I really like the graphical presentation's way of capturing MEV burn with builder kickbacks!

There seem to be two changes relative to my design:

1. the tipping mechanism is removed,
2. the proposer also gets a kickback if it selects the winning builder.

I consider the buffer as part of the kickback design, as proposed in the associated post comment you correctly link. I have some concerns with both changes to MEV burn with builder kickbacks that I will now outline.

1.

When it comes to removing the tipping mechanism, this is ostensibly done as a simplification. The post acknowledges that side channels will then be required in the case when MEV not accounted for in the bid at the observation deadline comes in after the deadline. In fact, side channels will be required for any attempt of the proposer and builder to interact, unless they are integrated—something which would simplify the process for these parties. A design requiring the proposer to operate side channels to sometimes maximize the value of the slot is also a design that rewards proposer sophistication. Due to these concerns, I have to question the value of removing the tipping mechanism. If the idea is to suppress tips administered before the observation deadline, then attesters can simply be tasked with summing the tip and the base fee of the bid when they observe it, and count this sum as the base fee when setting the floor.

2.

When it comes to giving a kickback also to the proposer, I make the following observations:

(A) Proposers will now be required to be more sophisticated and try to guess who actually won the attester auction (at least, they are advantaged by it). But the winner may not always be immediately clear. In MEV burn with builder kickbacks, they simply need to pick a payload with a bid above the base fee floor (like in the original design). The tip will then indicate to them which bid they should select, and the more sophisticated builder can thus communicate its assessment of the outcome of the attester auction through the tip.

(B) I also make a further observation pertaining to the ideal condition for burning MEV: when it is readily available already at the observation deadline and nothing more comes in thereinafter. If there is perfect competition among conservative builders, then all MEV can be burned in MEV burn with builder kickbacks in this scenario. If they are not conservative, more MEV than available will be burned (see further below for more analysis of bidding strategies in this mechanism). In the proposed design however, the proposer's cut will not be burned with conservative builders. The observation can be extended to more natural circumstances with some loss of generality along the way.

I will also provide a few more general comments pertaining to MEV burn with builder kickbacks.

soispoke:

We can draw several observations from this first example:

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- Kickback rewards determined by x

have to be high enough so that builders are incentivised to use the mechanism, rather than keeping the difference between the block's actual value and their b_{BF}

for themselves.

- After D

has passed, all the additional value captured in the last 2 seconds are redirected to the bid tip and goes to the proposer. This behaviour doesn't seem to be rational, and we suggest sophisticated builders will either increase their b_{BF}

to get a higher kickback, or keep the excess value to themselves rather than giving it to proposers via b_{tip}

.

Based on the last observation, we think builders will naturally tend to (1)

bid up to the expected full block's value in their b_{BF}

at D

to make sure it sets the highest BFF

and (2)

return little to no value to the proposer in their b_{tip}

. This is an issue, because it means proposers won't really have the option of selecting bids with the highest b_{tip}

. Instead, they'll be forced to choose the one bid that satisfies the BFF

, even if that bid's b_{tip} = 0

Let me counter these observations with some observations of my own.

Remember that builders can only include the available MEV in their payloads at the observation deadline. If they bid above available MEV when submitting the payload at the observation deadline, they must update the payload in a new bid after the deadline to actually attain that value. If they tip 0 when they update the bid, the proposer can grief the builder by selecting the payload presented before the observation deadline, thus depriving the builder of the MEV during the last seconds of the slot. The proposer and tentatively winning builder of the attester auction thus enter into an ultimatum game, wherein the builder must provide sufficient tips to incentivize the proposer to not grief it. We must thus assume that some of the value will flow to the proposer and some stay with the builder under equilibrium, since both parties can harm the other by not playing along. I make no judgment here whether it is desirable that either party attains the surplus. As discussed in my last comment, it is not a specific design goal of MEV burn with builder kickbacks to provide value from MEV to the proposer.

When it comes to the role of x

and its effect on the burn mechanism, I would also like to offer another perspective. If we describe the MEV extractable by a builder at the observation deadline as V_b

, the conservative builder (a builder that does not presume the ability to update the payload after the deadline) can bid \frac{V_b}{1-x}

, because they know beforehand that in the scenario where they win the auction, they recoup the kickback. If the best builder has an edge V_e

over the second best builder and is conservative, it in this scenario bids \frac{V_b-V_e}{1-x}

. Thus, there is no guaranteed profit for builders under perfect competition (this is self-evident once you think about it). As mentioned in the previous paragraph, if the builder wishes its bid to reflect the full expected MEV of the entire slot, V_s

, it should still make room for providing an anti-griefing tip t_g

to the proposer. Otherwise, even if there are no competing builders, the proposer can simply select the builder's bid from the observation deadline. The less conservative builder can thus bid a maximum of \frac{V_s-t_g}{1-x}

at the observation deadline. The minimum it can bid and still win the auction is instead \frac{V_s-t_g-V_e}{1-x}

. While x

thus can be compensated for in the actual bid (to quite some extent), a high x

can still have detrimental effects by making integration between proposer and builder favorable. This topic is beyond the scope of my comment, and a more detailed review will be provided in a post on MEV burn with builder kickbacks.

soispoke:

Proposer extortion games

(h/t Barnabé): Growing the pie and adding builder kickback rewards can lead to situations in which the builder enters side-channel agreements with the proposer to rebate some of the kickback rewards back to the proposer (e.g., "As a proposer, I will only select your block if you send half of your kickback rewards to me. Otherwise I'll just select another competing bid and you'll get nothing.").

There is no need for any side channel, this is what the tip is for. The proposer will never select a payload with a 0 tip unless forced by the mechanism and it is perfectly fine if it selects a competing bid that has also been able to provide a base fee above the floor. The winning builder of the attester auction is not entitled to win the proposer auction, but must earn this right (if it wants to get an updated payload included) by providing tips of size at least t_g

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soispoke:

Misaligned incentives

between builders and the proposer: There is a tension between betting the full expected block value in builders' BFF

at D

to win attester auction and giving tips to proposers. Under competitive settings, a plausible scenario would be proposer rewards going to or near zero. This situation could potentially encourage proposers to grief builders and opt for choosing their own payloads.

Aligning incentives between proposers and builders is not a design goal of MEV burn with builder kickbacks. A few of the design goals are to: (1) keep builders from cartelizing, (2) keep proposers from cartelizing with builders, (3) keep the MEV burn high, (4) make the smallest possible changes to the design, (5) ensure that blocks keep getting included in the blockchain in an orderly manner. The proposer cannot grief a builder by using their own payload unless they are able to bid up the base fee floor; and if so, they derive little to no value from the process.