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cc: Mr Eric Groom PSM, Mr Warwick Anderson

By email

Rate of Return: Assessing the Long-Term Interests of Consumers

Dear Clare, Eric and Warwick

It is disappointing that the Australian Energy Regulator (AER) has published its *Rate of Return: Assessing the Long Term Interests of Consumers – Position Paper* without consultation beyond the Consumer Reference Group (CRG) and Energy Networks Australia (ENA).¹ The AER did not explain why they ran this as a closed consultation. The only interpretation I can place on it is that the AER was responding to the four principles that the CRG developed in its submission on the review of inflation.²

In this note, I wish to query the AER's conclusion.

Summary of AER position

The AER has concluded that:

In our view, for the 2022 Instrument to advance the NEO and NGO to the greatest degree, the expected rate of return should be an unbiased estimate of the expected efficient return, consistent with the relevant risks involved in providing regulated network services.

¹ <https://www.aer.gov.au/publications/guidelines-schemes-models/rate-of-return-instrument-2022/preparation#step-76610>

² https://www.aer.gov.au/system/files/CRG%20-%20Submission%20to%20discussion%20paper%20-%202020%20inflation%20review%20-%20July%202020_0.pdf

If it does, then it will (all else being equal) promote both efficient investment in, and efficient use of, energy network services for the long term interests of consumers.

The AER reaches this position after a cursory consideration of the legislative provisions and the relevant second reading speeches. The AER also makes recourse to what I have elsewhere described as the 'Hilmer trilogy' and the 'Treasury troika' of the components of efficiency.³ The AER has also used two unusual concepts; 'unbiased estimate' and 'efficient return.'

As Senior Economist at Energy Consumers Australia, I wrote two papers on the interpretation and operationalisation of the concept of promoting the long-term interests of consumers⁴. In these papers, I noted that a Pareto optimal outcome (an efficient outcome) is one in which no consumer can be made better off without making another worse off. I then noted that the long-term interests of consumers are certainly being promoted when no consumer can be made better off without making any other worse off. Hence the concept of economic efficiency equates to the concept of the long-term interest of consumers.

This conclusion effectively dispenses with the need to second guess whether the phraseology of the objectives matters. It draws attention to the criteria which the objectives use to confine the long term interests of consumers, which I argued amounts to price and an overall quality vector. I concluded:

The Long-term Interests of Consumers are best promoted through economic efficiency. An economically efficient outcome (in either an effectively competitive market or a regulated monopoly) is one in which current and future consumers pay no more than they need to for the quality and reliability they want.

In this note, I hope to explain why this description is preferable and apply it to the rate of return. In doing so, I will go through the three elements of the AER reasoning referred to above. I will also outline how the CRG's principles are consistent with the National Electricity Objective (NEO) and the National Gas Objective (NGO).

³ Havyatt, D 2017, 'The Components of Efficiency', *Network: A publication of the ACCC for the Utility Regulator's Forum*, no. 62.

⁴ <https://energyconsumersaustralia.com.au/wp-content/uploads/Interpreting-the-Long-Term-Interests-of-Consumers.pdf> and <https://energyconsumersaustralia.com.au/wp-content/uploads/Operationalising-the-Long-Term-Interests-of-Consumers.pdf>

Statutory interpretation

The NEO was initially enacted as a market objective and was subsequently redefined – together with the NGO – as an objective of the relevant Law. In interpreting the objectives, the AER has relied heavily on the comments in the second reading speeches.

In statutory interpretation, the words of the legislation take primacy. Middleton J has noted 'the words and concepts in the law are often replete with history.'⁵ That is, the words used in the legislation need to be interpreted having regard to their use at the time of the passage of the legislation.

Additionally, Middleton directs us approvingly to Heydon J in *Lacey v Attorney-General (QLD)* on second reading speeches, who said:

Excessive recourse to second reading speeches is one of the blights of modern litigation. Modern legislation permits it, or is often assumed to permit it, to a much greater extent than the common law rules of statutory construction did. Experience is tending to raise grave doubts about the good sense of that legislation.

Despite his emphasis on interpreting the text and dismissal of the second reading speech, Middleton notes plentiful extrinsic material is relevant in interpreting the statute's words.

