those who affected to trade for the public good."[13]

8 Is fuel diversity a public good worth paying for?

There has been considerable discussion in the electric industry in recent times concerning resilience, and the value (or not) of fuel diversity. The broad argument is that diversity guards from disruption to any one fuel source, and therefore is a good in its own right. But is this the real problem? If we were to look at the PJM system 20 or 30 years ago, it was not as diverse as it is today, being dominated by coal and nuclear (with a small amount of natural gas and hydro), yet there were no great calls to institute fuel resilience policies then. So what is different now?

The principal source of friction seems to have less to do with specific technical challenges, and more to do with the fact that the change is happening rapidly, and with it, a lot of existing incumbents are affected. The availability of cheap, plentiful natural gas, coupled with more efficient gas turbines, has dramatically changed the economics of gas-fired generation. Market competition has allowed (and incented) this

[10] Huff, op. cit.
[11] RGGI Auction 39, conducted March 13, 2018. Auction results at: https://www.rggi.org/auctions/auction-results.
[12] Emissions allowances achieve this by directing cashflows to other sources of abatement – the sellers of the allowances.
[13] Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, Book IV (2.9)

change to take place more quickly than any previous fuel shifts – a sign of dynamic efficiency, not of market ills. This has seen dramatic change in who is building generation, with most new generation in competitive regions now being built by more nimble merchants and power plant developers. None of this is an indicator of market failure – in fact, quite the opposite. However, many of the displaced incumbents originated in a world where revenues (and profits) were based on regulated cost approval, with risks borne by the ratepayer. The attempted flight back to regulatory protection looks like a reversion to default behavior[14].

This is not to suggest there are not genuine resilience challenges. Being a network-delivered commodity, natural gas has transportation and storage issues that are different to those of coal or nuclear. The commercial and regulatory regime for natural gas transportation is a legacy – of the period when pipelines weren't as significantly interconnected, supply was not as distributed, and consumption profiles were different, with peaks driven by winter heating – and as such, is not adequate for current challenges.

However, the right way to resolve potential fuel security issues associated with natural gas deliverability is not via some form of administratively determined, regulatorily enforced, and market distorting fuel diversity requirement. A better answer would be to directly address the reliability of natural gas delivery, to ensure it is adequate under current system dynamics. Electricity markets, with their strong reliability standards, provide a ready model. Regional operators for the interconnected gas system, or even better, combined gas/electric RTOs, offer a far more effective and market-driven solution, that would actually address the core issue at hand.

9 Consumer surplus without producer surplus; the sound of one hand clapping

One of the principal arguments utilized by IHS in petitioning for nuclear 'support' is that it would result in an increase in "consumer net benefit." This argument is constructed around the economic concept of 'consumer surplus'– the area between the demand curve and the 'market' price ('A' in Figure 1). This is one half of the overall concept of 'economic surplus'[15] or 'social benefit', the other component being 'producer surplus' – the area between the supply curve and the market price ('B' in Figure 1).

