

## Diana Gordon

I think there is real reason to doubt that the methanol from the proposed Kalama refinery will be used to produce plastics. I fear that it, or a large portion of it, will be used as vehicle or other fuel instead.

The reason is straightforward. There are several methods of producing olefins and they are readily available. In 2016, for instance, eighty-two percent of the world's most-used olefin, ethylene, was produced by steam cracking of naphtha and ethane. Naphtha is produced by refining crude-oil, and ethane is a co-product of natural gas production, both tried and true technologies. Only 2% was from methanol.

I think that China will decide that it makes more sense to go with the cheapest methods and use the Kalama methanol for fuel. I doubt that they would build any new coal-to- methanol plants at this point - they have pollution problems as well as a climate plan to go carbon neutral by 2060.

Methanol burned as fuel produces more GHG's than using it to manufacture plastics:  $2 \text{ CH}_3\text{OH} + 3 \text{ O}_2 \rightarrow 2 \text{ CO}_2 + 4 \text{ H}_2\text{O}$  - so we get  $\text{CO}_2$  which stays in the atmosphere much longer than methanol and has long-lasting global warming effects. Added to that, methanol has only about half the energy density of gasoline and therefore about twice the volume of methanol would be used to go the same distance as gasoline.

Using part or all of this product as fuel would seem, then, that the Kalama refinery would really be a fuel refinery and should be referred to EFSEC and the Governor to decide if we want to dump this amount of GHG's into the atmosphere.

We cannot be sure exactly what the Chinese will do down the road. We do know, however, that, if they do not abide by their agreement, there is no Olefin Police Force to ride in to rescue the climate from the added and illegal GHG's.

The climate problems this year - uncontrollable fires, early hurricanes, a lingering and devastating drought to name a few and all caused or exacerbated by climate change - all signal to us that this is the wrong time and the wrong place for this refinery. It is our time and our responsibility to wrap our arms around Washington's climate goals. We must do what we can to make fossil fuels and greenhouse gases problems that we are actively making progress against.

Please deny the Shoreline Permit for this plant.