In many situations, the search for context will not be laborious. In others, it may involve considerable work and investigation. This may be inevitable – involving an examination of the state of the Law at the time of the enactment, historical development of the statute, international agreements (if relevant), extrinsic materials and enactment history. In some cases, this may involve obtaining a knowledge (even a detailed knowledge) of substantive common Law or equitable principles, and a common sense approach by the judge remembering the rule of Law.

Dharmananda encourages the use of a wide variety of parliamentary materials to place the words in the statute 'in context.'⁶ This includes explanatory memoranda, second reading speeches as sources of government intent, bills digests as sources of independent analysis, parliamentary committee reports and parliamentary debate.

The context of the enactment of the NEO and NGO is much broader than the second reading speech. In the case of 'access regimes'⁷ as introduced through competition policy reforms of the 1990s, at the start of this century, the Productivity Commission

⁵ Middleton, J 2016, 'Statutory Interpretation: Mostly Common Sense', *Melb. UL Rev.*, vol. 40, p. 626.

⁶ Dharmananda, J 2018, 'Using parliamentary materials in interpretation: insights from parliamentary process', *University of New South Wales Law Journal*, vol. 41, no. 1, pp. 4-39.

⁷ I place access regime in inverted commas because the Chair of the Australian Competition and Consumer Commission (ACCC) is adamant that the term only correctly applies to the pricing of essential services (bottleneck facilities) from an integrated monopolist who competes in downstream markets with access seekers. See <https://www.accc.gov.au/speech/competition-policy-workshop-infrastructure-access> for the distinction he draws between 'access regulation' and 'access regimes.'

(PC) considered the question of the objectives in its reviews of Telecommunications Competition Regulation and the Part IIIA National Access Regime.⁸

In AAPT's submission⁹ to the second of these inquiries (which I wrote), I argued that the Part IIIA Access Regime would benefit from having an objects clause that matched the objects clause in Part XIC (the telecommunications regime). The latter objects clause specified that the object of Part XIC was to promote the long-term interests of end-users of carriage services having regard to the promotion of competition, any-to-any connectivity and the economically efficient use of, and investment in, infrastructure by which listed services are supplied.

The PC acknowledged the value of the objects clause but saw fit in its 2001 report to recommend the following object clause:

The object of this Part is to:

- (a) promote economically efficient use of, and investment in, essential infrastructure services; and*
- (b) provide a framework and guiding principles to discourage unwarranted divergence in industry-specific access regimes.*

The Trade Practices Act was amended in 2006 (Act No.92) to include the objective in slightly different terms:

The objects of this Part are to:

- (a) promote the economically efficient operation of, use of and investment in the infrastructure by which services are provided, thereby promoting effective competition in upstream and downstream markets;*
and
- (b) provide a framework and guiding principles to encourage a consistent approach to access regulation in each industry.*

The underlined section is additional to the PC recommendation, though consistent with the PC's report that emphasised the purpose of access regulation to facilitate competitive markets.

Significantly in terms of timing, the antecedent to the objectives of the national energy laws is the Australian Energy Market Agreement (AEMA) entered into by Commonwealth, State and Territory Governments in 2004. The leaders of these governments included in the agreement an objective that gives primacy to the concept of the long-term interests of consumers, despite the live discussion about the form of object clauses. The object of the AEMA is shown in the box below.¹⁰

⁸ <https://www.pc.gov.au/inquiries/completed/telecommunications-competition> and <https://www.pc.gov.au/inquiries/completed/access>

⁹ https://www.pc.gov.au/inquiries/completed/access/submissions/aapt_limited/sub042.pdf

¹⁰ COAG 2004, Australian Energy Market Agreement, Council of Australian Governments.

Box: Objectives of the Australian Energy Market Agreement

2.1 The objectives of this agreement are:

(a) the promotion of the long term interests of consumers with regard to the price, quality and reliability of electricity and gas services; and

(b) the establishment of a framework for further reform to:

(i) strengthen the quality, timeliness and national character of governance of the energy markets, to improve the climate of investment;

(ii) streamline and improve the quality of economic regulation across energy markets to lower the cost and complexity of regulation facing investors, enhance regulatory certainty, and lower barriers to competition;

(iii) improve the planning and development of electricity transmission networks, to create a stable framework for efficient investment in new (including distributed) generation and transmission capacity;

(iv) enhance the participation of energy users in the markets including through demand side management and the further introduction of retail competition, to increase the value of energy services to households and businesses;

(v) further increase the penetration of natural gas, to lower energy costs and improve energy services, particularly to regional Australia, and reduce greenhouse emissions; and

(vi) address greenhouse emissions from the energy sector, in light of the concerns about climate change and the need for a stable long-term framework for investment in energy supplies.