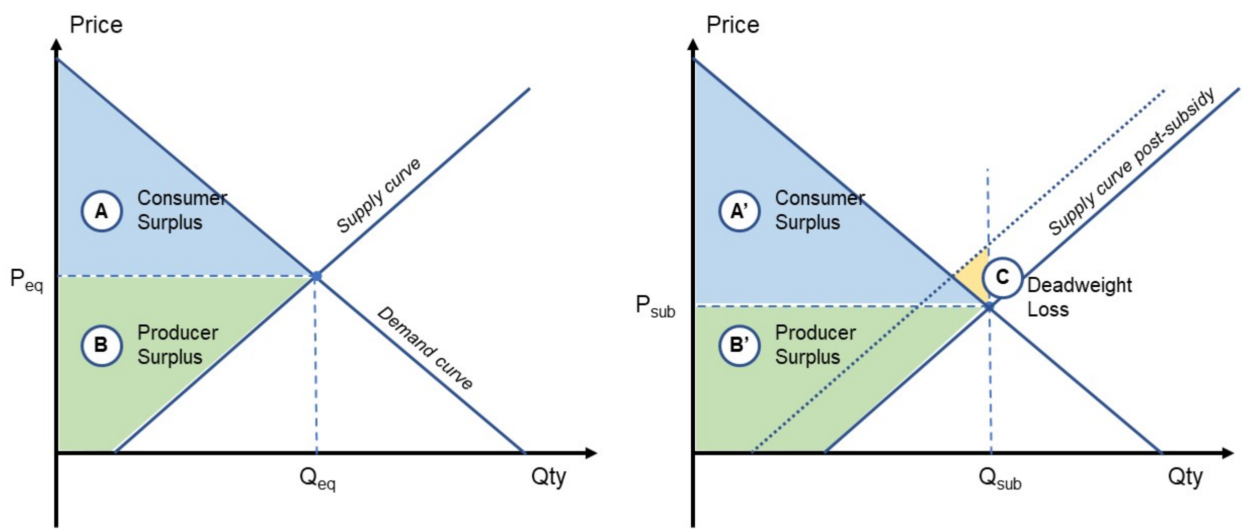


Figure 1 – Economic Surplus Before and After Subsidies

[14] A number of seminal studies have shown that regulation is typically sought by those companies seeking to gain protection from competition. See, for example: George Stigler, *The Theory of Economic Regulation*, Bell Journal of Economic and Management Science, Spring 1971.

[15] Also known as 'economic rents'

IHS argue that keeping nuclear in the market – presumably through some sort of out-of-market subsidy – can reduce prices and benefit consumers (even though consumers ultimately pay the subsidies). As a statement in isolation, this is essentially correct – in the same way that, if producers form a cartel to keep market prices high by paying some to withhold, all producers will benefit[16], if interested parties sway policy-makers to subsidize a subset of generators (whether they be nuclear or any other sort) and socialize the costs, in order to keep market prices low, consumers will benefit.

What IHS totally omits to mention, however, is that this benefit comes at the expense of producers. Subsidizing one form of generation in order to benefit consumers will harm all generators except those getting the subsidies. The net 'social benefit' of the subsidy – i.e., the gain in consumer surplus plus loss in producer surplus – will be much lower than consumer surplus alone, and most likely negative. In Figure 1 this can be seen as 'C', the deadweight loss, resulting from the cost of the subsidy exceeding the increase in producer and consumer surplus. In other words, society as a whole loses.

Ignoring producer surplus is a curious omission for an argument purportedly grounded in serious economics. Disguising this 'oversight' is the erroneous depiction of supply as a monolithic block[17], with the implicit assumption that all supply has the same $/MWh cost, equal to the average $/MWh cost, equal to the retail price, implying supply never earns any 'rent' (producer surplus). This is wildly misleading.

IHS's focus solely on consumer surplus seems to be begging a policy maker response that 'it's only consumers we care about anyway.' There are two problems with such a retort. Firstly, it is without economic justification. Secondly, it fails to consider knock-on dynamic effects. If producer surplus is reduced (for the unsubsidized) it can be expected to push otherwise economic plant out of the market in future periods, thus raising price – counteracting the supposed consumer surplus benefits of the initial subsidies – or inducing claims from additional generators for out-of-market support, thus eroding the integrity of market pricing.

10 Externalities and 'boiling the ocean'

The IHS paper states that power supply should be "affordable, reliable, resilient and environmentally responsible", and then proceeds to demand that all these factors be considered in the market solution through "prices that reflect all the costs of the grid-based security-constrained economic dispatch of the power supply portfolio." This evinces a lack of understanding of the fundamental mechanism underlying real-time market dispatch and pricing – the Security-Constrained Economic Dispatch (SCED) algorithm.

In most electricity markets, SCED determines market quantities and prices every five minutes. The solution itself is based on economic merit, subject to a range of system security constraints, related to network topology and capacity, plant characteristics, etc. Even if environmental policy targets were enshrined across the entire PJM region, they have a different objective, that works on an entirely different timeframe.

For example, if the goal is to enforce a requirement for 20% zero emissions power, the policy benefit is achieved if 20% of all MWh in a year (or other suitable timeframe) are produced from zero emissions sources; it doesn't require 20% every five minutes. The latter would make the system less reliable and drive up market costs for no additional environmental benefit. This was understood by policy-makers in the design of RPS and emissions trading schemes, which are typically based on annual targets with some 'banking' between years.

Trying to internalize a screed of additional objectives and constraints into the SCED is a recipe for making it unworkable. There is no great harm in complementary markets that clear independently and deliver cashflows through an alternate path – this is precisely how capacity markets work. The problem,

[16] Until someone goes to prison and/or gets fined. Both the Federal Trade Commission and FERC take a dim view of collusive behavior and strategic withholding.
[17] Makovich, op. cit., Figure 11.

as discussed in Section 3.3, arises when the overlay is applied inconsistently, e.g., in some states and not to others, thus suppressing the price for those who do not get to benefit from the alternate cashflows.