The antecedent to the AEMA was the Parer Review. That review noted:

The Review has been informed by COAG's national energy policy objectives. Key among these is 'encouraging efficient provision of reliable, competitively priced energy services to Australians, underpinning wealth and job creation and improved quality of life, taking into account the needs of regional, rural and remote areas'.

COAG detailed the following principles to support the energy policy objectives:

- recognise the importance of competitive and sustainable energy markets*
- continually improve Australia's national energy markets*
- enhance the security and reliability of energy supply*
- stimulate sustained energy efficiency improvements*
- encourage the development of less carbon-intensive sources and technologies*
- recognise and enhance Australia's competitiveness in world energy markets*
- provide transparency and clarity in government decision making to achieve confidence in current and future investment decisions*
- consider the social and economic impacts on regional and remote areas*

- *facilitate effective inter-jurisdictional cooperation and productive international collaboration on energy matters.*¹¹

The Review further commented on the role of the newly formed Ministerial Council on Energy:

There is a need to have a common Ministerial approach on all electricity and gas issues within Australia. The objective is to have one policy on key issues, such as greenhouse, not several policies whose objectives can conflict.

These sections highlight that the policy intent was always much broader than a narrow efficiency criterion. It is noteworthy that managing greenhouse emissions has always been an intent of the market framework.

The South Australian Parliament enacts Australia's national energy laws. Other States and Territories incorporate them by reference. The Collective of Energy Ministers¹² (consider the draft legislation, but it is not subject to Parliamentary debate that would ensure that the words properly conveyed Ministerial intent. As a consequence, the legislation is not exposed to the level of scrutiny that other legislation faces. In particular, there aren't Parliamentary committee inquiries. Consequently, there are very few extrinsic sources to rely upon.

The legislation of the objective of the first of the national energy laws – the NEO – needs to be constructed in this context.

The National Electricity Objective

The objective of this Law is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to—

(a) price, quality, safety, reliability and security of supply of electricity; and

(b) the reliability, safety and security of the national electricity system.

The objective is not a narrow economic concept but a very broad one. The words starting 'for the long-term interests of consumers' are not mere decoration but are the statement of the ultimate goal as agreed by COAG leaders. To the extent that the object relies upon the concept of 'efficiency', it is noteworthy that legislation does not define the term. Miller's¹³ provides no elucidation in its commentary on section 44AA of the *Competition and Consumer Act*.

The AER, in turn, has relied upon another extrinsic source, the Hilmer Review, to find an expansion of the concept of efficiency. Ultimately, as we will see below in our

¹¹ These objectives were detailed in COAG 2001, COAG Energy Policy: Towards a National Energy Policy, Council of Australian Governments available at <https://www.pc.gov.au/inquiries/completed/gas/documents/coagenergypolicydetails.pdf>

¹² The Collective of Energy Ministers (or the Collective) is the term I use to refer to all the various names that have been given to meetings of Energy Ministers, especially since it now seems to have two names.

¹³ Miller, RV 2017, *2017 Miller's Australian competition and consumer law annotated*, 39th edn, Thomson Reuters.

discussion of the components of efficiency, it is extremely hard to identify an outcome that is uniquely the most efficient.

The components of efficiency

In a contribution to *Network*,¹⁴ I endeavoured to discover the origin of what I called the 'Hilmer trilogy' – the statement that there are three components of efficiency, allocative, productive and dynamic. The first discovery was that the Hilmer trilogy was simply a repetition of a Treasury submission, so I also named it the 'Treasury troika.' The specification in this form is almost exclusively found in Australia.¹⁵

Other contexts first distinguish between static and dynamic efficiency and then break these down into components of allocative and productive. But unfortunately, economic theory perpetuates a delusion that in competitive markets, both allocative and productive efficiency can be achieved simultaneously.

Allocative efficiency is achieved when prices equal costs or, more specifically, marginal costs. In competitive industries, all firms face slightly different marginal costs, and the market clears when price equals the marginal cost of the marginal firm. As a result, other firms make economic profits. Thus, allocative efficiency can be thought of as efficient prices.

Productive efficiency is achieved when output is produced at the least cost. As Leibenstein concluded that 'microeconomic theory focuses on allocative efficiency to the exclusion of other types of efficiencies that, in fact, are much more significant in many instances.'¹⁶ These labels, labelled X-inefficiency, were identified as existing in even competitive markets.

Just as we don't see allocative and productive efficiency in competitive markets, it is impossible to deliver both in economic regulation. Laffont and Tirole demonstrate that hidden cost and hidden effort problems result in regulators effectively trading off between efficient prices (*ex-post* rate of return regulation) and efficient costs (pure price caps).

In my article for *Network*, I also identified that dynamic efficiency isn't just the same as cumulative productive and allocative efficiency over time; it is more than just making the investments today for demand tomorrow. Dynamic efficiency properly understood is innovation in costs or product benefits. It isn't making the existing production technology work better; it is changing the production technology.

When we say the regulator has to exercise judgement when setting prices (or revenue allowances) for networks, this judgement is also about efficiency itself. It is about the choice between allocative and productive efficiency, and it is about creating the right environment for innovation and the realisation of dynamic efficiency.

¹⁴ Havyatt, D 2017, 'The Components of Efficiency', *Network: A publication of the ACCC for the Utility Regulator's Forum*, no. 62.

¹⁵ I recall Motta used it as well but I can't locate my copy to confirm. Motta, M 2004, *Competition policy: theory and practice*, Cambridge University Press.

¹⁶ Leibenstein, H 1966, 'Allocative efficiency vs. "X-efficiency"', *The American Economic Review*, vol. 56, no. 3, pp. 392-415.

Unbiased estimates and efficient return

The AER has expressed the view that for the energy objectives to be advanced to the greatest degree, 'the expected rate of return should be an unbiased estimate of the expected efficient return, consistent with the relevant risks involved in providing regulated network services.' Unfortunately, this includes two phrases that I find problematic; 'unbiased estimate' and 'efficient return'.

The word 'unbiased' comes from statistics. The Oxford Dictionary of Statistics describes the concept of 'unbiased' within the definition of an 'estimator', and the entry begins:

A statistic used to estimate a parameter. The realised value of an estimator for a particular sample of data is called the estimate (or point estimate).

If the expected value of the statistic is equal to the parameter then it is described as being an unbiased estimator and the realised value is referred to as an unbiased estimate. If T is an estimator of the parameter ϑ and the expected value of T is $\vartheta+b$, where $b \neq 0$, then b is called the bias and the estimator is a biased estimator. If the bias tends to 0 as the sample size increases, then the estimator is described as being an asymptotically unbiased estimator.

The efficiency of an unbiased estimator is the ratio of its variance to the Cramér–Rao lower bound (see Fisher information). For an efficient estimator the ratio is 1. The relative efficiency of two unbiased estimators T and T' is given by the inverse ratio of their variances.

For the AER to be producing an unbiased estimate, it must first generate a statistic (that is some kind of distribution) from which the expected value to be used as the estimate can be drawn. For the estimate to be unbiased, the AER would need to demonstrate that the expected value of the statistic equals the value of the parameter. This implies that the parameter has a value independent of the work of the AER.

This is problematic on two counts.

The first is the observation in the paper I co-authored with David Johnstone that notes the fundamental problem with estimating the market value of the cashflows of regulated firms – the cashflows have no existence independent of the regulator's decision.¹⁷

The second is that the AER's allowed rate of return is a composite of gearing, return on debt, risk-free rate, market risk premium and asset beta. To generate an estimator requires each of these to be described as a distribution and then combined. For the combined estimator to be unbiased would require each of the underlying distributions to be unbiased.

The primary technique used by the AER in generating values for these parameters is an ordinary least squares linear regression. This method does provide unbiased estimates (indeed, it is a best linear unbiased estimator – or BLUE). However, this is only true on the assumption that the error terms are normally distributed. Similarly,

¹⁷ Johnstone, D & Havyatt, D 2021, 'Sophistry and high electricity prices in Australia', Critical Perspectives on Accounting, vol. In press.

the CAPM assumes that the variance of returns is normally distributed. The latter is almost certainly not the case because of the asymmetric operation of efficiency incentives.