11 SuperVoLL

Value of Lost Load (VoLL) is a common electricity market concept, representing consumers' willingness to pay to avoid a supply interruption. It serves as a proxy for the price at which the market would be willing to involuntarily curtail load, and as such, is used as the price cap in a number of energy-only markets[18]. In attempting to ascribe a value for fuel diversity, IHS somehow arrive at a value for VoLL of $170,000/MWh. While it may serve the argument IHS is trying to make, such a dramatically high number is not supported by either prior studies or actual example.

For example, when conducting both a literature and macroeconomic analysis for ERCOT, London Economics International (LEI) concluded that "based on 2011 GDP figures, the state-wide and ERCOT-wide estimate for VOLL for C/I customers is in the range of $6,000/MWh"[19] and came up with a maximum value of $6,979/MWh. Even more importantly, the highest values of VoLL we are aware of in actual use in electricity markets – $9,000/MWh in ERCOT, A$14,200/MWh (~US$10,500/MWh) in Australia and NZ$20,000/MWh (~US$14,000/MWh) in New Zealand – are all an order-of-magnitude lower than the value proffered by IHS.

12 Creating an explicit product is not an "out-of-market" payment

In its denunciation of the California market the IHS Paper again overplays its hand, when it refers to the implementation of ramping products as "out-of-market payments for these selected attributes." This is no more an out-of-market payment than is a market in reserves or frequency regulation capability.

When electricity markets were originally established, certain characteristics were implicitly assumed to be provided by all generators – including dispatchability, inertia, and certain levels of reactive power – and as such, were considered to be included within the price paid for energy and not explicitly compensated. However, as the system has evolved, and in particular with the large-scale roll-out of intermittent renewables, some markets have found it necessary and/or equitable to specifically identify these characteristics as separate products, and establish markets to create incentives for their provision.

This is not the socialized smearing which 'out-of-market payment' implies – it is in fact the opposite; creating an explicit product with a transparent price. The trade-off is one of complexity and materiality. Creating additional products makes the market more complicated, and creates additional cost. It should only be undertaken when it is clear there is a material problem that requires correction.

13 Every fuel type has its extreme contingencies

One of the more entertaining vignettes in the IHS Paper is its positing of a multi-contingency doomsday scenario for gas generation, in which hydraulic fracturing leads to a seismic event, leading to a political backlash, leading to a ban, leading to gas shortfalls. However, nuclear power is also subject to the same sorts of contingencies. An earthquake and tidal wave could lead to the meltdown of a plant, eroding political support for nuclear power, leading to all nuclear plants in a country being shut down. But to-date, only one of these extreme scenarios has actually happened – guess which.[20]

Such events certainly are possible, and can be guarded against to some extent, though not completely, through more conservative reliability criteria. As such, it would be possible to plan for a system that could afford to lose all generators of a given fuel type for a sustained period, but it is doubtful the end consumer would be willing to pay for the necessary over-capacity. The accepted answer in most mature electricity

[18] Price caps are typically substantially lower in markets which also have capacity a mechanism/market, as these deliver an alternate stream of cashflows to support generator revenues.

[19] London Economics International, *Estimating the Value of Lost Load: Briefing paper prepared for the Electric Reliability Council of Texas*, June 17, 2013.

[20] See: https://www.britannica.com/event/Fukushima-accident

systems has been to define reliability criteria – which are reviewed and adjusted from time-to-time – to achieve a balance between contingency and cost.

14 Conclusion

The IHS Paper reads – for those willing to persevere through its 37 turgid pages – like a pre-ordained conclusion in search of whatever justification it can lay its hands on. It fails to make its case that diversity is actually a good worth paying for, and totally confects a new social good of 'production cost resilience', that has no merit. In the process, it seems to lack understanding of structures already present in energy markets to aid consumers and provide risk management; the retail function and financial hedging.

The paper does make the correct point that – assuming carbon-free generation is a policy goal – current incentives are not even-handed and fail to adequately recognize nuclear power in this mix. However, it then weakens its case by ascribing a carbon value of dubious provenance, rather than transparent market prices. Analytics are similarly weak elsewhere, particularly in attempting to argue that nuclear closures are uneconomic, where more accurate input data and an unpacking of the statistics shows this not to be so. Order-of-magnitude inflation of estimates seems to be a recurring theme.

The consumer is frequently invoked, presumably in an attempt to stir up regulatory sentiment, but the paper totally fails to show how its paternalistic and rent-seeking prescriptions would provide a better consumer outcome than the competition and choice that they already enjoy in many of the PJM states. Ultimately, the kindest thing we can say about this paper is that at least it avoided the old rent-seekers' shibboleth of 'jobs'.