Finally, I note that the only regulator I am aware of that provides a distribution for its estimates is the Commerce Commission of New Zealand. That regulator consciously chooses the 66th percentile on the rationale that higher prices are preferred over the risk of under-investment.

From the AER's discussion, it appears that the interpretation it places on 'unbiased estimate' is one that is neither so high as to provide economic rents nor too low as to result in deterioration in reliability. This concept of balancing price and reliability is the interpretation of the long-term interests of consumers given in my papers for ECA.

The other problematic concept is 'efficient return' without any additional explanation of the word efficient. If we use the Treasury troika, we ask whether this is meant to be an allocative, productive or dynamic efficiency. As I have already noted, inducing investment is not a correct interpretation of dynamic efficiency. Inducing investment is a variety of allocative efficiency over time; that is, each period's static decision is efficient considering long-term consequences. Similarly, ensuring that there isn't excessive investment is a question of productive efficiency. Ultimately, the firm is compensated for capital at the lowest rate consistent with inducing the right amount of investment.

Using this interpretation, the phrase 'efficient return' also offers no additional value over and above the objective of balancing price and quality of service.

Interpreted correctly, the pseudo-scientific description provided by the AER of the realisation of the energy objectives in setting the allowed rate of return is a task the AER does not, and can not, complete. The artificial language is far better replaced by a straightforward statement that the objectives are best promoted by setting an allowed rate of return such that current and future consumers pay no more than they need to for the quality of service they want.

The CRG's Principles

As mentioned above, the CRG, in its submissions on the inflation review, proposed four principles to apply to the review.

In its introduction to these principles, the CRG noted:

Overarchingly, the CRG accepts the AER should apply a "high bar for change". We are strongly opposed to changes that are adopted in response to short term issues at the cost of longer-term predictability and transparency for investors and consumers.

The four principles were:

Principle 1 A regulatory framework serving the long-term interests of consumers must promote behaviours that engender consumer confidence in the framework.

Principle 2 Any change to the regulatory model must be tested against detrimental consumer impacts in relation to absolute prices and price changes.

Principle 3 Any change to the regulatory model must be tested against acceptable consumer impacts in relation to service standards.

Principle 4 Risks should be borne by the party best placed to manage them.

The line of reasoning should, however, work in reverse order. Although the principles collectively describe a high bar for change, they are not justified by the high bar for change. I will now demonstrate how each of the principles is a consequence of the objectives of the national energy laws.

A key tenet of any market arrangement is that consumers can have confidence in the market. I outlined this position in my paper *Contemporary Consumer Protections* written for ECA.¹⁸ This is a generic concept explaining that the function of consumer protections is to give consumers confidence in participating in the market, not to protect consumers from the market. However, energy law explicitly references this role.

In the Second Reading Statement that accompanied the introduction of the NERL, the Hon. J.D. HILL¹⁹ stated in relation to the objective of that Law:

The long term interests of consumers in competitive energy markets are promoted through the application and development of consumer protections to enable customers to participate in the market with confidence, support effective consumer choice and ensure ongoing access to energy on reasonable terms as an essential service.

While this statement refers to 'competitive markets', that is where consumers engage with energy. Consumer confidence in the retail market necessarily includes consumer confidence in price setting (allowed revenues) of regulated networks.

More directly, the references in the objectives of the energy laws to 'investment' do not exclusively refer to investments made by the supply side. As Biggar has argued²⁰, 'that natural monopoly regulation is often better understood as an attempt to protect sunk investments – in particular, the sunk investments made by the customers of the regulated firm.'

Small and large consumers make sizeable investments in the appliances that use energy, especially those for heating and cooling both large spaces and small (fridges and stoves). Consumers have to consider how much more they should spend to obtain an appliance with a higher efficiency rating. Price stability, or at least predictability, is an important part of this consideration. Efficient use of services is also dependent on consumers making efficient investment decisions.

Principles 1 and 2 flow directly from the need to provide confidence in the market and to provide stability or predictability for consumer investments.

The third principle is a corollary of the objective properly stated. Since the objective is to ensure consumers pay no more than they need to for the standards of service they want, it is, of course, important for the allowed rate of return to be tested

¹⁸ <https://energyconsumersaustralia.com.au/wp-content/uploads/Contemporary-Energy-Consumer-Protections-Paper.pdf>

¹⁹ <http://hansardpublic.parliament.sa.gov.au/Pages/HansardResult.aspx#/docid/HANSARD-11-6895>

²⁰ Biggar, D 2009, 'Is Protecting Sunk Investments by Consumers a Key Rationale for Natural Monopoly Regulation?', *Review of Network Economics*, vol. 8, no. 2.

against acceptable service standards. Here 'acceptable' must include the price to be paid for those standards.

The fourth principle that risks must be borne by the party best placed to manage them is a core economic concept. Risk technically means 'variance in outcomes'²¹ and 'managing risk' means the ability to influence the distribution of outcomes to reduce the variance. It is a principle of cost of capital that investors need to be compensated for risk (that is the underlying principle of the mean-variance portfolio theory that underpins the CAPM). Since productive efficiency means producing things at least cost (including the cost of capital), then productive efficiency is promoted when risk is borne by the party best able to manage it, that is, to reduce the compensation necessary for risk.

Therefore, the CRG's principles are entirely consistent with the objectives of the energy laws and my restatement of those objectives in consumer terms. Part of providing confidence to consumers (principle 1) is making decisions in terms accessible to consumers in general. A focus on explaining how decisions fit the principles is therefore essential.

Summary and conclusion

The AER has described the objective for the Rate of Return Instrument (RoRI) to advance the NEO and NGO in terms that are impossible to fill or determine. Where the AER has used the term 'unbiased', I think it is much clearer to go directly to the issues that need to be 'balanced' (i.e. a different version of unbiased).

However, the description of the objective I give may be criticised as being an overall object of economic regulation and insufficiently precise to cover just the allowed rate of return. The criticism is invalid because the allowed rate of return cannot be determined independently of the structure of the incentive schemes. As the Johnstone and Havyatt paper cited above also demonstrates, in the mean-variance that underpins the CAPM, investors required returns are based on their expectation of the mean and variance of future returns. If incentive regimes increase expected returns while not changing the variance, then the required asset-specific return (beta) will be lower.

Similarly, achieving the balance between price and quality is not just influenced by the incentives to invest (investment levels) but also in decisions on what to invest in and how to operate the business. These can be directly influenced by performance incentives (e.g. STPIS and the CSIS).²²

Therefore, the Allowed Rate of Return that best advances the achievement of the NEO and NGO is the rate of return that, when considered alongside other elements of the regulatory framework, results in current and future consumers paying no more than they need to for the quality and reliability they want. There is a 'hard stop' lower bound to the rate of return, based on the principle of financial capital maintenance.

²¹ Knight famously described risk as uncertainty to which a probability distribution can be applied. Knight, FH 1921, *Risk, Uncertainty and Profit*, Houghton Mifflin Company, Boston & New York.

²² The use of incentives implies that the business responds to the incentives. This opens up the question of the principal/agent relationship between the investors and network management. It is in the interests of investors to structure the incentives on management to motivate them to respond to the regulatory incentives - this includes investors who are State Governments.

However, this lower bound is arguably the return on debt. A regulatory commitment to financial capital maintenance with upside biased incentives would enable an entire project to be debt-financed.

As the Network of Illawarra Consumers of Energy submission on the AER's cashflows position paper (that I drafted)²³ noted, for the 2018 RoRI, the AER used the evidence that consumers were more concerned about price and prepared to risk some reduction in reliability for lower prices. The submission further noted that price decreases since then have changed the relationship to one where satisfaction with reliability is largely unchanged, but satisfaction with price has reached comparable levels.

I urge the AER to reconsider its decision on the criterion for setting the Allowed Rate of Return. The description of the task as currently proposed is not able to be delivered. The alternative proposed here is more robustly supported by the NEO and NGO as written and the extrinsic material that should be used in interpreting the objectives.

I apologise that I am providing this letter so far after the AER's determined its position. This lateness is primarily due to the failure of the AER to consult on the matter.



David Havyatt
Principal

²³

https://d3n8a8pro7vhmx.cloudfront.net/nice/pages/21/attachments/original/1626908084/NICE_Submission_on_Casflows_and_Term.pdf?1626908084

